

E3-E4 CFA TECHNICAL NGN ARCHITECTURE

WELCOME

- This is a presentation for the E3-E4 CFA TECHNICAL Module for the Topic: NGN ARCHITECTURE .
- Eligibility: Those who have got the Upgradation from E3 to E4.
- This presentation is last updated on 15-3-2011.
- You can also visit the Digital library of BSNL to see this topic.

AGENDA

- Why NGN is Required
- Various NGN Element
- Architecture of NGN
- Fundamental aspects of NGN

INTRODUCTION

- PSTN network is mainly optimized for voice calls and not much suited for data services. We have a separate network for data services.

NGN

- NGN Stands for Next Generation Network and this network will be purely based upon packet switching network

Why NGN is required?

- NGN concept takes into consideration new realities in the telecommunication industry characterized by factors such as: the need to converge and optimize the operating networks and the extraordinary expansion of digital traffic.

Why NGN is required?

- The major factor is increasing demand for new multimedia services, increasing demand for mobility, etc.
- The customers demand for new services is increasing and that too at less cost.

Why NGN is required?

Therefore there is a need for a network which has a capability to develop services and able to extend it to the end user independent of the other part of the network. This is achieved through the concept of NGN..

Why NGN is required?

PROBLEMS WITH EXISTING N/W

- Slow to develop new features and capabilities.
- Expensive upgrades and operating expenses.

Why NGN is required?

- Proprietary vendor troubles
- Large power and cooling requirements.
- Limited migration strategy to New tech.
- Model obsolescence

What is NGN?

- **ITU's Definition of NGN:** A Next Generation Network (NGN) is a packet-based network able to provide Telecommunication Services to users and able to make use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent of the underlying transport-related technologies .

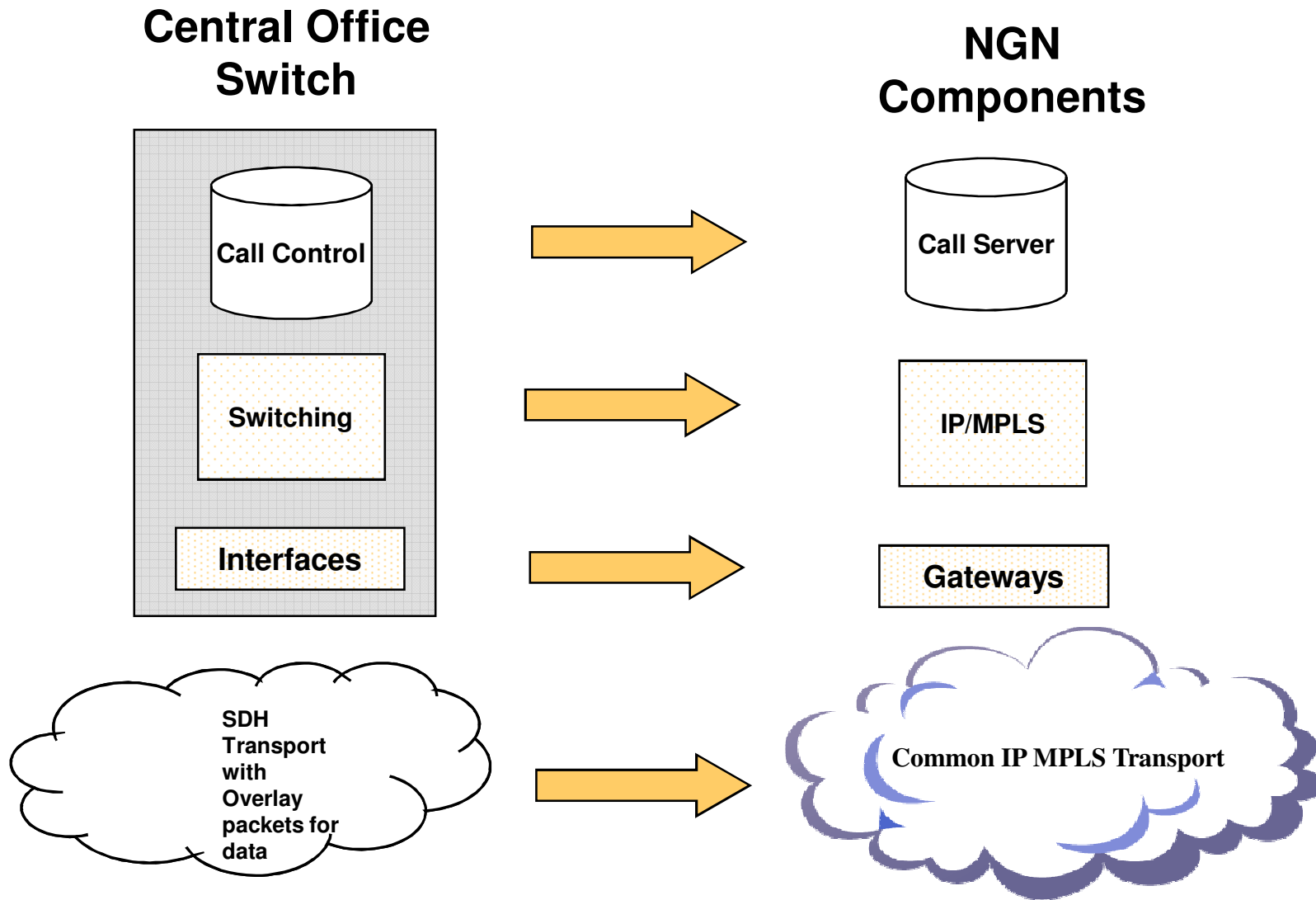
What is NGN?

- It enables unfettered access for users to networks and to competing service providers and services of their choice. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.

What is NGN?

- **ETSI's Definition of NGN** As per ETSI NGN is a concept for defining and deploying networks, which due to their formal separation into **different layers** and planes and use of **open interfaces**, offers service providers and operators a platform, which can evolve in a step-by-step manner to create, deploy and manage innovative services.

NGN Concept



For internal circulation of BSNL only

FUNDAMENTAL ASPECTS

- Interworking with legacy networks via open interfaces
- Generalized mobility
- Unfettered access
- Converged services between Fixed and Mobile networks.
- Independence of service-related functions from underlying transport technologies.

FUNDAMENTAL ASPECTS

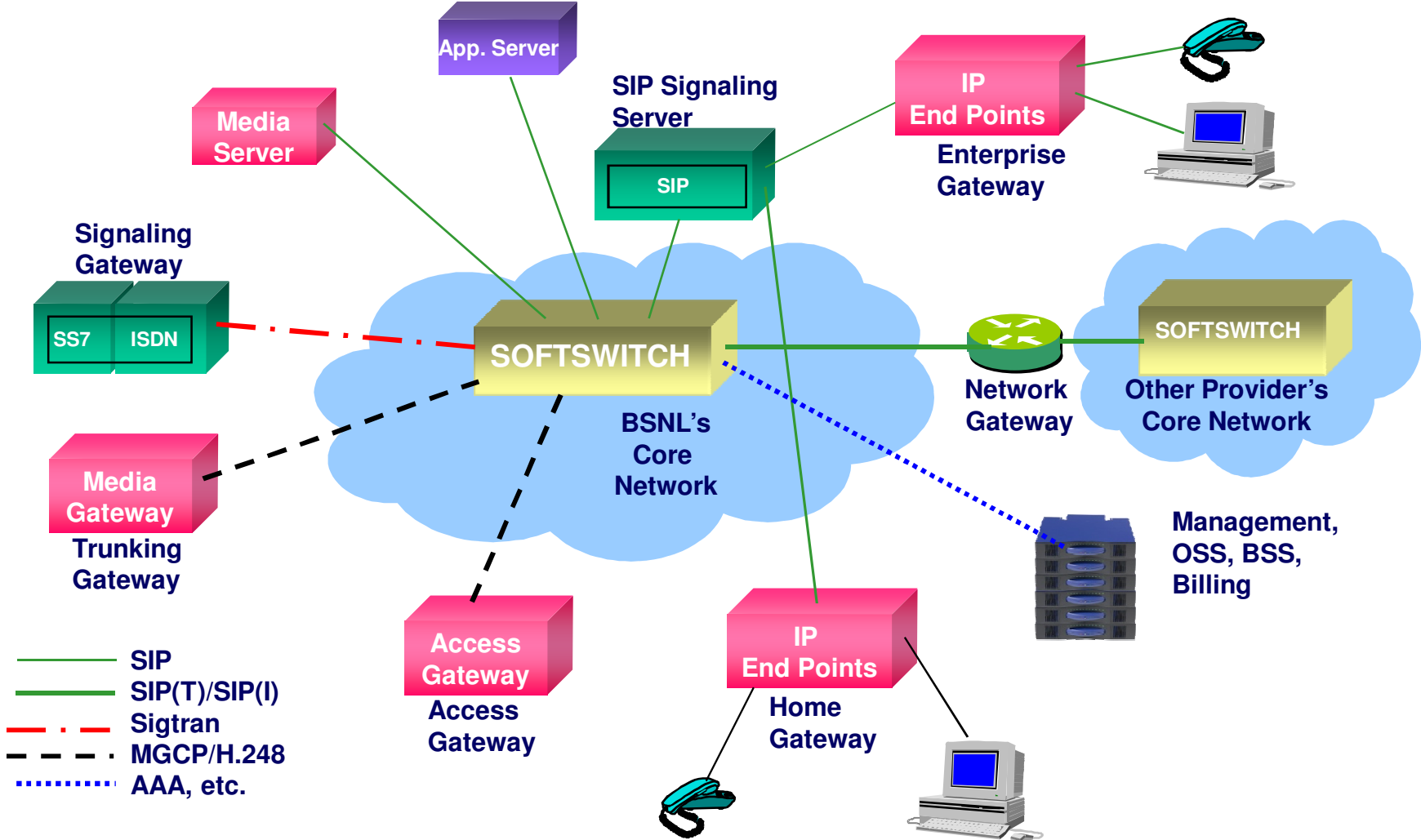
- Support of multiple last mile technologies .
- Access by users to different service providers
- Compliant with all Regulatory requirements, for example concerning emergency communications and security/privacy, etc.

NGN Functional Reference Architecture



- **Service Stratum:** Dealing with the service/application and call control functions of the call.
- **Transport Stratum:** Dealing with the transport or switching and access Functions of the call. The Network Access and Attachment Function (NAAF) is used for authentication and authorization of the user..

NGN: Architecture



NGN Architecture

Soft Switch

- Central to the NGN architecture is the Soft Switch, which is also known as call server, Call Agent or Media Gateway Controller. That Performs Call control, signaling and interworking, Traffic measurement and recording functions
- Provides Addressing, Analysis, routing and charging facilities

NGN Architecture

Trunk Media Gateway

- Performs the functions of
- Voice encoding & Compression
- Packetization of voice channels

Signaling Gateway

- Provides interworking function between SS7 network and IP network

NGN Architecture

Access Gateway

- Providing interface to an Access network like DLC, AN RAX, RSUs, ISDN PRI. The interface is based on E1 or STM-1.

Line Access Gateway

- Line Access Gateways provide the interface to a single subscriber line. It is a two wire interface .

NGN Architecture

The protocols used are:

- Between Softswitch and media gateway – H.248/MGCP
- Between two Softswitches - SIP(T) or BICC
- Between Softswitch and Signaling gateway - Sigtran suite of protocols
- Between Softswitch and Application server- sip, parley etc.
- Between two media gateways for actual packet transfer- RTP/RTCP

