# NETVALUE
## BETTER BUSINESS

# Hosting and Virtual Servers

NetValue

# Better Business

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# Hosting Infrastructure

NetValue provides a premium solution for both retail and wholesale hosting customers. Our experienced team, with decades of hosting experience manages your online solutions, removing the burdens of ensuring security, connectivity, scaling, backup and hardware investment.

In addition to providing retail hosting for thousands of customers, NetValue provides the wholesale infrastructure for many New Zealand web companies.

NetValue is an accredited .NZ Registrar and international domain name agent, enabling our team to provide a one-stop end-to-end service from domain names through to complex multiple site or multiple country solutions.

# Hosting Services

With over 20 years of experience in hosting, NetValue Ltd operates its own hosting servers in purpose-built data-centres in Auckland and Hamilton. Thousands of clients' web solutions are hosted in this environment, both on shared environments and virtual private servers (VPS).

Our clients also include other web development companies and large organizations with mission critical servers. Average uptime across all the services we provide for all clients over the past 12 months is 99.99%.

A large number of our clients have experienced 100% uptime, year on year.

# Cloud Hosting/VPS Architecture

## Architecture

NetValue has developed a Virtual Private Server (VPS) platform that provides server redundancy and scalability with virtual servers running in DRBD HA pairs.

## Key Features and Benefits of NetValue's Dual Server HA VPS Platform

Uptime – the platform provides for maximum uptime. With the built in dual redundancy 100% uptime should be achievable in terms of the hardware reliability.

Data replication – Disk activity is instantly synchronised between HA machine pairs.

Seamless updates – operating systems and applications need constant updates to maintain security levels and optimal operation. With our architechture regular updates are performed, tested and rolled into production without any downtime.

Persistent online presence – NetValue's platform architecture is designed to meet the demands of a modern businesses requirements providing 24/7 availablity as expected.

Automated Monitoring and Alerts - Ensuring customer's physical servers, virtual servers and databases are available and performing to expectations.

Manual Monitoring – Regular manual inspection of the state and health of the customer's physical servers, virtual servers and related services and system resources.

## High Availability Dual Server "Pod"

In traditional cloud server offerings, if a server failed then the system needs to be restored to the last valid snapshot or backup of the server. Often this was up to day old and data is often lost on these single server/single database solutions.

NetValue provides high availability, redundant virtual private servers. NetValue uses an advanced proprietary replication system that works in real time. We call these pairs of machines configured as a High Availability (HA) service as a "Pod".
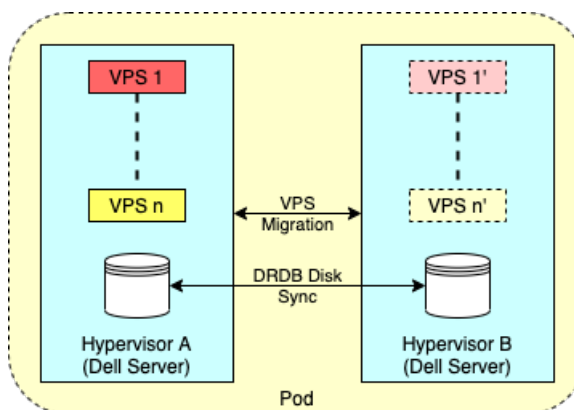


Our Pod architecture is dual machine set-up that replicates the disk used by the operating system.  Should the active hypervisor machine fail, or disk fail, the VM is started up on the sibling hypervisor server.  Swapping hypervisor servers is tested regularly as reboots are necessary when updating OS/kernel software. Critically, it also decreases the impact of any other customer as customers aren't sharing a single SAN.

The hypervisor disk storage is RAIDed internally using RAID cards and externally mirror between servers in the pods using DRBD.

From a practical perspective, it means that the data is always stored in TWO high end servers, each with multiple levels of redundancy built in.

## Monitoring and Support

NetValue continuously monitors all servers and network connections, tracking key information allowing our systems team to ensure performance and availability. In the event of any degradation or failure our technicians are automatically notified and will commence appropriate remedial action immediately.

Our normal support and administration hours for non-critical technical and account requests are standard business hours 8:30am to 5:00pm five days per week.

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# Web Hosting Infrastructure Architecture

The web hosting infrastructure is spread across multiple Pods to provide resilience, high performance, and flexibility for system maintenance without disruption. Incoming web and mail requests are dynamically allocated to one of a number of servers by the load balancer as shown in the diagram below.
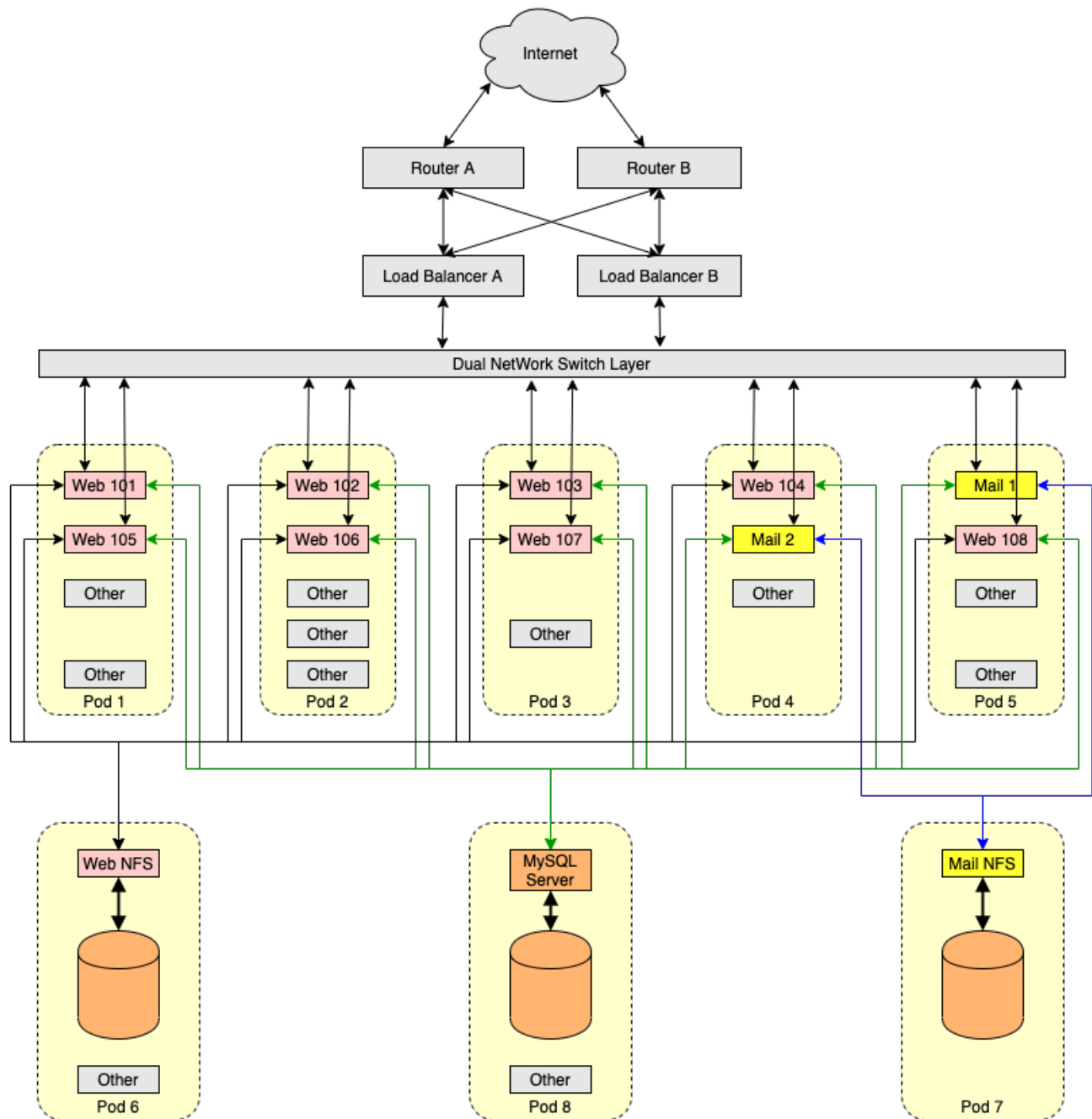
# Network

NetValue has connectivity to the fastest networks in NZ, including the REANNZ high speed research network. We also have our own ASN, are multi-homed with BGP and have IP space allocations from APNIC. Some of our historical hosting is still on Telecom IP space.

Our servers have undergone a significant upgrade recently to accommodate the ultrafast broadband (UFB) upgrades and security changes.

# Data Centre

### Electricity

Data Centre Supply is physically protected and supplied via two feeds. In the event of power supply failure, UPS (Uninterruptible Power Supply) units automatically provide A+B power. The UPS units provide power supply to racks until such time as the on-site backup generators take over the supply of electricity.

### Environment

The area is temperature and humidity controlled to provide the optimum environment for computer equipment.

### Security and Access Control

Access to the facility is controlled and monitored via security cards and locked cabinets. Only authorised System Administrators have system access to the servers. The data-centres are alarmed and are permanently locked, including when work is being undertaken inside.

Vocus Albany Data-centre Features:

- Gated entrance, defensible perimeter
- Traffic and anti-crash bollards in place
- 22 security cameras monitored 24/7
- Onsite DC personnel (during normal office hours)
- Mantraps
- Biometric screening
- Swipe card access
- Visitor tracking
- Private, individual lockable racks
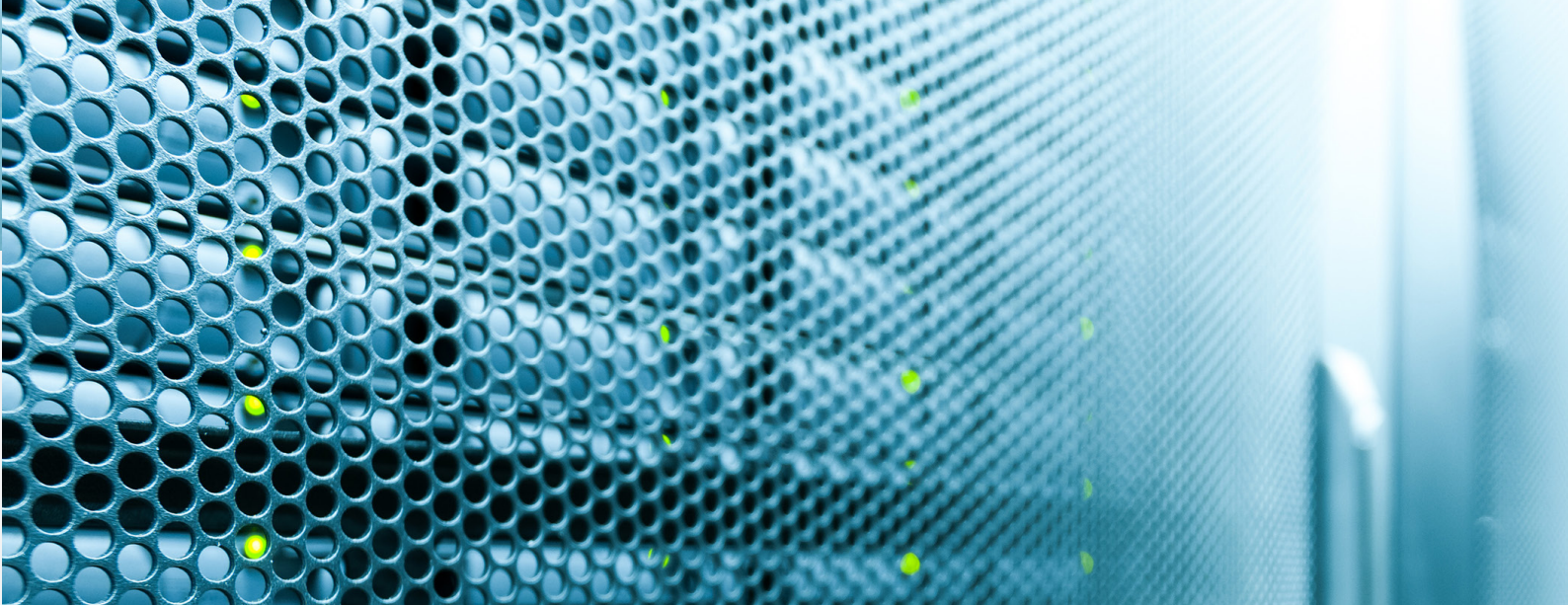
## Privacy/GDPR (General Data Protection Regulation)

NetValue takes privacy and security seriously, and is described in various sections in this document.

For customers with Support Level Agreements, NetValue is happy to sign GDPR data-processor/sub processor documents/addendums stating our corporate compliance.

## Redundancy

The network infrastructure is fully redundant. The data-centre has multiple routers and multiple switches. Should hardware fail the built in redundancy ensures that any potential downtime is mitigated.

Our shared hosting servers operate in a "clustered" architecture, designed and operated in such a way that the failure of any server automatically fails-over to another server in the cluster with no impact on the web sites being hosted.

The dual location servers allow NetValue to provide diversity and enable planning for disaster recovery scenarios for any client.

Our VPS hosting services are in a unique highly-available setup, providing a level of security and reliability that far exceeds the legacy "single server" or "single VPS" that most cloud providers offer.

# Backups and Fail-Safe Provisions

There are in place daily on-line backups. These back-up copies are held for three weeks on a secure storage server. This data gets transferred daily back to our office which is at a separate physical location than the servers.

We do a daily backup of the hypervisor. This back-up copy is held at a separate physical location than the servers.

Each week the backups are copied onto tape by a robotic tape server and stored offsite.  These tapes are rotated each week and are written to tape using hardware AES-256 encryption.

Every 4 weeks the tape set is kept for 13 weeks (before being reused).

Every 3 months the tape set is kept for a year.

An annual tape set is kept indefinitely.

Hypervisor machines' operating systems are patched as necessary when security patches are released from the OS distribution providers.

NetValue owns all the server hardware used in the platform, which is primarily DELL servers and switches, and update it on a 3-5 year cycle, depending on reliability, performance and any other technology advances.

Our platform is located in a purpose built datacentre, in our case this is either Vocus' datacentre in Auckland, or Vodafone's datacentre in Hamilton. This provides geographical separation advantages and various options for disaster recovery, replication and geographically separate backups.

In some instances, where it is requested by the client we may host externally e.g. AWS (Amazon Web Services) platform, engineered to the client's requirements with backup and redundancy provisioned accordingly.

Both datacentres are equipped with dual power feeds, UPS.  Generator power backup, secure monitored access and fire detection/protection.
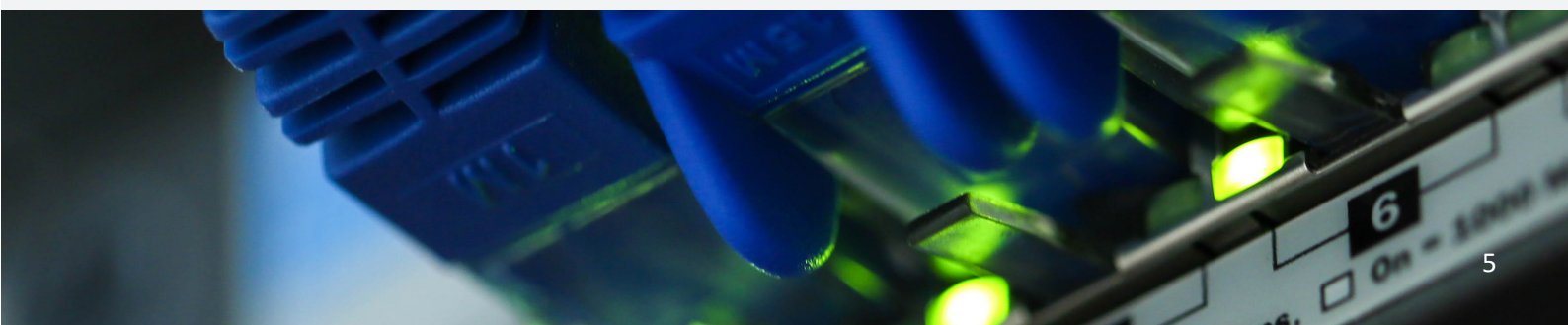
# Websites
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