



August 2019

OVERVIEW OF OLD HOPE ISLAND RESORT IT INFRASTRUCTURE AND NETWORK

The following is a summary of the recent investigations into Hope Island Resort Security (HIRS) infrastructure.

The prior IT infrastructure for HIRS was aging and needed to be replaced with a more robust setup. Several items had been identified including:

- a) There were two physical servers which were out of warranty and mainstream support. HIRPBC-ADSW which runs Insight warranty expired in 2013 and was running Windows 2003 which was no longer supported. HIRSFIE01 warranty expired this year and the ADSW/CAMS server warranty expired in April 2019.
- b) The three DVTEL servers were all within warranty as the oldest server has just recently been replaced by Comverge.
- c) A network switch had been installed in the network without proper configuration as a stopgap fix and was unmanaged and out of warranty.
- d) The critical system ADSW (now also running CAMS) was installed on a server which had no redundancy for network connectivity, hardware failure or software failure. As a result, no maintenance was being performed on this server including important security updates from Microsoft. If this physical server was to have a hardware fault there was no fast way of restoring that server.
- e) The FE900 physical device, which is the alarm receiver for ADSW/CAMS software, was not configured correctly. This device was plugged directly into the server and should have been plugged into the network instead. This issue needed to be resolved in conjunction with Comverge and Suretek otherwise the proposed solution would not be feasible. Attempts were made by Comverge and Suretek to get this working on the network previously.

Most servers and workstations had multiple network adapters for multiple networks adding to the complexity of the setup. This made troubleshooting issues more difficult and lead to a decrease in security across networks.

Work had been performed to remove the secondary networks setup on the DVTEL servers and HIRS workstations which resulted in two of the existing switches being decommissioned.

The HIRS servers and workstations were joined to the Cambridge Management Services (CMS) domain which meant the servers were highly integrated into the CMS network. CMS were in the early stages of integrating their systems with their parent company offsite and would no longer require physical servers on site when their project was complete.



HIRS was using the following CMS infrastructure/services:

- CMS Domain Controller (User accounts, login to workstations, permission management etc)
- CMS email addresses
- CMS network switches for workstation to server connectivity and internet connectivity
- CMS internet connection

Meetings were held with members of the Hope Island Resort Principal Body Corporate (PBC) in which it was agreed that most of the HIRS system required as close as possible 24/7 operation.

PROPOSED SOLUTION

Due to the critical nature of the operations performed by the HIRS team, Lanrex proposed a high availability server and network solution to replace all the existing HIRS servers and network.

Two new physical VMware ESXi Hosts (servers) running the latest Microsoft Windows 2016 virtual servers will replace the existing standalone physical servers. In the event of a hardware failure on one of these hosts, the virtual machines can then be operational again in a matter of minutes as opposed to an extended downtime period.

A new storage SAN to provide shared storage to hold the virtual server drives which will be accessible from both hosts. The SAN has inbuilt redundancy to withstand a SAN controller failure.

A brand new HIRS Windows Active Directory domain to be created to remove the reliance on the CMS servers. This new domain is to manage the new user and computer accounts for HIRS staff. All new servers to be joined to this domain as well as existing workstations and servers to facilitate with the migration of data before the old servers are decommissioned.

A second Domain Controller to also be created for redundancy.

T Drive data to be migrated to this server and a printer with shares also to be configured for a central location to manage print settings.

A general clean-up of files stored on the file server required to be performed by staff prior to migration to ensure only required data is migrated.

The 'Access Control Tools' and 'Key Register' Access databases to be developed and integrated into Office 365. This is to provide the ability to access the databases from the workstations and remotely on iPads through a website and would remove the need for the terminal server to view these databases.

In the future Microsoft PowerBI can be used to perform analytics to gain insight from data.

HIRS used the '@cambridgems.com.au' domain name and required a new email domain specifically for HIRS. This needed to be chosen, purchased and configured in Office 365.

Current emails from the HIRS mailboxes will be migrated into Office 365. The latest Office 2016 to be installed on three workstations which is included in the Office 365 license.



Emails can then be forwarded from the CMS servers after cutover to catch any emails that might still be going to the old email addresses.

CAMS is a critical system which requires a 24/7 uptime (or near as possible). Two new CAMS servers to be configured to provide redundancy if there is a fault and will also allow maintenance outages for Windows Updates.

Two SQL servers to also be configured to run the SQL database required for the CAMS software. One CAMS and SQL instance will run on each physical host.

The Insight software to be migrated to a new Windows Server 2016 virtual machine with the assistance of Comverge.

A Datto backup appliance to be installed in the satellite hut which will be a local repository for backups onsite. Backups are then replicated offsite to data centre for additional redundancy. The Datto appliance has the added benefit of being able to virtualise servers on the device in the event of a disaster, for example if a fire has occurred in the CMS office.

The DVTEL servers will remain as they currently are. The servers are not joined to the CMS domain. The maintenance and renewals of these servers are managed by Comverge.

The Technology Upgrade was divided into six (6) projects:

1. Solution Design and Planning
2. Physical Server & Network Infrastructure Upgrade
3. Virtual Server Implementation
4. CAMS Server Migration
5. Insight Migration & DVTEL Network Simplification
6. Office 365 Exchange & Database Migration
7. Datto Backup Solution

Implementing this redundant infrastructure solution is to allow server and network hardware to:

- a) Have minimal downtime in case of a failure;
- b) Be prepared for proper maintenance outages where security patches can be applied;
- c) Have offsite Disaster Recovery capabilities;
- d) Be a simpler network with a clear delineation between HIRS and Comverge; and
- e) full independence from the CMS Active Directory Domain.

OUTCOME

The Hope Island Resort Principal Body Corporate (PBC), following approval from its Members at an Extraordinary General Meeting (EGM) held on the 13th February 2019, engaged Lanrex to implement the proposed solution.



Following completion of Solution Design and Planning the project was delivered on time as per the following: -

Project Phase Timeline

Phase

Phase	Start Date	Completion
Phase 1 Physical Server & Network Infrastructure Upgrade	01/04/2019	15/05/2019
Phase 2 Virtual Server Implementation	11/04/2019	17/05/2019
Phase 3 CAMS Server Migration	20/05/2019	17/06/2019
Phase 4 Insight Migration	17/06/2019	26/06/2019
Phase 5 Office 365 Exchange & Database Migration	20/05/2019	10/07/2019
Phase 6 Datto Backup Implementation	05/04/2019	17/05/2019

The project was delivered within time and on budget. There was a change request from the original scope which was sought by the PBC, at a cost of \$2,975 + GST, to ensure that the transfer and upgraded version of the Insight Professional security access application would run on the new system.

There was a cost of \$1,307.34 for expenses as noted in the original proposal as being exclusions that was incurred.

The original quoted fee to the PBC by Lanrex was \$160,571.37 + GST. Excluding the change request and expenses charged the project came in right on the approved and expected budget.

COMPANIES AND PARTIES INVOLVED

- PBC IT Sub Committee - Neil Dellaca (Chairman), Warren Smith, Robert Page & Kel Bentley
- Cambridge Management Services (CMS) - Hugh Beutel & Tahlia Puck
- Lanrex - Jodie Korber, Dunstan Keung, Nathan Lam, Steve Stansfield & Stephen March
- Converge - Paul Jackson & Richard Baker
- HIRS – Darren Bell
- Consultant for PBC – Truls Fauske

Hope Island Resort Principal Body Corporate

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