



**Implementation Agreement for
MEGACO/H.248 Profile for a Media Gateway
Controller/Trunking Gateway using IP Trunks**

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Multiservice Switching Forum
Implementation Agreement

Multiservice Switching Forum

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Abstract:

This contribution is an Implementation Agreement for a Media Gateway Controller/Trunking Gateway using IP trunks. This is a MEGACO/H.248 profile.

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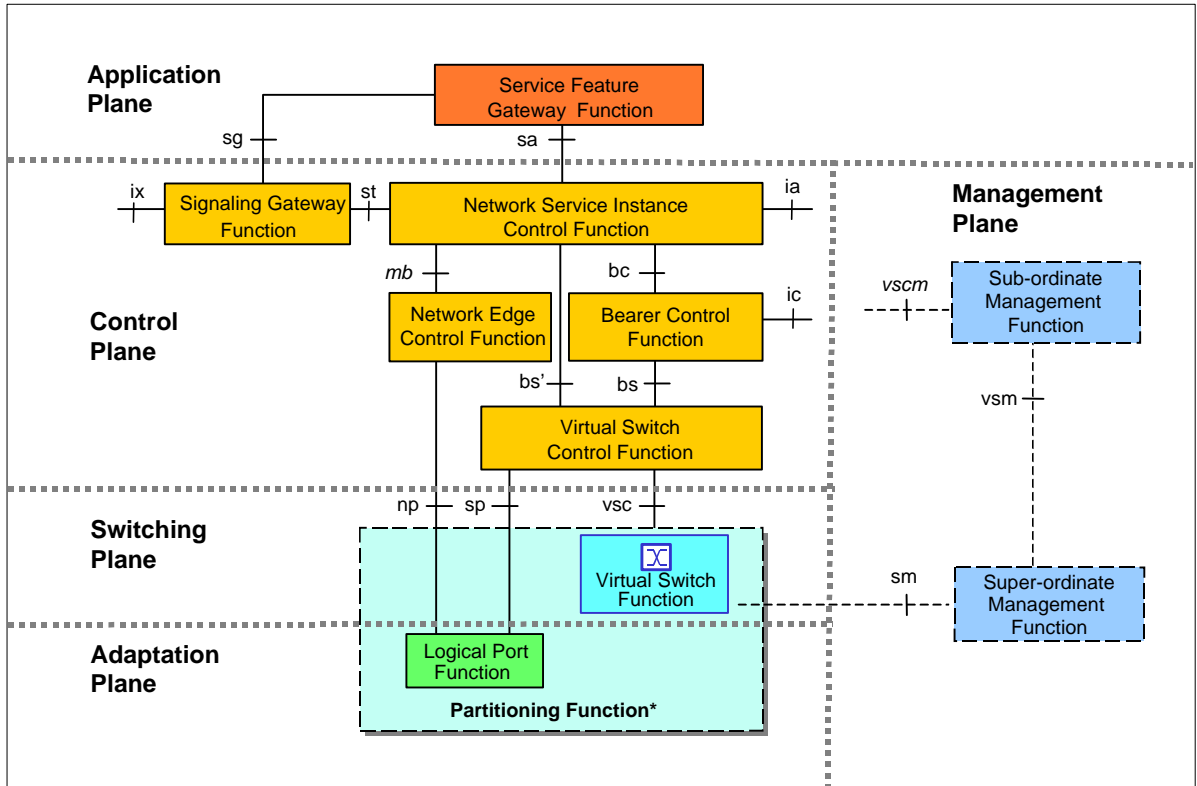
1 Multiservice Switching Forum

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The current MSF Reference Architecture, as defined in MSF2000.053.1, Multiservice Switching Forum System Architecture Implementation Agreement¹, provides a reference point, np, between the Network Edge Control Function and the Logical Port Function (see Figure 1). Thus, the reference point 'np' (in conjunction with bc, bs or bs') can be defined as the interface for the MEGACO/H.248 protocol defined jointly by the IETF and ITU-T. Please refer to MSF-ARCH-001-00-FINAL-IA (MSF2000.053.1), Appendix E, *Mapping of the MEGACO/H.248 protocol onto MSF defined reference points.*, for more details on the combinations of reference points (np+bs, np+bc, np+bs') that make up MEGACO/H.248.

In Figure 2, MEGACO is realized over the np+bc reference points because the Bearer Control Function (BCF) (in this figure) is in the media gateway. This Implementation Agreement is based on the architecture realization shown in Figure 3, in the case where the MG uses RSVP paths or MPLS tunnels to provide bearers through the packet network these shall be supported by the Bearer Control Function (BCF). Please note that this is a specific implementation and there will be others for other situations.

¹ Bjorkman, Nils, "Multiservice Switching Forum System Architecture Implementation Agreement", MSF2000.053.1, April 3, 2000



- Notes:
- Italicized reference points are not considered open reference points for release 1.
 - Bearer transport reference points are not shown.
 - Management functions overlaid on functional architecture
 - * The Partitioning Function maintains partition integrity between partitions of a partitioned entity.

Figure 1 MSF Reference Architecture Corresponding to Functional Definitions

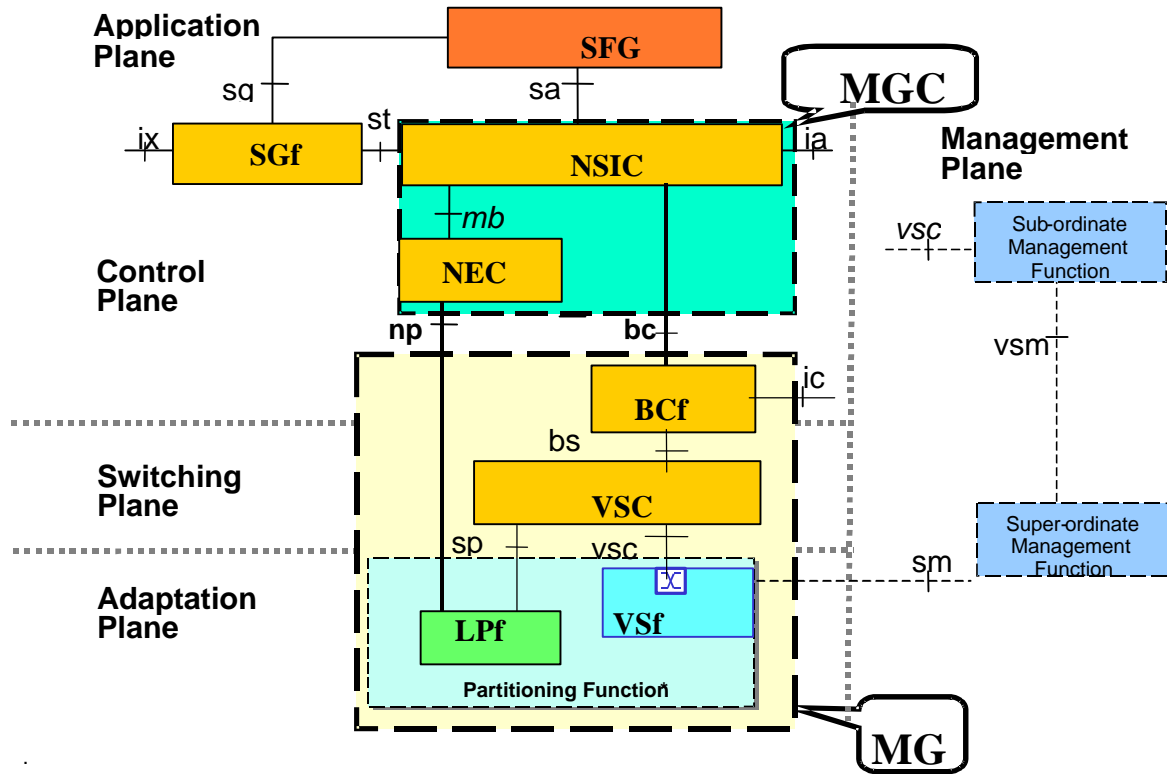


Figure 2 – H248/Megaco protocol run on top the np+bc reference point.

2 MEGACO/H.248

The IETF and ITU-T have worked together to define protocols between elements of a physically decomposed multimedia gateway as specified in H.323. This protocol was published as Recommendation H.248 in the ITU and in RFC3015, Megaco Protocol Version 1.0, November 2000, in the IETF. Since this protocol provides for a number of different types of gateways, H.248 has grouped options into packages that can be defined for the MG and MGCs, and has provided a facility for profiling a specific use for the protocol by a group such as the MSF. Additional MEGACO/H.248 information can be found in the H.248 Implementor's Guide, June 8th, 2001, ITU-T PL-015. Additional package information can be found in "H.248 Packages Guide Release 1, June 2001, ITU-T PL-026."

2.1 MEGACO/H.248 Packages

As defined in Megaco/H.248, packages define properties, events, signals and statistics. These packages can be defined by the IETF (as separate RFCs) and by the ITU-T (as an annex to H.248). This implementation agreement identifies the set of packages that must be supported by an MSF IP trunking gateway.

Please note that not all the packages cited in this version of the implementation agreement have been approved. However, as this functionality is required, and the packages are available for review, they have been included in this document. As more packages become approved, this document will be updated to include that information.

2.2 Megaco/H.248 Profiles

Profiles in Megaco/H.248 define option values, sets of packages, naming conventions and other details for an entire set of applications. Profiles may be defined by any organization. This implementation agreement defines one such profile.

3 Assumptions

The MSF will issue several Implementation Agreements (IAs) which will be used in MSF Interoperability testing and demonstrations. This agreement does not define the test suites or scenarios for the testing, but will provide the framework for those tests. This IA defines a profile for a media gateway controller and a trunking gateway using IP trunks. This profile will have a single IANA designation; however, it will have multiple packages that can be specified within this profile.

This release of the implementation agreement is geared specifically toward MSF interoperability testing.

4 Definitions

A Trunking Gateway, as used in this IA, is an interface between Public Switched Telephony Network (PSTN) trunks, typically connected to a Local Exchange, and an IP centric packet network (see Figure 3). The Trunking Gateway has no subscriber interfaces but may have MF trunks.

The present IA mandates that the BCF be in the MG. Typically the BCF would contain support for an appropriate IGP (Interior Gateway Protocol) and possibly support for RSVP or MPLS traffic engineering mechanisms. However this IA does not preclude simple MGs that do not support such functionality. One such example is a MG connected to the packet network via a single ethernet interface that uses a default route to an adjacent router.

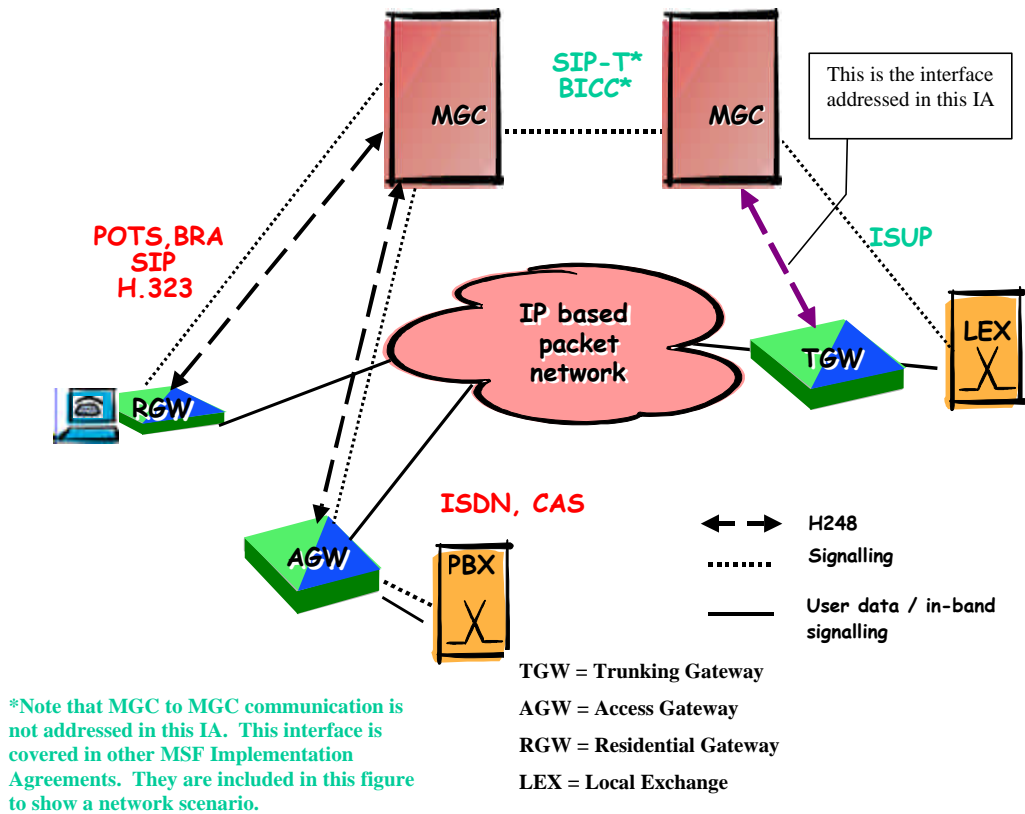


Figure 3 - Functional Gateway/Controller Architecture

G.711 SHALL be supported. G.726 and G.729a may be supported.

G.168 and G.165 SHALL be supported.

Silence suppression may be supported according to G729 Annex B..

5 Megaco/H.248 Profile

5.1 Identifications

This profile shall be entitled “MSF IP Trunking Gateway to Controller Profile”. The version number shall be 1.0. This name shall be returned from a conforming gateway when sending the ServiceChange message as part of initial registration of the MG in the Profile section of the ServiceChange Descriptor. There will be one profile although packages beyond the base set will be defined for this profile.

5.2 Base Packages Implemented

A conforming gateway shall implement at least the following packages:

Package Name	ID	Ver	Defined In
Generic	g	1	ITU-T H.248 Annex E
Base Root	root	1	ITU-T H.248 Annex E
Continuity	ct	1	ITU-T H.248 Annex E
Network	nt	1	ITU-T H.248 Annex E
TDM Circuit	tdmc	1	ITU-T H.248 Annex E
RTP	rtp	1	ITU-T H.248 Annex E

5.3 Optional Packages

A conforming gateway may implement the following packages:

Package Name	ID	Ver	Defined In
Tone Generator	tonegen	1	ITU-T H.248/IETF RFC3015 Annex E
Tone Detect	tonedet	1	ITU-T H.248 /IETF RFC3015 Annex E
Call Progress Gen	cg	1	ITU-T H.248 /IETF RFC3015 Annex E
Call Progress Detect	cd	1	ITU-T H.248 /IETF RFC3015 Annex E
Announcements	an	1	ITU-T H.248 Annex K
DTMF Detect	dd	1	ITU-T H.248 /IETF RFC3015 Annex E
DTMF Generate	dg	1	ITU-T H.248 /IETF RFC3015 Annex E
Basic CAS	bcas	1	IETF draft - draft-manyfolks-megaco-caspackage-01.txt
Robbed Bit	rbs	1	IETF draft - draft-manyfolks-megaco-caspackage-01.txt
MF Gen	mfg	1	IETF draft - draft-bothwell-megaco-mftonepkgs-02.txt
MF Detect	mfd	1	IETF draft - draft-bothwell-megaco-mftonepkgs-02.txt
Fax/Modem	ftmd	1	ITU-T H.248 Annex F
Fax	fax	1	ITU-T H.248 Annex F
Basic QoS	bqos	1	IETF draft - draft-madhubabu-megaco-qospackage-00.txt
RSVP	rsvp	1	IETF draft - draft-madhubabu-megaco-qospackage-00.txt
Diff Serv	diffserv	1	IETF draft - draft-madhubabu-megaco-qospackage-00.txt
NAS	nas	1	IETF draft - draft-ietf-megaco-naspkg-03.txt
Carrier tones gen	carr	1	IETF draft - draft-boyle-megaco-tonepkgs-06.txt

Diagnostic tones	Test	1	IETF draft - draft-boyle-megaco-tonepkgs-06.txt
Operator & emerg	oses	1	IETF draft - draft-manyfolks-megaco-caspackage-01.txt
Operator svcs ext	osext	1	IETF draft - draft-manyfolks-megaco-caspackage-01.txt

5.4 Naming Conventions

5.4.1 Gateway Naming Conventions

The MG name, used in Registration and in the header of commands, SHALL be a domain name or domain address or device name.

The MGC name, used in Registration and in the header of commands, SHALL be a domain name or domain address for UDP transport. For SCTP transport, the MGC name SHALL be a domain name or a domain address or device name.

5.4.2 Termination Names

This profile uses hierarchical termination names in which the slash “/” serves as a separator.

5.4.2.1 PSTN Trunks

PSTN trunk names SHALL be hierarchical with the top level provisioned, and lower levels represented by numeric identifiers following the STM1 hierarchy. For example, an E1 trunk could be named h356z19m3, and the first individual ds0 in that trunk would then be h356z19m3/01. A DS3 trunk could be named DAL3 and its DS1s would then start as DAL3/01/*, and its DS0s would be named starting with DAL3/01/01.

In this example, numbering of the DS0s and DS1s are started at one (1). Alternatively, the numbering could begin at zero (0).

5.4.2.2 IP Trunks

There SHALL be up to two levels of hierarchy. The first level shall be provisioned in the MG and represents the interface. The second level is a unique number representing the pair of RTP/RTCP sessions.

5.5 Topology Descriptor

A gateway conforming to this profile is not required to implement Topology and MGCs expecting to control gateways meeting this specification shall not assume Topology is implemented.

5.6 Service Change Descriptor

The Gateway shall allow one primary and one or more secondary MGCs to be provisioned for registration.

The MGC SHALL be able to control multiple MGs simultaneously. Support of virtual MGs as defined in H.248 Section 11.1 is optional.

5.7 Transaction Timers

Gateways and MGCs SHALL keep application level transaction timers as outlined in Section 8 of RFC3015, Megaco Protocol Version 1.0.

5.8 Transport

Gateways shall implement UDP/ALF and may implement SCTP² transport of H.248.

² IETF RFC2960

MGCs SHALL implement UDP/ALF and SCTP transport of H.248.

Gateways and MGCs conforming to this profile are expected to transport H.248 signaling over IP.

5.9 Security

This release of the IA does not utilize security.

5.10 Encoding

Conforming Gateways SHALL support text encoding.

5.11 Timestamp

A timestamp SHALL be sent on every *Notify* message.

5.12 DigitMaps

5.12.1 Storage

The Gateway is not required to store DigitMaps.

5.12.2 Naming Conventions

The DigitMap names shall be 1 to 32 alphanumeric