PowerMax: The Gold Standard for Enterprise Storage

By Martin Glynn | July 2021

Enormous changes last year transformed the way we think about data. ***Ninety-six*** percent of digital leaders say the ability to collect, analyze and act on data has made it easier to adapt and survive. Enabling these abilities requires a modern storage array platform with distinct attributes that efficiently stores, processes, protects, and turns IT workloads into information and outcomes for businesses to prosper, including:

- Mission-critical business continuity with robust disaster recovery capabilities
- Predictable, scalable performance, and efficient storage capacity for modern and traditional workloads including containers, Mainframe, IBMi, and Open Systems
- Protection and rapid recovery from cyberattack and malicious actions

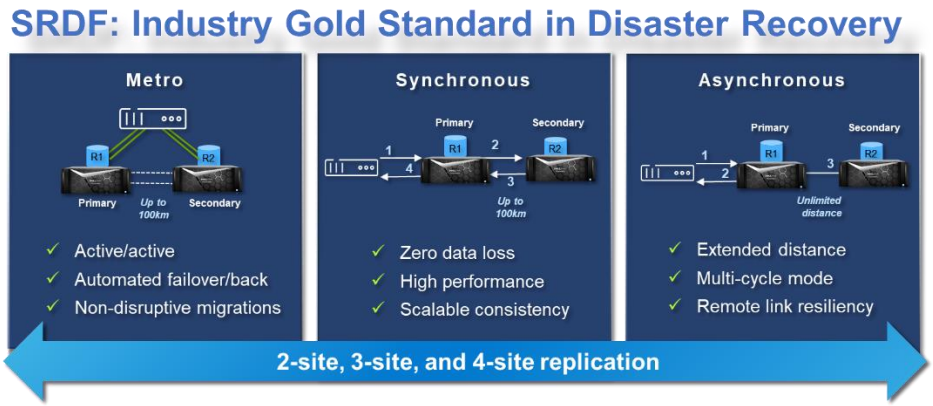
Fulfilling these requirements in a *single* platform has made Dell EMC PowerMax an indispensable cornerstone for essential operations. That is why 95% of Fortune 100 companies trust PowerMax with workloads that affect business outcomes. Competitive arrays lack a number of the robust capabilities required for important initiatives. Let's take a deeper look at what makes PowerMax special.

Highly Available Operations

Mission-critical applications must survive hardware or site failures without disruption. Businesses may require cost-effective resiliency to avert unaffordable downtime. PowerMax's long-standing strength is the industry-proven, gold standard replication architecture in Symmetrix Remote Data Facility (SRDF), which efficiently achieves robust business continuity goals without sacrifices through unique advantages over the competition:

- ✓ Setting up SRDF/Metro requires a few simple clicks in the UI. vWitnesses reduce infrastructure costs and setup complexity for replication quorum. SRDF/Metro Smart DR offers 3-site DR protection with a single image of the data at the asynchronously distant site accessible by other Metro sites.
- ✓ SRDF/S efficiently uses the same ports to replicate volumes between sites. If an extreme I/O burst overwhelms the links between arrays, you can efficiently switch from sync to async mode to maintain SLAs.
- ✓ SRDF and Remote RAID provide local hosts read/write access to data on remotely mirrored volumes, allowing more performant RAID schema without key compromises. An entire RAID group can go offline, and PowerMax seamlessly reaches across SRDF links to retrieve the data from the other side.

IDC's lab validation confirms Remote RAID is more cost-effective and offers ***thousands*** of times less risk of data loss than RAID 6 at both locations.



By comparison, Hitachi's remote replication is more complex, costly, and inefficient than PowerMax's SRDF. Is it practical for Hitachi's VSP 5000 to require multiple software and hardware components and a 3rd array or an iSCSI LUN on a server to act as the quorum for metro availability? What about the cost of metro links? They can't be both "master" and "target" simultaneously. Hitachi needs more ports to achieve bi-directional replication between sites. Hitachi's Asynchronous replication has no native compression, increasing bandwidth requirements by performing write-order fidelity at the source only to write-fold at the target. How do you manage sudden massive write bursts when it's impossible to toggle between sync and async modes since they are two distinct array features? Disruptive site failures are unavoidable if a RAID group fails since local hosts cannot access remote copies of data during sync or async replication. Are you willing to sacrifice performance when Hitachi recommends RAID 6 at both ends to mitigate the risk?

> PowerMax SRDF is the gold standard when you can't afford downtime because it's flexible, simple, and delivers the *same* outcomes without compromise.

Scalable Performance

Forecasting infrastructure demand is a challenge every organization faces as needs change, creating a scramble for resources. Managing rapid growth requires an efficient platform with predictable performance that consolidates both traditional and modern mission-critical applications on a single platform. ESG's report confirms what customers already know: PowerMax's enterprise-plus features deliver massive performance and scale for *any* workload:

- ✓ PowerMax shares and mirrors cache across up to 16 controllers, seamlessly scaling capacity and performance, achieving up to 15 *million* IOPS[1] and 350GB/s sustained bandwidth[2] to meet the most demanding requirements without manual balancing across controllers.

[1] Based on Dell EMC internal analysis of Random Read Hits Max IOs Per Second (Within a single array) for the PowerMax 8000, August 2020. Actual performance will vary.
[2] Based on Dell EMC internal analysis of Random Read Hits (64K IOs) Max GB per Second (Within a single array) for the PowerMax 8000, August 2020. Actual performance will vary.

- ✓ PowerMax leverages next-generation media with persistent storage for both NVMe flash and NVMe SCM. Machine learning and AI data placement between tiers reduce the burden on IT admins to optimize performance.
- ✓ Hardware-assisted data reduction delivers efficiency without performance impact. Future-Proof guarantees up to 3.5:1 DRR to stretch your investment further.
- ✓ Consolidate block, file, vVol, IBMi, and mainframe on a single system. PowerMax can host workloads like scale-out SAP HANA that require both file and block protocols from a single array—no need for multiple platforms spreading data across disparate silos.

It's hard to see how competitors can scale your business. What is IBM's answer after they stopped selling the FlashSystem A9000/A9000R in 2020? The replacement, FlashSystem 9200, is a dual-controller array, a far cry from the multi-controller architecture IBM abandoned. FlashSystem federation is a headache: you can't migrate or federate deduped volumes between systems at all, and migrating any other volume will delete remote replication relationships. Similarly, HPE's recent portfolio announcements leave high-end customers behind as 3PAR sails into the sunset.

HPE Primera, the spiritual successor to 3PAR, advertises support for Tier 0 workloads, but can it keep pace with the growing demands of mission-critical apps?

HPE's Primera has 1/4th the controller scalability of PowerMax, only 16 drives of NMVe, and ***no*** persistent SCM. The new Alletra 9000 improves NVMe support, but four controllers isn't the enterprise-plus scalability high-end storage environments require. HPE instead positions the XP8, a rebranded Hitachi VSP 5000, which suffers performance degradation when data reduction is enabled, just like HPE's own Primera and Alletra. Speaking of apps, do HPE and IBM expect you to piecemeal solutions to support diverse workloads? None of these platforms support native file or mainframe. How does this simplify management?

PowerMax fuels growth for the largest businesses in the world because of massive scalability and consolidation. When there's no room to slow down, the choice is clear: PowerMax enables ANY critical workload to prosper.

Protecting Your Business

Embarrassing headlines expose the growing importance of data security as malware targets snapshots and production data, holding businesses hostage, risking their reputations. Attackers are indiscriminate, reinforcing the need for *every* organization to have a robust security practice. PowerMax enables rapid recovery in the event of a malicious cyberattack through various malware protection features:

- ✓ SnapVX makes it easy to protect and recover your data from malicious attacks supporting ***millions*** of snapshots without performance impact.
- ✓ Control the lifecycle of your snapshots with Secure Snapshots that protect against accidental or malicious deletion.
- ✓ Cost-effective end-to-end efficient encryption protects data without losing the benefits of data reduction.
- ✓ Cloud Mobility, included with PowerMax, securely transfers application consistent snapshots to Microsoft Azure, AWS, or private clouds like Dell EMC PowerScale OneFS S3 and ECS. Quickly recover directly back to PowerMax or to AWS/VMware vSphere block storage without cumbersome workflows or breaking replication.

Questions about competitors affect your security strategy. Is IBM FlashSystem's limit of 10,000 snapshots with ***no*** feature to prevent accidental or malicious deletion able to restore from attack without significant data loss? What about long-term retention in the cloud? IBM's Transparent Cloud Tiering costs extra for FlashSystem, and volumes with remote or local replication can't have cloud snapshots. Will HPE Primera's lack of in-flight data encryption provide enough protection for your business? How does Hitachi's inability to reduce host encrypted data impact the cost of storing and protecting your data?

PowerMax delivers an uncompromising vision of IT security that protects your data without key trade-offs. Why settle for less with other arrays?

Enable Your Business to Thrive

PowerMax stands apart for mission-critical storage. Predictable and scalable performance, always-on availability, and robust security create value and protect your most critical asset: data. Others don't have the full suite of specialized capabilities needed to keep you competitive in today's dynamic

business environment. Find out how Dell Technologies and PowerMax can propel you forward here, or reach out to your local Dell or channel representatives to learn more about how you can leverage PowerMax, the leader in high-end storage.

Martin Glynn is a Senior Director of Product Management in the Storage Business Unit. Martin is a 12-year Dell EMC veteran with over 16 years' experience in the external storage industry. His current responsibilities include leading the PowerMax & Disk Library for Mainframe product management teams. Prior to leading the PowerMax & DLm teams Martin held a variety of roles within the storage product management and technical marketing teams for PowerMax, VMAX, and DMX-4.

Martin has worked closely with the largest enterprises in the world to transform storage infrastructure. He brings a unique perspective on the evolution of mission critical storage infrastructure and vision for the future.