

Hitachi Storage Solutions at Work

Port of Brisbane Corporation

Industry

Transportation: Transport and Facilities Management

Solutions—Business Continuity

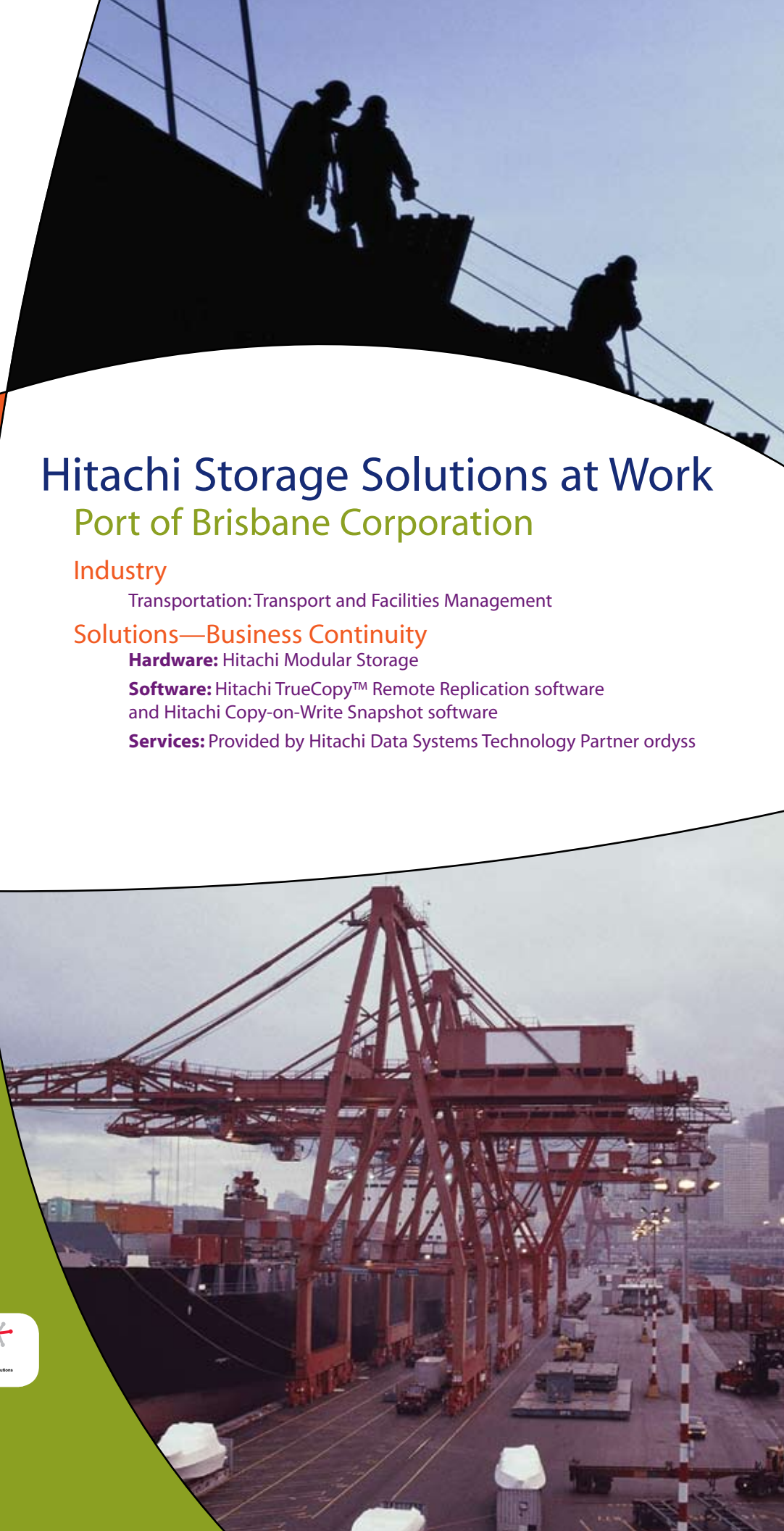
Hardware: Hitachi Modular Storage

Software: Hitachi TrueCopy™ Remote Replication software
and Hitachi Copy-on-Write Snapshot software

Services: Provided by Hitachi Data Systems Technology Partner ordyss

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IT Manager
Port of Brisbane Corporation



Hitachi Data Systems Helps Protect Critical Seaport Infrastructure with Stretch Cluster Solution

The Port of Brisbane, Australia, expects to double ship-freight tonnage on its docks by the year 2025 and is building new wharves to accommodate the growth in shipping traffic. To shore up existing data storage, Port technology officials engaged Hitachi Data Systems and its Technology Partner ordyss to build a highly available and scalable network environment and one of the world's first Microsoft stretch clusters using Hitachi storage.

The ceaseless movement of cargo culminates in ports around the world. The Port of Brisbane Corporation in Queensland operates Australia's fastest-growing container port, with more than 2,000 ships and 25 million tons of cargo loading or unloading each year. While publicly owned with statutory authority, the corporation functions on a commercial basis to efficiently and cost-effectively manage Port services, security, property development, and environmental and community activities that contribute to Queensland's economy. These mission-critical operations require the corporation to be prepared for everything from security breaches and emergency procedures to natural disasters or equipment malfunctions.

Examining the Port's Growth Challenges

Brisbane's ship traffic is forecasted to more than double by the year 2025, with approximately 55 million tons of freight passing through the Port annually. Port officials were concerned about being able to accommodate the anticipated increase of ships docking and departing from the Port—as well as the growth of critical data volumes that the corporation needs to retain to meet heightened security mandates. One such regulation, the International Ship and Port Facility

Security (ISPS) Code, requires port authorities to electronically preserve copies of cargo reports and other documentation for every ship loading and unloading there.

In addition to constructing new wharves and urban renewal projects to meet expansion needs, the corporation wanted to proactively plan for the onslaught of data storage requirements. Tony Marles, the corporation's IT manager, determined that a highly available and scalable storage area network (SAN) design would meet the aggressive growth and business continuity needs.

"The storage capacity and performance of our IT infrastructure are something like the ships that come and go through our ports: size and speed affect the rate in which critical materials—in this case, data—reach their intended destinations. We want to build a really stable, really fast IT vessel," Marles says.

Shoring Up Business Continuity Requirements

To shore up the existing technology infrastructure and meet the swell of data demands, Marles evaluated both near-future and longer-term requirements. The corporation managed a single data center with rack-mounted Microsoft Windows servers, one Hewlett-Packard storage system, and local drives with

direct-attached storage. The storage setup had local redundancies, such as RAID and power protection, with centralized backup to tape that was then stored offsite.

Marles wanted to focus on two key priorities: building a scalable SAN, enabling high availability of critical systems and increasing storage capacity; and ensuring business continuity capabilities by improving backup windows and facilitating true disaster recovery in the event of major failure. In addition, Marles needed a disaster recovery facility—or hot site—to mirror the organization's primary production databases in real time and keep operations running smoothly.

"We realized that migrating the data and services might be a challenge, so minimizing any impact on our end users was a critical success factor, too," says Marles.

Marles engaged Hitachi Data Systems as well as its Technology Partner ordyss to help build a SAN environment with stretch clustering that would meet the Port of Brisbane Corporation's aggressive business and technical requirements.

Stretching SAN Connectivity for High Availability

Hitachi Data Systems and ordyss answered the call for high availability of critical systems by constructing one of the world's first stretch cluster configurations for Windows. A traditional storage cluster allows independent servers to share storage as a single system in one location. Clusters help protect against downtime by eliminating any particular point of failure within any server, while still providing a unified interface to the user.

Stretch clusters physically separate or "stretch" nodes over two or more sites via Fibre Channel connectivity to mirror data between locations and achieve high availability. Stretch clustering works by concurrently writing data to the local storage system and the remote storage system, extending the capabilities of a single failover cluster solution and guarding against downtime with automated failover.

"The Hitachi stretch cluster ensures the transactional consistency we need and makes failover transparent to users. We improve performance, reliability, and fault-tolerance across the entire enterprise—just like that," says Marles.

At the foundation of the Port's inventive stretch SAN architecture are two Hitachi modular storage systems and two Hewlett-Packard blade servers. Microsoft Windows Server 2003 Enterprise Edition was used to configure file share, e-mail, and print services in the new cluster environment. Hitachi TrueCopy™ Remote Replication software copies the data between Hitachi systems.

The purpose-built disaster recovery site is harbored at the corporation's operations base, nearly five miles away from the primary site, linked by high-performance optical fiber. Further buffering the remote site are an uninterruptible power supply unit to protect against power failures, sags,

Delivering a Ton of Data Storage Benefits

What did the Hitachi storage cluster accomplish at the Port of Brisbane? In addition to strengthening disaster preparedness and readying for rampant business growth, the stretch SAN configuration provides a nimble and reliable way to handle the unexpected perils at port.

Twelve months after implementation, Marles is happy. He has a highly available network for critical services, with interruption of less than two minutes in the event that site failover is required. Hitachi storage clusters eliminated backup windows, boosted replication, and increased uptime, which has helped the Port of Brisbane to improve enterprise operations and staff productivity. And he recently added another terabyte of storage.

Marles adds, "One of the reasons this complex project has been so successful is that ordyss took the time to understand our business needs. Throughout the entire project we felt totally informed and involved. Our IT team and the ordyss team worked very closely together and ensured the relevant knowledge was imparted to our people so that we would own the solution."



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or surges, and a backup generator for power outages.

Consolidation of data and replication to the second SAN were completed to ensure that critical information was secured and readily available. The IT team can now offload backup copies at any time of day, using Hitachi Copy-on-Write Snapshot software for high-velocity, nondisruptive snapshot data replication. Tape libraries are housed at the secondary location, and full failover and backup/restore procedures are tested every six months as part of the business continuity plan.

"Prior to building our Hitachi SANs, this level of scalability would have been cost prohibitive and caused a significant disruption to IT services. Today, we're confident that our data is safe," says Marles. "The Hitachi storage cluster solution allows the Port to provide greater security and expanded services that simply were not possible before this implementation."

Partner Spotlight

ordyss is a technology solutions provider committed to excellence in the provision of commercially focused and innovative solutions for corporate business. Established in 1988, their services range from IT system design, installation, and management to corporate IT security and compliance, help desk services, and a range of managed IT services, including managed e-mail, Web, storage, offsite backup, and network monitoring.

Hitachi Data Systems awarded its "Technology Solution of the Year" to ordyss in recognition of its advanced technical foresight and competence on the Port of Brisbane Corporation SAN project. The project was also nominated for a global Microsoft Partner Program Award.

Visit ordyss at www.ordyss.com

Hitachi Data Systems Corporation

Corporate Headquarters

750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
www.hds.com
info@hds.com

Asia Pacific and Americas

750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
info@hds.com

Europe Headquarters

Sefton Park
Stoke Poges
Buckinghamshire SL2 4HD
United Kingdom
Phone: + 44 (0) 1753 618000
info.uk@hds.com

Australia Headquarters

Level 3
82 Waterloo Road
North Ryde NSW 2113
Phone: + 61 (2) 9325 3300
info@hds.com

New Zealand Headquarters

Level 20
ASB Bank Centre
135 Albert Street
Auckland
New Zealand
Phone: + 64 (9) 357 5082
info@hds.com

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SS-018-00 YR October 2006