Public Safety Systems- addressing PPDR requirements

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- Current Public Safety requirements
- Current applications
- Issues to be considered for PPDR
  - narrow band
  - wideband
  - broadband

Current Public Safety Requirements

- Operational needs:
  - tactical
  - network control
- Applications:
  - voice
  - data

Current Public Safety Requirements

Tactical: complexity of needs in radiocommunication supports

- under network coverage (mobile to base station)
- direct mode (mobile to mobile)
- repeater mode (without networking)
- vehicular repeater (mobile to base station through repeater)
- paging

Current Public Safety Requirements
Tactical: complexity of requirements

- mainly half duplex for spectrum efficiency
- many different group calls (Broadcast, open channels...)
- priorities and pre-emptions
- security (end to end encryption,…)
- Fast call set up
- Dispatch positions

Current Public Safety Requirements Network Control (1/2)

- Access & control of final users
  - Identification
  - Authentication
  - Traffic rights control
  - Terminal disabling
  - fleet & group management

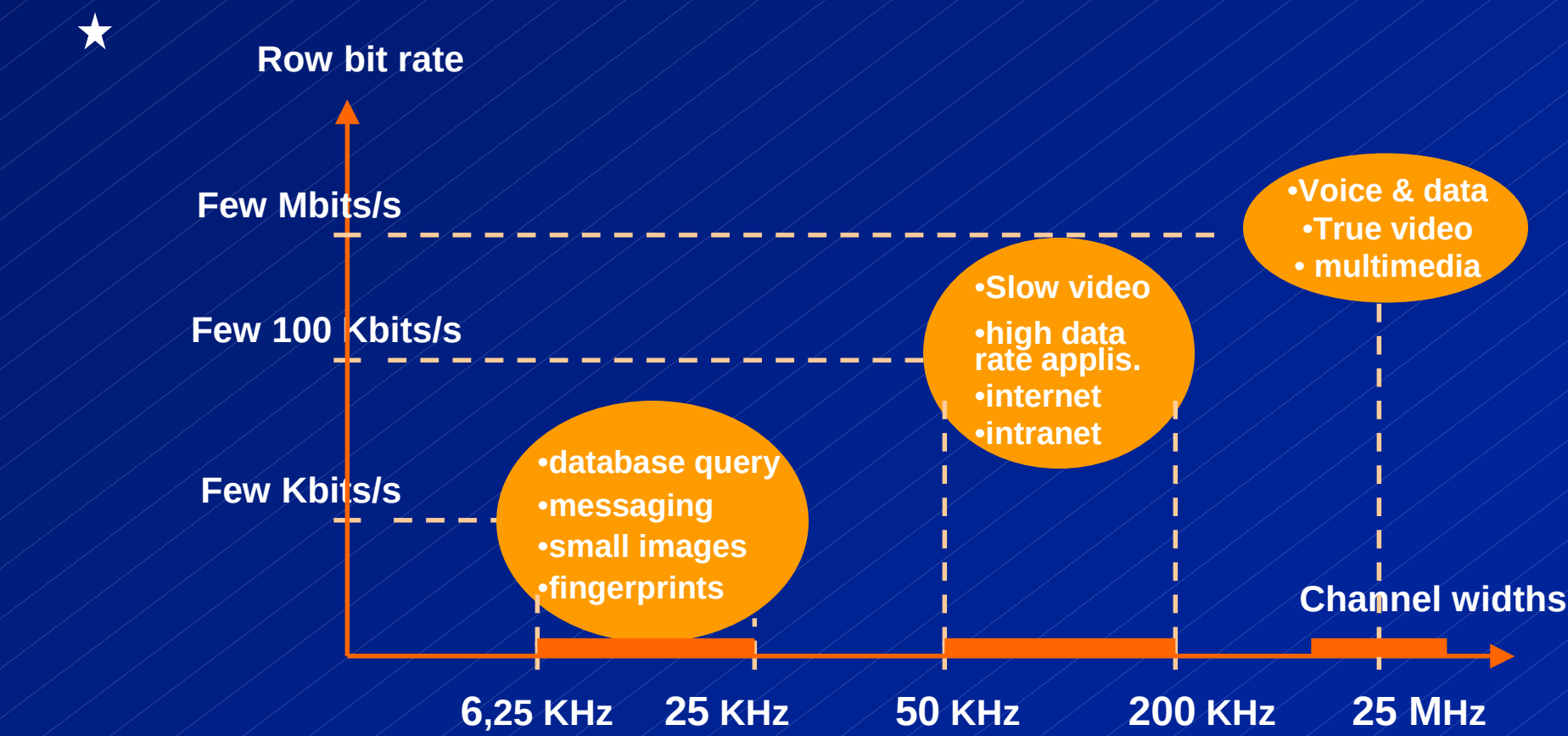
Current Public Safety Requirements Network Control (2/2)

- Frequency planning, network engineering:
  - Spectrum efficiency
  - Adequate coverage: lowest frequency = lowest # of BS
  - Simulcast, voting, compatibility with existing networks,
- Capacity: dimensioning for day-to-day, major event or large disaster
- Availability & redundancy

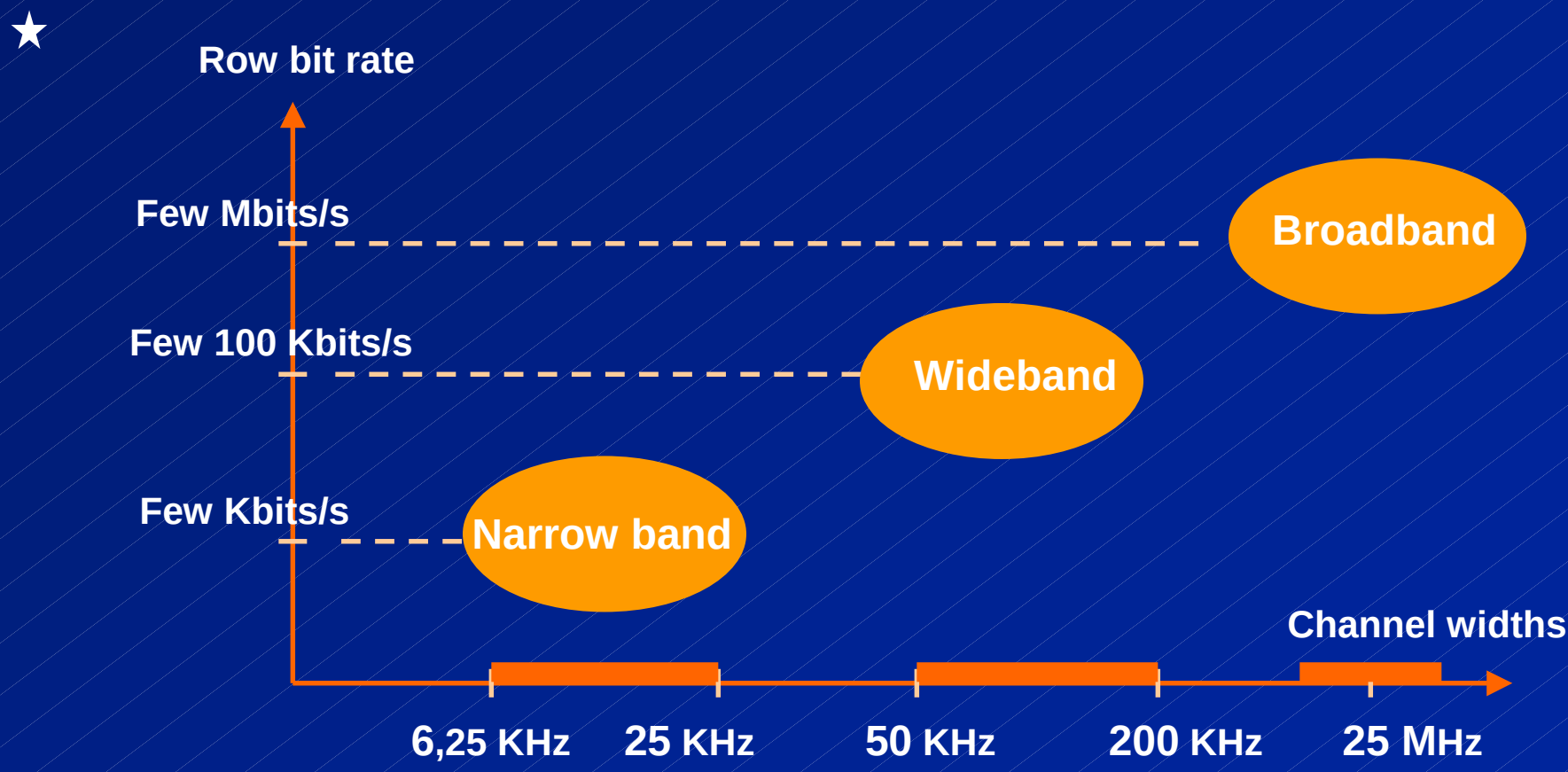
Current Applications

- Voice
- Data: low throughput (few Kb/s)
  - data queries
  - messaging
  - fingerprints
  - Automatic Vehicle Location
  - photos (identification)

Positioning applications



PPDR Segmentation



Issues to be considered for PPDR

- Narrow band
  - take into account existing digital networks (TETRAPOL, APCO25, TETRA)
    - TETRAPOL= 62 networks of which 15 with national coverage, to-day 420000 users and 1.4 million sq. km
  - Evolution of those standards
    - shall not modify existing network engineering
    - encourage interoperability but be pragmatism (see US example with conventional interoperability channels)

Issues to be considered for PPDR

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- **Wideband**
  - bring efficient data throughput for real applications:
    - transfer the public safety officer applications desk in his (her) mobile with fast response time: database queries, fingerprints, intranet, internet, messaging,
    - many users do not consider that full video is the major future application
  - be easily integrated with existing networks, only as an enhancement
  - find solution(s) for frequency harmonisation: global is the best, regional is more realistic

Issues to be considered for PPDR

- **Broadband**
  - take benefit of users' initiatives (MESA SoR)
  - limited market in size => build solution on existing technologies as much as possible
  - have explicit globally harmonised frequency allocation
  - interoperate with narrowband and wideband networks
  - Example: "Awareness" within the European Commission's Sixth Framework Programme