Wherefore art thou CDN?

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InternetNZ

About New Zealand but…

- This presentation shows examples for New Zealand.
- It should translate to a lots of small Asia Pacific (especially Pacific) countries however.
- Look out for similarities, throw up a hand at the end and let us know.

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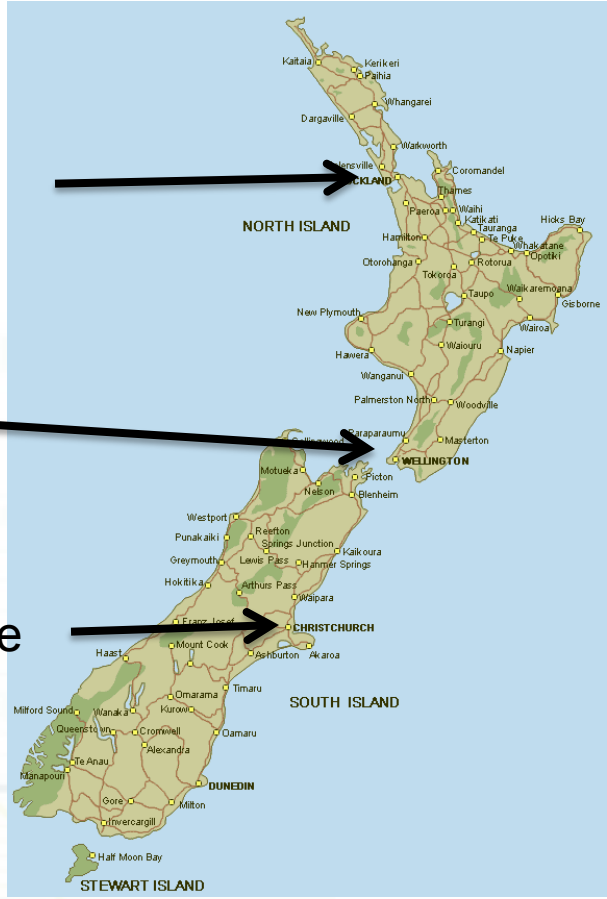
A tale of two islands

New Zealand

Auckland = Largest City

Wellington = Capital City

Christchurch = Big Earthquake



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One day the islands got the Internet

All the way back to the US

Over a very slow modem

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Some things haven't changed.

- Still a long way away from the rest of the world.

US	– 210ms
India	– 290ms
Hong Kong	– 230ms
Korea	– 250ms
Singapore	– 190ms
Australia	– 60ms
Japan	– 190ms
Taiwan	– 250ms
UK	– 390ms

- http://www.verizonbusiness.com/terms/global_latency_sla.xml

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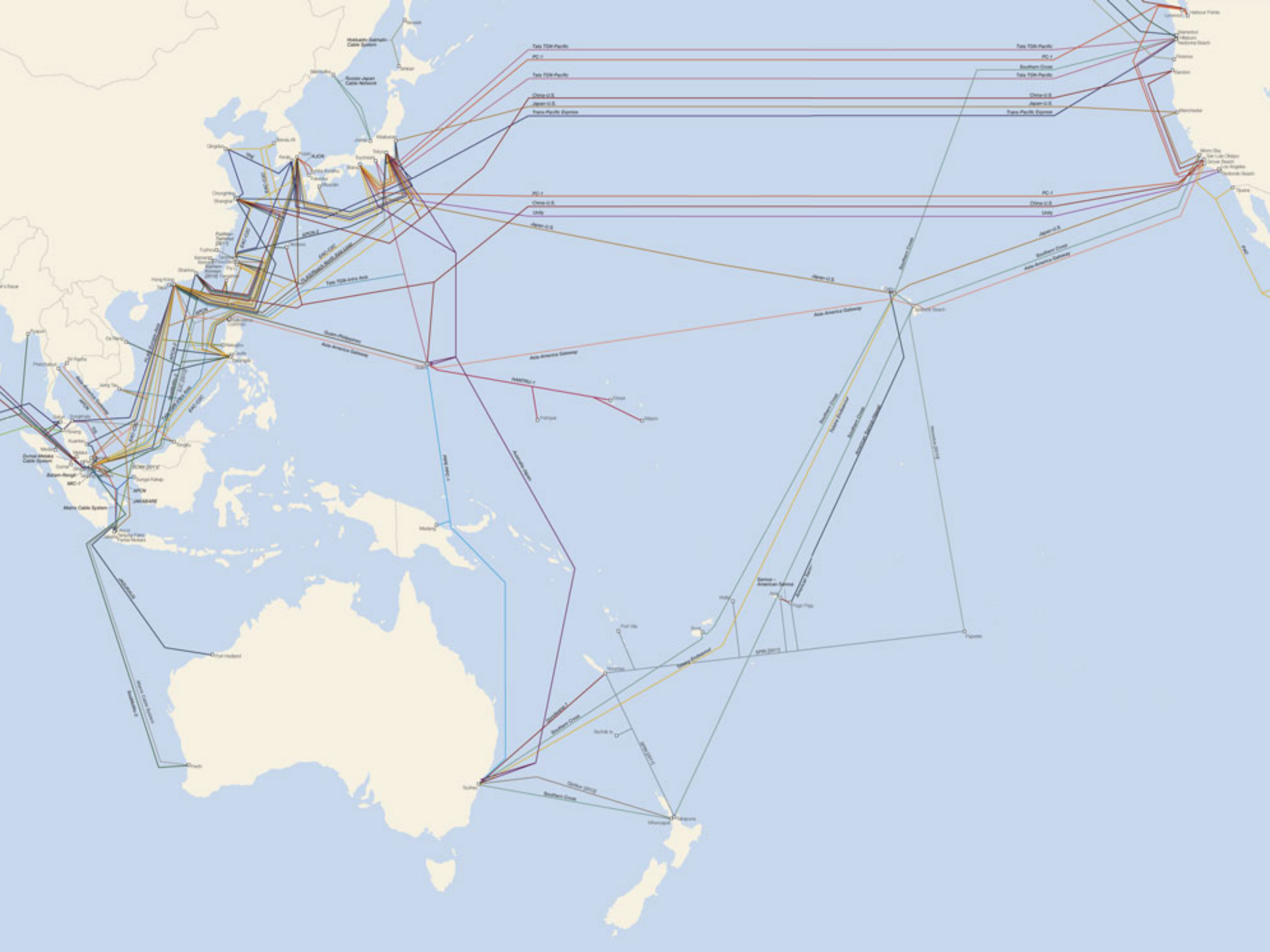

Tata TGN-Pacific
PC-1
Tata TGN-Pacific
China-U.S.
Japan-U.S.
Trans-Pacific Express
Southern Cross
PC-1
China-U.S.
Unity
Japan-U.S.
Asia America Gateway

All I want for Christmas is…

a shorter wet piece of glass.

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That doesn’t seem very likely

There are some providers looking at new cables, but they are years away

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And it just got worse

Pacific Fibre: “We gave it a good try”

Wednesday Aug 1, 2012

“Pacific Fibre, the company that hoped to build New Zealand's second international internet link, will cease operations after failing to raise enough capital for the project.”

http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10823806

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There may be hope!

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This is how things used to work

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Enter the CDN

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That’s Awesome! How do I get one!

How can I convince all the CDN providers to put nodes in New Zealand?

That would solve my wet glass problem.

This turns out to be a lot harder than you’d think

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How do CDNs see NZ?

Certainly not as a country.

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We’re a bit to small for that.

.We only have 4.4 million people

Central African Republic	4,576,000
Georgia	4,497,600
New Zealand	**4,433,470**
Costa Rica	4,301,712
Palestinian territories	4,293,309
Lebanon	4,292,000

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We are somebody else's suburb

But here is the big question…

Who's suburb are we?

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CDN Locations

	NZ Resident	NZ Colo	Aus Res	Aus Bus
Akamai CDN	NZ	NZ	Brisbane	Sydney
Amazon Cloud EC2	US	US	US	US
CacheFly CDN	Sydney	Sydney	Sydney	Sydney
Cloudflare CDN	US	Singapore	Singapore	Japan
Cloudfront CDN	Sydney	Sydney	Japan	Sydney
Cotendo CDN	Sydney	Sydney	Sydney	Sydney
Flexiscale Cloud	UK	UK	UK	UK
GoGrid/Edgecast CDN	Sydney	Sydney	Sydney	Sydney
Google Appspot	US	US	US	US
Google landing page	Sydney	Sydney	Sydney	Sydney
HighWinds CDN	US	US	US	US
Level 3 CDN	US	US	US	US
Limelight CDN	Sydney	Sydney	Sydney	Sydney
MaxCDN	US	US	US	US
RackspaceCloud CDN	NZ	US	Sydney	Sydney
SoftLayer/Internap CDN	Sydney	Sydney	Japan	N/A
Terremark Cloud	US	US	US	US
VoxCast CDN	US	US	US	Singapore
Youtube content	NZ	N/A	N/A	N/A

So New Zealand is a suburb of?

It looks like for a lot of CDNs
New Zealand is a suburb of Los Angeles.

I would much rather be a suburb of Sydney.
Or even Singapore.

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Better Measurement Tools Needed

- My experiments were ‘Very Ad Hoc’
- CloudHarmony works quite well.

Maybe a job for something like RIPE NCC Atlas?

It would be great to get a global view of CDN deployment.

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CloudHarmony.com
cloud computing, easier

Cloud Speed Test [beta] 07/27/2012 02:21 PDT

Please standby while your test is completed. This may take a while depending on the number of tests to be run.

Speedtest finished

100%

Network Latency Tests

Service	Location	Time (secs)	# of Samples	Min ms	Max ms	Std Dev	Median ms	Avg ms
SwiftServe CDN		0.92	3	306	308	0.38%	306	306.67
VoxCAST CDN		0.92	3	305	310	0.86%	306	307
NetDNA		0.9	2	448	449	0.16%	449	448.5
CDNvideo		0.96	3	320	322	0.36%	320	320.67
Highwinds CDN		0.81	3	201	204	0.75%	202	202.33
Cotendo CDN		0.72	5	98	100	0.85%	99	98.8
MaxCDN		0.87	2	398	472	12.03%	472	435
HP Cloud CDN		0.21	4	38	42	4.88%	42	41
CloudFlare								**Test Failed**
Level 3 CDN		0.83	2	413	413	0%	413	413
Windows Azure CDN								**Test Failed**
CacheFly CDN		0.6	4	105	107	0.91%	106	105.75

So how do you change things?

- Change where you appear (Peer)
- Change your CDN Gravity

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Change where you appear (Peer)

Willy Sutrisno
Matrix Networks
Indonesia

“Study your geography”

Establishing peering one small step at a time

As an ISP starting to expand their network outside their country, we start by setting up nodes in foreign countries, looking for cheaper IP transit alternatives and setting up peering points. In these slides we are going to share the experience that we had starting as an ISP in Indonesia, becoming a sub sea cable operator and slowly expanding the international network.

http://www.apricot.net/apricot2012/__data/assets/pdf_file/0006/45537/02-willy.pdf

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What did they do?

- They looked at their geography.
- They looked at where the regional exchange points were
- They built out to Singapore then Hong Kong
- Only years down the track are they looking further into US/EU

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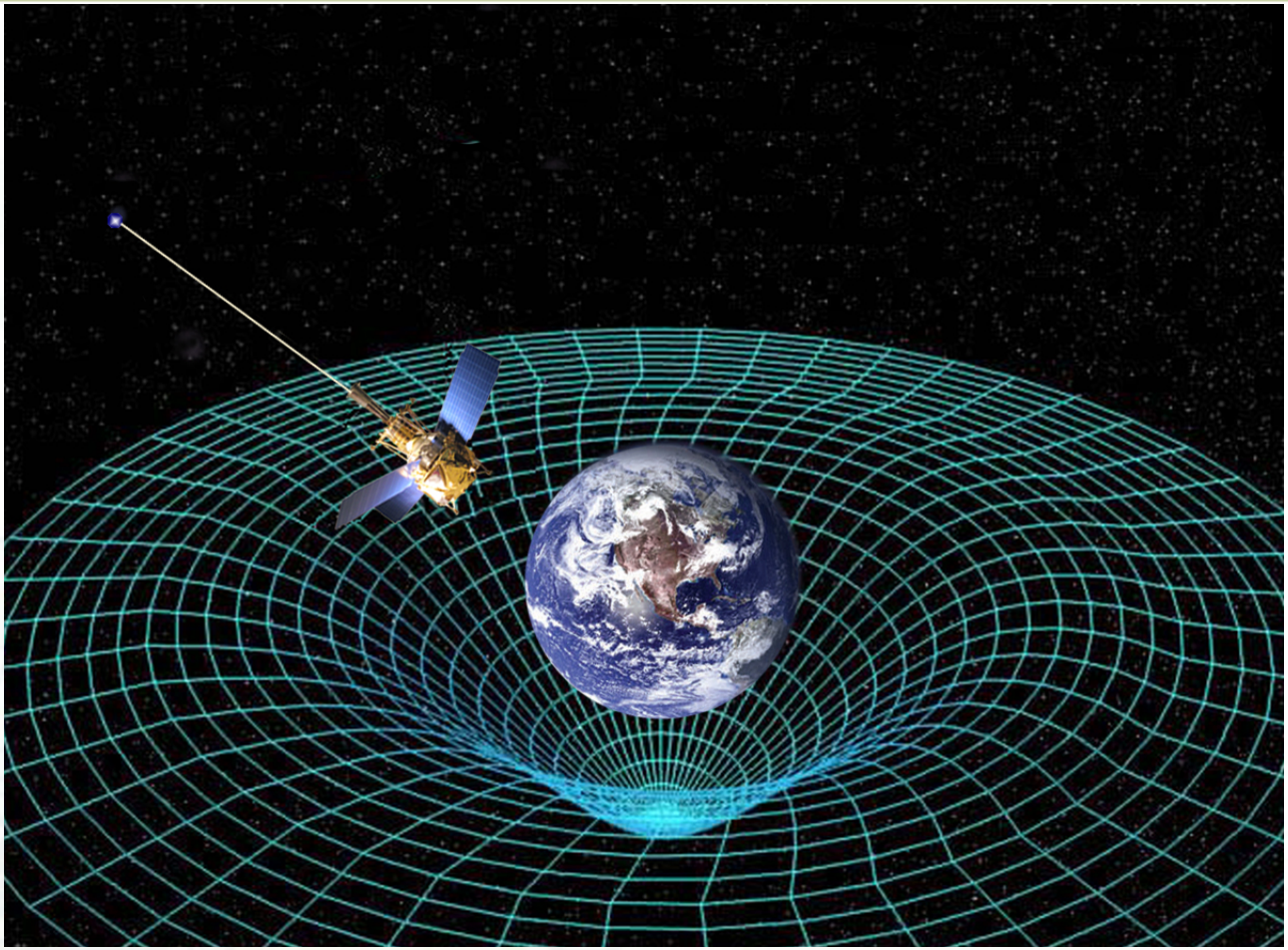
CDN Gravity?



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CDN Gravity

- Massive things suck other things in.

- Having a ‘mass’ on the internet attracts CDNs to you.

- If you have a small ‘mass’ they don’t care.
- If you have a large ‘mass’ they will fall over themselves to be close by

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Two Ideas

1) Make sure that you have a suitable place to build to.

2) Make yourself too large to ignore.

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What do CDN providers need?

- Demand in a single well defined location
  - "Where is the one place in NZ I can go to pick up ALL the NZ demand for my content?"
- Power
  - Redundant power and lots of it.
- Network
  - Redundant access to international links
- Location
  - International class data centre.

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Auckland Peering Exchange

•Ethernet based exchange initially built in the Auckland Sky Tower.

At 328 metres (1,076 ft) it is the tallest free-standing structure in the Southern Hemisphere.

APE - Demand

- Most tier 2 providers.
- Some tier 1 providers.
- Not the two major tier 1 providers

- Not a single place to get ALL NZ demand

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APE - Network

- Not near the Southern Cross Cable Network landing points.

- There are cable providers who could bridge the gap however.

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APE - Location

- Not near all the Auckland Data Centres.
- Most DC customers long line back to the CBD.

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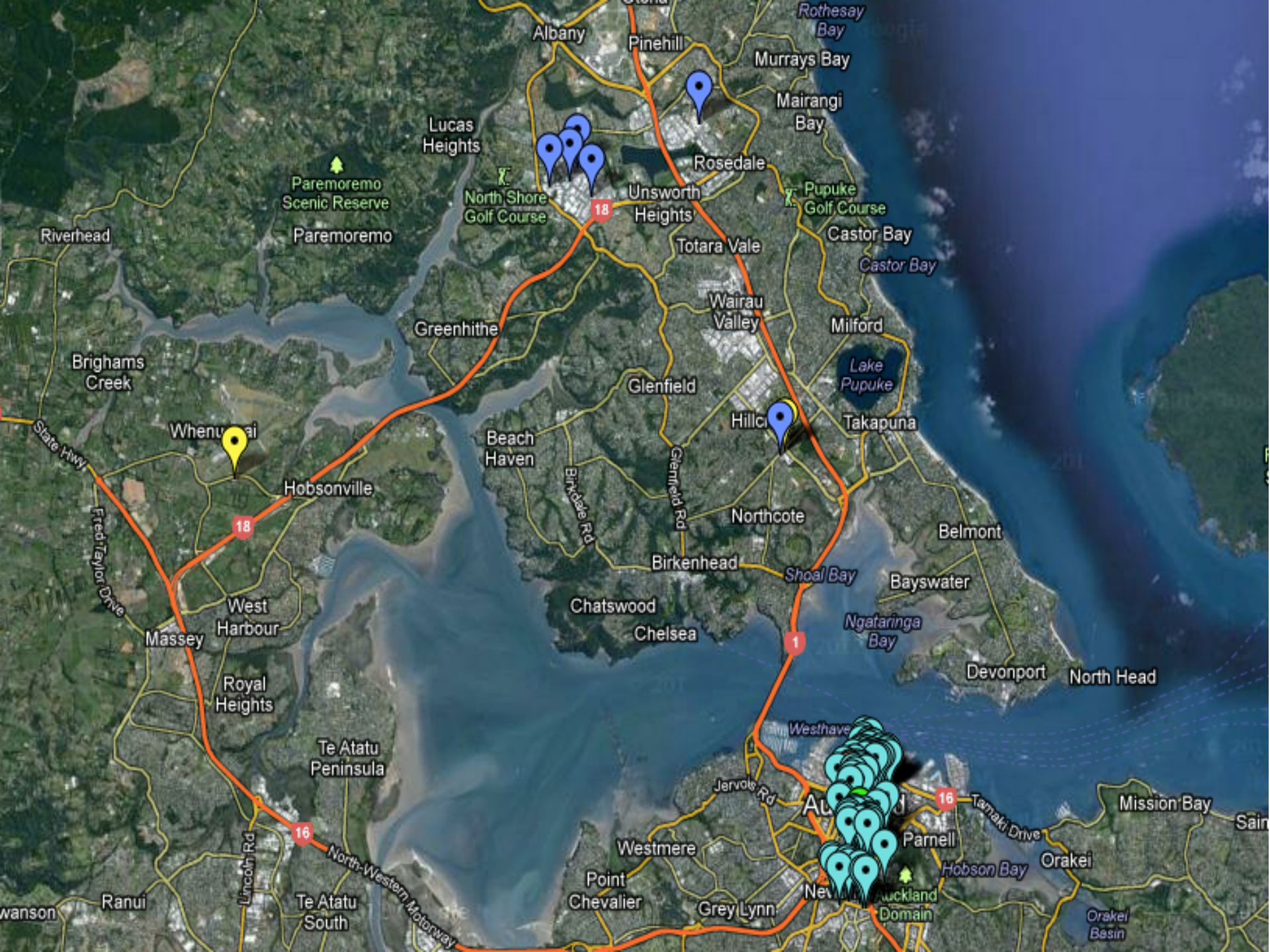
Albany
Pinehill
Rothesay Bay
Murrays Bay
Mairangi Bay
Lucas Heights
Rosedale
Paremoremo Scenic Reserve
North Shore Golf Course
Unsworth Heights
Pupuke Golf Course
Riverhead
Paremoremo
Totara Vale
Castor Bay
Wairau Valley
Milford
Greenhithe
Brighams Creek
Lake Pupuke
Glenfield
Takapuna
Beach Haven
Birkdale Rd
Glenfield Rd
Hobsonville
State Hwy
Fred Taylor Drive
18
Northcote
Belmont
Birkenhead
Shoal Bay
Bayswater
Chatswood
Chelsea
West Harbour
Massey
Ngataringa Bay
Devonport
North Head
Royal Heights
Te Atatu Peninsula
Westhaven
Jervois Rd
16
Tamaki Drive
Mission Bay
Parnell
Westmere
Orakei
Hobson Bay
Point Chevalier
Grey Lynn
Domain
Ranui
Lincoln Rd
Te Atatu South
North-Western Motorway
Orakei Basin

Obviously areas for improvement

- Work in progress
- Watch this space

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So that's all I need to do?

Well no.

If you build it, they may not come.
but
If you don't build it, they WILL not come.

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Make yourself too large to ignore.

This isn't just a case of signing up lots of fake Facebook accounts.

They need to be real people with real demand.

The answer may be co-operation.

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Oceania Regional Area Network

- Population: 35,670,000
  - Argentina 40,117,096
  - Poland 38,501,000
  - Algeria 37,100,000
  - **OCEANIA ← You are here**
  - Canada 34,851,000
  - Iraq 33,330,000
- Lots more links out
- Lots more carriers
- Lots more IXPs
- Sensible CDN gravity
- Maybe even Netflix.
-

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So what does this mean for you?

- **Measure** where your CDNs are.
- **Measure** where your neighbour's CDNs are.
  - If they are better than yours, ask for some
- **Assess** if you have the infrastructure that Big CDNs need
  - If not, work out how to work towards it.
- **Co-Operate.** If you're a small country, maybe you have small neighbours. Maybe together you're big.

- Do not assume that all content is US based anymore

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And above all…

Do not assume that all content is US based anymore

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Thank you

Now’s the time for
those similar stories

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