NZRC
Succinct Data Communication System

Smartphones beyond cellular infrastructure
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  - IT&T Emergency Response Unit
  - South Pacific Red Cross Telecoms projects
  - Portable Reverse Osmosis Plant
Red Cross Starts Working Where Others Stop

• Require communications tools that:
  • Reach beyond infrastructure
  • Function when infrastructure has failed
NZRC experiments with Smartphones:

- Design philosophy
- Freeing smartphones from the cellular network
- Practical application in Pacific Island Red Cross societies
Design Philosophy

• When you abandon ship you will only have what is on your person.
• A smartphone can contain
  – all the information you need
  – all the tools you need
  – all the processing power you need
• Larger displays and keyboards can be added, but are not essential
Succinct Data

• The smarts of a smartphone freed from the limits of cellular infrastructure:
  – Wi Fi mesh
    • Project Serval
  – Satellite Text
    • DeLorme inReach
  – Electronic Forms
    • Kestrel Technology Group
Project Serval
Wi Fi Mesh
DeLorme inReach

Iridium Satellite

Acknowledgement

Live Tracking Data

BlueTooth

https://explore.delorme.com
DeLorme Web Site

www.redcross.org.nz
Kestrel Technology Group

Electronic Forms and Data Fusion

Gather Reporting Application

Inable Reporting Application

Serval Mesh Network

‘Store and Forward’ Reporting

Cellular

Kestrel FusionPortal

https://pe11.fusionportal.org

‘Store and Forward’ Reporting
NZRC Succinct Data

Gather Reporting Application

'Store and Forward' Reporting

Inable Reporting Application

SMS Gateway

XML Reports

Assessment and Live Tracking Data

Cellular

Kestrel FusionPortal

https://pe11.fusionportal.org

Gather Reporting Application

Serval Mesh Network

Assessment and Live Tracking Data
Benefits 1

• Real time tracking for safety and management of personnel
• Two way communication without local infrastructure yet without range limits
• Formatted data is collated, analysed and displayed without delay or transcription errors
Benefits 2

- Path diversity creates a robust system
- Hardware costs less than a handheld radio
- Most personnel are more at ease with a cellphone than a radio
- Costs less to use than satphones
- Fits in your pocket
Benefits 3

- Integrates with cellular where available, same interface can be used before, during, and after the disaster.
- Cellphones, Wi Fi, and satellite beacons are *much* easier to move across borders than radios and satellite terminals (voice or data).

www.redcross.org.nz
Practical Applications

• Successor, in South Pacific Red Cross societies, to the *Talking Briefcase* and *Talking Suitcase* projects.
  – *Talking Briefcase*. Iridium phone packaged to survive disaster and operate indefinitely thereafter
  – *Talking Suitcase*. Portable VHF repeater system. Create radio footprint where and when required.
Succinct Data in South Pacific Red Cross Societies

• Communication with remote branch offices:
  • Tsunami and cyclone warning systems
  • Post disaster reporting

• Forward HQ with briefing facilities:
  • Transportable by air as hand baggage (each <7Kg)
  • Independent of local power supply and internet
    • Yet can be shared globally via www

• Personnel tracking and management
  • Disaster assessment reporting
The End

Any Questions?