SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE NAME :19EE603 IoT for Electrical Engineers

III YEAR /VI SEMESTER

Unit 3- Communication Interface

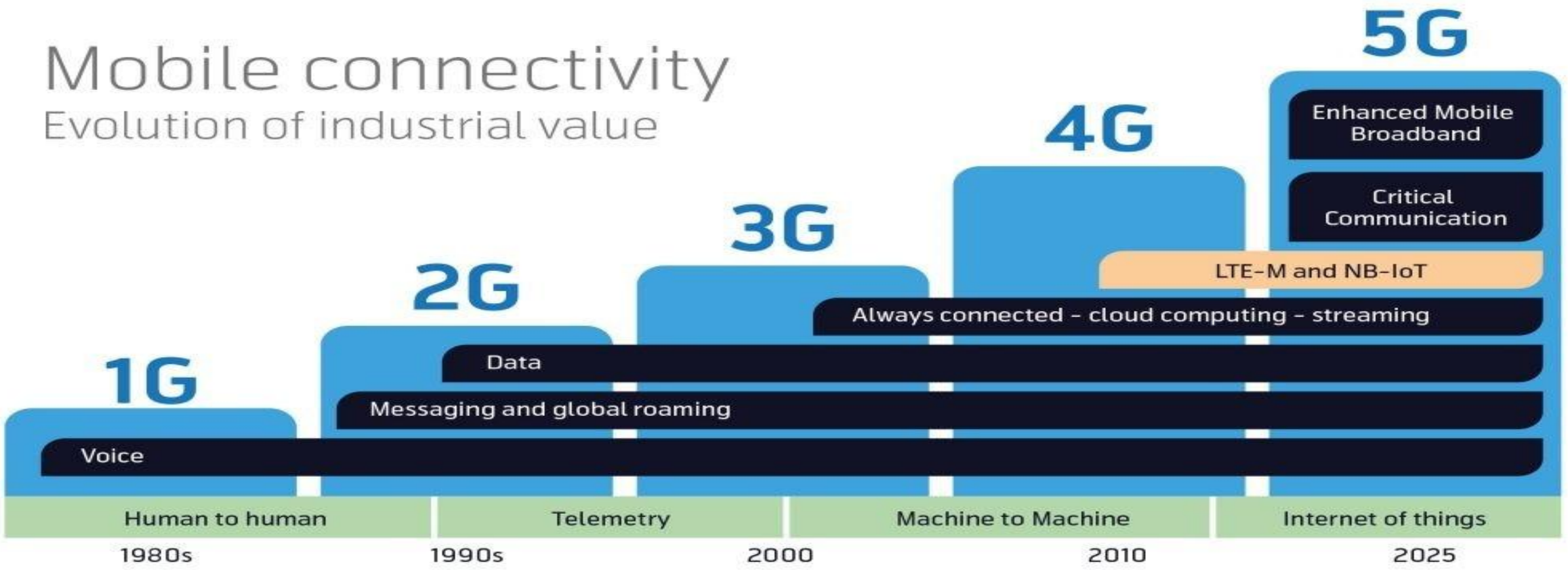
GSM

What is GSM??

GSM

- GSM (**Global System for Mobile communication**) is a digital mobile network that is widely used by mobile phone users in Europe and other parts of the world.

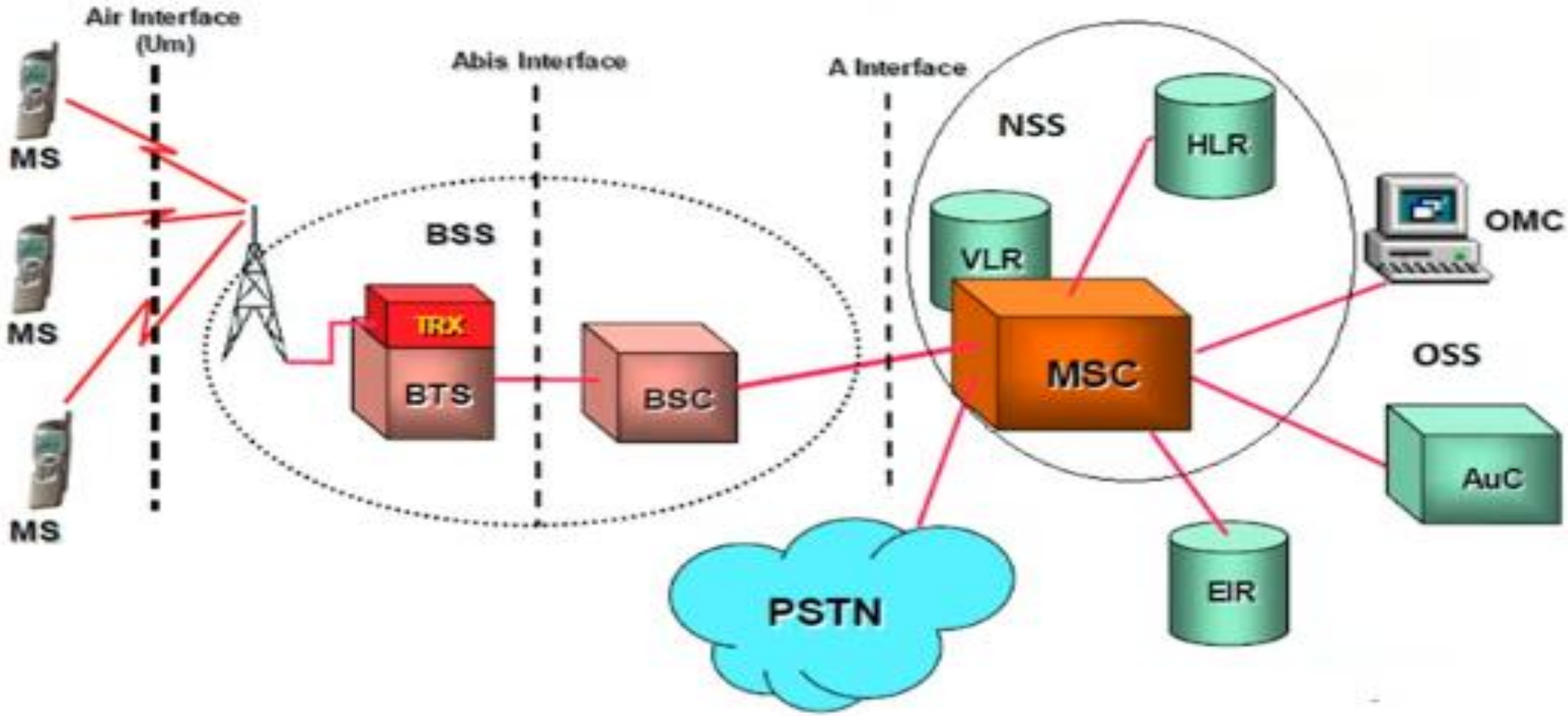
GSM Evolution



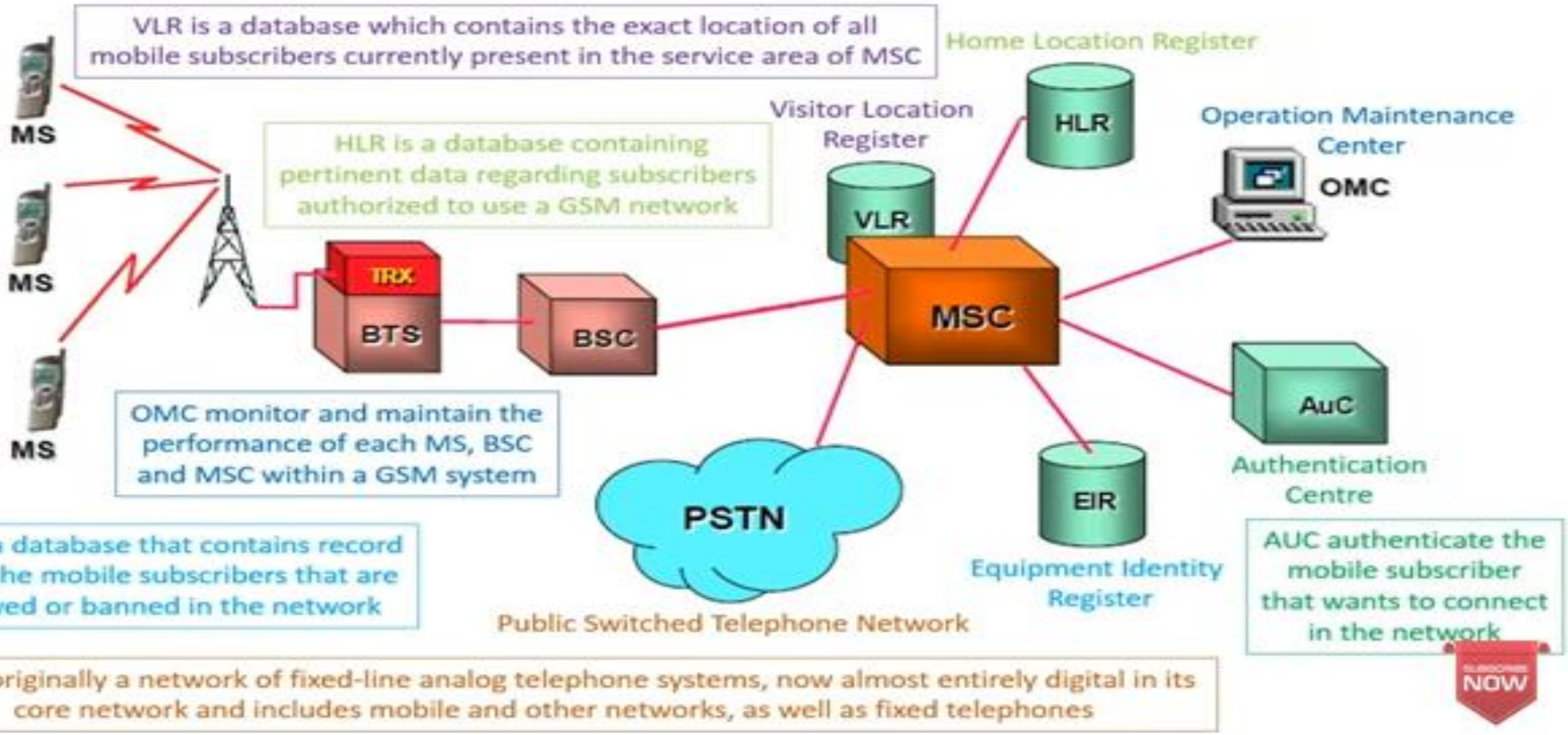
GSM in IoT

- GSM is currently the most widely used network technology in Internet of Things (IoT) applications for its simplicity, low complexity cellular communications for IoT devices in a way that conserves energy

GSM Architecture



GSM Architecture



GSM - Applications

- **Mobile Communication**

1. Voice Calls: GSM enables voice calls between mobile phones

.2. Text Messaging: GSM supports text messaging (SMS) between mobile phones.

3. Multimedia Messaging: GSM enables multimedia messaging (MMS) for sending images, videos, and audio.

- **Data Services**

1. Internet Access: GSM provides internet access through GPRS (General Packet Radio Service) and EDGE (Enhanced Data Rates for GSM Evolution).
2. Email: GSM enables email access on mobile phones.
3. Browsing: GSM allows users to browse the internet on their mobile phones.

- **Value-Added Services**

1. Mobile Banking: GSM enables mobile banking services, allowing users to perform financial transactions.
2. Mobile Commerce: GSM supports mobile commerce, enabling users to make purchases and payments.
3. Location-Based Services: GSM provides location-based services, such as navigation and tracking.

- **Industrial Applications**

1. Machine-to-Machine (M2M) Communication: GSM enables M2M communication, allowing machines to communicate with each other.
2. Remote Monitoring: GSM supports remote monitoring of industrial equipment and systems.
3. Smart Grids: GSM is used in smart grid applications, enabling remote monitoring and control of energy distribution.

Advantages & Disadvantages

Advantages:

- **Wide Coverage:** Global network availability.
- **Low Cost:** Affordable infrastructure and service.
- **High Security:** Encryption ensures secure communication.
- **Supports Roaming:** Seamless connectivity across regions.
- **Efficient Spectrum Use:** TDMA technology maximizes capacity.

Disadvantages:

- **Limited Data Speed:** Slower than modern networks (e.g., 3G, 4G).
- **Signal Interference:** Affected by buildings and electronic devices.
- **Network Congestion:** High traffic can reduce call quality.
- **Limited Support for Multimedia:** Not ideal for high-bandwidth applications.

Assessment

- What is the role of the Base Station Subsystem (BSS) in GSM?
- How does GSM ensure security in communication?

References

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