



Interoperable Communication Systems for Disaster Management

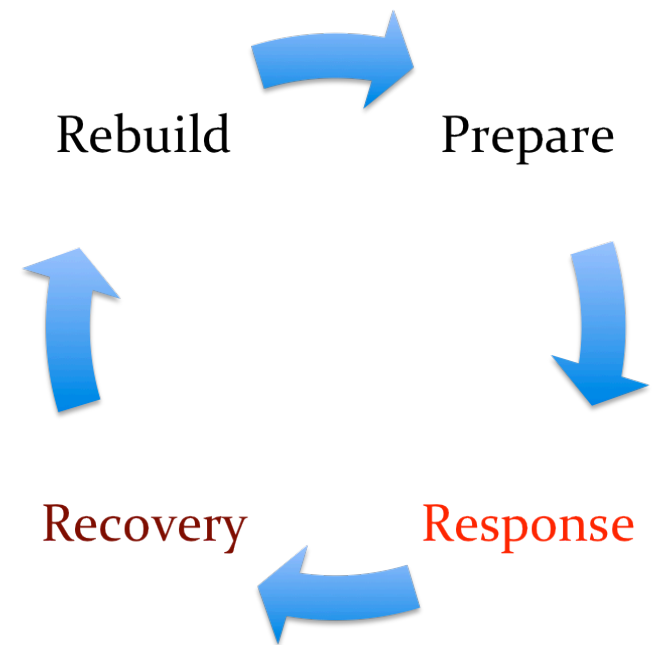
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Two topics

- ✧ Interoperable Communication Systems
- ✧ Social-Physical Sensing

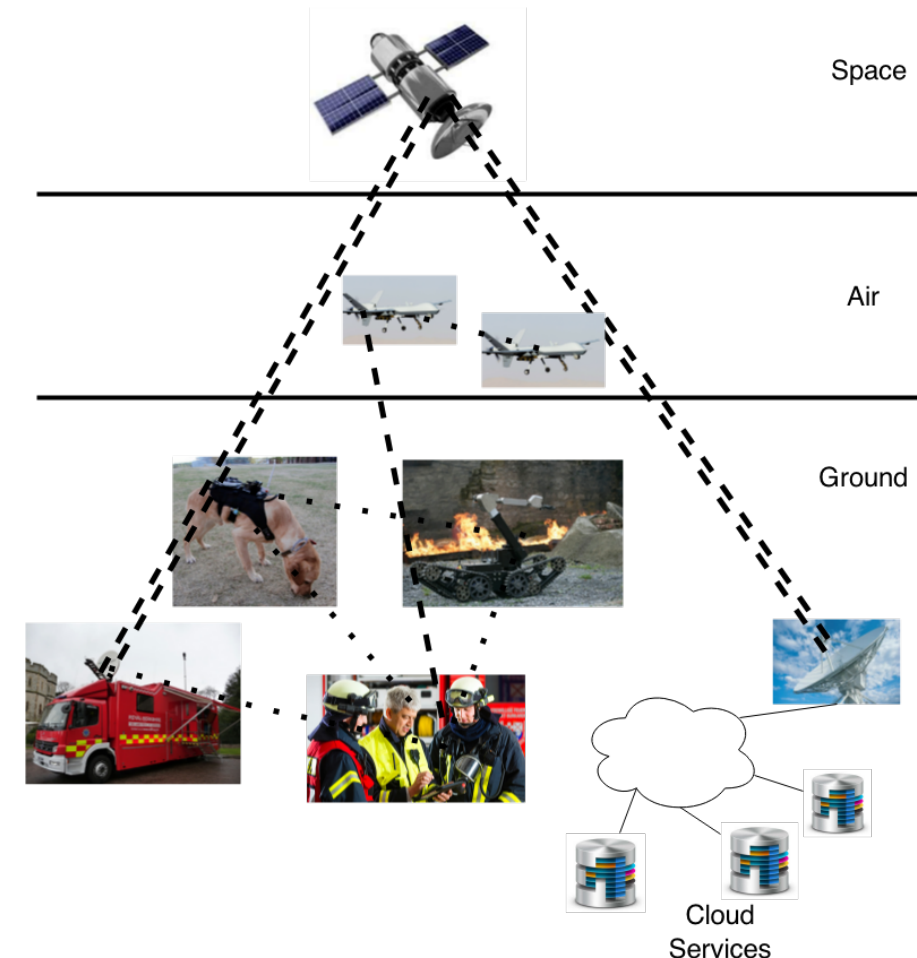
Start from a Workshop

- ✧ Emerging 5G Technology for Disaster Management
- ✧ Participants: academia, rescue teams, government departments, media, school headmasters, and public representatives.
- ✧ First objective: Identify the needs from different sectors at each phase of disaster management.



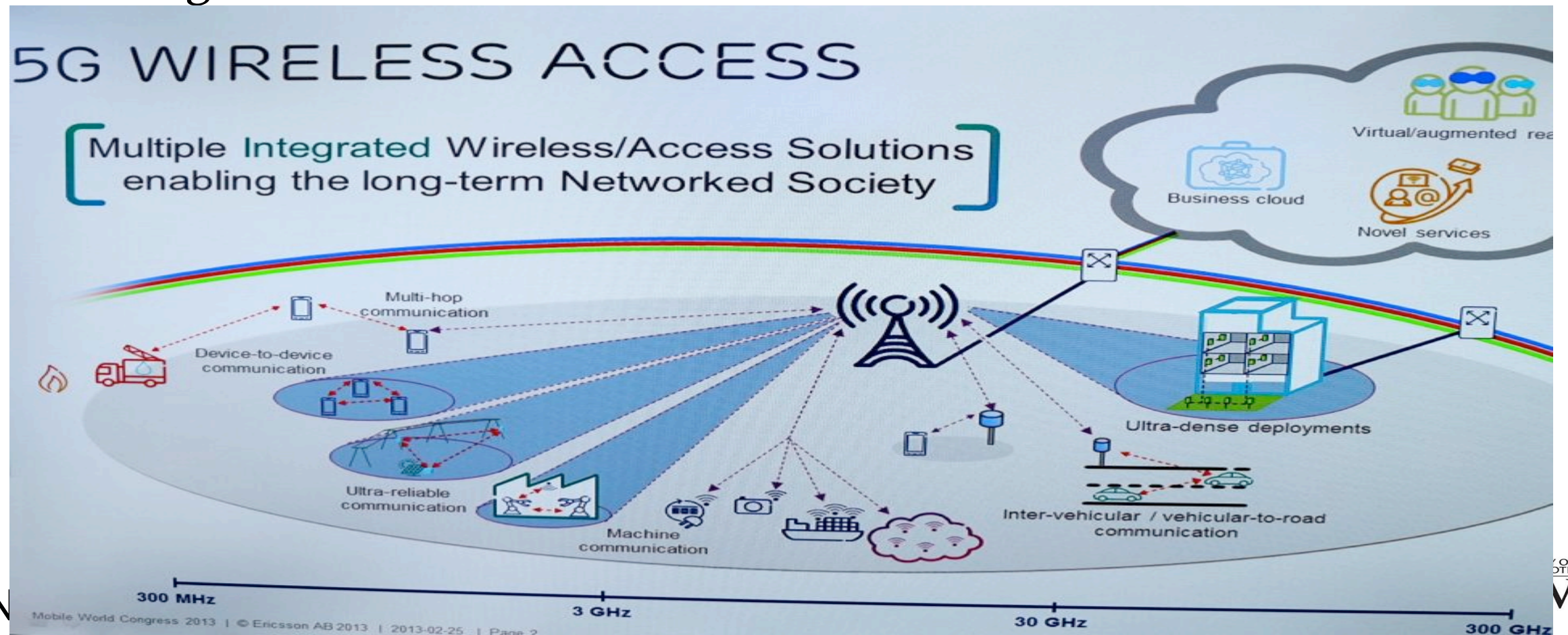
2nd Objective: Integrated Network for DM

- ✧ After disaster
 - ✧ Communication Infrastructure destroyed
- ✧ Infrastructure and services recovery
 - ✧ Satellite
 - ✧ UAVs (Unmanned Aerial Vehicles)
 - ✧ Mobile robots
 - ✧ Intelligent networking
 - ✧ 5G devices



5G Access Technology

✧ Heterogeneous Networks



Challenges

- ✧ Fundamental problem: Interoperability
 - Hardware
 - Data
- ✧ Possible solutions
 - Regulate the usage of frequency band and communication protocols – not easy
 - Software defined radio – complicated
 - Instant establishment of a third party network, i.e., ad hoc network – extra interface

Social-physical Sensing for Emergency Management

✧ Based on a smart airport project



Social-physical Sensing for Emergency Management

✧ Social information

- Gender, age, disabled? need help? density of people

✧ Physical information

- Location, exits distribution, danger zone?

✧ Emergency

- Where is the nearest exit?
- Distribute flows
- Help those in need
- ...