

NZRC Succinct Data Communication System

Smartphones beyond
cellular infrastructure

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- Manager: Emergency Telecoms and International Disaster Response Capability.
 - 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

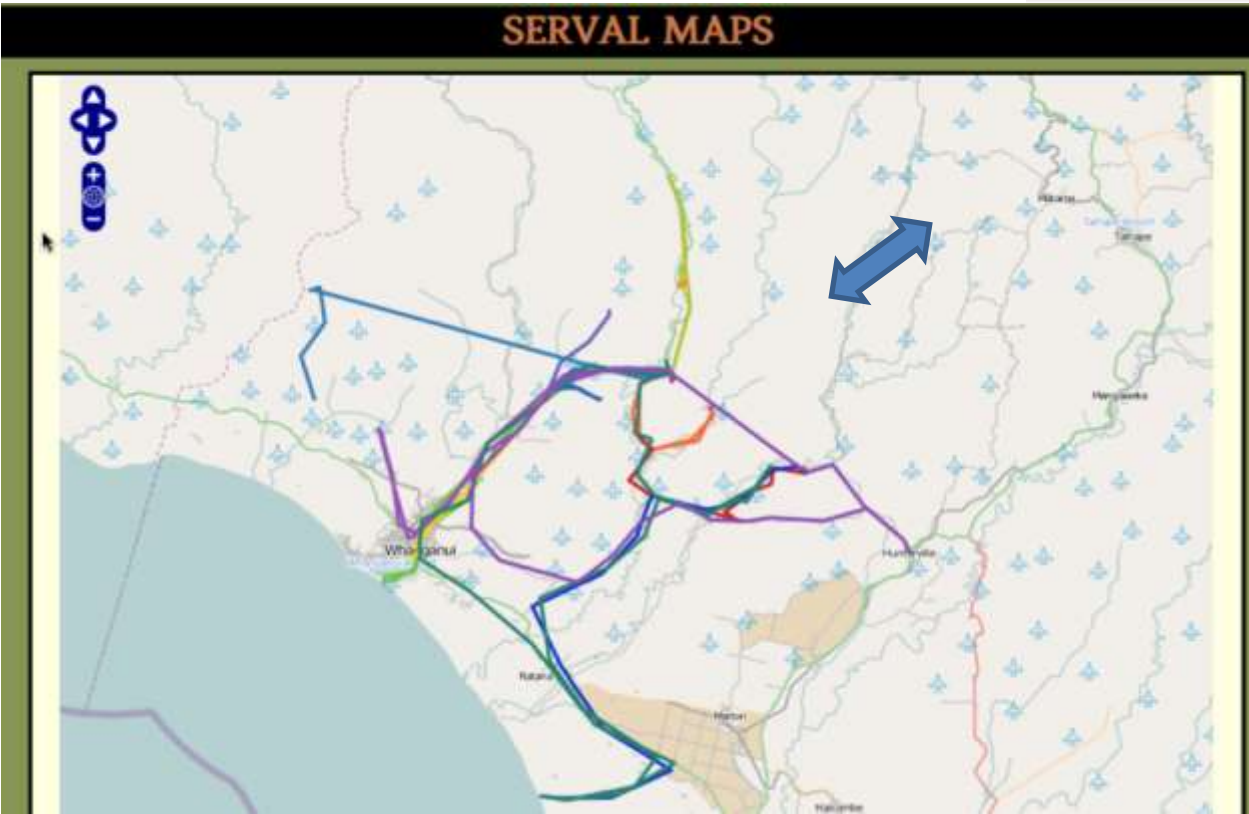
- The smarts of a smartphone freed from the limits of cellular infrastructure:
 - Wi Fi mesh
 - Project Serval
 - Satellite Text
 - DeLorme inReach
 - Electronic Forms
 - Kestrel Technology Group

Project Serval

Wi Fi Mesh



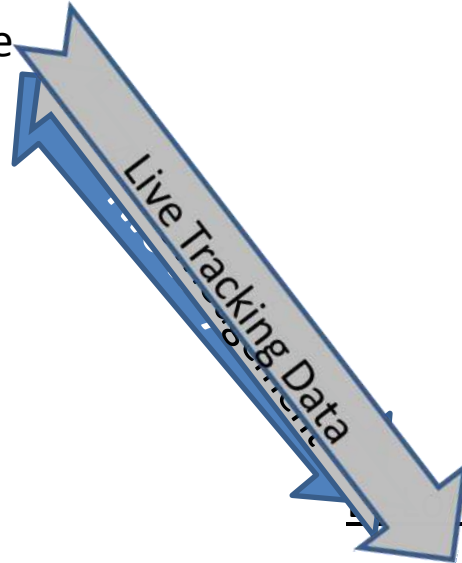
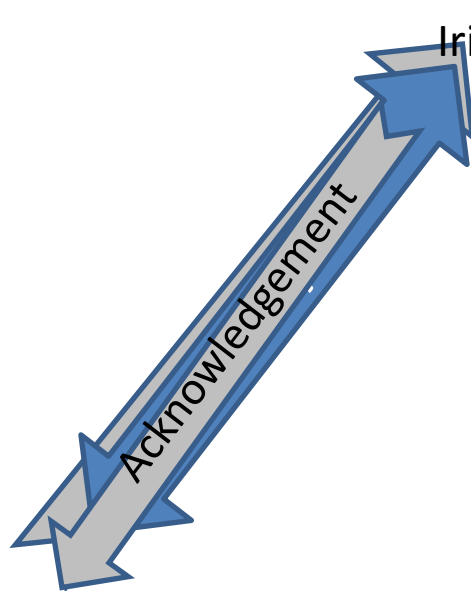
SERVAL MAPS



DeLorme inReach

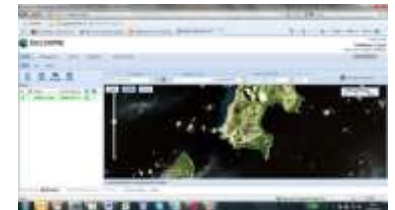


Iridium Satellite



BlueTooth

Home Web Page



<https://explore.delorme.com>

DeLorme Web Site

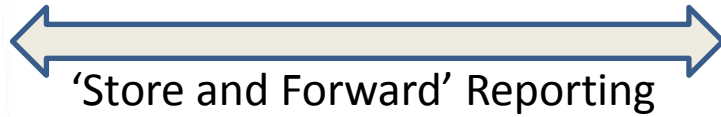
The screenshot displays the DeLorme web application interface. At the top, the browser address bar shows the URL <https://enterprise.delorme.com/>. The page header includes the DeLorme logo, a user profile for Matthew Lloyd (Time zone: Auckland, Wellington), and navigation links like Home, Messages (0), My Info, MapShare, and Admin Controls. Below the header, there are tabs for Map, List, and Export. The main interface features a map with a purple path and several purple location markers. The map is titled 'Topo' and includes a scale bar (0, 300, 600ft) and a coordinate system note: 'Coordinate System: Decimal Degrees (WG584)'. On the left side, there is a 'Users' table with columns for ID, Name, and Current Device. The table lists users grouped into three categories: KiwiEx 2013 (3 Users), NZRC (2 Users), and R & D (Kris) (4 Users). The bottom of the page shows the footer with 'Powered by GeoPro', version information, and links for Privacy Policy and Legal. The Windows taskbar at the bottom indicates the system time as 20:46 on 6/05/2013.

ID	Name	Current Device
Group: KiwiEx 2013 (3 Users)		
KiwiEx2013 Lo...	30023401106...	
KiwiEx2013 T...	30023401126...	
KiwiEx2013 T...	30023401187...	
Group: NZRC (2 Users)		
Matthew Lloyd	30023401057...	
Matt Poole 08	30023401149...	
Group: R & D (Kris) (4 Users)		
New User 03	30023401108...	
New User 2	30023401128...	
New User 4	30023401106...	
New User 5	30023401188...	

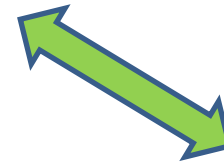
Kestrel Technology Group

Electronic Forms and Data Fusion

Gather Reporting
Application



Cellular



Kestrel FusionPortal



<https://pe11.fusionportal.org>

Inable Reporting
Application

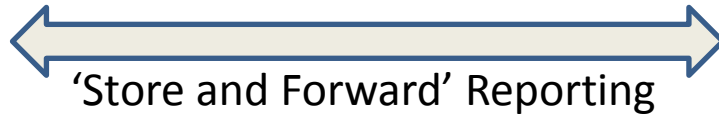


Serval Mesh
Network

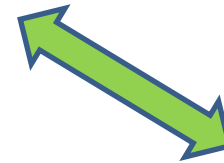


NZRC Succinct Data

Gather Reporting Application



Cellular



Kestrel FusionPortal

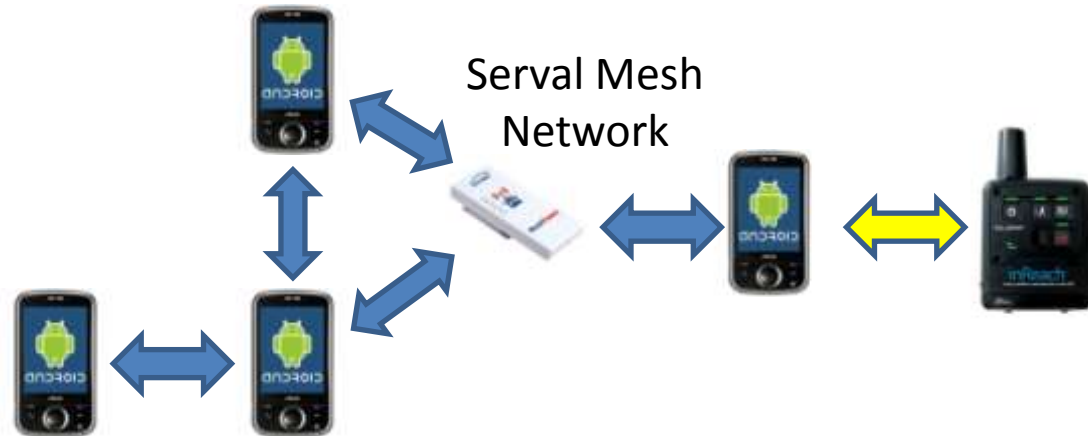


<https://pe11.fusionportal.org>

Inable Reporting Application



Serval Mesh Network



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).

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?