

Convergence – from Vision to Action



MTOSI applied to the Transport Network

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Colin Barker CEng., MBCS, CITP
Enterprise IT Architect
British Telecom plc

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Vision

Why change?

Business Drivers:

- Improved Customer Experience
 - Simple, Straightforward and Complete
 - Right First Time
- Regulatory Change
 - BT's undertakings, including Equivalence of Input, Transparency, Separation of Access Services... [Ref 1]
- Increased Market Responsiveness
 - Reduced concept to market Cycle Time
- Reduction in cost
 - hundreds of systems, € hundreds of millions annual IT budget spend

Vision

Why change?

Information Technology Challenges:

- Enhance Customer Experience:
 - User stories focussed on customer need
 - Supported by automated service fulfilment and assurance right down to the network
- Deliver the OSS support of the operational requirements for 21st Century Network deployment and services.
- Deliver OSS support for a major restructuring of business responsibilities, accountability, systems ownership and data ownership
- Achieve major reduction in OSS development and support costs
- Achieve major reduction in number of Operational Support Systems (OSS)

Vision

- To design solutions to business problems without being tied to implementation
- To design the operational support systems used to implement the solutions as reusable components
- To standardise interfaces with suppliers network equipment

Complementary approaches were chosen to address the need:

- Model Driven Architecture (MDA™) [Ref 2]



- Multi-Technology Operations System Interface (MTOSI) [Ref 5]



Model Driven Architecture (MDA)

[Ref 3]

- Designing solutions to business needs in using a model that is vendor, middleware and language neutral, from which platform specific models are then derived.
- Designing platform-specific implementations of the solution expressed in terms of the capabilities and data required by the business
- Widely applicable to different business models

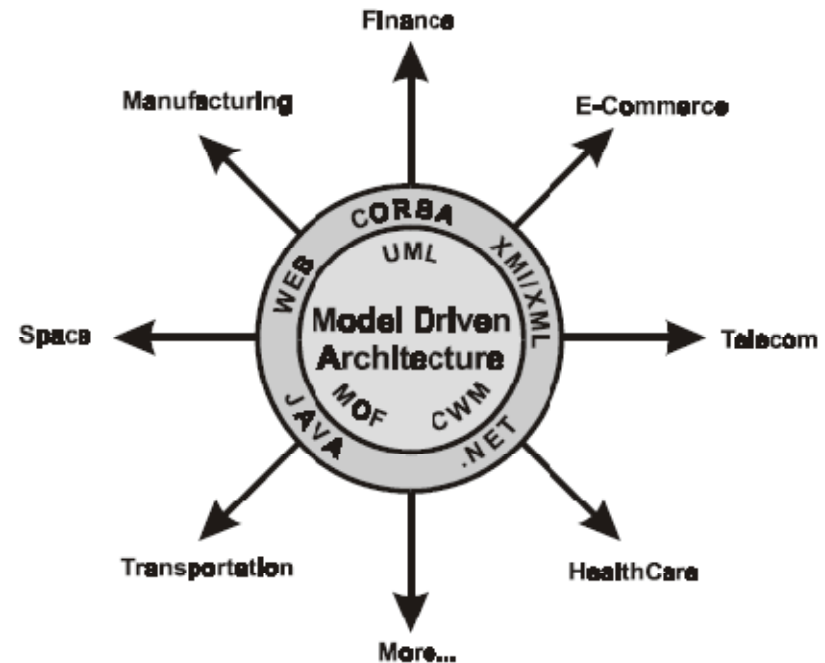


Figure 1: OMG's Model Driven Architecture

™ Diagram from OMG

[Ref 4]



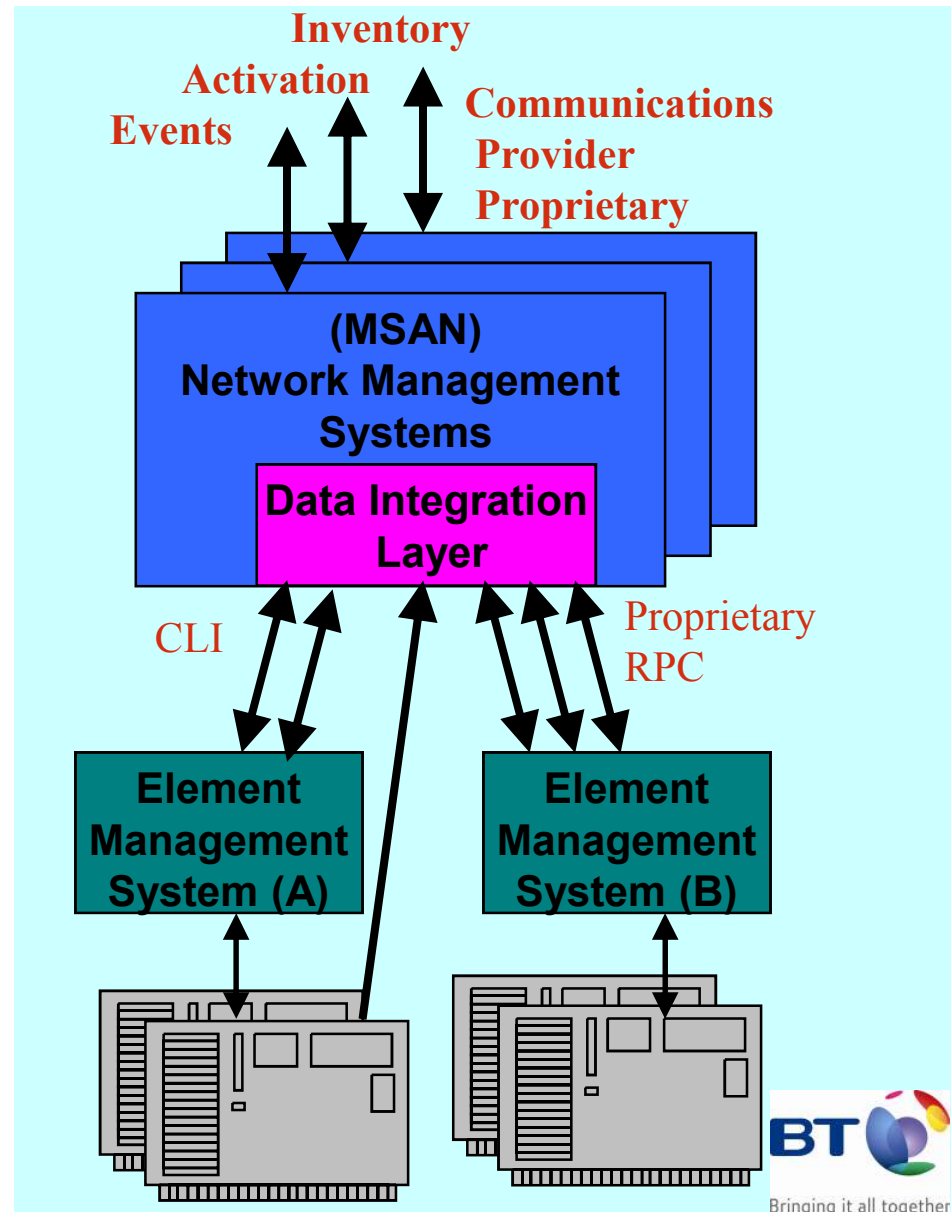
Bringing it all together

MTOSI

[Ref 5]

From:

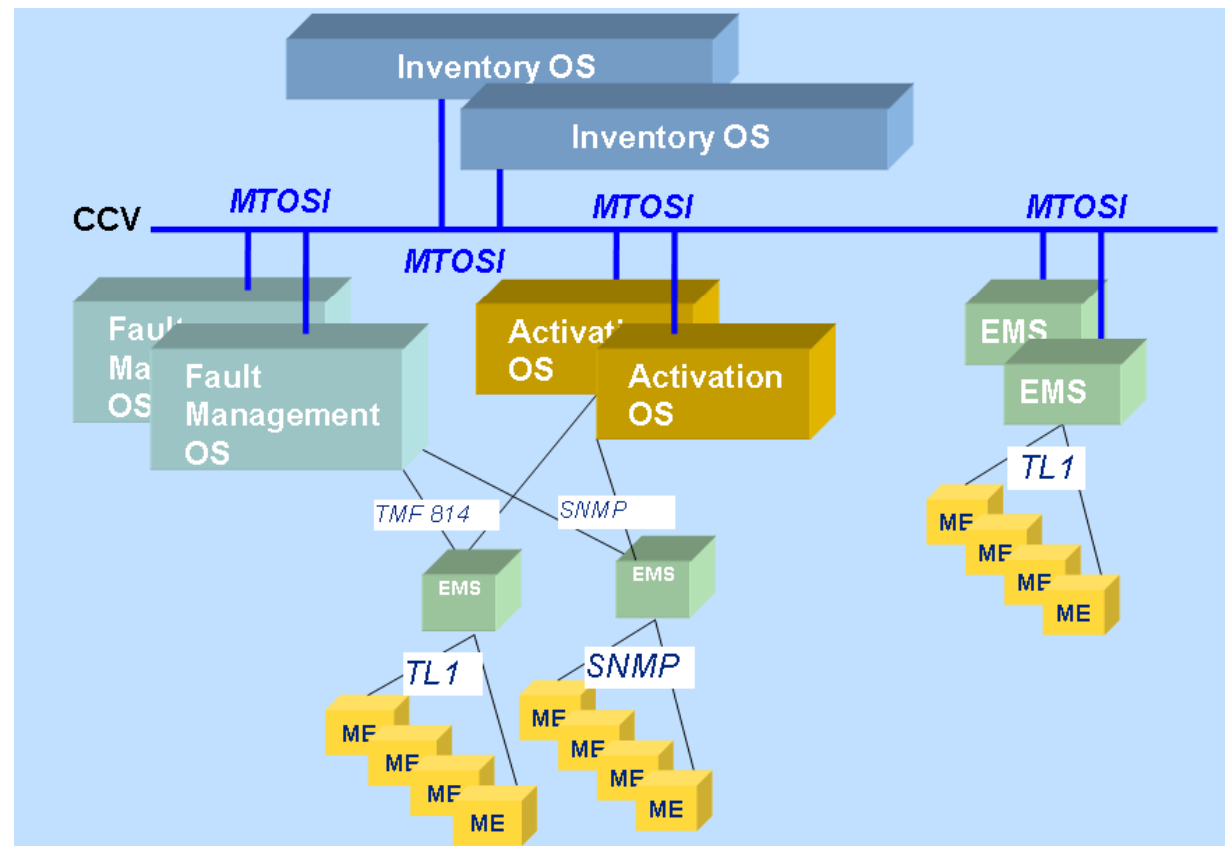
- Multiple proprietary interface implementations
- Multiple proprietary data model integration
- Many €€€ to support each new supplier's interfaces
- Minimal reuse
- Significant per-EMS integration time, costs and risks.



MTOSI

To:

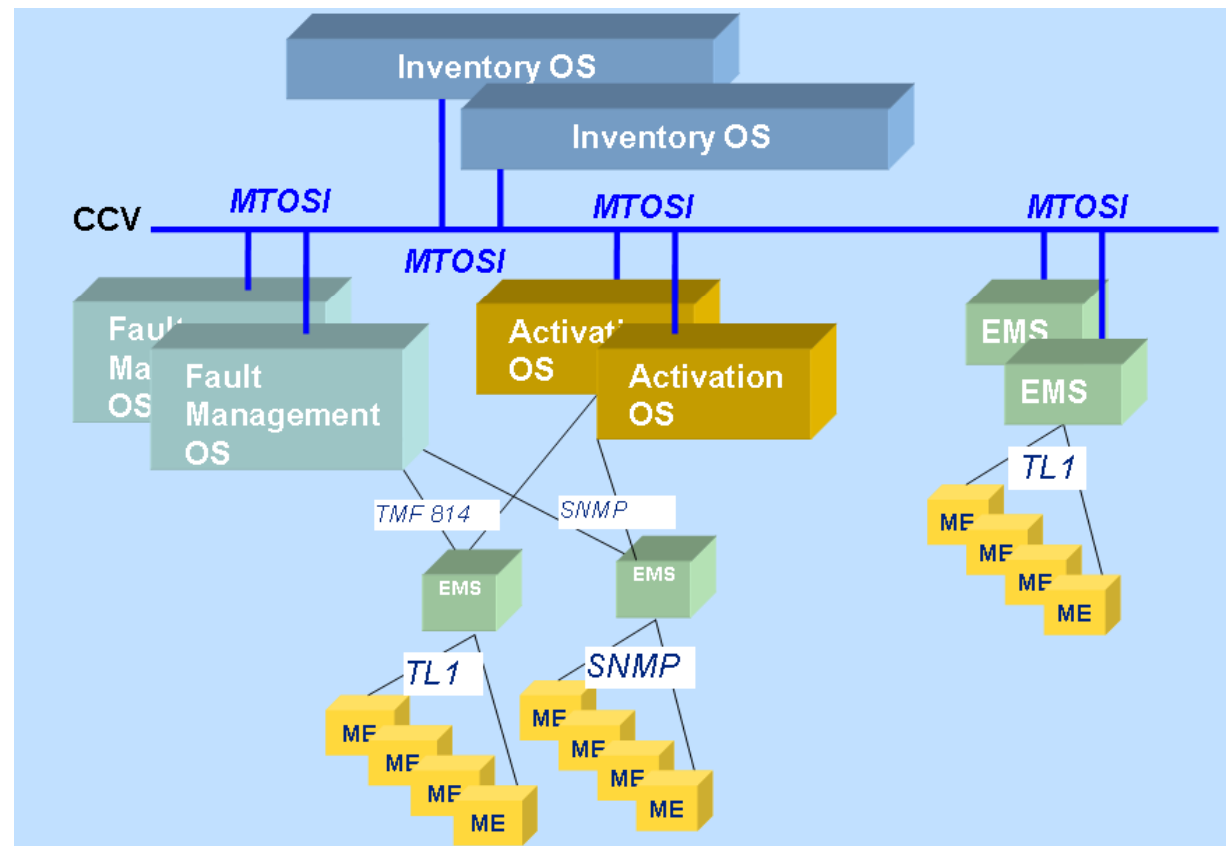
- Abstraction from proprietary interfaces and parameters to conceptual business-relevant attributes and operations for:
 - Discovery
 - Configuration
 - Activation
 - Event Reporting
 - Performance monitoring*
 - Test*



MTOSI

To:

- Single data model
- Fewer €€ to support standard interface
- Reusable and Extensible
- Reduced integration time, costs and risks



Vision

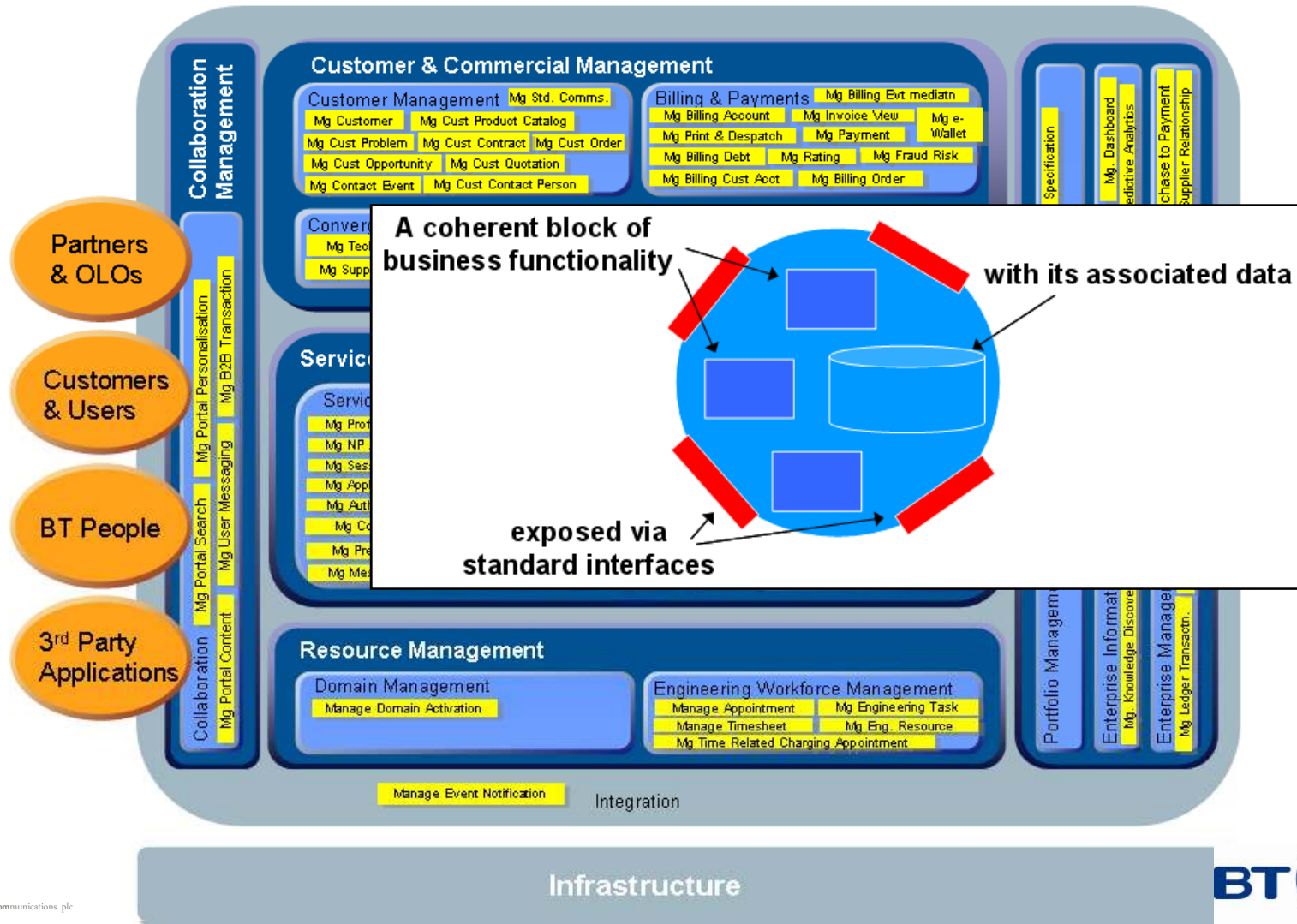
Discussion Topic

for 2 minutes, in pairs

How can Model Driven Architecture address the IT challenges your business faces?

Implementation

- Definition of Business Platforms and Capabilities



Implementation

- Corporate adoption of MTOSI data model for Network Equipment and Services
- Definition of OSS Capabilities for inventory management, network configuration and service activation in terms of MTOSI
- Application of MTOSI Data Model to Network and Service Inventory
- Adoption of MTOSI by suppliers for discovery and activation OSS – EM interface

For example:

BT Case Study Submission for Prosspero [Ref 6]:



“Open Inventory Management Interface for Communication Networks”

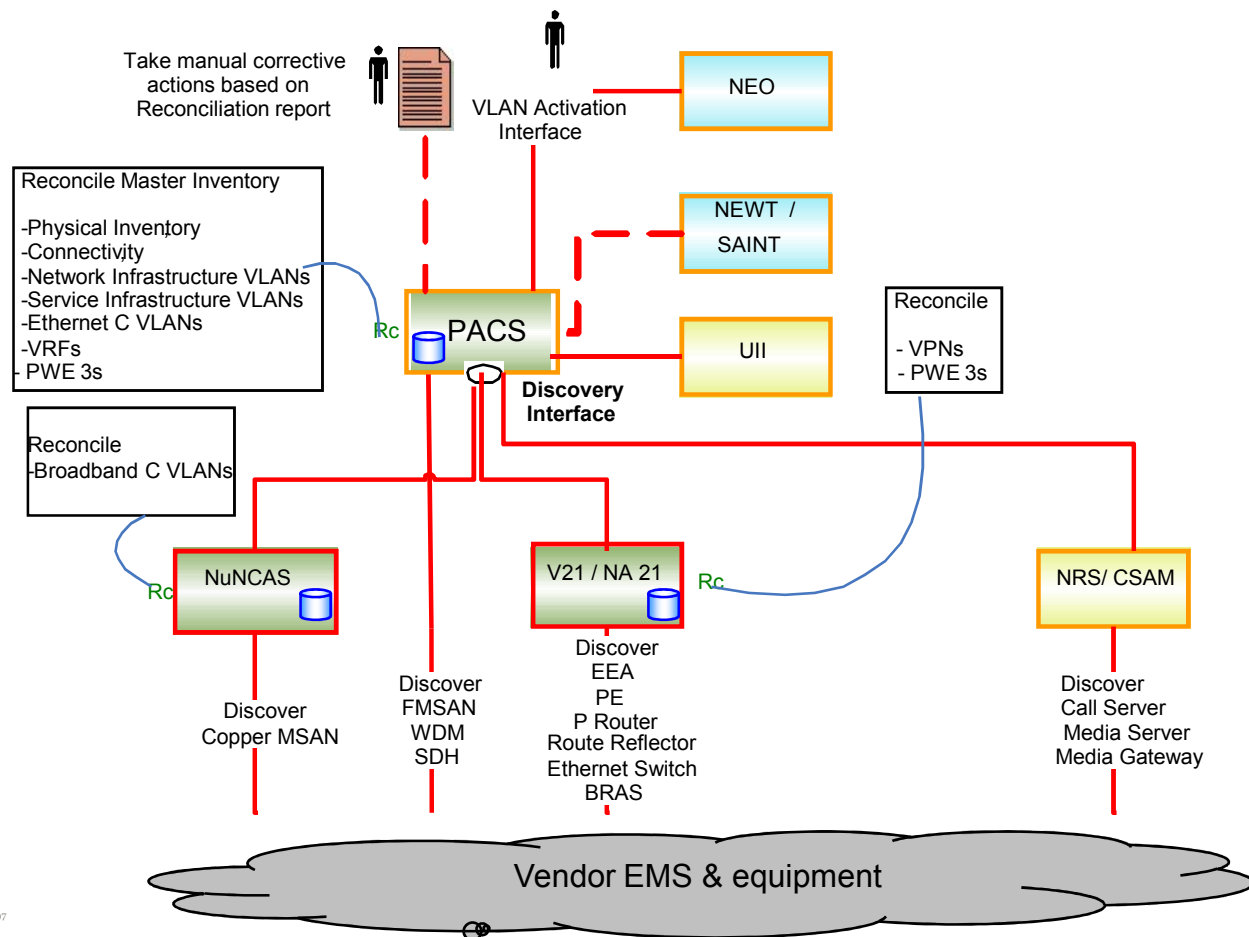
[Ref 7]



Prosspero Case Study

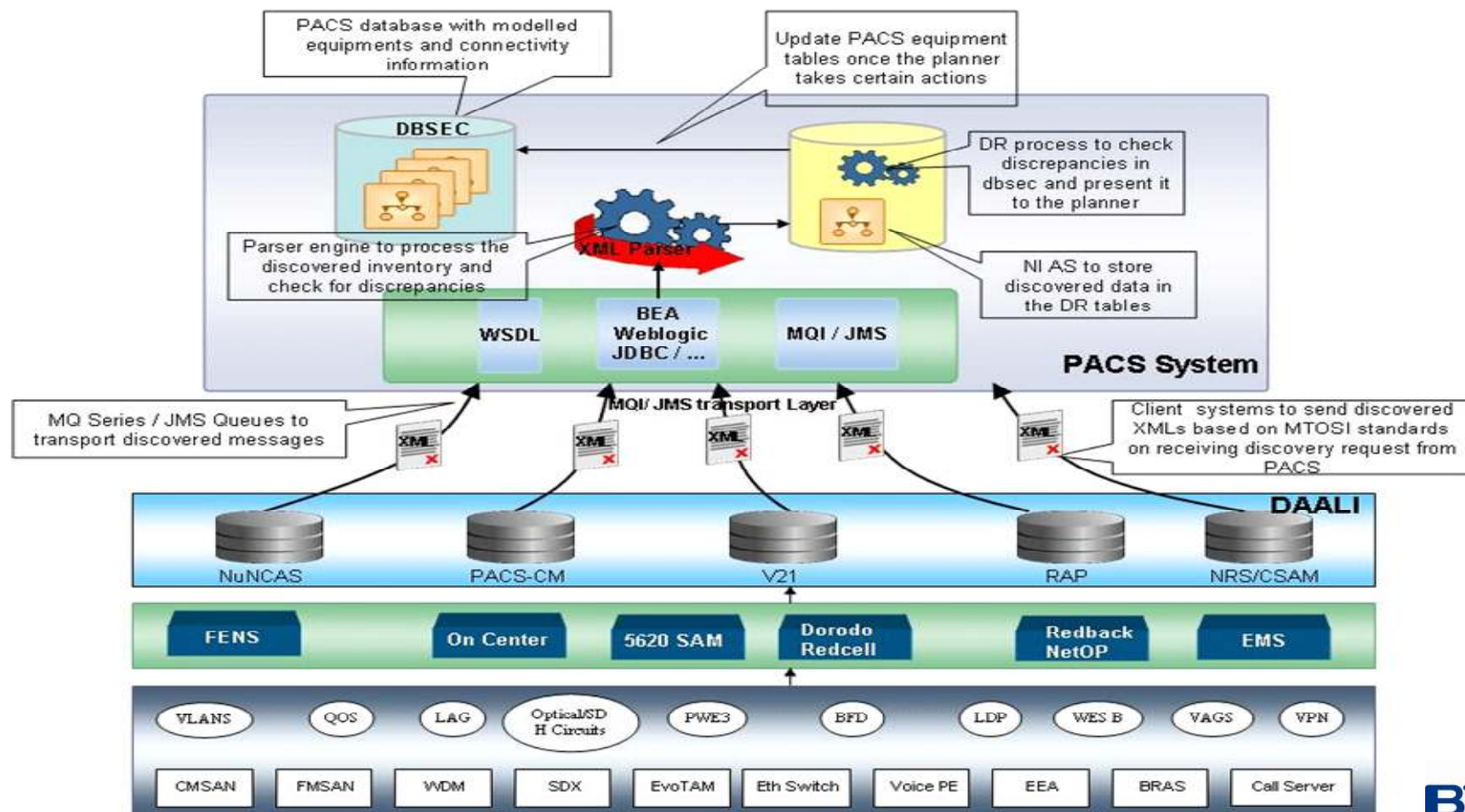
Application of MTOSI to BT Operational Support Systems for Network Discovery and Reconciliation against Planned Inventory for

- A) Discovery
- B) Inventory propagation



Prosspero Case Study

Discovery of inventory from the network using Classic GetInventory deployment from Activation Systems to MSAN Element Managers

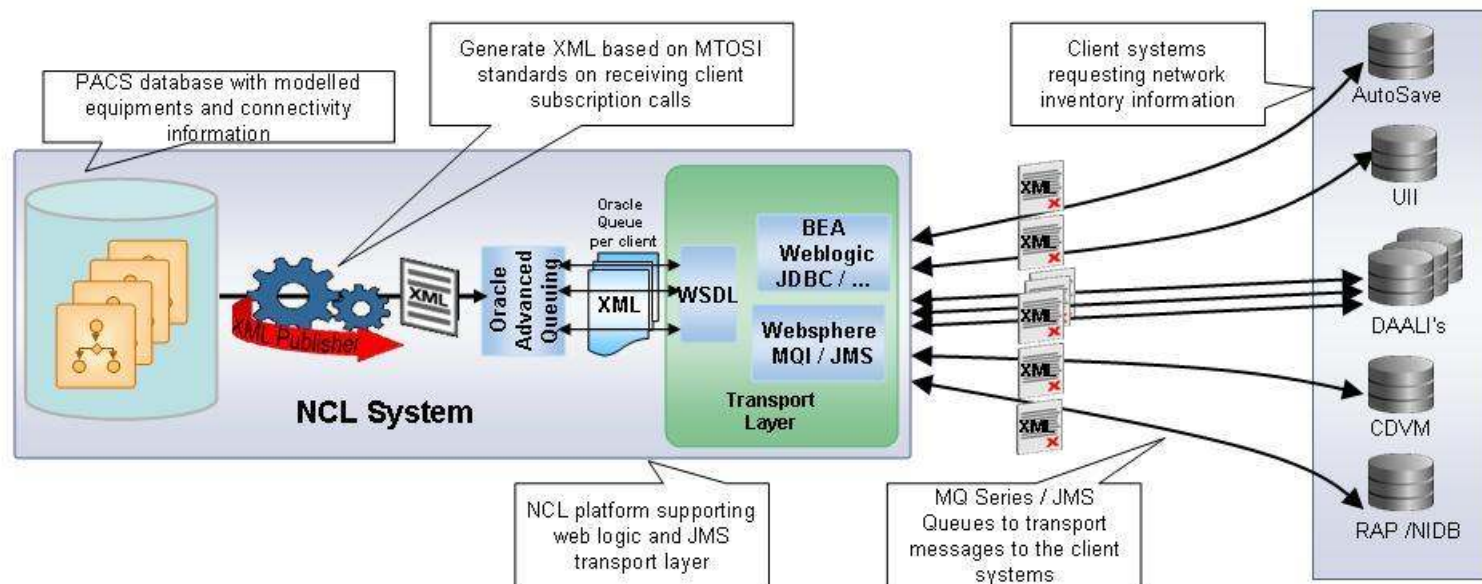


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Prosspero Case Study

Propagation of inventory from the Master Inventory to the activation systems using

- MTOSI data model
- Subscription-based transaction oriented interface



Network Inventory AS - Framework

Prosspero Assessment

Example benefits for a single activation system.

CapEx (Estimates)

Cost item (across all parties)

| | <u>Cost Reduction</u> |
|--|-----------------------|
| EMS Interface specification cost | 80% |
| EMS Interface specification elapsed development time | 50% |
| EMS Interface development cost | 75-80% |
| EMS Interface development time | 50% |
| Integration testing cost | 80% |
| Integration testing time | 90% |
| Data Integration Software | 100% |
| Middleware costs | -10% |

OpEx (Estimates)

Cost item

| | <u>Cost Reduction</u> |
|--|-----------------------|
| One off Cost for introducing new supplier | 90% |
| Support cost saving from using non custom EMS adaptors | 100% |
| Conformance testing tools Reference implementations | 80% |
| Specification Maintenance | 95% |
| Support costs on systems per supplier | 70% |

The Future

- Work in progress
 - Extension of MTOSI model for:
 - Connectionless Services (MTNM3.5)
 - Voice Services Traditional and VoIP
 - Ethernet Services.
 - Extension of MTOSI modelling:
 - Support for Transmission Parameter Profiles
 - Extension of MTOSI operations for:
 - Test scenarios

Conclusion

BT experiences an increasing pace of product and technology evolution, regulatory change, plus the needs to exceed customer expectations and drive down costs.

BT has therefore adopted a Model Driven Architecture (MDA) across the Enterprise, together with standardisation of network management using the Multi-Technology Operations Systems Interface (MTOSI).

These help BT to achieve Operational Support System (OSS) reusability and a significant reduction in both the development and the operational costs associated with deploying and managing new network equipment and services.

BT continues to actively engage with TeleManagement Forum and the industry to extend MTOSI into further aspects of Network Element Management .

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Bringing it all together