



# Lenovo ThinkAgile SX for Nutanix Administrator's Guide



**Models:** SXN3000

**Note**

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at the following address:

[http://thinksystem.lenovofiles.com/help/topic/safety\\_documentation/pdf\\_files.html](http://thinksystem.lenovofiles.com/help/topic/safety_documentation/pdf_files.html)

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your solution, which can be found at the following address:

<http://datacentersupport.lenovo.com/warrantylookup>

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## Chapter 1. ThinkAgile SX for Nutanix overview

The Lenovo® ThinkAgile™ SX for Nutanix products are workload-optimized, hyperconverged infrastructure offerings, based on the industry-leading Lenovo ThinkAgile HX Series appliances and switches, with one-click virtualization automation and management via Nutanix™ Prism. Additional management capabilities are provided by Lenovo XClarity Administrator. The products support VMware vCenter® and Nutanix Acropolis hypervisors.

**Note:** The ThinkAgile SX for Nutanix product group is commonly referred to as “ThinkAgile SXN” in the documentation.

The ThinkAgile SXN is intended for small, medium, and large enterprises. Typical uses include the following:

- Virtualization
- Virtual Desktop Infrastructure (VDI)
- Private and hybrid cloud implementation
- Database applications
- Enterprise applications

Lenovo Professional Services provides a setup and configuration engagement, to speed deployment in your data center.

### ThinkAgile SXN configurations

The following configurations are available:

- **SXN3000**

The ThinkAgile SXN3000 includes four to thirty-two ThinkAgile HX appliances/enclosures, including 1U, 2U, and 2U4N options. This can be ordered in a 25U or 42U rack.

Traffic is routed through RackSwitch G8272, ThinkSystem NE1072T RackSwitch, or ThinkSystem NE2572 RackSwitch switches. A RackSwitch G8052 switch is used for the management network.

### Models and Machine Types

This documentation refers to the following products:

*Table 1. ThinkAgile SXN Machine Type and Models*

Product	Machine Type	Model
ThinkAgile SXN3000 — 25U rack	9565	RCG
ThinkAgile SXN3000 — 42U rack	9565	RCF

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## Hardware

The ThinkAgile SXN models include ThinkAgile HX appliances, network switches, and power distribution units (PDUs).

### SXN3000 configurations

The SXN3000 is available in either a 25U or a 42U rack. The product is available with the following ThinkAgile HX form factors:

- 1U node

- 2U node
- 2U4N enclosure (42U rack only)

The 25U rack model contains the following hardware:

- A maximum of 16U in rack space for the following:
  - Up to sixteen 1U ThinkAgile HX appliances.
  - Up to eight 2U ThinkAgile HX appliances.
- One RackSwitch G8052 network switch, for the management network.
- Two Top-of-Rack switches for the VM and storage networks.
  - RackSwitch G8272
  - ThinkSystem NE1072T RackSwitch
- Two to four PDUs.

The 42U rack model contains the following hardware:

- A maximum of 36U in rack space for the following:
  - Up to thirty-two 1U ThinkAgile HX appliances.
  - Up to eighteen 2U ThinkAgile HX appliances.
  - Up to eight 2U4N ThinkAgile HX enclosures.
- One RackSwitch G8052 network switch, for the management network.
- Two Top-of-Rack switches for the VM and storage networks.
  - RackSwitch G8272
  - ThinkSystem NE1072T RackSwitch
  - ThinkSystem NE2572 RackSwitch
- Two to six PDUs.

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## Software

The hypervisor and tools to manage VMs and the hardware in the rack are provided with the ThinkAgile SXN product.

**Note:** Some license agreements might be accepted on the customer's behalf by Lenovo Manufacturing during the installation and provisioning processes. When required, license agreements will be shipped hardcopy or softcopy with the product.

The following software is provided with the ThinkAgile SXN:

- Lenovo XClarity Pro

The Lenovo XClarity Pro suite includes the following:

- Lenovo XClarity Administrator

Lenovo XClarity Administrator provides a single interface for managing the switches and servers in the configuration.

This product is preconfigured and provided as a VM.

- Lenovo Cloud Networking Operating System (CNOS)

CNOS is pre-installed on the RackSwitch G8272, ThinkSystem NE1072T, and ThinkSystem NE2572 switches.

**Note:** The ThinkAgile Network Orchestrator feature of CNOS is supported in the Nutanix Acropolis hypervisor environment.

- Lenovo Enterprise Networking Operating System (ENOS)

ENOS is pre-installed on the RackSwitch G8052 switch.

- Relevant hypervisor

Based on the original ThinkAgile SXN order, Nutanix Acropolis or VMware ESXi can be shipped with the racked solution. Microsoft Windows Server™ 2016 Datacenter can be installed during product deployment.

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## ThinkAgile SXN documentation and related content

Information about the ThinkAgile SXN components are available online and in downloadable Portable Document Format (PDF) files. In addition, documentation is available for each of the components in the product.

### ThinkAgile SXN publications

The most recent Lenovo ThinkAgile SXN documentation is on the Web, at the following site:

[http://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.sxn.doc/sxn\\_introduction.html](http://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.sxn.doc/sxn_introduction.html)

The following ThinkAgile SXN product publications are available in PDF format. The entire content of these publications is contained in the Web-based documentation set.

- **Planning and Setup Guide**

Provides an overview of the ThinkAgile SXN configuration and deployment requirements and activities.

- **Administrator's Guide**

Describes the management and maintenance of the product, as well as how to engage ThinkAgile Advantage for critical issue resolution.

If you need to download the Adobe Reader to view PDF files, you can download it at <http://get.adobe.com/reader>.

### SXN3000 product information

For information about the ThinkAgile SXN SXN3000 models, refer to the following Web sites:

- [SXN3000 Product Guide](#)

See the following Web site:

<https://lenovopress.com/lp0731-lenovo-thinkagile-sx-nutanix-sxn3000>

- [ThinkAgile SX for Nutanix product page](#)

See the following Web site:

<https://www3.lenovo.com/us/en/data-center/Lenovo-ThinkAgile-SX-for-Nutanix/p/WMD00000325>

### ThinkAgile SXN Support page

For the latest information and links to helpful content, refer to the [Lenovo Support page](#). You can search for support information for the ThinkAgile SXN and other Lenovo products. See the following Web site:

<http://datacentersupport.lenovo.com/>

Resources include the following:

- Support Plan for each model
- Recovery media
- Timely product information

### Related hardware documentation

The following documentation describes ThinkAgile SXN components. Some publications are also available in PDF format.

Product	Documentation	Website
Lenovo ThinkAgile HX appliances and enclosures	<ul style="list-style-type: none"> <li>• Hardware Replacement Guide</li> </ul>	<a href="http://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.hx/overview_thinkagile_hx_solutions.html">http://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.hx/overview_thinkagile_hx_solutions.html</a>
ThinkSystem NE2572 RackSwitch	<ul style="list-style-type: none"> <li>• Installation Guide</li> <li>• Application Guide</li> <li>• ISCLI – Industry Standard CLI Command Reference</li> <li>• Release Notes</li> <li>• REST API Guide</li> <li>• Python Programming Guide</li> <li>• Open Network Install Environment (ONIE) User Guide</li> </ul> <p>Relevant documentation is also available for the Cloud Network Operating System.</p>	<a href="http://systemx.lenovofiles.com/help/topic/com.lenovo.thinksystem.ne2572.doc/ts_ne2572.html">http://systemx.lenovofiles.com/help/topic/com.lenovo.thinksystem.ne2572.doc/ts_ne2572.html</a>
ThinkSystem NE1072T RackSwitch	<ul style="list-style-type: none"> <li>• Installation Guide</li> <li>• Application Guide</li> <li>• ISCLI – Industry Standard CLI Command Reference</li> <li>• Release Notes</li> <li>• REST API Guide</li> <li>• Python Programming Guide</li> <li>• ONIE User Guide</li> </ul> <p>Relevant documentation is also available for the Cloud Network Operating System.</p>	<a href="http://systemx.lenovofiles.com/help/topic/com.lenovo.thinksystem.ne1072t.doc/ts_ne1072t.html">http://systemx.lenovofiles.com/help/topic/com.lenovo.thinksystem.ne1072t.doc/ts_ne1072t.html</a>

Product	Documentation	Website
RackSwitch G8272	<ul style="list-style-type: none"> <li>• Installation Guide</li> <li>• Application Guide</li> <li>• ISCLI – Industry Standard CLI Command Reference</li> <li>• Release Notes</li> <li>• REST API Guide</li> <li>• Python Programming Guide</li> <li>• ONIE User Guide</li> </ul> Relevant documentation is also available for the Cloud Network Operating System and Enterprise Network Operating System.	<a href="http://systemx.lenovofiles.com/help/topic/com.lenovo.rackswitch.g8272.doc/rs_g8272.html">http://systemx.lenovofiles.com/help/topic/com.lenovo.rackswitch.g8272.doc/rs_g8272.html</a>
RackSwitch G8052	<ul style="list-style-type: none"> <li>• Installation Guide</li> <li>• Application Guide</li> <li>• ISCLI – Industry Standard CLI Command Reference</li> <li>• Release Notes</li> </ul> Relevant documentation is also available for the Enterprise Network Operating System.	<a href="http://systemx.lenovofiles.com/help/topic/com.lenovo.rackswitch.g8052.doc/rs_g8052.html">http://systemx.lenovofiles.com/help/topic/com.lenovo.rackswitch.g8052.doc/rs_g8052.html</a>

### Related software documentation

The following software publications are related to ThinkAgile SXN components. The content should be available in either PDF format or HTML format.

Product	Website
Lenovo XClarity Administrator	<a href="http://sysmgmt.lenovofiles.com/help/topic/com.lenovo.lxca.doc/aug_product_page.html">http://sysmgmt.lenovofiles.com/help/topic/com.lenovo.lxca.doc/aug_product_page.html</a>
ThinkAgile Network Orchestrator	Product Information: <a href="https://www3.lenovo.com/us/en/data-center/networking/networking-software/network-management/Planning/Implementation">https://www3.lenovo.com/us/en/data-center/networking/networking-software/network-management/Planning/Implementation:</a> <a href="https://lenovopress.com/lp0604-thinkagile-network-orchestrator-for-nutanix">https://lenovopress.com/lp0604-thinkagile-network-orchestrator-for-nutanix</a>
<ul style="list-style-type: none"> <li>• VMware vSphere® Standard Edition™</li> <li>• VMware vCenter Server® Appliance™</li> <li>• VMware vCenter®</li> </ul>	<a href="http://pubs.vmware.com/vsphere-60/index.jsp">http://pubs.vmware.com/vsphere-60/index.jsp</a>

### Nutanix documentation

Go to the [Nutanix documentation site](#). Filter by the software type and version to see the applicable documents. The Web site is at the following address:

<https://portal.nutanix.com/#/page/docs>

Documentation	Type	Description
<i>Field Installation Guide</i>	Setup	Instructions on how to use the Foundation tool to do a field installation, including installing a different hypervisor and creating a cluster.
<i>Acropolis Advanced Setup Guide</i>	Setup	Instructions on how to set up in advanced situations not covered by the Foundation tool.
<i>Hardware Replacement Documentation</i>	Administration	Instructions on how to replace failed hardware components used by Lenovo customers.
<i>Prism Web Console Guide</i>	Administration	Instructions on how to manage your clusters through the Prism Web console.
<i>Acropolis Advanced Administration Guide</i>	Administration	Instructions on how to administer the Nutanix software outside of Prism GUI.
<i>Acropolis Hypervisor (AHV) Administration Guide</i>	Administration	Instructions on how to use the Nutanix AHV.
<i>Acropolis App Mobility Fabric Guide</i>	Administration	Instructions on how to manage Virtual Machines (VM), including Acropolis command line interface (ACLI) and VM management API reference.
<i>vSphere Administration Guide for Acropolis</i>	Administration	Instructions on how to manage Nutanix nodes by the VMware ESXi hypervisor.
<i>Nutanix Cluster Check (NCC) Guide</i>	Administration	A framework of scripts that can help diagnose cluster health.
<i>Acropolis API Reference</i>	Reference	Reference for the Acropolis REST API, including Powershell cmdlets.
<i>Acropolis Command Reference</i>	Reference	Reference for the nCLI. The nCLI enables you to run system administration commands against the Nutanix cluster and CVM utilities.

### ThinkAgile SXN Support page

For the latest information and links to helpful content, refer to the [Lenovo Support page](#). You can search for support information for the ThinkAgile SXN and other Lenovo products. See the following Web site:

<http://datacentersupport.lenovo.com/>

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## Chapter 2. ThinkAgile SXN Administration considerations

The following considerations and limitations apply to the ThinkAgile SXN products.

### Limitation on automated service requests (Call Home)

Because the ThinkAgile SXN products are serviced and supported at the overall rack level, it is recommended that you not activate Call Home functionality for the components. If you choose to activate Call Home, be aware that your product entitlement might not be recognized immediately.

### Firmware and Best Recipe adherence

Lenovo publishes a ThinkAgile SXN firmware “Best Recipe”, which identifies the supported levels for the various components. Any specific firmware that is above or below the level indicated in the Best Recipe is not supported and might impact Lenovo’s ability to support any issues with the relevant component. See [Chapter 6 “Firmware maintenance and Best Recipe” on page 15](#) for more details.

### Rack-level entitlement

The ThinkAgile SXN products are entitled at the overall rack level.

If you need support for the product or any of its components or included software, be sure to use the product serial number associated with Machine Type 9565. If you use the component or software serial number, ThinkAgile Advantage Support might not immediately recognize the correct entitlement, which could delay proper case handling. You can find the product serial number on the rack label.

### Lenovo ThinkAgile Network Orchestrator

The ThinkAgile Network Orchestrator feature of CNOS enables automatic reconfiguration of switch ports when editing, moving or creating virtual machines. ThinkAgile Network Orchestrator is supported in the Nutanix Acropolis hypervisor environment.

For information about using ThinkAgile Network Orchestrator, refer to that documentation. See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

**Important:** Be sure to provide a relevant value for the VM description field in the Nutanix Prism app. Leaving the field blank could cause errors with ThinkAgile Network Orchestrator.





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## Chapter 3. Product management and changes

Because of the product's complexity, extra caution and planning should be exercised before making certain changes.

### High impact changes

The following changes (or lack of adherence) can significantly impact the functionality of the product.

- Changing the point-to-point cabling from the initial deployment configuration.

See the following topics for details:

- [“SXN3000 network, management, and storage cabling” on page 30](#)

- Changing any firmware to levels outside the Best Recipe.

See [Chapter 6 “Firmware maintenance and Best Recipe” on page 15](#) for more information.

- Updating the management stack outside of the recommended levels.
- Resetting the XCC or UEFI to the initial manufacturing defaults.
- Resetting VMware ESXi to its default settings.
- Resetting a Lenovo switch to its initial configuration.

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## Standard management

After the initial ThinkAgile SXN product setup and configuration by Lenovo Professional Services, you should be able to manage the system routinely with the following software.

### Nutanix management

For information about using Nutanix Acropolis or Nutanix Prism, refer to the [Nutanix documentation](#). See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

**Important:** When using ThinkAgile Network Orchestrator, be sure to provide a relevant value for the VM description field in the Nutanix Prism app. Leaving the field blank could cause errors.

### Lenovo XClarity Administrator management

Use [Lenovo XClarity Administrator](#) to monitor and manage hardware, such as the appliances and switches. See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

### VMware vCenter management

Use [VMware vCenter](#) as the console to manage the following items, among others:

- Virtual machines
- VMware ESXi hosts
- Data stores
- VMFS file systems

See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.



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## Chapter 4. Managing IDs and passwords

Proper maintenance of IDs and passwords is essential for the security of the components and the overall product. Lenovo's Software Security Review Board stresses in the strongest possible terms that customers should manage all product credentials according to the recommendations stated here.

### Initial IDs and passwords

Default initial IDs and an initial password are set for the preinstalled hardware and software components, as well as the recovery account and root. See ["Initial IDs and passwords" on page 11](#) for more information.

During the deployment engagement, Lenovo Professional Services will assist you in changing the applicable initial IDs and passwords. The Deployment Worksheet provided at the end of the deployment engagement will list the new values.

### Changing passwords

For the password change procedures, refer to the specific component documentation. See ["ThinkAgile SXN documentation and related content" on page 3](#).

**Important:** Changing some IDs or passwords without proper planning (for example, the XCC on any of the ThinkAgile HX appliances) will affect the overall configuration for the cluster.

### Password criteria

The following password criteria are strongly recommended by Lenovo's Software Security Review Board:

- No less than twenty (20) characters.
- Includes letters, specifically mixed case.
- Includes numbers.
- Includes punctuation.
- Does not include any repeated characters.

It is also recommended that a random password generator be used. One example is the [Norton Identity Safe Password Generator](#). See the following Web site:

<https://identitysafe.norton.com/password-generator>

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## Initial IDs and passwords

Most initial passwords must be changed during the setup process; that is essential for the security of the components and the overall product. Default initial IDs and an initial password are set for the preinstalled hardware and software components, as well as the recovery account and root.

### Changing initial passwords

During the deployment engagement, Lenovo Professional Services will assist you in changing the applicable initial IDs and passwords. The Deployment Worksheet provided at the end of the deployment engagement will list the new values.

**Important:** Changing some IDs or passwords without proper planning (for example, the XCC on any of the ThinkAgile HX appliances) will affect the overall configuration for the cluster. See [Managing IDs and passwords](#) for information about ID and password guidelines and procedures.

## Initial values

The following information is provided for your reference. See [Managing IDs and passwords](#) for information about ID and password guidelines and procedures.

Table 2. Initial IDs and passwords

Component	Initial ID	Initial Password
<ul style="list-style-type: none"><li>• RackSwitch G8052</li><li>• RackSwitch G8272</li><li>• ThinkSystem NE1072T</li><li>• ThinkSystem NE2572</li></ul>	admin	admin
RackSwitch G8052 Secure Copy (SCP)	scpadmin	admin2
ThinkAgile HX node XCC	USERID	PASSWORD
Nutanix Acropolis hypervisor	root	nutanix/4u
Nutanix Controller VM (CVM)	nutanix	nutanix/4u
Prism console		(set by user at login)

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## Chapter 5. License considerations

Relevant software licenses are provided with the ThinkAgile SXN products; they must be accepted by the customer.

**Note:** Some license agreements might be accepted on the customer's behalf by Lenovo Manufacturing during the installation and provisioning processes. When required, license agreements will be shipped hardcopy or softcopy with the product.

The following licenses are provided:

Application	EULA	License type	License installation
VMware vSphere 6 Standard for 2 processor Server	Manufacturing	60-day evaluation	Customer must obtain a valid license within the 60-day trial period.
VMware vCenter Server 6 Standard for vSphere 6	Manufacturing	60-day evaluation	Customer must obtain a valid license within the 60-day trial period.
Lenovo XClarity Pro (for XClarity Administrator)	Customer	3 years	Software is loaded in manufacturing. Customer must log in to Lenovo XClarity Administrator and accept the license.
Nutanix Acropolis Pro or Ultimate edition	Customer		See the " <a href="#">Nutanix license management information</a> " on page 13.

Additional licenses might be available for purchase during the ThinkAgile SXN ordering process.

### Nutanix license management

A Nutanix Acropolis license file must be downloaded from the [Nutanix customer Web site](#) and install it into the cluster; this applies to both the Pro and Ultimate editions. When additional nodes are added, the license file must be regenerated and reinstalled into the cluster. The [Nutanix customer Web site](#) contains information about the license types and expiration. The Web site is at the following address:

<http://portal.nutanix.com>

For information about managing your Nutanix cluster licenses, refer to the "License Management" section in the Nutanix *Prism Web Console Guide*. To obtain Nutanix documentation, go to the [Nutanix documentation site](#). Filter by the software type and version to see the applicable documents. The Web site is at the following address:

<https://portal.nutanix.com/#/page/docs>



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## Chapter 6. Firmware maintenance and Best Recipe

The ThinkAgile SXN products use a “Best Recipe” to identify the supported firmware levels for the product.

### **SXN3000**

For information about the SXN3000 Best Recipe, refer to the following Web site:

<https://datacentersupport.lenovo.com/us/en/solutions/ht505554>

### **Adherence to Best Recipe and Support impact**

The ThinkAgile SXN Best Recipe includes component firmware levels that have been tested in a converged environment. Any specific firmware that is above or below the level indicated in the Best Recipe is not supported and might impact Lenovo’s ability to support any issues with the relevant component.

### **Updating firmware**

To find specific update procedures for ThinkAgile SXN components, refer to the component documentation. See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.





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## Chapter 7. Backing up the configuration

A comprehensive backup should include the configuration information from each of the components in the product. Use the available tools to perform the backups.

You should perform backups of the system components whenever significant configuration changes are made. Be sure to back up all VMs in the configuration; this includes the predefined VMs, such as Lenovo XClarity Administrator, as well as any VMs you created to run workloads.

### **ThinkAgile HX appliance backup**

For information about backing up a ThinkAgile HX appliance, refer to the [Nutanix documentation](#).

### **Switch backup**

For information about backing up switch configurations, refer to the relevant switch documentation. See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.



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## Chapter 8. Troubleshooting ThinkAgile SXN issues

This documentation describes the diagnostic tools and troubleshooting information that are available to help you solve problems that might occur in the ThinkAgile SXN product.

This content refers to the following products:

Product	Machine Type	Model
ThinkAgile SXN3000 – 25U rack	9565	RCG
ThinkAgile SXN3000 – 42U rack	9565	RCF

### Finding information and help

See [“Finding information and help” on page 20](#) for links to documentation and other resources that can assist in issue resolution.

### Product serial number

If you need support for the product or any of its components or included software, be sure to use your product serial number. If you use the component or software serial number, Lenovo Support might not immediately recognize the correct entitlement, which could delay proper case handling. You can find the product serial number on the rack label.

### Product Machine Type and Model

The Machine Type for the ThinkAgile SXN is 9565. See the table above for the specific Model. Note that the product designation (for example, SXN3000) is not the Model.

### Nutanix support considerations

For any issues with the Nutanix components that were installed as part of your original ThinkAgile SXN order, contact Lenovo Support. See [“Working with service and support” on page 24](#) for specific details

### Getting support

See [“Working with service and support” on page 24](#) for specific details about engaging Lenovo Support.

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## Troubleshooting considerations

The following considerations and limitations apply to the ThinkAgile SXN products.

### Rack-level entitlement

The ThinkAgile SXN products are entitled at the overall rack level.

If you need support for the product or any of its components or included software, be sure to use the product serial number associated with Machine Type 9565. If you use the component or software serial number, ThinkAgile Advantage Support might not immediately recognize the correct entitlement, which could delay proper case handling. You can find the product serial number on the rack label.

### Limitation on automated service requests (Call Home)

Because the ThinkAgile SXN products are serviced and supported at the overall rack level, it is recommended that you not activate Call Home functionality for the components. If you choose to activate Call Home, be aware that your product entitlement might not be recognized immediately.

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## Finding information and help

See the following Web sites for useful information and resources for resolving issues with ThinkAgile SXN products.

### ThinkAgile SXN Support page

For the latest information and links to helpful content, refer to the [Lenovo Support page](#). You can search for support information for the ThinkAgile SXN and other Lenovo products. See the following Web site:

<http://datacentersupport.lenovo.com/>

Resources include the following:

- Support Plan for each model
- Recovery media
- Timely product information

### SXN3000 product information

For information about the ThinkAgile SXN SXN3000 models, refer to the following Web sites:

- [SXN3000 Product Guide](#)

See the following Web site:

<https://lenovopress.com/lp0731-lenovo-thinkagile-sx-nutanix-sxn3000>

- [ThinkAgile SX for Nutanix product page](#)

See the following Web site:

<https://www3.lenovo.com/us/en/data-center/Lenovo-ThinkAgile-SX-for-Nutanix/p/WMD00000325>

### Other documentation

See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

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## Isolating and resolving issues

Refer to the ThinkAgile HX troubleshooting workflows and procedures, as well as the Nutanix documentation to help resolve ThinkAgile SXN issues.

See [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

## Troubleshooting scenarios and tips

The following ThinkAgile SXN issues can often be identified and resolved quickly.

For ThinkAgile SXN component troubleshooting procedures, see [“ThinkAgile SXN documentation and related content” on page 3](#) for relevant links.

### Network connection issues

The following actions can help resolve network connection issues:

- Ensure that the DNS settings are correct.
- Ensure that the border switch settings are correct.
- Check for any errors in the switch configuration file.

- Check the data path. Ping between the next hop interfaces from the management switch and the installed VM/storage switches.
- Check the gateway. Each switch in the solution should be able to ping the point-to-point links and IP addresses of the other switches.
- Test the connection between the server host nodes and the network devices. Ping from the server nodes to the network devices and towards the uplink to the external network.

For detailed network troubleshooting procedures, see [“Isolating network problems” on page 21](#).

### **Lenovo XClarity Administrator cannot find one or more nodes in the rack**

Ensure that all the components in the rack are connected according to the point-to-point diagrams and tables.

### **Cannot open the server XCC login page**

Ensure that the XCC IP settings match those on the deployment worksheet.

## **Isolating network problems**

Use the following procedures and tips to resolve ThinkAgile SXN network issues that might arise.

### **Switch transceiver status**

Use the following commands to check the transceiver status of the switches:

- RackSwitch G8052 (ENOS): `show interface transceiver`
- RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): `display interface transceiver`

### **Port troubleshooting**

Use the following procedure to troubleshoot a port issue.

1. Check the physical connection of the cable to the port. If necessary, reconnect the cable.
2. Use the relevant CNOS/ENOS command to check the transceiver status of the switch.
  - RackSwitch G8052 (ENOS): `show interface transceiver`
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): `display interface transceiver`
3. If necessary, use the relevant command to disable or enable the port.
  - RackSwitch G8052 (ENOS):
    - a. Use `interface port <port_number>` to enter interface configuration mode.
    - b. Use `shutdown` to disable the port.
    - c. Use `no shutdown` to enable the port.
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS):
    - a. Use `interface eth 1/<port_number>` to enter interface configuration mode.
    - b. Use `shutdown` to disable the port.
    - c. Use `no shutdown` to enable the port.

### **Spanning Tree troubleshooting**

Use the following procedure to troubleshoot a Spanning Tree port issue.

1. Use the following commands to check the Spanning Tree port status:
  - RackSwitch G8052 (ENOS): `show spanning - tree`

- RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): display spanning-tree
2. Use the following commands to verify whether Spanning Tree is disabled on uplink ports:
    - RackSwitch G8052 (ENOS): show running-config
    - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): show spanning-tree mst interface ethernet 1/<port\_number>

## VLAN troubleshooting

Use the following procedure to troubleshoot a VLAN issue.

1. Use the following commands to verify that VLANs have been created and are active:
  - RackSwitch G8052 (ENOS): show vlan
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): display vlan summary
2. Use the vlan <vlan\_ID> command to enter VLAN configuration mode.
3. Use the shut command to disable the VLAN.
4. Use the no shut command to enable the VLAN.
5. Use the interface <interface\_name> to enter the interface configuration mode.
6. Use the following commands to check the trunk port setting for tag/untag observations:
  - RackSwitch G8052 (ENOS): switchport trunk allowed vlan <add/remove> <vlan\_ids>
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): bridge-port trunk allowed vlan <add/remove> <vlan\_ids>

## IP troubleshooting

Use the following procedure to troubleshoot an IP issue.

1. Confirm that the correct IPs and subnet masks are defined on the relevant interfaces:
  - RackSwitch G8052 (ENOS): show interface ip
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): display running-config ip
2. Use the display ip interface brief command on the RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 switches to verify whether the link status is UP for all IP interfaces.

## Management network troubleshooting

Use the following procedure to troubleshoot a management network issue.

1. Check the management IP interface and gateway:
  - RackSwitch G8052 (ENOS): show interface ip or show ip gateway 1
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): display ip interface or display run vrf management
2. Confirm whether the RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 switches can ping the gateway: ping <G8052\_management\_port\_IP> vrf management
3. Verify the IP ARP table for the management interface:
  - RackSwitch G8052 (ENOS): show ip arp
  - RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 (CNOS): display ip arp vrf management
4. Check the management port state.

## vLAG troubleshooting

Use the following procedure to troubleshoot vLAG issues on the RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 switches.

1. Ensure that the port channel is UP and active.
2. Ensure that the port channel type (static or dynamic) on both ends is identical.
3. Use the CNOS command `display port -aggregation summary` to ensure that all port-channels are UP in port-aggregation.
4. Use the CNOS command `display vlag information` to ensure that vLag ISL is enabled, UP, and active. Also, check to see that the vLag peer-id on both RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 switches are the same.

## Isolating problems from VMware vCenter

You can use VMware vCenter to help diagnose issues with the ThinkAgile SXN product.

To view issues in VMware vCenter, **Cluster** → **Monitor** → **Issues** → **All issues**.

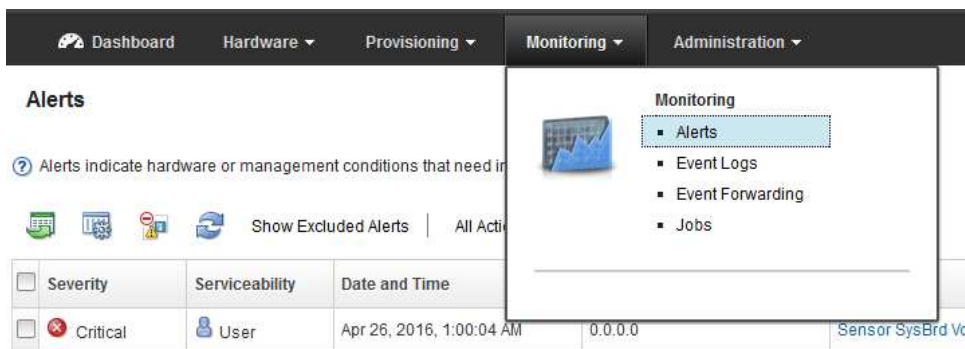
### Collecting data

For information about collecting data that might be useful in issue resolution, see [“Collecting data” on page 26](#).

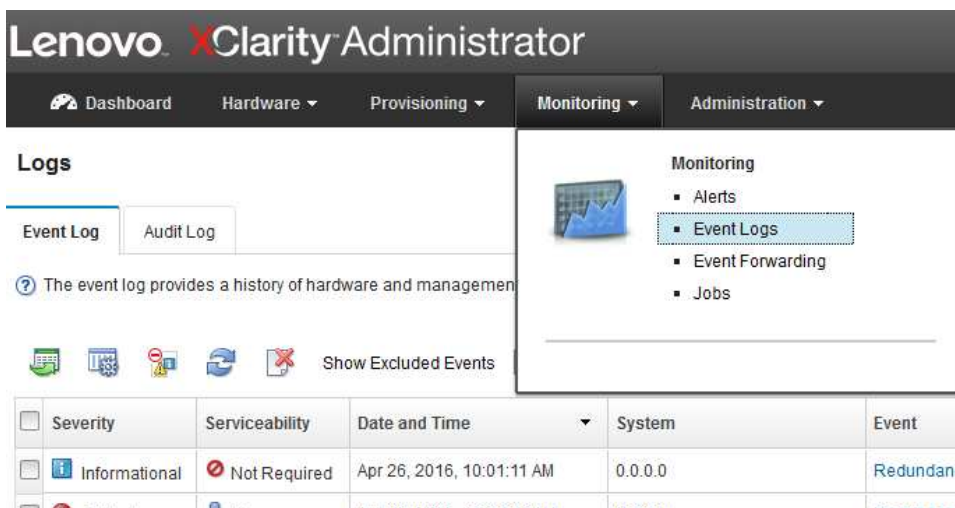
## Isolating problems from XClarity

Use Lenovo XClarity Administrator to resolve issues that occur with the switches and the servers in your ThinkAgile SXN product. The Lenovo XClarity Administrator Dashboard displays the current status of all endpoints that are managed by the Lenovo XClarity Administrator.

1. Log in to the Lenovo XClarity Administrator interface.
2. From the Dashboard, click the icon or endpoint number to begin resolving issues for a server.
3. Click **Monitoring** → **Alerts** to view a list of all active alerts.



4. Click **Monitoring** → **Events** to view the event log.



Refer to the [Lenovo XClarity Administrator documentation](#) for more information. See “ThinkAgile SXN documentation and related content” on page 3 for relevant links.

### Collecting data

For information about collecting data that might be useful in issue resolution, see “Collecting data” on page 26.

### Isolating problems from switches

Use the switch management interface to identify possible issues and collect data.

Log into the switch management interface and select **Show Log**.



### Working with service and support

Because of the complex nature of the ThinkAgile SXN products, the ThinkAgile Advantage Service and Support offering includes a Single Point of Engagement, through which issues with hardware or software components can be resolved. ThinkAgile Advantage Support will engage any third parties as needed, such as Nutanix.

#### ThinkAgile Advantage Support Plan

You can find relevant details about ThinkAgile Advantage Support in this documentation, but additional information is available in the ThinkAgile Advantage Support Plan. You can search for that document and other ThinkAgile SXN information on the Lenovo Data Center Support page, at the following Web site:

<https://datacentersupport.lenovo.com/>

#### Entitlement and serial number

Your ThinkAgile SXN solution is entitled at the overall product level, and is identified by the solution serial number associated with Machine Type 9565; you can find the solution serial number on the rack label.



## Opening a support case

This topic describes how to engage ThinkAgile Advantage Support for persistent or critical issues.

Your ThinkAgile SXN is entitled at the rack level, and is identified by the serial number associated with Machine Type 9565. You can find the serial number on the rack label.

### Before contacting ThinkAgile Advantage Support

Gather the following information to provide to the technical support agent. This data will help the agent quickly provide a product to your problem and ensure that you receive the level of service for which you might have contracted.

- Machine Type and Model

See the following table.

Product	Machine Type	Model
ThinkAgile SXN3000 – 25U rack	9565	RCG
ThinkAgile SXN3000 – 42U rack	9565	RCF

- Rack serial number associated with Machine Type 9565 (not the component or software serial number). This is found on the rack label.
- Current system UEFI and firmware levels.
- Other pertinent information, such as error messages and logs.

See “[Collecting data](#)” on page 26 for details about gathering information that can help resolve your support issue more quickly.

- A definition of the problem: Being able to articulate the problem and symptoms before contacting ThinkAgile Advantage Support helps to ensure proper prioritization and expedite the resolution process. Helpful information includes the following:
  - Has the problem happened before?
  - What steps led up to the failure?
  - Can the problem be recreated?
  - What is the business impact of the problem being experienced?
  - Are on-site personnel available to work with Lenovo support technicians?

In some cases, the support agent will need the Machine Type and serial number of a specific hardware component. That information is typically on a sticker on the component. For assistance in locating the sticker, see the following Web site:

<https://datacentersupport.lenovo.com/find-product-name>

### Contacting ThinkAgile Advantage Support

To engage ThinkAgile Advantage Support, do the following:

1. Go to the Lenovo Data Center Support page, at the following Web site:  
<https://datacentersupport.lenovo.com/>
2. Enter the rack serial number associated with Machine Type 9565.

The serial number will be authenticated as associated with a ThinkAgile SXN solution.

You will be presented with the available options for engaging ThinkAgile Advantage Support, including the applicable phone number for your country.

**Important:** Be sure to record the case number that you are given. It will be necessary for uploading data and tracking your case.

## Collecting data

This topic describes how to collect ThinkAgile SXN product data that might be needed for troubleshooting or when working with ThinkAgile Advantage Support.

### ThinkAgile SXN serial number

Your ThinkAgile SXN is entitled at the rack level. You can find the serial number associated with Machine Type 9565 on the rack label.

### Node data collection

Refer to the ThinkAgile HX documentation and [Nutanix documentation](#) for data collection procedures. See “[ThinkAgile SXN documentation and related content](#)” on page 3.

### Collecting system logs from VMware vCenter

To collect the system logs from VMware vCenter, right-click the node in the cluster and select **export system logs**.

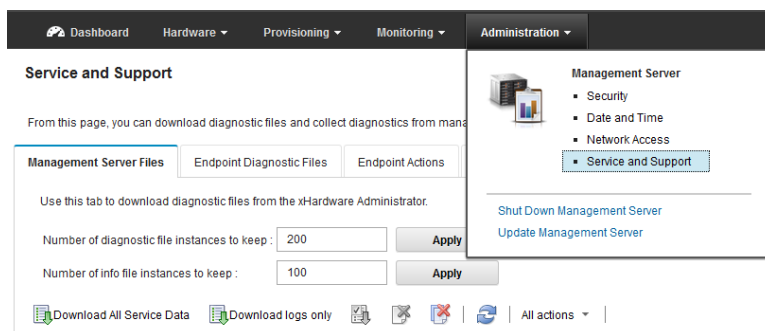
For more information about collecting system logs, refer to [VMware KB](#) article 1011641. See the following Web site:

<http://kb.vmware.com>

### Collecting service data from Lenovo XClarity Administrator

To collect logs or all service data from Lenovo XClarity Administrator, from the Dashboard, click **Administration → Service and Support**.

- On the **Management Server Files** tab, you can choose to download all service data or logs only.
- On the **Endpoint Diagnostic Files** tab, you can download service data for any of the nodes.



For information about using Lenovo XClarity Administrator, refer to the [Lenovo XClarity Administrator documentation](#). See “[ThinkAgile SXN documentation and related content](#)” on page 3 for relevant links.

### Collecting logs from switches

To collect the logs from the network switches, log in to the switch interface and click **Show Log**.



See “[ThinkAgile SXN documentation and related content](#)” on page 3 for information about the switch documentation.

### Collecting data from switches

For the RackSwitch G8052, use the following ENOS commands to gather data. The user must be in Privileged EXEC mode.

```
show tech-support {l2|l3|link|port}
copy tech-support {ftp|sftp} <server_URL>
copy flash-dump {ftp|sftp} <server_URL>
```

For the RackSwitch G8272/ThinkSystem NE1072T/ThinkSystem NE2572 switches, use the following CNOS commands to gather data. The user must be in Privileged EXEC mode.

```
display tech-support
cp tech-support {ftp|scps|sftp|tftp} <server_URL> [timeout <timeout_interval>] [vrf {default|management}]
```

See “[ThinkAgile SXN documentation and related content](#)” on page 3 for links to relevant documentation.

### Sending data to ThinkAgile Advantage Support

For a ThinkAgile SXN support case, certain data might be required. After you have received a case number, you can send requested data and logs to ThinkAgile Advantage Support.

#### Lenovo Upload Tool

In some situations, data upload might be requested via the [Lenovo Upload Tool](#). The Web site is as follows:

<https://datacentersupport.lenovo.com/servicelogupload>



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## Appendix A. SXN3000 models

The SXN3000 (Machine Type 9565) is available in a 25U or 42U rack.

### SXN3000 25U rack views (model RCG)

The SXN3000 in the 25U rack is Machine Type 9565, Model RCG.

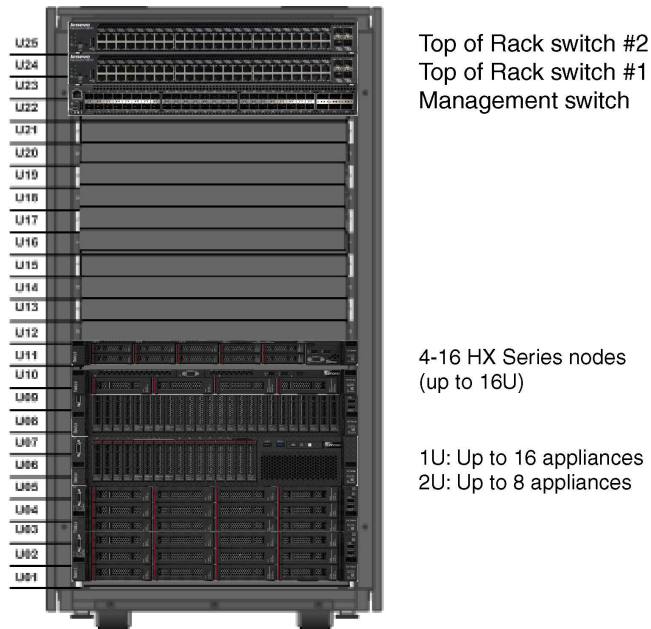


Figure 1. Front view of SXN3000 in 25U rack

### SXN3000 42U rack views (model RCF)

The SXN3000 in the 42U rack is Machine Type 9565, Model RCF.

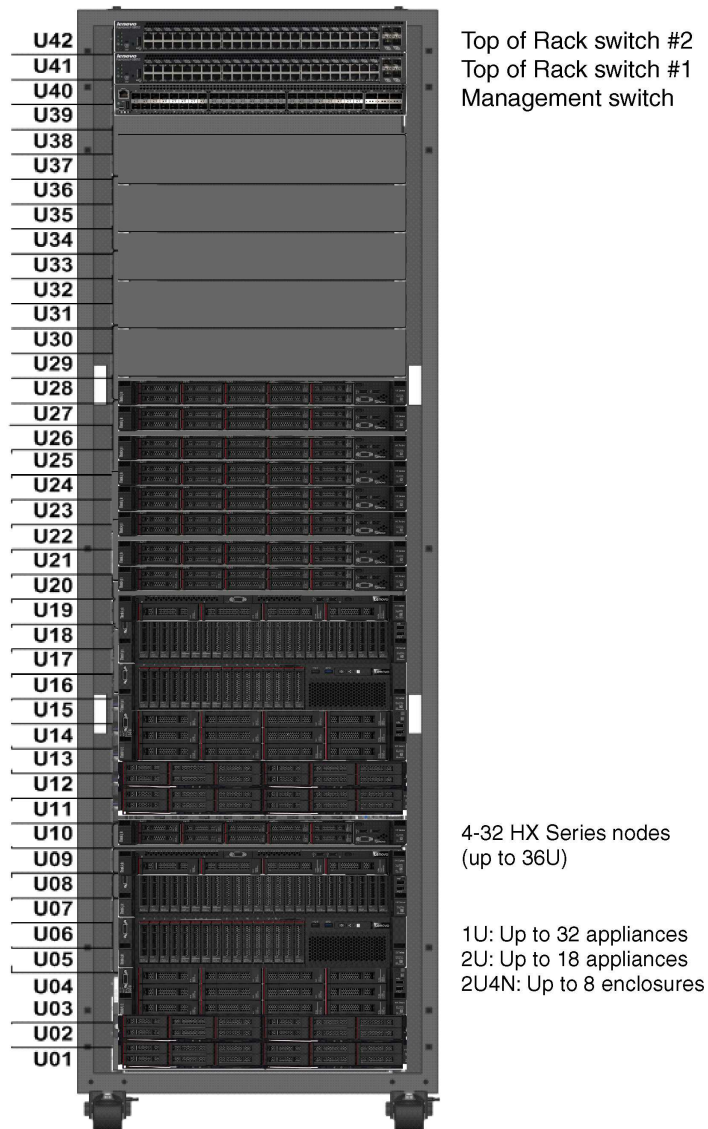


Figure 2. Front view of SXN3000 in 42U rack

## SXN3000 network, management, and storage cabling

The ThinkAgile SXN3000 product is precabled for the management network and data network. This information is provided for your reference.

### Cabling for ThinkSystem NE2572

**Note:** The ThinkSystem NE2572 utilizes the dual-port Mellanox ConnectX-4 25GB HCA to enable 25 Gb Ethernet. The implementation is analogous to 10 Gb SFP+.

The following images show the ThinkSystem NE2572 cabling connections for the ThinkAgile HX appliances and enclosures in the SXN3000:.

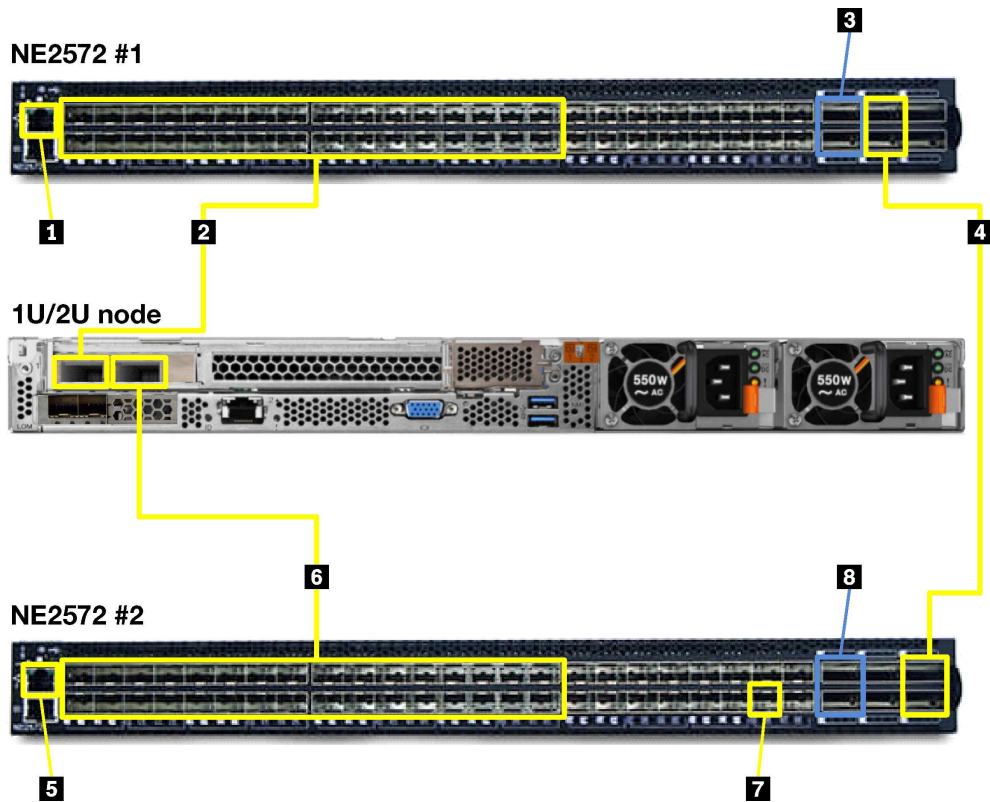


Figure 3. ThinkSystem NE2572 cabling for 1U and 2U appliances

Table 3. ThinkSystem NE2572 Switch 1 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m CAT6 Green Cable
<b>2</b>	25 Gb NIC1	1–32	ThinkAgile HX appliances	1	3m SFP28 DAC Cable
<b>3</b>	Uplink	QSFP28 1, 2	Customer switch		Any 2 of the following: <ul style="list-style-type: none"> <li>• 20m 100G QSFP28 Active Optical Cable</li> <li>• 20m SFP+ to SFP+ Active Optical Cable</li> <li>• 20m 25G SFP28 Active Optical Cable</li> <li>• 20m 40G QSFP+ to QSFP+ Active Optical Cable</li> </ul>
<b>4</b>	VLAG	QSFP28 3	ThinkSystem NE2572 switch 2	QSFP28 5	1m Passive 100G QSFP28 DAC Cable
		QSFP28 4	ThinkSystem NE2572 switch 2	QSFP28 6	

Table 4. ThinkSystem NE2572 Switch 2 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>5</b>	Management		RackSwitch G8052	38	1.25m CAT6 Green Cable
<b>6</b>	25 Gb NIC1	1–32	ThinkAgile HX appliances	2	3m SFP28 DAC Cable
<b>7</b>	10 Gb DAC connection (initial setup only)	48	RackSwitch G8052		1m Passive DAC SFP+ Cable
<b>8</b>	Uplink	QSFP28 1, 2	Customer switch		Any 2 of following: <ul style="list-style-type: none"> <li>• 20m 100G QSFP28 Active Optical Cable</li> <li>• 20m 20m SFP+ to SFP+ Active Optical Cable</li> <li>• 25G SFP28 Active Optical Cable</li> <li>• 20m 40G QSFP+ to QSFP+ Active Optical Cable</li> </ul>

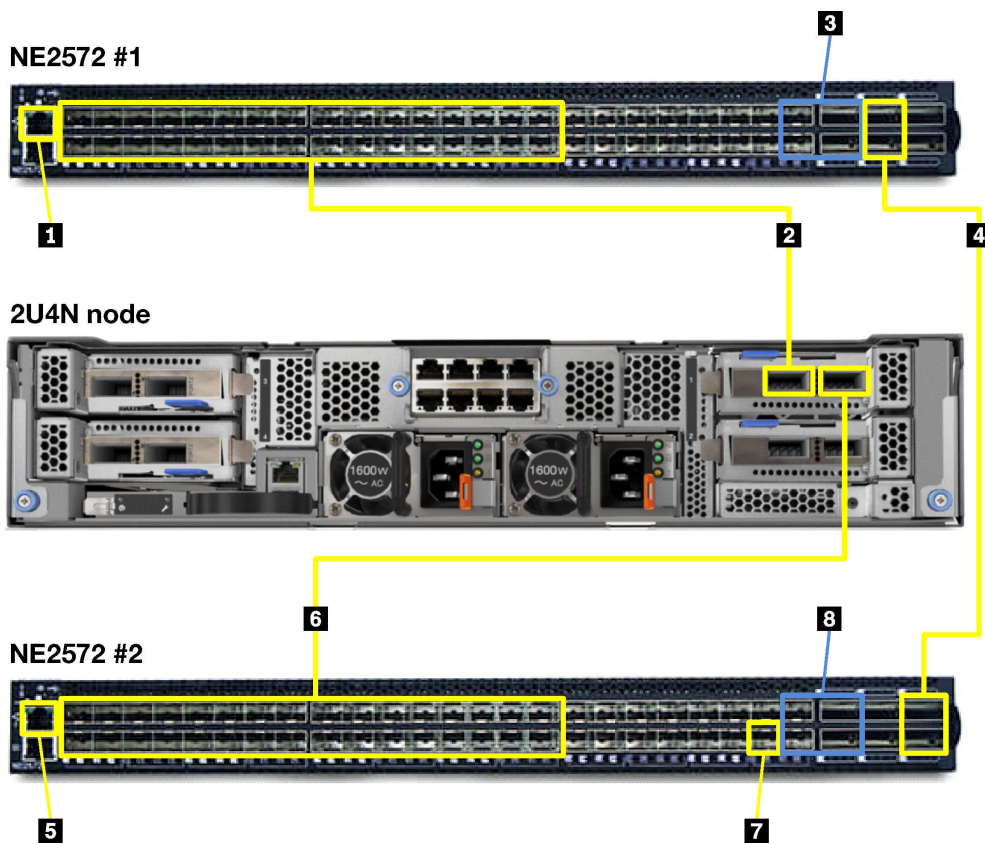


Figure 4. ThinkSystem NE2572 cabling for 2U4N enclosures



Table 5. ThinkSystem NE2572 Switch 1 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m CAT6 Green Cable
<b>2</b>	25 Gb NIC1	1–32	ThinkAgile HX enclosures	1	3m SFP28 DAC Cable
<b>3</b>	Uplink	QSFP28 1 and 2	Customer switch		Any 2 of the following: <ul style="list-style-type: none"> <li>• 20m 100G QSFP28 Active Optical Cable</li> <li>• 20m SFP+ to SFP+ Active Optical Cable</li> <li>• 20m 25G SFP28 Active Optical Cable</li> <li>• 20m 40G QSFP+ to QSFP+ Active Optical Cable</li> </ul>
<b>4</b>	VLAG	QSFP28 3	ThinkSystem NE2572 switch 2	QSFP28 5	1m Passive 100G QSFP28 DAC Cable
		QSFP28 4	ThinkSystem NE2572 switch 2	QSFP28 6	

Table 6. ThinkSystem NE2572 Switch 2 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>5</b>	Management		RackSwitch G8052	38	1.25m CAT6 Green Cable
<b>6</b>	25 Gb NIC1	1–32	ThinkAgile HX enclosures	2	3m SFP28 DAC Cable
<b>7</b>	10 Gb DAC connection (initial setup only)	48	RackSwitch G8052		1m Passive DAC SFP+ Cable
<b>8</b>	Uplink	QSFP28 1 and 2	Customer switch		Any 2 of following: <ul style="list-style-type: none"> <li>• 20m 100G QSFP28 Active Optical Cable</li> <li>• 20m SFP+ to SFP+ Active Optical Cable</li> <li>• 20m 25G SFP28 Active Optical Cable</li> <li>• 20m 40G QSFP+ to QSFP+ Active Optical Cable</li> </ul>

### Cabling for ThinkSystem NE1072T

**Note:** The switch can be configured with 10Gb SFP+ or 10Gb Base-T. Different LOMs can be selected, but are limited to dual-port.

The following images show the ThinkSystem NE1072T cabling connections for the ThinkAgile HX appliances and enclosures in the SXN3000.

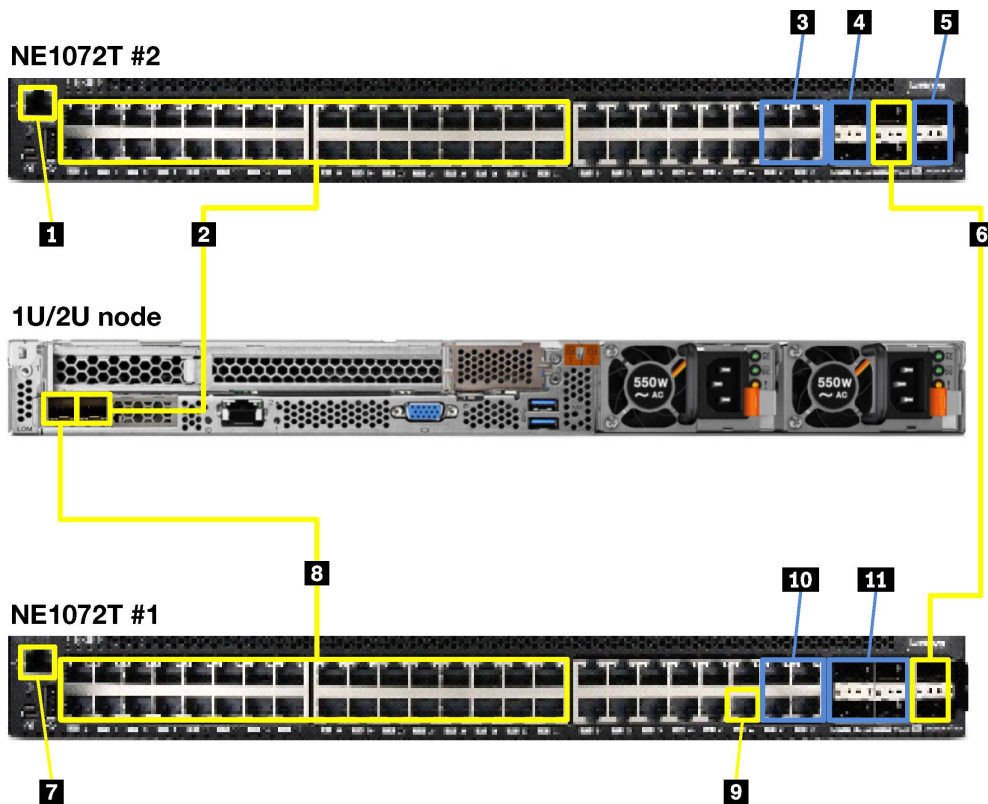


Figure 5. ThinkSystem NE1072T cabling for 1U and 2U appliances

Table 7. ThinkSystem NE1072T Switch 1 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m CAT6 Green Cable
<b>2</b>	10 Gb NIC1	1–32	ThinkAgile HX appliances	1	3m Green Cat5e Cable
<b>3</b>	Uplink (option 1)	Ethernet 45–48	Customer switch		25m CAT6 Green Cable
<b>4, 5</b>	Uplink (option 2)	40 Gb QSFP+ 1, 2, 5, 6	Customer switch		20M 40Gb QSFP+ to QSFP+ Active Optical Cable
<b>6</b>	VLAG	40 Gb QSFP 3	ThinkSystem NE1072T switch 2	QSFP 5	1m QSFP+-to-QSFP+ cable
		40 Gb QSFP 4	ThinkSystem NE1072T switch 2	QSFP 6	

Table 8. ThinkSystem NE1072T Switch 2 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>7</b>	Management		RackSwitch G8052	38	1.25m CAT6 Green Cable
<b>8</b>	10 Gb NIC1	1–32	ThinkAgile HX appliances	2	3m Green Cat5e Cable

Table 8. ThinkSystem NE1072T Switch 2 cabling for 1U/2U appliances (continued)

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>9</b>	1 Gb connection (initial setup only)		RackSwitch G8052		3m Green Cat5e Cable
<b>10</b>	Uplink (option 1)	Ethernet 45–48	Customer switch		25m Cat6 Green Cable
<b>11</b>	Uplink (option 2)	40 Gb QSFP+ 1–4	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable

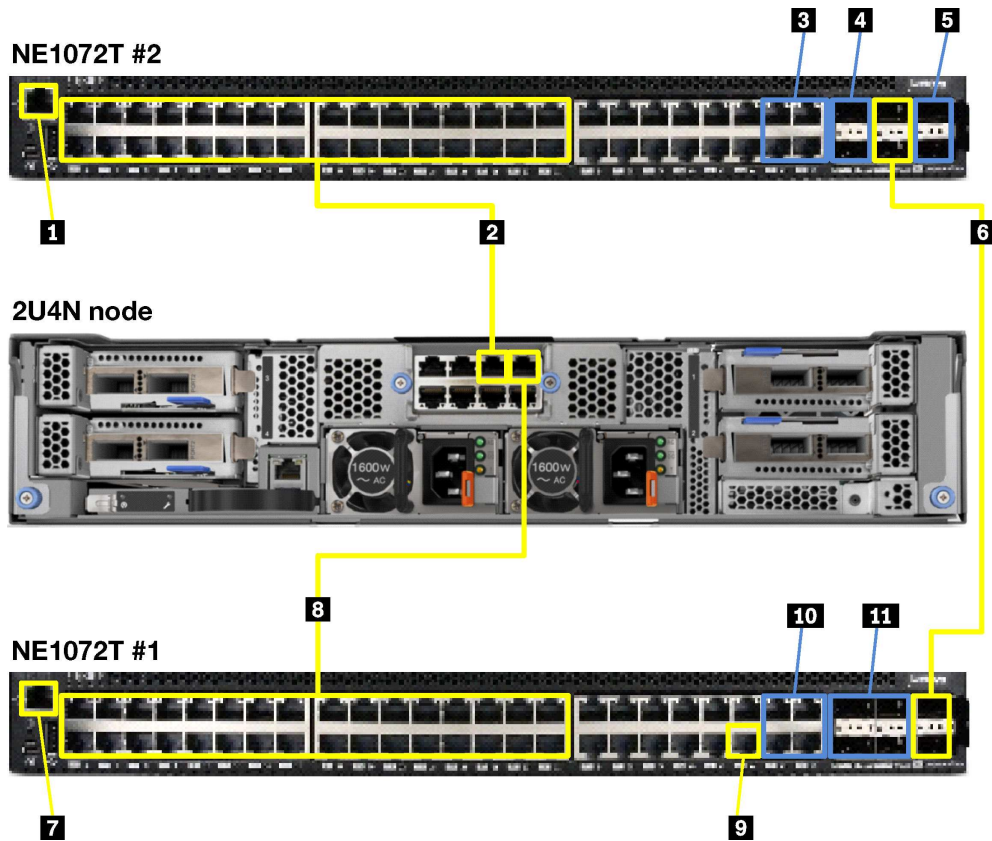


Figure 6. ThinkSystem NE1072T cabling for 2U4N enclosures

Table 9. ThinkSystem NE1072T Switch 1 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m Cat6 Green Cable
<b>2</b>	10 Gb NIC1	1–32	ThinkAgile HX enclosures	1	3m Green Cat5e Cable
<b>3</b>	Uplink (option 1)	Ethernet 45–48	Customer switch		25m Cat6 Green Cable

Table 9. ThinkSystem NE1072T Switch 1 cabling for 2U4N enclosures (continued)

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>4, 5</b>	Uplink (option 2)	40 Gb QSFP+ 1, 2, 5, 6	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable
<b>6</b>	VLAG	40 Gb QSFP 3	ThinkSystem NE1072T switch 2	QSFP 5	1m QSFP+-to-QSFP+ cable
		40 Gb QSFP 4	ThinkSystem NE1072T switch 2	QSFP 6	

Table 10. ThinkSystem NE1072T Switch 2 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>7</b>	Management		RackSwitch G8052	38	1.25m Cat6 Green Cable
<b>8</b>	10 Gb NIC1	1-32	ThinkAgile HX enclosures	2	3m Green Cat5e Cable
<b>9</b>	1 Gb connection (initial setup only)		RackSwitch G8052		3m Green Cat5e Cable
<b>10</b>	Uplink (option 1)	Ethernet 45-48	Customer switch		25m Cat6 Green Cable
<b>11</b>	Uplink (option 2)	40 Gb QSFP+ 1-4	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable

### Cabling for RackSwitch G8272

**Note:** The switch can be configured with 10Gb SFP+ or 10Gb Base-T. Different LOMs can be selected, but are limited to dual-port.

The following images show the RackSwitch G8272 cabling connections for the ThinkAgile HX appliances and enclosures in the SXN3000.

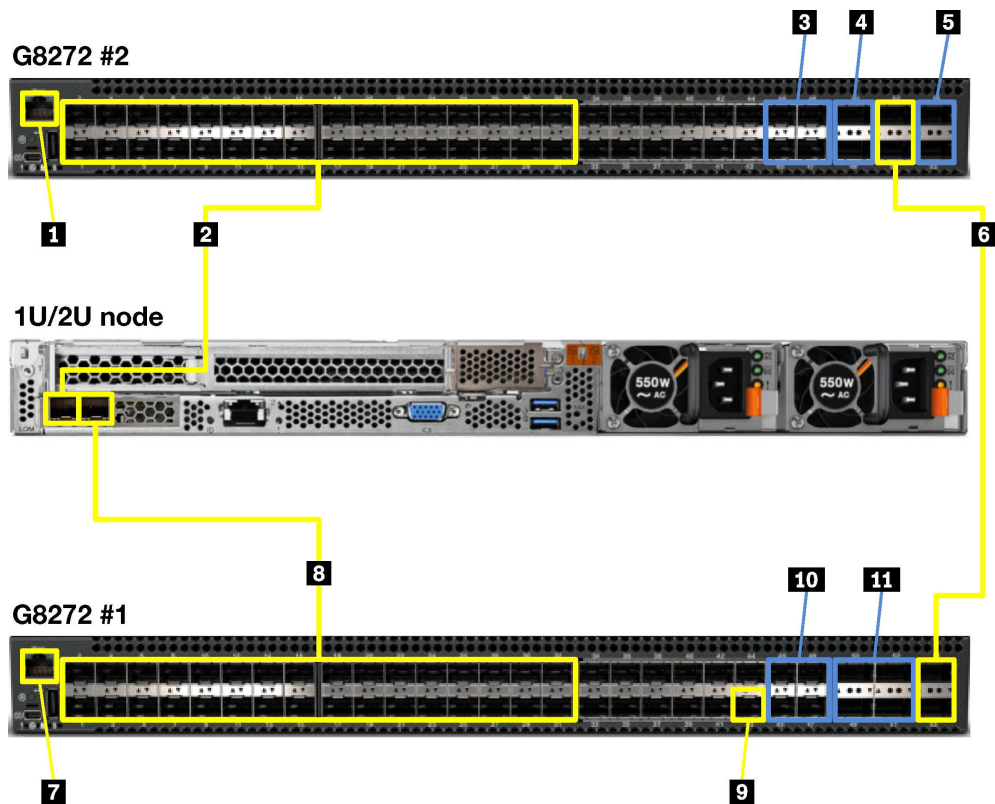


Figure 7. RackSwitch G8272 cabling for 1U and 2U appliances

Table 11. RackSwitch G8272 Switch 1 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m Cat6 Green Cable
<b>2</b>	10 Gb NIC1	1–32	ThinkAgile HX appliances	1	3m Passive DAC Cable
<b>3</b>	Uplink (option 1)	10 Gb SFP+ 45–48	Customer switch		20m SFP+ to SFP+ Active Optical Cable
<b>4, 5</b>	Uplink (option 2)	40 Gb QSFP+ 1, 2, 5, 6	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable
<b>6</b>	VLAG	40 Gb QSFP 3	ThinkSystem NE1072T switch 2	QSFP 5	1m QSFP+-to-QSFP+ cable
		40 Gb QSFP 4	ThinkSystem NE1072T switch 2	QSFP 6	

Table 12. RackSwitch G8272 Switch 2 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>7</b>	Management		RackSwitch G8052	38	1.25m Cat6 Green Cable
<b>8</b>	10 Gb NIC1	1–32	ThinkAgile HX appliances	2	3m Passive DAC Cable

Table 12. RackSwitch G8272 Switch 2 cabling for 1U/2U appliances (continued)

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>9</b>	10 Gb DAC connection (initial setup only)		RackSwitch G8052		1m Passive DAC SFP+ Cable
<b>10</b>	Uplink (option 1)	10 Gb SFP+ 45-48	Customer switch		20m SFP+ to SFP+ Active Optical Cable
<b>11</b>	Uplink (option 2)	40 Gb QSFP+ 1-4	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable

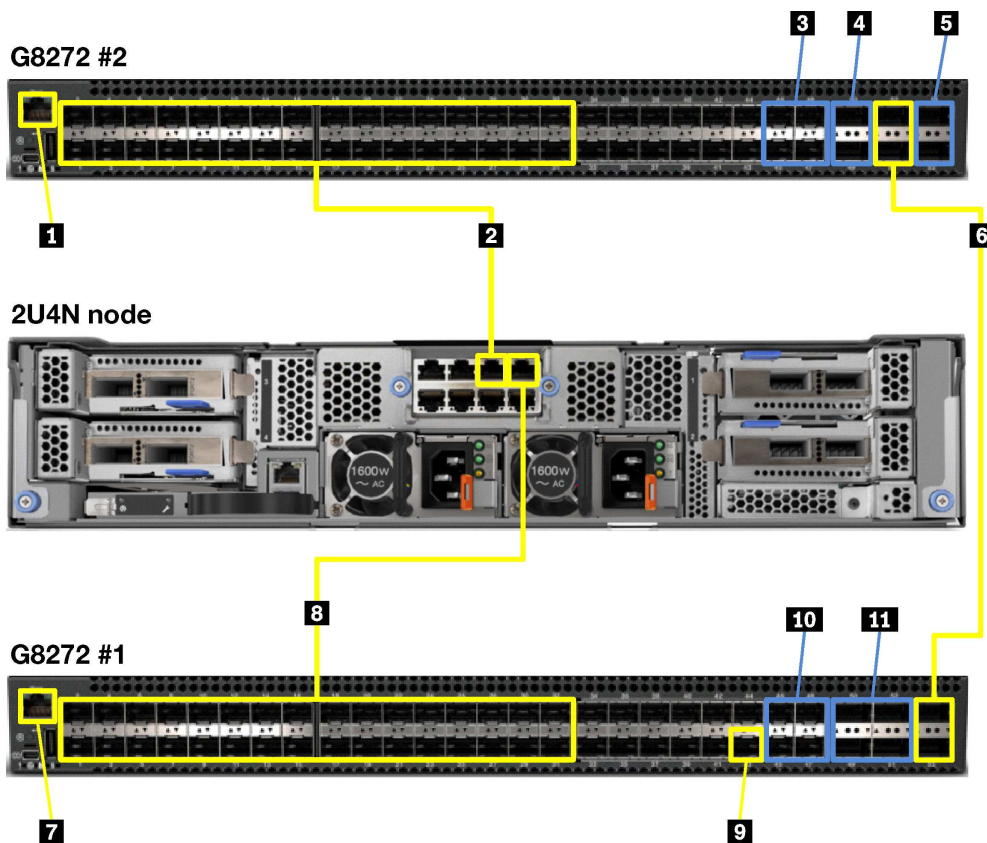


Figure 8. RackSwitch G8272 cabling for 2U4N enclosures

Table 13. RackSwitch G8272 Switch 1 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	Management		RackSwitch G8052	37	1.25m Cat6 Green Cable
<b>2</b>	10 Gb NIC1	1-32	ThinkAgile HX enclosures	1	3m Passive DAC Cable

Table 13. RackSwitch G8272 Switch 1 cabling for 2U4N enclosures (continued)

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>3</b>	Uplink (option 1)	10 Gb SFP+ 45-48	Customer switch		20m SFP+ to SFP+ Active Optical Cable
<b>4, 5</b>	Uplink (option 2)	40 Gb QSFP+ 1, 2, 5, 6	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable
<b>6</b>	VLAG	40 Gb QSFP 3	ThinkSystem NE1072T switch 2	QSFP 5	1m QSFP+-to-QSFP+ cable
		40 Gb QSFP 4	ThinkSystem NE1072T switch 2	QSFP 6	

Table 14. RackSwitch G8272 Switch 2 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>7</b>	Management		RackSwitch G8052	38	1.25m Cat6 Green Cable
<b>8</b>	10 Gb NIC1	1-32	ThinkAgile HX enclosures	2	3m Passive DAC Cable
<b>9</b>	10 Gb DAC connection (initial setup only)		RackSwitch G8052		1m Passive DAC SFP+ Cable
<b>10</b>	Uplink (option 1)	10 Gb SFP+ 45-48	Customer switch		20m SFP+ to SFP+ Active Optical Cable
<b>11</b>	Uplink (option 2)	40 Gb QSFP+ 1-4	Customer switch		20m 40Gb QSFP+ to QSFP+ Active Optical Cable

### Cabling for RackSwitch G8052

**Note:** ThinkAgile HX typically use only the 10Gb Ethernet connections. System management for ThinkAgile HX is handled in-band, so the 1Gb is typically only needed if systems require reimaging or out-of-band access.

The following images show the RackSwitch G8052 cabling connections for the ThinkAgile HX appliances and enclosures in the SXN3000.

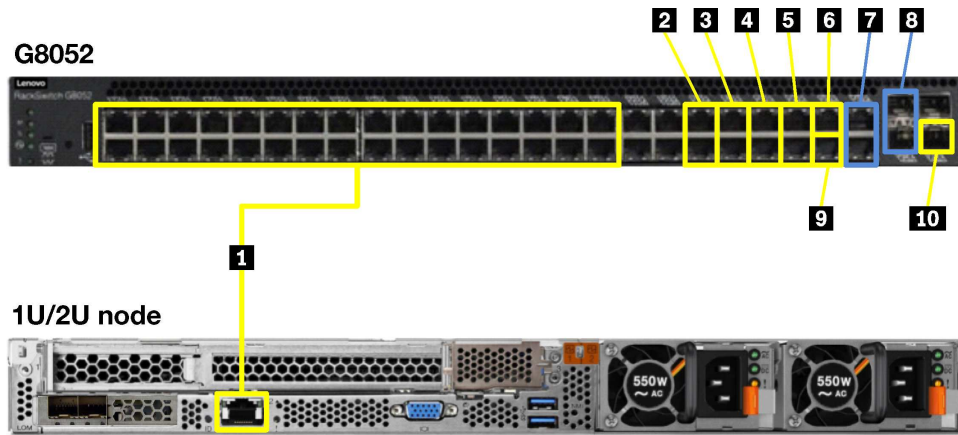


Figure 9. RackSwitch G8052 cabling for 1U and 2U appliances

Table 15. RackSwitch G8052 cabling for 1U/2U appliances

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	XCC	1–32	ThinkAgile HX appliances	1	3m Green Cat5e Cable
<b>2</b>	Top-of-Rack switch management	37, 38	Top-of-Rack switch		1.25m Cat6 Green Cable
<b>3</b>	PDU management	39, 40	PDUs in Bays A and B		3m Green Cat5e Cable
<b>4</b>		41, 42	PDUs in Bays C and D		3m Green Cat5e Cable
<b>5</b>		43, 44	PDUs in Bays E and F		3m Green Cat5e Cable
<b>6</b>	Service/install	45	Service laptop		10m Cat6 Green Cable
<b>7</b>	Uplink (option 1)	47, 48	Customer switch (Ethernet)		25m Cat6 Green Cable
<b>8</b>	Uplink (option 2)	49, 50	Customer switch (SFP+)		20m SFP+ to SFP+ Active Optical Cable
<b>9</b>	Ethernet (initial setup option 1)	46	ThinkSystem NE1072T switch 2	44	3m Green Cat5e Cable
<b>10</b>	10 Gb DAC connection (initial setup option 2)	4	RackSwitch G8272 switch 2	44	1m Passive DAC SFP+ Cable



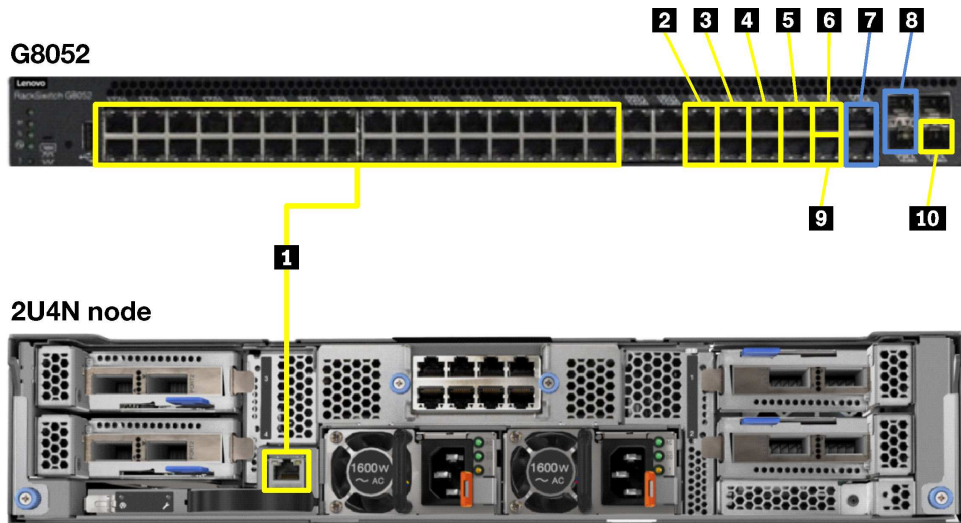


Figure 10. RackSwitch G8052 cabling for 2U4N enclosures

Table 16. RackSwitch G8052 cabling for 2U4N enclosures

	Source		Destination		Connection type
	Usage	Port	Device	Port	
<b>1</b>	XCC	1–32	ThinkAgile HX enclosures	1	3m Green Cat5e Cable
<b>2</b>	Top-of-Rack switch management	37, 38	Top-of-Rack switch		1.25m Cat6 Green Cable
<b>3</b>	PDU management	39, 40	PDUs in Bays A and B		3m Green Cat5e Cable
<b>4</b>		41, 42	PDUs in Bays C and D		3m Green Cat5e Cable
<b>5</b>		43, 44	PDUs in Bays E and F		3m Green Cat5e Cable
<b>6</b>	Service/install	45	Service laptop		10m Cat6 Green Cable
<b>7</b>	Uplink (option 1)	47, 48	Customer switch (Ethernet)		25m Cat6 Green Cable
<b>8</b>	Uplink (option 2)	49, 50	Customer switch (SFP+)		20m SFP+ to SFP+ Active Optical Cable
<b>9</b>	Ethernet (initial setup option 1)	46	ThinkSystem NE1072T switch 2	44	3m Green Cat5e Cable
<b>10</b>	10 Gb DAC connection (initial setup option 2)	4	RackSwitch G8272 switch 2	44	1m Passive DAC SFP+ Cable

## SXN3000 power cabling

The SXN3000 rack and components are precabled for power. This information is provided for your reference.

The power design for the SXN3000 in a 42U rack is N+N redundancy. Power cabling is designed to spread the load over each phase, as well as each breaker. Based on the as-ordered configuration and region, the

PDUs are treated as Full density or Half density. This applies to systems using 1U, 2U, or 2U4N appliance/enclosures.

In the images below, the switch in U40 is the RackSwitch G8052 management switch. The switches in U41 and U42 are the RackSwitch G8272, ThinkSystem NE1072T, or ThinkSystem NE2572 VM/storage switches.

### Full density PDUs

The following image shows the node-to-port mapping for Full density PDUs. The number indicate the ThinkAgile HX appliance/enclosure number, as defined relative to EIA space 1. The relevant power cable is as follows:

- 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable

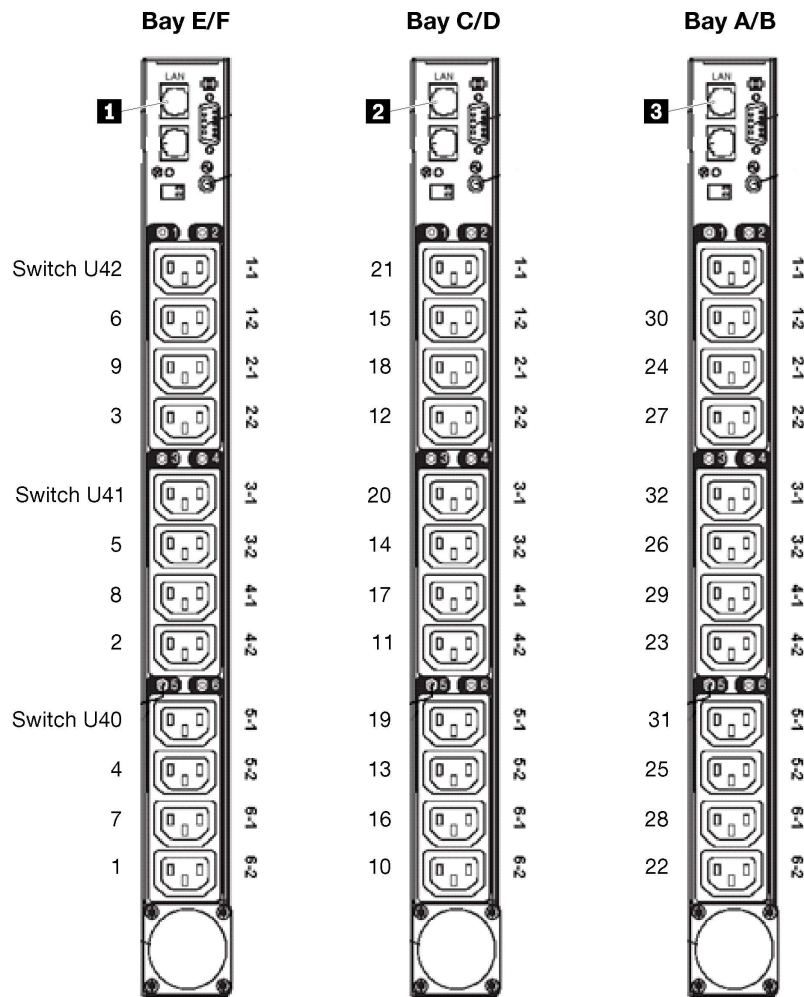


Figure 11. Full density mapping for SXN3000 PDUs

The following table lists the destination ports on the RackSwitch G8052 management switch.

Table 17. Management connections for Full density PDUs

	PDU	Management switch port
<b>1</b>	E	44
	F	43

Table 17. Management connections for Full density PDUs (continued)

	PDU	Management switch port
<b>2</b>	C	42
	D	41
<b>3</b>	A	40
	B	39

### Half density PDUs

The following image shows the node-to-port mapping for Half density PDUs. The number indicates the ThinkAgile HX appliance/enclosure number, as defined relative to EIA space 1. The relevant power cable is as follows:

- 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable

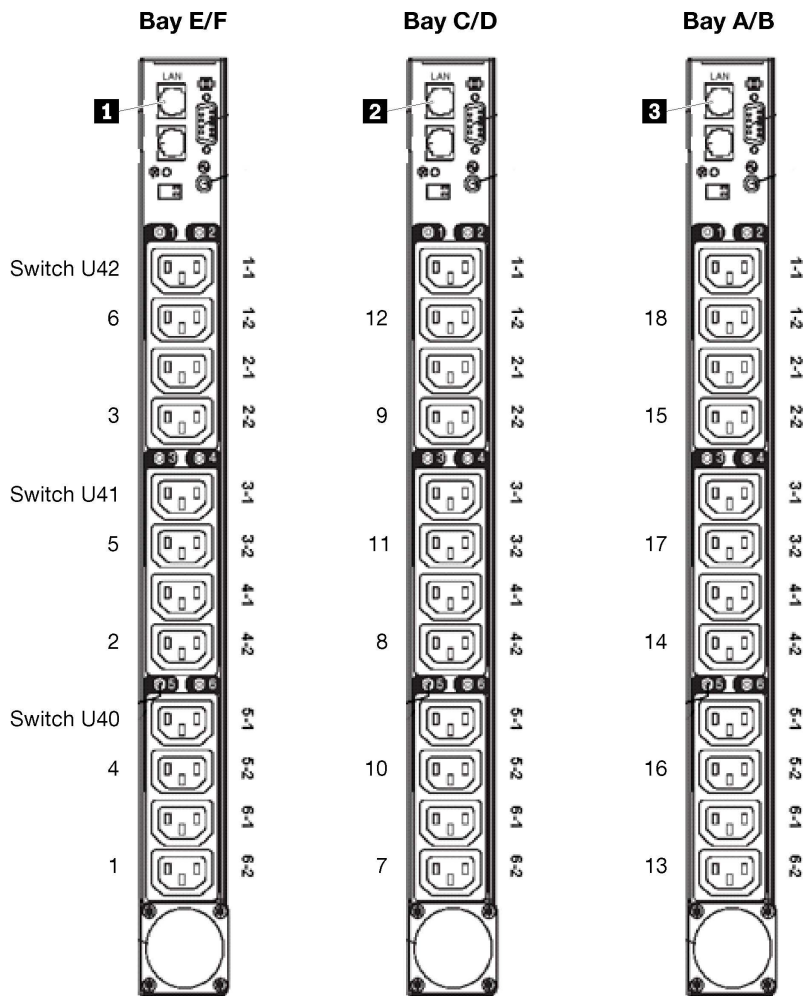


Figure 12. Half density mapping for SXN3000 PDUs

The following table lists the destination ports on the RackSwitch G8052 management switch.

Table 18. Management connections for Half density PDUs

	PDU	Management switch port
<b>1</b>	E	44
	F	43
<b>2</b>	C	42
	D	41
<b>3</b>	A	40
	B	39



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