Challenges or Opportunity – 2G - 3G O&M

Sharat Chandra
President & COO - Strategy & New Technologies

Safe harbor

Agenda

Mobile Market - A paradigm shift

Convergence and Diversity - Services v/s Platforms

The Challenge Continues

Maturity brings pain - O&M the relief

Economical Solutions

Network Operations & Maintenance offerings

Mobile Market - A paradigm shift

Market Trends
- ❖ Increasing Competition
- ❖ Invest in UMTS
- ❖ Increasing Complexity
- ❖ Up-coming Data Services
- ❖ Market Consolidation

MNO Challenge
- ❖ New Service Propositions
- ❖ Quality of Service
- ❖ Customer satisfaction
- ❖ Time-to-service
- ❖ OPEX

MNO Strategy for OSS
- ❖ Centralization
- ❖ Specialization
- ❖ Full automation of operational process
- ❖ Customer orientation

Network Management Challenge
- ❖ Increasing complexity of multi-standard mobile networks
- ❖ Shorter innovation cycles of network elements & services
- ❖ New NM Paradigms through IP & NG OSS/eTOM
- ❖ From network to service centric operations
- ❖ Decrease of Systems Integration Tax

Convergence and Diversity - Services v/s Platforms

As networks mature; responsibility focus **shifts** from deployment to managing networks

As network equipment **proliferates & services converge,** it creates operations & management challenges -- especially for carriers cohabitating 2G & 3G

Convergence -- fixed-mobile, voice data, computer-telephony-- is the **end**
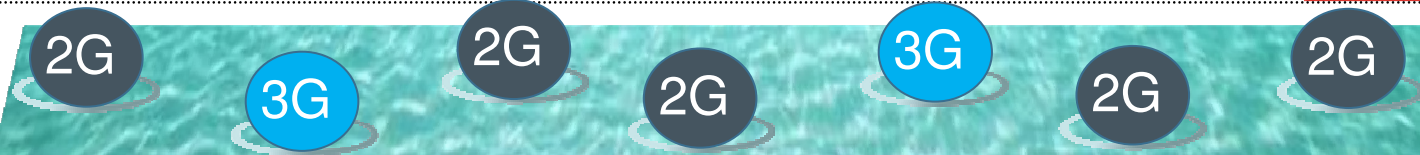
Infrastructure diversity – switches, routers, gateways servers, thin clients -- **the required means**

O&M requirements of **hierarchical** management structure coexisting with, **flat** network model, creates challenges for network planners

The Challenge Continues !!

2G **3G** **2G** **2G** **3G** **2G** **2G**

- **3G systems occupy a small space in the ocean of a 2G network**
- **Carriers don't want to see a major change in O&M between the two**

O&M system
- Management functionality
- Simultaneous display & handling of both networks' alarms
- Bi-technology network topologies

2G
- Vendor 1
- Vendor 2
- Vendor 3

→

3G
- Vendor 1
- Vendor 2
- Vendor 3
- Vendor 4
- Vendor 5
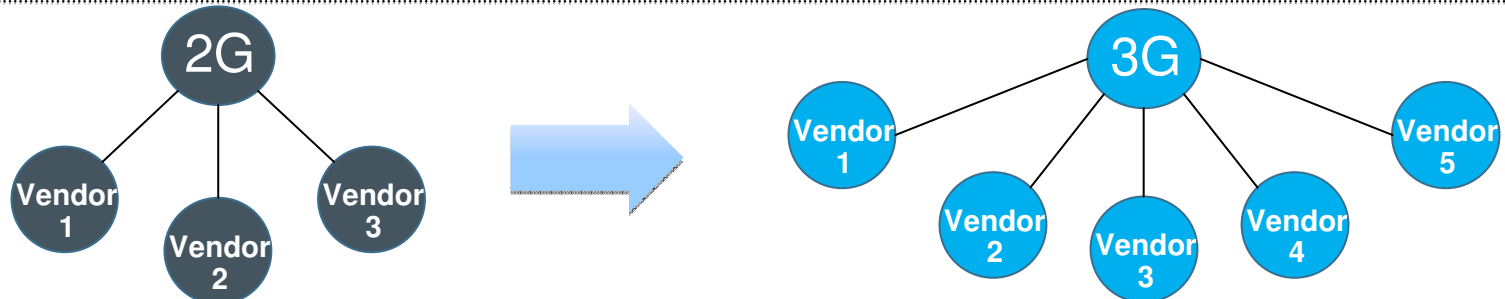
❖ 3G continues to diversify with new vendors' equipment and specific formats defined by geography and region

❖ The greater the degree of diversity, the more pressing the need for O&M to be the binding factor in fixed and wireless networks

Quantity and Quality - Inseparable twins

Technological Diversification
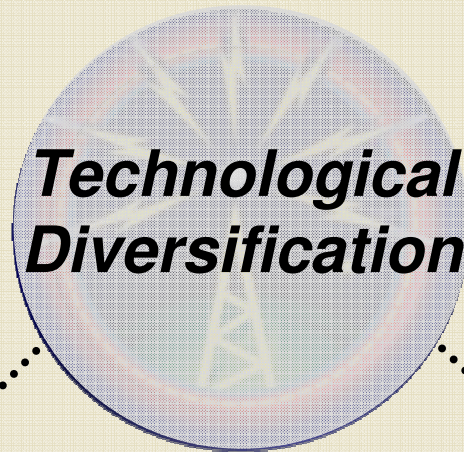
Quantitatively

Qualitatively

Creates need for streamlined O&M for increasing network sizes	It lays a foundation for management of new technologies (ATM and IP)
Quantitative aspects of 3G O&M: system performance, flexibility & scalability	Qualitative perspective: addresses tech-oriented topics i.e. what end-to-end mgmt looks like in a 3G IP-based network

Maturity brings pain - O&M the relief

Market maturity & **Migration to 3G**

Operators' margins ⬇ **Competition** ⬆

Market saturation

- ◈ **O&M is the first victim of Cost-cutting**
  - – While network elements and overall size grows, the goal is to maintain the required O&M manpower ..or even reduce it

- ◈ **O&M is strategic to service provisioning**
  - – While considering to cut cost, it should be balanced against the strength and quality O&M adds to business

- ◈ **O&M on its own will be a key success factor in the 3G networks market**
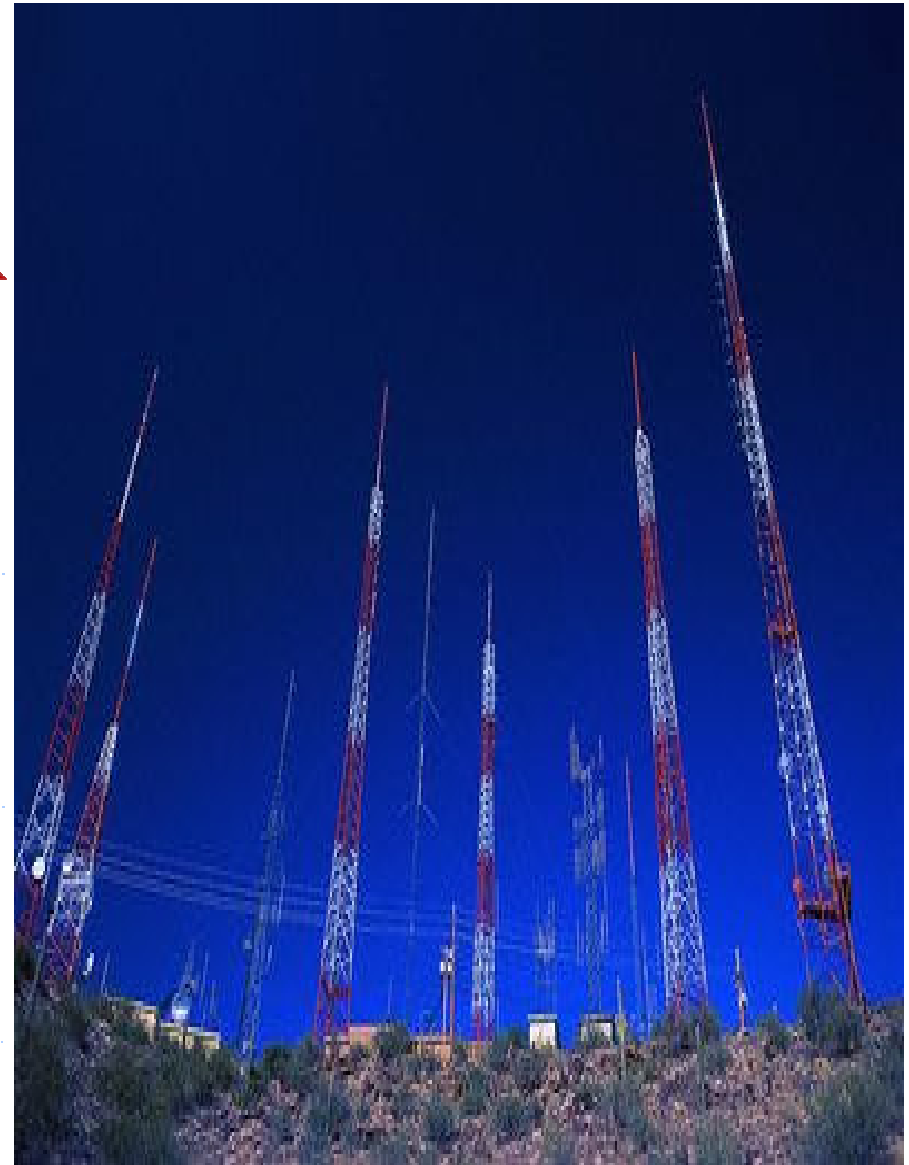
O&M the Decisive differentiator

- Operators' priorities have changed significantly
- Today's focus of operators on CAPEX and availability will shift towards total cost of ownership

Price (CAPEX)
Time to Service

Price (CAPEX) + OPEX
Network Growth
Network Quality
Network Optimization
& Performance

- **O&M the decisive differentiator**

Economical Solutions

Understand the organization & cost structure of the mobile operator

- Analysis of business & operational processes
- Identification of OPEX saving measures

Efficient operational concepts

- Excellent mobile network usability with intuitive mgmt
- Automation of operational processes by Self-Optimizing-Networks, Auto-discovery

Optimal tailored network & service mgmt solutions meeting mobile operator needs

- Hiding network complexity
- Full Service Orientation

Operator costs related to the network and the infrastructure

Evolution of O&M Sub systems

In the early 1980s, the first O&M and standard ISO-OSI Systems Management Framework was made (FCAPS)

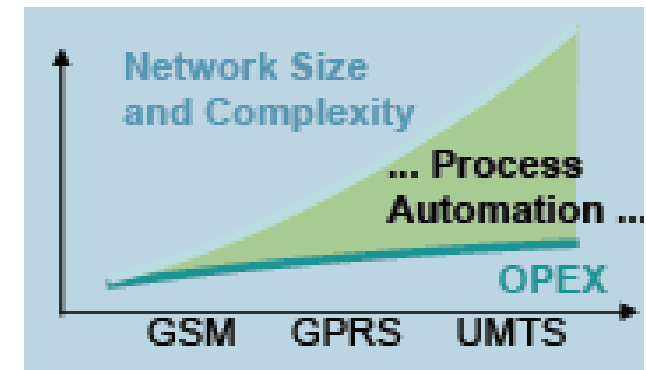With the introduction of wireless and mobile networks few additional areas, which could not be easily covered by FCAPS, had to be added

Fault Mgmt

Service Problem Management

Resource Trouble Management

Configuration Mgt

Resource Provisioning

Device Configuration

Accounting Mgmt

Charging & Billing

AAA & Session Management

Performance Mgmt

Service Quality Management

Performance Monitoring

Security Mgmt

Information Security

Network Security

Mobility Mgmt

Roaming

Handoff Management

Customer Mgmt

Subscription Management

Profile Management

Terminal Mgmt

Location Management

Terminal Trace Management

Some Trends in O&M

Shift from equipment-oriented mode to Service-oriented mode

From pure network-oriented and NE-oriented management to service-oriented and customer-oriented management

Shift from decentralized maintenance to centralized maintenance

Scattered technical resources centralized in the network management center (NMC)

- – O&M efficiency increases
- – Network operation quality improves
- – Consistency of data remains unchanged
  (including office data, software version data, circuit data, network resources data, network operation quality data, and equipment performance data.)

Shift from *Extensive* management to *Meticulous* management

Formulation of non-complex workflow and standardization of processes to

- Improve service traction index
- Boost service provision and fault response capability
- Increase the network operation quality
- Lower O&M cost
- Enhance the O&M efficiency

eTOM ➕ ITIL

- Service flow model universally accepted in the telecom industry
  - Designing the service flow to build necessary functions & systems for telecom service operations

- Widely accepted guideline for IT service and management
  - To plan and formulate IT infrastructure and service management

Comprehensive enterprise service flow framework can be created if ITIL can be efficiently combined with ETOM

Shift from *Extensive* management to *Meticulous* management **GTL**

Optimisation of Network resource configuration flow

- Involves procedure starting from **Service Initialization** ➝ *Implementation*

• Key factors to be considered are	• Quicker establishment of flow can

◆ Cost-effectiveness,	◆ Shorten service activation time
◆ Service protocol,	◆ Improve response capability for go to the market
◆ Rational use of resources, and service activation specific requirements by subscribers	

Optimisation of Service Assurance flow

Involves service daily assurance, fast recovery handling in case of fault, while engaging with customer :

- ◆ Diagnostic; Dispatch for handling; Quick recovery
- ◆ Notification of subscribers and public relation with media should not be neglected

Shift from **Extensive** management to **Meticulous** management

Management through traction of two indices

1 Subscriber Quality of Experience (QoE)

2 Network Resource Management index system

- ◆ Subscriber satisfaction – the only network O&M standard
- ◆ Subscriber perceivable O&M indices can help guide transition of the O&M
  - – O&M indices perceived by a subscriber closely reflect the network quality and maintenance level when the subscriber uses the network service.
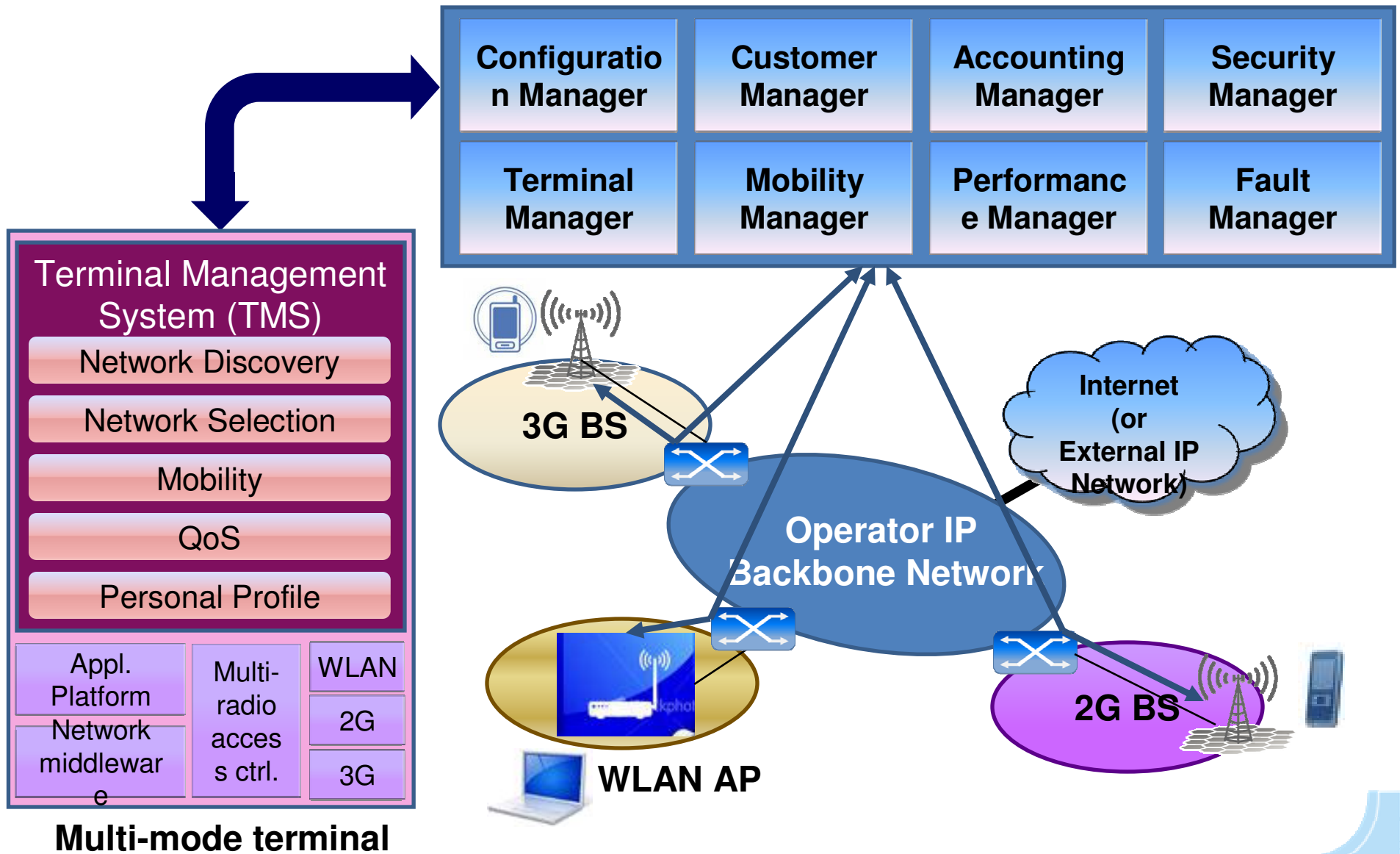
- ◆ Too much or too little can hurt !!
- ◆ Can help to guide resource configuration optimization according to service development and customer requirements, for the maximum use of the network resource with optimal OPEX
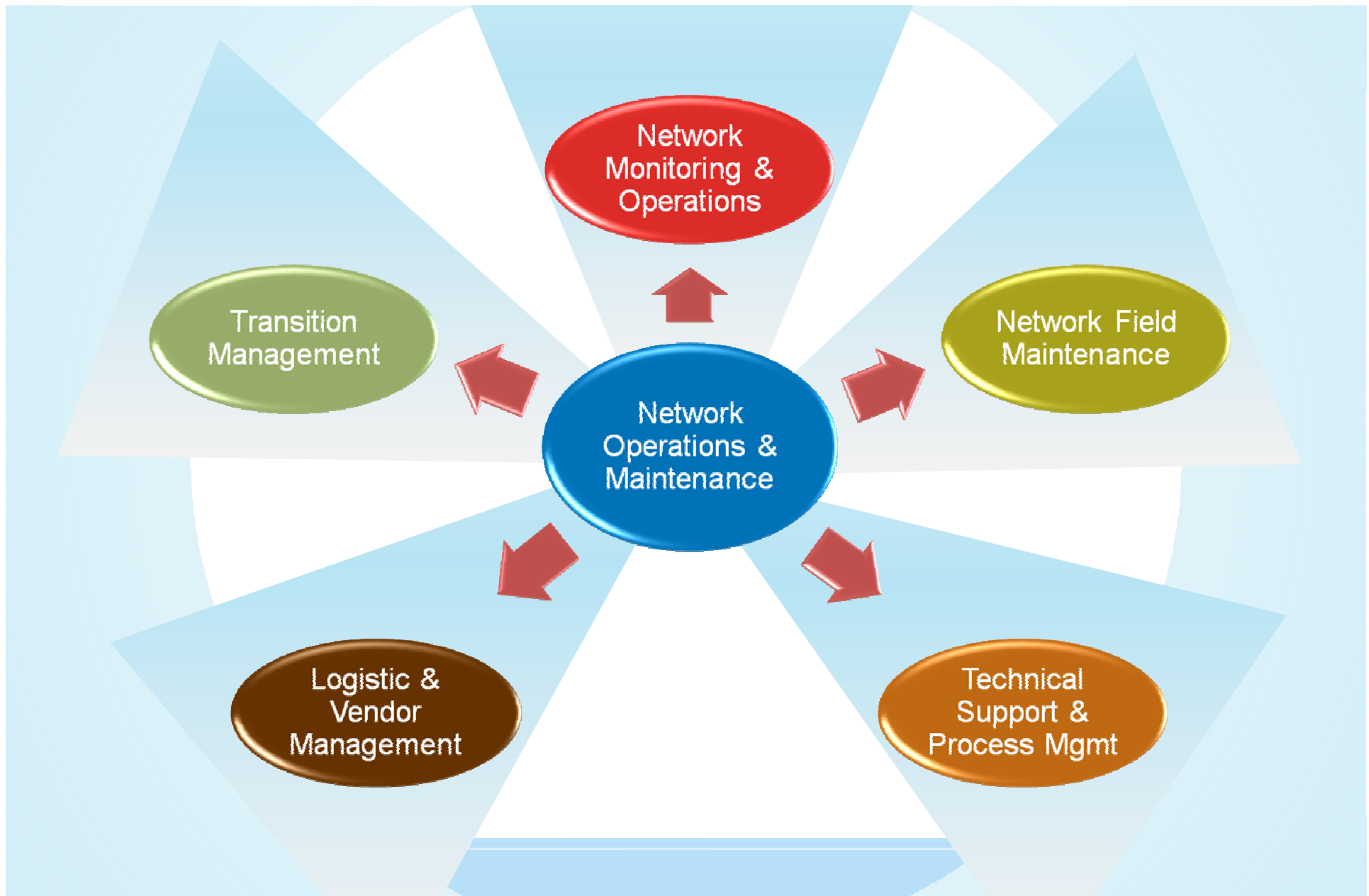
Network O&M should be based on **service goal**, with focus on core competencies existing and that can be built upon

Operator must establish **strategic direction** to drive reforms in **service management** and oversee **optimization** of resources, processes and personnel

Towards Unified O&M System

GTL

Configuration Manager	Customer Manager	Accounting Manager	Security Manager
Terminal Manager	Mobility Manager	Performance Manager	Fault Manager

Terminal Management System (TMS)

- Network Discovery
- Network Selection
- Mobility
- QoS
- Personal Profile

Appl. Platform	Multi-radio access ctrl.	WLAN
Network middleware		2G
		3G

Multi-mode terminal

3G BS

Operator IP Backbone Network

Internet (or External IP Network)

WLAN AP

2G BS

Network Operations & Maintenance offerings

Network O&M - Services as a Product

Managed Operations & Maintenance

	Core	Field		Preventive	Corrective
A C T I V E	• Upgrade mgmt • Database mgmt • Configuration mgmt • Capacity Mgmt • Help desk & Escalation Mgmt. • Inventory Mgmt • Swap Mgmt • Transmission n.w Audit • Performance Measurement • Fault Analysis and MIS • Alarm Management	• KPI Measurement • Fault Mgmt& Trouble shooting • Logistics Mgmt • 3rd Party Mgmt • Warehouse Mgmt • Logistics • Acceptance Test • Planned Expansion Audit • Optimization.		• Warranty Mgmt • AMC Mgmt • Routine Preventive Checks • Pre- Monsoon and Winter Preventive Maintenance	• Repair & Return Management • Resolution Mgmt • Fault Mgmt
P A S S I V E	• Help desk & Escalation Mgmt • Inventory Mgmt • Fault Analysis and MIS.	• KPI Measurement • Fault Mgmt& Trouble shooting • Logistics Mgmt • 3rd Party Mgmt • Warehouse Mgmt • Inventory Mgmt • Acceptance Test		• Warranty Mgmt • AMC Mgmt • Power Utilistion Audit • Telecom Infr Audit • Site Repair, Painting and Upkeep • Replacement	• Repair & Return Management • Resolution Mgmt • On-site repairs

Thank You