Success Story:
Swinburne University

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Location:
Melbourne, Australia

Segment:
Data Centre

Everything runs off the network. Therefore maintaining network services is critical.

Joe Cusmano,
Data Centre Manager,
Swinburne University

Background

Within the past few decades information technology has become an integral part of the academic institution. From kindergarten up, parents expect that their children's lessons will include access to computers, up-to-date applications and the Internet. At university and TAFE levels, it is almost inconceivable that an institution could function educationally or administratively without the support of a solid information and communications technology (ICT) infrastructure.

At Swinburne University of Technology for example, an extensive wide area network involving more than 150 servers spans five Melbourne campuses and connects to a Malaysian campus to support over 50,000 academic and administrative staff, and students. The network runs data, video and voice. It is the basis for the University's phone system and is essential not only for providing teaching and learning services, but it also supports research programs, student and administrative functions.

Challenges

A reliable power supply is essential if the IT system is to provide the level of availability that is required by the university. As Joe Cusmano, Data Centre Manager at Swinburne puts it, "Everything runs off the network. Therefore maintaining network services is critical. We can't afford to have 2,000 plus staff sitting around being non- productive for hours because we have no phones and no computers."

Solution

The University's IT architects have invested carefully in a number of protective measures designed to maximise network up-time. Most recently this has involved building a new data centre for primary IT activity and establishing the previous data centre as the University's new disaster recovery centre. In addition to providing a margin of safety and increasing IT capacity, (the new data centre houses a total of 144 server racks), the move has enabled Swinburne to take advantage of the latest green technologies, thereby reducing its environmental footprint.

Cusmano notes, "Both data centres are maintained on the same campus but are located in different buildings and on different power grids. In fact the new data centre receives power from two different substations which adds to the security of maintaining service. If one grid or substation goes down, we simply run the centre off the other grid."

Another long-term network protection measure has been the use of UPS systems. Swinburne's IT department became one of the Australian education sector's early adopters of UPS and generator systems in the early '90s after experiencing less than perfect power at its campuses. Today Swinburne boasts UPS system support for all critical IT equipment on every campus, with almost 60 Eaton UPS units installed for a combined rating of close to 3 megawatts

"Our most recent UPS purchases were two Eaton 9395 UPS systems for the new data centre," Cusmano says. "Both are 500 kilowatts, backed up by a 1.1 megawatt generator. Eaton busways, which are located under the floor connect power to the systems, providing redundancy so that if the power supply to one goes down, we simply switch over to the alternative power source. It gives us a great deal of flexibility."

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The task of keeping an eye on so many - and such widely spread - UPS systems has been made easier for Cusmano and his team through the use of Eaton's Power Xpert power management software.

The software centrally monitors all of Swinburne's three phase and single phase UPSs over the WAN and provides in-depth reporting and analysis of power-related activity. It includes single-line diagrams and detailed UPS information, and monitors system status of other elements in the critical power distribution system — such as the generators. The information is continuously displayed to IT staff on a rolling screen in the University's help desk area.

All system alarms are fed into a distribution list of on-call IT personnel. which specifies each person's availability. The list finds the first available recipient and sends them an SMS alerting them to the problem. An email is also sent and the alarm will keep sending at a specified time interval until someone acknowledges it, or the alarm returns to normal.

"We've been using monitoring software for years but only recently updated to PowerXpert and this has given us a lot more functionality. It integrates well with all our different UPS models and ePDUs (Eaton enclosure-based Power Distribution Units) to show information such as how much power we are using, the current state of the batteries or what our inverters are doing. We can tell what each phase is running at, and even the temperature of the room that each UPS is sitting in," Cusmano explains.

Results

Asked to sum up the major benefits of UPS technology to the University, Cusmano points to the network's performance record, saying, "We have an average annual uptime of 99.8% availability. We may have to drop part of the network from time to time for maintenance but we have hardly any unexpected downtime at all. We've stuck with Eaton all these years because we've never had any problems with maintenance or customer service. We've had no failures. Their UPS equipment has helped to create a very reliable system," Cusmano adds.

"The level of reporting that the Power Xpert monitoring software provides allows us to take a more proactive role, especially when it comes to energy management. We use the statistics and reports to identify ways of minimising power consumption. For example, if we're running too many servers perhaps we can do something about it. It's part of our plan to find ways of re-using the data centre's energy. One thing we are currently considering is the use of solar panels in the data centre. Another is the potential to re-use hot air and cold air and put it back into the building," he adds.

Eaton Power Xpert Software

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