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*A computer demonstration of a virtual world using the peer-to-peer technology.*

## Creating a better online world

Faster connection speeds in online gaming and social networking could be the result of a commercial license agreement signed between National ICT Australia (Nicta) and Melbourne-based company VastPark which sells software platforms to host virtual worlds.

The agreement will allow VastPark to access technology developed in Nicta's peer to peer (P2P) project. It will provide the P2P team with a commercial platform

to conduct a large-scale trial, and a path to turn the technology into a commercial product with VastPark as an industry collaborator. The team is aiming for a beta version by the end of the year with trials to be done with 100,000 users.

The project aims to create faster, cheaper online virtual worlds. These worlds resemble three-dimensional spaces with objects and are commonly used for online

gaming or social networking. The computer servers which support these worlds often host thousands of visitors, called users, across the world simultaneously. The challenge for software engineers is to how to build scalable networks to provide a responsive, lag-free experience.

Instead of the traditional client-server approach, the P2P technology uses standard peer-to-peer networks. This relies on the end

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users' processing power, rather than central servers, to handle the computing tasks that support a virtual world. What makes the technology work is a technique devised by the team to execute queries on the networks to discover spatial information.

"But then the challenge is how do we map this spatial information onto the distributed network the objects in our system because you don't have a central server. You have many smaller computers of the end users," said P2P project leader Dr Santosh Kulkarni.

To solve this, each online world is divided into regions with each of these regions served by a peer. This happens dynamically and peers are chosen depending on their bandwidth, idle capacity and processing power.

In addition to speed advantages due to less online traffic, the system reduces infrastructure costs. "In a traditional system, the more users you have, the more servers you need. In this system, you don't necessarily need to add more infrastructure since the end users are performing most of the processing power themselves," Kulkarni said.

## Online tutorials train hospital staff

A Sydney-based hospitality group has adopted electronically-delivered learning or e-learning, to train its seasonal workforce.

The Compass Group's induction e-learning demonstration, developed in partnership with Compass Group and the William Angliss Institute, can be completed by staff online. It can be used to induct staff into the company or as a reference point for new employees.

Funded by the national Australian Flexible Learning Framework e-learning strategy, the demonstration is accessed by downloading the content onto a CD-ROM, DVD or mobile devices such as mobile phones and iPods.

Compass Group employs over 10,000 hospitality staff across 600 sites in Australia. The demonstration's flexible format caters for their diverse workforce, geographical spread and irregular hours worked by their staff.

"Sometimes you might have many end users using slow dial-up connections, so you might need more servers to support the additional load. But we've found in our tests generally about 80% of the server costs for hosting an online world are reduced using this technology."

Current challenges with developing a commercial product are securing the network against malicious users who try to disrupt the client. This is especially difficult since the owner of the distributed network does not know how secure the end users are.

The approach the engineers are using is to look at the different packets being transferred. Some of them are noncritical updates which don't require encryption. But there are certain crucial packets which must reach the destination which are encrypted.

"The challenge is finding an elegant solution which will secure the system without having to take the extreme approach of screening every packet. Getting the balance right is important so we don't compromise the user experience," Kulkarni said.

The demonstration provides learning modules, including videos and interactive activities, with a focus on hygiene, health, safety and security, and kitchen cleanliness. It assists with employee awareness of the expected conditions at remote sites, by providing a preview of the site facilities.

On completion of the learning modules, staff are required to complete an online test which is monitored through the William Angliss Institute's learning management system.

The demonstration provides nationally recognised hospitality units of competency including workplace hygiene procedures, security procedures and maintaining kitchen premises.

Although the demonstration is specific to the hospitality industry, it can be used as a guide to developing e-learning across a variety of industries.

## Top-up for federal broadband

As part of its 2008-09 budget, the federal government has boosted support for the Australian Broadband Guarantee program with additional funding. This brings the total value of the program to \$270.7 million over four years.

The program will provide broadband access to Australians in rural and regional Australia while the federal government builds its national broadband network. It is also expected to service the two per cent of Australia that are unlikely to receive broadband coverage even when the na-

tional broadband network is completed. The program is eligible to consumers, small businesses of 20 or less full-time employees and Indigenous Community Councils.

The news follows the federal government's decision earlier this year to cancel plans to build a broadband network for underserved areas in regional Australia. The \$958 million plan was initiated by the previous government and involved a funding agreement with Optus Networks and Elders Telecommunications Infrastructure.

## Data crunching in Brisbane

Emerson Network Power Australia has supplied \$3.2 million worth of equipment for the first phase of construction of a Brisbane data centre to be owned by IT company Digital Sense. The construction consists of a 400m<sup>2</sup> section of the 1600m<sup>2</sup> data centre. When completed this year, the facility will have 2000W/m<sup>2</sup> of floor space.

A second data centre, also to be in Brisbane, is in the planning stages. Codenamed Data Centre City, it will have an area of 10,000m<sup>2</sup> with 6500W/m<sup>2</sup> and support for up to 25kW of cooling per rack.

Michael Tran, director of Digital Sense, said the demand for the massive amounts of computing power offered by data centres comes from large government departments, mining companies, web hosting services and the medical industry.

"These large companies can't run their operations without 24-hour information systems supporting millions of customers around the world," he said. "They're also bound by strict corporate governance laws. Backup and recovery services, which often involves locating equipment in multiple secure sites, are at the top of their list."

Before building the data centre, the company conducted extensive research at some of the largest high-density data centres in the US to understand the logistics required to design, build and operate a similar facility in Australia.

"We discovered capacities of 30kW to 40kW per rack would be feasible for the next two to three years. That's why it's so important to get the right mix of infrastructure from the start. The more expensive it is to power and cool the equipment, the more



*Digital Sense directors Michael Tran and Daniel Ngo.*

expensive the operating costs. Making the wrong infrastructure choices at the design stage can potentially cripple a high-density data centre in the long run."

Running a high-density facility has many challenges. One of these is providing the high levels of power that equipment like multicore blade servers consume and managing the heat they give off. The centre must also be on a secure site removed from hazards like bushfires and flight paths but located close enough to a power grid that can keep the equipment running reliably.

The centre will have aluminium-frame racks to hold multiple blade servers, uninterruptible power supplies to pro-

tect the dual power and communication feeds going into each rack, switches to convert mains power to generator power in the event of a blackout or routine maintenance without downtime, and a supplemental cooling system to support scalable rack cooling from 1kW to more than 25kW per rack.

An adaptive architecture means a customer's equipment can be expanded without having to upgrade or change the support infrastructure. A blade server can be added to an existing rack and the cooling system will dynamically adapt to the extra heat rejection by plugging in to an additional cooling pipe.

## Security of business software verified

A business networking software has received an approved rating from NSS Labs, a world leader in independent security product testing and certification.

The rating was to certify its behavioural protection system.

Radware's DefensePro 1020 blocked all attacks but was able to recognise all legitimate traffic during an evaluation that included rate-based attacks mixed with genuine traffic.

"The appliance's attack detection capabilities passed the tests, as the

products successfully mitigated all of our attempts to breach the security," said Bob Walder, chief technology officer of NSS Labs.

These attempts included reconnaissance, flooding, denial of service from single and distributed sources and protocol fuzzing traffic.

According to NSS Labs, latency and performance figures for the appliance performed to the standard at traffic loads and packet sizes ranging from a minimum of 67µs with 250Mbps of 128 byte packets,

to a maximum of 128µs with 1Gb/s of 1514 byte packets.

Little variance in latency was reported when load was increased.

NSS Labs operates a transparent, scientifically repeatable certification process. To test products, it employs full application layer traffic, real verifiable exploits and live hosts.

Products are tested according to use cases and protective requirements.

The full report can be viewed at [www.radware.com/defensepro](http://www.radware.com/defensepro).

## Carbon nanotube transistor successfully developed

NEC Corporation has successfully developed a carbon nanotube (CNT) transistor using a coating process which has applications in the printed electronics field.

The results of the research were presented at the Nanotech 2008 International Nanotechnology Exhibition & Conference in Tokyo this year.

The CNT transistors were produced based on new design guidelines which were established to verify the relationship between transistor characteristics and the length and density of the CNT when a channel is created. The channel is the part of a transistor that connects the electrodes. The faster the electrons move in the channel, the faster the electronic device can operate.

To create the transistor, a channel coating-process technology, capable of accurately controlling the density of the CNT, was developed.

Despite performance variation and extremely high mobility (the speed at which electrons move in the material), the transistor was successfully manufactured.

Unlike the channel materials of conventional research organic transistors which generally demonstrate little mobility and are therefore considered unsuitable for electronic devices with high-speed operation, the newly developed CNT transistor allows



*To create the transistor, a channel coating-process technology was developed.*

100 times greater mobility than regular organic transistors.

Printed electronics' technologies allow transistors to be formed by printing

directly onto the substrate. This simplifies manufacturing and, as a result, reduces waste materials and carbon dioxide emissions.

## More money to be made in open source support

Support staff in open source software companies earn more than their counterparts in non-open source companies, according to a recent report.

Survey results from the "Australian open source industry & community report 2008", suggested an open source professional in a support role earns a median salary of \$88,000. This is more than the salary reported in the Australian Computer Society's 2007 remuneration survey for a non-open source support worker – approximately \$63,000.

The survey was commissioned and carried out by Waugh Partners, a Sydney-based open source consulting company. Financial support was provided by National ICT Australia, IBM and Fujitsu.

The survey of the open source industry was aimed at companies that sell, support or service open source-related technologies in the Australian. 129 legitimate responses were received, many of which challenged conventional perceptions of what open source professionals were like.

"Despite a common mental picture of open source companies as one-man band

contractors, only 50% of respondents had fewer than five employees, compared to 78% of the broader ICT industry according to a 2008 survey by the Australian Computer Society," the report said.

**More than half of all open source respondents held a university degree.**

Furthermore, 43% said software development was their most lucrative service with 4% making the majority of their income from reselling software licenses.

The survey had an over-representation of open-source professionals in ACT and South Australia. The report suggested this was due to the large amount of open source-related research and defence work in South Australia.

A separate survey looking at open source users outside of the industry, found that people who work on open source

projects in their private time have a median age of 30, which is below the median of the Australian population of 36.9. However, a broad range of ages was represented with the youngest respondent at 11 and the oldest at 67.

More than half of all open source respondents held a university degree. Despite this, 67% of respondents said their open source skills were learnt outside formal education. These skills were commonly self-taught or learned through practical experience such as open source projects and seeking assistance from other programmers through mailing lists.

Those who did attend a university were mostly likely to have done so at Queensland University of Technology, followed by University of Sydney and Australian National University.

However, the report said open source industry needs more skilled workers, especially in general programming which was cited as the most difficult area to recruit in. Other desired technical skills include Linux and web technologies especially PHP.



*The existing 42ha site will be made seven times larger to create the 314ha technology precinct featuring advanced information and communications technology.*

## Western Australian technology park to grow sevenfold

The Western Australian government has committed \$8.55 million to expand the Bentley Park technology park in Western Australia.

The existing 42ha site will be made seven times larger to create the 314ha technology precinct featuring advanced information and communications technology.

The site will have telecommunications, information services and computer gaming companies, as well as companies that

service this sector including specialised lawyers, patent specialists and financial houses.

Of the total funding, \$2.2 million will be used to construct a high-speed fibre network within the existing park that would be linked to the CBD and provide initial connection speeds of 1Gb/s.

It would eventually be expanded to incorporate the whole precinct, with upgrades in connection speeds up to 10Gb/s.

The speed of the transmission network is designed to allow business to communicate faster and cheaper.

The state minister for energy resources, industry and enterprise Francis Logan said sustainable transport options would be explored and pathways expanded for pedestrians.

A flythrough of the artists' impression of the precinct can be found at [www.communityofminds.com.au](http://www.communityofminds.com.au).

## Australian university research leads to global ICT deal

Faster internet speeds with extended distance capabilities will soon be available worldwide, following the signing of a licensing deal with a US-based company for technology developed by researchers from the University of Queensland (UQ) and the University of Sydney.

When Oregon-based Rim Semiconductor acquired Multi-Carrier Communications, the acquisition included an exclusive licence and research program for a signal processing technology jointly developed at the two Australian universities.

Identified as a low complexity method

which enhances the capacity of copper wire-based broadband services, the technology can be used where high-quality broadband transmission of multimedia files is required. The technology involves a method of signal processing that reduces the bit error rates (BER) by limiting the peak-to-average-ratio (PAR) to about 10% of what typically occurs in current technologies.

A high BER is undesirable as it limits the bandwidth of the transmission system as data must be retransmitted to compensate for losses.

"Digital subscriber line (DSL) technology is today the primary vehicle for broadband internet delivery to the home. As the consumer demands ever higher bandwidths and the service provider seeks to offer phone, internet and television in one broadband service, the demands and cost of equipment will rise," said associate professor Vaughan Clarkson from UQ's Faculty of Engineering, Physical Sciences and Architecture.

There is a bottleneck in the copper wire which acts as a data pipe to connect the home and service provider's equipment.

As bandwidths expand, the standard DSL signals on the wires experience larger and larger voltage swings. These large voltage swings are very problematic because they require expensive electronics to generate, or high complexity computation to avoid. Otherwise, the signals will experience clipping at the peaks, thus rendering the service unreliable.

"This signalling technique requires less computational processing and reduces the signal's peak-to-average ratio. By limiting the typical PAR to about 10% of typical

values in current use, the BER is reduced and bandwidth is more efficiently exploited. Data rates have been shown to be up to 30% higher," Clarkson said.

"We believe the unique capabilities of the acquired signal processing algorithm, combined with our current technology, will mean telephone companies around the world may soon be able to offer many more of their customers enhanced video and data services," said Brad Ketch, Rim Semiconductor's chief executive officer.

The technology transfer was negotiated by UQ-based UniQuest, which takes research to the commercial market, and Utek which connects clients with intellectual property licensing opportunities at universities and research laboratories around the world. The company that was acquired, Multi-Carrier Communication, is a subsidiary of Utek.

A research contract for further work with Rim Semiconductor on the technology's development was included in the licensing agreement.

## Wireless speakers for lounge room wins state prize

Promising greater convenience for home theatre buffs, La Trobe University electronics graduate Glenn Boardman has designed and developed a home theatre surround sound system with wireless speakers. The project won the 2008 Victorian Institution of Engineering and Technology student prize.

Boardman's initial motivation was to develop the project with the aim of being included in his university's annual Hooper Awards, which showcase the Department of Electronic Engineering's most outstanding projects.

"I really didn't expect to go further than that, I certainly didn't expect to be nominated for the state awards, let alone win," he said.

Reflecting on the engineering design, Boardman described his project as being more complex than simply adding wireless sensors to an existing theatre system.

Boardman had to turn to a company in England to source the high-quality wireless chips which would allow the sensors used in the system to be resistant to interference from other wireless signals. This would make them suitable for streaming audio.

He then had to find a reasonably priced, high quality amplifier that could accept audio inputs from a range of audio-visual devices used in the home.

Other design challenges followed as the project progressed. "I realised there were other things aside from the elec-

tronics," Boardman said. "The system needed to be easy to use, compatible with other hardware in the entertainment unit, the buttons had to be intuitive, and I needed to make sure the system wouldn't overheat. On top of all that it had to look good."

Boardman hopes to continue to develop his project for the consumer market as a higher-quality alternative to the wireless computer speakers which are currently available.

"Not many Australian audio companies sell a product like this to the average consumer. My goal now is to use this prototype to launch a high-end home theatre product to an audience other than the enthusiast market," he said.

"He found a hole in the home theatre market," says Boardman's supervisor, Darrell Elton, a lecturer in electronic engineering in La Trobe University's School of Engineering and Mathematical Sciences. "The only similar products available currently are the wireless computer speakers, and they don't have the hi-fi quality."

Darrell Elton saw the project's potential from the beginning, encouraging his student to begin by doing market research.

In what Boardman called a lucky coincidence, when his old amplifier blew up recently, he replaced it with his own model.

"So I now have my own prototype working beautifully in my lounge room!"



Engineering graduate Glenn Boardman with a prototype of the award-winning home theatre system he designed.

PHOTO: LA TROBE UNIVERSITY.

For a more comprehensive list of engineering events, visit Engineers Australia's online events calendar at [www.engineersaustralia.org.au/events](http://www.engineersaustralia.org.au/events)

## Electronics Engineering

**Conference: International conference on electronic materials** (5 days) Sydney 28 Jul. *Inquiries:* Helen Woodall 03 9326 7266, fax 03 9326 7272, email [helen@materialsaustralia.com.au](mailto:helen@materialsaustralia.com.au), web [www.aumrs.com.au/ICEM-08](http://www.aumrs.com.au/ICEM-08)

**Conference: 2008 international symposium on electrical insulating materials** (4 days) Mie, Japan 7 Sep. *Inquiries:* Dr Toshihiro Takahashi +81 46 856 2691, fax +81 46 857 5829, email [toshihiro@criepi.denken.or.jp](mailto:toshihiro@criepi.denken.or.jp), web [www2.iee.or.jp/~adei/ISEIM2008/index.html](http://www2.iee.or.jp/~adei/ISEIM2008/index.html)

**Conference: 2008 IEEE international symposium on electrets and workshop on charge storage and transport in organic thin films and devices** (4 days) Tokyo, Japan 15 Sep. *Inquiries:* Prof Takeo Furukawa +81 3 5228 8250, fax +81 3 3235 2214, email [tfurukaw@rs.kagu.tus.ac.jp](mailto:tfurukaw@rs.kagu.tus.ac.jp), web [www.rs.kagu.tus.ac.jp/ise13](http://www.rs.kagu.tus.ac.jp/ise13)

## Information and Communications Technology

**Conference: Measurement of speech, audio and video transmission quality in networks** (2 days) Prague, Czech Republic 3 Jun. *Inquiries:* email [holubjan@fel.cvut.cz](mailto:holubjan@fel.cvut.cz), web [wireless.feld.cvut.cz/mesaqin/index.html](http://wireless.feld.cvut.cz/mesaqin/index.html)

**Conference: 20th international conference on advanced information systems engineering** (5 days) Montpellier, France 16 Jun. *Inquiries:* email [bella@lirmm.fr](mailto:bella@lirmm.fr), web [www.lirmm.fr/caise08](http://www.lirmm.fr/caise08)

**Conference: ICITA 2008: 5th international conference on information technology and applications** (4 days) Cairns 23 Jun. *Inquiries:* email [icita@iee.org](mailto:icita@iee.org), web [www.icita.org](http://www.icita.org)

**Conference: 2008 international conference of computer science and engineering** (3 days) London 2 Jul. *Inquiries:* email [info@iaeng.org](mailto:info@iaeng.org), web [www.iaeng.org/WCE2008/ICCSE2008.html](http://www.iaeng.org/WCE2008/ICCSE2008.html)

**Conference: ACISP 2008: 13th Australasian conference on information security and privacy** (3 days) Wollongong 7 Jul. *Inquiries:* web [www.uow.edu.au/conferences/acisp%202008/index.html](http://www.uow.edu.au/conferences/acisp%202008/index.html)

**Conference: Multiconf-08: Conference in computer science, information technology, computer engineering, control and automation technology** (4 days) Orlando, US 7 Jul. *Inquiries:* web [www.promoteresearch.org](http://www.promoteresearch.org)

**Conference: IEEE 8th international conference on computer and information technology** (4 days) Sydney

8 Jul. *Inquiries:* 02 9514 4523, email [cit2008@it.uts.edu.au](mailto:cit2008@it.uts.edu.au), web [attend.it.uts.edu.au/cit2008](http://attend.it.uts.edu.au/cit2008)

**Conference: 2008 world congress in computer science, computer engineering, and applied computing** (4 days) Las Vegas 14 Jul. *Inquiries:* Professor Hamid R Arabnia, email [hra@cs.uga.edu](mailto:hra@cs.uga.edu), web [www.world-academy-of-science.org/worldcomp08/ws](http://www.world-academy-of-science.org/worldcomp08/ws)

**Conference: IWCE in association with 17th wireless & mobile comms conference** (3 days) Melbourne 23 Jul. *Inquiries:* 02 9080 4000, fax 02 9290 2141, email [info@iir.com.au](mailto:info@iir.com.au), web [www.iir.com.au](http://www.iir.com.au)

**Conference: Broadband Australia 2008** (2 days) Sydney 24 Jul. *Inquiries:* 02 9080 4307, fax 02 9290 3844, email [registration@informa.com.au](mailto:registration@informa.com.au), web

**Conference: 5th IET visual information engineering 2008** (4 days) Xi'an, China 29 Jul. *Inquiries:* Shuai Wan +86 29 8849 2714, email [swan@nwpw.edu.cn](mailto:swan@nwpw.edu.cn), web [vie08.qmul.net/index.php](http://vie08.qmul.net/index.php)

**Conference: Siggraph 2008: 35th international conference and exhibition on computer graphics and interactive techniques** (5 days) Los Angeles 11 Aug. *Inquiries:* web [www.siggraph.org/s2008](http://www.siggraph.org/s2008)

**Conference: Virtual worlds conference & expo** (2 days) Los Angeles 3 Sep. *Inquiries:* Tonda Bunge +1 512 484 5574, email [tonda@showinitiative.com](mailto:tonda@showinitiative.com), web [www.virtualworldsexpo.com](http://www.virtualworldsexpo.com)

**Conference: International conference on automated software engineering** (5 days) L'Aquila, Italy 15 Sep. *Inquiries:* web [www.di.univaq.it/ase2008](http://www.di.univaq.it/ase2008)

**Conference: Communications policy & research forum 2008** (2 days) Sydney 29 Sep. *Inquiries:* email [c.abad@networkinsight.org](mailto:c.abad@networkinsight.org), web [www.networkinsight.org/events/cprf08.html/group/6](http://www.networkinsight.org/events/cprf08.html/group/6)

**Conference: World congress on engineering and computer science 2008** (3 days) San Francisco, US 22 Oct. *Inquiries:* email [wcecs@iaeng.org](mailto:wcecs@iaeng.org), web [www.iaeng.org/WCECS2008](http://www.iaeng.org/WCECS2008)

**Conference: IEEE international conference on e-business engineering** (3 days) Xi'an, China 22 Oct. *Inquiries:* Hua Zhang +86 29 8266 8971, email [lcebe08@mail.xjtu.edu.cn](mailto:lcebe08@mail.xjtu.edu.cn), web [conferences.computer.org/icebe](http://conferences.computer.org/icebe)

**Conference: ICSEA 2008: 3rd international conference on software engineering advances** (6 days) 26 Oct Sliema, Malta. *Inquiries:* [www.iaria.org/conferences2008/ICSEA08.html](http://www.iaria.org/conferences2008/ICSEA08.html)

**Conference: International conference on computers and industrial engineering** (3 days) Beijing 31 Oct. *Inquiries:* web [www.38cie.net/conference.aspx](http://www.38cie.net/conference.aspx)

**Conference: 2008 international conference on computer science and software engineering** (3 days) Wuhan, China 12 Dec. *Inquiries:* email [csse@highsci.org](mailto:csse@highsci.org), web [www.highsci.org/csse2008submission/website/csse/index.aspx](http://www.highsci.org/csse2008submission/website/csse/index.aspx)

**Conference: 5th international conference on electrical and computer engineering** (3 days) Dhaka, Bangladesh 20 Dec. *Inquiries:* email [icecetech@eee.buet.ac.bd](mailto:icecetech@eee.buet.ac.bd), web [www.buet.ac.bd/eee/icece](http://www.buet.ac.bd/eee/icece)

**Conference: Information online 2009** (3 days) Sydney 20 Jan, 2009. *Inquiries:* Emma Waygood 02 9437 9333, fax 02 9901 4586, email [infoonline2009@conferenceaction.com.au](mailto:infoonline2009@conferenceaction.com.au), web [www.information-online.com.au](http://www.information-online.com.au)

## CALL FOR PAPERS

**Conference: Australasian computer-human interaction conference** (5 days) Cairns 8 Dec. *Inquiries:* web [www.ozchi.org/mediawiki/index.php/OZCHI\\_2008](http://www.ozchi.org/mediawiki/index.php/OZCHI_2008).

**Abstracts due:** 27 Jun.

## ENGINEERS AUSTRALIA SALARY AND BENEFITS SURVEY 2007



This publication, now in its fifth year, offers a different perspective on salaries and benefits as the information was derived from employers' HR departments. The online survey was commissioned by Engineers Media, undertaken by New Focus Research Pty Ltd and completed in December 2007.

Compiled with input from 143 engineering employers, employing approximately 13,000 engineers, this publication gives you the latest data on gross base salary and salary packages by total sector, discipline and grade. Separate tables analyse the data by private and public sectors and by location.

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## Switch for managing consoles

The RMS-8R4-CE console management switch is the tool for economical remote network management, which is available from Interworld Electronics.

It provides eight RS232 ports to access your equipments console ports, four power outlets to perform remote reboot or on/off control plus an internal modem with dial-back features for secure out-of-band access.

System administrators can access the switch using a HTTPS/SSL secure web browser, SSHv2 encrypted telnet, or out-of-band via the internal modem or the local terminal port.

The eight RS232 serial ports can be individually accessed by number, name or group. Each serial port can be separately configured using simple menu driven commands to set the port password, data rates, flow control and other operating

parameters.

The full matrix capability allows any two ports on the switch to be connected. The switch supports address-specific IP security to prevent unauthorised access to command and configuration functions and two different levels of user security.

The supervisor level, which is intended for use by system managers and other administrators, provides access to all port functions, operating features and configuration menus.

It can be used to support co-location applications, since users are only permitted to view status and connect to the ports allowed by their user name and password.

The buffer mode allows individual ports to capture and store incoming data, such as error and status messages received from attached console ports.

This snapshot of the last data received can be viewed, saved or erased by the system operator at any time. Each of the four AC power outlets can be assigned plug names and plug status can be viewed.

Outlets can be individually switched on, off or re-booted using plug numbers or names. For power sequencing, each plug can be assigned a power-up time and will wait for the selected duration before turning on the next plug.

The internal 33.6Kb/s modem provides secure dial-in capability. A password feature prevents unauthorised access to sensitive command functions.

Each menu-defined password can be assigned an individual user name for easy reference and an optional dial back number, which instructs the unit to call the user at a predefined number before allowing access.

[More information – Qikreply 20](#)

## Mobile PC with optional webcam

Pioneer Computers Australia has released DreamBook Light IL1, in the ultra mobile PC category.

It has a 800x480 7 inch LCD with backlighting, VIA C7-M 1GB processor, a VIA VX800U chipset, 40GB hard disk drive, stereo speakers and weighs 1.1kg. It supports system memory up to 1GB. According to the company, the two-cell batteries last up to 2.5 hours. Optional four-cell batteries may last up to four hours and six-cell

batteries may last up to six hours.

It has two USB ports, a headphone out, mic-in, DC-in, an RJ-11 port, RJ-45 port, headphone out, mic-in, internal mono MIC, internal stereo speakers and VGA-Out. It has wireless 802.11b/g functions and built-in Ethernet. It can read memory cards through a 3-in-1, SD/MMC/MS reader. A webcam is available as an option.

[More information – Qikreply 18](#)

## PCI card for military applications

Data Device Corporation (DDC), represented in Australia by Allied Data Systems, has announced the introduction of a new PCI-104 card, the BU-65577C. It has up to four dual-redundant military standard 1553 channels, five user-programmable digital discrete I/Os, selectable external or internal time-tag clock and an inter-range instrumentation group (IRIG) time synchronisation input. It can be used in flight data recorders, displays and other avionics systems.

The card uses DDC's extended enhanced mini-ACE (E2MA) architecture. E2MA supports new standard features for each 1553 channel such as 2MB RAM with parity per channel, 48-bit/1µs or 100ns time tag and a built-in self-testing function.

The hardware offload engine provides low PCI bus and host CPU use while storing 1553 monitor data in a IRIG-106 chapter 10 format.

The card includes a high-level C application programming interface library that supports architectural features and driver support for Integrity, VxWorks, Linux and Windows for MIL-STD-1553 functionality. The high-level library functions abstract all register accesses and memory allocation so that no specific hardware knowledge is required.

[More information – Qikreply 28](#)



The laptop has a seven-inch LCD, 1GB processor and weighs 1.1kg.

### Instrumented system is ready for latest Windows

Yokogawa has released an enhanced version of its ProSafe-RS Safety Instrumented System, ProSafe-RS R2.01.00 which runs on Windows Vista.

The system offers users enhanced security for PC components and keeps plants secure by restricting communications, controlling access to folders and the registry, and preventing unauthorised access from outside.

The system is designed for use in oil, natural gas, petrochemical and other process industries that use systems for emergency plant shutdown, fire prevention/ fighting, and burner management.

It helps prevent accidents by detecting unusual conditions in plant operations and taking emergency actions such as shutting down the plant. Unlike conventional safety instrumented systems and distributed control systems, which are regarded as having different roles/functions and operate separately, the operation of the ProSafe-RS series can be fully integrated.

Furthermore, an independent certification body has certified that ProSafe-RS conforms to the IEC61508 international



*The safety instrumented system now runs on Windows Vista.*

safety standard and can be used in SIL3 applications. As a result, ProSafe-RS and has been installed in more than 300 proj-

ects worldwide since its release, according to the company.

*More information – Qikreply 16*

### GPS receivers with 20 channels

Measuring 10.4mm x 14.0mm x 2.6mm, the Fastrax IT321 GPS receiver available from Glyn High-Tech Distribution is designed for applications which require a small size and navigation performance with 20 channels.

The receiver is an OEM GPS receiver including a TCXO oscillator, real time clock and low noise amplifier. It has a SiRFstarIII

LT chipset with ROM-based firmware.

It is designed for navigation applications such as car navigators, asset tracking devices, sports accessories and handheld battery operating devices like mobile phones, PDAs and personal navigation devices. The receivers have high sensitivity.

The receiver's UC322 module provides signal processing from embedded GPS

antenna to serial data output in messages according to the National Marine Electronics Association standard or SiRF binary. The radiation gain of the embedded chip antenna aids the GPS signal levels.

The antenna operation is optimised for a 50mm-110mm ground plane width.

*More information – Qikreply 17*

### Putting internet telephony onto home phones

PC Range is distributing a sub-\$100 device that allows anyone with a broadband

service to extend the functionality of internet-based telephony to their home handsets.

The Minitar MVA11A VoIP analogue terminal adapter plugs into a broadband router, connecting the computer to a standard telephone handset.

Once programmed with a voice over internet protocol (VoIP) telephone ser-

vice, calls can be made to anywhere in Australia for as little as 10c untimed and overseas calls for a few cents a minute.

The adapter provides caller ID, consultation hold, call waiting, blind call transfer, attended call transfer, call forwarding and three-way conferencing. The unit is easy to configure through a web interface and can be updated through the handset dial-pad.

It has a feature called voice over data prioritisation, which adds to the call quality.

Apart from an analogue telephone adapter, the switch has a built-in router which reduces the complexity of sharing the service with a computer. It can also rely on the standard phone service if the power goes off or if the broadband service is interrupted.

*More information – Qikreply 19*



*The analogue terminal adapter plugs into a broadband router.*

## Expanded router range for mobile hotspots

Billion Australia has extended its range of mobile hotspot routers this month with the launch of two new firewall routers that support both wired ADSL2+ and wireless 3G broadband connectivity. They are available from distributor PC Range.

One model in the BiPAC 7402X Series of virtual private network (VPN) firewall routers also includes support for 802.11g wireless local area networks.

The series has two models. The first is the 7402GX which has support for wireless 802.11g and IPsec VPN. It has a USB port for 3G connectivity and auto failover between connection modes.

The 7402X has all those features and is also equipped with a built-in four-port full-duplex 10/100 switch to allow easy connection of other wired Ethernet devices. This allows the connection of up to four PCs, or additional hubs or switches, to create a larger network.



*The firewall routers support both wired ADSL2+ and wireless 3G broadband connectivity.*

The integrated router function and a USB port can share an ADSL2+ broadband or a 3G-based internet connection, using a 3G USB modem.

The routers support automatic failover to ensure an always-on Internet

connection in the event that one internet service fails.

The 3G support has been tested with Telstra, BigPond, 3, Vodafone, Optus and iBurst.

*More information – Qikreply 26*

## Generating noise and waveforms for signal testing

Agilent Technologies has released the 81150A pulse function arbitrary noise generator, which has the signal quality and waveform range for general purpose bench tests or advanced serial data stress tests. It can be used for pulse generation.

The Agilent pulse function arbitrary noise generator can be used in conjunction with Agilent Technologies' 5/6/80000

Infiniium real-time oscilloscope or DCA-J sampling oscilloscope for serial data testing.

It is intended for engineers who need to create ideal and worst-case signals to get accurate and accelerated insight into devices and designs such as semiconductor circuits, sensors or modulators.

It can produce calibrated and deterministic noise for repeatable stress tests. Vari-

ous stress tests can be achieved by simply adjusting the crest factor, an indicator of signal quality using peak-to-peak and root mean square voltages.

Other features include modulation capabilities up to 10MHz and more than 80 measurement types and differential output and high-voltage amplifier for modern devices.

*More information – Qikreply 24*

## Ethernet switch has warning alerts for port breaks

The Moxa EDS-309 series of unmanaged switches from Paqworks includes nine-port ethernet switches with three fibre ports for an industrial Ethernet connection. It has a built-in relay warning function that alerts maintainers when power failures or port breaks occur.

Two models are available – with an operating temperature range of 0°C to 60°C, and the other one with extended operating temperature range of -40°C to 75°C.

These models are designed for standard and extended operating temperatures, and go through a 100% burn-in test to ensure that they fulfil the special needs of industrial automation control.

Other features include redundant dual

24 VDC power inputs, broadcast storm protection, relay output warning for power failure and port break alarm, -40°C to 75°C operating temperature range and a rugged hardware design for industrial environments.

*More information – Qikreply 22*

## More robots

Nachi Australia has expanded its line up of robots available in the Presto ST series. The ST70L and ST100 are the new models to join the existing ST166 and ST200 robots.

*More information – Qikreply 21*

For more information on any of these products, send an email to [ralph@engineersmedia.com.au](mailto:ralph@engineersmedia.com.au) with the subject headline "Monitor Qikreply".

Your contact details and the Qikreply number of the product should be included in the body of the email.