

S U C C E S S S T O R Y

# Hitachi Storage Solutions at Work

## Computer Sciences Corporation (CSC)

**INDUSTRY** Services/Information Technology

**SOLUTIONS** **Complex Data Migration/Consolidation**  
**Hardware** — Hitachi Universal Storage Platform™  
Hitachi Network Storage Controller  
**Software** — Hitachi TrueCopy® Synchronous/Asynchronous  
**Services** — Hitachi Data Systems Global Solution Services



“The combined experience of CSC and Hitachi Data Systems in data migration projects ensured that distance proved no obstacle to a large scale relocation of IT operations from the US to Australia.”

*Danny Willmott*  
Director, Managed Computing Services  
Computer Sciences Corporation Australia



# Hitachi Data Systems Solutions Help CSC Seamlessly Offshore Critical Business Applications to Australia.

Computer Sciences Corporation (CSC) is a global leader in providing technology-enabled solutions and services through three primary lines of business: Business Solutions and Services, Global Outsourcing Services and the North American Public Sector. When the possibility of relocating mainframe operations from the United States to Australia arose, CSC chose the proven expertise of Hitachi Data Systems to ensure a successful migration.

Headquartered in Falls Church, Virginia, CSC has approximately 91,000 employees in 80 countries and reported revenue of US\$17.3 billion. CSC has been operating in Australia since 1970, capitalising on the expertise of its global operations to provide strategic local solutions. CSC's advanced capabilities include systems design and integration, information technology and business process outsourcing, applications software development, Web and application hosting, mission support and management consulting.

Following a decision to consolidate its San Diego data centres, CSC was presented with the opportunity to relocate its Financial Services Group mainframe operations from the U.S. to Australia. The rationale for the

move was CSC Australia's extensive mainframe expertise, exceptional service quality for existing mainframe customers in the region and ability to deliver at a competitive rate.

## Meeting the Long Distance Challenge

The challenge was to migrate over eight terabytes (TB) of business critical applications 12,000 kilometres (km) in real time, maintaining the integrity of the data without impacting business operations. CSC and Hitachi Data Systems had a proven track record, previously partnering to successfully migrate mainframe applications over a distance of almost 20,000km, a world first.

The migration solution would have to accommodate the following:

- 1580 MIP processing mainframe environment
- 9 IBM® z/OS® LPARs across 4 zSeries® processors
- Hitachi Universal Storage Platform™
- 7.7TB of primary usable capacity — 2600 x 3390 Mod 3 volumes
- 3.1TB of secondary "tape" capacity — 364 x 3390 Mod 9 volumes

In addition, CSC's Financial Services Group in Australia needed ongoing reporting data to be available to ensure banking systems software and application development projects were not impacted.

The entire data centre consolidation, including the San Diego system shut down, testing and data migration, and the Australia system boot up, data integrity testing and system validation for applications and links along with testing was completed within the six month deadline.

"Having worked closely with Hitachi Data Systems before, we had complete confidence that together we would deliver," said Director of Managed Computer Services at CSC, Danny Willmott.

## Telephony-based Migration Provides the Solution

With a 12 hour downtime constraint, traditional means of transferring data over distances by downloading to tape and then physically transporting the tape from the U.S. to Australia could not be used.

The special alternative solution was to transfer the data via a telecommunications link, ensuring reliable migration of critical data over an imperfect communications channel. The CSC Australia/Hitachi Data Systems solution had already been proven and no other vendor was able to demonstrate capability with such a long distance migration.

## Reliability and Availability Are Critical for Success

Although a migration from one Hitachi storage system to another may seem simple, the project's scale required a considerable amount of infrastructure support. This included using a Hitachi Network Storage Controller — a modular enterprise storage platform — as staging cache between the source and target Hitachi Universal Storage Platform™. In addition to ensuring smooth data transfer rates between

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environments, the cache also protected existing production workloads by relieving the production environment of long distance replication responsibilities. An additional benefit was reduced telecommunications costs for the migration — because latency was not a concern, only a single OC3 ATM link was required between San Diego and Melbourne.

## An Australian “First” for Storage-based Replication Technology

The Hitachi storage platform provided the architecture for superior levels of data consolidation with data replication simplified and unified. The use of multiple disk buffers enabled transmission of data without impact to normal production systems. Hitachi ShadowImage® Heterogeneous Replication, Hitachi TrueCopy® Synchronous and Hitachi TrueCopy Asynchronous software were critical elements in the solution. These Hitachi software modules provided a nondisruptive, high speed data replication both in-system and across distances ensuring that multiple copies of mission critical data were immediately available. This minimised data corruption risk and ensured a rapid recovery or continued availability in the event of an outage.

The project was entirely performed, monitored and managed from Australia, even though the primary data was in the U.S. This included the actual migration configuration and activity processes. This approach had been used by Hitachi Data Systems and CSC earlier in a 20,000km migration and was an Australian “first” in terms of the scale and distances involved. No one had previously used storage-based replication technology across distances of 20,000km, or even 12,000km.

## Preliminary Tests Confirm Solution Viability

To ensure a successful result, CSC and Hitachi Data Systems conducted an extensive exploration and validation process before they began work at the Hitachi Business Continuity Competency Centre in Santa Clara, California.

The preliminary steps in this process included extensive lab testing to define the most efficient network protocol to be used. Simulated link delays were created to ensure that application and data performance would remain satisfactory over the larger geographic distances; level design services were used to scope the size of the requirement. Scripting and detailed design services were also necessary to build and qualify the proposed process in the lab environment.

“Although we were confident that the proposed solution we put together with Hitachi Data Systems would succeed, the simulated validation project we had previously undertaken confirmed its viability and gave CSC the required level of confidence to proceed. When you are dealing with business critical data you need to be able to trust the solution implicitly,” said Willmott.

## Zero Impact Put on Existing Production Workloads

Migrations were designed and configured to perform in a multistream fashion, optimising the available bandwidth between the two countries. The solution enabled transfers to proceed with no impact on normal production systems. Testament to the success of the migration came from senior CSC management in the U.S. when they asked the question, “Have we moved yet?” — just after the migration.

## Automation Eliminates Errors

To minimise the need for manual checking, the solution was almost entirely automated. Scripts were developed to monitor and report on the progress of the migrations as they occurred.

The configuration process was also automated, which eliminated the risks and potential errors of manual configuration. This was a rapidly changing environment and each system migration was carefully configured to achieve the best results for CSC.

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