



Presentation to OzGrid Workshop

**Grid Activities in the
Next Stage of APAC 2004-6
(APAC2)**

John O'Callaghan

December 2002



APAC Achievements

- **The APAC partnership formed June 2000.**
 - involves an organisation in each State, ANU and CSIRO
- **The APAC National Facility operational April 2001.**
 - with its peak system ranked no. 63 in the current TOP500.
- **During 2001-2, provision of advanced computing facilities and services to over 1,100 users.**
- **During 2001-2, over 120 projects supporting users and developing expertise in 13 themes.**
- **During 2001-2, over 50 University courses in CSE.**
- **Start of GrangeNet Program, March 2002.**



Justification for APAC2

- **Continue APAC as a national partnership to develop the strategic directions for advanced computing and grid infrastructure in Australia**
- **Lead the deployment and use of the emerging eResearch infrastructure in Australia**
- **Enable Australian researchers to access a world-class computing facility based on merit**
- **Increase the effective and efficient use of the major advanced computing facilities in Australia**
- **Support the participation of Australian researchers in international research communities**
- **Provide education and training to Australian users of advanced computing and grid services**
- **Increase the awareness of the benefits of advanced computing in Australian industry**



APAC2 Mission

*Providing
the
Advanced Computing
and
Grid Infrastructure
for
eResearch*



APAC2 Programs

- **APAC National Facility**
- **APAC Grid**
- **Education, Outreach and Training**



APAC National Facility Resources



- **Peak Computing System**
 - HP AlphaServer SC ES45 (508 processors)
 - memory upgrade (36 nodes 8Gb; 4 nodes 16Gb)
 - ranked number 63 in latest TOP500 list
- **Mass Storage**
 - Storagetek tape library
- **Visualisation**
 - visualisation & virtual reality systems
- **Communications**
 - AARNet and from late 2002 GrangeNet
- **Staff**
 - staff at the ANU

<http://nf.apac.edu.au>



APAC2 Grid Program

Main Aim

- **Develop, install and operate an APAC Grid across the APAC and Partner Facilities to**
 - **handle users' jobs more efficiently**
 - **allow users easier access to the facilities**
 - **allow users to access the most appropriate system**
 - **provide users with advanced grid services supporting virtual organisations**
 - **support users participating in national and international research programs**



Implementation of the APAC Grid

- **start with low level integration of the APAC and partner facilities**
- **use the emerging Grid standards and tools**
 - **Globus, OGSA, NMI...**
 - **participate in the Global Grid Forum**
- **build on the GrangeNet grid services demonstrations**
- **implement national 'industrial strength' infrastructure**
- **involve ICT companies in the implementation of the Grid**
- **cooperate on grid applications with groups in the US, UK and Asia-Pacific**



APAC Grid: Basic Services

- **Common user interface for applications**
 - Web-based interface allowing access to applications software on nominated systems (eg Grid Port)
- **Common software engineering tools and development environments**
 - support common tools on systems
 - support development of codes across systems
- **Resource discovery services**
 - find where resources (software, tools, data...) are located



APAC Grid: Advanced Services

- **Distributed Computing**
 - automatic assignment of jobs to systems
- **Information Access**
 - uniform interactive access to large scale data sets
 - support storage request broker, distributed data storage and federated data bases
- **Cooperative Working and Visualisation**
 - exploit Access Grid and virtual reality systems for group-group interaction
- **On-line Instrumentation**
 - access to remote instrumentation on-line



APAC Grid Planning Team

- **APAC has a Planning Team to develop plans for the Grid Program in APAC2**
 - **3-year program 2004-6**
 - **plan to be developed during 2003**
 - **Bernard Pailthorpe, Coordinator**
 - **Members are representatives of the partners**



Grid Services

Working Groups for GrangeNet



Grid Services

Working Groups for GrangeNet

- **APAC has organised Working Groups to develop demonstrations of grid services on GrangeNet**
 - **members of the Grid Planning Team to be members**
 - **anyone else interested can join**

 - **facilitated by Markus Buchhorn**
 - **support for groups provided on www.grangenet.net**



Grid Services

Working Groups for GrangeNet

- **Computing Grid**
 - distributed computing
 - Bill Appelbe and David Abramson, Co-Chairs
- **Data Grid**
 - digital libraries, information access
 - Bob Gingold and Jon Smillie, Co-Chairs
- **Collaboration Grid**
 - cooperative working and visualisation
 - Bernard Pailthorpe and Kevin Burrage, Co-Chairs



Grid Workshop

**Royal Pines Resort, Gold Coast
29 September - 1 October 2003**

- **APAC and QPSF will be co-organisers (as for HPC Asia 2000)**
- **APAC will be the financial controller**
- **the workshop to focus on the demonstrations of grid services**
- **a planned attendance of 150-200**