

Trip Report: APAN 27 Kaohsiung, Taiwan 3-6 March 2009

Nevil Brownlee
University of Auckland

For me, this was both an opportunity to catch up with colleagues in person, and an opportunity to keep up-to-date with what R&E networks are doing in the Asia/Pacific region, both in network engineering and in application development and outreach. Also, I was able (with support from REANNZ staff in NZ) to answer 'REANNZ' questions from anyone who asked.

The following are my brief notes of the conference sessions. You can download most of the presentations from
<http://www.apan.net/meetings/kaohsiung2009/schedule.html>

Arrived Kaohsiung about 2030 Monday 2 March, via Singapore to Taipei, then High Speed Rail to Kaohsiung.

Tuesday 3 March

Morning: Opening Plenary

Welcome 200+ delegates. Joint meeting with Asia HPC.

An overview of High Performance Computing and Challenges for the Future - Jack Dongarra

- Processor speed no longer improving, have to use more cores instead
- Most cluster interconnects are Gigabit Ethernet, cheap but performance limiting. Infiniband is better
- Power: IBM Road Runner uses 2.5MW, Oak Ridge Cray 6.95MW! Google
- Data Centre in old aluminium plant (cheap electricity and cooling water from nearby river)
- Moore's Law re-interpreted as 'double the number of cores every 18~24 months.' Expect to see systems with millions of cores (!)
- Need to improve system maintainability

Can ICT help farmers and food crisis? - Seishi Ninomiya

- 7 to 10 calories feed cattle to produce 1 calorie of meat!
- MetBroker project to integrate weather databases on global scale, access via web page, uses Google Earth + MetBroker to find most optimal crop in an area under climate change
- African countries with mobile phones - farmers use them to negotiate direct with retailers - farmer income up ten times!

How Terascale Experience Will Shape Petascale Systems - William Kramer

- (HPC speaker) interesting talk, lots of references to Blue Waters project at U Illinois, also about NCSA and TeraGrid

Toward the global collaboration: EUAsiaGrid - Simon Lin

- Emphasis on gLite middleware and applications running over it
- EGEE - towards an Asian eScience Grid infrastructure
- Useful for disaster mitigation, e.g. earthquake modelling, climate change, avain flu epidemic modelling, etc
- Grid computing is "a process of democratisation of Science"

Afternoon: Middleware

Federated Identity Graduates - Nate Klingenstein (Internet2)

- History of Identity Management; it's still hard!
- Google suggest one centralised discovery service for all identity services. Shibboleth has come close to that since 2001.
- We don't like it, interesting to see what comes of the proposal

On UPKI-Federation based on Shibboleth - Toshiyuki Kataoka,

- Motonori Nakamura and Yasuo Okabe (NII)

Performance Evaluation of iSCSI Protocol with Automatic Parallelism -

SINET3 L1-Ondemand Service Interface - Motonori Nakamura/Shigeo Urusidani (NII)

- 40 Gb/s (ST256) links, user requests path between endpoints, switches set it up sing GMPLS
- Running since late 2008. Need to improve scheduling and reduce Layer 1 path release times

Tuning on SINET3 with Layer-1 On-Demand Bandwidth Allocation - Fumito Inoue, Hiroyuki Ohsaki, Yoshihiro Nomoto and Makoto Imase (Osaka University)

- Auto-tuning of iSCSI, testing at 600 to 900 Mb/s path between Tokyo and Osaka

On Issuing Grid User Certificates Based on MICS Profile using Shibboleth Federation - Manabu Higashida (Osaka University)

- Need to separate authentication from actual user services, so as not to rely on entered key sequences

NAREGI Middleware and Deployment to Universities in Japan - Kento Aida (NII)

The Practices for Flood Mitigation with Grid Technologies in Taiwan - Te-lin Chung (NCHC)

- Flood mitigation - Taiwan gets six or more typhoons each year, causing lots of damage.
- FMG, Flood Migration Grid

- Sensor net for real-time monitoring. 80 sites, about 180 webcams. 3G cellphones can use the net to look at video, and to control cameras
- Flood controllers can run simulation jobs on FMG cluster. About 12 minutes run water-flow model, can run different sets of parameters on several machines via grid, useful in helping regional Flood Managers to decide whether to evacuate people, etc

Tuesday Evening: Conference Reception at Grand Hi-Lai hotel (meeting venue)

- Shared table with group of researchers from University of Canterbury.
- Multi-course dinner, interesting food

Wednesday 4 March

Morning: eResearch WG

eResearch in New Zealand: Review and Future Developments - Nevil Brownlee, U Auckland

- eResearch slide set, overview of what we've been doing in New Zealand over the last few years, e.g. BeSTGRID and BlueGene

Taiwan Long Term Observation for Ocean Research - Forng-Chen Chiu, Taiwan Ocean Research Institute (Taiwan)

- Demo: real-time video from underwater observatory

Environmental Study through NARL Synergy & CEPERC - Shih-Horng Wu, Taiwan Ocean Research Institute (Taiwan),

- <http://www.nchc.org.tw/en/>

MYREN Phase 2 as Key Driver for e-Science/e-Research: Opportunities to Nurture New Grid User Communities for EUAsiaGrid Project - Suhaimi Napis, Universiti Putra Malaysia (Malaysia)

- MYREN "believe in Human Capital development"
- "It's easy to assemble PetaFlop machines, but very hard to assemble people to share their resources." Satoshi Matsoka
- "Humanware, not Hardware!"

1400: IPv6 WG

Results of a survey of IPv6 enabled services - Mark Prior, Juniper

IPv6 development update of Thailand - Chalernpol Charnsripinyo, NECTEC, Thailand

- 26 ISPs, only one says they're IPv6-ready

Prefix-specific and Stateless Address Mapping (IVI) for IPv4 IPv6 Coexistence and Transition) - Xing Li, CERNET

- Randy Bush: "IPv6 declared victory before the hard part started!"
- We will have pure IPv6 nets wanting to talk to IPv4 web sites
- "Dual-stack only works if everyone runs dual-stack"
- IVI is a v4 (IV) to v6 (VI) gateway

- Running in CERNET for two years, they're funding IPv4 to IPv6 transitions for about 100 Universities

1600: Security WG

Precise Time-Stamping for Network Monitoring - Akihiko Machizawa, Haruo Saito, Tsukasa Iwama (NICT, Japan)

- Compared NTP and PTP
- Lots of worries about getting leap-seconds right
- Interesting correlation effects in observed one-way delays

Botnets: What are they and how to detect - Sureswaran Ramadass (Univ Sains Malaysia, Malaysia)

- Scary conscious-raising talk, no practical suggestions

Deploying anti-spam technologies - Kazu Yamamoto, IIJ (remote presentation 17:10 - 17:30)

- JEAG = Japan Email Antiabuse Group
- Don't run an open mail forwarder
- Use port 587 to submit emails
- Rate-limit your submit port (to slow down spambots)
- Get SPF RRs in your DNS (Docomo started rejecting emails from domains that don't have SPF records!)
- Domain reputation - cloudmark.com ?
- It's too soon to reject emails after an SPF fail. IIJ just add an Authentication-results: line to them

Wednesday evening: Conference Banquet at Love Pier

- Outdoor setting, local craft demos, local music group, again lots of interesting/delicious food and drink.
- Walked back to hotel along bicycle path (old railway line converted for bicycles).

Thursday 5 March

0900: Network Engineering WG

A proposal of Japan's Lunar Explorer "KAGUYA" High Definition TV movies multicasting experiment - Shin-ichi, Sobue

- Japanese fairy tale - Princess Kaguya travelled to the moon
- It's a moon satellite, at about 100 km altitude
- Sends back HD TV pictures of lunar surface
- www.kaguya.jaxa.jp

Nepal NREN network and activities - nren.net.np

- Building new net, based in Katmandu. Leased fibre backbone + lots of 2.4 and 5.8 GHz wireless links. Using Cisco 1700 and Soekris routers
- NREN provides "no commodity Internet access, except for NOC and Secretariat"
- TEIN member

- Climate change monitoring, "glaciers and glacier lakes above 7200 m are monitored in realtime for research on global warming, its possible impact on Himalayan Region and other paths of the world"
- Imaji - glacier lake about 10 km from Everest, wireless links, main station in Namje, highest link at 5200 m

Update of TWAREN Integrated Network Management System - Ming-Chang Liang, nchc.org.tw

- New automated Network Management System. Has data collectors, limit-detecting software and "auto-action"

1400: Network Engineering WG

Statistics Graph of Inefficient Paths - Yuichi Kurokawa, kddnet.ad.jp

- Detects and flags 'bad' paths, e.g. Asia-US-Asia (trombone routes)
- Asia nets don't advertise the same set of prefixes to everyone, sites have different policies
- When such routes are found, sites are asked to change policy
- Comment: this would be good for IPv6 routes too, bad IPv6 paths are very visible
- Heather Boyle suggests a mailing list for NOC people to share such problems

Medical demos and the issues - Koji Okamura, ec.kyushu-u.ac.jp

- DVTS to Quattro box at Kyushu. Works well, but need to find a newer technology that scales better

TransPAC2 engineering update: dynamic circuits from Internet2 to the APAN region - Brent Sweeny, indiana.edu

- New OC192 link LAX - Tokyo, Juniper routers
- Separate connections to PERN (Pakistan) via APAN and TEIN
- Dynamic Circuits (I2 call them DCN) now available in TransPAC
- TransPAC oc192 is plain SONET, no Ethernet, no VLANs
- Changed OC192 encapsulation to L2VPN. Now DCN traffic coexists with routed IP traffic within the OC192

Using a new BGP path-hinting protocol to signal routing requests - Brent Sweeny, indiana.edu

- Idea is to hint at best return path using BGP community attribute.
- Very useful for multihomed targets

1600: TeleMedicine WG

Continuous Medical Education of Asia: Laparoscopic sigmoidectomy

Connecting stations:

- 1) Kaohsiung, TW
- 2) J&J Medical Innovation Training Center (MIT), Tokyo
- 3) Hospital No 108, Hanoi, Vietnam
- 4) National U Singapore, SG
- 5) University Philippines Manila

- 6) Tata Memorial Hospital, Mumbai, India
- 7) Kyushu U Hospital, Fukuoka, Japan
- 8) Hospital Clinic, Provincial De Barcelona, Spain
 - Several short teaching sessions, laproscopic surgery techniques
 - Using DVTS. Sound good. Video quality OK, but continuous flickers on screen (probably caused by lost packets)

Friday 6 March

0900: Closing Plenary

Telemedicine on Academic Network: Achieved and to-be-Achieved - Shuji Shimizu, Kyushu University, Fukuoka, Japan

- Very clear and informative history of APAN's Telemedicine WG
- Shimizu-san's speciality is gallstones; he commented that endoscopic surgery allows much quicker recovery and keeps overall costs lower
- Most of the network difficulties are last-mile, need to establish good contacts with technicians as well as clinicians
- About 100 hospitals world-wide now want to join in the WG effort
- Goal is "to standardise good medical care world-wide"

Challenge and Opportunities for the Future Internet: CERNET Experience - Xing Li, CERNET, China

- 20 years of IPv4, IPv6 should pick up real soon now!
- Still only about 6% Internet penetration in China
- Five current Internet challenges:
 - IPv4 address depletion
 - IPv4 routing table explosion (now > ~ 300k routes)
 - IPv4 traffic explosion (because of video content?)
 - Security incident explosion
 - Mobile devices
- CERNET: 30,000km of dark fibre, PoPs in 73 cities, 2000 Universities connected
- CNGI project: six big companies (including CERNET) involved
- CNGI-CERNET2: IPv6-only backbone. traffic now over 6 Gb/s and increasing. 6 different makes of router shows good interoperation
- 'Future Internet' in 10 to 15 years, 2000 researchers/students involved now
- Q: How to promote IPv6? A: Make it easier for operators to use, get v4<->v6 translation working well!

1100: APAN Council Session

- Formal reports from each of the Area Directors
- Reports from NOC Committee, Program Committee, Event Committee and Secretariat
- APAN meeting Schedule:
 - Kuala Lumpur, Jul 2009
 - Sydney, Feb 2010, Intercontinental Hotel on Circular Quay
 - Hanoi, Aug 2010
 - Hongkong, Feb 2011 (joint with APRICOT)

- Council Report:
 - Still working on business model for TEIN project (EU want to transition TEIN Operations to APAN)
 - Good progress on APAN incorporation in Hongkong
 - Secretariat will move from Thailand to Singapore, initial committment for one year, expenses no more than current one-year expenses
- Meeting finished at 1230.

Returned home to Auckland via Kaohsiung Metro, then High Speed Rail to Taipei airport, overnight the Singapore T3 Transit hotel (in the transit area at Changi, cheap and comfortable).
