Next generation networks

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Managing Executive:
Network Infrastructure Provisioning
Key drivers

• Lifestyles
• Technology revolution
• Customer service demands
• Regulation
• Changing Business Models
• Service customisation
• Efficiencies
• Flexibility
• Rapid deployment of new services
• Customer self help / configuration
• Cost reduction
• New services
# The NGN opportunity

<table>
<thead>
<tr>
<th>Specific services</th>
<th>Traditional</th>
<th>NGN</th>
<th>NGN impact/ advantages</th>
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<tbody>
<tr>
<td><strong>Voice services</strong></td>
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<tr>
<td>Voice service</td>
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<td>✔</td>
<td>New VPN services are more cost efficient and gaining market share</td>
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<td>5 nine reliability</td>
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<td>Caller ID</td>
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<td>E-911</td>
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<td>Hosted PBX</td>
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<td>✔</td>
<td>Hosted IP-PBX services are more cost-efficient than small on-site analogue PBXs (investment, maintenance) and less expensive than legacy centrex offerings</td>
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<td><strong>Data services</strong></td>
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<tr>
<td>Constant Bit Rate</td>
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<td>IP allows rapid deployment and flexible pricing for a broader range of applications</td>
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<tr>
<td>Internet</td>
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<tr>
<td>Unified messaging</td>
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<tr>
<td>Instant messaging</td>
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<td><strong>Multimedia</strong></td>
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<tr>
<td>Video on demand</td>
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<td>IPTV</td>
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<td>Conference anytime at minimum costs through flexible administration of bandwidth</td>
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<td>Web conferencing</td>
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<tr>
<td>Video conferencing</td>
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<tr>
<td>Multiparty calling</td>
<td>✔</td>
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<tr>
<td><strong>Features</strong></td>
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<tr>
<td>Broadband</td>
<td>✔</td>
<td>✔</td>
<td>More convenience through new user experience</td>
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<tr>
<td>QOS (Latency)</td>
<td>✔</td>
<td>×</td>
<td>Ubiquitous access to centrally administered directory data, e-mail, etc.</td>
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<tr>
<td>Global number</td>
<td>×</td>
<td>✔</td>
<td>Ability to use your landline phone and phone number anywhere with an IP connection (“follow-me” service)</td>
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<tr>
<td>Fixed Line</td>
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<td>✔</td>
<td>Freedom of choice</td>
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<td>Differentiation</td>
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<tr>
<td>Fixed &amp; Mobility</td>
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</table>

* IVR Interactive voice response

EXAMPLE

- Constant Bit Rate
- Internet
- Unified messaging
- Instant messaging
- Video on demand
- IPTV
- Web conferencing
- Video conferencing
- Multiparty calling
- Broadband
- QOS (Latency)
- Global number
- Fixed Line
- Differentiation
- Fixed & Mobility

- New VPN services are more cost efficient and gaining market share
- IP allows rapid deployment and flexible pricing for a broader range of applications
- Hosted IP-PBX services are more cost-efficient than small on-site analogue PBXs (investment, maintenance) and less expensive than legacy centrex offerings
- Interoperability between various media creates new user experience
- Conference anytime at minimum costs through flexible administration of bandwidth
- More convenience through new user experience
- Freedom of choice
What is an NGN: the ITU/ATIS definition

- **Packet-based** transfer
- **Separation** of control functions among bearer capabilities, call/session, and application/service
- **Decoupling** of service provision from network, and provision of open interfaces
- Support for a wide range of services, applications and mechanisms based on service building blocks (including real time/streaming/non-real time services and multi-media)
- **Broadband** capabilities with end-to-end QoS (Quality of Service)
- **Interworking** with legacy networks via open interfaces
- Generalised **mobility**
- **Access** to different service providers, independent of any access or transport technology.
- A variety of **identification** schemes
- **Unified service** characteristics for the same service as perceived by the user
- Converged services between **Fixed/Mobile**
- **Independence** of service-related functions from underlying transport technologies
- Support of multiple **last mile** technologies
- **Compliant with all Regulatory requirements**, for example concerning emergency communications, security, privacy etc
Primary product domains & services enabled by NGN

- Voice
- VPN
- Broadband Access
- Bandwidth on Demand
- Intranet & Voice over broadband
- Triple Play, Content, streaming, IPTV, VoD
- LAN Care
- VPN Clear & EasyVPN
- MVNO
- WiMAX
- ADSS & SHDSL
- Metro Ethernet
- IP Centrix
- PBX Connect
- NGN voice and VoIP
- IP Services
- Content and Media Mate
- Internet
- Converged Services
- Mobility
- SAIX
NGN challenges

- Plethora of enabling technologies
- Obsolete technologies
- OSS, BSS and Network Management Systems
- NGN Services
- Cost of implementation & migration
- Skills
- No implementation blue print, each case is unique
South African hype curve of technology

- Less than 2 years
- 2 to 5 years
- 5 to 10 years
- More than 10 years

Note: Telkom acknowledges that the hype curve is intellectual property of Gartner
South African hype curve of service offerings

Here today
Less than 2 years
2 to 5 years
5 to 10 years
More than 10 years

Note: Telkom acknowledges that the hype curve is intellectual property of Gartner
Convergence occurs primarily on 3 layers

**Network**
- Management
- Legacy data
- Broadband
- Enterprise
- IP
- POTS
- Wireless

**Device**
- Laptop
- Camera
- iPod
- Mobile
- PDA
- Credit card
- Phone

**Service**
- Broadcast
- Content
- Voice
- Video
- Data
IP makes convergence happen

Content & Voice Voice ERP over
Broadcast (PSTN) (Mobile) Data

Unified data & customer view

Simplified Converged Applications

Single sign-on

All IP full service architecture

Technologies facilitating inter-working

Access Agnostic

ERP over Data Voice (PSTN) Voice (Mobile) Content & Broadcast

Unified data & customer view

Simplified Converged Applications

Single sign-on

All IP full service architecture

Technologies facilitating inter-working

Access Agnostic

AToM WiFi-SIP UMA GMPLS
Application Capable Full Service Architecture

**Current → 2009**

**OSS**
- Hosting
- Security
- AAA
- DNS
- Cache
- Soft-switch
- IN
- ESP
- SMSC
- NIVR

**Media & Applications**
- IN NIVR
- Soft-switch
- AAA DNS

**Service Enablers**
- Hosting
- Security
- AAA
- DNS
- Cache
- Soft-switch
- IN
- ESP
- SMSC
- NIVR

**IP Network**
- WiFi
- Satellite
- WiMax

**Wireless**
- WiFi
- Satellite
- WiMax

**Wireline**
- PSTN
- Diginet
- ATM
- Frame Relay
- Ethernet
- DSL
- NGSDH & Metro WDM

**Core**
- SDH
- NGSDH & DWDM
- ATM

**High Speed, Service Agnostic**

**Integrated & Intelligent**

**Customer**
- Residential
- Remote Worker
- Small Office
- Enterprise

**Physical Aggregation**
By 2010

Application Capable Full Service Architecture

Service Enablers
- Hosting
- Security
- AAA
- DNS
- Cache
- Soft-switch
- IN
- ESP
- SMSC
- NIVR

Media & Applications

Core
- NGSDH & DWDM
- High Speed, Service Agnostic

IP Network
- Core

Wireline
- Ethernet
- DSL
- NGSDH & Metro WDM
- Physical Aggregation

Wireless
- WiFi
- Satellite
- WiMax++

Customer
- Residential
- Remote Worker
- Small Office
- Enterprise
- Integrated & Intelligent

OSS

HSS

IMS

CSCF

Media & Applications

IN

NIVR

ESP

SMSC

Security

AAA

DNS

Cache

Hosting

NGSDH & DWDM

Small Office

Remote Worker

Integrated & Intelligent

Customer

High Speed, Service Agnostic
Evolution to a next generation network

Strategy
• Evolutionary approach through incremental roll-out of NGN
  – Introduce NGN capacity
  – Replacement of legacy networks through:
    • Platform optimisation and reduction
    • Complete replacement of high cost & out-of-life networks

Objectives and 2010 goals
• Attain an ICT-capable NGN network
• Migration to an IP-based NGN will enable Telkom to provide a new range of services and converging voice, data and video as a means of generating incremental revenues
• Network consolidation creates opportunities for significant cost savings