modulation enhancement

EDGE uses 8PSK modulation in addition to the GMSK used in GSM enabling higher data rates.

No core network changes

The operators use the existing GSM core networks (MSC, SGSN, GGSN). The upgrades are limited to the base station (BSS)

Software / Hardware update.

Only the BTS and BSC require software and major hardware enchancement. this avoids the need for costly infrastructure replacement.

Conclusion

EDGE serves as bridge between 2G and 3G, leveraging existing investments while providing enclosed capabilities.

1) Multiple Access technique in wireless communication

- FDMA - frequency division multiple Access
- TDMA - time division multiple Access
- CDMA - code Division multiple Access
- OFDMA - orthogonal frequency Division multiple Access
- SC-FDMA - Single carrier FDMA
- SDMA - Space Division multiple Access
- NOMA - Non-orthogonal multiple Access

2) EDGE as an add-on to GSM / GPRS

GSM Enhancements

EDGE (Enhanced data Rates for GSM evolution) is a technology developed to increase the data capacity of GSM / GPRS hotspots without changing the existing core network. it is often described as an "add-on" for the following Reasons.

Mobile computing
ITA 0302

K. Amirthavalli
192321112
B. TECH IT

TDMA vs FDMA vs CDMA

Feature	TDMA	FDMA	CDMA
Basic principle	Divides time into slots	Divide bandwidth into frequencies	uses unique codes for each user
Bandwidth usage	shared in time	Divide into fixed frequency bands	Entire bandwith shared
Synchronization	strict timing required	less synchronization required	Required complex Synchronization
Interference	Time slot interference possible	Adjacent channel interference	Resistant to interference
complexity	medium	low	high
Hand off	Easier than TDMA	complex	Soft handoff (both)
used in	GSM	Analog systems (1G)	3G (WCDMA, CDMA 2000)