KT NGN and its Management Plan

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Mun Jo Jung*, Sung Hak Seok**

*Technology Laboratory
**Operations Support System Laboratory
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- Conceptual View of KT NGN
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Introduction(1)

Drivers for NGN

- **Market Changes**
  - Business Trends: Voice to Multi-Media
  - Wireless Service Increase
  - Internet Application Expansion
  - Paradigm Changes: Cyber society

- **User Changes**
  - Wide Spread of Multimedia PC
  - Mobile Multimedia Terminal Technology
  - Mixed (voice + video + data) Service Need

- **Technology changes**
  - High-Speed Capacity Network
    - TSR, TES, WDM, etc
  - Multi-Access Technology Growth
    - Any Media, but Same Service
    - Open API

- **Business changes**
  - New Service Network Architecture
    - Avoid Multiple Investment
    - Cut Deployment/Operation Cost Down
    - Need Multi-Service over Single Net

NGN
Multi-service
On Single Network
With Open Architecture

Service Logic
Introduction(2)

- Technical Goal for NGN
  - Construct Multi-Service Converged Network
  - Integrated Wired and Wireless Services
  - Differentiated QoS
  - Support Easy and Fast Service Creation, Provisioning and Administration
  - Open Architecture
  - Supply Reusable Common Service Building Blocks

- Business Goal for NGN
  - New Service Infrastructure for More Profits
  - Cost-down in Network and Service Deployment and Operation
  - Leading Edge in Competitive Telecom Market

- For More Business Opportunities
  - Enlarge Business Area
    - from Network to Service
  - Draw More Customers
  - Create More Services

[Diagram showing network provider and service provider relationships]

mjjung@kt.co.kr
Conceptual View of KT NGN(1)
Conceptual View of KT NGN(2)

- For Easy Functional Grouping
  - Three Layer
    - Service Layer
    - Service Coordination Layer and DPE
    - Network Layer
  - Three Domain
    - Access Domain Functionality to be enriched
      - Web-based Customer Portal
      - Service Access Differentiated from Network Access
      - Intelligent Terminal Capability
    - Core Network Domain Functionality to be added
      - Guarantee QoS
      - Dynamic Resource Reconfiguration
      - Manage Topology of Service Network
    - Service Supporting Domain Functionality to be built in
      - Service and Resource Administration
      - QoS Management and Network OAM
Two-Step Approach for Sophisticated Services

- Authentication
  - in Network Level
  - in Service Level
  → from Per-Household to Per-Person

- Charging
  - on Network Access
  - on Service
  → Various Billing Strategies: Bundling Services, One Click
Conceptual View of KT NGN(4)

- Technical Trends

Service Layer

DPE (Distributed Processing Environment)

Service Coordination Functionality

- Service Driven Resource Management
- Service Mapping Function
- QoS Class aggregation
- Authentication
- Service Component Inventory Function
- Route/Topology Management

Policy Service
AAA Server
Service Map
QoS Mgr
Res. Mgr
Ser. Cord.
Ser. Call Control
PG Accounting

Service Administration

- Service Creation
- Service Provisioning
- Service Location
- Service Configuration
- Service Registration
- Policy Administration
- Profile Administration
- Service Assurance

Network Functionalities

- Connectivity
- Transport with QoS
- Media Conversion

MPLS
Mobility
Diff. Ser.
AGW
SGW
TGW
SSW

Monoliths
- Best Effort IP Network
- Wired Network
- Wireless Network
- Unified Network

Component-Based Network Elements
- IP Network with QoS

Network Operation & Management

VPN
NMS
E
BMS

mjjung@kt.co.kr
Development Plan for KT NGN Management

- Service Coordination Layer Management: ~ 2006
  - Dynamic and Personalized Service Access
    - Integrated Customer Portal
    - One Stop Service Portal
  - Advanced Service Administration
    - Common Service Manager
    - Common Network Resource Manager
  - Easy Communication of Profiles
    - Shared Information Base

- Network Layer Management: ~ 2005
  - For the Management of New NGN Components
    - SoftSwitch Management System (SSEMS)
    - NGN-NMS
Service Coordination Layer Management (1)

Integrated Customer Portal

One Stop Service Portal

Common Communication Bus (Java, CORBA, LDAP, SOAP/XML, SQL)

Shared Information
- Unified Directory
- Operational Data
- Common Data Model
- Services Profiles
- User Profiles & Security

Common Service Manager (QOS, Security, Resource)

- Policy Manager
- Security Manager
- Parlay Framework

Common Network Resource Manager

- Resource Allocation Manager
- Route / Topology Manager

Common communication Bus
(SIP, MGCP, SS7, LDAP, COPS, RADIUS, DIAMETER)

- Gateways
- Terminals
- NGN
- Network Equipment
- Application Server

mjjung@kt.co.kr
Service Coordination Layer Management(2)

- Integrated Customer Portal
  - Enables End Users to Personalize Profiles and Subscribed Services
  - Activates Selected Services
  - Enables User or Group to Manage Others' Roles under Security Policy
  - Provides Single Sign-On Service to Access to Multiple Applications

- One Stop Service Portal
  - Enables Service Operator to Announce Available Application Services
  - Enables End Users to Purchase Application Services
Common Service Manager
- Policy Manager
  - Allows Creating, Checking, Storing and Querying Policy Rules
- Security Manager
- Parlay Framework
  - Provides Service Creation and Administration Capabilities

Common Network Resource Manager
- Resource Allocation Manager
  - Provides Real-Time Activation Capabilities of Network, Application and Server Based on User Behavior, Profile and Quality of Service
  - Manages Static/Dynamic Assignment of IP Addresses
- Route/Topology Manager
  - Determines The Most Efficient Route for The Services.
  - These Routes May Be Altered based on Current Network and Service State
Network Layer Management(1)

Network Level Management Systems

- SoftSwitch Operation and Management Functions
  - Management Functions within SoftSwitch
    - FCAPS
    - System Management, Operator Administration, EMS Communication Function
    - Charging Function

- SSEMS Functions
  - Manage Several SoftSwitches in A Region
    - SoftSwitch Management Function: Configuration, Alarm, Performance, Statistics
    - Resource Management of Managed Network Element: AGW, TGW, SGW etc.
    - Subscriber Profile Management
    - System/Operator Administration
    - Interworking function b.w. SSEMS and SoftSwitch or NGN-NMS

- NGN-NMS Functions
  - National wide NGN Management Function: Network Topology and so on
  - Communicate to Multiple SSEMSes
  - Network Resource Management: AGW, TGW, SGW and so on
  - Interworking Function with Service Management Systems
Network Layer Management (2)

Zone 1

- AGW
- SoftSwitch
- SGW
- SGW-EMS
- AGW-EMS

Zone 2

- TG
- TG-EMS

Interface b.w. SSEMS and NGN NMS
Interface b.w. Gateway and its EMS
Interface b.w. Gateway EMS and NGN NMS
Interface b.w. SoftSwitch and Network Element
Interface b.w. SoftSwitch and SSEMS

mjjung@kt.co.kr
Initial KT NGN Management: 2004 - 2005

Current Running Management Systems

ICIS
TIMS etc.

ANSWERS

Old Management Network

Purchasing EMSs

AGW-EMS

TGW-EMS

SGW-EMS

NGN-NMS

SSEMS

KT development

Management Network for NGN

POTS

xDSL

IP-Phone

PSTN Bearer

No. 7 Network

Servers

Access Network

MEGACO

SIP

Control Network

KT SoftSwitch

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Initial KT NGN Management: 2004 - 2005

- Initial NGN Management
  - Access Domain
    - One Stop Management from Subscription to Access Line Installation Using ICIS and TIMS
    - TIMS Covers Access Line Installation
  - Core Network Domain
    - Automatic Profile Transfer to SoftSwitches Using ICIS, TIMS, NGN-NMS and SSEMS
    - Partially Regional Management Based on TGW-EMS, SGW-EMS
  - Service Coordination Layer
    - Server or Component Based Management
    - No Integrated Management among Servers or Components
KT- NGN and Physical Configuration
Roadmap of KT-NGN Solution

2003.10

• Prototyping and Test
  - KT-SoftSwitch
  - SSEMS
  - NGN-NMS

2004.3

• Customization and Commercialization
  - KT-SoftSwitch, AG, SG, TG, AS, MS etc
  - SSEMS
  - NGN-NMS
  - AGW-EMS, TGW-EMS, SGW-EMS, etc.

2004.6

• Field Trial

2005

• Offering Total Solution for NGN Services
Closing

Why KT Chooses NGN?
- Enlarging Business Areas
- More Business Opportunities
- Multi-Service Converged Network with QoS
- Easy and Fast Service Creation and Deployment
- Dynamic and Personalized Service Access
  - Less Investment More Return
  - Cost-Down in Network Operation

Development Plan for KT NGN management System
- Service Coordination Layer Management: under Design
- Network Layer Management: under Development
  - Deploy Network Layer Management First
  - Sequentially Integrate Service Coordination Layer Management Systems