Western Digital

Vivo Energy: Fuelling Africa's Future with Western Digital

Challenges

- Find a new storage infrastructure solution to fuel business expansion plans
- A diverse workforce working across many countries with Test/Dev environments and Systems and Process Operations working remotely
- A highly virtualized IT environment running multiple workloads ranging from SAP HANA, VMware®, SQL and Oracle® databases and a Microsoft® environment with Active Directory

Solution

- Two Western Digital IntelliFlash™ HD2040–100 all-flash, high density arrays to support Vivo Energy's multiple workloads
- One-day timely implementation eliminating operational business disruptions

Results

- Data reduction from an initial 70TB of data down to just 16.4TB – a 4.2:1 reduction ratio
- Reduction of back-up data from 77.3TB to 44.8TB after data reduction – representing 1.7:1 reduction ratio
- A high-performing virtualized infrastructure that operates seamlessly
- Multiprotocol and multiple interfaces running concurrently enabling multiple workloads on the same SAN
- Greater density to accommodate for future data growth and additional virtualization

Established in 2011, Vivo Energy is the company that distributes and markets Shell-branded fuels and lubricants to retail and commercial customers in Africa. The Group has a network of over 1,800 service stations in 15 countries and exports to a number of African countries.

Focused on fuelling Africa's future, Vivo Energy make it's customers' lives easier and their experience more convenient, enjoyable and rewarding. Vivo Energy offers high-quality products and services to its customers, setting new standards for safety, innovation, and service, wherever they operate. Its retail offering includes fuels, lubricants, card services, shops, and other non-fuel services (e.g. oil changes and car washes). For business, it provides fuels, lubricants, and liquified petroleum gas (LPG) to the customer across a range of sectors including marine, mining, and manufacturing and supplies jet fuel to customers at 23 airports across Africa.

Vivo Energy's vision is to become the most respected energy business in Africa.

The Challenge: Designing a Data Center Architecture for the Future

With an ever-expanding footprint, the IT team at Vivo Energy were challenged with finding a new storage infrastructure solution to support the growth plans for expansion into new markets.

Wayne Houghton, Vivo Energy's lead IT Infrastructure Architect, faced the challenge of designing a data infrastructure environment that needed to accomplish several things. First, designing and building out an environment that not only supported a main production site for all line of business applications and key databases but also a Disaster Recovery (DR) site to support a highly available, always-on architecture. Secondly, to support several remote 'micro' data centers in key African countries where Vivo Energy is expanding into with a need to be able to process transactions locally and deliver business data to the centralized Data Warehouse with minimal delay. Finally, to build out a data center infrastructure that would use SAP® HANA® as a core element in order to provide near real-time data-driven insights enabling Vivo Energy to be as dynamically efficient in the fast-moving fuel supply market.

Houghton and his team are also required to support and provide infrastructure to a team of Test and Development and Operational Support teams that are globally dispersed. With over 150 people working exclusively on Vivo Energy projects using virtual desktops (Citrix® XenDesktop®) – performance, capacity and latency of the data center and network are key requirements for the transformation that underpinned the project's success.

Any new infrastructure deployed would also need to be able to run multiple workloads from VMware® hypervisor, support 20 physical hosts and 500 virtual machines, support a Microsoft Active Directory environment, SQL and Oracle databases and be able to run multiple protocols such as NFS, SMB 3.0 and FibreChannel and supporting multiple physical interfaces.

"As a customer, I felt that we were receiving the absolute best service and that we were going to see every last drop of performance for each pound spent turnarounds."

Wayne Houghton, Lead IT Infrastructure Architect at Vivo Energy

The Solution: Two Western Digital IntelliFlash HD-Series All Flash Arrays

Global IT infrastructure and deployment specialists Viadex supported Vivo Energy's IT team throughout the extensive evaluation process and the implementation of the new solution. Many storage vendors were considered, each offering performance advantages above that of the incumbent SAN at Vivo Energy. However, the technical specification, compression and deduplication performance and low-latency of the Western Digital IntelliFlash HD arrays stood out in terms of overall price, performance and total cost of ownership (TCO) over the expected lifetime of this particular project, and this was reinforced by references from other customers with similar requirements.

The solution selected comprised of two IntelliFlash HD2040–100 all-flash arrays (AFA), each delivering 92 TB raw storage and up to 346 TB effective storage* in a 2U form factor with multiprotocol support and several flexible interface options running concurrently. Vivo is currently storing approximately 70 TB of data on the IntelliFlash array before deduplication and compression and the array provisions over 150 VDI desktops, Veeam Backup and Replication repository along with native application level backups for our various landscapes. With plenty of capacity available for the planned future expansion, the IT Team led by Houghton feels as though the right solution was chosen – not only for now – but for many years to come.

The Results: Optimal Performance and Unexpected Resource Savings

Viadex coordinated the delivery and installation, ensuring an expert was involved in each part of the connection and configuration process.

"As a customer, I felt that we were receiving the absolute best service and that we were going to see every last drop of performance for each pound spent," said Wayne Houghton, Lead Infrastructure Architect at Vivo Energy. "In my 20 years working in IT infrastructure it was refreshing to work with partners such as Viadex and Western Digital who delivered on what they said they would."

The current storage capacity at Vivo Energy equates to approximately 70 TB on the IntelliFlash HD2040 unit within their primary data center which has reduced to 16.4TB after inline deduplication and compression, resulting in a reduction ration of 4.2:1. The IntelliFlash HD array will support the company's growth and expansion, with significant leeway for performance and capacity. "We do not need to think about storage for at least the next five years – this is a massive weight off our minds." said Houghton.

The Western Digital IntelliFlash HD arrays are providing latencies of 0.2 or 0.3 milliseconds (ms) across all storage pools increasing to 0.5 ms during boot storms and other traffic spikes but never more than that. In contrast, the IT team struggled with latencies above 20 ms on its legacy unit which would spike at 50 ms, and sometimes 100 ms, during boot storms. The IntelliFlash array has slashed VDI boot times from minutes to seconds.

"The incredible performance afforded by the IntelliFlash HD arrays has just made our lives simpler as IT administrators so much easier, but the business also benefits as we now have an infrastructure that has plenty of performance and headroom to allow us to scale quickly and effectively. It really has been a case of 'Set-up and Forget'," explains Houghton. "The end users have much higher levels of performance and, more crucially, latency is significantly reduced in our virtualized environment while they are working, increasing their productivity levels and exceeding the requirements of the business."

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*One TB equals one trillion bytes when referring to storage capacity. Accessible capacity will vary from the stated raw capacity due to formatting, data protection schemes, the operating system, and other factors.