Insight of NGN Deployment
Content

- NGN Network Transformation
- NGN Network Migration
- Evolution From PSTN to IMS
- Case Studies
  - Brunei Telbru: World First Commercial NGN Deployment
  - Singapore SingTel: From C5 Consolidation to ALL IP
- Summary
Drivers for Network Transformation

1. **Market**
   - Strong competition
   - Decline in fixed line subscriber.

2. **Competency**
   - Limited growth in PSTN
   - High OPEX
   - Long time to market
   - Lack of service portfolio

3. **Convergence**
   - Convergence in services
   - Convergence in access network
   - Convergence in Fixed and Mobile.
   - Convergence in telecommunication and computing.

4. **Technology**
   - Obsolescence of TDM technology.
   - Technology shift from circuit-switch to packet-switch.
   - Emerging access technologies
   - Open standard and architecture.
What is the Outcome?

NGN Network Model

- Service & Application
- Call Control
- Transport
- Access

Open Protocols
- e.g. Parlay, OSA, JAIN

- e.g., SIP, MGCP, H.248

NGOSS - NMS - Billing - CRM

- New Service Opportunity
- New Network Architecture
- New Business Competency
- New Network Flexibility
- New Transport Efficiency
- New Network Operation
- New Organization Structure
Requirement of Network Transformation

A Resilient Network Architecture

- **Service Center**
- **Session Control Center**
- **User Data Center**
- **Access Layer**

Requirements of Transformation:

- Fully inheritance of PSTN features
- Separated call/session control and service center
- Central subscriber data center, fast service roll out
- Open service enter for rapid service creation
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Long Distance Trunking & C4
- Deploy NGN to replace the Long-Distance VOIP Trunking and C4
- Transparent to the subscriber
- Reduce cost of transmission

VAS Center
- Integrate the NGN platform with Next Generation VAS center
- Provision more exciting and useful Value Added Service
- Interconnect with 3rd party ASP via open API

VoBB for BB user
- Introduce IAD, SIP phones and video phones to the network
- Make use of NGN to offer voice service to BB user

C5 Migration
- Deploy AG for new expansion site
- Start the NGN C5 migration at small scale
- Increase the scale of NGN C5 migration step-by-step
- Conduct Pre-cutover to ensure smooth migration
Defining NGN Blueprint

NGN Blueprint is Critical to Guarantee the Successfulness of the NGN Deployment

- Layout Key NGN Network Elements
- Design and Plan the Network
- Analysis of Interconnection with Legacy Network
- Analysis of Subscriber Database & Format Conversion
- Analysis of Different Transformation Scenarios
- Conduct Numbering Planning
- Partner and Contractor Selection
- Define scope of work for Operator, Vendor and Contractor
- Installation and Commissioning Plans
- Network Migration plans
Key Consideration of VAS Provisioning in NGN

- Identify Key Services
- Demand Forecast For NGN Services
- Gap Analysis: Legacy and NGN Services
- CAPEX and OPEX Analysis
- Analysis of Service Flow
- Timeline for Service Creation
- Timeline for Service Provisioning
- Change Request
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General Migration Principles

**Investment Protection**
- Investment protection in fixed voice field
- Least impact on inter-working elements

**Service Inheritance**
- Network migration transparency
- Least changes in services usage

**Based on Softswitch Functionalities Reservation**

**Smooth Implementation**
- Step-by-step deployment
- Minimum project implementation difficulties

**Continuous Development**
- Convergent of network resources
- Sharing of network resources
Tailor-made Network Solutions

**PTSN Transformation**
- Mature and stable Voice over IP solutions
- Reduce OPEX by 30%~50% compared to PSTN

<table>
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<tr>
<th>Call Server</th>
<th>MSAN</th>
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**Network Intelligence Solution**
- Increase whole network service competence and shorten time to market
- Abundant VAS, such as CRBT, WAC, NP, etc.
- Centralize O&M, reduce OPEX

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<tr>
<th>Call Server</th>
<th>VAS Center</th>
<th>GW</th>
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**SIP AS Solution**
- Provide MM services, increase revenue, such as video conference, IP Centrex, MRBT, etc.
- Flexible application and services can be introduced with just add on SIP AS

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<tr>
<th>Call Server</th>
<th>SIP AS</th>
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**FMC Solution**
- Unified call control center for FMC, convergent applications, such as VCC, etc.
- Provide ICT services, such as IM, Presence, etc.

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<tr>
<th>Call Server</th>
<th>IMS Core</th>
<th>VAS Center</th>
<th>SIP AS</th>
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Where Do We Start Off

Start with from a smooth and cost-effective way

**Network Intelligence Solution**

- Services Center
- Session Control Center
- User data Center
- Other

**How To Do**

1. Build IP/ MPLS network among Tandem switch
2. Build three Center
   - Switching (SX + MGW)
   - User data (HSS/SHLR)
   - Service Center
3. Replace Tandem Exchange with MGW
4. Remove mesh link among LE
5. All Calls will be processed by Session Control Center
6. Service Triggering realized by SX+SHLR
Softswitch, a Bridge Between the Preceding & the Following

1. Softswitch can **reduce PSTN OPEX significantly** besides inheriting 100% of PSTN basic & supplementary services.

2. **Rapid provisioning of voice and non-voice VAS** before IMS maturity to satisfy the needs of end-users.

3. Good platform to **gather IP network design techniques & experiences and user resources** for the coming IMS.

4. **Smooth migration to IMS without loss of services** and without additional investment in the future.
On the Way to Complete IMS

The ultimate goal of network transformation is IMS-based converged network

1. Replace all LE/RSM by MSAN gradually
2. Complete IMS architecture at right time. Introduce SIP-based services (Presence, IM, etc)
3. Converged IMS core network support any access network technologies
Future-oriented Network Transformation Solution

- **SIP AS based VAS** = Call Server + SIP AS
- **Network Intelligence** = Call Server + GW + SHLR
- **PSTN Consolidation** = Call Server + MSAN

**Application Center**

**User Data Center**

**Session Control Center**

**Access Aggregation**

**IMS based FMC solution**
Service Innovation based on FMC Architecture

Full Convergence
- FME: Fixed Mobile Convergent Experience
- FMI: Fixed Mobile Convergent Infrastructure
- FMN: Fixed Mobile Convergent Network

Open & Innovative
- Fast tailor made developing
- Standard interfaces
- Open eco-system
- Innovative services

Smooth Migration Path
- Unified Platform strategy
- Mobile Softswitch migrate to AGCF/MGCF/CSCF
- HLR\SHLR migrate to HSS

SEG: Service Exposure Gateway

ALL IP infrastructure
- MPLS/Optic
- E-GSN/BRAS
- Ethernet/Optic
- UMTS/GSM
- WiMAX/WLAN
- DSL/HTTx

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200,000 subscribers are cut over within 5 months.
1 pair of softswitch for C5 domestic network.
1 set of softswitch act as SIP server
1 set of softswitch act as International Gateway
Case Study: SingTel
- From C5 Consolidation to All IP

- Started with 800K MSAN replacement of old TDM switches
- Introduce central user database to enable fast deployment of new VAS
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Can We Ignore NGN?

Market
- POTS is still the primary revenue generator.
- The most lucrative users still remain in POTS.
- POTS is still popular because it is widely available and affordable.

Network Platform
- NGN is a reliable and stable platform for network transformation.
- It has passed through 5 years of simulation, testing, trial and upgrade.

Differentiated Services
- Flexible platform to create and provision a broad array of VAS.
- Various exciting NGN applications are ready to market.
Summary

Can We Ignore NGN?

Business Planning
- The risk of migration has been thoroughly assessed and minimized.
- NGN network transformation is supported by successful commercial business case from established telecoms.
- NGN migration guarantee smooth service continuity and the subscriber data profile can be fully retained.

Competency
- Reduce the CAPEX and OPEX of the network.
- 100% inherit the traditional PSTN’s basic and supplementary services.
- Innovative voice and non-voice services ensure higher quality of experience

➢ NGN is the most appropriate choice to resolve difficulties currently confronted by operators.
➢ Network operator’s investment in NGN will be protected in IMS smoothly.
Thank You

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Huawei’s contract sales reached US$8.2 billion in 2005, more than 58% of which was from international markets.

For more information, please refer to our web sites http://www.huawei.com