

FirstNet Cloud OS



Microsoft

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The benefits of the cloud are clear. You get added flexibility and easy access to additional resources. The converging trends of big data, modern apps, private & public cloud, and bring-your-own-device represent real opportunities for IT to deliver more efficiencies and new value back to their businesses. To help you do that, the Microsoft Cloud Platform brings together on-premises solutions with a cloud platform to create a hybrid, highly-responsive, and accessible solution.

What is Cloud OS?

The Microsoft Cloud OS spans your data centre environments, service provider data centres, and Windows public Azure, enabling you to easily and cost-effectively cloud optimize your business. This hybrid cloud unifies technologies and development languages—across devices, services, apps, and data—creates a dynamic IT environment that gives CIOs the best of both world: control and scale to deliver the computing power and capabilities today's business demands.

Leveraging the capabilities of Windows Server, Microsoft System Center and Microsoft SQL Server, FirstNet has created an infrastructure with the resilience, reliability and options for expansion that today's business requires. FirstNet's powerful combination of infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS), both managed and unmanaged services, lets you build, deploy, and manage applications any way you like for unmatched productivity.

Customers can now take advantage of new cloud options across areas such as storage, networking, and identity and access management. To help customers meet the emerging needs of the business, FirstNet enables IT to deploy applications more rapidly, manage those applications more effectively, and offer more self-service options—all while meeting standards for security and compliance

Features

- Self-service cloud services
- Agile Usage based pricing
- Cloud Elasticity & Scalability
- Workload Mobility
- Application focussed
- Built on Microsoft Hyper-V

Benefits

- Reducing the cost and complexity of running data centres at scale
- Unlocking insights from your data – big and small
- Empowering employees to work across any device
- Creating new business apps and transforming existing ones with cloud capabilities

Benefits of FirstNet Enterprise Cloud Services

- Virtualization offers speed and scalability
- Workload Mobility gives your servers performance where its needed most
- Live Migrations = less business disruptions
- Quick upgrades
- IaaS—Infrastructure as a service
- SaaS- Software as a Service
- Most current product version
- Consumption based billing—pay as you use
- Minimal start-up costs
- No capital expenditure

Enterprise Cloud

Cloud Continuity

Colocation

Cloud Protection

Cloud Backup

FirstNet
Technology Services

Work is what you do, not where you are



| www.firstnet.co.za

Directors A. Sharp, O. Lamusse, V. Gerson (Managing)

Vat Reg No 4840236097 Reg No 2006/031608/07

People-Focused Approach

For years, Microsoft has been delivering experiences that appeal directly to users driving maximum productivity. With Cloud OS, Microsoft is extending that same focus on experiences to IT and developers—mirroring the familiarity and ease-of-use from on-premises products into cloud services.

Develop modern applications

Build and deploy a wide variety of modern applications for Android, iOS, and Windows that take full advantage of the cloud—including web, mobile, media and line-of-business solutions using RemoteApp. Automatically scale up and down to meet any need.

It's everywhere

FirstNet's Cloud OS runs in three regional data centres, giving you a wide range of options for running applications and ensuring your customers always get great performance. Leveraging Microsoft's global data centre foot print, customers can quickly migrate their workloads into the Microsoft Public Azure service.

Hybrid Cloud—get the best of both worlds

Hybrid Enterprise cloud solutions is the core of the Microsoft Cloud OS vision - uniquely able to take a hybrid cloud approach to deliver unified compute, networking, and storage across a customer's datacenters, the public cloud, and hosted clouds—creating a single application, data, and device management platform. It gives you the best of both worlds, expanding your IT options without added complexity. With Cloud OS, data storage, backup, and recovery become more efficient and economical. It's also easier to build applications that span both on-premises and the cloud.

Enterprise-Grade Platform

What matters most is working with a company you know has the experience, reach, and footprint you can trust fully. The Microsoft platform already provides an enterprise-grade array of the broadest and most-trusted data and infrastructure tools and services. In fulfilling Microsoft's Cloud OS vision, they're extending the same caliber of technology investments across premises—giving enterprise affordable, global-class virtualization and cloud integration with the highest levels of security, privacy, and reliability.

Cloud Backup

Windows Cloud OS Backup is a cloud-based backup solution that enables server data to be backed up to and recovered from an off-premises data centre (the cloud) to help protect against data loss and corruption. To reduce storage and bandwidth utilization, Windows Cloud OS Backup integrates directly with Windows Server Backup and then performs block-level incremental backup. To increase security, the data is compressed and encrypted before leaving the server.

It's always up, always on

Cloud OS offers a 99.95% availability SLA, 24x7 tech support, and round-the-clock service health monitoring.



Dynamic and Static memory support

FirstNet offers two commercial memory models for virtual machines running inside WAP, by default all machines are sold using Dynamic memory.

Dynamic memory explained

A non-technical way to describe how dynamic memory works is to say that hypervisor will give the guest VMs the right amount of RAM based on their actual usage. Dynamic memory is a feature introduced to allow the hypervisor to handle RAM consumption by host VMs in a flexible way. The hypervisor can dynamically add more RAM to a VM when the guest-OS needs it, or reclaim excess back when a VM goes idle.

Dynamic memory is recommended for low end workloads that are not memory intensive such as QA and Dev environments or Active Directory. If you're operating with a limited budget or do not need dedicated RAM, dynamic memory works perfectly with a great number of VMs and helps you keep overutilization under control, allowing you to forget about wasting resources and providing better visibility towards your system.

Static memory explained

Static memory is a guaranteed allocation of memory to each VM that does not change based on the operating systems memory usage. Static memory is well suited for demanding workloads where a guaranteed memory allocation is required.



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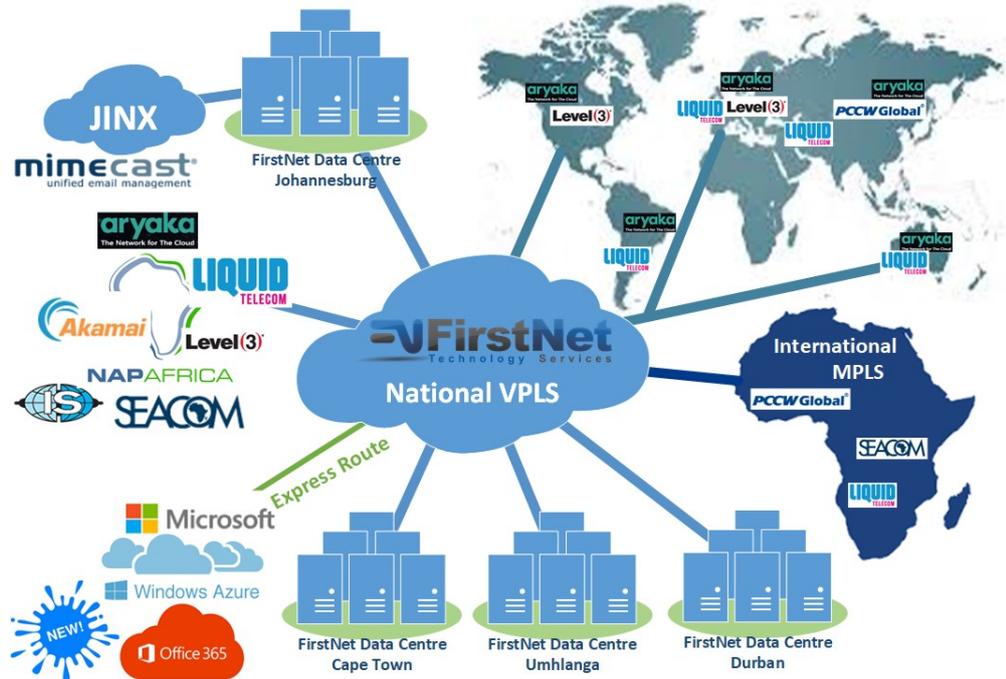
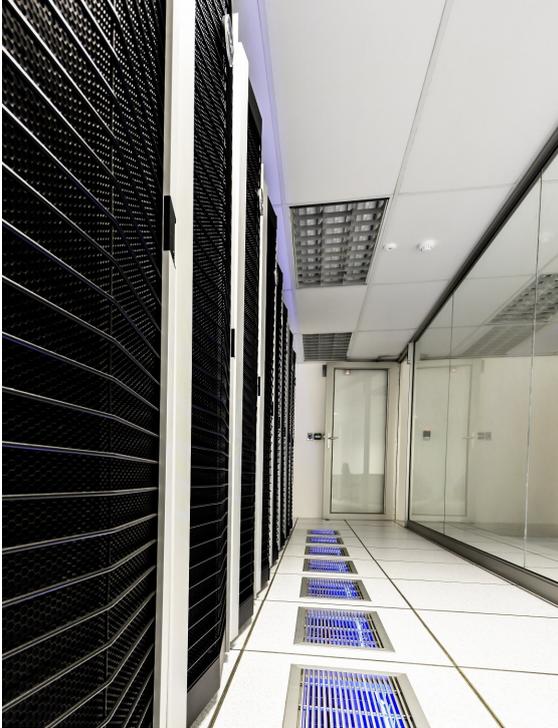
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DC 01 Umhlanga KZN Data Centre

Environment

Full data-grade HVAC system with redundancy
 Temperature maintained at 16°C (+/-2 degrees)
 Relative humidity maintained at 45% humidity (+/-5%)
 Redundant Fire Protection
 Fire proofed doors, and solid walls
 Both smoke and high temperature heat detectors
 Water and Humidity Sensors
 Raised Flooring, structured Cabling.
 All cabling vendors are certified
 All cabling is managed by structured cabling policies

Equipment

85 sqm floor space
 19" ventilated racks (600w x 1200d x 42U)
 All cabinets have unique locks, ensuring that only approved personnel are able to gain access
 Perforated front and back doors, allows for 86% air flow
 Managed Cisco Switch Environment
 24 hour monitoring
 High Capacity Redundant UPSs
 Redundant diesel generators (sized to run full load for min of 48 hrs)
 Service availability of 99.5% per month

Security

Comprehensive perimeter and building security
 Pre-authorization required for data centre access
 Comprehensive audit logs are maintained on all site access
 Disk access control at all interior and exterior doors
 Biometric access for internal door leading to racks
 Digital CCTV surveillance cameras
 Alarms and early warning messages alert technicians on duty

DC02 Isando, Gauteng Teraco Data Centre

Environment

Multiple cooling zones with independent CRAC units
 Temperature maintained between 22°C and 30°C
 Relative humidity maintained between 40% -60%
 Independent humidity and temperature monitoring in all plenums
 Hot aisle containment
 Data centre positive pressure to ensure a dust-free environment
 Pro-active fire monitoring systems
 Diesel generators and tanks are physically separate
 All monitoring and fire protection equipment is fed via an independent power source. All cabling vendors are certified
 All cabling is managed by structured cabling policies

Equipment

19" ventilated racks (600w x 1200d x 42U)
 All cabinets have unique locks, ensuring that only approved personnel are able to gain access
 Perforated front and back doors, allows for 86% air flow
 Resilient diesel backup generators are fuelled to provide 5 days of power boosted by guaranteed diesel delivery should the municipal supply fail
 Fully online UPSs ensure frequency, voltage and surge stability
 Power Distribution Unit technology is remotely managed

Security

Comprehensive perimeter and building security
 Pre-authorization required for data centre access
 Comprehensive audit logs are maintained on all site access
 A visitor's identity is visually confirmed against a picture on a named user list, with additional biometric confirmation through fingerprint imaging
 Continuous video surveillance of all zones and cabinets
 Alarms and early warning messages alert technicians on duty
 All areas have 24x7 intelligent monitoring and video surveillance with integrated motion sensors
 A unified building monitoring system logs all security and environment data

DC03 Rondebosch, CT Teraco Data Centre

Environment

Multiple cooling zones with independent CRAC units
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