



# Red Hat OpenShift Deployment Ready Solutions on Lenovo Servers

## Solution Brief

### Innovate faster with containers and Kubernetes

To stay competitive and relevant organizations in every industry are digitally enabling their value chains to take advantage of new technologies. Organizations depend on applications to engage customers, partners, employees, and achieve business goals. Fast, secure, and continuous deployment of applications is the backbone of most successful organizations. Companies that continuously improve their digital experience are more likely to outpace competitors and avoid the risk of obsolescence.

Containers are key to modernizing application development. Cloud-native, microservices architectures based on containers and Kubernetes help accelerate your ability to develop new applications, modernize existing business-critical apps, and add intelligence/machine learning to enhance existing apps and processes.

### Modernize your IT infrastructure with Red Hat and Lenovo

Red Hat® OpenShift® is the industry leading<sup>1</sup>, enterprise-ready Kubernetes application platform for building and running container-based applications. It helps organizations modernize their applications and infrastructure, accelerating digital enablement of their value chain and fueling growth. With Red Hat OpenShift you can:

- **Focus on innovation and speed.** Developers can build containers once and deploy them anywhere in Kubernetes environments across cloud and non-cloud footprints. They can get applications to production sooner with a wide range of technologies and streamlined workflows.
- **Provide a cloud-like experience, everywhere.** Red Hat OpenShift provides full-stack and automated operations on a consistent foundation for on-premises or hybrid cloud infrastructures. It provides operational consistency and efficiency at scale in hybrid environments.
- **Deploy Kubernetes seamlessly across infrastructures from edge to cloud.** Red Hat OpenShift provides continuous security, world-class support and services, and deep expertise to confidently run any application. Enjoy security and compliance at scale without delays or operational risk.

OpenShift can run on a wide range of Lenovo infrastructure - including Lenovo ThinkSystem® and ThinkEdge® servers, ThinkAgile® hyperconverged systems, and storage - and soon will be available as a service on Lenovo TruScale® Infrastructure Services. The combination provides scalable container platform solutions that help you build, deploy, manage, and secure containers and virtual machines across private, public, hybrid, and multi-clouds.

The Lenovo ThinkSystem family includes rack, tower, edge and blade form factors from single-socket through to eight-socket systems, with the latest processors from Intel and AMD. Lenovo ThinkSystem servers are high performance systems and are consistently ranked #1 in reliability among x86 servers<sup>2</sup>.

### Red Hat OpenShift / Lenovo use cases

With container-based infrastructure solutions from Red Hat and Lenovo you can modernize existing applications, build cloud-native applications, add artificial intelligence (AI) to cloud-native applications, and quickly integrate with custom and third-party services to support a variety of use cases from the datacenter to the cloud and out to the edge.

Red Hat and Lenovo offer starting point configurations for several key use cases. Each of these key use cases can be found on the [Lenovo Data Center Solution Configurator](#).

- **Minimum Cluster:** This 3-node Red Hat OpenShift cluster (each node doubles as both a control node and a worker node) is the smallest, fully functional OpenShift cluster offering high availability. It is ideal for edge sites or regional datacenters with restricted space and power/cooling requirements. The 3-node cluster configuration consists of the Lenovo ThinkSystem SR630 V2 running Red Hat OpenShift Platform Plus, which includes OpenShift Container Platform (container/VM management), Advanced Cluster Management (multi-cloud/cluster management), Advanced Cluster Security (cluster/container security), Quay (global image registry) and OpenShift Data Foundations (container storage).
- **Single node:** The single node Red Hat OpenShift configuration deploys all OpenShift services and end-user applications on a single physical or virtual node. It is ideal for edge use cases with limited space, low bandwidth, or intermittent connectivity between remote and core/central sites. The single node configuration (running all OpenShift services) consists of the Lenovo ThinkEdge SE450 Edge Server running Red Hat OpenShift Platform Plus.
- **AI Edge:** The AI Edge Red Hat OpenShift configuration accelerates artificial intelligence/machine learning (AI/ML) workflows and the delivery of AI-powered intelligent applications. This single-node solution (running all OpenShift services) can be deployed from the edge to on-site, virtualized, and private cloud deployments to public clouds. The AI Edge configuration consists of the Lenovo ThinkSystem SE350 Edge Server, with GPUs, running Red Hat OpenShift Platform Plus.
- **Datacenter cluster:** The Datacenter Cluster Red Hat OpenShift configuration provides complete container orchestration needed to deploy and manage containerized applications. It eases the burden of configuring, deploying, managing, and monitoring the largest-scale deployments. This six-node cluster configuration (3 control nodes and 3 worker nodes) consists of the ThinkSystem SR630 V2 running Red Hat OpenShift Platform Plus.
- **HCI:** The Red Hat OpenShift on HCI configuration provides a best-in-class solution for building, scaling, and managing cloud-native applications on-premises and in hybrid cloud environments. Hyperconverged infrastructure (HCI) systems let you pool your compute and storage resources into a single virtualized infrastructure for more flexible and efficient utilization and management. This solution consists of Lenovo ThinkAgile HX systems running Red Hat OpenShift Platform Plus powered by Nutanix HCI software. Shipped from Lenovo as integrated systems or certified nodes, the ThinkAgile HX systems are resilient from the ground up. Nodes are self healing and upgrade without disrupting application performance.

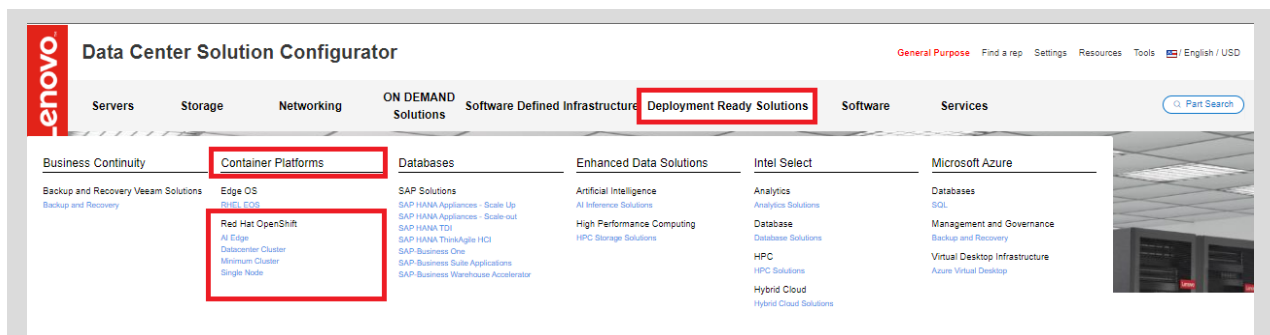


Figure 1: Finding use case configurations on the Lenovo Data Center Solution Configurator

## Global IT for an open, connected world

Red Hat and Lenovo provide integrated hardware and software solutions That extend from the datacenter to the cloud and out to the edge. Together, Red Hat and Lenovo offer an open, container-based hybrid cloud approach and a portfolio that combines Red Hat's leading open source platforms and Lenovo's leadership in enterprise hardware and infrastructure management. Lenovo Deployment Ready Solutions for Red Hat OpenShift help businesses in every industry to deliver critical applications, whether migrating existing workloads to the cloud or building new experiences for customers.

## For More Information

To learn more about Red Hat OpenShift Deployment Ready Solutions on Lenovo servers, contact your Lenovo representative or Business Partner, or visit the [Lenovo Data Center Configurator](#) for container platforms. Additional resources include the [Reference Architecture for Red Hat OpenShift Container Platform on Lenovo ThinkSystem and ThinkAgile HX Servers](#).

<sup>1</sup>Who's Winning in the Container Software Market, ITPro Today, June 29, 2021

<sup>2</sup>TIC reliability study

## Related product families

Product families related to this document are the following:

- [Red Hat Alliance](#)
- [ThinkEdge SE450 Edge Server](#)
- [ThinkSystem SE350 Edge Server](#)
- [ThinkSystem SR630 V2 Server](#)

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