A New Operations Support System Architecture for Broadband IP Networks

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Changes in telecom operational environment

- Explosive expansion of Internet and increase of users
- Advent of many CLECs and ISPs in Internet business areas
  - Competition
  - Sophisticated customer requirements
  - Various IP networks and services
- Various OSSs were developed to meet the needs for individual networks and services management, which resulted in
  - Proliferation of independent legacy OSSs
  - Increased OPEX
IP network is evolving so fast ...

- Core: faster, traffic engineered
- Edge: focus on QoS management
Managing new IP networks (1)

- Increased requirements for service management
  - QoS/SLA management
  - Customer self-control
    - Top down provisioning → Need for bottom-up data updating

![Diagram showing the process of managing new IP networks](image)
Managing new IP networks (2)

- Increased requirements for network management
  - DiffServ + MPLS management
  - Traffic volume management
    → End-to-end flow management using NetFlow and/or sFlow
  - Integration of network and server management
- Increased requirements for security management
  - Management of anomalous traffic
  - Separation of management network from service network
Why should current OSS be redesigned?

- Current Systems are
  - unable to support new IP services
  - Can not deliver premium services such as BoD, QoS/SLA guarantee and security services

- So many OSSs developed on different platforms and different data models
  - Data integrity and maintenance problems exist
  - System development/integration takes relatively longer time and is very expensive and risky → Can not meet time to market requirement

![Diagram of current major KT OSSs]
Our goal to a New OSS (NeOSS)

- Reduced time to market by
  - Applying a common platform

- Improved data integrity by
  - Applying a common data model
  - Single data entry but multiple uses

- Providing new functionalities to customers and operators
  - Single sign-on
  - Pre-ordering
  - Order tracking
  - SLA management
  - Enhanced work force management
  - On-line management of field information
  - One-stop handling of customer service requests
    - Single point of contact
  - Reduction of service provisioning and fault handling time
New OSS (NeOSS) platform

- xDSL Provisioning OSS
  - Receive Order
  - Resource Alloc
  - Provision
  - Socket I/F

- Leased Line Provisioning OSS
  - Receive TT
  - Query Information
  - Test
  - XML/RPC

- IP Traffic Management System
  - GUI
  - Status
  - Config
  - DB load
  - SNMP

- Metro Ethernet Management System
  - GUI
  - Status
  - Config
  - DB load
  - SNMP/CLI

- Management Specific Applications
  - Work order Processing
  - Configuration Management
  - Performance Management

- Common Applications
  - TP monitor
  - DB Loading
  - Scheduling
  - Configuration

- Standard GUI / Single sign On

- Common DB

New OSS (NeOSS) common data model

Legacy OSS A

Data conversion

Legacy OSS C

Integrity check

Legacy OSS B

Data conversion

Human error

New OSS A

Common DB

DB mediator

New OSS B

New OSS C
New OSS (NeOSS) interworking architecture

- Common interfaces
  - EAI/Message bus
  - Workflow engine
  - Web services (XML/SOAP)

ICIS : Integrated Customer Information System
NetIS : Network Information System
SO : Service Ordeing System
SA : Service Assurance System
SLA : SLA Management System
ADM : Access Domain Manager
WM : Workforce Management System
TOMS : Telecom Outside plant Management System
CNM : Customer Network Management System
MOST : Transmission NMS
IP-NMS : Internet(Kornat) NMS
ATM-NMS : ATM NMS
PUBNet : Government Internet NMS
FR-NMS : Frame Relay NMS
Concluding remarks

- New operational environment requires a new (next generation) OSS which will enable
  - Reduced time to market
    - Faster system development speed
    - Flexibility in a changing business environment
  - Improved service provisioning and maintenance accuracy
    - Ensured data integrity
    - Automated work order processing
  - Keeping customers satisfied
    - More information for customers on performance and usage
    - Ensured customer service level by pre-ordering, order tracking and trouble tracking, etc.
Next generation is just around the corner.  
Now is the right time to start the development of a New (next generation) OSS.