



Plans for Tier2 Sites in Asia Pacific

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LCG Service Challenges: Tier2 Issues

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A Simple T2 Model

N.B. this may vary from region to region

- Each T2 is configured to upload MC data **to** and download data **via** a given T1
- In case the T1 is logical unavailable, wait and retry.
 - MC production might eventually stall
- For data download, retrieve via alternate route / T1
 - Which may well be at lower speed, but hopefully rare
- Data residing at a T1 other than 'preferred' T1 is transparently delivered through appropriate network route
 - T1s are expected to have at least as good interconnectivity as to T0

Basic T2 Services

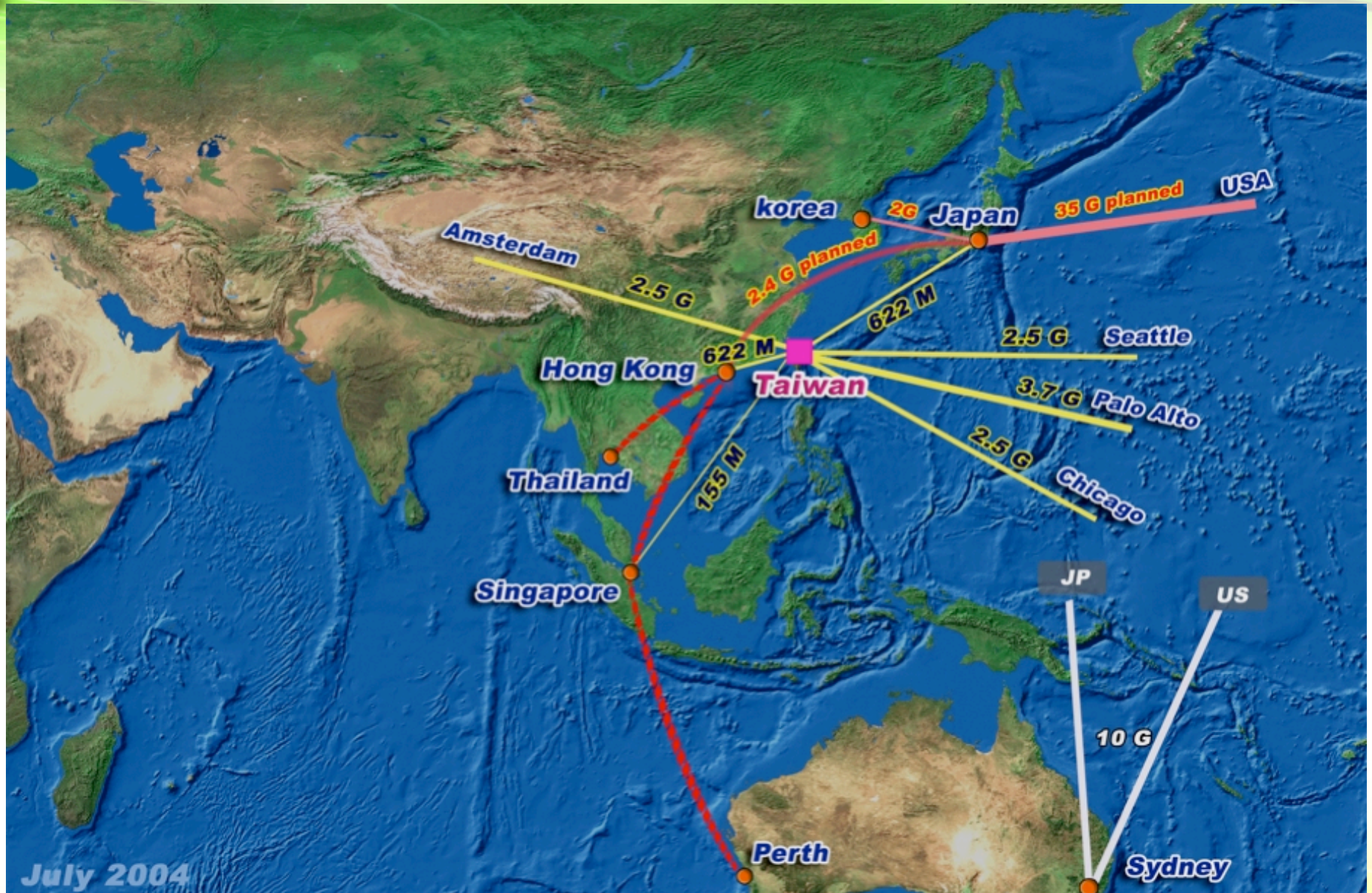
- T2s will need to provide services for data up- and down-load
- Assume that this uses the same components as between T0 and T1s
- Assume that this also includes an SRM interface to local disk pool manager
 - This / these should / could also be provided through LCG
- Networking requirements need to be further studied but current estimates suggest 1Gbit connections will satisfy needs of a given experiment
 - Can be dramatically affected by analysis model, heavy ion data processing etc

Which Candidate T2 Sites?

- Would be useful to have:
 - Good local support from relevant experiment(s)
 - Some experience with disk pool mgr and file transfer s/w
 - 'Sufficient' local CPU and storage resources
 - Manpower available to participate in SC3+
 - *And also define relevant objectives?*
 - 1Gbit/s network connection to T1?
 - *Probably a luxury at this stage...*
- First T2 site(s) will no doubt be a learning process
- Hope to (semi-)automate this so that adding new sites can be achieved with low overhead

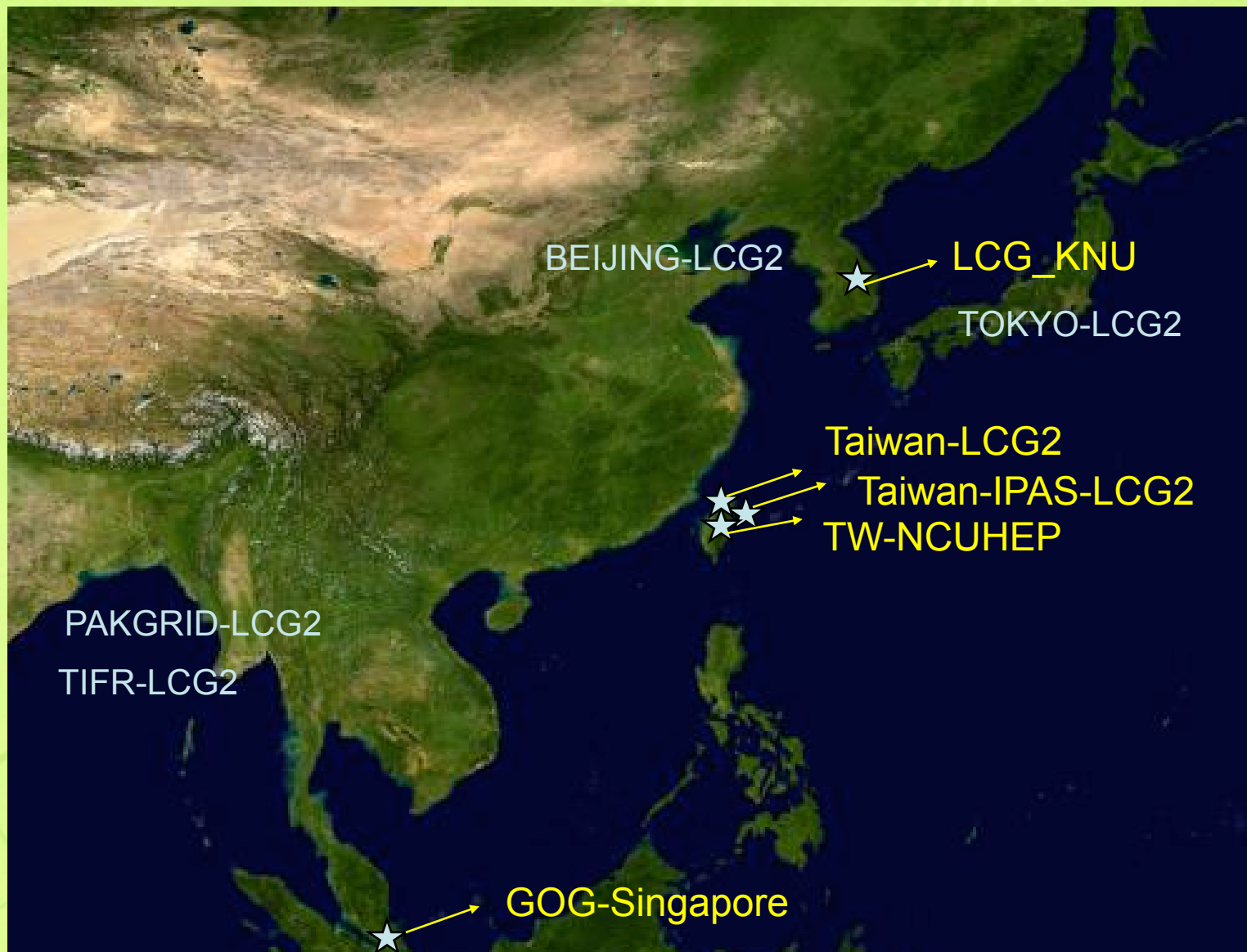


Potential Asia Network for e-Science





Asia Pacific Resource Centres





Asia Pacific Resource Centres

- TOKYO-LCG2: International Center for Elementary Particle Physics, University of Tokyo.
- BEIJING-LCG2: Institute of High Energy Physics, Chinese Academy of Sciences
- PAKGRID-LCG2: Pakistan Atomic Energy Commission
- TIFR-LCG2: TATA INSTITUTE OF FUNDAMENTAL RESEARCH
- GOG-Singapore: National Grid Office, HP and various institutes at Singapore.
- LCG_KNU: Department of Physics, Kyungpook University, Korea.
- Taiwan-LCG2: Academia Sinica Computing Centre (ASCC).
- Taiwan-IPAS-LCG2: Institute of Physics, Academia Sinica.
- TW-NCUHEP: High Energy Physics Group at National Central University, may combine with NTU to form a **federation!**
- **Taiwan-NTU-Phys in Grid 3**
- **Australia-Melbourne in NorduGrid**



Resources from RCs

	Taiwan- LCG2	Taiwan- IPAS- LCG2	TW- NCUHEP	GOG- Singapore	LCG- KNU	PAKGRI- D-LCG2	TIFR- LCG2	BEIJING- LCG2	Tokyo- LCG2
# CPU	138	22	32	90	6	2	26	40+ 30	84
Disk (TB)	30	0.3	1.3	0.08	0.05	0.05	0.05	3.00	0.87
VO	Dteam, Alice, Atlas, CMS, BioMed	Dteam, Atlas	Dteam, CMS	Dteam, Atlas, CMS	Dteam	Dteam, CMS	Dteam, CMS	Dteam, CMS, Atlas	Dteam, Atlas

* AU-ATLAS around 30 CPUs not included, another 32 CPUs for KNU-Grid3



Resources from RCs

- Asia Pacific in numbers:
 - 10 sites: Taiwan(3), Korea(1), Singapore(1), Japan(1), Pakistan(1), India(1), China(1), Australia(1)
 - Close to 500 CPUs
- Most supported VOs
 - Dteam
 - Atlas
 - CMS
 - BioMed



Current Services

- Asia Pacific Regional Operation Centre (APROC) was formed to provide LCG/EGEE operations support for sites in the Asia Pacific. Services provided by the APROC right now as shown below:
 - Deployment support
 - document installation/administration issues encountered
 - new site startup services:
 - registration
 - certification
 - coordination of region wide upgrades, changes and installation
 - Testbed Operations
 - certification testbed - to verify new m/w installation for region
- Dedicated VO for AP Services (in progress)



Monitoring Services

- As a part of APROC service, Grid monitoring plays an essential role in providing reliable and high performance Grid services. APROC helps monitor the health of Grid Resource Centers within the region in order to detect problems or potential sources of problems proactively.
- Once an issue is detected, problem tracking procedures begin and APROC team members analyze the results and provide trouble shooting assistance to Resource Centers.



Monitoring Services

The primary tools used for Grid monitoring are:

- SFT: Site Functional Tests performs detailed Grid functionality checks via test Grid jobs that are executed daily. SFT is developed by CERN. (<http://lcg00121.grid.sinica.edu.tw/roc-report>)
- GStat: GStat provide suite of tests that detect faults, verify the validity and display useful data from the Information System. (<http://goc.grid.sinica.edu.tw/gstat>)
- CE and SE Certificate Lifetimes: These tests check the expiration dates of host certificates and indicate which sites has expired or soon to be expired certificates.
- GridICE: Monitoring framework that provides job information, grid services status and fabric monitoring.
- Real Time Grid Monitor: Show in jobs as the are submitted to the Grid and their status.



Current Supporting Level

- Because the policies are different for each site, the supporting level from APROC varies.
- Taiwan-LCG2: CA services, operation support, SFT, certification, deployment, registration, and user support.
- TW-IPAS-LCG2, TW-NCHHEP: CA services, SFT, and some other monitoring services.
- GOG-Singapore: CA service, coordination, registration, deployment, operation support, certification, and monitoring services (SFT)
- LCG-KNU: certification, registration, operation support, troubleshooting, SFT, and other monitoring services.



More Sites to Join

- There are some sites willing to join EGEE (not necessary LCG) in the near future, such as:
- NCKU: National Cheng Kung University, Taiwan
- NCCU: National Chung Cheng University, Taiwan.
- NCUCC: Computing Center, National Central University.
- We would like to provide extra services for the sites which deploy LCG by themselves within Asia Pacific.
- We also have interoperable issue in AP with Grid3 and NorduGrid.



What We Plan to Do ...

- Most urgent is some (technical) Coordination Structure within the region!
- Communication channels among technical people of the Tier2s in AP must be built
- We must meet regularly, better if more frequently
- May have joint workshop with ISGC or APAN (August 2005) or other relevant meetings
- Will run more training and tutorial sessions in the future
- Will help to coordinate Service Challenge for Tier2 centres in Asia Pacific