MSF Access Architectural Framework

MSFR4-ARCH-ACCESS

MultiService Forum
Implementation Agreement

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Editor: BT
Mike Bick
mike.bick@bt.com
+44 20 8366 2383

Working Group Chairperson: Stuart Walker
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Abstract:

The MultiService Forum (MSF) is responsible for developing Implementation Agreements or Architectural Frameworks which can be used by developers and network operators to ensure interoperability between components from different vendors. MSF Implementation Agreements are formally ratified via a Straw Ballot and then a Principal Member Ballot.

Draft MSF Implementation Agreements or Architectural Framework may be published before formal ratification via Straw or Principal Member Ballot. In order for this to take place, the MSF Technical Committee must formally agree that a draft Implementation Agreement or Architectural Framework should be progressed through the balloting process. A Draft MSF Implementation Agreement or Architectural Framework is given a document number in the same manner as an Implementation Agreement.

Draft Implementation Agreements may be revised before or during the full balloting process. The revised document is allocated a new major or minor number and is published. The original Draft Implementation Agreement or Architectural Framework remains published until the Technical Committee votes to withdraw it.

After being ratified by a Principal Member Ballot, the Draft Implementation Agreement or Architectural Framework becomes final. Earlier Draft Implementation Agreements or Architectural Frameworks remain published until the Technical Committee votes to withdraw them.

The use of capitalization of the key words “MUST”, “SHALL”, “REQUIRED”, “MUST NOT”, “SHOULD NOT”, “SHOULD”, “RECOMMENDED”, “NOT RECOMMENDED”, “MAY” or “OPTIONAL” is as described in section V-B of the MSF Technical Committee Operating Procedures.

The goal of the MSF is to promote multi-vendor interoperability as part of a drive to accelerate the deployment of next generation networks. To this end the MSF looks to adopt pragmatic solutions in order to maximize the chances for early deployment in real world networks.

To date the MSF has defined a number of detailed Implementation Agreements and detailed Test Plans for the signaling protocols between network components and is developing additional Implementation Agreements and Test Plans addressing some of the other technical issues such as QoS and Security to assist vendors and operators in deploying interoperable solutions.

The MSF welcomes feedback and comment and would encourage interested parties to get involved in this work program. Information about the MSF and membership options can be found on the MSF website http://www.msforum.org/

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For addition information contact:

MultiService Forum
48377 Fremont Blvd., Suite 117
Fremont, CA 94538 USA
Phone: +1 510 492-4050
Fax: +1 510 492-4001
info@msforum.org
http://www.msforum.org

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I. The MultiService Forum

The MultiService Forum (MSF) is a global association of service providers and system suppliers committed to developing and promoting open-architecture, multiservice communication systems. Founded in 1998, the MSF is an open-membership organization comprised of the world's leading telecommunications companies.

The MSF's activities include developing implementation agreements, promoting worldwide compatibility and interoperability, and encouraging input to appropriate national and international standards bodies.

As part of MSF's effort to drive and promote interoperability, the MSF created the Global MSF Interoperability (GMI) event. GMI provides a real-world setting for vendors to test their solutions and offers proof that carriers can purchase their products, confident that they meet the interoperability standards set forth by MSF Implementation Agreements. Each MSF GMI event has been built around a given set of capabilities defined for a given release of the MSF Architecture.

II. An introduction to MSF documentation and GMI 2008

This specification is part of the MSF Release 4 set of architectural, protocol and test documentation.

The MSF Release 4 Architecture is a physical implementation of the functional architectures that have been proposed by the key Standards Development Organizations. As such the MSF Release 4 Architecture represents the current state of the industry and it identifies current open interfaces between physically separate network elements.

MSF Implementation Agreements define the protocols to be used over a given open interface. Where possible MSF Implementation Agreements are based on industry standard protocols but provide additional information so as to ensure interoperability between two network elements. In general this is achieved by closing any gaps in the standards and tightening any optional capabilities defined in the standard to remove the danger of mutually incompatible selections by two vendors. An MSF Implementation Agreement is targeted at a given GMI event but can be used in any circumstance where an operator wishes to deploy the open interface and its functionality within their own network.

The MSF Release 4 architecture and its associated implementation agreements support GMI 2008. GMI 2008 demonstrates multi-vendor, multi-service interoperability based around IMS and includes IPTV and web based services.

As part of GMI 2008 a number of detailed test scenarios have been developed and a number of test plans defined. Test plans contain the set of test cases required to demonstrate a given MSF Release 4 capability and serve to exercise and validate the set of Implementation Agreements required to realize the capability.

Following the completion of GMI 2008 the MSF Release 4 architecture and individual implementation agreements are updated if the testing identified any deficiencies in the document.

For more information about the scope of GMI2008 please go to http://www.msforum.org

III. Impact on previously published MSF documents

This is a new specification for MSF release 4 and GMI 2008.

Introduction

Scope

The MSF architecture required for the access domain varies significantly depending on the technology which is being connected. However in order that the objective of a multi-service network can be realised it is necessary that whilst the architecture within the domain will vary, the interfaces towards the MSF Core Architecture Domain must be standardised. Each separate Access architecture supporting a different technology is referred to as an Access Tile.

References

[1] MSF Release 4 Architecture (MSF-ARCH-004.00-FINAL)

Definitions and Abbreviations

Definitions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", “NOT RECOMMENDED”, "MAY", "OPTIONAL", “CONDITIONAL” and “IF” in this document are to be interpreted as described in the MSF Technical Committee Operating Procedures.

Access Network Domain	The part of the overall MSF architecture framework that generically represents an access network, independent of its technology
Access Network Tile	A specification of the architecture for a specific access network technology or a grouping of similar access technologies.
MSF Core Architecture Domain	The functionality contained in the Transport, Session and Common Blocks defines in the MSF Architecture [1]
Customer Domain	The part of the overall MSF architecture framework that represents equipment residing with the customer or end user.
Tile Prefix	A 2 or 3 alpha-numeric identifier for a given access tile used as a prefix to element and reference point identifiers that are purely internal to that access network tile.

Relationship with the MSF Architectural Framework

The MSF Release 4 architecture [1] introduced an Access Network Domain into its architectural framework (see Figure 1). The Access Network Domain has a number of defined standard interfaces that are independent of the network access technology. This allows the architectural framework to define the interaction between MSF core architecture domain and access network entities so as to support common capabilities. Examples include the extraction location information associated with access network attachment, managing access bandwidth allocation. As access technologies differ from one another, so do the mechanisms internal to that access

network domain that support these interfaces. To accommodate this, a generic access domain is defined with the MSF architectural framework with common interfaces. To facilitate adding different and multiple access networks to the overall architecture, each access network technology or group of similar technologies is defined in its own ‘Access Network Tile’ architecture that can be substituted for the generic access domain. Each Access Network Tile specifies how it operates internally and supports the common interfaces with the MSF Core Architecture Domain.

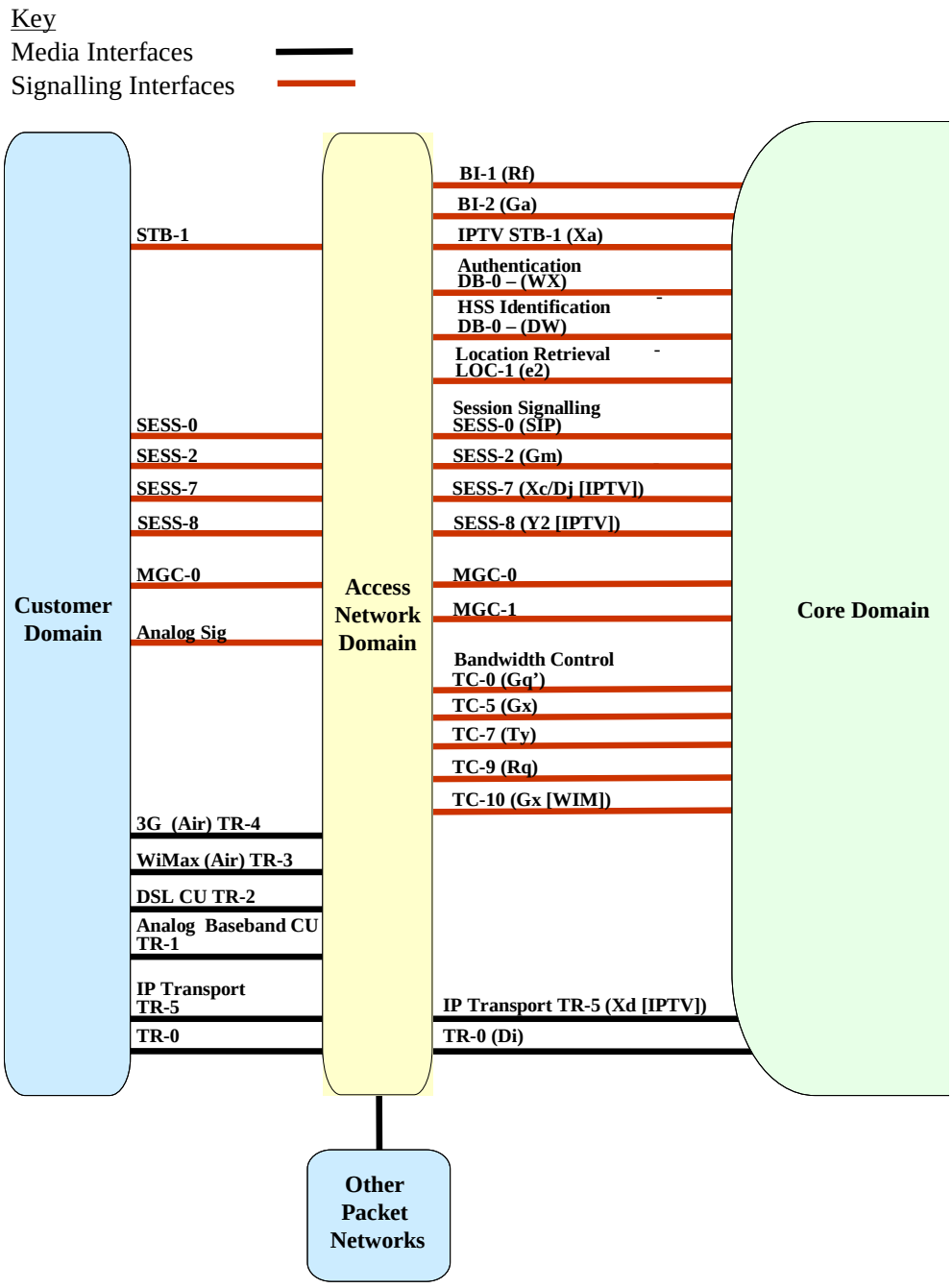

Figure 1: Generic Relationship of an Access Network Tile within MSF Architectural Framework

The common interfaces between the MSF Core Architecture Domain and the Access Domain are for Location Retrieval (LOC-1), Bandwidth Control (TC-0 – TC10) and IP TV (STB-1,SESS7 & 8 and TR-5). These are defined in the Core Architectural Framework document for the release.

Documentation Structure

Each Access Network Tile is separately documented. This is both for the sake of clarity and to permit the ready introduction of new access technologies without disrupting the existing work. This document contains a register (Section 5) of the Access Network Tiles recognized in the overall MSF Architecture.

Document Template

For the sake of consistency the documentation of each Access Network Tile follows the same template specified below.

1 Introduction

This includes:

- The name by which the Access Network Tile is known
- The Tile Prefix for the Access Network Tile
- References – Where required this is a list of references to documents both published by the MSF and other organizations which aid understanding of the functionality of the Access Network Tile.
- Definitions of terms used within the document
- Abbreviations used within the document

2 Purpose - Description of use and scope of applicability of the Access Network Tile

3 Architecture Overview – This is generic text describing the relationship between Access Network Tiles and the MSF Core Architecture Domain. A reproduction of section 2 of this document

4 Internal Architecture – This is a diagram showing the elements within the Access Network Tile together with the Internal and External reference points which connect to them.

5 Trust – This states whether:
- The access tile must be part of the same trust domain as the core.
- The access tile is a separate trust domain to the core
- The access tile may be either part of the core trust domain or a different trust domain

6 Element Definitions – This defines the functions provided by each element within the Access Network Tile. A separate subsection is used for each element.

7 Principles of operation – This is a general overview of the operation of the Access Network Tile for typical functions as appropriate to the technology. E.g. Connection, Registration, Session establishment. It should not be at the level of call flows.

8 External Reference points. – This defines which external reference points (i.e. those towards the MSF Core Architecture Domain and the terminal equipment domains) which need to be supported. This also provides an overview of the functionality supported over each reference point. Where appropriate this section may also explain why a reference point is not required. E.g. LOC-1 may not be required if location information is static and the information is provisioned in the core.

9 Internal Reference points. – This defines the reference points between the elements within the Access Network Tile. This also provides an overview of the functionality supported over each reference point.

Register of Access Network Tiles

Other access tiles may be added as required.

Access Network Tile	**Document Reference**	**Tile Prefix**
Wireline		
Base Band Access Tile	MSFR4-ARCH-BASEBAND-FINAL	BA

xDSL Access Tile	MSFR4-ARCH-xDSL-FINAL	BR
Wireless		
WiMax Access Tile	MSFR4-ARCH-WIMAX-FINAL	WM
3GPP Access Tile	MSFR4-ARCH-3GPP-FINAL	3G
3GPP2 Access Tile	MSFR4-ARCH-3GPP2-FINAL	P2
TD SCDMA Access Tile	MSFR4-ARCH-3GPP2-FINAL	TD