

ITU-T Overview of NGN Management

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29 April – 2 May 2007 ITU-D/ITU-D NGN Seminar for the Arab Region



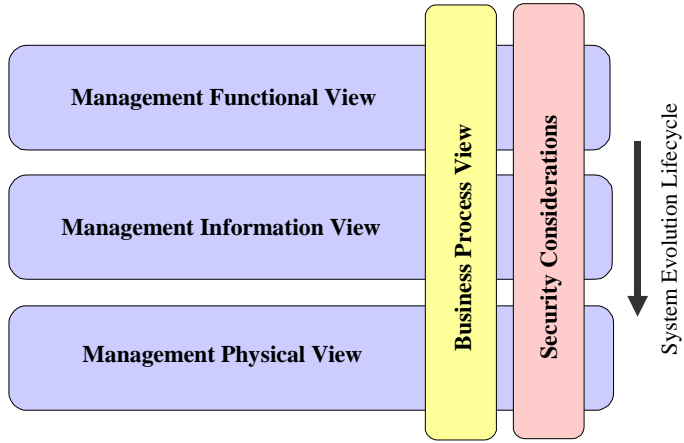
Topics

- ITU-T Study Group 4
- NGN Management Focus Group (NGNMFG)
 - Background
 - Objectives
 - NGN Management Specification Roadmap
 - Harmonization Activities
- Backup charts

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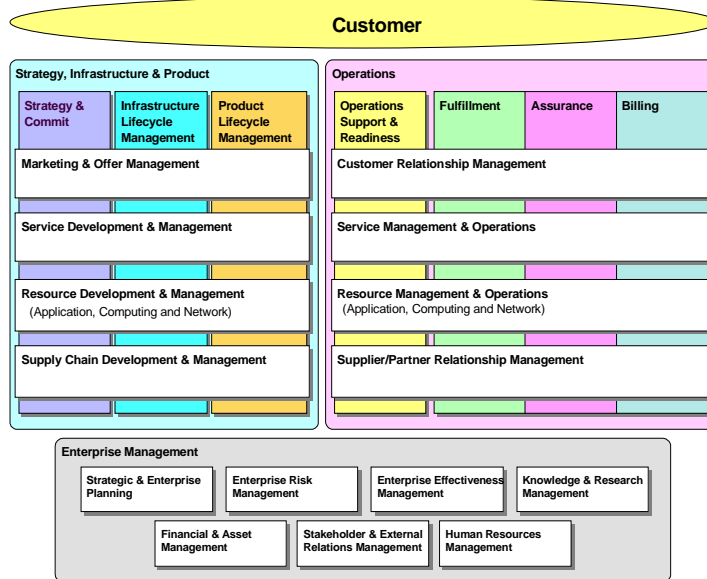
NGN Management Architecture (M.3060)

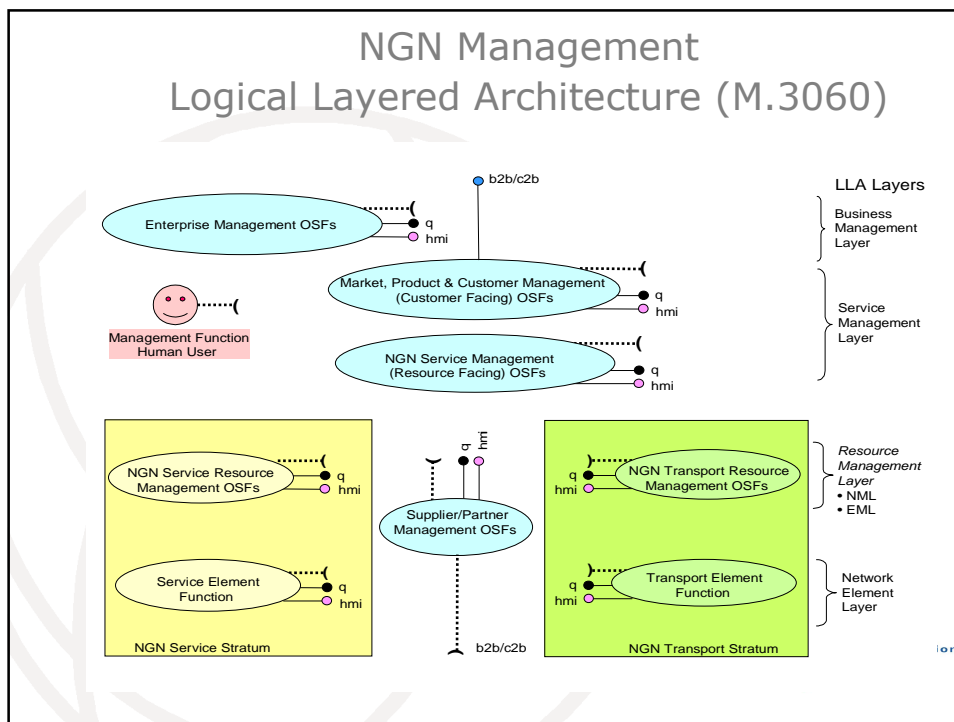


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Business Process View (M.3050 series = TMF eTOM)





Security of the Management Plane (M.3016 series)

- Based on ATIS/TMOC T1.276 but designed for global application
 - M.3016.0: Overview
 - M.3016.1: Requirements
 - M.3016.2: Services
 - M.3016.3: Mechanisms
 - M.3016.4: Profile proforma
- Proforma allows SDOs and forums to profile other M.3016 parts for local application

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International
Telecommunication
Union

NGN Management Focus Group (NGNMFG)

- Established by ITU-T SG 4 in Sept 2004 to support NGN Release 1; re-chartered by SG 4 in Feb and Sept 2005, June 2006, and Feb 2007
- Based on a proposal from leaders of major SDOs, forums, and consortia
- Focused on the following (FCAPS) management interfaces:
 - Network Element - Management System
 - Management System – Management System

FCAPS - Fault, Configuration, Accounting, Performance, and Security Management

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NGN Management FG – Objectives - 1

- General goal
 - To provide the management interface capabilities to support the ITU-T objectives for Release 1 consistent with the high level requirements and architecture in Y.2001, Y.2011, and Y.2012 (Y.NGN-FRA)
- To produce a NGN Management Specification Roadmap focused on Release 1 which identifies
 - Requirements
 - Framework, principles, and architecture
 - Interface specifications, both protocol-neutral and protocol-specific

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NGN Management FG – Objectives – 2

- To collaborate with world’s major SDOs, forums, and consortia
 - Emphasizing reuse of their management specifications where relevant
- To lead and support activities to
 - Include a “big picture” Roadmap introduction
 - Analyze and trace requirements
 - Identify specification “overlaps” and stimulate their owners to harmonize them
 - Identify specification “gaps” and best organization(s) to fill the gaps and prepare a project plan to guide their production

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Organizations with most active participants

- ITU-T SG 4 and SG 15 (Q14)
- ATIS TMOG
- ETSI TISPAN WG8
- TeleManagement Forum (TMF)
- Distributed Management Task Force (DMTF)
- 3GPP SA5
- 3GPP2 TSG-S WG5
- OASIS WSDM
- IETF Operations and Management Area
- IEEE 802.1

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NGN Management Specification Roadmap- 1

- ITU-T SG 4
 - M.3016 series (security of the management plane)
 - M.3050 series (Enhanced Telecom Operations Map)
 - M.3060 (NGN mgt principles and architecture)
 - M.3341 (QoS/SLA management service requirements)
 - M.3350 (Emergency telecommunication service management requirements)
 - Q.838.1 (EPON mgt requirements and analysis)
 - Q.840.1 (management requirements and analysis for EOT and metro ethernet networks)
 - X.alarm-neutral (Protocol-neutral alarm reporting model)

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NGN Management Specification Roadmap- 2

- ITU-T SG 15
 - G.7718, G.7718.1 (ASON control plane mgt requirements and information model)
- ETSI TISPAN WG8
 - TS 188 004 (Vision for NGN OSS)
 - TS 188 003 (NGN OSS Requirements)
 - TS 188 001 (NGN OSS architecture for R1)
- TeleManagement Forum
 - Enhanced Telecom Operations Map (eTOM; =M.3050 series)
 - Multi-technology Network Management (MTNM)
 - Technology-Neutral Architecture (TNA)
 - Shared Information and Data Model (SID)

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NGN Management Specification Roadmap- 3

- 3GPP SA5
 - 32.111 series (alarm IRP)
 - 32.200 series (subset for IMS offline and online charging and billing)
 - 32.300 common management series (notification and generic IRPs)
 - 32.600 series (interface IRPs for basic CM and kernel CM; NRM IRPs for generic and core; data definition IRPs for state management)
- Metro Ethernet Forum
 - MEF 7 (EMS-NMS information model for metro ethernet networks)

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NGN Management Specification Roadmap- 4

- OASIS
 - WSDM-MUWS (Web services distributed management)
 - Reference Model for Service-Oriented Architecture
- IETF
 - RFC 3444 (On the difference between information models and data models)
 - RFC 3535 (Overview of the 2002 IAB network management workshop)
 - STDs 58 and 62 (Simple Network Management Protocol and associated SMI)
 - Netconf (NETCONF configuration protocol)

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NGN Management Specification Roadmap- 5

- IETF (cont)
 - EPON MIB (EPON managed objects)
 - EFMCu MIB (MIB for First Mile Copper interfaces)
 - Ethernet OAM MIB for Ethernet Like interfaces
 - RFC 3621 (Power Ethernet MIB)
 - RFC 3635 (Ethernet Like Interfaces MIB)
 - RFC 3636 (Medium Attachment Unit MIB)
 - RFC 3637 (Ethernet WAN MIB)

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NGN Management Specification Roadmap- 6

- IEEE
 - IEEE 802.1AB (MIB for Station and Media Access Control Connectivity Discovery)
 - IEEE 802.1AD (MIB for Virtual Bridged LANs)
 - IEEE 802.1 ag (MIB for Connectivity Fault Management)
 - IEEE 802.1D (Protocol-neutral model for Media Access Control Bridges)
 - IEEE 802.1Q (Protocol-neutral model for Virtual Bridged LANs)

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NGN Management Specification Roadmap- 7

- ATIS TMOC

Usage data for packet-based services

- 0300075 (Service -neutral architecture and protocol requirements)
- 0300075.1 (Service-neutral protocol specifications for billing applications)

- DMTF

- Common Information model (CIM)
- Web-based enterprise management (WBEM)

Note: Some of the above specifications are not yet approved.

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NGNMFG Harmonization Activity

- Management architecture: SG4, TISPAN, TMF
- Alarm reporting: TMF, 3GPP, SG4, DMTF
- State management: TMF, 3GPP
- Accounting, charging, and billing: SGs 4 and 13, ATIS TMOC, 3GPP SA5, TISPAN WGs 2 and 8
- Ethernet management: SG4, MEF, TMF
- Information Models (many SDOs/forums)
 - 2 level focus: generic, NGN functions
- XML-based framework and models (many SDOs/forums)
- Interface specification methodology: SG 4, 3GPP SA5, TISPAN WG8

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NGN Management Focus Group - Summary

- Leadership
 - Chair: Dave Sidor (Nortel Networks)
 - Vice Chair: Leen Mak (Alcatel-Lucent)
- Participation
 - Open; individuals from founding organizations encouraged
 - Registration required: see <http://www.itu.int/ITU-T/studygroups/com04/ngn-mfg/index.html>
- Time schedule
 - Roadmap Version 1 submitted to SG 4: September 2005
 - Roadmap Version 2 to SG 4: May 2006
 - Roadmap Version 3 to SG 4: February 2007
 - Roadmap Version 4 to SG 4: August 2007
- Working methods
 - Decision-making via consensus
 - Virtual meetings, but f2f meetings allowed
 - Any specifications produced are candidates to be SG 4 Recommendations

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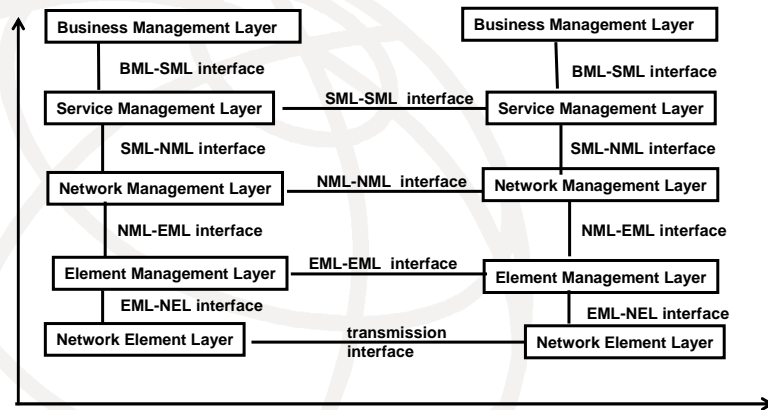


Backup Charts

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NGNMFG Scope: FCAPS Management Interfaces



• Excludes transmission interfaces

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NGNMFG Template for Specification Candidates

Short Name

- Title:
- Status: approved, draft (due date)
- Organization (group):
- Organization leader (group leader):
- Type: architecture (functional, physical), functional requirements, information model (protocol-neutral, protocol-specific), protocol, conformance
- Role: generic, technology-specific, NGN-specific
- Release 1 application:
- Traceability:
- Location of text: either URL or NGNMFG ID number
- Remarks:

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Acronyms

- ASON - Automatic switching optical network
- BML - Business management layer
- EML - Element management layer
- eTOM - Enhanced Telecom Operations Map (tm)
- FCAPS - Fault, configuration, accounting, performance, and security management (combination of FM, CM, AM, PM, and SM)
- FRA - Functional requirements and architecture
- GERAN - GSM edge radio access network
- HMI - Human machine interface
- IMS - IP multimedia subsystem
- IRP - Integration reference point
- LLA - Logical layered architecture
- MTNM - Multi-technology network management
- NE(L) - Network element (layer)
- NRM - Network resource model
- OS(F) - Operation system (function)
- OSS - Operations support system (specialization of an OS)
- SLA - Service level agreement
- SML - Service management layer
- UTRAN - UMTS radio access network
- WS - Workstation

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