

3G and Beyond 3G Systems



“moshi
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Who are We?



- 3G Mobile R&D group based in Melbourne, Australia
- Physical Layer R&D established in 1996
- R&D in CDMA to WCDMA to OFDM technologies
 - WCDMA layer 1 core
 - HSDPA layer 1 core
 - HSUPA layer 1 core
 - Beyond 3G OFDM prototype
- 3GPP standardisation activities
 - RAN-WG1, RAN-WG4 and RAN-WG5
- Core Capability in L1 development
 - System Design
 - ASIC development
 - DSP development
 - Platform validation



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3G Prototype Handset

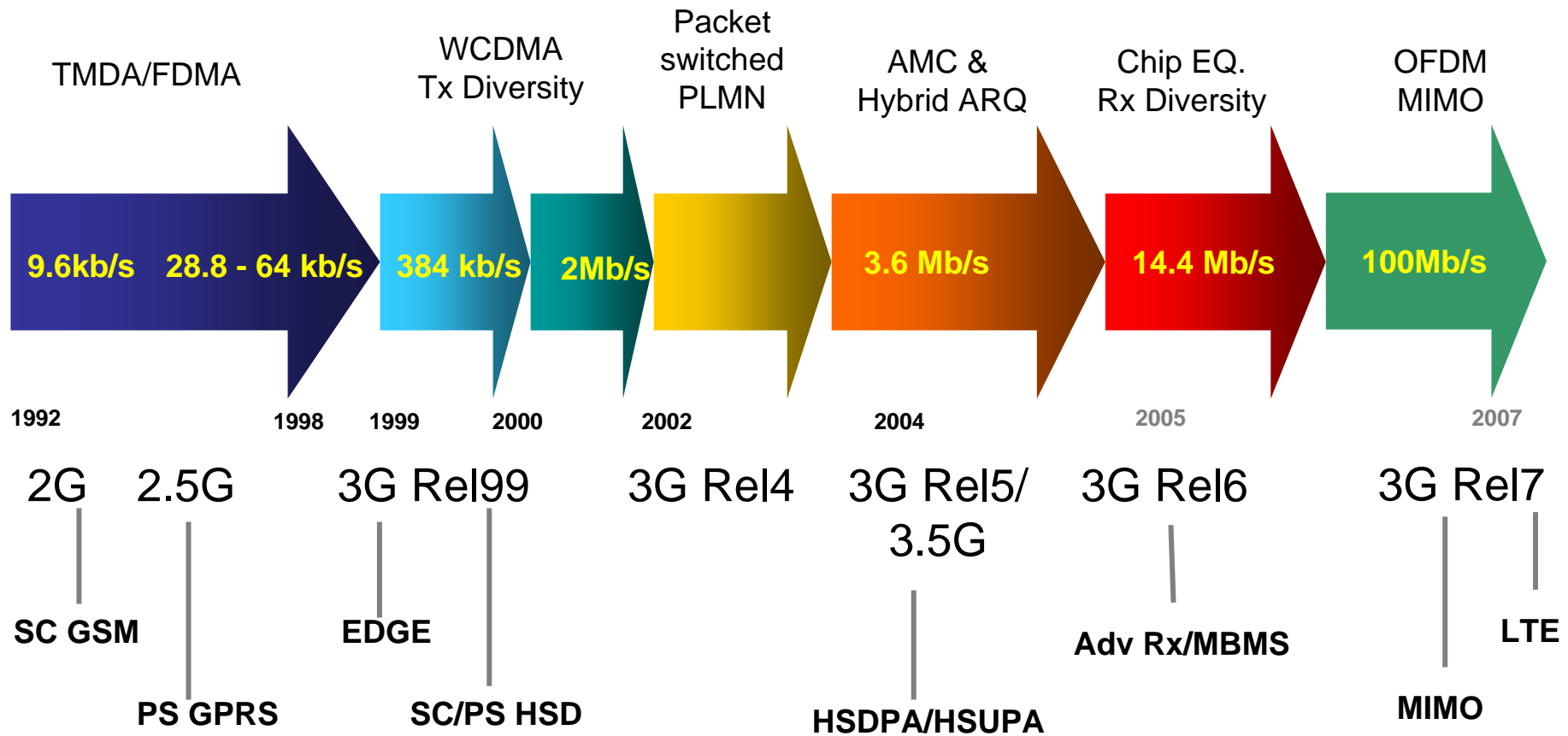


1 meter

Access Technology typically
MIPs 10x GSM/GPRS
Number of Gates 10x GSM/GPRS



3GPP Standards evolution (Data Perspective)



3GPP Roadmap

- Currently release 6
- Long term evolution (LTE) Design goals
 - Significantly increased peak data rate
 - Increase “cell edge bitrate” whilst maintaining same site locations as deployed today
 - Significantly improved spectrum efficiency (2-4xRelease 6)
 - Reduced RAN (Radio Access Network) latency (e.g < 10 ms)
 - Reduced CAPEX and OPEX including backhaul
 - Reasonable system and terminal complexity, cost and power consumption
- Study items till June 2006 - LTE feasibility
- Work items till July 2007 – Release 7 (Super 3G?)
 - WCDMA evolution
 - OFDM/SC-FDMA
- Launch Super 3G by 2010 ?



Evolution to 4th generation



4G Design Goals

- 4G is intended to provide high speed, high capacity, low cost per bit, IP based services
- Data rates greater than 100 Mbps (?), even when used in such scenarios as a vehicle travel
- Bandwidth increases up to at least 100Mhz
- Ubiquitous mobility, Fully converged services, Diverse user device
 - Seamless handover ? between 3G and other Radio access technologies, Bluetooth, wireless LAN 802.11, WiMax



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