

America Connects to Europe (ACE) and TransPAC3 (TP3)

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Topics

- ACE and TP3 and how they fit into global cyberinfrastructure
- Network-based services
- Stimulating research and education with better tools
- Working together -- within IRNC and globally
- Final Report 2015

TransPAC3– Connecting Asia and the US

US lead partner: Indiana University

Partners: APAN, TEIN3, NICT-Japan, NII-Japan, CERNET – China, DLT, others...

Multiple 10G connections from the US to Asia, 40/100G option

Connections continued to Southeast Asia and South Asia

Connection to TEIN3 network provides link to Europe

Connection to GLORIAD/Taj network provides second link to Asia and Europe

Connection to Internet2/NLR on US West Coast

Asian part of TP3-TEIN3-GN3-ACE global network

ACE – America Connects to Europe

US lead partner: Indiana University

Partners: DANTE, NYSERNet, Internet2, DLT and others...

Multiple 10G connections, 40/100G option

Connections continued across GN3 and TEIN3 to Asia and TP3

Connection via EUMEDCONNECT to North Africa

Connection to Internet2/NLR on US East Coast

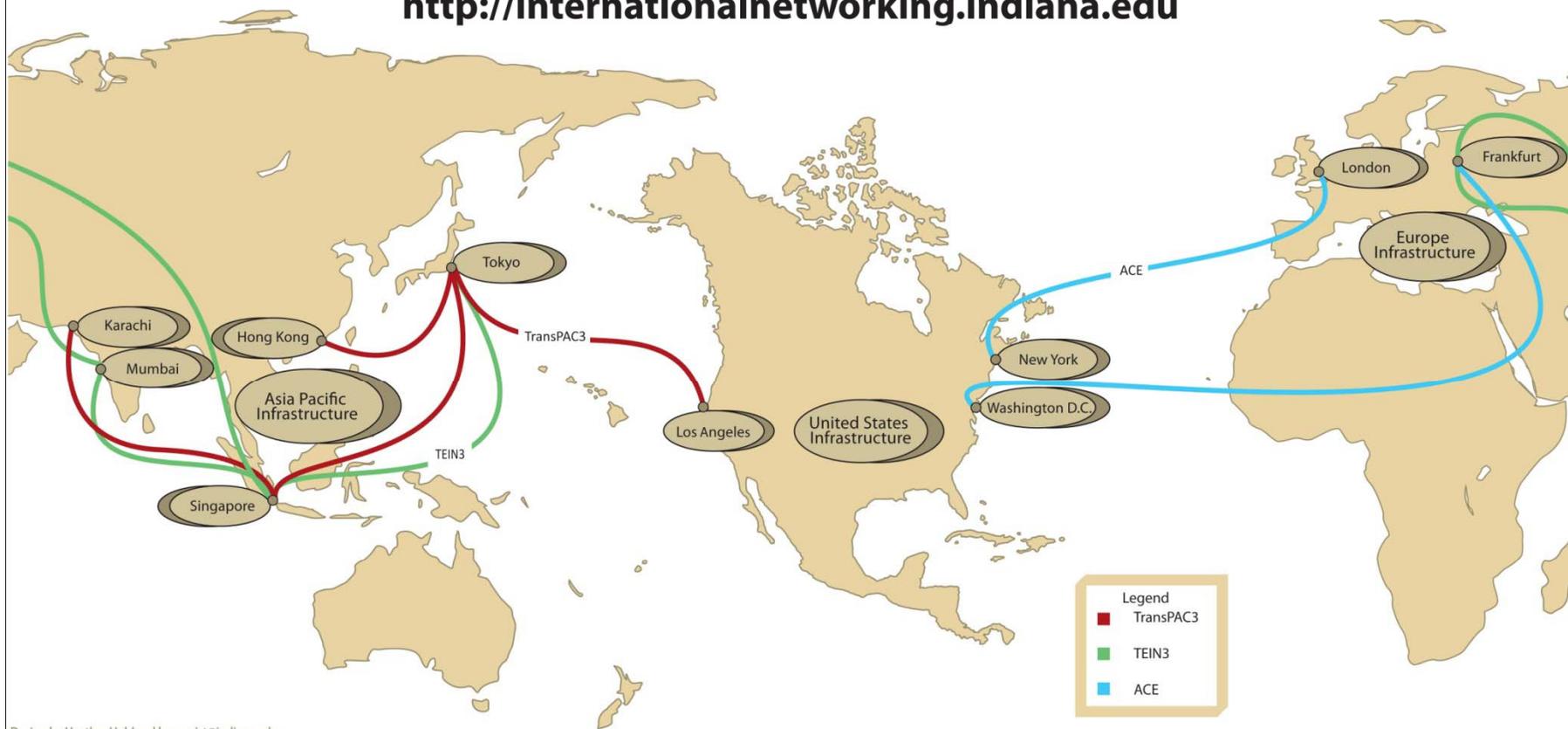
Partner with GLORIAD to provide backup and service redundancy

Trans-Atlantic part of TP3-TEIN3-GN3-ACE global network

ACE TP3 Topology

(example topology, year one)

<http://internationalnetworking.indiana.edu>



Network-based Services: Accountability and Service

Utilization statistics in a useable form

e-2-e measurement – what researchers are really concerned about

Custom networks and connections (dynamic circuits provisioned by researchers)

As networks and network operations become more transparent, network operators must become more accountable.

As networks become “more global” network operators must develop tools and mechanisms for shared/distributed operations.

See: <http://groups.geni.net/geni/wiki/K-GENI>

Security, security, security....how can we cooperatively attack this problem? One possible component: <http://www.ren-isac.net/ses/>

Stimulating Research and Education through Better Tools

Development of tools to make researcher-provisioned connections and networks much simpler (no engineer involvement).

Better collaboration tools using “social media-based” tools – for example, see the following: <https://hubzero.org/>

Researcher-specific tools, such as the Data Logistics Toolkit (DLT), need to become fully developed research aids -- see: <http://code.google.com/p/dlt/>

Outreach activities, particularly in developing areas, designed to increase international research and education collaborations -- see the following: <http://usindiaworkshop.indiana.edu/>

Working Together -- Within IRNC and Globally

The provisioning task is simple (sort of), it is the coordination task that now needs the attention; now we need an array of cooperative activities...

All IRNC projects must work together to develop integrated US international R/E network infrastructure (extending IRNC to developing areas) and address the impending “flood of data” from many sources (bio, climate, HEP, astro)

Within the US we need better connections and coordination with other government agencies and networks (Department of State; USAID; ESnet/DOE; NOAA; NIH)

Global network connectivity and the development of a global R/E workspace is a global task; we need to coordinate with partners globally to achieve our goals [APAN, DANTE, GLIF, ISOC etc...]

Final Report 2015 – ACE and TP3

1. South Asia is fully connected and participating in global research and education activities.
2. Asia, Europe and the US are fully engaged, cooperative partners in technology (networking) and science (use of networks). <Attendance at Internet2, APAN and TERENA meetings has much overlap>
3. Significant progress has been made in connectivity to and science collaborations with Africa and Central Asia.
4. All IRNC ProNet projects and their global partners now provide services beyond bandwidth (utilization, e-2-e, DC) and shared/distributed operations.
5. Security continues to be a difficult challenge but all international network providers are working together on security activities.
6. Social, data-management, and other tools make data intensive research and education use of networks a simple daily occurrence.
7. The IRNC ProNet projects and partners in APAN and GN3 in conjunction with our commercial and international partners have made certain that both bandwidth and tools are available such that future science experiments (gene sequencing; SKA; “brighter” LHC; ITER) can *fully* utilize the global cyberinfrastructure.

Interesting URLs...

IN@IU (new)	http://internationalnetworking@iu.edu
TransPAC2 (old):	http://www.transpac2.net
APAN:	http://www.apan.net
DANTE:	http://www.dante.net/
Pakistan blog:	http://jiminpakistan.blogspot.com
NSF IRNC program (new):	http://irncworkshop.indiana.edu
NSF IRNC program (old):	http://www.irnclinks.net
GlobalNOC:	http://globalnoc.iu.edu
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