



How to manage a disaster

Michael Weinlich

Medical Director

Steinbeis Scientific Center „Simulation, Training and Consulting Academy“

Frankfurt Main, Germany

Presentation Outline



- Classification of disaster scenarios
- Conventional procedure after a disaster
- Problems and involved players
- Where can satellites help?
 - An example: WISECOM
- Conclusions



Classification of disaster scenarios



- RED: more critical
- YELLOW: medium
- GREEN: not very critical

Disaster Phase \ Disaster Size	Small Disaster	Medium Disaster	Large Disaster
Early Disaster Phase	SD1	MD1	LD1
Response Phase	SD2	MD2	LD2
Recovery Phase	SD3	MD3	LD3



Conventional procedure after a disaster



- Some victims call the alarm center (e.g. 112)
- Alarm center sends appropriate rescue forces
- Objective estimation of the help needed
- The first rescue teams start the TRIAGE procedure
- Minor injured patients can stay in a local camp
- First emergency treatment of patients
- Severely injured are transported to nearby hospitals

Major factor for outcome: time

Major problem: communication



Communication problems



- Need of connection from the disaster site to the alarm center
- Data about victims should be tracked
- Communication to alarm center may be needed for several reasons (monitor hospitals overload, monitor site situation, monitor victims)



Communication problems



- **Each rescue group has communication needs**
 - Non technical people need to be able to setup the telecom equipments
 - Within each group different types of communications are needed
 - Many communications may need to be done simultaneously
 - Manual operations (e.g. update of victim status) are still used
 - Voice communications are usually used
- **Different communication needs**
 - Rescue teams \leftrightarrow local camp
 - Rescue teams \leftrightarrow Rescue teams
 - local camp \leftrightarrow alarm center (far away from the disaster)
- **Many and different players involved**
 - Different rescue groups (fire brigades, red cross, military group, etc...)
 - Each group has its own techniques and equipment: is coordination possible?

Communication problems



- **Enable communications to and from victims ?**
 - Prevent victims to overload communication channels used by the rescue forces...
 - ...but at the same time allow them to communicate with their loved ones.
 - Localize and track victim positions would be very helpful for the rescue forces
 - Broadcast information to victims may be helpful (e.g. „water is polluted“)

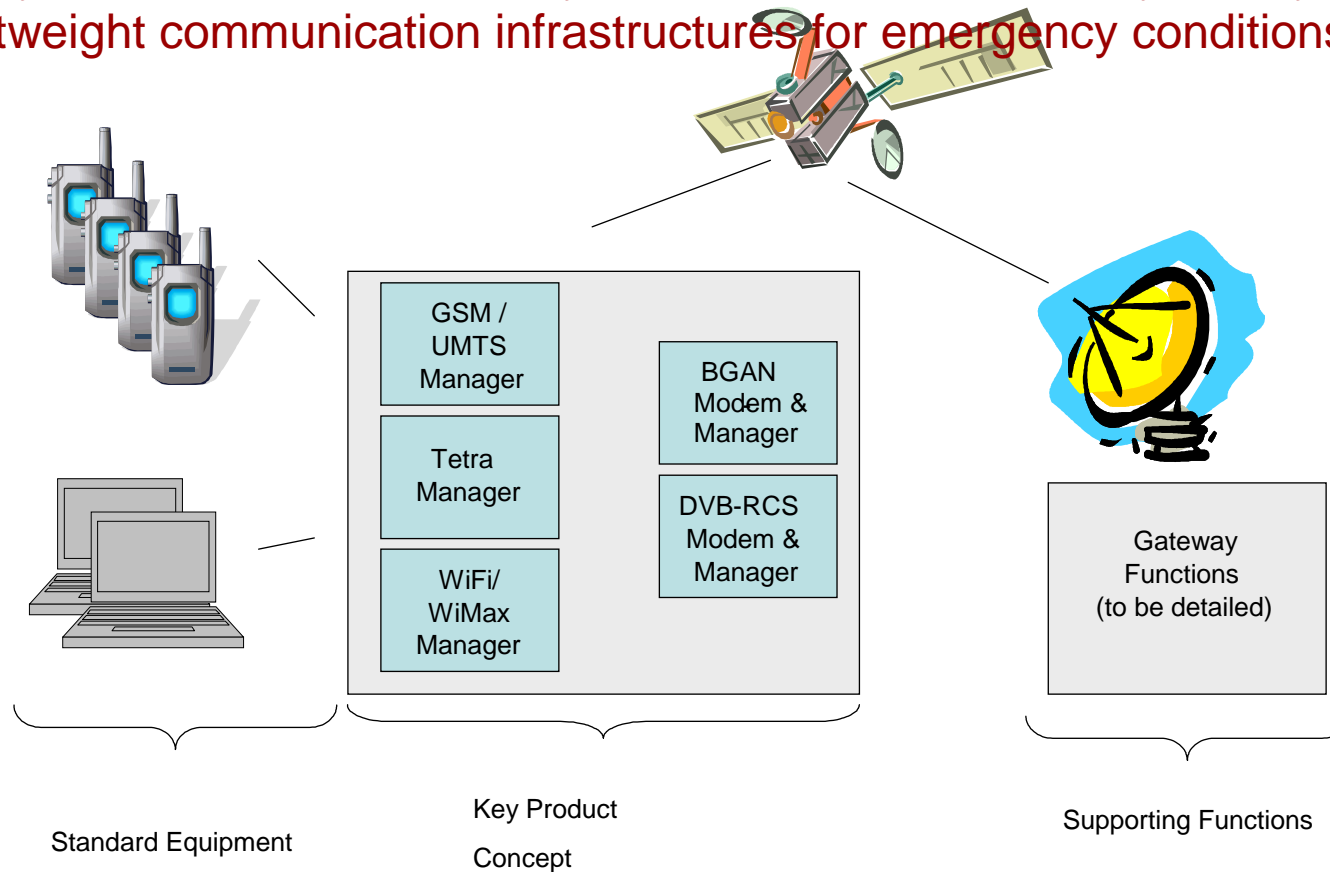
- **CONCLUSION: the telecom system needed is complex**

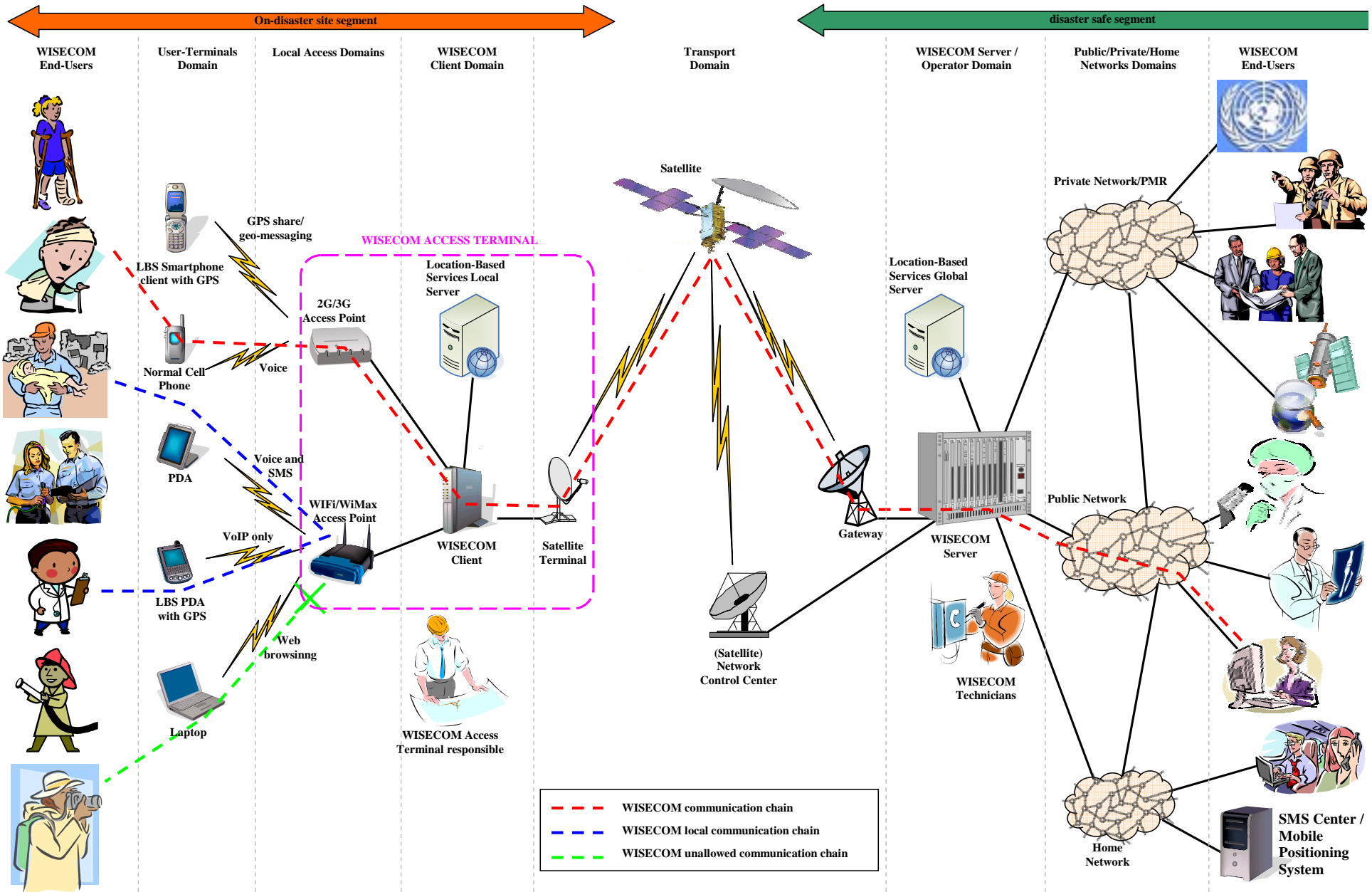
Where can satellites help?



The WISECOM approach as an example

Study, develop, and validate by live trials candidate rapidly deployable lightweight communication infrastructures for emergency conditions





Conclusions



- **communication major problem**
- **most important for survival: time**
- **finding patients**
- **bringing rescue forces to patient**
- **treating patients**
- **bringing patients to final treatment**