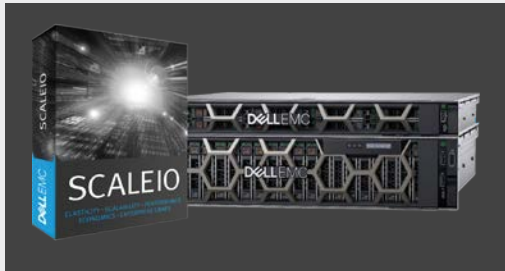


Dell EMC ScaleIO Ready Node

Software-defined storage building blocks designed for reliability and rapid deployment.

Essentials



- Pre-validated, tested and optimized servers to provide the best performance possible
- Single vendor for the purchase and support of your SDS software and hardware
- All-Flash configurations provide greater cost efficiency without sacrificing performance
- Scale-out SDS solution designed to deliver block storage with enterprise-grade resiliency

Benefits:

- **Easy to Order:** Select a hardware configuration that best meets your application needs
- **Easy to Deploy:** Deploy a solution which is pre-validated, configured and optimized to run ScaleIO software
- **Operational Ease:** Expand the resource pool or retire old servers without impacting applications
- **Transformed Storage Lifecycle:** Reduce the time and costs spent to configure, order, install and manage your storage infrastructure
- **Single Support Experience:** Fully supported by a single vendor for streamlined, collaborative support from the first call

Today's storage challenges

Today's IT infrastructures are siloed, inflexible and rigid. Application servers are connected via Fibre Channel and HBAs to dedicated storage arrays. Storage architectures that have dedicated workloads, SANs and expensive networking cannot always provide the scale, elasticity and flexibility needed to meet the demands of today's high performing applications, let alone the business as a whole. IT organizations are looking to move away from these complex and siloed environments which are plagued by inefficient planning, high costs and longer time-to-market. They are looking to modernize their data centers with software-defined storage.

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Modernizing the data center starts with, transforming your infrastructure with Software-defined Storage (SDS). By utilizing intelligent, purpose-built storage software, combined with industry leading x86 server hardware, you can design an infrastructure that delivers the agility and flexibility needed to respond and scale as business demands dictate.

Dell EMC ScaleIO Ready Node brings together next generation, rack-optimized, Dell EMC PowerEdge servers with Dell EMC ScaleIO software, the most agile, scalable and performant SDS solution for block storage. It fits within your existing infrastructure and is the perfect choice for organizations looking for ways to reduce the time needed to plan and deploy a new architecture. Having the software and hardware from a single vendor, delivering single support, greatly simplifies the process of procuring and deploying a fully architected SDS solution. Also the ability to select from different deployment models and configurations, including All-Flash, provides you with the flexibility to select pre-configured Ready Nodes that best meets your business objectives.

Deployment Models: Two-Layer, One-Layer or both – your choice

ScaleIO Ready Node is designed to address today's block storage challenges with an SDS solution. You can redesign your storage environment using a traditional two-layer model (separate application and storage architecture), modern one-layer, hyper-converged, model (compute and storage within one server) or mixed approach (a mixed configuration of tradition and modern). If your immediate goal is to reduce costs and maximize scale and performance, without impacting your current staff and operations, you can begin with a two-layer SDS

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model. Simply leave your applications running the way they are today, on independent servers, and transform the way you handle your block storage.

You can also choose to run your applications on the same servers as your storage, bringing compute and storage together within the architecture. This one-layer hyper-converged approach provides the flexibility to scale your storage and compute independently to meet workload and application demands. Hyper-converged deployments also offer the best TCO savings, while allowing you to modernize your data center with greater efficiency.

The Software: Dell EMC ScaleIO software-defined storage

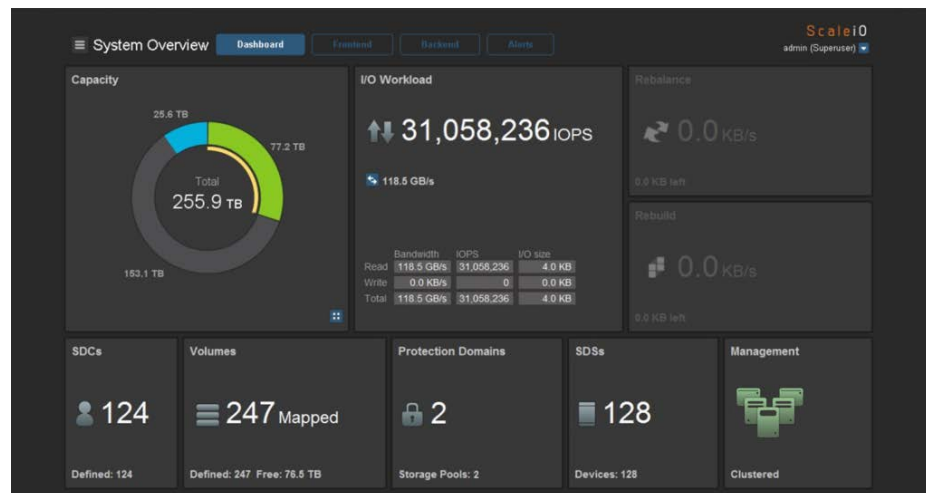
ScaleIO is data center grade SDS for block storage needs. It applies the principles of server virtualization (abstract, pool and automate) to storage using software and x86 standard servers to create a high performance SDS infrastructure. ScaleIO deployments deliver a radical reduction in storage lifecycle costs and the time needed to stand up new services while simplifying management. As a result, IT organizations are able to create a highly efficient and web-scale operating model.

ScaleIO supports physical and/or virtual application services and has been proven to deliver significant TCO savings vs. traditional SAN. It is designed to run on x86 servers and deeply validated on Ready Nodes and enables data centers to scale from 3 nodes to over a thousand nodes in a single cluster. ScaleIO also uses significantly lower CPU and memory resources. This makes it a far more efficient solution for hyper-converged infrastructures (HCI), such as VxRack System with FLEX, as it reduces the need to add more hardware resources to the cluster; enabling you to better manage your CAPEX. In addition, it provides enterprise-grade data protection, multi-tenant capabilities, and add-on enterprise features such as QoS, thin provisioning, and snapshots. ScaleIO delivers the scalability, elasticity, flexibility and performance needed to meet the demands for whatever comes next.

“When running the application on the same hardware as the storage resources, ScaleIO software has no negative hit to the workload itself. This is an impressive feat in and of itself, considering other HCI platforms almost always sap a large percentage of CPU resources to manage background processes (some as high as 30%).”

StorageReview Enterprise Lab

“EMC VxRack Node powered by ScaleIO: SQL Server Performance Review (HCI)”, July 2016



System wide visibility and cost effective management at scale

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The Hardware: Dell EMC PowerEdge servers optimized for ScaleIO

ScaleIO Ready Node combines ScaleIO software with Dell PowerEdge servers. These industry leading server configurations have been tuned and optimized for ScaleIO software so you attain the highest levels of performance possible. These next generation servers include the latest Intel processors, which deliver higher core counts for I/O intensive applications, reducing bottlenecks and further improving performance. The ability to achieve unprecedented scale, elasticity and performance is simplified using this pre-validated, configured and fully supported solution. ScaleIO Ready Nodes come with a single support model for both the hardware and software, providing you with world class support from a single vendor.



The Configurations: Designed to support your block storage workloads

ScaleIO Ready Node provides different server node configurations that are designed to be optimized for capacity or performance, and any combination in between. You can select from over 1000 pre-validated configurations, including All-Flash, All-HDD and Hybrid options, on by PowerEdge 1U1N servers (R630, R640) and 2U1N servers (R730xd and R740xd). Start building your infrastructure with either capacity or performance nodes and add, modify or mix and match the system as needs change. The flexible deployment models make it possible to create multiple All-Flash and Hybrid storage pools - all in a single cluster.

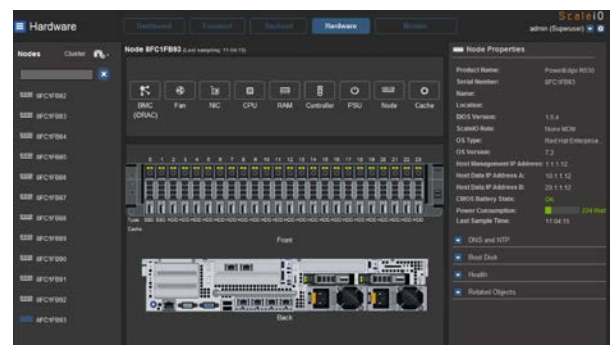
The different configurations not only provide you with the flexibility to adopt a software-defined architecture which best meets your needs, but also make capacity planning easier. You no longer need to purchase more CPU or storage today because of what you may need 3- 5 years down the line. You can now adopt a “pay-as-you-grow” approach to capacity planning because ScaleIO Ready Nodes makes it possible to add and/or remove compute and/or capacity, without interrupting your business, as your infrastructure changes and demands require.

Bring All-Flash closer to your applications

The ScaleIO Ready Node All-Flash configurations meet the demands of mission-critical enterprise workloads, delivering high levels of performance, capacity and cost efficiency. The unique SDS scale-out and highly parallelized architecture of ScaleIO, unleashes the full power of all-flash. All of the SSD drives within the ScaleIO Ready Node cluster work in parallel to serve all reads and writes, eliminating any and all bottlenecks. The ability to take full advantage of the aggregate performance of all SSDs in a single cluster makes it possible for performance to scale linearly as you add more nodes. For applications that require ultra-high performance, the All-Flash configurations are ready to meet the needs of these enterprise applications, delivering instant access with extreme response.

The Management: End-to-end monitoring and automated provisioning

ScaleIO’s transformative approaches to deploy, operate, and manage enterprise software-defined block storage delivers capabilities designed to accelerate infrastructure deployment and manage lifecycle operations with ease. For customers that are deploying hyper-converged ScaleIO Ready Nodes with VMware ESX, on PowerEdge R630 and/or R730xd servers, the software management capabilities of ScaleIO can automatically discover the hardware and configure network. It also enables administrators to create VMware entities such



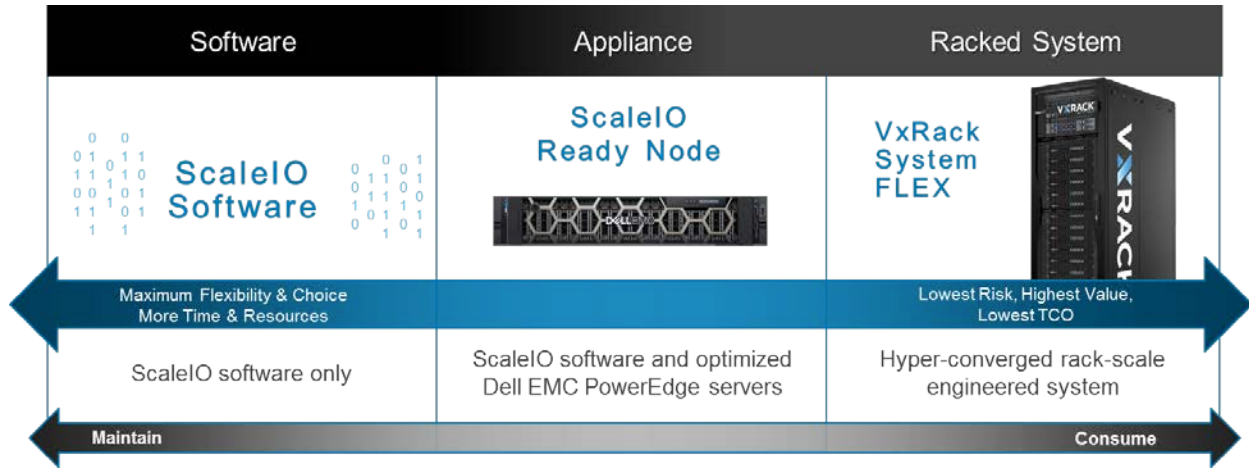
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as compute clusters, virtual machines (VMs), data stores and application networks – all from a single management console. The management capabilities help to simplify lifecycle management of ScaleIO Ready Nodes by selecting the compatible hardware components and identifying and applying the required Operating System (OS) patches and firmware upgrades. The end-to-end monitoring and management of these ESX HC ScaleIO Ready Nodes means data centers can experience greater operational efficiency, while reducing risks and administration overhead associated with manual configuration tasks.

Integrating into your infrastructure

ScaleIO software has delivered upon the promise of scale out software-defined storage utilizing standard hardware. It provides extreme performance, massive scale and superior elasticity. You have 3 different ways to consume ScaleIO.



ScaleIO Consumption Options

- VxRack FLEX integrates compute, software-defined storage, networking, and virtualization. It then utilizes ScaleIO software, and VCE Vision™ Intelligent Operations software, to create a turnkey, hyper-converged infrastructure (HCI) solution that is fully supported and sustained.
- ScaleIO Ready Node combines ScaleIO software with optimized Dell PowerEdge servers, greatly simplifying the process of procuring and deploying an SDS architecture. You can have confidence in knowing that the solution is fully supported, pre-validated, tested and configured to provide the best performance possible.
- ScaleIO software empowers you to turn your x86 servers into an SDS infrastructure.

These 3 consumption models make it possible for you to transform your infrastructure and move towards a modern data center architecture based upon your needs and pace.

ScaleIO Ready Node provides you with the flexibility to utilize your own data center and/or networking infrastructure to quickly implement an SDS server SAN architecture. It provides the same powerful ScaleIO SDS software as the VxRack FLEX but can be ordered as single server nodes if a fully engineered system is not needed. This enables you to integrate your own racks and network switches with the fully supported and tested server/software combination for a highly flexible, scalable and elastic SDS solution. Simply choose the ScaleIO Ready Node configuration right for you and reduce the time needed to implement a software-defined architecture, getting to the benefits faster.

ScaleIO Ready Node: The Next Evolution in IT Transformation

Dell EMC ScaleIO Ready Nodes are the perfect building blocks to achieve unprecedented scale, elasticity and performance, with unmatched flexibility to grow and adapt to ever-changing business needs. Next generation, rack-optimized, Dell EMC PowerEdge server designed to reduce the time spent planning and deploying new architectures.

- **All the benefits of ScaleIO:** Take full advantage of the massive scalability, flexibility and elasticity of ScaleIO. Build a data center grade, cost effective, SDS architecture utilizing software, standard x86 servers and Ethernet network. Operate with ruthless efficiency by deploying storage in minutes, expanding or upgrading hardware without data migrations or forklift upgrades. Experience simplified storage lifecycle management with a perpetual storage infrastructure that deploys in any form, leverages any media type and scales to a thousand plus nodes in a single cluster.
- **Enterprise-grade, no-compromise resilience:** ScaleIO Ready Nodes are tested and validated, so whether you are deploying hyper-converged compute and storage or software-defined storage, you can depend on this optimized building block to provide the resiliency and availability your business demands. Designed for extensive fault tolerance, the ScaleIO software has a highly parallelized architecture with auto-rebuild / rebalance capabilities which eliminate single points of failure. Customers have been able to reduce unplanned downtime by as much as 96%¹.
- **Quick and easy to deploy:** Before you get a ScaleIO Ready Node, Dell EMC has not only configured it for firmware and software compatibility, but also for optimal performance for your ScaleIO cluster environment. Since it's delivered with the configuration steps completed and tested, it's easy to order and a snap to deploy. All this, in a solution that's fully supported by a single vendor – Dell EMC – for streamlined, collaborative support from the first call.

Source 1: IDC, Business Value of VxRack and ScaleIO, Q2'2016



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