



CCIE Data Center v3.0 Real Labs v2

Deploy Module

Lab Workbook Policy

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2. The workbook does not have print access; kindly do not request to enable to print access. However you will have perpetual access to the workbook which you have purchased.
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10. License is provided for only one Device. And we don't give license again if the device crashes or company security policies. Please install license on the device cautiously as the license will not be provided again.

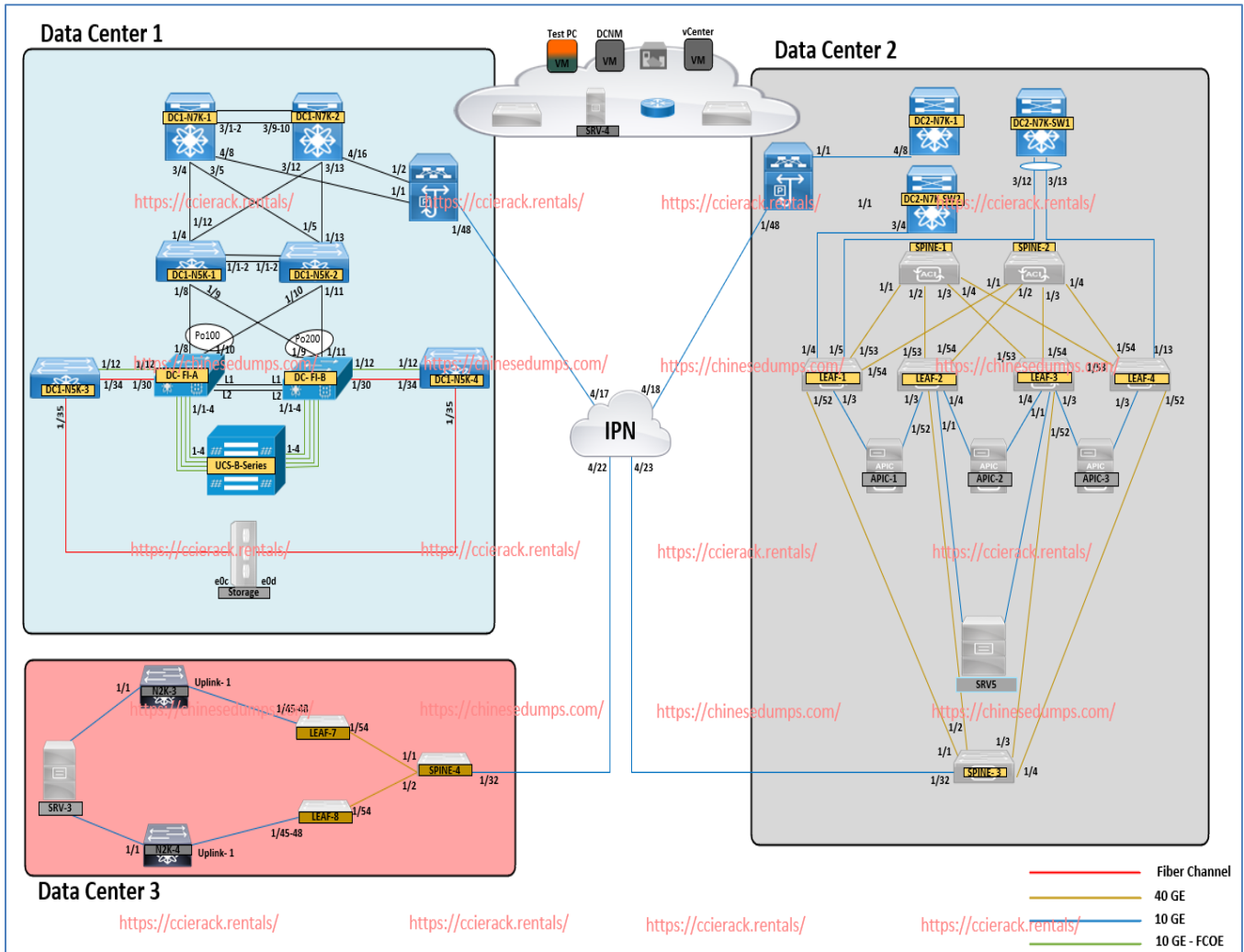
11. We do support devices running Windows OS, Mac OS, Android and Mac iOS only
12. We do not provide Refund in any circumstances once the product is sold.
13. This policy is in effect from 23 November 2016 and in immediate effect for new clients and new renewals. Old clients will continue with the old Policies until the accounts get expired.
14. If there is any update, one will receive the update automatically on their registered email id.
15. Design Module will be given only 3 days before the CCIE exam
16. For any future update you can check our 'updates' page.
17. Labs are always published in phases. For e.g. if there is a new lab we publish it as First, Second, Third ... till Final release.
18. Client who have purchased our workbooks and services and wishes to attempt the lab, need to consult our experts before their CCIE Lab.

CCIE Deploy Guidelines

Before starting, please read the below guidelines:

1. At the request of CCITea's executive team, you are replicating CCITea's new Collaboration solution to make sure services, features and resiliency all work as designed.
2. Implementation knowledge and troubleshooting techniques are expected.
3. Read the entire exam and confirm working order of all devices first. During the exam, if any device is locked or inaccessible for any reason, you must recover it. When finishing the exam, ensure that all devices are accessible for the grading proctor. Any device that is not accessible for grading cannot be marked and will cost you substantial point.
4. Points are awarded for working configurations only. Please verify all your work.
5. Do not change configurations on interfaces marked "DO NOT CHANGE", doing so will lead to connectivity loss which you must recover on your own.
6. All servers and PCs are running on VMware, which has been thoroughly tested to support all lab exam question.
7. All UC appliances login username is "administrator" and password is "cciecollab". Some applications are preconfigured-refer to exam questions for details All PC login username is "administrator" and password is "cciecollab".
8. All applications web administrator pages (CUCM, CUC, UCCX, IM&P) must be accessed from remote desktop (RDP) sessions from HQ PC, Site B PC, and Site C PC.
9. Any GUI access to IOS devices and modules must be initiated from the Site PCs, such as HQ PC1, HQ PC2, Site B PC, and Site C PC.
10. Thoroughly read the "PSTN Numbers and dialing Instructions" to understand how to initiate calls from PSTN into the correspondent site DID numbers.
11. Please note that some devices in the topology diagrams and numbering tables may not be part of the exam requirements, which vary between exams.

Main Topology



Documents:

Exam Scenario

Exam Scenario

During this lab exam you are building three new data centers. You will perform common configuration and troubleshooting tasks in all the data centers. These tasks are related to the technologies that are outlined in CCIE DC blueprint.

- Data Center-1 (DC1) has conventional networking equipment based on Cisco Nexus 7000, and Nexus 5000 Series Switches. The compute platform used in DC1 is Cisco UCS B-Series and C-Series servers, with a virtualized and non-virtualized application workload. For storage services in DC1, a centralized storage device is used. The storage area network services are provided using Cisco Nexus 5000 switches.
- Data Center-2 (DC2) has a network fabric that is based on Cisco ACI technology. This includes Cisco Nexus 9000 Spine Switches, and Cisco Nexus 9000 Leaf Switches, and three Cisco APIC'S. Cisco Nexus 7000 Series Switches are also used in DC2 to provide routing to the WAN. The compute platform used in DC2 is cisco UCS C-Series.
- Data Center-3 (DC3) has network fabric based on ACI technology. This includes Cisco Nexus 9000 Spine Switches, Cisco Nexus 9000 Leaf Switches, and one cisco APIC The compute platform used in DC2 is Cisco UCS C-Series.

All data centers are equipped with an out-of-band (OOB) management network. The management ports of all the equipment in both data centers is connected to this network. The console port of all devices is connected to a Cisco 2811 router acting as a CommServer. You have full access to the equipment via both the management ports as well as via console ports.

All data centers are managed from a centralized location within the WAN. This centralized management network is hosting management functions such as Cisco UCS Director and vCenter. This network use and out-of-band (OOB) management network for administering components within the data center.

This CCIE Data Center lab exam is divided into three sections that will test proficiency of a CCIE Data center:

1. Nexus Switch Infrastructure (DC1 and DC2)
2. Compute and Storage (DC1)
- 3, ACI (DC2 and DC3)

The topology shows the physical connectivity of the device within DC. DC2 and DC3 a logical diagram and a detailed physical topology is provided with each question, where suitable.

Documents

Device Access

Device	IP	Username	Password
Cluster-IP	10.1.1.40	admin	Cisco!123
Fabric-A	10.1.1.41	admin	Cisco!123
Fabric-B	10.1.1.42	admin	Cisco!123
DC1-N5K-1	10.1.1.61	admin	Cisco!123
DC1-N5K-2	10.1.1.62	admin	Cisco!123
DC1-N5K-3	10.1.1.63	admin	Cisco!123
DC1-N5K-4	10.1.1.64	admin	Cisco!123
APIC 1 CIMC	10.1.1.54	cisco	Cisco!123
APIC 2 CIMC	10.1.1.55	cisco	Cisco!123
APIC 3 CIMC	10.1.1.56	cisco	Cisco!123
APIC 1 OOB	10.1.1.51	admin	Cisco!123
APIC 2 OOB	10.1.1.52	admin	Cisco!123
APIC 3 OOB	10.1.1.53	admin	Cisco!123
N7K1-ADM	10.1.1.70	admin	Cisco!123
N7K2-ADM	10.1.1.80	admin	Cisco!123
IPN	10.1.1.82	admin	Cisco!123
N9K-BGW1	10.1.1.91	admin	Cisco!123
N9K-BGW2	10.1.1.92	admin	Cisco!123

VM Access Details	Physical Server	Username	Password
legacy1	SRV-5	root	Cisco!123
legacy2	SRV-3	root	Cisco!123
aci-web	SRV-5	root	Cisco!123
aci-app	SRV-5	root	Cisco!123
aci-db	SRV-5	root	Cisco!123
aci-db2	SRV-3	root	Cisco!123
dcnm	SRV-4	admin	Cisco!123
TEST-PC	SRV-4	admin	Cisco!123
vCenter	SRV-4	candidate@cisco.com	Cisco!123

Note:

- The GUI for the APIC and vCenter can be accessed from the Test-PC.
- The VDC's for N7K device can be accessed from the mputty in Test-PC.



Documents

Vlans

VLAN ID	NAME
10	VMotion
101	Web
102	App
103	DB
104	ESXI-MGMT
105	ACI-DCI
50	UCS FCoE VLAN for VSAN 50
57	Legacy EPG

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Documents

Storage Objects

Storage objects	Value
Boot LUN ID	0
Fabric A zone name	DC_vsan_50
Fabric B zone name	DC_vsan_60
Zoneset names	DC_vsan_50, DC_vsan_60

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PLEASE FOLLOW BELOW SEQUENCE FOR SECTION 1 TO ACHIEVE PROPER VERIFICATION OUTPUTS & RESULTS

- 1) SECTION 1.2 - VPC and Tagging/Trunking
- 2) SECTION 1.7 - NTP and Traffic Management
- 3) SECTION 1.6 - OSPF
- 4) SECTION 1.4 - PIM
- 5) SECTION 1.4 & 1.5 (COMBINED) – VXLAN & EVPN
- 6) SECTION 1.8 - DCNM
- 7) SECTION 1.9 - Python with BGW2
- 8) SECTION 1.10 - Syslog Server



Your Growth Our Goal

1.1 Introduction

Welcome to the Xandar company!

Read the Guidelines, documents and resources before you proceed to the next item.

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1.2 VPC and Tagging/Trunking

Modify the existing configuration so that Cisco UCS Fabric Interconnects can see N5K1 and N5K2 as a single device. Make sure to delay VPC leg bring-up on the recovering vPC peer device for 150 seconds. Each vPC peer device must replicate locally the MAC address of the interface VLAN defined on the other vPC peer device.

Configure ports connected to Cisco UCS in such a way that:

- It can carry traffic for multiple VLANs 101-104.
- It automatically transitions the port to the spanning tree forwarding state without passing through the blocking or learning states.

2 points

Solution:

N5K1 & N5K2

```
vpc domain 10  
delay restore 150
```

```
interface port-channel10  
vpc peer-link
```

```
interface port-channel100  
switchport trunk allowed vlan 101-104  
spanning-tree port type edge trunk
```

```
interface port-channel200  
switchport trunk allowed vlan 101-104  
spanning-tree port type edge trunk
```

Check preconfigure done:

```
vpc domain 10  
peer-switch  
peer-keepalive destination 10.1.1.62 source 10.1.1.61 vrf management  
peer-gateway
```

```
interface port-channel100  
switchport mode trunk  
speed 10000  
vpc 100
```

```
interface port-channel200  
switchport mode trunk  
speed 10000  
vpc 200
```

Verification:



Your Growth Our Goal

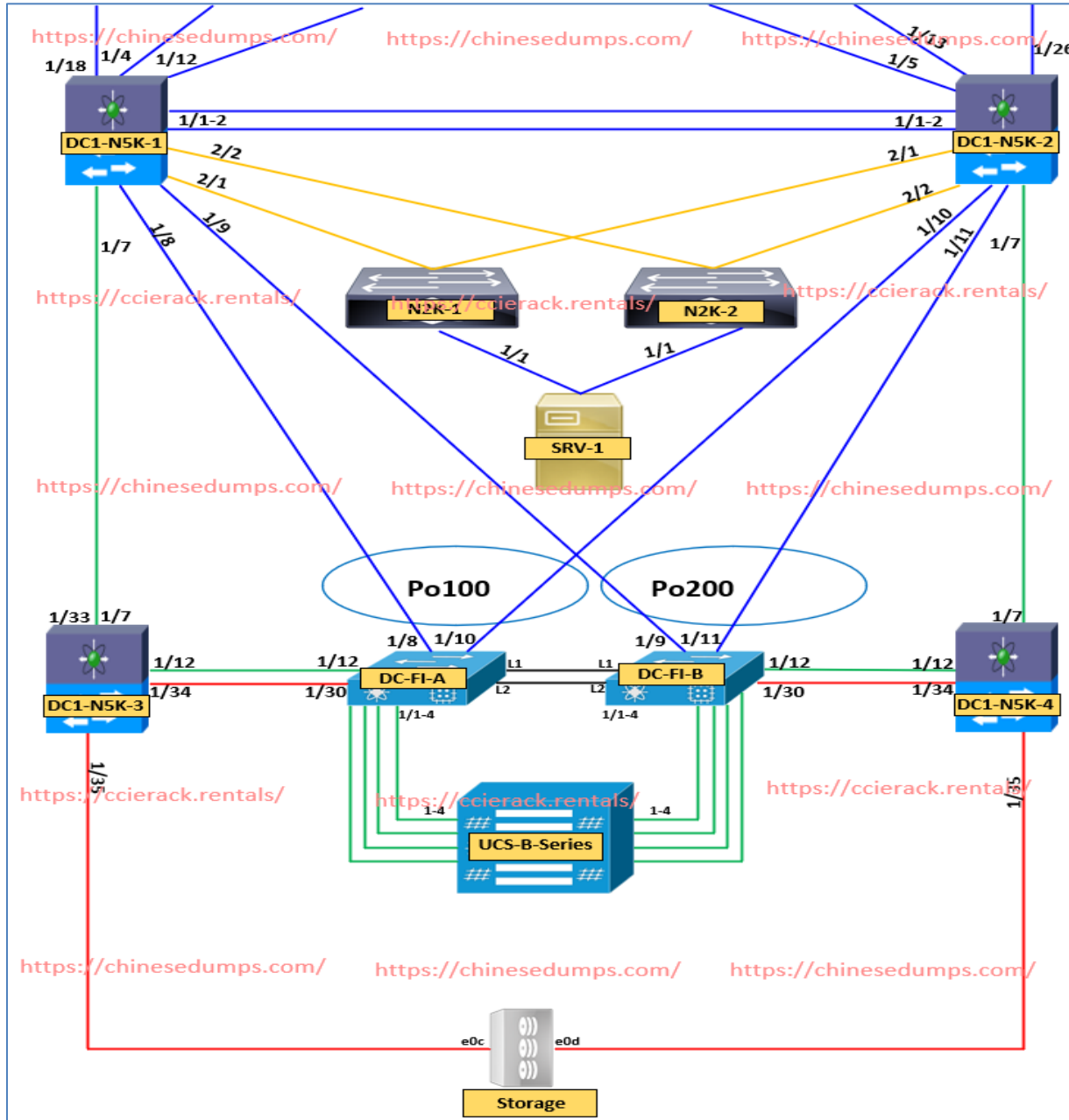
```
DC1-N5K2(config)# show vpc brief
Legend:
      (*) - local vPC is down, forwarding via vPC peer-link

vPC domain id           : 10
Peer status              : peer link not configured
vPC keep-alive status   : peer is alive
Configuration consistency status : failed
Per-vlan consistency status : failed
Configuration inconsistency reason: vPC peer-link does not exist
Type-2 consistency status : failed
Type-2 inconsistency reason : vPC peer-link does not exist
vPC role                 : none established
Number of vPCs configured : 0
Peer Gateway             : Disabled
Dual-active excluded VLANs : -
Graceful Consistency Check : Disabled (due to peer configuration)
Auto-recovery status     : Disabled
Delay-restore status     : Timer is off.(timeout = 30s)
Delay-restore SVI status : Timer is off.(timeout = 10s)
Operational Layer3 Peer-router : Disabled
Virtual-peerlink mode    : Disabled
```

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2.1 Compute Connectivity





Your Growth Our Goal

Refer to the exhibit and perform these actions:

Discover all attached compute devices.

Configure connections between chassis & fabric interconnects to increase high availability.

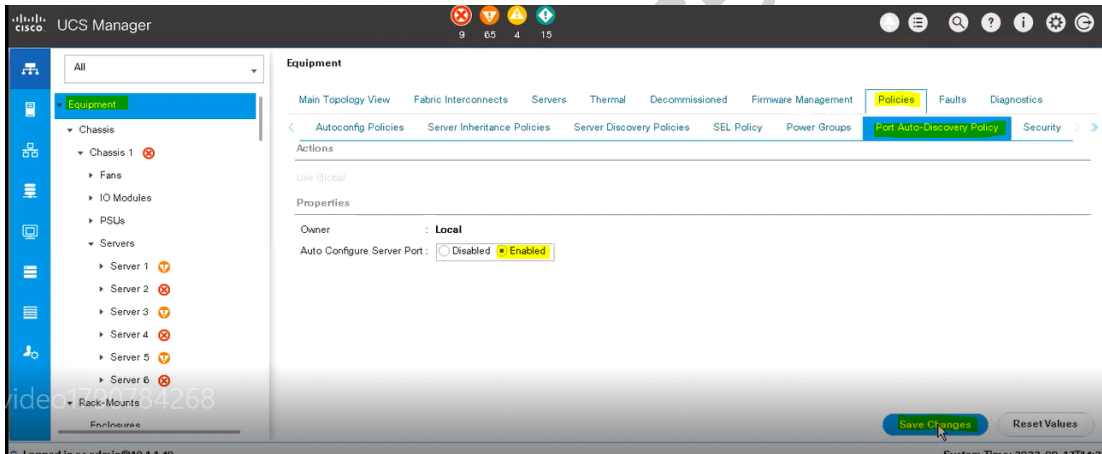
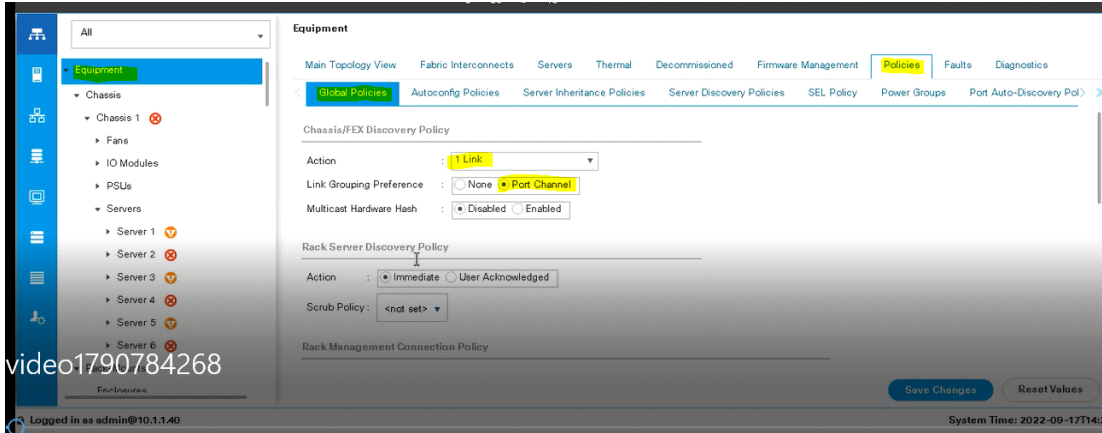
2 points

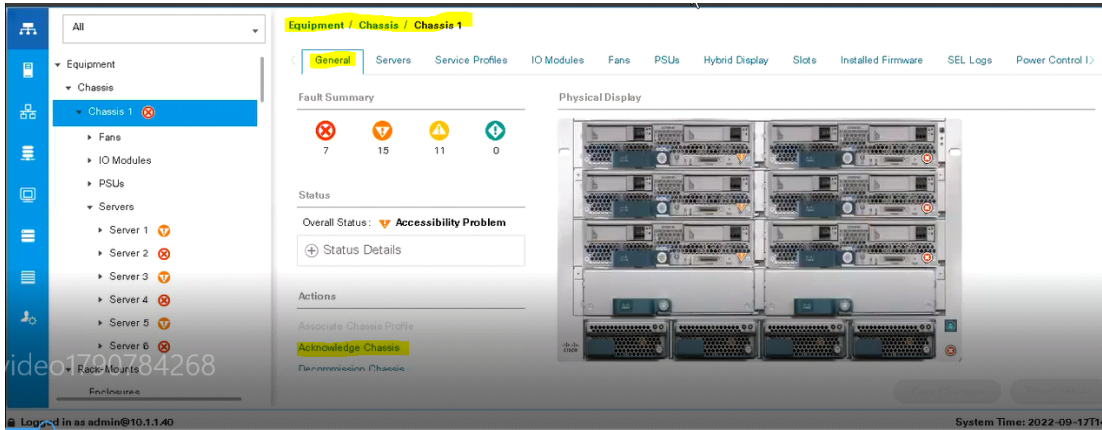
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Solution:

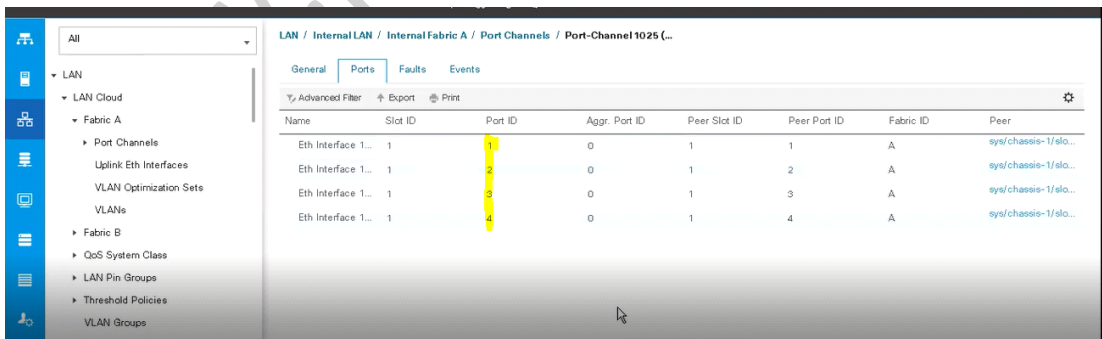
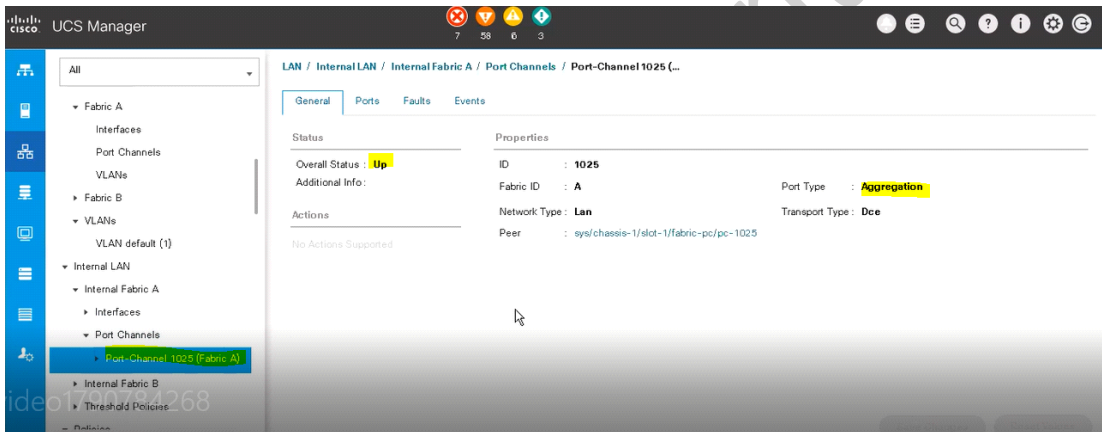
Discovering nodes





Validate Port-channel

FI-A





FI-B

LAN / Internal LAN / Internal Fabric B / Port Channels / Port-Channel 1153 (...)

General Ports Faults Events

Status: Overall Status: **Up**

Additional Info: Fabric ID: **B** Port Type: **Aggregation**

Actions: No Actions Supported

Properties: Network Type: **Lan** Transport Type: **Dce**

Peer: sys/chassis-1/slot-2/fabric-pc-1153

LAN / Internal LAN / Internal Fabric B / Port Channels / Port-Channel 1153 (...)

General **Ports** Faults Events

Name	Slot ID	Port ID	Aggr. Port ID	Peer Slot ID	Peer Port ID	Fabric ID	Peer
Eth Interface 1...	1	2	0	2	1	B	sys/chassis-1/slo...
Eth Interface 1...	1	3	0	2	2	B	sys/chassis-1/slo...
Eth Interface 1...	1	4	0	2	3	B	sys/chassis-1/slo...
Eth Interface 1...	1	5	0	2	4	B	sys/chassis-1/slo...

3.10 The End.

You have reached the end of this section.

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