



REANNZ

TEIN update – APAN42

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REANZ



Research & Education Advanced Network NZ (REANNZ) #1

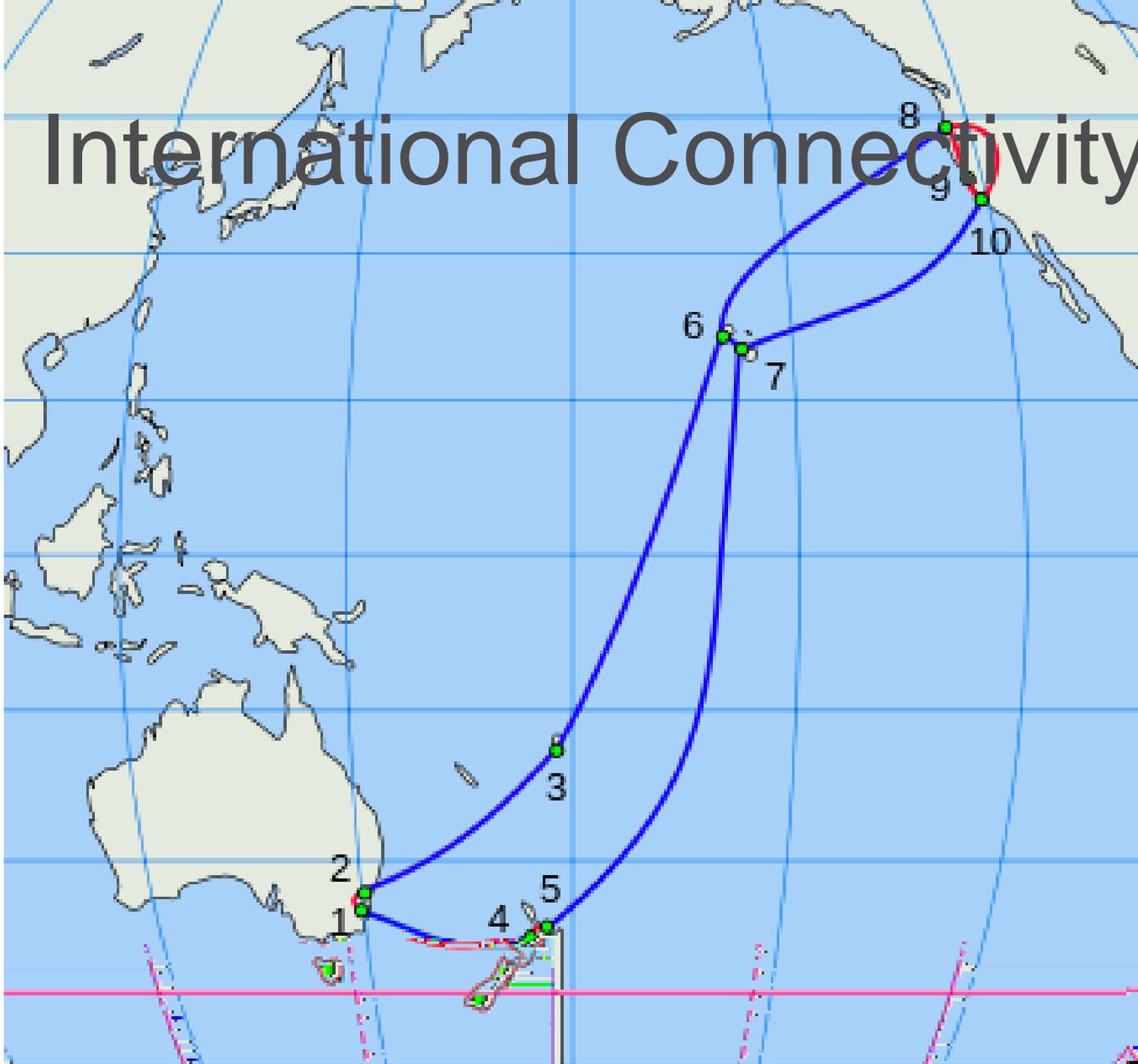
- REANNZ is a govt-owned, non-profit company
- govt pays one third, members pay two thirds
- connects 8 NZ universities, 8 Research Institutes and 12

Research & Education Advanced Network NZ (REANNZ) #1

- NZ has small population – 4.5m (same as Calcutta, Xi'an, Johannesburg) and a long way away from the rest of the world
- 245,000 Sq kms in size (about the same size as Laos, but we are surrounded by water, not land)
- (last place on earth to be settled by humans...only 900 years ago).



International Connectivity





Connecting Asia and Europe's Research and Education Communities

www.tein.asia

TEIN Project Partners

AF Afghanistan	ID Indonesia	NZ New Zealand
AU Australia	JP Japan	PK Pakistan
BD Bangladesh	KR Korea	PH Philippines
BT Bhutan	LA Laos	SG Singapore
CB Cambodia	MM Myanmar	SL Sri Lanka
CN China	MG Mongolia	TH Thailand
HK Hong Kong	MY Malaysia	TW Taiwan
IN India	NP Nepal	VN Vietnam

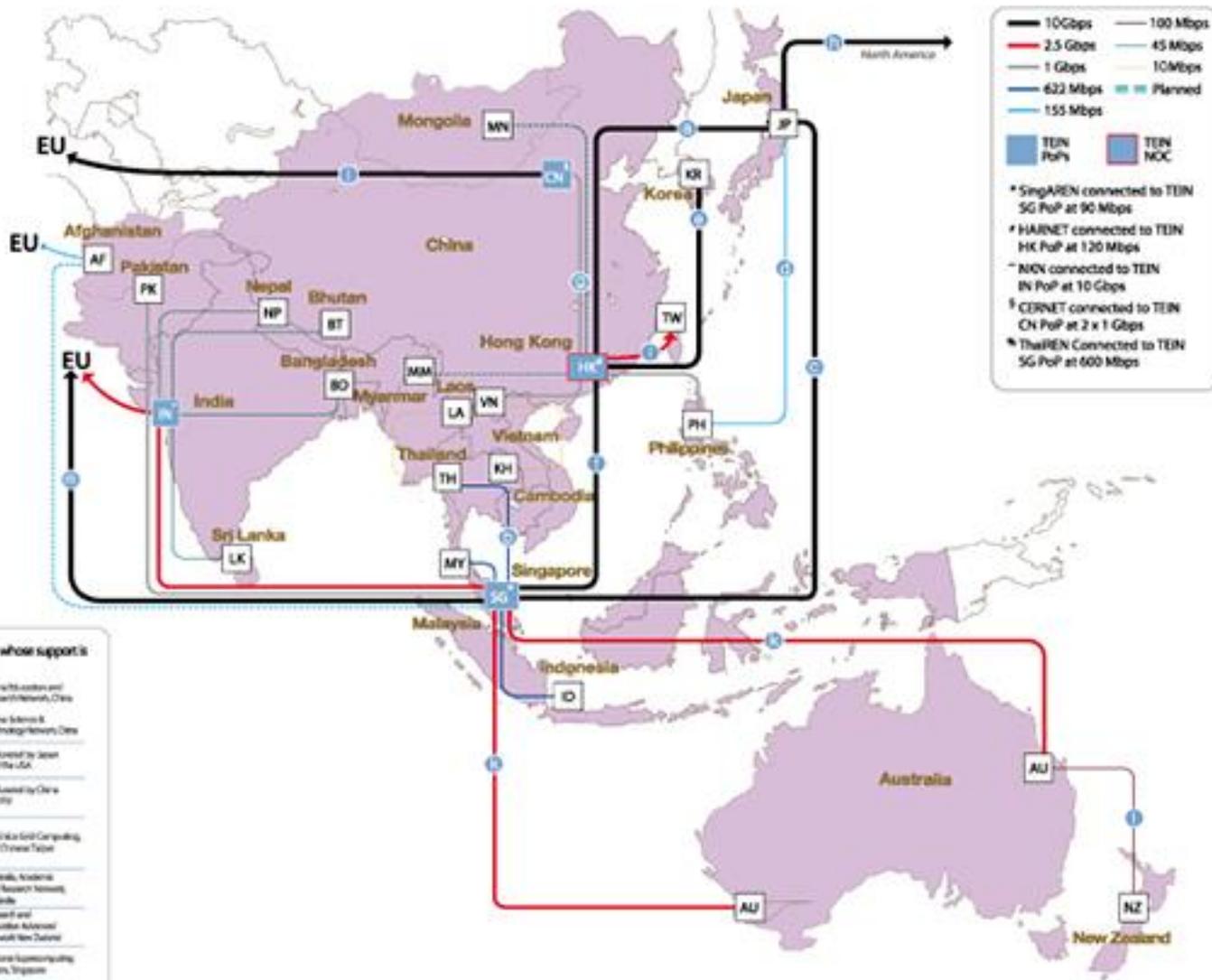
The following links are fully financed/co-financed by the link owners whose support is gratefully acknowledged

1 NIC National Institute of Information and Communications, Japan	11 ORCA China Education and Research Network, China
2 NIC National Institute of Information and Communications, Japan	12 CERNET China Education & Research Network, China
3 TRINET Thailand Research and Education Network, Thailand	13 TEIN-APC Co-funded by Japan and the USA
4 NII National Institute of Informatics, Japan	14 ORIENT Co-funded by China and Italy
5 MARS Ministry of Agriculture, Forestry and Fisheries Research Network, Japan	15 ASIA Academic Linkage Grid Computing, Republic of Chinese Taipei
6 NIA National Information Security Agency, South Korea	16 AUSTRIALIA Australia, Academic and Research Network, Australia
	17 REANZ Research and Education Advanced Network New Zealand
	18 SINGAPORE National Supercomputing Centre, Singapore

As of January 2016



TEIN is co-funded by the European Commission through the Directorate-General for Development and Cooperation EuropeAid



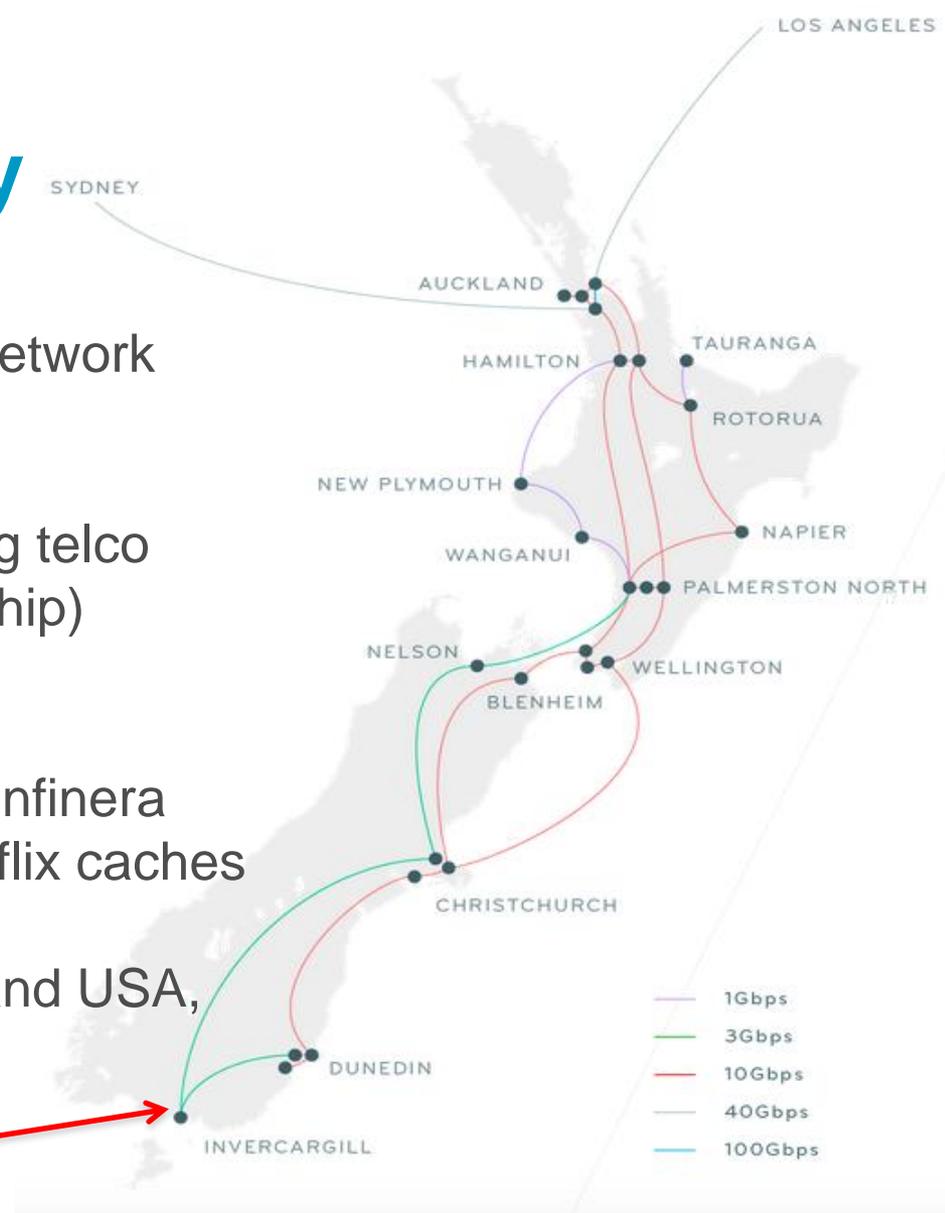
- * SingAREN connected to TEIN SG PoP at 90 Mbps
- * HARNET connected to TEIN HK PoP at 120 Mbps
- * NKN connected to TEIN IN PoP at 10 Gbps
- * CERNET connected to TEIN CN PoP at 2 x 1 Gbps
- * ThaiREN Connected to TEIN SG PoP at 600 Mbps

This map has been produced with the financial assistance of the European Union. The contents of this document are the sole responsibility of TEINCC and can under no circumstances be regarded as reflecting the position of the European Union.

National Connectivity

- We own and light our own fibre network nationally
- We invested in 25% of an existing telco company (public/private partnership)
- 10Gb ladder design nationally – Infinera platform/Google/Akamai and Netflix caches
- 40Gbs connections to Australia and USA, going to 100Gbs in late 2016

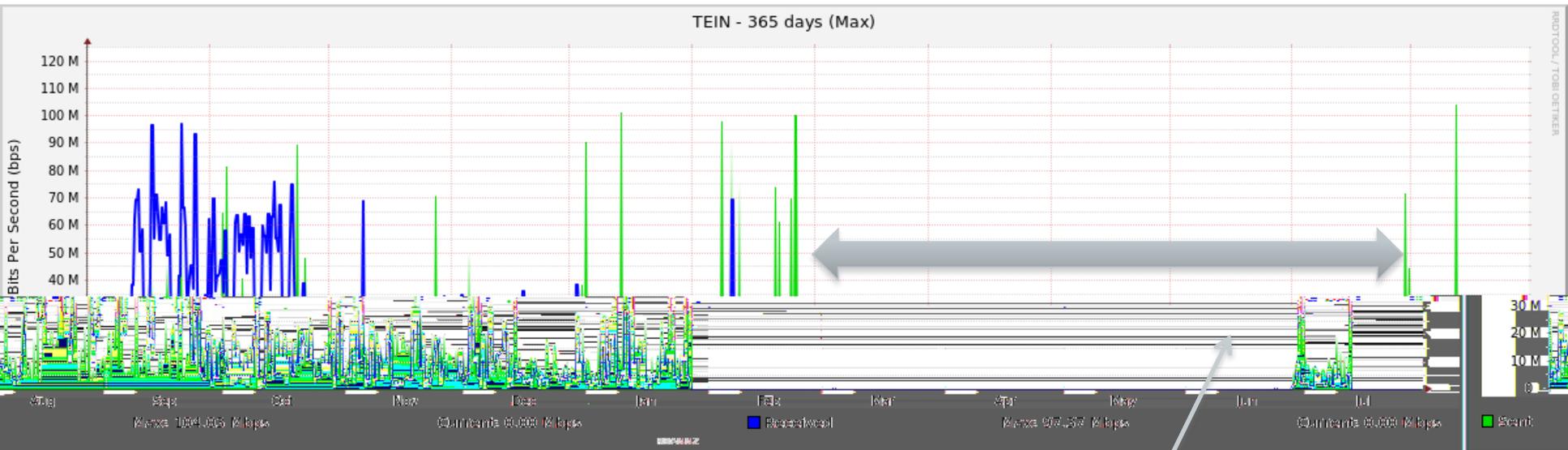
World's southernmost (permanent)
R&E connection



TEIN collaboration underway in last 6 months

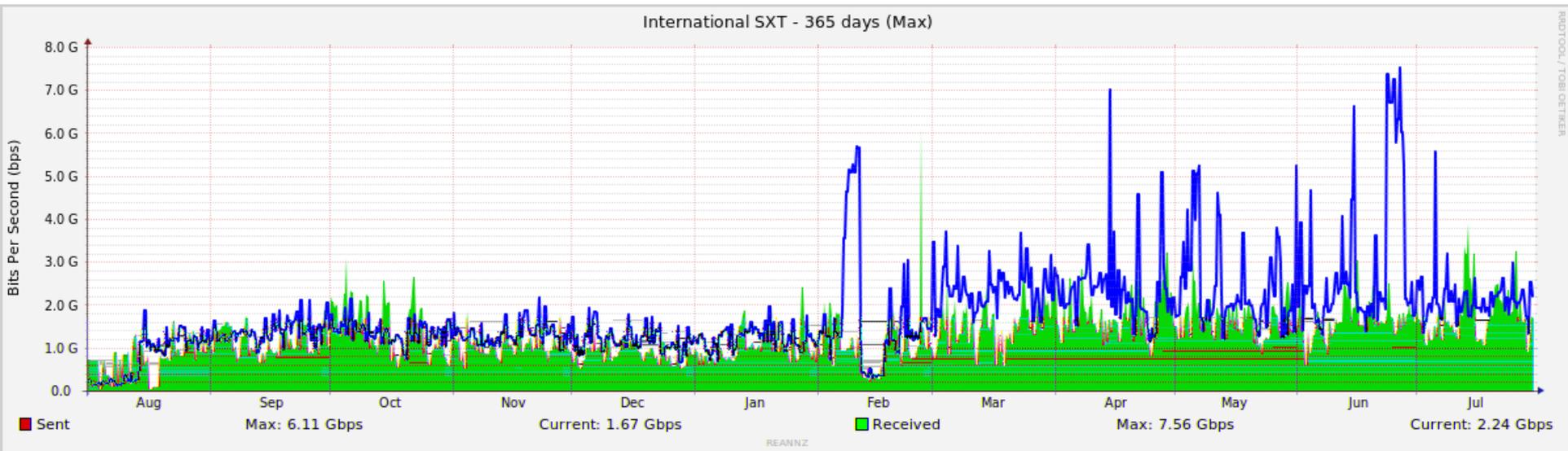
- Univ of Auckland and Chongqing Medical University (2Tb of medical data needing to to be transferred)
- Unitec Auckland and Wuhan University (air pollution/big data/IoT project)
- VUW and Xiamen University just signed MoU on joint research programme
- 3 new govt-funded NZ-China Research initiatives announced (water cleanliness, food security and disease control)
- Univ of Auckland and NUS diabetes research
- Univ of Canterbury and Korean Institute of Science & Technology bio-engineering project

Total maximum flows since mid 2015



TEIN traffic diverted through primary R&E connection (40Gb/s V 100Mbps/sec TEIN connection)

R&E traffic out of New Zealand since mid-2015 (this includes TEIN flows)



Main challenges

- REANNZ only has a 100Mb virtual connection to TEIN (not a direct one)
- Traffic flows from NZ to Asian researchers are too great for that connection
- They get diverted onto our standard 40Gb/sec research path to Sydney and/or Los Angeles
- Indicates high demand for NZ and Asian researchers to collaborate

Thank you

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