2.2 Our Four Ceph Storage Clusters

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Key Features Common Across All Clusters

3N Replication Strategy

- **Triple Data Copies**: Every piece of data is stored on three independent storage nodes.

- **Immediate Consistency**: Data is confirmed only after it's written to all three nodes, ensuring consistency.

- **Fault Tolerance**: Capable of withstanding multiple node failures without data loss.

- **Automatic Recovery**: Ceph's self-healing mechanism redistributes data in the event of a node failure.

Dedicated Ceph Nodes

- **Resource Isolation**: Storage operations are isolated from compute tasks, eliminating resource contention.

- **Optimized Hardware**: Each node is configured to maximize the performance of its specific storage media.

- **Scalability**: Nodes can be added to clusters without service disruption, allowing your storage to grow with your needs.

Advanced Networking

- **High-Speed Connectivity**: Utilizing dedicated 100 Gbps Cisco network for all clusters.

- **Redundant Paths**: Ensuring no single point of failure in the network.

- **Low Latency**: Critical for performance-sensitive applications.

Our Four Ceph Storage Clusters

Cluster 1: High-Performance NVMe Cluster - mSAN Performance NVMe

- **Location**: Micron21 Kilsyth Primary Data Centre

- **Storage Media**: Enterprise NVMe SSDs

- **Purpose**: Designed for workloads requiring the fastest possible performance.

Technical Details

- Dedicated Ceph Nodes: Equipped with enterprise-grade NVMe SSDs, dual Intel Xeon Gold CPUs, and abundant RAM.

- 100 Gbps Networking: Nodes interconnected via a dedicated Cisco VXLAN Leaf and Spine network for ultra-low latency.

- 3N Replication: Data is replicated across three independent nodes within the cluster.

Use Cases

- High-Frequency Trading Platforms

- Real-Time Analytics and Big Data Processing

- Virtual Desktop Infrastructure (VDI)

- AI and Machine Learning Workloads

Cluster 2: Cost-Effective Enterprise SAS 10k Cluster - mSAN Standard Hybrid

- **Location**: Micron21 Kilsyth Primary Data Centre

- **Storage Media**: Enterprise SAS 10,000 RPM HDDs

- **Purpose**: Enterprise storage where speed is important but not critical.

Technical Details

- Dedicated Ceph Nodes: Configured with enterprise-grade 10k SAS HDDs, robust CPUs, and ample memory.

- Optimized Networking: Connected via high-speed networking to balance performance and cost.

- 3N Replication: Ensures data durability and availability.

Use Cases

- Web Hosting and Content Management Systems

- Enterprise Applications (CRM, ERP)

- Email and Collaboration Platforms

- Development and Testing Environments

Cluster 3: Bulk Storage SAS 7.5k Cluster - mSAN Bulk SAS

- **Location**: Micron21 Kilsyth Primary Data Centre

- **Storage Media**: Enterprise SAS 7,500 RPM HDDs

- **Purpose**: Bulk storage prioritizing capacity over speed.

Technical Details

- Dedicated Ceph Nodes: Equipped with high-capacity 7.5k SAS HDDs.

- Efficient Networking: Designed to provide reliable data transfer rates.

- 3N Replication: Maintains data redundancy and protection.

Use Cases

- Data Archiving and Backup

- Media Storage (Video, Audio, Images)

- Big Data Repositories

- Compliance and Regulatory Data Retention

Cluster 4: Geographically Redundant NVMe Cluster - mSAN Geo Diverse NVMe

- **Location**: Spanning Three Data Centres (Kilsyth, Melbourne CBD, Port Melbourne)

- **Storage Media**: Enterprise NVMe SSDs

- **Purpose**: Mission-critical applications requiring high performance and geographic redundancy.

Technical Details

- Distributed Ceph Nodes: NVMe-equipped nodes across three data centres.

- Synchronous Replication: Data is written simultaneously to all three locations.

- High-Speed Interconnects: Low-latency fiber connections between sites.

- 3N Replication Across Data Centres: Ultimate protection against site-level failures.

Use Cases

- Financial Services

- Healthcare Systems

- E-Commerce Platforms

- Critical Infrastructure Monitoring

Why Choose Micron21's Ceph Storage Solutions?

- **Tailored Storage Options**: Choose the storage cluster that best fits your performance and budget needs.

- **Enterprise-Grade Reliability**: With 3N replication and dedicated infrastructure, we provide secure and resilient storage solutions.

- **Optimized Performance**: Our clusters are engineered to maximize storage efficiency and scalability.

- **Flexible and Scalable**: Adjust storage capacity and performance levels as your business evolves.

- **Expert Support**: Our team of storage engineers ensures that your infrastructure operates at peak performance.

Get Started with Micron21

Experience high-performance, reliable, and scalable storage with Micron21's Ceph storage solutions. Contact us today to find the best storage cluster for your needs.

Contact Information

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Learn More About Our Storage Clusters

For more details about Micron21's Ceph storage clusters and how they can enhance your cloud environment, visit our dedicated landing page:

[Learn More About Our Storage Clusters](#) *(Please replace the # with the actual link to the landing page)*