

TransPAC2 Network Update

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Chris Robb

chrobb@grnoc.iu.edu

TransPAC2 Network Goals

— [Production networking to facilitate research between US and Asia

— [Cooperation with Internet2 HOPI project

— US-Asian cooperation on “lightpath” technologies will be crucial to future development

— Initial assets will allow for MPLS and GMPLS-like experimentation, with future equipment possibly supporting layer 2 and layer 1 services

— [Security coordination

— [Measurement coordination

TransPAC2 Network Overview

- [OC-192 circuit between Tokyo and Los Angeles

- [Japanese side lands on APAN Tokyo XP router (AS7660)

- [US side lands on US TransPAC router (AS22388)

- peerings with major North American networks: Abilene, ESNET, Canarie, DREN, NISN, NLR, etc.

- [Inter-Asian connections:

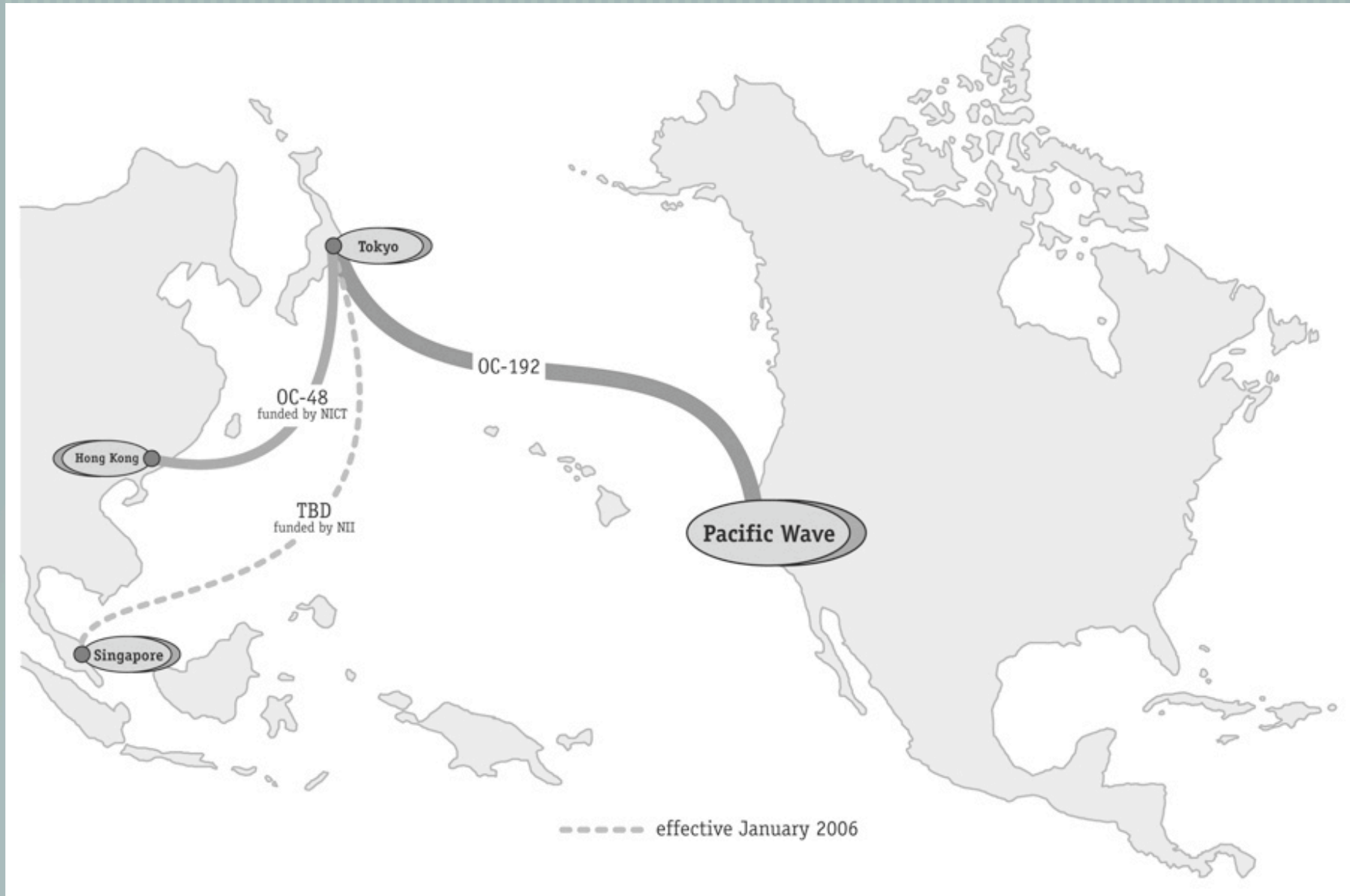
- Tokyo and Hong Kong (2.5G) - link owner NICT-Japan

- operational today

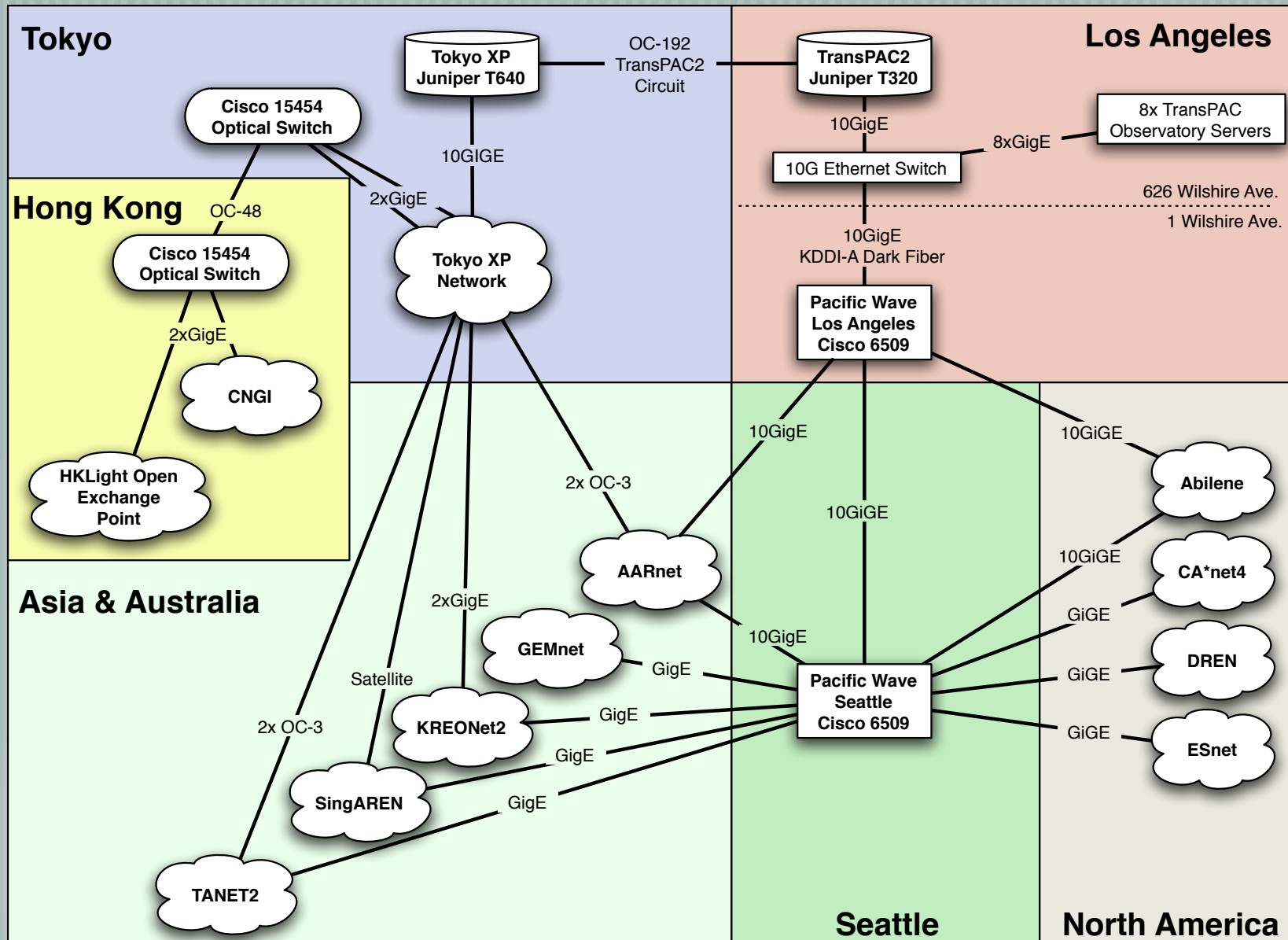
- Tokyo to Singapore (TBD) - funded by NII-Japan

- operational Q1 2006

TransPAC2 Circuit Map



TransPAC2 Network Interconnects



TransPAC2 Network Futures

— [Much of what TransPAC2 will become is dependent on the next year of infrastructure development in the US, Asia and Europe

— NLR places a heavy emphasis on point to point lambda networking and Layer2 VLANs

— HOPI will be experimenting over the next two years with hybrid approaches to point to point “lightpath” connections and how to signal those connections

— Asian networks continue to build out optical networks in individual countries

— GEANT2 initiative in Europe will link many countries at the optical layer

— Who else?

— [TransPAC2 is designed to adapt and participate in these changes, while maintaining production connections between the US and Asia

TransPAC2 Project Futures

— [Network security has become **extremely** important over the past several years

— TransPAC2 engineers will focus on bridging the information gap between the US and Asian engineering staffs

— [Network measurement has moved beyond MRTG

— Who's trading what Eminem song with whom?

— What's happening on my network?

— When was I last attacked?

— Why is my multicast stream intermittent?

— Where is all of my traffic going?

— How long are TCP flows taking to complete between Asia and Europe?

Further Info Sources

— [TransPAC2 Webpage:

— [<http://www.transpac2.net>

— [HOPI Testbed Webpage: <http://networks.internet2.edu/hopi>

— contains presentations, HOPI whitepaper, and Corporate Advisory Team information

— [National Lambda Rail: <http://www.nlr.net>

— [Abilene: <http://abilene.internet2.edu>

— [Questions?