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Automated Negotiation of Collaboration- Protocol Agreements Specification Version 0.02

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OASIS ebXML Collaboration Protocol Profile and Agreement Technical Committee

Date TBD

Status of this Document

This document specifies an ebXML SPECIFICATION for the eBusiness community.

Distribution of this document is unlimited.

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3 Introduction

3.1 Summary of Contents of Document

This document contains a specification for automatically negotiating the contents of an ebXML Collaboration Protocol Agreement (CPA)[ebCPP]. This specification is a component of the suite of ebXML specifications.

This document is organized as follows:

- Section 3 introduces the specification and discusses various procedural matters
- Section 4 summarizes the design objectives.
- Section 5 is a system-level overview.
- Section 7 discusses content of CPPs and CPA Templates with respect to negotiation.
- Section 9 discusses the CPA Template.
- Section 8 gives the rules for constructing a Negotiation CPA, the CPA that governs the negotiation protocol.
- Section 9 discusses conditions that must be met before negotiation can begin.
- Section 10 discusses negotiability of elements and attributes in the CPA.
- Section 11 defines and discusses the Negotiation Descriptor Document (NDD) that is used to describe offers and counter offers.
- Section 12 defines the contents of the negotiation Messages.
- Section 13 defines the negotiation protocol including the ebXML Business Process Specification Schema[ebBPSS] instance document that MAY be used to describe the negotiation transactions and their choreography.
- Section 14 discusses negotiation algorithms.
- The appendices include XML Schemas for the NDD and Negotiation Messages, the BPSS negotiation instance document, examples of an NDD instance document and negotiation Message instance documents, non-normative aspects of CPA composition, and a glossary of terms.

3.2 Definition and Scope of this Specification

The goal of this specification is to define a means of automatically negotiating the contents of a CPA. The focus is on negotiating both long-term partner relationships and spontaneous (perhaps for a single business exchange) relationships. Automated negotiation of CPAs is a critical element of spontaneous e-commerce since it will enable business to be conducted with minimal delay, as soon as two potential trading partners discover each other. Automated negotiation also will enhance the ability of an enterprise to maintain large numbers of partner relationships. It will reduce the need for manual intervention in maintaining those relationships, thereby simplifying life-cycle management of the relationships.

This specification defines the rules for automated negotiation of CPAs. It defines the negotiation protocol and the contents of the documents that are part of the negotiation protocol.

3.3 Document Conventions

Terms in *Italics* are defined in Appendix H, or in the glossary of the CPPA specification[ebCPP].

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Terms listed in ***Bold Italics*** represent the element and/or attribute content of the XML *CPP*, *CPA*, or related definitions.

In this specification, the term “item”, when used in the context of an *NDD* or counter offer *Message* denotes an element, attribute, or subtree that is negotiable.

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The term “BPSS instance document” refers to an XML document that is an instance document of the XML schema of the Business Process Specification Schema[ebBPSS] ebXML specification.

In this specification, indented paragraphs beginning with "NOTE:" provide non-normative explanations or suggestions that are not mandated by the specification.

References to external documents are represented with BLOCK text enclosed in brackets, e.g. [RFC2396]. The references are listed in Section 15.

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The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this document, are to be interpreted as described in [RFC 2119].

NOTE: Vendors SHOULD carefully consider support of elements with cardinalities (0 or 1) or (0 or more). Support of such an element means that the element is processed appropriately for its defined function and not just recognized and ignored. A given *Party* might use these elements in some *CPPs*, *CPAs*, negotiation *Messages*, or *NDDs* and not in others. Some of these elements define parameters or operating modes and SHOULD be implemented by all vendors. It might be appropriate to implement elective elements that represent major run-time functions, such as various alternative communication protocols or security functions, by means of plug-ins so that a given *Party* MAY acquire only the needed functions rather than having to install all of them.

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By convention, values of [XML] attributes are generally enclosed in quotation marks; however those quotation marks are not part of the values themselves.

3.4 Versioning of the Specification, Schema, and Related Documents

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3.5 Definitions

Technical terms related to the subject of this specification are defined in Appendix H. Technical terms related to Collaboration Protocol Profiles and Agreements and to the overall vocabulary of ebXML are defined in [ebCPP].

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3.6 Audience

One target audience for this specification is implementers of ebXML services and other designers and developers of middleware and application software that is to be used for conducting electronic *Business*. Another target audience is the people in each enterprise who are responsible for creating *CPPs* and *CPAs*.

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3.7 Assumptions

It is expected that the reader has an understanding of XML and is familiar with the ebXML CPPA specification[ebCPP].

3.8 Related Documents

Related documents include ebXML specifications on the following topics:

- ebXML Collaboration Protocol Profile and Agreement Specification[ebCPP]
- ebXML Business Process Specification Schema[ebBPSS]
- ebXML *Message* Service Specification[ebMS]

See Section [15](#) for the complete list of references.

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3.9 Acknowledgments

- To Duane Nickull, XML Global, for his ebXML Automatic CPA Negotiation proposal, Feb, 14, 2001.
- To The ebXML Business Process Team, for its automated contract negotiation pattern in [bpPATT].

4 Design Objectives

This specification defines the protocol, *Messages*, and documents associated with automatically negotiating the contents of a *CPA*. It does NOT define negotiation algorithms in detail. The negotiation algorithm is part of the private process at each *Party* and may embody private or proprietary strategies. This specification does define the rules that ensure interoperability between two *Parties*' negotiation algorithms.

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Following are the objectives for the design of this specification.

- The design is based on negotiating the contents of a *CPA* starting with a *CPA Template* (draft *CPA*) that one prospective trading partner sends to the other as an initial offer. See Section 6.2 for a discussion of *CPA* template and draft *CPA*. A *CPA* template contains elements and attributes that need to be negotiated with a prospective trading partner. A *Party* can publish a *CPA* template in a registry or can create one from its *CPP* and the prospective trading partner's *CPP*.
- The specification defines the negotiation protocol transactions and choreography by means of an ebXML Business Process Specification Schema[ebBPSS] instance document. However use of the BPSS instance document is not normative and other choreographies MAY be substituted by particular groups of Parties (e.g. industry vertical organizations).
- The negotiation protocol is governed by a *Negotiation CPA (NCPA)*. The *NCPA* is a standard ebXML *CPA* that defines a minimal set of function that all Parties can be expected to support without Parties having to negotiate the *NCPA* before negotiating the *CPA* for their Business collaboration.
- Avoid requiring changes to the *CPA* and BPSS specifications, at least for version 1 of the negotiation spec.
- Use deterministic algorithms
- The negotiation process should converge rapidly.
 - ◆ The process should either succeed or fail.
 - ◆ The process should invoke human intervention on failure
 - ◆ The design should avoid deadlock such as iterative loops that don't advance the state of the negotiation. An example is reiteration over the same offer or counter offer that was previously rejected by either or both parties.
 - The specification should state rules that avoid such iterative loops even if it is decided that automatic detection of loops is out of scope for version 1.
- It must be absolutely clear at any point in the negotiation which party (i.e., only one party) has the initiative to send the next request (counter offer).
 - ◆ The design should avoid race conditions in which both parties simultaneously send an a counter offer. The choreography should make this an error condition.

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NOTE: It is probably not possible to avoid or detect the case where two *Parties* send each other initial offers. This condition should be recognized by people.

- The design should minimize the amount of state that has to be saved.
- Offer rejection semantics should be strong; rejection should not be a tactical maneuver.

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Deleted: <#>When more than one result works, the protocol should rank them and find the fairest solution. ***ISN'T THIS REALLY A STATEMENT ABOUT THE NEGOTIATION ALGORITHM, WHICH IS MOSTLY OUT OF SCOPE?***
<#>The negotiation protocol should be described by a separate state diagram for each party (not of the process as a whole) since that is how it will be implemented.

5 System Overview

The CPA negotiation protocol begins when one *Party* makes an initial offer to a second *Party*. The initial offer consists of a CPA *Template* and a *Negotiation Descriptor Document (NDD)* that describes what is negotiable in the CPA template.

In the CPA negotiation protocol, a CPA *Template* is verified as suitable for both *Parties* and modified until a suitable CPA is constructed. It might also be discovered that agreement cannot be reached until one *Party* (or both) acquires additional software capabilities. The term “CPA *Template*” was chosen to emphasize its use as the starting point for CPA negotiation. In general, a CPA *Template* constitutes a proposal about an overall binding of a *Business Process* to a delivery agreement with some items left open; negotiation is then used to arrive at detailed values for the open items in order to achieve a final agreement. The NDD identifies what items have to be negotiated and defines ranges or sets of acceptable values for those items.

5.1 Main Components of CPA Negotiation

Figure 1 illustrates the main components of CPA negotiation.

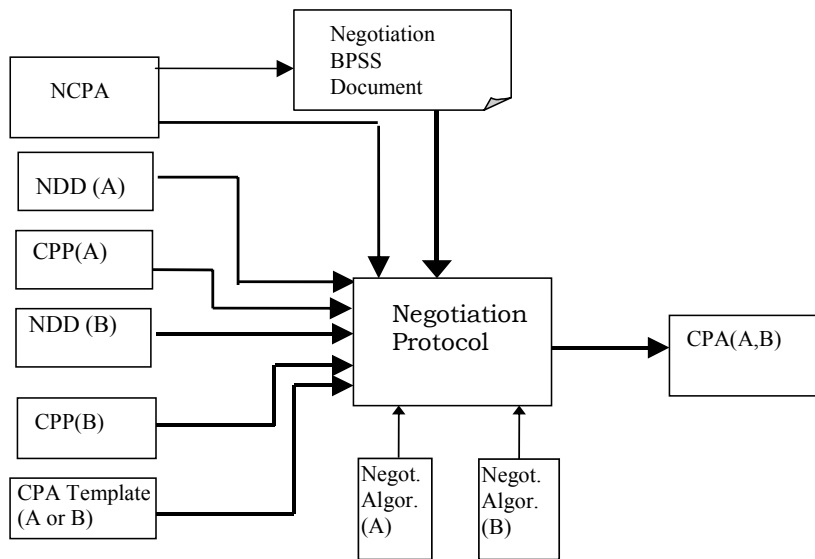


Figure 1. Components of CPA Negotiation

The following entities are shown in the figure:

- NCPA: The Negotiation CPA controls the negotiation protocol.

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- 319 • Negotiation BPSS instance document: An ebXML Business Process Specification
 320 Schema[ebBPSS] instance document that MAY be used to define the negotiation
 321 collaborative protocol. This BPSS instance document is referenced from an NCPA.
 322 • CPP: Parties A and B publish their CPPs in an ebXML Registry[ebRS] or otherwise
 323 exchange them when they discover each other.
 324 • CPA Template: A CPA in which some items remained to be filled in by one or the other
 325 Party, or negotiated between them.
 326 • NDD: The *Negotiation Descriptor Document*, a document associated with a CPP or a CPA
 327 template that defines what is negotiable, ranges of numeric values, etc. The NDD is used in
 328 the negotiation protocol.
 329 • *Negotiation Messages*: The Messages used to exchange offer and counter-offer information
 330 between negotiating *Parties*.
 331 • *Negotiation Protocol*: The collaborative protocol that produces a negotiated CPA. Although
 332 shown as a single box in this figure, the negotiation protocol is executed between the two
 333 *Parties* or between each *Party* and an intermediary.
 334 • Negotiation algorithm: The negotiation algorithm is the private process at each negotiating
 335 Party that implements that Party's private negotiation strategy. Note that the negotiation
 336 protocol is distinct from the negotiation algorithm. The former is the public protocol,
 337 captured by the BPSS instance document. Each Party uses its negotiation algorithm, in
 338 conjunction with the CPA Template, CPPs and the NDD, to arrive at an offer or counter offer
 339 in the negotiation protocol. The negotiation algorithm is out of scope for version 1 of this
 340 specification.

341 ▲
 342 ▼
 343 Two *Parties* can negotiate a CPA as follows. First, they publish their CPPs in an ebXML
 344 Registry, or similar registry, so that potential trading partners can discover them. A *Party* MAY
 345 publish an NDD along with the CPP. This NDD describes what is negotiable in the CPP.

346
 347 ▼ When *Party B* discovers *Party A* as a potential trading partner, *Party B* composes a CPA
 348 Template from its own CPP and *Party A*'s CPP. If *Party A* published an NDD along with its
 349 CPP, *Party B* MAY use the information in *Party A*'s NDD along with its own NDD in
 350 composing the NDD for the initial offer.

351
 352 ▼ Alternatively, *Party A* may publish a CPA Template and NDD. In that case, *Party B* creates an
 353 initial offer by filling in basic information about itself (e.g. its *Party* ID and transport endpoint
 354 address). It then creates a new NDD by adding its own negotiability information to that from
 355 *Party A*'s NDD.

356
 357
 358 In order to negotiate, Parties A and B have to establish an NCPA between themselves. The
 359 following procedure can be used.

- 360
 361 1. Parties A and B publish NCPA Templates (that they are willing to abide by) in a registry.
 362 These NCPA Templates are to be distinguished from regular CPAs by registry metadata.
 363 They are NCPA Templates (as opposed to NCPAs) because some of the information (such as
 364 the prospective trading partner's Party ID and endpoint address) is missing. In many cases, a

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Party's NCPA Templates might differ only with regard to which of several negotiation BPSS instance documents they refer to.

2. *Party B discovers Party A and wants to conduct trade.*

3. Party B chooses an *NCPA* template of *Party A* that it can live with (say, by looking at the BPSS instance document pointed to by this *NCPA Template*).

4. Party B then fills in this *NCPA Template* with its own name, endpoint address, etc. (so that now it becomes an *NCPA*) and sends it, along with a draft *CPA* and an initial *NDD* to Party A to start the negotiation protocol.

DOES STEP 4 ABOVE WORK? IS IT NECESSARY FOR PARTY A TO RECEIVE AND DEPLOY THE NCPA BEFORE PARTY B CAN SEND AN INITIAL OFFER?

The two *Parties* can then perform the negotiation protocol, exchanging counter offers until they create an agreed *CPA*. They are then ready to do electronic business.

5.2 Overview of CPA Negotiation

Figure 2 is a high-level view of the negotiation process. Following are some details of the negotiation process illustrated in .

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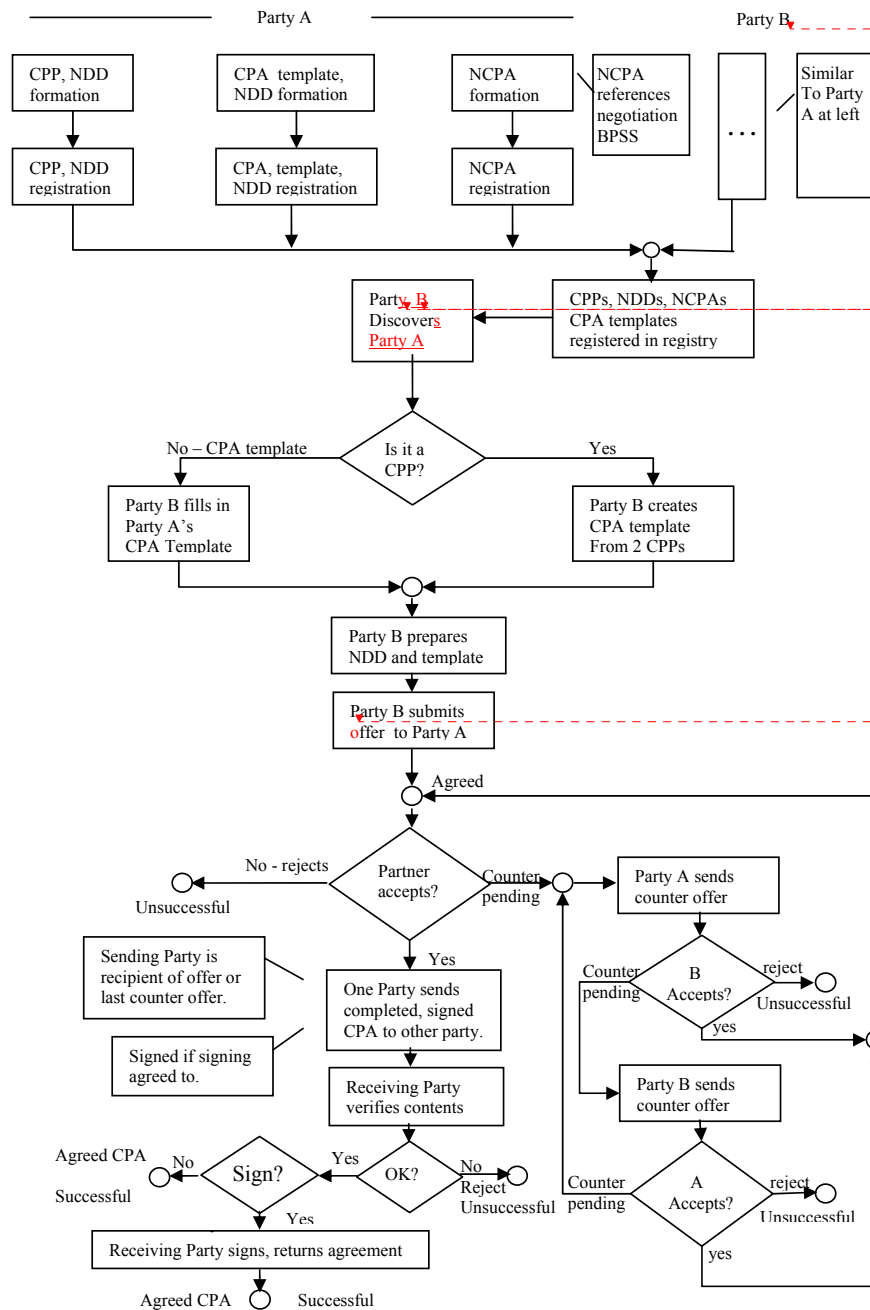
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Figure 1, Components of CPA Negotiation



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Figure 2, Negotiation Process

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- 385 •
- 386 • Initial inputs:
- 387 ♦ *CPPs* and the associated *NDDs* of two prospective partners or a *CPA Template* and *NDD*
- 388 that one partner provides to a prospective partner.
- 389 • For the case of the *CPA Template* and *NDD*, the *CPA Template* might be generated
- 390 by one of the *Parties*, might be a copy of a *CPA* used by someone else that is almost
- 391 exactly what is needed, or might be supplied by a third-party negotiation service.
- 392 ♦ Proposed Process-Specification document (BPSS instance document)
- 393 • The partners can negotiate about which BPSS instance document to use based on the
- 394 name of the BPSS instance document (i.e. syntactic negotiation) but not over the
- 395 details within a given BPSS instance document (semantic negotiation).
- 396 • One Party prepares a *CPA Template* and an *NDD* that describes what is negotiable and
- 397 submits the *CPA Template* and *NDD* to the other Party as an initial offer.
- 398 • The two Parties then exchange counter offers until they arrive at a mutually acceptable *CPA*.
- 399 Offer and counter-offer information is in negotiation *Messages* exchanged using negotiation
- 400 business transactions defined in the NCPA and BPSS instance document.
- 401 • Result of negotiation:
- 402 ♦ A successful result is a *CPA* that is ready to sign and use, possibly subject to human
- 403 approval.
- 404 ♦ An unsuccessful result means that agreement was not possible on some items in the *CPA*.
- 405 Possibly, further human interaction could resolve the incompatibilities.
- 406 • Concluding negotiation
- 407 ♦ The Party that received the last counter offer builds the complete CPA by filling in
- 408 details such as its Party ID and transport endpoint address and sends it to the other Party.
- 409 (If it is the case that no counter offers were received during the negotiation protocol, that
- 410 is, if the Party that received the initial offer accepted it without sending a counter offer,
- 411 that Party builds the complete CPA by filling in details such as its Party ID and transport
- 412 endpoint address and then sends it to the other Party)
- 413 • If it was agreed that the *CPA* is to be signed, the *Party* that sends the final *CPA* signs
- 414 it before sending it.
- 415 ♦ The other *Party* verifies the contents of the completed *CPA* including, perhaps validation
- 416 of the first *Party*'s signature. If these tests are successful, that *Party* signs the new *CPA*
- 417 (if signing was agreed to) and returns it to the first *Party*.
- 418 ♦ The two *Parties* now deploy the new *CPA* and begin doing business.

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the last counter offer builds the complete
CPA and sends it to the other Party. If the
Party that received the initial offer
accepted it without sending a counter
offer, that Party fills in details such as its
Party ID and transport endpoint address
and then sends it to the other Party. ¶

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Process¶

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5.3 CPP and NDD Formation and Editing

These are pre-discovery steps that are out of scope for the negotiation specification, they are included here in the interest of completeness. Following are the elements of *CPP* and *NDD* formation.

- CPP Template
 - ♦ Supplied with software installation (configured options)
 - ♦ Edited to reflect preferences
- NDD formation.

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429 ♦ Although *NDD* formation is out of scope, the *NDD* schema is a key component of this
430 specification.

- 431 • Tool for custom *CPP* formation
- 432 • Tool for *CPA* and *CPA Template* formation.
- 433 • Tool for *NDD* formation

- 434 • Service(s) for supplying *CPPs* or *CPA Templates*
 - 435 ♦ UDDI advertised, SOAP, ebXML, simple HTTP GET, and so on.

- 436 • ebXML Registry submission (publication)

437
438 In principle, a party should be able to publish both a *CPP* and a *CPA Template*. However, this
439 would lead to a problem that a given prospective trading partner might find either one. If a party
440 intends that some prospective trading partners negotiate with a *CPP* while other are expected to
441 accept a *CPA Template*, then the party should probably publish only the *CPP* and decide whether
442 to send a *CPA Template* based on its knowledge of who the prospective trading partner is.

443 5.4 Discovery of *CPPs* and *CPA Templates*

444 The discovery process is out of scope for the negotiation specification; it is included here in the
445 interest of completeness. Following are some points concerning the discovery process.

- 446 • The minimum requirement is to be able to perform an HTTP GET of a *CPP* from a URL
447 obtained by means outside the scope of this specification.
- 448 • UDDI ebXML Registry bootstrap. This permits *CPPs* to be advertised in either UDDI or the
449 ebXML Registry.
- 450 • Search and retrieval in ebXML registry or similar registry.
- 451 • Well-known address of the registry.
- 452 • Should/can a registry have any further role(s), perhaps as value-added services?
 - 453 ♦ Notification of *CPP* expirations?
 - 454 ♦ Accept filled-out *CPA Templates*?

455 5.5 Negotiation through an Intermediary

456 Negotiation through an intermediary (negotiation broker) is out of scope for this version of the
457 specification. A Message-forwarding intermediary that is not aware of the purpose of the
458 messages can be used if it conforms to the manner in which [ebMS] supports intermediaries.

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negotiation *CPA*. It may be possible to
use an intermediary if the interactions
between each *Party* and the intermediary
are defined by a separate *Negotiation*
CPA and a suitable BPSS instance
document.¶Formatted: Font: Italic, Complex
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6 CPA Template

This section provides an overview of the use of a *CPA Template*.

6.1 CPA Template and Draft CPA

The negotiation protocol defined in this specification is based on the use of a *CPA* that is incomplete in that items that are negotiable or must be filled in by the *Party* that receives an initial offer. Negotiable items can have “dummy” values that will later be replaced by the agreed values arrived at during the negotiation process. Such an incomplete *CPA* can be categorized as a *CPA Template* or a draft *CPA*.

A *CPA Template* will normally contain dummy values for the *Party*-specific values of the *Party* to which the *CPA Template* is being sent as well as dummy values for other items that the offering *Party* considers negotiable. A draft *CPA*, on the other hand, will typically have been formed by pruning and combining *CPPs* of each of the *Parties* in the negotiation process, and so can contain all “real” values. That is, using a *CPA Template* will typically require a counter proposal while using a draft *CPA*, the *Party* making the initial offer might only be asking for approval of the draft *CPA* rather than offering to negotiate some items. For convenience, both kinds of document, though having different origins, will be referred to by the term “*CPA Template*” because the process of negotiation proceeds the same way for either *CPA Templates* or draft *CPAs*. Sensible use of *CPA Templates* requires that the dummy values be indicated as negotiable and that acceptance does not occur until the dummy values have been replaced. In this specification, the *NDD* is the means of indicating what is negotiable.

A *CPA Template* can encompass a wide range of negotiating possibilities. At one end of the range, it might amount simply to a take-it-or-leave-it offer, its *NDD* indicating only those items that must be filled in to customize it to the other *Party*. At the other end of the spectrum, its *NDD* might indicate that virtually everything is negotiable.

In the simplest case, the accompanying *NDD* might be very simple and would simply indicate which elements and attributes need to be completed by the prospective trading partner, such as *Party* ID and transport endpoint address. For this case, the *NDD* facilitates identifying the items to be filled in, avoiding the need to label the items to be filled in within the *CPA Template* and the need to parse the *CPA Template* to find those items.

6.2 Advantages of Starting Negotiation with a CPA Template

If negotiation is performed with the two *Parties*’ *CPPs* and an *NDD* for each, everything in the *CPPs* is potentially negotiable and has to be considered during the negotiation process. The process of composing a *CPA Template* from two *CPPs* will often narrow down the amount of negotiation relative to the negotiation possibilities expressed in the *NDDs* that accompany the *CPPs*. The reason is that many of the differences between the two *CPPs* can be “mechanically” resolved by finding compatible choices and matching values of some elements or attributes. For example, there might be only one transport protocol that is common to the two *Parties*. After the *CPA Template* is constructed, a new *NDD* MUST be constructed that includes only the items in the *CPA Template* that remain to be negotiated.

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503 The result is that the non-controversial aspects of the agreement are recorded in the *CPA*
504 *Template* before negotiation starts. This simplifies the negotiating process by removing from
505 consideration all subjects that were resolved during the composition process. The negotiation
506 process operates on a smaller set of items and will converge rapidly. In addition, the process of
507 composing the new *NDD* will uncover any incompatibilities between the *Parties* before the start
508 of the negotiation process. The two *Parties* can either resolve those incompatibilities by human
509 to human contact or conclude that no resolution is possible, without having first to go through a
510 fruitless negotiation process.

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controversial items from the negotiation
process simplifies the ontology by
focusing attention on what is meant by
the items to be negotiated.

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6.3 CPA Template composition

512 Composition of a *CPA Template* is the same as composing any *CPA* from two *CPPs*. Appendix
513 E, “*CPA Composition (Non-Normative)*”, of [ebCPP] contains a detailed discussion of *CPA*
514 composition from two *CPPs*.

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516 See the *CPA*-composition appendix of [ebCPP] for information about error conditions that can
517 be detected during composition of a *CPA Template*.

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during CPA Template Composition¶

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INCLUDE A DISCUSSION OF
ERROR CONDITIONS THAT CAN BE
DETECTED DURING THE CPA
TEMPLATE COMPOSITION
PROCESS. ALTERNATIVELY,
SHOULD WE RELY ON THE CPA-
COMPOSITION APPENDIX OF
[EBCPP] FOR THIS INFORMATION?¶

7 CPP and CPA Template Content

This section discusses content of the *CPP* and *CPA Template* from the viewpoint of negotiability.

7.1 Validation of CPP and CPA Template

The rules discussed below ensure that the negotiable *CPP* or *CPA Template* can be validated by an XML parser while not appearing to constrain negotiability.

In general, since the negotiability details are provided in the *NDD*, it should be acceptable to include any valid arbitrary value or choice for a negotiable item in the pre-negotiation *CPP* or *CPA Template*. In other words, the *NDD* overrides what is in the pre-negotiation *CPP* or *CPA Template* for all negotiable items.

- Numerical values: Any valid value can be stated for a negotiable item in the pre-negotiation *CPP* or *CPA Template*.
- Cardinality: All acceptable choices that are to be negotiated must appear in the pre-negotiation *CPP* or *CPA Template*.

THE ABOVE MATERIAL WILL BE EXTENDED TO ENCOMPASS ALL NEGOTIABILITY PATTERNS THAT ARE IDENTIFIED.

7.2 Preference Order

Enumerations MUST always be stated in preference order (highest preference first). In most cases, preference order is REQUIRED by the CPPA specification[ebCPP]. Following are examples:

- PartyId* elements under the same *PartyInfo* element.
- CanSend* and *CanReceive* elements under the same *ServiceBinding* element (NEED TO VERIFY THIS)
- AccessAuthentication* elements under the same *TransportSender* element
- EncryptionAlgorithm* elements under the same *TransportClientSecurity* or *TransportServerSecurity* element.
- TransportProtocol* elements under the same *Transport* element
- AnchorCertificate* elements under the same *Certificate* element

7.3 Conflicts between two Parties' Preferences

When composing a CPA Template from its and another Party's CPP, a Party might encounter unresolvable conflicts. For example, Party 1 might allow alternative elements X and Y, with a preference for X while Party 2 might allow elements X and Y, with a preference for Y. In cases like these, the choice can be left open in the CPA Template and negotiated later.

7.4 CPA Period of Validity

The values of the *Start* and *End* elements in the *CPA Template* SHOULD be consistent with each other (start time must precede end time) and SHOULD be consistent with the expiration times of all the certificates. It is preferable that the *CPA* expire before any of its certificates

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RULES ARE NEEDED TO COVER SPECIFIC CASES. FOR EXAMPLE A RULE IS NEEDED TO COVER THE CASE WHERE

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559 expire. All of these times are negotiable but it will simplify matters if the times in the *CPA*
560 *Template* are mutually consistent. It should be understood that the ***Start*** and ***End*** elements do not
561 appear in the *CPPs*; they must be added when the *CPA Template* is composed from the *CPPs*.

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8 Negotiation CPA (NCPA)

The purpose of this section is to:

- Explain how to construct the Negotiation *CPA* such that it does not have to be negotiated;
- Explain the negotiation aspects of the *NCPA*. Principally, these aspects are the elements that define the interface between a *CPA* and the BPSS instance document, i.e., the *CollaborationRole*, *ProcessSpecification*, and *Role* elements.

In general, an *NCPA* SHOULD be the simplest possible *CPA* that conforms to the [ebCPP] schema. With the possible exception of selection of a negotiation BPSS instance document and *Party*-specific information such as *Party* name, *partyId*, and endpoint address, it should be possible for any pair of *Parties* to use it.

IT IS ESSENTIAL THAT EVERYONE REVIEW THE AND DISCUSS THE NCPA INSTANCE DOCUMENT.

The *NCPA* defines the interactions between two *Parties* that are negotiating the contents of a *CPA*. It identifies the BPSS instance document that defines the negotiation choreography. An example of an *NCPA* is in Appendix C.

The following are minimalist requirements on the contents of the *NCPA* that help avoid the need to negotiate the negotiation *CPA*. Depending on the particular function, negotiation can be avoided either by mandating choices or values in this specification or by mandating that a function with cardinality that includes zero be omitted.

THIS MATERIAL WILL BE EXPANDED AS NEEDED.

8.1 Document Exchange

The following rules eliminate the need for negotiating the document-exchange specifications for the *NCPA*:

- Omit the following child elements of the *ebXMLSenderBinding* and *ebXMLReceiverBinding* elements: *ReliableMessaging*, *PersistDuration*, *xxxNonRepudiation*, and *xxxDigitalEnvelope*. This means that reliable *Messaging* and *Message* security are not used.

THIS SPECIFICATION NEEDS TO STATE WHETHER OR NOT THE NAMESPACESUPPORTED ELEMENT IS REQUIRED OR MUST BE OMITTED. THE NAMESPACESUPPORTED ELEMENT CAN ALSO BE OMITTED UNLESS THE MESSAGE STRUCTURE USED FOR NEGOTIATION REQUIRES IDENTIFYING NAMESPACES FOR BODY PARTS.

- In the *MessagingCharacteristics* elements, specify the value “never” for the attributes *ackRequested*, *ackSignatureRequested*, and *duplicateElimination* (they are used only with reliable *Messaging*). For the *actor* attribute, specify either of the permitted values; this attribute is ignored when *ackRequested* = “never”.
THE VALUE OF THE SYNCREPLYMODE ATTRIBUTE SHOULD BE SPECIFIED IN THIS NEGOTIATION SPECIFICATION. IT SHOULD NOT HAVE TO BE

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NEGOTIATED.**THE FOLLOWING IS AN ALTERNATIVE THAT WOULD REQUIRE DEFINING A NEW BINDING IN THE CPPA SPECIFICATION.**

Messaging could be specified to use basic SOAP or W3C XML Protocol (when available). In this context, “basic” means that values or choices that normally have to be negotiated will either be omitted or will be given fixed values by this specification.

8.2 Transport

- Use HTTP PUT or POST to send a proposed CPA to a URL.
- The response to an offer or counter offer is always synchronous. This avoids the need for the responder to know the URL for a response.

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8.3 Packaging**COMPLETION OF THE PACKAGING DEFINITION (E.G. SIMPLEPART DEFINITIONS) AWAITS COMPLETION OF THE NDD AND NEGOTIATION MESSAGE SCHEMAS.**

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8.4 Security of Negotiation Protocol**THE FOLLOWING ARE PRIMARILY BOOTSTRAP ISSUES. MORE DISCUSSION AND DECISIONS ARE NEEDED.****WE NEED TO DECIDE WHICH OF THESE ITEMS ARE IN SCOPE FOR VERSION 1 AND WHICH MIGHT BE FUTURE WORK.****HAVE WE DEFINED WHAT IS NEEDED TO NEGOTIATE THE SECURITYDETAILS ELEMENT?**

- If both Parties have the same trust model, negotiation can proceed in a secure fashion.
 - ◆ An initial negotiation of trust anchors and other security matters might be needed. Consider exchanging this information dynamically, using *Message* exchanges.. The might be slower, but simpler, than putting it in the *NCPA*. This might involve human intervention to evaluate and accept the proposed trust model and then to configure the systems to use it for negotiation.
- One Party might have to add a new trust anchor proposed by the other Party.
- The signing certificate need not be the same as the others.
- Certificate validity.
- Are self-signed certificates permitted?
- For the initial version of the specification, omit document-exchange certificates.
- Signing of negotiation *Messages* has to be covered either in the *NCPA* or in the initial security negotiation mentioned above.

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Formatted: Font: Italic, Complex
Script Font: Italic**8.5 Explanation of NCPA Example**

The text of the *NCPA* example is in Appendix C.

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9 Pre-Conditions for Negotiation

This section discusses conditions that must be met before negotiation. If these conditions are not met, a successful outcome is unlikely. The discussions relate to *CPPs* or a *CPA Template* as appropriate

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The two partners must agree on what negotiation protocol to follow, i.e. what *NCPA* to use for negotiation. (The *NCPA* identifies the negotiation BPSS instance document to be used.)

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There must be a minimum level of matching (i.e. compatibility) between two *CPPs*.

- There MUST be at least one transport protocol in common.
- There MUST be a minimum level of compatibility between at least one *DocumentExchange* element in each *CPP* (***DETAILS TO BE DETERMINED***).
- **THIS LIST WILL BE EXPANDED.**

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Deleted: <#>There MUST be at least one certificate authority (CA) in common between two CPPs. The CAs are identified in the certificates referred to by AnchorCertificateReference elements.¶

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See Section 7 for related information.

10 Negotiability of CPA Elements and Attributes

THIS SECTION IS BASED ON THE WORK BEING DONE WITH THE CPA ELEMENT AND ATTRIBUTE NEGOTIABILITY SPREADSHEET.

This section discusses the negotiability of the different elements and attributes in the *CPA* and is concerned mostly with composing a *CPA* from two *CPPs*. It focuses on those cases that involve special considerations.

10.1 Enumerations

There are several cases of enumerations:

- Some enumerations are laid out in the *CPP* instance documents (e.g. certificates).
- Some enumerations are laid out in the *CPPA* schema itself.
- Some enumerations may be defined only in the text of the *CPPA* specification and would have to be put into the *NDD* schema.
- Some enumerations are not listed in full anywhere (e.g. the W3C forms of encryption algorithm name)
- Some may be defined elsewhere, perhaps as a set of URIs.

In some cases, especially those that are defined in the *CPPA* schema, only the items in an enumeration that are acceptable to the *Party* that is preparing the *NDD* instance document have to be listed in the *NDD*. An example is the versions of the specification that are acceptable to the *Party*.

The *CPPA* schema itself is input to the negotiation process. Therefore, enumerations that are defined in full in the *CPPA* schema don't necessarily have to be defined in full in the *NDD* schema.

10.2 CollaborationRole element and its child elements

The normal case is that the two *CPPs* are being composed into a *CPA*. Template specify the same BPSS instance document. In version 1 of this specification, the contents of the BPSS instance document cannot be negotiated using the negotiation functions defined in this specification. Two prospective trading partners SHOULD agree on the same BPSS instance document and assignment of roles before beginning to negotiate the CPA. In many cases, agreement will be established by the fact that the two prospective trading partners have compatible CollaborationRole subtrees in their CPPs. The following considerations relate to establishing compatible CollaborationRole subtrees.

- If both CPPs specify the same role (e.g. both specify "buyer"), the situation cannot be resolved automatically. Human contact is needed and one CPP must be changed to specify the other role.
- If both *CPPs* specify both roles (i.e. two *CollaborationRole* elements with opposite roles), this cannot be resolved automatically. Human contact is needed and the two Parties must agree on which Party plays which role.
- If *CPP A* specifies one role and *CPP B* specifies both roles, chose the role in *CPP B* which is opposite to the role specified in *CPP A*.

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Deleted: ; each one specifies a different role (e.g. "buyer" and "seller"). The following considerations apply to roles:

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- If both *CPPs* specify more than one *BPSS* instance document, but there is only one in common to the two Parties, use that one.
- If both *CPPs* specify more than one *BPSS instance* document that is in common to both of them, human contact is needed to decide whether all the common ones are to be used in the collaboration or which one is to be used.

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From the viewpoint of *CPA* composition and negotiation, the best practice is to include only one *BPSS instance* document in each *CPP*.

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NOTE: A Party can describe the Business Collaboration using any desired alternative to the ebXML Business Process Specification Schema. When an alternative Business-Collaboration description is used, the Parties to a CPA MUST agree on how to interpret the Business-Collaboration description and how to interpret the elements in the CPA that reference information in the Business-Collaboration description. The affected elements in the CPA are the *Role* element, the *CanSend* and *CanReceive* elements, the *ActionContext* element, and some attributes of the *BusinessTransactionCharacteristics* element. The two Parties also have to come to a common understanding of how to negotiate the negotiable elements and attributes whose interpretations are changed by the use of the alternative Business Collaboration description.

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10.3 Elements or Attributes whose Cardinality Includes Zero

Regarding elements or attributes whose cardinalities include zero (omission), the main negotiable thing is “presence or absence”. However, if it is agreed to include (one or more of) that element or attribute, it is then necessary to negotiate the value (or child elements in the case of an element) of each one that is included. *PersistDuration* is an example. If the two parties agree to include it, they then have to negotiate its value.

Deleted: While the choice of process-specification document is negotiable, the contents are not negotiable. Those BPSS attributes that can be overridden by corresponding attributes in the *CPA* are negotiable as attributes in the *CPA*.
IT IS TO BE DETERMINED WHETHER THE CHOICE OF PROCESS-SPECIFICATION DOCUMENT IS NEGOTIABLE IN VERSION 1 OF THIS SPECIFICATION.

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10.4 Values

For negotiating values, the negotiation depends on the type of value. It could be a range of values, a step size, members of an enumeration, etc. The type information is in the CPPA schema and may not have to be repeated in the *NDD*.

10.5 Items that are Referred to

NEGOTIATION OF ITEMS THAT ARE REFERRED TO (E.G. BY IDREF) IS AN OPEN QUESTION.

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10.6 Transport Endpoints

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Transport endpoints are not really negotiable since any *Party* can define whatever endpoints it chooses. There may be issues of matching endpoint characteristics. One example is the endpoint type. *Parties* may need to negotiate what endpoint types are used.

IT WAS NOT CLEAR TO THE SUBTEAM HOW MUCH USE WILL BE MADE OF ENDPOINT TYPES OTHER THAN “ALL PURPOSE”. FOR ITEMS WHOSE WIDE USE IS NOT CERTAIN, IT MAY BE BETTER NOT TO DESIGN IN DETAIL IN THE FIRST VERSION. INSTEAD, WE COULD INCLUDE A NON-NORMATIVE NOTE ON WHATEVER WE UNDERSTAND ABOUT EACH SUCH ITEM AND LEAVE IT FOR

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Automated Negotiation Specification

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FUTURE VERSIONS TO CONSIDER THE NEED TO NEGOTIATE IT.**10.7 Security**

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THESE POINTS NEED FURTHER DISCUSSION AND DECISIONS.

- Negotiation on certificates might require human contact.
- A Party's unwillingness to handle the proposed trust model is a reason for failure of the negotiation.

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10.7.1 Trust Anchors and Related Matters

This section discusses the kinds of negotiation that might take place for aligning *SecurityDetails* and *TrustAnchors* with various *CertificateRefs*.

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There are 3 major levels for alignments in public-key infrastructure (PKI). ***ALIGNMENTS OF OTHER SECURITY CREDENTIALS ALSO NEED TO BE DISCUSSED HERE.***

1. Transport-level security
2. *Messaging*-level security
3. Application-level security

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For transport-level security, (transient) encryption and authentication alignment are needed. Both server-side and client-side SSL or TLS need to have the trust anchors synchronized with corresponding certificates.

For *Messaging*-level (persistent) security, digital envelopes and non-repudiation (of origin and/or receipt) by means of digital signatures require alignment.

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For application-level (persistent) security, digital envelopes and non-repudiation (of origin and/or receipt) by means of digital signatures require alignment.

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Failure to validate a certificate need not prevent formation of a *CPA Template*. First, the sender's signing certificate can be a self-signed certificate. If so, a reference to this self-signed certificate can be added to the receiver's *TrustAnchors* and *AnchorCertificateRef* lists. This proposal amounts to proposing to agree to a direct trust model, rather than a hierarchical model involving certificate authorities. Second, a proposal to add a trusted root may be made, again by appropriate revision of the *TrustAnchors* element.

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As a result of the *CPA Template* formation process, various details could be up for negotiation. ***OTHER DETAILS ABOUT ALGORITHMS OR STRENGTHS NEED TO BE ADDED.***

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First, a change to the PKI might be proposed. For the self-signed certificate addition option, the negotiatee might want to:

1. Reject adding a self-signed certificate and indicate rejection of the security function resting

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on this PKI alignment

2. Insist on the proposer getting a certificate from an existing CA.
3. Propose issuing another certificate signed by an acceptable authority.

For case 1, the negotiation "space" would involve a change in the value of an attribute under ***BusinessTransactionCharacteristics***.

For case 2, the negotiatee would have to indicate rejection of the *CPA Template* and indicate that until the *CPP* certificate value changes, there will be no forward progress. The proposer would have to go out and get a new certificate.

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For case 3, the negotiatee would propose a different certificate issued by its own CA. The negotiatee would have to install it and use it for this transaction. This is not yet a common practice, though it is logically possible. This would involve one side being a CA for the business process and the ability of the other side to use more than one certificate for its existing key-pair. The *CPA* proposed to do this would go outside of anything strictly derivable from the *CPP* (only the old X.509 certificate would be used to put together a new X.509 certificate from a new issuer).

Next, for the PKI trust anchor certificate addition option, the negotiatee might want to:

1. Reject adding a new CA to its trust anchors and indicate rejection of the security function resting on this PKI alignment.
2. Insist on the proposer getting a certificate from some already trusted existing CA.
3. Propose accepting another certificate signed by its own signing authority.
4. Propose a different trust anchor either higher or lower in the validation chain than the one proposed by the other side.

Again, as for adding a self-signed certificate, for case 1, the negotiation "space" would involve a change in the value of an attribute under ***BusinessTransactionCharacteristics***. For case 2, the response would have to be rejection with a call for a change in *CPP*. For case 3, the negotiatee proceeds as described in case 3 above.

The new case 4 is logically possible but still exotic. In effect, the negotiation should not matter to the other side, because it is just an adjustment to which trust anchor is added to one side's PKI trust list and the certificate used would still validate to the alternative trust anchor. Yet it would reflect a slight change in security details.

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10.8 Discussion of Various Elements and Attributes

RULES FOR ADDITIONAL ELEMENTS AND ATTRIBUTES PROBABLY HAVE TO BE ADDED.

cpald: The value of the ***cpald*** attribute can be negotiated. In order to negotiate the value of the ***cpald*** attribute, it SHALL be a URI.

Start and ***End*** elements: The value of the ***Start*** element MUST precede the value of the ***End***

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element and the times stated in the **Start** and **End** elements MUST NOT be outside the certificate validity periods. If the values of the **Start** and **End** elements are negotiable, the **CPP** SHALL specify the earliest acceptable start time and the latest acceptable end time.
IS THE ABOVE DEFINITION CORRECT AND ACCEPTABLE?

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Status element: The **Status** element is not negotiable; its value identifies the state of the negotiation. The negotiation algorithm is responsible for changing the state at appropriate times.

defaultMSHChannelId: Since a delivery channel contains both *Parties*’ properties, the two *Parties* have to agree on both *Parties*’ default delivery channels. **MORE DISCUSSION IS NEEDED ON THIS SUBJECT.**

defaultMSHPackageId: **A USE CASE IS NEEDED.**

PartyId type: The **type** attribute of the **PartyId** element identifies the naming system to which the **PartyId** belongs (e.g. DUNS). The negotiation process SHOULD select one possible **PartyId** type for each *Party* and eliminate any others that are in the *CPPs*. Each *Party*’s **PartyId** type must be understandable by the other *Party*. Eliminating the others ensures that each *Party* will always use the same **PartyId** for the other *Party*.

PartyRef: **THE TYPE ATTRIBUTE OF PARTYREF NEEDS A USE CASE FOR NEGOTIABILITY.** One possible reason to negotiate is that a *Party* may not be able to understand the other *Party*’s **PartyRef** document. For example, the geographical contexts might not match. While negotiating the contents of the **PartyRef** document is out of scope for this specification, negotiating the contents might lead to negotiating the schema (type), which is in scope.

CollaborationRole: the cardinality is one or more.

version attribute of the **ProcessSpecification** element: The two *Parties*’ *CPPs* might specify the same BPSS instance document but different versions of it.

THE VERSION ATTRIBUTE OF THE BPSS PROCESSSPECIFICATION ELEMENT IS ACTUALLY THE VERSION OF THE SPECIFICATION. THE BPSS SPECIFICATION DOES NOT DEFINE A VERSION ATTRIBUTE OF A BPSS INSTANCE DOCUMENT. DECISIONS HAVE TO BE MADE ON HOW TO RESOLVE THE DISCREPANCY BETWEEN [EBCPP] AND [EBBPSS] AND THEN TO REWRITE REFERENCES TO THE VERSION ATTRIBUTE IN THIS SPECIFICATION. ONE SOLUTION IS TO CORRECT [EBCPP] TO REFER TO THE VERSION OF [EBBPSS] AND CHANGE THIS SPECIFICATION ACCORDINGLY. ANOTHER IS TO DEFINE A BPSS INSTANCE DOCUMENT VERSION AND CORRECT BOTH [EBCPP] AND THIS SPECIFICATION TO AGREE WITH THE BPSS SPECIFICATION. THE LATER SOLUTION IS FOR A FUTURE VERSION OF ALL THREE SPECIFICATIONS.

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name attribute of the **ProcessSpecification** element: This is not negotiable unless a future version of [ebBPSS] provides for more than one **ProcessSpecification** element in a BPSS

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instance document.

THE SUBTEAM HAS RECENTLY DISCUSSED THE POSSIBILITIES IN NEGOTIATING ABOUT WHICH BPSS INSTANCE DOCUMENT TO USE. FOLLOWING ARE THE POSSIBILITIES DISCUSSED:

- **ANY NEGOTIATION ABOUT WHICH BPSS INSTANCE DOCUMENT TO USE IS FOR THE FUTURE.**
- **PERMIT NEGOTIATING ON THE NAME ATTRIBUTE OF THE BPSS INSTANCE DOCUMENT, I.E. ON WHICH BPSS INSTANCE IS TO BE USED.**
- **PERMIT NEGOTIATING ON THE VERSION OF THE BPSS SPECIFICATION TO BE USED. (SEE 'VERSION ATTRIBUTE' ABOVE.**
- **REQUIRE THAT THE CHOICE OF BPSS INSTANCE DOCUMENT SHOULD BE LIMITED TO CHOICES THAT DO NOT REQUIRE CHANGES IN THE ELEMENTS AND ATTRIBUTES OF THE COLLABORATIONROLE ELEMENT. DURING THE DISCUSSION, IT WAS POINTED OUT THAT EVEN SUBSTITUTING A VERY SIMILAR BPSS INSTANCE DOCUMENT FOR ANOTHER COULD AFFECT WHAT IS DEFINED IN THE ACTIONCONTEXT ELEMENT. ONE POSSIBILITY IS TO STATE THAT THE ALTERNATIVE BPSS INSTANCE DOCUMENTS MUST BE STRUCTURALLY SIMILAR AND TO WARN THAT EVEN SO, CHANGES MIGHT BE NEEDED IN THE CONTENTS OF THE ACTIONCONTEXT ELEMENT; THE PARTIES WILL HAVE TO BE PREPARED TO NEGOTIATE ABOUT THE ACTIONCONTEXT ELEMENT.**

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ds:Reference child of *ProcessSpecification* element: ***IT IS TO BE DETERMINED WHETHER BOTH PARTIES MUST HAVE DS:REFERENCE IF EITHER HAS IT. IT HAS BEEN SUGGESTED THAT THIS IS NECESSARY SO THAT IF EITHER PARTY VALIDATES THE BPSS INSTANCE DOCUMENT USING DS:REFERENCE, BOTH PARTIES SHOULD VALIDATE.***

Role: The two *Parties* have to have opposite roles in a collaboration. This MUST be validated. ***THERE IS NO KNOWN USE CASE FOR NEGOTIATING IT.***

ApplicationCertificateRef: This is negotiable because one party's certificate authority might not be acceptable to the other party. The value of the *certId* attribute could be an enumeration of possible certificates. There can be zero or more *ApplicationCertificateRef* elements.

ThisPartyActionBinding: In general, each *Party* has to know the name that the other *Party* uses for each action but they don't need to negotiate since there is no reason for the names to match.

PackageId might be negotiable.

ActionContext: This is not negotiable. If BPSS is not being used, ignore the *ActionContext* element.

CollaborationActivity: This allows a *Party* to specify a complete path inside the BPSS instance document. **Its value is completely determined by the structure of the BPSS instance document**

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927 | ~~and is therefore not negotiable.~~

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929 | *channelId*: The *Parties* can negotiate ~~which delivery~~ channels to use or add new ones.

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931 | *Certificate*: An enumeration of *keyinfo* types might be useful to help decide which certificates
932 | are acceptable.

934 | *DeliveryChannel*: Cardinality is negotiable. It is suggested that a new delivery channel be
935 | created rather than modifying an existing one.

937 | *Signing the CPA*: Negotiation of signing is accomplished by negotiating presence of the *CPA*
938 | *Signature* element and its child *ds:Signature* elements. See Section 13.13 for details.

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940 | *Comment*: [ebCPP] states that all comments in both *CPPs* SHALL be included in the *CPA*
941 | unless the *Parties* agree otherwise. Therefore, each *Comment* element is separately negotiable.
942 | Since comments are arbitrary text strings, negotiation about *Comment* elements MUST be by
943 | human to human contact.

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11 Negotiation Descriptor Document

The *Negotiation Descriptor Document (NDD)* describes what is negotiable in the accompanying *CPP* or *CPA Template*. It SHALL describe only the negotiable elements and attributes and SHALL omit those elements and attributes that are not negotiable.

The *NDD* identifies the *CPP* or *CPA Template*. The *CPP* or *CPA Template* does not identify the *NDD* since a party may have many different *NDDs* associated with the same *CPP* or *CPA Template*. These could be for different negotiation processes, different categories of partner, etc.

11.1 Use of NDD

- An *NDD* can be placed in a registry along with the *CPP*. The *NDD* and *CPP* would have to be connected by registry metadata. Alternatively, a *Party* might choose not to include an *NDD* in the registry. Instead, when a *Party* is discovered by a prospective trading partner, the *NDDs* can be exchanged prior to the opening step of the negotiation. This permits a *Party* to send an *NDD* that it considers appropriate for the particular prospective trading partner.
- An *NDD* is sent from the *Party* making the initial offer to the other *Party* during initialization of the negotiation protocol. After that, the *NDD* is not modified during negotiation and is not again sent from one *Party* to the other. All information about the state of negotiation of the negotiable items is exchanged in the negotiation *Messages*.

NOTE: This means that an item which is initially not negotiable cannot be made negotiable during the negotiation protocol.

11.2 General Principles of Contents of NDD

The *NDD* has been defined in an abstract manner to enable it to be applied to any kind of XML agreement. This avoids the need to define a new *NDD* schema for each kind of document to be negotiated.

NOTE: The abstract level of the *NDD* is an opportunity for tool vendors to produce *NDD* composition tools. Such a tool would have a GUI that would tailor the view of the *NDD* to the specific kind of document to be negotiated. The tool would reference the schema of the document being negotiated along with the *NDD* being constructed, which should supply it with sufficient information to make the views understandable by someone who is composing an *NDD*. This would enable that person to communicate with the tool in terms of the specifics of the document to be negotiated. The tool could then construct the *NDD* instance document in accord with the *NDD* schema.

The *NDD* references both the *CPA Template* and the *CPPA XML* schema.

The *NDD* consists of a variable length (cardinality 1 or more) set of [XPATH] expressions, each of which refers to a negotiable element or attribute.

With each XPATH expression, the negotiability of the element or attribute is defined by child elements. These child elements represent the negotiability characteristics of the element or

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attribute identified by the XPATH statement. Examples are:

- Cardinality (range of permitted cardinalities)
- For a numeric value, minimum, maximum, and negotiation step size
- For choices, XPATH statements, ID attribute values, qnames, element values, etc. which identify the specific choices within the document being negotiated. Examples in the CPA are certificates, delivery channels, transport protocols, and signature algorithms.

The following rules define what is negotiable at the point referenced by an XPATH expression:

1. If the XPATH expression references a non-leaf element, that element, and the whole sub tree below that element, are negotiable.
2. If the XPATH expression references any attribute, it means that only that attribute is negotiable and doesn't imply anything about the containing element or the rest of the sub tree descended from the element containing that attribute.
3. If the XPATH expression references a leaf element, only that element and its contained attributes are negotiable.

11.3 Composition of an NDD for a CPA Template

Formally, the negotiation defined in this specification begins when one *Party* presents an initial offer, consisting of a CPA *Template* and its NDD, to another *Party*. However, the following RECOMMENDATIONS on constructing an NDD for a CPA *Template* might facilitate the negotiation process.

If the initiating *Party* has access to the other *Party*'s NDD that goes with its CPP, the initiating *Party* SHOULD use both its and the other *Party*'s NDD to establish the NDD and CPA *Template* to be used as the initial offer. The new NDD would be a composite of the two sets of requirements that is acceptable to both *Parties* as a starting point in negotiation.

If *Party A* is composing the NDD of the CPA *Template*, *Party A* SHOULD exclude from the new NDD anything that *Party A* understands (from *Party B*'s NDD) is not negotiable or is unacceptable to *Party B*. For example, for an enumeration, the new NDD SHOULD include only those choices that are common to both of the original NDDs. For a range of values, *Party A* SHOULD put in the new NDD only the common range. If, for some element, *Party A* had specified values of 1-9 and *Party B* had specified values of 3-12, the new NDD SHOULD specify values 3-9. The intersection process might identify items with no common ground, making successful negotiation unlikely.

Party A SHOULD NOT include items in the new NDD that were not in *Party B*'s original NDD because *Party B* did not intend to negotiate on the items that it did not put in its original NDD. For those items that were not in *Party B*'s initial NDD, *Party A* MUST either accept what is in *Party B*'s CPP or recognize that there is an irreconcilable conflict.

Deleted: If a non-leaf element is referenced, its child elements SHALL NOT be referenced since that could introduce contradictions. In other words, a non-leaf element cannot be negotiable independent of its descendants. ¶

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Deleted: It is RECOMMENDED that when *Party A* composes a CPA template and NDD for an initial offer to *Party B*, *Party A* take into account the requirements expressed in the NDD that goes with *Party B*'s CPP (if available).

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Note that it is not mandatory for *Party A* to take *Party B's NDD* into account in composing the *NDD* for the *CPA Template* since incompatibilities will anyway be removed during the exchange of counter offers. However, taking *Party B's NDD* into account will speed up convergence (or recognition of fatal incompatibilities) and reduce the possibilities of unnecessary rejects during negotiation. In other words, composing a *CPA Template* and combined *NDD* before starting negotiation simplifies the negotiation process by:

1. Removing subjects from negotiation that can be handled by simple matching.
2. Quickly recognizing the existence of fatal incompatibilities. For fatal incompatibilities, human to human contact to resolve the *incompatibilities* is RECOMMENDED.

11.4 Explanation of Contents of NDD

This section discusses the schema and *example of an NDD instance document*. See *Appendix A* for the schema and *Appendix E* for an example of an instance document.

The NegotiationDescriptor element is the top element of an *NDD*. It is a container element, that contains one or more instances of the negotiable parts, called *NegotiableInformationItem* elements. The *documentLocation* attribute of the *NegotiationDescriptor* element is a URI that points to the XML document to which this *NDD* document corresponds. For instance, if the *NDD* pertains to a *CPA*, the *documentLocation* attribute points to that *CPA*.

Each *NegotiableInformationItem* element contains an *xpath* attribute that identifies the negotiable information item with respect to the document pointed to by the *documentLocation* attribute of the *NegotiationDescriptor* element.

Each negotiable information item (which could be an XML element or an attribute) is one of the following types, depending on what kind of negotiation that one needs to perform on this negotiable information item.

1. Value: For negotiating the value of the item.
2. UnorderedValue: For negotiating the presence or absence of a member of a set of unordered values.
3. OrderedValue: For negotiating to choose among the members of a set of ordered values, where the preference is of a simple kind (namely, a preference for earlier values or later values in the set).
4. ValuesWithPreferenceMeasure: For negotiating to choose among the members of a set of values, where the preference measure is of a more complicated nature (for instance, expressed by a piecewise linear function or a function defined by an equation).
5. PresentOrNot: For negotiating the presence or absence of a value. This type allows one to express that a party (a) insists that a value must be present; (b) insists that a value is absent; (c) is ok with the value being present or absent, but has a preference for one or the other or (d) is o.k with the value being present or absent, and has no preference.
6. IntegerValues: For expressing (a) whether an integer value is present or not (as in PresentOrNot) and then (b) the choice between different integer values using simple preference measures (such as smaller ones being preferred or larger ones being preferred) or more complicated preference measures (such as those expressible via piecewise linear functions). This type is provided mostly for convenience, since there are many entries in a CPP/CPA that impose these kind of negotiation requirements.

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NEGOTIATION OF SOME ITEMS
MAY REQUIRE HUMAN INPUT,
ESPECIALLY IN VERSION 1. THIS
SHOULD BE INDICATED IN THE
NDD FOR THOSE ITEMS. WE HAVE
TO DEFINE HOW TO INDICATE
THAT HUMAN INPUT IS NEEDED.

<#>Extensibility of CPA
Extensibility is provided in the CPPA
schema. Extensions are negotiable. It
can be done by indicating what foreign
namespaces a party accepts.

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- 1075 7. Preference: For expressing preference among values of a similar nature (such as multiple
1076 elements at the same level, e.g., the *PartyInfo* element)
1077 8. Cardinality: Similar to IntegerValues.
1078 9. BooleanValues: For expressing (a) whether a Boolean-valued item is present or not and
1079 then (b) for expressing preference for either true or false as the value of the boolean-
1080 valued item.
1081 10. DurationWithPreference: For expressing (a) whether a duration-valued item is present
1082 and then (b) to give maximum and minimum possible values of the duration and to
1083 express a preference for smaller values or larger values.
1084

1085 For more details, comments and examples of using each of these types, the reader is directed to
1086 the *NDD* schema (Appendix A) and instance document (Appendix F).
1087

1088 **THE FOLLOWING ARE OPEN QUESTIONS:**
1089

1090 **PIECEWISELINEARPIECE ELEMENT: THE SPEC SHOULD EXPLAIN THE**
1091 **FUNCTION OF X1 AND Y1. PERHAPS WE COULD GIVE THESE ELEMENTS SELF-**
1092 **EXPLANATORY NAMES.**
1093

1094 **PIECEWISELINEARPIECE (SCHEMA): COULD X1 AND Y1 BE TYPED MORE**
1095 **STRONGLY THAN "XS:STRING" AND "XS:NMTOKEN"? I GUESS THAT THIS IS NOT**
1096 **POSSIBLE IF THEY ARE TO BE USED WITH A VARIETY OF DATATYPES. COULD**
1097 **WE STATE A RULE THAT RELATES THE TYPE OF EACH INSTANCE OF X1 AND Y1**
1098 **TO THE TYPE OF THE ELEMENT THAT THEY ARE WORKING WITH (E.G.**
1099 **DATETIME FOR THE START AND END ELEMENTS)?**
1100

1101 **FOR GIVING THE ENDPOINTS FOR ELEMENTS LIKE START/END, THE TYPE IS**
1102 **CURRENTLY SET TO STRING BEACUSE XML SPY DOES NOT SEEM TO VALIDATE**
1103 **DATETIME ENTRIES CORRECTLY, BUT SHOULD BE CHANGED TO DATETIME**
1104 **LATER**
1105

1106 **DO WE NEED AN ADDITIONAL CONSTRUCT IN THE NEDD TO IDENTIFY AN**
1107 **ELEMENT OR ATTRIBUTE FOR WHICH THE OFFEREE MUST SUPPLY A VALUE**
1108 **(E.G. PARTYID) BUT IS NOT NEGOTIABLE?**
1109

1110 **SEE OTHER OPEN QUESTIONS IN THE NEGOTIABILITY SECTION.**
1111

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12 Negotiation Messages

A negotiation Message includes the details of a offer or a counter offer, identification of the NDD and CPA template being negotiated, and information that controls the negotiation protocol. Some Messages include the NDD and/or the CPA or their URLs.

This section defines and discusses the details in the Negotiation Message in terms of the individual XML elements. The discussion is illustrated with XML fragments.

See Appendix B for the complete negotiation-message XML Schema. See Appendix G for examples of negotiation-message instance documents.

12.1 Negotiation Message Structure

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This section discusses the overall structure of the Negotiation Message. Subsequent sections discuss each of the elements in more details.

```
<NegotiationMessage
  xmlns:tp="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpa-negot-
1_0.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:cppa="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-
2_0.xsd"
  xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpa-
negot-1_0.xsd"
  businessMsgId="busMsg002"
  binding="false"
  inresponseTo="busMsg001"
  negotiationDialogId="negotDialog001"
  offerId="offer001"
  status="CounterOffer">
  <NCPA uri="http://..." />
  <CPAIdentity>
    ...
  </CPAIdentity>
  <cppa:SecurityDetails cppa:securityId="ID">
    ...
  </cppa:SecurityDetails>
  <InitiatingParty>
    ...
  </InitiatingParty>
  <RespondingParty>
    ...
  </RespondingParty>
  <BPSSBusinessDocumentName name="CPA_Counter_Offer_Doc" />
  <ExpirationDate>...</ExpirationDate>
```

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<BusinessDocuments>
...
</BusinessDocuments>
<NegotiationContent>
...
</NegotiationContent>
</NegotiationMessage>

12.1.1 NegotiationMessage element

The **NegotiationMessage** element is the root element of Negotiation Message xml document. NegotiationMessage document contains the following REQUIRED[XML] Namespace[XMLNS] declarations:

- The default namespace: xmlns=""http://www.oasis-open.org/committees/ebxml-cppa/schema/cpa-negot-1_0.xsd"
- The schema instance namespace: xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance
- The ebXML CPPA namespace: xmlns:cppa=http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd

The **NegotiationMessage** element contains the following attributes:

- a REQUIRED **businessMsgId** attribute that uniquely identify the current Business Message within the scope of one negotiation dialog.
- a REQUIRED **negotiationDialogId** attribute that uniquely identify an ongoing dialog that connects multiple Offer/Counter-Offer transaction.
- an IMPLIED **offerId** attribute that uniquely identify each instance of Offer or Counter-Offer.
- an IMPLIED **inresponseTo** attribute that unique Business Message ID of the previous Offer or Counter-Offer this business message is responding. Can be Null for the initiating Offer of the dialog.
- a REQUIRED **binding** attribute that indicates whether the current message is legally binding.
- a REQUIRED **status** attribute that indicates the status of current negotiation. The legal values for status are: - "Offer", "Counter Offer", "Single-Party-Signed", "Signed"

The **NegotiationMessage** element SHALL consist of the following child elements:

- One REQUIRED NCPA element to indicate the current Negotiation CPA
- One REQUIRED CPAIdentity element to identify the CPA that is being negotiated.
- One REQUIRED cppa:SecurityDetails element to describe the security requirement of current negotiation.
- One REQUIRED InitiatingParty element to describe the initiating party of current negotiation dialog.
- One REQUIRED RespondingParty element to describe the responding party of current negotiation dialog.
- One REQUIRED BPSSBusinessDocumentName element that indicates the name of the BPSSBusinessDocument this offer is corresponding to.
- One REQUIRED ExpirationDate element the specifies the date when this offer/counter-

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offer expires.

- One REQUIRED BusinessDocuments element where the actual cpa documents or CPA templates are described.
- One REQUIRED NegotiationContent element that itemize accepted, rejected, updated elements within the current CPA.

12.1.2 NCPA element

The NCPA element contains one REQUIRED uri attribute that SHALL have a value that is a URI that conforms to [RFC2396] and identifies the location of the Negotiation CPA xml document.

12.1.3 CPAIdentity element

The CPAIdentity element SHALL contain either a CPAId element or a CPATemplateId element.

The CPAId element contains a REQUIRED id attribute and a REQUIRED version attribute.

12.1.4 Cppa:SecurityDetails element

The cppa:SecurityDetails element has been defined in detail in the CPPA specification: section ???.

12.1.5 InitiatingParty element

The InitiatingParty element describes the party that initiated the current negotiation dialog.

This element contains a REQUIRED cppa:PartyId element and a REQUIRED CPPIId element.

The CPPIId element have two attributes:

- A REQUIRED id attribute.
- A REQUIRED version attribute.

12.1.6 RespondingParty element

The RespondingParty element describes the potential party that the initiating party wish to establish a CPA with. This element has the same structure as the InitiatingParty element.

The RespondingParty element contains a REQUIRED cppa:PartyId element and a REQUIRED CPPIId element.

The CPPIId element have two attributes:

- A REQUIRED id attribute.
- A REQUIRED version attribute.

12.1.7 BPSSBusinessDocumentName element

The BPSSBusinessDocumentName element identifies the name (e.g. "CPA Offer Doc") of each BusinessDocument that participate in BPSS Negotiation process will be placed inside each message. The valid enumeration of this field include:

- CPA Offer Doc
- CPA Accept Offer Doc
- CPA Counter Pending Offer Doc
- CPA Counter Offer Doc

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- CPA Reject Offer Doc
- CPA Final Doc
- CPA Final Response Doc
- CPA Final Rspnse Doc Signed

The **BPSSBusinessDocumentName** element has one **REQUIRED** name attribute. The value of this attribute SHALL be one of the following:

- CPA Offer Doc
- CPA Accept Offer Doc
- CPA Counter Pending Offer Doc
- CPA Counter Offer Doc
- CPA Reject Offer Doc
- CPA Final Doc
- CPA Final Response Doc
- CPA Final Response Doc Signed

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12.1.8 BusinessDocuments element

The **BusinessDocument** element consists of either a pair of **NDD** and **Proposed CPA** documents or a **CPA Template** document.

For each of the document (**NDD**, **Proposed CPA**, or **CPA Template**), either an actual binary files or a partner-accessable-url SHALL be present.

If the **BusinessDocuments** has a child element of **CPATemplate**, the **CPATemplate** SHALL have either a **BinaryDoc** that has the type **base64Binary**, or a **Uri** reference to the location of the actual **CPATemplate** xml document.

If the **BusinessDocuments** has a child element of **ProposedCPA**. The **ProposedCPA** element contains the following child elements:

- A **REQUIRED NDD** element that has a **REQUIRED BinaryDoc** element or a **REQUIRED Uri** element. The **BinaryDoc** element has the xml type "base64Binary", the **Uri** element SHALL have a value that is a URI that conforms to [RFC2396] and identifies the location of the **NDD** xml document.
- A **REQUIRED ProposedCPA** element that has either a **BinaryDoc** element or an **Uri** element.

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12.1.9 NegotiationContent element

For an initial offer, this element can be empty. For subsequent offer and counter offer within this negotiation dialog it SHALL describe the changes made by the offering *Party* to the information in the other *Party's* *CPP* or *CPA* template when forming the *CPA* template of the initial offer.

The **NegotiationContent** element SHALL list all items accepted by the sending party since the start of the negotiation dialogue (including the ones being accepted by this message).

It is up to the receiver of this message to decide whether to continue negotiate, accept, or reject changes listed within the **NegotiationContent** element.

The **NegotiationContent** does not contain items accepted by the other party since the start of the negotiation.

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- Accepted Items¹(1...n) (required. These are the items that have been accepted by the sending party during all exchange prior to this message and within the same negotiation dialog.
 - Xpath of item
 - Status that indicates acceptance of this item is “Required” or “Preferred”.
- Deleted Items (0...n) (optional element only)
 - Xpath of item
 - Status that indicates deletion of this item is “Required” or “Preferred”.
- Updated Items (0...n)
 - Xpath of item
 - Original Value of item
 - Proposed Value of item
 - Status that indicates update of this item is “Required” or “Preferred”.
- Inserted Items (0...n) (optional item only)
 - Xpath of item
 - Proposed Value of item
 - Status that indicates addition of this item is “Required” or “Preferred”.

Any of the items listed in Negotiation Content can be either a leaf node or non-leaf node. Non-leaf node will indicates the entire subtree is subject to the corresponding change action. If both Non-leaf node AND its children leaf node are present in Negotiation Content, then the Negotiation Content SHOULD be considered invalid.

12.2 CPA ID, Negotiation Dialog ID, Unique Business Message ID, and InResponseTo

CPA ID and its version shall remain the same throughout any negotiation dialog.

Negotiation Dialog ID is used to identify a particular negotiation dialog thread. Negotiation Dialog ID can be CPA ID. The value of CPAID could be used as the value for Negotiation Dialog ID.

Unique Business Message ID is a unique id that identifies the current business message within the scope of one negotiation thread.

InResponseTo element lists the Unique Business Message ID of the last incoming Offer or Counter Offer this current business message is responding to.

12.3 Offer and Counter Offer

In the two-party scenario, if Party A initiates the dialog by sending Part B an Offer, Party B sends back a Counter Offer, in order to counter this Counter Offer, Party A sends another “Counter Offer” to Party B. In other words, only the initiating offer is “Offer”, the rest of negotiation will be conducted by exchanging “Counter Offers”.

Based on Hima’s CPPA Negotiation BPSS example, Offer differs from subsequent Counter Offers. Offer will always contain the complete initial CPA document and NDD document, or a

¹ Item can be either an “Element” or an “Attribute”.

CPA Template.

We can use two different schemas, one for the initial Offering, and one for the subsequent Offer and Counter Offer. This implies the very first Offer Transaction is different from the subsequent business transactions.

Last but not the least, throughout this negotiation dialog, each Party can terminate the negotiation by sending "CPA offer Rejected" in responding to an incoming Offer/Counter Offer. Human to human contact is encouraged after "CPA offer Rejected" is sent but before a brand new dialog is initiated.

12.3.1 Responses to Offer and Counter Offer

Following are the responses to an offer or counter offer.

THE FOLLOWING LIST MAY NEED TO BE EXTENDED.

- Accept with no changes (an agreed CPA has been achieved)
 - ◆ Accept
 - ◆ Accept and deploy (dynamic eCommerce)
- Counter offer pending: The counter offer might consist of
 - ◆ Deleted elements and attributes.
 - ◆ Inserted elements and attributes.
 - ◆ Re-ordered elements using an [XPATH]-based list of changes with status of required or preferred.
 - ◆ Changed values of elements and attributes.
 - ◆ Identification of items that were accepted in the previous offer or counter offer. (Jean's question: Is this necessary? Can't we include this in the AcceptedItem section? What's the benefit of identifying items accepted from previous offer or counter offer? If we do list such identifications, should we associate each accepted item with the particular MessageId, too?)
- Rejection: with reason(s) for rejection. See Section 1.1 for additional information. Rejection is final. It ends the Negotiation Dialogue and the two Parties should make human to human contact to resolve their incompatibilities.

FOLLOWING ARE ADDITIONAL CONSIDERATIONS ABOUT THE RESPONSE MESSAGE.

- CONSIDER PHYSICALLY PACKAGING THE RESPONSE MESSAGE WITH THE COUNTER OFFER IF ONE IS BEING ISSUED, IN ORDER TO SAVE MESSAGE TRAFFIC.

- ◆ **CAN THIS BE DONE USING EXISTING BUSINESS SIGNALS FOR THE RESPONSE INDICATOR (IN ORDER TO AVOID CPPA CHANGES)?**
- ◆ **IT WAS SUGGESTED THAT THIS PACKAGING MIGHT BE UNNECESSARY COMPLEX, ESPECIALLY FOR VERSION 1).**

[DELETE SECTION 13.10.1 FROM THE MAIN SPEC.]

12.4 CPA Offer rejected

A proposed CPA can be rejected under two possible scenarios:

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- Party A sends Party B an Offer(or Proposal if we are going to revise the current CPA negotiation model), Party B rejected the Offer.
- Party B didn't send any message back before the Offer/Proposal expired

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12.5 CPA Offer accepted

When a CPA Offer is accepted, the final CPA document listed in BusinessDocuments element shall be signed if both parties' NDD indicate they are capable of signing the final document.

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12.6 Reasons for Rejection during Negotiation

The process of composing the CPA from CPPs will detect many error conditions before the negotiation process begins. Others might be discovered during the negotiation process. Examples are mismatched Process Specification document and mismatched delivery channel requirements. These are elaborated in Section 6.3.

The rejection message SHALL include reason, contact name, phone, and/or URL for further information.

Following are some reasons for rejection:

THE FOLLOWING LIST MUST INCLUDE EVERYTHING DEFINED IN THE NEGOTIATION MESSAGES.

- CPA contents. Examples:
 - ◆ Expired CPP
 - ◆ Unable to fulfill Security Requirements
 - ◆ Proposed Security Policy is inadequate
 - ◆ Out of sequence counter offer
 - ◆ Signature on CPA template failed validation.
 - ◆ Signature on agreed CPA failed validation
 - CPA is not signed until it is agreed to.
 - ◆ proposed Packaging not supported
 - ◆ unable to support signals requested (process specification document)
- Business relationship
 - ◆ CPA unsupported without existing business relationship.
- Negotiation process
 - ◆ In the judgment of the rejecting Party, too many counter offers were tried with no forward progress toward convergence.

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NOTE: A future version of this specification might formulate a definition of and protocol for detecting "no forward progress".

- ◆ Proposed CPA previously received and not accepted.
- The current offer's validity interval has expired.
- CPA format problems
 - ◆ Examples: parsing error, data invalid
- Internal System Error

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Deleted: A negotiation *Message* includes the details of a counter offer, identification of the *NDD* and *CPA* *template* being negotiated, and information that controls the negotiation protocol. Some *Messages* include the *NDD* and/or the *CPA* or their URLs.¶

¶ See Appendix B for the complete negotiation-*message* XML Schema. See Appendix G for examples of negotiation-*message* instance documents.¶

¶ **THE FOLLOWING MATERIAL IS JEAN ZHENG'S SEPT. 6, 2002 OVERVIEW. IT WILL BE REPLACED BY A COMPLETE ELEMENT BY ELEMENT (DEPTH FIRST) EXPLANATION IN THE STYLE OF THE CPA SPECIFICATION.**¶

¶ **AN INITIAL VERSION OF THE SCHEMA WAS DISTRIBUTED ON THE NEGOT LIST SERVER 10/16/02.**¶

¶ **<#>CPA Offer/Counter Offer¶**
<#>Message Content¶
Business Information:¶
<#>Reference of proposed NCPA url ¶
<#>Security Information¶
<#>SecurityPolicy/Trust Anchor/CertificateInformation¶
<#>Initiator's CPP ID¶
<#>Potential Partner's CPP ID¶
<#>Reference of potential Partner's NDD ID¶
<#>Initiating Role: My Party ID¶
<#>Responding Role: Potential Partner's Party ID¶
<#>CPAID and version(or CPA' ... [67]

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13 Negotiation Protocol

13.1 General Principles of Negotiation Protocol

in Section 5.2, provides a high-level overview of the negotiation process including the discovery-related steps and the protocol to negotiate a *CPA*. This section describes the negotiation protocol in detail including a description of the negotiation BPSS instance document.

A *Negotiation Dialog* is a complete execution of the BPSS choreography from the initial offer until the *CPA* is completed successfully or the negotiation fails. A single *Negotiation Dialog* negotiates a single *CPA*.

13.2 CPA Identifier

When a *Party* creates a *CPA Template*, that *Party* shall assign a valid value to the *cpaId* attribute in the *CPA Template*. See Section 10.8, regarding negotiability of the *cpaId* attribute.

13.3 Negotiation-Dialog Identifier

A *Negotiation-Dialog Identifier* identifies the *Negotiation Dialog* from initial offer to completion. Each *Party* SHALL separately maintain the ongoing state information in association with the *Negotiation-Dialog* identifier. The value of the *Negotiation-Dialog* identifier MUST be common to the two *Parties* and MUST be unique among all on-going negotiations between a pair of *Parties*.

The value of the *cpaId* attribute of the *CPA Template* SHALL NOT be used as the value of the *Negotiation Dialog Identifier*. The value of the *Negotiation Dialog Identifier* SHALL be determined independently of the value of the *cpaId* attribute. The reason is to ensure that if a negotiation fails and the same *CPA Template*, with the same value of the *cpaId* attribute is used in a second negotiation attempt, uniqueness of the *Negotiation Dialog Identifier* is preserved.

NOTE: Although it is not expected that *Negotiation Dialogs* involving the same *CPA Template* will overlap in time, the above rule ensures that saved state information from an earlier attempt at negotiation can be referenced by its *Negotiation Dialog Identifier* during a later attempt with the same *CPA Template*.

13.4 Offer Identifier

A counter offer must be associated with the offer or counter offer to which it is replying. Each offer or counter offer SHALL have a unique *Offer Identifier* defined by the negotiation application. A counter offer states the *Offer Identifier* of the offer or counter offer to which it is replying. The identifiers and the references to them are in the negotiation-*Message* payload.

The *Offer Identifier* MUST be unique among the initial offer and all counter offers issued by a given *Party* within a *Negotiation Dialog*. The *Offer Identifier* is qualified by the *Party* Id of the issuer and the *Negotiation-Dialog Identifier*.

NOTE: With ebXML *Messaging*, the *messageId* and *refToMessageId* attributes in the Automated Negotiation Specification

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If it should be necessary to suspend the negotiation for an extended period ... [68]

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Message header could serve the purpose of the *Offer Identifier*. However, to enable alternative *Messaging* protocols, such as “vanilla SOAP”, which do not have these identifiers, the *Offer Identifier* is defined at the application level.

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13.5 Negotiation Status

The *Status* element in the *CPA* records the state of the composition/negotiation protocol. The states of its *value* attribute progress as follows:

- “Proposed” – This value is in the *CPA Template* sent with the initial offer and remains unchanged until an agreed *CPA* is completed.
- “Agreed” – This value is in the completed *CPA* that is sent from one Party to the other for validation if the Parties had agreed not to sign the *CPA*. This is the final state.
- “Signed” – If the Parties had agreed to sign the *CPA*, the *CPA* sent from one Party to the other Party is signed by the sending Party and the value of the value attribute is “Signed”. This is the final state.

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NOTE: Because the *Status* element is included in the first *Party*’s signature, the value of the *value* attribute cannot be changed when the second *Party* signs.

13.6 ebXML Conversation

A single *Negotiation Dialog* corresponds to a single ebXML *Conversation*.

THIS SECTION MUST DEFINE THE BEGINNING AND END OF A CONVERSATION WITH RESPECT TO THE CHOREOGRAPHY DEFINED IN THE BPSS INSTANCE DOCUMENT. THE RECEIVING SYSTEM MUST BE ABLE TO ASSOCIATE THE CONVERSATION ID OF AN INCOMING MESSAGE TO A NEGOTIATION INSTANCE IDENTIFIER.

For use with *Message* services, such as “vanilla SOAP”, *that* have no *Conversation* construct, the *Negotiation-Dialog Identifier* serves the purpose of a *Conversation* identifier at the application level.

13.7 Negotiation CPA

Prior to the initial offer, a *Negotiation CPA* MUST be activated between the two negotiating *Parties*. See Section 5.1 for a possible scenario.

13.8 Initial Offer

A *Party* (B) can create and send an initial offer to another *Party* (A) in different ways, depending on whether *Party* B is starting with *Party* A’s *CPP* or *CPA Template*.

- If *Party* B discovered the *CPP* of *Party* A (a potential trading partner), *Party* B composes a *CPA Template* from its *CPP* and *Party* A’s *CPP*. *Party* B then prepares an *NDD* that describes what is negotiable in the *CPA Template*. If *Party* A had also published an *NDD*, *Party* B SHOULD take that *NDD* into account in preparing the *NDD* for the initial offer.
- If *Party* B discovered the *CPA Template* and *NDD* of *Party* A, *Party* B modifies the *CPA Template* to include information about itself, makes other modifications to negotiable items in the *CPA Template* that are indicated in the *Party* A’s *NDD*, and prepares a new *NDD* to go with the modified *CPA Template*.

1500 In either case, *Party B* is also responsible for inserting into the *CPA Template* the **Start, End**, and
1501 other elements that are present in a *CPA* but not in a *CPP*.

1502
1503 If *Party B* creates the initial offer by modifying *Party A*'s published *CPP* or *CPA Template*,
1504 *Party A* SHOULD include a list of changes (Accepted, Deleted, Updated, Inserted) in the initial-
1505 offer *Message* (Negotiation Content section) in addition to the initial-offer information

1506
1507 *Party B* then submits the new *CPA Template* and *NDD* to *Party A* as an initial offer.

1508
1509 It is RECOMMENDED that the *CPA Template* in an initial offer be signed by the offering *Party*.

1510 13.9 Simultaneous Initial Offers

1511 Two *Parties* might simultaneously discover each other and send each other initial offers. Since
1512 the two initial offers will cause creation of two independent *Negotiation Dialogs*, this race
1513 condition might only be discoverable and resolvable at the application level. Human contact will
1514 be necessary to decide which *Negotiation Dialog* to proceed with.

1515 13.10 Offer and Counter Offer

1516 When a *Party* proposes an offer or counter offer, the details of the offer or counter offer are
1517 expressed in a negotiation *Message*. The original *NDD* SHALL NOT be altered during the
1518 course of the negotiation.

1519
1520 A counter offer SHALL only refer to items that are listed in the *NDD*. Any offer or counter offer
1521 that is outside the limits defined in the *NDD* MUST be rejected.

1522
1523 A counter offer SHALL NOT propose a wholesale change of subject matter. For example a
1524 counter offer SHALL NOT propose changes in the roles of the participants.

1525
1526 *A Party* that wishes to propose a different BPSS instance *document* shall reject the received offer
1527 or counter offer and can then issue its own initial offer including the desired BPSS instance
1528 *document*.

1529
1530 A counter offer SHALL NOT introduce a new *NDD*. To introduce a new *NDD*, a *Party* SHALL
1531 reject the received offer or counter offer and can then issue its own initial offer including the
1532 desired *NDD*.

1533
1534 When responding to an offer or counter offer, a *Party* SHALL indicate in its counter offer, which
1535 items in the prior offer or counter offer it accepted.

1536
1537 If a counter offer contains only indications of acceptance of items, the *Party* that sent it is
1538 indicating acceptance of the *CPA* as modified by the prior steps in the negotiation.

1539
1540 Once agreement has been reached on any part of the *CPA*, those elements and attributes SHALL
1541 NOT be reopened for negotiation.

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WHETHER A COUNTER OFFER CAN
PROPOSE A BPSS INSTANCE OTHER
THAN THE ONE THAT WAS IN THE
INITIAL OFFER. IF PROPOSING A
DIFFERENT BPSS INSTANCE IS NOT
PERMITTED IN VERSION 1, THEN
THE SPEC SHOULD STATE THAT

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13.10.1 Responses to Offer and Counter Offer

A number of responses can be given to an offer or counter offer. The responses fall into the following categories:

- Acceptance: Acceptance of an offer or counter offer means that the *Party* that received the offer or counter offer is accepting all remaining open items and hence the two *Parties* have reached agreement.
- Counter offer pending: The *Party* that received the offer or counter offer wishes to negotiate further on some or all open items and is going to send its own counter offer.
- Rejection: The *Party* that received the offer or counter offer believes that agreement cannot be reached. Human contact is required in order to resolve the incompatibilities.

13.10.2 Offer-Counter Offer Acceptance Time

A maximum time (interval) for acceptance is associated with each offer or counter offer. The acceptance interval is a business-level timeout; processing it is independent of any document-exchange or transport-level *Message-loss recovery rules*. When the acceptance interval expires without a response, the initiator SHALL record the current *Negotiation Dialog* as *terminated*.

CONSIDER WHETHER THE BPSS TIME TO PERFORM ATTRIBUTE (BINARY COLLABORATION) CAN BE USED TO REPRESENT THE ACCEPTANCE INTERVAL.

13.11 Time to Complete Negotiation

IS THERE A WAY OF SPECIFYING THE MAXIMUM TIME TO COMPLETE A NEGOTIATION FROM INITIAL OFFER TO COMPLETION? IS THERE A BPSS TIME ATTRIBUTE THAT CAN BE USED? BPSS ATTRIBUTES CANNOT BE NEGOTIATED WITHOUT NEGOTIATING THE NEGOTIATION CPA. WHAT ABOUT A TIME THAT COULD BE EXPRESSED IN THE NDD AND NEGOTIATED? SHOULD THIS BE LEFT FOR THE FUTURE?

13.12 Conclusion of Negotiation

The negotiation concludes when agreement has been reached. This may happen either by one *Party* accepting the initial offer or following an exchange of counter offers.

If agreement is reached on the initial offer, and the *Party* that received the initial offer does not have to add any information to the *CPA Template*, the negotiation concludes immediately. The *Party* that received the initial offer SHALL send a *Message* indicating acceptance and the *CPA Template* becomes the agreed *CPA*. If signing is included in the initial offer, the offering *Party* SHALL sign the *CPA Template* before sending it. The receiving *Party* SHALL then sign and return the *CPA*. At this point, the *Parties* are ready to deploy the *CPA* into their run-time systems and commence business. If the second *Party* does not agree to sign, and signing is negotiable, it SHALL respond with a counter offer that excludes signing instead of accepting the initial offer.

When agreement has been reached following exchanges of counter offers, the *Party* that received and accepted the final counter offer SHALL send the completed *CPA* (or its URL) to the other *Party* for approval. The receiving *Party* SHALL respond, indicating either approval or rejection.

Automated Negotiation Specification

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THE FOLLOWING LIST MAY NEED TO BE EXTENDED.¶
<#>Accept with no changes (an agreed CPA has been achieved)¶
<#>Accept¶
<#>Accept and deploy (dynamic eCommerce)¶
<#>Counter offer pending: The counter offer might consist of¶
<#>Deleted elements and attributes.¶
<#>Added elements and attributes.¶
<#>Re-ordered elements using an [XPath]-based list of changes ¶ ... [96]

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If signing was agreed to, the sending *Party* SHALL sign the *CPA* before sending it. The receiving *Party* SHALL check that the new *CPA* conforms to its understanding of what it should be. The receiving *Party* can also validate the first *Party*'s signature. If the receiving *Party* approves the *CPA*, the receiving *Party* SHALL sign the *CPA* over the first *Party*'s signature and return it to the first *Party*. Otherwise the receiving *Party* SHALL respond indicating rejection.

The *Party* that received the completed *CPA* shall respond in one of the following ways:

- *Message* indicating that a completed *CPA* was received (***BusinessDocument name*** = "*CPA Final Response Doc*")
 - ◆ A separate indicator in the *Message* distinguishes between accept and reject.
- *Message* that sends a completed *CPA* signed by the sender (***BusinessDocument name*** = "*CPA Final Response Doc Signed*").
 - ◆ Used when signing was agreed to and the received *CPA* was signed by the sending *Party*.

Following are some reasons for rejecting the received *CPA*:

- The final *CPA* does not agree with the recipient's understanding of what should be in it (some kind of state-tracking mismatch).
- The signature on the final *CPA* cannot be validated.
- The final *CPA* was not signed although signing was agreed to.

When signing by both *Parties* was agreed to, the *Party* that received the double-signed *CPA* SHALL test for the following conditions:

- The double-signed *CPA* is acceptable.
- The double-signed *CPA* is rejected. Reasons to reject this *CPA* include:
 - ◆ The second signature on the double-signed *CPA* cannot be validated.
 - ◆ An acknowledgment was received when a double-signed *CPA* was expected.

Acceptance and rejection of the double-signed *CPA* are indicated by business signals. See Section 13.14.2 for details.

Rejection at this stage is a fatal condition and the *Negotiation Dialog* SHALL be terminated. It is RECOMMENDED that the two *Parties* confer to resolve the discrepancy and then renegotiate the *CPA*. If the resolution of the discrepancy was successful, the renegotiation will generally consist of one *Party* sending a new offer that the other *Party* can accept without a counter offer.

13.13 Signing the CPA

Signing the completed *CPA* proves who signed it ("legal" signing) and provides the usual integrity check on the contents of the *CPA*. Signing of the completed and agreed-to *CPA* is an item of negotiation. Refer to [ebCPP] regarding how to sign the *CPA*.

Negotiation of signing is accomplished by negotiating the presence of the *CPA Signature* element and its child *ds:Signature* elements. Following are the outcomes:

- Agree not to sign: The *Signature* element SHALL be omitted from the final *CPA*.
- Agree on 2-Party signing: The final *CPA* SHALL contain the *Signature* element with two *ds:Signature* elements.

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- Agree on 3-Party signing: The final *CPA* SHALL contain the *Signature* element with three *ds:Signature* elements.

It should be understood that the *ds:Signature* elements MUST be incorporated into the *CPA* one at a time, as the *Parties* sign. The *Signature* element MUST NOT be inserted into the *CPA* until the first *Party* signs. If it is incorporated earlier, the *CPA* will fail validation against the CPPA XML Schema because there will be no child *ds:Signature* elements.

If the *Parties* agreed to third-Party signing, they SHALL obtain the third *Party*'s signature before commencing to do business under the *CPA*. The means of obtaining the third *Party*'s signature are not defined in this specification.

MONICA MARTIN COMMENTED: CAN WE DIFFERENTIATE HERE THAT THE DIGITAL SIGNATURE IS A LEGAL SIGNING THAT MAY IMPACT THE BUSINESS RELATIONSHIP? ARE THERE ANY OTHER LEGAL CRITERIA, OR IS THIS A 'LEGAL SIGNING'? PERHAPS YOU SHOULD ACKNOWLEDGE THAT A BUSINESS LEVEL AGREEMENT WOULD BE THE DECIDING FACTOR WHETHER OR NOT THIS NEGOTIATION IS LEGALLY BINDING. YOU SPEAK ABOUT LEGALITIES IN SECTION 13.14.

THE SUBTEAM NEEDS TO DECIDE WHETHER IT IS APPROPRIATE TO DISCUSS LEGAL MATTERS IN THIS SPECIFICATION, WHICH IS REALLY ABOUT THE MECHANICS OF THE NEGOTIATION PROTOCOL. [EBCPP] IS ALSO SILENT ON LEGALITIES.

13.14. BPSS Instance Document for Automated Negotiation

THE FOLLOWING ARE STILL OPEN MATTERS FOR THE NEGOTIATION BPSS.

- **TWO OF THE THE BUSINESS DOCUMENT NAMES CONTAIN THE CHARACTERS "DOC" IN THE VALUE OF THE NAME ATTRIBUTE AND "doc" IN THE VALUE OF THE NAMEID ATTRIBUTE. THEY ARE "CPA Final Response DOC/doc" AND "CPA Final Response DOC/doc Signed". THIS IS NOT NECESSARILY A PROBLEM BUT IF COMPARISONS OF TEXT STRINGS ARE CASE-SENSITIVE, IT COULD CAUSE SOME CONFUSION OR PROGRAMMING ERRORS. IT WOULD BE BETTER TO USE "doc" IN BOTH THE NAME AND THE NAMEID ATTRIBUTE AS IS THE CASE WITH ALL THE OTHER BUSINESS DOCUMENTS.**
- **THERE ARE NO CONDITION TESTS FOR REJECTION CONDITIONS IN THE EXCHANGE OF THE FINAL CPAS. REASONS CAN INCLUDE:**
 - ♦ **THE FINAL CPA DOES NOT AGREE WITH THE RECIPIENT'S UNDERSTANDING OF WHAT SHOULD BE IN IT (SOME KIND OF STATE-TRACKING MISMATCH).**
 - ♦ **THE FINAL CPA WAS NOT SIGNED ALTHOUGH SIGNING WAS AGREED TO.**
 - ♦ **THE SIGNATURE ON THE FINAL CPA CANNOT BE VALIDATED.**
 - ♦ **THE SECOND SIGNATURE ON THE DOUBLE-SIGNED CPA CANNOT BE**

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The process of composing the *CPA* from *CPPs* will detect many error conditions before the negotiation process begins. Others might be discovered during the negotiation process. Examples are mismatched Process Specification document and mismatched delivery channel requirements. These are elaborated in Section 6.2.¶

¶ The rejection *message* SHALL include reason, contact name, phone, and/or URL for further information.¶ ... [110]

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VALIDATED.

♦ **AN ACKNOWLEDGMENT WAS RECEIVED WHEN A DOUBLE-SIGNED CPA WAS EXPECTED.**

- **THE "CPA Final Response doc" DOCUMENT IS USED FOR BOTH ACCEPTANCE AND REJECT. EXCEPT FOR THIS CASE, A MESSAGE RECEIPT CAN DETERMINE SUCCESS OR FAILURE FROM THE BUSINESS DOCUMENT NAME IN THE MESSAGE. FOR "CPA Final Response doc" WE NEED A SEPARATE SUCCESS/FAILURE INDICATOR IN THE MESSAGE, THAT INDICATOR HAS TO BE CHECKED, AND HANDLING OF THE CONDITION IS OUTSIDE THE CHOREOGRAPHY.**

The choreography of the negotiation protocol MAY be defined by an instance document of the ebXML Business Process Specification Schema[ebBPSS]. The BPSS instance document for automated negotiation is in [Appendix D](#).

This BPSS instance [document](#) defines the negotiation choreography beginning with an exchange of an offer and response.

- If the response to the offer is “accept offer”, the choreography transitions to the final *CPA* exchange (see below).
- If the response to the offer is “reject offer”, the choreography immediately concludes.
- If the response to the offer is “counter offer pending”, the choreography then goes into an alternation of counter offer and response between the two *Parties* which continues until:
 - ♦ A response of “accept offer” causes the choreography to [transition](#) to the final *CPA* exchange.
 - ♦ A response of “reject offer” concludes the choreography.

Several business document names are defined directly under the *ProcessSpecification* element and referenced in various places as described below.

The BPSS instance document defines initiator and responder role names for each binary collaboration, collaboration activity, and binary transaction activity. For simplicity in the explanation below, in most cases, the terms “initiator” and “responder” are used. For each stage of the choreography, the NCPA associates role names with actual *Parties* in the *Action* elements under the *CollaborationRole* elements.

13.14.1 Offer-Counter-Offer Choreography

A counter offer is a requesting document in a new *Business Transaction*, not a response to an offer. To issue a counter offer, the recipient of an offer SHALL reply “counter pending offer” and then issue the counter offer as a new *Business Transaction*. This avoids a race condition with respect to which *Party* sends the next *Message*. It also avoids any need to for the two *Parties* to switch roles.

THE FOLLOWING DISCUSSION HAS TO BE UPDATED TO CORRESPOND TO CHANGES IN THE BPSS INSTANCE DOCUMENT THAT WERE MADE SINCE THIS

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The choreography begins with the “CPA_Offer_BT” **BusinessTransactionActivity** element under the “CPA_Negotiation_BC” **BinaryCollaboration** element. A *CPA* offer *Message* is sent from the “CPA_Negotiation_Initiator_Role” *Party* to the “CPA_Negotiation_Responder-Role” *Party* by means of the “CPA_Offer_BT” **BusinessTransaction**. The “CPA_Offer_ReqBA” **RequestingBusinessActivity** sends the “CPA_Offer_Doc” *Message* from the initiator *Party* to the responder *Party*. The “CPA_Offer_BT_RespBA” **RespondingBusinessActivity** then sends the response *Message* from the responder *Party* to the initiator *Party*. This *Message* is then evaluated as defined by the **Success**, **Failure**, and **Transition** elements under the “CPA_Negotiation_BC” binary collaboration. These are the elements whose *fromBusinessState* attribute has the value “CPA Offer_BT”. The value of the *expression* attribute in each of these elements is the name of the response *Message*, as follows:

- **Success** element: If the response *Message* is “CPA Accept Offer Doc”, the proposed *CPA* has been accepted by the responder *Party* and the choreography transitions to the final *CPA* exchange.
- **Failure** element: If the response *Message* is “CPA Reject Offer Doc”. The proposed *CPA* has been unconditionally rejected by the responder *Party* and the choreography concludes.
- **Transition** element: If the response *Message* is “CPA Counter Pending Offer Doc”, the responder *Party* will send a counter offer as the next business transaction. The *toBusinessState* attribute of the **Transition** element identifies “CPA Counter Offer CA” (the name of the **CollaborationActivity** element) as the next state in the choreography.

If the response *Message* to the “CPA_Offer_Doc” *Message* was “CPA Counter Pending Offer Doc”, the transition described above takes place and takes the choreography to state “CPA Counter Offer CA”, i.e. to the **CollaborationActivity** element named “CPA Counter Offer CA”. This **CollaborationActivity** element references the “CPA_Negotiation_CounterOfferBC” **BinaryCollaboration** element.

The initial request *Message* is under the “CPA_Counter_Offer_1_BT” **BusinessTransactionActivity** element, which is the “from” state for the following. The party which received the original *CPA* offer is now the initiator in this **BusinessTransactionActivity**. The *Message* is sent from the “CPA_Negotiation_CounterOfferInitiator_Role” role to the “CPA_Negotiation_CounterOfferResponder_Role” role by means of the “CPA_Counter_Offer_BT” **BusinessTransaction**. The *Message*, “CPA_Counter Offer Doc”, is identified in the “CPA_Counter_Offer_ReqBA” **RequestingBusinessActivity**. The response *Message* is sent by means of the “CPA_Counter Offer_BT_RespBA” **RespondingBusinessActivity**. One of three response *Messages* can be sent, as discussed below. The *response Message* is then evaluated as defined by the **Success**, **Failure**, and **Transition** elements under the “CPA_Negotiation_BC” **BinaryCollaboration**.

- **Success** element: If the response *Message* is “CPA Accept Offer Doc”, the proposed *CPA* has been accepted by the responder *Party* and the choreography transitions to the final *CPA* exchange.
- **Failure** element: If the response *Message* is “CPA Reject Offer Doc”, the proposed *CPA* has been unconditionally rejected by the responder *Party* and the choreography concludes.
- **Transition** element: If the response *Message* is “CPA Counter Pending Offer Doc”, the

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responder *Party* will send a counter offer as the next business transaction. The *toBusinessState* attribute of the *Transition* element identifies the “CPA Counter Offer 2 BTA” *BusinessTransactionActivity* as the next state in the choreography.

If the above transition takes place, it means that the *Party* that was the responder now becomes the initiator to supply a counter offer to the counter offer. The “CPA Counter Offer 2 BTA” *BusinessTransactionActivity* is now performed in the same manner as the “CPA_Counter_Offer_1_BTA” *BusinessTransactionActivity*, described above.

The choreography then iterates between the “CPA_Counter_Offer_1_BTA” *BusinessTransactionActivity* and the “CPA Counter Offer 2 BTA” *BusinessTransactionActivity* until a success or failure is achieved. Success causes the choreography to transition to the final CPA exchange. Failure ends the choreography.

13.14.2 Final CPA exchange

When either the initial offer or a counter offer is accepted in full, the choreography transitions to the “CPA Final BT” business transaction. The purpose of this transaction is for the *Party* that accepted the offer or counter offer to send the completed *CPA* to the other *Party*.

If the initial offer was accepted, the next business state is the “CPA Final BTA Init Responder” business transaction activity, which references the “CPA Final BT” business transaction. The initiator *Party* for the “Req BA Final_CPA_BT_ReqBA” requesting business activity sends the “CPA Final Doc” *Message*, containing the *CPA* or its URL, to the other (responder) *Party*. The responder *Party* checks the *CPA* and performs the responding business activity conveying one of:

- The “CPA Final Response Doc” *Message* to acknowledge receipt of an acceptable *CPA* or rejection. Acceptance and rejection are indicated by values of the status indicator in the *Negotiation Message*.
THE ABOVE SENTENCE NEEDS TO BE REVISED TO USE THE CORRECT NAME OF THE STATUS ELEMENT OR ATTRIBUTE WHEN THE MESSAGE SCHEMA IS COMPLETED.
- The “CPA Final Response Doc Signed” *Message*, to acknowledge receipt of an acceptable signed *CPA* and return that *CPA* with the responder *Party*’s signature over the initiator *Party*’s signature.

The *Party* that receives the final (double signed) *CPA* SHOULD test it for possible error conditions as described in Section 13.12. The *Party* that received the double-signed *CPA* shall reply with the AcceptanceAcknowledgment business signal if the *CPA* is acceptable or with the Exception business signal if the *CPA* is not acceptable. **These signals are instance documents of the business signals defined in [ebBPSS]. Examples of these instance documents are in Appendix E.**

If a counter offer was accepted in full, the choreography transitions to the “CPA Final BTA Init Initiator” business transaction activity, which references the “CPA Final BT” business transaction and proceeds as for acceptance of an initial offer.

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the business signals.¶

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THE FOLLOWING COMMENT FROM MONICA MARTIN NEEDS TO BE RESOLVED:
WE SHOULD LOOK AT THIS SECTION CLOSELY AS THERE HAS BEEN A GREAT
DEAL OF DISCUSSION ABOUT THE RECEIPTACK AND ACCEPTANCEACK IN
RECENT DAYS FOR UMM, BPSS, AND BCPS. THERE IS NO ACCEPTANCEACK
REQUIRED FROM THE INITIATOR AFTER RECEIPT OF THE RESPONSE FROM
THE RESPONDER. TO EXPLAIN, THE CONTEXT OF A TYPICAL BUSINESS
TRANSACTION IS THAT IF THE RESPONDER SENDS A RESPONSE AND THE
POSSIBILITY EXISTS THAT IT CHANGES THE TERMS AND CONDITIONS FOR THE
INITIATOR. IF THERE IS A RECEIPTACK AND AN ACCEPTANCEACK, THEN THIS
AFFECTS THE BUSINESS RELATIONSHIP AND HAS LEGAL IMPLICATIONS. IT IS
ACCEPTABLE TO SEND A RECEIPTACK FROM THE INITIATOR TO THE
RESPONDER TO INDICATE RECEIPT BUT NOT THE ACCEPTANCEACK. SEE BRIAN
HAYES ON SOME OF THIS DISCUSSION. IT IS ONLY THE INITIATOR THAT CAN
SEND AN ACCEPTANCEACK. AS WE ARE CHANGING ROLES IN THIS
'COLLABORATION,' PERHAPS WE SHOULD JUST BE A BIT CLEARER IN THIS
SECTION. I'VE ALSO INCLUDED TWO .GIF THAT SHOWS OUR WORKING
INITIATING AND RECEIVING STATE MACHINE DIAGRAMS. LATTER IS NOT
COMPLETE (FROM BCPS).

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13.14.3 Negotiation Business Signals

ADD DISCUSSION OF THE CONTENTS OF THE BUSINESS SIGNALS.

IS IT FEASIBLE TO CONSTRUCT EXAMPLES OF INSTANCE DOCUMENTS OF THE
BUSINESS SIGNALS THAT ARE SPECIFIED IN THE NEGOTIATION BPSS INSTANCE
DOCUMENT?State Diagrams

The choreography is illustrated by the state diagram shown in [Figure 3](#) and [Figure 4](#).

THE STATE DIAGRAMS NEED SOME CORRECTIONS:

- IN [Figure 3](#), THE DOCUMENT NAMES IN THE CENTER DO NOT ALWAYS AGREE
WITH THE NAMES IN THE INSTANCE DOCUMENT.

- IN [Figure 4](#):

- ◆ **UNLIKE [Figure 3](#), THE DOCUMENT NAMES ARE NOT USED.**
- ◆ **THE RETURN OF THE DOUBLE-SIGNED CPA IS NOT SHOWN. PRESUMABLY**
IT IS ANOTHER OUTPUT FROM THE "RECEIVED FINAL CPA" STATE.

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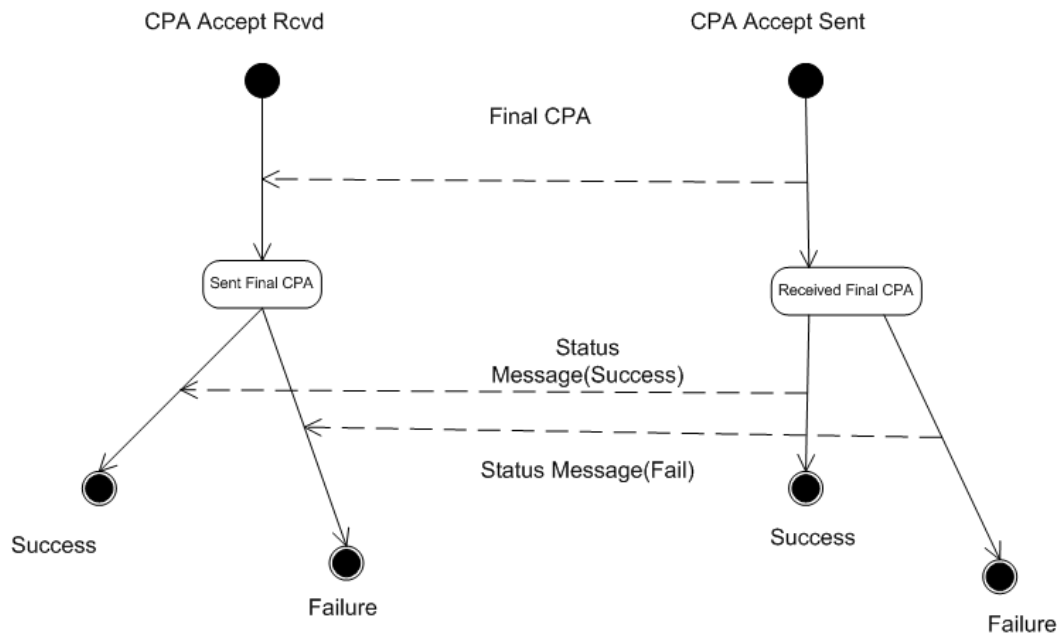


Figure 4, State Diagram for Final Transaction

14 Negotiation Algorithm

The negotiation algorithm is an application (business process). It is embodied in the private process at each *Party*. Note that the BPSS instance document describes only the choreography of the Message exchanges and not the private processes. This section discusses the normative aspects of negotiation algorithms, i.e. the rules that ensure interoperability between two *Parties*' implementations of the negotiation algorithm.

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NOTE: The negotiation algorithm is out of scope for version 1 of this specification. This section provides a brief introduction and serves as a place holder for material that might be introduced in future versions.

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Historically, research on negotiation has categorized negotiations as follows:

1. Simple matchmaking: The subject (set of negotiable parameters) is static and the ontology is clear. The two *Parties* have a common understanding of the meanings, values, and interdependencies of the negotiable parameters. The utility functions are binary (acceptable vs. not acceptable). Negotiation in these situations can be easily automated.
2. Negotiations on static subjects: This is similar to (1) except that the utility functions are more complex (more than 2 choices, numerical values, etc.). These situations can be automated but might require human intervention.
3. Negotiations on dynamic subjects: Here, the negotiable parameter set can be expanded during the process of negotiation and the parameters are more likely to interact than in (1) and (2). Dynamic subject negotiations are much more difficult to automate.

Negotiation of a *CPA* is mostly category 1 with some amount of category 2. On the other hand, business-level negotiations involve much more complex subject matter with parameters that are very likely to interact (consider price and delivery time). Therefore, these negotiations can be expected to be a mixture of categories 2 and 3.

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14.1 CPPs and NDDs

It is RECOMMENDED that the negotiation algorithms refer to the *Parties*' original *NDDs* (if available) that go with the *CPPs* as well as the *CPA Template* and its *NDD* to assist in evaluating offers and counter offers. The original *NDDs* might contain information, such as a *Party*'s original preference ordering and other constraints that might have been lost when the composite *NDD* was composed for the *CPA Template*.

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15 References

VERSION NUMBERS AND URLS TBD.

CHECK THE URLS THAT ARE HERE FOR CORRECTNESS.

[bpPATT] ebXML E-Commerce Patterns, version 1.0,

<http://www.ebxml.org/specs/bpPATT.pdf>

[ebBPSS] ebXML Business Process Specification Schema

[ebCPP] ebXML Collaboration-Protocol Profile and Agreement Specification, version 2.0.

[ebMS] ebXML Message Service Specification, version 2.0.

[ebRS] ebXML Registry Services Specification

[RFC2119] Key Words for use in RFCs to indicate Requirement Levels, Internet Engineering Task Force RFC 2119, <http://www.ietf.org/rfc/rfc2119.txt>

[RFC2396] Uniform Resource Identifiers URI: General Syntax, Internet Engineering Task Force RFC 2396, <http://www.ietf.org/rfc/rfc2396.txt>

[SOAPATTACH] SOAP Messages with Attachments, John J. Barton, Hewlett Packard Labs; Satish Thatte and Henrik Frystyk Nielsen, Microsoft, Published Oct 09 2000.

<http://www.w3.org/TR/2000/NOTE-SOAP-attachments-20001211>

[XMLDSIG] XML Signature Syntax and Processing, Worldwide Web Consortium,

<http://www.w3.org/TR/xmlsig-core/>

[XMLENC] XML Encryption Syntax and Processing, Worldwide Web Consortium,

<http://www.w3.org/TR/2002/CR-xmlenc-core-20020304/>

[XPATH] XML Path Language (XPath) Version 1.0,

<http://www.w3.org/TR/xpath>

16 Conformance

In order to conform to this specification, an implementation:

- a) SHALL support all the functional and interface requirements defined in this specification,
- b) SHALL NOT specify any requirements that would contradict or cause non-conformance to this specification.

A conforming implementation SHALL satisfy the conformance requirements of the applicable parts of this specification.

The objective of conformance testing is to determine whether an implementation being tested conforms to the requirements stated in this specification. Conformance testing enables vendors to implement compatible and interoperable systems. Implementations and applications SHALL be tested using available test suites to verify their conformance to this specification.

Publicly available test suites from vendor neutral organizations such as OASIS and the U.S.A. National Institute of Science and Technology (NIST) SHOULD be used to verify the conformance of implementations, applications, and components claiming conformance to this specification. Open-source reference implementations might be available to allow vendors to test their products for interface compatibility, conformance, and interoperability.

16.1 NDD and Negotiation Messages

An implementation of a tool or service that creates or maintains ebXML instance documents of the Negotiation NDD and negotiation *Messages* SHALL be determined to be conformant by validation of the instance documents, created or modified by said tool or service, against the XML Schema[XMLSCHEMA-1] definition of these documents in [Appendix A](#) and [Appendix B](#), respectively, and available from

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by using two or more validating XML Schema parsers that conform to the W3C XML Schema specifications[XMLSCHEMA-1, XMLSCHEMA-2].

16.2 NCPA Instance Document

An implementation of a tool or service that creates or maintains *NCPA* instance documents SHALL be determined to be conformant by validation of the *NCPA* instance documents, created or modified by said tool or service, against the XML Schema[XMLSCHEMA-1] definition of the *CPA* in [ebCPP]and available from

http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd

by using two or more validating XML Schema parsers that conform to the W3C XML Schema specifications[XMLSCHEMA-1, XMLSCHEMA-2].

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16.3 Negotiation BPSS Instance Document

An implementation of a tool or service that creates or maintains negotiation BPSS instance documents SHALL be determined to be conformant by validation of the BPSS instance documents, created or modified by said tool or service, against the XML Schema[XMLSCHEMA-1] definition of the BPSS in available from

URL TO BE SUPPLIED.

by using two or more validating XML Schema parsers that conform to the W3C XML Schema specifications[XMLSCHEMA-1, XMLSCHEMA-2].

16.4 Negotiation Business Signals

An implementation of a tool or service that creates or maintains negotiation business-signal instance documents SHALL be determined to be conformant by validation of the business-signal instance documents, created or modified by said tool or service, against the XML Schema[XMLSCHEMA-1] definition of the business signals and available from

URL TO BE SUPPLIED.

by using two or more validating XML Schema parsers that conform to the W3C XML Schema specifications[XMLSCHEMA-1, XMLSCHEMA-2].

1984 **17 Disclaimer**

1985 The views and specification expressed in this document are those of the authors and are not
1986 necessarily those of their employers. The authors and their employers specifically disclaim
1987 responsibility for any problems arising from correct or incorrect implementation or use of this
1988 design.

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2007 **Notices**2008 ***NEED TO DETERMINE OF UN/CEFACT HAS TO BE MENTIONED.***

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Appendix A XML Schema for Negotiation Descriptor Document (Normative)

The XML Schema document for the *NDD* is available as a text file at:

FILL IN THE URLS OF THE XML DOCUMENTS IN ALL THE APPENDICES.

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```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-negot-2_0.xsd"
  xmlns:tns="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-negot-2_0.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified" attributeFormDefault="unqualified">
  <element name="NegotiationDescriptor">
    <annotation>
      <documentation>This is the schema representing the NDD</documentation>
    </annotation>
    <complexType>
      <sequence>
        <element name="NegotiableInformationItem" maxOccurs="unbounded">
          <complexType>
            <sequence>
              <choice>
                <element name="Value"/>
                <element name="UnOrderedValue" type="tns:EnumeratedValues"/>
                <element name="OrderedValue" type="tns:OrderedEnumeratedValues"/>
                <element name="ValueWithPreferenceMeasure"
type="tns:ValueWithPreferenceMeasureType"/>
                <element name="PresentOrNot" type="tns:PresentOrNotType"/>
                <element name="IntegerValues" type="tns:IntegerValuesType"/>
                <element name="Preference">
                  <complexType>
                    <attribute name="value" type="xs:integer"/>
                  </complexType>
                </element>
                <element name="Cardinality" type="tns:IntegerValuesType"/>
                <element name="BooleanValue" type="tns:BooleanValuesType"/>
                <element name="DurationWithPreference" type="tns:DurationWithPreferenceType"/>
              </choice>
            </sequence>
            <attribute name="xpath" type="xs:string" use="required"/>
          </complexType>
        </element>
      </sequence>
      <attribute name="documentLocation" type="xs:anyURI" use="required"/>
    </complexType>
  </element>
  <!--TYPE DEFINITIONS THAT ARE USED IN THE DEFINITIONS ABOVE-->
  <complexType name="EnumeratedValues">
    <sequence>
      <element name="PresentOrNot" type="tns:PresentOrNotType" minOccurs="0"/>
      <element name="Value" type="xs:string" maxOccurs="unbounded"/>
    </sequence>
  </complexType>
  <!--For also stating that the enumerated values have some order associated with them-->
  <complexType name="OrderedEnumeratedValues">
    <complexContent>
      <extension base="tns:EnumeratedValues">
        <attribute name="preference" use="optional"/>
      </extension>
    </complexContent>
  </complexType>

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```
2087 <simpleType name="orderName">
2088 <restriction base="xs:string">
2089 <enumeration value="EarlierPreferred"/>
2090 <enumeration value="LaterPreferred"/>
2091 </restriction>
2092 </simpleType>
2093 </attribute>
2094 </extension>
2095 </complexContent>
2096 </complexType>
2097 <!--For giving the endpoints for elements like Start/End. The type is currently set to string beacuse XML spy does
2098 not seem to validate dateTime entries correctly, but should be changed to dateTime later -->
2099 <complexType name="DateEndpointsType">
2100 <sequence>
2101 <element name="EarliestStart" type="xs:string"/>
2102 <element name="LatestEnd" type="xs:string"/>
2103 <!--TODO: Make this xs:dateTime -->
2104 </sequence>
2105 </complexType>
2106 <!--For giving a type of preference function. Currently, the preference function can be one of two: (a) a piecewise
2107 linear function, (b) an arbitrary function expressed as a string (such as x*x+ y*y) -->
2108 <complexType name="PreferenceFunctionType">
2109 <sequence>
2110 <choice>
2111 <element name="PiecewiseLinearPiece" maxOccurs="unbounded">
2112 <complexType>
2113 <sequence>
2114 <element name="x1" type="xs:string"/>
2115 <element name="y1" type="xs:NMTOKEN"/>
2116 <element name="x1" type="xs:string"/>
2117 <element name="y1" type="xs:NMTOKEN"/>
2118 <!--TODO: Make dateTime/NMTOKEN for generality?-->
2119 </sequence>
2120 </complexType>
2121 </element>
2122 <element name="FunctionDefinedByEquation" type="xs:string"/>
2123 <!--<xs:element name="NoPreference"/> -->
2124 </choice>
2125 </sequence>
2126 </complexType>
2127 <!--For giving a value, and associating with it some preference function -->
2128 <complexType name="ValueWithPreferenceMeasureType">
2129 <sequence>
2130 <element name="Endpoints" type="tns:DateEndpointsType"/>
2131 <element name="PreferenceFunction" type="tns:PreferenceFunctionType" minOccurs="0"/>
2132 </sequence>
2133 </complexType>
2134 <!--For specifying a preference for whether an entry must be present or not -->
2135 <complexType name="PresentOrNotType">
2136 <attribute name="value" use="required">
2137 <simpleType>
2138 <restriction base="xs:string">
2139 <enumeration value="MustBePresent"/>
2140 <enumeration value="MustBeAbsent"/>
2141 <enumeration value="PreferredPresent"/>
2142 <enumeration value="PreferredAbsent"/>
2143 <enumeration value="Agnostic"/>
2144 </restriction>
2145 </simpleType>
2146 </attribute>
2147 </complexType>
2148 <!--For giving the integer endpoints for elements like retries. -->
```

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```
2149 <complexType name="IntegerEndPointsType">
2150 <sequence>
2151 <element name="SmallestValue" type="xs:integer"/>
2152 <element name="LatestValue" type="xs:integer"/>
2153 </sequence>
2154 </complexType>
2155 <!-- This associates a preference order to the integer end points or a preference such as Smaller is Preferred-->
2156 <complexType name="IntegerValuesWithPreferenceMeasureType">
2157 <sequence>
2158 <element name="EndPoints" type="tns:IntegerEndPointsType"/>
2159 <element name="PreferenceFunction" type="tns:PreferenceFunctionType" minOccurs="0"/>
2160 </sequence>
2161 <attribute name="preferenceOrder">
2162 <simpleType name="orderName">
2163 <restriction base="xs:string">
2164 <enumeration value="SmallerPreferred"/>
2165 <enumeration value="LargerPreferred"/>
2166 </restriction>
2167 </simpleType>
2168 </attribute>
2169 </complexType>
2170 <!-- This type is for integer values whose (a) presence can be potentially negotiated (b) the values themselves can
2171 be negotiated -->
2172 <complexType name="IntegerValuesType">
2173 <sequence>
2174 <element name="PresentOrNot" type="tns:PresentOrNotType" minOccurs="0"/>
2175 <element name="RangeInfo" type="tns:IntegerValuesWithPreferenceMeasureType"/>
2176 </sequence>
2177 </complexType>
2178 <!-- For specifying a preference for whether an entry must be present or not -->
2179 <complexType name="BooleanValuesType">
2180 <sequence>
2181 <element name="PresentOrNot" type="tns:PresentOrNotType" minOccurs="0"/>
2182 </sequence>
2183 <attribute name="preference" use="required">
2184 <simpleType>
2185 <restriction base="xs:string">
2186 <enumeration value="TruePreferred"/>
2187 <enumeration value="FalsePreferred"/>
2188 <enumeration value="Agnostic"/>
2189 </restriction>
2190 </simpleType>
2191 </attribute>
2192 </complexType>
2193 <!-- For specifying the minimum and maximum allowable durations-->
2194 <complexType name="DurationType">
2195 <sequence>
2196 <element name="PresentOrNot" type="tns:PresentOrNotType" minOccurs="0"/>
2197 <element name="MinimumDuration" type="xs:string"/>
2198 <element name="MaximumDuration" type="xs:string"/>
2199 <!-- TODO: Make this xs:duration -->
2200 </sequence>
2201 </complexType>
2202 <!-- For also stating that the durations have some preference associated with them-->
2203 <complexType name="DurationWithPreferenceType">
2204 <complexContent>
2205 <extension base="tns:DurationType">
2206 <attribute name="preferenceOrder" use="optional">
2207 <simpleType name="preferenceName">
2208 <restriction base="xs:string">
2209 <enumeration value="SmallerPreferred"/>
2210 <enumeration value="LargerPreferred"/>
```

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2211 </restriction>
2212 </simpleType>
2213 </attribute>
2214 </extension>
2215 </complexContent>
2216 </complexType>
2217 </schema>
2218 ▲-----
2219 ▲-----
2220
2221

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Appendix B XML Schema for Negotiation Messages (Normative)

The XML Schema for the negotiation *Messages* is available in text form at:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- This is the schema that corresponds to the version 1.0 CPP/A
Negotiation spec
-->
<schema targetNamespace="http://www.oasis-open.org/committees/ebxml-
cpa/schema/cpa-negot-1 0.xsd"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:cpa="http://www.oasis-open.org/committees/ebxml-
cpa/schema/cpp-cpa-2 0.xsd" xmlns:tns="http://www.oasis-
open.org/committees/ebxml-cpa/schema/cpa-negot-1 0.xsd">
  <import namespace="http://www.oasis-open.org/committees/ebxml-
cpa/schema/cpp-cpa-2 0.xsd" schemaLocation="http://www.oasis-
open.org/committees/ebxml-cpa/schema/cpp-cpa-2 0.xsd"/>
  <attributeGroup name="id.grp">
    <attribute name="id" type="cpa:non-empty-string"
use="required"/>
    <attribute ref="cpa:version" use="required"/>
  </attributeGroup>
  <element name="NegotiationMessage">
    <complexType>
      <sequence>
        <element ref="tns:NCPA"/>
        <element ref="tns:CPAIdentity"/>
        <element ref="cpa:SecurityDetails"/>
        <element ref="tns:InitiatingParty"/>
        <element ref="tns:RespondingParty"/>
        <element ref="tns:BPSSBusinessDocumentName"/>
        <element name="ExpirationDate" type="dateTime"/>
        <element ref="tns:BusinessDocuments"/>
        <element ref="tns:NegotiationContent"/>
        <element maxOccurs="1" minOccurs="0"
name="ResponseToURL" type="anyURI"/>
      </sequence>
      <attribute name="businessMsgId" type="ID" use="required"/>
      <attribute name="negotiationDialogId" type="cpa:non-empty-
string" use="required"/>
      <attribute name="offerId" type="cpa:non-empty-string"/>
      <attribute name="inresponseTo" type="cpa:non-empty-
string"/>
      <attribute name="binding" type="boolean" use="required"/>
      <attribute name="status" type="tns:statusValue.type"
use="required"/>
    </complexType>
  </element>
  <element name="CPAIdentity">
    <complexType>
```

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```
2273   <choice>
2274   <element ref="tns:CPAId"/>
2275   <element ref="tns:CPATemplateId"/>
2276   </choice>
2277   </complexType>
2278 </element>
2279 <element name="CPAId">
2280   <complexType>
2281     <attributeGroup ref="tns:id.grp"/>
2282   </complexType>
2283 </element>
2284 <element name="CPATemplateId">
2285   <complexType>
2286     <attributeGroup ref="tns:id.grp"/>
2287   </complexType>
2288 </element>
2289 <element name="NCPA">
2290   <complexType>
2291     <attribute name="uri" type="anyURI" use="required"/>
2292   </complexType>
2293 </element>
2294 <element name="BPSSBusinessDocumentName">
2295   <complexType>
2296     <attribute name="name"
2297 type="tns:bpssBusinessDocumentName.type" use="required"/>
2298   </complexType>
2299 </element>
2300 <element name="BusinessDocuments">
2301   <complexType>
2302     <choice>
2303       <element name="CPATemplate" type="tns:doc.type"/>
2304       <element name="ProposedCPADoc"
2305 type="tns:proposedCPADoc.type"/>
2306     </choice>
2307   </complexType>
2308 </element>
2309 <element name="NegotiationContent">
2310   <complexType>
2311     <sequence>
2312       <element maxOccurs="unbounded" minOccurs="1"
2313 ref="tns:AcceptedItem"/>
2314       <element maxOccurs="unbounded" minOccurs="0"
2315 ref="tns:DeletedItem"/>
2316       <element maxOccurs="unbounded" minOccurs="0"
2317 ref="tns:UpdatedItem"/>
2318       <element maxOccurs="unbounded" minOccurs="0"
2319 ref="tns:InsertedItem"/>
2320     </sequence>
2321   </complexType>
2322 </element>
2323 <element name="AcceptedItem" type="tns:simpleItem.type"/>
2324 <element name="DeletedItem" type="tns:simpleItem.type"/>
2325 <element name="UpdatedItem" type="tns:updatedItem.type"/>
2326 <element name="InsertedItem" type="tns:insertedItem.type"/>
```

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2327 <element name="InitiatingParty" type="tns:partySummary.type"/>
2328 <element name="RespondingParty" type="tns:partySummary.type"/>
2329 <complexType name="simpleItem.type">
2330 <attribute name="xpath" type="tns:xpath.type" use="required"/>
2331 <attribute name="status" type="tns:itemStatusValue.type"
2332 use="required"/>
2333 </complexType>
2334 <complexType name="updatedItem.type">
2335 <attribute name="xpath" type="tns:xpath.type" use="required"/>
2336 <attribute name="originalValue" type="cppa:non-empty-string"
2337 use="required"/>
2338 <attribute name="proposedValue" type="cppa:non-empty-string"
2339 use="required"/>
2340 <attribute name="status" type="tns:itemStatusValue.type"
2341 use="required"/>
2342 </complexType>
2343 <complexType name="insertedItem.type">
2344 <attribute name="xpath" type="tns:xpath.type" use="required"/>
2345 <attribute name="proposedValue" type="cppa:non-empty-string"
2346 use="required"/>
2347 <attribute name="status" type="tns:itemStatusValue.type"
2348 use="required"/>
2349 </complexType>
2350 <complexType name="doc.type">
2351 <choice>
2352 <element name="BinaryDoc" type="base64Binary"/>
2353 <element name="Uri" type="anyURI"/>
2354 </choice>
2355 </complexType>
2356 <complexType name="proposedCPADoc.type">
2357 <sequence>
2358 <element name="NDD" type="tns:doc.type"/>
2359 <element name="ProposedCPA" type="tns:doc.type"/>
2360 </sequence>
2361 </complexType>
2362 <complexType name="partySummary.type">
2363 <sequence>
2364 <element ref="cppa:PartyId"/>
2365 <element name="CPPIId"/>
2366 <complexType>
2367 <attributeGroup ref="tns:id.grp"/>
2368 </complexType>
2369 </element>
2370 </sequence>
2371 </complexType>
2372 <simpleType name="xpath.type">
2373 <restriction base="string"/>
2374 </simpleType>
2375 <simpleType name="itemStatusValue.type">
2376 <restriction base="NMTOKEN">
2377 <enumeration value="Preferred"/>
2378 <enumeration value="Required"/>
2379 </restriction>
2380 </simpleType>

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```
2381   <simpleType name="statusValue.type">
2382     <restriction base="NMTOKEN">
2383       <enumeration value="Offer"/>
2384       <enumeration value="CounterOffer"/>
2385       <enumeration value="CounterPending"/>
2386       <enumeration value="Rejected"/>
2387       <enumeration value="Accepted"/>
2388       <enumeration value="Expired"/>
2389       <enumeration value="SinglePartySigned"/>
2390       <enumeration value="Signed"/>
2391     </restriction>
2392   </simpleType>
2393   <simpleType name="bpssBusinessDocumentName.type">
2394     <restriction base="NMTOKEN">
2395       <enumeration value="CPA Offer Doc"/>
2396       <enumeration value="CPA Accept Offer Doc"/>
2397       <enumeration value="CPA Counter Pending Offer Doc"/>
2398       <enumeration value="CPA Counter Offer Doc"/>
2399       <enumeration value="CPA Reject Offer Doc"/>
2400       <enumeration value="CPA Final Doc"/>
2401       <enumeration value="CPA Final Response Doc"/>
2402       <enumeration value="CPA Final Response Doc Signed"/>
2403     </restriction>
2404   </simpleType>
2405 </schema>
2406
2407
```

Appendix C Negotiation CPA Example (Non-Normative)

The text file for this *NCPA* example is available at:

THE NCPA'S PACKAGING DEFINITIONS HAVE TO BE COMPLETED AFTER THE NDD AND MESSAGE SCHEMA ARE COMPLETED.

```
<?xml version="1.0"?>
<!-- edited with XML Spy v4.4 U (http://www.xmlspy.com) by Hima Mukkamala (Web Services Architecture WG) -->
<tp:CollaborationProtocolAgreement xmlns:tp="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd
cpp-cpa-2_0.xsd" tp:cpaId="uri:NegoInit-and-NegoResp-cpa" tp:version="2_0a">
  <tp:Status tp:value="proposed"/>
  <tp:Start>2001-05-20T07:21:00Z</tp:Start>
  <tp:End>2003-05-20T07:21:00Z</tp:End>
  <tp:ConversationConstraints tp:invocationLimit="100" tp:concurrentConversations="10"/>
  <!-- Party info for Negotiation Initiator -->
  <tp:PartyInfo tp:partyName="NegotiationInitiator" tp:defaultMshChannelId="asyncChannelA1"
tp:defaultMshPackageId="NegoInit_MshSignalPackage">
    <tp:PartyId tp:type="urn:oasis:names:tc:ebxml-cppa:partyid-type:duns">123456789</tp:PartyId>
    <tp:PartyRef xlink:href="http://NegoInit.com/about.html"/>
    <!-- This role is for Negotiation Initiator performing the role of Negotiation Initiator -->
    <tp:CollaborationRole>
      <tp:ProcessSpecification tp:version="2.0" tp:name="CPPA-Negotiation" xlink:type="simple"
xlink:href="http://www.oasis-open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml"
tp:uuid="bpid:ebXML:CPPA-Negotiation"/>
      <tp:Role tp:name="CPA Negotiation Initiator" xlink:type="simple" xlink:href="http://www.oasis-
open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml#CPA Negotiation Initiator"/>
      <tp:ServiceBinding>
        <tp:Service>bpid:ebXML:CPPA-Negotiation</tp:Service>
        <!-- This send is for sending the Negotiation Offer -->
        <tp:CanSend>
          <tp:ThisPartyActionBinding tp:id="NegoInit_ABID1" tp:action="CPA_Offer_BT_ReqBA"
tp:packageId="NegoInit_OfferRequestPackage">
            <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
            <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
tp:businessTransactionActivity="CPA Offer BTA" tp:requestOrResponseAction="CPA_Offer_BT_ReqBA"/>
            <tp:ChannelId>asyncChannelA1</tp:ChannelId>
          </tp:ThisPartyActionBinding>
          <tp:OtherPartyActionBinding>NegoResp_ABID1</tp:OtherPartyActionBinding>
        </tp:CanSend>
        <!-- This send is for sending the Receipt Acknowledgment -->
        <tp:CanSend>
          <tp:ThisPartyActionBinding tp:id="NegoInit_ABID2" tp:action="ReceiptAcknowledgement"
tp:packageId="NegoInit_ReceiptAcknowledgmentPackage">
            <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
            <tp:ChannelId>asyncChannelA1</tp:ChannelId>
          </tp:ThisPartyActionBinding>
          <tp:OtherPartyActionBinding>NegoResp_ABID2</tp:OtherPartyActionBinding>
        </tp:CanSend>
        <!-- This send is for send the Final message in the collaboration. This would be the double signed CPA
document or acceptance or reject of the CPA in the final Response document-->
        <tp:CanSend>
          <tp:ThisPartyActionBinding tp:id="NegoInit_FinalResponseMessageA"
tp:action="Final_CPA_BT_RespBA" tp:packageId="NegoInit_FinalMessage">
```

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Automated Negotiation Specification

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2468      <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2469      tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2470      tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2471      <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2472      tp:businessTransactionActivity="CPA Final BTA" tp:requestOrResponseAction="Final_CPA_BT_RespBA"/>
2473      <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2474      </tp:ThisPartyActionBinding>
2475      <tp:OtherPartyActionBinding>NegoResp_FinalResponseMessageB</tp:OtherPartyActionBinding>
2476      </tp:CanSend>
2477      <!-- This receive is for receiving the response for Negotiation Offer, could be acceptance, reject or counter
2478      offer-->
2479      <tp:CanReceive>
2480      <tp:ThisPartyActionBinding tp:id="Negolnit_ABID9" tp:action="CPA_Offer_BT_RespBA"
2481      tp:packageId="Negolnit_OfferResponsePackage">
2482      <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2483      tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2484      tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2485      <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2486      tp:businessTransactionActivity="CPA Offer BTA" tp:requestOrResponseAction="CPA_Offer_BT_RespBA"/>
2487      <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2488      </tp:ThisPartyActionBinding>
2489      <tp:OtherPartyActionBinding>NegoResp_ABID9</tp:OtherPartyActionBinding>
2490      </tp:CanReceive>
2491      <!-- This receive is for receiving the Final Response document in the final BTA -->
2492      <tp:CanReceive>
2493      <tp:ThisPartyActionBinding tp:id="Negolnit_FinalResponseA" tp:action="Final_CPA_BT_ReqBA"
2494      tp:packageId="Negolnit_FinalMessage">
2495      <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2496      tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2497      tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2498      <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2499      tp:businessTransactionActivity="CPA Final BTA" tp:requestOrResponseAction="Final_CPA_BT_ReqBA"/>
2500      <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2501      </tp:ThisPartyActionBinding>
2502      <tp:OtherPartyActionBinding>NegoResp_FinalResponseB</tp:OtherPartyActionBinding>
2503      </tp:CanReceive>
2504      <!-- This Receive is for receiving the Receipt Acknowledgment -->
2505      <tp:CanReceive>
2506      <tp:ThisPartyActionBinding tp:id="Negolnit_ABID3" tp:action="ReceiptAcknowledgment"
2507      tp:packageId="Negolnit_ReceiptAcknowledgmentPackage">
2508      <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2509      tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2510      tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2511      <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2512      </tp:ThisPartyActionBinding>
2513      <tp:OtherPartyActionBinding>NegoResp_ABID3</tp:OtherPartyActionBinding>
2514      </tp:CanReceive>
2515      <!-- This Receive is for receiving the Exception -->
2516      <tp:CanReceive>
2517      <tp:ThisPartyActionBinding tp:id="Negolnit_ABID4" tp:action="Exception"
2518      tp:packageId="Negolnit_ExceptionPackage">
2519      <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2520      tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2521      tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2522      <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2523      </tp:ThisPartyActionBinding>
2524      <tp:OtherPartyActionBinding>NegoResp_ABID4</tp:OtherPartyActionBinding>
2525      </tp:CanReceive>
2526      </tp:ServiceBinding>
2527      </tp:CollaborationRole>
2528      <!-- This role is for Negotiation Initiator company performing the role of Negotiation Counter offer responder -->
2529      <tp:CollaborationRole>
2530      <tp:ProcessSpecification tp:version="2.0" tp:name="CPPA-Negotiation" xlink:type="simple"
2531      xlink:href="http://www.oasis-open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml"
2532      tp:uuid="bpid:ebXML:CPPA-Negotiation"/>
2533      <tp:Role tp:name="CPA Negotiation Counter Offer Responder" xlink:type="simple" xlink:href="http://www.oasis-
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2534 open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml#CPA Negotiation Counter Offer Responder"/>
2535 <tp:ServiceBinding>
2536 <tp:Service>bpid:ebXML:CPPA-Negotiation</tp:Service>
2537 <!-- This send is for sending the Negotiation Counter Offer in "CPA Counter Offer 2 BTA"-->
2538 <tp:CanSend>
2539 <tp:ThisPartyActionBinding tp:id="Negolnit_ABID5" tp:action="CPA_Counter_Offer_BT_ReqBA"
2540 tp:packageId="Negolnit_CounterOfferRequestPackage">
2541 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2542 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2543 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2544 <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2545 tp:businessTransactionActivity="CPA Counter Offer 2 BTA"
2546 tp:requestOrResponseAction="CPA_Counter_Offer_BT_ReqBA">
2547 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2548 </tp:ActionContext>
2549 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2550 </tp:ThisPartyActionBinding>
2551 <tp:OtherPartyActionBinding>NegoResp_ABID5</tp:OtherPartyActionBinding>
2552 </tp:CanSend>
2553 <!-- This send is for sending the Negotiation Counter Offer Response in "CPA Counter Offer 1 BTA"-->
2554 <tp:CanSend>
2555 <tp:ThisPartyActionBinding tp:id="Negolnit_ABID6" tp:action="CPA_Counter_Offer_BT_ReqBA"
2556 tp:packageId="Negolnit_CounterOfferResponsePackage">
2557 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2558 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2559 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2560 <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2561 tp:businessTransactionActivity="CPA Counter Offer 1 BTA"
2562 tp:requestOrResponseAction="CPA_Counter_Offer_BT_RespBA">
2563 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2564 </tp:ActionContext>
2565 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2566 </tp:ThisPartyActionBinding>
2567 <tp:OtherPartyActionBinding>NegoResp_ABID6</tp:OtherPartyActionBinding>
2568 </tp:CanSend>
2569 <!-- This send is for sending the Final CPA Response message in CPA_Final_BTA_init_Responder"-->
2570 <tp:CanSend>
2571 <tp:ThisPartyActionBinding tp:id="NegoCOR_FinalMessageA" tp:action="Final_CPA_BT_ReqBA"
2572 tp:packageId="Negolnit_FinalMessage">
2573 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2574 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2575 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2576 <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2577 tp:businessTransactionActivity="CPA_Final_BTA_init_Responder" tp:requestOrResponseAction="Final_CPA_BT_ReqBA">
2578 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2579 </tp:ActionContext>
2580 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2581 </tp:ThisPartyActionBinding>
2582 <tp:OtherPartyActionBinding>NegoCOResp_FinalMessageB</tp:OtherPartyActionBinding>
2583 </tp:CanSend>
2584 <!-- This send is for sending the response to the Final CPA Response message in
2585 CPA_Final_BTA_init_Initiator"-->
2586 <tp:CanSend>
2587 <tp:ThisPartyActionBinding tp:id="NegoCOR_FinalMessageResponseA"
2588 tp:action="Final_CPA_BT_RespBA" tp:packageId="Negolnit_FinalMessage">
2589 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2590 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2591 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2592 <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2593 tp:businessTransactionActivity="CPA_Final_BTA_init_Initiator" tp:requestOrResponseAction="Final_CPA_BT_RespBA">
2594 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2595 </tp:ActionContext>
2596 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2597 </tp:ThisPartyActionBinding>
2598 <tp:OtherPartyActionBinding>NegoCOResp_FinalMessageResponseB</tp:OtherPartyActionBinding>
2599 </tp:CanSend>
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2600      <!-- This send is for sending the Receipt Acknowledgment -->
2601      <tp:CanSend>
2602        <tp:ThisPartyActionBinding tp:id="Negolnit_ABID13" tp:action="ReceiptAcknowledgement"
2603        tp:packageId="Negolnit_ReceiptAcknowledgmentPackage">
2604          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2605          tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2606          tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2607          <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2608          </tp:ThisPartyActionBinding>
2609          <tp:OtherPartyActionBinding>NegoResp_ABID13</tp:OtherPartyActionBinding>
2610        </tp:CanSend>
2611      <!-- This receive is for receiving the Final CPA message in CPA_Final_BTA_init_Initiator-->
2612      <tp:CanReceive>
2613        <tp:ThisPartyActionBinding tp:id="NegoCOR_FinalMessageA1" tp:action="Final_CPA_BT_ReqBA"
2614        tp:packageId="Negolnit_FinalMessage">
2615          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2616          tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2617          tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2618          <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2619          tp:businessTransactionActivity="CPA_Final_BTA_init_Initiator" tp:requestOrResponseAction="Final_CPA_BT_ReqBA">
2620            <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2621            </tp:ActionContext>
2622            <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2623            </tp:ThisPartyActionBinding>
2624            <tp:OtherPartyActionBinding>NegoCOResp_FinalMessageB1</tp:OtherPartyActionBinding>
2625          </tp:CanReceive>
2626      <!-- This receive is for receiving the response to the Final CPA message in
2627      CPA_Final_BTA_init_Responder-->
2628      <tp:CanReceive>
2629        <tp:ThisPartyActionBinding tp:id="NegoCOR_FinalMessageResponseA2"
2630        tp:action="Final_CPA_BT_RespBA" tp:packageId="Negolnit_FinalMessage">
2631          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2632          tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2633          tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2634          <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2635          tp:businessTransactionActivity="CPA_Final_BTA_init_Responder"
2636          tp:requestOrResponseAction="Final_CPA_BT_RespBA">
2637            <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2638            </tp:ActionContext>
2639            <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2640            </tp:ThisPartyActionBinding>
2641            <tp:OtherPartyActionBinding>NegoCOResp_FinalMessageResponseB2</tp:OtherPartyActionBinding>
2642          </tp:CanReceive>
2643      <!-- This receive is for receiving the response forNegotiation Counter Offer, could be accept, reject or again
2644      send a counter offer This happens in "CPA Counter Offer 2 BTA"-->
2645      <tp:CanReceive>
2646        <tp:ThisPartyActionBinding tp:id="Negolnit_ABID10" tp:action="CPA_Counter_Offer_BT_RespBA"
2647        tp:packageId="Negolnit_CounterOfferResponsePackage">
2648          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2649          tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2650          tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2651          <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2652          tp:businessTransactionActivity="CPA Counter Offer 2 BTA"
2653          tp:requestOrResponseAction="CPA_Counter_Offer_BT_RespBA">
2654            <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2655            </tp:ActionContext>
2656            <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2657            </tp:ThisPartyActionBinding>
2658            <tp:OtherPartyActionBinding>NegoResp_ABID10</tp:OtherPartyActionBinding>
2659          </tp:CanReceive>
2660      <!-- This receive is for receiving the Negotiation Counter Offer. This happens in "CPA Counter Offer 1 BTA"-->
2661      >
2662      <tp:CanReceive>
2663        <tp:ThisPartyActionBinding tp:id="Negolnit_ABID12" tp:action="CPA_Counter_Offer_BT_RespBA"
2664        tp:packageId="Negolnit_CounterOfferRequestPackage">
2665          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"

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2666 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2667 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2668 <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2669 tp:businessTransactionActivity="CPA Counter Offer 1 BTA"
2670 tp:requestOrResponseAction="CPA_Counter_Offer_BT_ReqBA">
2671 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2672 </tp:ActionContext>
2673 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2674 </tp:ThisPartyActionBinding>
2675 <tp:OtherPartyActionBinding>NegoResp_ABID12</tp:OtherPartyActionBinding>
2676 </tp:CanReceive>
2677 <!-- This Receive is for receiving the Receipt Acknowledgment -->
2678 <tp:CanReceive>
2679 <tp:ThisPartyActionBinding tp:id="NegoInit_ABID7" tp:action="ReceiptAcknowledgment"
2680 tp:packageId="NegoInit_ReceiptAcknowledgmentPackage">
2681 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2682 tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2683 tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2684 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2685 </tp:ThisPartyActionBinding>
2686 <tp:OtherPartyActionBinding>NegoResp_ABID7</tp:OtherPartyActionBinding>
2687 </tp:CanReceive>
2688 <!-- This Receive is for receiving the Exception -->
2689 <tp:CanReceive>
2690 <tp:ThisPartyActionBinding tp:id="NegoInit_ABID8" tp:action="Exception"
2691 tp:packageId="NegoInit_ExceptionPackage">
2692 <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2693 tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2694 tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2695 <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2696 </tp:ThisPartyActionBinding>
2697 <tp:OtherPartyActionBinding>NegoResp_ABID8</tp:OtherPartyActionBinding>
2698 </tp:CanReceive>
2699 </tp:ServiceBinding>
2700 </tp:CollaborationRole>
2701 <!-- Certificates used by the "Negotiation Initiator" company -->
2702 <tp:Certificate tp:certId="NegoInit_AppCert">
2703 <ds:KeyInfo>
2704 <ds:KeyName>NegoInit_AppCert_Key</ds:KeyName>
2705 </ds:KeyInfo>
2706 </tp:Certificate>
2707 <tp:SecurityDetails tp:securityId="NegoInit_MessageSecurity">
2708 <tp:TrustAnchors>
2709 <tp:AnchorCertificateRef tp:certId="NegoInit_AppCert"/>
2710 </tp:TrustAnchors>
2711 </tp:SecurityDetails>
2712 <tp:DeliveryChannel tp:channelId="asyncChannelA1" tp:transportId="transportA1"
2713 tp:docExchangeId="docExchangeA1">
2714 <tp:MessagingCharacteristics tp:syncReplyMode="none" tp:ackRequested="always"
2715 tp:ackSignatureRequested="always" tp:duplicateElimination="always"/>
2716 </tp:DeliveryChannel>
2717 <tp:Transport tp:transportId="transportA1">
2718 <tp:TransportSender>
2719 <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
2720 <tp:AccessAuthentication>basic</tp:AccessAuthentication>
2721 </tp:TransportSender>
2722 <tp:TransportReceiver>
2723 <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
2724 <tp:AccessAuthentication>basic</tp:AccessAuthentication>
2725 <tp:Endpoint tp:uri="https://www.NegoInit.com/servlets/ebxmlhandler/async" tp:type="allPurpose"/>
2726 </tp:TransportReceiver>
2727 </tp:Transport>
2728 <tp:DocExchange tp:docExchangeId="docExchangeA1">
2729 <tp:ebXMLSenderBinding tp:version="2.0"/>
2730 <tp:ebXMLReceiverBinding tp:version="2.0"/>
2731 </tp:DocExchange>
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2732     </tp:PartyInfo>
2733     <!-- Party info for Negotiation Responder -->
2734     <tp:PartyInfo tp:partyName="NegotiationResponder" tp:defaultMshChannelId="asyncChannelB1"
2735 tp:defaultMshPackageId="Negolnit_MshSignalPackage">
2736       <tp:PartyId tp:type="urn:oasis:names:tc:ebxml-cppa:partyid-type:duns">123456789</tp:PartyId>
2737       <tp:PartyRef xlink:href="http://NegoResp.com/about.html"/>
2738       <!-- This role is for Negotiation Responder performing the role of Negotiation Responder -->
2739       <tp:CollaborationRole>
2740         <tp:ProcessSpecification tp:version="2.0" tp:name="CPPA-Negotiation" xlink:type="simple"
2741 xlink:href="http://www.oasis-open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml"
2742 tp:uuid="bpid:ebXML:CPPA-Negotiation"/>
2743         <tp:Role tp:name="CPA Negotiation Responder" xlink:type="simple" xlink:href="http://www.oasis-
2744 open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml#CPA Negotiation Responder"/>
2745         <tp:ServiceBinding>
2746           <tp:Service bpid:ebXML:CPPA-Negotiation</tp:Service>
2747           <!-- This send is for sending the Negotiation Offer Response, this could be accept, pending, response-->
2748           <tp:CanSend>
2749             <tp:ThisPartyActionBinding tp:id="NegoResp_ABID9" tp:action="CPA_Offer_BT_RespBA"
2750 tp:packageId="Negolnit_OfferResponsePackage">
2751               <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2752 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2753 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2754               <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2755 tp:businessTransactionActivity="CPA Offer BTA" tp:requestOrResponseAction="CPA_Offer_BT_RespBA"/>
2756               <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2757             </tp:ThisPartyActionBinding>
2758             <tp:OtherPartyActionBinding>Negolnit_ABID9</tp:OtherPartyActionBinding>
2759           </tp:CanSend>
2760           <!-- This send is for sending the Final Response document in the final BTA -->
2761           <tp:CanSend>
2762             <tp:ThisPartyActionBinding tp:id="NegoResp_FinalResponseB" tp:action="Final_CPA_BT_ReqBA"
2763 tp:packageId="Negolnit_FinalMessage">
2764               <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2765 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2766 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2767               <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2768 tp:businessTransactionActivity="CPA Final BTA" tp:requestOrResponseAction="Final_CPA_BT_ReqBA"/>
2769               <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2770             </tp:ThisPartyActionBinding>
2771             <tp:OtherPartyActionBinding>Negolnit_FinalResponseA</tp:OtherPartyActionBinding>
2772           </tp:CanSend>
2773           <!-- This send is for sending the Receipt Acknowledgment -->
2774           <tp:CanSend>
2775             <tp:ThisPartyActionBinding tp:id="NegoResp_ABID3" tp:action="ReceiptAcknowledgement"
2776 tp:packageId="Negolnit_ReceiptAcknowledgmentPackage">
2777               <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2778 tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2779 tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2780               <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2781             </tp:ThisPartyActionBinding>
2782             <tp:OtherPartyActionBinding>Negolnit_ABID3</tp:OtherPartyActionBinding>
2783           </tp:CanSend>
2784           <!-- This receive is for receiving the Final message in the collaboration. This would be the double signed
2785 CPA document or acceptance or reject of the CPA in the final Response document-->
2786           <tp:CanReceive>
2787             <tp:ThisPartyActionBinding tp:id="NegoResp_FinalResponseMessageB"
2788 tp:action="Final_CPA_BT_RespBA" tp:packageId="Negolnit_FinalMessage">
2789               <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2790 tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2791 tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2792               <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2793 tp:businessTransactionActivity="CPA Final BTA" tp:requestOrResponseAction="Final_CPA_BT_RespBA"/>
2794               <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2795             </tp:ThisPartyActionBinding>
2796             <tp:OtherPartyActionBinding>Negolnit_FinalResponseMessageA</tp:OtherPartyActionBinding>
2797           </tp:CanReceive>
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2798      <!-- This receive is for receiving the offer in the first place -->
2799      <tp:CanReceive>
2800        <tp:ThisPartyActionBinding tp:id="NegoResp_ABID1" tp:action="CPA_Offer_BT_ReqBA"
2801        tp:packageId="Negolnit_OfferRequestPackage">
2802          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2803          tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2804          tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2805          <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2806          tp:businessTransactionActivity="CPA Offer BTA" tp:requestOrResponseAction="CPA_Offer_BT_ReqBA"/>
2807          <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2808        </tp:ThisPartyActionBinding>
2809        <tp:OtherPartyActionBinding>Negolnit_ABID1</tp:OtherPartyActionBinding>
2810      </tp:CanReceive>
2811      <!-- This Receive is for receiving the Receipt Acknowledgment -->
2812      <tp:CanReceive>
2813        <tp:ThisPartyActionBinding tp:id="NegoResp_ABID2" tp:action="ReceiptAcknowledgment"
2814        tp:packageId="Negolnit_ReceiptAcknowledgmentPackage">
2815          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2816          tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2817          tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2818          <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2819        </tp:ThisPartyActionBinding>
2820        <tp:OtherPartyActionBinding>Negolnit_ABID2</tp:OtherPartyActionBinding>
2821      </tp:CanReceive>
2822      <!-- This Receive is for receiving the Exception -->
2823      <tp:CanReceive>
2824        <tp:ThisPartyActionBinding tp:id="NegoResp_ABID4" tp:action="Exception"
2825        tp:packageId="Negolnit_ExceptionPackage">
2826          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2827          tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2828          tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2829          <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2830        </tp:ThisPartyActionBinding>
2831        <tp:OtherPartyActionBinding>Negolnit_ABID4</tp:OtherPartyActionBinding>
2832      </tp:CanReceive>
2833    </tp:ServiceBinding>
2834  </tp:CollaborationRole>
2835  <!-- This role is for Negotiation Responder company performing the role of Negotiation Counter offer initiator -->
2836  <tp:CollaborationRole>
2837    <tp:ProcessSpecification tp:version="2.0" tp:name="CPPA-Negotiation" xlink:type="simple"
2838    xlink:href="http://www.oasis-open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml"
2839    tp:uuid="bpid:ebXML:CPPA-Negotiation"/>
2840    <tp:Role tp:name="CPA Negotiation Counter Offer Initiator" xlink:type="simple" xlink:href="http://www.oasis-
2841    open.org/committees/ebxml-cppa-negot/CPA_Negotiation_BPSS.xml#CPA Negotiation Counter Offer Initiator"/>
2842    <tp:ServiceBinding>
2843      <tp:Service>bpid:ebXML:CPPA-Negotiation</tp:Service>
2844      <!-- This send is for sending the Negotiation Counter Offer. This happens in "CPA Counter Offer 1 BTA" -->
2845      <tp:CanSend>
2846        <tp:ThisPartyActionBinding tp:id="NegoResp_ABID12" tp:action="CPA_Counter_Offer_BT_ReqBA"
2847        tp:packageId="Negolnit_CounterOfferRequestPackage">
2848          <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2849          tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2850          tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2851          <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2852          tp:businessTransactionActivity="CPA Counter Offer 1 BTA"
2853          tp:requestOrResponseAction="CPA_Counter_Offer_BT_ReqBA">
2854            <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2855          </tp:ActionContext>
2856          <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2857        </tp:ThisPartyActionBinding>
2858        <tp:OtherPartyActionBinding>Negolnit_ABID12</tp:OtherPartyActionBinding>
2859      </tp:CanSend>
2860      <!-- This send is for sending the Negotiation Counter Offer response. This happens in "CPA Counter Offer 2
2861      BTA" -->
2862      <tp:CanSend>
2863        <tp:ThisPartyActionBinding tp:id="NegoResp_ABID10" tp:action="CPA_Counter_Offer_BT_ReqBA"

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2864 tp:packageId="Negolnit_CounterOfferResponsePackage">
2865   <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2866   tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2867   tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2868   <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2869   tp:businessTransactionActivity="CPA Counter Offer 2 BTA"
2870   tp:requestOrResponseAction="CPA_Counter_Offier_BT_RespBA">
2871     <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2872     </tp:ActionContext>
2873     <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2874     </tp:ThisPartyActionBinding>
2875     <tp:OtherPartyActionBinding>Negolnit_ABID10</tp:OtherPartyActionBinding>
2876   </tp:CanSend>
2877   <!-- This send is for sending the Receipt Acknowledgment -->
2878   <tp:CanSend>
2879     <tp:ThisPartyActionBinding tp:id="NegoResp_ABID7" tp:action="ReceiptAcknowledgement"
2880   tp:packageId="Negolnit_ReceiptAcknowledgmentPackage">
2881     <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2882     tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2883     tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2884     <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2885     </tp:ThisPartyActionBinding>
2886     <tp:OtherPartyActionBinding>Negolnit_ABID7</tp:OtherPartyActionBinding>
2887   </tp:CanSend>
2888   <!-- This send is for sending the Final CPA message in CPA_Final_BTA_init_Initiator-->
2889   <tp:CanSend>
2890     <tp:ThisPartyActionBinding tp:id="NegoCOResp_FinalMessageB1" tp:action="Final_CPA_BT_ReqBA"
2891   tp:packageId="Negolnit_FinalMessage">
2892     <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2893     tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2894     tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2895     <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2896     tp:businessTransactionActivity="CPA_Final_BTA_init_Initiator" tp:requestOrResponseAction="Final_CPA_BT_ReqBA">
2897       <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2898     </tp:ActionContext>
2899     <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2900     </tp:ThisPartyActionBinding>
2901     <tp:OtherPartyActionBinding>NegoCOR_FinalMessageA1</tp:OtherPartyActionBinding>
2902   </tp:CanSend>
2903   <!-- This send is for sending the response to the Final CPA message in CPA_Final_BTA_init_Responder-->
2904   <tp:CanSend>
2905     <tp:ThisPartyActionBinding tp:id="NegoCOResp_FinalMessageResponseB2"
2906   tp:action="Final_CPA_BT_RespBA" tp:packageId="Negolnit_FinalMessage">
2907     <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2908     tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2909     tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2910     <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2911     tp:businessTransactionActivity="CPA_Final_BTA_init_Responder"
2912     tp:requestOrResponseAction="Final_CPA_BT_RespBA">
2913       <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2914     </tp:ActionContext>
2915     <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2916     </tp:ThisPartyActionBinding>
2917     <tp:OtherPartyActionBinding>NegoCOR_FinalMessageResponseA2</tp:OtherPartyActionBinding>
2918   </tp:CanSend>
2919   <!-- This receive is for receiving the response forNegotiation Counter Offer, could be accept, reject or again
2920   send a counter offer This happens in "CPA Counter Offer 1 BTA"-->
2921   <tp:CanReceive>
2922     <tp:ThisPartyActionBinding tp:id="NegoResp_ABID6" tp:action="CPA_Counter_Offier_BT_RespBA"
2923   tp:packageId="Negolnit_CounterOfferResponsePackage">
2924     <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
2925     tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
2926     tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2927     <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC"
2928     tp:businessTransactionActivity="CPA Counter Offer 1 BTA"
2929     tp:requestOrResponseAction="CPA_Counter_Offier_BT_RespBA">
```

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```
2930         <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2931     </tp:ActionContext>
2932     <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2933 </tp:ThisPartyActionBinding>
2934 <tp:OtherPartyActionBinding>NegotInit_ABID6</tp:OtherPartyActionBinding>
2935 </tp:CanReceive>
2936 <!-- This receive is for receiving Negotiation Counter Offer.This happens in "CPA Counter Offer 2 BTA"-->
2937 <tp:CanReceive>
2938     <tp:ThisPartyActionBinding tp:id="NegoResp_ABID5" tp:action="CPA_Counter_Offer_BT_ReqBA"
tp:packageId="NegotInit_CounterOfferRequestPackage">
2939         <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2940         <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC">
2941             <tp:businessTransactionActivity="CPA Counter Offer 2 BTA"
tp:requestOrResponseAction="CPA_Counter_Offer_BT_ReqBA">
2942                 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2943             </tp:ActionContext>
2944             <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2945 </tp:ThisPartyActionBinding>
2946 <tp:OtherPartyActionBinding>NegotInit_ABID5</tp:OtherPartyActionBinding>
2947 </tp:CanReceive>
2948 <!-- This receive is for receiving the Final CPA message in CPA_Final_BTA_init_Responder"-->
2949 <tp:CanReceive>
2950     <tp:ThisPartyActionBinding tp:id="NegoCOResp_FinalMessageB" tp:action="Final_CPA_BT_ReqBA"
tp:packageId="NegotInit_FinalMessage">
2951         <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2952         <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC">
2953             <tp:businessTransactionActivity="CPA_Final_BTA_init_Responder" tp:requestOrResponseAction="Final_CPA_BT_ReqBA">
2954                 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2955             </tp:ActionContext>
2956             <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2957 </tp:ThisPartyActionBinding>
2958 <tp:OtherPartyActionBinding>NegoCOR_FinalMessageA</tp:OtherPartyActionBinding>
2959 </tp:CanReceive>
2960 <!-- This receive is for receiving the response to the Final CPA message in CPA_Final_BTA_init_Initiator"-->
2961 <tp:CanReceive>
2962     <tp:ThisPartyActionBinding tp:id="NegoCOResp_FinalMessageResponseB"
tp:action="Final_CPA_BT_RespBA" tp:packageId="NegotInit_FinalMessage">
2963         <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="false"
tp:isNonRepudiationReceiptRequired="false" tp:isConfidential="none" tp:isAuthenticated="none" tp:isTamperProof="none"
tp:isAuthorizationRequired="false" tp:timeToAcknowledgeReceipt="PT2H" tp:timeToPerform="P1D"/>
2964         <tp:ActionContext tp:binaryCollaboration="CPA Negotiation BC">
2965             <tp:businessTransactionActivity="CPA_Final_BTA_init_Initiator" tp:requestOrResponseAction="Final_CPA_BT_RespBA">
2966                 <tp:CollaborationActivity tp:name="CPA Counter Offer CA"/>
2967             </tp:ActionContext>
2968             <tp:ChannelId>asyncChannelA1</tp:ChannelId>
2969 </tp:ThisPartyActionBinding>
2970 <tp:OtherPartyActionBinding>NegoCOR_FinalMessageResponseA</tp:OtherPartyActionBinding>
2971 </tp:CanReceive>
2972 <!-- This Receive is for receiving the Receipt Acknowledgment -->
2973 <tp:CanReceive>
2974     <tp:ThisPartyActionBinding tp:id="NegoResp_ABID13" tp:action="ReceiptAcknowledgment"
tp:packageId="NegotInit_ReceiptAcknowledgmentPackage">
2975         <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
2976         <tp:ChannelId>asyncChannelB1</tp:ChannelId>
2977 </tp:ThisPartyActionBinding>
2978 <tp:OtherPartyActionBinding>NegotInit_ABID13</tp:OtherPartyActionBinding>
2979 </tp:CanReceive>
2980 <!-- This Receive is for receiving the Exception -->
2981 <tp:CanReceive>
2982     <tp:ThisPartyActionBinding tp:id="NegoResp_ABID8" tp:action="Exception"
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2996 tp:packageId="Negolnit_ExceptionPackage">
2997   <tp:BusinessTransactionCharacteristics tp:isNonRepudiationRequired="true"
2998   tp:isNonRepudiationReceiptRequired="true" tp:isConfidential="transient" tp:isAuthenticated="persistent"
2999   tp:isTamperProof="persistent" tp:isAuthorizationRequired="true"/>
3000   <tp:ChannelId>asyncChannelB1</tp:ChannelId>
3001   </tp:ThisPartyActionBinding>
3002   <tp:OtherPartyActionBinding>Negolnit_ABID8</tp:OtherPartyActionBinding>
3003   </tp:CanReceive>
3004   </tp:ServiceBinding>
3005   </tp:CollaborationRole>
3006   <!-- Certificates used by the "Negotiation Initiator" company -->
3007   <tp:Certificate tp:certId="NegoResp_AppCert">
3008     <ds:KeyInfo>
3009       <ds:KeyName>NegoResp_AppCert_Key</ds:KeyName>
3010     </ds:KeyInfo>
3011   </tp:Certificate>
3012   <tp:SecurityDetails tp:securityId="NegoResp_MessageSecurity">
3013     <tp:TrustAnchors>
3014       <tp:AnchorCertificateRef tp:certId="NegoResp_AppCert"/>
3015     </tp:TrustAnchors>
3016   </tp:SecurityDetails>
3017   <tp:DeliveryChannel tp:channelId="asyncChannelB1" tp:transportId="transportB1"
3018   tp:docExchangeId="docExchangeB1">
3019     <tp:MessagingCharacteristics tp:syncReplyMode="none" tp:ackRequested="always"
3020     tp:ackSignatureRequested="always" tp:duplicateElimination="always"/>
3021     </tp:DeliveryChannel>
3022     <tp:Transport tp:transportId="transportB1">
3023       <tp:TransportSender>
3024         <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
3025         <tp:AccessAuthentication>basic</tp:AccessAuthentication>
3026       </tp:TransportSender>
3027       <tp:TransportReceiver>
3028         <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
3029         <tp:AccessAuthentication>basic</tp:AccessAuthentication>
3030         <tp:Endpoint tp:uri="https://www.NegoResp.com/servlets/ebxmlhandler/async" tp:type="allPurpose"/>
3031       </tp:TransportReceiver>
3032     </tp:Transport>
3033     <tp:DocExchange tp:docExchangeId="docExchangeB1">
3034       <tp:ebXMLSenderBinding tp:version="2.0"/>
3035       <tp:ebXMLReceiverBinding tp:version="2.0"/>
3036     </tp:DocExchange>
3037   </tp:PartyInfo>
3038   <!-- SimplePart corresponding to the SOAP Envelope -->
3039   <tp:SimplePart tp:id="Negolnit_MsgHdr" tp:mimetype="text/xml">
3040     <tp:NamespaceSupported tp:location="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-
3041     2_0.xsd" tp:version="2.0">
3042       http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd
3043     </tp:NamespaceSupported>
3044   </tp:SimplePart>
3045   <tp:SimplePart tp:id="NegoResp_MsgHdr" tp:mimetype="text/xml">
3046     <tp:NamespaceSupported tp:location="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-
3047     2_0.xsd" tp:version="2.0">
3048       http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd
3049     </tp:NamespaceSupported>
3050   </tp:SimplePart>
3051   <!-- SimplePart corresponding to a Receipt Acknowledgment business signal -->
3052   <tp:SimplePart tp:id="Negolnit_ReceiptAcknowledgment" tp:mimetype="application/xml">
3053     <tp:NamespaceSupported tp:location="http://www.ebxml.org/bpss/ReceiptAcknowledgment.xsd"
3054     tp:version="2.0">http://www.ebxml.org/bpss/ReceiptAcknowledgment.xsd
3055   </tp:NamespaceSupported>
3056   </tp:SimplePart>
3057   <tp:SimplePart tp:id="NegoResp_ReceiptAcknowledgment" tp:mimetype="application/xml">
3058     <tp:NamespaceSupported tp:location="http://www.ebxml.org/bpss/ReceiptAcknowledgment.xsd" tp:version="2.0">
3059       http://www.ebxml.org/bpss/ReceiptAcknowledgment.xsd
3060   </tp:NamespaceSupported>
3061   </tp:SimplePart>
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3062 <!-- SimplePart corresponding to an Exception business signal -->
3063 <tp:SimplePart tp:id="Negolnit_Exception" tp:mimetype="application/xml">
3064 <tp:NamespaceSupported tp:location="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-
3065 2_0.xsd" tp:version="2.0">
3066 http://www.ebxml.org/bpss/Exception.xsd
3067 </tp:NamespaceSupported>
3068 </tp:SimplePart>
3069 <tp:SimplePart tp:id="NegoResp_Exception" tp:mimetype="application/xml">
3070 <tp:NamespaceSupported tp:location="http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-
3071 2_0.xsd" tp:version="2.0">
3072 http://www.ebxml.org/bpss/Exception.xsd
3073 </tp:NamespaceSupported>
3074 </tp:SimplePart>
3075 <!-- SimplePart corresponding to a negotiation offer request action -->
3076 <tp:SimplePart tp:id="Negolnit_OfferRequest" tp:mimetype="application/xml">
3077 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/NegotiationOffer.xsd" tp:version="1.0">
3078 http://www.ebxml.org/schemas/NegotiationOffer.xsd
3079 </tp:NamespaceSupported>
3080 </tp:SimplePart>
3081 <!-- SimplePart corresponding to a Negotiation offer response action (accept) -->
3082 <tp:SimplePart tp:id="Negolnit_OfferAccept" tp:mimetype="application/xml">
3083 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/OfferAccept.xsd" tp:version="1.0">
3084 http://www.ebxml.org/schemas/OfferAccept.xsd
3085 </tp:NamespaceSupported>
3086 </tp:SimplePart>
3087 <!-- SimplePart corresponding to a Negotiation offer response action (reject) -->
3088 <tp:SimplePart tp:id="Negolnit_OfferReject" tp:mimetype="application/xml">
3089 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/OfferReject.xsd" tp:version="1.0">
3090 http://www.ebxml.org/schemas/OfferReject.xsd
3091 </tp:NamespaceSupported>
3092 </tp:SimplePart>
3093 <!-- SimplePart corresponding to a Negotiation offer response action (counter pending) -->
3094 <tp:SimplePart tp:id="Negolnit_OfferCounterPending" tp:mimetype="application/xml">
3095 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/OfferCounterPending.xsd" tp:version="1.0">
3096 http://www.ebxml.org/schemas/OfferCounterPending.xsd
3097 </tp:NamespaceSupported>
3098 </tp:SimplePart>
3099 <!-- SimplePart corresponding to a Negotiation Counter offer request action -->
3100 <tp:SimplePart tp:id="Negolnit_CounterOfferRequest" tp:mimetype="application/xml">
3101 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/CounterOffer.xsd" tp:version="1.0">
3102 http://www.ebxml.org/schemas/CounterOfferRequest.xsd
3103 </tp:NamespaceSupported>
3104 </tp:SimplePart>
3105 <!-- SimplePart corresponding to a Negotiation Final document being sent in the negotiation process -->
3106 <tp:SimplePart tp:id="Negolnit_FinalMessage" tp:mimetype="application/xml">
3107 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/FinalMessage.xsd" tp:version="1.0">
3108 http://www.ebxml.org/schemas/FinalMessage.xsd
3109 </tp:NamespaceSupported>
3110 </tp:SimplePart>
3111 <!-- SimplePart corresponding to a Negotiation Counter offer request action -->
3112 <tp:SimplePart tp:id="Negolnit_FinalMessageResponse" tp:mimetype="application/xml">
3113 <tp:NamespaceSupported tp:location="http://www.ebxml.org/schemas/FinalMessageResponse.xsd"
3114 tp:version="1.0">
3115 http://www.ebxml.org/schemas/FinalMessageResponse.xsd
3116 </tp:NamespaceSupported>
3117 </tp:SimplePart>
3118 <!-- An ebXML message with a SOAP Envelope only -->
3119 <tp:Packaging tp:id="Negolnit_MshSignalPackage">
3120 <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3121 <tp:CompositeList>
3122 <tp:Composite tp:id="Negolnit_MshSignal" tp:mimetype="multipart/related" tp:mimeparameters="type=text/xml">
3123 <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3124 </tp:Composite>
3125 </tp:CompositeList>
3126 </tp:Packaging>
3127 <!-- An ebXML message with a SOAP Envelope plus a Offer action payload -->
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3128     <tp:Packaging tp:id="Negolnit_OfferRequestPackage">
3129       <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3130       <tp:CompositeList>
3131         <tp:Composite tp:id="Negolnit_OfferRequestMsgId" tp:mimetype="multipart/related"
3132 tp:mimeparameters="type=text/xml">
3133           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3134           <tp:Constituent tp:idref="Negolnit_OfferRequest"/>
3135         </tp:Composite>
3136       </tp:CompositeList>
3137     </tp:Packaging>
3138     <!-- An ebXML message with a SOAP Envelope plus a offer response action payload -->
3139     <tp:Packaging tp:id="Negolnit_OfferResponsePackage">
3140       <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3141       <tp:CompositeList>
3142         <tp:Composite tp:id="Negolnit_OfferResponseAcceptMsgId" tp:mimetype="multipart/related"
3143 tp:mimeparameters="type=text/xml">
3144           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3145           <tp:Constituent tp:idref="Negolnit_OfferAccept"/>
3146         </tp:Composite>
3147       </tp:CompositeList>
3148       <tp:CompositeList>
3149         <tp:Composite tp:id="Negolnit_OfferResponseRejectMsgId" tp:mimetype="multipart/related"
3150 tp:mimeparameters="type=text/xml">
3151           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3152           <tp:Constituent tp:idref="Negolnit_OfferReject"/>
3153         </tp:Composite>
3154       </tp:CompositeList>
3155       <tp:CompositeList>
3156         <tp:Composite tp:id="Negolnit_OfferResponsePendingMsgId" tp:mimetype="multipart/related"
3157 tp:mimeparameters="type=text/xml">
3158           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3159           <tp:Constituent tp:idref="Negolnit_OfferCounterPending"/>
3160         </tp:Composite>
3161       </tp:CompositeList>
3162     </tp:Packaging>
3163     <!-- An ebXML message with a SOAP Envelope plus a counter offer request action payload -->
3164     <tp:Packaging tp:id="Negolnit_CounterOfferRequestPackage">
3165       <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3166       <tp:CompositeList>
3167         <tp:Composite tp:id="Negolnit_CounterOfferRequestMsgId" tp:mimetype="multipart/related"
3168 tp:mimeparameters="type=text/xml">
3169           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3170           <tp:Constituent tp:idref="Negolnit_CounterOfferRequest"/>
3171         </tp:Composite>
3172       </tp:CompositeList>
3173     </tp:Packaging>
3174     <!-- An ebXML message with a SOAP Envelope plus a counter offer response action payload -->
3175     <tp:Packaging tp:id="Negolnit_CounterOfferResponsePackage">
3176       <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3177       <tp:CompositeList>
3178         <tp:Composite tp:id="Negolnit_CounterOfferResponseAcceptMsgId" tp:mimetype="multipart/related"
3179 tp:mimeparameters="type=text/xml">
3180           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3181           <tp:Constituent tp:idref="Negolnit_OfferAccept"/>
3182         </tp:Composite>
3183       </tp:CompositeList>
3184       <tp:CompositeList>
3185         <tp:Composite tp:id="Negolnit_CounterOfferResponseRejectMsgId" tp:mimetype="multipart/related"
3186 tp:mimeparameters="type=text/xml">
3187           <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3188           <tp:Constituent tp:idref="Negolnit_OfferReject"/>
3189         </tp:Composite>
3190       </tp:CompositeList>
3191       <tp:CompositeList>
3192         <tp:Composite tp:id="Negolnit_CounterOfferResponsePendingMsgId" tp:mimetype="multipart/related"
3193 tp:mimeparameters="type=text/xml">
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3194         <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3195         <tp:Constituent tp:idref="Negolnit_OfferCounterPending"/>
3196     </tp:Composite>
3197 </tp:CompositeList>
3198 </tp:Packaging>
3199 <!-- An ebXML message with a SOAP Envelope plus a Receipt Acknowledgment payload -->
3200 <tp:Packaging tp:id="Negolnit_ReceiptAcknowledgmentPackage">
3201     <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3202     <tp:CompositeList>
3203         <tp:Composite tp:id="Negolnit_ReceiptAcknowledgmentMsg" tp:mimetype="multipart/related"
3204 tp:mimeparameters="type=text/xml">
3205             <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3206             <tp:Constituent tp:idref="Negolnit_ReceiptAcknowledgment"/>
3207         </tp:Composite>
3208     </tp:CompositeList>
3209 </tp:Packaging>
3210 <tp:Packaging tp:id="NegoResp_ReceiptAcknowledgmentPackage">
3211     <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3212     <tp:CompositeList>
3213         <tp:Composite tp:id="NegoResp_ReceiptAcknowledgmentMsg" tp:mimetype="multipart/related"
3214 tp:mimeparameters="type=text/xml">
3215             <tp:Constituent tp:idref="NegoResp_MsgHdr"/>
3216             <tp:Constituent tp:idref="NegoResp_ReceiptAcknowledgment"/>
3217         </tp:Composite>
3218     </tp:CompositeList>
3219 </tp:Packaging>
3220 <!-- An ebXML message with a SOAP Envelope plus an Exception payload -->
3221 <tp:Packaging tp:id="Negolnit_ExceptionPackage">
3222     <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3223     <tp:CompositeList>
3224         <tp:Composite tp:id="Negolnit_ExceptionMsg" tp:mimetype="multipart/related"
3225 tp:mimeparameters="type=text/xml">
3226             <tp:Constituent tp:idref="Negolnit_MsgHdr"/>
3227             <tp:Constituent tp:idref="Negolnit_Exception"/>
3228         </tp:Composite>
3229     </tp:CompositeList>
3230 </tp:Packaging>
3231 <tp:Packaging tp:id="NegoResp_ExceptionPackage">
3232     <tp:ProcessingCapabilities tp:parse="true" tp:generate="true"/>
3233     <tp:CompositeList>
3234         <tp:Composite tp:id="NegoResp_ExceptionMsg" tp:mimetype="multipart/related"
3235 tp:mimeparameters="type=text/xml">
3236             <tp:Constituent tp:idref="NegoResp_MsgHdr"/>
3237             <tp:Constituent tp:idref="NegoResp_Exception"/>
3238         </tp:Composite>
3239     </tp:CompositeList>
3240 </tp:Packaging>
3241 <tp:Comment xml:lang="en-US">CPA negotiation between Negolnit.com and NegoResp.com</tp:Comment>
3242 </tp:CollaborationProtocolAgreement>
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3303 isPositiveResponse="true" isTamperProof="none"/>
3304 <DocumentEnvelope businessDocument="CPA Reject Offer Doc"
3305 businessDocumentIDRef="CPA_Reject_Offer_Doc" isAuthenticated="none" isConfidential="none"
3306 isPositiveResponse="false" isTamperProof="none"/>
3307 <DocumentEnvelope businessDocument="CPA Counter Pending Offer Doc"
3308 businessDocumentIDRef="CPA_Counter_Pending_Offer_Doc" isAuthenticated="none" isConfidential="none"
3309 isPositiveResponse="true" isTamperProof="none"/>
3310 </RespondingBusinessActivity>
3311 </BusinessTransaction>
3312 <!-- Business Transaction for sending the counter offer -->
3313 <BusinessTransaction name="CPA Counter Offer BT" nameID="CPA_Counter_Offer_BT">
3314 <RequestingBusinessActivity name="CPA_Counter_Offer_BT_ReqBA" nameID="CPA_Counter_Offer_BT_ReqBA"
3315 isAuthorizationRequired="false" isIntelligibleCheckRequired="false" isNonRepudiationReceiptRequired="false"
3316 isNonRepudiationRequired="false">
3317 <DocumentEnvelope businessDocument="CPA Counter Offer Doc"
3318 businessDocumentIDRef="CPA_Counter_Offer_Doc" isAuthenticated="none" isConfidential="none"
3319 isTamperProof="none"/>
3320 </RequestingBusinessActivity>
3321 <RespondingBusinessActivity name="CPA_Counter_Offer_BT_RespBA"
3322 nameID="CPA_Counter_Offer_BT_RespBA" isAuthorizationRequired="false" isIntelligibleCheckRequired="false"
3323 isNonRepudiationRequired="false">
3324 <DocumentEnvelope businessDocument="CPA Accept Offer Doc"
3325 businessDocumentIDRef="CPA_Accept_Offer_Doc" isAuthenticated="none" isConfidential="none"
3326 isPositiveResponse="true" isTamperProof="none"/>
3327 <DocumentEnvelope businessDocument="CPA Reject Offer Doc"
3328 businessDocumentIDRef="CPA_Reject_Offer_Doc" isAuthenticated="none" isConfidential="none"
3329 isPositiveResponse="false" isTamperProof="none"/>
3330 <DocumentEnvelope businessDocument="CPA Counter Pending Offer Doc"
3331 businessDocumentIDRef="CPA_Counter_Pending_Offer_Doc" isAuthenticated="none" isConfidential="none"
3332 isPositiveResponse="true" isTamperProof="none"/>
3333 </RespondingBusinessActivity>
3334 </BusinessTransaction>
3335 <!-- Main collaboration for negotiation business process -->
3336 <BinaryCollaboration name="CPA Negotiation BC" nameID="CPA_Negotiation_BC"
3337 initiatingRole="CPA_Negotiation_Initiator_Role">
3338 <!-- Role for initiator for negotiation process -->
3339 <Role name="CPA Negotiation Initiator" nameID="CPA_Negotiation_Initiator_Role"/>
3340 <!-- Role for initial responder of business collaboration -->
3341 <Role name="CPA Negotiation Responder" nameID="CPA_Negotiation_Responder_Role"/>
3342 <Start toBusinessState="CPA_Offer_BTA"/>
3343 <BusinessTransactionActivity name="CPA Offer BTA" nameID="CPA_Offer_BTA" businessTransaction="CPA Offer
3344 BT" businessTransactionIDRef="CPA_Offer_BT" fromRole="CPA Negotiation Initiator"
3345 fromRoleIDRef="CPA_Negotiation_Initiator_Role" toRole="CPA Negotiation Responder"
3346 toRoleIDRef="CPA_Negotiation_Responder_Role" isLegallyBinding="false" isConcurrent="false"/>
3347 <CollaborationActivity name="CPA Counter Offer CA" binaryCollaboration="CPA Negotiation Counter Offer BC"
3348 binaryCollaborationIDRef="CPA_Negotiation_CounterOfferBC" fromRole="CPA Negotiation Counter Offer Initiator"
3349 fromRoleIDRef="CPA_Negotiation_CounterOfferInitiator_Role" toRole="CPA Negotiation Counter Offer Responder"
3350 toRoleIDRef="CPA_Negotiation_CounterOfferResponder_Role" precondition="Initiating Role for this activity corresponds to
3351 Responding Role in CPA Offer BTA"/>
3352 <BusinessTransactionActivity name="CPA Final BTA" nameID="CPA_Final_BTA" businessTransaction="CPA Final
3353 BT" businessTransactionIDRef="CPA_Final_BT" fromRole="CPA Negotiation Responder"
3354 fromRoleIDRef="CPA_Negotiation_Responder_Role" toRole="CPA Negotiation Initiator"
3355 toRoleIDRef="CPA_Negotiation_Initiator_Role" isLegallyBinding="false" isConcurrent="false"/>
3356 <!-- If final CPA BTA goes through fine, then overall collaboration is marked success -->
3357 <Success fromBusinessState="CPA Final BTA" conditionGuard="Success"/>
3358 <!-- If inner collaboration goes through fine, then overall collaboration is marked success. Inner collaboration
3359 Would have gone through the transaction that ends up with either the final CPA (Signed if needed) -->
3360 <Success fromBusinessState="CPA Counter Offer CA" conditionGuard="Success"/>
3361 <!-- If Reject offer document is sent for offer bta collaboration is marked as failure-->
3362 <Failure fromBusinessState="CPA Offer BTA" conditionGuard="BusinessFailure">
3363 <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Reject Offer
3364 Doc"/>
3365 </Failure>
3366 <!-- If Final CPA BTA fails for some reason, then collaboration is marked as failure -->
3367 <Failure fromBusinessState="CPA Final BTA" conditionGuard="Failure"/>
3368 <Failure fromBusinessState="CPA Counter Offer CA" conditionGuard="Failure"/>
```

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3369      <!-- Transition to Final CPA offer binary Transaction if the responder for main transaction accepts the initial offer -->
3370      <Transition fromBusinessState="CPA Offer BTA" toBusinessState="CPA Final BTA">
3371        <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Accept Offer
3372      Doc"/>
3373      </Transition>
3374      <!-- Transition to counter offer binary collaboration if the responder for main transaction returns a counter offer
3375      pending message -->
3376      <Transition fromBusinessState="CPA Offer BTA" toBusinessState="CPA Counter Offer CA">
3377        <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Counter Pending
3378      Offer Doc"/>
3379      </Transition>
3380      </BinaryCollaboration>
3381      <BinaryCollaboration name="CPA Negotiation Counter Offer BC" nameID="CPA_Negotiation_CounterOfferBC"
3382      initiatingRole="CPA_Negotiation_CounterOfferInitiator_Role">
3383        <Role name="CPA Negotiation Counter Offer Initiator" nameID="CPA_Negotiation_CounterOfferInitiator_Role"/>
3384        <Role name="CPA Negotiation Counter Offer Responder"
3385      nameID="CPA_Negotiation_CounterOfferResponder_Role"/>
3386        <!-- This collaboration starts with the negotiation process responder sending the counter offer -->
3387        <Start toBusinessState="CPA Counter Offer 1 BTA"/>
3388        <!-- This transaction activity is for negotiation process responder sending the counter offer -->
3389        <BusinessTransactionActivity name="CPA Counter Offer 1 BTA" nameID="CPA_Counter_Offer_1_BTA"
3390      businessTransaction="CPA Counter Offer BT" businessTransactionIDRef="CPA_Counter_Offer_BT" fromRole="CPA
3391      Negotiation Counter Offer Initiator" fromRoleIDRef="CPA_Negotiation_CounterOfferInitiator_Role" toRole="CPA Negotiation
3392      Counter Offer Non Initiator" toRoleIDRef="CPA_Negotiation_CounterOfferResponder_Role" isLegallyBinding="false"
3393      isConcurrent="false" postCondition="Parties reverse roles they play"/>
3394        <!-- This transaction activity is for negotiation process initiator sending the counter offer -->
3395        <BusinessTransactionActivity name="CPA Counter Offer 2 BTA" nameID="CPA_Counter_Offer_2_BTA"
3396      businessTransaction="CPA Counter Offer BT" businessTransactionIDRef="CPA_Counter_Offer_BT" fromRole="CPA
3397      Negotiation Counter Offer Responder" fromRoleIDRef="CPA_Negotiation_CounterOfferResponder_Role" toRole="CPA
3398      Negotiation Counter Offer Initiator" toRoleIDRef="CPA_Negotiation_CounterOfferInitiator_Role" isLegallyBinding="false"
3399      isConcurrent="false" postCondition="Parties reverse roles they play"/>
3400        <BusinessTransactionActivity name="CPA Final BTA Init Initiator" nameID="CPA_Final_BTA_init_Initiator"
3401      businessTransaction="CPA Final BT" businessTransactionIDRef="CPA_Final_BT" fromRole="CPA Negotiation Counter
3402      Offer Initiator" fromRoleIDRef="CPA_Negotiation_CounterOfferInitiator_Role" toRole="CPA Negotiation Counter Offer
3403      Responder" toRoleIDRef="CPA_Negotiation_CounterOfferResponder_Role" isLegallyBinding="false" isConcurrent="false"/>
3404        <BusinessTransactionActivity name="CPA Final BTA Init Responder" nameID="CPA_Final_BTA_init_Responder"
3405      businessTransaction="CPA Final BT" businessTransactionIDRef="CPA_Final_BT" fromRole="CPA Negotiation Counter
3406      Offer Responder" fromRoleIDRef="CPA_Negotiation_CounterOfferResponder_Role" toRole="CPA Negotiation Counter
3407      Offer Initiator" toRoleIDRef="CPA_Negotiation_CounterOfferInitiator_Role" isLegallyBinding="false" isConcurrent="false"/>
3408        <!-- Inner collaboration succeeds if the final BTA which involves sending final CPA succeeds -->
3409        <Success fromBusinessState="CPA Final BTA Init Initiator" conditionGuard="Success"/>
3410        <!-- Inner collaboration succeeds if the final BTA which involves sending final CPA succeeds. This is
3411        the same as above but the difference is this initiated by a different party -->
3412        <Success fromBusinessState="CPA Final BTA Init Responder" conditionGuard="Success"/>
3413        <!-- Inner collaboration fails if the final BTA which involves sending final CPA fails -->
3414        <Failure fromBusinessState="CPA Final BTA Init Initiator" conditionGuard="Failure"/>
3415        <!-- Inner collaboration fails if the final BTA which involves sending final CPA fails. This is
3416        the same as above but the difference is this initiated by a different party -->
3417        <Failure fromBusinessState="CPA Final BTA Init Responder" conditionGuard="Failure"/>
3418        <Failure fromBusinessState="CPA Counter Offer 1 BTA" conditionGuard="BusinessFailure">
3419          <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Reject Offer
3420      Doc"/>
3421        </Failure>
3422        <Failure fromBusinessState="CPA Counter Offer 2 BTA" conditionGuard="BusinessFailure">
3423          <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Reject Offer
3424      Doc"/>
3425        </Failure>
3426        <!-- If the negotiation process responder (initiator in this innercollaboration) sends an acceptance offer, negotiation
3427      process responder sends the final CPA -->
3428        <Transition fromBusinessState="CPA Counter Offer 2 BTA" toBusinessState="CPA Final BTA Init Initiator">
3429          <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Accept Offer
3430      Doc"/>
3431        </Transition>
3432        <!-- If the negotiation process initiator (responder in this inner collaboration) sends an acceptance offer, negotiation
3433      process initiator sends the final CPA -->
3434        <Transition fromBusinessState="CPA Counter Offer 1 BTA" toBusinessState="CPA Final BTA Init Responder">

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3435 <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Accept Offer
3436 Doc"/>
3437 </Transition>
3438 <!-- If the negotiation process responder sends counter offer and negotiation process initiator sends a counter offer,
3439 negotiation process initiator sends the counter offer next time -->
3440 <Transition fromBusinessState="CPA Counter Offer 1 BTA" toBusinessState="CPA Counter Offer 2 BTA">
3441 <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Counter Pending
3442 Offer Doc"/>
3443 </Transition>
3444 <!-- If the negotiation process initiator sends a counter offer and negotiation process responds sends a counter offer,
3445 negotiation process responder sends the counter offer next time, hence the transition back to original BTA-->
3446 <Transition fromBusinessState="CPA Counter Offer 2 BTA" toBusinessState="CPA Counter Offer 1 BTA">
3447 <ConditionExpression expressionLanguage="DocumentEnvelopeLanguage" expression="CPA Counter Pending
3448 Offer Doc"/>
3449 </Transition>
3450 </BinaryCollaboration>
3451 </ProcessSpecification>
3452
3453

Appendix E Instance Documents for Business Signals

The XML Schemas of the business signals are defined in [ebBPSS].

Acceptance Acknowledgment

The instance document for the AcceptanceAcknowledgment business signal is available as a text file at:

Exception

The instance document for the Exception business signal is available as a text file at:

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Appendix F Example of NDD Instance Document (Non-Normative)

The text file for this example of an *NDD* instance document for automated negotiation is available at:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XML Spy v4.4 U (http://www.xmlspy.com) by neelakantan kartha (Sterling Commerce) -->
<NegotiationDescriptor xmlns="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-negot-2_0.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-cppa/schema/cpp-cpa-2_0.xsd
  NDD1.xsd" xmlns:xsd="http://www.w3.org/2001/XMLSchema" documentLocation="C:\Documents and Settings\neelak\My Documents\ebxml\negotiation\cpa-example-2_0a.xml">
  <!--The value of cpaid might be negotiable, since a party might require that the cpaid conform to a particular format.
  However, automatic negotiation on the values is difficult. For instance, how does a party convey to the other party the kinds
  of cpaid that it deems o.k? Without this information being conveyed somehow, it will be difficult to come to agreement
  automatically. Fortunately, this issue pertains to the negotiation algorithm and not the NDD. For version 1, we can stipulate
  that the cpaid must be URI -->
  <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/@cpaid">
    <Value/>
  </NegotiableInformationItem>
  <!-- Versions might be negotiable, since one party might have a product that conforms to an earlier version of the spec.
  By an OrderedValue, it is implied that there is a preference to the earlier values or later values, as given by the attribute
  preferenceOrder -->
  <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/@version">
    <OrderedValue preference="EarlierPreferred">
      <Value> 1.0 </Value>
      <Value> 2_0.a </Value>
    </OrderedValue>
  </NegotiableInformationItem>
  <!--The value can be one of the following three: proposed, agreed and signed. However, I do not think that this attribute
  is negotiated-rather one party might set the value of this attribute to agreed, once it is satisfied that a satisfactory CPA has
  been reached. Again, how and when this attribute is set seems part of the negotiation algorithm.
  Also, the possible values of this attribute are part of the CPPA schema-hence there is no need to repeat them here -->
  <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/Status/@value">
    <Value/>
  </NegotiableInformationItem>
  <!--Here, I am taking the (simplistic) assumption that each party specifies the earliest time for starting and the latest time
  for ending the Start element (that specifies the Starting Date and Time for the CPA). No preference function is given. See the
  next entry for an example of how one would encode a piecewise linear preference function. -->
  <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/Start">
    <ValueWithPreferenceMeasure>
      <EndPoints>
        <EarliestStart> 1998-04-07T18:39:09Z </EarliestStart>
        <LatestEnd>2002-11-31T13:20:00.000-05:00 </LatestEnd>
      </EndPoints>
    </ValueWithPreferenceMeasure>
  </NegotiableInformationItem>
  <!--Nothing new here, when compared to the previous NegotiableInformationItem except that this gives an example of a
  piecewise linear preference function. I suspect that this might be over engineering at this point -->
  <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/End">
    <ValueWithPreferenceMeasure>
      <EndPoints>
        <EarliestStart> 1998-04-07T18:39:09Z </EarliestStart>
        <LatestEnd>2002-11-31T13:20:00.000-05:00 </LatestEnd>
      </EndPoints>
      <PreferenceFunction>
        <PiecewiseLinearPiece>
          <x1>1998-04-07T18:39:09Z </x1>
          <y1>15</y1>
          <x1>2000-11-31T13:20:00.000-05:00 </x1>
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3523 <y1>30</y1>
3524 </PiecewiseLinearPiece>
3525 <PiecewiseLinearPiece>
3526 <x1>2000-11-31T13:20:00.000-05:00 </x1>
3527 <y1>30</y1>
3528 <x1>2002-11-31T13:20:00.000-05:00 </x1>
3529 <y1>300</y1>
3530 </PiecewiseLinearPiece>
3531 </PreferenceFunction>
3532 </ValueWithPreferenceMeasure>
3533 </NegotiableInformationItem>
3534 <!--Note the ConversationConstraints is an element that might be present or absent, and hence a party might negotiate
3535 the presence or absence of this element. There are four cases to consider A party (a) insists that an element must be
3536 present (b) insists that an element is absent (c) is ok with the element being present or absent, but has a preference for one
3537 or the other (d) is o.k with the element being present or absent, and is completely agnostic.-->
3538 <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/ConversationConstraints">
3539 <PresentOrNot value="MustBePresent"/>
3540 </NegotiableInformationItem>
3541 <!-- Note that invocationLimit is an attribute of ConversationConstraints that may or may not be present. So first of all,
3542 the presence or absence of this attribute may be negotiable. Then, the value of this attribute may also be negotiable -->
3543 <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/ConversationConstraints/@invocationLimit">
3544 <IntegerValues>
3545 <RangeInfo preferenceOrder="SmallerPreferred">
3546 <EndPoints>
3547 <SmallestValue>1</SmallestValue>
3548 <LatestValue>5</LatestValue>
3549 </EndPoints>
3550 </RangeInfo>
3551 </IntegerValues>
3552 </NegotiableInformationItem>
3553 <!--concurrentConversations is similar to invocationLimit. I am including this just for the sake of illustrating another use of
3554 the schema -->
3555 <NegotiableInformationItem
3556 xpath="/CollaborationProtocolAgreement/ConversationConstraints/@concurrentConversations">
3557 <IntegerValues>
3558 <PresentOrNot value="MustBePresent"/>
3559 <RangeInfo>
3560 <EndPoints>
3561 <SmallestValue>2</SmallestValue>
3562 <LatestValue>8</LatestValue>
3563 </EndPoints>
3564 <PreferenceFunction>
3565 <FunctionDefinedByEquation> x**2-2*x+3</FunctionDefinedByEquation>
3566 </PreferenceFunction>
3567 </RangeInfo>
3568 </IntegerValues>
3569 </NegotiableInformationItem>
3570 <!--The partyInfo element raises a number of interesting issues. In the CPA, there can be exactly two partyInfo
3571 elements, hence there is no negotiation on these once a CPA has been formed. Since this NDD refers to
3572 a CPA, there can be no negotiation on this element. We will forget this for the time being and see what would be the case if
3573 the document referred to by this NDD were a CPP. A CPP can have multiple PartyInfo elements and one among these must
3574 be chosen to form the CPA. Thus the issue here is to associate a preference order between several elements at the same
3575 level. A simple way of doing this in a CPP is as follows: -->
3576 <NegotiableInformationItem xpath="/CollaborationProtocolProfile/PartyInfo[2]">
3577 <Preference value="1"/>
3578 </NegotiableInformationItem>
3579 <NegotiableInformationItem xpath="/CollaborationProtocolProfile/PartyInfo[1]">
3580 <Preference value="3"/>
3581 </NegotiableInformationItem>
3582 <NegotiableInformationItem xpath="/CollaborationProtocolProfile/PartyInfo[3]">
3583 <Preference value="2"/>
3584 </NegotiableInformationItem>
3585 <!--This is included to provide an example where the cardinality of an element may be negotiable. It might be the case
3586 that the number of PartyId elements within a partyInfo element is negotiable (because, say of limitations the underlying
3587 system has of handling a large number of partyIds) -->
3588 <NegotiableInformationItem xpath="/CollaborationProtocolAgreement/PartyInfo/PartyId">

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3589 <Cardinality>
3590 <RangeInfo>
3591 <EndPoints>
3592 <SmallestValue>1</SmallestValue>
3593 <LatestValue>5</LatestValue>
3594 </EndPoints>
3595 </RangeInfo>
3596 </Cardinality>
3597 </NegotiableInformationItem>
3598 <!--Example of a boolean value-->
3599 <NegotiableInformationItem
3600 xpath="/CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ServiceBinding/Service/CanSend/ThisPartyActionBind
3601 ing/BusinessTransactionCharacteristics/@isNonRepudiationRequired">
3602 <BooleanValue preference="TruePreferred">
3603 <PresentOrNot value="MustBePresent"/>
3604 </BooleanValue>
3605 </NegotiableInformationItem>
3606 <!--Example of negotiating a duration-->
3607 <NegotiableInformationItem
3608 xpath="/CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ServiceBinding/Service/CanSend/ThisPartyActionBind
3609 ing/BusinessTransactionCharacteristics/@timeToAcknowledgeReceipt">
3610 <DurationWithPreference preferenceOrder="SmallerPreferred">
3611 <MinimumDuration> PT5M </MinimumDuration>
3612 <MaximumDuration>PT6M</MaximumDuration>
3613 </DurationWithPreference>
3614 </NegotiableInformationItem>
3615 <!--This is how would express that one element of an enumeration must be present. Note that the possible values of the
3616 enumeration is defined in the cpp-cpa schema and need not be repeated here-->
3617 <NegotiableInformationItem
3618 xpath="/CollaborationProtocolAgreement/PartyInfo/DeliveryChannel/MessagingCharactersitics/@syncReplyMode">
3619 <OrderedValue>
3620 <PresentOrNot value="MustBePresent"/>
3621 <Value> signalsOnly</Value>
3622 </OrderedValue>
3623 </NegotiableInformationItem>
3624 </NegotiationDescriptor>
3625 <!--Notes
3626 0. The top element of an NDD document is named NegotiationDescriptor. The NegotiationDescriptor element contains
3627 NegotiationInformationItem elements for each item that is negotiable. (
3628 1. The documentLocation attribute of NegotiationDescriptor element is a uri that points to the document for which this >
3629 NDD document pertains to. In particular, the xpath attribute of a NegotiableInformationItem element is an xpath of
3630 this document. The documentLocation attribute is a required attribute.
3631
3632
3633
3634
3635 Non-Negotiable elements and Attributes
3636 =====
3637 1. CollaborationProtocolAgreement
3638 2. CollaborationProtocolAgreement/@schemaLocation
3639 3. CollaborationProtocolAgreement/Status
3640 4. CollaborationProtocolAgreement/PartyInfo/@partyName (Since this is set by each party, it is difficult to see how this
3641 would be negotiable. If it is, it would be similar to /CollaborationProtocolAgreement/@cpaid)
3642 5. CollaborationProtocolAgreement/PartyInfo/@defaultMshChannelId and
3643 CollaborationProtocolAgreement/PartyInfo/@defaultMsPackageld (Again, if these are negotiable, it would be as a result of
3644 the negotiation algorithm recognizing that the default values are not reasonable. Again, only the value can be negotiated, as
3645 in /CollaborationProtocolAgreement/@cpaid)
3646 6. CollaborationProtocolAgreement/PartyInfo/PartyRef/@xlink:type(always simple)
3647 7. CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification
3648 8. CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification@name
3649 9. CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification@xlink:type (always simple)
3650 10.
3651 CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification/ds:Reference/ds:Trasforms/ds:Transform
3652 /@ds:Algorithm (fixed by the spec)
3653
3654 Elements and attributes similar to others in the sample

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3655 =====
3656 0. CollaborationProtocolAgreement/PartyInfo/PartyId/@type (similar to /CollaborationProtocolAgreement/@version", with an
3657 enumeration that enumerates the range of understood naming systems)
3658 1. CollaborationProtocolAgreement/PartyInfo/PartyRef (similar to CollaborationProtocolAgreement/PartyInfo/PartyId)
3659 2. CollaborationProtocolAgreement/PartyInfo/PartyRef/@xlink:href (similar to /CollaborationProtocolAgreement/@cpaid)
3660 3. CollaborationProtocolAgreement/PartyInfo/PartyRef/@type (similar to CollaborationProtocolAgreement/@version)
3661 4. CollaborationProtocolAgreement/PartyInfo/PartyRef/@schemaLocation
3662 (similar to /CollaborationProtocolAgreement/@cpaid)
3663
3664 5. CollaborationProtocolAgreement/PartyInfo/CollaborationRole (similar to negotiating the cardinality of
3665 /CollaborationProtocolAgreement/PartyInfo/PartyId)
3666
3667 6. CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification@version (similar to
3668 /CollaborationProtocolAgreement/@version)
3669
3670 7. CollaborationProtocolAgreement/PartyInfo/CollaborationRole/ProcessSpecification@xlink:href and uuid
3671 ((similar to /CollaborationProtocolAgreement/@cpaid)
3672
3673
3674 !-->
3675
3676
3677

Appendix G Examples of Negotiation-~~Message~~ Instance Documents (Non-Normative)

Example of Offer Message Instance Document

The text file for the example of the offer *Message* instance document is available at:

```
<?xml version="1.0" encoding="UTF-8"?>
<tp:NegotiationMessage xmlns:tp="http://www.oasis-
open.org/committees/ebxml-cppa/schema/cpa-negot-1 0.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:cppa="http://www.oasis-open.org/committees/ebxml-
cppa/schema/cpp-cpa-2 0.xsd"
  xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
cppa/schema/cpa-negot-1 0.xsd"
  businessMsgId="busMsg001" binding="false"
  negotiationDialogId="negotDialog001" offerId="offer001" status="Offer">
  <tp:NCPA uri="http://www.companya.com/ncpa/myncpa.xml"/>
  <tp:CPAIdentity>
    <tp:CPAId id="uri:companyA-and-companyB-CPA1"
      cppa:version="1.0"/>
  </tp:CPAIdentity>
  <cppa:SecurityDetails cppa:securityId="ID">
    <cppa:SecurityPolicy></cppa:SecurityPolicy>
  </cppa:SecurityDetails>
  <tp:InitiatingParty>
    <cppa:PartyId cppa:type="urn:oasis:names:tc:ebxml-cppa:partyid-
type:duns">123456789</cppa:PartyId>
    <CPPIId id="companya-cpp123456789" cppa:version="1.0"/>
  </tp:InitiatingParty>
  <tp:RespondingParty>
    <cppa:PartyId cppa:type="urn:oasis:names:tc:ebxml-cppa:partyid-
type:duns">987654321</cppa:PartyId>
    <CPPIId id="companyb-cpp987654321" cppa:version="1.0"/>
  </tp:RespondingParty>
  <tp:BPSSBusinessDocumentName
name="CPA Offer Doc"></tp:BPSSBusinessDocumentName>
  <ExpirationDate>2002-12-20T00:00:00Z</ExpirationDate>
  <tp:BusinessDocuments>
    <ProposedCPADoc>
      <NDD>
        <Uri>http://www.companya.com/proposedncpa/ncpa.xml</Uri>
      </NDD>
      <ProposedCPA>
        <Uri>http://www.companya.com/proposedcpa/companya-
companyb-cpa1234.xml</Uri>
      </ProposedCPA>
    </ProposedCPADoc>
  </tp:BusinessDocuments>
```

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3727 </tp:NegotiationMessage>
3728

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3729 **Example of Counter-Offer Message Instance Document**

3730 The text file for the example of the counter-offer *Message* instance document is available at:

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3731
3732 <?xml version="1.0" encoding="UTF-8"?>
3733 <tp:NegotiationMessage xmlns:tp="http://www.oasis-
3734 open.org/committees/ebxml-cppa/schema/cpa-negot-1 0.xsd"
3735 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3736 xmlns:cppa="http://www.oasis-open.org/committees/ebxml-
3737 cppa/schema/cpp-cpa-2 0.xsd"
3738 xsi:schemaLocation="http://www.oasis-open.org/committees/ebxml-
3739 cppa/schema/cpa-negot-1 0.xsd"
3740 businessMsgId="busMsg002" binding="false" inresponseTo="busMsg001"
3741 negotiationDialogId="negotDialog001" offerId="offer001"
3742 status="CounterOffer">
3743 <tp:NCPA uri="http://www.companya.com/ncpa/myncpa.xml"/>
3744 <tp:CPAIdentity>
3745 <tp:CPAId id="uri:companyA-and-companyB-CPA1"
3746 cppa:version="1.0"/>
3747 </tp:CPAIdentity>
3748 <cppa:SecurityDetails cppa:securityId="ID">
3749 <cppa:SecurityPolicy></cppa:SecurityPolicy>
3750 </cppa:SecurityDetails>
3751 <tp:InitiatingParty>
3752 <cppa:PartyId cppa:type="urn:oasis:names:tc:ebxml-cppa:partyid-
3753 type:duns">123456789</cppa:PartyId>
3754 <CPPId id="companya-cpp123456789" cppa:version="1.0"/>
3755 </tp:InitiatingParty>
3756 <tp:RespondingParty>
3757 <cppa:PartyId cppa:type="urn:oasis:names:tc:ebxml-cppa:partyid-
3758 type:duns">987654321</cppa:PartyId>
3759 <CPPId id="companyb-cpp987654321" cppa:version="1.0"/>
3760 </tp:RespondingParty>
3761 <tp:BPSSBusinessDocumentName
3762 name="CPA Counter Offer Doc"></tp:BPSSBusinessDocumentName>
3763 <ExpirationDate>2002-12-20T00:00:00Z</ExpirationDate>
3764 <tp:BusinessDocuments>
3765 <ProposedCPADoc>
3766 <NDD>
3767 <Uri>http://www.companyb.com/proposedncpa/ncpa.xml</Uri>
3768 </NDD>
3769 <ProposedCPA>
3770 <Uri>http://www.companyb.com/proposedcpa/companya-
3771 companyb-cpa1234.xml</Uri>
3772 </ProposedCPA>
3773 </ProposedCPADoc>
3774 </tp:BusinessDocuments>
3775 <tp:NegotiationContent>
3776 <tp:AcceptedItem
3777 xpath="/CollaborationProtocolAgreement/PartyInfo[0]" status="Required"/>
3778

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3779 ▪ <tp:AcceptedItem
3780 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/Certificate"
3781 ▪ status="Required"/>
3782 ▪ <tp:AcceptedItem
3783 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/SecurityDetails
3784 ▪ status="Required"/>
3785 ▪ <tp:AcceptedItem
3786 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/DeliveryChannel"
3787 ▪ status="Required"/>
3788 ▪ <tp:AcceptedItem
3789 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/Transport"
3790 ▪ status="Required"/>
3791 ▪ <tp:AcceptedItem
3792 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/DocExchange"
3793 ▪ status="Required"/>
3794 ▪ <tp:UpdatedItem
3795 xpath="/CollaborationProtocolAgreement/PartyInfo[1]/CollaborationRole/ServiceBinding/Cansend[0]/ThisPartyActionBinding/BusinessTransactionCharacteristics
3796 @isNonRepudiationRequired"
3797 ▪ originalValue="true"
3798 ▪ proposedValue="false"
3799 ▪ status="Preferred"/>
3800 ▪ </tp:NegotiationContent>
3801 ▪ </tp:NegotiationMessage>
3802
3803
3804 ▪ -----

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Appendix H Glossary of Terms

This appendix contains definitions of terms created by this specification. For definitions of terms created by the CPPA Specification[ebCPP] and related terms that are part of the general ebXML vocabulary, see [ebCPP].

CPA Negotiation Process: The process by which a *Collaboration Protocol Agreement (CPA)* is formed based on information provided by two parties interested doing business. The negotiation process includes the negotiation protocol, defined in this specification, and the private negotiation process at each Party.

CPA Template: A *CPA Template* is a *CPA* with open fields. The schema for a *CPA Template* is the normal *CPP-CPA* schema. The means of identifying open fields in the *CPA Template* is defined in this specification.

Negotiation BPSS Instance Document: The XML instance document that defines the negotiation-protocol, choreography. This XML instance document conforms to the ebXML Business Process Specification Schema specification[ebBPSS].

Negotiation CPA (NCPA): The *CPA* that governs the negotiation protocol.

Negotiation Descriptor Document (NDD): A *Negotiation Descriptor Document (NDD)* describes what is negotiable in a *CPP* or a *CPA Template*.

Negotiation Dialog: A single instance of the negotiation protocol that negotiates one *CPA* from the initial proposal until the *CPA* is successfully completed or the negotiation terminates without success.

Negotiation-Dialog Identifier: A unique identifier that distinguishes each *Negotiation Dialog* from all others that may be in progress between two *Parties*.

Negotiation Message: The negotiation protocol consists of exchanges of Messages that contain the details of offers and counter offers. This specification defines the schema and semantics of each Message.

Negotiation Protocol: The negotiation protocol defines the exchange of data between both parties in the negotiation (and perhaps with a negotiation service). The format of these *Messages* and the choreography of their exchanges are defined by a *Negotiation CPA* and its corresponding BPSS instance document.

Offer Identifier: The Offer Identifier is a unique identifier associated with each offer and counter offer.

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Deleted: *Negotiation Message:* The negotiation protocol consists of exchanges of *messages* that contain the details of offers and counter offers. This specification defines the schema and semantics of each *message*.¶

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Party B also creates an *NCPA* by inserting its identification information and endpoint address into *Party A*'s *NCPA*. *Party B* then sends the draft *CPA*, the *NCPA* that it created, and an initial offer (*NDD*) to *Party A* using the information in the *NCPA*.

THE PROCEDURE FOR ESTABLISHING AN NCPA BETWEEN TWO PARTIES NEEDS MORE CONSIDERATION. IT PROBABLY HAS TO BE IN PLACE BEFORE PARTY A SENDS PARTY B AN INITIAL OFFER.

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<i>THE CONTENTS OF THIS SECTION WILL BE DERIVED FROM THE RESULTS OF THE WORK ON THE ELEMENT AND ATTRIBUTE SPREADSHEET. SPECIFICALLY, A SET OF NEGOTIABILITY PATTERNS WILL BE IDENTIFIED THAT WILL BE USED TO DESIGN THE NDD SCHEMA.</i>		

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A negotiation *Message* includes the details of a counter offer, identification of the *NDD* and *CPA template* being negotiated, and information that controls the negotiation protocol. Some *Messages* include the *NDD* and/or the *CPA* or their URLs.

See Appendix B for the complete negotiation-*message* XML Schema. See Appendix G for examples of negotiation-*message* instance documents.

THE FOLLOWING MATERIAL IS JEAN ZHENG'S SEPT. 6, 2002 OVERVIEW. IT WILL BE REPLACED BY A COMPLETE ELEMENT BY ELEMENT (DEPTH FIRST) EXPLANATION IN THE STYLE OF THE CPPA SPECIFICATION.

AN INITIAL VERSION OF THE SCHEMA WAS DISTRIBUTED ON THE NEGOT LIST SERVER 10/16/02.

12.1 CPA Offer/Counter Offer

12.1.1 Message Content

Business Information:

- Reference of proposed NCPA url
- Security Information
 - oSecurityPolicy/Trust Anchor/CertificateInformation
- Initiator's CPP ID
- Potential Partner's CPP ID
- Reference of potential Partner's NDD ID
- Initiating Role: My Party ID
- Responding Role: Potential Partner's Party ID

- CPAID and version(or CPATemplate ID and version)
- Unique Business Message ID – uniquely identify the current Business Message within the scope of one *negotiation* dialog.
- negotiationDialogId – uniquely identify an ongoing dialog that connects multiple Offer/Counter-Offer transactions
- OfferID – uniquely identify each instance of Offer or Counter-Offer
- InResponseTo – Unique Business Message ID of the previous Offer or Counter-Offer this business message is responding. Can be Null for the initiating Offer of the dialog
- Binding (Yes/No)
- Status: “Offer”, “Counter Offer”, “Single-Party-Signed”, “Signed”
- BPSS BusinessDocument Name
- Expiration Date

Business Documents:

- Actual NDD Attachment and/or partner-accessable-url of my NDD
 - oEither a complete URL that both *party* can access or the actual document is expected.
 - Proposed CPA
 - oEither a complete URL that both *party* can access or the actual document is expected.
 - OR
 - CPATemplate
 - oEither a complete URL that both *party* can access or the actual document is expected.
 - Negotiation Content (For an initial offer, this element can be empty or it can describe the changes made by the offering *Party* to the information in the other *Party*’s *CPP* or *CPA* template when forming the *CPA* template of the initial offer.)
 - oAccepted Items1(1...n) (required. These are the items that have been accepted by the sending party during all exchange prior to this message and within the same negotiation dialog.**(SEE BOLD ITALIC NOTE DIRECTLY BELOW)**
 - ☐Xpath of item
 - oDeleted Items (0...n) (optional element only)
 - ☐Xpath of item
 - oUpdated Items (0...n)
 - ☐Xpath of item
 - ☐Original Value of item
 - ☐Proposed Value of item
 - oInserted Items (0...n) (optional item only)
 - ☐Xpath of item
 - ☐Proposed Value of item
- THE SPECIFICATION MUST STATE WHETHER THE INFORMATION UNDER “NEGOTIATION CONTENT” CONTAINS:***
- THE RESULT OF PROCESSING THE COUNTER OFFER TO WHICH THIS MESSAGE IS THE RESPONSE,***

1 Item can be either an “Element” or an “Attribute”.

- ***ALL ITEMS ACCEPTED BY THE SENDING PARTY SINCE THE START OF THE NEGOTIATION DIALOGUE (INCLUDING THE ONES BEING ACCEPTED BY THIS MESSAGE),***
- ***ALL ITEMS ACCEPTED BY BOTH PARTIES SINCE THE START OF THE NEGOTIATION DIALOGUE (INCLUDING THE ONES BEING ACCEPTED BY THIS MESSAGE).***

Any of the items listed in Negotiation Content can be either a leaf node or non-leaf node. Non-leaf node will indicate the entire subtree is subject to the corresponding change action. If both Non-leaf node AND its children leaf node are present in Negotiation Content, then the Negotiation Content SHOULD be considered invalid.

12.1.2 CPA ID, Negotiation Dialog ID, Unique Business Message ID, and InResponseTo

CPA ID and its version shall remain the same throughout any *negotiation dialog*.

Negotiation Dialog ID is used to identify a particular negotiation dialog thread. Negotiation Dialog ID can be CPA ID. The value of CPAID could be used as the value for Negotiation Dialog ID.

Unique Business Message ID, an unique id that identify the current business message within the scope of one negotiation thread.

InResponseTo, list the Unique Business Message ID of the last incoming Offer or Counter Offer this current business message is responding to.

12.1.3 BPSS BusinessDocument Name

The name (e.g. "CPA Offer Doc") of each BusinessDocument that participate in BPSS Negotiation process will be placed inside each message. The valid enumeration of this field include:

- CPA Offer Doc
- CPA Accept Offer Doc
- CPA Counter Pending Offer Doc
- CPA Counter Offer Doc
- CPA Reject Offer Doc

NEED TO ADD ADDITIONAL VALUES. SEE BPSS INSTANCE DOCUMENT.

12.1.4 Offer and Counter Offer

In the two-party scenario, if Party A initiates the dialog by sending Part B an Offer, Party B sends back a Counter Offer, in order to counter this Counter Offer, Party A sends another "Counter Offer" to Party B. In other words, only the initiating offer is "Offer", the rest of negotiation will be conducted by exchanging "Counter Offers".

Based on Hima's CPPA Negotiation BPSS example, Offer differs from subsequent Counter Offers. Offer will always contain the complete initial CPA document and NDD document, or a CPA Template.

We can use two different schemas, one for the initial Offering, and one for the subsequent Offer and Counter Offer. This implies the very first Offer Transaction is different from the subsequent business transactions.

Last but not the least, throughout this negotiation dialog, each Party can terminate the negotiation by sending “CPA offer Rejected” in responding to an incoming Offer/Counter Offer. Human to human contact is encouraged after “CPA offer Rejected” is sent but before a brand new dialog is initiated.

12.2CPA Offer rejected

Business Information:

- CPAID and version
- negotiationDialogId
- Initiating Role
- Responding Role
- Binding (Yes/No)
- Status: “Rejected”
- Reason for Rejection

Possible scenario

- Party A sends Party B an Offer(or Proposal if we are going to revise the current CPA negotiation model)
- Party B didn't send any message back before the Offer/Proposal expired

12.3CPA Offer accepted

Business Information:

- CPAID
- negotiationDialogId
- Initiating Role
- Responding Role
- Binding (Yes/No)
- Status: “Accepted”
- Expiration Date

Payload:

- Signed CPA document

12.4CPA Offer counter pending

Business Information:

- CPAID and version
- negotiationDialogId
- Initiating Role
- Responding Role
- Binding (Yes/No)

-Status: "Counter Pending"

12.5 Reasons for Decline

- Expired CPP
- Unable to fulfill Security Requirements
- Proposed Security Policy is inadequate
- Out of sequence counter offer
- Negotiation failed to converge

12.6 Status

- Offer
- Rejected
- Accepted
- Counter Pending
- Counter Offer
- Signed
- Expired

12.7 Assumptions

-In counter-proposals, elements that are not listed as "add/delete/update" are accepted as is.

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If it should be necessary to suspend the negotiation for an extended period, the *Negotiation-Dialogue Identifier* SHALL be used to obtain the state information necessary to resume the negotiation.

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If this specification (either version 1 or a subsequent version) provides the capability of suspending a negotiation and resuming it at a later time, the *Conversation* ends when the negotiation is suspended. When the negotiation is resumed at a later time, a new *Conversation*

is started. Suspending and resuming a negotiation requires that the applications persist all the state information needed for resuming the negotiation later. The *Party* that issues the *message* which causes the negotiation to resume MUST include the *Negotiation-Dialogue Identifier* in the *message*.

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A *Party* SHALL NOT send a counter offer that has no new proposals if any items in the *NDD* remain to be negotiated.

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Following are the responses to an offer or counter offer.

THE FOLLOWING LIST MAY NEED TO BE EXTENDED.

- ☐ Accept with no changes (an agreed CPA has been achieved)
 - ☐ Accept
 - ☐ Accept and deploy (dynamic eCommerce)
 - ☐ Counter offer pending: The counter offer might consist of
 - ☐ Deleted elements and attributes.
 - ☐ Added elements and attributes.
 - ☐ Re-ordered elements using an [XPath]-based list of changes with status of required or preferred.
 - ☐ Changed values of elements and attributes.
 - ☐ Identification of items that were accepted in the previous offer or counter offer.
 - ☐ Rejection: with reason(s) for rejection. See Section 13.14 for additional information.
- Rejection is final. It ends the *Negotiation Dialogue* and the two Parties should make human to human contact to resolve their incompatibilities.

FOLLOWING ARE ADDITIONAL CONSIDERATIONS ABOUT THE RESPONSE MESSAGE.

- CONSIDER PHYSICALLY PACKAGING THE RESPONSE MESSAGE WITH THE COUNTER OFFER IF ONE IS BEING ISSUED, IN ORDER TO SAVE MESSAGE TRAFFIC.

- ☐ ***CAN THIS BE DONE USING EXISTING BUSINESS SIGNALS FOR THE RESPONSE INDICATOR (IN ORDER TO AVOID CPPA CHANGES)?***
- ☐ ***IT WAS SUGGESTED THAT THIS PACKAGING MIGHT BE UNNECESSARY COMPLEX, ESPECIALLY FOR VERSION 1).***

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If the sender of the offer or counter offer does not receive a response during this interval, the offer or counter offer is considered withdrawn. The sender can then send a new offer or counter offer, or re-send the original one.

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The initiator of the counter offer is not REQUIRED to send anything to the other *Party* at

the

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, and when the other responder finally sends a reply, if it is anything other than a reject, the initiator SHALL reply with a reject.

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Note that in this scenario, neither the initiator nor the responder SHALL terminate the *Negotiation Dialog* until the reject *message* has been sent by the initiator.

DO WE NEED TO PRESCRIBE SOMETHING FOR THE CASE WHERE THE INITIATOR DOES NOT RECEIVE THE REJECT MESSAGE FROM THE RESPONDER IN A REASONABLE TIME?

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Negotiation Ordering Dependencies
SUBJECT TO FURTHER DISCUSSION, THE QUESTION OF NEGOTIATION ORDERING DEPENDENCES IS DEFERRED TO BEYOND VERSION 1.

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13.14 Reasons for Rejection during Negotiation

The process of composing the *CPA* from *CPPs* will detect many error conditions before the negotiation process begins. Others might be discovered during the negotiation process. Examples are mismatched Process Specification document and mismatched delivery channel requirements. These are elaborated in Section 6.2.

The rejection *message* SHALL include reason, contact name, phone, and/or URL for further information.

Following are some reasons for rejection:

THE FOLLOWING LIST MUST INCLUDE EVERYTHING DEFINED IN THE NEGOTIATION MESSAGES.

- ☐ CPA contents. Examples:
- ☐ Signature on *CPA template* failed validation.
- ☐ Signature on agreed *CPA* failed validation
- ☐ *CPA* is not signed until it is agreed to.
- ☐ proposed security too weak

- ☐ proposed *Packaging* not supported
- ☐ unable to support signals requested (process specification document)
- ☐ Business relationship
- ☐ *CPA* unsupported without existing business relationship.
- ☐ Negotiation process
- ☐ In the judgment of the rejecting *Party*, too many counter offers were tried with no forward progress toward convergence.

NOTE: A future version of this specification might formulate a definition of and protocol for detecting “no forward progress”.

- ☐ Proposed *CPA* previously received and not accepted.
- ☐ The current offer’s validity interval has expired.
- ☐ CPA format problems
- ☐ Examples: parsing error, data invalid
- ☐ Internal System Error

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