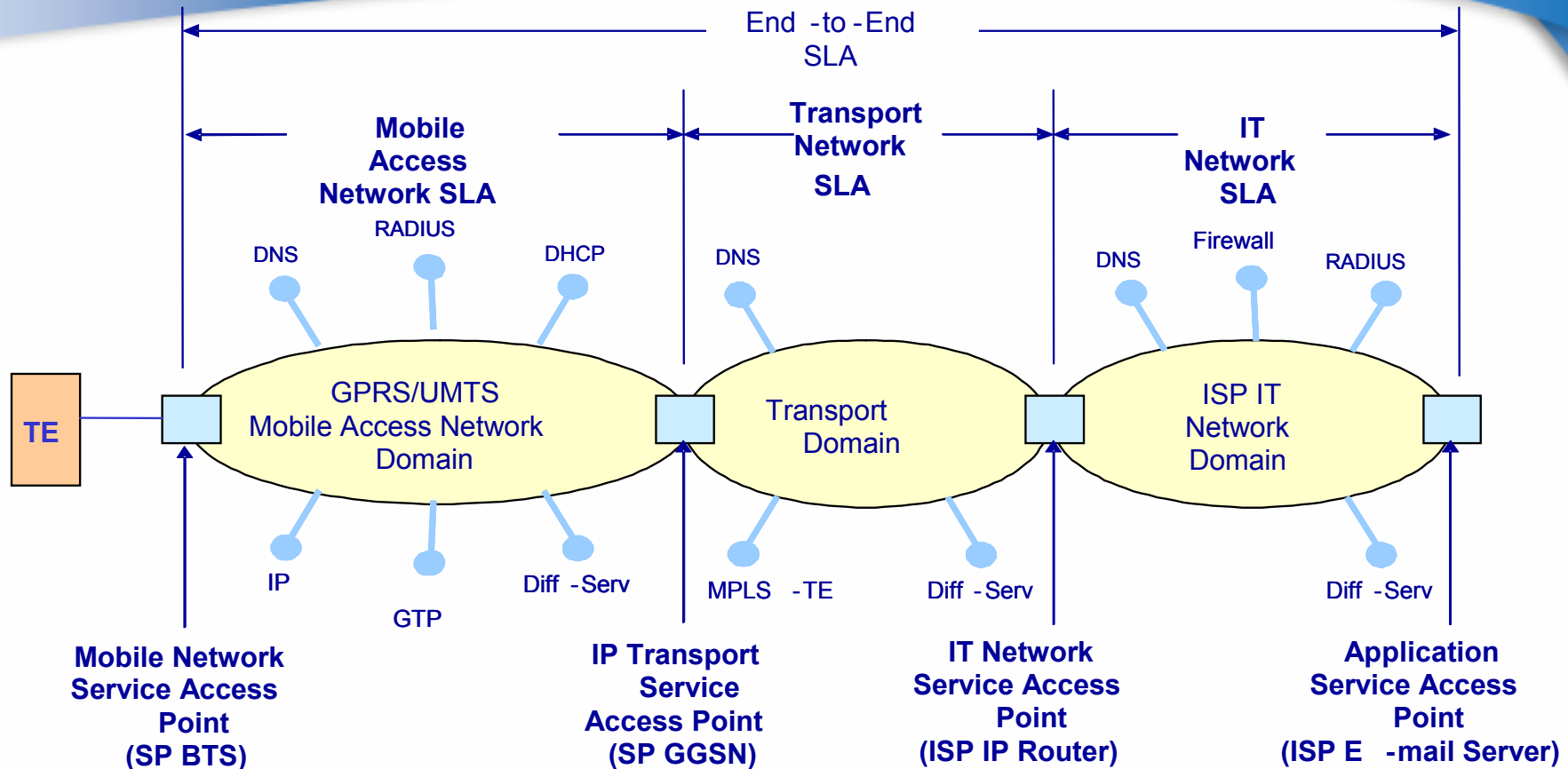


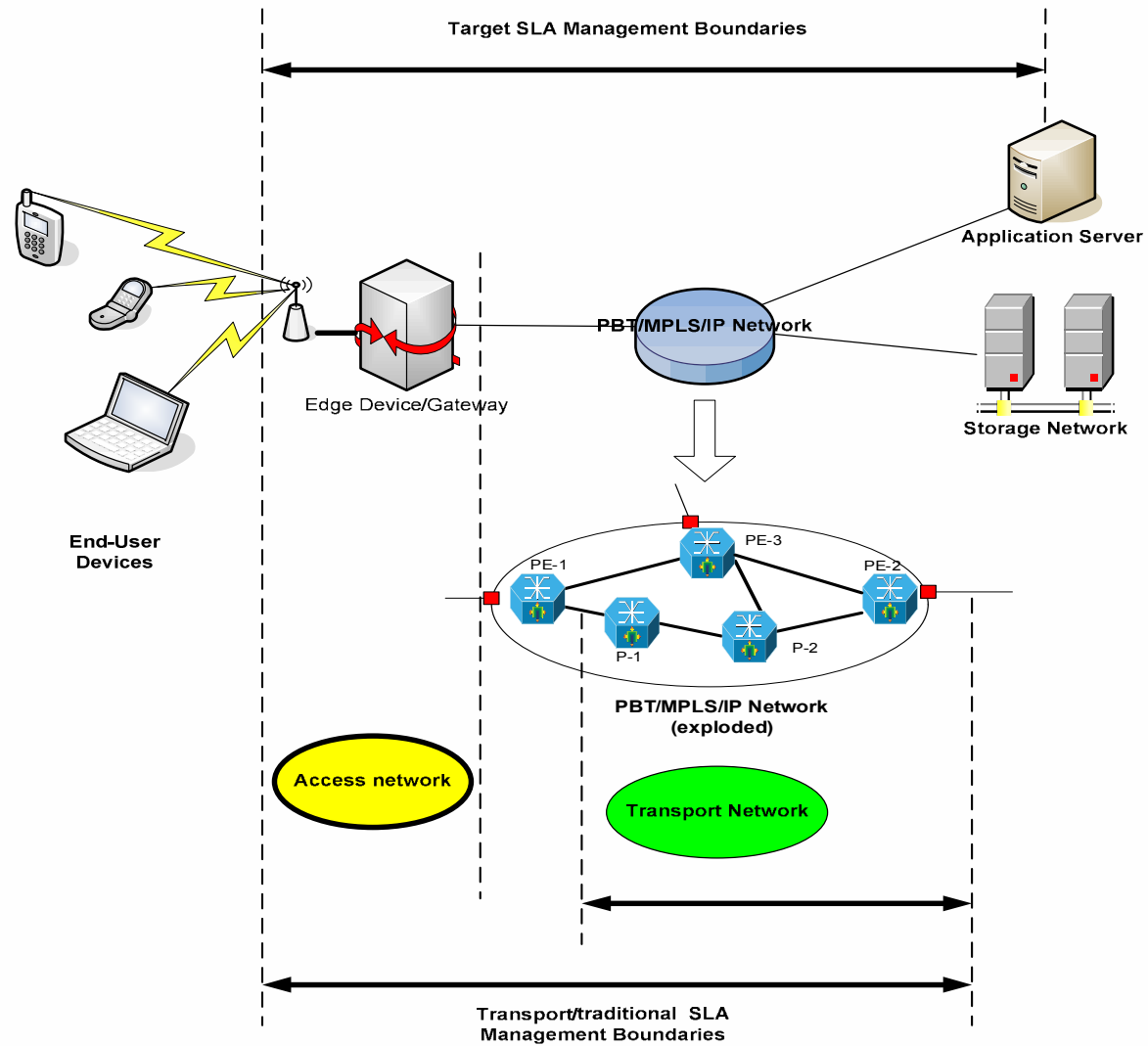
SLA Management in Next Generation Networks

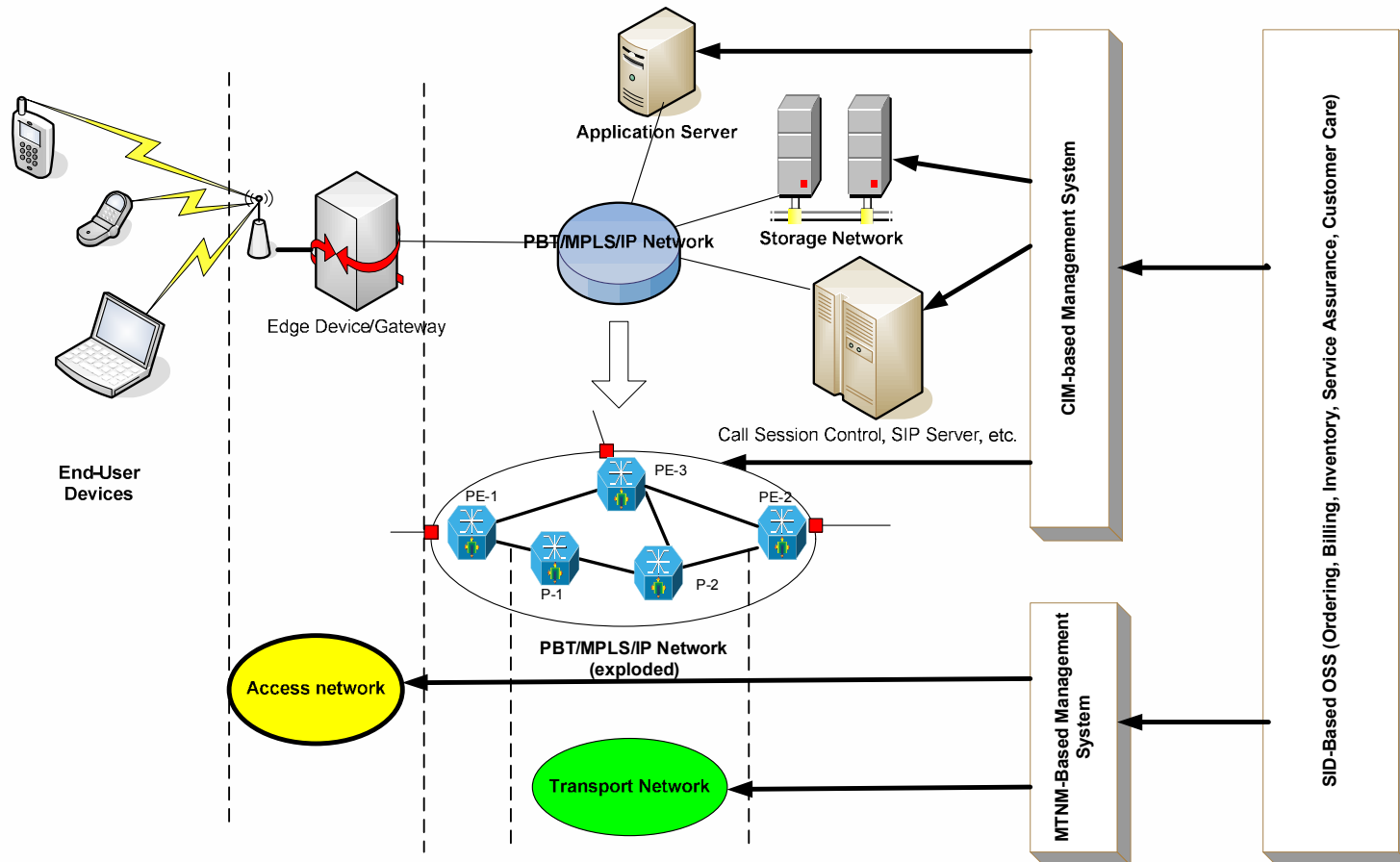
DMTF and TMF Join Forces to
Address the Challenge

Presented by Alex Zhdankin



- ❑ Multiple, potentially individually managed domains
- ❑ Mix of traditional Telco and IT equipment and services





DMTF Background

- DMTF standards provide common management infrastructure components for instrumentation, control and communication in a platform-independent and technology neutral way
- DMTF Initiatives
 - Storage Management Initiative (in cooperation with SNIA)
 - Common Diagnostic Model Initiative (CDM)
 - Server Management Architecture Server Hardware (SMASH)
 - Desktop and Mobile Architecture for System Hardware (DASH)

Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.

- ❑ DMTF Standards - Evolved from desktop management to distributed management
 - Common Information Model (CIM, 1996)
 - Web-Based Enterprise Management (WBEM, 1998)
 - Systems Management BIOS (SMBIOS, 1999)
 - Alert Standard Format (ASF, 2001)
 - Server Management Command Line Protocol (SM CLP, 2004)
 - Web Services Management (WS-Management, 2006)
 - Desktop and Mobile Management (DASH, 2007)

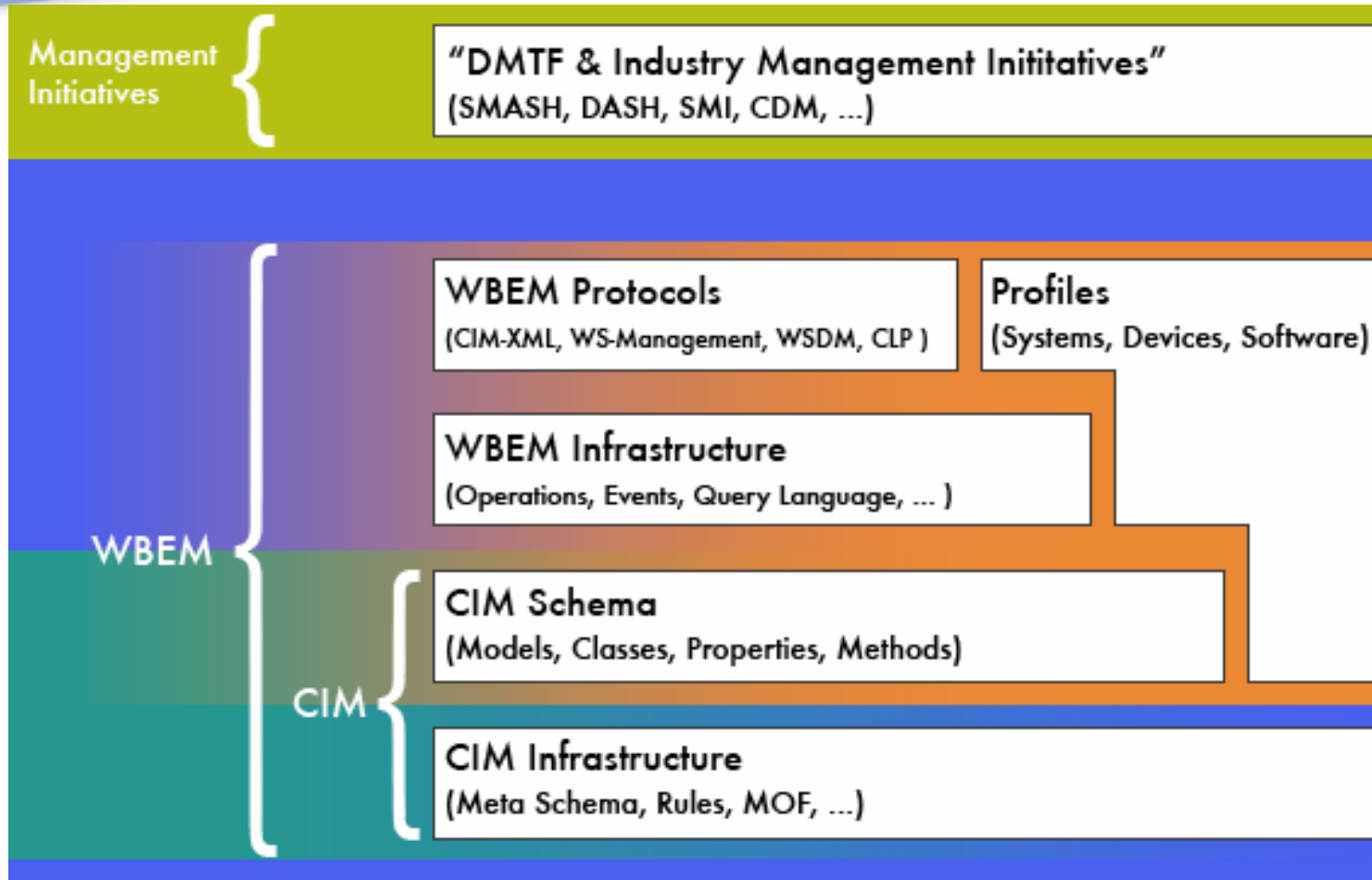
Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.

DMTF Membership

- ❑ More than 4,000 active participants from nearly 200 organizations in over 40 countries.
- ❑ Board Members
 - AMD
 - Broadcom
 - Dell
 - EMC
 - Fujitsu
 - Hewlett-Packard Company
 - Hitachi, Ltd.
 - IBM
 - Intel Corporation
 - Microsoft Corporation
 - Novell
 - Sun Microsystems
 - Symantec
 - WBEM Solutions

Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.

DMTF Technologies

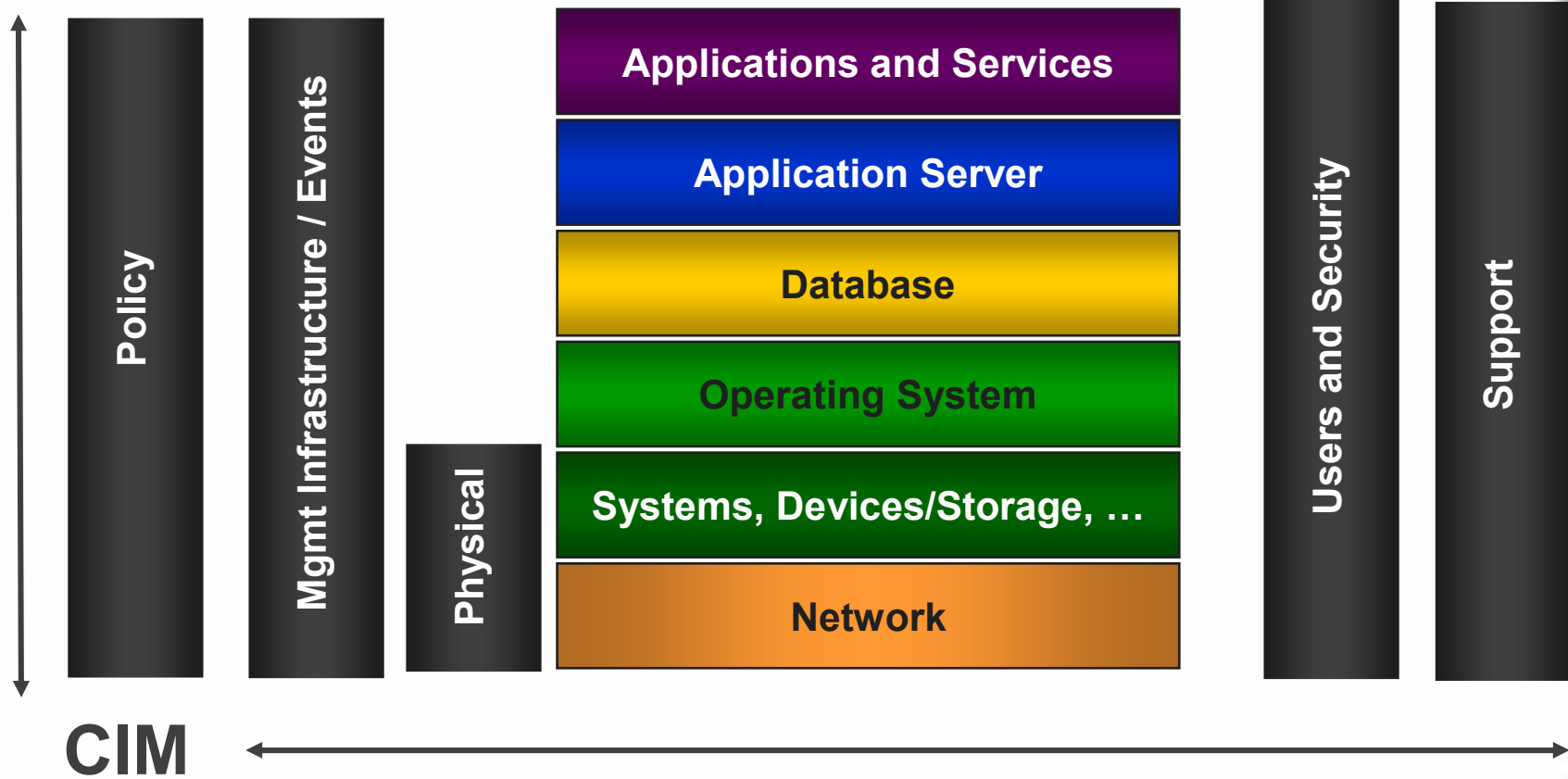


Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.

Common Information Model

- ❑ CIM is an Information Model that describes the management aspects of Services and Resources at various levels of abstraction and decomposition
- ❑ CIM provides description of the end-to-end managed environment using standardized semantics that can be specialized and extended
- ❑ CIM structure allows it to be directly transformed into the Data Model for implementation without paying performance penalties for high level of normalization

Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.



+ Architecture, Utility Computing, and Clustering/Virtualization

Copyright © 2007 Distributed Management Task Force, Inc. All rights reserved.

Strategic Harmonization Alliance between TMF and DMTF

- ❑ Was established in 2005 to address harmonization issues primarily between CIM and SID
- ❑ Overall goal – **to harmonize management architectures** in order to simplify management of Next Generation Networks and Services

- ❑ Benefits to TeleManagement Forum
 - Assisting the development of shared information and data models
 - Providing the ability to reuse information in the DMTF's CIM in NGOSS environments.
 - Joint positioning with the DMTF on TMF's Enhanced Telecoms Operation Map (eTOM) business models and the DMTF's technology oriented models

- ❑ Benefits to Distributed Management Task Force
 - Suggesting updates to CIM Core and Common Models
 - Providing the ability to reuse information in the TMF SID model in CIM environments

- ❑ Customers and vendors of both organizations benefit from this effort by having a consistent model from technology through business perspectives.

Tooling Environment

Adopt NGOSS Contracts

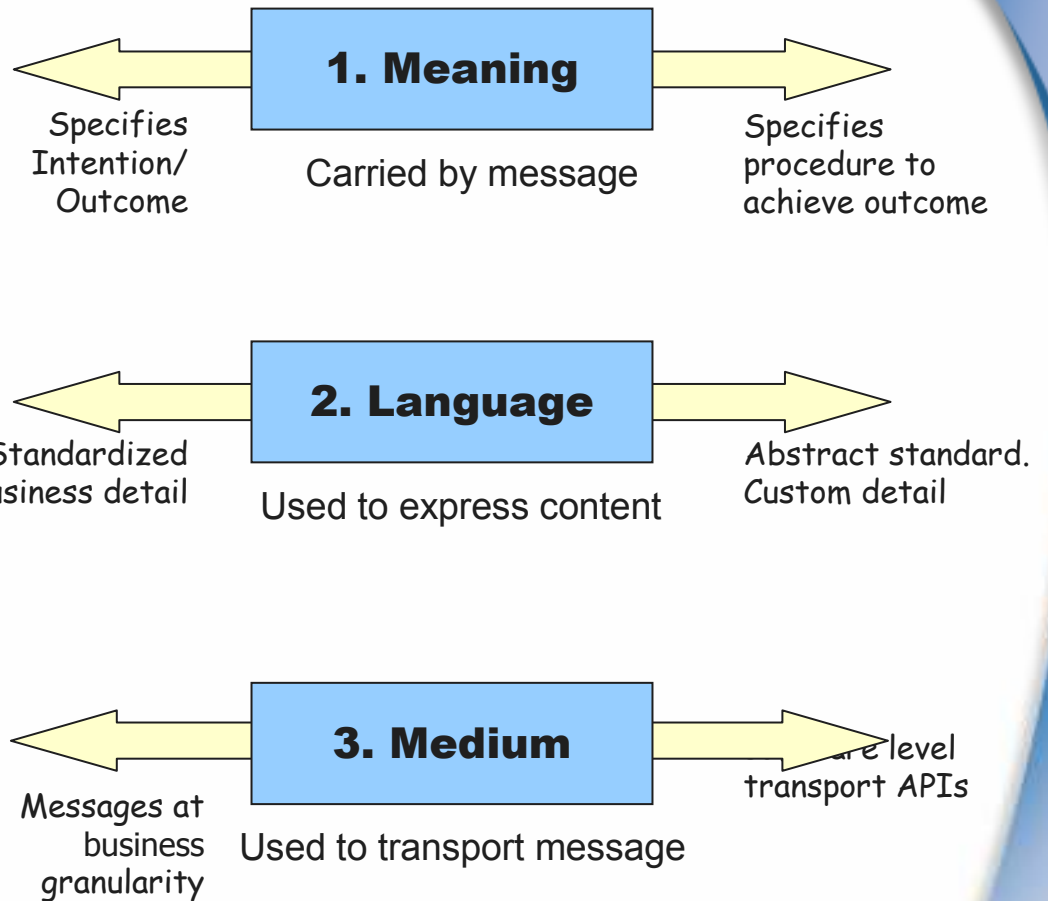
- ❖ NGN technologies
- ❖ resource and service management

Harmonize Model

- ❖ DMTF CIM, TMF SID and MTOSI
- ❖ Collaboration of Standards bodies

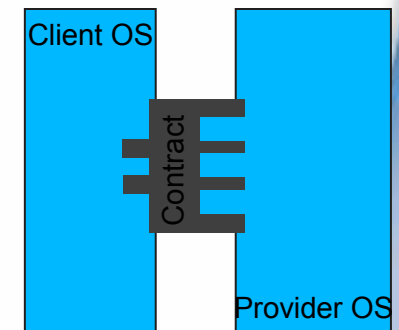
High Value Transport

- ❖ WSDL
- ❖ Transport Mediation

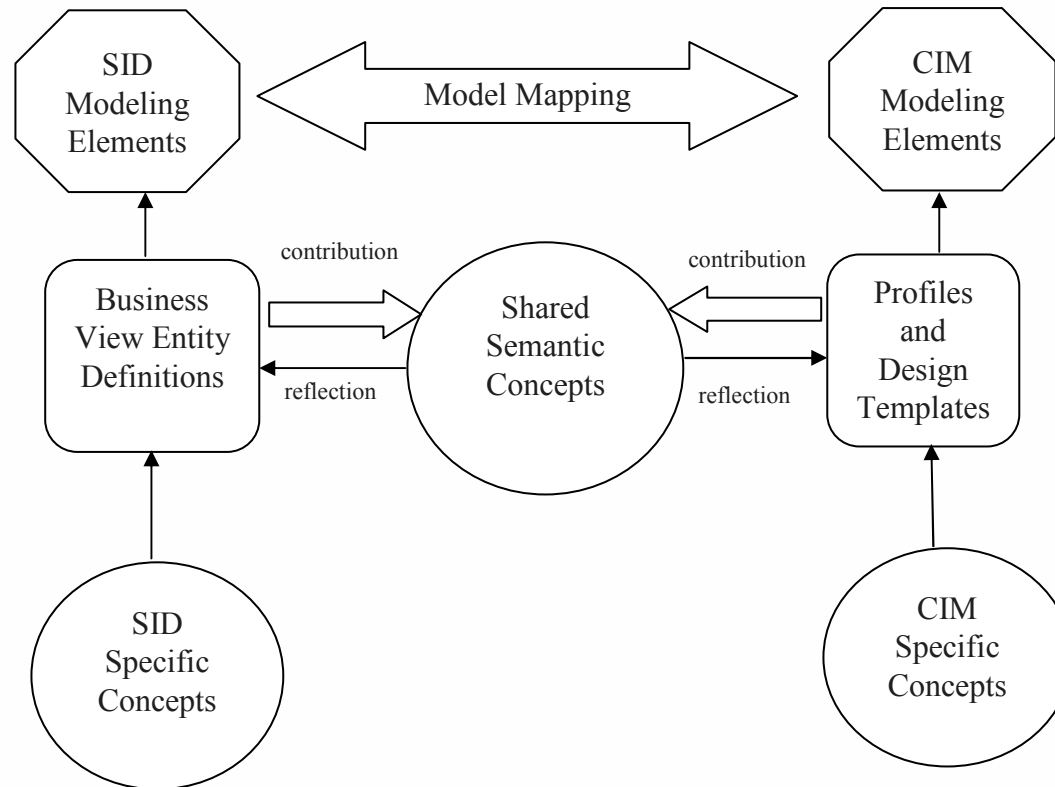


- ❑ TMF have established the Applications for telco management
- ❑ Connect Applications using NGOSS Contracts
 - Specify the business behaviour of the interaction
- ❑ Contract specifies system interdependencies
 - In terms of business level services required and offered
- ❑ Contract captures Business purpose,
 - which remains the same as technology evolves
 - Decouples business process from detail of device/technology
 - Contracts remain the same from an operational perspective
 - Business Processes and their Tasks remains the same
 - No major re-writes of business process

- ❑ Provides template for technical implementation
 - OSS/J – off the shelf
 - MTOSI – off the shelf
 - Harmonized mTOSSJ – in preparation
 - Custom



Model Harmonization Methodology (CIM-SID Example)



- ❑ Shared concepts can be mapped to SID model via the definition of Business View Entities and to CIM model via Profiles and Design Templates
- ❑ Going through model mapping exercise it will be determined, how well these “discovered” concepts are mapped to the particular models/views via existing model construction/partitioning mechanisms

❑ NGOSS Contracts

- The ability to assemble standardized operations-ready solutions
- Practical, real world Contracts that make MTOSI and OSS/J fully leveraged in tandem
- SOA for the Service Provider

❑ Standards Harmonization – standards and standards bodies

- Close collaboration between industry groups, TMF and DMTF
- Mapping between CIM, SID, OSS/J & MTOSI for seamless solutions

❑ Network Evolution

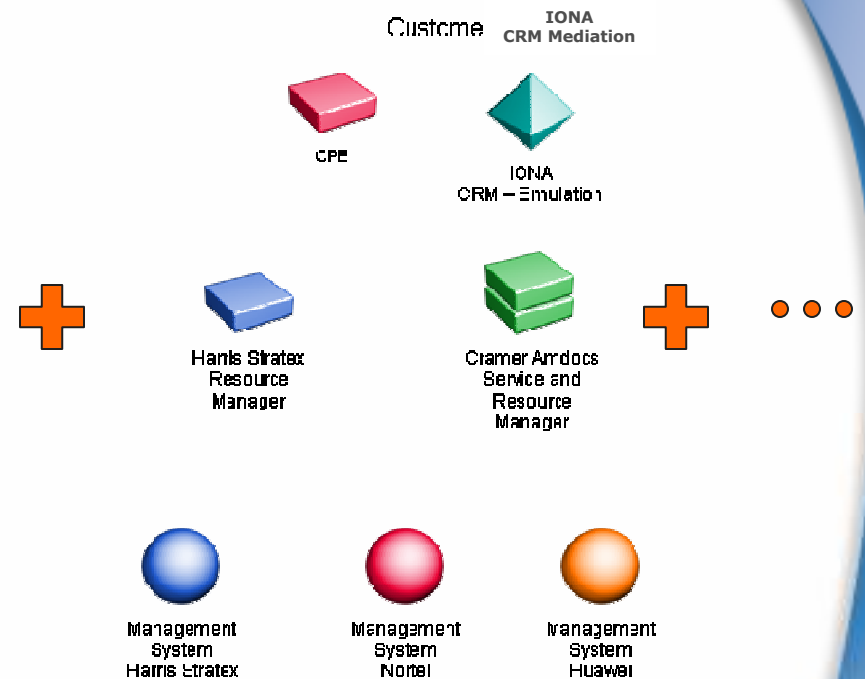
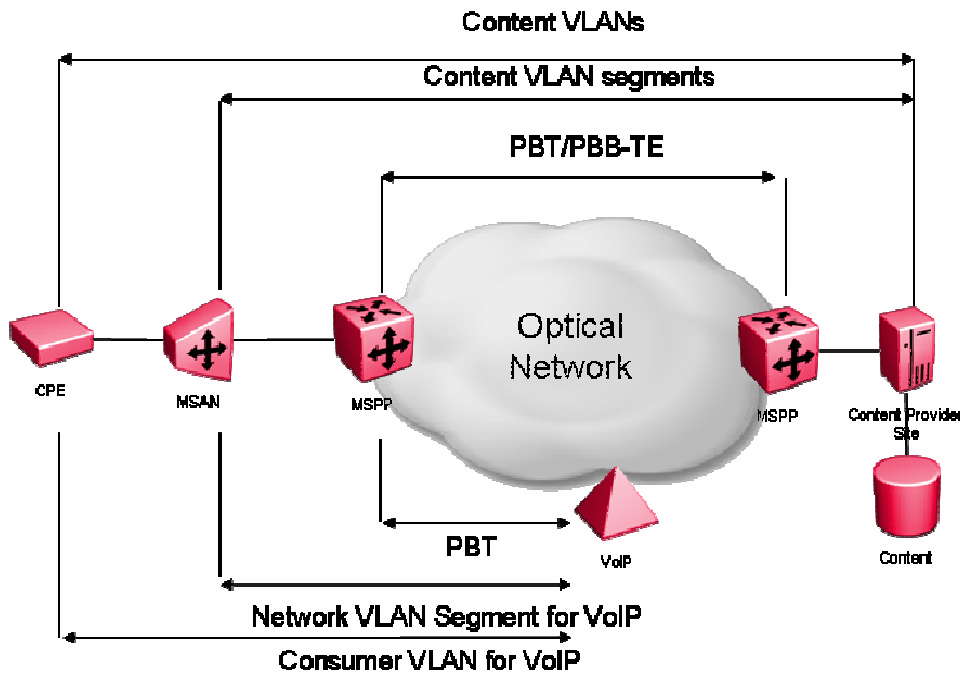
- Service Providers can exploit new network technologies using existing operational models
 - by building on established interface standards

Harmony Catalyst Shows that...

- ❑ New technology does not necessarily mean new OSS!
- ❑ Co-operation between organisations benefits all parties, service providers, integrators, ISVs
- ❑ Applies the best concepts to the real integration challenges using key standard technologies, e.g. MTOSI, WS-Management etc.

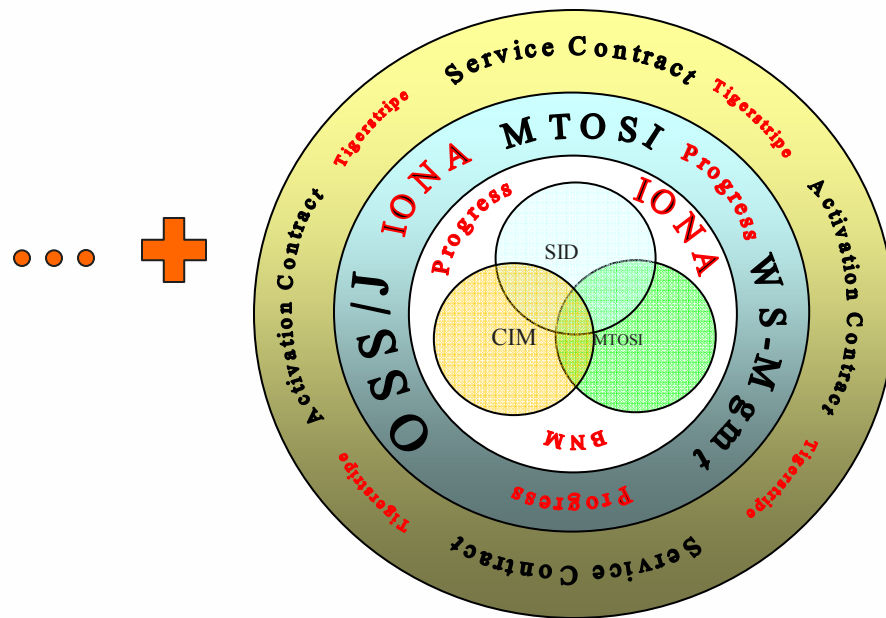
- ❑ This catalyst project focuses on co-existence and integration of management systems based on different information models
- ❑ The Project demonstrates feasibility of integration of such management systems and illustrate the use of the unified mapping methodology
 - This allows lower overall operational costs, increase service offerings and decrease service prices
 - Different hardware and software vendors can use technologies and models mostly appropriate for their domain
 - As representative Use Cases for demonstrating such interoperability, service provisioning/activation and SLA monitoring for IMS infrastructure were chosen

- ❑ The main project goals:
 - to prove the general concepts of Information/Data model harmonization
 - demonstrate interoperability and ease of integration between systems using different modeling paradigms
- ❑ The project addresses general interoperability issues on two levels:
 - Information Model harmonization/alignment
 - Interface/Data Model alignment
- ❑ Information Model harmonization is based on the results of on-going work in CIM/SID/mTOP Harmonization Group
- ❑ Interface and Data Model alignment still needs to happen
- ❑ The project lays the ground for the follow up work on cross-domain end-to-end SLA Management

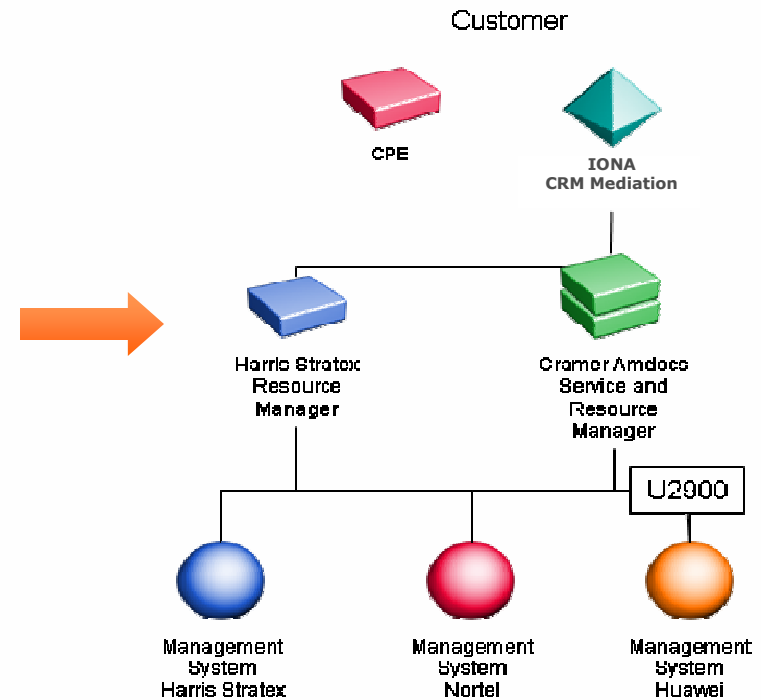


Use a Next generation Network, introduce new technology and new converged equipment

Use Existing COTS OSS Components – objective deliver new services or migrate to new services (like n-play)

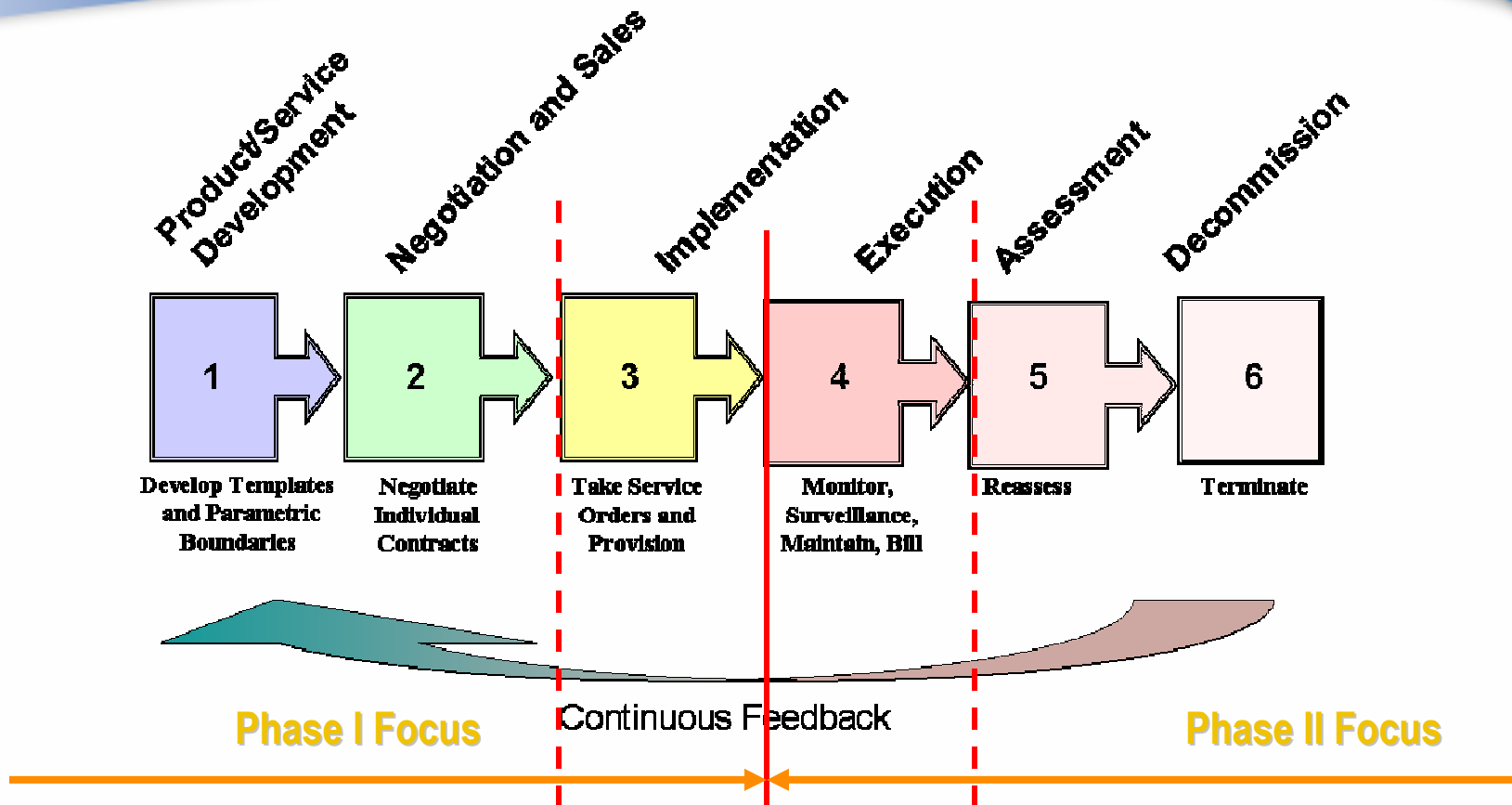


Assemble management solution using NGOSS Contracts and Harmonization



Result: Service fulfilment using new technologies and services using new and reusable OSS components

- ❑ This catalyst project will focus primarily on Service Assurance and SLA monitoring
- ❑ It will be based on the infrastructure and services created during the first phase
- ❑ The project will expand the use of NGOSS contracts
- ❑ The project will utilize the work accomplished by TMF's SLA Management Team
- ❑ It will demonstrate an application of complex inter-domain event processing as part of an Assurance solution.



- ❑ Using an infrastructure built in Phase I Phase II primarily is focusing on SLA Monitoring, Surveillance and Maintenance

- ❑ Phase 2 of the DMTF/TMF Harmonization
- ❑ TP Harmonization
- ❑ Interface Harmonization
- ❑ Phase 2 of Harmony Catalyst.

- CIM - Common Information Model
- DMI - Desktop Management Initiative
- WBEM - Web-Based Enterprise Management
- SMBIOS - Systems Management BIOS
- ASF - Alert Standard Format
- SM CLP - Server Management Command Line Protocol
- WS-Management - Web Services Management
- DASH - Desktop and mobile Architecture for System Hardware
- NGOSS – New Generation Operations Support System
- SID – Shared Information and Data Model
- MTOSI – Multi-technology Operations Support Interface
- OSS/J – Operations Support System in Java
- PBT – Provider Backbone Transport