Requirements – Management Using Web Services

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Abstract:
This document lists the requirements for the Management Using Web Services (MUWS) specification.

Status:
This document is a working draft of the OASIS Web Services Distributed Management (WSDM) Technical Committee. Comments are most welcome.

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1 Introduction

This document lists the requirements to be satisfied by *Management Using Web Services Architecture*, part of an OASIS standard to be developed by WSDM-TC, as per the TC charter.

TC Charter

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To define web services management. This includes using web services
architecture and technology to manage distributed resources. This TC
will also develop the model of a web service as a manageable resource.
This TC will collaborate with various evolving activities within other
standards groups, including, but not limited to, DMTF (working with its
technical work groups regarding relevant CIM Schema), GGF (on the OGSA
common resource model and OGSI regarding infrastructure), and W3C (the
web services architecture committee). Also liaison with other OASIS
TCs, including the security TC and other management oriented TCs.
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Relationship to Management Of Web Services (MOWS)
This set of requirements concerns management using web services. As such, it is expected to cover management of any type of manageable resource, as long as it has a Web Services manageability interface, provided by the manageable resource or by another entity on behalf of the manageable resource. The MOWS requirements should drive the definition of a manageability model, specific to a Web Services endpoint, that will be exposed using MUWS.

1.1 Basic Concepts Required for Management Using Web Services

NOTE: This section describes some basic concepts required for MUWS, but the definitions in use by the WSDM TC are contained in the WSDM Glossary.

An enterprise deploying a management solution would typically have the following components:

- *Manageable resources* capable of being monitored, configured, and/or controlled via one or more remote or local applications, known as *manager(s)*.
- *Manager*, an application that is capable of monitoring, configuring, and/or controlling a *manageable resource*.
- *Manageability interface*, the place of interaction between manageable resources and the manager(s).
- Model of manageable resources describing:
  - Attributes
  - Operations
  - Event Notifications
  - Relations with other manageable resources

1.2 Existing Management Frameworks

A number of standard management frameworks are currently in wide use

- SNMP (SNMPv1, SNMPv2 and SNMPv3) and related standards developed by IETF.
- CIM/WBEM developed by DMTF
- Open Management Interface (OMI) – submitted to OASIS MPTC by HP and webMethods.

Besides these, there are many proprietary frameworks developed by various vendors.

Though OMI is XML based and uses SOAP for packaging, none of these frameworks are based on Web Services architecture and leverage its benefits.

1.3 Scope

The scope of the MUWS requirements, particularly in relation to the MOWS requirements, must be as clear as possible. To achieve this goal, this section contains both a description of the scope, and key concepts discussed during the process that have been determined to be out of scope.

The scope of the MUWS requirements is the manageability interface and the related description of the manageability interface (using WSDL). Because the MOWS requirements only address manageable resources that are Web Services Endpoints, there may be a need to model a more abstract manageable resource.

Out of Scope

What is out of scope for the MUWS requirements is the management information model for a Web Service, requirements on the manager, and the following specific items identified during the requirements development process:

- Ensure that the specification makes it easy to develop an adapter to existing systems for managing manageable resources.
- Definition of management applications.
- Management system conflict resolution is out of scope.

The specification developed from the MUWS requirements should outline:

- the architecture for Management Using Web Services
- the management patterns
- how a manager uses the manageability interface
- how a manageable resource uses the manageability interface
- how to self manage

1.4 Notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in IETF RFC 2119.

2 MUWS Requirements

2.1 Functional Requirements

2.1.1 Web Services Based (A) [WS-BASE]

Guiding principle: Do not reinvent the "wheel" or the infrastructure.

[WS-BASE.001] The Manageability Interface MUST leverage existing Internet infrastructure and standards as defined by the Web Services Architecture developed by W3C WSA Working Group, as well as related standards from WS-I and OASIS.

For the purpose of this section, the standards include, but are not limited to:

- XML
- HTTP, HTTPS
- SOAP
- WSDL (1.1 or 1.2)
- WS-I Basic Profile (as a goal for interoperability)

Note: Some of these standards are more mature than others, which will require close attention.

<EDITOR'S NOTE: Need to make sure this aligns with the WS-SOS work.>

[WS-BASE.001.1] The Manageability Interface messages MUST be expressible in XML infoset messages.

[WS-BASE.001.2] The Manageability Interface and Description MUST allow discovery of manageable resources through Web services discovery mechanisms. These mechanisms could be based on a central registry like UDDI and/or decentralized, out-of-band gathering of WSDL documents (such as retrieving WSDL documents through a crawler).

[WS-BASE.001.3] The Manageability Interface MUST require description of management capabilities of a manageable resource using WSDL and the documents the WSDL refers to. WSDL should be used for:

- capabilities
- manageability interface - properties and operations that represent the management capabilities
- access – description of the binding of the interface to the wire format (including message packaging)
- addressability description – information necessary to send a message to invoke the interface described using the access described.

NOTE: some of the capabilities may not be fully described in the WSDL interface at design time; the details of some capabilities may only be accessible during runtime.

[WS-BASE.001.4] Goal: Leverage, do not invent, non-management specific Web services infrastructure. If non-management specific services/infrastructure is required then it is placed as a requirement on the Web services community. This TC may need to assist in the development of the infrastructure services. Required services/infrastructure include, but are not limited to:

- notifications
- relationships
- registry
- policy
- reliable messaging
- security

[WS-BASE.001.5] The Manageability Interface MUST enable interoperability between vendors (for example, WS-I basic profile conformance). Note that interoperability MAY require agreement on aspects of the management information model.

2.1.2 Message Exchange Patterns (B) [MEP]

The Manageability Interface:

[MEP.001] MUST support synchronous delivery of messages and notifications.

[MEP.001.1] MUST support the request/response style using synchronous delivery. (Sender "waits" for the response to come back).

[MEP.001.2] SHOULD support the delayed response style using synchronous delivery. (Sender gets a "message received" response, the "substantive" response is delivered during a later transaction. It may be initiated by the original sender or the original receiver.)

[MEP.001.3] SHOULD support the one-way style using synchronous delivery. (Sender gets a "message received" response only.)

[MEP.002] SHOULD support asynchronous delivery of messages and notifications. (See also MEP.003.3)

[MEP.002.1] SHOULD support the request/response style using asynchronous delivery. (Sender sends the request and "hangs up". "Substantive" response is delivered by the original receiver in a subsequent asynchronous delivery.)

[MEP.002.2] SHOULD support the one-way style using asynchronous delivery. (Sender gets no response at all.)

[MEP.003] MUST support delivery of notifications.

[MEP.003.1] The notification receiver SHOULD be able to control what notifications are sent to it (for example, using filtering and/or subscription at manageable resource side).

[MEP.003.2] The notification receiver SHOULD be able to indicate whether it wants to receive notifications asynchronously as and when they happen or poll them periodically.

[MEP.003.3] The Manageability Interface SHOULD support asynchronous delivery of notifications

[MEP.003.4] The Manageability Interface MUST support synchronous polling for notifications

[MEP 003.5] The Manageability Interface MUST be able to indicate if it supports asynchronous and/or polling notification mechanisms.

[MEP.003.6] The Manageability Interface MUST support guaranteed notifications and be able to indicate that support.

[MEP.003.7] The Manageability Interface MUST support ordering of notifications from a manageable resource's perspective. (If event A happens before event B then the notification receiver should be able to use the ordering mechanism to determine that A was before B)

231

232 2.1.3 Consistency with Other Management Standards (C) [STD-CON]

233 **[STD-CON.001]** The Manageability Interface SHOULD be consistent with existing management
234 specifications such that it can be used/applied in those communities. Including, but not limited to:
235 GGF, DMTF.

236 **[STD-CON.002]** The Manageability Interface SHOULD consider consistency with upcoming
237 (draft) management specifications such that it can be used/applied in those communities.
238 Including, but not limited to: GGF, DMTF.

239 **[STD-CON.003]** The Manageability Interface SHOULD not inhibit the simultaneous usage with
240 existing management environments and protocols in a common environment.

241 **[STD-CON.003.1]** The Manageability Interface MUST NOT inhibit the simultaneous
242 usage of existing standard management environments and protocols (at a minimum,
243 WBEM/CIM and SNMP).

244 **[STD-CON.004]** The Manageability Interface SHOULD be specified to allow other standards to
245 use this standard.

246 **[STD-CON.004.1]** The Manageability Interface SHOULD, wherever reasonable, be
247 specified so that it is possible to use modules of this standard and not only the standard
248 as a whole.

249 2.1.4 Distributed Management (D) [DIST-M]

250 **[DIST-M.001]** The Manageability Interface MUST not preclude use in highly distributed
251 environments.

252 **[DIST-M.001.1]** The Manageability Interface SHOULD be able to be
253 used over the public Internet.

254 **[DIST-M.001.2]** The Manageability Interface MUST not force a central
255 point of control or failure for implementations of this specification

256 **[DIST-M.001.3]** The Manageability Interface MUST allow a manager to
257 manage multiple manageable resources

258 **[DIST-M.001.4]** The Manageability Interface MUST allow a manageable
259 resource to be managed by multiple managers

260 **[DIST-M.001.5]** The Manageability Interface MUST enable support of
261 scalable volumes of manageable resources

262 **[DIST-M.001.6]** The Manageability Interface MUST enable support of
263 scalable volumes of manager interactions

264 **[DIST-M.001.7]** The Manageability Interface MUST enable access to
265 aggregates of manageable resources. Allowing:

266 Support for global actions

267 It SHOULD be possible to retrieve management information or carry out
268 management operations on more than one manageable resource with a single
269 request.

270 **[DIST-M.001.8]** The Manageability Interface MUST support management
271 of occasionally connected resources, including the recovery of state.

272 **[DIST-M.001.9]** The Manageability Interface MUST define proper
273 exceptions so that implementations can tolerate failures, such as a
274 connection failure, in a distributed environment.

[DIST-M.001.10] The Manageability Interface SHOULD not prohibit local autonomy (respect local overrides)

[DIST-M.001.11] The Manageability Interface SHOULD ensure that time sensitive specifications define how to calibrate time or be time difference tolerant**.**

[DIST-M.001.12] The Manageability Interface MUST work with loose data consistency. Not all interactions need to be atomic or transactional.

[DIST-M.001.13] The Manageability Interface MUST support role collapsing as noted in the subrequirements.

[DIST-M.001.13.1] The Manageability Interface MUST not preclude an entity acting as a manager from also being a manageable resource. NOTE: This is very similar to **[MAN-MGMT.001]**, and may be deleted.

[DIST-M.001.13.2] The Manageability Interface MUST not preclude manageability interface aware proxies and chains.

[DIST-M.001.14] The Manageability Interface MUST not preclude Manager of Managers (Hierarchical Manager)

[DIST-M.001.14.1] Across enterprise boundaries.

[DIST-M.001.15] The Manageability Interface MUST not preclude Collaboration/Federation among managers, including but not limited to: (See also [FED.001]).

[DIST-M.001.15.1] Cooperative, peer to peer, managers

2.1.5 Security (E) [SEC]

[SEC.001] The Manageability Interface MUST enable secure management, as dictated by the threats of the environment. This includes (but is not limited to) support for the functionality described in the sub-requirements, SEC.001.1-6.

[SEC.001.1] The Manageability Interface SHOULD support having the manager authenticate the manageable resource.

[SEC.001.2] The Manageability Interface SHOULD support having the manageable resource authenticate the manager.

[SEC.001.3] The Manageability Interface SHOULD support an underlying mechanism that guarantees the integrity of the messages exchanged.

[SEC 001.4] The Manageability Interface SHOULD support an underlying mechanism that guarantees the confidentiality of the messages exchanged.

[SEC 001.5] The Manageability Interface SHOULD not preclude establishing, using, and managing trust relationships.

[SEC.001.6] The Manageability Interface SHOULD support access control (such as distinguishing between the ability to view and the ability to change) for management information, operations and event notifications at appropriate granularity. Access SHOULD be controllable by role (the security mechanism being used will determine what “role” means). For example, an internal manager should have greater control than a manager being run by a partner.

[SEC.002] The Manageability Interface MUST be NAT and firewall "friendly", meaning that the interface MUST NOT require additional support in NAT and firewall products, and that sufficient information MUST be provided for a firewall proxy to inspect the management messages.

[SEC.003] The Manageability Interface MUST not increase security risks or enlarge security exposures.

[SEC.004] The Manageability Interface MUST allow a self-contained, fallback security model, for use when the security infrastructure is not available.

[SEC.005] The Manageability Interface MUST be able to be used to manage a Security Infrastructure

[SEC.005.1] The Manageability Interface MUST allow operational capabilities on security features (e.g., enable, disable). Security configuration SHOULD only be allowed via the Manageability Interface if appropriate access controls are in place.

2.1.6 Model Neutrality (F) [MDL-NEUT]

[MDL-NEUT.001] The Manageability Interface MUST be model neutral and be able to work with multiple existing, domain specific models (at a minimum, the information exposed by CIM and by the standard MIBs of the IETF).

2.1.7 Model Exposure (G) [MDL-EXP]

[MDL-EXP.001] The Manageability Interface MUST expose the manageability capabilities (management information, operations, and capabilities) of the manageable resource using a WSDL description or operations defined in the WSDL.

[MDL-EXP.001.1] The Manageability Interface MUST expose the Identity of the manageable resource. (See [MNGBL-RES.003]**)**

[MDL-EXP.001.2] The Manageability Interface MUST expose the management lifecycle state of the manageable resource.

[MDL-EXP.001.3] The Manageability Interface MUST expose the management performance metrics of the manageable resource.

[MDL-EXP.001.4] The Manageability Interface MUST expose the management configuration of the manageable resource.

[MDL-EXP.001.5] The Manageability Interface MUST expose the management operations of the manageable resource.

[MDL-EXP.001.6] The Manageability Interface MUST expose the events of the manageable resource through notifications.

[**MDL-EXP.001.6.1**] Events MUST be specified according to a standard XML management event format or extensions to such.

[MDL-EXP.001.7] The Manageability Interface SHOULD expose all the relationships of the manageable resource with other manageable resources.

[MDL-EXP.001.7.1] The Manageability Interface SHOULD expose relationships with other management interfaces

[MDL-EXP.001.7.2] The Manageability Interface SHOULD expose relationships between portTypes

[MDL-EXP.001.7.3] The Manageability Interface SHOULD expose relationships between service instances

[MDL-EXP.001.7.4] The Manageability Interface SHOULD enable relationships between manageable resources to be discoverable from the manageable resources

[MDL-EXP.001.7.5] The Manageability Interface SHOULD enable relationships between manageable resources to be discoverable from Web Services discovery mechanisms

NOTE: This requirement is very similar to [DISC.003] and may be deleted.

[MDL-EXP.001.7.6] The Manageability Interface MUST be able to expose the relationship concepts of multiple existing models.

[MDL-EXP.001.8] The Manageability Interface SHOULD enable exposure of other interfaces and information that are associated with the manageable resource (for example, work flows and policies).

[MDL-EXP.001.9] The Manageability Interface SHOULD enable exposure of existing standard management models and runtimes (at a minimum, the information exposed by CIM and by the standard MIBs of the IETF).

- **[MDL-EXP.001.9.1]** The Manageability Interface SHOULD consider and leverage current models of service (such as the existing CIM_Service class, defined by the DMTF).

[MDL-EXP.001.10] The Manageability Interface MUST be able to associate metadata with the operations, attributes and notifications of the manageable resource.

[MDL-EXP.001.10.1] The Manageability Interface MUST support categorization/typing of its information, operations, notifications, and relations

[MDL-EXP.001.10.2] The Manageability Interface MUST be able to associate read/write characteristics with attributes

[MDL-EXP.001.10.3] The Manageability Interface MUST be able to associate information for internationalization of values in the model

[**MDL-EXP.001.10.4]** The Manageability Interface MUST be able to associate semantics with the model

[MDL-EXP.002] The Manageability Interface MUST support exposing changes to the model during runtime.

2.1.8 Manageable Resource (H) [MNGBL-RES]

[MNGBL-RES.001] The Manageability Interface MUST support management of varieties of resources:

[MNGBL-RES.001.1] Including hardware related resources (such as machines, networking elements, devices, application software) as well as software related resources (such as a Web Service, a business process, SLA).

[MNGBL-RES.001.2] Including physical resources and logical resources

[MNGBL-RES.001.3] Including transient and long-lived/persistent resources

[MNGBL-RES.001.4] Including Web Services and elements of the Web Services Architecture

[MNGBL-RES.002] The Manageability Interface MUST support a modular approach to providing management capabilities. For example, a manageability interface may support Monitor but not Control.

[MNGBL-RES.002.1] The Manageability Interface SHOULD support Monitor management capabilities

[MNGBL-RES.002.2] The Manageability Interface SHOULD support Configure (i.e., the non-volatile state, which involves both viewing and setting) management capabilities

[MNGBL-RES.002.3] The Manageability Interface SHOULD support Control (expressed in actions, not state) management capabilities

[MNGBL-RES.003] The Manageability Interface MUST support identification of the manageable resource and be uniquely identifiable (where identifiers can be recreatable) (See [MDL-EXP.001.1])

[MNGBL-RES.004] There MUST be a supported method for obtaining a description (and therefore an invocable reference to the manageable resource) for a given identity

[MNGBL-RES.005] The Manageability Interface MUST support expressing aggregations of resources

[MNGBL-RES.006] The Manageability Interface MUST support incremental implementation of manageability. (Ranges from minimally Identifiable to Fully Manageable) The specification must identify the increments supported.

2.1.9 Life-cycle Management (I) [LC-MGMT]

There is some overlap between this section and [DIST-M.001.13], and also to some extent with [DIST-M.001.14, 15].

[LC-MGMT.001] The Manageability Interface MUST allow monitoring of life-cycle states of manageable resources.

[LC-MGMT.002] The Manageability Interface MUST allow control of life-cycle states of manageable resources.

[LC-MGMT.003] The Manageability Interface SHOULD allow creation and deletion of new manageability interfaces for manageable resources

[LC-MGMT.004] The Manageability Interface MUST not define a canonical lifecycle for all manageable resources. (Note: this is a modeling exercise)

2.1.10 Management Manageability (S) [MAN-MGMT]

[MAN-MGMT.001] The Manageability Interface MUST not preclude a manager from being a manageable resource.

[MAN-MGMT.002] The Manageability Interface MUST enable resources that are part of a management infrastructure to be manageable resources.

[MAN-MGMT.003] The Manageability Interface MUST not preclude manageable resources from using their own manageability interfaces.

[MAN-MGMT.004] The Manageability Interface MUST not preclude the ability of a system to explain its own workings via the manageability interface.

2.1.11 Federation (T) [FED]

[FED.001] The Manageability Interface MUST not preclude the development of federated managers. This is related to [DIST-M.001.15].

2.1.12 Co-existance (U,V) [CO-EXIST]

[CO-EXIST.001] The Manageability Interface SHOULD make use of existing specifications where appropriate to avoid duplication and conflict, e.g. GGF OGSI, DMTF CIM/WBEM

[CO-EXIST.002] The Manageability Interface SHOULD be usable by other specifications where there are similar requirements.

[CO-EXIST.003] The Manageability Interface MUST allow implementations to co-exist without interfering with existing standardized management infrastructures

2.1.13 Discovery [DISC]

[DISC.001] The Manageability Interface MUST be described in WSDL documents and XML Schema.

[DISC.002] The Manageability Interface and Description MUST enable the discovery of appropriate relationships between manageable resources via Web services discovery mechanisms.

[DISC.003] The Manageability Interface and Description MUST enable discovery of manageability capabilities of resources.

2.1.14 Miscellaneous (J) [MISC]

[MISC.001] The Manageability Interface MUST use XML schema types available for attributes, such as Time and Date when representing a time.

[MISC.002] The Manageability Interface MUST advance the definition of XML array types so that they become independent of the web services binding (currently, the definition is too tightly tied to a SOAP binding).

2.1.15 Collections of Management Actions and Transactions [TRANS]

NOTE: This section may affect and be affected by requirements for long-running business transactions/business processes and workflows.

[TRANS.001] The Manageability Interface MUST support the description/definition of a "unit of work" that consists of multiple actions against a single resource.

[TRANS.002] The Manageability Interface MUST support the description/definition of a "unit of work" that consists of the same action applied to multiple resources.

[TRANS.003] The Manageability Interface MUST support the description/definition of a "unit of work" that consists of multiple actions against multiple resources.

[TRANS.004] The Manageability Interface MAY support execution of a unit of work against multiple resources.

> **[TRANS.004.1]** The Manageability Interface MUST support execution of a unit of work against a single resource.

[TRANS.005] The Manageability Interface MUST support idempotence for units of work against one or more resources.

NOTE: If units of work are not supported, this requirement is met trivially.

[TRANS.006] The Manageability Interface MUST enable reporting of status, errors or lack of support for execution of a unit of work against one or more resources.

[TRANS.007] The Manageability Interface SHOULD support requests for asynchronous execution of actions against one or more resources, within a unit of work, with (idempotent) callbacks.

[TRANS.008] The Manageability Interface MAY support requests for atomic (all-or-nothing) execution of a unit of work against one or more resources, not necessarily defining any particular level of isolation.

> **[TRANS.008.1]** If asynchronous actions are supported [TRANS.007] and asynchronous actions occur in at atomic unit of work, then eventual execution of the asynchronous actions MUST be guaranteed if the atomic unit of work is completed, with ensuing consequent callbacks also guaranteed.

[TRANS.009] The Manageability Interface MUST enable reporting of status, errors or lack of support for atomic execution of a unit of work against one or more resources.

[TRANS.010] The Manageability Interface MAY allow changes for partially completed units of work to be externally visible.

[TRANS.010.1] If atomic units of work are supported [TRANS.008], then changes due to the actions in the unit of work SHOULD NOT be externally visible until the unit of work has completed.

[TRANS.011] The Manageability Interface MUST support requests for rollback of atomic units of works that have not completed.

[TRANS.012] The Manageability Interface MUST support status for rollback requests for atomic units of work.

[TRANS.013] The Manageability Interface SHOULD support time-out for a unit of work consisting of multiple actions against one or more resources, with callback that may result in a rollback request for that unit of work.

2.2 Non-Functional Requirements

2.2.1 Interoperability (K) [INTEROP]

[INTEROP.001] The Manageability Interface specification MUST define one standard WS-I compliant binding required.

[INTEROP.002] The Manageability Interface specification MUST define the set of minimal compliance requirements and SHOULD define additional, recommended compliance requirements.

2.2.2 Evolvability (L) [EVOLV]

[EVOLV.001] The Manageability Interface SHOULD be designed so that it can be evolved without breaking backward compatibility.

[EVOLV.002] The Manageability Interface SHOULD not preclude multiple versions of the MUWS specification executing simultaneously in the same system.

[EVOLV.002.1] The Manageability Interface MUST enable upgrades

[EVOLV.002.2] The Manageability Interface MUST enable maintenance

2.2.3 Extensibility (M) [EXTN]

[EXTN.001] The Manageability Interface MUST enable extension of the management models exposed by adding additional model elements, management information, operations, event notifications and relations.

2.2.4 Scalability (N) [SCAL]

[SCAL.001] The Manageability Interface MUST not preclude scalable deployment.

[SCAL.002] The Manageability Interface SHOULD make it possible to specify filtering/processing through the manageability interface to reduce network traffic and distribute computation.

[SCAL.003] The Manageability Interface MUST not preclude scalability of events (event storm handling in large scale systems, event aggregation)

2.2.5 Useability (O) [USE]

[USE.001] The Manageability Interface Specification MUST address usability of WSDM specification to implementers. This is important for rapid adoption.

[USE.001.1] The Manageability Interface specification SHOULD make it possible to create a minimally compliant implementation with relatively small amount of effort including gradual adoption.

[USE.001.2] The specification SHOULD provide sufficient clarity to implementers.

[USE.002] The Manageability Interface SHOULD provide diagnostic capabilities.

2.2.6 Internationalization (P) [I18N]

[I18N.001] The Manageability Interface MUST allow compliant implementations to be localized.

[I18N.002] The Manageability Interface MUST leverage internationalization support that is part of the Web Services standards.

2.2.7 Performance Impact (R) [PERF]

[PERF.001] The Manageability Interface SHOULD be supportable with minimal impact on resource performance

[PERF.002] The Manageability Interface SHOULD be supportable in resource constrained systems

[PERF.003] The Manageability Interface MUST not preclude manageable resources from controlling the impact of management on their environments.

3 Use Cases

Peer managers

Multiple, diverse managers

International Supply chain scenario

Dynamically assembled Composite applications

- ManyMillion managed objects

Capable and constrained managed resources

Billing (Utility computing)

WSMF: Distribributed auction

WSMF: End to End management

Service Access Points deployment

Adapter to existing technologies (CIM, JMX, SNMP)

OGSA Use cases

Managing field service org with mobile devices

Use mgmt protocol to communicate logical filters to managed resources

Coexisting versions

Do it all Securely

Implementing manageability

Controlling a resource (upgrade/change)

Feedback loop

Human override

4 References

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Appendix A. Acknowledgments

The editors would like to acknowledge the contributions of the OASIS WSDM Technical Committee, whose voting members at the time of publication were:

Appendix B. Notices

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Appendix C. Revision History

Date	Lead Author	Description
May 13, 2003	Pankaj Kumar	Initial Draft.
May 27, 2003	Pankaj Kumar	Draft#2 -- Incorporated requirements identified in the F2F brainstorming into the main text. Used the classification agreed upon in the phone conf. With Heather, John and Veena.
Aug. 1, 2003	Pankaj Kumar	Draft#4 – Accepted the changes proposed by the TC (as marked by Heather). Added Out of Scope Section. Removed table fragments from within the main part of the document. Made minor formatting related changes.
Aug. 11, 2003	John DeCarlo	Draft #5 – Made the changes proposed by TC. Reworked Section 1. Made formatting changes for consistency and some grammar changes for consistency.
Sep. 18, 2003	John DeCarlo	Draft #6 – Made a large number of changes based on TC Input, primarily from Andrea and Andreas.
Sep 26, 2003	John DeCarlo	Still Draft #6 – added a section on Transactions and removed listing Transactions as out of scope. Also updated based on Andrea's input on Andreas's comments. Cleaned up some editorial bullet consistency, too.
Oct 2, 2003	Heather Kreger	Committee Draft – Final wording adjustment for Transactions, removed brainstorming appendix and references to it. Posting as committee draft.

Note:

When we get to creating a glossary, define 'monitoring'