NGN services: New concepts and NGN open service environment

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AGENDA

- NGN Services and capabilities
- NGN Open service environment
- Conclusion and future items
Transition to NGN: Third wave

One network for everything

Today
- Internet
- Telephone network
- Mobile radio network

Tomorrow
- IP-Network

Multimedia Access - Advantage:
- easy to handle
- reliable
- mobile
Service Shift as consequence of NGN

- Services are typically “vertically integrated”
- Require specific infrastructure components for their delivery

- Horizontal Convergence: services are no more vertically integrated
- Network functions are componentized
- New paradigm: standard “capabilities” as service enabling toolkit
NGN service standardization

- Not just a new voice network
- “Service level equal or better than in circuit-switched networks”
- Services specified in terms of required “capabilities”
- Service definitions not an objective like in legacy world
4-Key aspects of NGN Architecture

Scalable
- Granular and modular
- On the fly enhancements
- Flexibility

Reliable
- Carrier grade
- High availability
- Trust

Openness
- Standard interfaces and protocols
- Plug-n-play

Quality of Service (QoS)
- Consistent performance
- Preservation of key information parameters
The concept of “Capabilities” as re-usable building blocks for applications/services
Features

A reusable set of Capabilities
- Objective to reduce service development costs

Towards an Open Service Environment for flexible and agile service creation, execution and management
- (Open) Service platform concept
- “Rapid change” is key for satisfying changing customer needs
- New business opportunities
Towards an open service environment in NGN
Towards NGN OSE- 1/2

“Open service environment” for flexible and agile service creation, execution and management

- Leveraging new capabilities enabled by technologies of different worlds
- Exposure of capabilities via standard application network interfaces
- Portability and re-usability of capabilities across networks
- Flexible development of applications and capabilities by NGN Providers as well as by Application Providers
Towards NGN OSE- 2/2

Types of service creation environments recommended to be supported in NGN

- IN-based service creation environment
- IMS-based service creation environment
- Open service creation environment
Opening the NGN service environment

How to open

• Adopting a Service Oriented Architectures (SOA) framework from the IT world and enhance it as appropriate -> Telecom SOA
• Using Web Services (WS) as implementation tool set of the Telecom SOA framework
  — other tools are not excluded

What to open (expose)

• Applications <-> Network capabilities (NGN)
  Telecom APIs
• Network capabilities <-> Network capabilities
Service Oriented Architectures

- Framework was developed in the IT world
- Resources are made available to other participants in a network via independent services, accessed in a standardized way
- Systems comprise loosely joined, highly interoperable services
- Attractive to businesses because:
  - Cross-platform
  - Highly reusable
- Identify Web Services as the means for realizing a SOA
Web Services

- Simple XML-based messages for machine-machine messaging, acting as XML-based APIs
- Use standard Internet technologies to interact each other dynamically, openstandards connect disparate platforms
- Have well understood security model
- Are loosely coupled, can be combined to form complex services
We see a growing market success of middleware based on Web Services (e.g. eBay, Amazon and Google are major users of Web Services)

WS enhancements are needed to support Telco SOA requirements
Service requirements for NGN OSE
The Emerging Services for NGN (1/2)

- **Specialized resource services** (provision and management of transcoders, multimedia multipoint conferencing bridges, media conversion units, voice recognition units, etc.)
- **Processing and storage services** (provision and management of information storage units for messaging, file servers, terminal servers, OS platforms, etc.)
- **Middleware services** (naming, brokering, security, licensing, transactions, etc.)
- **Application-specific services** (business applications, e-Commerce applications, supply-chain management applications, interactive video games, etc.)
The Emerging Services for NGN (2/2)

- **Content provision services** that provide or broker information content (electronic training, information push services, etc.)

- **Interworking services** (for interactions with other types of applications, services, networks, protocols, or formats)

- **Management services** to maintain, operate, and manage communications/computing networks and services.
Service requirements for NGN OSE (1/3)

- Provide standard APIs for application providers and developers, and potentially end users
- Provide service level interoperability underlying different networks, operating systems and programming languages
- Support service independence from NGN providers and manufacturers
- Support location, network and protocol transparency
- Support OSE capabilities based on NGN providers’ capabilities
Service requirements for NGN OSE (2/3)

- Provide secure access to open service environment capabilities satisfying the general NGN security requirements
- Provide capabilities for coordinating services among themselves and applications services
- Provide the means to manage the registration of capabilities, services and applications
- Support service discovery capabilities to allow users and devices to discover applications, services and other network information and resources of their interest
Service requirements for NGN OSE (3/3)

- Provide service management capabilities
- Provide service composition capabilities to flexibly compose services and capabilities
- Offer an efficient development support environment which supports application construction, trialing, deployment, removal
- Allow interworking with service creation environments
- Support policy enforcement capability for resources protection and management, and service personalization
Functional Component of the NGN OSE functional Group

- Service Coordination
- Service Discovery
  - Service Registration
  - Service Management
  - Service Composition
  - Service Development Support
  - Internetworking with Service Creation Environment
  - Policy enforcement
Conclusion

Towards an open service environment in NGN

- Service Oriented Architectures (SOA) as framework
- Web Services (WS) as implementation tool set

SOA and WS will enable new business revenues within the integrated IT+C environment

- but bring new challenges to standards development
Way Forward

ITU-T has started work in this direction

- NGN OSE and other developments

Various other SDOs, Forums, and Consortia are involved in this space

- standards convergence and harmonization are essential

- ITU-T collaboration with other SDOs has started to integrate relevant specifications with the NGN standardization framework
Thank you

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