

Lenovo Professional Services Guide

All you need to know about

Lenovo Professional and Managed Services

Table of Contents

Introduction to Guide.....	4
1. Data and Analytics	4
Pre-scoped Offerings using Part Numbers.....	4
1.1. ThinkSystem DE Onsite Deployment Service	4
1.2. ThinkSystem DE Remote Deployment Service	6
1.3. ThinkSystem DM Onsite Deployment Service.....	8
1.4. ThinkSystem DM Remote Deployment Service.....	10
1.5. ThinkSystem DM Series File Migration.....	13
1.6. Microsoft SQL Server 2019 Migration.....	14
1.7. SAP ECC to SAP S/4HANA Sandbox Migration Services.....	15
Tailored Lenovo Services Offerings	16
1.8. SAP HANA Appliance Deployment Service	16
1.9. SAP HANA TDI Deployment Service.....	18
1.10. SAP HANA Health Check	19
2. Hybrid Cloud	21
Pre-scoped Offerings using Part Numbers	21
2.1. Microsoft Azure VM Migration.....	21
2.2. ThinkAgile SXM Health Check (MS Azure Stack).....	23
2.3. ThinkAgile SXM Deployment Services (MS Azure Stack).....	24
2.4. VMWare VCF Deployment Services (Remote) – Small Boxed Scope	25
2.5. VMWare VCF Deployment Services (Remote) – Standard Boxed Scope..	26
2.6. VMWare VRA Design and Deployment (Remote) – Small Boxed Scope...	27
2.7. VMWare VRA Design and Deployment (Remote) – Standard Boxed Scope	29
2.8. VMWare VRO Design and Deployment (Remote) – Small Boxed Scope..	30
2.9. VMWare VRO Design and Deployment (Remote) – Standard Boxed Scope	31
Tailored Lenovo Services Offerings	33
2.10. VMware Cloud Foundation Design and Deployment Service	33
2.11. VMware Self-Service portal and automation design & deployment service	38
2.12. VMware Operations Management Design and Deployment service –	
Standard	42
2.13. Design and Deployment for VMware NSX.....	44
2.14. Cloud Assessment Workshop	45

- 3. VDI47
 - Pre-scoped Offerings using Part Numbers47
 - 3.1. ThinkAgile MX Deployment Services (MS Azure Stack HCI)47
 - 3.2. ThinkAgile HX or Nutanix deployment services48
 - 3.3. ThinkAgile VX (VMware vSAN) deployment service (onsite or remote)....51
 - 3.4. ThinkAgile MX Health Check.....54
 - 3.5. Hardware Installation Services54
 - 3.6. XClarity Jumpstart Services56
 - 3.7. ThinkAgile VX (VMware vSAN) Cluster Remote Health Check.....57
 - Tailored Lenovo Services Offerings59
 - 3.8. xClarity Installation and Configuration.....59
 - 3.9. HX Series Nutanix Cluster Health Check60
 - 3.10. VDI Workshop.....62
- 4. HPC63
 - Tailored Lenovo Services Offerings64
 - 4.1. High-Performance Computing Health Check64
 - 4.2. High Performance Computing Deployment Service.....65
- 5. Data Center Power and Cooling.....67
 - 5.1. Data Center Best Practices Workshop67
 - 5.2. Data Center Power and Cooling Assessment.....68
 - 5.3. DTN Cooling for Neptune Portfolio Systems.....69
 - 5.4. Data Center Rack Cooling with Rear Door Heat eXchanger.....69
- 6. *Lenovo Professional Services Tokens Menu*70
- 7. *Managed Services*72
 - 7.1. Managed Services for Hardware-only73
 - 7.2. Managed Services for SAP HANA75
 - 7.3. Managed Services for HPC Environments.....76
- 8. *Engaging with the Professional Services Team*78
 - Lenovo Service Sales Contacts79

Introduction to Guide

This resource comprises both high-level guidelines as well as specific, play-by-play Professional Services Offerings. It helps sales managers boost productivity and time to response as well as ramp up new hires and keep salespeople informed when things change.

This Playbook is divided into multiple sections and the five most important ones are the practice areas and their respective offerings:

1. Data and Analytics
2. Hybrid Cloud
3. VDI
4. HPC
5. Data Center Power and Cooling

1. Data and Analytics

Designed to extend the value of Lenovo solutions beyond platform deployment and enabling customers to achieve their business outcomes.

Advisory and implementation services include:

- Assessment
- Health check
- Design
- Implementation
- Upgrade
- Migration

For solutions such as:

- DE/DM Storage
- SAP HANA
- Microsoft SQL Server

Pre-scoped Offerings using Part Numbers

1.1. ThinkSystem DE Onsite Deployment Service

This deployment service enables customers to get the most robust and high performing unified and block storage environment up and running with minimum disruption. The scope includes physical verification of network, SAN and power cabling. Verification will also be done to ensure latest firmware and software levels

Lenovo Professional Services Guide

are installed on the storage system. Initial configuration of the storage system will be done based on customer requirement before skill transfer is provided

Scope of Work

Hardware installation is not part of the DE onsite deployment scope of work. Upon arrival, Lenovo Technical Consultants will verify that installation has been completed by reviewing the following items:

- Physical network and SAN network are set up and ready for Lenovo to access DE system
- Power cabling is set up with hardware

Perform initial configuration of the storage system per client requirements. Number of discs the clients have will be determined in pre-engagement call (example: if clients want to use dynamic disc pools, they are required to have at least 11 discs).

Initial configuration includes:

- Initialize storage system Operating System (OS)
- Verify latest firmware and software levels are installed on the storage system
- If not up to date, Lenovo Technical Consultants will update for clients
- Create up to two (2) hosts on storage system (SAS, iSCSI, or FCP). Clients must ensure the hosts' latest firmware and patches are updated and that zoning or network is configured
- Network/FC fabric configuration is not included as part of the DE deployment engagement
- Assist client with verifying connection and discovery of storage at server host where Lenovo Technical Consultants will instruct clients through the installation process of the host utility
- Configure a test volume and map to configured hosts
- Configure call home and event notification
- Perform host cluster-mode testing and operation
- Demonstrate how to collect support bundle.

Skills transfer can be performed throughout the engagement session, or clients can choose to have a complete walk-through after the deployment has been completed. Skills transfer is performed for up to two (2) hours with topics including:

- Lenovo Technical Consultants will walk clients through the interface
- Educate clients on how to register the system on Lenovo Support Site, if system has not been registered already

Lenovo Professional Services Guide

- Provide a quick tour of the Lenovo Support Site
- Conduct a QandA session to clarify procedures done throughout the deployment session (listed above).

** Clients may reach out to the consultant with any questions in regard to administrative tasks for DE deployment after the engagement up to 30 days. Any questions related to performance or support issues will need to be directed to Lenovo support.

Sizing

Part numbers for the Deployment:

5MS7A24104 - ThinkSystem DE Onsite Deployment

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

ThinkSystem DE deployment adds 1 deployment SKU for each storage controller system.

1.2. ThinkSystem DE Remote Deployment Service

Perform initial configuration of the DE system following the client requirements, remotely – ensure DE system is up and running prior to closing the engagement.

DE Remote Deployment Services requires the customer to provide VPN access to our Technical Consultants over a remote session platform (i.e., WebEx, Zoom, etc.) and work with our Technical Consultants to configure and deploy the solution.

Benefits for the client:

- Minimize uncertainty and de-risk chance of having downtime
- Speed time to value and reduce scheduling complications
- Scheduling time to implement can be up to 80% sooner with remote deployment.

Client requirements for Remote Deployment

- Physical installation (racking/stacking) and cabling of storage system(s).

Lenovo Professional Services Guide

- Lenovo Technical Consultants will verify physical network, SAN, and power cabling, but it is beyond the deployment scope to do the installation
- Customer needs a level of Storage expertise as they will be working with Technical Consultants
- Customer must open an external port for remote connection
- Customer must be responsible for all hardware and software compatibility issues during deployment.

Scope of Work

Clients must provide access to the storage system management interface in a remote session via WebEx, Zoom, Skype or other remote session software. As the engagement is being performed remotely, physical and unforeseen IT problems may not be supported in real time.

1. Hardware installation is not part of the DE remote deployment scope of work. In the beginning of the deployment session, Lenovo Technical Consultants will verify that hardware installation has been completed by reviewing the following items:

- Physical network and/or SAN network are set up and configured to include zoning and VLANs are setup and ready for Lenovo to access DE system remotely
- Confirm with clients that power cabling is set up with hardware. Verify all drives are present and populated.

2. Perform initial configuration of the storage system per client requirements remotely. Number of discs the clients have will be determined in the pre-engagement call (example: if clients want to use dynamic disc pools, they are required to have at least 11 discs).

Initial configuration includes:

- Initialize storage system Operating System (OS)
- Verify latest firmware and software levels are installed on the storage system
- If not up to date, Lenovo Technical Consultants walk clients through the firmware upgrade process to assist with updating
- Create up to two (2) hosts on storage system (SAS, iSCSI, or FCP). Clients must ensure the hosts' latest firmware and patches are updated
- Network/FC fabric configuration is not included as part of the DE deployment engagement

Lenovo Professional Services Guide

- Assist the client with verifying connection and discovery of storage at server host where Lenovo Technical Consultants will instruct clients through the installation process of the host utility
- Configure a test volume and map to configured hosts
- Configure call home and event notification
- Perform host cluster-mode testing and operation
- Demonstrate how to collect support bundle.

Skills transfer can be provided throughout the remote session, or clients can choose to have a complete walkthrough after the remote deployment has been completed. Skills transfer is performed for up to two (2) hours with topics including:

- Lenovo Technical Consultants will walk clients through the interface
- Educate clients on how to register the system on Lenovo Support Site if the system is not registered already
- Provide a quick tour of the Lenovo Support Site
- Conduct a Q&A session to clarify procedures done throughout the deployment session.

** Clients may reach out to the consultant with any questions regarding administrative tasks for DE deployment after the engagement up to 30 days. Any questions related to performance or support issues will need to be directed to Lenovo support.

Sizing

Part numbers for the Deployment:

- **5MS7A69499** - ThinkSystem DE Remote Deployment

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

- ThinkSystem DE deployment adds 1 deployment SKU for each storage controller system.

1.3. ThinkSystem DM Onsite Deployment Service

Lenovo Professional Services Guide

This deployment service enables customers to get the most robust and high performing, unified and block storage environment up and running with minimum disruption. The scope includes physical verification of network, SAN and power cabling. Verification will also be done to ensure latest firmware and software levels are installed on the storage system. Initial configuration of the storage system will be done based on customer requirement before skills transfer is provided.

Scope of Work

Hardware installation is not part of the DM deployment scope of work. Upon arrival, Lenovo Technical Consultants will verify that installation has been completed by reviewing the following items:

- Physical network and SAN network are set up and ready for Lenovo to access DM system
- Power cabling is set up with hardware
- If DM7000 is being deployed with two or more expansions, clients must keep package boxes as it has preconfigured configuration until Lenovo Technical Consultants verify that installation is completed
- The system must not be powered on before Lenovo Technical Consultants arrive to begin DM deployment
- If clients powered on the system prior to Lenovo Technical Consultants' verification of correct cabling, the system may be misconfigured
- Perform initial configuration of the storage system per client requirements.

Initial configuration includes:

- Initialize storage system Operating System (OS)
- Enable cluster failover (for clustered systems)
- Create up to two (2) hosts on storage system (SAS, iSCSI, or FCP). Clients must ensure the hosts' latest firmware and patches are updated
- Assist client with verifying connection and discovery of storage at server host where Lenovo Technical Consultants will instruct clients through the installation process of the host utility
- Clients must prepare test host before Lenovo Technical Consultants can configure a test volume and map to configured hosts
- Configure call home and event notification
- Verify host cluster-mode functionality by health check inspection
- Verify cluster health via health check inspection (verify no system warnings/errors)
- Demonstrate how to collect support bundle

Lenovo Professional Services Guide

- Run config advisor to check on an installed ONTAP system and generate a summary report with suggested remedies if there are any issues
- Verify latest firmware and software levels are installed and updated on the storage system before cluster creation can occur
- If not up to date, Lenovo Technical Consultants will update for clients.

Skills transfer can be performed throughout the engagement session, or clients can choose to have a complete walkthrough after the deployment has been completed. Skills transfer is performed for up to four (4) hours with topics including:

- Lenovo Technical Consultants will walk clients through the interface
- Educate clients on how to register the system on Lenovo Support Site if system is not already registered
- Provide a quick tour of the Lenovo Support Site
- Conduct a Q&A session to clarify procedures done throughout the deployment session.

** Clients may reach out to the consultant with any questions regarding administrative tasks for DE deployment after the engagement up to 30 days. Any questions related to performance or support issues will need to be directed to Lenovo support.

Sizing

Part numbers for the Deployment:

5MS7A24102 - ThinkSystem DM Onsite Deployment

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required Part Numbers and quantities will be added automatically.

For ThinkSystem DM deployment, add one deployment SKU for each storage controllersystem.

1.4. ThinkSystem DM Remote Deployment Service

Perform initial configuration of the DM system per client requirements, remotely – ensure DM system is up and running prior to closing the engagement.

Lenovo Professional Services Guide

Customer will provide access to Technical Consultants over a remote session platform (i.e., WebEx, Zoom, etc.) and work with our Technical Consultants to configure and deploy the solution.

Customer Benefits:

- Minimize uncertainty, de-risk chance of having downtime
- Speed time to value and reduce scheduling complications
- Scheduling time to implement can be up to 80% sooner with remote deployment.

Client requirements for Remote Deployment

- Physical installation (racking/stacking) and cabling of storage system(s)
- Lenovo Technical Consultants will verify physical network, SAN, and power cabling, but it is beyond the deployment scope to do the installation.
- Customer must meet a level of Storage expertise as they will be working with Technical Consultants
- Customer will be asked to open an external port for remote connection
- Customer will be responsible for all hardware and software compatibility issues during deployment.

Scope of Work

Hardware installation is not part of the DM deployment scope of work. Upon arrival, Lenovo Technical Consultants will verify that installation has been completed by reviewing the following items:

1. Physical network and SAN network are set up and ready for Lenovo to access DM system
2. Power cabling is set up with hardware

If DM7000 is being deployed with two or more expansions, clients must keep package boxes as it has preconfigured configuration until Lenovo Technical Consultants verify that installation is completed.

The system must not be powered on before the Lenovo Technical Consultants connect with the client remotely to verify correct cabling, setting up the shelf id's of the expansion shelves etc.

Initial configuration includes:

Lenovo Professional Services Guide

- Initialize storage system Operating System (OS)
- Enable cluster failover (for clustered systems)
- Create up to two (2) hosts on storage system (SAS, iSCSI, or FCP). Clients must ensure the hosts' latest firmware and patches are updated.
- Assist client with verifying connection and discovery of storage at server host where Lenovo Technical Consultants will instruct clients through the installation process of the host utility
- Clients must prepare test host before Lenovo Technical Consultants can configure a test volume and map to configured hosts
- Configure call home and event notification (NA and AP only)
- Verify host cluster-mode functionality by health check inspection
- Verify cluster health via health check inspection (verify no system warnings/errors)
- Demonstrate how to collect support bundle
- Run config advisor to check on an installed ONTAP system and generate a summary report with suggested remedies if there are any issues
- Verify latest firmware and software levels are installed and updated on the storage system before cluster creation can occur
 - If not up to date, Lenovo Technical Consultants will do the update on behalf of clients.

Skills transfer can be performed throughout the engagement session, or clients can choose to have a complete walkthrough after the deployment has been completed. Skills transfer is performed for up to four (4) hours with topics including:

- Lenovo Technical Consultants will walk clients through the interface
- Educate clients on how to register the system on Lenovo Support Site if system is not already registered
- Provide a quick tour of the Lenovo Support Site
- Conduct a Q&A session to clarify procedures done throughout the deployment session.

** Clients may reach out to the consultant with any questions regarding administrative tasks for DM deployment after the engagement up to 30 days. Any questions related to performance or support issues will need to be directed to Lenovo support.

Sizing

Part numbers for the Deployment:

- **5MS7A79862** - ThinkSystem DM Remote Deployment

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

- ThinkSystem DM deployment add 1 deployment SKU for each storage controller system.

1.5. ThinkSystem DM Series File Migration

Description

Customers can take advantage of Lenovo's DM Storage expertise and achieve quicker time to value by including this storage migration service along with their DM Storage purchase. Our DM Storage file migration experts will coordinate with customer's team to plan and safely execute their data migration to the new DM Storage platform. All migrated data goes through a validation process and gets customer's approval before it is made available for production use on the new DM Storage platform.

Configuration includes:

1. Setup
 - Install and configure Lenovo's data migration software (StorageX)
 - Create a migration plan with customer's team
2. Migration
 - Create and enable migration jobs to run according to customer's schedule
 - Monitor the migration
 - Complete the cutover to new data shares
3. Close-out
 - Provide a migration confirmation report
 - Review the results with the customer

Sizing

Part numbers for the Migration:

- **5MS7A83719** (1 Part Number per TB to be migrated).

Additional information

- The DM Series File Migration Service is delivered remotely by Lenovo Professional consultants
- Files are copied (not removed) from the legacy storage

- Ownership and permissions remain intact.

1.6. Microsoft SQL Server 2019 Migration

Benefit from Lenovo Professional Services expertise to ensure the smooth and efficient migration of customers environment to Microsoft SQL Server 2019. Using a Best Practice Approach based on 3 Project Stages we will assist customers technical teams in Migrating from older version of Microsoft SQL Server to SQL Server 2019. The three stages are:

- o Lenovo Professional Service Consultant Led SQL Server Migration Workshop
- o SQL Server 2019 Installation (either Single Node or Cluster)
- o SQL Server 2019 Migration

SQL Server 2019 Migration *Workshop*

A SQL Server Migration Workshop is an opportunity for a deep dive session with clients and optionally Business Partner teams to make decisions to reach customer's business objectives.

This is a highly interactive session with the customer and SQL Server SMEs with the following goals:

1. Gain understanding of current environment
2. Discuss migration process, implications, and options
3. Help customers decide on the best path forward

SQL Server 2019 *Installation*

Either:

Service to install a single node (physical or virtual) with SQL Server 2019.

Or:

Install of up to four nodes (physical or virtual) with SQL Server 2019 in an HA cluster configuration

SQL Server 2019 *Migration*

Lenovo Professional Services Guide

Experienced team of Lenovo experts plans and executes the migration as a tactical activity, allowing client staff to focus on their more strategic responsibilities.

Three Stage High-Level Process:

- Assessment
- Design
- Implementation

Sizing

Service Description	Service Offering
SQL Server 2019 Migration Workshop	5MS7A93849
SQL Server 2019 Single Node Installation	5MS7A93850
SQL Server 2019 Always-on Cluster Installation	5MS7A93851

1.7. SAP ECC to SAP S/4HANA Sandbox Migration Services

Description

The SAP ECC to SAP S/4HANA Sandbox Migration Services gives customers the ability to see the benefits of moving to SAP S/4HANA with their own data and business processes, and with no impact on production. This is a critical step in preparation for a production migration, which allows for changes to be made and tested in a safe way.

The SAP S/4HANA migration expert will assess customer's existing ECC environment and pain points. They will demonstrate the efficiency-boosting capabilities and functionalities of SAP S/4HANA, and help the customer understand how SAP S/4HANA can impact his business operations. In short, Lenovo experts will uncover the myths and truths about a S/4HANA and its migration process.

Key Takeaways:

- Identify all major innovations in SAP S/4HANA that could provide most value to the business
- Understand how SAP S/4HANA would impact applications and business processes

Lenovo Professional Services Guide

- Mitigate all technical challenges that system migration would bring to the project
- Timeline and staff participation expectations for a successful migration

Key Workshop Deliverables:

- Budgetary pricing for the customer's SAP S/4HANA migration project – no hidden cost
- High level summary specific to customer's project
- Next steps for thorough testing and validation before production migration.

What's included:

Migrate one SAP ECC system to an SAP S/4HANA sandbox environment

- Sandbox system refresh from production backup
- SolMan system and satellite (ERP) system connectivity
- Maintenance Planner setup with SolMan prerequisites
- SAP S/4HANA 1909 pre-conversion check – Add-on, Business Functions, Pool and Cluster Table check, SAP Client deletion, Housekeeping, etc.
- SAP S/4HANA database installation
- Simplification Item Check
- Custom Code Analysis/Adaption
- ERP conversion to SAP S/4HANA 1909 using SUM/DMO – DB Migration to SAP S/4HANA, Software update to SAP S/4HANA Core, Data Conversion with Business process simplifications
- SPAU/SPDD adaption
- SAP Fiori UX Enablement

Sizing

5MS7A87659 - SAP ECC to S/4HANA Migration

Tailored Lenovo Services Offerings

1.8. SAP HANA Appliance Deployment Service

Scope

Lenovo shall perform the following:

Lenovo Professional Services Guide

- Conduct project planning and preparation work sessions.
- Perform SAP HANA appliance implementation:
 1. Perform an inventory and validation of the delivered system configuration
 2. Setup and configure Integrated Management Module (IMM)
 3. Verify and configure UEFI settings for appliance optimization
 4. Verify and update system firmware
 5. Verify and configure RAID
 6. Install and configure SUSE Linux Enterprise Server or Red Hat Enterprise Linux
 7. Verify and update SUSE Linux Enterprise Server or Red Hat Enterprise Linux libraries (GCC, GLibC, Kernel)
 8. Verify and update system drivers
 9. Configure and verify networking settings and operations on SAP HANA Systems
 10. Install and configure file system
 11. Install and configure SAP HANA Suite
 12. Verify and update SAP HANA Database
 13. Install and configure additional database containers
 14. Perform system validation on the SAP HANA appliance.
- [Optional] **Perform Replication Configuration:**
 15. Configure and verify dedicated network for replication
 16. Setup and configure synchronous/ asynchronous SAP HANA replication between 2 instances
 17. Validate and test replication.
- [Optional:] **Implement High Availability**
 18. Configure and verify dedicated network for SUSE HA Cluster
 19. Setup and configure SUSE High Availability Cluster
 20. Setup and configure automated SAP HANA Database failover
 21. Validate and test SUSE High Availability Cluster
- Knowledge transfer throughout the engagement

Completion Criteria:

- Lenovo providing the post-installation document to the customer Point of Contact.

Deliverable Materials: Post-installation document

Sizing

SAP HANA deployment is always a customized activity that needs to be sized by a Professional Services ISA. Please get in touch with customers Professional Service ISA for individual scoping.

1.9. SAP HANA TDI Deployment Service

Lenovo SAP HANA TDI Deployment Services helps accelerate time to productivity while providing a foundation for enhanced operational performance and reliability. The Lenovo Services team employs best practices and established methodologies to deploy customers hardware, networking, and SAP HANA hardware infrastructure.

Lenovo shall perform the following:

- Conduct project planning and preparation work sessions
- SAP HANA TDI Implementation [Number of systems x System Type]

Through activities like:

1. Perform an inventory and validation of the delivered system configuration
2. Setup and configure Integrated Management Module (IMM)
3. Verify and configure UEFI settings for appliance optimization
4. Verify and update system firmware
5. Verify and configure RAID
6. Install and configure SUSE Linux Enterprise Server or Red Hat Enterprise Linux
7. Verify and update SUSE Linux Enterprise Server or Red Hat Enterprise Linux libraries (GCC, GLibC, Kernel)
8. Verify and update system drivers
9. Configure and verify networking settings and operations on SAP HANA Systems
10. Install and configure file system
11. Install and configure SAP HANA Suite
12. Verify and update SAP HANA Database

13. Install and configure additional database containers
14. Perform system validation.

[Optional:] **SAP HANA Replication Configuration:**

- Configure and verify dedicated network for replication
- Setup and configure synchronous/ asynchronous SAP HANA replication between 2 instances
- Validate and test replication.

[Optional:] **Implement High Availability:**

- [Optional] Configure and verify dedicated network for SUSE HA Cluster
- Setup and configure SUSE High Availability Cluster
- Setup and configure automated SAP HANA Database failover
- Validate and test SUSE High Availability Cluster.

15. Implementation Documentation
16. Create a post-installation documentation
17. Knowledge transfer throughout the engagement.

Completion Criteria: Lenovo providing the post installation document to customers Point of Contact.

Deliverable Materials: Post installation document

Sizing

SAP HANA deployment is always a customized activity that needs to be sized by a Professional Services ISA. Please get in touch with customers Professional Service ISA for individual scoping.

1.10. SAP HANA Health Check

Description

The Lenovo Services team follows best practices and established methodologies to conduct the SAP HANA or SAP BWA Health Check, which provides a comprehensive evaluation of customers SAP HANA or SAP BWA system configuration. Skilled technicians will check firmware levels, device drivers, and OS patch levels and make necessary updates. Error logs and alerts will be

Lenovo Professional Services Guide

investigated and addressed, and any of the customer's concerns or questions will be answered.

The Lenovo SAP HANA or SAP BWA Health Check also includes a detailed post-installation report. It is suitable for ongoing management and infrastructure support of covered hardware: Lenovo-branded server, storage, and networking devices as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo authorized reseller. Maintaining the health of customers SAP HANA or SAP BWA systems is vital to protect technology investments, optimize performance, and management of resources.

Scope

Lenovo consultants will assess the data center environment and SAP HANA or SAP BWA infrastructure, report findings, and make required updates in a process designed to maintain optimal performance and efficiency of the data center.

Health Check activities include:

- Explain the SAP HANA or SAP BWA Health Check process
- Gather information about customer's existing environment
- Identify requirements and establish end goals relevant to the customer's business
- Perform a thorough system assessment of the SAP HANA or SAP BWA infrastructure
- Review and validate hardware configuration, prerequisites, and dependencies
- Verify interoperability of firmware levels and device drivers
- Confirm SAP-recommended operating system and SAP HANA or SAP BWA software versions
- Check error logs and operating status of the covered hardware and software components
- Investigate and address SAP HANA or SAP BWA alerts or concerns
- Schedule mutually acceptable downtime for SAP HANA or SAP BWA system upgrades
- Optional: Update supported hardware to the latest level of firmware, device drivers, OS, GPFS software, and SAP HANA or SAP BWA software as needed, based on a mutually agreed schedule and maintenance window
- Ensure network connectivity and infrastructure health.

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done depending on the # of servers, # of locations, client requirements, on-site or remote engagement and country of deployment.

2. Hybrid Cloud

Lenovo is uniquely positioned to provide a complete end to end solution that includes all the hardware, software and services globally. Our solution includes an industry leading Cloud Management Platform, trusted and differentiated edge and datacenter equipment, cloud computing and our global service capabilities.

Lenovo’s multi-cloud platform solution with Morpheus provides a systematic approach to multi-cloud self-service and DevOps automation which bridges the gap between teams, tools, and processes independent of where and how those applications are deployed.

Integrate Service Management	Optimize Costs	Manage Resource Utilization and Costs
Automate Infrastructure	Automate Service Management	Manage Hybrid Cloud Availability
Modernize Applications	Optimize Application Delivery	Manage Hybrid Cloud Backup/ Recovery
Migrate to Hybrid Cloud	Optimize Hybrid Cloud Operations	Manage Hybrid Cloud Infrastructure

Pre-scoped Offerings using Part Numbers

2.1. Microsoft Azure VM Migration

Description

Lenovo Professional Services Consultants enable businesses to transform their infrastructure and enjoy the benefits of the cloud with Microsoft Azure. From planning all the way to migration, deployment, security, and best practices for maintenance and optimization, the IT infrastructure and resources are adapted to customers business needs.

Lenovo Professional Services Guide

- It provides Azure VM Migration Services for Customers (Direct and Indirect)
- Either associated to existing environment or ideally a new Hardware Purchase (ThinkAgile MX or SXM)
- Service is tied to Hardware and not dependent on CSP

Configuration includes:

1. Azure VM Migration Workshop - is designed to evaluate customers' level of cloud readiness based on their business alignment, organization, infrastructure and applications. Key workshop activities may include cloud migration maturity analysis, application placement analysis, and alternative migration analysis.
2. Azure VM Migration Assessment - is the next step in executing a cloud migration strategy. The billable assessment allows Cloud consultants to gather technical inputs and deep dive into areas of the environment, allowing them to identify opportunities for system and infrastructure improvements.
3. Azure VM Migration Implementation - allows Lenovo certified consultants to deliver the solution, following a prescriptive workload migration methodology.

Sizing

Assessment is a pre-requisite when choosing Azure VM Migration Services (to benefit of the full Migration Services offering, an Assessment PN is required).

Azure Cloud Migration Assessment		Azure Cloud Migration	
Part Number	PN Description	Part Number	PN Description
• 5MS7A93246	• Azure Cloud Migration Assessment (up to 100 VMs)	• 5MS7A93251	• Azure Cloud Migration (up to 100 VMs)
• 5MS7A93247	• Azure Cloud Migration Assessment (between 101 - 200 VMs)	• 5MS7A93252	• Azure Cloud Migration (between 101 - 200 VMs)
• 5MS7A93248	• Azure Cloud Migration Assessment (between 201 - 300 VMs)	• 5MS7A93253	• Azure Cloud Migration (between 201 - 300 VMs)

<ul style="list-style-type: none"> • 5MS7A93249 	<ul style="list-style-type: none"> • Azure Cloud Migration Assessment (between 301 - 400 VMs) 	<ul style="list-style-type: none"> • 5MS7A93254 	<ul style="list-style-type: none"> • Azure Cloud Migration (between 301 - 400 VMs)
<ul style="list-style-type: none"> • 5MS7A93250 	<ul style="list-style-type: none"> • Azure Cloud Migration Assessment (between 401 - 500 VMs) 	<ul style="list-style-type: none"> • 5MS7A93255 	<ul style="list-style-type: none"> • Azure Cloud Migration (between 401 - 500 VMs)

Possible Scenarios:

- Full Azure VM Migration Services = Azure Cloud Migration Assessment PN + Azure Cloud Migration PN
- Full Azure VM Migration Services = Previous Assessment PN purchased + Azure Cloud Migration PN
- Only Azure Cloud Migration Assessment = Azure Cloud Migration Assessment PN

2.2. ThinkAgile SXM Health Check (MS Azure Stack)

Scope

Lenovo shall perform the following:

- Conduct a pre-planning call to discuss health check tasks and agreed upon an appropriate service window
- Perform onsite initial hardware verification
- Take inventory of all software levels and create a list of update recommendations
- Perform updates/upgrades, where applicable to Lenovo best practices
- Update all firmware on the management node, compute nodes and network switches
- Update Lenovo drivers for Azure Stack
- Upgrade XClarity appliance
- Upgrade XClarity server profiles, deploy patterns and software repository
- Call into ThinkAgile Advantage support on behalf of the customer and take appropriate corrective action if any updates cause undesirable results

Lenovo Professional Services Guide

- Provide post-Health Check documentation detailing original inventory, recommended changes and actual changes of each installed component.

Sizing

Part numbers for ThinkAgile SXM Health-Check:

- **5MS7B00048** - ThinkAgile SXM 1X Onsite Health Check (per rack)
- **5MS7B00084** - ThinkAgile SXM 1X Onsite Health Check & Update (per rack)

Configuration

Select the health check in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

- Health-check: (1 time), add 1 SKU for each rack, choosing between remote or on-site service.

2.3. ThinkAgile SXM Deployment Services (MS Azure Stack)

Scope

Lenovo shall perform the preparation for the deployment of Microsoft Azure Stack Solution on Lenovo ThinkAgile SXM.

The remote preparation and service planning with the customer includes:

- Establish project kick-off meeting with Customer
- Work with the customer to mutually establish an agreeable delivery schedule
- Acquire all deployment software images
- Generate network switch configurations
- Conduct remote preparation and services planning with the extended Lenovo ThinkAgile teams
- Deploy Microsoft Azure Stack Solution on Lenovo ThinkAgile SXM
- Site readiness and Solution walkthrough
- Initiate support call(s) to ThinkAgile Advantage on behalf of the customer for issues related to deployment scripts and component malfunctions during the onsite deployment period (up to maximum of 3 days)
- Work closely with Microsoft Azure Stack support team to provide information and act as their onsite presence during the onsite deployment period (up to maximum of 3 days)
- Work closely with ThinkAgile Advantage support team on issues related to hardware during the onsite deployment period (up to maximum of 3 days).

Post Deployment:

- ❖ Review work streams and accomplishments with the customer
- ❖ Record Solution Information in Post-Deployment Worksheet
- ❖ Environment access credentials
- ❖ Network IP addressing
- ❖ Lenovo (XClarity) and Microsoft Software (Azure Stack) editions
- ❖ Physical node firmware and out-band controller versions
- ❖ Compute Node MAC Address
- ❖ Submit Post-Deployment worksheet to the customer
- ❖ Email customer all three network switch configurations
- ❖ Review and email an electronic copy of the ThinkAgile Advantage support plan document to the customer
- ❖ Delete deployment virtual machine.

Sizing

Part numbers for ThinkAgile SXM Deployment:

- **5MS7B00035** - ThinkAgile SXM Onsite Deployment (up to 8 node cluster)
- **5MS7B00036** - ThinkAgile SXM Onsite Deployment (additional 4 nodes)

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

2.4. VMWare VCF Deployment Services (Remote) – Small Boxed Scope

Cloud Foundation Design

- Conduct a solution workshops and design workshop
- Asses the customer current state to identify requirements and gaps to achieve the business goals
- Up to (1) Cloud foundation Architecture design
- Up to (1) Cloud foundation vRealize Automation Architecture design
- Up to (1) Cloud foundation vRealize Operations Architecture design
- VMware Cloud Foundation Solution Prerequisites

The Cloud Foundation Deployment

- The prerequisite and configuration check prior the deployment
- Up to (4) ESXi host deployments
- Up to (1) Workload domain setup
- The Cloud Foundation Bring-up
 - Site
 - SDDC Manger

- Up to (2) showcasing and demonstration workshops.

Use Case

- ❖ Provision infrastructure from a pool of virtualized resources on premises, at the edge, or in the cloud
- ❖ Small setup is best fit for PoC environment
- ❖ Develop and deploy modern apps on premises or in the cloud, a new, integrated Kubernetes and restful API surface
- ❖ Automated deployment of Horizon 7 virtual desktop infrastructure (VDI) to standardize, automate, and simplify virtual desktops.

Sizing

- **5MS7A89851 - VCF – Consolidated**
 - One standard part no. for complete engagement
 - Total duration – up to 3 weeks, during business hours
 - For onsite engagement please reach out to Principal Consultant for separate Part Number

2.5. VMWare VCF Deployment Services (Remote) – Standard Boxed Scope

Cloud Foundation Design

- Conduct a solution workshops and design workshop
- Asses the customer current state to Identify requirements and gaps to achieve the target state
- Up to (1) Cloud foundation Architecture design
- Up to (1) Cloud foundation VI Workload domain

Lenovo Professional Services Guide

- Up to (1) Cloud foundation VRealize Automation Architecture design
- Up to (1) Cloud foundation VRealize Operations Architecture design
- VMware Cloud Foundation Solution Prerequisites

The Cloud Foundation Deployment

- The prerequisite and configuration check prior the deployment
- Up to (8) ESXi host deployments
- Up to (2) Workload domain setup
- The Cloud Foundation bring-up
 - ❖ (1) Site
 - ❖ (1) SDDC Manger
- Up to (2) Showcasing and demonstration workshops
- Up to (3) Showcasing and demonstration workshops.

Sizing

- **5MS7A89852- VCF – Standard**
 - One standard part no. for complete engagement
 - Total duration – up to 4 weeks, during business hours
 - For onsite engagement please reach out to Principal Consultant for separate Part Number

2.6. VMWare VRA Design and Deployment (Remote) – Small Boxed Scope

VMware VRA Design

- Conduct a solution workshops and design workshop.
- Asses the customer current state to Identify requirements and gaps to achieve the target state.

Lenovo Professional Services Guide

- vRealize Automation Architectural design in Up to (1) site.
- Configuration design workbook.

VMWare VRA Deployment

- Installation vRealize Automation Infrastructure:
 - (1) VRealize Automation Appliance deployment
 - (1) vRealize Automation IaaS server (with all the following components installed)
 - Web service
 - Orchestrator DEMs
 - Worker DEM and vCenter Agents

VMWare VRA Configuration

- Installation vRealize Automation Infrastructure:
 - vSphere endpoint
 - Tenant.
 - Configuration of naming convention of virtual name
 - Up to (3) business groups with the following configuration:
 - Up to (2) reservations. Allow the customer to provision workloads in custom reservation and storage tier based on storage policies
 - Up to (2) entitlements
 - Up to (2) network profiles
- Integration of standard Active Directory
- (1) IaaS blueprint demonstration
- (1) XaaS service definition demonstration

Sizing

- **5MS7A89855 - VCA and Portal - Small**
 - One standard part no. for complete engagement
 - Total duration – up to 3 weeks, during business hours
 - For onsite engagement please reach out to Principal Consultant for separate Part Number

2.7. VMWare VRA Design and Deployment (Remote) – Standard Boxed Scope

VMware VRA Design

- Conduct a solution workshops and design workshop
- Asses the customer current state to identify requirements and gaps to achieve the target state
- vRealize Automation Architectural design in up to (1) site
- Configuration design workbook.

VMWare VRA Deployment

- Installation vRealize Automation Infrastructure:
 - up to two (2) vRealize Automation IaaS web servers
 - up to two (2) vRealize Automation manager servers and orchestrator DEMs
 - up to two (2) vRealize Automation worker DEM and vCenter Agents
- Installation of up to (1) external vRealize orchestrator.

VMWare VRA Configuration

- Installation vRealize Automation Infrastructure :
 - Endpoints configuration (up to two):

- vSphere endpoint
- vRealize Orchestrator endpoint
- Up to (1) tenant
- Configuration of email notification
- Configuration of naming convention of virtual name
- Up to (3) business groups with the following configuration:
 - ❖ Up to (2) reservations. Allow the customer to provision workloads in custom reservation and storage tier based on storage policies
 - ❖ Up to (2) entitlements
 - ❖ Up to (2) network profiles
- Integration of standard Active Directory
- Up to (2) IaaS blueprints demonstration
- Up to (1) advanced service built using vRealize orchestrator workflows demonstration
- Up to (2) XaaS services definition demonstration.

Sizing

- **5MS7A89856 - VCA and Portal - Default**
 - One standard part no. for complete engagement
 - Total duration – up to 4 weeks, during business hours
 - For onsite engagement please reach out to Principal Consultant for separate Part Number

2.8. VMWare VRO Design and Deployment (Remote) - Small Boxed Scope

VMware VRO Design

- ✓ Show the capabilities and potential of the vRealize Operations Manager
- ✓ Conduct a solution workshops and design workshop
- ✓ Asses the customer current state to identify requirements and gaps to achieve the business objectives
- ✓ vRealize Operations Architectural design
- ✓ Configuration design workbook.

VMWare VRO Deployment

- ❖ Installation vRealize operations Infrastructure:
 - Up to (1) nodes vRealize Operations Manager
- ❖ Up to (1) Integration of adapters
 - vSphere adapter
- ❖ Integration of standard Active Directory
- ❖ Up to (1) custom group and policies configuration
- ❖ Up to (1) custom Rules
- ❖ Up to (1) Custom Dashboard and report demonstration.

Sizing

- **5MS7A89853 - vROps – Small**
- One standard part no. for complete engagement
- Total duration – up to 3 weeks, during business hours
- For onsite engagement please reach out to Principal Consultant for separate Part Number

2.9. VMWare VRO Design and Deployment (Remote) – Standard Boxed Scope

VMware VRO Design

- Show the capabilities and potential of the vRealize Operations Manager
- Conduct a solution workshops and design workshop
- Asses the customer current state to identify requirements and gaps to achieve the business objectives

Lenovo Professional Services Guide

- vRealize Operations Architectural design
- Configuration design workbook.

VMWare VRO Deployment

- Installation vRealize operations Infrastructure:
 - up to (3) nodes vRealize Operations Manager
 - up to (2) remote collector for each site
- Up to (3) Integration of adapters
 - ❖ vSphere adapter
 - ❖ Management Pack for NSX for vSphere
 - ❖ Management Pack for OpenStack
 - ❖ Management Pack for Storage Devices
 - ❖ Management Pack for vRealize Automation
 - ❖ Management Pack for Log Insight
- Configure vSphere distributed Resource Scheduler (DRS) on vRealize operations Manager
- Integration of standard Active Directory
- Up to (2) custom group and policies configuration
- Up to (2) custom Rules
- Up to (1) Super metric demonstration
- Up to (1) Custom Dashboard and report demonstration
- Up to (1) what-if- scenario demonstration

Sizing

- **5MS7A89854 - vROps – Default**
 - One standard part no. for complete engagement
 - Total duration – up to 4 weeks, during business hours
 - For onsite engagement please reach out to Principal Consultant for separate Part Number

Tailored Lenovo Services Offerings

2.10. VMware Cloud Foundation Design and Deployment Service

Design and implementation capabilities for VMware Cloud Foundation Solution with complete set of software-defined services for compute, storage, network and security, along with cloud management capabilities.

- Simple, secure, and agile cloud infrastructure that can be deployed on premises
- Ability to be consumed as a service from public cloud

VMware Cloud Foundation Outline Design and Deployment Service – consolidated Architecture

The intent is to define the scope and tasks for VMware Cloud foundation design and deploy service, any customer requirement out the scope of work must be assessed in one.

This service includes the customer environment assessment, an architectural design and the deployment of the VMware Cloud Foundation.

Design Scope

The design scope includes an overview of the VMware Cloud Foundation Solution, discuss the customer uses cases and potential choices to provide a tailed hyper-converged infrastructure to him.

- Cloud Foundation Design
- Conduct a solution workshops and design workshop
- Asses the customer current state to identify requirements and gaps to reach the highlighted business goals
- Up to (1) Cloud foundation Architecture design
- Up to (1) Cloud foundation vRealize Automation Architecture design
- Up to (1) Cloud foundation vRealize Operations Architecture design
- VMware Cloud Foundation Solution Prerequisites
- The Cloud Foundation deployment
- The prerequisite and configuration check prior the deployment
- Up to (8) ESXi host deployments
- The Cloud Foundation Bring-up:
 - (1) site
 - (1) SDDC Manger
- Up to (1) VI workload domain

Lenovo Professional Services Guide

- Up to (3) Showcasing and demonstration workshops

Initiate – Project Kick-Off

Perform necessary logistics and coordination to plan and schedule the execution of the migration effort with support from customer.

Deliverables:

- High level milestone chart
- Request for information documentation
- Prerequisites checklist
- Setup of engagement on project site and invitations via email for project stakeholders as designated by Customer.

Discovery: interactive workshops, artifacts analysis, data capture

This phase serves to initiate the project and to gather baseline information, facilitating an understanding of the business needs, future vision for application delivery, existing application portfolio and the current application delivery environment. This allows for the planning of subsequent project phases where more detailed information and associated analysis is performed.

Deliverables:

- Final recommendations aligned to project scope and delivered by Lenovo
- Project close out documentation for approval by the customer
- (1) Engagement kickoff presentation

Design

Lenovo professional service conducts VMware Cloud Foundation architecture design by conducting a series of design.

- Conduct Design workshops
- The design Document(s) of VMware Cloud Foundation

Deliverables:

- Design workshops
- Solution design document
- Bill of Materials – any Bill of Materials required for solutions to complete the transition to the future state.

Lenovo Professional Services Guide

Deploy

Lenovo professional service implements the VMware Cloud Foundation based on the Architecture designs prepared in the previous stage.

- Conducts implementation workshops if necessary
- Deploy and configure the VCF based on the architectural design
- Functional test validation

Deliverables:

- VMware Cloud Foundation implementation workbook
- VMware Cloud Foundation implementation configurations workbook

Close and Transfer

Lenovo Professional Services consultant conducts knowledge transfer session for the design and implementation.

Deliverables:

- Knowledge transfer session
- Closure meeting
 - o project status
 - o further possible opportunities

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done for the design and the deploy of VMware Cloud foundation.

VMware Cloud Foundation Outline Design and Deployment Service – Standard Basic

This service includes the customer environment assessment, an architectural design and the deployment of the VMware Cloud Foundation.

Project Scope

Lenovo Professional Services Guide

The scope includes an overview of the VMware Cloud Foundation Solution, discuss the customer uses cases and potential choices to provide a tailored hyper-converged infrastructure to the customer.

- Cloud Foundation Design
- Conduct a solution workshops and design workshop
- Asses the customer current state to identify requirements and gaps to achieve the business goals
- Up to (1) Cloud foundation Architecture design
- Up to (1) Cloud foundation VI workload domain
- Up to (1) Cloud foundation vRealize Automation Architecture design
- Up to (1) Cloud foundation vRealize Operations Architecture design
- VMware Cloud Foundation Solution Prerequisites
- The Cloud Foundation deployment
- The prerequisite and configuration check prior the deployment
- Up to (4) ESXi host deployments
- The Cloud Foundation bring-up
 - Site
 - SDDC Manger
- Up to (2) Showcasing and demonstration workshops

Project Outline: Initiate – Project Kick-Off

Perform necessary logistics and coordination to plan and schedule the execution of the migration effort with support from the customer.

Deliverables

- High level milestone chart
- Request for information documentation
- Prerequisites checklist
- Setup of engagement on project site and invitations via email for project stakeholders as designated by the customer.

Discovery: interactive workshops, artifacts analysis, data capture

This phase serves to initiate the project and to gather baseline information facilitating an understanding of the business needs, future vision for application delivery, existing application portfolio and the current application delivery environment. This allows for the planning of subsequent project phases where more detailed information and associated analysis is performed.

Deliverables

- Final recommendations aligned to project scope and delivered by Lenovo

Lenovo Professional Services Guide

- Project close out documentation for approval by the customer
- (1) Engagement kickoff presentation

Design

Lenovo Professional Services conducts VMware Cloud Foundation architecture design by conducting a series of design.

- Conduct Design workshops
- The design Document(s) of VMware Cloud Foundation

Deliverables

- Design workshops
- Solution design document.
- Bill of Materials – Any Bill of Materials required for solutions to complete the transition to the future state

Deploy

Lenovo Professional Services implements the VMware Cloud Foundation based on the Architecture designs prepared in the previous stage.

- Conducts implementation workshops if necessary
- Deploy and configure the VCF based on the architectural design
- Functional test validation

Deliverables

- VMware Cloud Foundation implementation workbook
- VMware Cloud Foundation implementation configurations workbook

Close and transfer

Lenovo Professional Services conducts knowledge transfer session for the design and implementation.

Deliverables:

- Knowledge transfer session
- Closure meeting
 - Project status
 - Further possible opportunities.

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done for the design and the deploy of VMware Cloud foundation.

2.11. VMware Self-Service portal and automation design & deployment service

Design and implementation of VMware vRealize Automation is delivered based on best practice, providing to the customer consultancy towards an automated cloud resources consumption, through a self-service portal.

- Standardize the self-service portal to provide on-demand access to the enterprise customized services
- Reduce costs by optimizing the provisioning process
- Increase time to value by reducing the provisioning time from days down to hours
- Increase agility by standardizing and automating the provisioning process.

Scope – for Small Environments

The scope is based on a minimal deployment architecture, and small environments.

Characteristics:

- One vRealize automation appliance node and all infrastructure components are installed on single node
- No High-Availability
- The maximum Capacities of the environment:
 - 10,000 managed items
 - 500 services catalog items
 - 10 concurrent machine provisions at the same time.

Scope for basic VMware Cloud Automation design and deploy service

The scope of this project is the design and deployment of a private cloud solution and self- service portal in one site.

Project Outline: Initiate

Lenovo Professional Services Guide

The Project Manager conducts collaborative discussions with stakeholders, a pre-workshop scope to set objectives.

- Project scope, objectives
- Project estimated timelines, scheduling and logistics
- Communication plan with main team members
- Project plan and uses cases

Initiate deliverables:

- Qualification call
- Business communication plan
- Engagement checklist
- Private cloud solution checklist
- IaaS solution checklist
- (1) Engagement kickoff presentation
- Collaborative project plans

Design deliverables:

- List of deployment prerequisites of the solution
- Conduct design workshops
- Private cloud solution design
- IaaS solution design

Deliverables:

- Up to (16) hours of design workshops
- Up to (16) hours of design efforts:
 - Private cloud solution design document
 - IaaS solution design document
- Summary meeting: Review the implementation prerequisites and considerations

Deploy

Lenovo Professional Services implements vRealize suite solution according to VMware solution specification.

- Conducts implementation workshops
- Implement and deploy the vRealize Automation solution following the design workbooks
- Implementation documents Deliverables:
- Up to (8) hours of implementation workshops
- Up to (32) hours of deployment efforts:
 - implementation documents

Lenovo Professional Services Guide

- Configuration workbook

Close and Transfer

Lenovo Professional Services conducts knowledge transfer session for the design and implementation.

Deliverables:

- Closure meeting
 - o Project status
 - o Further possible opportunities

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done for the design and the deploy of vRealize Automation on-premises, the configuration to get the environment up and running and demonstration of the capabilities of the product.

Scope for Medium and Enterprise environments

The following characteristics are recommended for enterprise production deployment:

1. Medium-sized environment
2. High-Availability, load balancer needed
3. The maximum capacities of the environment:
 - i. 50000 managed items
 - ii. 2500 services catalog items
 - iii. 100 concurrent machine provisions at the same time

Project Scope

The scope of this project is the design and deployment of a private cloud solution and self-service portal in one site.

Project Outline: Initiate

The Project Manager conducts collaborative discussions with stakeholders, a pre-workshop scope to set objectives.

- Project scope, objectives
- Project estimated timelines, scheduling and logistics

Lenovo Professional Services Guide

- Communication plan with main team members
- Project plan and uses cases.

Design deliverables

- List of deployment prerequisites of the solution
- Conduct Design workshops
- Private cloud solution design
- IaaS solution design Deliverables
- Up to (40) hours of design workshops
- Up to (40) hours of design efforts:
 - Private cloud solution design document
 - IaaS solution design document
 - Up to (1) Advance service workbook
- Summary meeting: Review the implementation prerequisites and considerations
-

Deploy

Lenovo Professional Services implements vRealize suite solution according to VMware solution specification.

- Conducts implementation workshops
- Implement and deploy the vRealize Automation solution following the design workbooks
- Implementation documents Deliverables
- Up to (32) hours of implementation workshops
- Up to (64) hours of deployment efforts:
 - Private cloud solution implementation document
 - IaaS solution implementation documents

Close and Transfer

Lenovo Professional Services conducts knowledge transfer session for the design and implementation.

Deliverables:

1. Up to (16) hours of knowledge transfer sessions
2. Closure meeting
 - a. Project status
 - b. Further possible opportunities

Sizing

The completion estimate is 12 weeks for the design and the deploy of vRealize Automation on one on-premises site, plus the configuration to get the environment up and running and demonstration of the capabilities of the product.

2.12. VMware Operations Management Design and Deployment service – Standard

The VMware Operations Management Design and Deployment service provides a tailored design to provide a foundation for automated services in the customer private cloud.

This service includes the customer environment assessment, an architectural design, the deployment of the vRealize automation products (vRealize operations, vRealize log Insight) and the integration with existing vSphere environment.

Project Scope

The scope of this project is the design and deployment of a private cloud solution and self-service portal in one site.

Provides the initial scale capacity monitoring up to 1000 virtual machines.

Project Outline: Initiate project kick-off

The Project Manager conducts collaborative discussions with stakeholders, a pre-workshop scope to set objectives.

- ✓ Project scope, objectives
- ✓ Project estimated timelines, scheduling and logistics
- ✓ Communication plan with main team members
- ✓ Project plan and uses cases

Design deliverables

1. Up to (32) hours of design workshops
2. Up to (40) hours of design efforts:
 - a) vRealize automation Architectural design document
 - b) vRealize log Insight Architectural design document

Lenovo Professional Services Guide

- c) Define use cases workbook
 - Up to (1) custom group and policies definition
 - Up to (1) custom rules definition
 - Up to (1) super metric definition
 - Up to (1) custom dashboard and report definition
3. Summary meeting: review the implementation prerequisites and considerations

Deploy

Lenovo Professional Services implements vRealize suite solution according to VMware solution specification.

- Conducts implementation workshops
- Implement and deploy the vRealize operations & log insight solutions following the workbooks
- Implementation documents

Deliverables:

- ✓ Up to (16) hours of implementation workshops
- ✓ Up to (40) hours of implementation efforts

Transfer

Lenovo Professional Services conducts knowledge transfer session for the design and implementation.

Deliverables

1. Up to (8) hours of knowledge transfer sessions
2. Closure meeting
 - Project status
 - Further possible opportunities

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done for the design and the deploy of vRealize Operation and vRealize insight.

2.13. Design and Deployment for VMware NSX

The Lenovo Design and Deployment for VMware NSX Service helps streamline the deployment of virtual networking capabilities using the VMware NSX® for vSphere® network virtualization platform. VMware NSX offers a transformative solution that helps increase data center agility, reduce hardware dependency, and lower costs.

The Lenovo Design and Deployment for VMware NSX Service enables to rapidly design, deploy, test, validate, and leverage the full benefits of a high-performance VMware NSX networking solution that is purpose-built for key use cases.

Customers can select up to four of the following six use cases:

- Layer 2 and Layer 3 networking connectivity
- Logical routing functionality
- Micro-segmentation using distributed firewall functionality
- Basic service composer functionality
- Basic load balancing of the web tier
- Service remote access connectivity

Scope

Lenovo consultants implement a plan based on repeatable methodologies and validated against VMware best practices. Workshops define the selected use cases and determine the business and technology priorities. The Lenovo Design and Deployment for VMware NSX Service includes eight phases.

Planning

- Define project scope, objectives, and business priorities
- Establish project timelines, scheduling, and logistics

Kickoff

- Introduce the Lenovo team, clarify roles and responsibilities and describe project goals, phases, and key dates
- Explain expected project results and deliverables and validate project expectations.

Assess

- Review requirements and hold workshops to define use cases
- Validate VMware vSphere and the physical network

Lenovo Professional Services Guide

- Assist planning of operational and organizational capabilities for deployment, management, and operations

Design

- Develop an architecture design based on requirements and use cases defined in the Assess phase
- Define validation test cases and expected results
- Review hardware and software deployment requirements

Deploy

- Create a test plan based on the design
- Confirm readiness of the production environment
- Install, configure and validate core management components

Validate

- Confirm completion of all agreed-upon product and use-case configuration requirements
- Execute test cases to validate the design and then hand off the solution for customer validation

Knowledge Transfer

- Transfer knowledge, deployment, and system capabilities

Conclusion

- Provide the final set of deliverables

2.14. Cloud Assessment Workshop

A Cloud Assessment Workshop is the first step in executing a cloud strategy. It is a Lenovo investment in a service led engagement to help customers with their intelligent transformation.

- Cloud Assessments are multi-day sessions conducted by Lenovo Professional Services at the customer site location
- It allows for complete discovery of business challenges, priorities, and limiting constraints to develop the customer's strategy.

Stages	Activities	Outcomes
Initiate	<ul style="list-style-type: none"> Assemble Team and Tools Plan Engagement Delivery Conduct Kick-off Meetings Plan Data Gathering Describe Deliverables 	<ul style="list-style-type: none"> Objectives and Key Results Success Criteria Scope and Project Outline
Discover	<ul style="list-style-type: none"> Gather Data Structure Data Define Current State 	<ul style="list-style-type: none"> Identify Business Drivers Identify Challenges Use Case Definitions High Level Readiness Assessment
Assess	<ul style="list-style-type: none"> Review Cloud Options 	<ul style="list-style-type: none"> High Level Strategy Roadmap

Workshop Agenda

DAY 1 AGENDA – STRATEGY	EXPECTED OUTCOMES	TIME
Introductions and Objectives	Introduce Client to the Strategy workshop and what to expect. Review the scope of the engagement. Identify Client objectives and requirements for the Hybrid Cloud and strategic direction.	9:00am-9:30am
Review Current Architecture	Define standard cloud operating models and discuss the components of the Client's current architecture. Review the approach to building a Hybrid Cloud.	9:30am-10:30am
Break		10:30am-10:45am
Define Use Cases and Application Profiles	Define a use cases around a specific example of services required, environment specs and application profiles. Common use cases include: App/Dev, QA, Projects, IT teams.	10:45am-11:30pm
Security and Compliance	Discuss security and compliance strategies used for Private and Public environments. Identify security and regulatory requirements applicable to Client's use cases. Identify guidelines for operating Infrastructure as code. e.g. Configuration Management enforces OS configs, Orchestration enforces 3rd party deployment standards, vNets, Code Promotion etc.	11:30pm-12:30pm
Lunch		12:30pm-1:00pm
Operating the Hybrid Cloud	Discuss strategy for managing cost through showback/chargeback. Items to consider: cost drivers, cost reporting, billing, shared costs, and true overall cost. Discuss strategy and process required for capacity management for on-premises infrastructure.	1:00pm-2:00pm
Technology Alternatives Analysis	Review approaches to identity management required for a hybrid cloud environment. Discuss requirements and best practices for monitoring, auditing and logging for the new environment.	2:00pm-3:00pm
Break		3:00pm-3:15pm
On-boarding Approach	Discuss the process and approach for Client to follow for on-boarding new applications. The result will ensure a thoughtful approach for its cloud-first strategy.	3:15pm-4:15pm

Sizing

Send an email at [Asia Pacific](#), [Europe](#), [Middle East and Africa](#), [Latin America](#) or [North America](#) to get in contact with the Professional Services team.

3. VDI

Advisory and implementation services such as assessment, health check, design, implementation, upgrade, and migration on virtualization solutions in Citrix, VMWare, and Microsoft on Lenovo platform.

3,000
Implementation
Projects in 2 years

100+ Worldwide
Lenovo Business
Partners

850+ VDI-related
Implementation
Projects



Servicio
Meteorológico
Nacional

"The hard work and dedication of the Lenovo Services team made for a really smooth implementation. We are especially grateful for all the support they provided with the configuration and benchmarking, where Lenovo's expertise really shone through."

-- Pablo Loyber, Data Collection Manager, National Meteorological Service

Pre-scoped Offerings using Part Numbers

3.1. ThinkAgile MX Deployment Services (MS Azure Stack HCI)

Scope

Lenovo shall perform the following:

- Work with the customer to understand production network environment
- Apply updates/patches
- Configure out-band-management port
- Configure hardware settings
- Load appropriate Windows drivers
- Install Windows roles and features
- Configure server NIC teaming
- Configure a failover cluster
- Enable and configure Storage Spaces Direct on the cluster
- Validate storage and cluster functions
- Apply Lenovo performance best recipe to S2D cluster
- Hand over cluster to customer for application deployments.

Services not included:

- Physical installation (racking/stacking) and cabling of storage system(s).
- Assistance with customer or third-party applications not identified in this Agreement.
- Product defect resolution, problem determination or troubleshooting unless otherwise specified.
- Assistance with implementation of backup/recovery and disaster recovery environment, including remote data replication services.
- Assistance with Customer documentation, processes, and standard operating procedures.
- Any training or training sessions.
- Configure customer network switches and physical network integration to this solution.

Deliverable Materials: Post installation document

Sizing

Part numbers for ThinkAgile MX Deployment:

5MS7B07827 - ThinkAgile MX Remote Deploy Addl Switchless Node

5MS7B07826 - ThinkAgile MX Onsite Deploy Addl Switchless Node

5MS7B00042 - ThinkAgile MX Remote Deployment (additional node)

5MS7B00039 - ThinkAgile MX Onsite Deployment (additional node)

5MS7B00037 - ThinkAgile MX Onsite Deployment (2 node switchless)

5MS7B00038 - ThinkAgile MX Onsite Deployment (2+2 node base cluster)

5MS7B00040 - ThinkAgile MX Remote Deployment (2 node switchless)

5MS7B00041 - ThinkAgile MX Remote Deployment (2+2 node base cluster)

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

- ThinkAgile MX deployment: add 1 deployment SKU for each node.

3.2. ThinkAgile HX or Nutanix deployment services

Lenovo Professional Services Guide

This deployment service provides an onsite production deployment of the Lenovo Converged HX Series Nutanix Cluster running the customer choice of Nutanix Acropolis Hypervisor, Hyper-V, or VMware vSphere. The scope includes project kickoff, Nutanix OS deployment, Hypervisor deployment and configuration, and post-install documentation.

Health check is an optional add-on.

Description

Lenovo HX Series Nutanix Appliance Deployment Services offers on-site deployment of the Lenovo Converged HX Series Nutanix Appliance. Choose the level of production readiness, ranging between simple hardware stand up for customers configuration and expert integration in customers environment, including Nutanix® Acropolis Hypervisor (AHV), VMware® vSphere® Hypervisor (ESXi™) or Microsoft® Hyper-V® virtualization. Lenovo also configures XClarity to help improve managing customers large-cluster environment. Two Nutanix deployment options are available: Advanced and Advanced Plus XClarity.

Nutanix Deployment Advanced

Deployment Advanced service configures and integrates Nutanix clusters into an existing IT environment. It includes VMware vCenter Server® integration; Hyper-V and System Center Virtual Machine Manager (SCVMM) integration; or AHV and network configuration and knowledge transfer:

- Implementing a single vCenter Server Appliance™ or integrating it with an existing instance
- Creating and configuring the vSphere cluster and adding ESXi hosts to the vSphere cluster
- Configuring single high availability (HA) and VMware Distributed Resource Scheduler (DRS) settings, Nutanix containers, AHV clusters, AHV virtual switches, and VM networks

Nutanix Deployment Advanced Plus XClarity

The scope of this option adds Lenovo XClarity virtual appliance installation to the Deployment Advanced service and configures it to manage the hardware.

It includes comprehensive installation:

- Configuring network settings and authentication
- Setting up the call home feature, firmware update repository, email notifications, syslog integration, and Simple Network Management Protocol (SNMP) alerts

Lenovo Professional Services Guide

- Configuring upward integration to vCenter or SCVMM—XClarity Pro.

Scope

Lenovo shall perform the following ThinkAgile HX Deployment:

VMware vCenter Server Integration

- Implement single vCenter Appliance Server, or integrate with existing instance
- Create and configure vSphere Cluster
- Add ESXi hosts to vSphere Cluster
- Configure High Availability (HA) and Distributed Resource Scheduler (DRS) settings

Or, Microsoft Hyper-V / System Center Virtual Machine Manager (SCVMM)

Integration

- Create single Hyper-V failover cluster or integrate with existing instance

Or, Acropolis (AHV)

- Configure Nutanix containers and AHV clusters as required
- Configure AHV virtual switches, Guest networks

Knowledge transfer

- o Review configuration and basic system operations
- o Review Nutanix Support portal
- Provide technical solution design documentation to Customer

Nutanix Deployment Advanced Plus XClarity

1. Lenovo XClarity Installation
 - Configure network settings and authentication
 - Setup call home feature
 - Setup firmware update repository
 - Set up e-mail notifications, syslog integration, snmp alerts
 - Perform full discovery (inventory of the nodes)
2. Install system updates in accordance with best practices

3. Set up upward integration to vCenter or SCVMM (XClarity Pro)

Extension options

- Data protection services
- Software-defined networking (SDN) and network functions virtualization (NFV) integration with VMware vCloud® Networking and Security™, VMware NSX®, Open vSwitch, or Microsoft Virtual Networking and Network Virtualization and Genetic Routing Encapsulation (NVGRE)

Sizing

Part numbers for ThinkAgile HX Deployment:

5MS7B00043 - ThinkAgile HX Onsite Deployment (up to 3 node cluster)

5MS7B00044 - ThinkAgile HX Onsite Deployment (additional node)

5MS7B00045 - ThinkAgile HX Remote Deployment (up to 3 node cluster)

5MS7B00046 - ThinkAgile HX Remote Deployment (additional node)

Configuration

Select the deployment type while in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

3.3. ThinkAgile VX (VMware vSAN) deployment service (onsite or remote)

Description

This service offering will provide the customer with a fully installed and configured ThinkAgile VX solution. The system firmware settings and VMware software settings will be configured to enable a fully functional vSAN cluster ready to accept migrated workloads.

Remote Deployment Services requires the customer to provide VPN access to our Technical Consultants over a remote session platform (i.e. WebEx, Zoom, etc.) and work with the Lenovo Technical Consultants to configure and deploy the solution.

Before a remote deployment session:

Lenovo Professional Services Guide

- Lenovo consultant schedules the remote session
- Using the deployment checklist, client makes sure all requirements are completed

Lenovo consultant's task during the deployment session:

- Verify that hardware installation has been completed (by a remote session in a cooperation with the client)
- Perform ThinkAgile VX deployment and configuration
- Transfer skills to the client.

Clients may reach out to the consultant with any questions regarding administrative tasks for the deployment after the engagement up to 30 days.

Scope

Lenovo shall perform the following:

Conduct remote preparation and services planning with Customer:

- Gather detailed requirements
- Review and validate hardware configuration, all prerequisites and dependencies
- Identify roles and responsibility
- Request customer to power on servers and validate all components show green light indicate healthy state.

Verify and update ThinkAgile VX to the recommended solution level

- Verify and update server firmware on the latest Lenovo VX best receipt
- Verify ESXi hypervisor preload or re-image ESXi hypervisor as needed

Perform basic network configuration for integration

- Configure IPv4 on all hardware components
- XCC (XClarity Controller/management interface)
- ESXi (standard vSwitch on management, vmotion, and vSAN)

Perform baseline VSAN configuration

- Deploy vCenter appliance
- Manage new ESXi hosts with vCenter

Lenovo Professional Services Guide

- o Configure vSAN for storage
- o Create and map datastore, if applicable
- o Perform vSAN health check testing

Provide Post-Install Documentation

- Network, vSAN and login information
- Reference material for vSAN

Sizing

Part numbers for **ThinkAgile Onsite VX Deployment**:

- **5MS7B00082** - ThinkAgile VX Onsite Deployment (up to 4 node cluster)
- **5MS7B00083** - ThinkAgile VX Onsite Deployment (additional node)

Part numbers for **ThinkAgile remote VX Deployment**:

- **5MS7A87711** - ThinkAgile VX Remote Deployment (up to 4 node cluster)
- **5MS7A87712** - ThinkAgile VX Remote Deployment (additional node)

Configuration

Select the deployment, either the deployment type “ThinkAgile VX Onsite Deployment” or “ThinkAgile VX Remote Deployment” while in in the “Base” Tab of the Data Center Solution Configurator.

The required part numbers and quantities will be added automatically for the configuration.

- ThinkAgile VX deployment: add 1 deployment SKU for up to 4 nodes.
- ThinkAgile VX additional node: add 1 additional node SKU for each additional node.

Example:

For a remote deployment of a 6 node VX cluster and a 3 node VX cluster at a backup location configure the following part-numbers:

- 2x **5MS7A87711** Professional ServiceUnit - ThinkAgile VX Remote Deployment (covers 4 nodes)
- 2x **5MS7A15461** Professional ServiceUnit - ThinkAgile VX Onsite Additional Node Deployment

3.4. ThinkAgile MX Health Check

Scope

Lenovo shall perform the following:

- Work with customer to understand existing S2D solution configuration
- Update each physical server in the S2D solution:
 - a) Hardware firmware
 - b) Device drivers
 - c) Windows operating system
 - d) Operating system patches

Sizing

Part numbers for ThinkAgile MX Health-Check:

- **5MS7B00049** - ThinkAgile MX 1X Remote Health Check (per 2-4 node cluster)
- **5MS7B00050** - ThinkAgile MX 1X Remote Health Check (additional node)
- **5MS7B00051** - ThinkAgile MX 1X Remote Health Check & Update (per 2-4 node cluster)
- **5MS7B00052** - ThinkAgile MX 1X Remote Health Check & Update (additional node)

Configuration

Select the health check in the Data Center Solution Configurator. The required part numbers and quantities will be added automatically.

3.5. Hardware Installation Services

This fixed hardware installation offering (also known as Rack and Stack) provides predefined fixed scope and price service available around the clock. It is easy to configure with hardware, quick to sell and simple to order. The scope includes onsite arrival of technician, unboxing, visual inspection, physical installation and connections, power on, update firmware/BIOS if necessary, cleans up and removal of packing materials.

Description

Lenovo experts can seamlessly manage the physical installation of customers' server, storage, or networking hardware so they can quickly benefit from

Lenovo Professional Services Guide

customers investment. Working at a time convenient for the client, the technician will unpack and inspect the systems on his site, install them, verify operation, and dispose of the packaging at the onsite location, allowing customer's team to focus on other priorities. New systems will be configured and ready for the customer's software installation. It's the most efficient way to quickly get investment working for customers, with minimal disruption to the company staff.

Any Lenovo-branded server, storage, or networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-authorized reseller, are eligible for Lenovo Hardware Installation Services. Customized installation services are also available to meet customers specific needs.

Scope

Lenovo shall perform the following:

Preinstallation

Our team of professionals has extensive knowledge and the experience to help ensure the installation goes smoothly. With customer's help, the technician will arrive well prepared and complete the task with minimal disruption to the business and the staff. A preinstall checklist will serve as guide to ensure the customer has completed all hardware preparations and the hardware can be installed with ease. These steps include:

- Backing up data the customer needs to migrate to the new hardware
- Ensuring the new hardware is available and in place
- Providing a power supply, network connection, racks, cables, and any other necessary parts
- Designating a representative who is available and able to assist the technician with access, approvals, IP addresses, etc.
- Providing a safe workspace and appropriate access for the technician.

When the client is ready, we'll schedule a call with him to review the checklist, answer any questions about the process, and schedule a convenient time to install the hardware.

Installation

Customers can rely on the expert to provide end-to-end installation, including:

Lenovo Professional Services Guide

- Initial removal of the product from packaging, including inspection for damage
- Installation of the product per the associated documentation
- Physical connection and powering on of hardware
- Firmware and BIOS check and update to the latest levels if needed
- Consolidation of all packaging materials and disposal within customer site
- Installation of Lenovo-branded or Lenovo-supported devices into the rack

Operational Verification

All systems will be thoroughly tested to ensure full operation. Customer's new hardware will be ready for software installation.

This service is designed for systems to be used in business settings, but there are a few limitations, including:

- Service coverage—contact customer's local services representative to determine if the site location falls within the covered area
- Troubleshooting and solutions for problems encountered during installation, unless covered by Lenovo warranty or Lenovo support agreement
- Data center design or reconfiguration
- Reconfiguration of manufacturer-configured solutions
- Installation of software products or data
- Connectivity to the network, except as required to install firmware
- Wide area network (WAN) and local area network (LAN) troubleshooting
- Moving hardware to the installation location.

Sizing

- Add 1-part number unit for each server/ switch/ storage/ rack to be installed (use the configurators to define the PN type)
- Usually 5-7 equipment (MTMs) can be installed in a day (depending on the type). Use the standard PN for the first one and the "ADD ON" PNs for each of the additional components from the same type up to 5-6.
- If customers only have different components (MTMs) to be installed, then always use the standard PN for each (don't use the "ADD ON" type)
- If customers have more than 5-7 components from the same type, then a second day return will be required by the installer company. In this case, please consult with the services sales organization and the HW installation PM.

3.6. XClarity Jumpstart Services

Description

The Lenovo Professional Services XClarity Offering can be leveraged through Fixed Scope Part Numbers for Workshop, Assessment and Deployment and Skills Transfer Services. The Workshop will be a consultant led Workshop. 'Assessment' and 'Deployment and Skills Transfer' can now be sold as single fixed priced, fixed scope part numbers. Jumpstart offerings will also be available as a custom requirement. Part numbers will be ordered as a quantity of one per each of the three stages. They can be ordered together or separately.

X Clarity Workshop

The Workshop is a business session that maps out the project goals, desired outcomes and timeframes. Together with the customer, the Lenovo certified consultant determines the right approach to align the business goals and desired outcomes with the full adoption and utilization of XClarity.

XClarity Assessment

The Assessment is a technical evaluation led by a Lenovo certified consultant who will assess the level of XClarity System Management adoption and capability use.

XClarity Deployment and Skills Transfer

Following the provided recommendations, the Lenovo consultant will work with the customer to define the scope of engagement and complete the configuration of XClarity features. The last step of the process will be a remote demonstration of XClarity, performed by a Lenovo consultant to assist customers' IT administrators and system admins with the project handover.

Sizing

DESCRIPTION:	Service Offering
XClarity Assessment	5MS7B00181
XClarity Deployment and Skills Transfer	5MS7B00182
XClarity Workshop	5MS7B00180

3.7. ThinkAgile VX (VMware vSAN) Cluster Remote Health Check

Description

Following best practices and established methodologies, the Lenovo Services team conducts a comprehensive ThinkAgile VX Series Health Check and provides an evaluation of customer's system configuration. Skilled technicians will check firmware levels, device drivers, and OS patch levels and make the necessary updates. In addition, they investigate and address error logs and alerts, and answer any of the customer's concerns or questions.

The Lenovo ThinkAgile VX Health Check also includes a detailed report that is suitable for ongoing management and infrastructure support of covered hardware.

Scope

The Lenovo ThinkAgile VX remote Health Check provides an efficient process of assessing the converged infrastructure, reporting findings, and making remediation updates:

- Explain the VX Cluster Health Check process
- Gather information about the customer's existing environment through project preparation, planning, and pre-work sessions
- Identify requirements and establish end goals relevant to the business
- Perform a thorough system assessment of the ThinkAgile VX Cluster infrastructure
- Review and validate hardware configuration, prerequisites, and dependencies
- Verify interoperability of firmware levels and device drivers
- Confirm VMware recommended operating system and ThinkAgile VX software versions
- Check error logs and the operating status of covered hardware and software components
- Investigate and address any ThinkAgile VX Cluster alerts or concerns
- Optional: Update supported hardware to the latest level of firmware, device drivers, OS, hypervisor software, and ThinkAgile VX software as needed, based on a mutually agreed schedule and maintenance window
- Ensure network connectivity and VMware infrastructure health.

Sizing

Lenovo Professional Services Guide

Health Checks can be selected when configuring the original ThinkAgile VX systems in the Data Center Solution Configurator.

The required part numbers and quantities can be added automatically during initial the configuration.

Configuration

- a) add 1 Health Check SKU per cluster for up to 4 nodes
 - b) add 1 additional Health Check SKU for each additional node
- **5MS7B00059** - ThinkAgile VX 1X Remote Health Check & Update (up to 4 node cluster)
 - **5MS7B00060** - ThinkAgile VX 1X Remote Health Check & Update (additional node)
 - **5MS7B00178** - ThinkAgile VX 1X Remote Health Check (up to 4 node cluster)
 - **5MS7B00179** - ThinkAgile VX 1X Remote Health Check (additional node)

Tailored Lenovo Services Offerings

3.8. xClarity Installation and Configuration

This custom service provides XClarity Administrator management base software functionality on ThinkSystem Server, Storage and Network as well as for ThinkAgile appliances. The scope includes XClarity Web Interface Overview, Endpoint Discovery, Firmware Updates, set up of event forwarding and assistance with Hardware/ Software.

Description

Lenovo XClarity is a fast, flexible, and scalable hardware systems management application that enables administrators to deploy infrastructure to automate provisioning and operations management faster and with less effort. To ensure customers gain all the advantages and benefits as quickly as possible Lenovo Services offer a one-day base install, or a 2-day advanced install including integration.

xClarity Base Installation

Lenovo Professional Services Guide

- Deploy the XClarity appliance in existing virtualization environment
- Manage either 1 Full Flex chassis, or 5 RACK servers
- Setup either Local security or LDAP, depending on customer preferences
- Download latest firmware patches for the customer environment
- Configure Firmware policy and apply to applicable hardware
- Create configuration pattern based on one existing node, so it is ready to deploy
- Upload the desired version of either VMWare or Windows to the OS repository of XClarity
- Enable and setup Call-Home for one location and demonstrate how to setup another call forwarder
- If SNMP traps are desired, assist in configuring SNMPv1
- License the Appliance if the customer purchased a license

xClarity Integration Installation for VMware

Steps available in xClarity Base Installation plus:

- Install XClarity integrator for VCenter
- Manage the hosts (IMM and OS)
- Register the integrator with xClarity.
- Setup firmware repository on the VCenter server.
- Provide a walkthrough of the different functions in XClarity, as well as the integrator

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done depending on # of servers, # of locations, client requirements, on-site or remote engagement and country of deployment.

3.9. HX Series Nutanix Cluster Health Check

Description

Following best practices and established methodologies, the Lenovo Services team conducts a comprehensive HX Series Nutanix Cluster Health Check and provides an evaluation of the customer's system configuration. Skilled technicians will check firmware levels, device drivers, and OS patch levels and make the necessary updates. In addition, they investigate and address error logs and alerts, and answer any of the customer's concerns or questions.

Lenovo Professional Services Guide

The Lenovo HX Series Nutanix Cluster Health Check also includes a detailed report that is suitable for ongoing management and infrastructure support of covered hardware. Hardware that is covered includes Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-authorized reseller. Protect the technology investment and optimize performance of the customer's HX Series Nutanix Cluster by engaging Lenovo for a complete Health Check assessment.

Scope

The Lenovo HX Series Nutanix Cluster Health Check provides an efficient process of assessing the converged infrastructure, reporting findings, and making remediation updates:

- Explain the HX Series Nutanix Cluster Health Check process
- Gather information about the existing environment through project preparation, planning, and pre-work sessions
- Identify requirements and establish end goals relevant to the business
- Perform a thorough system assessment of the HX Series Nutanix Cluster infrastructure
- Review and validate hardware configuration, prerequisites, and dependencies
- Verify interoperability of firmware levels and device drivers
- Confirm Nutanix-recommended operating system and HX Series Nutanix Cluster software versions
- Check error logs and the operating status of covered hardware and software components
- Investigate and address any HX Series Nutanix Cluster alerts or concerns
- Optional: Update supported hardware to the latest level of firmware, device drivers, OS, hypervisor software, and HX Series Nutanix Cluster software as needed, based on a mutually agreed schedule and maintenance window
- Ensure network connectivity and Nutanix infrastructure health.

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done depending on # of servers, # of locations, client requirements, on-site or remote engagement and country of deployment.

3.10. VDI Workshop

A VDI Workshop gives the client a good understanding how to benefit from VDI and how to implement VDI in their environment. It is a Lenovo investment in a service led engagement to help customers with their intelligent transformation to achieve their business outcomes.

- Assessing where the customer is and understanding where he wants to be in his VDI journey
- Aligning customer’s VDI strategy with the business objectives by addressing security, privacy and compliance concerns
- Analyzing the customer’s IT spend to better allocate resources, mitigate risk and maximize his ROI

Stages	Activities	Outcomes
Initiate	<ul style="list-style-type: none"> • Assemble Team and Tools • Plan Engagement Delivery • Conduct Kick-off Meetings • Plan Data Gathering • Describe Deliverables 	<ul style="list-style-type: none"> • Objectives and Key Results • Success Criteria • Scope and Project Outline
Discover	<ul style="list-style-type: none"> • Gather Data • Structure Data • Define Current State 	<ul style="list-style-type: none"> • Identify Business Drivers • Identify Challenges • Use Case Definitions • High Level Readiness Assessment
Assess	<ul style="list-style-type: none"> • Review VDI Options • Conduct whiteboard planning sessions 	<ul style="list-style-type: none"> • High Level Strategy Roadmap

Workshop Agenda

DAY 1 AGENDA	TOPICS & OUTCOMES	TIME
Introductions and Objectives	Introduce Client to the VDI workshop and what to expect. Review the scope of the engagement. Identify Client business objectives and requirements for VDI and strategic direction.	9:00am-9:30am
Review Current Architecture	Define standard VDI operating models and discuss the components of the Client's current architecture. Review the approach to building a VDI Environment.	9:30am-10:30am
Break		10:30am-10:45am
Use Cases & Application Profiles	High-level understanding of the application and desktop landscape. Discuss user population, primary applications, user access requirements, desktop strategy, integration testing, client devices, personalization, and policies.	10:45am-12:00pm
Break		12:00pm-1:00pm
Infrastructure & Operations	Discuss virtualization platform requirements, storage requirements,	1:00pm-2:00pm
Networking & Security	Define networking and security requirements, including remote access, vLAN segmentation, firewall rules, security policies, client access, WAN, bandwidth, and policy restrictions.	2:00pm-2:45pm
Break		2:45pm-3:00pm
VDI Strategy	High-level strategy and future phase recommends based on workshop discovery and conversations. Whiteboard diagram of recommended high-level architecture.	3:00pm-4:00pm
Wrap Up	Discuss any open issues or follow up topics. Determine next steps.	4:00pm-4:30pm

Sizing

Send an email at [Asia Pacific](#), [Europe](#), [Middle East and Africa](#), [Latin America](#) or [North America](#) to get in contact with the Professional Services team.

4. HPC

As the #1 HPC provider in the industry, Lenovo Professional Services helps businesses achieve time-to-value fast with best practices from over 3000 implementation projects and over 200 HPC projects.

Power & Cooling for HPC Solutions

- Data Center Power and Cooling Studies or Viability Assessments for HPC
- Data Center Power and Cooling Design & Implementations Services for HPC

HPC Solution Design & Implementation

- HPC Solution Architecture & Design Services
- HPC Intelligent Cluster Implementation & Deployment Services

HPC Management

- Health Check Services

Tailored Lenovo Services Offerings

4.1. High-Performance Computing Health Check

Description

Maintaining data center performance and efficiency is essential for smooth business operations. But it takes precious time and resources to tune high-performance computing (HPC) cluster. Many IT organizations must concentrate on value-added initiatives that advance strategic business priorities and lack the bandwidth to optimize infrastructure performance at the same time.

When Lenovo's Professional Services consultants assess HPC clusters, the organization gets a boost from maximizing system performance, efficiency, and uptime based on the in-depth expertise.

During an HPC Clusters Health Check, the Lenovo Services team follows best practices and established methodologies to conduct a comprehensive evaluation of the HPC configuration. Skilled technicians check firmware levels, device drivers, cluster management software, OS patch levels, and software updates for components such as Open Fabrics Enterprise Distribution (OFED), General Parallel File System (GPFS™), compilers, and resource managers/schedulers. The technicians advise of necessary updates and investigate and address any error logs and alerts. Along the way, they'll also answer related concerns or questions customers may raise.

The Lenovo HPC Clusters Health Check also includes a detailed post-installation report. It is suitable for ongoing management and infrastructure support of covered hardware: Lenovo-branded server, storage, and networking devices as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-authorized reseller. By maintaining a healthy HPC cluster, customers make the most of their IT investment and manage enterprise resources to the best overall advantage.

Scope

During the Lenovo HPC Clusters Health Check, Lenovo consultants assess the data center environment and HPC cluster, report findings, and propose required updates. They will:

- Explain the HPC Clusters Health Check process
- Gather information about the existing environment through project preparation, planning, and pre-work sessions
- Identify requirements and establish end goals relevant to the business
- Perform a thorough system assessment of the HPC cluster
- Review and validate hardware configuration, prerequisites, and dependencies
- Verify interoperability of firmware levels and device drivers
- Check error logs and operating status of covered hardware and software components
- Investigate and address any HPC cluster alerts or concerns
- Provide health check report containing observations, recommendations, critical actions, and summary
- Optional: Update supported hardware to the latest level of firmware, device drivers, OS, and HPC cluster-specific software as needed, based on a mutually agreed schedule and maintenance window
- Optional: Run standard benchmarks for memory, CPU, interconnect, and storage
- Ensure network connectivity and infrastructure health.

Sizing

Please get in touch with Professional Service ISA for individual scoping. A customized sizing will be done depending on # of servers, # of locations, client requirements, on-site or remote engagement and country of deployment.

4.2. High Performance Computing Deployment Service

In dynamic business and technology environments, organizations need to get high-performance computing (HPC) clusters up and running expeditiously. Lenovo HPC Deployment Services offers basic hardware installation and custom advanced installation, migration and expansion services for rapid implementation. HPC clusters comprise a variety of rack, blade, or NeXtScale servers and storage for specific applications that run efficiently in Lenovo and OEM networking

Lenovo Professional Services Guide

configurations. Lenovo professionals provide efficient configuration of HPC clusters, ensuring components work seamlessly.

Lenovo Services professionals work with customer's team to understand requirements and draft a statement of work (SoW) outlining the work to be performed. During a conference call, we gather hardware configuration details, understand customer's desired outcome, and define project size and scope. The engagement is performed at customer location and includes demonstrating cluster functionality and documenting the configuration. Once delivery of ordered hardware and services is imminent, implementation planning calls take place, and the schedule is set to help ensure smooth implementation of the HPC cluster.

Value for the client

Lenovo HPC Deployment Services offers implementation speed and quality while reducing risk. Lenovo professionals bring vast experience, provide field-tested implementation best practices, and recommend verified software to help avoid trial-and-error iterations. To obtain HPC Deployment Services, contact a Lenovo opportunity manager to establish requirements and create the SoW.

Scope

Each engagement can be unique; generally, it includes these preparation, management, configuration, implementation, and migration services.

- Conduct teleconference for preparation and planning
- Set up and configure the cluster
 - ✓ Configure management nodes
 - ✓ Verify and update firmware and CMOS
 - ✓ Configure RAID
 - ✓ Install the OS
 - ✓ Configure cluster management software (xCAT)
 - ✓ Configure Resource Manager and Job Scheduler
 - ✓ Implement and verify user network access, NTP, DNS forwarding, and NAT Gateways per customer environment
- Provision, configure, and verify Ethernet and the management network
- Provision nodes—compute, storage, login, special purpose, and so on—with an OS
- Test and validate cluster operation
- Perform skills transfer for customer administrators
- Document the configuration firmware and software versions Services Options
- Assist with solution architecture or review proposed solutions
- Test hardware

- Assist with benchmark execution and acceptance testing
- Transfer in-depth training and skills on any cluster component
- Assist with installation of the application and license manager
- Assist with project management.

5. Data Center Power and Cooling

Data center managers need to consider power and cooling trends and practices to optimize capacity, cut costs, and save energy. Lenovo Professional Services help customers' data centers reduce carbon footprints and be environment friendly.

Why choosing power & cooling capabilities?

- ⊕ To avoid data center downtimes, data centers over-provision resulting in power, energy, resources, and space wastage.
- ⊕ Data centers often struggle with massive amount of energy and power consumption. The lack of energy monitoring and inefficient use of sensors increase costs and harms the environment.

5.1. Data Center Best Practices Workshop

The Data Center Best Practices Workshop is a one-day, onsite interactive workshop to review power, cooling and energy efficiency associated with IT systems and data center infrastructure.

Key Features:

- ✓ Data center walk-through to gather data and observe opportunities to address customer's issues and objectives
- ✓ Interactive session reviewing cooling, power, and energy efficiency opportunities
- ✓ Work with the customer to understand his data center issues and objectives
- ✓ Provide overview of approaches for improving energy efficiency and power and cooling robustness
- ✓ Investigate potential for incentives from the local utility and agencies
- ✓ Site visit report with detailed observations and recommendations for improvements and next steps for customer's IT systems and data center infrastructure

Workshop Takeaways:

- Extend the life of an existing data center
- Removal of power and cooling barriers which may limit installation of IT systems
- Improve data center energy efficiency and reduce electric power costs.

5.2. Data Center Power and Cooling Assessment

Ensure the data center has the required power and cooling capacity for present and future IT plans.

Key Features

- ✓ Verify that the data center has the required power and cooling capacity for present and future IT plans
- ✓ Assess power distribution, air conditioning and air distribution requirements
- ✓ Identify, diagnose and define remedies for power or thermal trouble spots and energy inefficiencies
- ✓ Visualize and understand the thermal profile of the data center through measurements handheld quantitative devices backed by thermodynamic data analysis
- ✓ Increase data center cooling capacity while maintaining required cooling for IT equipment
- ✓ Avoid or delay time of capital outlay for data center expansion or relocation
- ✓ Enable clients to provide the most efficient ventilation and cooling for their IT equipment

Value for the customer:

- Identify potential power and cooling installation issues and mitigation steps to ensure successful deployment and installation of high-power IT systems
- Identify areas in which customer's data center energy efficiency can be improved through optimization or through adopting alternative technologies

- Determine existing IT power consumption to establish the demand it places on the power and cooling infrastructure
- Establish the current power and/or cooling capacity of the data center energy infrastructure
- Improve IT system and facilities up-time
- Reclaim unused power and/or cooling capacity
- Defer capital expansion costs

5.3. DTN Cooling for Neptune Portfolio Systems

Key Features:

- Initial planning and site inspection for Neptune systems
- TCO Analysis, Solution Design, Implementation at the customer site
- Installation of the cooling infrastructure and DTN water cooled Neptune systems
- Setup and implementation of the water inlet and outlet manifold connections for water flow and appropriate flowrate
- Cooling solution performance validation, optimization, and tuning

Value for the customer:

- ❖ Achieve greater efficiency with Lenovo DTN water cooling for Neptune systems
- ❖ Optimized to expand data center free cooling for reduced energy and operational expense
- ❖ Additional performance achieved by running high CPUs and GPUs/Accelerators at lower temperatures
- ❖ Optimize density within cooling restraints and maximize usable space without adding additional Computer Room Air Conditioning (CRAC) units
- ❖ Eliminates or reduces the need for air-cooling in the chassis, decreasing the overall power consumption and increasing energy savings and reliability
- ❖ Internal server components run at a lower temperature resulting in lower power consumption and increased performance and reliability

5.4. Data Center Rack Cooling with Rear Door Heat eXchanger

Key Features:

- ✓ Initial design, planning and site inspection for Rear Door Heat eXchanger (RDHX) installation
- ✓ Inspect current perforated floor tile arrangement and adjust accordingly to ensure optimal cooling of the room
- ✓ Inspect rack paneling to ensure airflow leakage around the RDHX and recirculation within the rack is minimized.
- ✓ Installation of the RDHX door(s), purge and pressure test system for leaks
- ✓ Setup and implement the water inlet and outlet connections for water flow to the door(s)
- ✓ Check and verify no leaks at manifolds and hose connections
- ✓ Installation of the rack stabilization bracket(s) and recirculation panels
- ✓ Cooling solution performance validation, optimization, and tuning

Value for the customer:

- Industry-leading, close-coupled water-cooling solution that fits on the rear of the Lenovo Enterprise 42U rack
- Achieve up to 32kW of cooling at the rack with Lenovo's passive Rear Door Heat eXchanger (RDHX) and avoid the need of additional, expensive air conditioning
- Increase data center energy efficiency by delivering more cooling per kW versus equivalent forced air-cooling solutions using fans/blowers
- Eliminate the recirculation of hot air in the data center resulting in fewer CRAC units and higher chiller plant operational efficiency
- Optimize IT power and cooling density within the data center and maximize usable space without adding CRAC units
- Deploy a RDHX door(s) to quickly and effectively eliminate 'hot spots' in the data center

6. Lenovo Professional Services Tokens Menu

Each business is unique, and so are the server, networking, and storage needs. An assessment workshop offers a complete discovery of the business challenges, priorities, and limiting constraints to develop a tailored strategy.

Lenovo Professional Services experts will:

- Evaluate areas for IT infrastructure improvements using the latest in trends and best practices
- Plan the best system for business needs with a forward-looking strategy and project outline.

The **Lenovo Professional Services Tokens Menu** has been designed to give customers an overview of the service offerings available to utilize pre-purchased Service Tokens. An indicative token cost has been provided for each service.

Services included:

1) Business Led Workshops

1. Cloud Workshop
2. Data & Analytics Workshop
3. VDI Workshop
4. HPC Workshop

2) IT Infrastructure Consulting Services

3) Technology Accelerations

- ⊕ ThinkSystem DM Storage File Migration
- ⊕ XClarity Jumpstart Services (Remote)
- ⊕ Hybrid Cloud Azure VM Migration

4) Infrastructure Deployment Solutions

- ThinkAgile HX
- ThinkAgile VX
- ThinkAgile MX
- ThinkAgile SXM
- SAP HANA
- ThinkSystem DE
- ThinkSystem DM
- Hardware Installation Services

5) Preventive Services

- ✓ ThinkAgile HX Health Check
- ✓ ThinkAgile VX Health Check
- ✓ ThinkAgile MX Health Check
- ✓ ThinkAgile SXM Health Check
- ✓ SAP HANA Health Check
- ✓ ThinkSystem DE Health Check

Lenovo Professional Services Guide

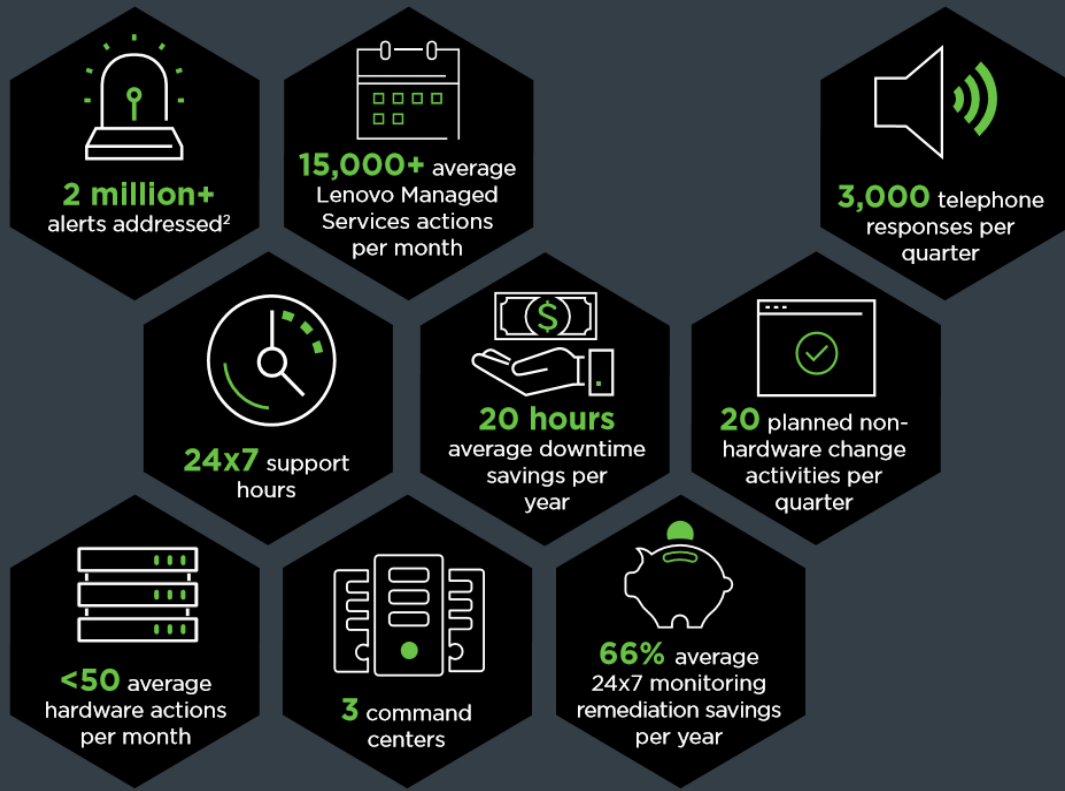
- ✓ ThinkSystem DM Health Check
- ✓ Data Center Health Check
- ✓ HPC Health Check
- ✓ Network Health Check
- ✓ Storage Health Check

The Professional Services Tokens Menu can be downloaded [here](#).

7. Managed Services

Lenovo Managed Services provides remote active monitoring of Lenovo Products in the customer's datacenter. This includes SAP, Nutanix, and HPC solutions.

This includes 24 by 7 remote monitoring, alerting and automated issue resolution. Lenovo Managed Services team reviews and interprets alerts and initiate appropriate action, whether hardware, code, or configuration related. They coordinate warranty and maintenance remedies with end-to-end support. They provide customers a quarterly assessment that includes recommended strategy for firmware or other updates. they also execute these updates for Customer, reducing time and effort associated with these activities.



7.1. Managed Services for Hardware-only

Managing enterprise IT environments in an evolving business and technology landscape can be costly and time-consuming. Improper attention to this critical function can leave systems vulnerable to firmware or driver conflicts, resource contention, intrusion, or outages.

With Lenovo Managed Services, Lenovo service professionals remotely monitor and manage customer’s data center to enhance security and reliability and help ensure maximum performance and stability. Continuous monitoring, scheduled health checks, recommended updates, capacity planning, and performance management can bolster workforce productivity, drive innovation, and enhance business results.

Proactive Management and Continuous Monitoring

Lenovo Professional Services Guide

Lenovo Managed Services enables businesses to improve IT efficiency and optimize data center resources with rapid access to technical expertise and best practices for industry processes. It includes 24x7 remote monitoring, problem determination and resolution, updates, and system-wide health checks. Detailed monitoring enables capacity planning and performance management, helping ensure smooth operation of data center servers and business processes. Should a technical problem arise, the Lenovo automated alert and support notification system opens a service ticket and transfers diagnostics to the Lenovo team for quick problem resolution.

Scope

Managed Services includes remotely delivered monitoring, on-call remote technical assistance, patching and periodic health checks focused on preventive maintenance and diagnosis, anticipating, and addressing potential problems before they occur.

- 24x7 continuous monitoring, management, and maintenance of the managed devices and components.
- Resolve issues and/or engage appropriate support channels as required. Identify and resolve:
 - Hardware issues for managed devices and components.
 - Root Cause Analysis (RCA) within 5 business days after resolution of severity 1 issues.
- Remote health checks (and reviews) as part of the ongoing administration and management to include:
 - ❖ Checking error logs
 - ❖ Verifying system firmware levels as needed
 - ❖ Performing updates per mutually agreed schedule and Customer-specified maintenance window
 - ❖ Maintain records of critical updates and firmware levels.
- Assign a Client Care Project Manager who will:
 - ✓ Serve as interface and escalation point between Lenovo personnel and the customer
 - ✓ Schedule, coordinate and conduct Quarterly Reviews
 - ✓ Provide summary and health check reports.

Typical term of Service: One (1) year or Multi-year agreements.

Deliverables: Support Plan, Health Check Report(s)

7.2. Managed Services for SAP HANA

With Lenovo Managed Services for SAP HANA or SAP BWA, Lenovo Service professionals remotely monitor and manage Lenovo-branded server, storage, and networking devices as well as select Lenovo-supported products from other vendors that are sold by Lenovo or Lenovo-authorized resellers. These services enhance the security and reliability of customer's data center and help ensure maximum performance and stability of SAP HANA or SAP BWA deployment. Continuous monitoring, scheduled health checks, and recommended updates help reduce the risks of system vulnerabilities, bolster workforce productivity, drive innovation, and enhance business results.

Lenovo Managed Services for SAP HANA or SAP BWA helps businesses improve IT efficiency and optimize data center resources with rapid access to technical expertise and best practices for industry processes. It includes 24x7 remote monitoring; one-stop problem determination and resolution; firmware, driver, and OS maintenance and updates; and system-wide health checks. Detailed monitoring enables performance management for smooth operation. If a technical problem occurs, the Lenovo automated alert system opens a service ticket and transfers diagnostics to the Lenovo team for quick problem resolution. The team also stands ready to address concerns reported in calls from clients.

The Role of Managed Services

Lenovo SAP experts perform remote monitoring, technical assistance, on-call coverage, and quarterly health check services:

- Ongoing monitoring of the infrastructure hardware and software—including the OS
- Resolving Lenovo hardware and solution-specific, software-related problems whether reported by automated monitoring systems or directly by the customer
- Reporting support problems that require attention
- Performing quarterly remote health checks
- Facilitating quarterly meetings as part of ongoing administration and management
- Recording SAP HANA or SAP BWA solution-specific software patches, critical updates, hardware health checks, and hardware firmware levels
- Designating a client-care manager to interface between the customer and Lenovo; schedule and conduct the kick-off and go-live sessions, when

applicable, for new monitoring engagements; and provide activity summary reports and health check files for the quarterly meeting.

Scope

Managed Services includes remotely delivered monitoring, on-call remote technical assistance, patching and periodic health checks focused on preventive maintenance and diagnosis, anticipating, and addressing potential problems before they occur.

- 24x7 continuous monitoring, management, and maintenance of the managed devices and components
- Resolve issues and/or engage appropriate support channels as required
- Remote health-checks (and reviews) as part of the ongoing administration and management to include:
 - Checking error logs
 - Verifying firmware and OS device driver levels, and software as needed.
 - Performing updates per mutually agreed schedule and Customer-specified maintenance window.
 - Maintain records of latest patches, critical updates, and firmware levels.
- Assign a Client Care Project Manager who will:
 - Serve as interface and escalation point between Lenovo personnel and the customer
 - Schedule, coordinate and conduct Quarterly Reviews
 - Provide summary and health check reports
 - Typical term of Service: One (1) year or Multi-year agreements

Deliverables: Support Plan, Health Check Report(s)

7.3. Managed Services for HPC Environments

Hand off the IT management duties to experts who have in-depth knowledge of enterprise IT environments and HPC clusters spanning a wide range of industries. These individuals have access to the people and teams responsible for the design and development of the technology and solutions the customer depends on. When needed, they can leverage their expertise to bring rapid, comprehensive resolution to complex problems. End-to-end support empowers customers to maximize the value and performance of their technology investments and free valuable in-house staff to focus on core business priorities.

Lenovo Professional Services Guide

Lenovo HPC cluster experts perform remote monitoring, technical assistance, on-call coverage, and quarterly health check services:

- Ongoing monitoring of infrastructure hardware and software - including the OS
- Resolving Lenovo hardware and solution-specific, software-related problems whether reported by automated monitoring systems or directly by the customer
- Reporting support problems that require customer's attention
- Performing quarterly remote health checks
- Facilitating quarterly meetings as part of ongoing administration and management
- Recording the latest HPC cluster-specific software patches, critical updates, hardware health checks, and hardware firmware levels
- Designating a client-care manager to interface between the customer and Lenovo; schedule and conduct the kick-off and go-live sessions, when applicable, for new monitoring engagements and provide activity summary reports and health check files to the customer for the quarterly meeting

Scope

Managed Services includes remotely delivered monitoring, on-call remote technical assistance, patching and periodic health checks of the Lenovo HPC cluster as certified and installed at the data center. Services focus on preventive maintenance and diagnosis, anticipating and addressing potential problems before they occur.

1. 24x7 continuous monitoring, management, and maintenance of the HPC cluster managed devices and components
2. Resolve issues and/or engage appropriate support channels as required. Identify and resolve managed devices and component related issues, including:
 - Hardware issues
 - Operating system (OS) issues
 - xCAT issues
 - Act as a single point of contact to engage vendor support for issues on customer's behalf
 - Root Cause Analysis (RCA) within 5 business days after resolution of severity 1 issue.
3. Remote health-checks (and reviews) as part of the ongoing administration and management to include:
 - Checking error logs
 - Verifying Lenovo firmware, OS device driver, and supported levels
 - Verifying xCAT software updates/ compliance

Lenovo Professional Services Guide

- Performing updates per mutually agreed upon schedule and customer specified maintenance window
 - Maintain records of latest patches, critical firmware, operating system and software updates
4. Assign a Client Care Project Manager who will:
 - ✓ Serve as interface and escalation point between Lenovo personnel and the customer
 - ✓ Schedule, coordinate and conduct Quarterly Reviews
 - ✓ Provide summary and health check reports.

Typical term of Service: One (1) year or multi-year agreements

Deliverables: Support Plan, Health Check Report(s)

8. Engaging with the Professional Services Team

To engage with Lenovo, please get in touch with your Lenovo Professional Services Sales Representative or Lenovo Services Sales Representative. They will help the customer with information, work with him through the pre-sales stages and will own the Professional Services content of the opportunity.

SLA for sizing and quoting turnaround times

Intent of this document is to give all the relevant information to size and quote standard, part-number based opportunities together with your aligned Service Sales Representatives.

For customized sizing and quotes, please rely on the following expected turnaround times:

1. Standard Customized Opportunities
 - ThinkAgile Appliances
 - ThinkSystem DE/DM deployment
 - Health Check Services (without Updates)
 - Rack Server/ Chassis deployment

Prerequisites: Hardware configuration files are provided to the Inside Solution

Architect team

SLA is up to 2 business days turnaround time.

Lenovo Professional Services Guide

2. Highly Customized Opportunities

- HPC services
- SAP HANA Deployment
- Network integration services
- Update services
- Migration services
- Datacenter services
- DSS services

Prerequisites: Hardware configuration and design files are provided to Inside Solution Architect.

Configuration summary (# of nodes, types, etc.) is sent to ISA team.

SLA is up to 5 business days turnaround time.

For first-of-a-kind solutions or opportunities needing coordination with external partners additional qualification time may be required.

Lenovo Service Sales Contacts

Reach out directly to the **Professional Services Team** via email at:

- [Asia Pacific](#)
- [Europe, Middle East and Africa](#)
- [Latin America](#)
- [North America](#)

To locate a Lenovo Partner, please access the [Lenovo Partner Locator](#).

© 2022 Lenovo. All rights reserved. LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSOR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. This information could include technical inaccuracies or typographical errors. Changes may be made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this

Lenovo Professional Services Guide

publication at any time without notice. Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo. Other company, product, and service names may be trademarks or service marks of others.