

Integrated Information and Communication System for Disaster Management

Manzul Hazarika, PhD
Associate Director, Geoinformatics Center
Asian Institute of Technology (AIT)
manzul@ait.asia

Geoinformatics Center
Asian Institute of Technology



Introduction



In an event of a **disaster** there are two major communications obstacles:

- 1) **First**, damaged or destroyed terrestrial networks may create communications blackout.
- 2) **Second**, due to sudden increase in communication demand existing communication system quickly oversubscribed and making communications difficult or sometimes impossible.



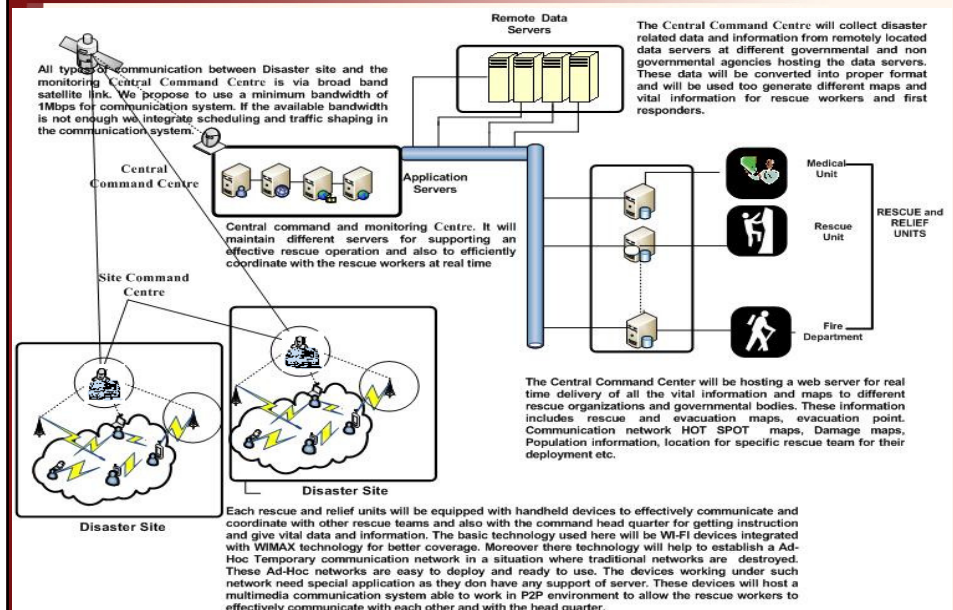
Necessity



A dedicated bi-directional communication system is required with following features:

- ✓ Provide a reliable platform for emergency communications.
- ✓ Robust enough to integrate all available communication means, bypassing the damaged networks.
- ✓ Extend its reach to any location quickly.
- ✓ Portable, ease to deploy and cost effective.

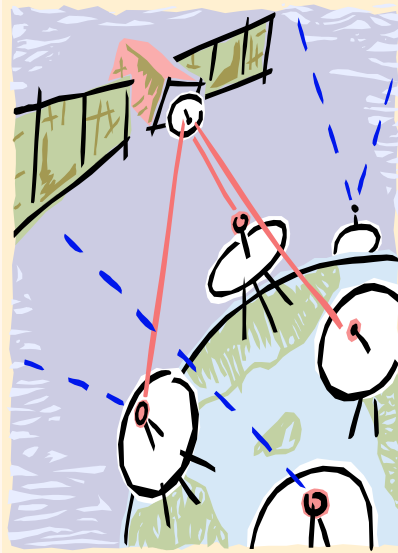
An Ideal Communication System



Primary Mode of Communication (Broadband Satellite)



- Very small aperture transmission
- Requires Small Dish Antenna (1.0 m or less)
- High-speed connectivity
- Infrastructure dependent
- Recent Advances - WINDS satellite from JAXA, Japan

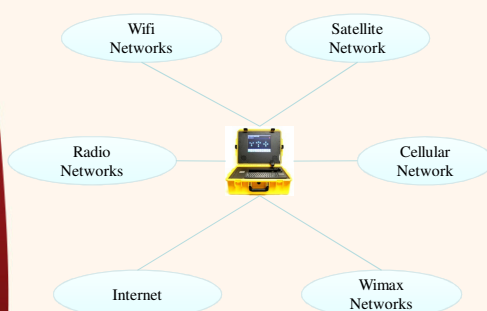


System Integration to Accommodate Other Communication Channels



Interoperable Devices

- Operable with all networks and capable of bridging different networks
- Support VoIP/Video application
- Portable and only one device can interface among different networks



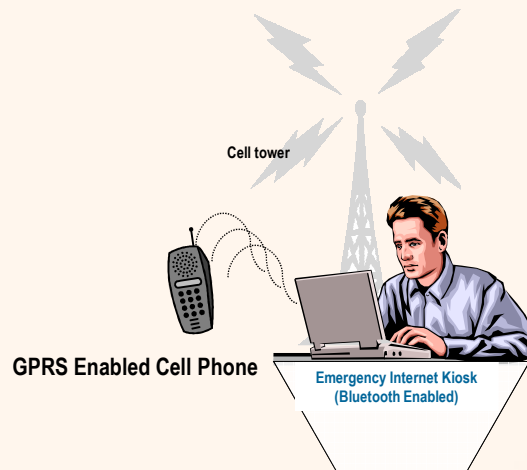
<http://sytechcorp.com/>

GPRS/CDMA Cellular Phone based service



GPRS/CDMA cellular phone provides

- Reliable, Always-On Internet Connection for a fixed package
- Good penetration
- Data exchange capability



Devices that can be used for Warning Dissemination on such Networks



Ham Radio Network

- A short wave Voice communication device
- Suitable for long distance communication up to 1.5 km
- Cost effective
- Infrastructure dependent
- It works well with warning dissemination

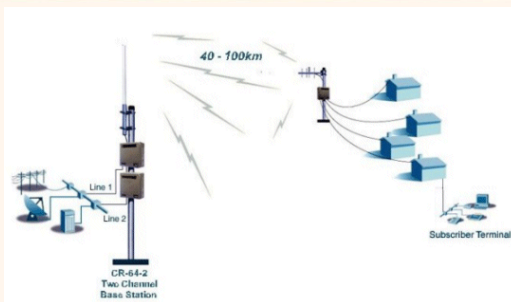
Wi-Max Devices



- Fully Common Alerting Protocol (CAP) compliant
- Support all range of data-communication text, audio (VoIP), video
- Point-to-point and base station mode capability
- Easy Interface with Wi-Fi networks
- Integrated GPS-based mapping tool



Long Range Cordless Phones



- Data transmission up to 56K, Public Switched Telephone Network (PSTN)
- 4 lines expandable to 16 lines with up to 64 users
- Communication range up to 100 Km in open space link with Notebook, PDA, FAX machine and desktop, automatically for wireless data transmission



Thank you for your kind attention