

TransPAC2 Engineering Update

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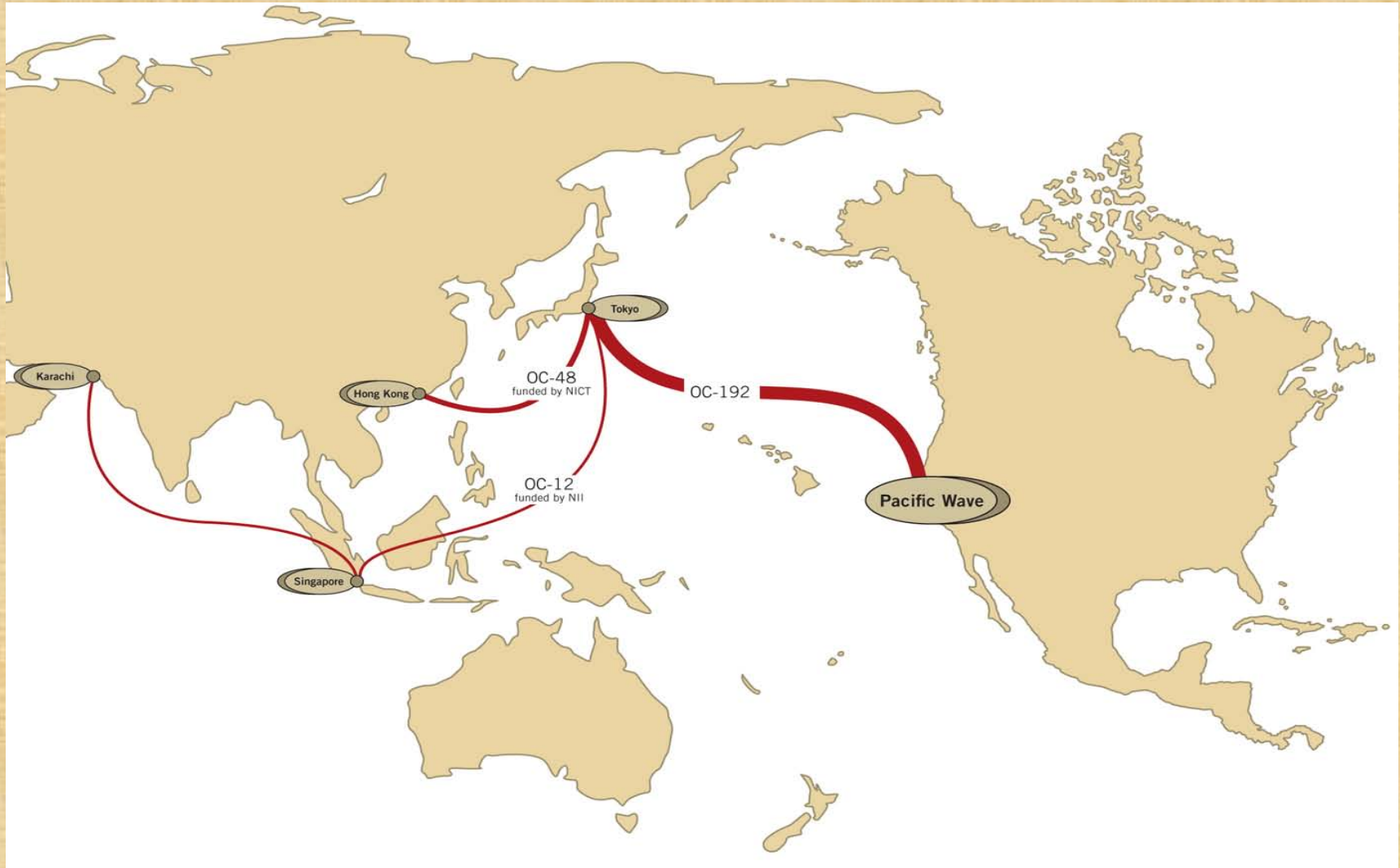
Topics

- Current TransPAC engineering status
- Dynamic Circuit(s) Network update
- “BGP Path-hinting” proposal update
- What’s next?

TransPAC status

- TransPAC network systems and circuits are substantially the same in 2008 (but *lots* of changes in measurement!):
 - OC192 circuit between Los Angeles and Tokyo
 - Juniper routers
 - Connections to PacWave, Internet2, NLR, and JGN2+ in Los Angeles; to APAN networks in Tokyo
 - September connection to Pakistan's PERN network with APAN and TEIN

TransPAC2 core topology



Dynamic Circuits Network in TransPAC

- DCN is a technology developed by Internet2, ESnet, GEANT, and many others to provide dynamically-accessed and -controlled layer2 “lightpaths” across multiple administrative domains
- Allows users to have native layer2 interconnections across many technologies and over long distance
- “Interdomain Controllers” communicate resource information, build & tear down resources

How does DCN work over TransPAC?

Challenges:

- TransPAC OC192 is unchannelized SONET:: no channel, no ethernet, no vlans
 -
- TransPAC had no connection to DCN
 -
- TP OC192 has no dynamic-provisioning capability
 -
- TP had no inter-domain controllers

How does DCN work over TransPAC?

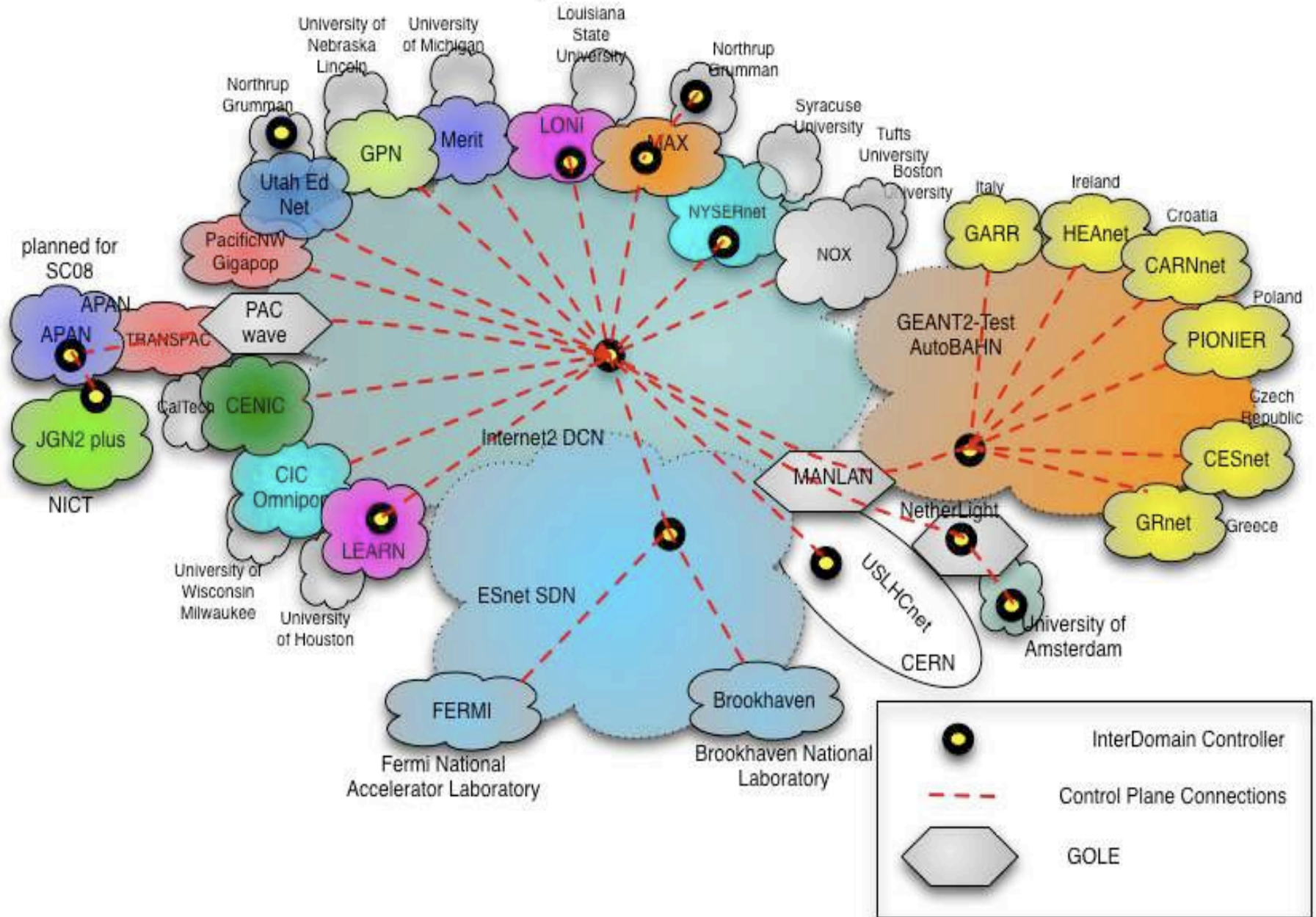
Solutions:

- TransPAC OC192 is unchannelized SONET:: no channel, no ethernet, no vlans
 - solve by changing OC192 encapsulation to L2VPN
 - DCN traffic coexists with routed IP traffic through OC192
- TransPAC had no connection to DCN
 - Connect to DCN through PacWave-Los Angeles
- TP OC192 has no dynamic-provisioning capability
 - Set of 'static' vlans in OC192 handing off to dynamic edges
- TP had no inter-domain controllers
 - IDCs in TransPAC, APAN, others in APAN region

The result?

- DCN implementation across TransPAC was completed October 2008
- DCN was used across APAN-TransPAC-Internet2 successfully for a Japanese LIGO demonstration in SC08 (Supercomputing 2008) conference in Texas.
- DCN is available now for APAN users.
- APAN is now part of the global DCN community.

Global Dynamic Circuit Network



Further information on DCN

- Internet2 DCN whitepaper
<http://www.internet2.edu/pubs/DCN-howto.pdf>
- Internet2 Presentations explaining DCN
<http://www.internet2.edu/dcresearch/JT/index.html>
- Internet2 DCN webpage
<http://www.internet2.edu/network/dc/>
- ESnet's OSCARs project
<http://www.es.net/OSCARS/index.html>
- GÉANT2's Autobahn
<http://www.geant2.net/server/show/nav.756>