

AARNetNews



Professor Fred Hillmer, Vice-Chancellor of the University of NSW, opens the APAN29 conference in Sydney in February

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CEO's Report

The highlight of the first quarter of 2010 has been hosting the 29th APAN meeting in Sydney. There were over 300 delegates from Asia, the USA, Canada and Europe. Many AARNet staff were involved in the planning process and congratulations go to them for conducting a first class event.

Total traffic for 2009 grew by 49%, with On Net and other unmetered traffic growing by 127%. The traffic profile has changed significantly over the past 18 months with On Net now in excess of 50% of the total. Significant benefits to members have occurred through developments related to peering, Akamai and unmetered off peak traffic - AARNet now also peers with Microsoft.

NBN planning continues to develop and AARNet seeks to provide a "test bed" network where appropriate and is providing initial assistance to the Institute for Broadband Enabled Society (IBES) in setting up their test laboratory. AARNet supported the Leighton/Nextgen bid for the \$250M Black Spots Program and this bid has been successful.

The Vocational Education Network Expression of Interest has been announced and AARNet will lodge an interest in this project with the backing of Universities Australia; licence rights to use CAS software (an eHealth workflow system) developed by AARNet's Danish counterpart have been granted; the eResearch team has deployed a SAGEbridge, and demonstrated its use at the APAN29 Conference; and the CloudStor large file transfer service is being well received by well over 150 users.

Following the Government's allocation of \$37M to extend the AREN, a consultant will provide a report on the demand for the extension of the AREN and supply options that exist to deliver against that demand. It is anticipated that an "interim" report will be available by the end of March followed by a fully costed report by the end of April. This review, along with the NBN Black Spots Program, the conclusion of the Powerlink contract for North QLD, and the finalisation of Basslink negotiations, means that the objective for completing the national network is now very much on track.

Finally, CSIRO has commissioned AARNet to procure civil works for the construction and installation of fibre optic cable from the Murchison Radio Observatory to Geraldton in WA. This fibre optic cable will form essential infrastructure connecting the Australian SKA Pathfinder (ASKAP) project to CSIRO and its research partners in Australia and around the world.



Chris Hancock
Chief Executive Officer

FOCUS ON...

Intersect

Intersect is the result of a strategic initiative by a group of NSW researchers, led by SIRCA CEO Dr Mike Briers to establish a peak eResearch body for NSW. A proposal was developed and put to the NSW government and the NSW research institutions in 2008 to fund the creation of a not-for-profit company whose role is to deliver world-class eResearch services.

The universities of NSW agreed to support the proposal in June 2008. The NSW Government, through the Office of Science and Medical Research played a critical role, and recognising the importance of eResearch, funded Intersect's establishment with a \$2.8M grant. Intersect started operation in November 2008 with the appointment of Dr Ian Gibson as CEO. The company has since grown from 3.5 people to 37, and with an annual turnover of \$6M.

The company has a development capability extending across the project lifecycle, from requirements gathering, software development and user interface design through to quality assurance supported by professional project management.

Intersect has built a software development team, a member engagement team and has



Above: Launching Intersect's new premises in December 2009 were: (left to right) Dr Ian Gibson, Intersect CEO; Prof Mary O'Kane, the NSW Chief Scientist and Scientific Engineer; Hon. Jodi McKay MP, NSW Minister for Science and Medical Research; and Prof Mark Wainwright AM, Chair of Intersect

Left: The new premises launch spread through the office



a number of specialist services staff. The model for customer engagement is based around a network of eResearch Analysts located on site at member campuses. Their role is to understand and respond to local requirements.

Intersect is strongly engaged in a number of programs funded by the Federal Government

through the National Collaborative Research Infrastructure Strategy. Intersect is the NSW member of the Australian Research Collaboration Service (ARCS), and has recently invested in the peak facility, the National Computational Infrastructure. Intersect also helps NSW universities connect with Australian National Data Service programs.

CloudStor Transfers Large Files

In October last year, AARNet released a trial version of CloudStor, a system for enabling very large files to be safely, quickly and securely transferred between researchers - namely those files rejected by email systems because they are too big. It works quite simply - the sender goes to the CloudStor website, uploads the file to be sent, and then specifies the email address(es) of those to which it is to be sent. They receive an email with a link to the file which they click on to retrieve it. The trial has gone exceptionally well, with many users trialling it and showing a lot of enthusiasm for it. The trials have been invaluable

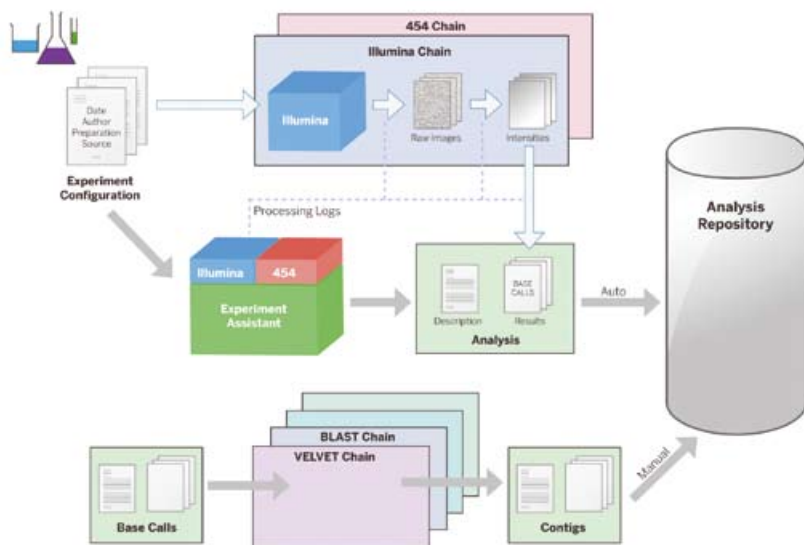
both in confirming the pent-up demand for such a service, in proving it, and in a few ways suggesting improvements.

Typical is Associate Professor Terry Johns, Senior Scientist & Research Fellow in the Centre for Cancer Research, Monash Institute of Medical Research. When he heard about CloudStor, he was keen to try it out, as he had encountered great difficulty in sending large files in a number of contexts. For instance, he has to send very large TIFF image files to publishers, which invariably bounce at the publisher's end; a typical paper will have 5-6 figures to be uploaded; CloudStor, he says, makes this so much easier. He also cited a recent international academic

conference held in Melbourne, and he was able to send with CloudStor conference photos easily to delegates in Australia and the Netherlands. He also enthused about how CloudStor makes the sharing of data with colleagues anywhere in the world so straightforward.

He finds that, because it is email-oriented, it fits very naturally into his normal mode of operation. He also really appreciates its unlimited file-size capability, and how simple it is to use. "It works beautifully", he concluded.

AARNet expects formally to announce release of CloudStor in April, but in the meantime if you can't wait, contact Guido Aben for a test account guido.aben@arnet.edu.au.



SPOTLIGHT ON...

Below: Intersect's staff



Above: Launching the Australian Schizophrenia Research Bank were: (left to right) Prof Mike Calford, Deputy Vice-Chancellor (Research), University of Newcastle; Prof Mark Wainwright, Chair of Intersect; Prof Vaughan Carr, CEO of the Schizophrenia Research Institute; NSW Minister for Science and Medical Research, Hon Jodi McKay MP; Dr Carmel Loughland, Manager, Australian Schizophrenia Research Bank; Prof Nicholas Saunders, Vice-Chancellor, University of Newcastle; and Dr Ian Gibson, Intersect CEO.

Above: The Genomic Data Analysis project addresses the data management needs for the next generation sequencing community by: improving data management for sequencing labs and their users; better deploying HPC resources; and by sharing information on bioinformatics tools and best-practice.

Intersect Projects

Intersect carries out a range of projects across disciplines as part of our member services. Intersect is currently engaged in a portfolio of a dozen projects and has recently delivered the following work, highlighted below.

Australian Schizophrenia Research Bank (ASRB)

The first of Intersect's Innovation projects, the ASRB project was delivered in November and launched on 15 February 2010.

The ASRB web portal replaces several existing repositories of information, and provides a secure environment for the collection and storage of this information. It has fine grained and flexible security, enabling online access to information for researchers in a controlled manner. It is the central resource for the entry, upload and download of information for ASRB participants and delivers the following key benefits:

- user-friendly browse, search and query of ASRB data and images;
- tools to assist the preparation of MRI images and data to a research ready state;

- enables remote collaborators to upload collected information into the ASRB; and
- enables researchers nationwide to download MRI, genetic, and clinical information.

Australian Schizophrenia Research Bank Manager Dr Carmel Loughland said, "This database has revolutionised the way our schizophrenia research data is collected, stored and disseminated".

Genomic Data Analysis Project

The Genomic Data Management Project addresses the data management needs for the next-generation sequencing community. This new equipment shifts the bottleneck away from the generation of DNA data and onto the ongoing data processing, data management and data access to ensure that the information is readily available to support research.

Previously, each institution was solving issues associated with sequence data management largely on its own. This project centralises the effort of several major institutions in the scoping and development work necessary to make effective use of gene sequencing instruments, as well as ensuring centralised computational and data storage facilities can be used effectively in this research.

Intersect worked closely with the Ramaciotti Centre for Gene Function Analysis (located at UNSW) and Southern Cross University's Centre for Plant Conservation Genetics. The project will also benefit a wider researcher base and we are currently discussing deployment at three other sites in NSW.

caTissue

Recognising the potential usefulness of caBIG (the cancer Biomedical Informatics Grid), and its module caTissue to health informatics, Intersect has localised caTissue components. caTissue was developed to keep track of biospecimens from geographically dispersed repositories. The caTissue project enables participating institutions to tailor the display of the content to better suit Australian preferences. caTissue has been deployed at UNSW's Lowy Biorepository. Intersect will be looking to provide ongoing support and enhancement of caTissue in Australia.



AARNet staff arriving at Clark Island for the APAN29 Welcome reception



(left to right) Colin Carati, Alex Reid, Dany Vandromme, Jim Williams and Brent Sweeny on Clark Island



Delegates attending the opening session of APAN29

APAN29 in Sydney

APAN is the Asia-Pacific Advanced Network organisation (see <http://www.apan.net/> <http://www.apan.net/meetings/Sydney2010/>), whose aim is to promote network developments for research and education communities in the Asia-Pacific region. It is organised around a number of working groups in the network technology, network applications and natural resources areas. APAN holds twice-yearly conferences at locations around the Asia-Pacific area, and the most recent (APAN29) was held in Sydney from 8 to 11 February 2010; the first time it has been in Australia since July 2004.

The conference provides invaluable opportunities for networking among colleagues in the Asia-Pacific area, aided by social events each evening which exploited the attractions of Sydney - even koalas were laid on one evening!

One of the more active groups is the Medical Applications Working Group (WG), which brought together medical staff from around the Asia-Pacific area, both in person and via high-definition video, to share videos of a variety of advanced surgical procedures (e.g. laparoscopy). The live

video streams worked flawlessly, and the quality was brilliant (not for the faint-hearted, though!), and all the sessions were much appreciated by the WG members.

As an adjunct to the conference, and in order to exploit the presence of key international figures, AARNet had organised a couple of separate workshops, which were also well attended. One was on Middleware (see elsewhere for a report on this), and another was a "Video Summit" workshop exploring the adoption of videoconferencing in the R&E sector.

Apart from the WG sessions, there were also a few plenary presentations of note. These included the introductory address by Professor Fred Hilmer, Vice-Chancellor of the University of NSW, who highlighted surprising consequences of the well-connected society. This was followed by a video presentation from René Buch, the CEO of Nordunet, who looked at the development of knowledge infrastructure and the network challenges this brings. A third plenary presentation was given by Dr Shinji Shimojo, Executive Researcher at Japan's National Institute of Information and Communications Technology

(NICT) and a Director of JGN2plus (a Japanese test bed network), describing the various projects worldwide looking at the Future Internet.

Two other highlights (from an Australian point of view) were an eVLBI demo, which involved radio-telescopes in Australia, Japan and China, with data being correlated in Perth, consuming 3Gbps traffic volumes across the Nullarbor. Also, the AARNet 9x3 OptPortal complete with SAGEbridge (developed by the Electronic Visualization Laboratory at the University of Illinois, Chicago, and newly deployed by AARNet) exchanging images between the University of Queensland, the University of Melbourne, the Gwangju Institute of Science and Technology in Korea, and the National Institute of Information and Communications Technology in Japan - at a steady 5Gbps, peaking at 6.4Gbps.

APAN29 provided a rare opportunity for Australia to host and encourage important exchange between network-oriented members of the research and education community from right across the Asia-Pacific region. Many of the presentations are available for download from the conference website at <http://www.apan.net/meetings/Sydney2010/schedule.php>.

AREN Review

The Super Science initiatives, announced as part of the Commonwealth Government's 2009 budget, are intended to boost Australia's national research infrastructure, and comprise a total of \$1.1 Billion. This includes \$312 million to support eResearch infrastructure, and in particular collaboration, networks, data, and analytic tools:

- Australian National Centre of SKA Science - \$80M
- Climate High Performance Computing Centre - \$50M

- Data Storage and Collaboration Tools (ARCS) - \$97M
- Data Commons (ANDS) - \$48M
- The National Research Network (AREN) - \$37M

The Australian Research and Education Network (AREN) forms the backbone of Australian collaboration infrastructure and is essential for the transfer of large data sets between sites. The AREN will be extended and upgraded to connect regional research data centres with each other, with new and existing HPC centres, and all other high volume sources of primary research data.

Mr Steve Black has been appointed by the Government to undertake a review of the AREN and to determine the best way to achieve the objectives of the program. He has spent the past few months visiting members of the sector, including AARNet. The results of this review are expected shortly.

For more information see: <https://www.pfc.org.au/bin/view/Main/SuperScience>

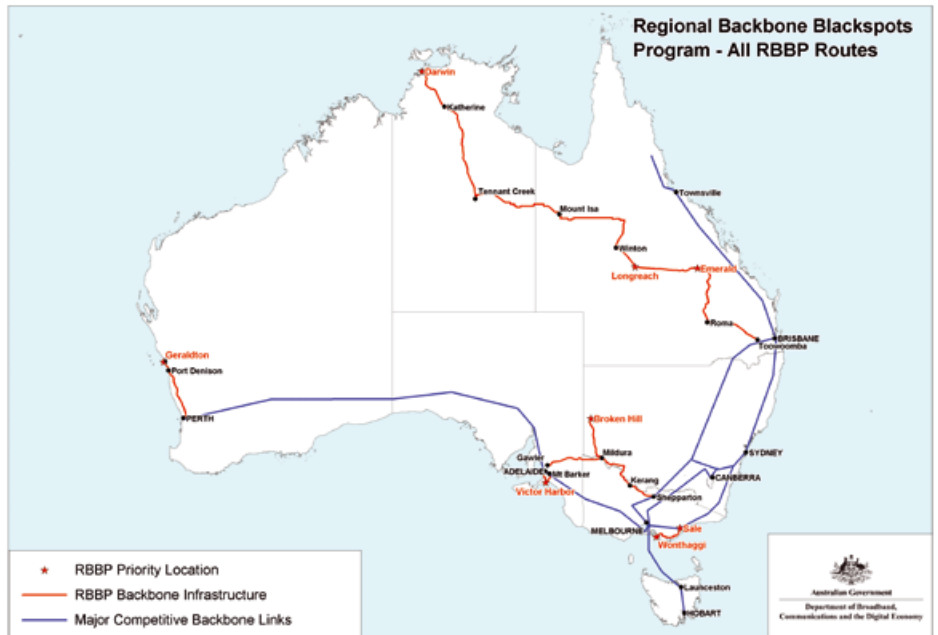
NBN Regional Broadband BlackSpots Program

In February 2009 the Australian Government announced that it would invest up to \$250 million to address backbone black spots throughout regional Australia. This commitment was to underpin the National Broadband Network (NBN) providing superfast broadband to Australian homes and workplaces.

On 1 July 2009, the Australian Government issued a Request for Tender to provide transmission links to a number of regional centres where there was a lack of competitive backbone infrastructure ('blackspots') (see map below) - AARNet partnered with NextGen on this tender.

On 4 December 2010 Minister Conroy announced that NextGen Networks was the successful tenderer.

The RBBP will provide new backbone transmission links to more than 100 regional locations along the routes to the priority locations. The transmission services will be offered on a wholesale basis to service providers to enhance competition and to improve the range,



quality and prices of broadband and telephony services available to Australians in regional areas. NextGen will roll out approximately 6,000 kilometres of backbone infrastructure under the Program. Work has commenced on the

initial construction of the Darwin, Emerald and Longreach route in Mount Isa. The links are expected to take approximately 18 months to complete. However, the shorter links are expected to enter service earlier.

Engagement with the Health Sector

Over the past year there has been work to improve the connectivity between AARNet and health related campuses and precincts. This has led to an increase in the deployment of eduoam on health sites across the country. These include the Mater Hospital in Brisbane and at various hospitals in Adelaide and Tasmania. The QRNO is also working with Queensland Health to deploy wireless infrastructure across the state.

AARNet has also proposed the development of a national health research, innovation and training network running over AARNet infrastructure. With the encouragement of the Federal Department of Health and Ageing, the concept was outlined to a meeting of the Australian Health CIOs in Canberra in November 2009. The Health CIOs agreed to encourage their staff to support an initial pilot of the network.

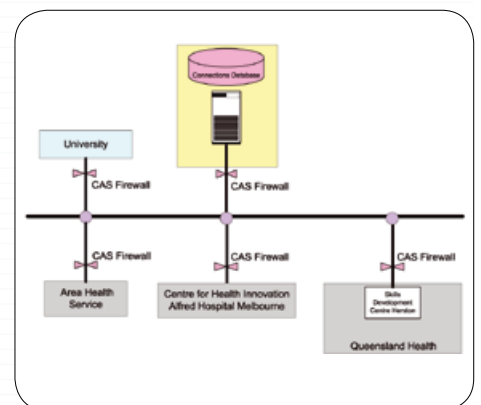
Key to the network is the implementation of a connections agreement system (CAS) to

manage interaction between the community members. AARNet has been working with Uni-C in Denmark to pilot the CAS software which it developed for the Danish Health system. The CAS software will be used to support a small initial pilot involving the Centre for Health Innovation at the Alfred Hospital in Melbourne, the Queensland Health Skills Development Centre in Brisbane and possibly a University and an area health service in NSW. The initial pilot is expected to be operational Q2 this year allowing the conduct of some national demonstrations aimed at attracting national health funding for an extended pilot.

Alongside the pilot, AARNet will strengthen its interactions with the health sector by establishing a working group whose charter will include advising AARNet on health related issues, and promoting connectivity between health networks and AARNet members.

It is expected that the group will consist of a blend of senior network operational managers and research and medical training specialists

across the sector. Invitations will be extended across the medical research and education community as well as the university based network management field. The group will be supported by AARNet's e-Health Consultant, Mike Rebbechi, and draw on the expertise of AARNet's Director of e-Research, Guido Aben.



Above: An Initial Pilot of the Australian National Health Innovation and Training Network

BITS & BYTES

Videoconferencing

Hot on the heels of the release of the Apple iPad, the big two videoconferencing vendors Polycom and Tandberg have both released products with a foray into touch computing surfaces.

Polycom's has introduced the Polycom Touch Control, a 7 inch diagonal PoE enabled control surface for HDX series endpoints. The unit boasts configurability for a myriad of customised applications centered around video conferencing applications.

Tandberg have also slimmed down their touch screen interface that was previously only available with the telepresence T1 and T3 systems and named it Tandberg inTouch.

Desktop Video

The Desktop Video Project Group has continued to host meetings to investigate desktop video conferencing software suitable for inclusion into the AARNet National Video Conferencing Service.

On Tuesday 24th of November, Jason Bordujenko (AARNet) and Tracy Deane

(UniSA) presented a DVPG update to the South Pacific User Services Conference (SPUSC 2009) held in Wellington, NZ.

At the recent APAN conference an AARNet Video Summit Workshop was co-located on Thursday 11th February which saw updates from the Project Group Chair Mr Arno Besse. Approximately 30 attended the video summit and discussions centered on making the most out of video deployments across the R&E sector.

Streaming Media

The Streaming Media Project Group (SMPG) was brought together in November 2008, comprising a number of individuals from institutions across Australia, working in a variety of streaming media related fields. These fields included IPTV, Digital Lecture Delivery, Live Streaming, and Video Content Distribution.

A web-site has been developed where knowledge and experiences within the sector can be shared, a forum for others to contribute what they know is provided, and trends and technology in the industry are monitored.

Eduroam

The US based SheevaPlug hardware has been purchased, configured and successfully tested as a proof of concept during the fourth eduroam meeting of the year in Hobart, Tasmania.

The eduroam coverage database continues to be updated as sites provide data on service levels. New sites such as Mater Hospital have recently joined eduroam in February 2010.

The trial with UQ and UWA has been extended until the end of March to identify if use of the eduroam port base trial service has increased having provided universities more time to promote the service to users.



James Sankar with QUT's "eduroam in a box" on Shark Island, Sydney Harbour, during APAN29.

Staff Profile

Administration - AARNet's "Engine Room"

AARNet's Administration group is split between two offices. Kate Stewart (Financial Reporting & Accounts Receivable) is based in Sydney. Anne Bollinger (Accounts Payable), Erin Mulgrue (HR), Joan Hummer (EA to the

CEO), and Shihara Nizam (Projects Assistant) are based in Canberra. So, if you've been wondering who sends you bills, who pays our bills, who pays our salaries, and who keeps Chris organised, you now know. The Canberra office also has a strong

tradition of morning teas and Thursday afternoon drinks - feel free to drop by if you're in town. But don't offer to bake the cake, unless you have a good gluten free, low fat, vegetarian, high fibre, sugarless, chocolate based, 2% milk recipe.



Kate Stewart



Anne Bollinger



Erin Mulgrue



Joan Hummer



Shihara Nizam

Conference Reports

Middleware Workshops at APAN29

Middleware activities figured prominently in the program for the recent APAN29 conference held in Sydney. There were two one-day workshops, the first organised as an official part of the normal APAN program; the second workshop was organised by AARNet to take advantage of the presence in Australia of two key figures in European middleware to cover federations and public key infrastructure matters in detail.

In the three APAN middleware sessions, occupying most of one day, there were several presentations on authentication, authorisation and access federations, which are being set up in many countries to facilitate shared access to resources across and between universities and research organisations. These included shared experiences on delivering services via the Canadian eduroam federation (by video from Vancouver); the Australian Access Federation (AAF, see <http://www.aaf.edu.au/>) - including details of how ARCS is utilising the AAF for the research community; the UK Access Federation managed by JISC, the Danish Federation (WAYF) as well as the Kalmar-2 Nordic inter-Federation; the US Federation (InCommon); and reports on the federation activity in Japan. It also included a useful update on the status of eduroam, the federated WiFi Internet access system now available at most universities in Australia, as well as in Europe, Canada and other nations.

The second workshop provided an opportunity for an in-depth look at the Danish Federation and Nordic inter-Federation. It also provided good insight into the PKI Certificate service that Terena has set up for NRENs in Europe, on which the service now being offered by AusCERT in Australia has been modelled (see <http://www.auscert.org.au/render.html?it=11262>). These studies were led by David Simonsen (Denmark) and Jan Meijer (Norway) respectively, and both were very effective in presenting the history, strategies and decisions made in the process of developing their systems.

Both days were well attended, presenting great opportunities for dialogue between Australians and their European, USA & Japan counterparts on federations, eduroam and PKI. There was a lot of good exchange and mutual sharing between delegates from the APAN region and Europe.

iVEC eResearch Forum

iVEC, the "hub of advanced computing in WA" (see <http://www.ivec.org/>) ran its annual 1-day eResearch Forum on 19-Feb-10 in Perth (see <http://www.ivec.org/forum2010/>). The event includes a number of keynote addresses on various high-profile research projects, as well as presentations from the iVEC Interns. The iVEC internship program is aimed at university students looking to complement their skills with hands-on experience in advanced computing technologies, mostly over the Summer period, but some of longer duration. This Internship program is one of a variety of activities undertaken by iVEC to promote and equip eResearch activity among the WA research community.

The opening keynote presentations covered the ASKAP and SKA projects, identifying some of the huge scaling problems the SKA has to face. They also described the Super Science funded \$80M Pawsey Centre being built at iVEC to house a 2 Petaflop supercomputer to undertake radio-astronomy (25%) and other processing. And finally a description was given of a project to undertake 4D Synchrotron Tomography of Geological Processes (the fourth dimension being time).

The students' projects included one to monitor meteors, linking in to a global network of such observatories; visualisation of galaxy simulations; the use of GPUs in an autocorrelator for long-baseline radio-telescope arrays; visualisation of boundary layer fluid flows; open source physics parallelisation engines; computer simulation of cryogenic preservation at the molecular level; and calculating atomic collisions; and a range of more esoteric topics.

Overall, the event was a mixed bag, with the keynotes describing some really interesting work, all of it involving remote collaborations. The contrast with the Intern presentations did stand out, but it did represent a useful training opportunity for the Interns, who are being developed into the next generation of eResearchers.

Future Events

TERENA

31 May -3 June 2010, Vilnius, Lithuania

QUESTnet2010

7-10 July 2010, Royal Pines, Gold Coast

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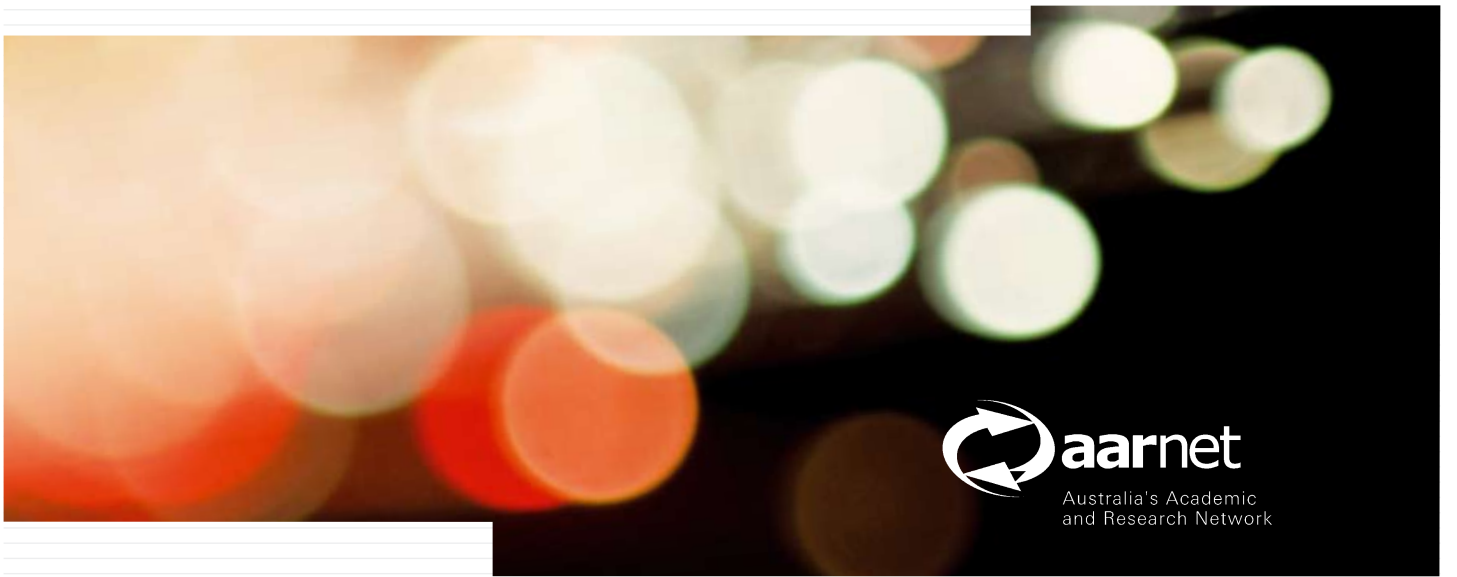
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We welcome your suggestions/feedback.

If your institution can demonstrate an interesting/innovative use of the network please contact aarnews@aarnet.edu.au

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