

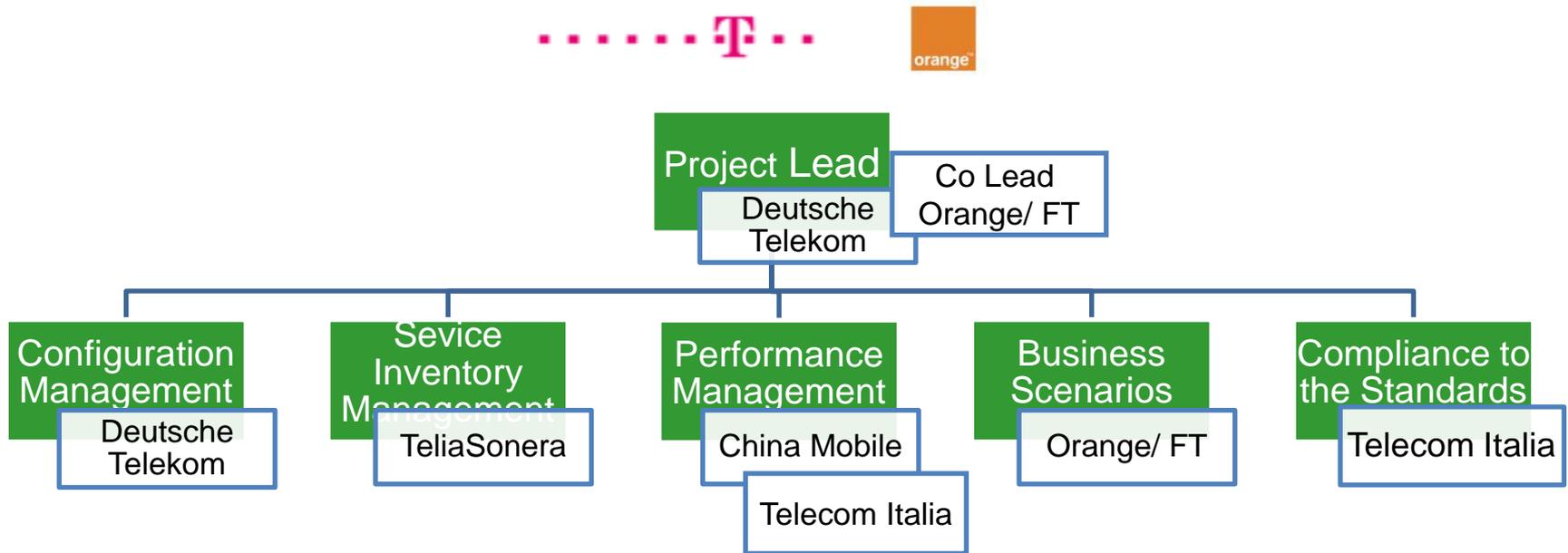
NGCOR Phase 2

Next Generation Converged Operations Requirements

Presentation to joint SA1-SA5 meeting
Nov. 2013, San Francisco

J-M. Cornily
Orange

NGCOR Phase 2 – Project Setup



Contributing Operators:



Business Scenarios for Network Sharing

Outline

- Multi-Operator RAN Sharing scenarios
 - Active RAN Sharing
 - Active RAN + Core Network Sharing

- Single Operator – Multi-Affiliate Network Sharing scenarios
 - OSS shared between Operator's affiliates
 - Network Elements and their OSS shared between Operator's affiliates



See next
slide

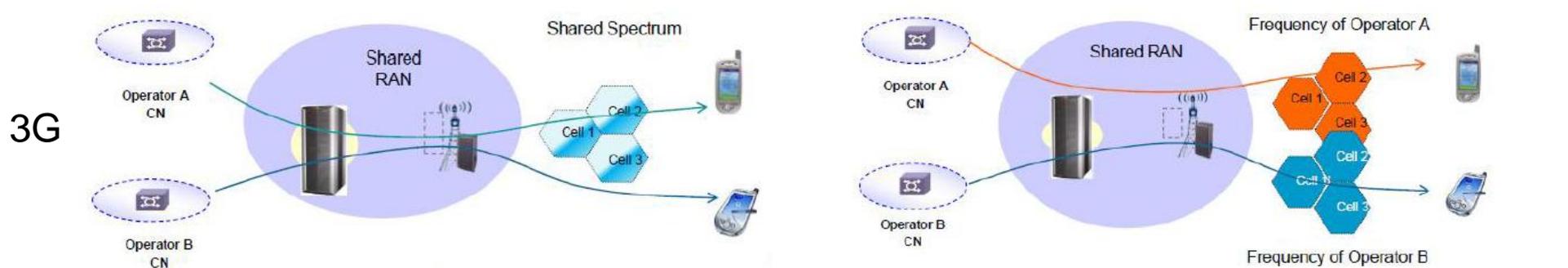
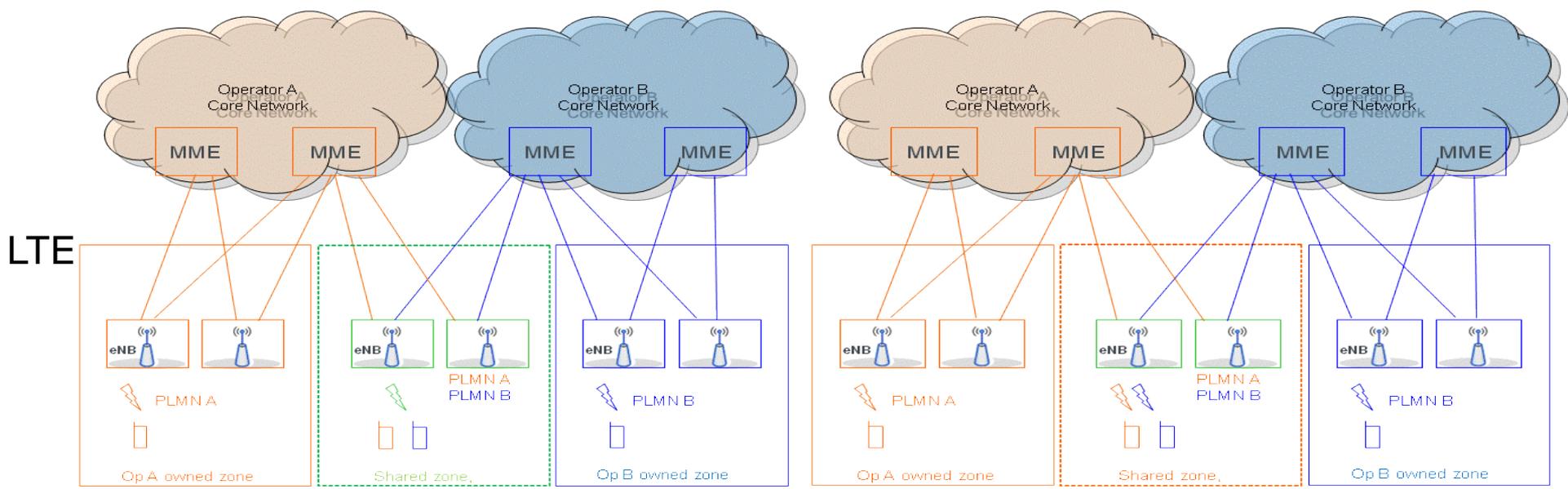
Active RAN Sharing (focus)

Outline

- Network Architecture perspective
 - MORAN
 - MOCN
- Network Management perspective
 - Definition of Roles
 - Definition of Resources
- Management Architectures
- Organizational Aspects
- Operational Requirements
 - General requirements
 - Requirements wrt. Fulfilment
 - ✓ (e)NodeB-level Resource Provisioning
 - ✓ cell-level Resource Provisioning
 - Requirements wrt. Assurance
 - ✓ Alarm Management
 - ✓ Performance Management
 - ✓ Trace / MDT
 - ✓ Self-Organizing Networks

Active RAN Sharing

Network Architecture perspective

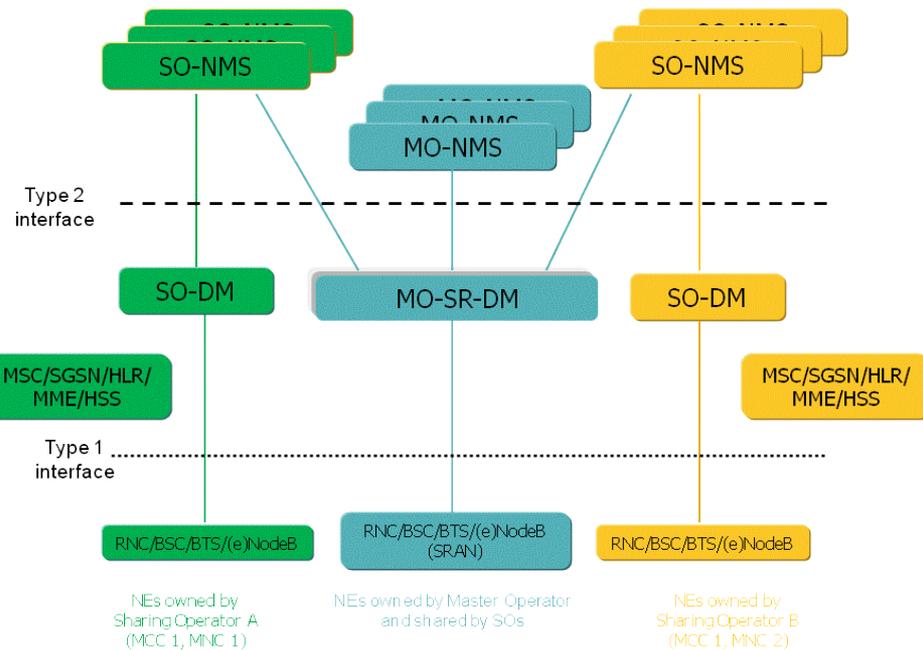


MOCN

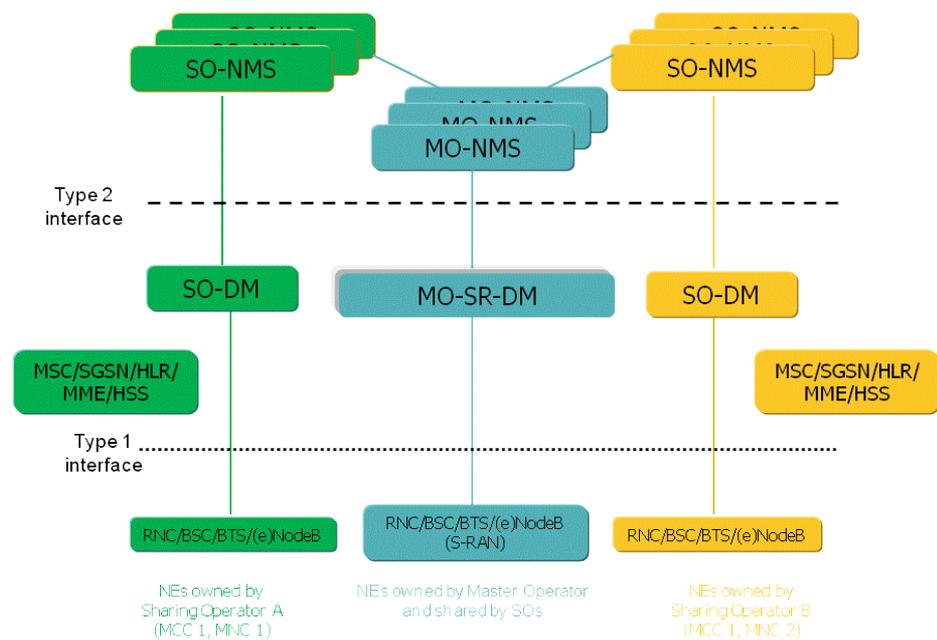
MORAN

Active RAN Sharing

Network Management perspective



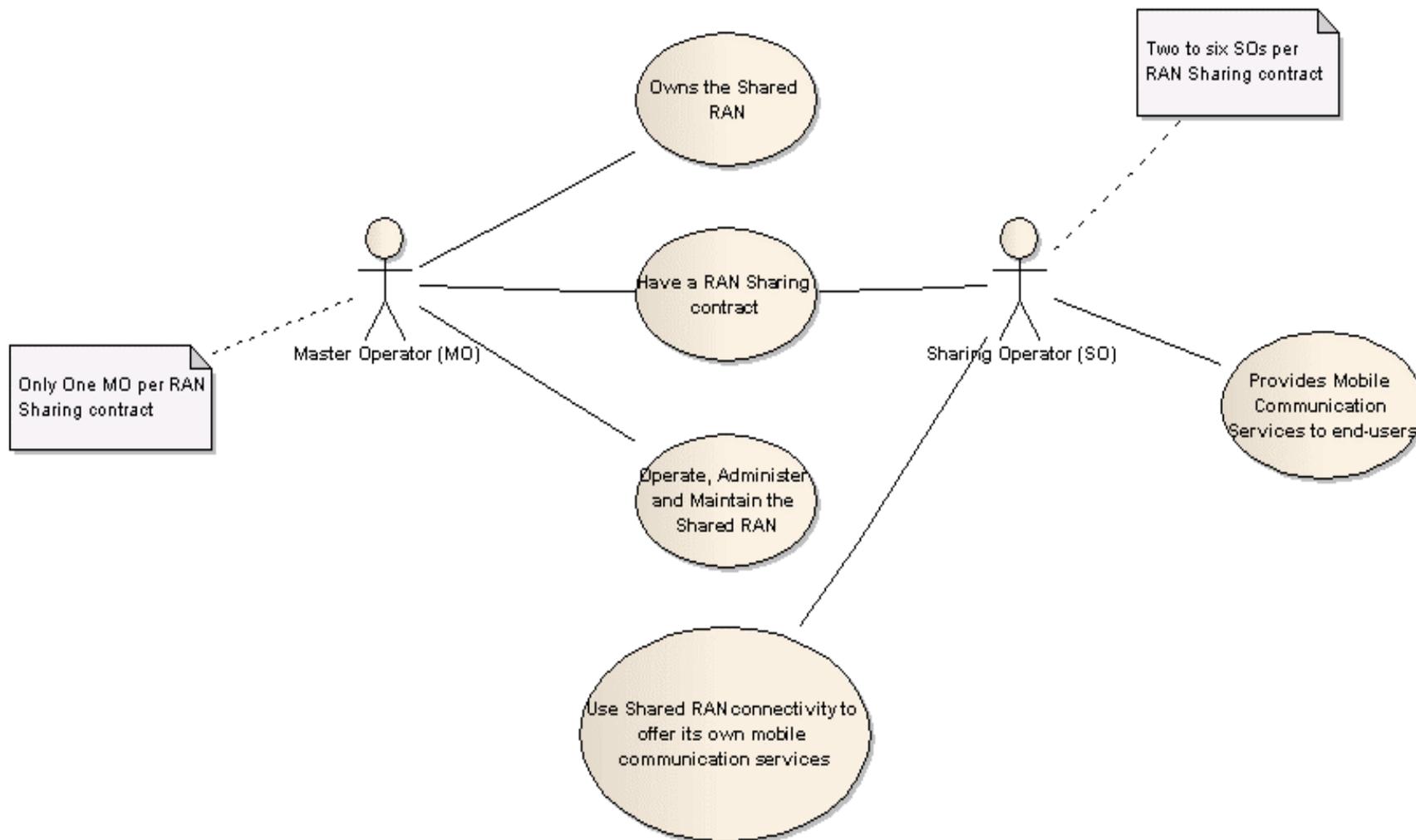
Management Architecture
#1



Management Architecture
#2

Active RAN Sharing

Definition of Roles



Active RAN Sharing

Definition of Resources



1.2.2.2 Resources

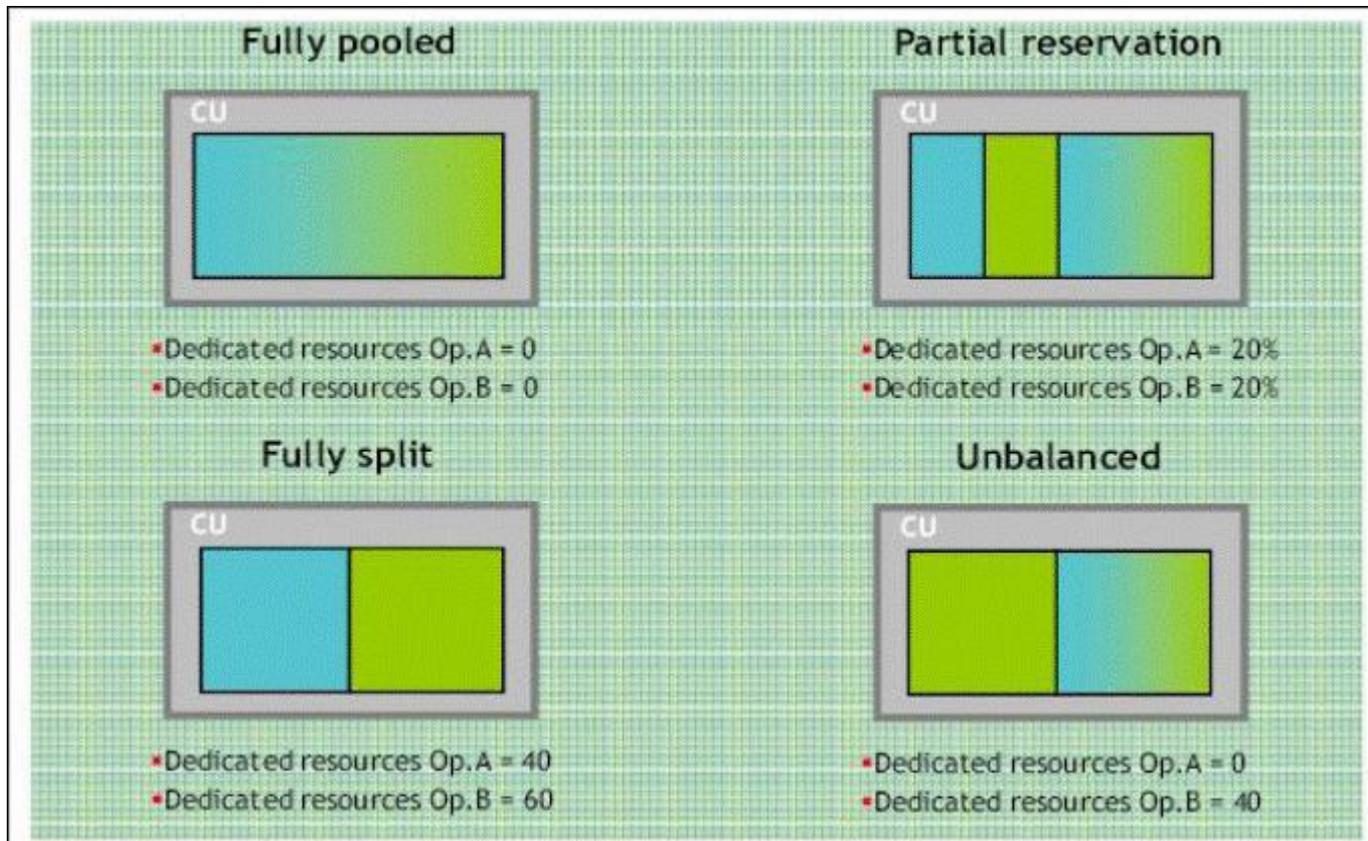
In a shared RAN environment, the following systems will provide management capabilities:

Abbreviation	Title	Description
MO-SR-EMS	Master Operator – Shared RAN – Element Management System	The EMS enabling the Master Operator to manage the Shared RAN resources. It has direct OA&M links to the shared NEs. This EMS comes from the same supplier as the shared RAN.
MO-NMS	Master Operator – Network Management System	Network Management System belonging to the Master Operator, part of its Operation Support Systems. NM Systems are generally dedicated to functional domains such as e.g. Fault Management, Performance Management, etc. NM Systems are generally either in-house made by the Master Operator or supplied by Independent Software Vendors (ISV).
SO-EMS	Sharing Operator – Element Management System	An EMS enabling the Sharing Operator to manage its own RAN. It has direct OA&M links to its own NEs. This EMS comes from the same supplier as the Sharing Operator RAN.
SO-NMS	Sharing Operator – Network Management System	Network Management System belonging to the Sharing Operator, part of its Operation Support Systems. NM Systems are generally dedicated to functional domains such as e.g. Fault Management, Performance Management, etc. NM Systems are generally either in-house made by the Sharing Operator or supplied by Independent Software Vendors (ISV). A Fault Management SO-NMS of a Sharing Operator may collect alarm / event notifications issued by both the Shared RAN and the Sharing Operator-specific RAN (and potentially by other network elements of the Sharing Operator).
	Shared RAN	A Radio Access Network owned by a Master Operator and which provides radio access connectivity to multiple Sharing Operators. Depending on the scenario, part or whole of the resources of the Shared RAN are put in common between Sharing Operators.

Active RAN Sharing

Operational Requirements - Fulfilment

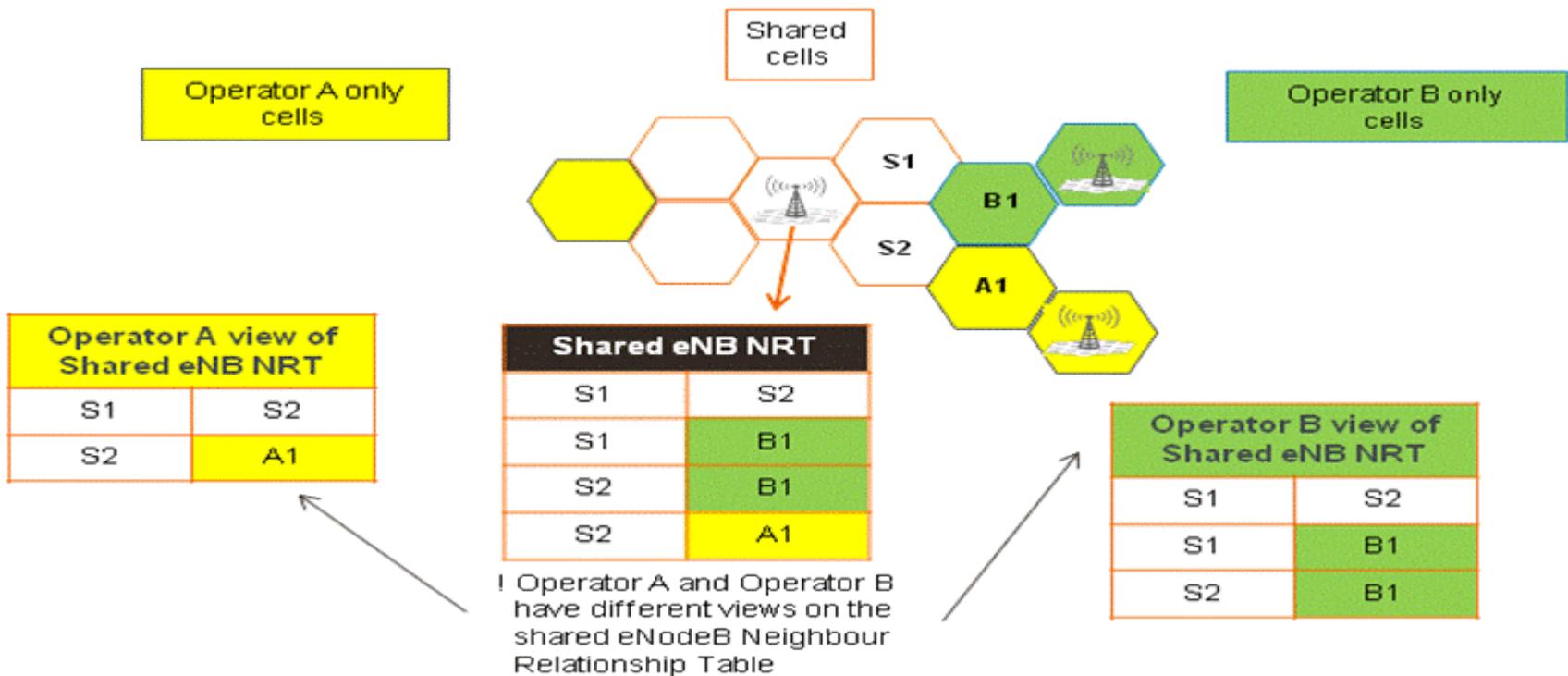
Radio resource sharing policy configuration in MOCN



Active RAN Sharing

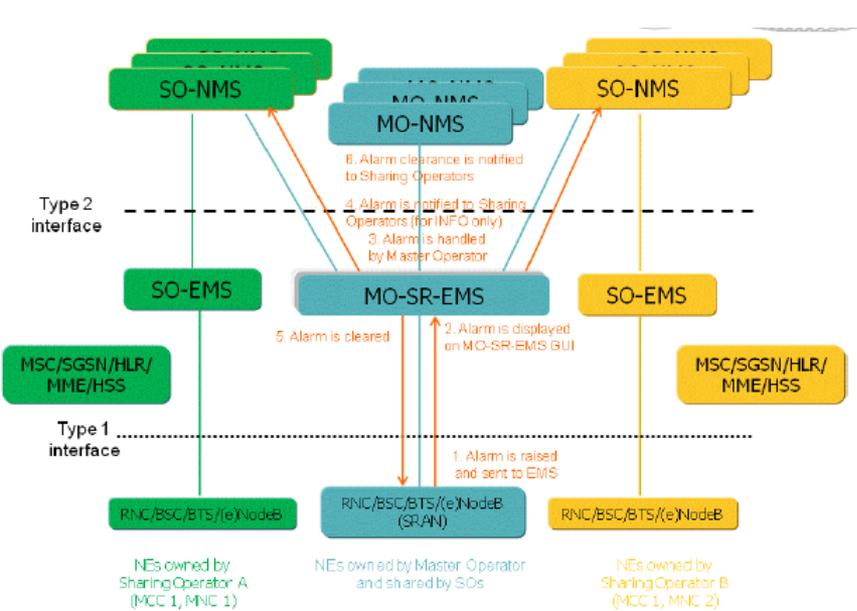
Operational Requirements - Fulfilment

Neighbour Relationship Table handling in MOCN

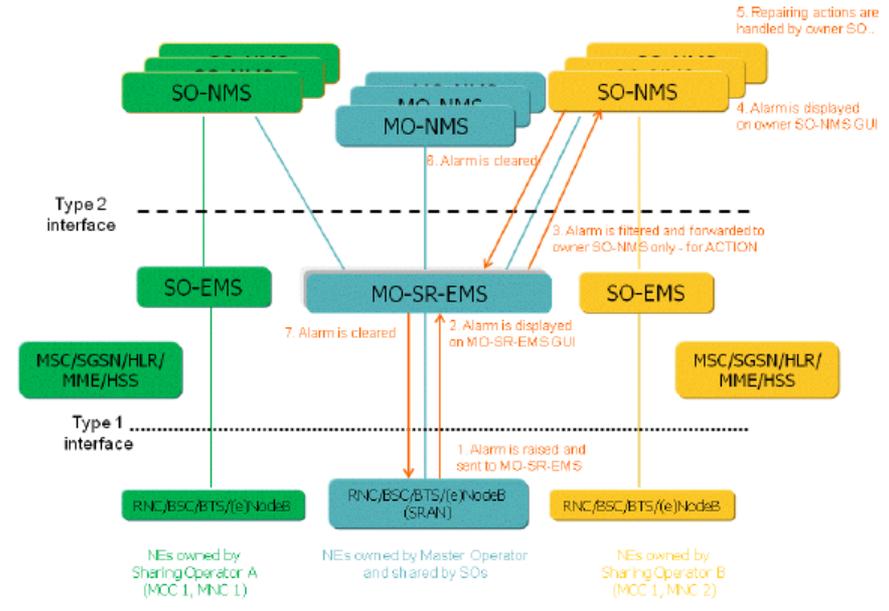


Active RAN Sharing

Operational Requirements – Assurance – Alarm Management



Alarm occurring on a Shared RAN shared resource



Alarm occurring on a Shared RAN unshared resource

Active RAN Sharing

Operational Requirements – Assurance – Performance Management

Example KPIs:

Example of indicators (non-exhaustive list):

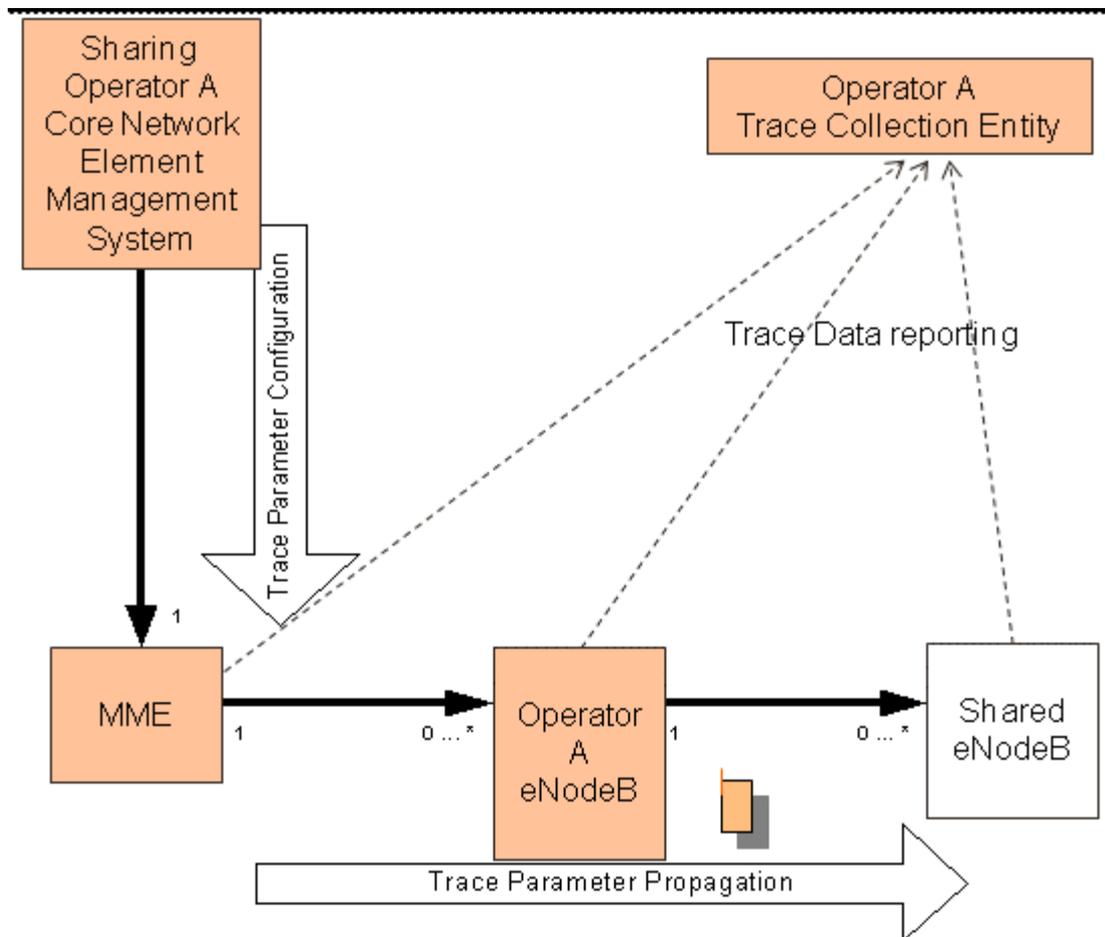
Indicator	Applicability
Call setup success rate	Voice, Data
Link Failure Rate	Voice, Data
Average Bandwidth per User	Data
Radio resource usage rate per Sharing Operator	Voice, Data
Volume of data per Sharing Operator	Voice, Data

Active RAN Sharing

Operational Requirements – Assurance – Trace / MDT

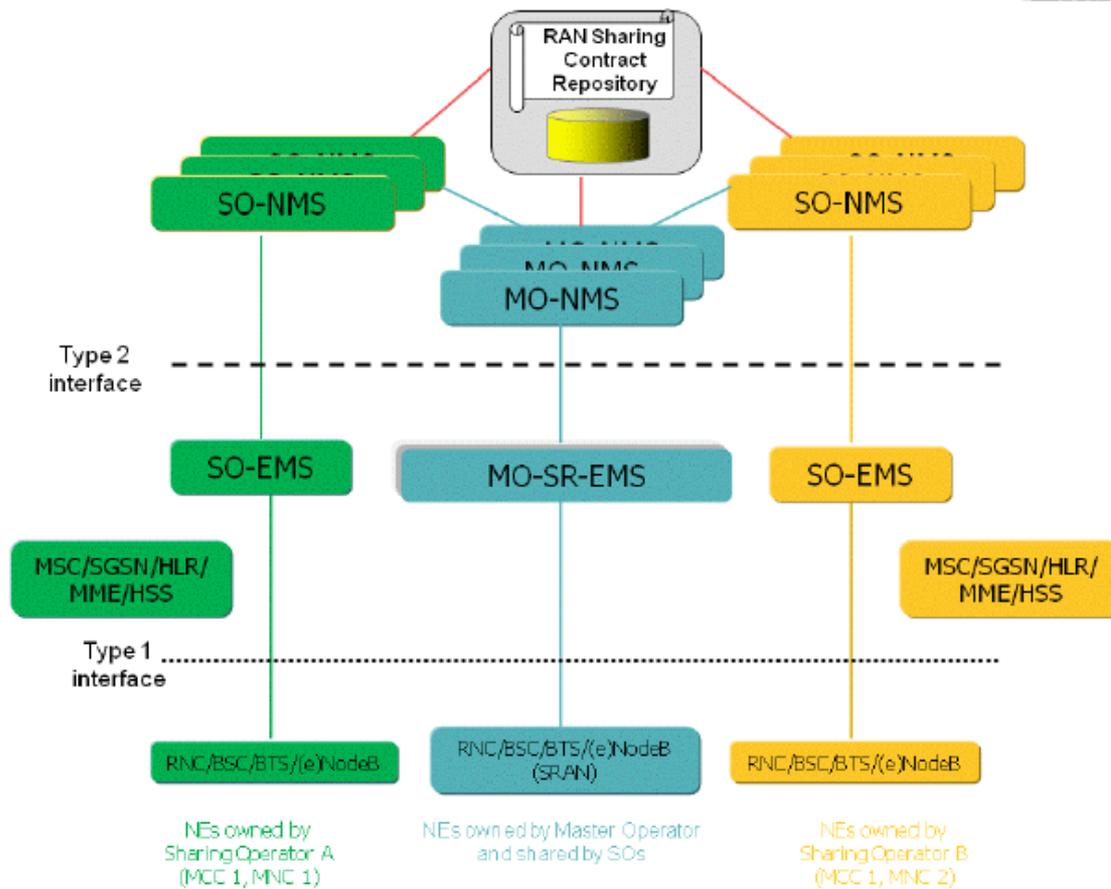


Trace Propagation from/to Shared RAN



Active RAN Sharing

RAN Sharing Contract Repository



Timeline

