A Peering Strategy for the Pacific Islands

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“He aha te mea nui o te ao?”

“What is the most important thing in the world?”

“He tangata, he tangata, he tangata”

“It is the people, it is the people, it is the people”

– Maori Proverb

A Peering Strategy for the Pacific

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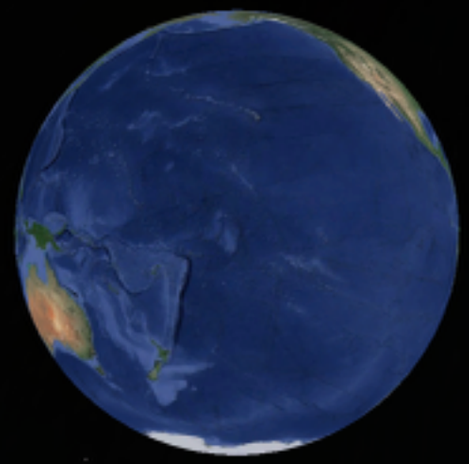
How is the Pacific Connected?



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In the Beginning

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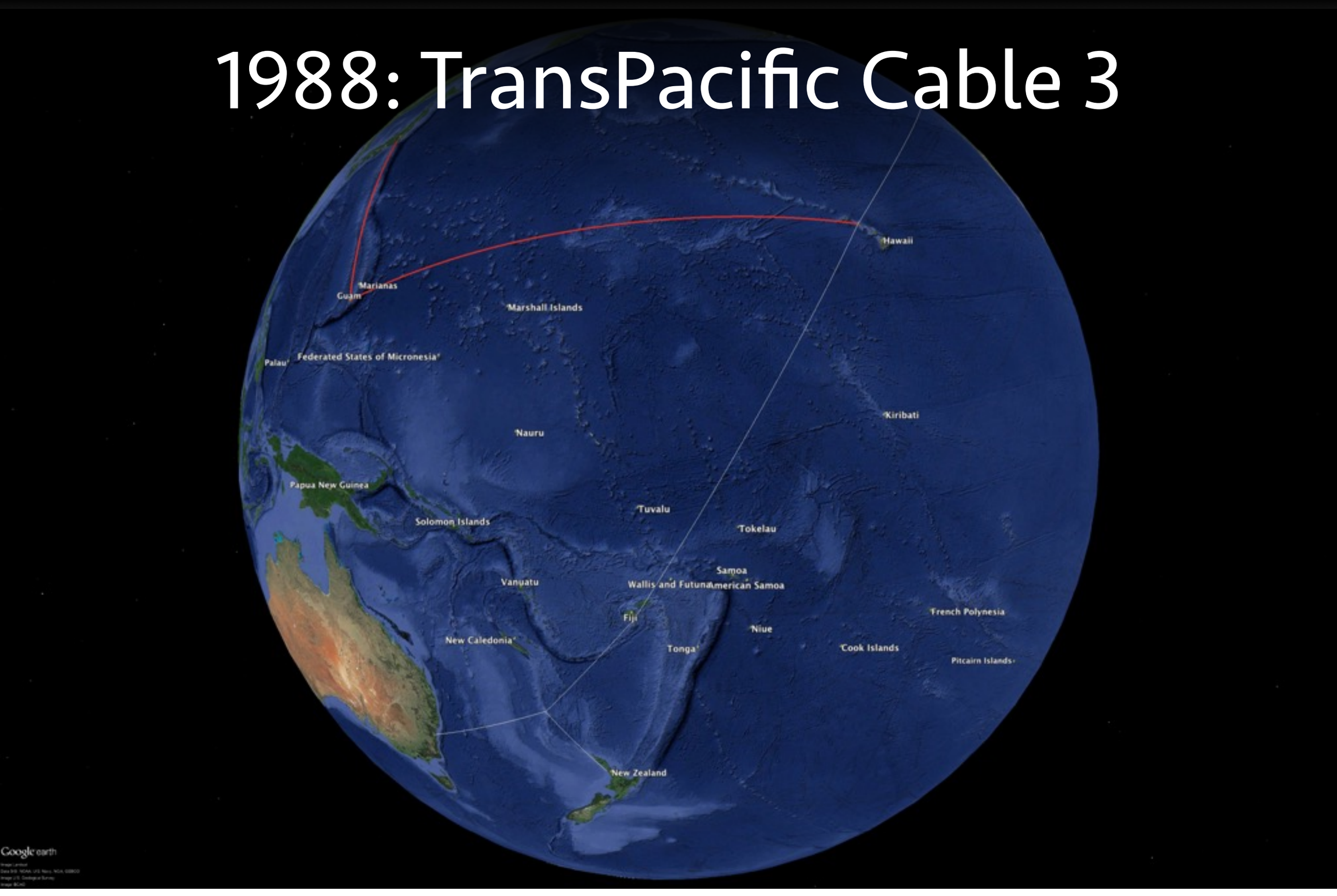
1988: TransPacific Cable 3



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1992: Tasman 2

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1993: PacRim East

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1993: PacRim West

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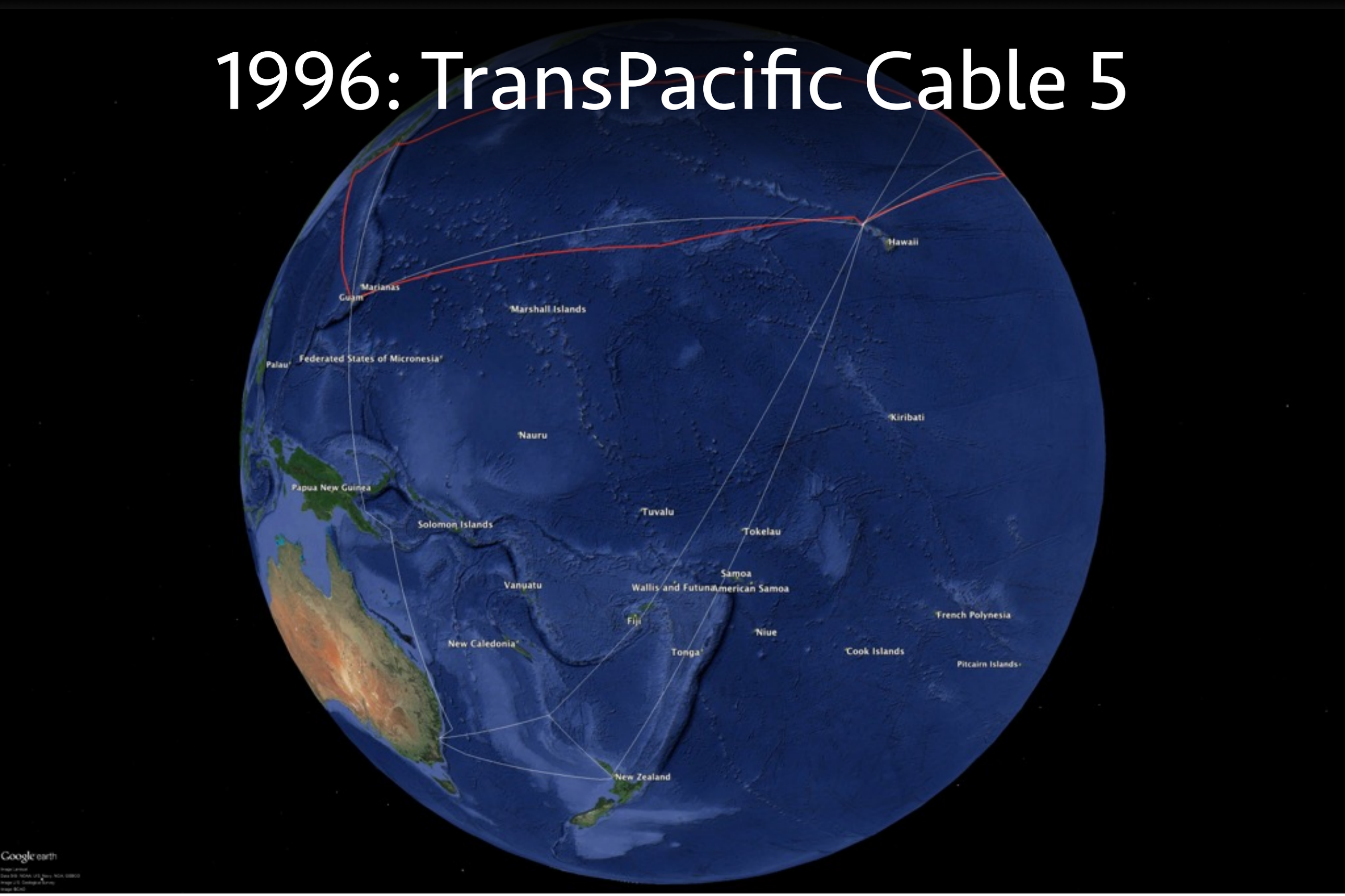
1996: TransPacific Cable 5



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1997: Mariana Guam

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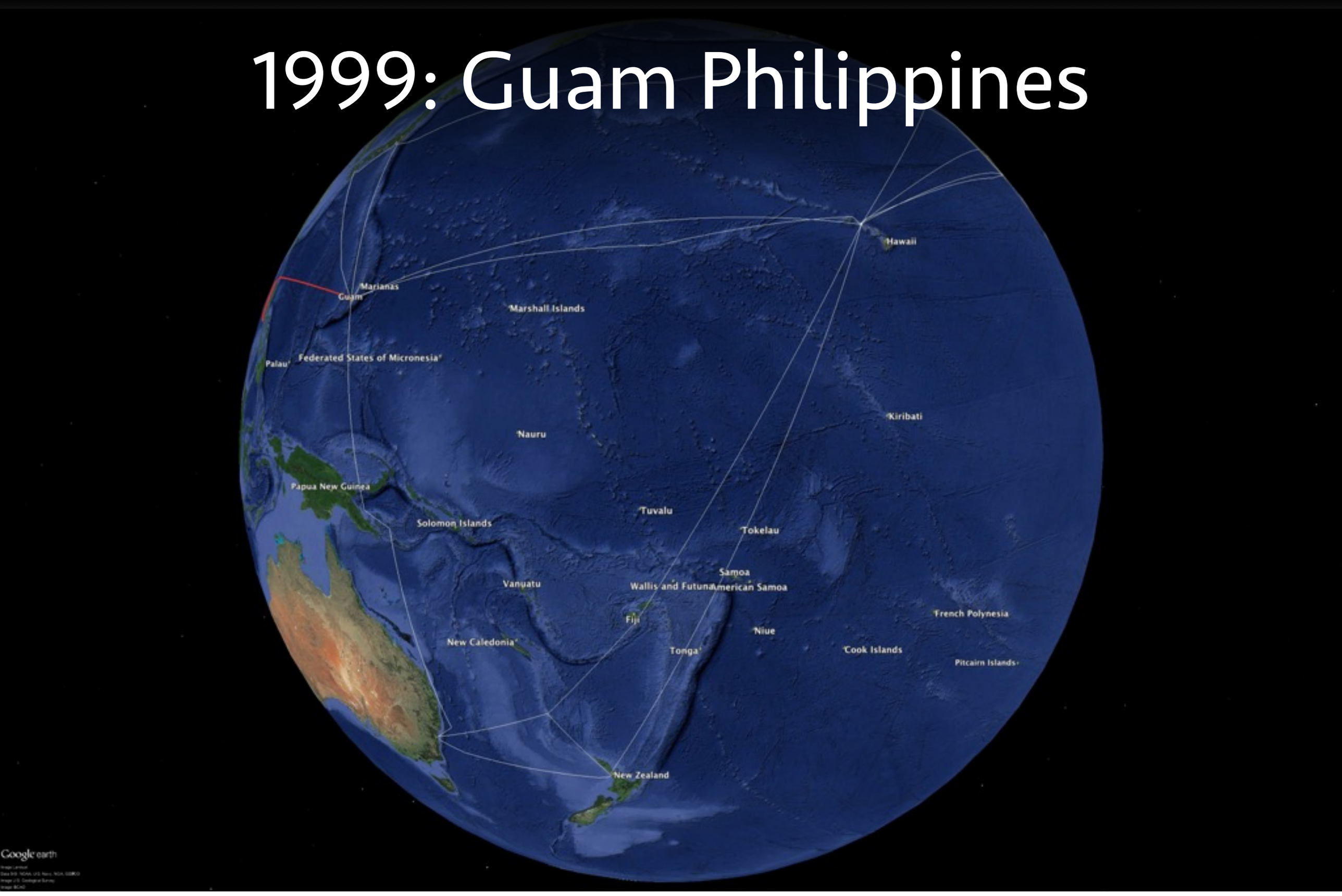
1999: Guam Philippines



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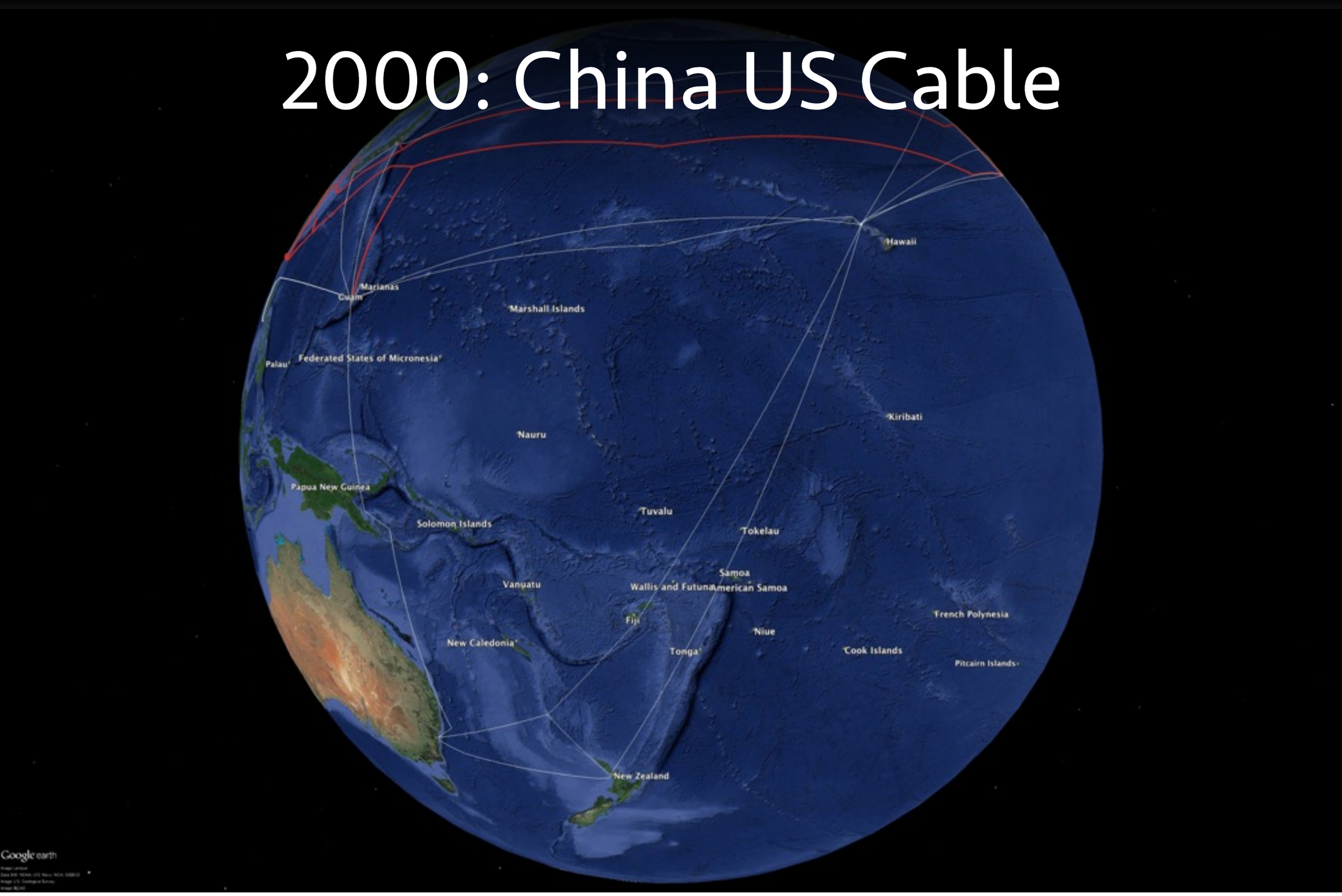
2000: China US Cable



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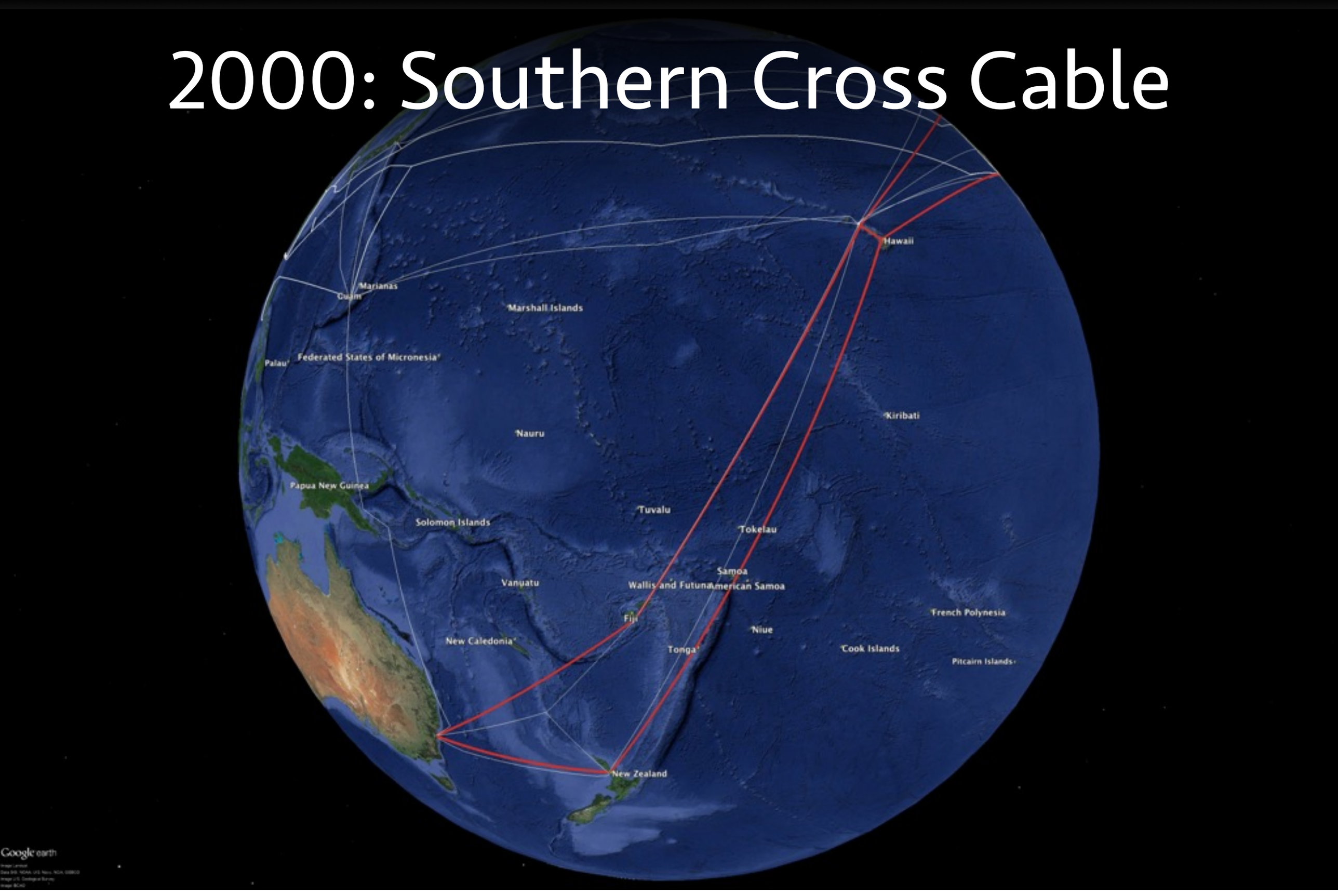
2000: Southern Cross Cable



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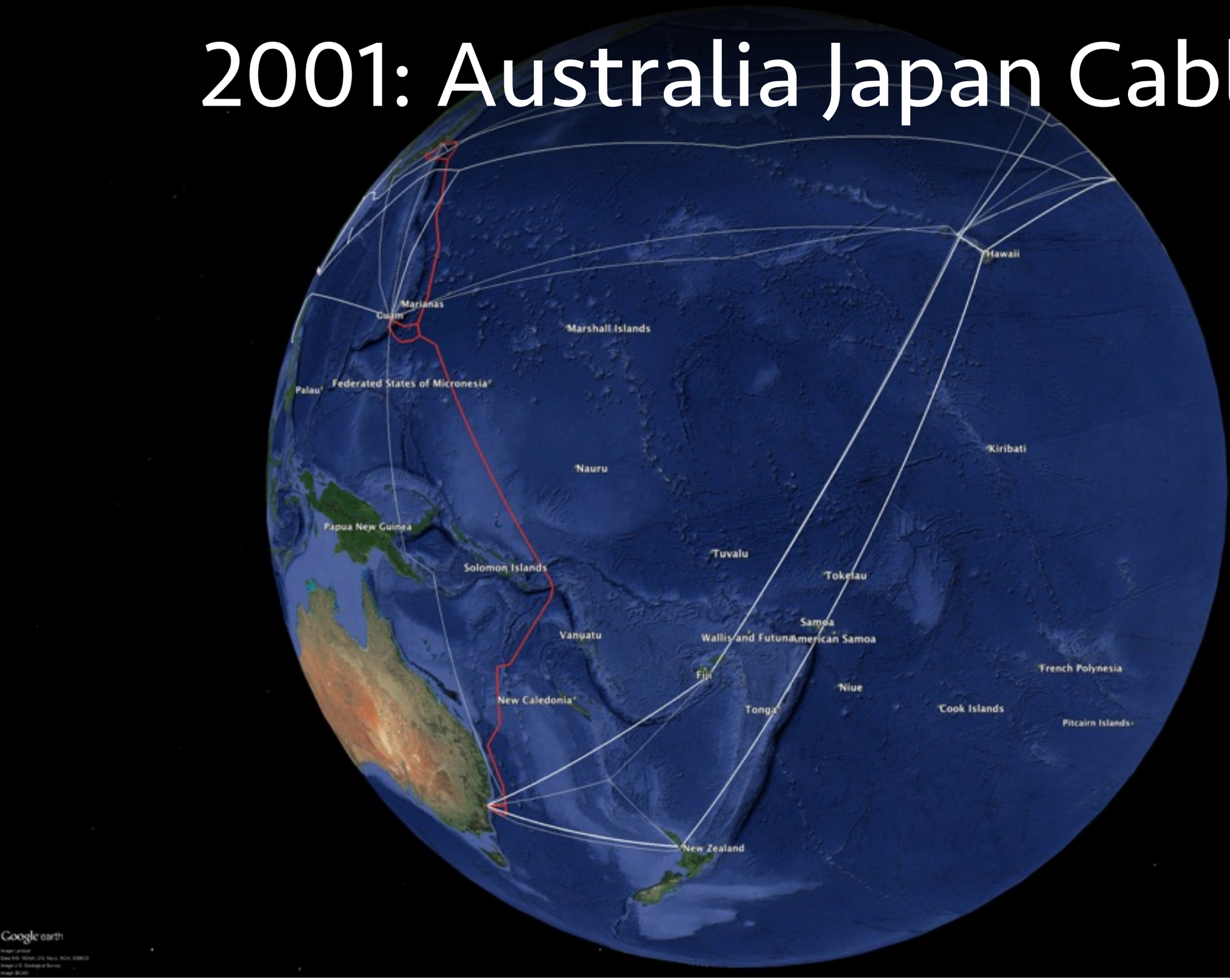
2001: Australia Japan Cable



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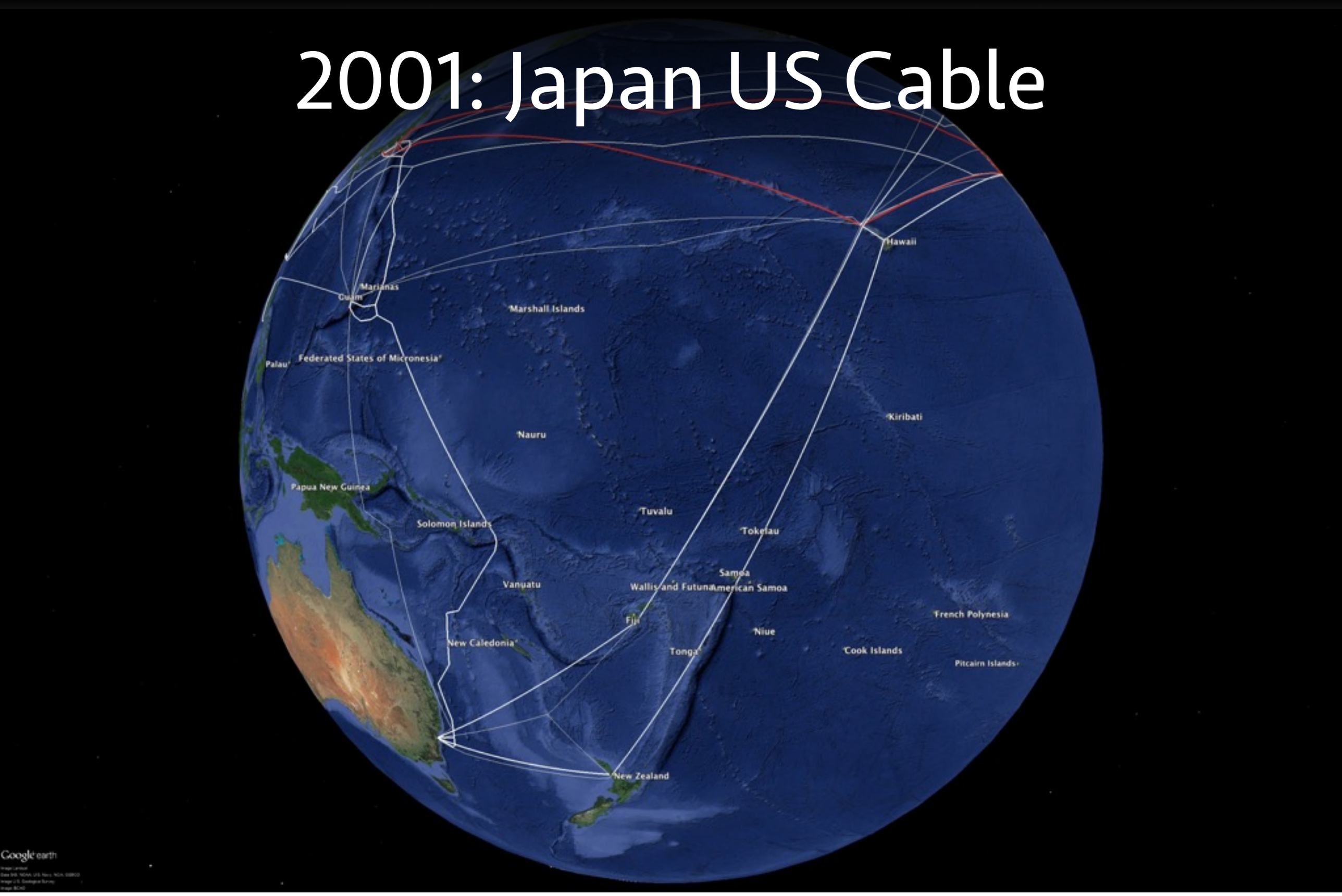
2001: Japan US Cable



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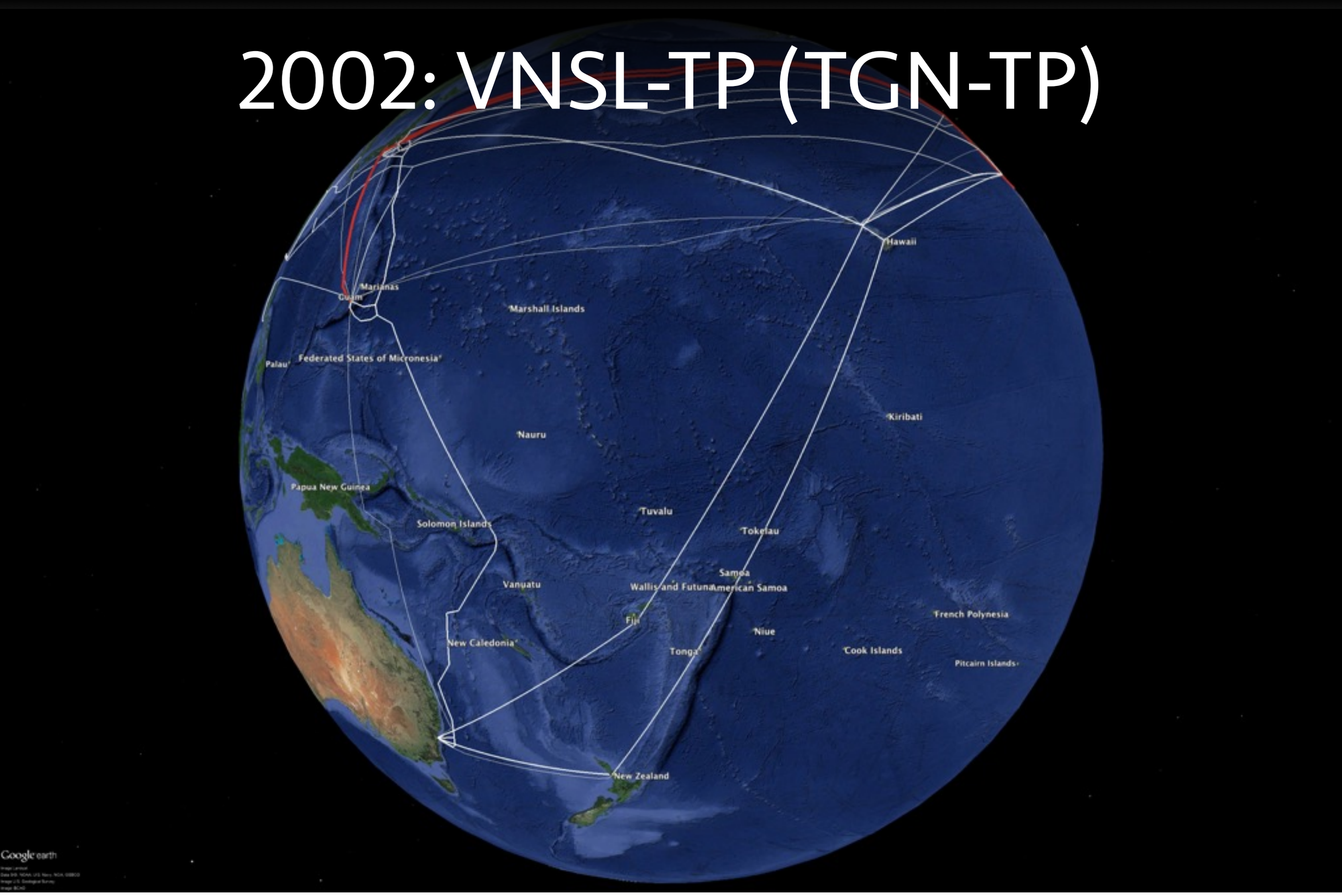
2002: VNSL-TP (TGN-TP)



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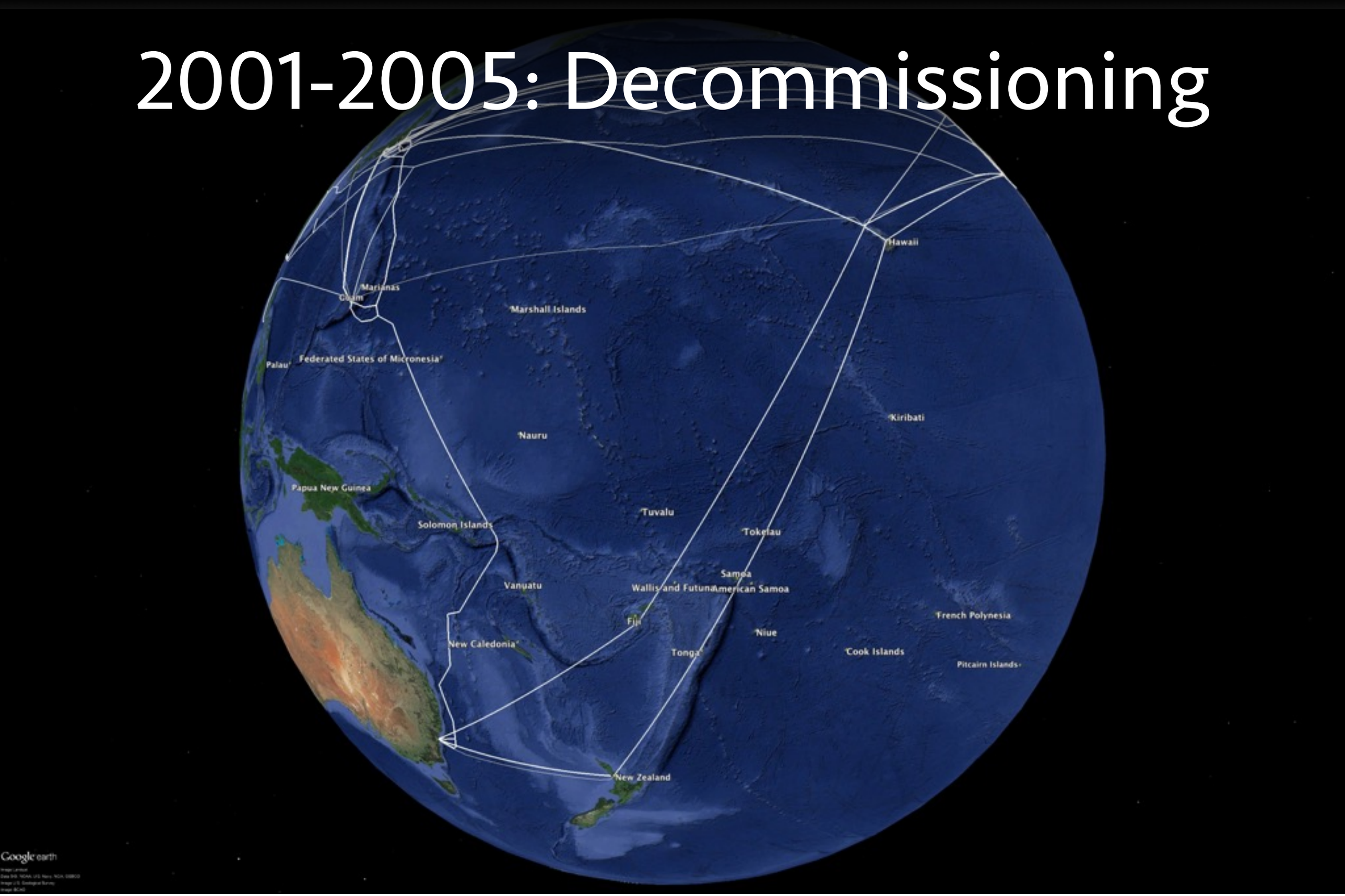
2001-2005: Decommissioning



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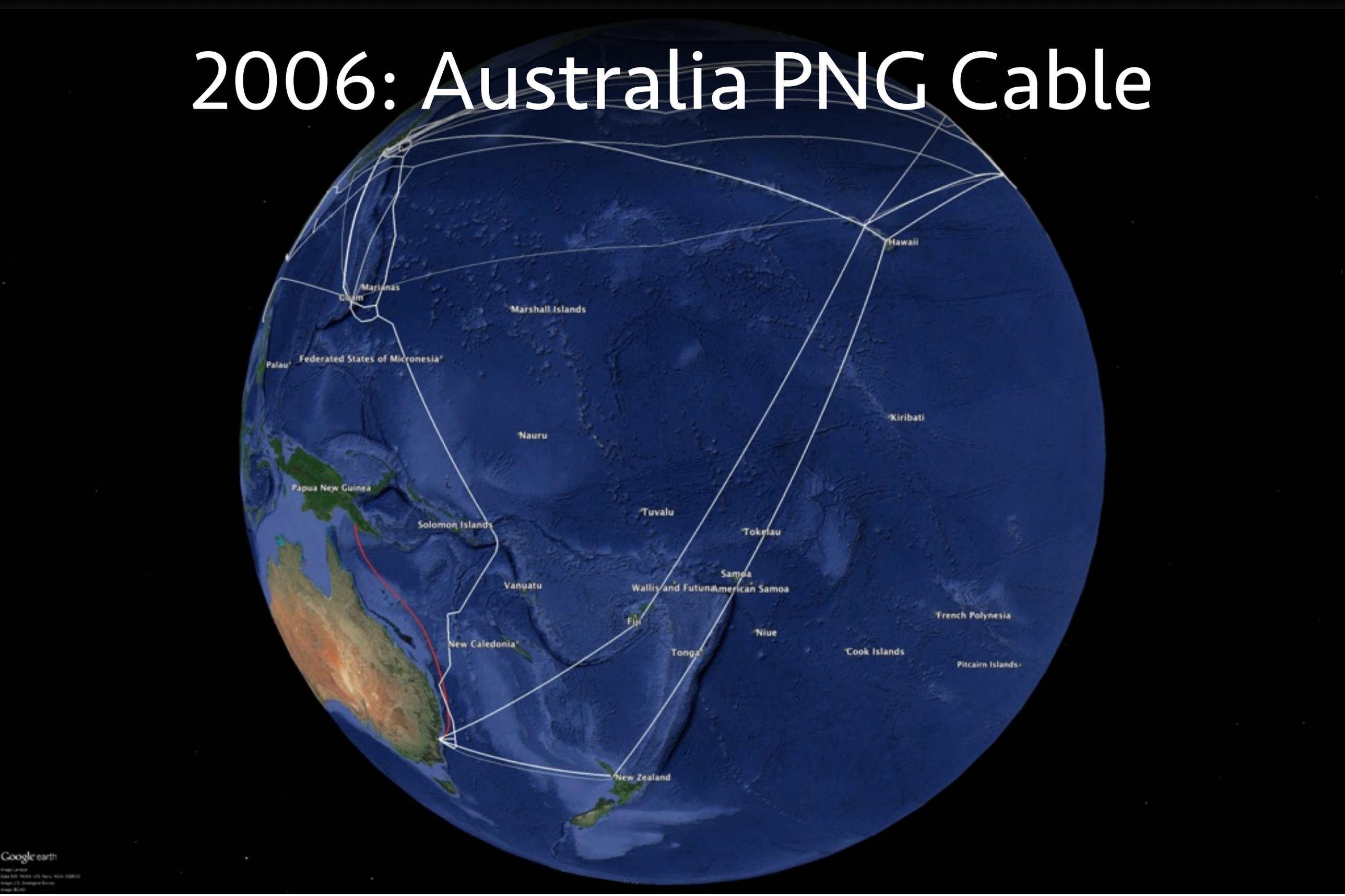
2006: Australia PNG Cable



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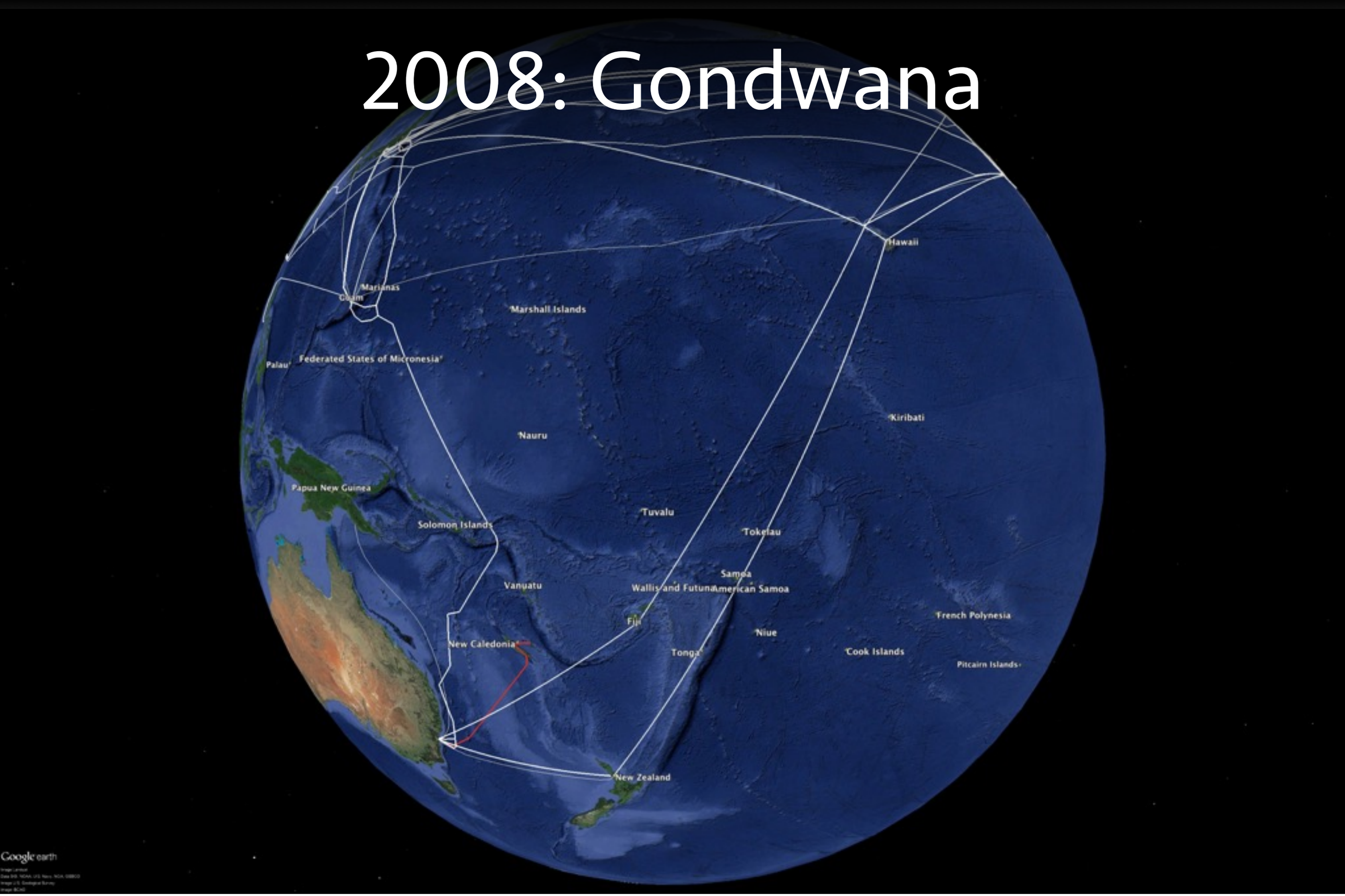
2008: Gondwana



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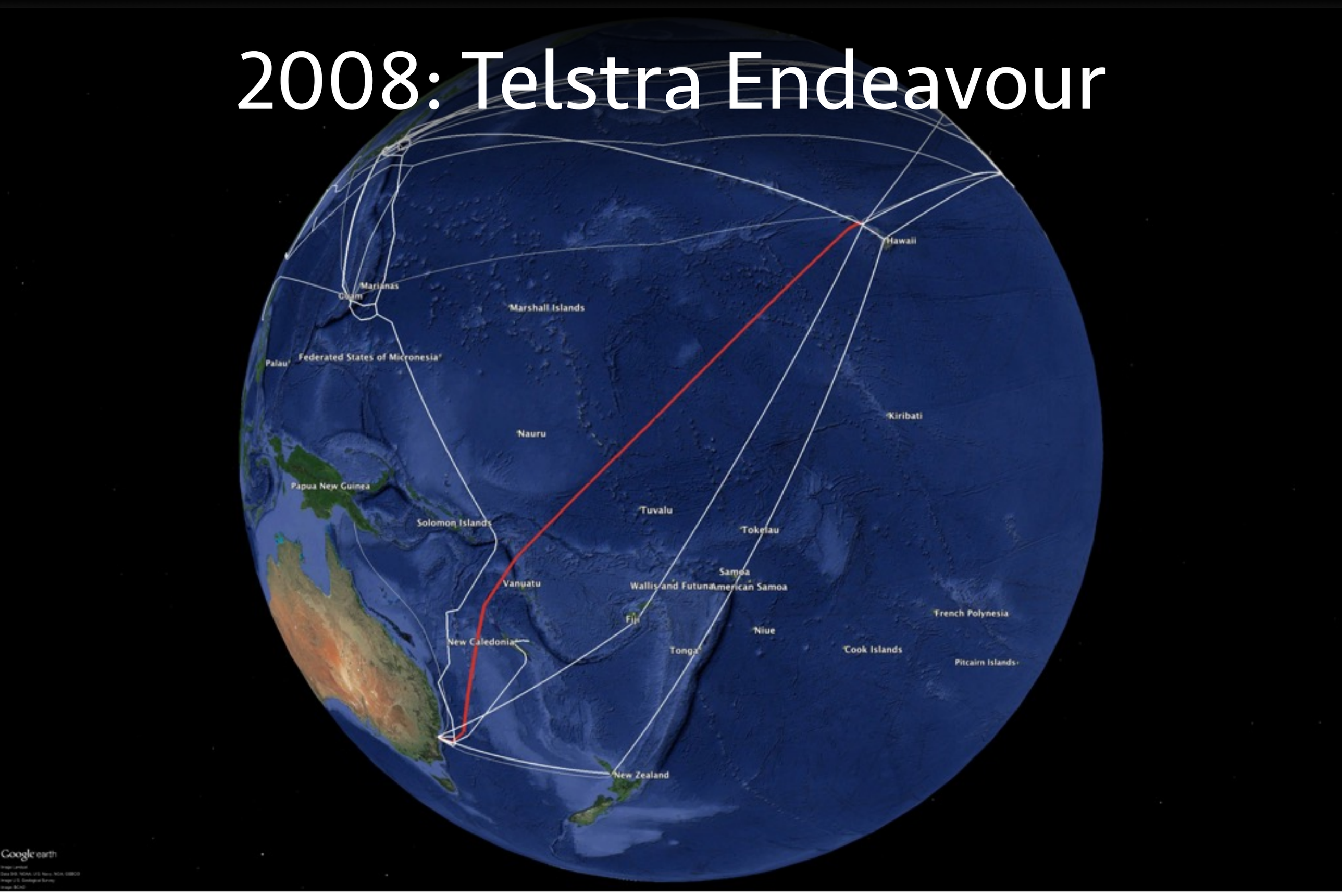
2008: Telstra Endeavour



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2009: Asia America Gateway

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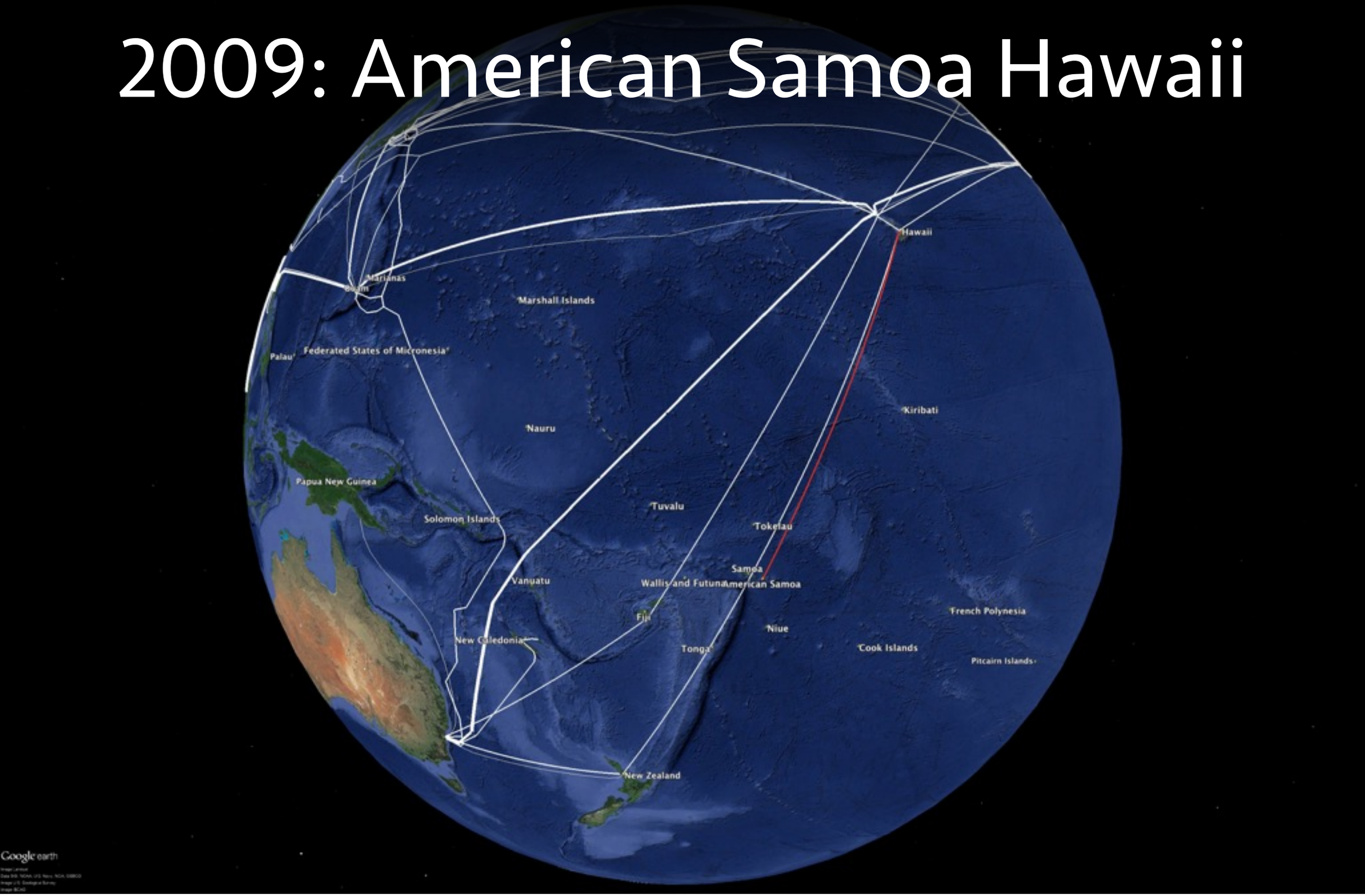
2009: American Samoa Hawaii



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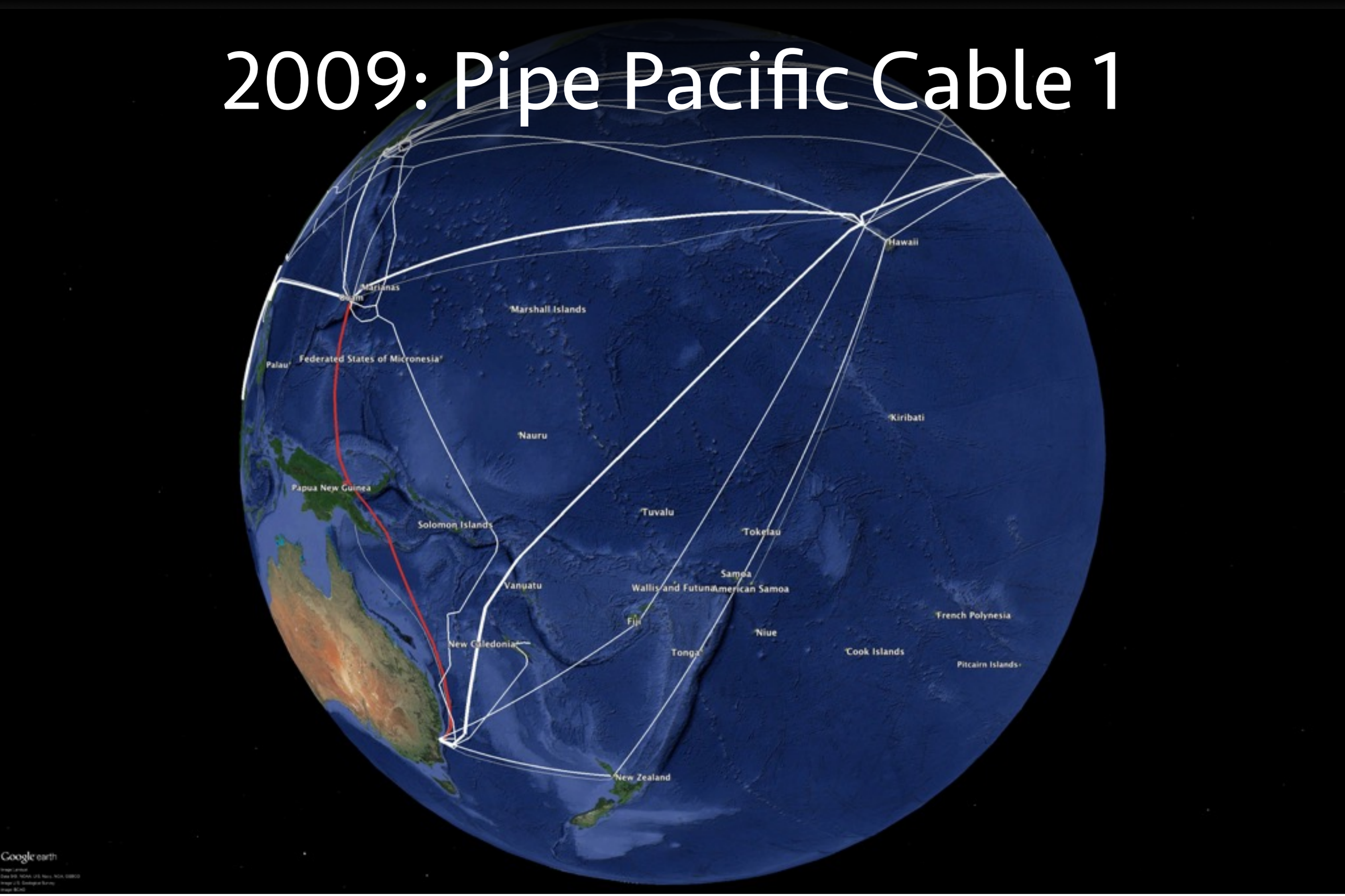
2009: Pipe Pacific Cable 1



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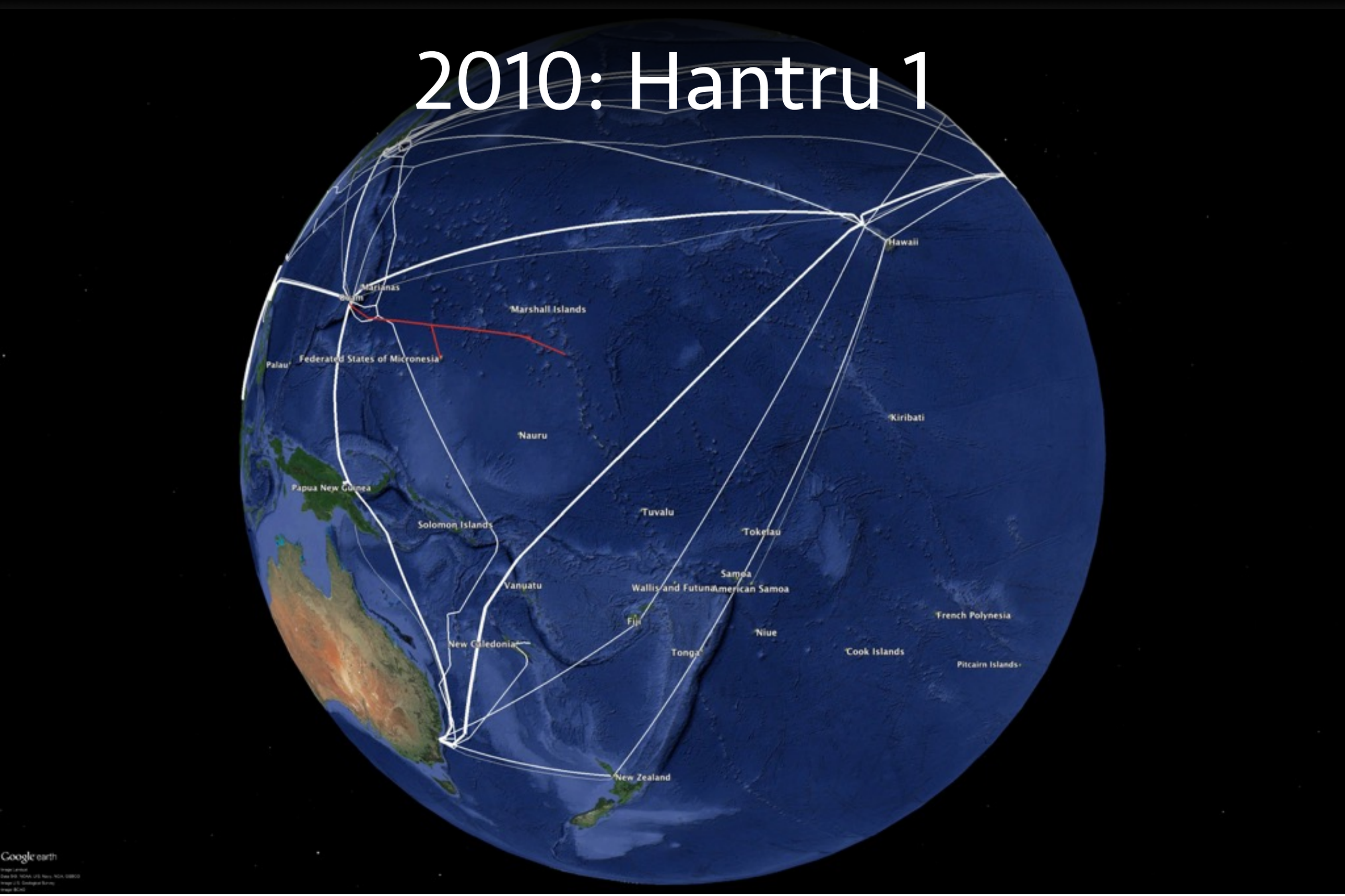
2010: Hantru 1



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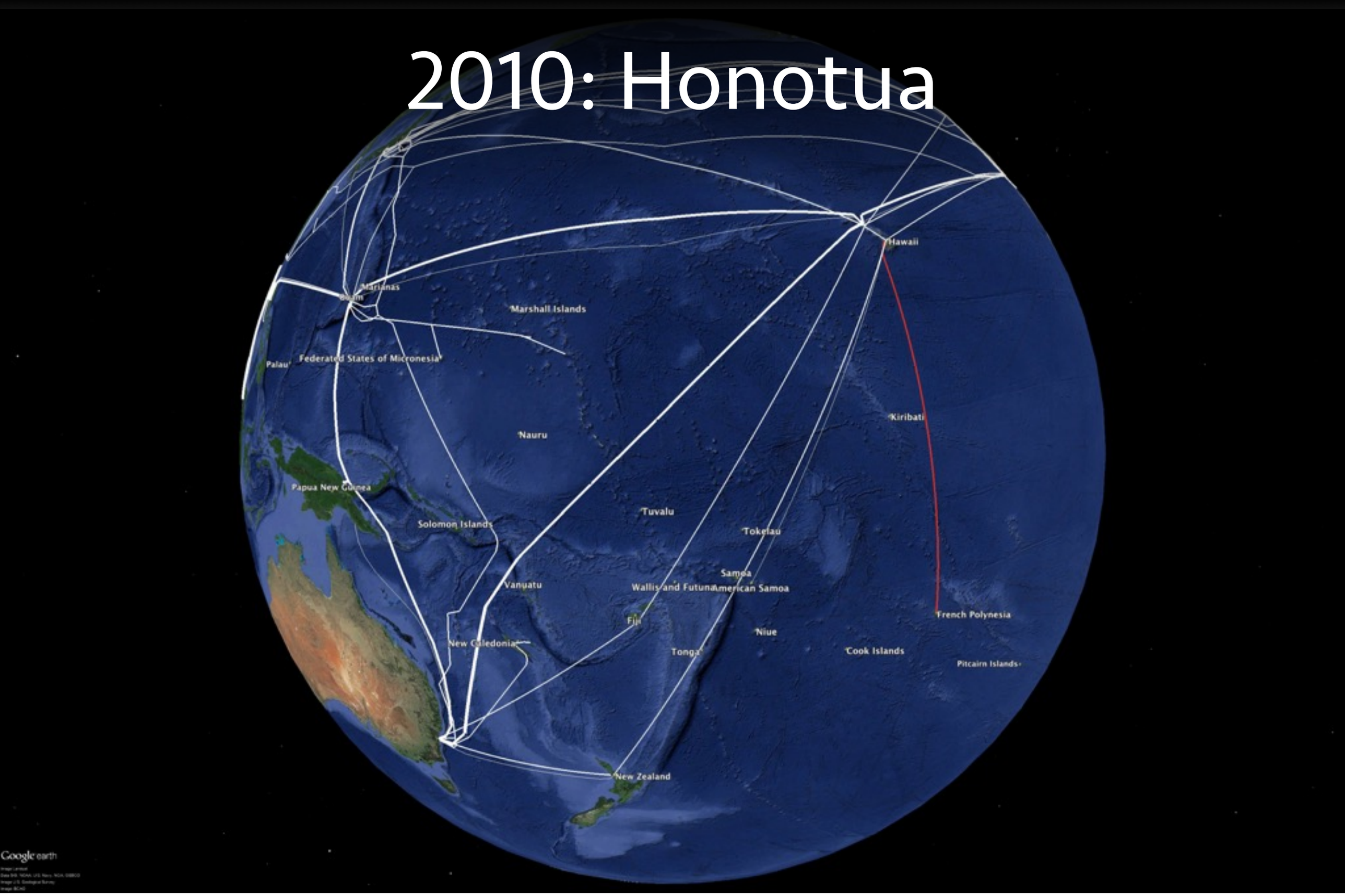
2010: Honotua



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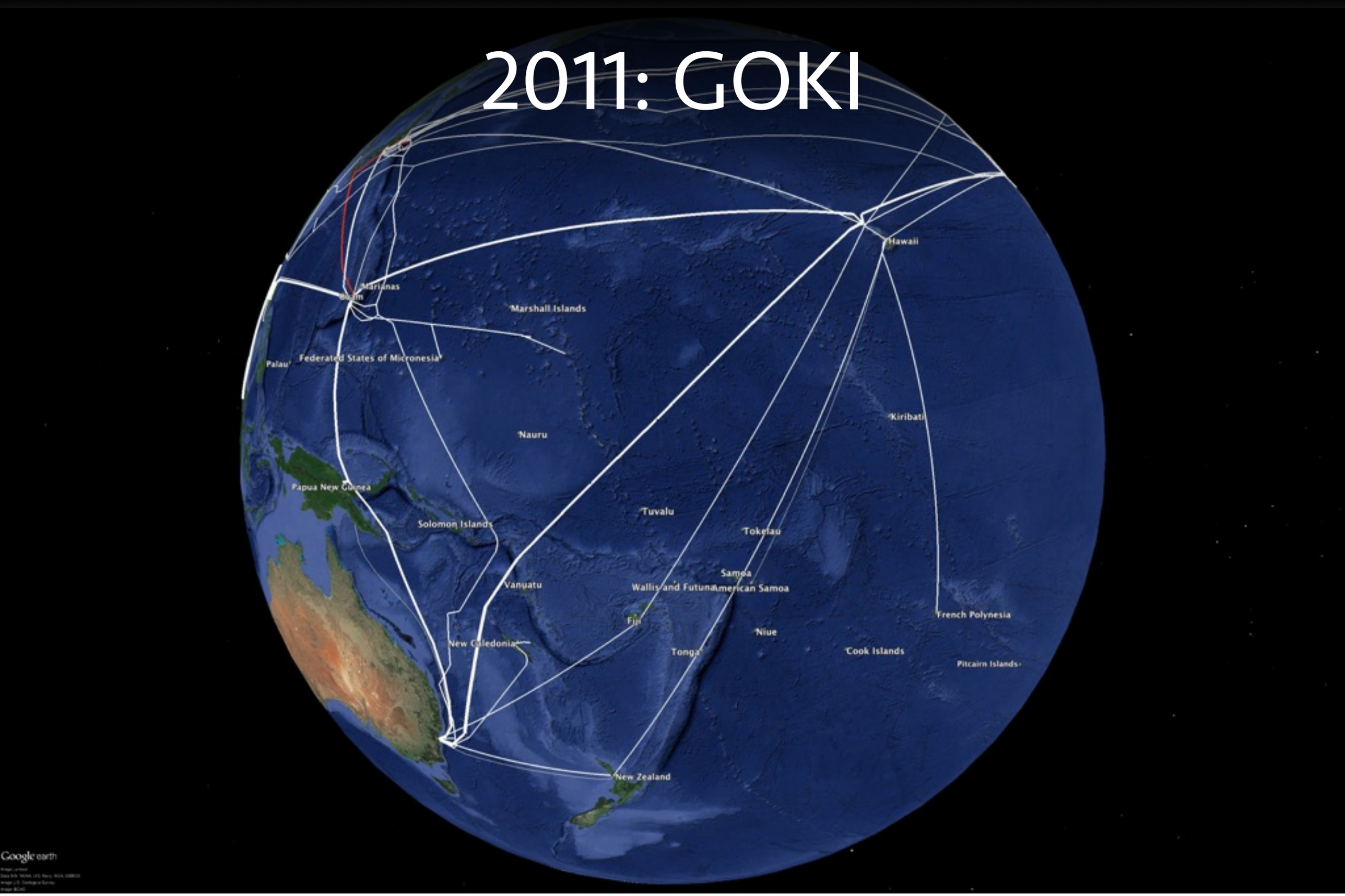
2011: GOKI



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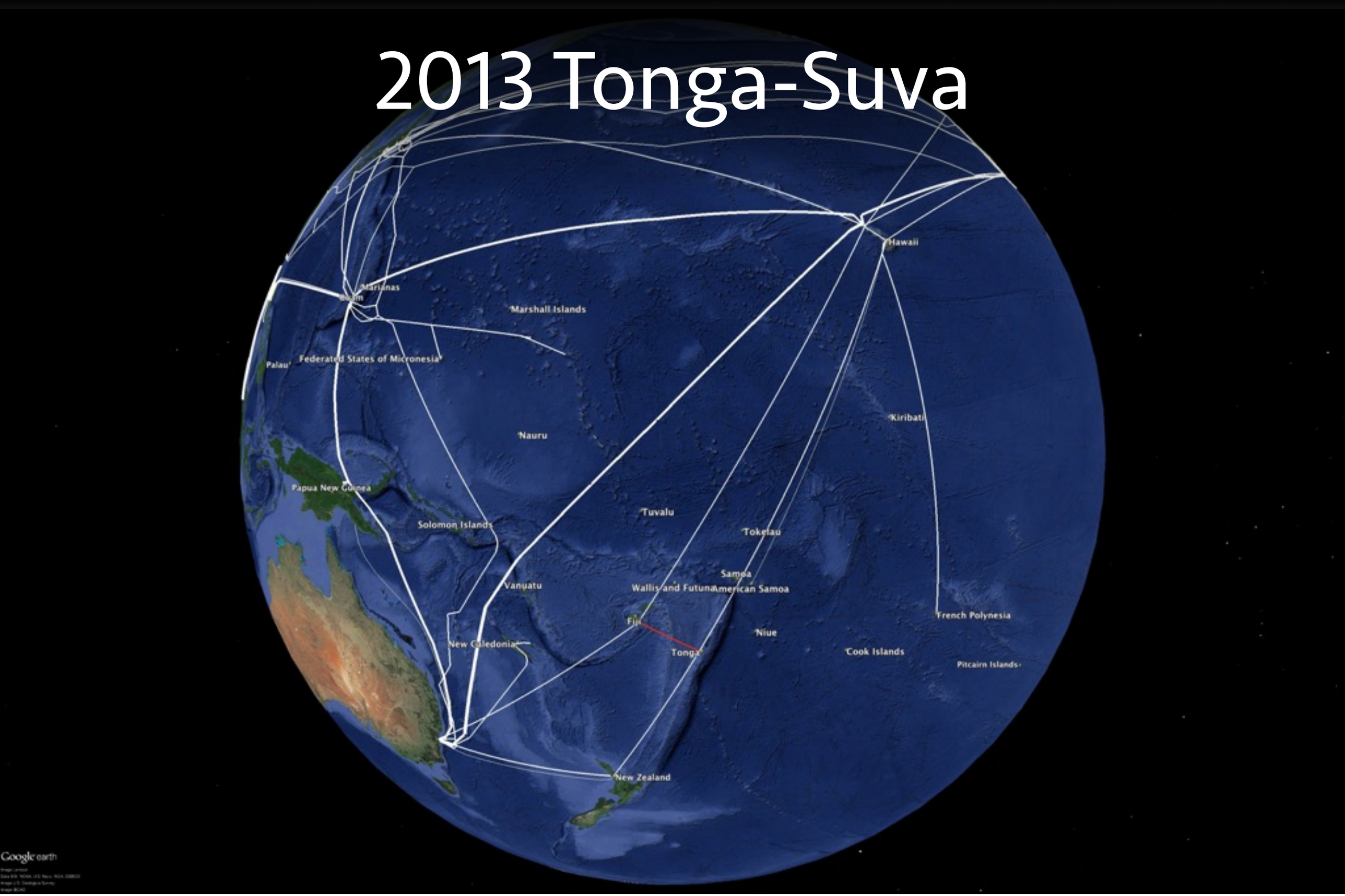
2013 Tonga-Suva



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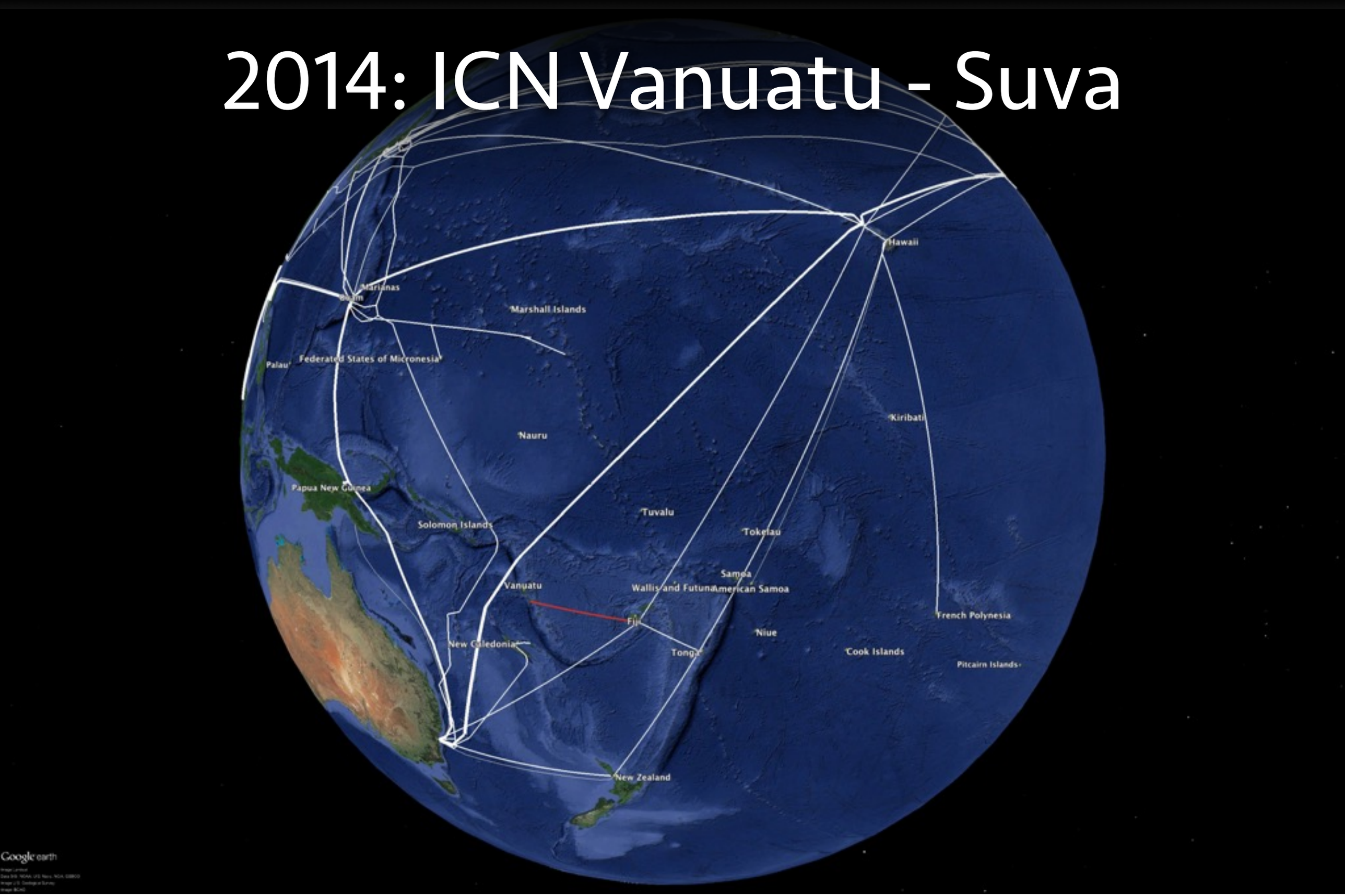
2014: ICN Vanuatu - Suva



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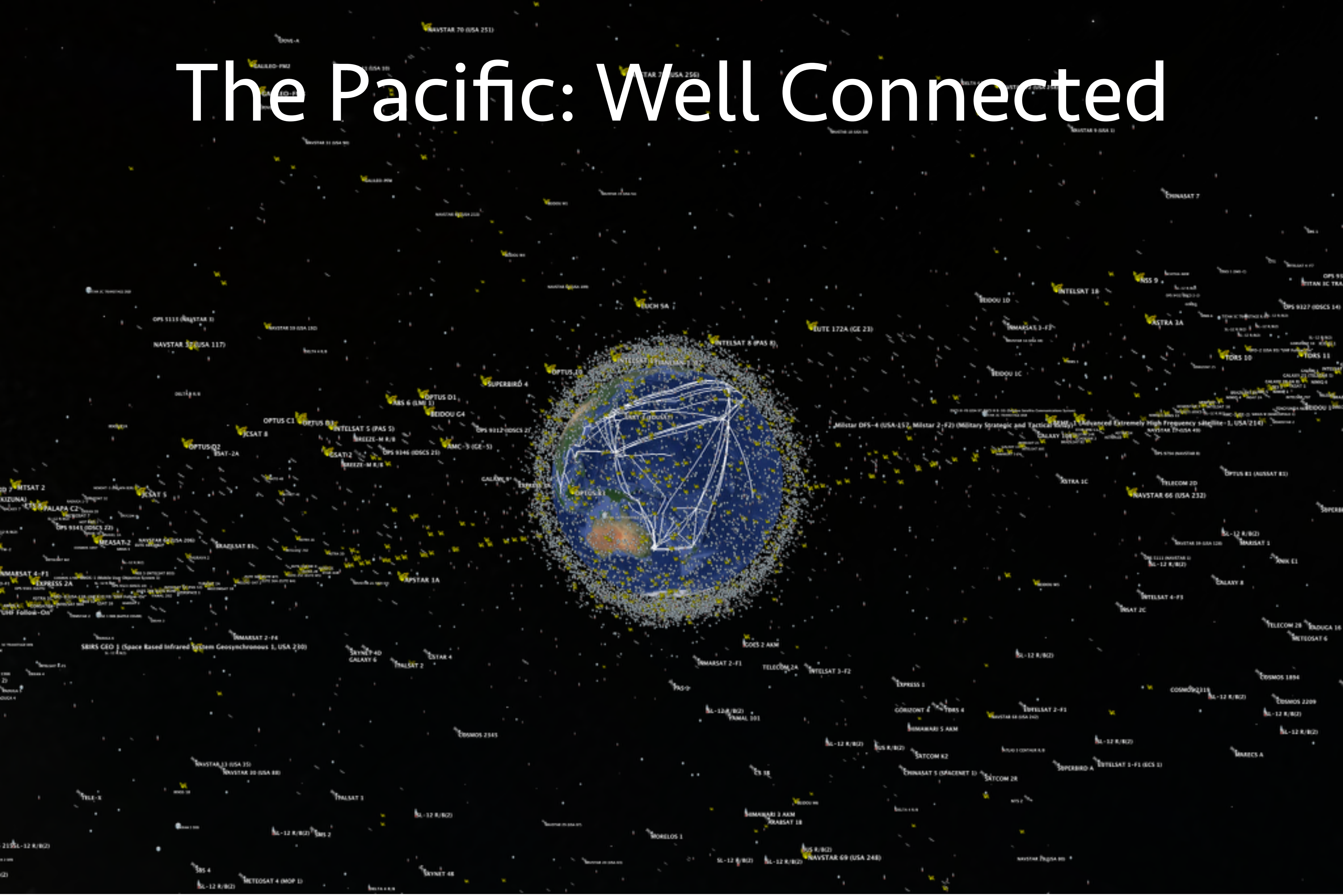
The Pacific: Well Connected



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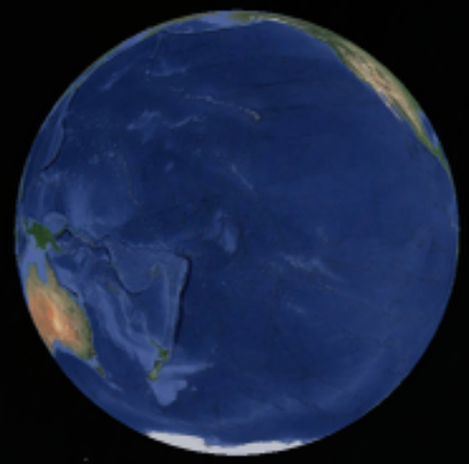
What Are We Doing



With All This Capacity?

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Guam

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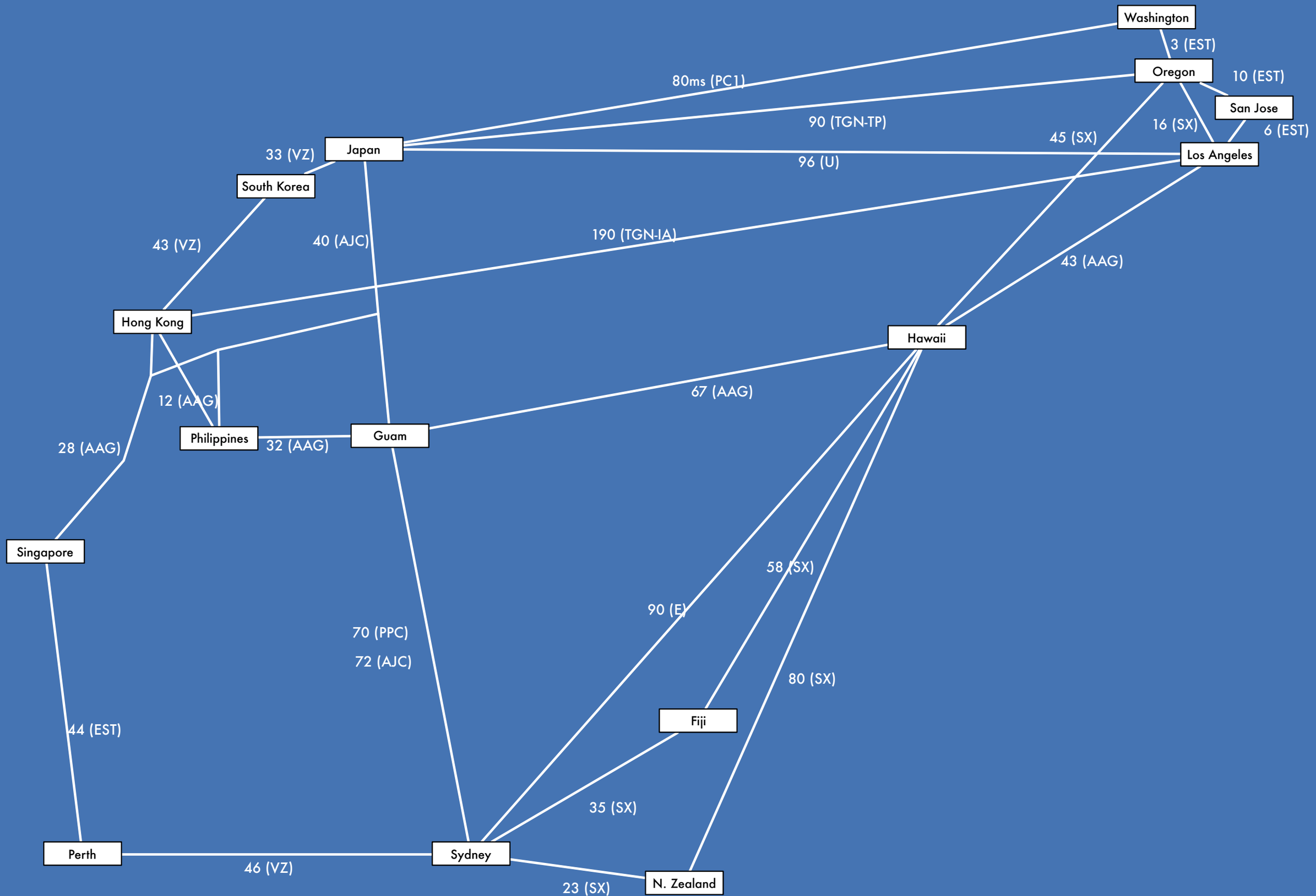

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Pacific Latency Observer

- Based on the Smokeping Network Monitoring Tool
- 15 virtual servers throughout the world
- Monitoring 77 Pacific networks
- Servers co-located near or at cable landing points
- Between 3-12 months of data available for all networks
- Data will be publicly available as part of the project

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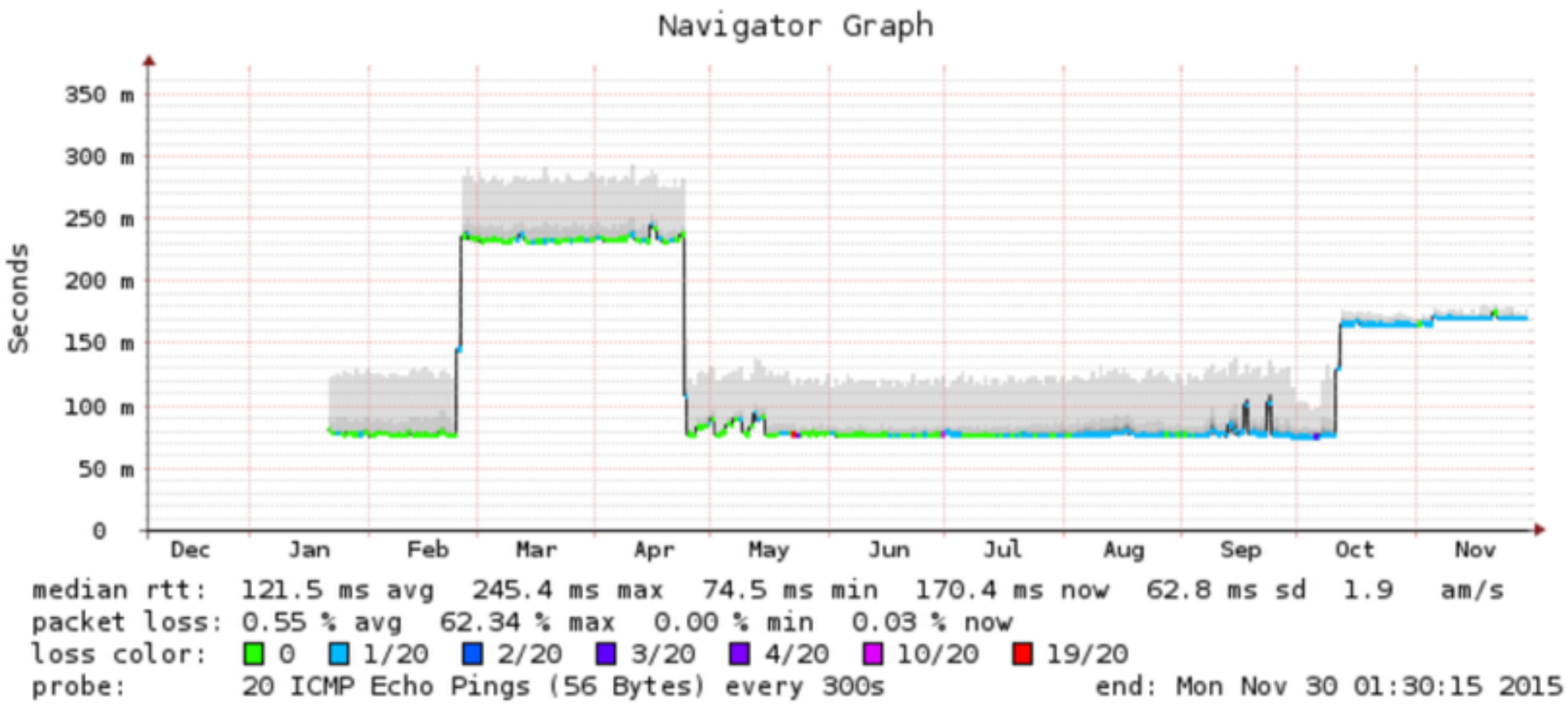
Pacific Latency Observer



Time range: 2014-12-05 01:29 to now Generate!

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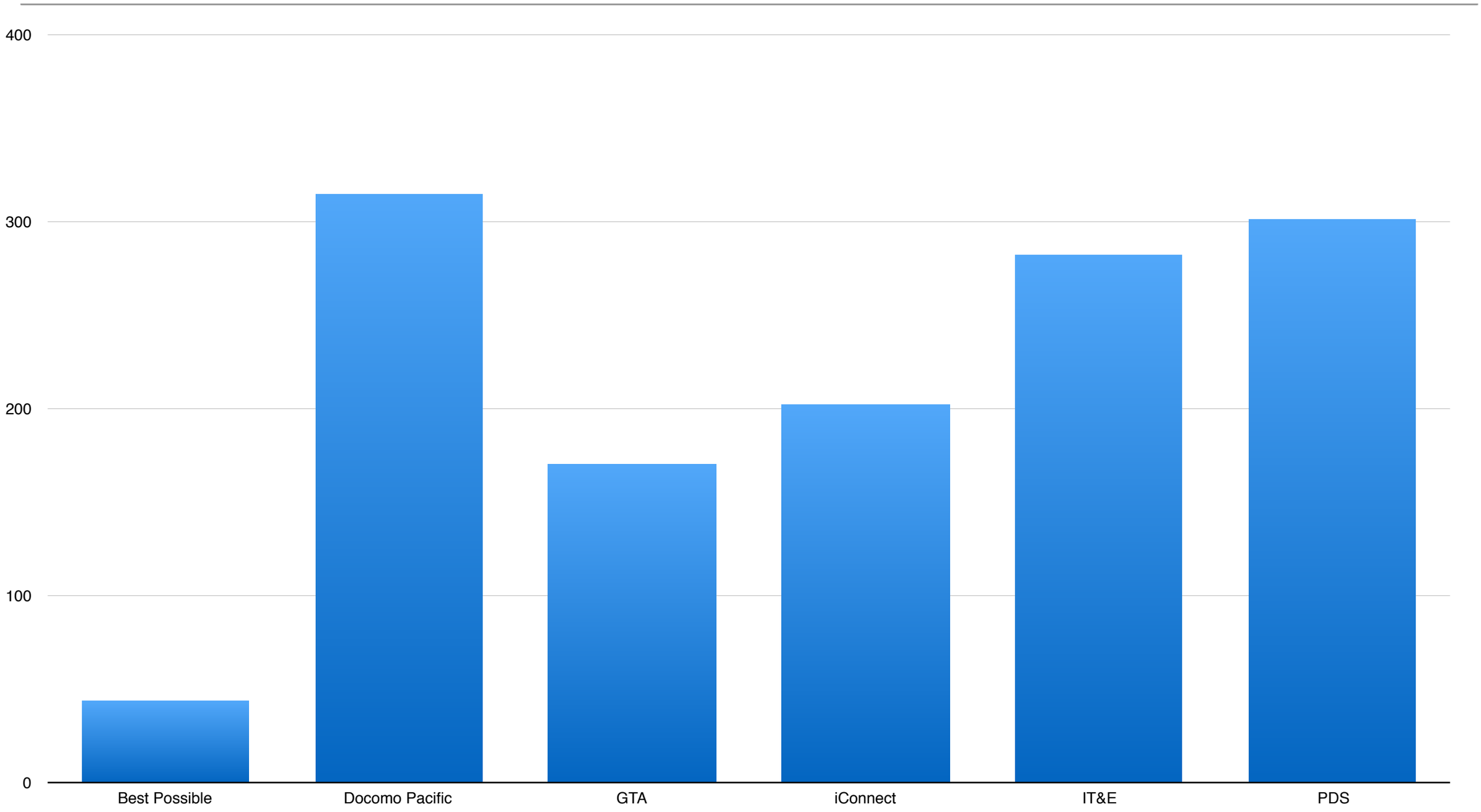
Hong Kong



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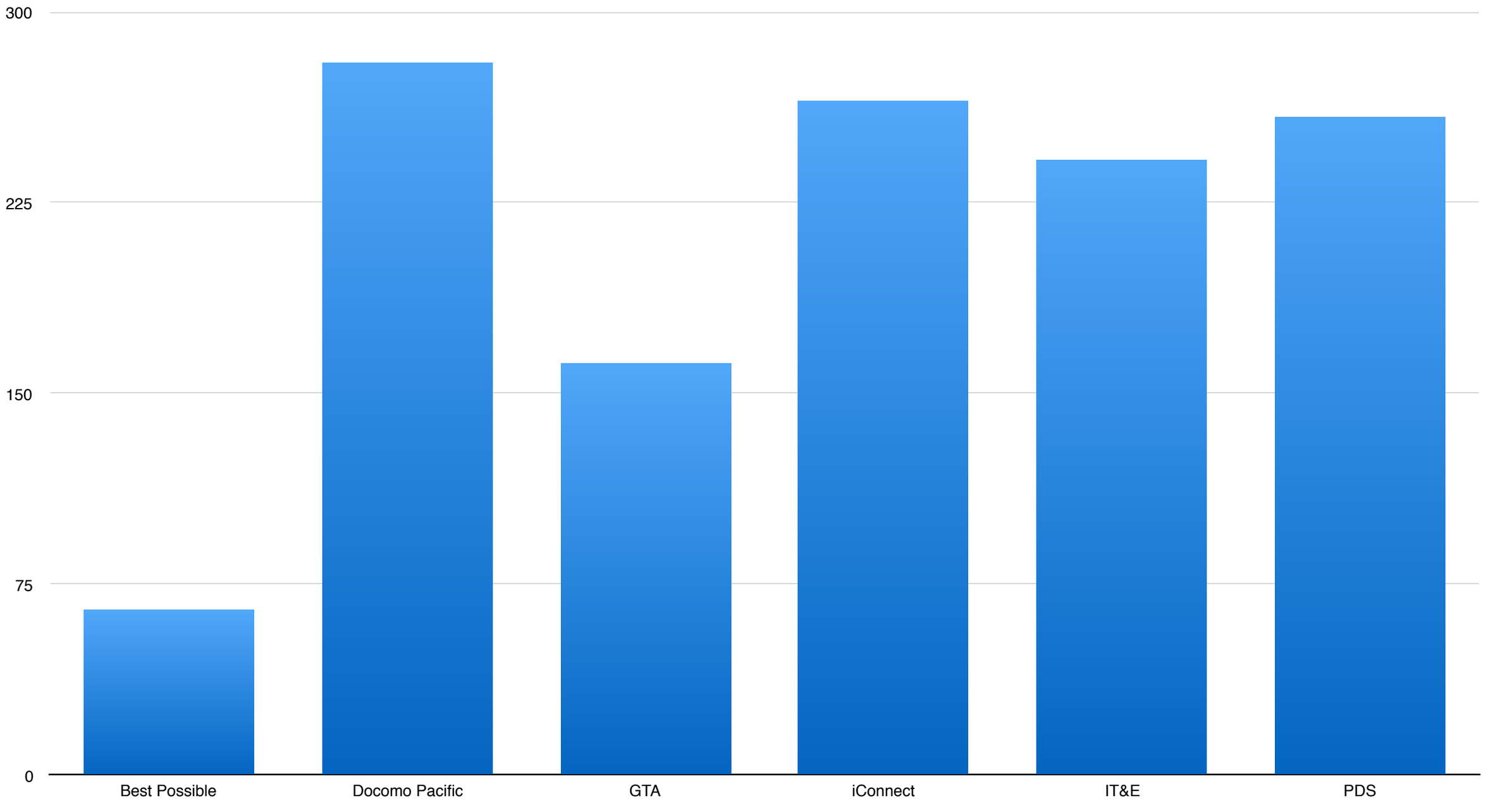
Seoul



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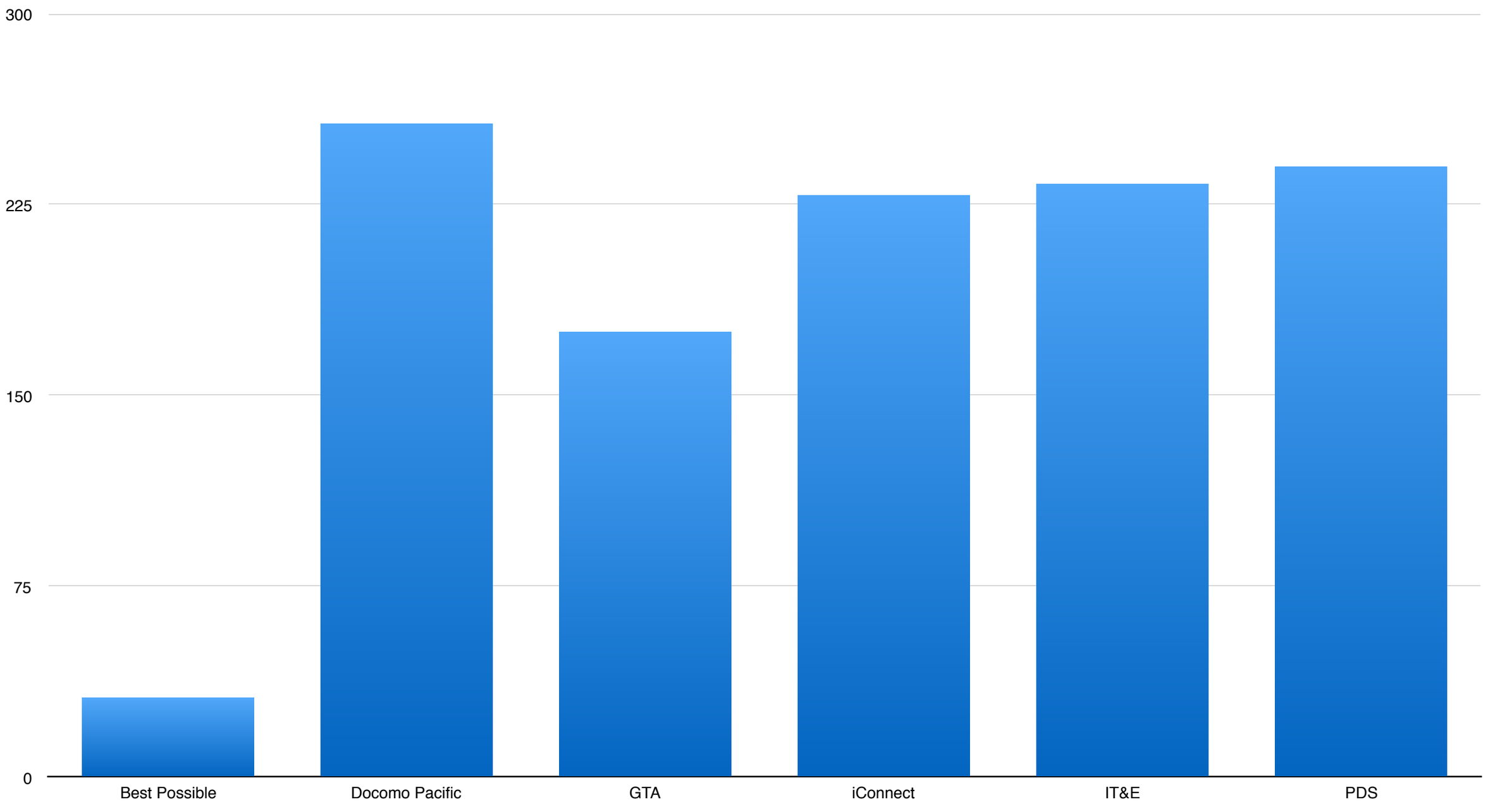
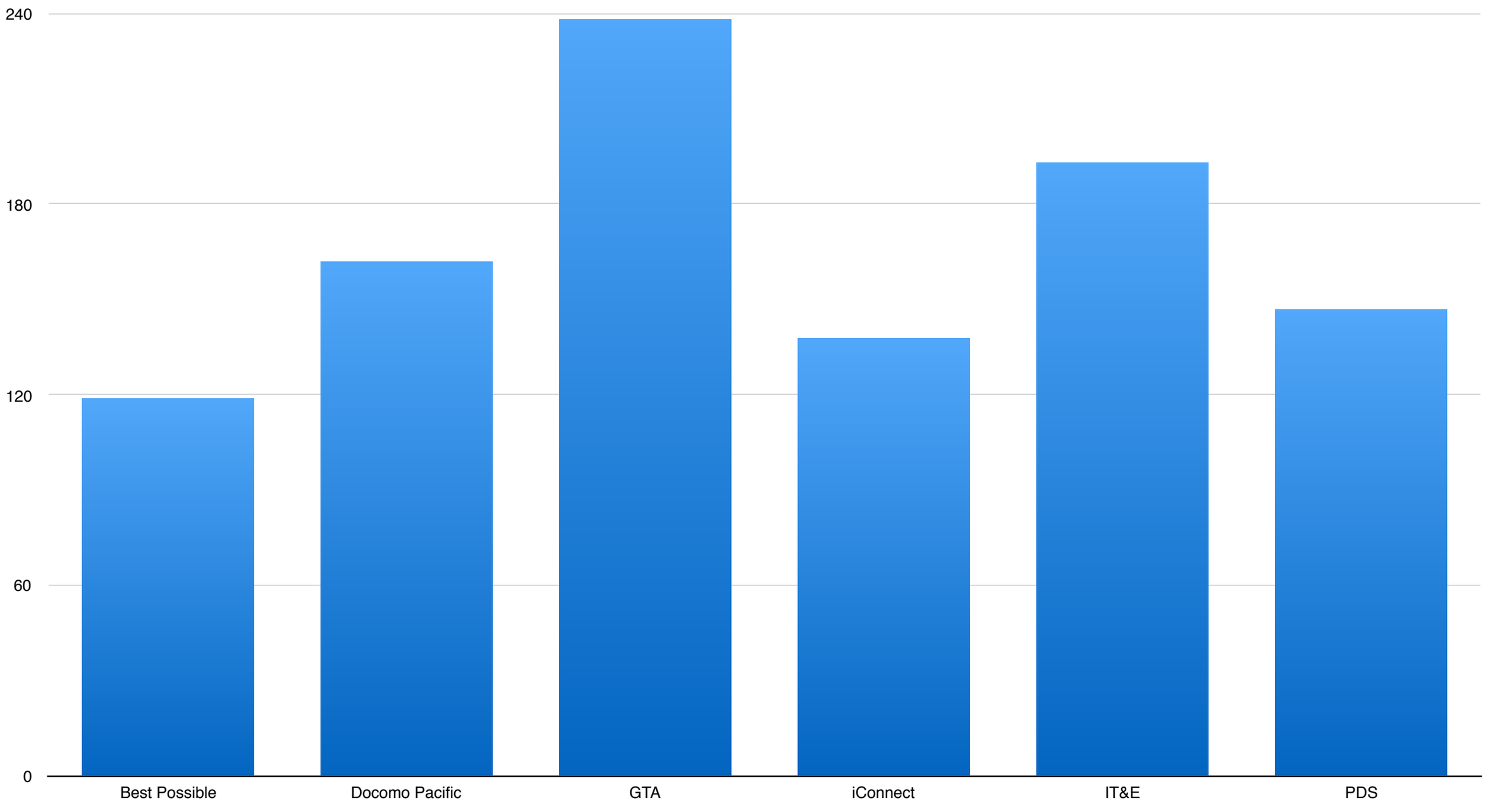
Tokyo


300
225
150
75
0
Best Possible
Docomo Pacific
GTA
iConnect
IT&E
PDS

Seattle



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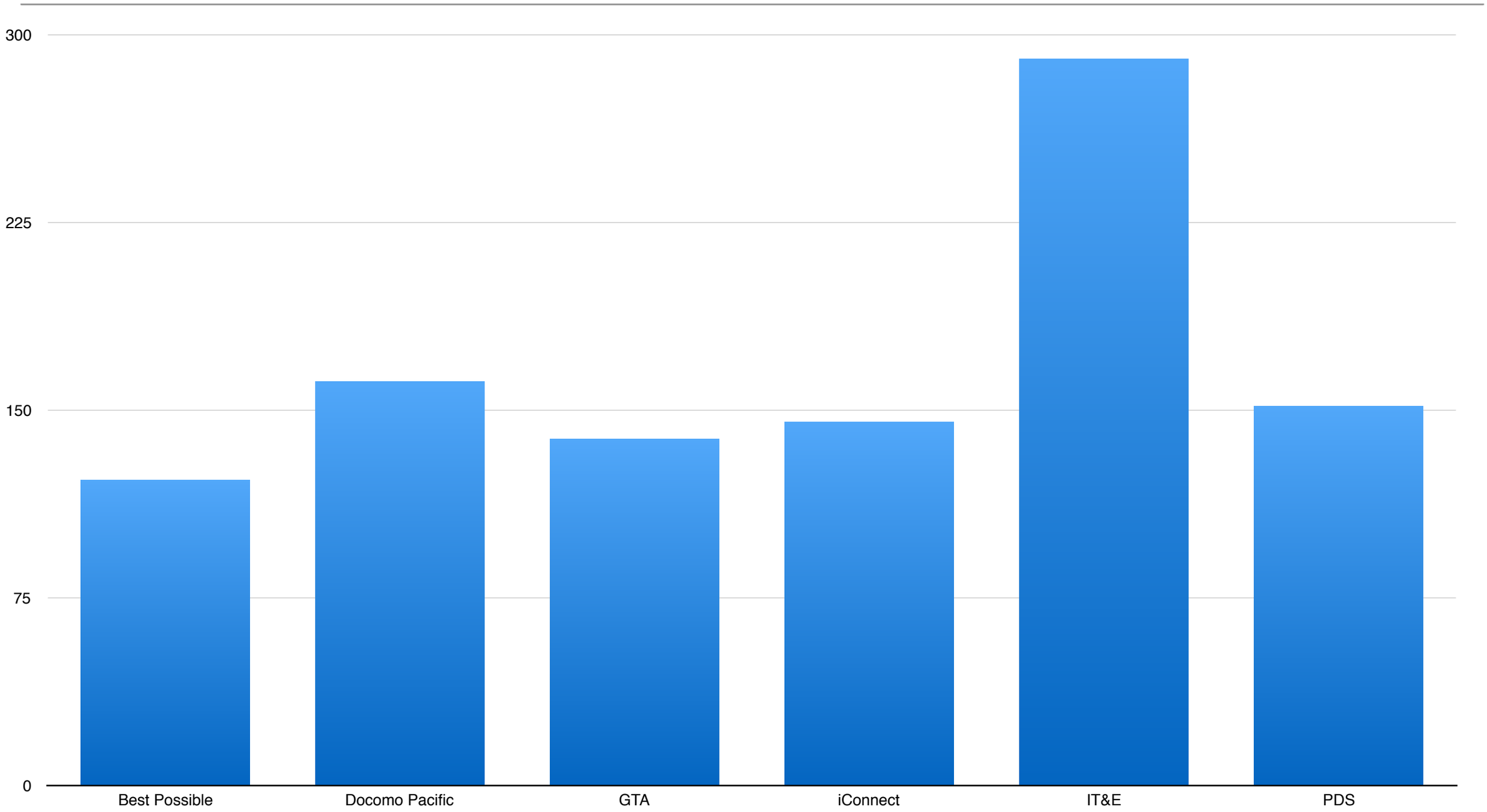
Portland



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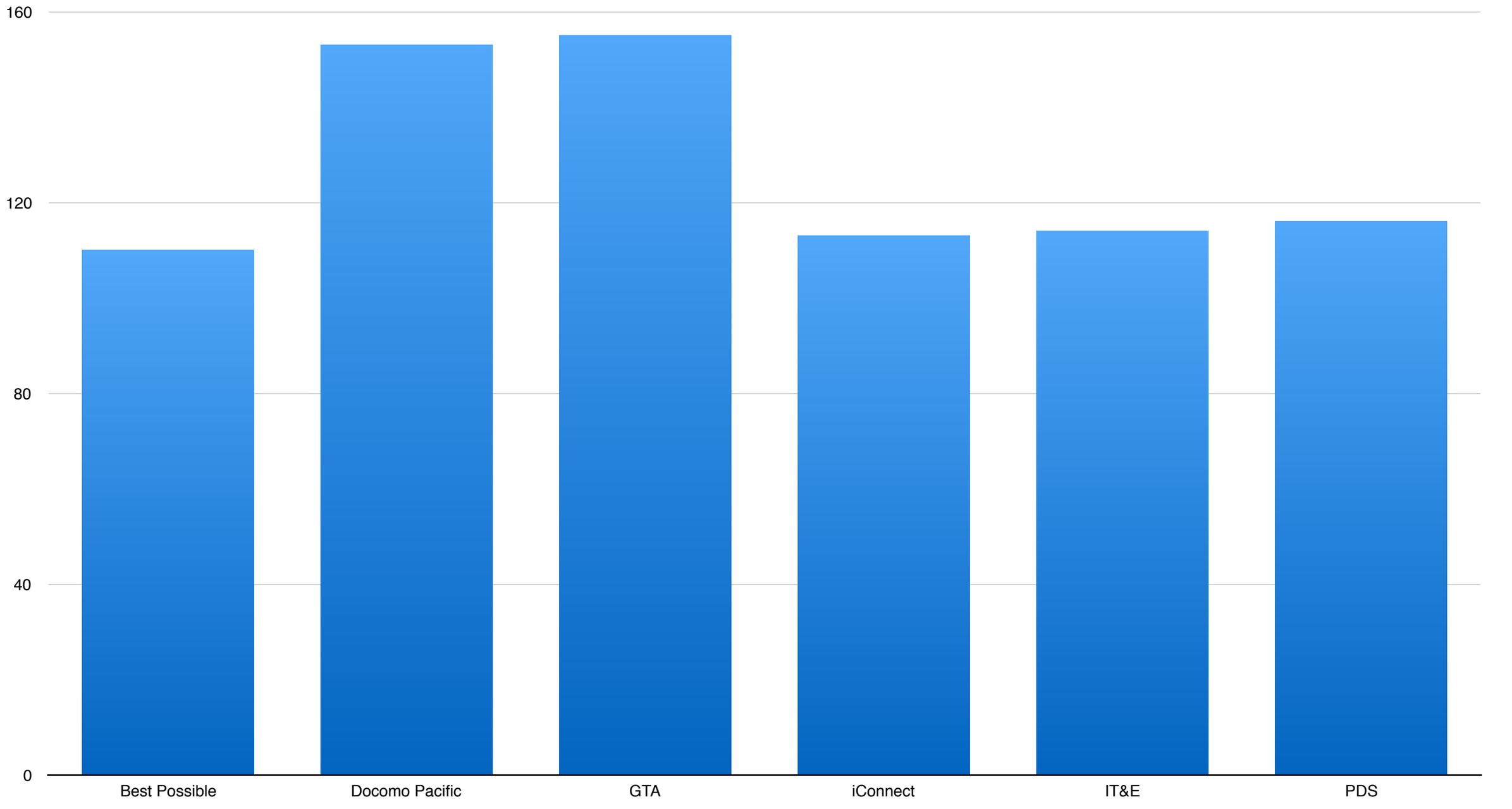
Los Angeles



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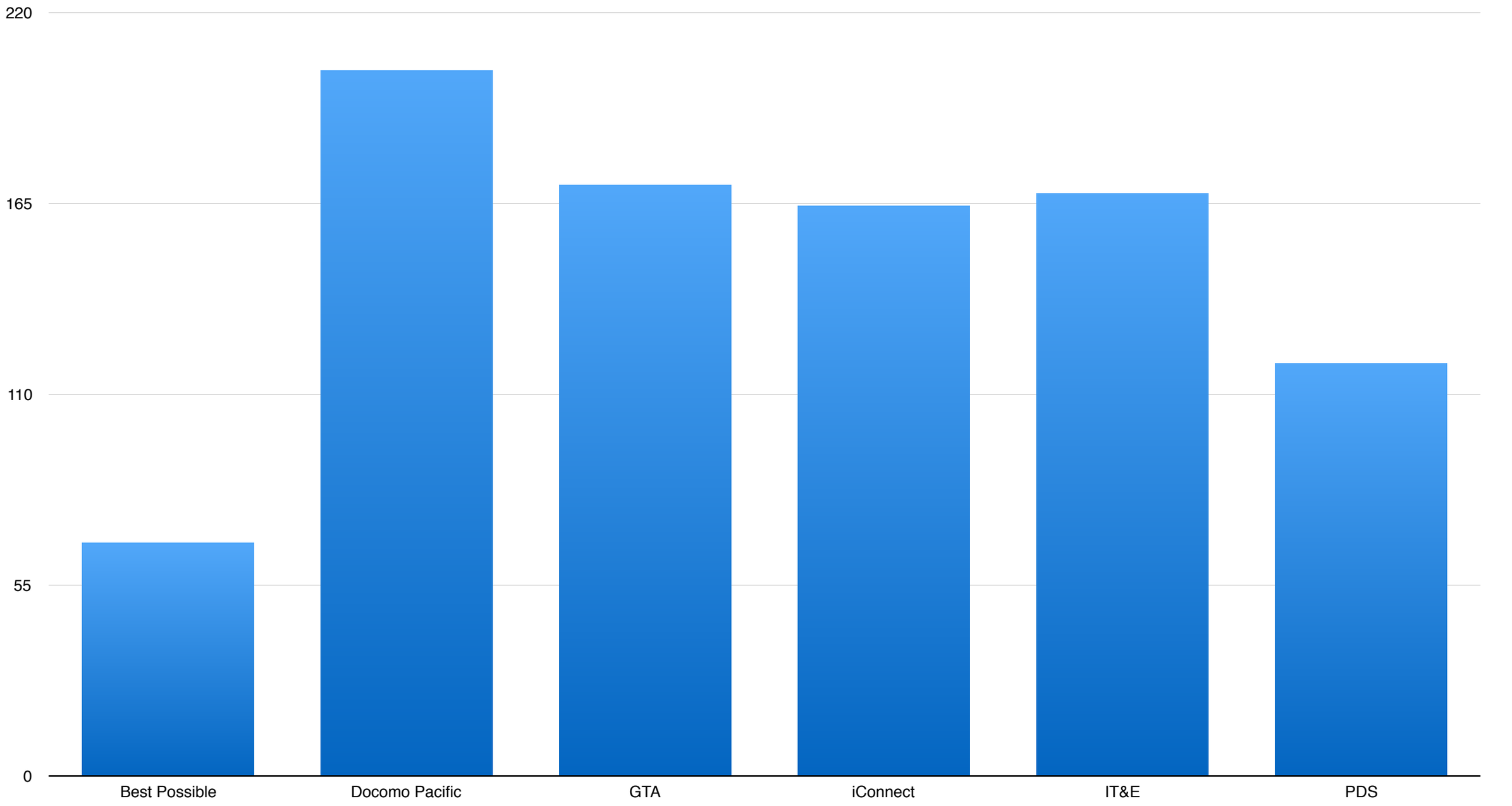
Honolulu



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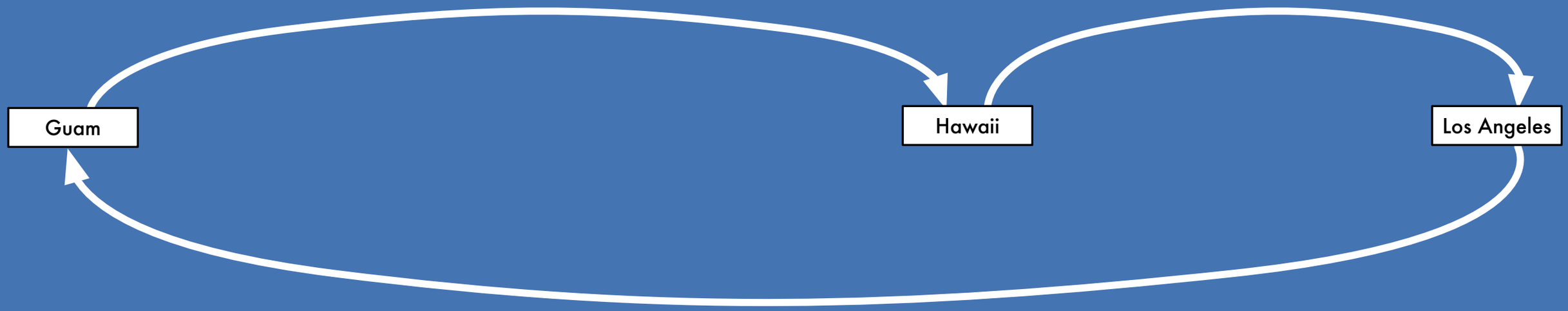
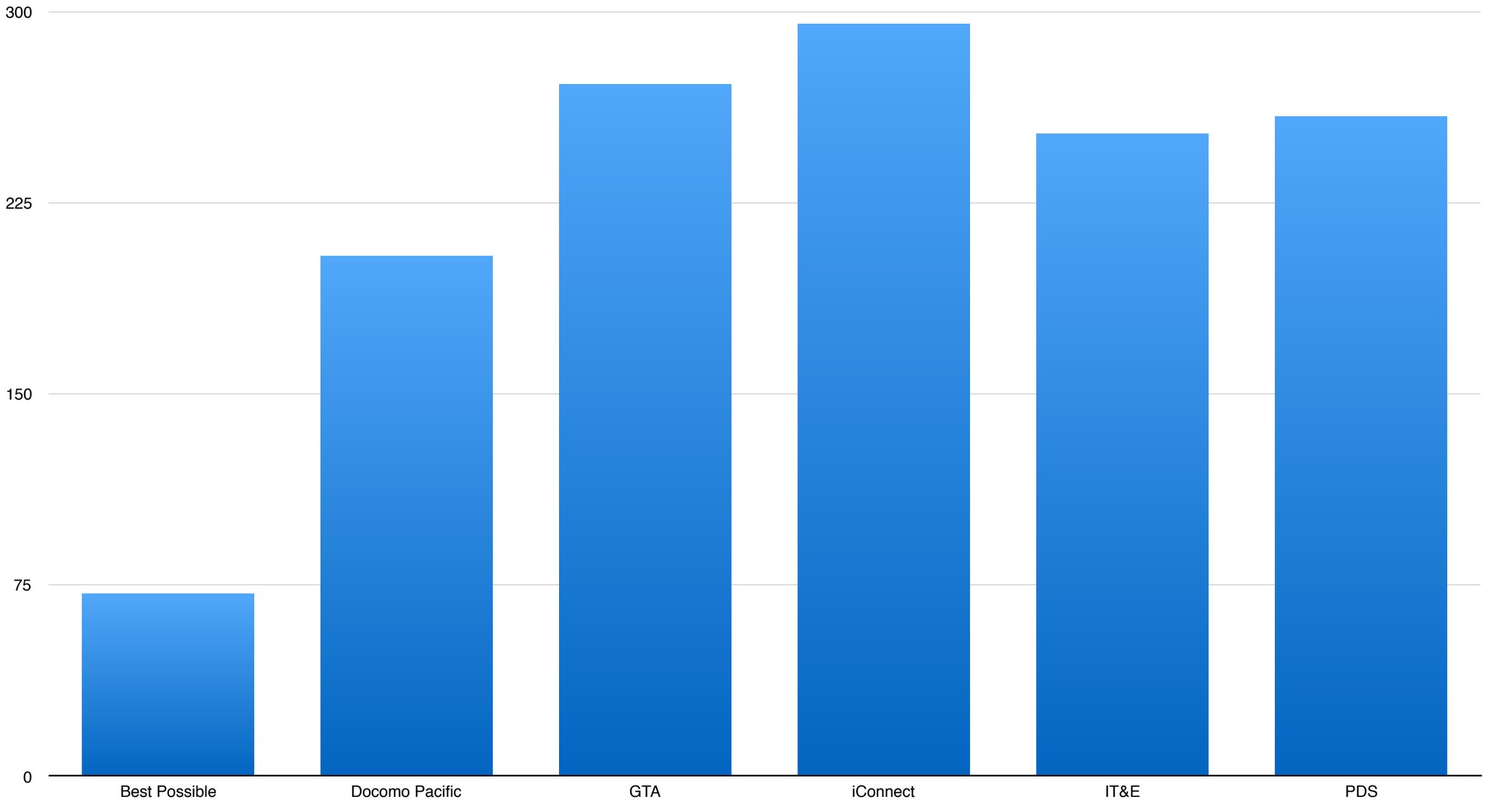
Asymmetric Routing



Sydney



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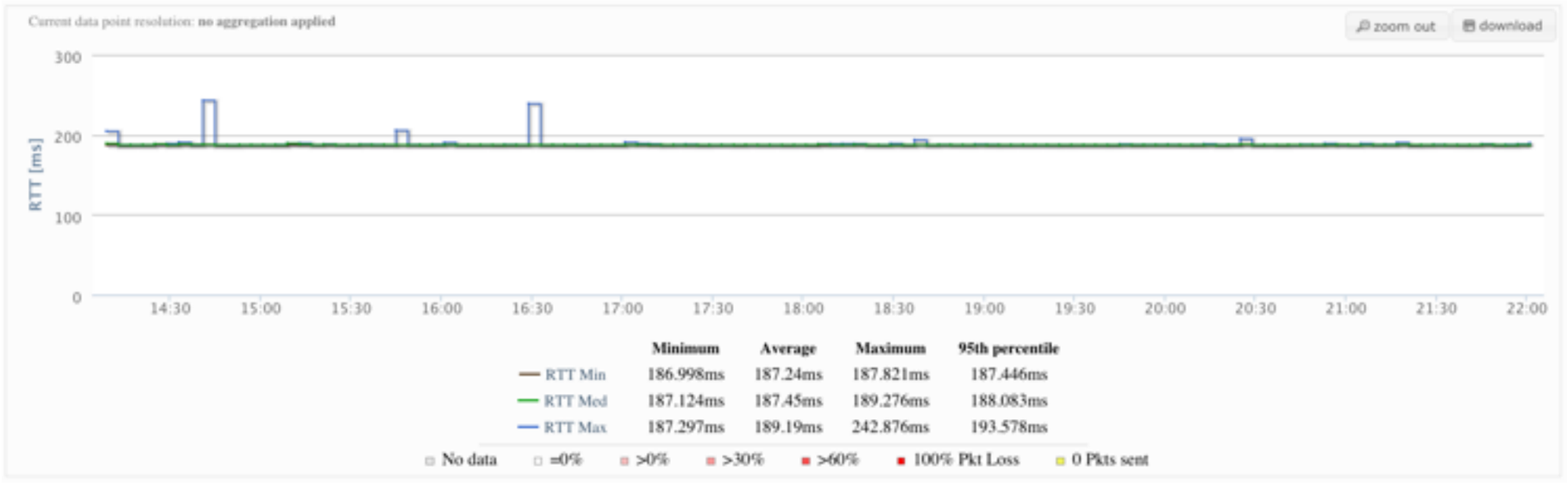
RIPE Atlas Project

- RIPE Atlas is a network of probes
- Measuring Internet connectivity & reachability
- Using DNS, HTTP, ICMP, and NTP



RIPE Atlas Probe

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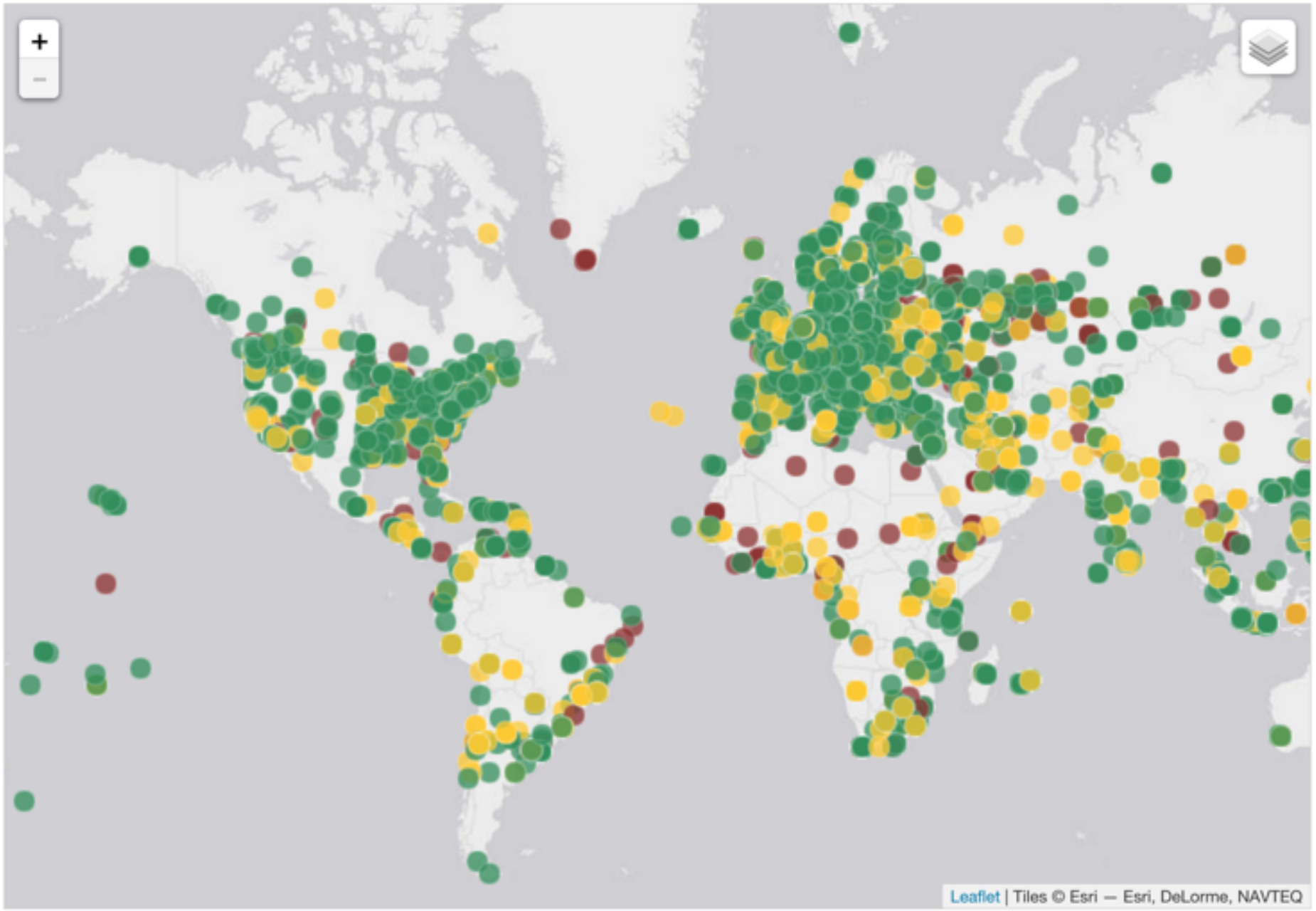
8,800 Probes Connected



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Atlas in the Pacific

American Samoa, Australia, Cook Islands, Guam, Fiji, French Polynesia, Hawaii, New Caledonia, New Zealand, Niue, Philippines, Samoa, Tonga, Vanuatu

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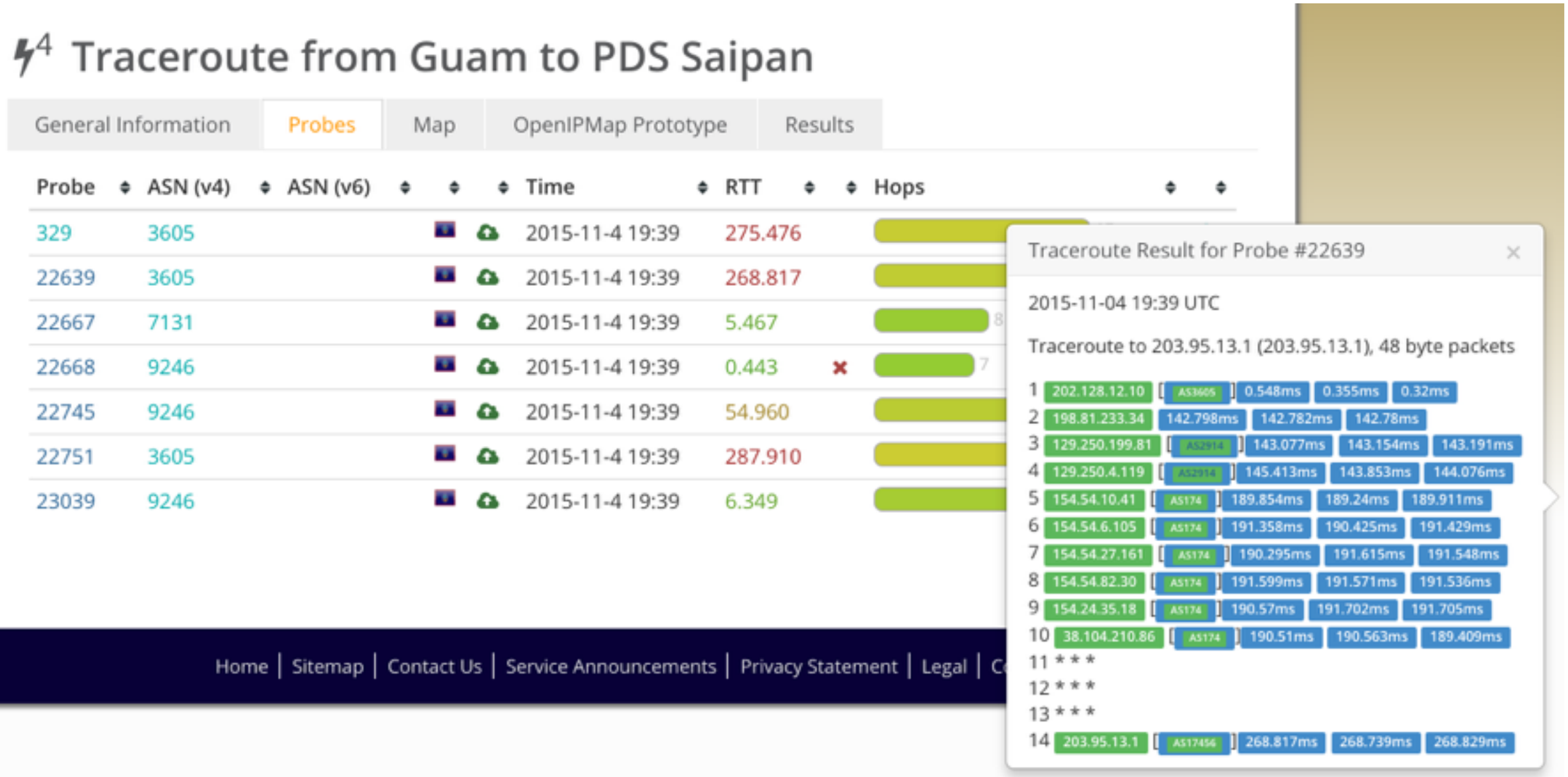
Atlas Measurements



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Guam via RIPE Atlas

	Docomo	GTA	iConnect	IT&E	PDS
Docomo					
GTA					
iConnect					
IT&E					
PDS					

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FSM & Marshall Islands

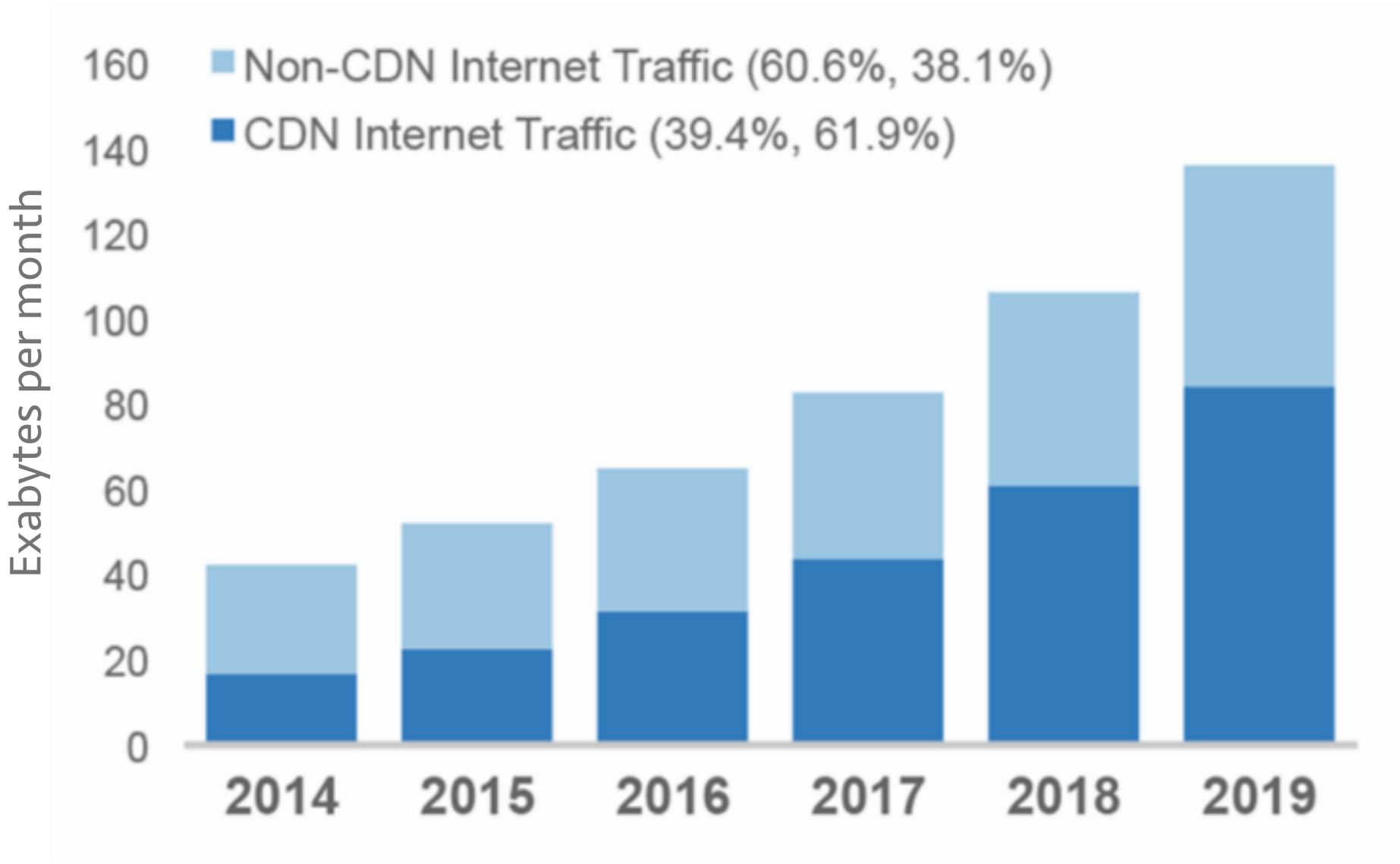
	Docomo	GTA	iConnect	IT&E	PDS
FSM					
MINTA					

Does Connectivity Matter?

- Email - not so much
  - However in Niue email between carriers takes hours
- Facebook - not so much
  - Conversations are in “near-real-time”
- **VoIP? Skype? FaceTime? Yes! Yes! Yes!**
- **Streaming Media? Yes**

Does Connectivity Matter?

Traffic from Content Delivery Networks



Global Content Delivery Network Internet Traffic, 2014 and 2019

http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/VNI_Hyperconnectivity_WP.pdf

“He aha te mea nui o te ao”

“What is the most important thing in the world?”

“He tangata, he tangata, he tangata”

“It is the people, it is the people, it is the people”

– Maori Proverb

A Peering Strategy for the Pacific Islands

Help: Network Visibility

- Where is your network traffic going?
- What networks are your “Top Talkers”?
- Are your customers being well served?
  - Local peering is important for this
- Are you planning your capacity based on data?
  - Or just buying on salesperson recommendations?

Help: Transit & Peering

- All transit is not equal
  - A link without committed latency can go anywhere
- Lack of understanding of transit purchase strategies
  - Long-term agreements must predict growth
- Lack of understanding of peering strategies
  - Free peering is great, paid peering is also ok

Help: Streaming Media

- CDN content is available in the Pacific at Tokyo or Sydney
  - There's no reason to take CDN traffic from Los Angeles
  - Closer content is cheaper content
- Latency matters for CDN/Streaming Media Access
  - TCP rx windows restricted to improve CDN throughput
  - Distant users suffer to increase performance for all

Help: RIPE Atlas Project

- Probes are free for networks - even multiple probes
- Assistance is available for many tasks beyond setup
  - Monitoring & Systems integration
  - Visibility from the world
  - Custom Measurements

Next Steps: ISIF Project

- Integrated Pacific Performance Website Online
- Analyse Benefits of Regional Peering Points
  - Does every country need an exchange? Maybe not.
- Assess needs for training & assistance
  - Network Visibility, Transit & Peering, CDNs, Atlas

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How Can You Help?

- Interviews: Tell me your stories, please!
  - Where have things gone right?
  - Where have things gone wrong?
- RIPE Atlas Probes: Host one, please!
  - They use around ~10kbps of traffic
  - Only need to allow ping, traceroute, http(s)

Thank You!

Email: jon@brewer.nz
Skype/Twitter: @kiwibrew

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