



Wireless Infrastructure over Satellite for Emergency COMMunications

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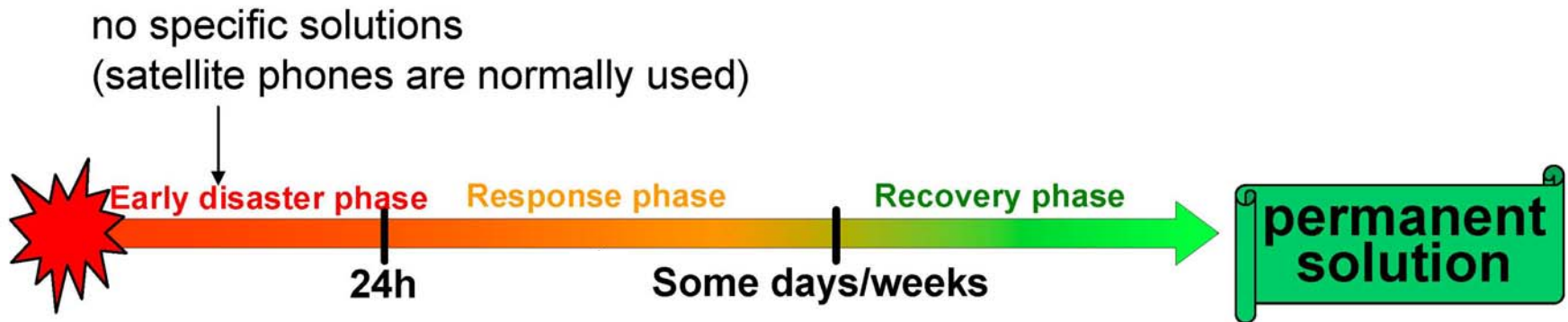
The Communication Problem

Disaster often destroy communications infrastructure

Public Protection & Disaster Relief (PPDR) need communication for their work

General Public needs communication to get information

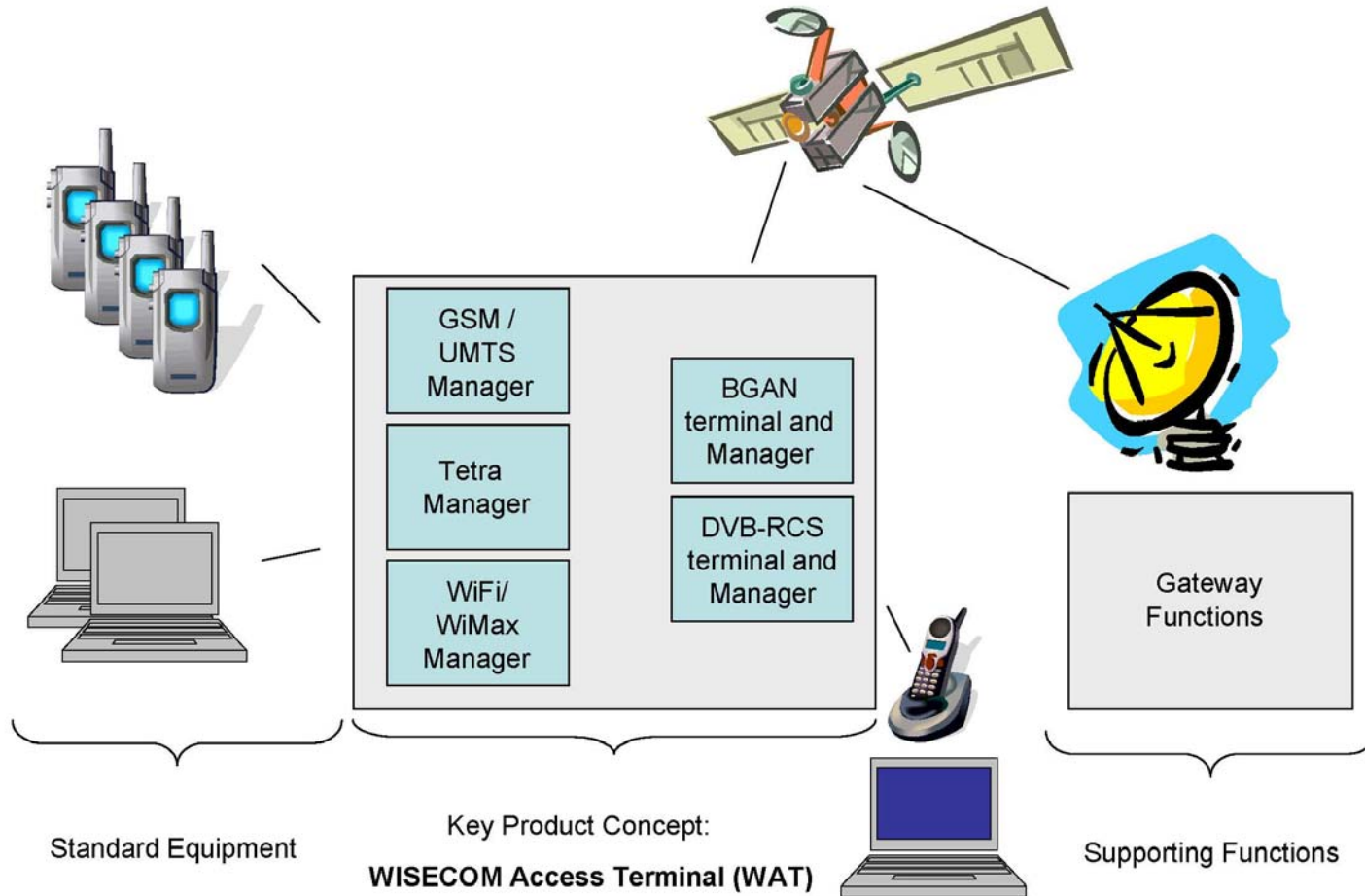
Short term and Long term solution needed



WISECOM

- Need for Quickly Deployable (< 24 h) Broadband Solutions
- Interoperability with a „permanent solution“ highly desirable

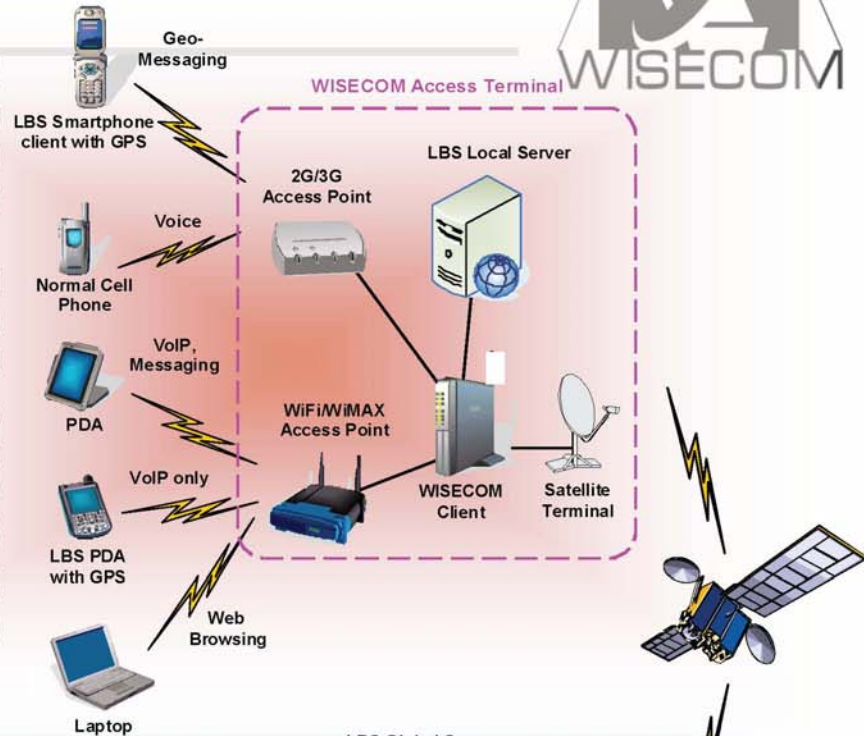
Study, develop, and validate by live trials candidate rapidly deployable lightweight communication infrastructures for emergency conditions



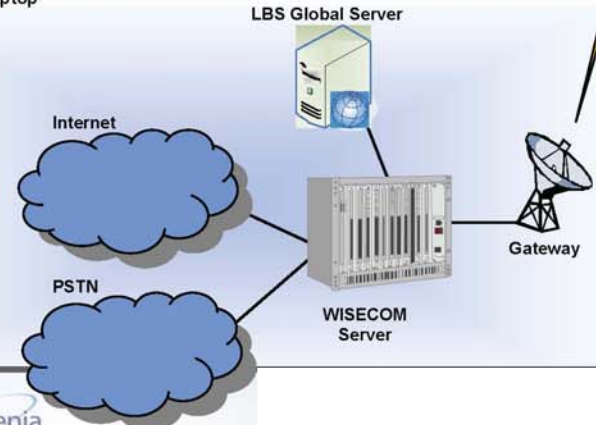
Key Concepts Overview

- **Terrestrial segment:**
 - GSM, UMTS, WiFi/WiMAX (and TETRA)
- "2-phases" satellite segment:
 - **Inmarsat BGAN:** immediate needs in the first hours/days after an emergency, lightweight and rapidly deployable system
 - **DVB-RCS:** medium/longer term needs, during the recovery and rebuilding phase following an emergency
- **Additional characteristics:**
 - Location-Based Services: to assist in search and rescue operations, to locate victims
 - Alert systems: communication to and from the citizens or rescue teams (use of standard GSM)

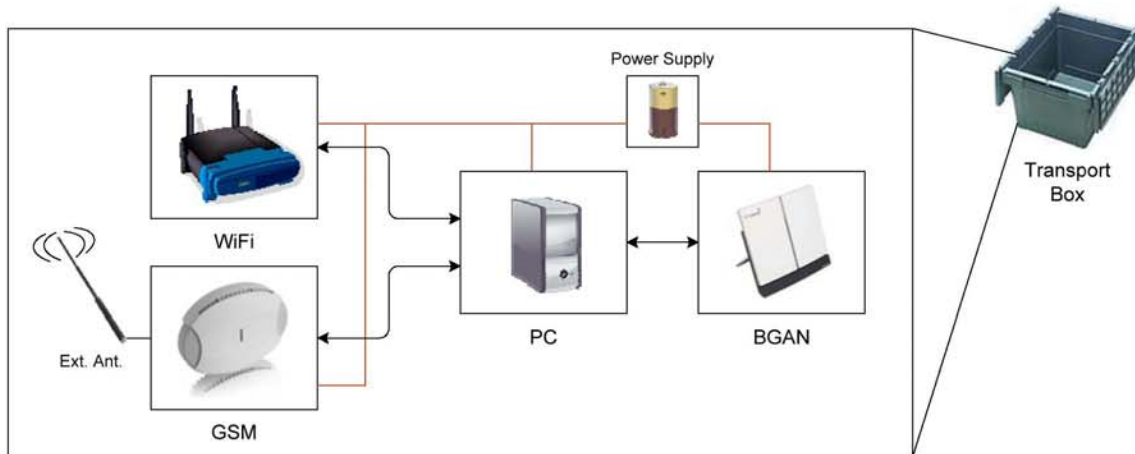
disaster site



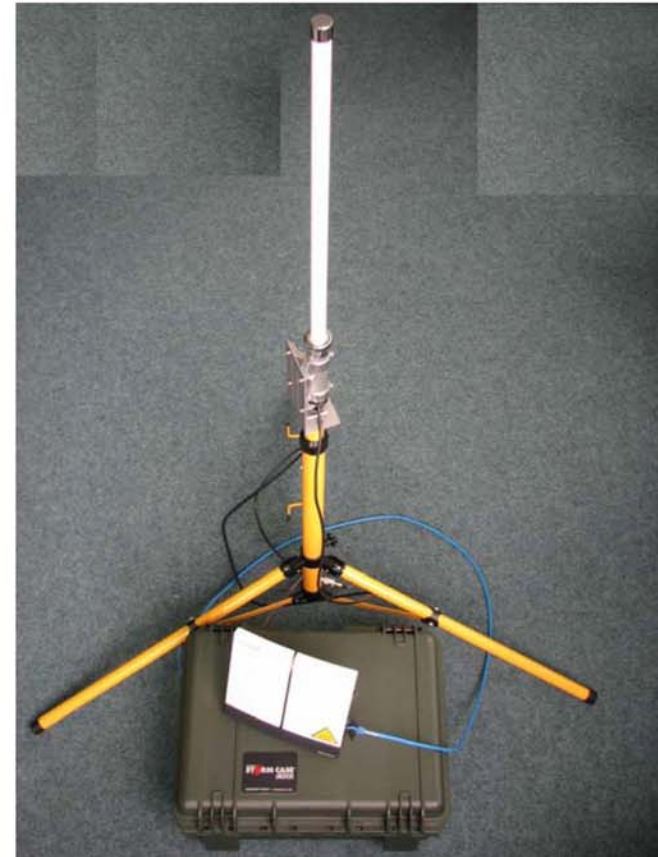
remote control center



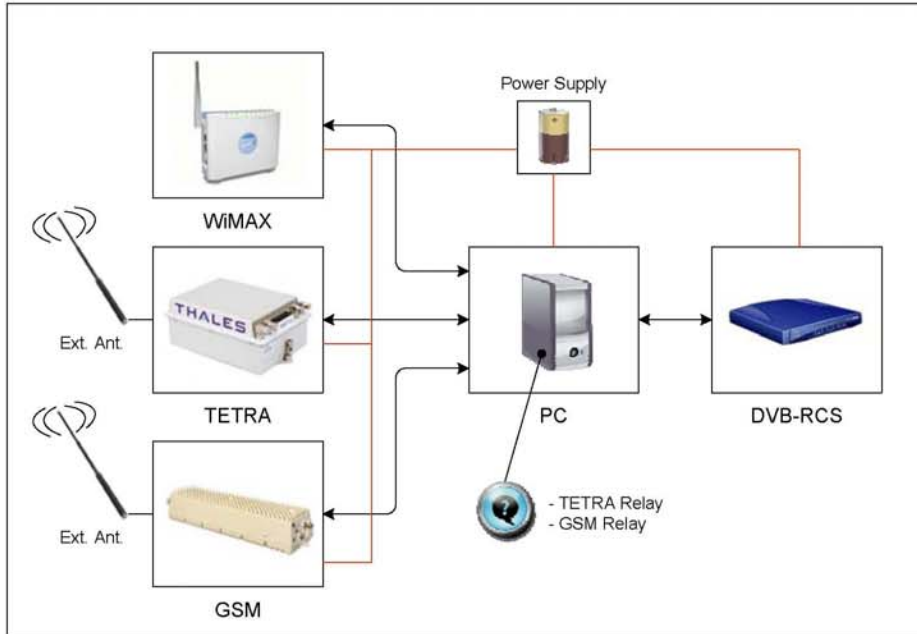
BGAN Configuration:



- Simple to install
- Small size, light to carry

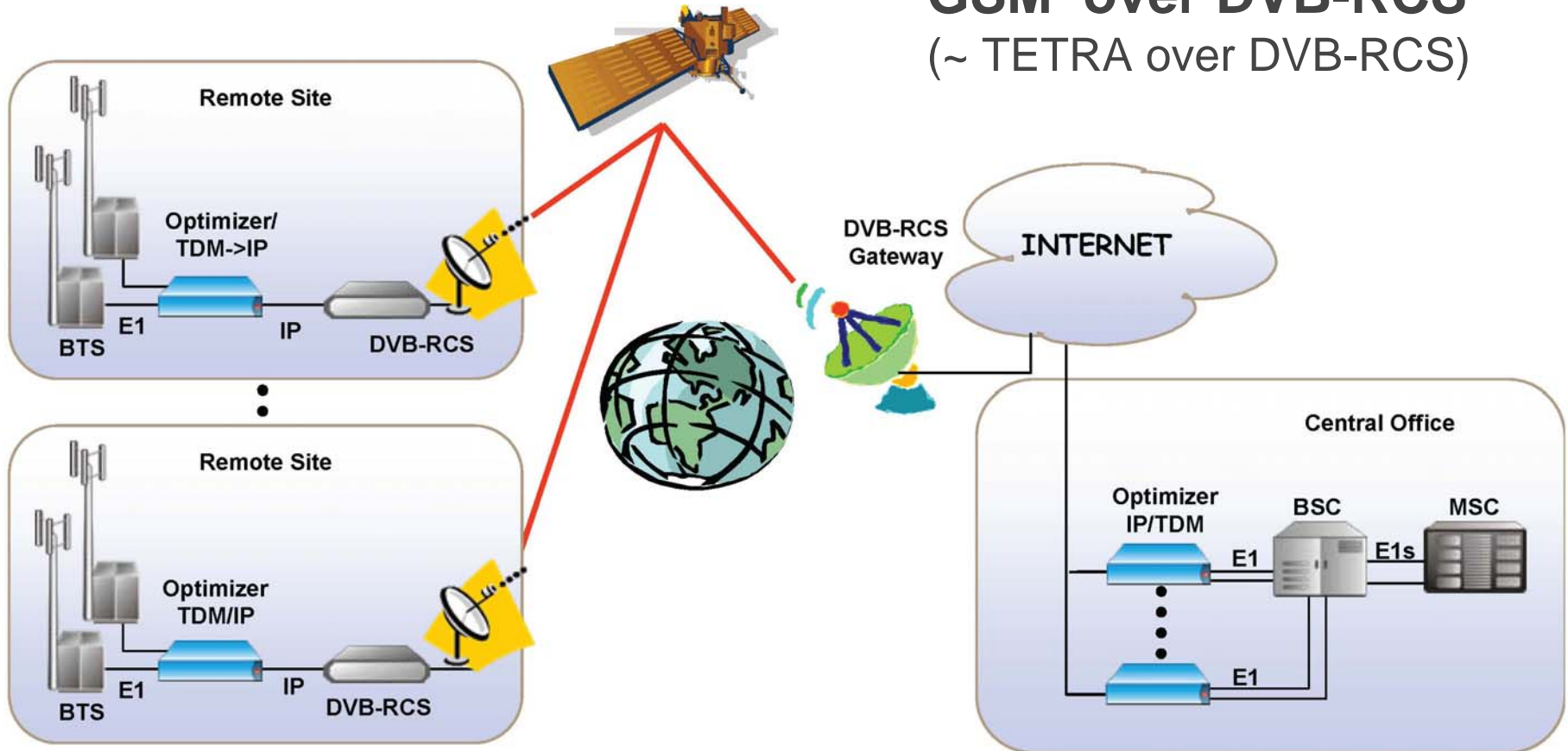


DVB-RCS Configuration:



- Bigger wireless coverage (~Km)
- Higher bitrate over satellite

GSM over DVB-RCS (~ TETRA over DVB-RCS)



WiFi / WiMAX over DVB-RCS

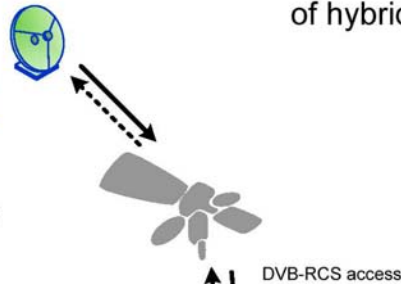
Disaster communications: first example of implementation of hybrid WiMax-satellite local loop

Disaster safe segment



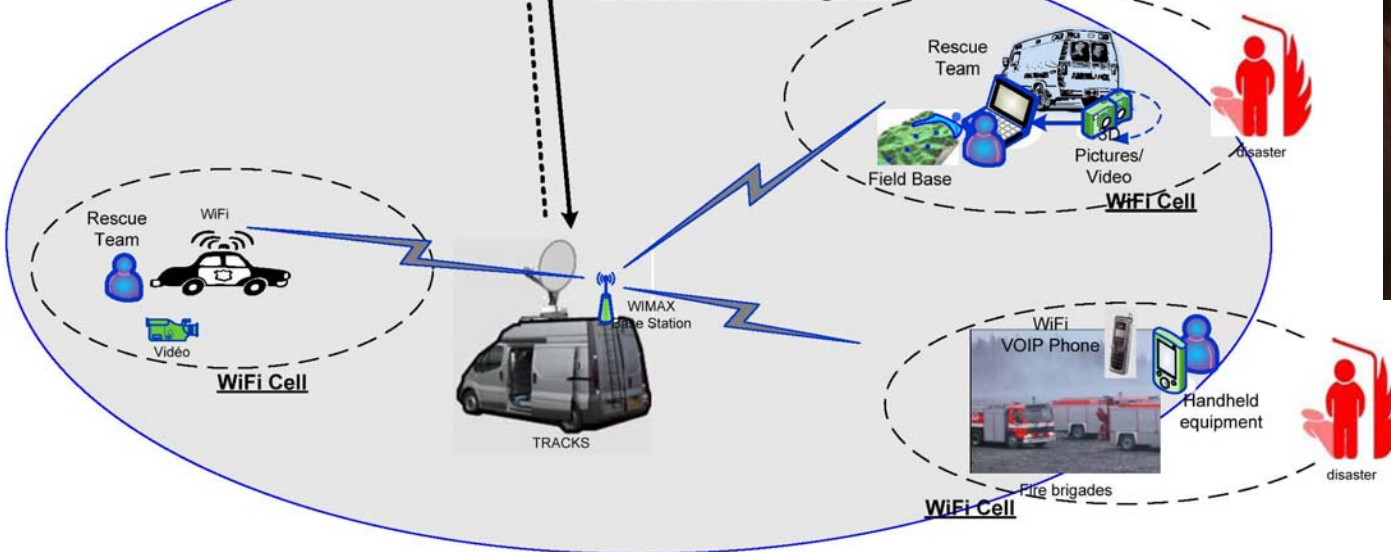
e.g. headquarters

- Centralised database processing:
- asset mapping
 - rapid mapping
 - damage assessment
 - etc



DVB-RCS access

WIMAX zone on disaster-site segment



Basic configuration:
Tracks + Wimax Base Station
WIMAX LOOP around TRACKS

Several WiFi Access Points
User equipment WiFi compatible



links:

www.wisecom-fp6.eu

www.emergesat.org

telecom.esa.int/telecom/www/object/index.cfm?fobjectid=11473

www.publicsafetycommunication.eu



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