



NM role: Towards services and revenues



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Research & Innovation
Next Generation Management

Next Generation Networks, Services and Users

The role of Network Management

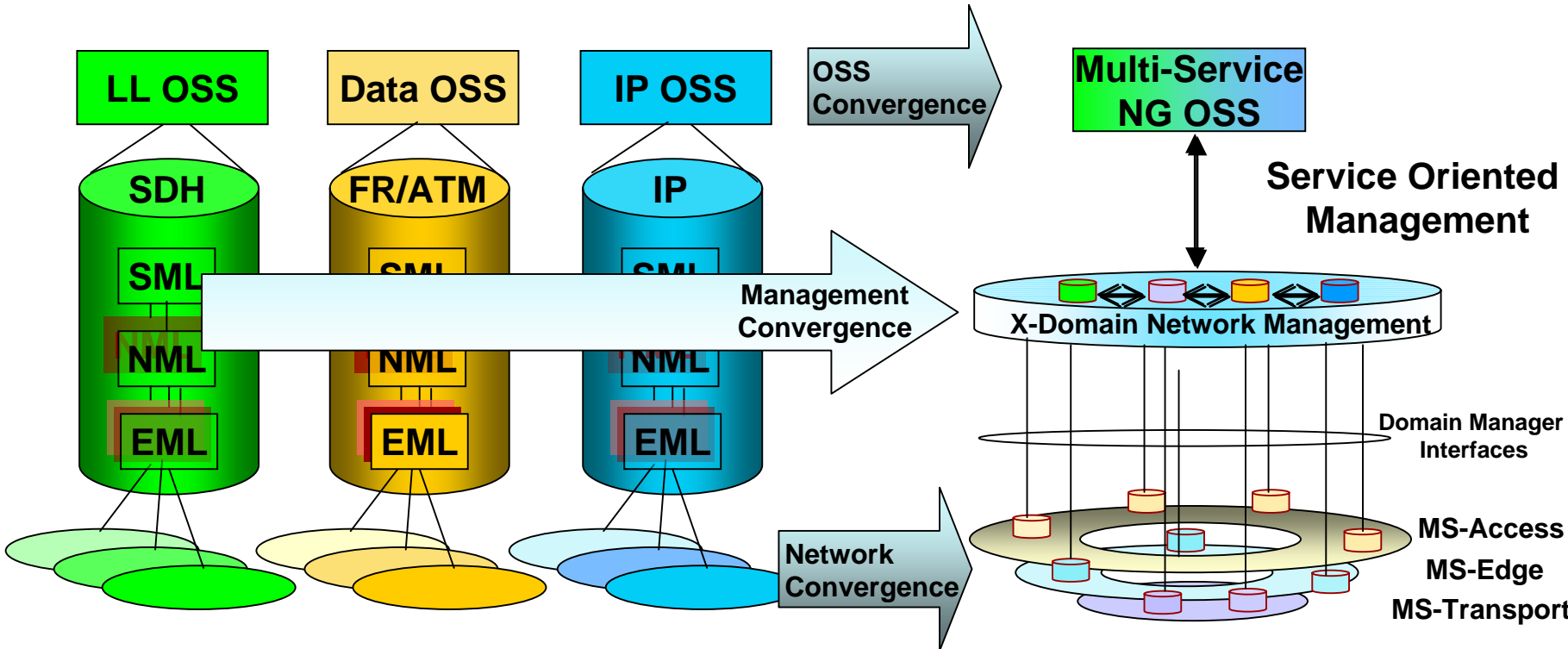
- ➔ **Reduce CAPE**
 - ◎ **Efficient use of Network Infrastructure Resources**
 - **How to manage network convergence?**

- ➔ **Reduce OPEX**
 - ◎ **Efficient use of Operational Personnel**
 - **How to make it simple and automated?**

- ➔ **Scale the business**
 - ◎ **Ubiquitous access and services differentiation**
 - **Scalable, modular and customizable**
 - **Universal connectivity and cross domain integration**

Inter-Domain Management and Network Convergence Evolving to a Cross-Domain Integrated Management Layer

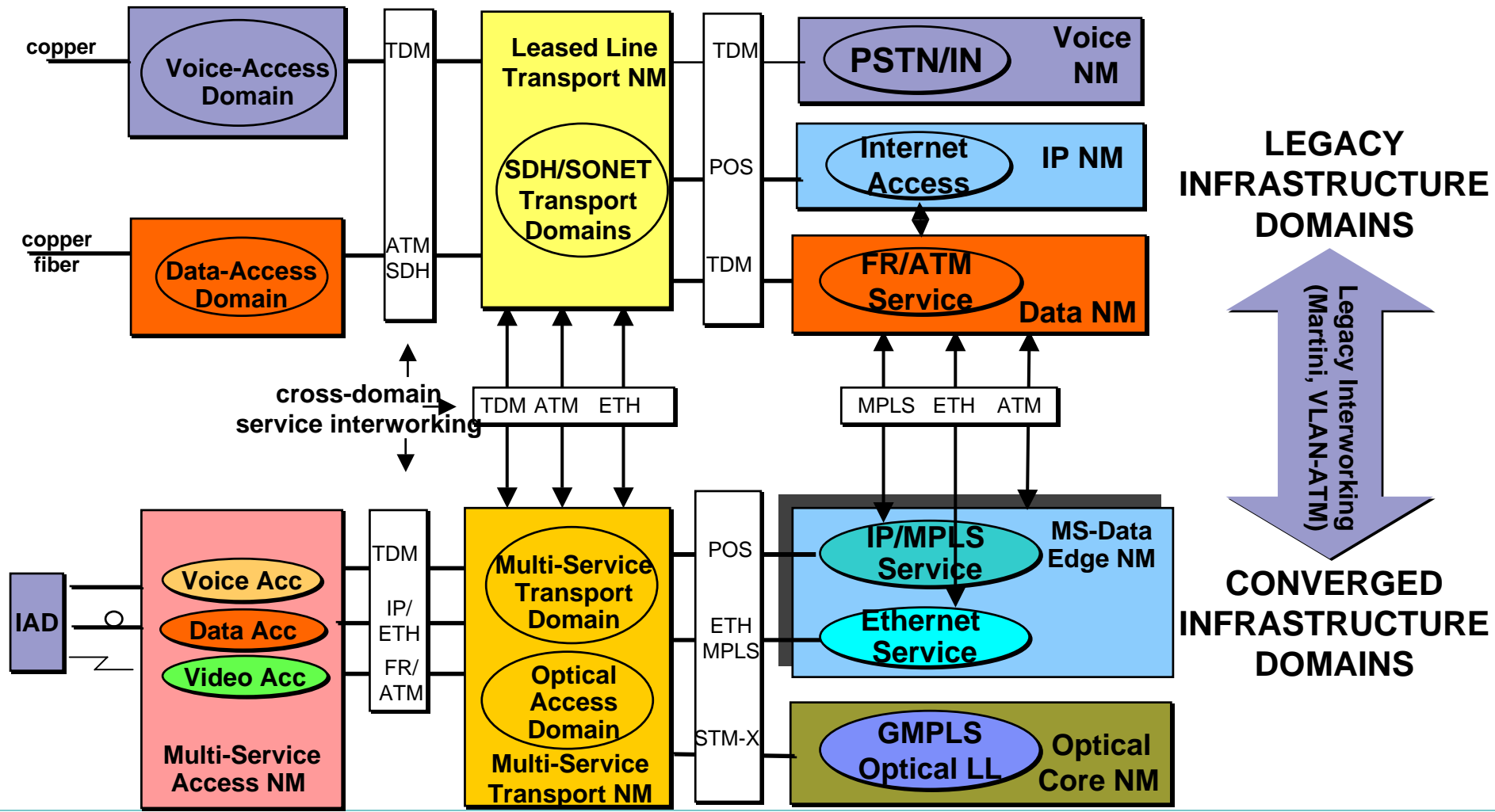
From several non-integrated NOCs to...



**What is the impact of network convergence on the network management?
How to manage the integration and migration to Multi-service NG OSS?**

Cross-Domain Management and Network Convergence

Multi-Domain Management Integration and Service Migration



Network and Service Convergence

Role of NM

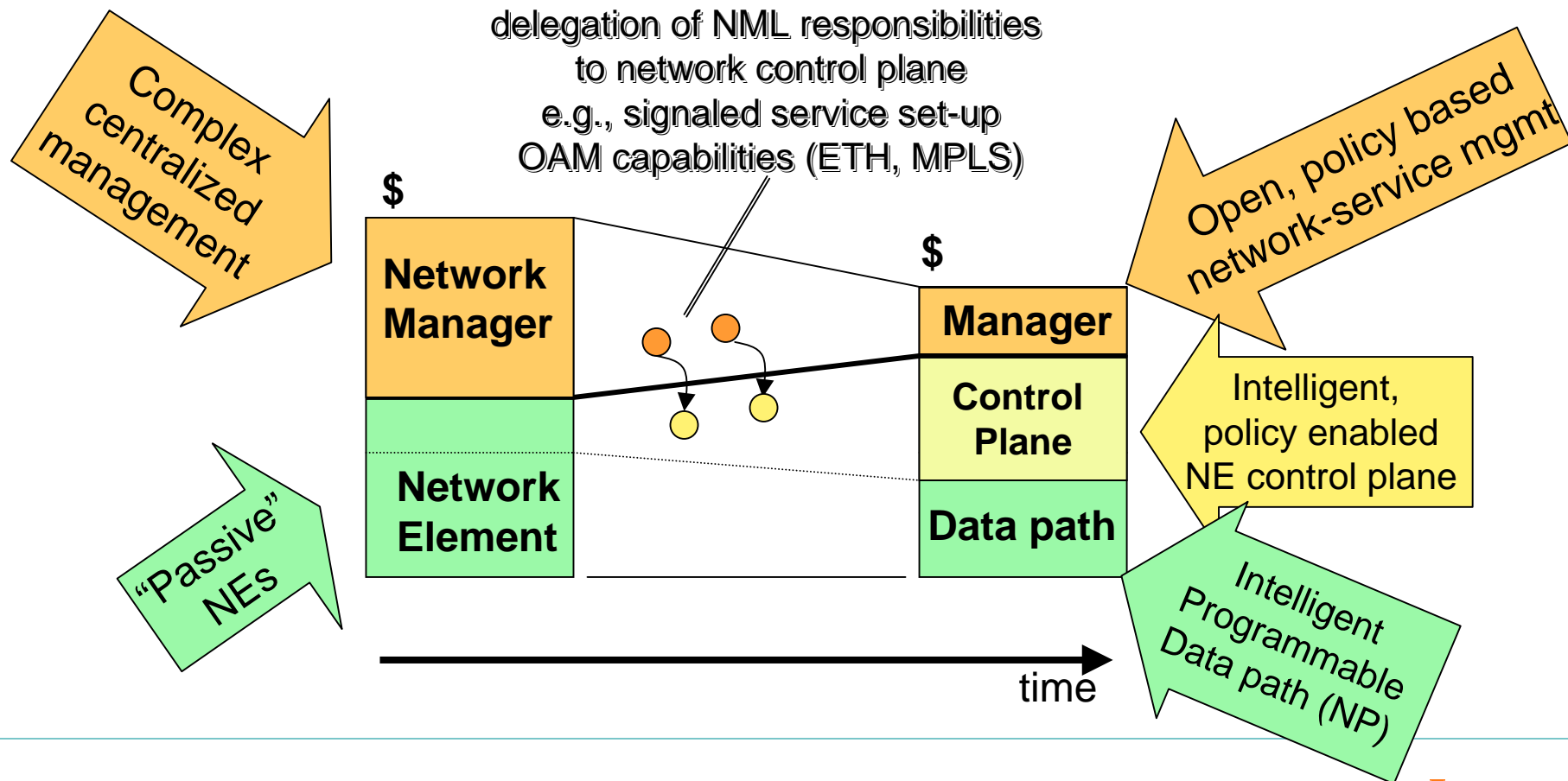
- > Network convergence: phasing-in before phasing-out
 - It will get more complex before it gets any simpler
 - Cross-domain management: essential for a smooth transition
- > The Challenges
 - Providing adequate management of packet based services
 - Hiding network complexity - Service centric management
 - Maintain service coverage and revenues during the migration
 - Provision services spanning both legacy and NGN domains
 - Tools for migrating legacy services to converged network
 - Deal with massive scale of the converging network
 - Decentralize management functions – leverage network intelligence
 - Efficient OSS integration concept based on open standards

Service-Aware Networks and Network Management

Containing management complexity by delegation

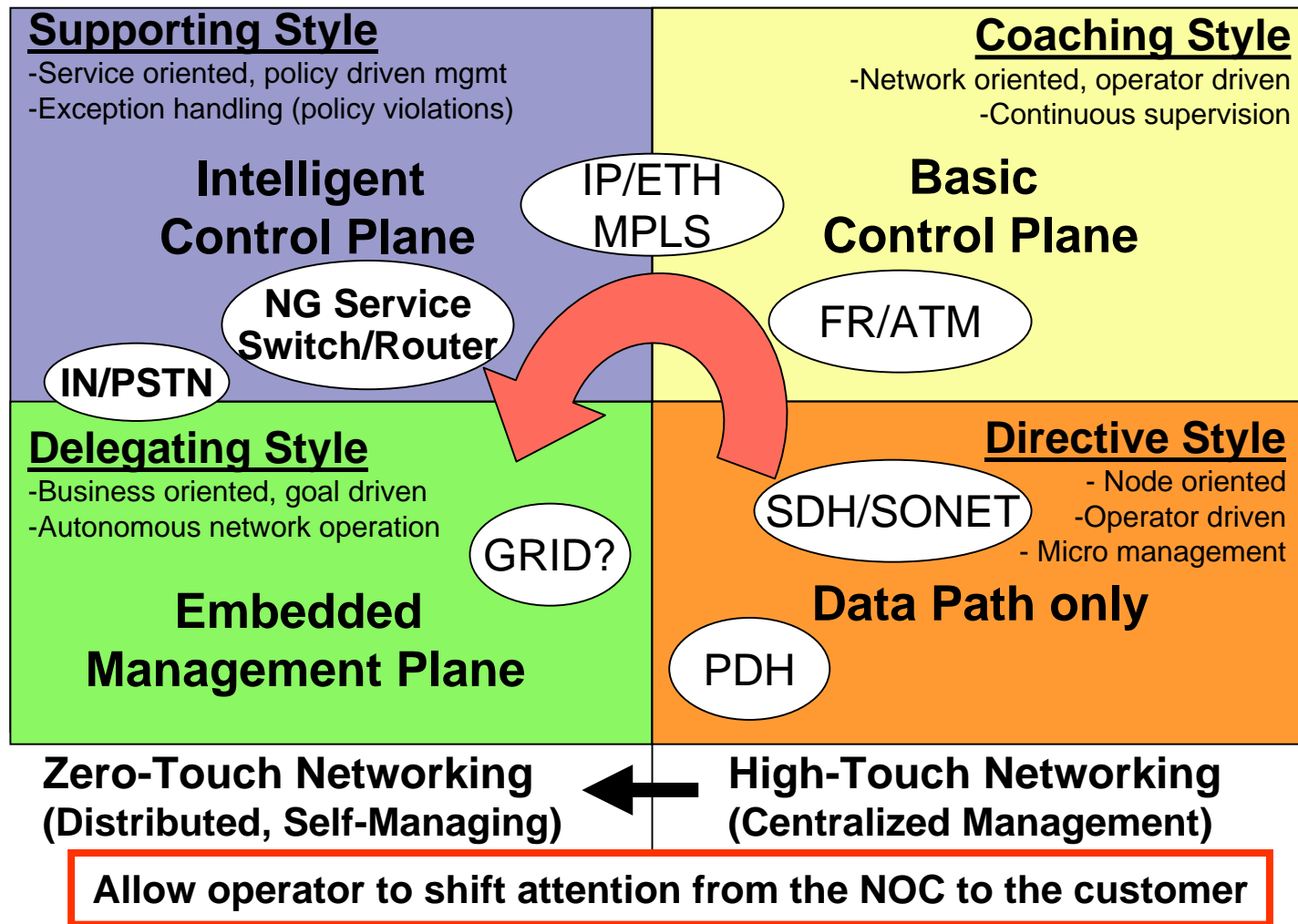
- > MORE intelligence in Network Elements
- > =LESS complexity in Network Management

delegation of NML responsibilities
to network control plane
e.g., signaled service set-up
OAM capabilities (ETH, MPLS)



Delegating management tasks to the network

Adapting Management Style to Network Intelligence



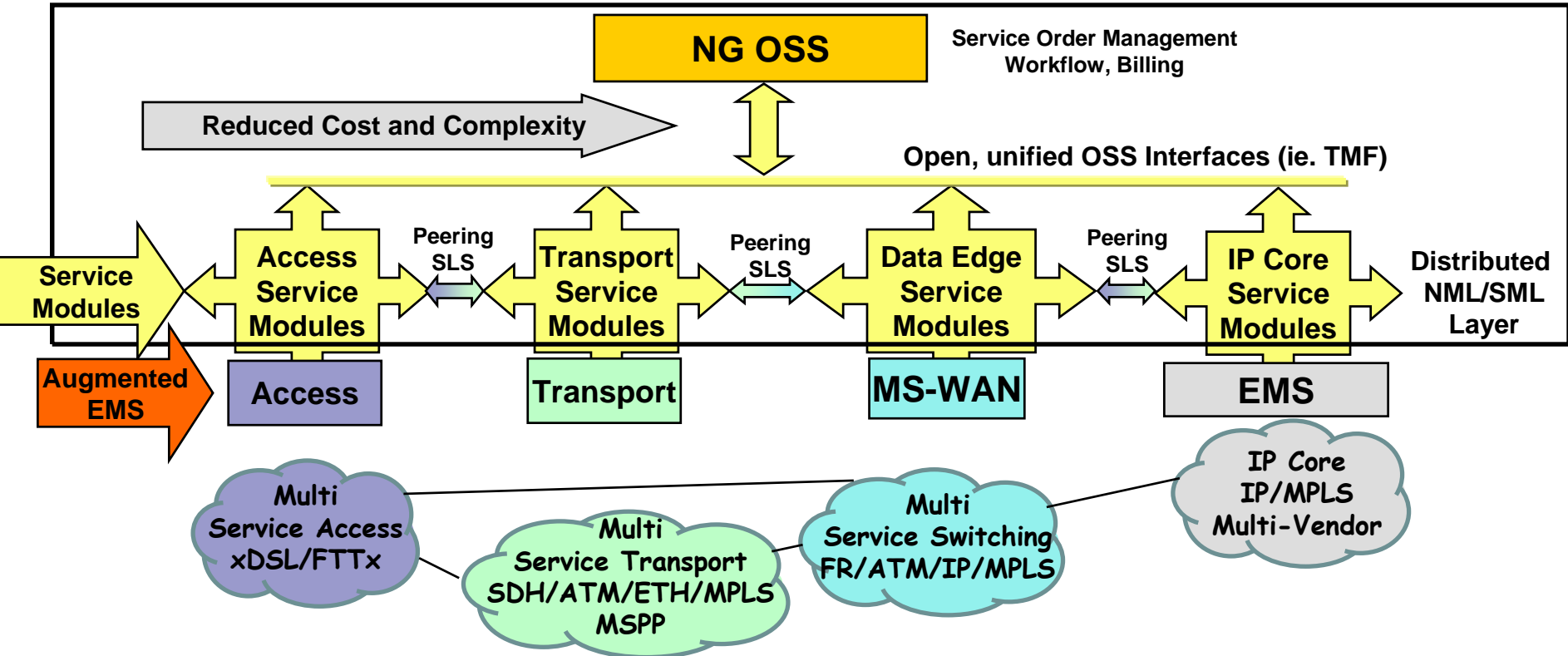
Moving from hierarchical to collaborative Network Management

Building the Cross-Domain Management Plane

- > End-to-end service management across multi-domain networks:
 - Flow-through service provisioning instead of manual workflow integration
 - Flexible mapping of services on multiple technologies and multi-vendor equipment
 - Avoid costly OSS integration projects and scalability issues of centralized NSM
- > The key strategy is:
 - Leverage installed base of Element Management systems
 - Apply “service routing” at the cross-domain management plane
- > Delivering key innovations for peer-to-peer management inter-working:
 - Naming Service to create a common service and resource naming/location space
 - Advertise service reachability across management domain boundaries
 - A technology neutral mechanism to convey service requests to adjacent domain managers and receive propagated service alarms
- > A framework to build modular “Network Service Applications”
 - Reduce R&D cost and Time-to-Market, increase cross-domain product consistency
 - Facilitate rapid creation of customized services
 - Leverage open interfacing standards and technologies

XIP Based Network-Service Management and OSS Integration

Leveraging installed NM base to build a scalable NSM solution



Final Remarks

- > Focus on network convergence and service-centric management
- > Address integration of Management - and Control Plane
- > NM - NM peering to get a flatter, more automated network
- > Use of common components through open standards
- > Flexible and modular solutions – one size doesn't fit all

Service and Network management must act as a service enabling platform to support providers to create and maintain the conditions for recovery...

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