Top Reasons to Choose Dell EMC PowerScale for Semiconductor Design and Manufacturing

Dell EMC PowerScale is an enterprise-grade, scale-out NAS platform that scales from tens of terabytes to tens of petabytes capacity in a single file system—accelerating time-to-market by enabling the sharing of semiconductor data across the entire design workflow. Industry-leading data protection guards against hardware failures and intentional or unintentional user data corruption. PowerScale is powerful, yet simple to scale and manage, no matter how large your environment becomes.

1 | Massive Scalability

PowerScale provides true scalability and ever-expanding namespace for the consolidation of a semiconductor company's file shares, archiving, and scratch storage for high performance computing. PowerScale eliminates file server sprawl and performance bottlenecks while streamlining management, backup, and disaster recovery operations. With PowerScale's native scale-out architecture, you get no compromises on features or performance. Other platforms may claim to be scale-out, but they are thinly vailed scale-up solutions running performance-degrading software to create the illusion of scale-out. With PowerScale, you get high performance that grows linearly with capacity— from tens of terabytes to tens of petabytes.

2 | Extreme Performance

Regardless of future needs, PowerScale scales in both performance and capacity linearly, without any performance bottlenecks, remaining simple to manage. This enables engineering organizations to start with an infrastructure that fits their current high-performance compute (HPC) storage requirements without overbuying performance or capacity for future use. The distributed architecture of PowerScale eliminates the single-head CPU saturation point of a controller. A large number of concurrent jobs, often resulting in large amounts of metadata operations, can run without saturating the storage system, shortening the job run time and thus accelerating time to market. Our all-flash models are ideal for IOPS-intensive semiconductor workloads such as logic synthesis, gate level simulation, functional verification and software build.

3 | Predictability

Lack of predictability is today's biggest infrastructure challenge for semiconductor organizations. Common symptoms of the lack of predictability include islands of storage, performance hotspots, limits on capacity, unexpected downtime, performance degradation and increasing management overhead. With our scale-out architecture, you only need to buy for the storage you need today. A single PowerScale cluster can start small and grow to multi-petabyte scale. New storage nodes can be added to cluster in about 60 seconds with no downtime—making upgrades easy and predictable without adding complexity or impacting time-to-market.
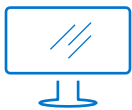
4 | Storage Efficiency

A single PowerScale cluster can be utilized simultaneously for a mix of workloads, including design directory services, file shares, and transient scratch data for massively parallel, compute-intensive batch jobs in semiconductor space. Dell EMC PowerScale SmartPools' policy-driven, automated tiering feature eliminates time consuming and repetitive manual processes by automatically aligning the data to the optimal price/performance tier. Additional storage efficiency comes from inline data compression and inline deduplication which are available on Isilon F810 and PowerScale F200 and F600. These nodes can deliver a significant reduction in storage infrastructure requirements to increase the effective storage capacity of your solution while lowering storage costs. And with average disk utilization greater than 80%, PowerScale is the most efficient, cost effective storage solution available on the on the market for semiconductor industry today.

5 | Easy to Use and Manage

PowerScale makes managing petabytes of file data a simpler, the efforts required to manage hundreds of isolated volumes can be eliminated, along with hidden islands of wasted storage space. Automated processes balance external workloads across the cluster—eliminating manual performance tuning and provisioning of storage capacity to the needs of external workload. PowerScale's single point of management also simplifies storage-related services including thin provisioning, quota management, snapshot, and replication services. Dell EMC DataIQ further improves ease of use and simplifies management. Designed for customers in industries such as semiconductor, DataIQ integrates with PowerScale and ECS to provide a unified file system view across file and object data on-prem, off-prem and the cloud, enabling enterprise end users to find, use and organize files and IT administrators to manage and report on the storage infrastructure.

6 | No-compromise in Performance and Scale in the Cloud

Semiconductor companies are looking to leverage cloud capabilities that offer customers operational flexibility, higher performance and improved time to market. PowerScale OneFS for Google Cloud brings game-changing performance at scale - with up to 97MBps/TiB of throughput (and up to 1000 TiBs of aggregate throughput), and sub-millisecond latency access to Google Cloud. Based on a May 2020 ESG Report commissioned by Dell EMC, "Performance Testing of Dell Technologies Cloud OneFS for Google Cloud", OneFS for Google Cloud can deliver up to 46x higher maximum read throughput and up to 96x higher maximum write throughput vs a competing vendor's NAS solution. With scale-out capacity up to 50PiB in a single namespace on Google Cloud, PowerScale delivers up to 500x higher file system capacity vs a competing vendor's NAS solution.

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