

REANNZ LUNCH '20 – 17 JUN

# INTERNATIONAL NETWORK UPDATE

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# RECAP: WHAT MAKES UP AN INTERNATIONAL NETWORK?

- Physical links to other countries eg Subsea Cable Systems.
- Peering with other Network Operators which provide direct access to them and their customers.
- Dedicated links with large content providers eg Google.
- R&E Peering – Provides direct access to the various other Research Networks around the globe.
- IP Transit – Provides a way to reach all internet connected destinations that we can't get to via one of the above.



### KEY DESIGN PRINCIPLES

- Scale Bandwidth to meet the current and future needs of our Membership.
- Ensure our International Network is fault tolerant.
- Expand the reach of our Research and Education Connectivity.
- Gain greater control over traffic flows with less reliance on 3<sup>rd</sup> party networks.
- Evaluate the IP Transit Service to ensure it is still fit for purpose.

### KEY UPDATES/CHANGES

- REANNZ now have 50Gbps of capacity to both Australia and the US bringing forward our scheduled upgrades with Hawaiki.
- A second Sydney PoP has been commissioned which uses a different Cable System to provide 50Gbps of resilient connectivity back to NZ.
- CenturyLink(Formerly Level 3) have replaced Vodafone as our IP Transit Provider and now connect to us in Sydney and Seattle.
- Planning is underway to commission new PoPs in Hawaii and Gaum – This will provide better R&E connectivity and lower latency paths into Asia. Completion due later this year.

### IP TRANSIT

- As of last week CenturyLink now provide our IP Transit Service in place of Vodafone meaning that any traffic we can't deliver via one of our other connectivity options (Eg Peering Exchange or NREN) will route via them instead.
- Connect to REANNZ in both Sydney and Seattle.
- Are a Tier 1 Service Provider meaning that they sit at the top of the hierarchical Internet Backbone and have an extensive global presence.
- Initial testing into Asia showed latency improvements.

# INTERNATIONAL NETWORK UPDATE

## AUSTRALIA - SYDNEY

- We now have 2 Sydney PoPs.
- Resilient capacity back to NZ using different Sub Sea Cable Systems (Hawaiki + Hawaiki partner).
- We connect to Peering Exchanges, R&E - Aarnet, Google, and large Cloud Providers onsite.
- New CenturyLink IP Transit Service.

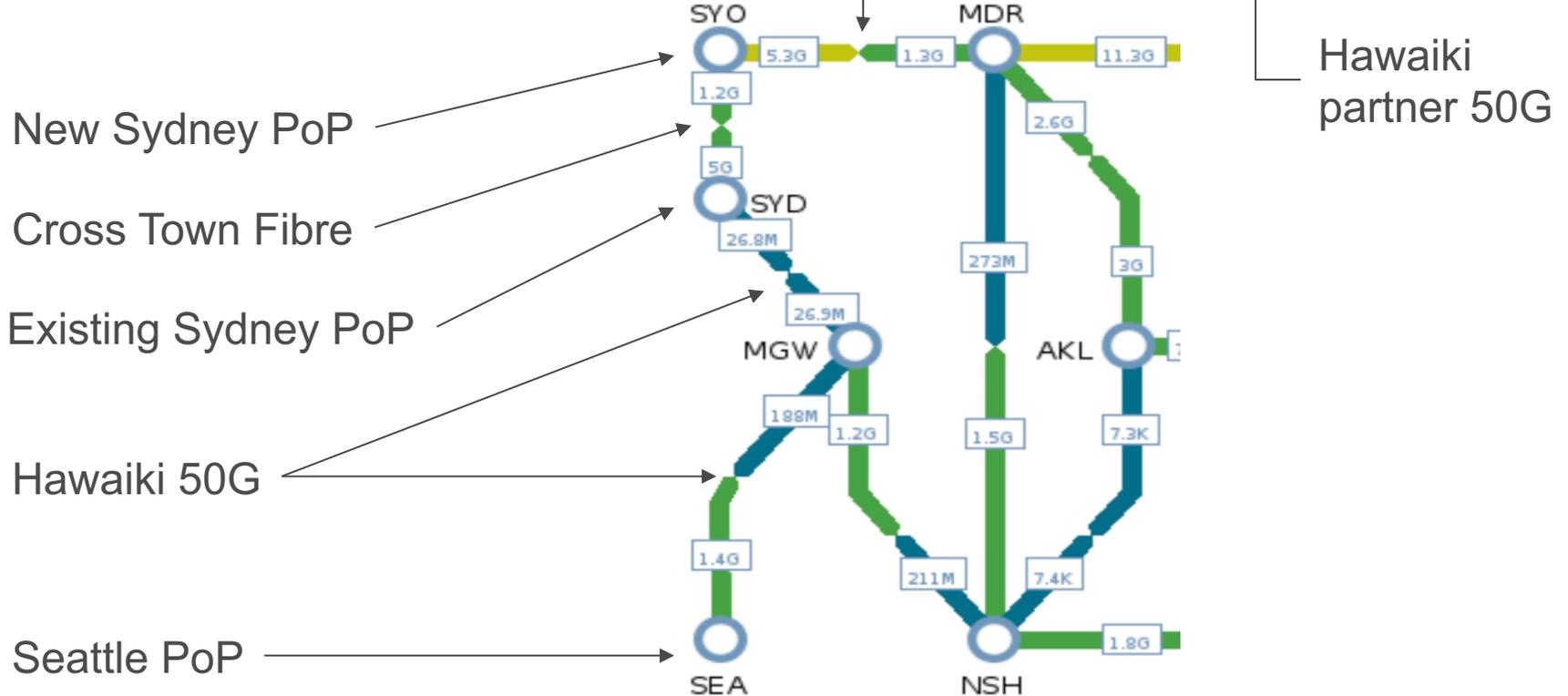


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# SYDNEY – PHYSICAL CABLES

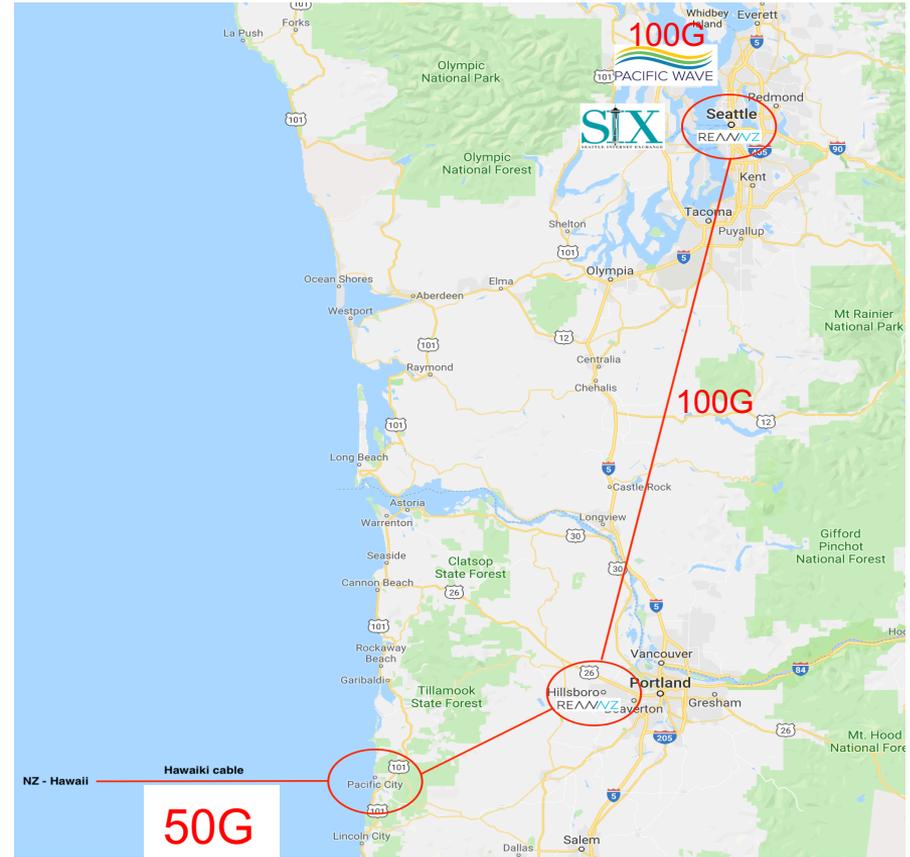




# INTERNATIONAL NETWORK

## USA

- Now have 50G of Hawaiki Capacity extended from NZ all the way to our Seattle PoP.
- Closed our Oregon PoP and instead now pass through it transparently.
- New CenturyLink IP Transit connected to Seattle PoP.
- Seattle provides access to Global R&E Networks via Pacific Wave.



# PACIFIC WAVE @ SEATTLE



## INTERNATIONAL NETWORK

### USA - HAWAII

- Work is underway to commission a new Hawaii PoP later this year.
- ‘Breaks’ into our existing Hawaiki capacity that runs through Hawaii.
- Includes a new connection to the University of Hawaii which extends our reach to Guam.



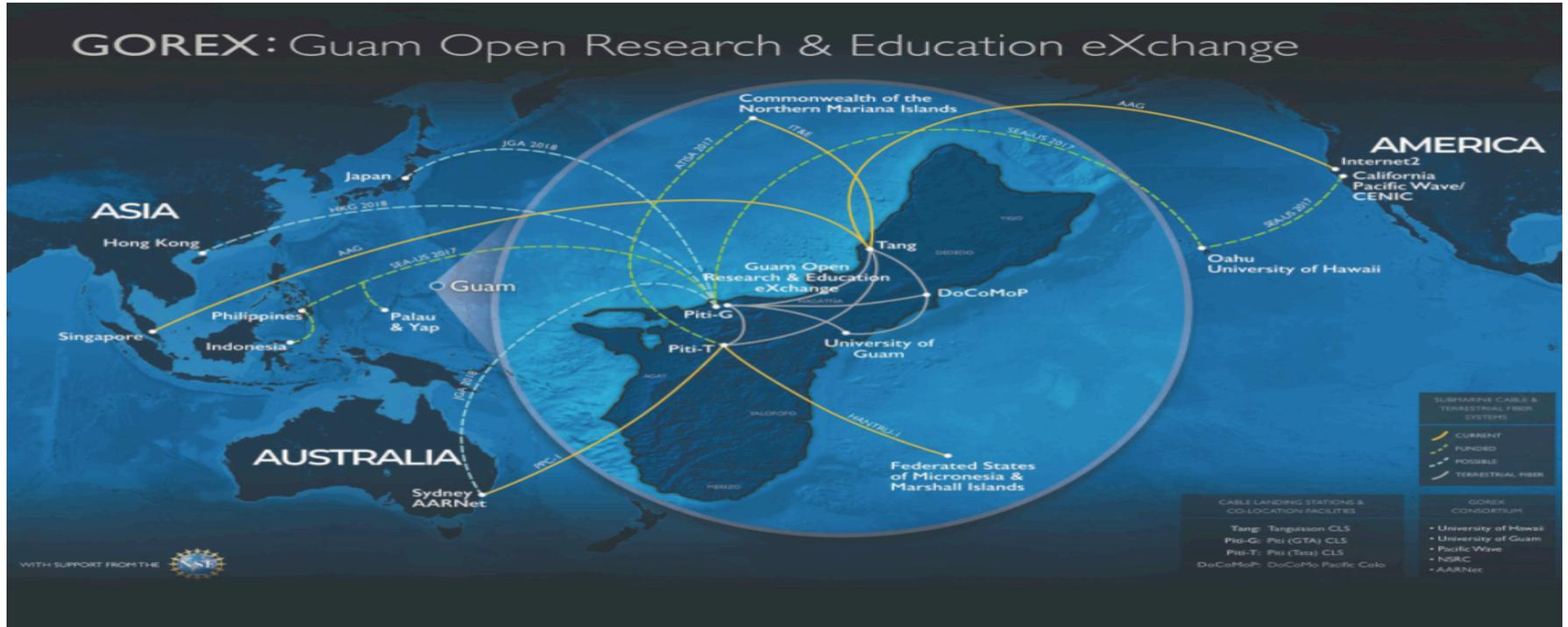
## INTERNATIONAL NETWORK

### GUAM

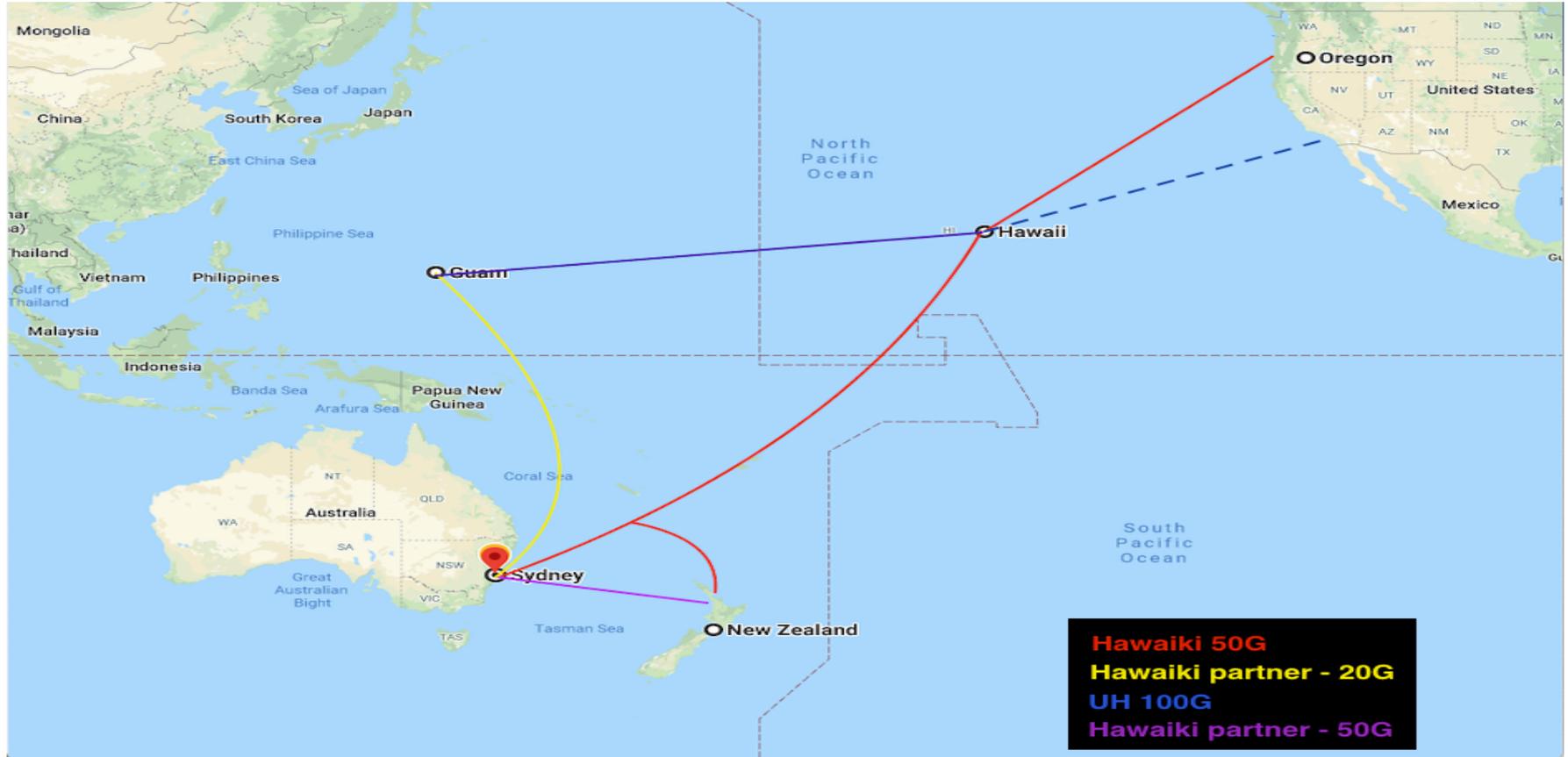
- Guam is a landing point for multiple Sub Sea Cable Systems.
- GOREX (Guam Open Research & Education Exchange) is also present offering rich NREN connectivity especially into Asia.
- 20G of resilient capacity via Hawaiki partner service back to Sydney providing resiliency for our R&E traffic.
- Guam PoP & Connectivity expected by the end of the year.



# GOREX OVERVIEW



# WHAT DOES THIS ALL LOOK LIKE PUT TOGETHER?



THE END

QUESTIONS?

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