



# EEN 336 – COMMUNICATION SYSTEMS Research Project

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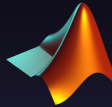
# Overview



Introduction



1<sup>st</sup> Generation



2<sup>nd</sup> Generation



3<sup>rd</sup> Generation



4<sup>th</sup> Generation



The Future



Conclusion



# Introduction

# Communication is the Basic Need

- Companies are getting more and more competitive in offering maximum number of mobile communication technologies
- People need and want the communication systems and feel strange without one
- Lets look at some of the technologies which are in the market and in use nowadays



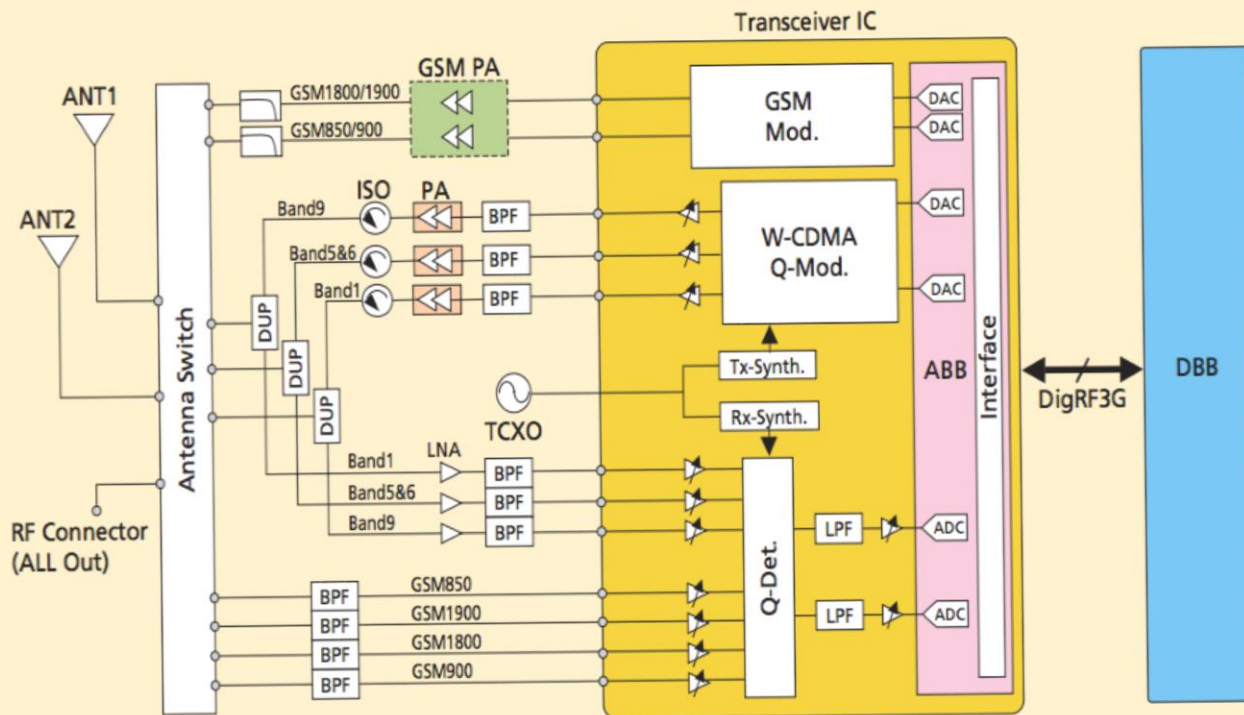


Figure 5 Radio transceiver circuit configuration for 2008 (projected)

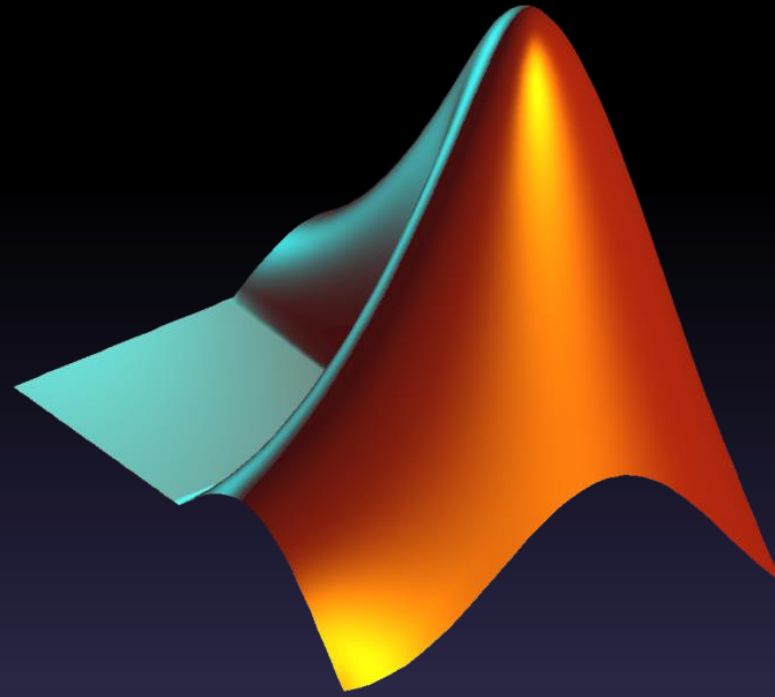
A typical mobile phone contains the circuit and the antenna necessary for all the communication modulation and demodulation.



1<sup>st</sup> Generation



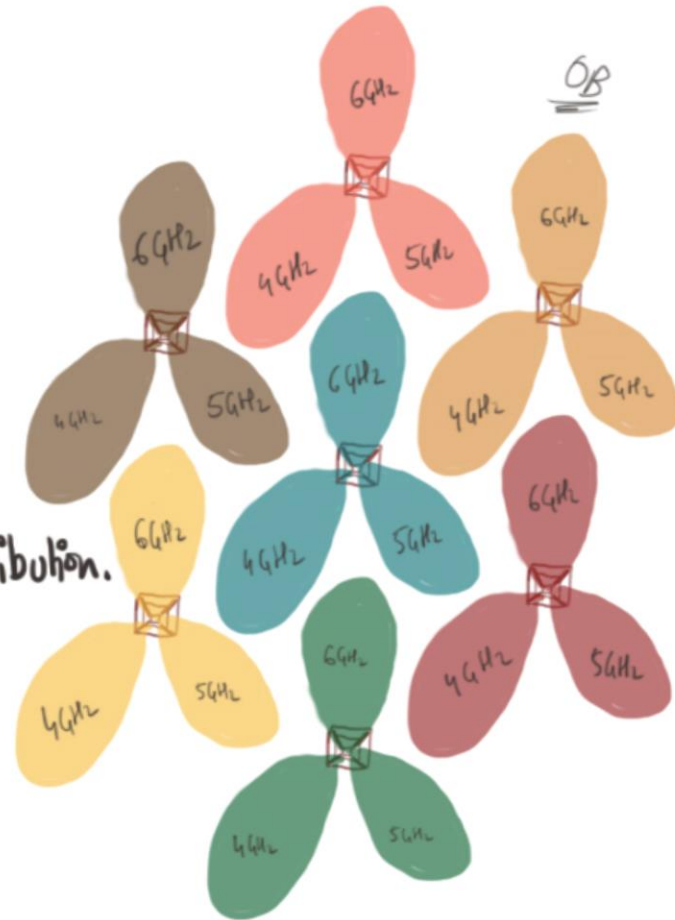
NMT mobile system in 1981.



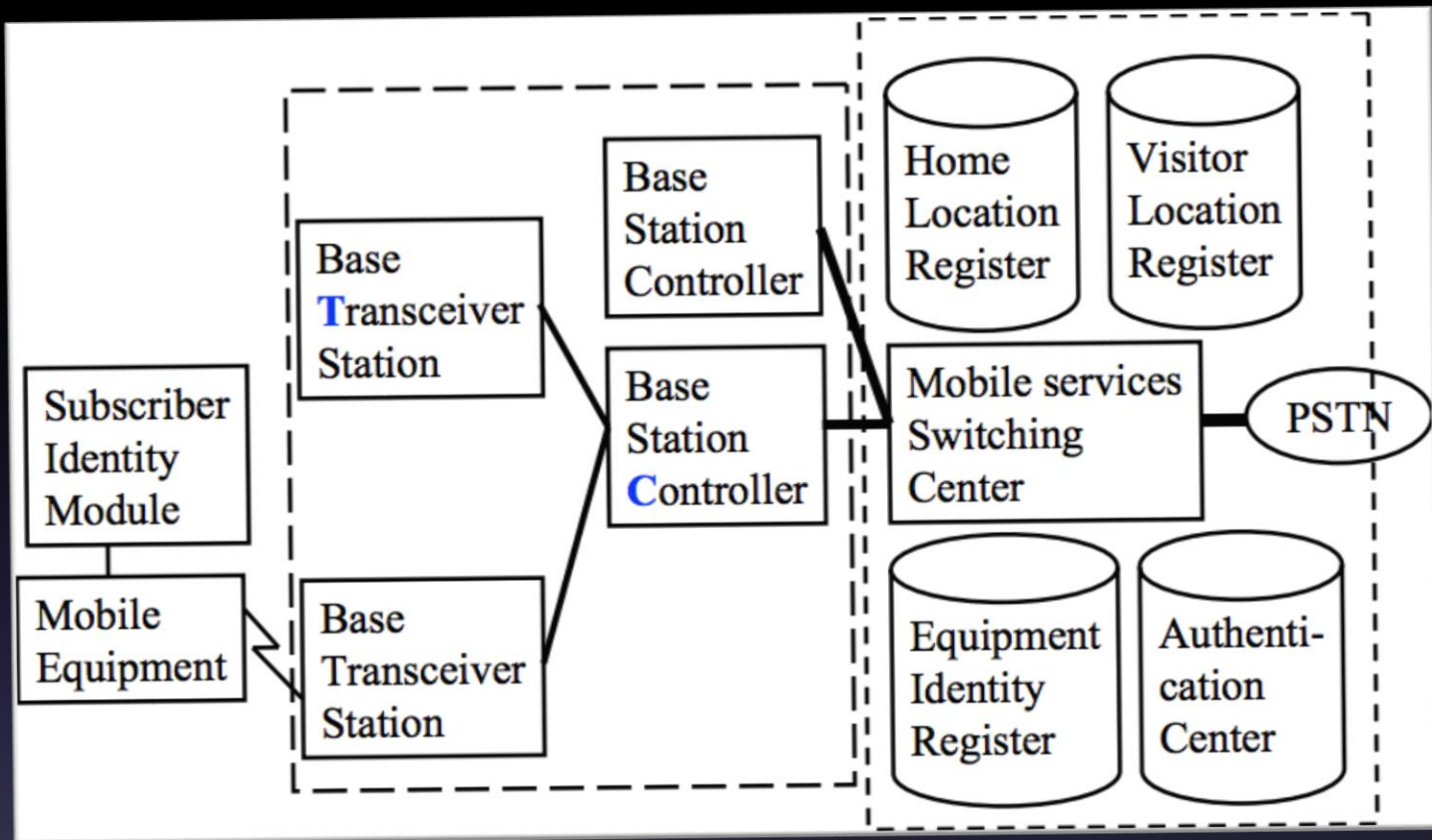
2<sup>nd</sup> Generation



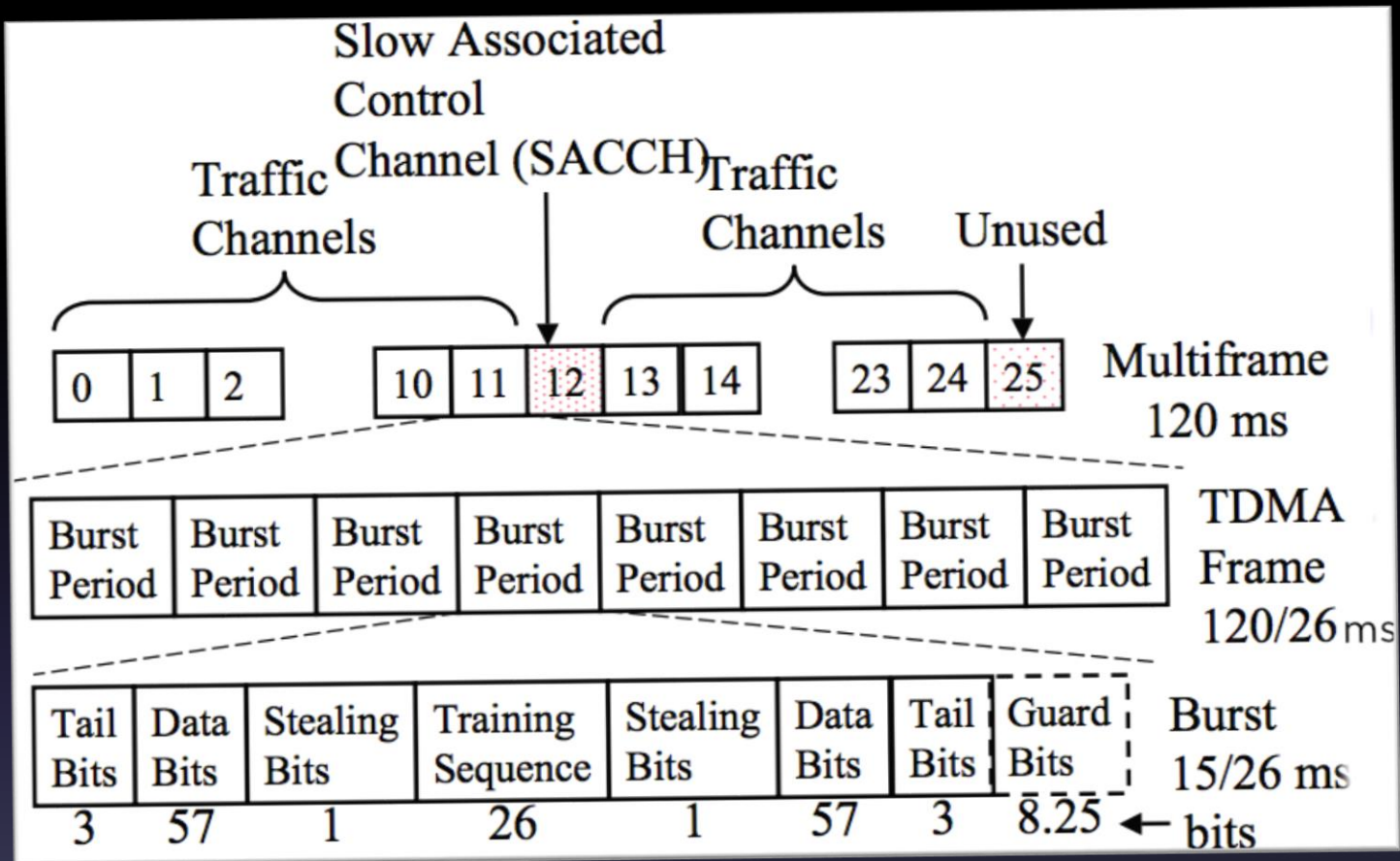
- Frequency Reuse.
- Ability to control power distribution.
- Maximum area coverage.
- Hexagonal Approach.



How do the cell towers distribute the frequencies intelligently.



This is the basic structure of mobile communication which was put up to offer 2<sup>nd</sup> Generation mobile communication.

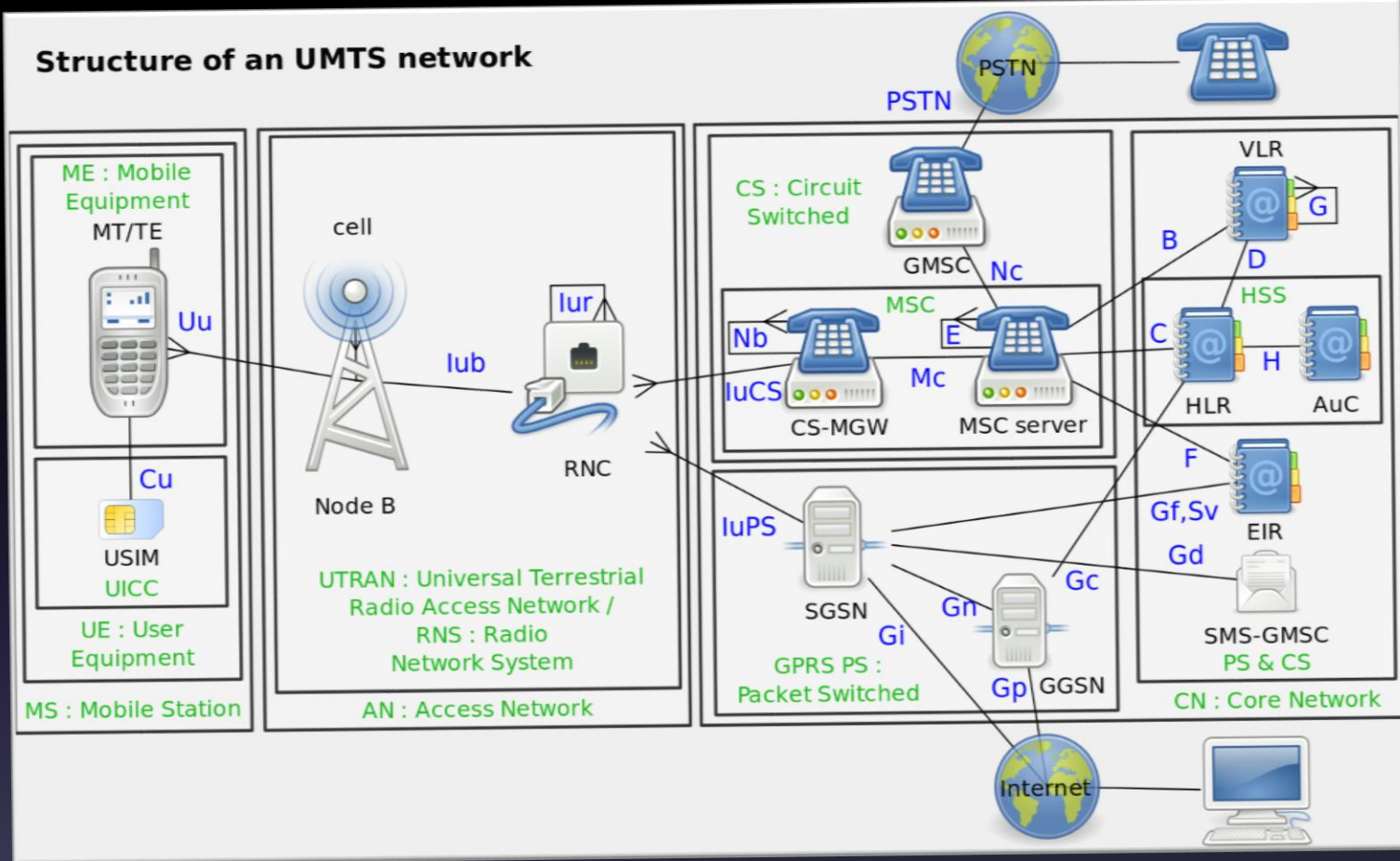


Looking inside a TDMA 2G data packet technology.

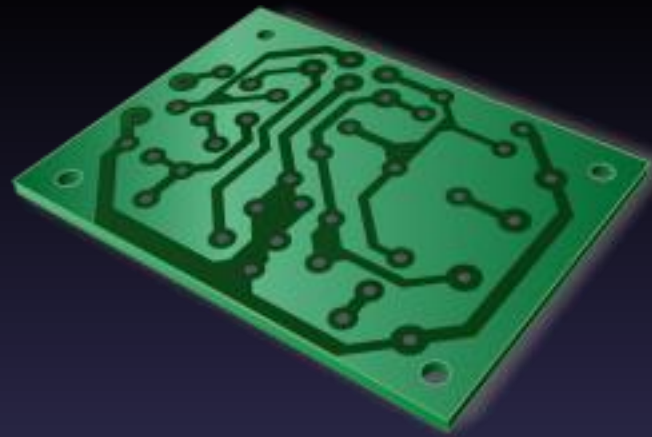


3<sup>rd</sup> Generation

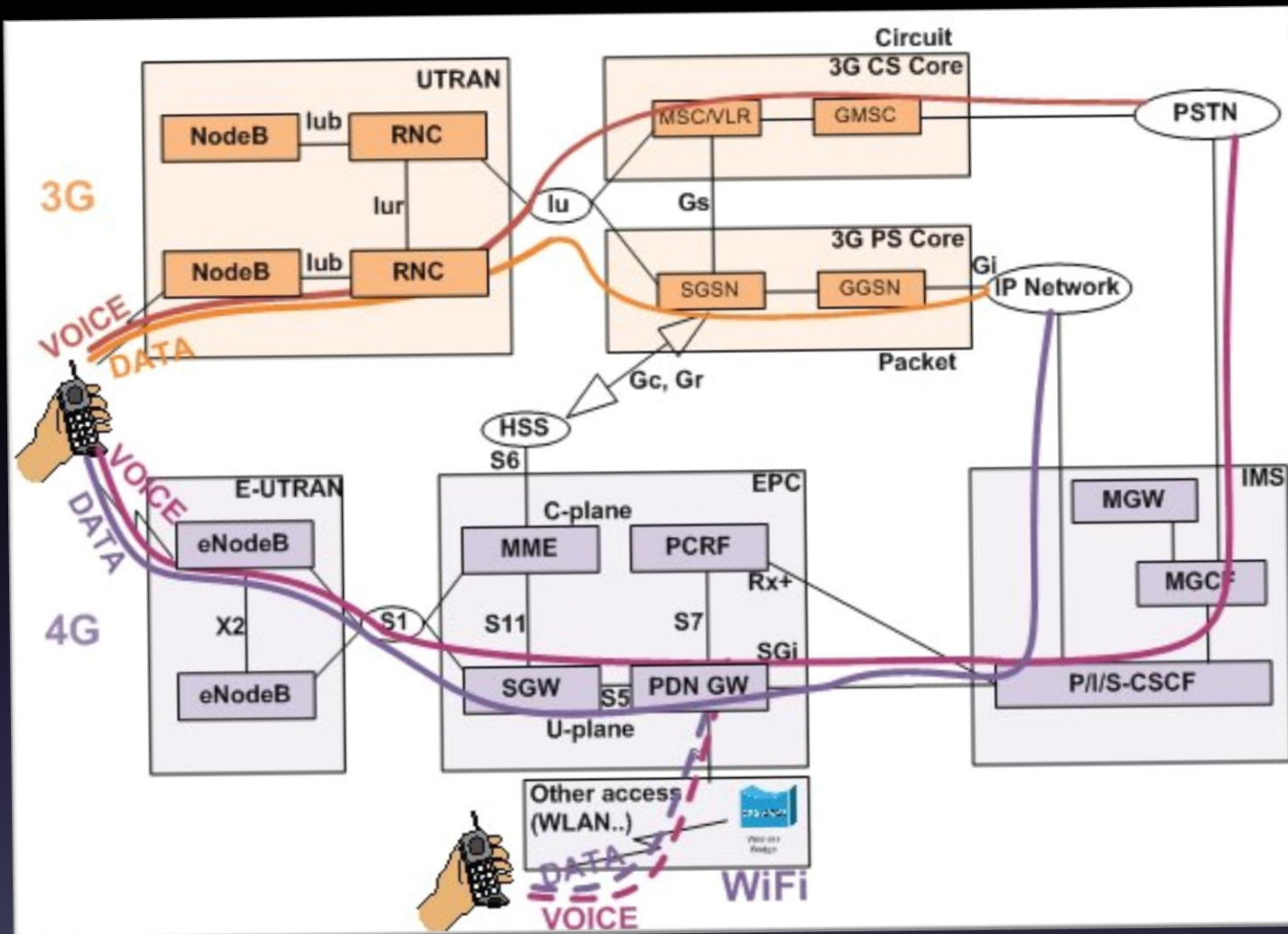
## Structure of an UMTS network



Looking inside a UMTS technology.



4<sup>th</sup> Generation



4G voice and Data routes



Conclusion





Code Division Multiple access was a huge leap into the forward direction because of its ability to support many users at a time on the same frequency band.



Power control of the signal sent and received to the mobile is very critical since CDMA alters the signal based on power put into a code signal.



In NMT each user is assigned a distinct frequency band for communication, the system can support only limited number of users at a time.



THANK  
YOU!