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"NGN and Broadband, Opportunities and Challenges"
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NGN services: New concepts and NGN open service environment
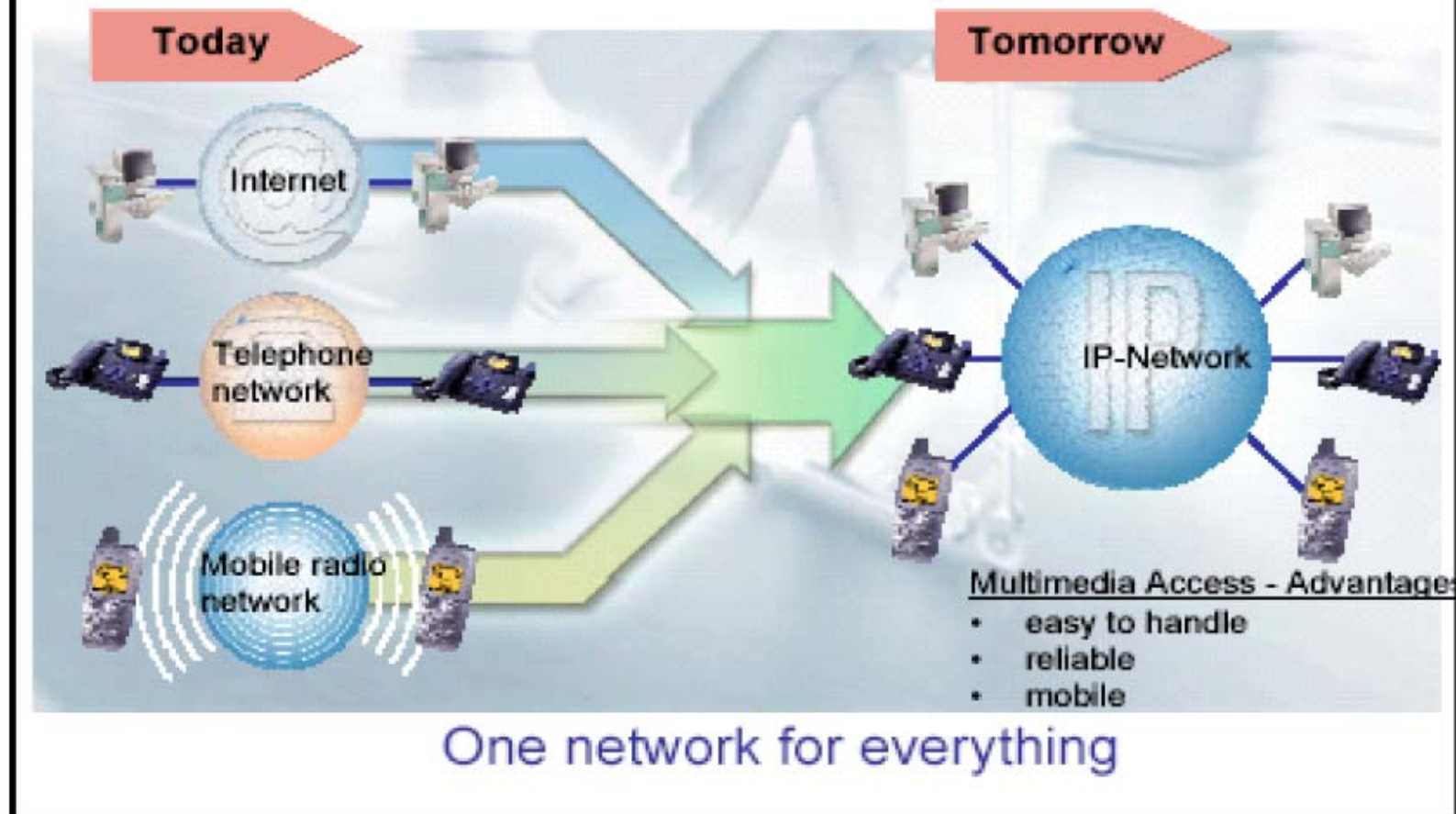
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AGENDA

- NGN Services and capabilities

- NGN Open service environment

- Conclusion and future items

Transition to NGN: Third wave

One network for everything

Service Shift as consequence of NGN

Today

> Services are typically "vertically integrated"
> Require specific infrastructure components for their delivery

NGN

> 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
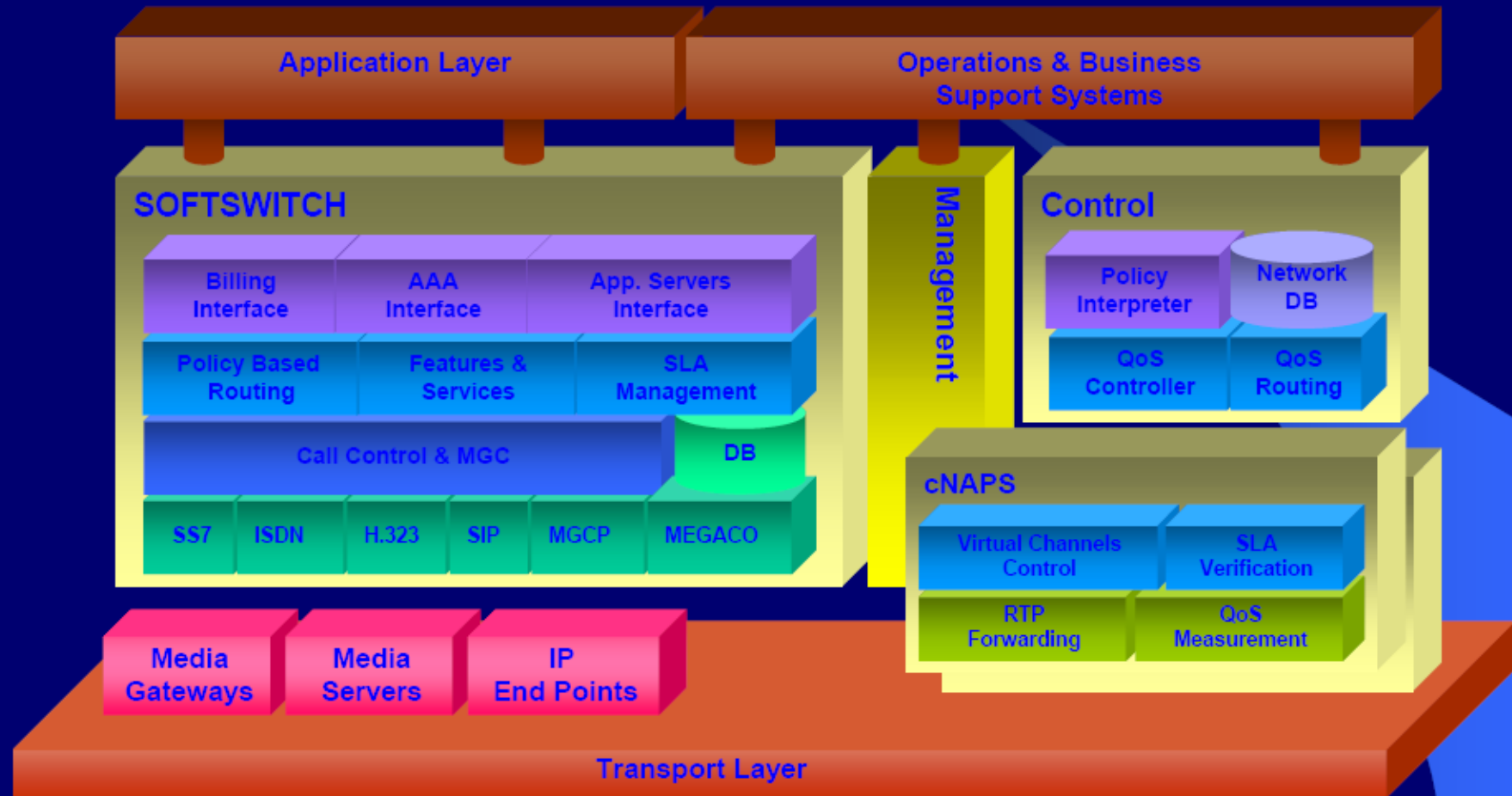
Openness

➢ Standard interfaces and protocols
➢ Plug-n-play

Quality of Service (QoS)

➢ Consistent performance
➢ Preservation of key information parameters

Simplified NGN Architecture — Convergent Architecture

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 onferencing 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

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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