



Nexus Lab

10G Ethernet and Virtualization Solution



Scott Milosek
Field Development Manager
WW Channel GTM Group
October 2009

Agenda

- Lab Objective and Requirements
- Topology and Components
- Scheduling 
- Summary

Objectives and Requirements



Demonstration Lab Objective

“Remote demonstrations should be easily accessed by our Cisco Channel partners, reliable, schedulable, measurable, scripted, and tested with the capability to be reset to a known good configuration and full control of all equipment including power cycle and password recovery .”

Scott Milosek
Cisco Systems Inc.

Nexus Lab Objective

- **Train Cisco Channel Partners on the Data Center 3.0 Solution**

Nexus 5000

Nexus 2000

Nexus 1000

MDS 9124

NetApp 2020

Fabric Manager

Device Manager

Vmware VSphere 4.0

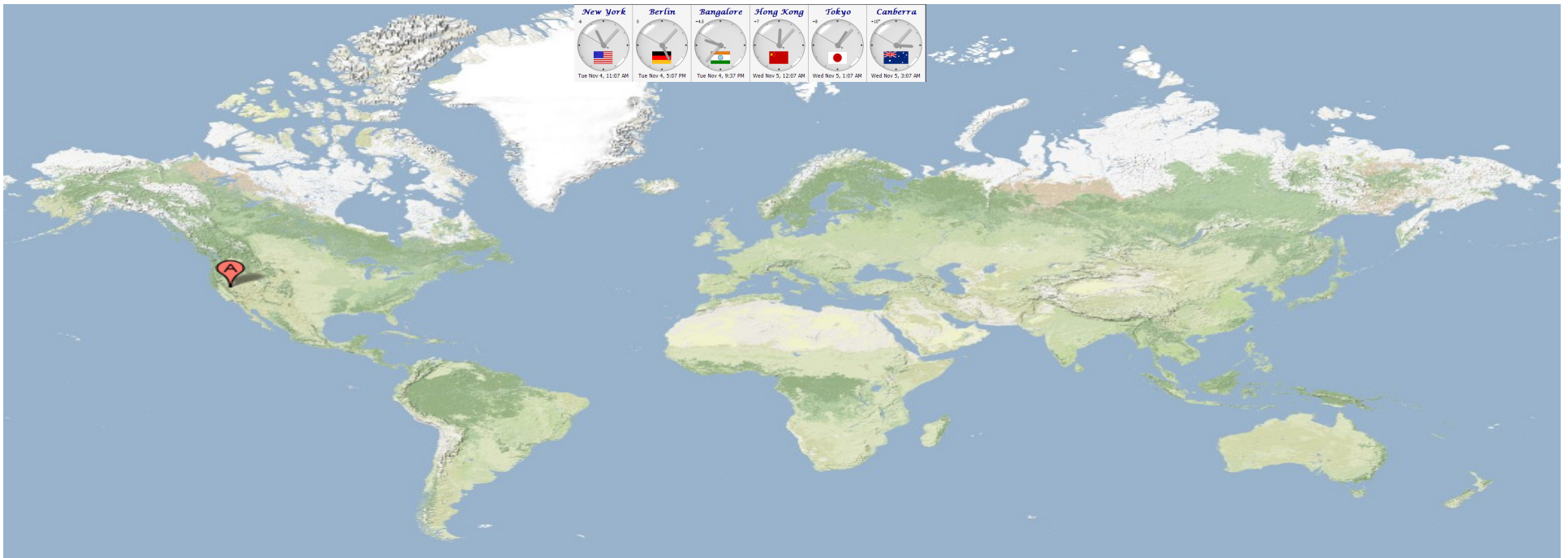
Fibre Channel over Ethernet

Emulex Converged Network Adapters



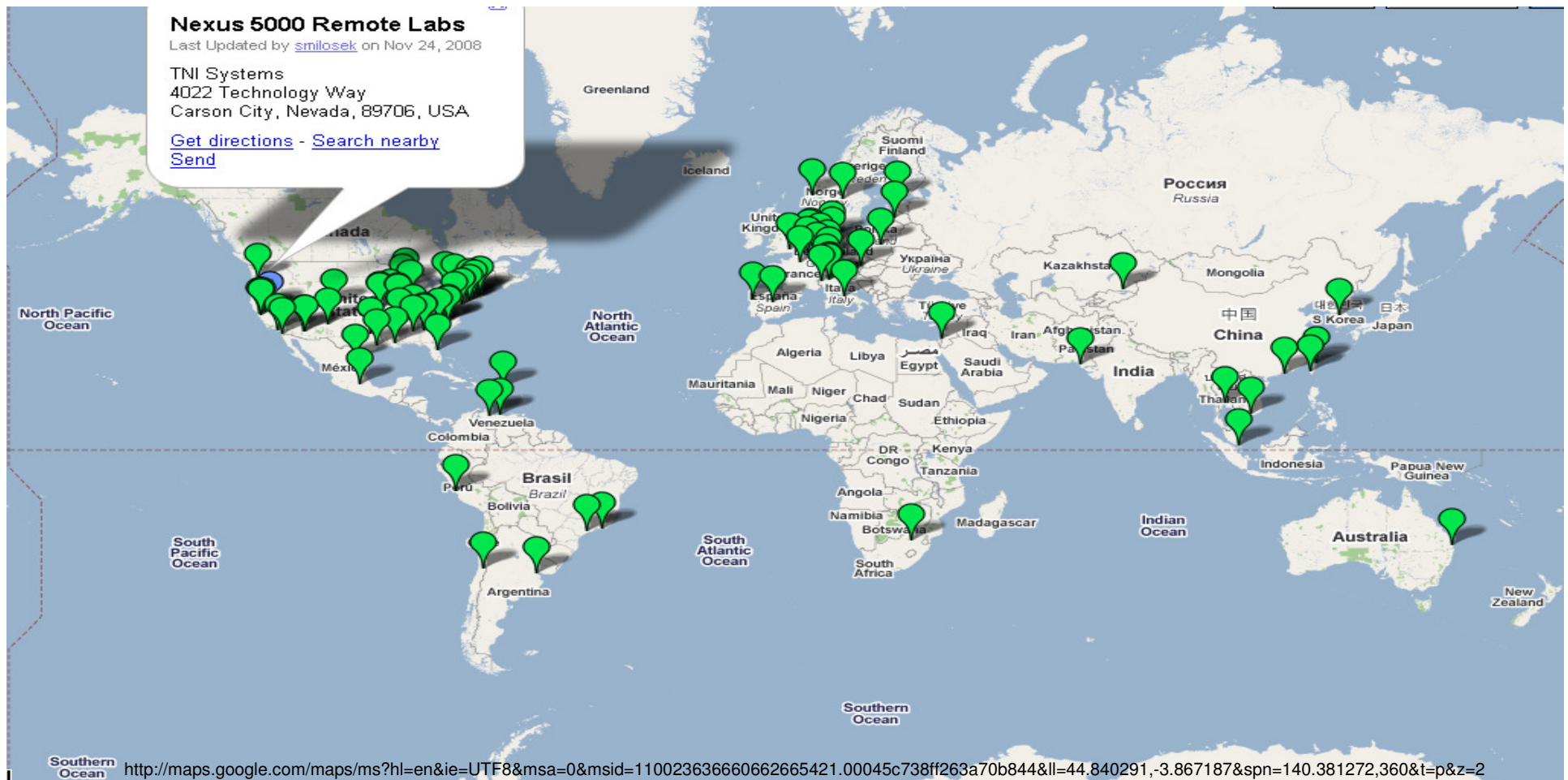
The Demonstration Lab

- Hosted by Technowledge in Carson City, Nevada
- Globally accessible via Internet at www.labgear.net
Some geographies may have last mile bandwidth constraints
- Requires IE 6.0 or better



Remote Lab Access

- Locations where labs have been used

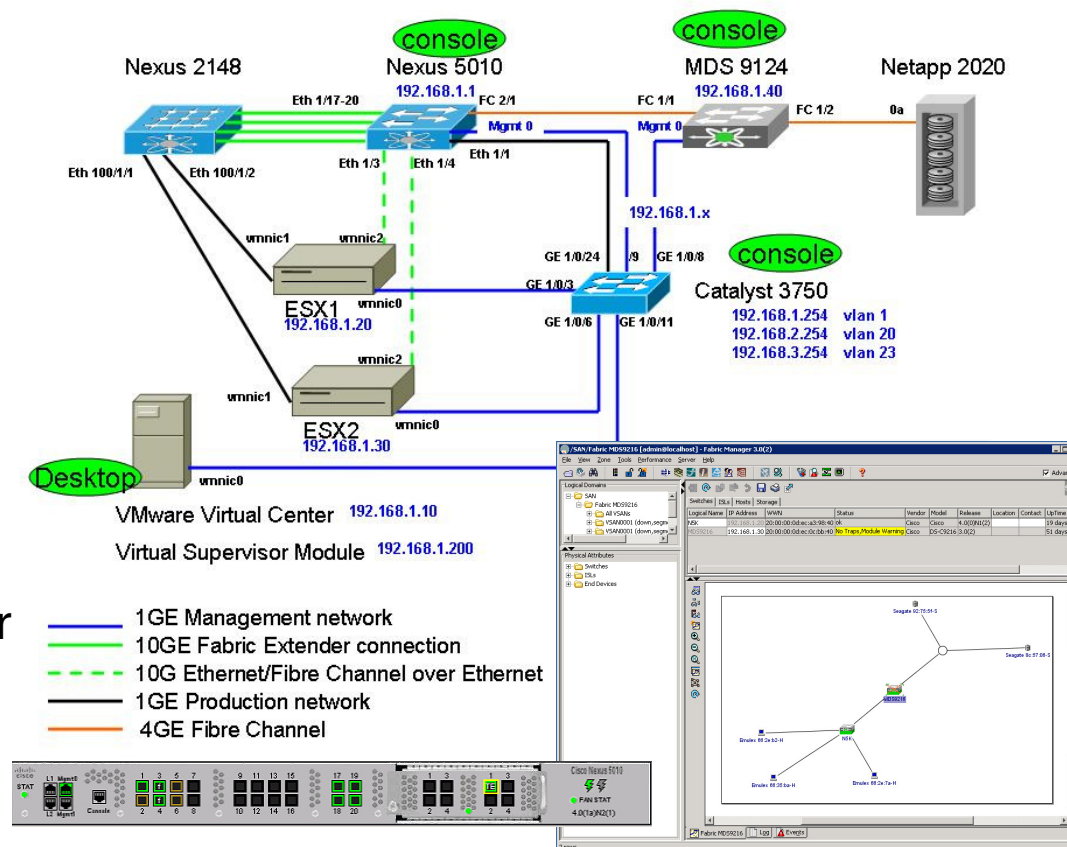


Topology and Components of the Solution

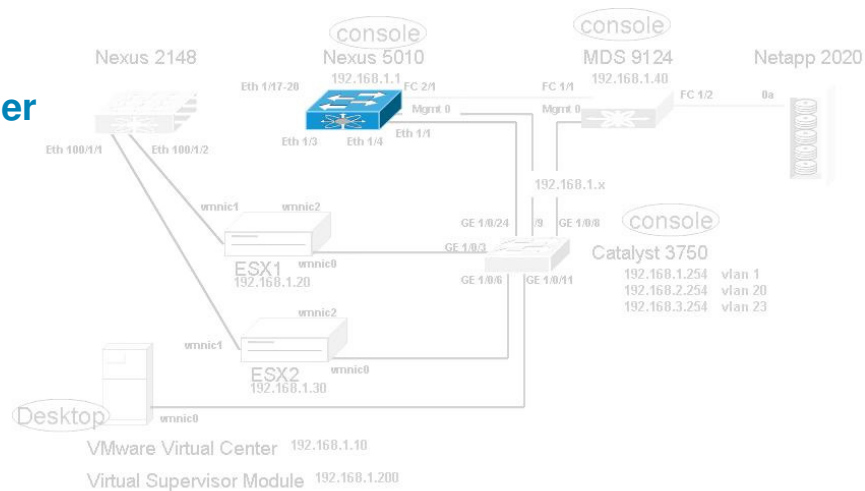
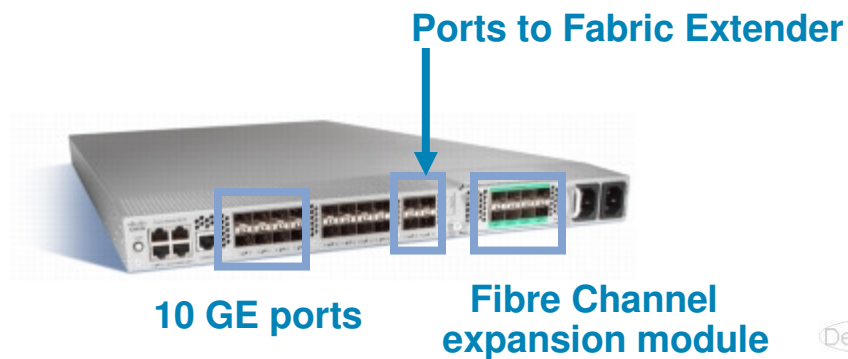


Lab Topology

- ✦ Nexus 5010
- ✦ Nexus 2148
- ✦ Nexus 1000v
 - MDS 9124
- ✦ Netapp 2020 Storage
 - Access Switch
 - Servers
 - Converged Network Adapter
 - Emulex
- ✦ Virtualization
 - VMWare VirtualCenter
 - ESX
 - Management
 - Device Manager
 - Fabric Manager



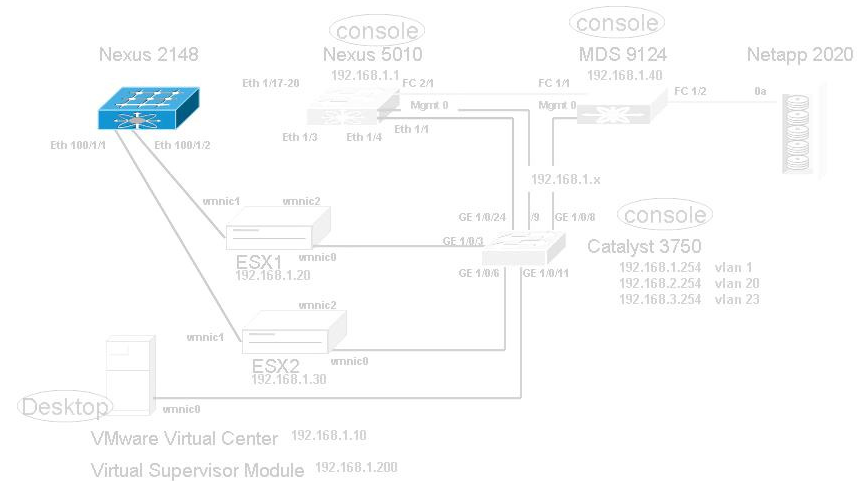
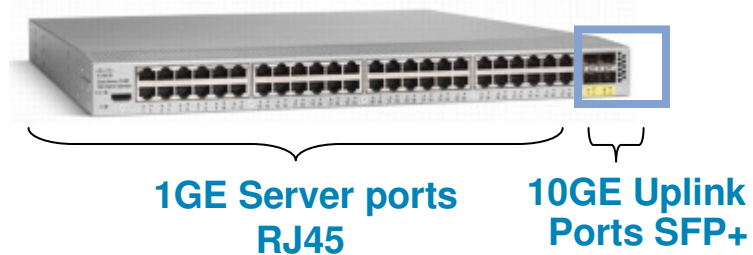
Nexus 5010



- NXOS 4.0(1A)
- Building Block for Unified Fabric with 10 GE and Fibre Channel over Ethernet
- Connects to Data Center LAN and SAN
- Management of Fabric Extender

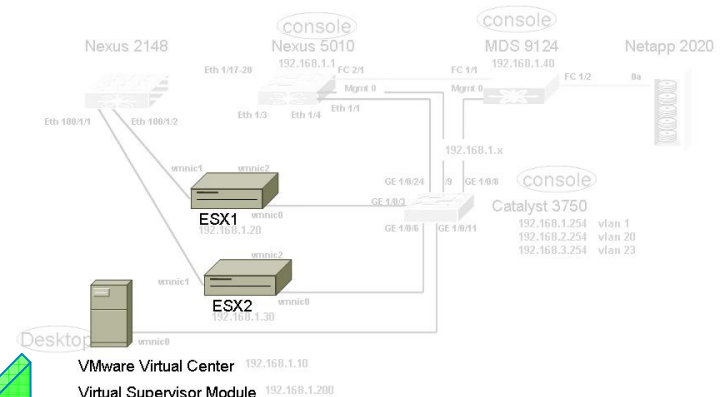
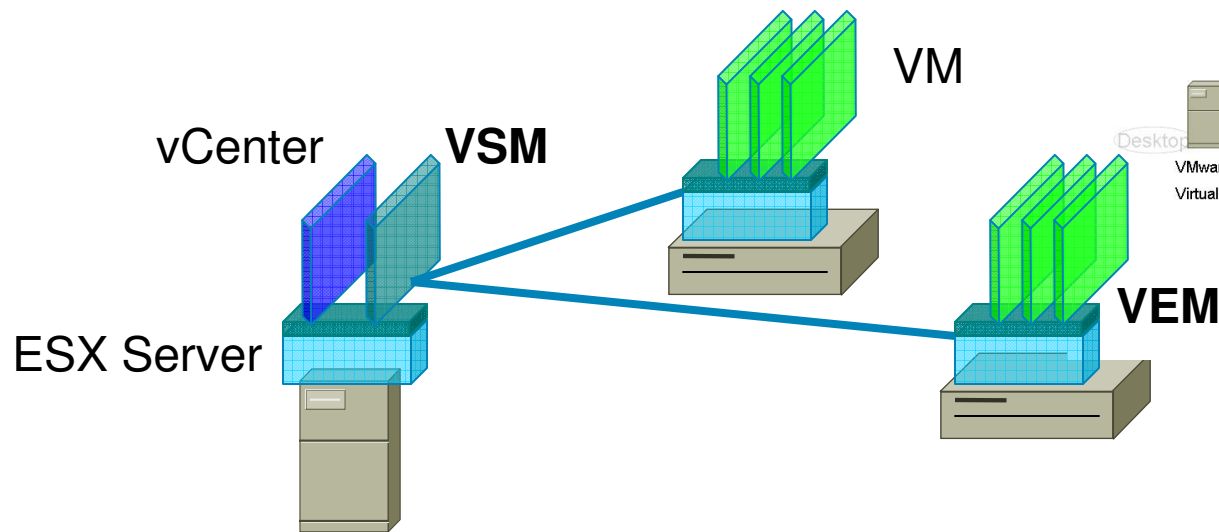
Nexus 2048 Fabric Extender

Virtual Chassis Mgmt



- From a management perspective, fabric extender is modeled as a NX5K linecard
- Nexus 5000 and Fabric extender communicate via inband connectivity
- There is no configuration stored on the Fabric Extender
- Fabric extender is **not** an independent manageable entity

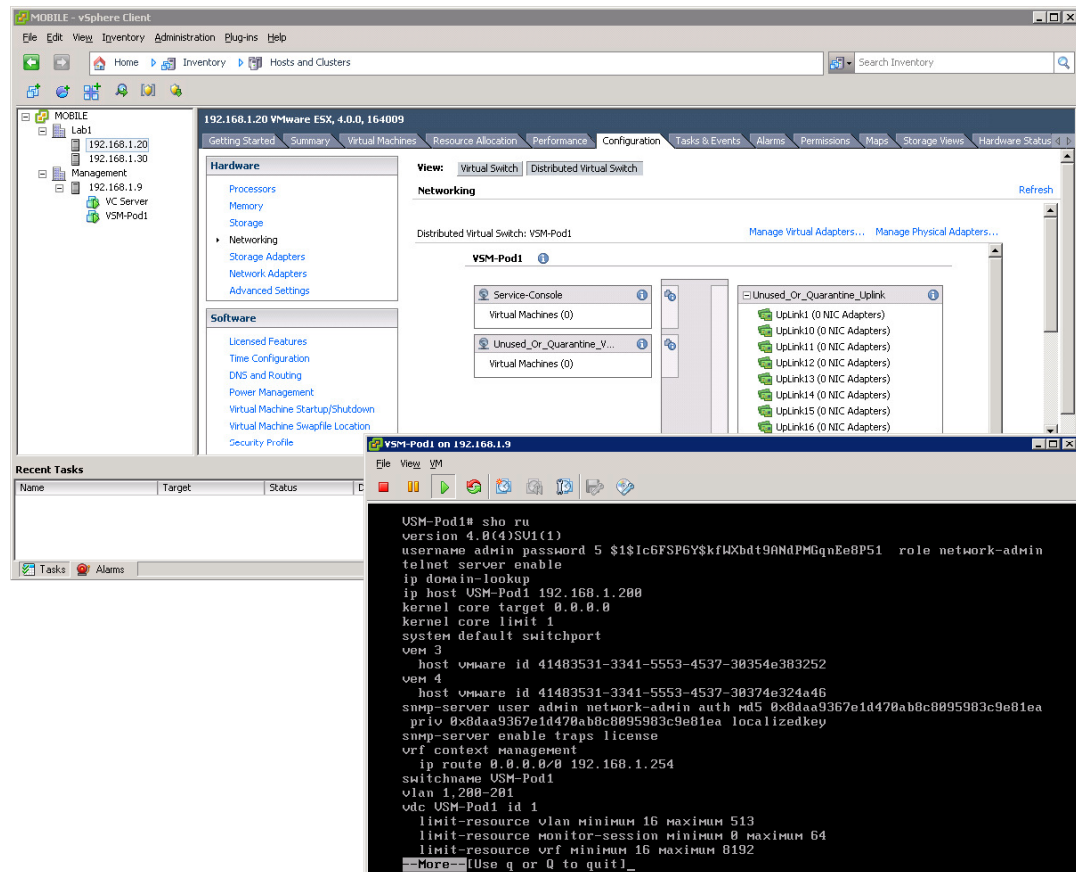
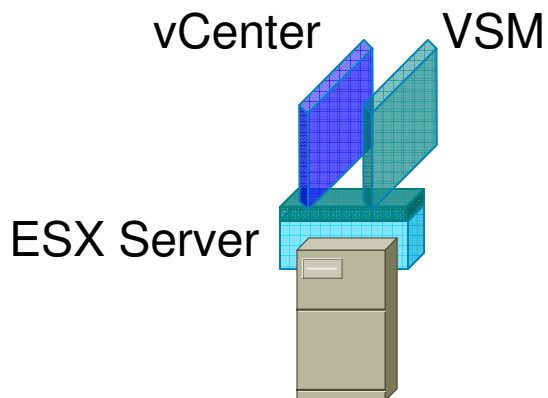
Nexus 1000v



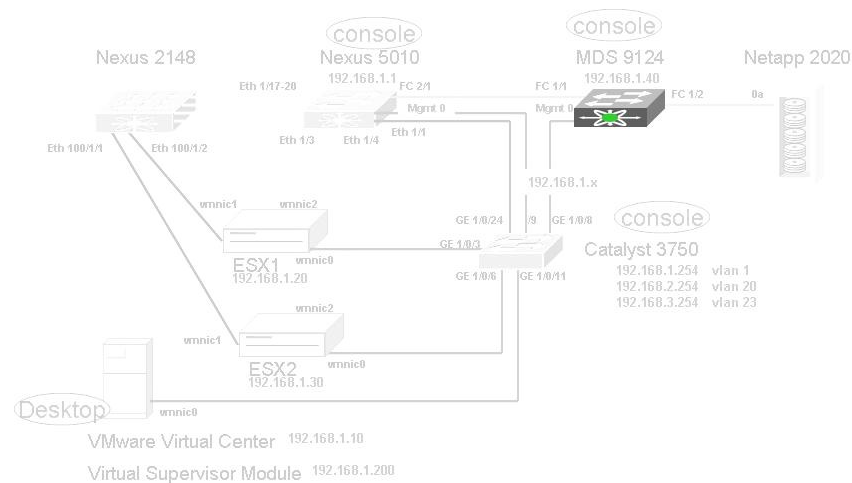
- Nexus 1000v has two components
 - Virtual Supervisor Module (VSM)
 - Virtual Ethernet Module (VEM)
- VSM is a Virtual Machine on same ESX server as VirtualCenter (vSphere 4.0 is required)
- VEM is Distributed Virtual Switch on ESX Servers

Virtual Supervisor Module

- VSM accessed using SSH
- CLI is based on NXOS and configuration can be saved to tftp server

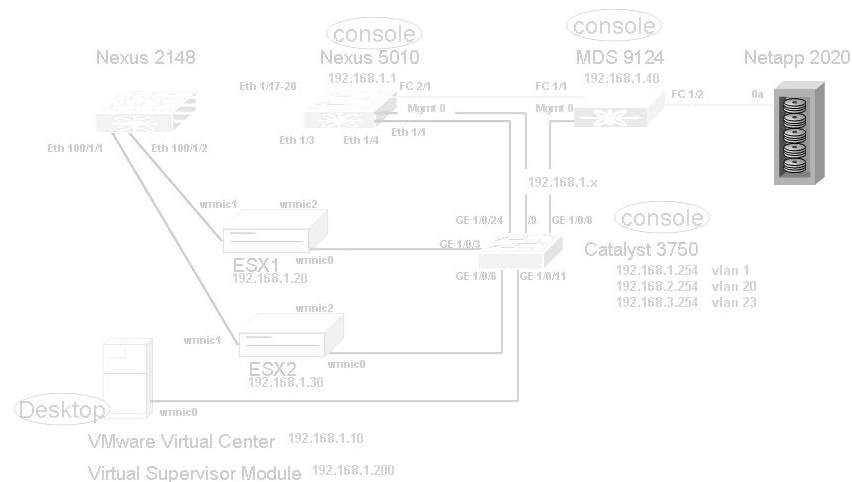


MDS 9124



- NXOS 4.1(1b)
- 4G Fibre Channel to Nexus 5000 and Netapp SAN attached storage
- Fabric Manager to manage the SAN fabric
- NPV/NPIV supported

Netapp 2020



- With FAS2000 series systems you get versatility:
 - Integrated block- and file-level data access over Fibre Channel and Ethernet networks
 - Primary and/or secondary storage
 - Intelligent management software
 - Data-protection capabilities of high-end systems, with NetApp ease of use
 - Internal SAS (serial-attached SCSI) or SATA drives
 - Built-in remote management

Lab Bill of Materials

| Part Number | Description |
|-----------------------|---|
| N5K-C5010P-BF | N5000 1RU Chassis no PS 2 Fan Modules 20 ports (req SFP+) |
| N5KUK9-401AN1.1 | Nexus 5000 Base OS Software Rel 4.0.1a.N1.1 |
| GLC-T | 1000BASE-T SFP |
| SFP-H10GB-CU1M | 10GBASE-CU SFP+ Cable 1 Meter |
| SFP-H10GB-CU3M | 10GBASE-CU SFP+ Cable 3 Meter |
| SFP-H10GB-CU5M | 10GBASE-CU SFP+ Cable 5 Meter |
| N5K-PAC-550W | Nexus 5010 PSU module, 100-240VAC 550W |
| CAB-N5K6A-NA | Power Cord, 210/220V 30A North America |
| Included: N5K-P2-BLNK | Nexus 5020 PSU module, Blank slot cover |
| DS-SFP-FC4G-LW= | 4 Gbps Fibre Channel-LW SFP, LC, (10km Reach) spare |
| N5K-M1404= | N5000 1000 Series Mod 4x10GE 4xFC 4/2/1G(req SFP+/SFP) |
| N5010-SSK9= | Nexus 5010 Storage Protocols Services License |
| N2K-C2148T-1GE | Cisco Nexus 2000 Series 1GE Fabric Extender, 1PS, 1 Fan Module, 48x1G-BaseT + 4x10GE (req SFP+) |
| N2K-C2148T-ACC= | Cisco Nexus 2000 FEX 1GE Accessory Kit, spare |
| CAB-N5K6A-NA(=) | Power Cord, 210/220V 30A North America |
| WS-C3560E-12SD-E | Catalyst 3560E 12 SFP+2*10GE(X2),IPS s/w |
| S3560EVT-12244SE | CAT 3560E IOS UNIVERSAL W/O CRYPTO WITH WEB BASED DEV MGR |
| C3K-PWR-300WAC | Catalyst 3560E-12D and 3560E-12SD 300WAC power supply |
| CAB-16AWG-AC | AC Power cord, 16AWG |
| CAB-INF-28G-1= | 1m cable for 10GBase-CX4 module |
| CAB-INF-28G-5= | 5m cable for 10GBase-CX4 module |
| X2-10GB-CX4= | 10GBASE-CX4 X2 Module |
| GLC-T= | 1000BASE-T SFP |
| DS-C9124-K9 | MDS 9124, 8 ports enabled base configuration |
| DS-9124-KIT-CSCO | MDS 9124 Accessory kit for Cisco |
| CAB-9K12A-NA | Power Cord, 125VAC 13A NEMA 5-15 Plug, North America |
| DS-SFP-FC4G-SW= | 4 Gbps Fibre Channel-SW SFP, LC, spare |
| LP21002-M | Emulex Dual Port FCoE Converged Network Adapter- Optical |
| MCS-7845-H2-CTS1= | TelePresence MCS-7845 HP Platform *SPARE* |
| CAB-AC | Power Cord,110V |
| FAS2020-R5 | FAS2020 Model,R5 |
| FAS2020-R5*617811 | FAS2020 Model,R5 |
| OC-FAS2020-R5 | OC-FAS2020-R5 |
| F2020-R5 | 2020 SubModel,R5 |
| OC-FAS2020-BASE-R5 | OC-FAS2020-BASE-R5 |
| FAS2020-BASE-R5-C | FAS2020 Base Appliance,-C,R5 |
| OC-T1-FAS2020-SW | OC-T1-FAS2020-SW |
| SW-T1-FLEXCACHE-C | FlexCache Software,NFS,T1,-C |

Scheduling



Lab Interface

www.Nexus-demo.labgear.net

- Improved User Interface
- Integrated lab Request and Schedule
- Event Summary Reporting for users
- Training and Demonstration Guide



LabGear[®] Remote-Demo[™]

Welcome, Scott Milosek

HOME SCHEDULE LAB EVENT SUMMARY TRAINING GUIDE DEMONSTRATION GUIDE EDIT PROFILE LOGOUT

Nexus LabGear[®] Remote-Demo[™] Program Overview:

Program Summary:
The Nexus Demonstration Labs are a training and demonstration resource for Cisco Channel Partners focused on Data Center 3.0 solutions. The technologies showcased in these labs include the following products:

| | |
|---------------|-------------------------------------|
| - Nexus 5000 | - Fabric Manager |
| - Nexus 2000 | - Device Manager |
| - Nexus 1000 | - VMware VSphere 4.0 |
| - MDS 9124 | - Fibre Channel over Ethernet |
| - NetApp 2020 | - Emulex Converged Network Adapters |

Two types of labs are available for reservation including 4 Training labs and 2 Demonstration labs. The devices and topologies are identical but they differ in the way they are pre-configured. The Training labs are in the default state, ready for the in-depth training exercises. The Demonstration labs are in a pre-configured state, prepared to demonstrate solution feature sets with minimal additional configuration.

Detailed training and demonstration materials are provided as downloadable WebEx session recordings. Lab sessions are self-scheduled by the participating partners in real-time with immediate confirmation. This can be done after signing up for a LabGear[®] Remote-Demo[™] scheduling account. Scheduled sessions can vary from 1 to 8 hours and can be for immediate or future use.

Program Requirements:
To participate in the Nexus Labs program you must be a Cisco Channel Partner focused on Data Center solutions. To use the labs, a PC running Internet Explorer 6 or better with a broadband internet connection is required.

Getting Started:
Step 1: Obtain a LabGear[®] Remote-Demo[™] scheduling account. Click on the 'Sign Up' button above.
Step 2: Click the 'Login' button above to schedule labs and access training resources and WebEx links.

Additional Information:
[Lab Topology Diagram](#) 
[Program Overview](#) 
[Lab Guide Overview](#) 
[Contact LabGear](#) 

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Training Guide

- Lab exercise Activities
- Includes Webex session screen capture of configuration steps
- Notes list steps in Lab Guide Overview available on home page

The screenshot shows the LabGear Remote-Demo web interface. At the top, there is a navigation bar with links: HOME, SCHEDULE LAB, EVENT SUMMARY, TRAINING GUIDE (highlighted), DEMONSTRATION GUIDE, EDIT PROFILE, and LOGOUT. The user is logged in as Scott Milosek. Below the navigation bar, the 'WebEx Training Links' section is visible. It contains a paragraph explaining that activities are for use with Training labs and should be done in order. Below this, there are tabs for Activity 1 through Activity 5. Activity 1 is selected, showing the 'Introduction and Network Configuration of the Nexus Lab'. This section includes a 'Recording 1' link with a play icon and a duration of 18 Minutes. Below the recording link, there is a 'Notes' section. The notes state that the VCenter server has a tftp server on the desktop and provide instructions on how to copy configuration files to the MDS and Nexus. The notes also include a list of steps for configuring the Nexus lab, such as logging in to the VCenter server, configuring the tftp application, and configuring the MDS and Nexus devices.

LabGear[®] Remote-Demo[™]

Welcome, Scott Milosek

HOME SCHEDULE LAB EVENT SUMMARY **TRAINING GUIDE** DEMONSTRATION GUIDE EDIT PROFILE LOGOUT

WebEx Training Links:

The activities below are to be used with one of the **Training** labs. When the lab session starts, the devices will be in a default state ready for WebEx Recording 1. The configuration activities should be done in order because they build upon one another. If you have reserved a **Demonstration** lab, use the Demonstration Guide from the menu above.

Activity 1 Activity 2 Activity 3 Activity 4 Activity 5

Introduction and Network Configuration of the Nexus Lab
Logging in to the Nexus lab, exploring the lab interface and configuring the network and SAN.

[Recording 1](#) 
18 Minutes

Notes:
The VCenter server also has a tftp server on the desktop. Use the tftp server to copy the final configuration files to the MDS and Nexus. The files can be found on the VCenter server in C:\TFTP with file name:

C:\tftp\X-device-cfg-final where X = pod number; device is MDS, NSK, VSM or 3750

1. Login to Virtual Center Server and start the tftp application from the desktop icon.
2. NetApp 2020 SAN disk is already configured.
 - a. LUN 0 - 70GB Shared disk (ESX1 and ESX2 are both in initiator group).
 - b. LUN 1 - 10GB disk for ESX1 — not shared so VMotion will not work with this disk
 - c. LUN 2 - 10GB disk for ESX2 — not shared so VMotion will not work with this disk
3. 3750 IS ALREADY CONFIGURED
4. Configure MDS 9124 (copy config file from tftp server) copy run start
 - a. Confirm flogi and fcns database entries, if no entries problem exists
5. Configure Nexus 5K/2K (copy config file from tftp server), it takes two copies to get the configuration on the 2K. The first copy creates the 2K instance on the 5K and the second copy configures the 2K ports. That's why you'll see errors reported but after two loads the configuration is complete. Confirm by looking for configured FEX ports Ethernet 100/1/1 and 100/1/2 (description and port mode is trunk).
 - a. Confirm flogi and fcns database entries, if no entries problem exists
 - i. If no entries, could be problem with connectivity to initiators or targets including the FC link between the Nexus 5000 or port FC 2/1 and the MDS 9124 FC 1/1
 - b. Copy run start

Demonstration Guide

- Webex session of lab demonstration after final training configuration which includes:
 - Fabric Manager and Device Manager
 - Unified Fabric using FCoE
 - vCenter and vMotion

The screenshot displays the LabGear Remote-Demo web application. At the top, the LabGear logo is on the left, and a welcome message "Welcome, Scott Milosek" is on the right. Below the header is a navigation menu with links: HOME, SCHEDULE LAB, EVENT SUMMARY, TRAINING GUIDE, DEMONSTRATION GUIDE (which is highlighted), EDIT PROFILE, and LOGOUT. The main content area is titled "WebEx Demonstration Links:". It contains a paragraph explaining that the session is for demonstration labs and that devices are pre-configured. Below this, there is a section for "Demo 1" which includes a "Nexus Lab Demonstration" description. The description states that the session shows how to use Nexus 521 labs to demonstrate FCoE using Emulex CNAs and vMotion using Cisco NXOS, Nexus 1000v Distributed Virtual Switch, and VMware vSphere 4.0. It also lists other components: Cisco Nexus 2000 Fabric Extender, Cisco Nexus 5000, Cisco MDS 9124, and NetApp 2020 SAN attached disks. At the bottom of the demo section, there is a link for "Demonstration 1" with a globe icon and a duration of "24 Minutes".

LabGear[®] Remote-Demo[™] Welcome, Scott Milosek

HOME SCHEDULE LAB EVENT SUMMARY TRAINING GUIDE **DEMONSTRATION GUIDE** EDIT PROFILE LOGOUT


WebEx Demonstration Links:

The session below is to be used with one of the **Demonstration** labs. When the lab session starts, the devices will be pre-configured so that the various technologies can be demonstrated with minimal user configuration. If you have reserved a **Training** lab, use the Training Guide from the menu above.

Demo 1

Nexus Lab Demonstration

This session shows how to use the Nexus 521 labs to demonstrate FCoE using Emulex CNAs and vMotion using the Cisco NXOS, Nexus 1000v Distributed Virtual Switch and VMware vSphere 4.0, Cisco Nexus 2000 Fabric Extender, Cisco Nexus 5000, the Cisco MDS 9124 and NetApp 2020 SAN attached disks.

[Demonstration 1](#) 

24 Minutes

Sign Up

- Select sign up for access on home page
- Use company email address (personal email will not be approved)
- Complete request form

NOTE - If you move to a new company you must request a new account using your new company email address



SIGN UP: Step 1 - Verify Email Address

Enter your email address below to verify eligibility for the Nexus LabGear® Remote-Demo™ Program.

Email Address:

SIGN UP: Step 2 - Pre-Qualification Request

The email address you entered is not Pre-Qualified for the Nexus LabGear® Remote-Demo™ Program.

Please submit the following information in order to request Pre-Qualification. You will receive an email response within 2 business days.

First Name:

Last Name:

Phone:

Email:

Company:

Organization:

Login

- Confirmation of request presented on screen with account information emailed to requestor
- Select Login from home page tool bar
- Login using account information sent in email

Subject: LabGear Remote-Demo Sign Up Confirmation

LabGear® Remote-Demo™ SIGN UP: Confirmation and Password

Your Nexus LabGear® Remote-Demo™ Account has been validated.

To schedule lab sessions, go to:

<http://nexus-demo.labgear.net>

Click the Login button and use the username and password found below:

Username:

Password:

SIGN UP: Pre-Qualification Request Received

Your request for Pre-Qualification to the Nexus LabGear® Remote-Demo™ Program has been received.

Normally requests are processed within 2 business days. You will receive notification of status at the email address you submitted:

partnername@partnerco.net

LabGear® Remote-Demo™

HOME SIGN UP RESET PASSWORD **LOGIN**

LOGIN:

Username:

Password:

Login

Welcome Screen

LabGear[®] Remote-Demo[™]

Welcome, Scott Milosek

HOME

SCHEDULE LAB

EVENT SUMMARY

TRAINING GUIDE

DEMONSTRATION GUIDE

EDIT PROFILE

LOGOUT

Event Request Summary

Step 1: Choose Lab

- ☒ Nexus-Demo
- ☒ Nexus-Training

Current Selection

Lab Type:
Lab:
Timezone:
Duration:
Start Time:

Step 2: Choose Time

Timezone: Choose the Timezone for the Demo
Duration: Choose a Duration
Start Time: Click on an available hour in the Calendar Window at right.

Step 3: Location Details

Memo:
Customer:
City:
Country: Select a Country

Submit

Calendar Window

CALENDAR WINDOW

To Start, Choose a Lab, Timezone and Duration

Edit Profile

- Complete your profile
- Change your default timezone

LabGear® Remote-Demo™

Welcome, Scott Milosek

HOME | SCHEDULE LAB | EVENT SUMMARY | TRAINING GUIDE | DEMONSTRATION GUIDE | EDIT PROFILE | LOGOUT

EDIT PROFILE:

Edit the information below and then click the 'Update' button.

First Name:

Last Name:

Phone:

Email:

Cisco CCO ID:

Company:

Organization:

Default Timezone:

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Follow Steps on Screen to Schedule Lab

Step 1: Choose Lab

- Nexus-Demo
 - NX-DEMO-01
 - NX-DEMO-02
- Nexus-Training
 - NX-521-01
 - NX-521-02
 - NX-521-03
 - NX-521-04

Step 2: Choose Time

Timezone: (GMT-0800) Pacific Time (US & Canada) Tijuana

Duration: 2 Hours

Start Time: 10:00 - Sunday, October 4, 2009

Step 3: Location Details

Memo:

Customer: Test

City: Cypress

Country: United States

Submit

Calendar Window

October-2009 Nov-09 Dec-09 Jan-10 Feb-10 Mar-10 Apr-10

Hour of day that Event starts

| Date | Day | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|------|-----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | Thu | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Fri | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Sat | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Sun | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Mon | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Tue | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Wed | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Thu | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Fri | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Sat | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Sun | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Mon | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Tue | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Wed | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Thu | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Fri | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Sat | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Sun | | | | | | | | | | | | | | | | | | | | | | | | |

Click on a 2 hour Session starting at: 10:00 - Sun, Oct 4

Available Not Available

Click on an available hour above to choose Session starting time.

1. Choose the lab
2. Choose time on Calendar
3. Include Location Details
4. Select Submit

Event confirmation

- Confirmation posted on screen and emailed to the address provided at account creation
- Email includes link to event, username, password and Cancel button if event will not be used

LabGear® Remote-Demo™ Welcome, Scott Milosek

HOME | SCHEDULE LAB | EVENT SUMMARY | TRAINING GUIDE | DEMONSTRATION GUIDE | EDIT PROFILE | LOGOUT

Labgear® Remote-Demo™ Confirmation 301243

Your Nexus Labgear® Remote-Demo™ event request has been successfully processed. The event details are as follows:

| Event Confirmation Details | |
|----------------------------|--|
| Memo: | |
| Customer: | Test |
| City: | Cypress |
| Country: | United States |
| Confirmation #: | 301243 |
| Lab Name: | NX-DEMO-01 (888) |
| Time Zone: | (GMT-0800) Pacific Time (US & Canada), Tijuana |
| Time: | 10:00 - 12:00, Sunday, October 4, 2009 |
| Duration: | 2 Hours |

Your LabGear® Event username and password will be sent to your email address momentarily. To access the lab at the above time, go to:

<http://www.labgear.net>

and log in.

If you find that you are not going to use this reservation, please cancel it before it starts by clicking the button below:

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Subject: LabGear Remote-Demo Event Confirmation 301243

Labgear® Remote-Demo™ Confirmation 301243

Your Nexus Labgear® Remote-Demo™ event request has been successfully processed. Your LabGear® Event username and password and event details are as follows:

| Event Confirmation Details | |
|----------------------------|--|
| Memo: | |
| Customer: | Test |
| City: | Cypress |
| Country: | United States |
| Confirmation #: | 301243 |
| Lab Name: | NX-DEMO-01 (888) |
| Time Zone: | (GMT-0800) Pacific Time (US & Canada); Tijuana |
| Time: | 10:00 - 12:00, Sunday, October 4, 2009 |
| Duration: | 2 Hours |
| LabGear® Username: | P01-301243 |
| LabGear® Password: | oodyz |

To access the lab at the above time, go to:

<http://www.labgear.net>

and log in.

If you find that you are not going to use this reservation, please cancel it before it starts by clicking the button below:




Partners can run reports of events

LabGear® Remote-Demo™

HOME SCHEDULE LAB **EVENT SUMMARY** TRAINING GUIDE DEMONSTRATION GUIDE EDIT PROFILE LOGOUT

- Select Event Summary to list your events Status and Details
- Use the CANCEL button if the event is no longer required

EVENT SCHEDULING SUMMARY:

| Status | Event Details | Lab | Memo | Date | Time | Duration | TimeZone |
|------------------------|--|------------------|------------------------|------------------|-------------|----------|-----------------------|
| CANCEL | 301245  | NX-DEMO-01 (888) | Test 2 | 4 Oct 2009 (Sun) | 13:00-15:00 | 2 hr | US-CA |
| CANCEL | 301244  | NX-DEMO-02 (889) | Test 1 | 4 Oct 2009 (Sun) | 10:00-12:00 | 2 hr | US-CA |
| CANCEL | 301243  | NX-DEMO-01 (888) | | 4 Oct 2009 (Sun) | 10:00-12:00 | 2 hr | US-CA |

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Event Started

- When the event has started click on the text in the memo field to view a summary of the event and use quick login to connect to the lab

The screenshot displays the LabGear Remote-Demo interface. At the top, a navigation bar includes links for HOME, SCHEDULE LAB, EVENT SUMMARY, TRAINING GUIDE, DEMONSTRATION GUIDE, EDIT PROFILE, and LOGOUT. Below this is the 'EVENT SCHEDULING SUMMARY' table, which lists events with columns for Status, Event Details, Lab, Memo, Date, Time, Duration, and TimeZone. The first row, for event 301246, is highlighted, and its 'Memo' field contains 'Test 3'. A red arrow points from this memo field to a detailed event view window titled 'Event has Started'. This window displays event details such as Customer (Scott), City (Cypress), Country (United States), Confirmation # (301246), Lab Name (NX-DEMO-02 (889)), Time Zone ((GMT-0800) Pacific Time (US & Canada); Tijuana), Time (16:00 - 18:00, Saturday, October 3, 2009), Duration (2 hr), LabGear@ Username (P02-301246), and LabGear@ Password (whmng). A 'Quick Login' button is also present. To the right of the event details is a 'Completed Sessions' table, which is currently empty. Below the event details is a 'Current Sessions' table, which also shows no current sessions.

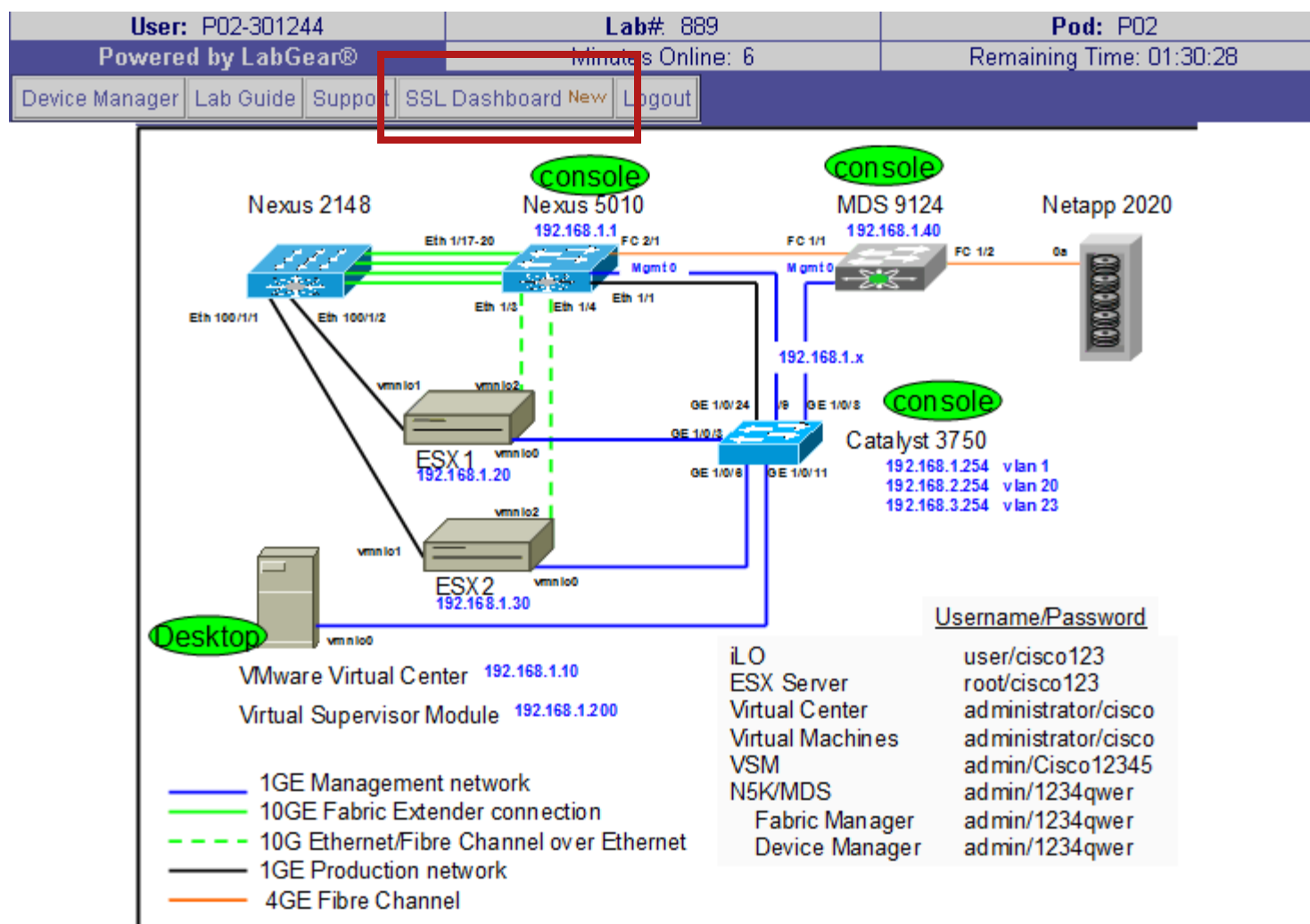
| Status | Event Details | Lab | Memo | Date | Time | Duration | TimeZone |
|------------------------|---------------|------------------|--------|------------------|-------------|----------|----------|
| Started | 301246 | NX-DEMO-02 (889) | Test 3 | 3 Oct 2009 (Sat) | 16:00-18:00 | 2 hr | US-CA |
| CANCEL | 301245 | NX-DEMO-01 (888) | Test 2 | 4 Oct 2009 (Sun) | 13:00-15:00 | 2 hr | US-CA |
| CANCEL | 301244 | NX-DEMO-02 (889) | Test 1 | 4 Oct 2009 (Sun) | 10:00-12:00 | 2 hr | US-CA |
| CANCEL | 301243 | NX-DEMO-01 (888) | | 4 Oct 2009 (Sun) | 10:00-12:00 | 2 hr | US-CA |

| Completed Sessions | | | |
|-----------------------|-------|--------|-----------|
| Duration (Min) | Login | Logout | IPAddress |
| No Completed Sessions | | | |

| Current Sessions | | | |
|---------------------|-------|--------|-----------|
| Duration (Min) | Login | Logout | IPAddress |
| No Current Sessions | | | |

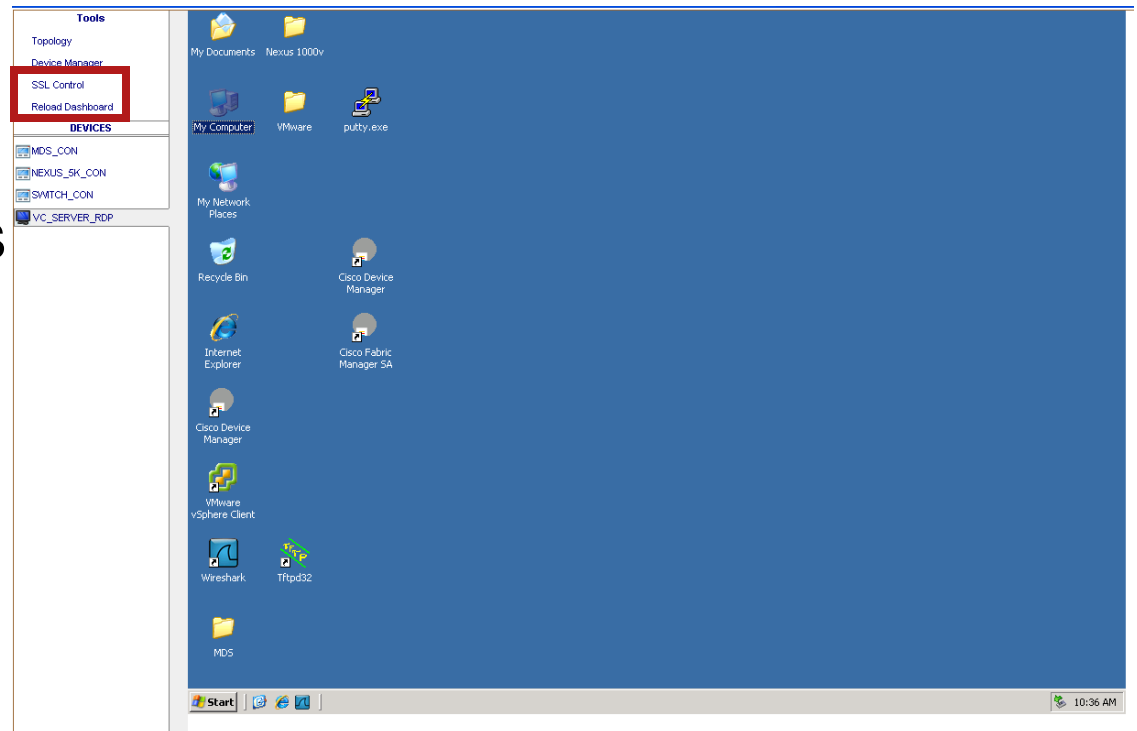
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New Option on Lab Interface



SSL Dashboard

- Alternative User interface
- Includes same access to tools as classic UI
 - Topology
 - Device Manager
- Added SSL capability and Reload option



Installing the SSL Client for Dashboard

- Install the SSL client to use SSL tunneling
- Useful at sites that close dynamic TCP/UDP ports

Tools

Topology

Device Manager

SSL Control

Reload Dashboard

DEVICES

MDS_CON

NEXUS_5K_CON

SWTCH_CON

VC_SERVER_RDP

LabGear® SSL Client Summary Information:

The SSL Client is used to establish an encrypted 'tunnel' connection through which all device traffic will go. The tunnel is established on port **443** using either **UDP** or **TCP** at the choice of the user. The user can control the connection state of the tunnel from the SSL Connection Control web page. Installing the client will add the *.labgear.net domain to the trusted sites list in Internet Explorer's security settings. All other IE settings should be at default. The first time the SSL Connection web page is used the user may be prompted to allow a 'LabGear Module' to run. The client will work on both 32 and 64 bit versions of Windows XP and Vista.

Download, Installation and Removal of the SSL Client:

Download the client by clicking on a link at the bottom of this section. After clicking the download link you can choose to run it directly or save the file on your hard drive for stand-alone installation. During installation you may be prompted to accept the installation of the TAP-Win32 Adapter. It is important that you allow it to be installed. It will not conflict with other TAP adapter installations. You must be logged in to your computer as an administrator for the installation to succeed.

The client can be removed at any time by executing its un-install file, or by using the 'Add/Remove' control panel in Windows.

The client version you have installed is shown at the bottom of the SSL Control page. The most current version is: **V2.1.0.2** if you are using an older version, first uninstall that version and then install the latest with the button below.

[Click Here for .EXE](#) [Click Here for .ZIP](#)

Windows XP Users:
Windows Vista Users with User Access Control (UAC) disabled:
Windows Vista Users with Internet Explorer Protected Mode turned off:

Once the SSL Client is installed, Click on the 'Continue' link below:

[CONTINUE](#)

!! Attention Windows Vista Users with User Access Control (UAC) enabled and Internet Explorer Protected Mode ON: !!

Once you have installed the SSL Client, you must close all open browsers and **Log Off** of windows and then log in again. You can now log in to LabGear® with a new browser session and the SSL Client will work properly. UAC is enabled by default on Windows Vista. An alternate option is to turn 'Protected Mode' OFF in the Internet Explorer Security Settings.

To Un-install the SSL Client:

Close all open browser sessions, then

1) Select the Un-install link from Start->Programs->LabGearClient

OR

2) Uninstall using the windows control panel.

SSL Installed

Tools

Topology

Device Manager

SSL Control

Reload Dashboard

DEVICES

MDS_CON

NEXUS_5K_CON

SWITCH_CON

VC_SERVER_RDP

SSL Connection Control

| Protocol | Action | Connection Status |
|--|---------------------------|---------------------------------------|
| <input checked="" type="radio"/> UDP (443) | <div>Connect SSL</div> | <div>✗</div> <div>Not Connected</div> |
| <input type="radio"/> TCP (443) | <div>Disconnect SSL</div> | |
| <input type="checkbox"/> Use Proxy Server | | |

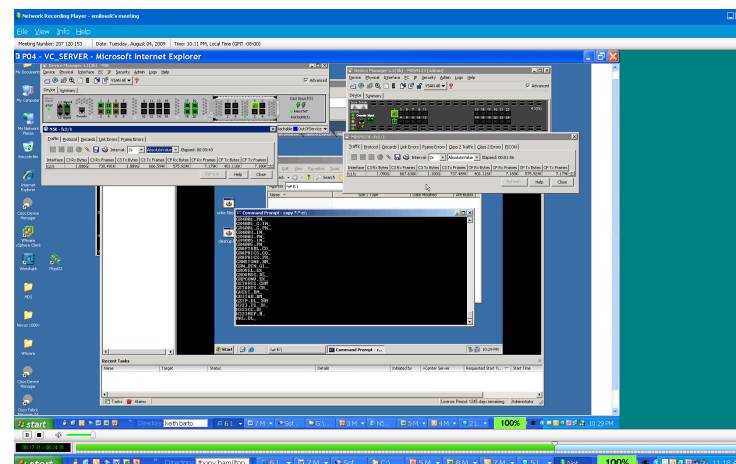
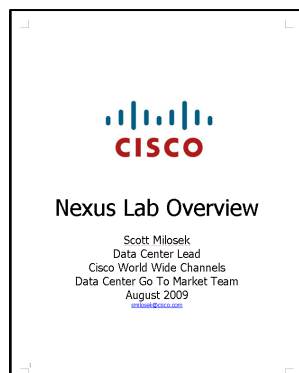
SSL Not Connected.

SSL Client Install Information

Version 2.1.0.2

Nexus Lab Outline

- Posted on the scheduling site
- 7 page summary of the lab configuration steps necessary to build a working solution
- Includes a Webex session for each section showing how to do the configuration
- Includes a Webex session describing how to demonstrate FCoE and VMotion using the fully configured pod
- Alternative to written lab exercises



- Documents on scheduling interface

Nexus Lab Overview

The diagram illustrates a network architecture for a VMware environment. Key components and their connections are as follows:

- VMware Virtual Center** (192.168.1.10) and **Virtual Supervisor Module** (192.168.1.200) are connected to two ESX hosts.
- ESX1** (192.168.1.20) and **ESX2** (192.168.1.30) are connected to a **Catalyst 3750** switch via vmnic1 and vmnic0.
- The **Catalyst 3750** switch is connected to a **Nexus 5010** switch via its GE 1/0/24 and GE 1/0/8 ports.
- The **Nexus 5010** switch is connected to a **Nexus 2148** switch via its Eth 1/3 and Eth 1/4 ports.
- The **Nexus 2148** switch is connected to an **MDS 9124** switch via its Eth 100/1/1 and Eth 100/1/2 ports.
- The **MDS 9124** switch is connected to a **Netapp** storage device via its FC 1/2 and FC 1/1 ports.
- Management IP addresses are provided for the Nexus 5010 (192.168.1.1), Catalyst 3750 (192.168.1.x), and MDS 9124 (192.168.1.40) switches.

Additional Lab Documents

- Initial setup through final configuration

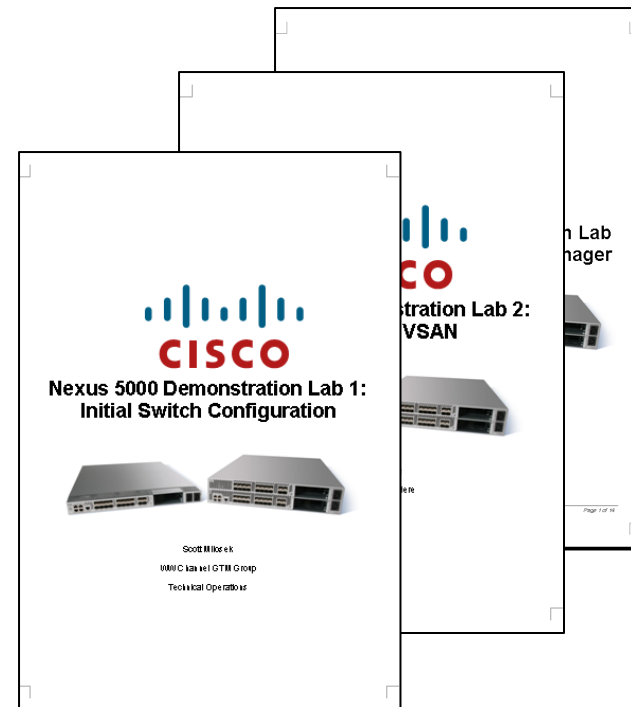
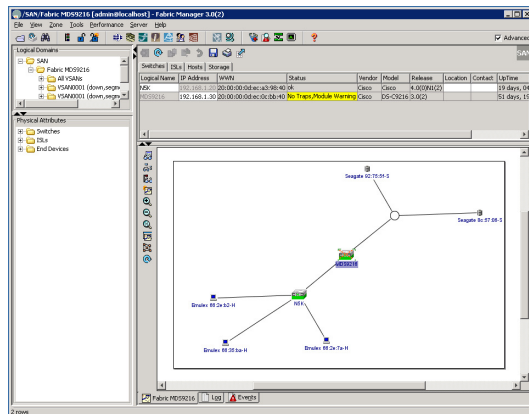
Nexus 5000

Nexus 2000

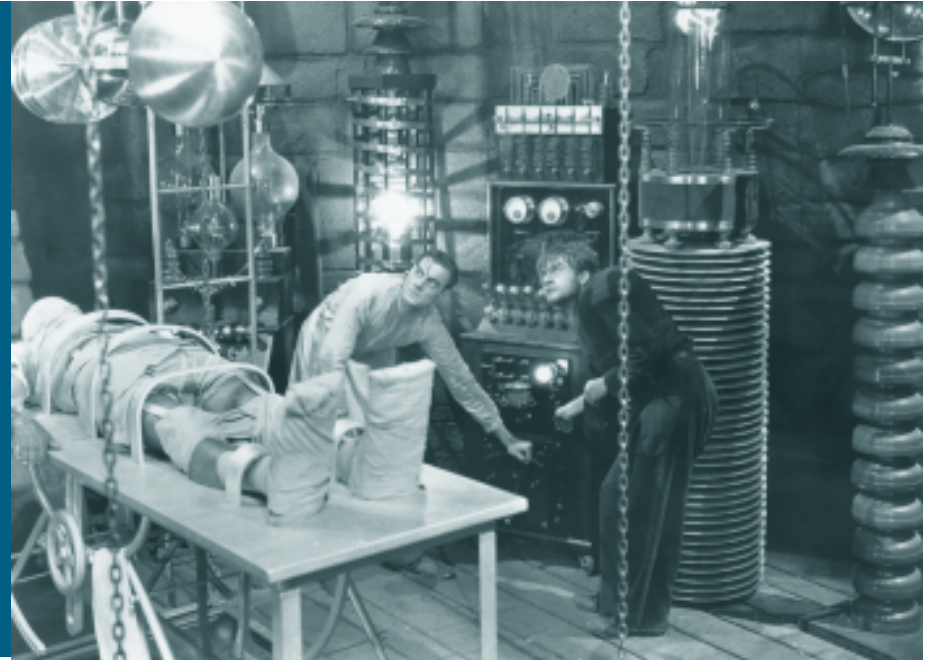
Nexus 1000

MDS 9124

- CLI and GUI configuration



Lab Interface



Intuitive Lab Interface

- Device Control
 - Power Cycle
 - Clear Line
- Configuration Manager
- Lab Guide
- Support

Device Control - - ...

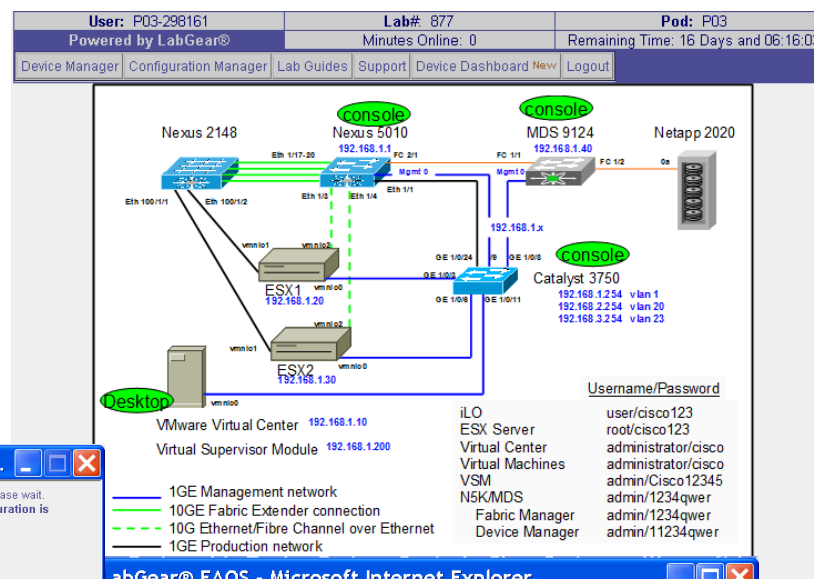
| Name | Status | Control |
|----------------|-----------|------------|
| VMWARE | Power Off | |
| ESX1 | Power Off | |
| ESX2 | Power Off | |
| SWTCH | Power Off | Clear Line |
| MDS | Power Off | Clear Line |
| Refresh Status | | |

Device Configuration - ...

Clearing previous configurations. Please wait.
Do not close window until configuration is complete!
Elapsed Time: 00:09

Clearing Devices

Completed In Progress Pending Error



LabGear® FAQs - Microsoft Internet Explorer

Remote Lab Support

List of the issues and errors that Labgear® remote lab users encounter are addressed in this document.
Please read completely before contacting Labgear® support.
This document is divided into three sections:
Initial Login, Remote Lab Graphical User Interface and Common Issues and FAQs.

Initial Login

When you log into Labgear® the first time you will be prompted to run the digitally signed Labgear® Telnet Client. The use of a digitally signed java application allows the Labgear® Telnet Client to seamlessly integrate with the clipboard of your PC. The digital signature issued by www.thawte.com guarantees the java application is published by Technoknowledge Networks Inc. and has not been tampered with. There are 3 ways in which you can respond.

- Option 1) Leave **Always trust content from this Publisher** checked and click **Run**. This will enable all features including the ability to copy and paste directly to/from your PC's clipboard and terminal sessions. A digital certificate (that can be removed at any time) will be installed in your Java control panel that will ensure that future logins to Labgear® are not interrupted with an application warning.
- Option 2) Uncheck **Always trust content from this Publisher** and then click **Run**. This will temporarily enable all features of the telnet client for the current session only. Subsequent sessions will require the re-acceptance of the signed java application.
- Option 3) Click **Cancel**. This will allow the telnet client to be used with a limited feature set. The most significant difference is that the copy and paste functions will be limited to the specific terminal window from which they are invoked. Copying between terminal windows and/or your PC's clipboard will not function.

Below is a screenshot of the Labgear® Telnet Client installation prompt:

Warning - Security

The application's digital signature has been verified.
Do you want to run the application?

Name: LabGear.Applet
Publisher: Technoknowledge Networks Inc

Summary

- Remotely accessible Nexus Solution labs are available to learn how to configure and demonstrate a unified Fabric with;
 - Cisco Nexus 5000
 - Cisco Nexus 2000
 - Cisco Nexus 1000v
 - Emulex Converged Network Adapters
 - VMware VSphere 4.0
- Access granted to Data Center focused Cisco and Partner SEs
- Scripted labs and Webex sessions teach configuration and demonstration of 10G Ethernet and Virtualization

