

Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System

Innovative virtualized performance and reliability

Remove Complexity and Uncertainty

The valuable data your business owns can give you a competitive advantage. But you will only realize that data's full power if your users can analyze and access that information where, when and how they need it.

Providing users with access to business intelligence on virtualized compute platforms can help your business realize the power within its data. But that virtualization can increase demands on IT systems, infrastructure planning and IT staff. Since performance is defined by how well administrators master technical priorities to deliver tangible business benefits, they must find ways to simultaneously reduce this pressure while capitalizing on the insights hidden in the business data.

The design focuses on removing the complexity and uncertainty of deploying and managing a Hyper-V-based virtualization environment. The use of a converged Flex System configuration with Fibre Channel over Ethernet (FCoE) helps minimize the number of switches and cables that are needed in a typical environment. Microsoft System Center 2012 R2, with Lenovo XClarity Upward Integration Modules by Lenovo, provide the management environment to monitor and maintain the virtual infrastructure.

Breakthrough technology from Lenovo can provide that virtualized power—even with capital and operational resource constraints. The Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System provides outstanding server virtualization performance for secure, anywhere and anytime access to each user's individualized desktop. The Lenovo guide associated with this configuration is focused on assisting organizations and IT engineers that are considering implementing a Hyper-V cloud deployment to better understand the hardware and software that make up the Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System.

Combining standardized hardware, software and memory advancements on the server, and tested to work with the built-in capabilities of Microsoft Hyper-V, this virtualization configuration is housed on the latest generation of Lenovo Flex System M5 architecture, and is built to be fast, agile and resilient. The result is an ability to meet your users' data access needs without negatively impacting your IT organization.

HIGHLIGHTS

- Cloud ready configuration on an industry proven platform
- Designed for performance and scale
- Fully isolated multitenant environment
- Certified by the Microsoft Fast Track Program
- Reduced time to value



CONFIGURATION BRIEF

Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System



Fast server virtualization

Successfully competing in today's market requires anywhere, anytime access to business intelligence. To derive insight from large data volumes, you need a powerful system capable of providing robust virtualized capabilities to desktops, laptops, smartphones, tablets and thin clients.

This private cloud configuration for Microsoft Hyper-V is based on converged infrastructure technologies from Lenovo and NetApp that are integrated to form an Infrastructure-as-a-Service (IaaS) solution that is cloud-ready. The infrastructure stack includes the Flex System Chassis that is populated with the latest Compute Nodes, Converged Switches, and a NetApp unified storage that is based on Clustered Data ONTAP.

The solution provides a flexible, affordable, and reliable industry-leading cloud-ready platform that is simple to deploy and manage. The integration between the hardware components and Microsoft Hyper-V and System Center takes the complexity out of the solution to allow IT functions to focus on optimizing the delivery and the consumption models of the services that best meet the needs of their customers.

This configuration is validated under the Microsoft Private Cloud Fast Track program and covers all the components, including the Microsoft software. Another key aspect of this configuration is redundancy and fault tolerance across the servers, storage, and networking for the Windows Servers to help ensure a defined level of fault tolerance while managing pooled resources.

Agile system design

Faster virtualized performance is certainly crucial to maintaining your competitive edge. But it is a business reality that you will undoubtedly require more performance capabilities next year than you do now.

By pooling computing, networking, and storage capacity with Microsoft Hyper-V in a Windows Failover Cluster helps to eliminate single points of failure so that users have near-continuous access to important server-based, business productivity applications. An independent cluster that is hosting the management fabric that is based on Microsoft System Center 2012 R2 with Lenovo upward integration components provides an environment to deploy, maintain, and monitor the production private cloud. Similar integration, operational efficiency, and high availability are also part of the NetApp storage layer.

This approach allows you to:

- Create a highly available, elastic, and flexible virtualization environment based on Flex System, NetApp clustered Data ONTAP Storage, and Microsoft Hyper-V.
- Create a two-node cluster to form management fabric that is based on Microsoft System Center 2012 R2 and Lenovo XClarity Upward Integration Modules.
- Create an eight-node compute cluster that is used for deployment of production resources.

CONFIGURATION BRIEF

Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System

Microsoft Hyper-V includes support for simultaneous live migrations with the ability to move multiple VMs at the same time. This enables a more agile, responsive infrastructure and a more optimal use of network bandwidth during migration.

In addition, Microsoft Hyper-V also comes with live storage migration. This allows a system administrator to move virtual disk drives that are attached to a running VM. The result is no-downtime virtual disk drive transfer for system maintenance, storage upgrading or load redistribution.

Resilient enterprise platform

Virtualized speed and scalability are vital to maintaining a market edge. But because unanticipated or excessive system downtime can neutralize those performance and agility advantages, system dependability is equally important.

The Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System is built on the proven reliability of the Lenovo Flex System platform. As an example, advanced memory recovery capabilities monitor and identify fail-prone memory pages and quarantine the m to avoid outages.

When coupled with Hyper-V Replica, Microsoft Hyper-V's built-in asynchronous, application-consistent VM replication and VM failover prioritization, the result is superior system availability and dependability. By integrating these RAS technologies into a comprehensive solution, the Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System helps you:

- Perform maintenance and serviceability faster due to the modular design.
- Eliminate restarts and ease serviceability by minimizing the number of system "touches."
- Reduce downtime due to self healing architectures for CPU failures.

Fast. Agile. Resilient.

It is no secret your success depends on reliable, available anywhere access to business intelligence. You must provide those capabilities without detrimentally impacting your system administrators or your bottom line. That makes your virtualization decision crucial.

The Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System provides the speed, scalability and reliability businesses need. Featuring the Lenovo Flex System x240 M5 compute node powered by Intel Xeon processors the solution's hardware has the performance to meet your needs and the dependability you can count on. Microsoft Hyper-V takes advantage of that hardware to provide built-in, easy-to-administer virtualized performance that helps users increase productivity right from login.

Lenovo System Flex System Enterprise Chassis and x240 M5 Compute Node



CONFIGURATION BRIEF

Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System

Highly reliable and customizable virtualization environment with the Lenovo System Flex System and Microsoft Hyper-V



Why Lenovo Systems for Microsoft Hyper-V Cloud

Lenovo offers a wide range of servers and options. The Lenovo configuration for Microsoft Hyper-V Cloud brings together the right mix of technology and software. This configuration integrates the latest powerful Lenovo Flex System with x240 M5 compute nodes and the Flex System CN4093 10Gb Converged Scalable switch to support the unique virtualization needs of small to medium-sized businesses.

Download the [Configuration Guide](#)

Why Lenovo

Lenovo is a leading provider of x86 servers for the data center. Featuring rack, tower, blade, dense and converged systems, the Lenovo server portfolio provides excellent performance, reliability and security. Lenovo also offers a full range of networking, storage, software, solutions, and comprehensive services supporting business needs throughout the IT lifecycle. With options for planning, deployment, and support, Lenovo offers expertise and services needed to deliver better service-level agreements and generate greater end-user satisfaction.

For More Information

To learn more about the Lenovo Cloud Configuration for Microsoft Hyper-V on Flex System, contact your Lenovo Business Partner or visit:

<http://shop.lenovo.com/us/en/systems/solutions/cloud/>



© 2016 Lenovo. All rights reserved.

Availability: Offers, prices, specifications and availability may change without notice. Lenovo is not responsible for photographic or typographical errors. **Warranty:** For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560, Lenovo makes no representation or warranty regarding third-party products or services. **Trademarks:** Lenovo, the Lenovo logo, System x, ThinkServer are trademarks or registered trademarks of Lenovo. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, the Intel logo, Xeon and Xeon Inside are registered trademarks of Intel Corporation in the U.S. and other countries. Other company, product, and service names may be trademarks or service marks of others.

CRN: CLDHYPVFL62

06/2016