

DriveScale Composable Platform

The dynamic nature of data-intensive computing applications deployed with today's fixed, static configurations of direct-attached storage servers and storage appliances creates costly overprovisioning and unneeded operational complexity. DriveScale offers a fundamentally different approach with the DriveScale Composable Platform.

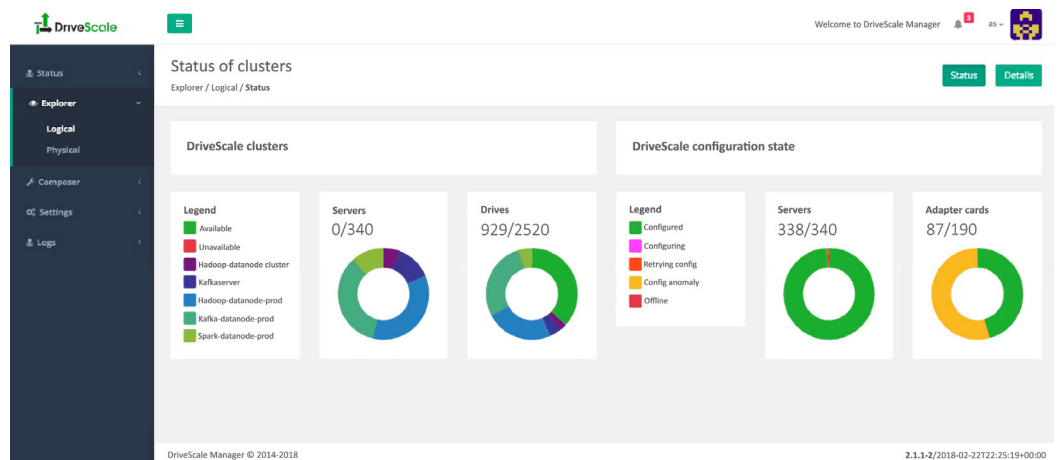
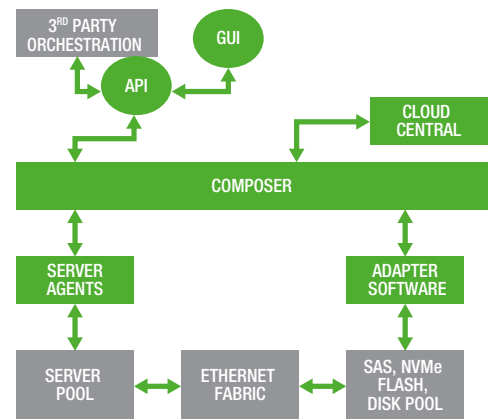
The DriveScale Composable Platform enables users to create their own servers on the fly with the exact compute and storage resources required for an application or workload using heterogeneous, low-cost compute, storage and network fabric. With DriveScale, compute and storage are disaggregated from the traditional direct-attached storage server and connected to a standard Ethernet network, and users compose and easily re-compose resources into adaptable servers that are clustered into high scale, high-performance platforms ready for bare metal or containerized applications.

The DriveScale Composable Platform includes DriveScale Composer, DriveScale Server Agents, DriveScale Adapter Software and DriveScale or third-party storage adapters to connect storage to a standard Ethernet network. DriveScale also provides a cloud-based administration site called DriveScale Cloud Central for software upgrades, audit logs and a global view of a company's deployments.

DriveScale Composer

DriveScale Composer is the orchestration and monitoring application for the DriveScale software platform. Composer communicates with DriveScale Server Agents and Adapter Software to fully automate the creation of composable servers and their logical resource clusters from the user-defined configuration or template, taking only seconds to configure a server for application deployment or re-configure the resources as needed. Composer provides an inventory of all components in the resource pool and in deployed clusters as well as ongoing monitoring of the health and performance of the DriveScale clusters.

Composer provides a web-based graphical user interface and exposes a RESTful API that can be integrated into any orchestration or management application.



DriveScale Composable Platform

Composer provides

- Resource pool inventory
- Server and cluster configuration and templates
- Cluster delete, suspend, re-animate
- RAID levels and partitions
- Encryption and key management
- Drive shredding
- Monitoring, alerts and fault management
- Traffic load balancing
- Audit log and daily snapshots

Server Agents

- Server node inventory (sent to Composer)
- Server configuration and status
- Executes encryption and implements RAID

Adapter Software

- SAS and NVMe to Ethernet bridge
- Disk inventory (sent to Composer)
- Disk monitoring
- Flash slicing

Cloud Central

- Software updates
- Audit log history
- Deployment overview

DriveScale creates server and storage infrastructure that is high performance, highly available, high scale and secure.

- Direct-attached like performance is maintained at scale as well as high I/O for flash.
- The high availability design of the DriveScale Platform increases accessibility of data and enables quick resolution of compute or drive failures using the Composer application. While deployed with third-party diskless compute, JBODs and eBODs (Ethernet Box of Drives) for HDDs and flash, the DriveScale Composable Platform ensures high availability with dual connections and paths and automates the ability to fail over or change paths as needed. Our patented load balancing manages traffic for congestion and our patent-pending data placement system ensures data resiliency across bandwidth and failure domains. In addition, DriveScale provides persistent storage volumes for Kubernetes.
- The DriveScale platform is architected to scale to the requirements of cloud-scale clusters. Today, it has been tested to thousands of compute nodes and over a 100,000 drives in a single cluster.
- To ensure multitenant applications running in DriveScale clusters are secure, DriveScale authenticates compute nodes and drives and securely mounts drives using a cryptographically secure channel. Compute nodes bound to a composed server in a cluster cannot access any other DriveScale cluster. Drives mounted to a compute node in a cluster cannot be accessed by compute nodes that are not part of that DriveScale cluster.

With ultimate flexibility to design and create almost any server configuration, users can design all-flash servers or mixed HDD and SSD servers, as well as a wide variety of compute to drive configurations such as one compute node to five drives or one compute node to 200 drives. Whatever is needed to meet cost or performance requirements.

The DriveScale Composable Platform enables IT to eliminate overprovisioning, shorten the time to deliver server infrastructure for applications, and decouple compute and drives to upgrade independently, significantly lowering the cost of their data-intensive computing infrastructure.

Function	Description
Composer	Can be deployed in VMs or on bare metal. Minimal requirements: 3-way high-availability configuration
Inventory	Servers, JBODs, eBODs (Ethernet Box of Drives), SAS and NVMe adapters, Ethernet switches
Clusters	Manage, monitor and operate
Drives	RAID, partitioning, encryption
Fault monitoring and alerting	HDD and SSD drives, SAS and NVMe adapters, network port
Usage monitoring	Compute, memory, disk, network bandwidth
RAID levels supported	1, 6, 10
Linux distributions supported	CentOS/RHEL 7.x, Ubuntu 14.04, Ubuntu 16.04, Ubuntu 18.04, Oracle Linux