
MultiService Forum
MSF Interoperability
Testing & Activities
Seminar on ITU Hot Topics for Standardization
Mar del Plata, Argentina
2nd September 2009
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Agenda

- **Who are MSF**
  - History, Members, Organization etc.
- **Where does the MSF fit?**
- **Overview of MSF Testing Activities**
  - GMI, Certification
- **Scope & Focus of GMI Events**
- **Global MSF Interoperability – GMI 2008 Event**
  - **Where/when, Interconnect N/W, Addressing, Participants, Physical Scenarios, IAs, Test Numbers, MERLIN, Procedures, IMS IPTV, ATIS Collaboration, Results, Whitepaper.**
- **MSF 2009 Program Drivers**
- **MSF EPS Interop Event in March 2010**
- **Relationships with SDOs**
- **Questions / Comments**

What is the MSF?

- **Founded in 1998**
- **Consortium of about 35 companies**
  (mix of large operators, large vendors, niche suppliers, test tool suppliers et al)
- **Facilitator of multi-protocol, multi-site Interop events**
  (GMI – Global MSF Interoperability)
- **Meets 4 times a year** (North America x2, Europe, Asia)
- **See www.msforum.org**

MultiService Forum

MSF Principal Members- 2009

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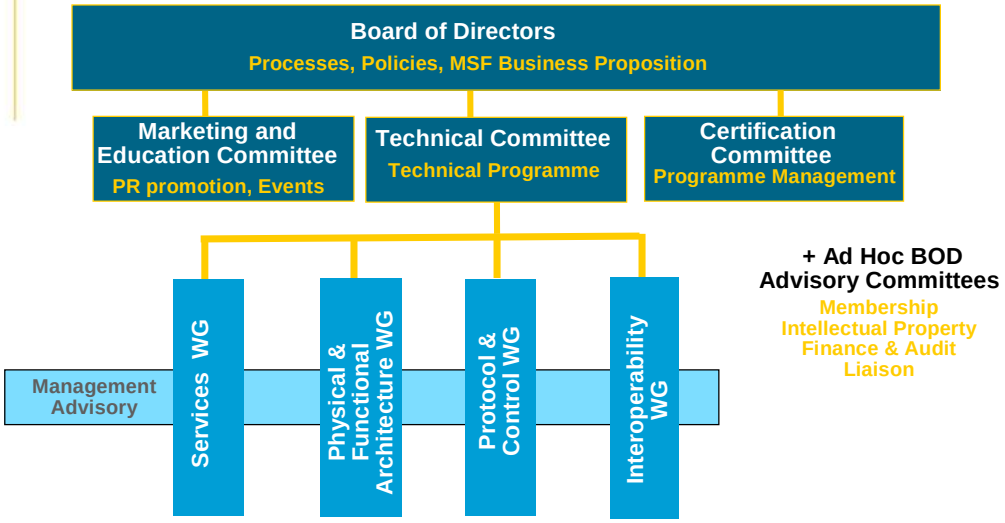
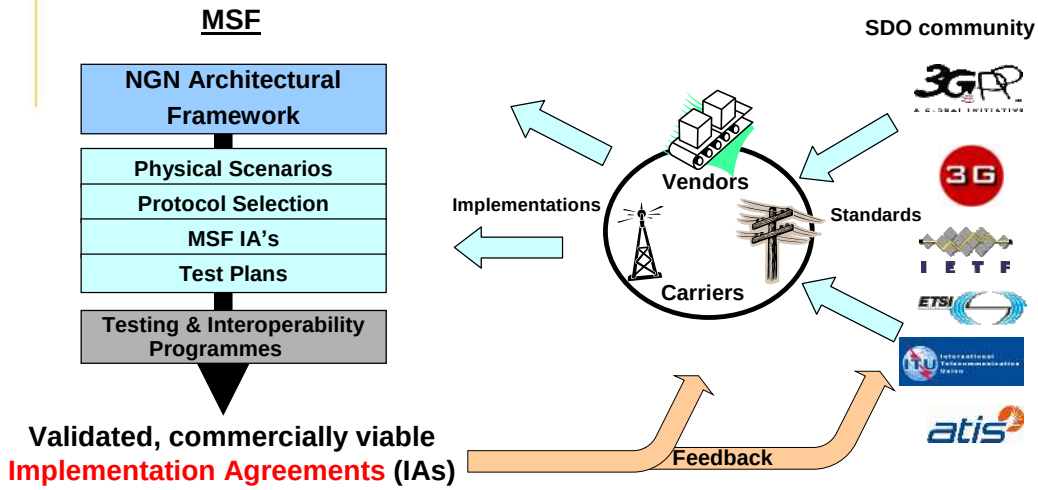
MSF Organization



Where the MSF fits…

- **What the MSF is not**
  - the MSF does not write standards!
- **The MSF does**
  - focus on developing meaningful physical implementations (IAs – Implementation Agreements) based on endorsements of standards defined in SDOs (3GPP, TISPAN, IETF, ITU-T)
  - use large-scale interoperability events to test and validate IAs in implementations of interest to major carriers
  - Promote interoperability to facilitate multi-vendor solutions
  - provide key implementation feedback to vendors, carriers and Standards Development Organizations (SDO's)

How the MSF Works



MSF Interoperability Activities

- GMI (**G**lobal **M**SF **I**nteroperability) Events
- Certification Program
- Permanent Test Bed

GMI Events – What & When?

- **GMI (Global MSF Interoperability)**
  - Tests interoperability in real-world network deployment scenarios
    - Multi-site (Europe, North America, Asia)
    - Multi-protocol
    - End-End calls/sessions
  - provides deployment feedback on key interfaces
    - to vendors
    - to carriers
    - to SDO's
- **Biennial Events**
  - GMI 2002, 2004, 2006 & 2008

MSF Certification Programme

- **RTCP certification**
  - Based at Iometrix lab in Paris

(see www.msforum.org/techinfo/certification.shtml)

Scope & Focus of GMIs

- **Focus of GMIs: Reflective of the "state of the industry"**

  1st GMI 2002: Gateways & Softswitches

  2nd GMI 2004: SIP Servers

  3rd GMI 2006: adoption of IMS

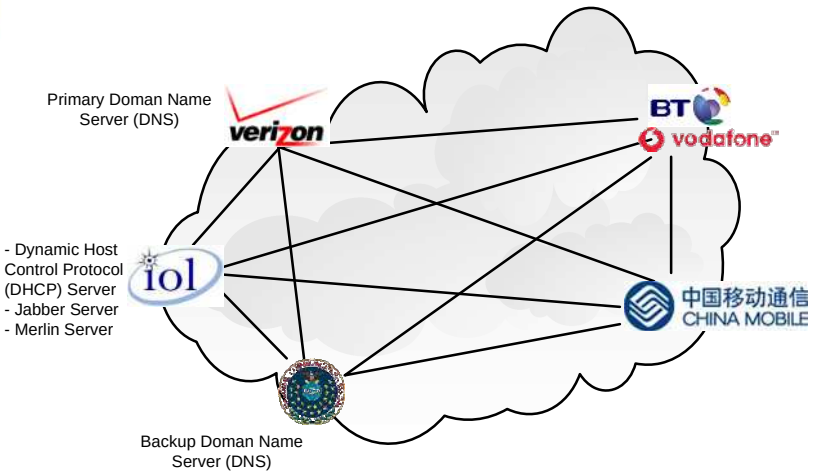
  4th GMI 2008: adds IPTV,
  Policy-based QoS (TISPAN RACS/NASS),
  Location-based services,
  SOA (web/IMS services)

GMI 2008 Event – Where/When

- Held on 20 – 31 October 2008
- 5 inter-connected Host Sites
  - **British Telecom/Vodafone** (Ipswich, UK),
  - **Verizon** (Waltham, MA, US),
  - **China Mobile** (Beijing, China),
  - **National Communication System** (NCS) (Chantilly, VA, US) &
  - **University of New Hampshire** *InterOperability Laboratory* (UNH-IOL) (Durham, NH, US)
- Host sites are non-Vendor locations
- Vendor equipment must be in a host lab

GMI 2008 – Interconnect Network

Virtual Private Network (VPN)
- IPsec tunnels
- PSK encryption with common key
- Dynamic Routing



GMI 2008 – Addressing Issues

- **IPv4 addressing design**
  - Private "Network 10" range used with blocks given to vendors in each host site
  - All participants also given a public *Class C* IP address for remote management purposes
- **E.164 numbering plan**
  - All participants given a block of E164 numbers, with country code of host site location, pre-allocated area codes and a block of subscriber numbers
- **SIP URI domain allocation**
  - All participants allocated a unique domain string based on vendor and host lab

GMI 2008 - Participants

- Acme Packet
- Alcatel-Lucent
- Codenomicon
- Empirix
- Fujitsu
- Huawei Technologies
- Ixia
- JDSU
- Motorola
- MuDynamics
- NEC
- Nokia-Siemens Networks
- Nortel
- OSI
- Sonus
- Spirent
- Starent Networks
- Tekelec
- Tektronix
- Telchemy
- TELES
- ZTE Corporation

GMI 2008 Event – Physical Scenarios

Six physical scenarios in 2008:

- **Scenario 1** – **End-End Session Control**
  Includes nomadicity. Covers Baseband. Broadband, 3GPP, WIMAX, 3GPP2 & TD-SCDMA access technologies plus PSTN, non-IMS SIP.
- **Scenario 2** - **End-End Session Control with QOS**
  Builds upon scenario 1 adding in ETSI TISPAN RACS/NASS, 3GPP/WIMAX PCRF.
- **Scenario 3** – **IPTV**
  Two sub-scenarios:
  - 3a – IMS-based IPTV
  - 3b – 'ATIS IIF'-based IPTV
- **Scenario 4** – **Location Based Services**
  Location based routing, privacy enforcement.
- **Scenario 5** – **SOA (Services-oriented Architecture)**
  Combination of web based services & IMS (SOA Parlay-X gateway)
- **Scenario 6** – **Management**
  Management of IPTV Set-Top Boxes and collection of IPTV related statistics.

GMI 2008 Event
– Implementation Agreements (IAs)

- 43 in total
- Endorsements of ETSI TISPAN & 3GPP specifications
- Protocols: SIP, SIP-I, DIAMETER, H.248
- See: http://www.msforum.org/interoperability/GMI2008_IA_List_FINAL.pdf

GMI 2008 Event – Test Numbers

- **87 test** cases / **429 sub-test** cases

  Physical scenario:

  – In S1 due to distinguishing between *different access* types, *home/visited registration*, set-up/cleardown.

  – In S2 due to distinguishing between *different access* types)

  – In S3A due to IPTV M1/M2

  – In S5 due to sub-tests for Send message / Get message)

  – In S6 due to different *diagnostic options*

GMI 2008 – Test Management Tool

- MSF Event Recording Log in 2008 (MERLIN)

- Developed by UNH-IOL
- Test scheduling & Results recording tool
  (uses UTC given the different time zones)
- Test case configuration: enables vendors / elements to be specified for a given test
- Results uploaded as PCAP traces against elements
  (PCAP = packet capture; de-facto standard file type of network traffic tracing tools)
- Guidelines for results recording
- Number of access levels to ensure privacy/integrity

GMI 2008 – Event Procedures

- **Schedule** pre-planned
  - but reviewed daily and modified as needed
- First two days **intra-site**, then focus on **inter-site** (where possible/applicable)
- **Neutral Event Monitors** oversee testing and upload PCAP files (as provided by vendors) to MERLIN

GMI 2008 – MERLIN Schedule Statistics

- All **429** possible tests defined
- About **1400** events scheduled

GMI 2008 - IMS-based IPTV

- MSF IAs are based on ETSI TISPAN **TS 183 063** (IMS-based IPTV – Stage 3),
- Testing concentrated at **Verizon lab**

MSF & ATIS IIF (IPTV Interoperability Forum) - **GMI 2008 Partnership**

- **ATIS** (Alliance for Telecommunications Industry Solutions) and the **MSF** have signed exclusive **partnership** to collaborate on IP TV aspects of GMI 2008
- Additional GMI 2008 test plans written – "**Scenario 3b**"
  - Authentication & initialisation of CPE
  - Validation of QoS Metrics outlined in ATIS specifications
- Potential to expand / enhance partnership
  - Subject to future discussion…
- First time MSF has formally partnered with major SDO

GMI 2008 –Results (1)

- **686 total** tests run (661 passed, 25 failed)
- 194 tests run **inter-site** (28%)
- 183 of 429 tests run (43%)
- 181 of 183 covered tests passed

GMI 2008 –Results (2)

Physical scenarios:

- S1 – calls involving all access types, local/remote registrations, intra/inter-site sessions
- S2 – QoS tests completed to WIMAX, 3GPP, 3GPP2 & broadband accesses
- S3A – Majority of tests passed
  – 1st IMS-based IPTV interop
- S3B – About half ATIS IIF IPTV tests passed
- S4 – Disappointing – too early for implementations
- S5 – SOA API tests for 3rd party call control, audio call & presence completed
- S6 – Remote IPTV STB management, off-line billing & VoIP performance management tests completed

MSF GMI 2008 Whitepaper

- Whitepaper published and available at http://www.msforum.org/interoperability/02-MGS81044-MFS_Whitepaper.pdf

2009 Programme Drivers

- Carrier driven focus to ensure real-world relevance
- Respond to member need with more frequent but more narrowly focussed MSF testing events
- Increase focus on the production of meaningful test plans given that maturing architecture & protocols are increasingly less contentious
- Keep a future GMI 2010 event as a long term target but review in the light of success of interim test events
- Build appropriate relationships with other SDOs (e.g. ATIS, ETSI).

MSF EPS Interop Event - March 2010

- MSF EPS Interoperability Event will be hosted in March 2010 by Vodafone Test and Innovation Centre, Düsseldorf, Germany & CMCC in Beijing
- Deployment of EPS and proving supporting open interfaces is a high priority for many operators (e.g. Verizon, Vodafone, China Mobile).
- EPS is being adopted within the MSF Architecture
  - adding LTE Access Tile to the MSF R4 architecture
  - adding the EPC architecture into the MSF Core Network Architecture to provide mobility and service continuity aspects
- **Physical Scenarios for EPS Event – see** http://www.msforum.org/techinfo/approved/MSF-EPS-LTE-SCN-001%20FINAL.pdf .

Relationships with SDOs

- MOU signed with ETSI in 2009,
- Has become a Technical Partner for both the ETSI INT-3 & IPTV Plugtest events in October 2009 and has supplied test plan input to both Plugtest events – see http://www.etsi.org/plugtests/IMS3_IPTV1/registration.htm .
- Is currently discussing further co-operation with ATIS IIF (building on GMI2008) toward a joint IOT event in late 2010,
- Currently in discussions with other fora regarding further MOUs,

Thank You

Questions / Comments?