

## REPORT REPRINT

# Portworx enters hot market with storage built on containers for containers

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In a fast-growing container software market, Portworx seeks to stand out with a focus on enterprise storage. But it faces growing competition from other startups, and from established vendors wading deeper into containers.

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Portworx provides storage software for containerized applications built on Docker and other container software. While containers are gaining enterprise interest and use for speed, efficiency, manageability and other advantages, Portworx says established storage technologies such as SAN and NAS are not well suited for containerized applications.

To better support containers and extend beyond plug-ins and mostly web, stateless applications with containers, Portworx offers its PX and PX-Lite software as the storage layer for containerized applications. Portworx is among startups and established vendors bolstering storage for containers, but also aims its software at enterprise DevOps efforts, which continue to grow among more companies and verticals.

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## THE 451 TAKE

Portworx is fairly unique with its software-defined storage built on containers for containers. Although it is not alone in responding to enterprise data management, persistence and storage needs, Portworx draws users interested in speed and efficiency with the agile infrastructure, provisioning and scaling supported by its software. Many rival storage plays around containers have been based on plug-ins and integrations, so a fresh start at container storage is beneficial to Portworx and its customers. The company is certainly participating in the broader container software community as well as specific projects, but it may need to open-source some of its own technology - it is our belief that community software that extends beyond specific vendors will win the most traction in this market.

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## CONTEXT

Redwood City, California-based Portworx provides storage software for containerized applications, and is intended to allow enterprises to achieve more agile software development and deployment processes, and consistency among development and production environments. The company was founded in 2015 by veterans of Google, Microsoft and Nimble Storage, and by the same founders as Ocarina Networks, which was acquired by Dell in 2010. Portworx announced \$8.5m initial funding in a round led by the Mayfield Fund in June 2015. It has 20 employees.

Portworx touts the rapid growth of containers in the enterprise, and we see relatively aggressive adoption in our Voice of the Enterprise (VoTE) survey research, particularly considering that modern application containers are only three years old. Our VoTE Software Defined Infrastructure Q4 2015 survey of 553 enterprise IT decision-makers showed that more than one third of respondents indicated containers were in use or in pilot/proof of concept (16% in use, and 17.9% in pilot/proof of concept). Although half of respondents highlighted the early nature of the container trend and indicated containers were not in their plans, another 15% had implementation plans in the next six months to two years.

## PRODUCTS

Portworx provides PX-Developer software to developers for free, and PX-Enterprise via subscription. PX-Developer allows users to provision storage capacity through a container, and run applications with elastic, highly available storage. The software also supports fine-grained control on storage priority, capacity and scale.

PX-Enterprise adds a graphical user interface (GUI) and other features, including cluster-wide management and visibility capabilities. The company also offers PX-Lite, which supports highly available storage delivered as a container. The PX-Lite software aggregates local storage resources, such as all-flash and SATA arrays, so they can be managed as a global pool.

Since it is purpose-built for containers, Portworx says its software is able to ensure data persistence for containerized applications across servers, and supports per-container storage management, even on multi-cloud infrastructure. Enterprise capabilities include container-granular snapshots and replication, predictive capacity management, and global file namespace. The software automatically optimizes storage for containers and ensures data persistence across servers. Portworx touts the speed advantages of its software in storage deployment and bare-metal performance, as well as its ability to scale to hundreds of containers or more.

The Portworx software is intended to enable enterprise IT operations teams to more rapidly respond to developer and line-of-business demands, particularly for application containers such as Docker, which is gaining recognition as a faster, simpler and more manageable way to support applications and infrastructure using a broad array of software components and infrastructures. Portworx allows rapid scaling of applications without IT intervention through automated, provisioned storage to containers, cutting down on infrastructure tweaking and scripting that causes delays.

Portworx is also trying to allow enterprise IT operations teams to respond to container demand with container-centric and container-native approaches, rather than with virtual machines (VMs), which is very common in the enterprise. Companies don't necessarily get all of the speed, simplicity, manageability or other benefits of containers by running them inside VMs, but they do get some of the benefit, along with the assurance and tooling of their existing VM-based processes.

Portworx says its software allows users to satisfy both developers and IT operations teams with container-native infrastructure that includes storage. Portworx contends legacy storage doesn't work for containers in fields such as bio-computing, where data sets and models must be able to burst and run on software-defined storage rather than hardware-centric storage. Portworx also highlights the complexity and cost of managing stateful containers with legacy storage architecture. The company contends container storage must work like containers, and that means spinning up quickly and enabling management as a distributed system.

## USE CASES

Portworx points to several key use cases for its software, most of which center on adjacent trends such as big data and DevOps. For database management, Portworx highlights middleware upgradability and reduced licensing costs with software such as Cassandra and Postgres. In a big-data use case, Portworx says its software is particularly useful for supporting data management and analytics software such as Hadoop and Sparc with elastic scaling capacity and rapid repurposing of servers.

In technical computing, Portworx can support simpler collaboration on data sets and applications and reduced storage costs. Other key use cases include content management with scale-out file workloads, and container-granular backups and video processing, where fan-out processing of bulk data is useful.

## COMPETITION

While Portworx is among a select group of pure-play container storage startups, there are other new vendors addressing some of the same enterprise challenges with container storage. Diamanti (previously named Datawise.io) has developed networking and storage software for containers, and recently emerged from stealth with a hyper-converged infrastructure (HCI) appliance for containers.

Hedvig incorporates container support in its distributed storage platform. Robin Systems is another rival that provides container-based compute and storage virtualization software. StorageOS is a container storage startup that integrates Docker containers into its enterprise storage array. ClusterHQ is another container pure play focused on storage, along with data management and services.

Cloud and software-defined storage providers such as Asigra and Nexenta are among those supporting containers and thus, are competition for Portworx. A number of newer and established storage vendors are also integrating and supporting containers. These include Coho Data, which supports containers with its enterprise storage software; EMC, which recently announced the libStorage project for a container-focused storage provisioning framework; and Oracle, with container connections to its database, data management, middleware and other software.

Large systems and storage providers will be jumping into this market with both feet, and we expect Cisco, Dell, EMC, Fujitsu, HPE, IBM and Lenovo to either bring their own offerings to market, or act as hardware suppliers for the software players. We also anticipate that current HCI players such as Nutanix, DataCore Software, SimpliVity, Maxta and Springpath will be active in this space.

## SWOT ANALYSIS

### STRENGTHS

Portworx is a storage software vendor built natively on containers to support container infrastructure and applications, rather than a plug-in or integration of a non-container storage technology.

### WEAKNESSES

The company's software is free for developers but it is not open source, and this may limit the size and scope of the Portworx community.

### OPPORTUNITIES

Enterprise adoption of containers is growing, and there will be growing demand for support of stateful applications and the data persistence Portworx provides.

### THREATS

In addition to rivals in storage, Portworx may also have to compete with big data, cloud infrastructure, PaaS and other vendors that include storage in their container software and services.