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Technical Report

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Study on 3GPP SA5 / MTOSI XML harmonization (Release 8)



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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

Where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document is the outcome of the SA5 MTOSI XML harmonization study.

MTOSI version 1.1 is considered in the present document.

The goal of the present document is multiple:

- At first, it mainly consists in studying the MTOSI XML recommendations and estimate whether or not they are applicable and useful to SA5.
- Then, a delta calculation, in terms of Methodology, Specifications and Models, will be studied and presented in order to define, in case MTOSI recommendations prove to be useful to SA5, what are the main differences between MTOSI and SA5 specifications. Once those will be identified, they will be ordered in priority and a decision will be made, whether or not the harmonization process for such or such items can be kicked off.
- Finally, a proposed roadmap for those activities will be presented. This roadmap is likely to evolve as we move along the harmonization effort between MTOSI and SA5.

The content of the present document is subject to 3GPP SA5 discussion and decisions will be made based on the output thereof.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] TMF 608, Version 3.3: "Multi Technology Network Management (MTNM) Information Agreement".
- [2] TMF 517, Version 1.1: "Multi Technology Operations System Interface (MTOSI) Business Agreement".
- [3] TMF 854, Version 1.1: "Multi Technology Operations System Interface (MTOSI) XML Solution Set".
- [4] 3GPP TR 30.817: "Project Scheduling and open issues for SA5".
- [5] 3GPP TS 32.809: "XML-Based Solution Set feasibility study".
- [6] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

MTOSI Team/mTOP team: for simplification reasons, in the present document, MTOSI is mentioned a number of times. It is actually a wrong assessment and should read mTOP team. mTOP team is responsible to statute on both MTNM and MTOSI specifications. For this harmonization study, the targeted team is the mTOP team dealing with MTOSI specification and the name MTOSI team is used through the document.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [6] and the following apply:

AVC	Attribute Value Change
EM	Element Manager
FFS	For Further Study
IRP	Integration Reference Point
IS	Information Service
MEP	Message Exchange Pattern
MO	Managed Object
MTNM	Multi Technology Network Management
MTOSI	Multi Technology Operations System Interface
NM	Network Manager
NRM	Network Resource Model
OS	Operating System (EM, NM)
RPC	Remote Procedure Control
SD	Supporting Document
SOAP	Simple Object Access Protocol
SS	Solution Set
TR	Technical Report
WI	Work Item
WID	Work Item Description

4 Work Item Study Principles

The full Work Item Description of this SA5 XML harmonization effort is fully detailed in 3GPP TS 30.817 [4], item number 35074.

To summarize, it is proposed in this WI to study MTOSI solutions in respect to XML specifications, methodologies, best practices and guidelines. Mainly, their applicability to SA5 is the scope and key aspect to this study.

This will be assessed through a sharing of information which already took place during SA5 # 48 and the September 2006 SA5 presentation to MTOSI. For information, the full set of technical specification presented by MTOSI to SA5 is regrouped and available in S5-070529.

In the context of the SA5 MTOSI XML harmonization WI, the following significant steps took place:

- May 2006, SA5#48: MTOSI presented their XML recommendations, detailed in TMF 854 [3], to the SA5 floor.
- September 2006, Conference Call: SA5 presented to MTOSI, the area covered in their specifications as well as the methodology in place in SA5 to progress their standardization efforts.

The present document is the conclusion of those sharing information sessions.

On the border of this WI is the consideration to align further the MTOSI principles with SA5 specifications, in terms of Models and IRPs (existing or future). Those aspects will be introduced in this study and the delta between MTOSI and SA5 on those aspects will be assessed through a delta calculation which is detailed in the following clause. However, this is likely to be considered for further study but still fits in the present document.

4.1 MTOSI XML Recommendations

This is the core of the study.

MTOSI presented the principles of their XML recommendations during SA5 # 48 and made their documents available for further study to SA5 people. The presented documents outlining their XML philosophy and recommendations are:

- TMF 854, MTOSI XML Solution Set.
- TMF 854, SD2-2: MTOSI XML implementation user guide.
- TMF 854, SD2-4, MTOSI Communication Styles.

Those documents are roughly summarized in clause 5 and are available in their full content in S5-070529.

4.2 Delta Calculation

As part of this study effort, it seemed interesting to check out further what are the main differences between the set of specifications created by MTOSI and main SA5 IRP concepts.

This delta calculation is a very long term effort and difficult to estimate since it requires a very deep knowledge of both sets of specifications (MTOSI and SA5). However, clause 6, details this delta calculation.

The strategy to calculate this delta was based on three aspects:

- Delta Calculation based on Methodology.
- Delta calculation based on specifications.
- Delta calculation based on Models.

Once again, the goal behind the delta calculation is to identify the main differences between MTOSI and SA5 and find out which elements of this delta need to be harmonized and according to which priority.

Delta calculation is fully detailed in clauses 6 and 7.

4.3 Roadmap

This SA5 MTOSI XML harmonization effort is likely to be a middle/long term effort. Typically, it is very likely that a number of items will be identified as requiring harmonization. But, considering the current workload of both SA5 and MTOSI people, it will need to be implemented on a "one step at a time" kind of effort.

For this reason, a Roadmap will be proposed to try to fix, on paper, the guidelines in terms of realistic dates for harmonization items achievements. Of course, this roadmap is open to discussions and is likely to be significantly modified as this effort progresses.

The Roadmap is proposed in clause 8.

5 Main Goal: MTOSI XML Recommendations

5.1 Introduction

The main goal of this Work Item is to study the XML recommendations provided by MTOSI, in order to assess whether or not those recommendations are applicable to SA5.

To do so, MTOSI presented a number of technical documents to the SA5 floor to give a technical overview of the way they recommend to use XML in SA5 future XML implementations.

Globally, and as a summary, MTOSI proposes to use SOAP/HTTP to wrap and carry the XML messages through SOAP nodes. SOAP messages are built up, in a classical way, with:

- A SOAP Header, MTOSI customized, with information related to MTOSI SOAP Body as well as information concerning the MEP (communication style + communication pattern).
- A SOAP Body, MTOSI customized, for which the first element has to be the operation name and the rest of the structure is a plain XML structure, as defined in the XSD set.

Of course, MTOSI proposes messages extensibility through the three following main mechanisms:

- Managed Object extension (use of a specific placeholder named VendorExtensions).
- Attribute Extensions mechanism.
- Vendor Object and vendor Notification.

The following subclasses' intent is to go through a quick summary of the content and main concepts of the MTOSI documentation presented during SA5 # 48. It is obviously not a full coverage of MTOSI specification but more of a useful reminder to the SA5 floor.

As well, for convenience purpose, the full set of MTOSI specifications (i.e. TMF 517 [2], TMF 608 [1], TMF 854 [3]) are made available under document number S5-070529.

Finally, the reader has to bear in mind the general structure of MTOSI documents:

- Usually, TMF xxx is made of a general main document explaining the big lines of their solution. Next to this main documents are the Supporting Documents (SD) in which the reader will find a deeper level of details on a specific topic treated in the main document.
- There are two types of SDs. SD1-XXX are generally related to MTNM documentation. SD2-XXX are MTOSI specifics.

Most of the SDs of interest to SA5 will be outlined in this subclause. It will then be up to the reader to decide whether or not there is a need to go through them in details.

As a conclusion, this is the first decision point for SA5: decide whether or not the proposed recommendations can or should be used for any existing or future XML based implementations.
--

5.2 TMF 517: Multi Technology Operations System Interface (MTOSI) Business Agreement

TMF 517 [2] is in charge of defining the requirements and Use Cases on which the MTOSI implementation is based.

In particular, the following topics are the basis for the set of requirements/Use Cases defined in the present document:

- **Alarm Reporting:** allows an Operating System (EM, NM) to send alarms from a given OS to a set of interested OSs. In order to receive alarms from a given OS, an alarm consuming OS must first subscribe to receive the alarms of the given OS. Of course, a single OS could play both roles.

- **Retrieval of active alarms:** allows an OS to request some or all of the active alarms known to another OS.
- **Inventory update notification:** allows an OS to send inventory update notifications to a set of interested OSs. The inventory updates include object creation/deletion, object discovery, Attribute Value Change and State Change.
- **Inventory Retrieval:** allows an OS to retrieve all or part of the inventory known to another OS.

The Requirements are split into the following categories:

- Business Requirements.
- Static and structural Requirements:
 - MTOSI Object Classes Reqs;
 - Equipment;
 - Managed Element, Managed Domains;
 - OS;
 - Object attributes (resource state, interface versioning, Naming Reqs, etc.);
 - Event Notification types Reqs.
- Normal Sequences, Dynamic Reqs:
 - Inventory management (inventory retrieval, bulk inventory retrieval, Management domain retrieval, OS inventory, Inventory notifications, etc.);
 - Attribute Value Change;
 - State change;
 - Fault Management Requirements (alarm subscription, alarm filtering, alarm loss, alarm summary, etc.);
 - Security Management.
- Abnormal Exception Conditions and Non-functional requirements:
 - Extensibility;
 - Attribute Value Extensibility.

The following Use Cases are covered in TMF 517:

- OS initialization.
- Discovery and Inventory Use Cases.
- Bulk Inventory Retrieval Use Cases.
- Fault Management Use Cases.

There are no Supporting documents for TMF 517.

5.3 TMF 608: Multi Technology Network Management (MTNM) Information Agreement

TMF 608 [1] is responsible to define the MTOSI operations, named Business Activities, as well as the Information Model. Actually, it is worth noticing that both operations and the Model are merged into a single document. This should not be the case anymore for the MTOSI version 2.0.

The present document provides the complete protocol neutral interface information model as defined by MTOSI. It is important to note that MTOSI uses the same information model as MTNM but enhanced, based on the Requirements and Use Cases defined in TMF 517 [2].

In R1.1, MTOSI covers the following: Inventory retrieval, inventory notifications, alarm reporting and active alarm retrieval.

Extensibility for attributes and parameters is described in the supporting document SD2-13, embedded in TMF 608 (and TMF 854 as well) and indicates allowable vendor extensions to the MTOSI object model regarding Object Attributes, Pseudo Object Attributes, Notification Parameters and Operation parameters. An extensibility level is assigned to each object attribute, each notification parameter and the parameters of some operations.

Changes in values of some attributes are notified via Attribute Value Change (AVC) or State Change (SC). The supported document SD2-14 defines which notification has to be sent for which attributes.

5.4 TMF 854: Multi Technology Operations System Interface (MTOSI) XML Solution Set

TMF 854 [2] provides the details of the XML solution set. The main SDs related to this TMF document was presented to SA5 during the SA5 # 48. In order to remind the reader of the content of the presented SDs, the following sub-clauses are a detailed enough summary of those. For any supplementary information, please refer directly to the corresponding SD.

5.4.1 SD2-2 MTOSI XML implementation guide

5.4.1.1 MTOSI XML definitions

TMF 608 [1] MTNM/MTOSI information model is the definition of the network objects along with their containment relationships. TMF 854 has a formal definition of each network object in terms of an XML Schema (XSD). These XSD definitions are the foundation of the formal arguments and the result sets of the MTOSI messages. The top-level messages (both request-reply and notification) contain a set of Network object (from TMF 608) as formal argument and the result set is arranged in an XML document style to accomplish a business activity (operation).

MTOSI XML Definition Layers

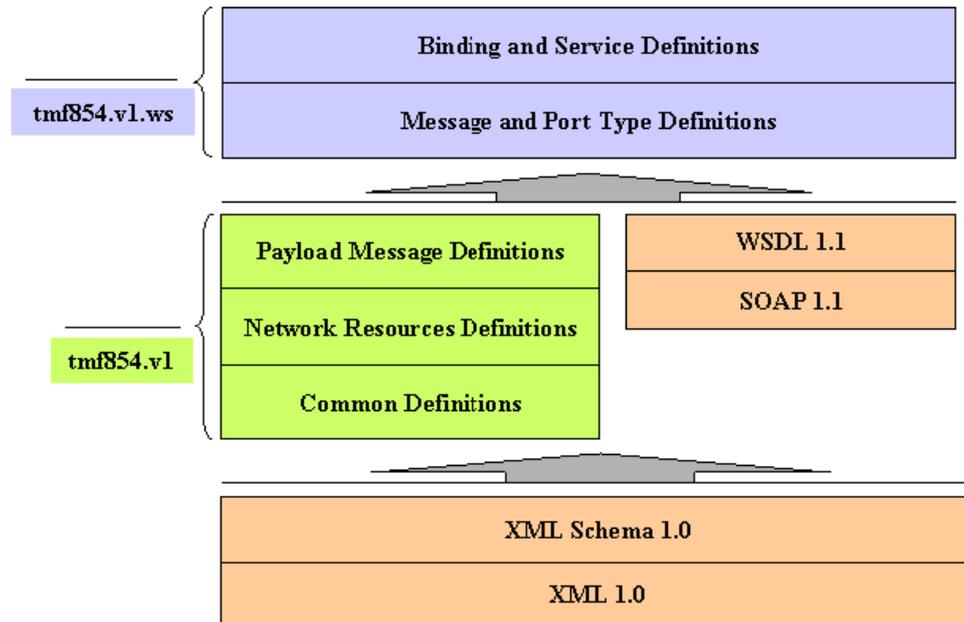


Figure 1: MTOSI V1.1 XML definition layers

5.4.1.2 MTOSI XML Message Exchange Patterns (MEPs)

There are four communication patterns which are identified to accomplish all the business activities:

- Simple response.
- Multiple Batch response.
- Bulk response.
- Notifications.

The communication styles in MTOSI 1.1 are MSG (Message) and RPC (Remote Procedure Control).

The combination of a communication pattern with a communication style is called leads to a MEP.

5.4.1.3 Top-level XML Message Structure

MTOSI adopts the SOAP envelop as external wrapper and structure for the MTOSI messages.

While SOAP addresses the envelope of a message, MTOSI specifies the namespace and root elements of the specific MTOSI header and body.

5.4.1.4 Anatomy of a MTOSI XML message

The purpose of MTOSI is to identify and standardize the business activities (operations) in terms of syntax (XSD) and behaviour (WSDL + MEP) in order to achieve interoperability. All interface messages are XML instance documents with associated XSDs for validation.

Each MTOSI message is composed of a header and a body combined together with SOAP envelop. While the body carries all the information related to the operation, the header is responsible for the additional information related to the particular MEP used in the interaction.

The SOAP header contains generic meta information related to the MTOSI body as well as the data related to the specific communication pattern and style of the implemented MEP.

The considered communication styles for R1.1 are MSG and RPC. The patterns can be one of the following: Asynchronous Request/Reply, Synchronous Request/Reply, Asynchronous Batch Response, Synchronous Batch response, Synchronous Iterator, Asynchronous File Bulk and Synchronous File Bulk.

The MTOSI Notifications are based on a minimal subset of functionality and interfaces in the WS-Notification specification.

Finally MTOSI adopted the SOAP document/literal wrapped style for the SOAP body. In details, this means that the first element in the MTOSI body has to be the operation name. The rest of the body is a simple plain XML structure as defined in the XSD set.

5.4.1.5 MTOSI extensibility

MTOSI can be extended by the vendor to tailor the solution to a specific context. There are three main mechanisms to extend the XSDs:

- Managed Object extension by which all Managed Objects as well as the most critical XML structure have a specific placeholder (VendorExtensions) to allow a vendor to extend a message and still enforce validation on the vendor extension while maintaining backward and forward compatibility with the rest of the MTOSI release.
- Attribute Extensions mechanism by which all the critical MTOSI attributes can be extended by the vendor by leveraging on the extensibility placeholders in the Managed element structure.
- Vendor object and vendor notification in which MTOSI allows a vendor to introduce additional objects and notifications to the messages.

IMPORTANT NOTE ABOUT EXTENSIBILITY: Previously in 1.0, extensibility used to be further details in SD2-6. It seems the SD is not there anymore. It is unknown at this stage whether or not the extensibility has been removed from MTOSI implementation or included in another supporting document.

5.4.2 SD2-5 MTOSI Communication Styles

5.4.2.1 Communication architecture

MTOSI decided to be transport independent. This is achieved by keeping untouched the MTOSI messages as the specific transport is deployed.

In order to meet this requirement, a service oriented façade design pattern is used. Similar to the CORBA broker architecture, MTOSI has defined an abstract interface that is transport technology agnostic and the encapsulation of the mappings to different transport in generic modules called bindings.

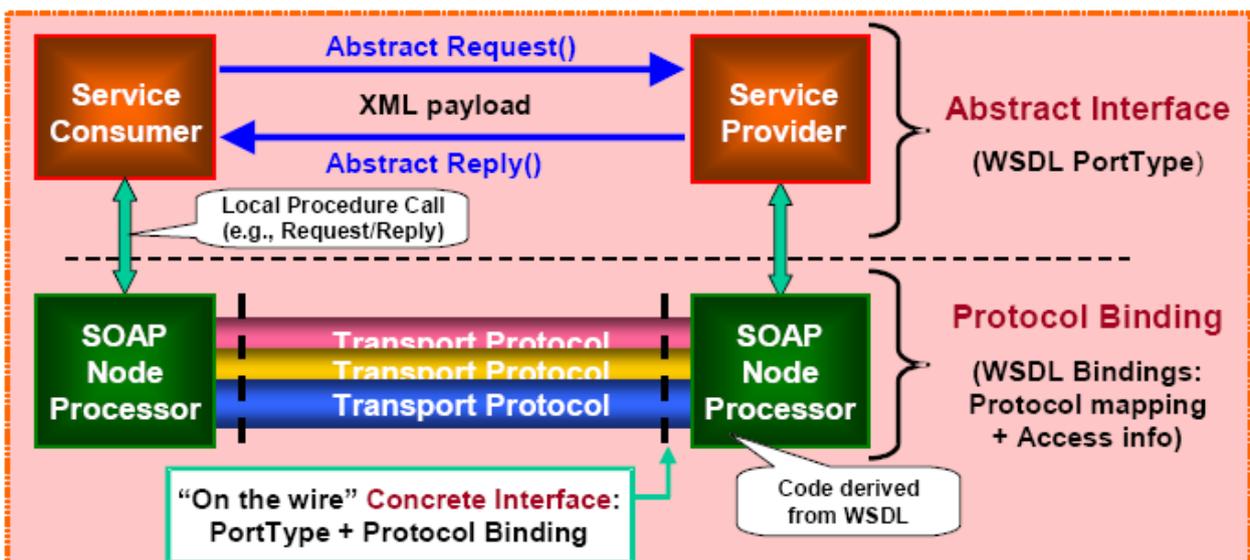


Figure 2: MTOSI Communication Architecture

An operation involves an exchange of XML messages-XML payloads. A communication pattern identifies the sequence and cardinality of the messages sent or received. The messages are exchanged by the application of the SOAP Node Processor according to a communication style: RPC or MSG. The SOAP Node Processor implement the bindings for a supported transport and are responsible for the marshalling and un-marshalling of the XML messages and meta information to the wire format protocol.

A MEP (communication Style and communication pattern) and the message type (SML Schemas) fully specify an interface at the abstract level. By adding the transport protocol details (bindings) to the abstract interface, MTO SI defines the concrete interface.

5.4.2.2 Communication patterns

- Simple response.
- Multiple Batch response.
- Bulk response.
- Notification.

5.4.2.3 Communication styles

There are two communication styles:

- RPC communication style: the service consumer invokes the service providers through a service receptacle and receives a response as return agreement. The call to the middleware is a blocking synchronous call and implements the RPC semantics. This interaction is blocking for the processor thread that invoked the operation.

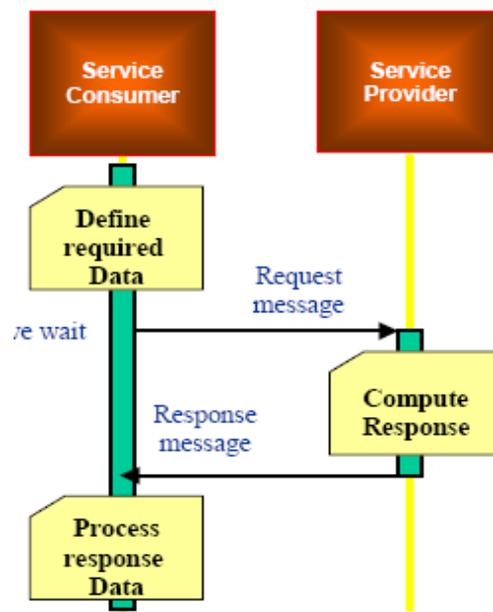


Figure 3: RPC Communication Style

- MSG communication style: the service consumer invokes the service by sending a request message through the service receptacle but at the same time exposes a callback receptacle. This is a non blocking interaction.

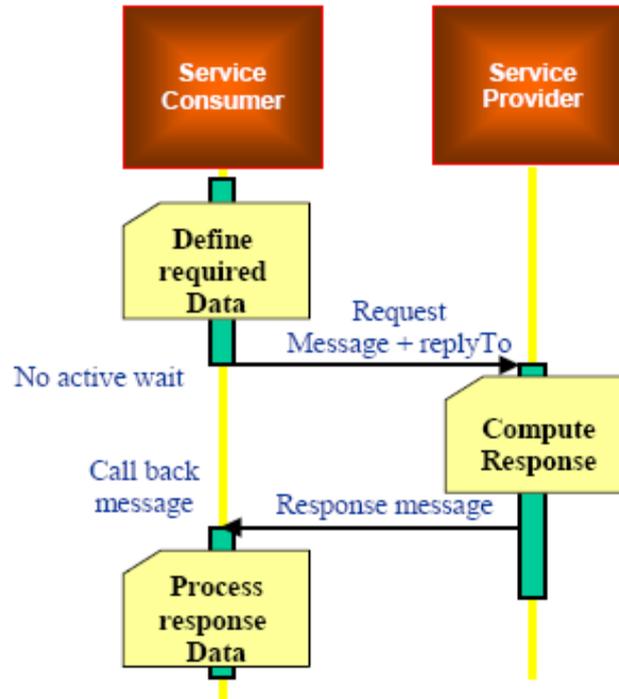


Figure 4: MSG communication style

5.4.3 SD2-8 MTOSI Notification Service

There are two interaction patterns:

- Direct or Point to Point notification pattern, where a notification consumer is subscribed directly to the notification producer.
- Brokered Notification OR publish/Subscribe (Pub/Sub) notification where the interaction between a consumer and a producer is mediated by an intermediary such as Message Oriented middleware.

5.4.3.1 MTOSI Notification interfaces

In MTOSI 1.1, the definition of the Notification Service is driven by:

- Focusing on the brokered Pub/Sub notification pattern.
- Focusing on the direct notification pattern as it naturally relates to HTTP transport.
- Using a simplification of WS-Notification specification (WS-Brokered Notification specification).

In the direct notification pattern, the communication channels are direct between a subscriber and a publisher.

In the brokered notification pattern, the broker's role is to filter and disseminate all the notifications produced by the publisher.

The service interfaces of the MTOSI Notification service are a simplified representation of the similar service interfaces found in the WS-Notification specification, which are designed to support two notification patterns: point to point and Pub/Sub.

5.4.3.2 MTOSI Notification events

- Object Creation/deletion.
- Attribute Value Change.
- State Change.
- Heartbeat.
- Alarm.
- File Transfer Status.
- Etc.

6 Delta Calculation

In the following subclause, a try to assess, in a way as complete as possible, the main differences between the MTOSI specifications and SA5 specifications is proposed.

The content of this subclause is naturally opened to discussion and subject to changes/corrections according to the kind of output received.

6.1 Methodology

SA5 methodology is in place for a while and very well structured. It consists in three levels of documents which are:

- Requirements specification.
- Information Services which includes the operation descriptions in a technology independent way.
- Solution Set which maps the operations defined at the information service level to a technology (CORBA or XML).

On top of that, there are the NRM IRPs which define a particular Model for a specific domain. Typically, 3GPP SA5 defined IRPs for UTRAN, Core, IMS, etc.

On the MTOSI side, they define their requirements and Use Cases in a separate document. It is covered in TMF 517 [2].

Concerning the model, there is a difference between the way MTOSI and SA5 define those. For R 1.1, MTOSI mixes the description of the model to the operations. In SA5, this is split between the NRMs and the Information Services document. This is a significant delta, process wise. However, for MTOSI R2.0, MTOSI are making the distinction as defined in the SA5 methodology by which the operation (Business Activities) and the model will be defined in independent levels of documentation. So the gap should be solved from the next MTOSI releases. To date, models and operations are covered within TMF 608 [1].

Finally, MTOSI defined their XML solution set in a separate document: TMF 854 [3].

There are probably other methodology gaps between SA5 and MTOSI but they are not identified as critical or significant enough at this stage to be outlined in this harmonization study.

6.2 IRP Specifications

On the specification aspects, we are proposing to look into every SA5 defined Interface IRP and check out the equivalent proposal from MTOSI to define and calculate the delta. This is a complex and very deep study of both set of specification and can therefore be subject to modifications according to the comments/discussions from SA5 and/or MTOSI people.

At this stage, MTOSI XML implementations are just a small subset of the MTNM specifications. Their intent is to cover, middle term objective, most if not all the setoff specifications that MTNM can cover.

6.2.1 Alarm IRP (32.111-series)

On SA5 side, the Alarm IRP covers the following operations and notifications, in respect to the requirements defined in 3GPP TS 32.111-1:

- acknowledgeAlarm/unacknowledgeAlarm;
- getAlarmList, getAlarmCount;
- setComments;
- clearAlarms;
- notifyNewAlarm, notifyAckStateChanged, notifyCleared Alarms, notifyComments;
- notifyAlarmListRebuilt, notifyPotentialFaultyAlarmList.

To date, MTOSI implements alarm reporting and the retrieval of active alarms.

MTOSI are willing to strengthen their specifications, concerning the Fault Management aspects. They are currently kicking off a process by which they are planning to align their MTOSI FM implementations with the MTNM specifications. A study is to be kicked off on their side at the beginning of April and MTOSI will produce a deliverable by July or August 2007 that they are willing to share with SA5 through a Liaison Statement.

Finally, it appeared in 3GPP TS 32.809, XML-Based Solution Set feasibility study, that there is still a question mark whether or not an XML-based implementation of alarm IRP would be able to support alarm storm scenarios. Several studies on that topic are being done and until the full set of result is disclosed, this is probably not a high priority topic for a common harmonized implementation.

Editor's Note: This is FFS

6.2.2 Subscription Management (32.14x)

This Subscription Management IRP already offers a SOAP-XML implementation which is satisfactory to SA5. There is neither plan nor will to get it updated.

There is no corresponding capability in the MTOSI/MTNM interface.

As a consequence, if MTOSI wishes to implement such a solution, SA5 is willing to provide them some information/support, depending of course on the current workload supported by the relevant SA5 people.

6.2.3 Notification IRP (32.30x)

Notification IRP already offer a SOAP Solution Set which is satisfactory to SA5. Therefore, there is no plan to have it changed or harmonized according to the MTOSI recommendations.

MTOSI offers a notification service based on WS-Notifications and offers the following business activities:

- Object creation/deletion (covered in Kernel IRP).
- Attribute Value Change (covered in Kernel IRP).
- State Change (Covered in Kernel IRP).
- Heartbeat (covered in Communication Surveillance IRP).
- Alarm (covered in Alarm IRP).
- File Transfer (covered in File Transfer IRP).

So the basics of notifications are either covered by 32.30x on SA5 side or WS-Notification on MTOSI side. It seems on both sides the basics are solid and there might not be a will to harmonize those well established specifications yet.

6.2.4 Test Management IRP (32.32x)

MTOSI only offers a small capability on that matter which is issued from MTNM recommendations but not yet implemented in XML. There is a middle term plan to implement features such as loop back testing capabilities.

SA5 does not have a SOAP Solution Set specification.

6.2.5 Notification Log IRP (32.33x)

MTOSI offers a small capability on that matter based on the Logging service IDL interface.

SA5 does not have a SOAP Solution Set specification.

6.2.6 File Transfer IRP (32.34x)

SA5 defines the following operations and notifications in its File Transfer IRP, according to the requirement defined in 3GPP TS 32.341:

- listAvailableFiles.
- fileDownloadIndication.
- notifyFileReady.
- notifyFilePreparationError.

In the context of Inventory retrieval, MTOSI offers a File transfer notification, based on the principles of WS-Notifications.

There is a possibility, since SA 5 does not have a SOAP Solution Set specification, to work jointly on harmonizing the missing parts on each side, using MTOSI recommendation, in respect to the SA5 Information Service defined as it is.

6.2.7 Communication Surveillance IRP (32.35x)

SA5 defines the following operations and notifications in its Communication Surveillance IRP, according to the requirement defined in 3GPP TS 32.351:

- getHeartbeatPeriod.
- triggerHeartbeat.
- setHeartbeatPeriod.
- notifyHeartbeat.

MTOSI defines a heartbeat notification based on the principles of WS-Notifications.

There is a possibility, since SA 5 does not have a SOAP Solution Set specification, to work jointly on harmonizing the missing parts on each side, using MTOSI recommendation, in respect to the SA5 Information Service defined as it is.

Possibly, this could be an interesting topic to kick off an XML implementation based on MTOSI recommendations.

6.2.8 PM IRP (32.41x)

SA5 defines the following operations and notifications in its PM IRP, according to the requirement defined in 3GPP TS 32.411:

- create/stop/listMeasurementJobs.
- suspend/resumeMeasurementJobs.
- create/delete/listThresholdMonitor.

- suspend/resumeThresholdMonitor.
- notifyMeasurementJobStatusChanged.
- notifyThresholdMonitorObjectCreation/Deletion/StatusChanged.

There are not any SOAP implementations as yet for PM IRP.

MTOSI defined a PM File format and capabilities related to threshold monitoring and importing capabilities.

Once again, this could be a topic that could be investigated further if the decision is made to go ahead with the MTOSI XML recommendations.

6.2.9 Subscriber and Equipment Trace (32.42x)

Editor's Note: This is FFS

6.2.10 Trace Management IRP (32.44x)

Editor's Note: This is FFS

6.2.11 Basic CM IRP (32.60x)

Basic CM IRP already offers a SOAP Solution Set which is satisfactory to SA5. Therefore, there is no plan to have it changed or harmonized according to the MTOSI recommendations.

6.2.12 Bulk CM IRP (32.61x)

MTOSI has implemented a Bulk CM XML implementation that could be studied further.

Editor's Note: This is FFS

6.2.13 Kernel IRP (32.66x)

Kernel IRP already offers a SOAP Solution Set which is satisfactory to SA5. Therefore, there is no plan to have it changed or harmonized according to the MTOSI recommendations.

6.2.14 State Management IRP (32.67x)

Editor's Note: This is FFS

6.2.15 Inventory Management IRP (32.69x)

MTOSI as a large panel of implementations based on Inventory Management concepts. This will need to be studied further and could be an interesting kick off topic for the XML harmonization.

Editor's Note: This is FFS

6.3 Models

This is a complicated issue, to be considered for a middle/long term discussion. However, here are a few points on that topic:

- To date both models are very different.
- MTOSI model is today linked to operations whereas in SA5 models are specifically dedicated to resources (NRMs).

- SA5 NRMs are multiple: SuM NRM, CM generic NRM, UTRAN NRM, Core NRM, IMS NRM, GERAN NRM and simple fact of modifying one of this NRM is likely to impact at least the Generic NRM. Modifying the Generic NRM itself is likely to be very messy.

The delta concerning Models is really significant and can not be harmonized unless a huge number of modifications are introduced on both MTOSI and SA5 side. However, this is a discussion that is today opened and subject to comments from both SA5 and MTOSI companies.

7 Delta Calculation Outputs

7.1 Conclusion

7.1.1 Methodology

The main gap identified between MTOSI and SA5 in terms of methodology is linked to the way the Model and Operations are dealt with. MTOSI, to date, merges the Model and the operation within a unique document when SA5 has to distinct set of specifications. This is further developed in subclause 6.1.

7.1.2 IRP Specifications

There are three distinct cases:

- SA5 has already a defined SOAP Solution Set (SuM, Notifications, etc...) for an IRP which is satisfactory to SA5 floor. In this case, it is unlikely and probably unwise to modify them in order to match and harmonize with MTOSI XML recommendations.
- SA5 has a defined IRP with no SOAP Solution Set. In this case, if this is defined as a high priority topic by the SA5 floor and agreed on MTOSI side, as long as the Information Service specification is respected there is an opening to implement a SOAP Solution Set, in respect to the MTOSI XML recommendation.
- Finally, it can be decided that for any new implemented item for which a SOAP Solution Set has to be done, it has to conform to MTOSI recommendations.

This has to be discussed and agreed by SA5 floor and communicated to MTOSI once it is done.

7.1.3 Models

This is a long term effort. This is probably the most problematic item in this harmonization effort.

The impact on both sides are multiple and significant on the existing set of specification.

It will be embedded in the overall Roadmap, as conditional, since both SA5 and MTOSI need to take a clear position on that topic.

Finally, there are a number of Model harmonization efforts currently taking place (MTOSI/OSSJ, DMTF CIM/ TMF SID, etc.) that it could be worthwhile for SA5 to track.

8 Roadmap

The Roadmap concerning the SA5 MTOSI harmonization is split into three steps:

- Step 1 concerns the SA5 MTOSI XML harmonization effort study progression in order to reach a conclusion to this WI study, -- Completed June 2007.
- Step 2 concerns the first step of implementation effort on short term assignments, -- Future.
- Step 3 finally covers more impacting issues that can be candidate to an enlarged harmonization effort bigger than the XML aspect itself.

Obviously, this roadmap is indicative and subject to changes as the study progresses.

Step 1: SA5 MTOSI XML harmonization study roadmap:

- April 2007, Xian: SA5 MTOSI XML harmonization TR presentation, Possibly TR to be sent for information to SA, -- Presented. To be reviewed in order to send for information.
- May 2007, Nice: SA5 MTOSI XML harmonization TR conclusion. Some definite positions will have to be taken at this date. The possible outputs would be :-- Sent for information in June 2007, for approval August 2007:
 - Agreement to proceed with MTOSI XML recommendations:
 - Send overall conclusion to SA for approval.
 - Propose a couple of WI to be implemented, in this context, for Release 8.
 - Disagree to proceed with MTOSI XML recommendations:
 - Hold for a while the Overall conclusion.
 - Identify clearly the reasons for disagreement and try to come back with a solution for the June meeting.

Step 2: R8 SA5 MTOSI XML harmonization effort:

- June 2007: Kick off chosen WI implementing MTOSI XML recommendations . WI can be a proposed implementation of xxx OR/AND set up a study group to review/participate/enhance MTOSI XML recommendations, -- Delayed.
- Up to the end of R8: Complete the chosen WI implementing XML recommendations, -- Delayed.

Step 3: Beyond XML harmonization:

- From 2008:
 - Consult a wider audience to try to reach a momentum within the global Telecommunication standards bodies (NGNMF, TISPAN, 3GPP2, 3GPP, TMF, DMTF, etc.).

Editor's Note: This is FFS

- Set up small teams to try to apprehend correctly the full context and consequences of working on a Model harmonization.

Editor's Note: This is FFS

9 Decision Points

Based on the documentation presented to SA5 by MTOSI and on the content of the present document, SA5 has now to take position in order to conclude this SA5 MTOSI XML harmonization Study.

The decision points are split into four different topics (XML recommendations, Methodology, IRP Specifications and Models). For each of those, SA5 will have to assess whether or not it is decided to go further with what MTOSI has to propose.

Those decisions are based on discussions during SA5 meetings and the outputs will be stated in the overall conclusion (clause 10).

9.1 XML Recommendations

This is the key aspect of this harmonization study.

Based on the MTOSI's set of documents, summarized earlier in the present document, SA5 will have to take position and answer the following questions:

- Is SA5 willing to consider using, following and contributing to MTOSI XML recommendations for their future XML implementations? This is of course in respect to questions answered in clause 9.3 by which SA5 decides to keep out of the scope of this study, existing IRPs (and its future versions) for which a satisfactory XML-Based Solution Set is already existing (in particular SuM aspects). This is as well excluding any Model-Based harmonization discussions (see clause 9.4).
- Answer to this question: **YES**

9.2 Methodology

MTOSI in Release 2.0 are planning to separate the Model from the business activities (operations). This will then be consistent with the methodology used by SA5.

- Do SA5 agree to help MTOSI in this exercise, if MTOSI feels a need about it?
- Answer to this question: **YES**, depending on the resources available.

9.3 IRP Specifications

It seems difficult and problematic to modify the IRPs that have already a SOAP implementation.

However, the following questions can be asked:

- Do SA5 agree to keep untouched the IRPs for which a SOAP SS is already implemented and functioning successfully? **YES**
- Do SA5 agree to study, upon agreement of the SA5 floor (on a case by case basis), among the existing IRPs for which there is not any existing SOAP Solution Set specifications, an XML solution based on MTOSI recommendations? Typically, Communication Surveillance could be a good example, **YES**
- Finally, do SA5 agree to consider MTOSI recommendations for any future SOAP SS implemented? **YES**

9.4 Models

- From discussions during previous SA5 sessions, it seems that it does not make sense to consider Models harmonization at this stage.

9.5 Prioritization

If it is agreed that we should follow MTOSI XML recommendations, SA5 should define a priority list of the items to be specified using those recommendations and pick from this list to kick off those implementations.

10 Overall Conclusion

The goal of this feasibility study is to assess whether or not MTOSI XML recommendations could be considered for future SA5 XML-Based implementations.

This study was conducted in three different steps:

- MTOSI presented their XML recommendations to SA5.
- The Rapporteur produced a number of presentations detailing potential work plans to progress this harmonization study.
- Finally, a TR was produced to conclude this study.

Concerning the Methodology aspects, it is agreed that depending on SA5 people bandwidth, if MTOSI requires some help to align with our structure (Requirements, IS and SS), SA5 will be willing to help.

Concerning IRP Specifications, the following is agreed:

- The existing IRP Specifications (and their future versions) such as SuM, Notification etc, etc, that have already a SOAP implementation shall be kept untouched.
- The existing IRP Specifications that do not have a defined SOAP SS could be considered for XML-Based implementation, considering MTOSI XML-recommendations for those.
- Finally, for any new IRP Specifications that require an XML-Based implementation, MTOSI XML recommendation should be considered.

Concerning Model harmonization, it has been acknowledged that there is no need to perform any harmonization on that topic.

The present document will be used by SA5 as a guideline for Release 8 and beyond.

Annex A: Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
May 2007	SA_36	SP-070304	--	--	Submitted to TSG SA#36 for Information	--	1.0.0	
Sep 2007	SA_37	SP-070623	--	--	Submitted to TSG SA#37 for Approval	--	2.0.0	8.0.0