

The advanced Technologies from JGN2plus

Yasuichi Kitamura (kita@jp.apan.net)
Takatoshi Ikeda (ikeda@ote.kddi.com)

performance Service
Oriented Network
monitoring ARchitecture

perfSONAR

perfSONAR

- middleware
 - monitoring data
 - visualizing data
- } are not the original functions.

Services of perfSONAR (plan ☺)

Services	Description
Measurement Point (MP)	monitoring and publishing data
Measurement Archive (MA)	publishing the stored data
Lookup	registering all the participating services and capabilities
Authentication	managing domain-level access to services
Topology	offering topological information on networks
Transformation	offering custom data manipulation of existing archived data
Resource Protector	scheduling the monitoring processes between domains

Services of perfSONAR

Services	Description
Measurement Point (MP)	monitoring and publishing data
Measurement Archive (MA)	publishing the stored data
Lookup	registering all the participating services and capabilities
Authentication	managing domain-level access to services
Topology	offering topological information on networks
Transformation	offering custom data manipulation of existing archived data
Resource Protector	scheduling the monitoring processes between domains

perfSONAR implementation

- There are 2 implementations.
 - perl-based implementation *perfSONAR-PS*
 - JAVA-based implementation *perfSONAR-MDM*
- JGN2plus and APAN-JP chose perfSONAR-PS.

pS-Performance Toolkit

- Easy to start perfSONAR
 - pingER
 - perfSONARBUOY
 - bwctl
 - owamp
 - cacti
 - sharing results

pS-Performance Toolkit

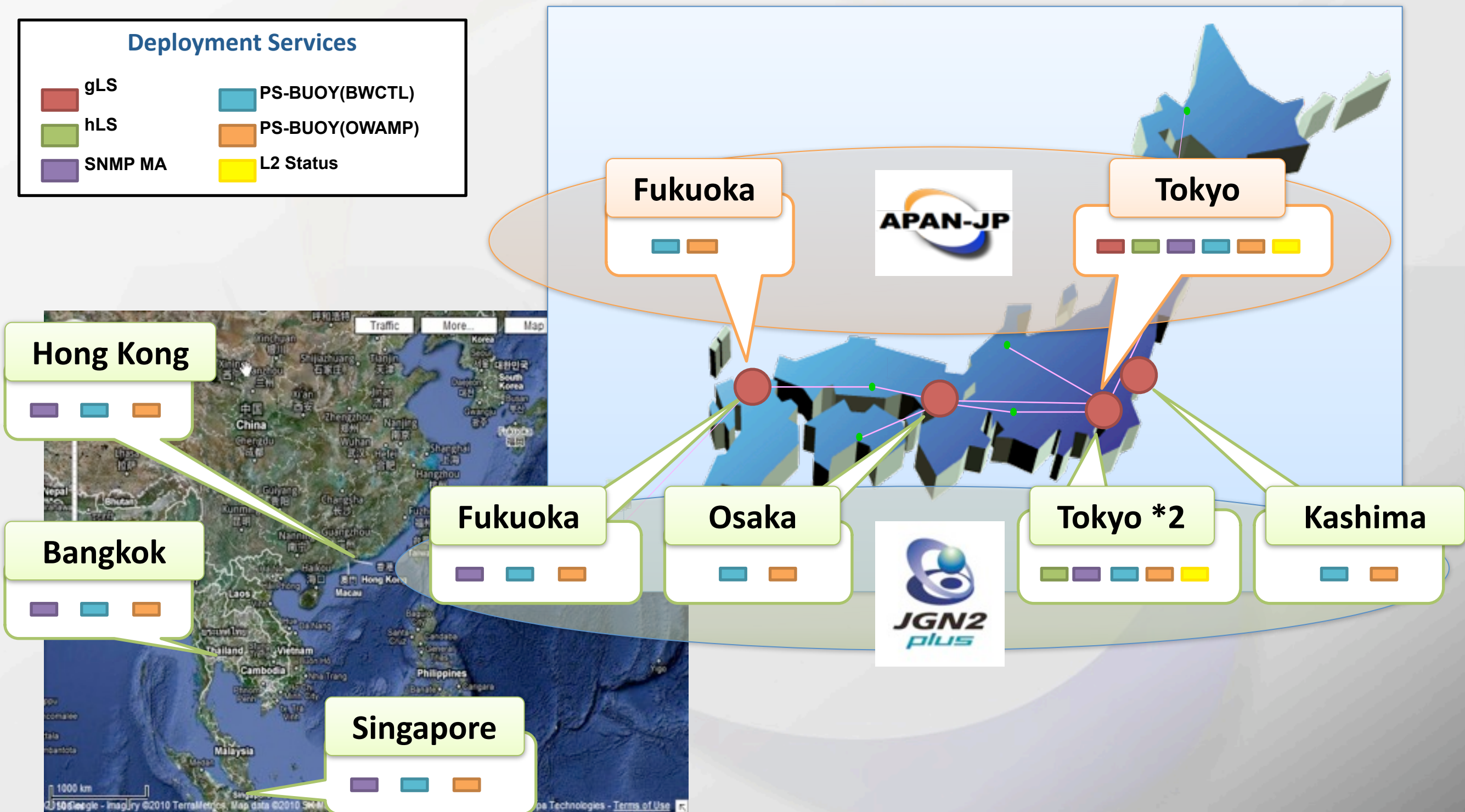
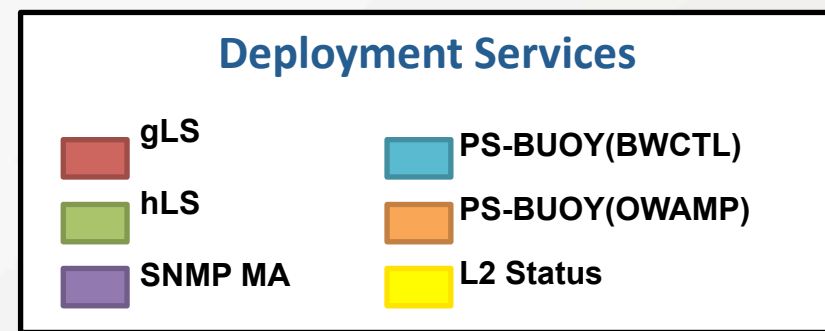
- Based on CentOS
- installed-to-disk

Case studies

- LHC Testing Challenges
- REDDnet's Distributed Storage Challenges
- eVLBI at SC08
- Compressed HDTV for telemedicine

- National Science Foundation (NSF) in IRNC 2009 slides
- Improving quality of network operations and engineering
 - *Best practice in measurement - eg. PerfSONAR compatibility*
 - Best practice in security - Security Plans, REN-ISAC membership
- Joint Engineering Team (JET)
 - *perfSONAR deployment status is required for all the members.*

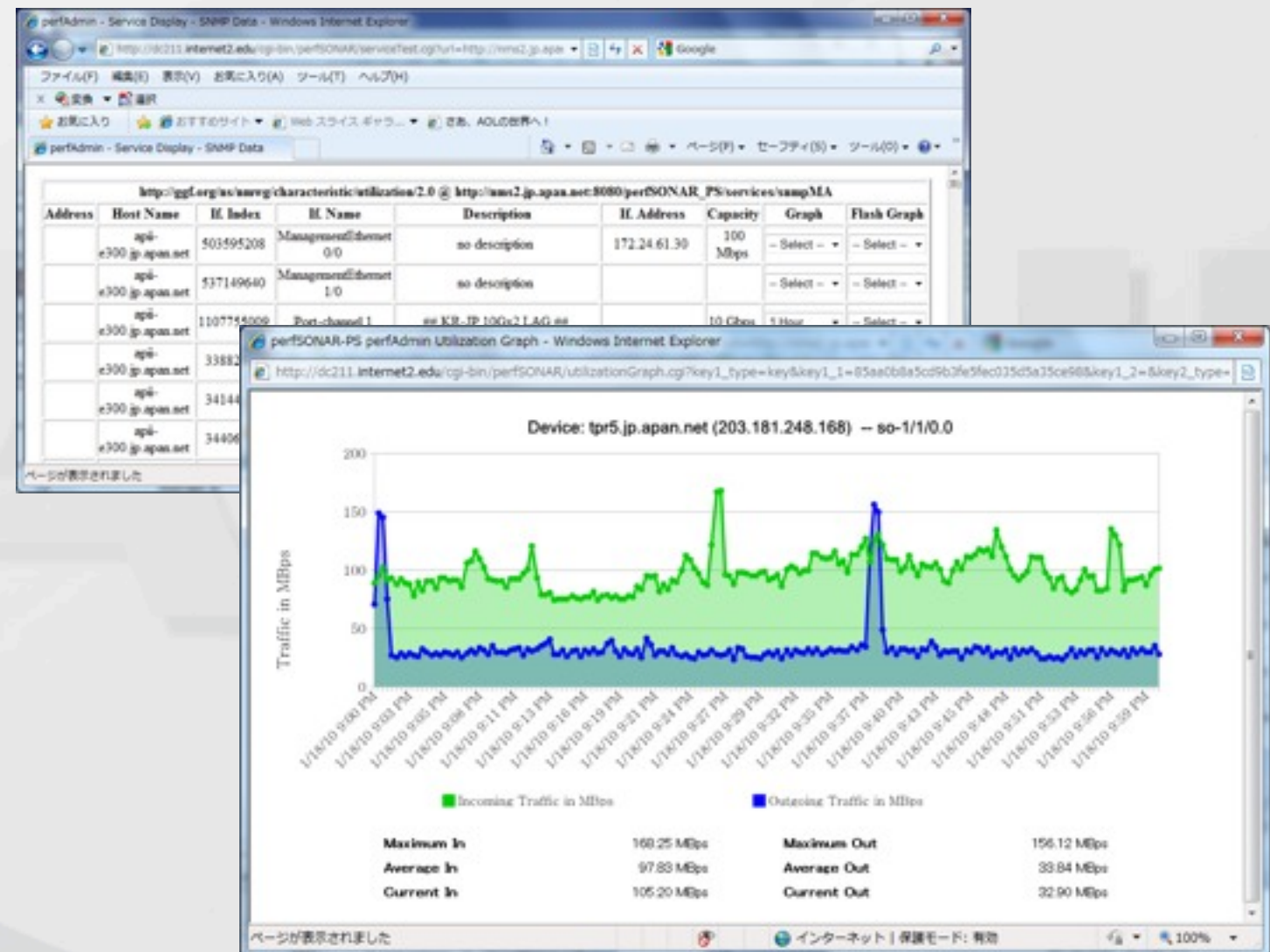
JGN2plus and APAN-JP Deployment Map



Data View

<http://ps1.jp.apan.net/perfAdmin/directory.cgi>

- JGN2plus
 - [Lookup Service](#)
 - Interface Usage
 - [JP East, US, SG, TH](#)
 - [JP West, KR](#)
 - [Throughput](#)
 - [Delay](#)
- APAN
 - [Lookup Service](#)
 - [Interface Usage](#)
 - [Throughput](#)
 - [Delay](#)

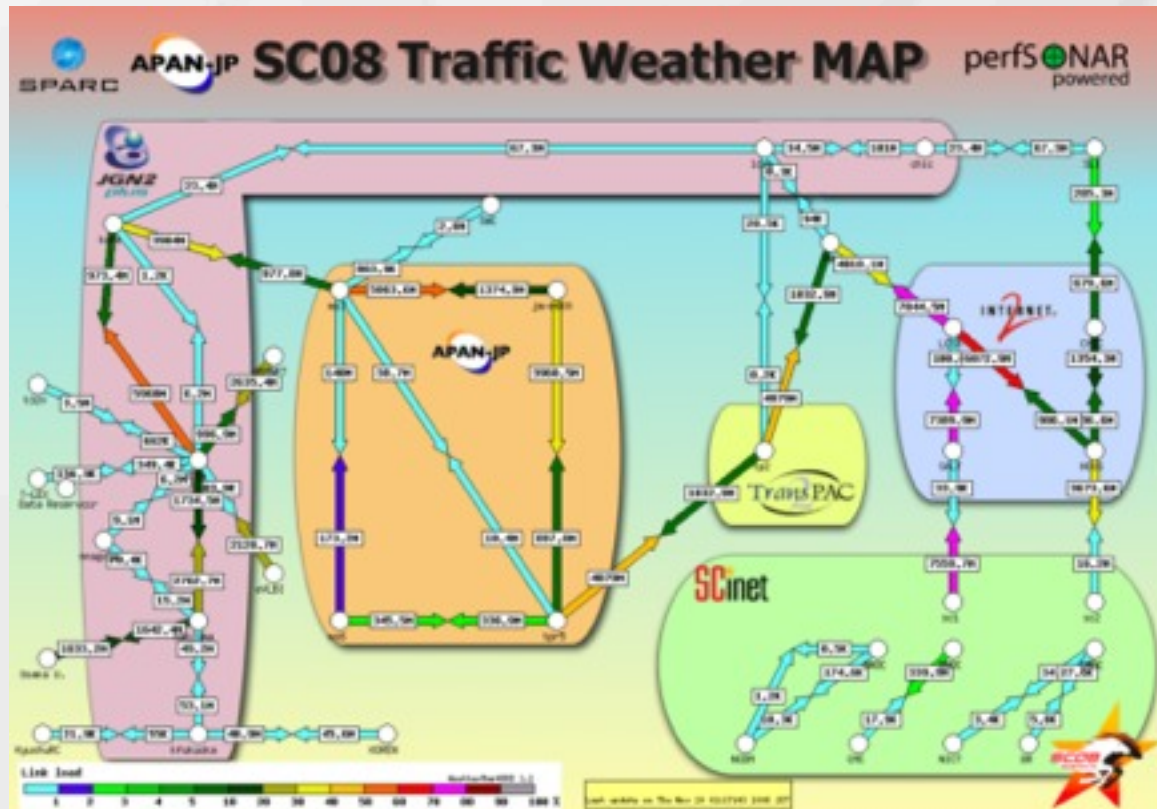


Data View (cont.)

- APAN Traffic Weather MAP
 - <http://ps1.jp.apan.net/ps-gmaps/>
- JGN2plus Traffic Weather MAP
 - <http://kote-ps-1.ps.jgn2plus.jp/ps/ps-gmaps/index.html>
 - Domestic - <http://kote-ps-1.ps.jgn2plus.jp/ps/ps-gmaps/domestic/index.html>
 - International - <http://kote-ps-1.ps.jgn2plus.jp/ps/ps-gmaps/international/index.html>

Use Case

- Traffic Weather MAP
 - Target network
 - JGN2plus, APAN-JP and perfSONAR-enabled network
 - MAP Type
 - PNG
 - Google MAP



Reference

Takatoshi Ikeda, “perfSONAR Deployment Experiences”, Network Engineering Workshop, APAN30, 2010

Jeff Boote and Aaron Brown, “The pS Performance Toolkit - It Really Ties the Network Together”, Summer 2010 ESCC/Internet2 Joint Techs

Yasuichi Kitamura, Takatoshi Ikeda, Jin Tanaka, Hideki Otsuki and Shinji Shimojo, “Network monitoring technology for the wide area in JGN2plus”, IEICE Technical Report, IA2008-36 (2008-9)