



OVERVIEW

As part of an effort to improve disaster recovery planning and improve systems management, South Australia's City of West Torrens worked with Diaxon to plan and implement a major server virtualisation and redundancy strategy that will ensure its 250 employees can continue to service the Council's 54,000 residents even in the event of unexpected disaster.

Located immediately southwest of the Adelaide CBD, the City of West Torrens (WTCC) provides a full range of local government services to more than 54,000 residents across 24 suburbs. Notably, one-third of WTCC's catchment area is dedicated to the Adelaide Airport, which with a recent major expansion and a growing international presence has seen air traffic volumes increase dramatically in recent years.

Customer Success: City of West Torrens gets disaster-ready with Diaxon

The Challenge

As with any major local government body, WTCC maintains a broad range of administrative and planning applications, with 30 key servers and databases holding a vast array of critical data that must be continuously available when needed. Ratepayer information, asset information, complex geographical information systems and other sophisticated applications are all utilised continually by the Council's 250 employees.

In the past, uninterruptible power supply systems meant that systems administrators could conduct a controlled power down sequence in the event of a power failure. Data was backed up nightly to disks and tapes, which would be used to restore operational status in the event of an unforeseen disaster. This process – involving the acquisition, configuration, commissioning and testing of replacement servers – would have taken up to three weeks before the Council was operational again, according to Chris James, Manager Information Services, WTCC.

After fire devastated a neighbouring Council, however, WTCC administrators began carefully assessing the potential risks the Council faced – which included flooding and, given the growing flow of air traffic over its offices, an airplane crash. WTCC began formulating a technological and policy-based disaster recovery (DR) plan that would ensure it could remain operational in the face of unforeseen events. This effort was also used as an opportunity to update the Council's information systems strategy, utilising current technology to optimise its IT Server architecture.

The Solution

Early experiments with server virtualisation technology had produced promising results. Instead of requiring their own dedicated system, numerous virtual machines run as files on a single machine. Because they are just data files, they can be seamlessly moved between systems – or, eventually, from the primary to the backup data centres – without interrupting the availability of the applications they're running.

Recognising that a virtualised environment would help meet WTCC's disaster recovery objectives, the Council enlisted Diaxon to plan and implement a virtualised server environment.

“Virtualisation made sense but it also made timely disaster recovery affordable and do-able”





“Diaxion were selected for the project because they focus on providing virtual solutions and have impressive personnel that combine technical expertise with the ability to work closely with the business.”

Chris James
Manager, Information Services
City of West Torrens

The Solution Continued

said James. “Diaxion were selected for the project because they focus on providing virtual solutions and have impressive personnel that combine technical expertise with the ability to work closely with a business. Several other suppliers were looking to get into this area, but they lack the in-house experience and expertise. Diaxion were comfortable with it, and we were comfortable with them.”

Diaxion undertook a complete assessment of the Council’s current technology environment, identifying the areas most likely to benefit from rationalisation. For an entire month, the Diaxion team carefully monitored 26 of the Council’s servers, observing their CPU workload, memory usage, memory workload, disk input and output, and network load.

The project team soon drew up a comprehensive two-stage plan that included first virtualising a large number of the Council’s servers, then replicating the liberated servers to a second physical site to provide full disaster recovery capabilities. Throughout the plan, 24 of the 26 physical servers would be virtualised and consolidated onto just three or four physical servers.

Within the first month of the project, WTCC and Diaxion were able to convert an initial tranche of 15 physical servers into virtual machines, running on top of the VMware ESX Server hypervisor on four IBM X3650 servers, each with two dual-core 3GHz CPUs and 16GB of RAM. PlateSpin PowerRecon was used during capacity planning, while VMware Converter and PlateSpin PowerConvert facilitated the virtualisation of WTCC’s application environment by converting existing servers into virtual server images.

The Benefits

The rapid success of the virtualisation effort proved the viability of the migration project, encouraging WTCC and Diaxion to continue with the virtualisation of the rest of the Council’s servers. Virtualising the data centre environment freed up a large number of physical servers, some have been reused to construct the disaster recovery capability.

To ensure continuous availability, virtual machines can be mirrored daily between the primary and backup data centres over a dedicated fibre-optic connection. This configuration also significantly improves business continuity capabilities: in the event of a primary server outage, the Council’s application environment can easily be switched to the redundant site or to any other third-party facility capable of receiving the virtual machine files.

“Rather than build disaster recovery over our old server environment, it made sense to virtualise and then develop disaster recovery over our new Virtual Centre” said James. “It’s a lot smaller footprint; deploying new servers is now a drag-and-drop exercise; entire virtual machines can be backed up; and restoring systems can happen in minutes rather than days or weeks.

Even in normal operation, however, the virtualised environment has paid significant dividends for WTCC. Payroll, Web services, and intranet systems are running faster than before; changing out equipment is significantly quicker than in the past; new servers can be brought online in minutes when needed, rather than days; and a reduction in the number of leases will slash server leasing costs by 80% over the next two years.

“The way it panned out has been as good as we could have hoped for,” said James. “We’ve designed a lot of robustness, reliability and fallback into the solution we’ve got. Our targeted Diaxionks have been successfully achieved with network administration staff working incredibly well and productively.”



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The Future

WTCC’s successful work with Diaxon is just the beginning of the Council’s systems transformation. Based on the success of its server virtualisation efforts, James is considering ways the Council could

further reduce its desktop management burden. One solution would be to use a virtual desktop infrastructure, which delivers user desktops to existing PCs or dedicated low-maintenance devices. This approach would shift delivery of desktop applications onto the virtual server environment; the flexibility of virtualised desktops means that virtual PCs could be added as necessary and performance maintained by ensuring adequate server power is available.

In the long term, WTCC’s ability to easily move its virtual servers from system to system may pave the way for an even more comprehensive disaster recovery environment. The Council is considering the establishment of a physically distant secondary site where similarly configured servers would provide additional protection from disasters. A ‘shared services’ model, in which WTCC and numerous neighbouring Councils would jointly develop a central disaster recovery environment that is physically distant from their offices, would further reduce costs and help WTCC spread its risk further.

No matter how the Council chooses to execute its disaster recovery strategy, it has already reaped significant benefits from the virtualisation and consolidation exercise – and the investment will continue to drive its infrastructure transformation well into the future.

City of West Torrens - Company Profile

The City of West Torrens is the second oldest metropolitan Council in South Australia. Encompassing an area of around 36 square kilometres, it boasts a population of 50,500 representing a large variety of nationalities and cultures of the modern world.

The Council is in an attractive metropolitan location, given its proximity to the Adelaide central business district, the coast and easy access to a vast range of retailing opportunities and employment. Being responsible for the current and future livelihood of the resident people, infrastructure and businesses it continues to come under pressure for additional housing development and new business opportunities. Add to the mix the State Government’s Draft Planning Strategy for Metropolitan Adelaide that includes population growth targets, it is vital that carefully considered strategies and plans are in place at the local level.

The Council has adopted a series of extensive strategic planning initiatives to deliver on the Council’s mission, chief among them a five year Community Plan 2004 to 2009 that provides a map and trail for the future. The Community Plan is supported by nine key strategic directions that are vital to the future wellbeing of the City of West Torrens.

The strategic directions encompass:

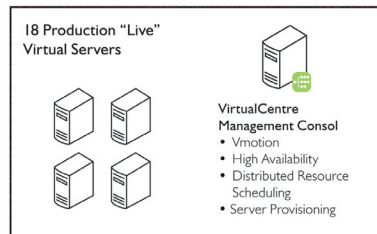
- Adelaide Airport Development
- City Development
- Rating and Fiscal Management
- Traffic Management
- Waste Management
- Amenity and Environment
- Economic Development
- Road and Pedestrian Network
- Storm water Management



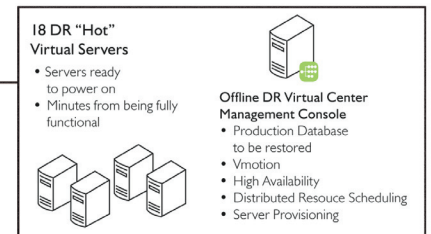


Technology Solution

Production Virtual Infrastructure

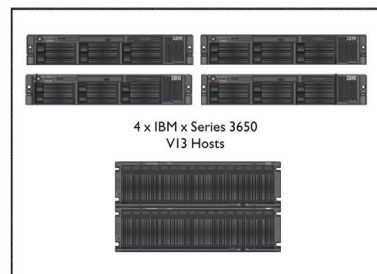


DR Virtual Infrastructure



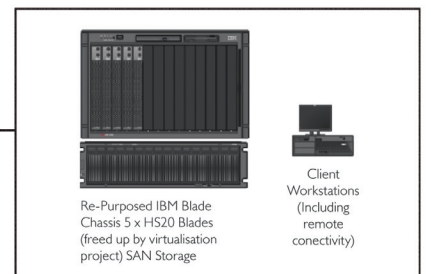
Vizioncore vReplicator Software based VM replication

- Nightly replication of VM's
- Differential replication



ESX V13 Enterprise Edition Cluster

Prod / DR Site Link



ESX V13 Enterprise Edition Cluster

Technology partners



Virtual Infrastructure Platform



Capacity Planning and Server Migration (P2V)



VM Replication for Disaster Recovery

The best IT solutions are not about providing a single solution to a single problem but rather about how the solution complements the entire organisation's IT strategy and how it might then be optimised across the organisation.

IT Strategy and Optimisation is a holistic approach to addressing and developing overall IT strategies to address individual business goals and to then integrate them with an IT solution that is optimised to achieve those goals.