

E3-E4
Consumer Mobility
3G Concepts

WELCOME

- This is a presentation for the E3-E4 CM Module for the Topic: '3G Concepts'.
- Eligibility: Those who have got the Up-gradation from E3 to E4.
- This presentation is last updated on 22-3-2011.
- You can also visit the Digital library of BSNL to see this topic.

AGENDA

- What is 3G?
- 3G Network Architecture
- BSNL 3G services

What is 3G?

3G is the third generation of wireless network technology that provides :

- High speed bandwidth .
- High data transfer rates .
- Good Quality multimedia services

Data transfer rates in 3G

3G wireless networks support the following maximum data transfer rates:

- 2 Mbits/second to Fixed or Indoor environment.
- Up to 384 Kbits/ second for slowly moving devices, such as a handset carried by a walking user or urban environment.
- 144 Kbits/second for fast moving devices, such as handset in moving vehicles or for wide area mobile environment.

Advantages of 3G

3G networks offer the users advantages such as:

- New radio spectrum.
- More bandwidth, security and reliability.
- Interoperability between service providers.
- Fixed and variable data rates.
- Asymmetric data rates.
- Backward compatibility of devices with existing networks.
- 3G uses IP connectivity. IP is packet based.
- Rich multimedia services.

Implementation Issues of 3G

There are some issues in deploying 3G:

- The cost of upgrading base station and other infrastructure to 3G is very high.
- Requires different handsets.
- 3G handsets are complex product.
- Roaming and making both data/voice works has not yet been fully and seamlessly operational.
- Base stations need to be closer to each other thus involving more cost.

Potential Killer Applications in 3G

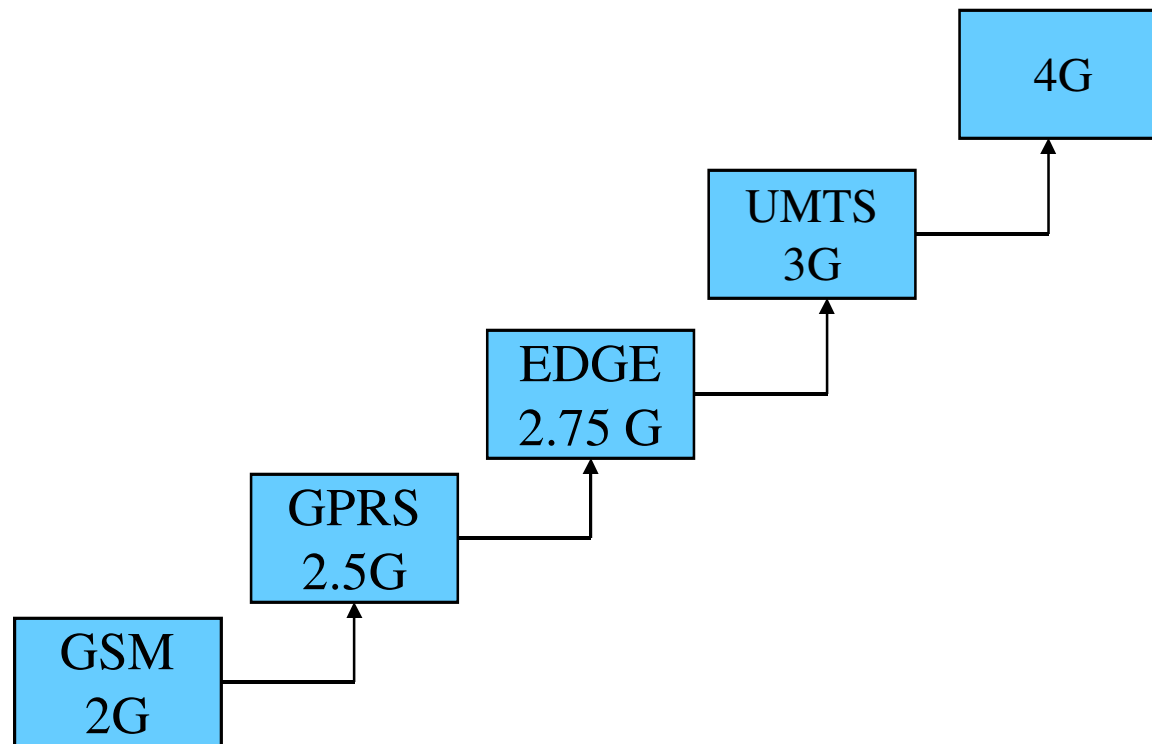


Some of the killer applications for 3G services are :-

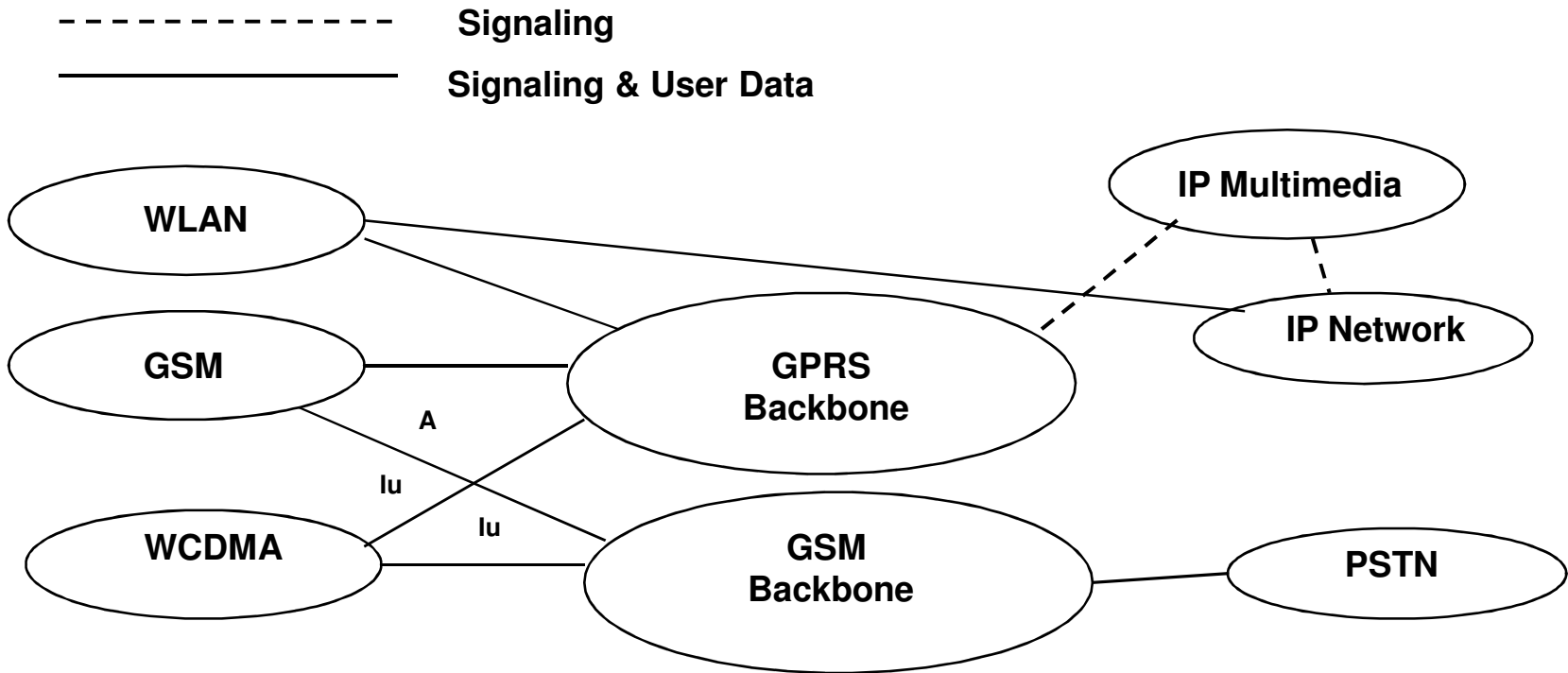
- video conferencing
- video messaging
- Interactive online gaming.

Evolution Path from GSM to UMTS

The GSM Growth Phases



UMTS networks and domains



UMTS Band

UMTS band used in India

Uplink 1920 MHz – 1980 Mhz

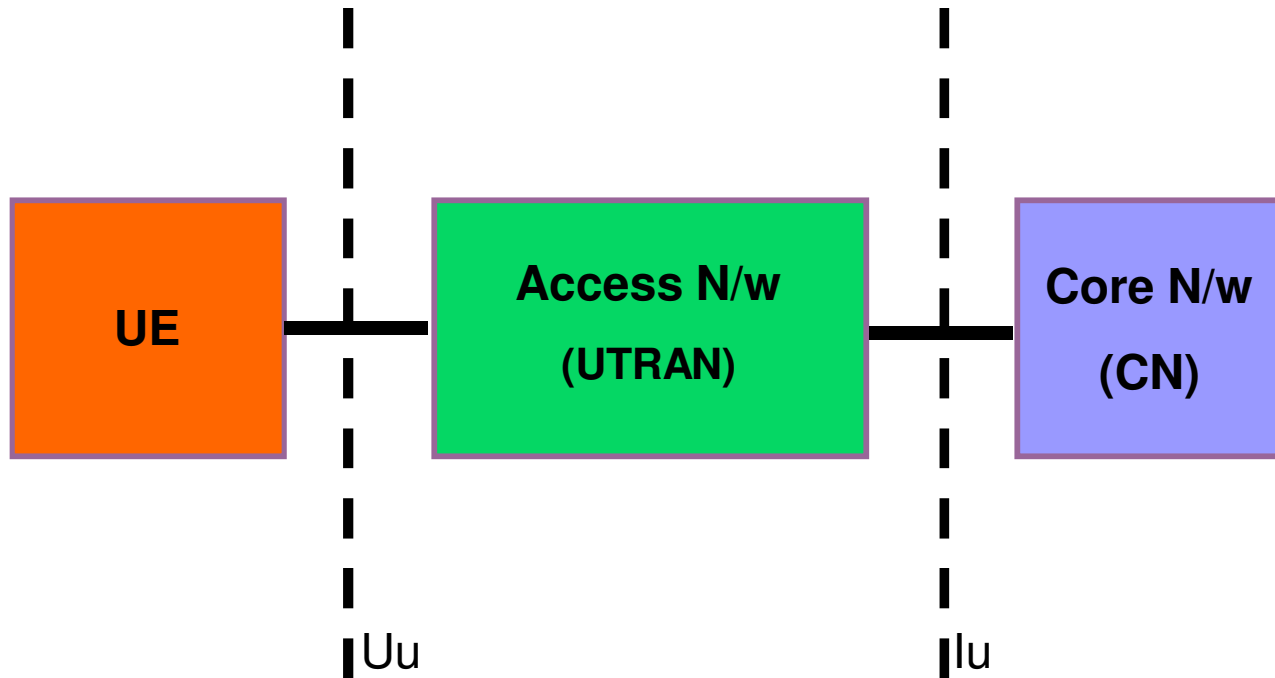
Downlink 2110 Mhz – 2170 Mhz

Bandwidth 60 Mhz

Carrier size 5 Mhz

Total No. of Carriers 124

UMTS Network Architecture



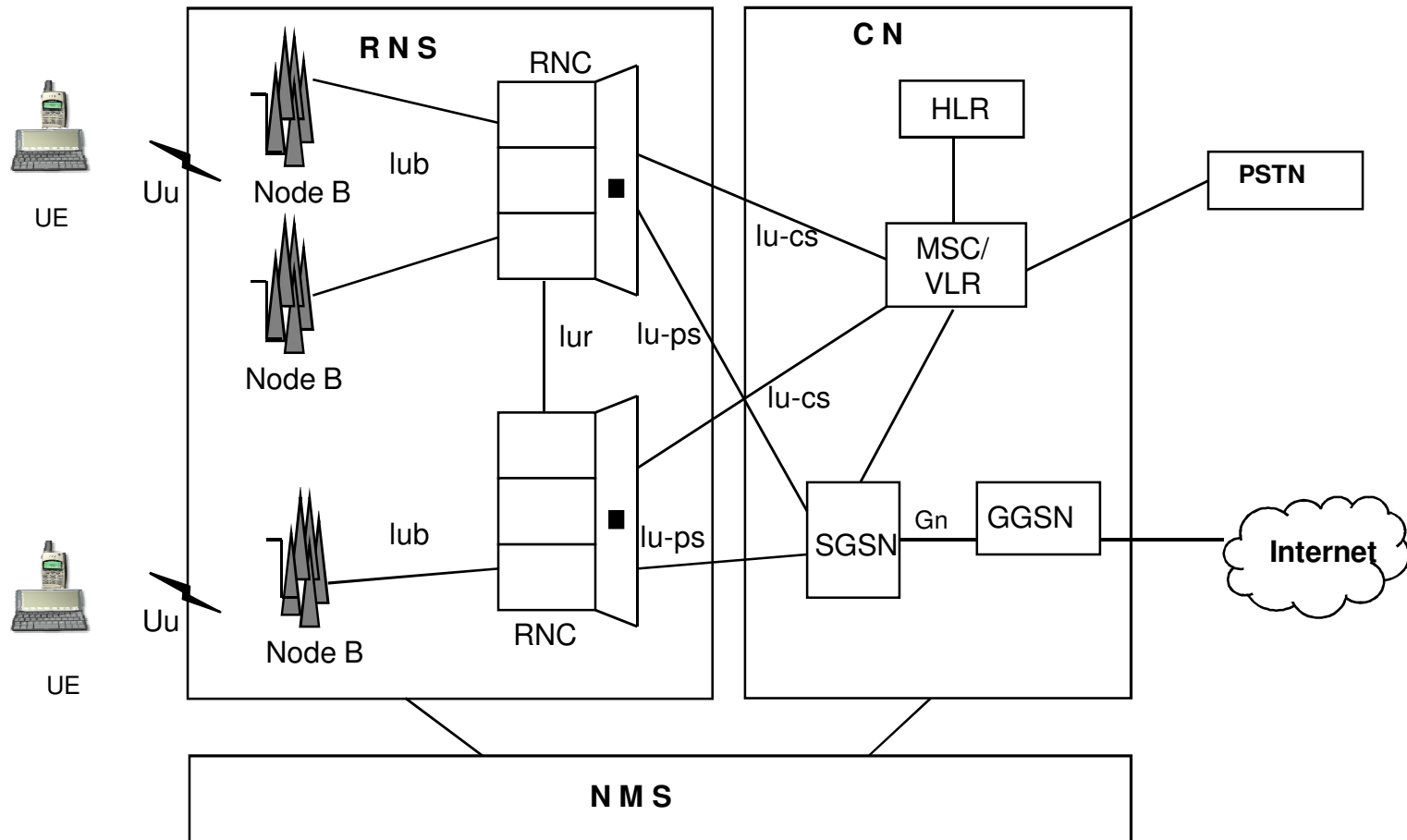
UE – User Equipment

RAN – Radio Access Network

UTRAN – UMTS Terrestrial RAN

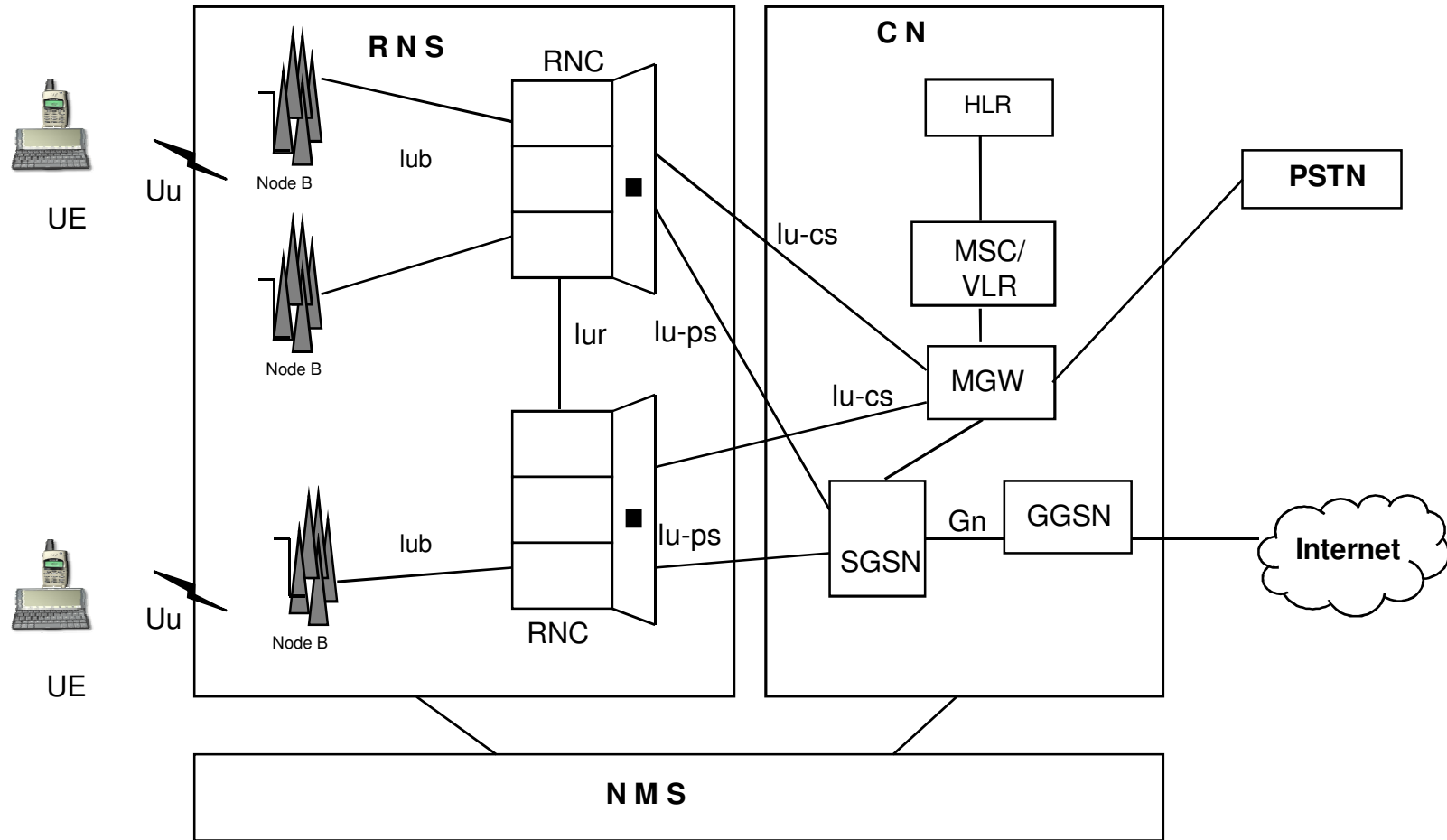
CN – Core Network

UMTS Network Architecture



Network Architecture for 3G (Monolithic MSC environment)

UMTS Network Architecture



Network Architecture for 3G (MSS environment)

Core Network

The basic function of core network can be broadly classified as follows:

- Switching and routing
- Call Control
- Mobility Management (MM)
- Managing the Subscriber Information

RAN Functionality

Important and essential functions of RAN:

- Transfer of user data
- Mobility Management & Handover functions
- Radio Resource Management
- Security functions
- Power control

BSNL 3G Services

Important Facts about BSNL 3G Services

- BSNL 3G services is available in post paid and pre-paid schemes.
- For technical support on 3G, BSNL is having Customer Care Center/BSNL 3G Experience Centers.
- User can get broadband experience with speed better than 384 kbps.
- BSNL is also providing USB / Data Card through BSNL's vast franchisee Network.
- BSNL 3G network provides connectivity between the handset and the internet cloud and is fully secure.

BSNL 3G Services

Important Facts about BSNL 3G Services

- With BSNL 3G services user can play videogames, create videogames, pay utility bills, do mobile banking.
- You can access CCTV footage or any other similar application by using 3G service.
- BSNL is offering 3G services in more than 602 cities all over India, covering almost all the major part of India.
- BSNL 3G subscriber base is of about 16.65 lakhs subscriber.
- BSNL 3G expansions is still going on.

