Server Consolidation

What is Server Consolidation?

Server consolidation is a strategy to reduce the total number of physical servers or server locations that an organisation requires. The practice has been developed in response to the problem of server sprawl, a situation in which multiple, under-utilized servers take up more space and consume more resources than can be justified by their workload. Reducing the number of servers brings down the associated costs with servers and compute resources for an organisation. The more dense the consolidation, the higher the ROI is for the migration and the sooner the cost benefit of consolidation is realised.

Case Study

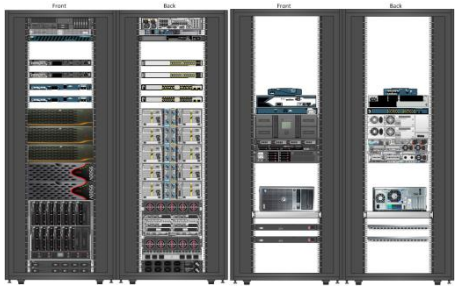
Our client is a software development company in the application of handheld devices and industrial inventory management systems for large freight companies, specialist firms, and warehouses. Their existing IT systems had some virtualisation in place, along with single purpose server blades and standalone servers for other organisation needs.

The systems had been over provisioned and the resources were underutilised. Although virtualisation was already in place, they were using SAN storage with limited extensibility and all the existing hardware was out of warranty and in excess of 4 years in age. The only cost effective solution was to migrate the environment to new hardware with much greater performance, as well as increased data density.

Initial Requirement

Our client had previously made a large investment in hardware to run their operation; this hardware was aging and becoming unreliable. With current generation hardware, it was straightforward to have a similar level of resources on new infrastructure.

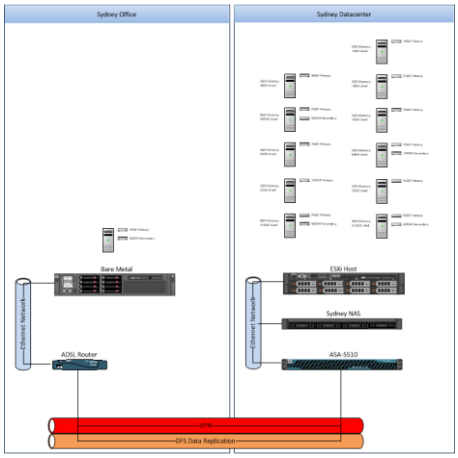
Existing hardware



The existing hardware was a complex mix of physical machines, server blades, and virtual machines that were VMware based. In line with the customers objectives for the virtualisation project the decision was made to take the entire environment and convert it to VMware virtual machines running on ESXi 5. The existing environment consisted of two racks of equipment's containing a fully populated HP Blade Centre, a selection of older generation HP servers and older generation SAN.

The infrastructure requirement had greatly changed with the changing technology and business needs for the IT systems.

New layout and hardware

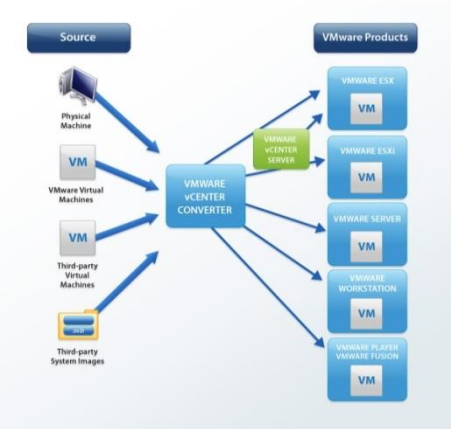


By leveraging the performance and memory density of the latest generation of Dell rack mount servers we are able to condense the entire environment on to a single two rack unit virtualisation host, which was relocated into Global Switch and a single two rack unit storage server for local file access located in the office.

The new Dell server has redundant power supplies, fault tolerant RAID arrays and accelerated cache for optimal speed and redundancy.

We also redeployed one of the existing HP servers to provide local replication of the file storage via DFS. The previously slow and unstable VPN connections that were coming into the office for remote workers are now being terminated on the Data Centre side on a Cisco ASA with SSL VPN's with significantly increased bandwidth and stability.

The Conversion Process

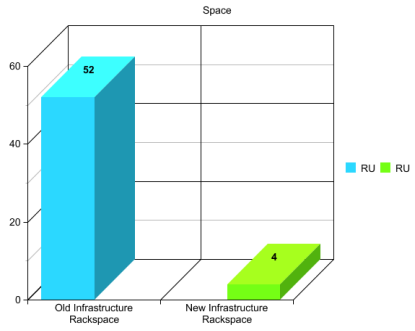


We leveraged the features in VMware converter to convert the existing virtual machines and physical machines to VMware virtual machines.

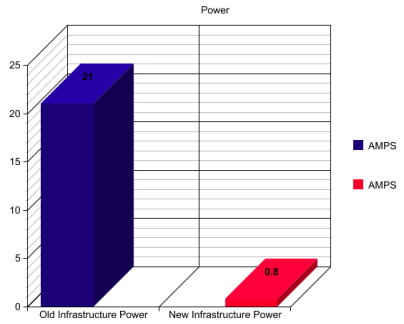
The conversion was done in a staggered fashion outside of office hours to avoid interrupting business operations.

The VMware converter allows for machines to be processed in batches, with a technician working on Virtual Machine configuration settings such as networking, then re-configuring each machines after the move. The migrations are still ongoing in the background minimising the time wastage of technicians sitting around waiting for the conversions.

Resulting Gains



In terms of physical space the existing environment spanned two racks of equipment. After the consolidation the new environment only uses 4 Rack Units of space, a 90% saving over the old environment. The ongoing monthly costs to host the new equipment in the data centre are roughly equal to the cost of the power consumption of the old infrastructure; the datacentre provides redundant power and cooling which their existing on premises infrastructure did not have.



In terms of the power required the new environment consumes 20x less power than the previous infrastructure adding up to a much lower total cost of ownership and a greener footprint.

Conclusion

With the virtualisation project now complete, our client is now reaping the benefits of the consolidated infrastructure. Remote workers now no longer suffer from bandwidth issues and, applications hosted on the new infrastructure now run much faster.