Abstract

NGNs will become reality only if we address how to move from the current infrastructure to the new. Some key elements of achieving NGN while retaining the value of existing investment will be addressed. Another perspective on this is the “green field” environment that exists for new features and services and how NGN overlays can be used to provide these capabilities.
Outline

- Introduction
- ITU-T SG 13 Structure
- Selected Work Items
- Extracts of Draft Recommendations
  - Multimedia, VPN, USN, IP Networks, Risk Analysis
- Summary

Introduction

- Challenge: business case
  - It is nearly always less costly to deploy a service-specific solution when introducing a new service than to deploy a general purpose solution
  - In the mid-1980s, operators were often reluctant to deploy SS7 because a business case based solely on replacing existing signalling systems wasn’t attractive
Instead of a complete solution, ...

... it is tempting to provide a partial solution
Need to look forward!

20/20 Hindsight

Today, it is widely recognized that SS7 was a transforming technology that enables many high revenue network wide services, plus it is the nervous system on which mobile systems depend

“Prediction is very difficult, especially about the future.”

Niels Bohr, Danish physicist, won the Nobel Prize in Physics in 1922*

Lusaka, Zambia; 18-19 May 2009

* Aage Niels Bohr, son of Niels Bohr, also won a Nobel Prize in Physics in 1975

ITU-T SG 13 Structure

WP 1/13 Coordination, Planning and Global Outreach of NGN including Mobile

WP 2/13 Service requirements, scenarios and evolution aspects

WP 3/13 Frameworks and Functional Architectures

WP 4/13 QoS and Security

WP 5/13 Future Networks

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WP 2/13 Service requirements, scenarios and evolution aspects

- Q.3/13 Requirements and implementation scenarios for emerging services and capabilities in an evolving NGN
- Q.12/13 Evolution towards integrated multi-service networks and interworking
- Q.13/13 Step-by-step migration to NGN networks
- Q.14/13 Service scenarios and deployment models of NGN
- Q.18/13 Requirements and framework for enabling COTS components in an open environment

Status of Material in Following Slides

- SG 13 is aggressively working a range of topics
  - Following slides represent work in progress, parts just getting underway, some more mature, but none complete
- OPPORTUNITY:
  - Get involved, participate and drive the work with your requirements, service scenarios, and use cases
Selected Work Items I

- **Q.3/12**
  - **Y.ngn-mcc**: NGN service requirements to support MCC\(^1\) services
  - **Y.ngn-vpn**: VPN\(^2\) service capabilities in NGN mobile environment
  - **Y.USN-reqts**: Requirements for support of USN\(^3\) applications and services in NGN environment

- **Q.12/13**
  - **Y.ipev**: Best effort IP network evolution to NGN

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1. MCC = Multimedia Communication Services
2. VPN = Virtual Private Network
3. USN = Ubiquitous Sensor Network

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Selected Work Items II

- **Q.13/13**
  - The Handbook of evolving IMT-2000 Systems

- **Q.14/13**
  - **Y.2214**: Service requirements and functional models for Customized Multimedia Ring services
  - **Y.cmoip**: Service scenario and use case for high quality mobile VoIP service
  - **Y.hapas**: Heterogeneous application profiles adaptation service scenario over NGN
  - **Y.iptvbs**: Web-based IPTV service brokering scenarios and use cases
  - **Y.iras**: IT Service Risk analysis service scenario over NGN

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Y.ngn-mcc: MCC domains for development and standardization

- Users can access an enterprise’s centralized information or customer service using multiple media. Allows efficient management using automated response or agents.
- Calls are distributed in queues to agent groups. Supervisor agent can monitor and manage other agents.

Y.ngn-vpn: VPN service capabilities in NGN mobile environment

- Identifies NGN capabilities to support VPN applications in NGN mobile environment
- NGN to support:
  - Service configuration for VPN members
  - Wired/wireless tunnel coordination for peer-to-peer compatibility among VPN members
  - QoS/SLA (re-)negotiation for service mobility or upgrades, to ensure seamless VPN service
  - Provision of multiple security levels, as appropriate in response to VPN users’ demands
Y.ngn-vpn Appendix: Scenarios for VPN services in NGN mobile environment

Scenario of a virtual office in an NGN mobile environment

Use of a temporary tunnel for VPN in an NGN mobile environment

Scenario of a personal end-to-end VPN in an NGN mobile environment

Community-based VPN service in NGN wired/mobile environment

Y.USN-reqts: Requirements for support of USN applications and services in NGN environment

- USN is a concept and infrastructure which delivers sensed information and context to enable knowledge development
- Sensor networks to date monitor physical or environmental conditions, (e.g., temperature, sound, vibration, pressure, motion or pollutants) at various locations but as isolated networks. Networked sensor applications allow the development of intelligent information infrastructures enabling new possibilities for consumers, public organizations, enterprises, government, etc.
- USN applications and services integrate sensor networks into a network infrastructure with applications such as industrial or home automation, agricultural monitoring, healthcare, environment, pollution and disaster surveillance, homeland security, etc.
USN Overview

Disaster/crisis management

USN Applications

Logistics, SCM

NGN

USN Middleware

Agricultural control

RFID

USN Directory service

Military Field

RFID Reader

USN Services

Structural health monitoring

Mobile RFID Reader

USN Gateway

Flood modelling

Sensor Networks

National Disaster Management Center

Weather gateway

USN Gateway

Value added network

Use Case: USN Weather Information Service

NGN

Emergency preparation

Global Sensor Network

Emergency detection

Emergency information

National Monitoring Center

National Monitoring Center

Emergency information

Emergency detection

Emergency preparation

Global Sensor Network

Value added network

Emergency information

Emergency detection

Emergency preparation

Global Sensor Network

Value added network

Use Case: USN Weather Information Service

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Use Case: USN Healthcare Service

- Connecting to the Hospital system
- Report Patient Status to the Family
- Notification for Emergency case
- Green IT

Y.ipev: Best Effort IP Network Evolution to NGN

- Widely deployed Best Effort IP (BE IP) networks provide generally low-bandwidth legacy transport technologies and high access network aggregation ratios to provide internet connectivity to as many customers as possible.
- High demand for new multimedia services (IP broadcasting, VoD, multimedia communication, etc.) means more capable networks are required.
- Changeover ("flash cut") of BE IP networks to NGN is impossible, so need:
  - Ways to evolve a BE IP network to NGN
  - General BE IP network evolution architecture
  - Interworking functions and interfaces between a BE IP network and an NGN
  - Security considerations
Phase 1 (separated network)

Phase 2 (access networks interworking)

Phase 3 (core network integration)

Phase 4 (customer premise network and access network integration)
Y.iras: IT Service Risk Analysis
Service Scenario over NGN

- Looks at availability, compliance, security, and application performance.
- Service failure risk: hardware failure, software errors, network outages, data centre failure, poor change management, network outages, network congestion, inadequate capacity, etc.
- Result: failure to deliver service transactions and operations, or slow or inefficient operation leading to abandoned transactions, lost sales, reduced customer, partner, and user confidence.
- Need a systematic service scenario and assessment analysis to mitigate risks.

Service Risk Analysis Scenario Flow

![Service Risk Analysis Diagram](image-url)
Summary

- Migration of services and networks to NGN presents challenges
  - Need to develop scenarios and strategies to move forward
- SG 13, the lead SG on NGN, has a WP addressing these areas
- Have highlighted current work
  - Opportunity - get involved: participate and drive the work with your requirements, service scenarios, and use cases