

**E4-E5 (CFA)**

**NGN MIGRATION**

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# AGENDA



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- Introduction
  - Features of Existing scenario.
  - Why Migration is required.
  - Strategy of migration from PSTN TO NGN
  - What are the different network elements involved
  - Different related issues related to migration
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# INTRODUCTION

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Telecom Network Operators are in the process of migration to NGN (Next Generation Network), to provide multimedia and innovative value added services to their customers .

# INTRODUCTION

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Presently most of the fixed line subscribers are served by TDM exchanges deployed through out the country.

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# Features of existing scenario

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In the existing PSTN/ISDN network, subscribers are connected to the main telephone exchange either directly or through access network consisting of RSU/RLU or AN.

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# Features of existing scenario

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signaling between RSU/RLU and main exchange is vendor specific, hence RSU/RLU of one vendor can not be connected to main exchange of other.

# Features of existing scenario

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some access networks support V5.2 interface and hence can inter work with the switch of any other vendor.



# Features of existing scenario

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Voice traffic is transported over PSTN and controlled by a hierarchy of local exchange (LE) and trunk exchange (TE) circuit switches. All the voice related signalling network (ISUP and INAP) is handled by the CCS7 signalling network..

# Features of existing scenario

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Value Added Services are provided either by switches or through the Intelligent Network (IN).

# Features of existing scenario

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NGN supports variety of end user equipment, from legacy terminals to sophisticated mobile terminals, IP phones and computers.

# Features of existing scenario

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Various communicating patterns, such as one-to-one, one-to-many, many-to-many and many-to one are possible. Open and standard interfaces and APIs to interconnect within and outside the network is another important feature of NGN.

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# Why Migration is required

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- Network convergence – one network for voice, data and video
  - OPEX and CAPEX savings
  - New service opportunities
  - Non availability of spare parts of the exiting TDM exchanges
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# NGN

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

# Why NGN is required?

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

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# Why NGN is required?

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The major factor is increasing demand for new multimedia services, increasing demand for mobility, etc.



# Why NGN is required?

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The customers demand for new services is increasing and that too at less cost.

# Why NGN is required?

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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..

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# Strategy of migration

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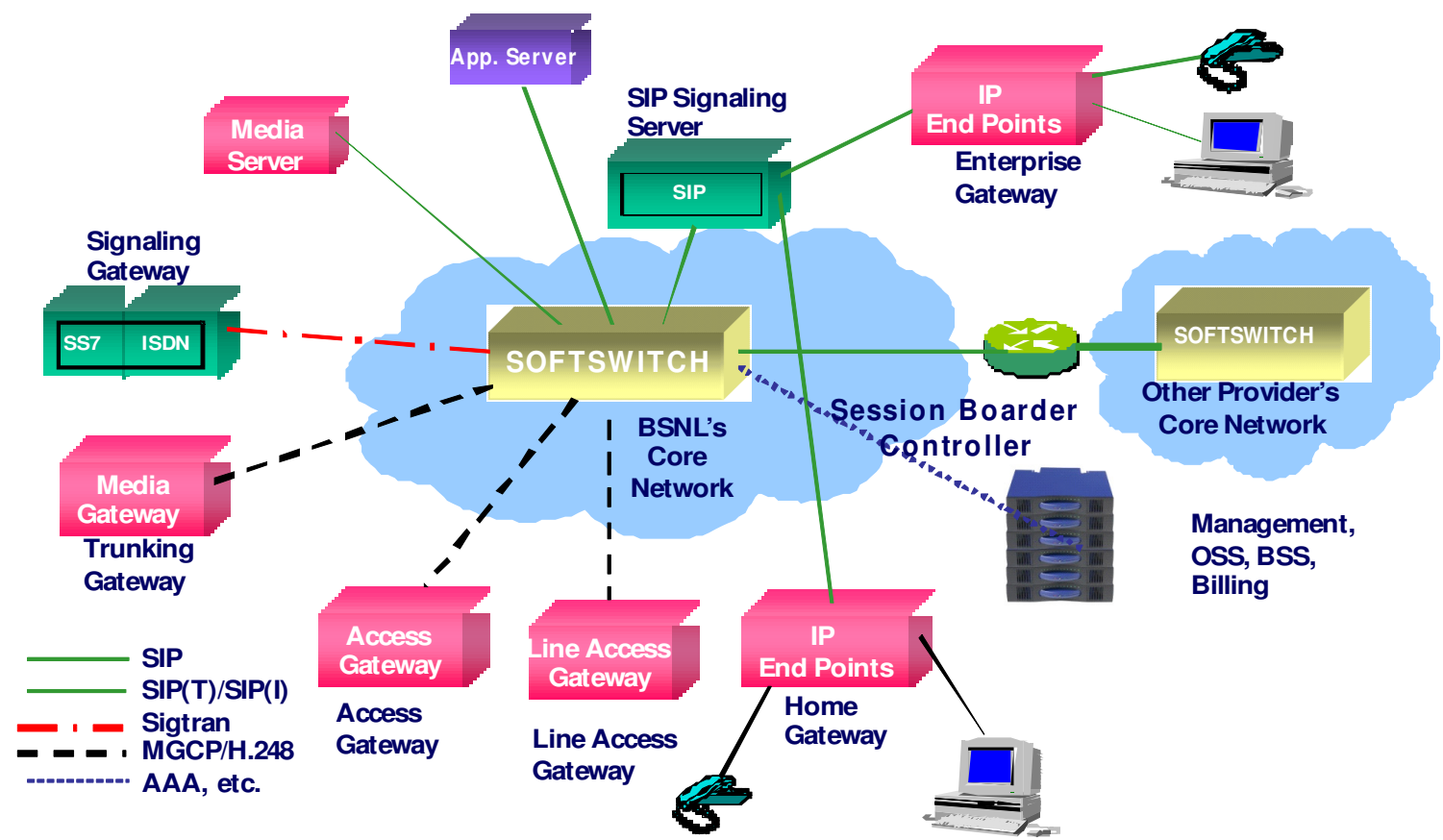


**Migration from PSTN to NGN can be achieved in two different stages**

- **Migration of Trunk Exchanges (class 4)**
- **Migration of Local Exchanges (class 5)**

# Different network elements involved

## NGN: Soft Switch Architecture



# Different network elements involved



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- **Soft switch**
  - **Also known as Call Agent or Media Gateway Controller**
  - **Performs Call control, signaling and interworking, Traffic measurement and recording functions**
  - **Provides Addressing, Analysis, routing and charging facilities**
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# Different network elements involved

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- **Trunk Media Gateway**

**Performs the functions of**

- Voice encoding & Compression
- Packetization of voice channels

# Different network elements involved

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## Signalling Gateway

- Provides interworking function between SS7 network and IP network

# Different network elements involved

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- **Access Gateway**

## Performs the functions of

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



# Different network elements involved

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

# Different network elements involved

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**The protocols used are:**

- **Between Softswitch and media gateway**
  - **H.248/MGCP**
- **Between two softswitches - SIP(T) or BICC**

# Different network elements involved

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# Different network elements involved

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## 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
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# Different network elements involved

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# Related issues

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## QoS (Quality of Service)

The basic criterion for QoS evolution is 'subjective user satisfaction', e.g. speed, accuracy, reliability, and security. This involves identification of parameters that can be directly observed and measured at the point at which the service is accessed by users and network providers.

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# Related issues

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## QoS (Quality of Service)

These factors need to be taken into account when agreeing on parameters for, and levels of, QoS for NGN.

# Related issues

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## Interoperability

NGN will involve a broad series of protocols (including various profiles) at both service and network levels, it is essential to ensure interoperability between different systems and networks.

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# Related issues

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## Security

Security is as crucial to the NGN as it is in today's network environment. The very wide scope of this topic, combined with the number of SDOs (standards development organisations) already involved,

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# Related issues

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## Security

underlines the strategic importance of this subject. Within the NGN, security issues interrelate with architecture, QoS, network management, mobility, charging and payment.

# Related issues

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## Generalized Mobility

NGN will give users and devices the ability to communicate and to access services irrespective of change of location or technical environment.



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