UN/CEFACT Unified Context Methodology (UCM)
Direction And Concepts
March 2009

Scott R. Hinkelmann
Techniques and Methodologies (TMG) [acting] Vice Chair
Unified Context Methodology (UCM) Project Chair
Caveats

• The specification being worked in UCM is in initial draft development (ODP step 3). There is currently no specification in any form of review yet.

• This presentation is intended to give a snapshot view into the current direction and key concepts being formed in UCM. The content does not necessarily reflect current consensus within the project.

• Some information in this presentation may change as UCM delivers final specification(s).

• Audience is assumed to be familiar with UN/CEFACT specifications and aware of some of the ongoing work.
From a business perspective, two key aspects were produced in 2001 from the ebXML initiative:

- An information component model (CC/BIE)
- A basic methodology founded in “Context”
  [the rest was more infrastructure oriented]

The Context Methodology in CCTS 2.X is essentially unchanged today

- Viewed by some stakeholders as inadequate and/or underspecified
- Viewed by many as the corner-stone to reduce ambiguity and fully enable the CCTS component model

UCM Project was started March 2005

- To develop as robust and flexible Context Methodology
- (Scott H. became Chair in July 2008)
UCM Project

- UCM is within TMG – CEFACT’s Techniques and Methodologies permanent group
- Active participation, contributions, and use cases from:
  - Software vendors
  - Industry standards organizations
  - Consultants
  - You are welcome to get involved in UCM
- Current working spec in ODP step 3
- Schedule to be revisited at the CEFACT Rome Forum (April 09) but likely inside ODP step 4 by YE 09
- Two significant efforts underway
  - UCM Reference Architecture
    - Currently positioned as an internal document
  - Classification Scheme Technical Specification (name may change)
    - This is the initial UCM specification underway
UCM Reference Architecture

- Currently an Internal project document
  - Frames discussion and position of specification work
  - Provides comprehensive UCM view
  - Essentially sets UCM road map
- Born out of ~30 use case submissions of how/when Context will be used
  - Analysis resulted in 3 broad areas – “UCM Dimensions”
  - Use cases span all three dimensions
- Three UCM Dimensions
  - Modeling
  - Syntax Binding
  - Deployment
Modeling Dimension

- Current UCM working spec - Classification Schemes
- Other UCM specs will cover the other aspects such as the Contextualized Profile needed for message payload generation

Two iterative modeling aspects
- Semantic
  - Define context values, BIEs based on values in Classification Scheme instances, etc
  - Type/Value domain (not typically impacting to business semantics)
    - Select primitive types for data types, etc
- Related to context value libraries, CC/BIE/BP libraries, datatype libraries
- Multiple specs required
- Output is a Contextualized Profile for syntax-specific payload generation
  - Note: A message structure is out of scope for UCM – only a payload is in scope
Syntax Binding is focused on representing the BIE/BDT Contextualized Profile in a specific syntax.

Values from Classification Scheme Instances can be utilized by-reference or by-content within a bound syntax.

Best use of a specific syntax (such as XML) will determine this exact structure driven by NDRs.

Output is a Syntax-Specific Contextual Model Payload - a payload structure of definitions (not instances) of BIE/BDT.
Deployment Dimension

- Focused on contextualization of syntax-specific message payload instances
- Needed to reflect the context in which the interchange of information between two endpoints takes place.
- Operating environment may require different usages of the same Syntax-Specific Contextual Model Payload
  - Examples would be local languages, local code lists, restrictions with specific business partner database fields, etc
- Output is a Contextual Instance Payload
Modeling Dimension – Classification Scheme Spec

The is the initial, and only, UCM specification being worked on. It is in the Modeling Dimension.

- Mathematical foundation based on a Directed Acyclic Graph (DAG)
- Will specify
  - A UML logical metamodel for defining context values
  - UCM will NOT define context values such as in CCTS 2.X
  - UCM WILL define how to define context values via Classification Scheme instances
- A Grammar (BNF) to express context values such as:
  - “All of Europe but not the UK”
  - BIEs which are relevant for Step3 in OrderToCash for partner1
  - Automotive industry in Germany
  - More – you define your values
Classification Scheme Spec.

..... mathematical DAG:

- Common structure in event processing, expression evaluation, game theory, sorting algorithms, parser algorithms, etc.
- Defines no business semantics.
- Classification Scheme specification imposes semantics on a DAG
Some Aspects of Classification Scheme Spec.

- **Context Path / Context Nodes**
  - A sequence of Context Nodes which represent a change in semantic precision is a Context Path
  - A Context Node has a Context Value
  - The directed edges in a DAG indicate the broadening or narrowing of semantic precision
  - Root nodes provide the most imprecise point of understanding, while the ‘ending’ node provides the most precise understanding

- **Context Intersection / Union**
  - Context Paths may come through the same Context Node for very different reasons
    - US Tax Rates -> Texas -> Austin -> Travis County is a different semantic understanding than US State Capitals -> Austin, but both include the Austin context value
  - Intersections / unions expressed using the expression grammar
Some Aspects of Classification Scheme Spec.…

- **Path Scope/Relevancy**
  - Associating path(s) with a BIE indicates relevancy within a Classification Scheme instance.
  - There are at least two kinds of Path Scope: Implied and Explicit.
  - Explicit indicates that the associated BIE is relevant only as far as the value sequence is defined.
    - Nothing is being said about any further children.
  - Implied indicates that the associated BIE is relevant to all values defined in the path and downward.
Classification Scheme Expressed in a UML MetaModel

- Logical UML metamodel
- Definitions and relationships
- Representation of simple/compound artifacts related to context values
- Inclusion of Codes as context values
Thank you for your time

Scott R. Hinkelman
Software Standards Architect
AIA Standards Strategy
Oracle Corporation
scott.hinkelman@oracle.com

References:
UCM email list: uncefact_ucm@yahoogroups.com
UCM Wiki: http://unstandards.org:8080/display/public/UCM+-+Unified+Context+Methodology