# DELL EMC SCALEIO

Data Center Grade Software-Defined Storage Offering Superior Lifecycle Management and TCO

## Dell EMC ScaleIO Benefits

ScaleIO enables data centers to:

- Build an enterprise grade software-defined storage architecture utilizing standard x86 servers and Ethernet network.
- Operate at ruthless efficiency by deploying storage in minutes, expanding or upgrading hardware without forklift upgrades and simplifying overall storage lifecycle.
- Implement a perpetual storage infrastructure that deploys in any form, leverages any media type and scales to any size.

ScaleIO delivers elasticity and flexibility that can:

- Lower TCO by 50%
- Accelerate storage deployment by 83%
- Enable 32% faster application deployment cycle

*Source: IDC, "The Business Value of VxRack and ScaleIO", Sept 2016*

## Challenges of managing data storage at scale

The management of rapidly growing enterprise data on traditional storage systems is a constant challenge for many data center operation teams. As the focus turns increasingly upon business applications, many enterprises are learning that at large scale, traditional equipment, methods, and processes used in storage management cannot provide the scalability, flexibility and efficiency needed for today's rapid data growth. IT organizations are looking for ways to improve storage economics; standardize and automate storage provisioning activities; and simplify the overall management of the storage lifecycle amid technological and business changes.

## Traditional storage lifecycle management

Storage lifecycle management in IT is critical to operational efficiency and cost savings. In other words, storage decisions have to take into account everything it takes to own and operate storage - from the time you first start thinking about your requirements, all the way through the end of the life of an array and how you move on to a new one.

The traditional approach to storage lifecycle management is governed by the limited lifecycle of the hardware and software that the infrastructure is comprised of. This infrastructure also includes expensive HBAs, FC ports and switches and non-standard components.

In the following graphic you can see the traditional approach to storage lifecycle management. It starts with the planning phase which takes time and can involve people from different teams. This is when you are planning for capacity you "think" you will need over the next 3-5 years. Once the array arrives, you begin the process of installing it along with the network and assigning the storage to the application servers.

During this lifecycle, IT staff is constantly working to expand and optimize the environment due to fixed performance or capacity with limited scale. This is time that could be better spent on strategic business initiatives.

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As the array comes to the end of its life, the process begins again. However now you have the added step of migrating the data from the old array to the new array. Data migrations take time and increase risk to your data and your business as a whole.



Standard Array Lifecycle 3-5 Years
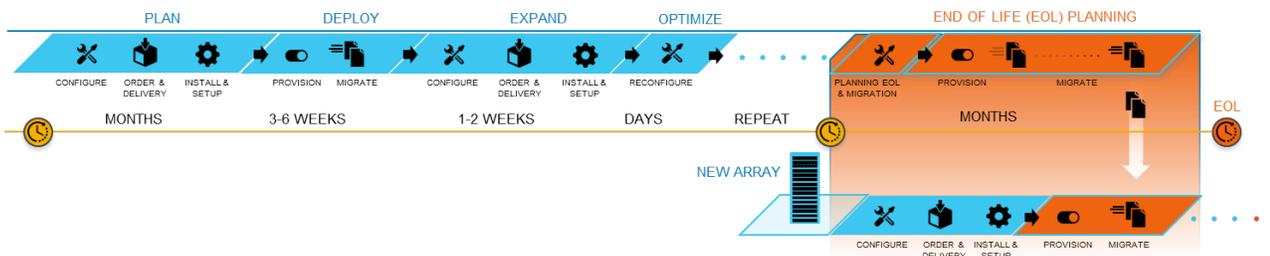
## Dell EMC ScaleIO

Dell EMC ScaleIO is scale-out software-defined storage (SDS) purpose built to help IT organizations transform their block storage infrastructure at their own pace. It enables customers to operate their data center with the efficiency of a web-scale company, regardless of the size of their organization, in the most efficient and cost effective way possible.

ScaleIO abstracts, pools and automates block storage in x86 servers, including high performance All-Flash media. First it abstracts the local storage, contained within each server. It then pools these resources together, creating a global pool of storage where no resources are left stranded.
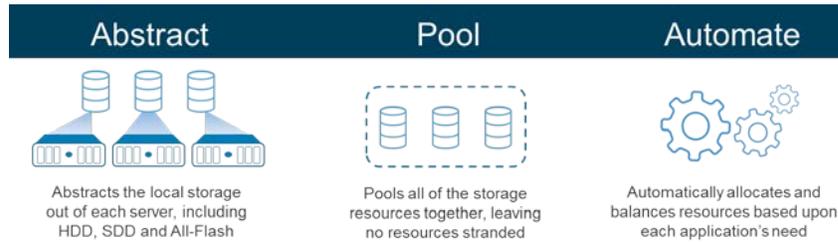


ScaleIO is now able to provide shared storage with enterprise class reliability. It automatically allocates and balances resources based upon each applications need. The applications are no longer constrained by only what is within the local server. What's more, you can add storage and/or compute on-the-fly with no downtime or impact to applications because ScaleIO automatically balancing the available resources. This simplifies storage lifecycle management and provisioning and empowers IT organizations to operate with ruthless efficiency.

## Simplified storage lifecycle

As an SDS solution, ScaleIO removes many of the complexities associated with managing storage. It enables data centers to standardize their infrastructures on x86 server hardware and Ethernet, minimizing dependence on custom-built components and eliminating the need for expensive network equipment and SAN expertise. Using standard components also reduces the time needed to plan, order and deploy SDS.

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Transforming storage with ScaleIO, also addresses the challenges customers are experiencing in managing multiple storage silos. By abstracting, pooling and automating storage, data centers can eliminate silos of multiple storage arrays and consolidate the capacity and workloads into a simplified SDS infrastructure.

This further simplifies the storage lifecycle by removing complex forklift upgrades and eliminating risky and expensive data migrations. Customer can perform non-disruptive rolling server upgrades without ever impacting applications.

ScaleIO is designed to support enterprises of any size and enable them to deliver massive scale, performance, elasticity and operational efficiency by using software automation.
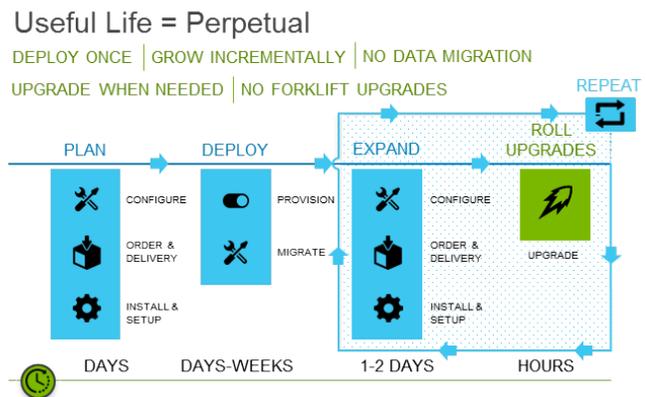


## Massive Scale

ScaleIO is designed to massively scale from three, to hundreds or even thousands of nodes. As the number of storage devices grow, so does throughput and IOPS. The scalability of performance is linear with regard to the growth of the deployment. Whenever the need arises, additional storage and compute resources (i.e., additional servers and/or drives) can be added together or independently, ensuring growth is always automatically aligned with application needs.

## Extreme Performance

Every server in the ScaleIO cluster is used in the processing of I/O operations, making all I/O and throughput accessible to any application within the cluster. Such massive I/O parallelism eliminates bottlenecks. Throughput and IOPS scale in direct proportion to the number of servers and local storage devices added to the system, improving cost/performance rates with growth. Performance optimization is automatic; whenever rebuilds and rebalances are needed, they occur in the background with minimal or no impact to applications and users.

## Supreme Elasticity

ScaleIO automatically rebalances data "on-the-fly" with no downtime. Additions and removals can be done in small or large increments. There is no more capacity planning which reduces complexity and cost. The ScaleIO system reconfigures itself as the underlying resources change; data is rearranged and spread evenly to optimize performance and enhance resilience. All of this happens automatically without operator intervention and therefore eliminates the need for costly and disruptive data migrations.

## Unparalleled Flexibility

ScaleIO provides you with the flexibility to redesign your storage environment using a traditional two-layer model, where application and storage reside on separate servers. This provides efficient parallelism and no single points of failure. You can select a modern one-layer co–resident model, where compute and storage reside within same server. This creates a single-layer architecture and offer the best TCO savings, while allowing you to modernize

your data center with greater efficiency. Or you can choose a mixed approach (a mixed configuration of tradition and modern).

Since EMC ScaleIO is hardware agnostic, you can choose any standard x86 hardware, any operating system, any
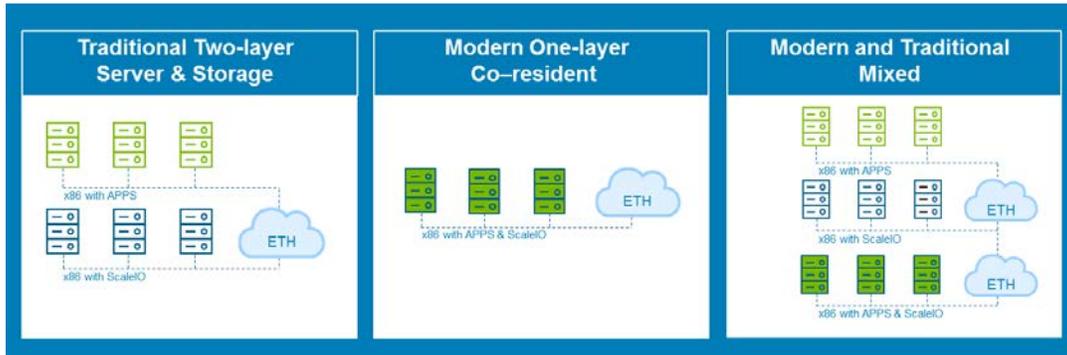


hypervisor and any media that work best for your applications and your business. Whether you are running traditional applications (such as Oracle, SAP and Microsoft) or modern applications (including NoSQL, Splunk, MongoDB), or are moving towards an OpenStack deployment, ScaleIO can support you all the way.

ScaleIO also provides three consumption choices that will help you reach your goals quickly and efficiently. You can consume ScaleIO as software only, an appliance (Dell EMC ScaleIO Ready Node) or as a fully engineered, hyper-converged, rack system (VxRack System FLEX).

**Enterprise Grade**

ScaleIO meets and exceeds the needs of enterprises and service providers by delivering features designed to increase resiliency, interoperability, monitoring, fault tolerance, security and more. It provides enterprise-grade data protection, multi-tenant capabilities, and add-on enterprise features such as QoS, thin provisioning, data-at-rest encryption and snapshots.

ScaleIO gives you complete control over performance, capacity and data location. You can limit the amount of performance—IOPS or bandwidth—that selected customers can consume. The limiter allows for resource distribution to be imposed and regulated, preventing application "hogging" scenarios. Data-at-rest encryption can be used to provide added security for sensitive customer data.

Protection domains allow you to isolate specific servers and data sets. This can be done at the granularity of a single customer so that each customer can be under a different SLA. Storage pools can be used for further data segregation, tiering, and performance management. For example, data that is accessed very frequently can be stored in a flash-only storage pool for the lowest latency, while less frequently accessed data can be stored in a low-cost, high-capacity pool of spinning disks.

**Realize the benefits of SDS with ScaleIO**

Transforming your storage infrastructure with ScaleIO means you can operate your data center with greater efficiency resulting in a lower TCO, the ability to stand up new services faster and an easier to manage storage lifecycle. ScaleIO customers are already reporting 50% lower TCO, the ability to accelerate storage deployment by 83% and deploy their applications 32% faster. Begin your transformation today and realize the benefits of ScaleIO.
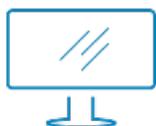
Learn more about Dell EMC ScaleIO solutions

Contact a Dell EMC Expert

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