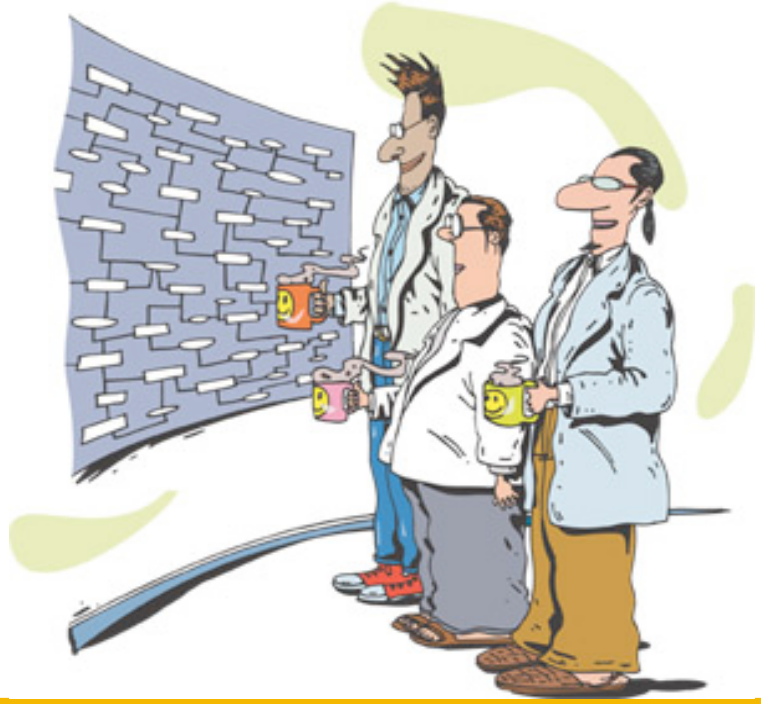


Building a Foreign POP

AusNOG2

Mark Prior
Liaison APAC R&E Community

Why?

- **Always keep in mind why you are doing this!**
  - So why are you doing this? :-)
- **Probably because you want to buy transit “cheap”**
- **Or if you’re crazy you might think you will get customers too (just don’t go there!)**
  - Supporting a very remote POP is hard enough without adding customers to it

Where is transit cheap?

- In markets where there is a lot of demand
- USA: Silicon Valley, NYC, Virginia, Chicago
- Europe: London, Amsterdam, Frankfurt
- Asia: Tokyo, Hong Kong

Define cheap

- **US$11/Mbps (GigEthernet, 95th percentile)**
- **But add the cost of getting it to your customers**
  - More routers
  - Trans oceanic links
  - Remote hands

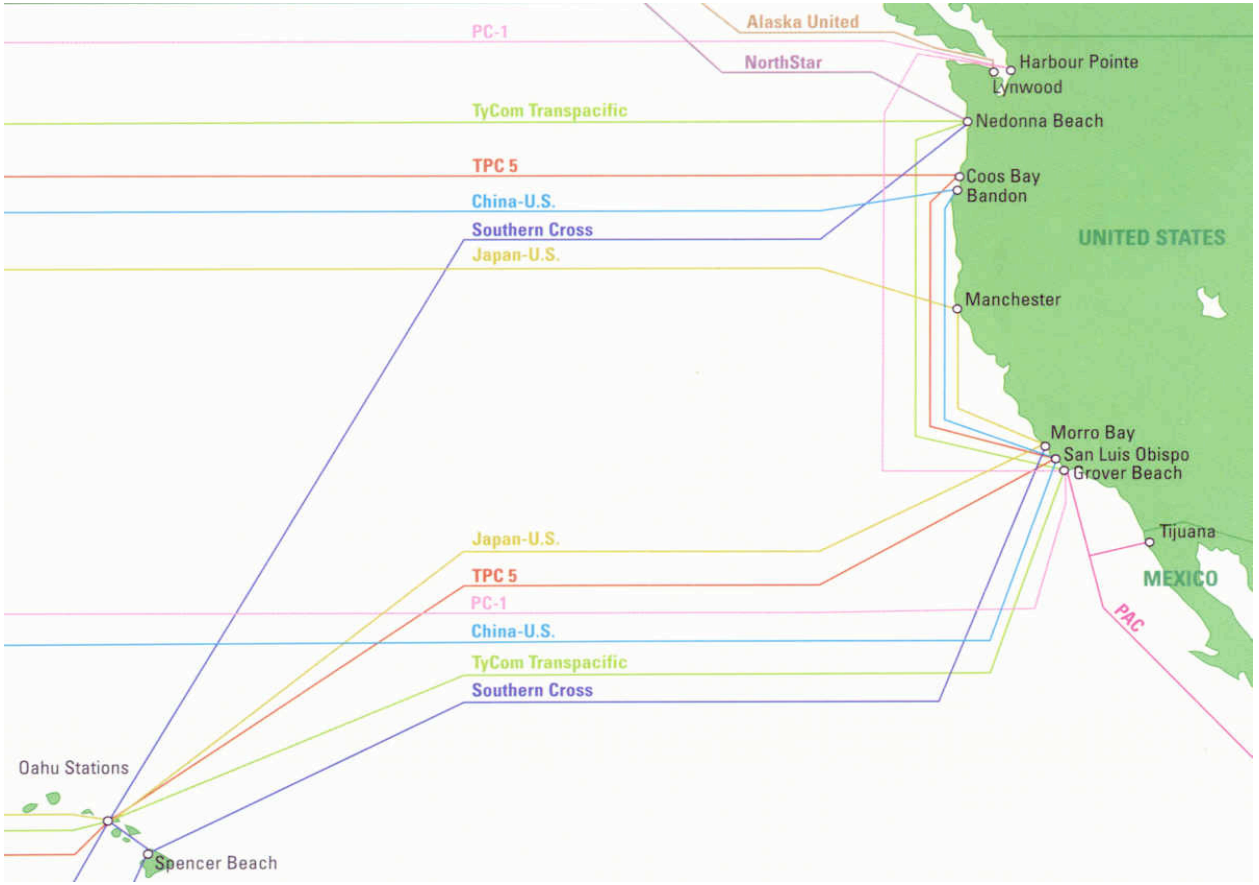
How to get to it

- **In “one hop” you can reach**
  - USA West Coast (Seattle, San Jose, Los Angeles)
  - Japan (Tokyo, Osaka)

USA West Coast Landing Sites

- **Southern Cross Cable Network landings**
  - Nedonna Beach/Hillsboro, Oregon
  - Morro Bay/San Luis Obispo, California
  - San Jose, California
- **Via Japan, Guam, Hawai`i cable systems**
  - San Luis Obispo, California
  - Port Arena, California
  - Bandon, Oregon
  - Harbor Pointe, Washington

So where are they?



Understand the traffic flow

- The major traffic path across the US is between Silicon Valley and Virginia
- Seattle and Los Angeles are major Internet locations but smaller than Silicon Valley
- If you connect to Silicon Valley and Seattle or LA then expect to do some traffic engineering to balance flows

Choosing a facility for your POP site

- **Keep remembering why you are doing this…**
  - Looking for “cheap” transit
- **Look for sites that have a number of transit providers on site**
  - Avoids having to pay for local loop and allows you to change providers easily
- **You will want 24x7 remote hands**
  - Remember your time zone
  - 8pm Sydney is 3am on US West Coast

So who are the players in this market?

- **Switch and Data PAIX**
- **Equinix**
- **Telehouse**
- **CRG West**
  - “Market Post Tower” & “One Wilshire”
- **“Westin Building”**

Such choice, how to choose

- **A visit is worthwhile**
  - See what you're paying for
    - What's it look like? What racks do they use? Measure them!
  - Find out who else is there
  - Do the remote hands seem friendly?
  - Is the sales person's powerpoint real?
    - Redundancy
    - Power, 110V AC, 200V AC, DC?
    - AirCon
  - If in doubt get it in writing!
- **Do you have an existing relationship?**

Understand your costs

- **What about back haul from the cable station?**
  - Protected or unprotected? Where's the backhoe?
- **What will your rack cost?**
  - Is power included? What sort of power? Redundant?
  - Does your equipment have special needs?
  - How much power will you need?
  - How much are cross connects?
  - What about connection to the peering fabric?
  - If you need local loop to the transit provider is it included or extra?

Peering …

- **Remember why you are there… Transit**
- **Peering is an extra that might be expensive**
  - How much peering will you need to overcome the cost of a connection to the peering fabric versus the cost of just buying it via your cheap transit?
- **www.peeringdb.com**
  - Find out who is there and if they might consider peering with you
  - Peering is largely via bilateral agreement even on a shared fabric

OK so you're crazy enough to go for it

- **More things to consider**
  - Can you order from the US part of your equipment vendor (or can the AU vendor ship direct without equipment touching Oz)?
  - It will minimise customs hassles if you can ship direct
    - Customs is a time sink and chocolate frogs won't help
  - How flexible is the facility on delivery?
    - Do they expect delivery to be scheduled?
  - Will the facility store equipment in crates for a couple of weeks while it all arrives?

Equipment choices

- **It's a long way away so make it reliable**
  - Now is not the time to save a couple of bucks
  - Select the dual power option and use it
  - Redundant, field-replaceable, hot-swappable drives, fans, power supplies, etc. make life easier for remote hands
  - Make sure all the equipment works in lights out mode and you can get to it out of band
  - Getting a US PSTN line can be a challenge
  - Use equipment that is readily available in the US
    - FEDEX'ing a strange fuse when it blows is bad form

Installing the equipment

- **Plan to visit and install yourself**
  - Allows you to meet the staff that you might need at 3am, make new friends
  - Allows you to document the install so you know how to describe what is needed to be done at 3am
  - Configuring on site allows you to drop ship direct to site rather than stage the equipment (save some GST hassle)
- **Order your cross connects well in advance**

No one expects the Spanish Inquisition

- **US racks are just weird**
  - 19 inch racks are standard in only one respect -- the width between the rails. Anything else will be different.
  - Ask the facility provider to supply 100 rack screws, they will be different from what you might bring or buy
  - Rack mount kits won't
- **Find out how cross connects are delivered**
  - Dropped into the rack or delivered on patch panel
  - Consider supplying a patch panel for flexibility
- **Find out how the power is delivered**
  - Especially if you need DC or 200V AC

POP building can take time

- **Preplan your rack layout**
  - Allows you to ship appropriate internal cabling to site
  - Get advice from the facility
- **Measure your equipment beforehand and ask the site adjust the rack to suit**
- **Allow yourself enough time and then add more**
  - If you think it will take one day then allow 3
  - One to discover what you don't have
  - One to install equipment, possibly a number of times
  - One to fix the bugs, there will be bugs :-)
  - Be flexible with flights, hotels, etc.
- **Murphy loves POP builds**
  - Power cables too short => desperate need for a sparky

What to take with you

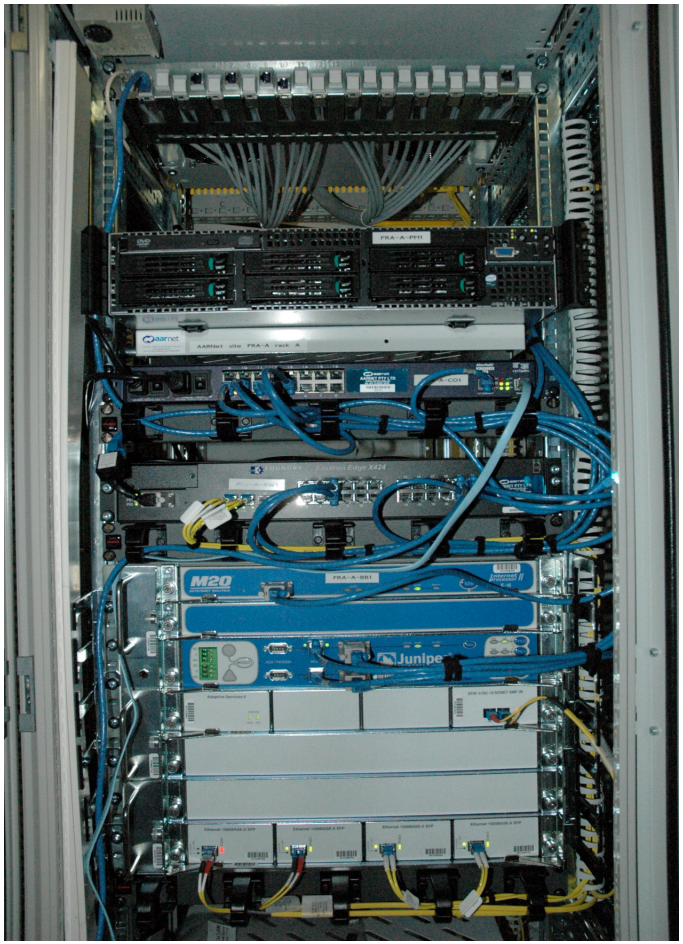
- **Take a some hand tools**
  - You don’t want to be buying a screwdriver in downtown LA on a weekend
- **Take a some specialist tools where sourcing or using an unusual one would suck**
  - Fibre cleaner, RJ45 crimper
- **Take disposables**
  - Cable ties, patch cables
- **Buy IEC power cables in the country**

Security Paranoia

- **Some facilities have multiple layers**
  - Building security
  - Facility security
  - Guards to watch over you :-)
- **Make sure you have an appointment**
  - But still arrive early in case they've lost it
- **Have photo ID**
  - Something other than a passport is good in case they want to keep it while you work
- **They may want to store your phone if it has a camera (do any not have one?)**

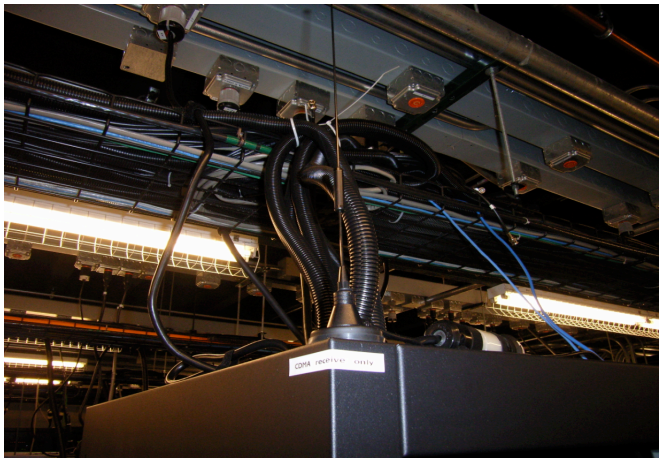
Considerations when building

- **If using DC power get the facility to source the electrician and any power distribution panels**
- **Use a lot of cable ties**
  - You're not going to be back for some time and you're not going to see the guy snag your cable as he walks past to get to his rack
- **BYO cable management & use it**
- **If you have spare space consolidate it**
  - But make sure you could supply power there when you want use it



Interesting sights

- **Like all travel expect to see interesting sights**
  - Lots of water fall cabling
  - GSR held in a rack by only two screws in Palo Alto
  - Hand terminated single core fibre in Singapore
  - 200V extension cord in Los Angeles
  - A rack only slightly bigger than a M40e (and this was the large rack we were upgrading into!)



Thanks!

- Thanks to Glen Turner for remembering the stuff I tried hard to forget :-) and for documenting it!