

Enterprise-Long Term Evolution

Mohamed Abdelghader Morsi^{1*}, & Dr. Asharf Gasim Alsidi^{**}

**P.G. Student, Department of Communication Engineering, Engineering College, El. Neelain University and spectrum Engineer at National Telecommunication Corporation (NTC), Spectrum Department, Head of Terrestrial Services, Sudan.*

***School of Electronic Engineering, College of Engineering, Sudan University of Science & Technology, Sudan.*

ABSTRACT

This Paper provides an overview of the evolution of new technology, enterprises long term evolution which provides the customer with new broadband services. The paper shows the advantages, disadvantages, applications, broadband evolution to LTE in the future and architecture of e-LTE.

1. INTRODUCTION:

Since many frequencies are allocated to mobile operators in scattered locations, it is important for industries to adapt to different frequencies.

The enterprise-LTE (e-LTE) broadband-access system it also promises to provide optimal connectivity in emergency incidents and harsh environments. The network has been tested in a variety of application scenarios across multiple industries including government, energy, oil fields, and airport and subway systems.

E-LTE provides a wide frequency menu, including LTE-TDD 400 MHz/1.4 GHz/1.8 GHz/2.3 GHz, and LTE-FDD 700 MHz/ 800 MHz for a variety of markets.

ITU-R has recommended LTE-FDD 700M/800 MHz as global harmonized PPDR spectrum. The figure1 below shows a global spectrum map for industry application.

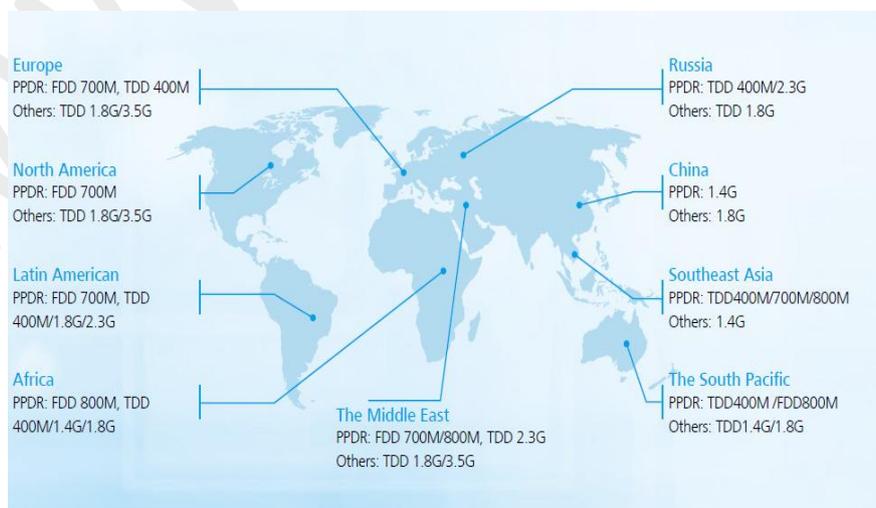


Figure (1)

E-LTE is the first 100-Mb/s professional broadband solution based on LTE technology to address the demands of private networks in vertical industries. The fourth-generation (4G) wireless system combines carrier-grade resilience with features that can be set up, operated, and maintained with less effort than that required for traditional wireless solutions. With 20 MHz of bandwidth and 2x2 multiple-input multiple-output (MIMO), e-LTE can support downlink data rates to 100 Mb/s with uplink data rates hitting 50 Mb/s. Its coverage ranges to 100 km even in demanding environments, such as deserts and flood-prone areas.

2. ADVANTAGES OF E-LTE:

E-LTE broadband Trunking solution provides the advantages of professional Trunking communication performance:

- High throughput.
- High reliability.
- Real-time data transmission performance. Compared with the LTE public network, the e-LTE system adopts a professional trucking design,
- Terminal protection.
- Provides high-traffic services and dispatching of various multimedia services to obtain on-site data and images in real time to enhance operational efficiency and open up a variety of services that were previously unavailable.
- Trunking service roaming on public network.
- Trunking service on common carrier Smartphone.
- Interoperation between e-LTE and TETRA network.
- Interconnection to 2G/3G/PSTN/IP PBX through gateway.
- Professional Broadband Trunking for Voice, Data, Video All-in-one.

This new technology meets the requirements for efficient operational communications in governments, railway systems, airports, ports, power grids, as well as oil and mining industries. With the capability to provide voice trunking, video dispatch, video surveillance and location services, the e-LTE broadband trunking solution will help customers significantly improve operational efficiency and emergency response rates.

3. DISADVANTAGES OF E-LTE

- Expensive and hard to implement
- battery uses is more
- Needs complex hardware

4. APPLICATION OF E-LTE:

4.1 Public Security

- Turbulence Control

- Natural Disaster Rescue
- Emergency Rescue
- Society Security

4.2 Industry Application

- Airport
- Transportation
- Port
- Oil & Gas
- Mining
- Grid

Trunking provide unified services for critical communication in various industries and emergency cases.

5. BROADBAND AND EVOLUTION TO LTE IS THE FUTURE:

The figure (2) shows LTE Future:

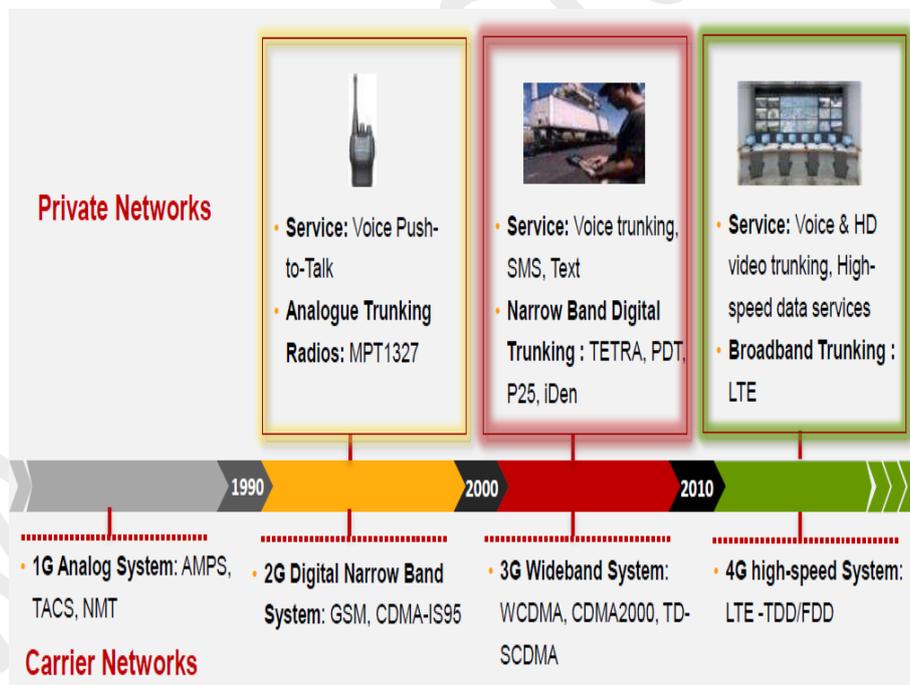


Figure (2)

6. ARCHITECTURE OF E-LTE

Figure (3) Shows Architecture of e-LTE:

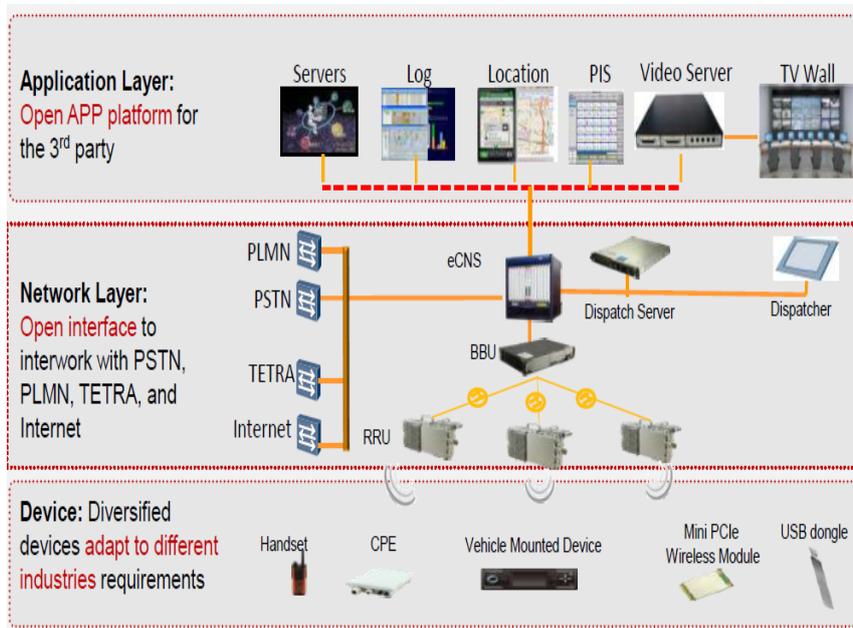


Figure (3)

E-LTE also offers public-mobile-radio (PMR) functionality for tasks including push-to-video, real-time video surveillance, and video streaming. Because e-LTE is fully scalable, it can provide security enhancements and emergency/rescue communication for government authorities and enterprises regardless of size or location.

7. SCALABLE NETWORK FOR DIFFERENT SIZE APPLICATION



Figure (4)

8. CONCLUSION:

E-LTE basically depends on LTE technology at all aspects include allocated frequencies, Technologies, Architecture, equipments and ...etc.

Also it depends on the required specifications for the certain network and required its offered services and its size and extension.

REFERENCES:

- i. Jorg Huth, "eLTE trunking solutions ", Huawei.
- ii. E-LTE for Better Connected Industries, Huawei.
- iii. Qualcomm, "The Evolution of Mobile Technologies: 1G → 2G → 3G→4G LTE", June 2014.
- iv. Ericsson, "LTE: an introduction", 2011.
- v. L-F Pau," Summary introduction to Wireless LTE 4G architecture and key business implications", 2011.
- vi. Subharthi Paul, "Long Term Evolution (LTE) & Ultra-Mobile
- vii. Broadband (UMB) Technologies for Broadband Wireless Access", 2008.