ISP in a suitcase for deployment during a natural disaster

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WHY ARE YOU WORRIED ABOUT THE INTERNET DURING A NATURAL DISASTER?

Motivation

- Christchurch Earthquake 22nd February 2011
- Occurred during APRICOT 2011 in Hong Kong

Some of you have been to Christchurch

Crowne Plaza Hotel demolition starts today

Last updated 08:48 12/12/2011

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DAVID HALLETT/The Press

The Press Headlines

- Christchurch quake anniversary: Live updates
- We will mourn, share sadness and remember
- Much work to yet be done in Christchurch
- From the midst of chaos, a friendship
- Hospital escapee faces cemetery theft charges
- Pacific Blue plane in emergency landing
- Quake victims' interment site officially unveiled
- On the run in gown and handcuffs
- Grieving gather for unveiling
- Handcuffed man flees police in gown
- Founding father features in exhibition
- Man threatening harm sparks callout
- Pellet gun sparks IRD incident
- Christchurch crime stop

Stuff Headlines

- Christchurch quake anniversary: Live updates
- Forty minutes of hell that we still feel
- Much work to yet be done in Christchurch
- From the midst of chaos, a friendship
- Global remembrance of the Christchurch quake
- Pacific Blue plane in emergency landing
- 72-year-old claims to be world's shortest man

Mobile technology takes centre stage in disaster relief

"Rescue missions after the Sri Lankan tsunami and Haitian earthquake were boosted by using mobile phone networks, satellites and other computer software"

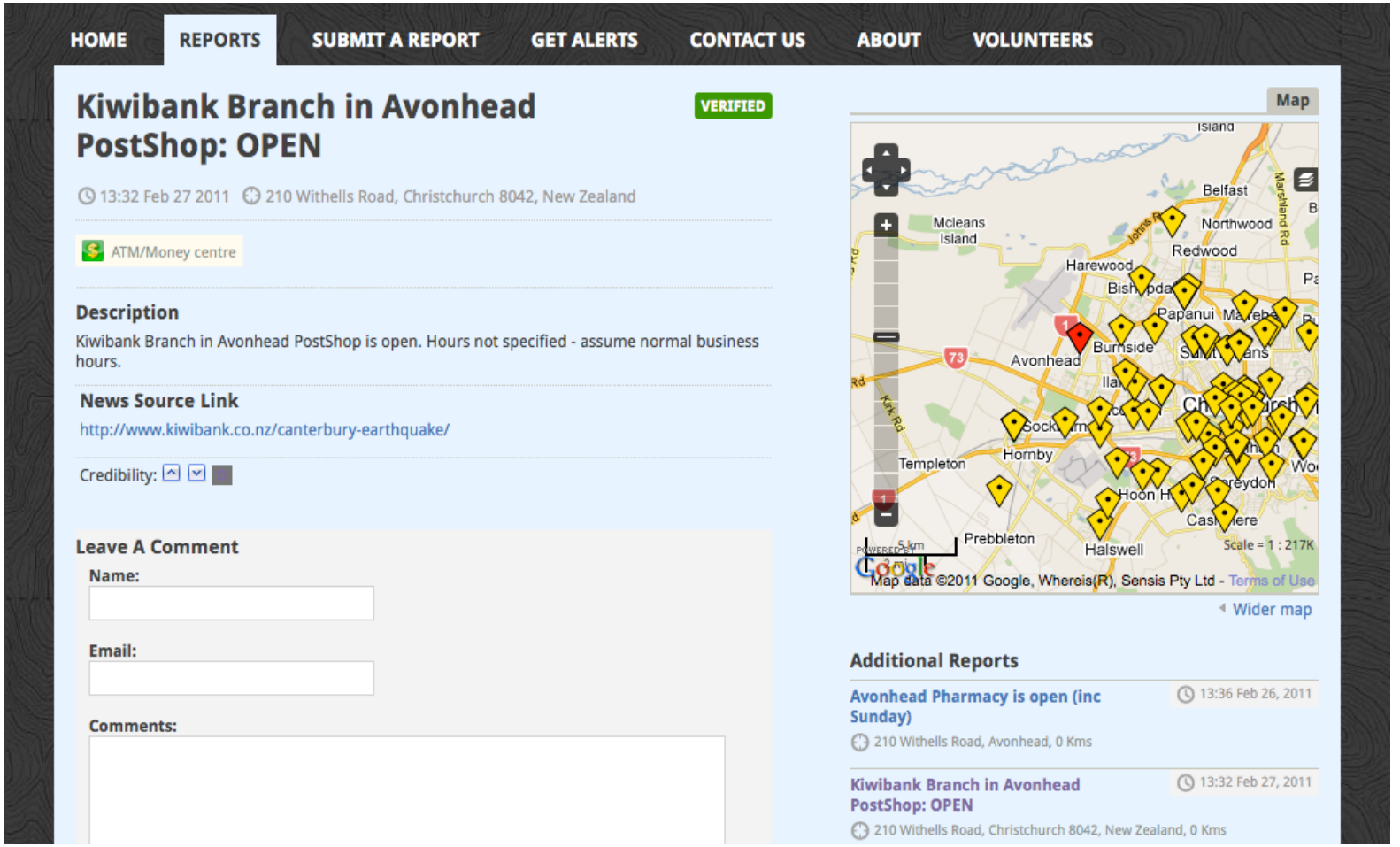
Kate Bulkley The Guardian, Friday 18 June 2010 11.07 BST

Layer 5 – 8 and beyond

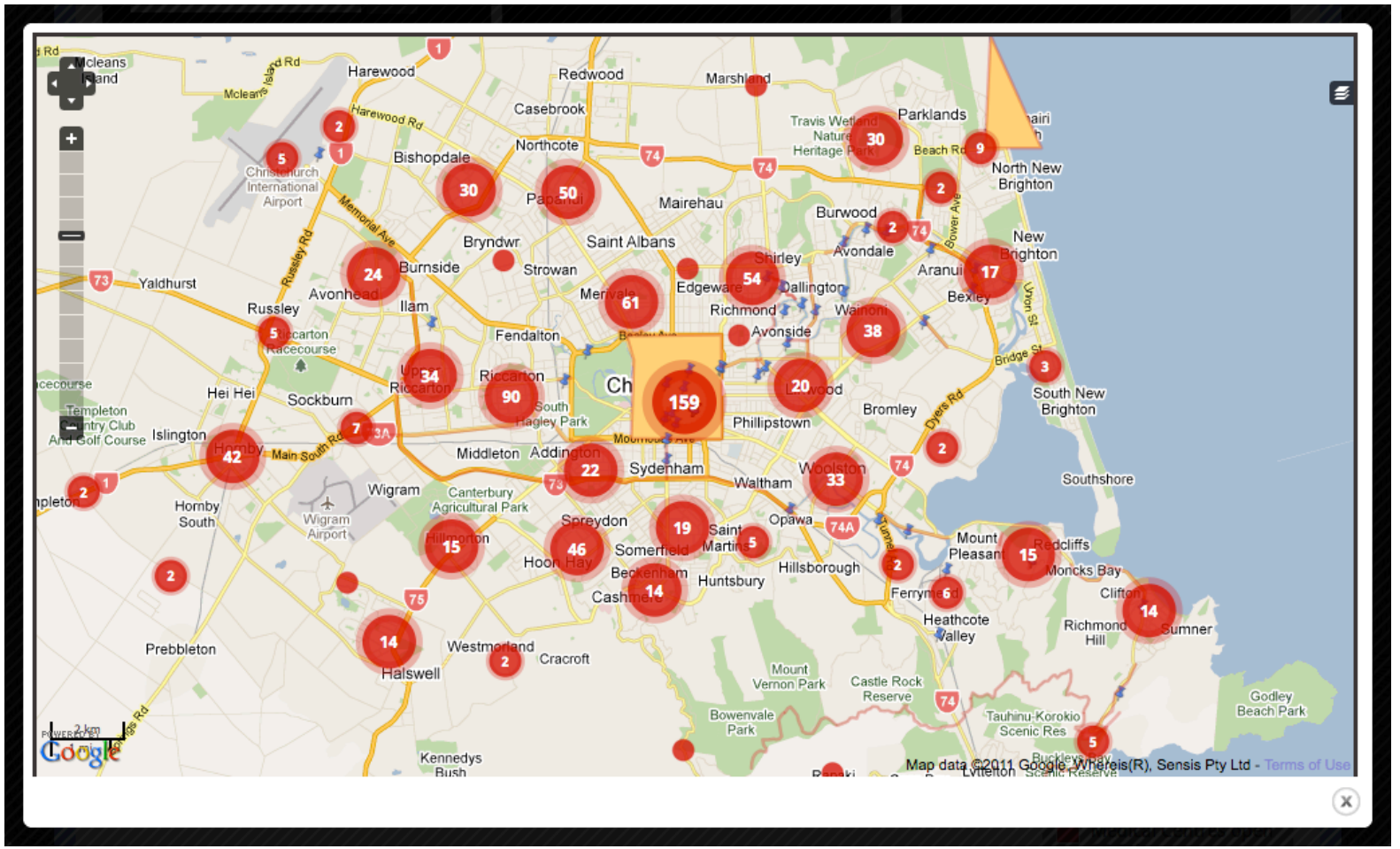
Assuming the network is operational, what can we do with it?

- Christchurch Recovery Map
  - http://eq.org.nz/
- Student Volunteer Army
  - http://www.facebook.com/StudentVolunteerArmy
- Trade Me
  - http://www.trademe.co.nz/christchurch-earthquake-support

Christchurch Recovery Map



Christchurch Recovery Map



Trademe Earthquake Support

Student Volunteer Army

Liquifaction

A New Environment

- The Internet became the way that people communicated and shared information about their new environment

Supply and Demand of essential information

- Organisations/individuals which have information to provide need to have a reliable way to access the Internet
- Organisations/individuals which are in need of information need to have reliable access to the internet.

Supply

- Banks
- Service Stations
- Hospitals
- GPs
- Civil Defence
- Supermarkets
- Libraries
- Schools
- People looking for family members

Demand

- People looking for family members
- Organisations wanting to relocate and carry on with business
- Hospitals
- Organisations who have to relocate to the effected area temporarily

New Environment

- Nothing is the same
- You can’t rely on existing infrastructure being available
- How many of you are ready for weeks with no electricity, running water, sewage?

HOW DO YOU ENSURE ACCESS TO THE INTERNET IN A COMPLETELY NEW ENVIRONMENT?

Requirements

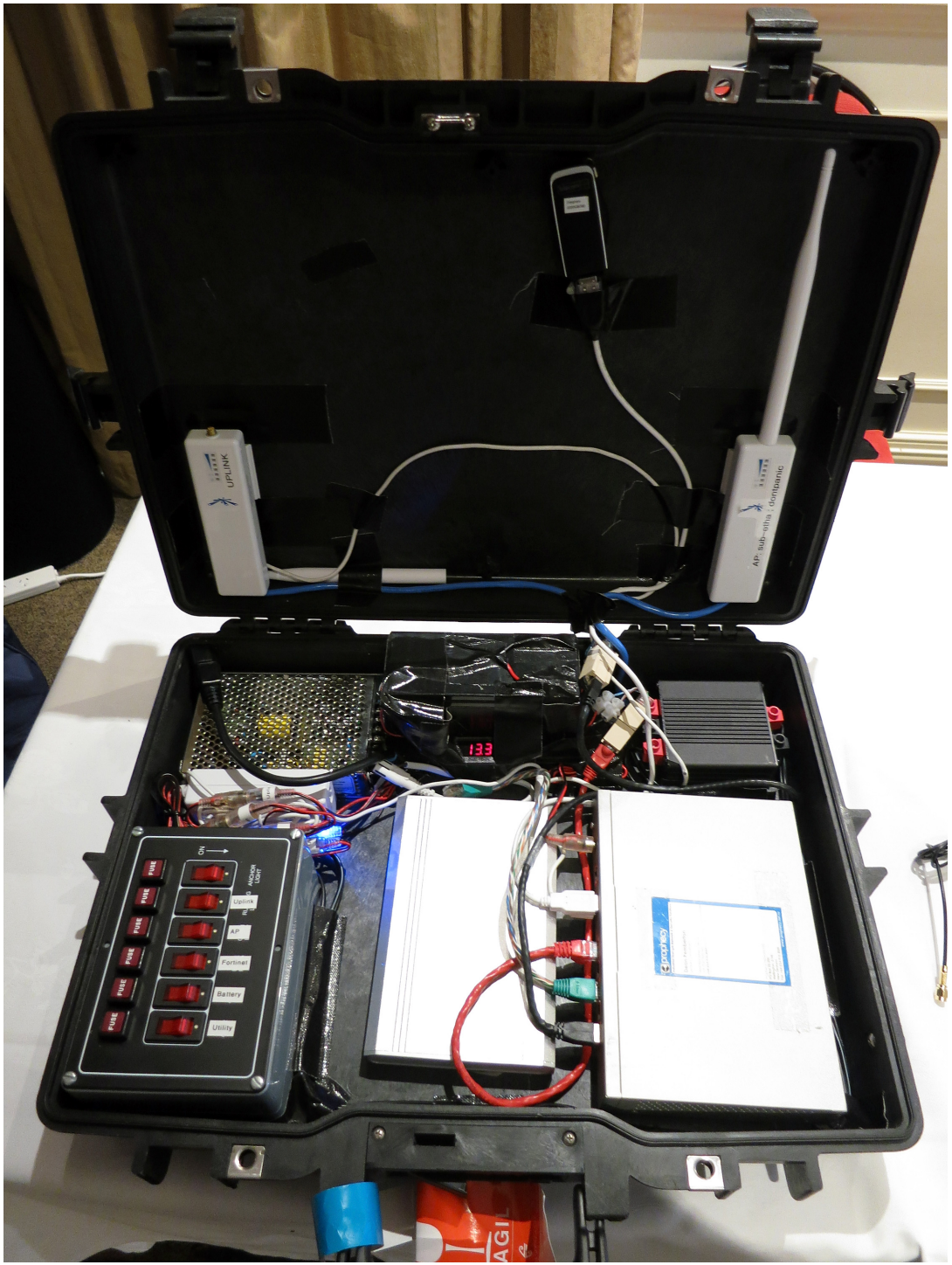
- Cheap
- Easy
- Modular
- Must be flexible enough to make use of whatever infrastructure is available

So how hard is this?

- Given that we know what we are trying to achieve
- Is it possible to build a unit which anyone could put together?

The important thing is actually doing it!

- Yeah there are places you can buy these things.
- But the most important thing is actually doing it


UPLINK
AP: sub-ethia : dontpanic
133
ON
FUSE
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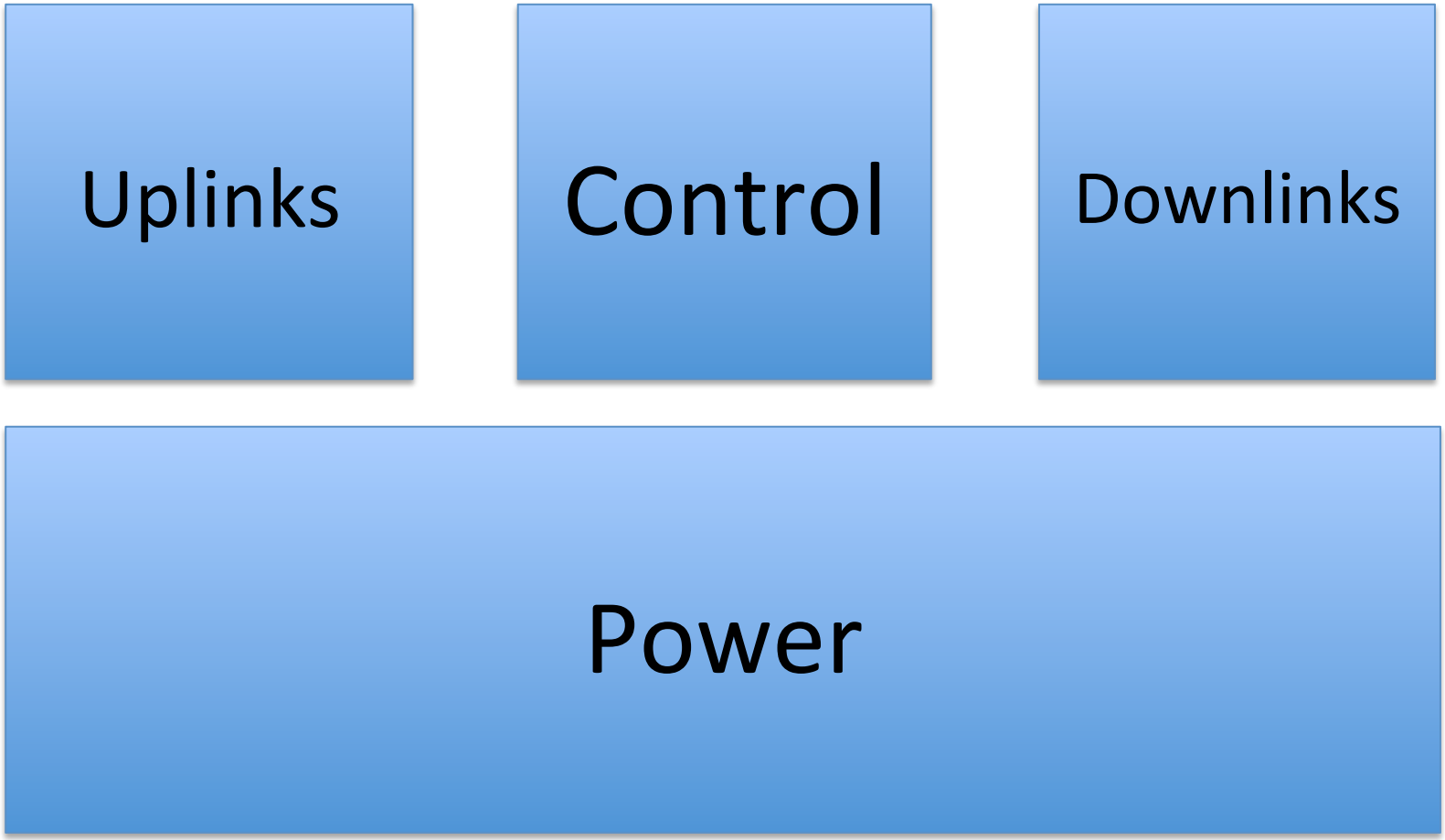
FUSE
FUSE
ANCHOR LIGHT
Uplink
AP
Fortinet
Battery
Utility

Overview



Case

- Pelican Case 1495

Power

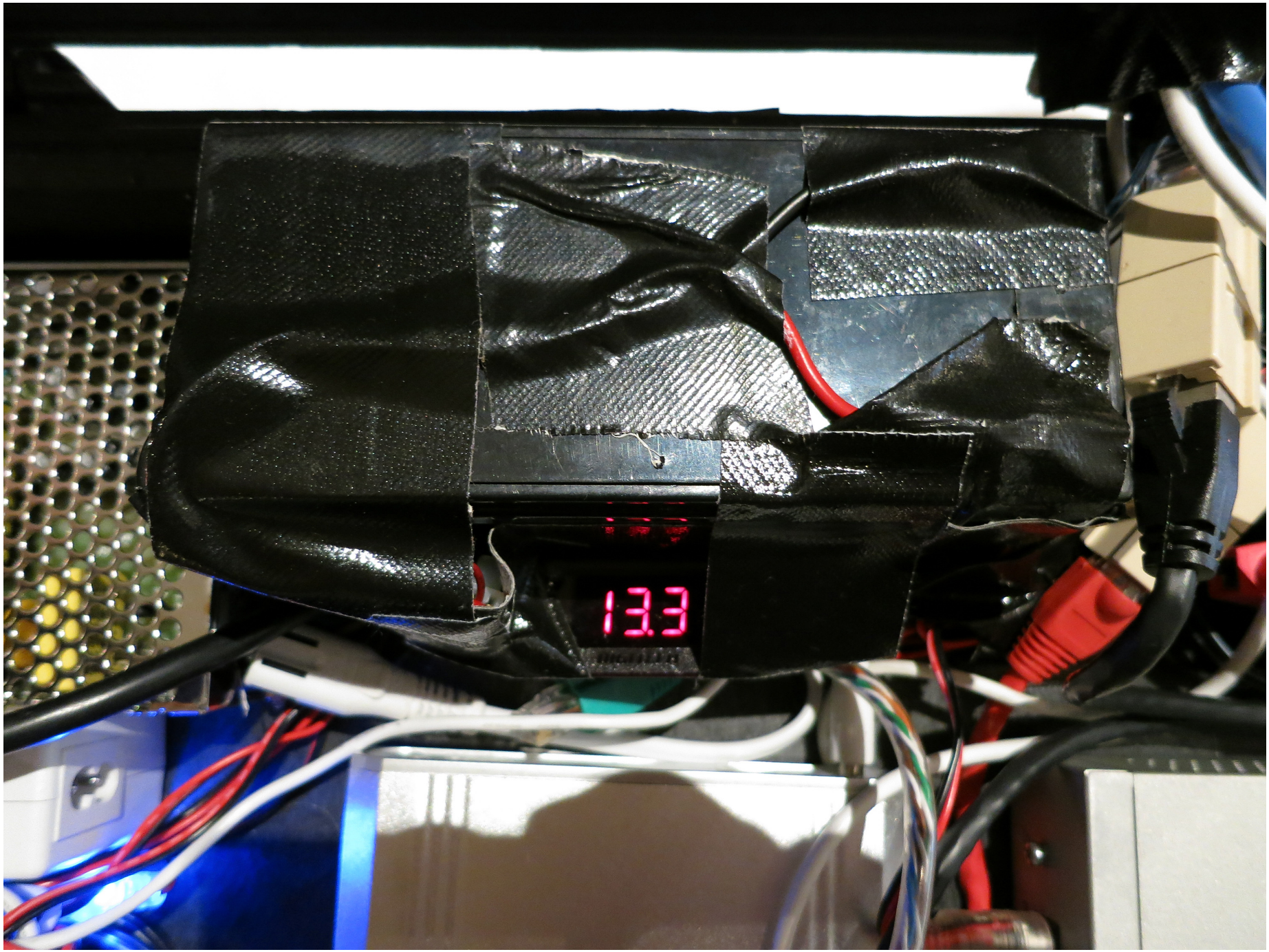
- Mains
- 12V
- Battery
- Solar
- Generator
- Car

Power

- Mains Power into a 60W switchmode supply

Power

- 12V Sealed Lead Acid


13.3

Power

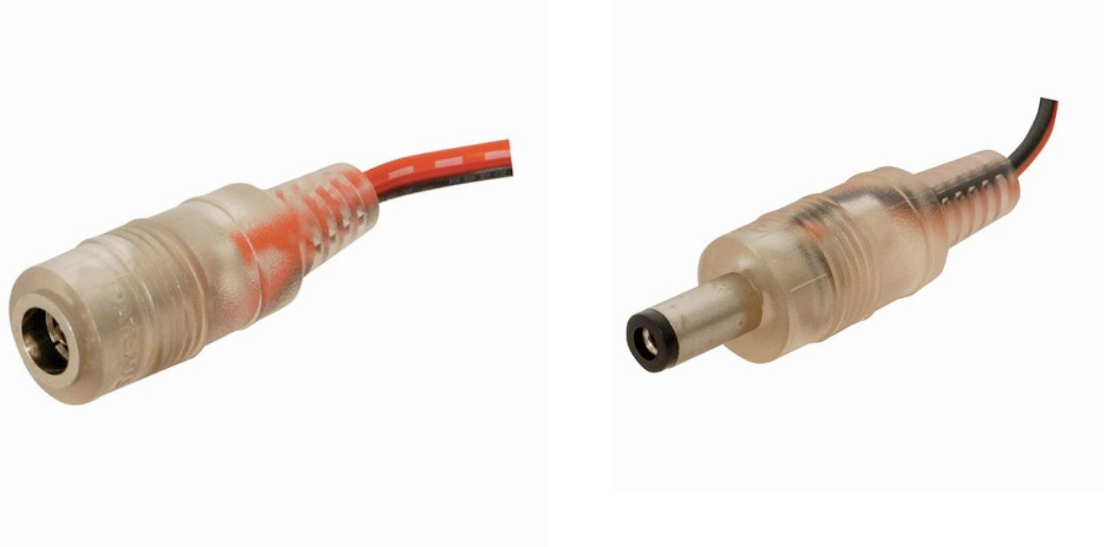
- Battery backup unit
- BBM-1225 (Battery backup Mod 12/24V - 25A) Charger

Power

- Car charging
- Any 12V battery – Alligator Clips

Power

- Modular – Keep all connectors standard and simple
- These ones have LEDs so you can see what is ‘live’

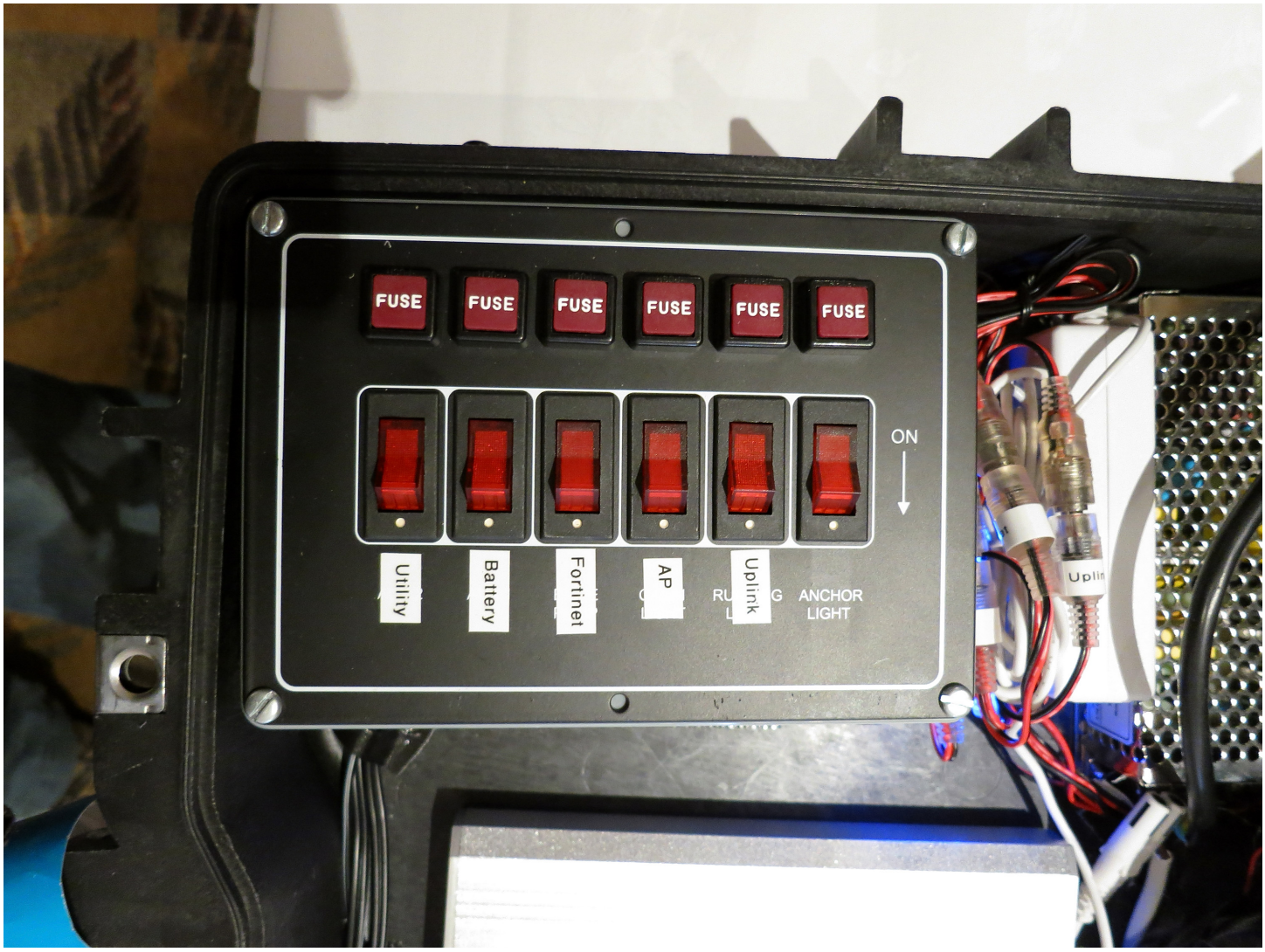


Power

- HyperJuice
- Powers Macbook
- USB charger

Power

- Need 12V for some things, but runs a bit hotter to charge the battery
- Float charge


FUSE
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ON
Utility
Battery
Fortinet
AP
Uplink
ANCHOR
LIGHT

Power

- Solar?
- Backup Generator?

Uplinks

- Ethernet
- 802.11
- Cellular
- Satellite

Uplinks

- Wireless
- Ubiquiti Picostation2 HP

Uplinks

- 3G
- Choose lots of carriers
- External Antenna?

Uplinks

- Satellite
- BGAN
- Connection of last resort

vodafone
SABRE I
wideye
inmarsat
CAUTION

Uplinks

- Other?
- What uplink options am I forgetting?
- Where could you go and still be disconnected?

Control

- Fortinet 50B
- Routing, failover, access control
- Captive portal
- Users
- UTM

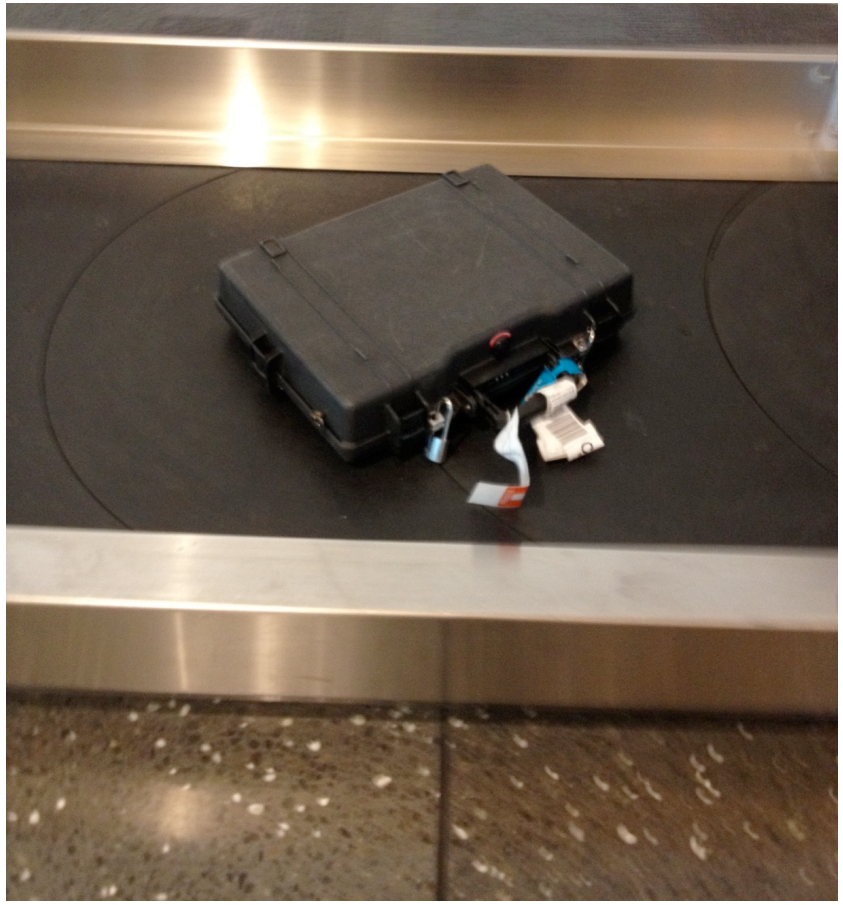
Control

Downlinks

- Ethernet
- 802.11

Can you get it on a plane?

- 12kg – so not carry on at the moment
- But with the MSDSs they didn't mind it checkin



Does this solve the problem?

- It certainly goes a long way to giving people access to the internet in the absence of traditional infrastructure
- It gives organisations and individuals an ability to access internet resources while they work out how to survive in their new environment

Can you do even better?

A lot of people do much the same as I do

http://www.flickr.com/photos/bendechrau/

Some people do even better

SolarNetOne

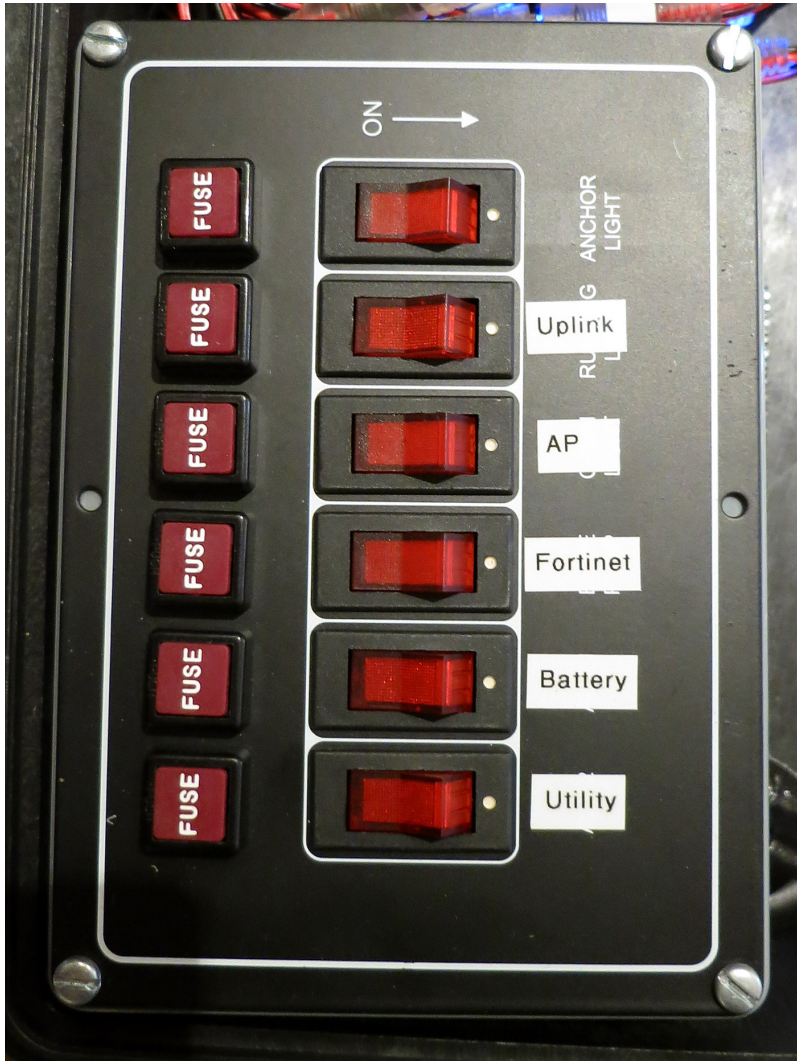
- http://www.gnuveau.net/cgi-bin/wiki.cgi

Internet-in-a-box for areas without electricity

Ignition networks

Nice and easy to use in a crisis

A little bit different



Questions