



AARNET Demonstrates the Value of a High-Speed Network in Developing Australia's Digital Economy

Global astronomy research initiative strengthened by high-speed research network

Sydney, AUSTRALIA

14 January 2009 AARNET, Australias National Research and Education Network (NREN) will demonstrate the value and significance of investing in Australias Digital Economy when Australian and international researchers from 13 countries connected through its high-speed network for an international astronomy demonstration. This demonstration was the longest ever continuous observation, taking place over 33 hours at an opening ceremony for the International Year of Astronomy in Paris, France.

Researchers will conduct an electronic Very Long Baseline Interferometry (e-VLBI) observation linking 17 radio telescopes across the world where researchers track three extra-galactic objects as they rise and set with the rotation of the earth. This demonstration showcases the widespread scope and capability of e-VLBI technology in facilitating scientific discoveries.

Chris Hancock, CEO of AARNET said, AARNET is an enabler of innovation and AARNETs involvement in this demonstration highlights the importance of investing in a high-speed network as it will improve the skills and capabilities of researchers by allowing them to effectively participate in Australias Digital Economy and the digital education revolution.

e-VLBI is a technique by which widely separated radio telescopes observe the same region of sky simultaneously and data from each telescope is sampled and sent to a central processor via high speed communication networks operating in real-time.

The data will be captured by three telescopes in Australia; Mount Pleasant in Hobart, CSIROs Australia Telescope Compact Array (ATCA) near Narrabri and Mopra near Coonabarabran, NSW, with telescopes from the United States, United Kingdom, Germany, Japan, Italy, Finland, Sweden, China, Chile, Poland and the Netherlands.

Data from the three Australian telescopes will be transferred over the AARNET3 network to the correlator at JIVE in the Netherlands using SXTransport, CENIC, CANARIE and SURFNet6. The data will be processed in real-time with the results streaming live at the opening ceremony in Paris.

Tasso Tzioumis, Research Scientist at the CSIRO said, For e-VLBI observations, Australias distance from the global scientific community is both extremely important and extremely

challenging.

By using widely separated points of observation, e-VLBI technology can generate images of cosmic radio sources with up to one hundred times better resolution than images from the best optical telescopes. Australia is a key partner in e-VLBI observations as our distance from other points of observation allows for a clearer and more detailed image.

Crucially, AARNet allows Australian researchers to collaborate with the international research community. Without the high speed network provided by AARNet, we would not be able to transmit the data needed to produce significant research findings.

Hancock added, AARNet has been a strong supporter of e-VLBI since its beginnings, working with the Australia Telescope National Facility for e-VLBI projects to provide the technology and capability needed for Australia to participate in global research collaborations. The network infrastructure used by researchers for these experiments is over 1000 times faster than what is typically available for Australian ADSL2+ broadband users.

High speed networks like AARNets have significantly improved astronomy research efforts in the global scientific community. Real-time data analysis allows simultaneous correlation between researchers and provides them with immediate information on whether an experiment is working or not. With a high speed network, observations can be co-ordinated in significantly less time than five years ago, when a single observation with four telescopes could take months to arrange.

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About
AARNet

AARNet Pty Ltd (APL) is the company that operates Australia's Academic and Research Network (AARNet). It is a not-for-profit company limited by shares. The shareholders are 37 Australian universities and the CSIRO. AARNet provides high-capacity leading edge Internet services for the tertiary education and research sector communities and their research partners. AARNet serves more than one million end users who access the network through local area networks at member institutions. For further information, please visit: www.aarnet.edu.au.

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