UCS DESIGN / DEPLOYMENT – LEMUCS001

October 11, 2013

FORSYTHE

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1.1 Project Information

General			
Client Name: **Wells**		Delivery Consultant:	Nathan Bishop
		Contact Email:	nbishop@forsythe.com
		Contact Phone:	402-938-1894
Client Contact:	Scott Linden	Street Address:	1 Blue Bunny Dr
Phone#:	712-548-2130	Building#:	
Due Date:		City: Le Mars	State: IA Zip: 51031

1.2 UCS General Configuration

Admin Tab		
Administrative Account Setup	Account:	admin
	Password:	
Properties	Cluster Name:	LEMUCS001
	Domain Name:	bluebunny.com
	Cluster IP:	172.23.106.200
	Subnet Mask:	255.255.255.0
	Default Gateway:	172.23.106.1
	DNS Server1:	172.23.10.69
	DNS Server2:	172.23.10.113
	NTP Server1:	ntp.bluebunny.com
Fabric Interconnect A:	DNS Hostname:	LEMUCS001-A
	IP Address:	172.23.106.201
Fabric Interconnect B:	DNS Hostname:	LEMUCS001-B
	IP Address:	172.23.106.202

1.3 UCS Network Configuration

LAN Tab		
Port Channels:	Name:	Port-Channel 10
	Fabric:	A
	ID:	10
	Flow Control Policy:	default
	Admin Speed:	10 Gbps
	Interfaces:	1/1, 1/2
	Status:	Enabled / Up
	Name:	PortChannel 11
	Fabric:	B
	ID:	11
	Flow Control Policy:	default
	Admin Speed:	10 Gbps
	Interfaces:	1/1, 1/2
	Status:	Enabled / Up

VLANs

Name	ID	PC Pin	Type	Transport	Native	VLAN Sharing
106-Management	106	N/A	LAN	Ether	No	None
11-Test	11	N/A	LAN	Ether	No	None
12-Test-Behind-LoadBalancer	12	N/A	LAN	Ether	No	None
15-VMotion	15	N/A	LAN	Ether	No	None
20-non-Routed-WBBPRD	20	N/A	LAN	Ether	No	None
21-Non-Routed-Production	21	N/A	LAN	Ether	No	None
22-Non-Routed-WBBTST	22	N/A	LAN	Ether	No	None
23-Non-Routed-Test	23	N/A	LAN	Ether	No	None
5-Production	5	N/A	LAN	Ether	No	None
6-Production-Behind-LoadBalancer	6	N/A	LAN	Ether	No	None

vNIC Templates

Name	vNIC-vm01	vNIC-vm02	vNIC-vmk01
Fabric ID	Fabric A - No Failover	Fabric B - No Failover	Fabric A - No Failover
Target	Adapter	Adapter	Adapter
Template Type	Updating	Updating	Updating
MTU	1500	1500	1500
Mac Pool	LEMUCS001	LEMUCS001	LEMUCS001
QoS Policy	<not set>	<not set>	<not set>
Network Control Policy	CDP	CDP	CDP
Pin Group	<not set>	<not set>	<not set>
Stats Threshold Policy	Default	Default	Default

Name	vNIC-vmk02		
Fabric ID	Fabric B - No Failover		
Target	Adapter		
Template Type	Updating		
MTU	1500		
Mac Pool	LEMUCS001		
QoS Policy	<not set>		
Network Control Policy	CDP		
Pin Group	172.23.106.203		
Stats Threshold Policy	Default		

Pools

MAC Pools:

Name:	LEMUCS001
Description:	MAC Pool
First MAC Address:	00:25:B5:01:00:00
Last MAC Address:	00:25:B5:01:01:FF
Size:	512

IP Pools:

Name:	ext-mgmt
Description:	KVM
From:	10.210.34.50
Size:	4
Subnet Mask:	255.255.255.0
Gateway:	10.210.34.1
Primary DNS:	172.23.10.69
Secondary DNS:	172.23.10.113

1.4 SAN Configuration

SAN Tab

Port Channels:	Port Channels are not configured in this implementation.
VSANs	VSANs are not configured in this implementation.

vHBA Templates

Name	vHBA01	vHBA02	
Fabric ID	Fabric A	Fabric B	
Target	Adapter	Adapter	
Template Type	Updating	Updating	
Max Data Field Size	2048	2048	
WWPN Pool	LEMUCS001A	LEMUCS001B	
QoS Policy	<not set>	<not set>	
VSAN	default	default	
Pin Group	None	None	
Stats Threshold Policy	Default	Default	

Pools

WWNN Pools:

Name:	LEMUCS001
Description:	WWNN Pool
First WWNN Address:	20:01:00:25:B5:00:00:00
Last WWNN Address:	20:01:00:25:B5:00:00:7F
Size:	128

WWPN Pools:

Name:	LEMUCS001A
Description:	WWNN Pool
First WWPN Address:	20:01:00:25:B5:0A:00:00
Last WWPN Address:	20:01:00:25:B5:0A:00:FF
Size:	256

Name:	LEMUCS001B
Description:	WWNN Pool
First WWPN Address:	20:01:00:25:B5:0B:00:00
Last WWPN Address:	20:01:00:25:B5:0B:00:FF
Size:	256

1.5 UCS Server Configuration

Servers Tab

UUID Suffix Pools:

Name:	LEMUCS001
Description:	UUID Pool - UCS Domain
Assignment Order:	Sequential
From:	0001-000000000001
Size:	100

Boot Policies:

Name:	Local
Description:	
Reboot on Change:	no
Enforce Name:	yes
Boot Order:	CD-ROM
	Local Disk

BIOS Policy:

Name:	ESX5.1
Reboot on change:	Yes

Processor
HyperThreading: Enabled
VT: Enabled
Processor C State: Disabled
Intel Directed IO
VT for Directed IO: Enabled
USB
Legacy USB Support: disabled

All Other Settings: Platform Default

Host Firmware Package:
Name: 2.1_3a
Firmware Version: 2.1(3a)

Service Profile Templates:
Name: ESX
UUID: Derived from Pool
Server Pool: None
Management IP Pool: None
Maintenance Policy: usr-ack

Name	VSAN	WWPN	WWNN Pool	Fabric	MDF	Policy	Plc
vHBA01	default	Derived	LEMUCS001	A	2048	VMWare	1
vHBA02	default	Derived	LEMUCS001	B	2048	VMWare	2
Name	**VLAN**	**MAC**	**MAC Pool**	**Fabric**	**MTU**	**Policy**	**Plc**
vm01	5, 6, 11, 12, 15, 20, 21, 22, 23, 106	Derived	LEMUCS001	A	1500	VMWare	3
vm02	5, 6, 11, 12, 15, 20, 21, 22, 23, 106	Derived	LEMUCS001	B	1500	VMWare	4
vmk01	5, 6, 11, 12, 15, 20, 21, 22, 23, 106	Derived	LEMUCS001	A	1500	VMWare	5
vmk02	5, 6, 11, 12, 15, 20, 21, 22, 23, 106	Derived	LEMUCS001	B	1500	VMWare	6

Chassis 1			
Type: B200 M3	POC - Oracle	Bay: 1	IP Address: IP Address:
Type: B200 M3	POC - Oracle	Bay: 2	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 3	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 4	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 5	IP Address: IP Address:
Type: OPEN		Bay: 6	IP Address: IP Address:
Type: OPEN		Bay: 7	IP Address: IP Address:
Type: OPEN		Bay: 8	IP Address: IP Address:
Chassis 2			

Forsythe

Type: B200 M3	Sandbox	Bay: 1	IP Address: IP Address:
Type: B200 M3	Sandbox	Bay: 2	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 3	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 4	IP Address: IP Address:
Type: B200 M3	ESX	Bay: 5	IP Address: IP Address:
Type: OPEN		Bay: 6	IP Address: IP Address:
Type: OPEN		Bay: 7	IP Address: IP Address:
Type: OPEN		Bay: 8	IP Address: IP Address:

1.6 Call Home

Call home configuration is used for alerting and monitoring of the UCS hardware and software.

Call home information is pending maintenance agreement processing complete.

1.7 Test Plan

The test plan listed below is a suggestion only. It would be beneficial to test all components and test all aspects of network and SAN connectivity before going live with UCS and the Hosts and Guests.

Test	Description	Individual / Date
Deploy working Service Profile	Validates Service Profile has been configured correctly	
UCS Connectivity Test	Access to UCSM from VPN / Jump Server	
Hypervisor Connectivity Test	Access to ESXi host via VI Client. vMotion of VM between hosts.	
VM Connectivity Test	Access to VMs in all VLANs	

1.8 UCS Build Steps (high level)

a. Set-up Fabric Interconnects
b. Update Firmware / Capability Catalog
c. Add IP Pool for KVM Access
d. Configure NTP
e. Configure Unified Ports
f. Edit Chassis Discovery Policy
g. Enable Server and Uplink Ports
h. Acknowledge Cisco UCS and FEX
i. Create Uplink Port Channels to Cisco Nexus 5548 Switches
j. Create Organization (Optional)
k. Create MAC Address Pools
l. Create WWNN / WWPN Pools
m. Create UUID Suffix Pool
n. Create Server Pool (Optional)
o. Create VLANs
p. Create VSANs and SAN Port Channels (PCs Optional)
q. Create a Firmware Management Package
r. Create Host Firmware Package
s. Set Jumbo Frames / QOS in Cisco UCS Fabric
t. Create a Local Disk Configuration Policy (Optional)
u. Create a Network Control Policy for Cisco Discovery Protocol (CDP) (Optional)
v. Create a Power Control Policy (Optional)
w. Create a Server Pool Qualification Policy (Optional)
x. Create a Server BIOS Policy
y. Create vNIC / vVHBA Placement Policy for Virtual Machine Infrastructure Hosts
z. Create vNIC Templates
aa. Create vHBA Templates for Fabric A and B
bb. Create Boot Policies
cc. Create Service Profile Templates
dd. Create Service Profiles

1.9 Reference Documentation

Cisco UCS Manager GUI Configuration Guide
http://www.cisco.com/en/US/docs/unified_computing/ucs/sw/cli/config/guide/2.1/b_UCSM_CLI_Configuration_Guide_2_1.html

vSphere Installation and Setup Guide
http://pubs.vmware.com/vsphere-51/topic/com.vmware.ICbase/PDF/vsphere-esxi-vcenter-server-51-installation-setup-guide.pdf

Wells - LEMUCS001

UCS Interconnect Components

- 2 x UCS 6248 XP 48-port Fabric Interconnects
- 4 x 550W power supply unit

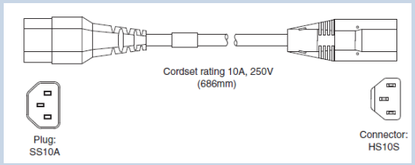
Cabling:

Power:

- 4 x CAB-C13-C14-JMPR

Data:

- 4 x 3m Copper TwinAx Cables (SFP-H10GB-CU3M)



Management Connections

- 1 per Fabric Interconnect 1000MBPS RJ45

UCS Cluster Cabling

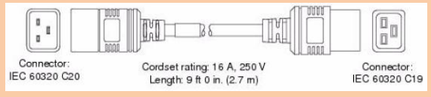
- 2 connections total (L1-L1, L2-L2) 1000MBPS RJ45

UCS Chassis Components

- 2 x UCS 5108 Blade Server Chassis
- 4 x UCS 2208XP Fabric Extenders

Power:

- 8 x Cabinet Jumper Power Cord, C20-C19
- 8 x 2500W power supply unit for UCS 5108
- 2 x Single phase AC power module for UCS 5108



UCS Server Components

6 x UCS B200 M3 Blade Servers

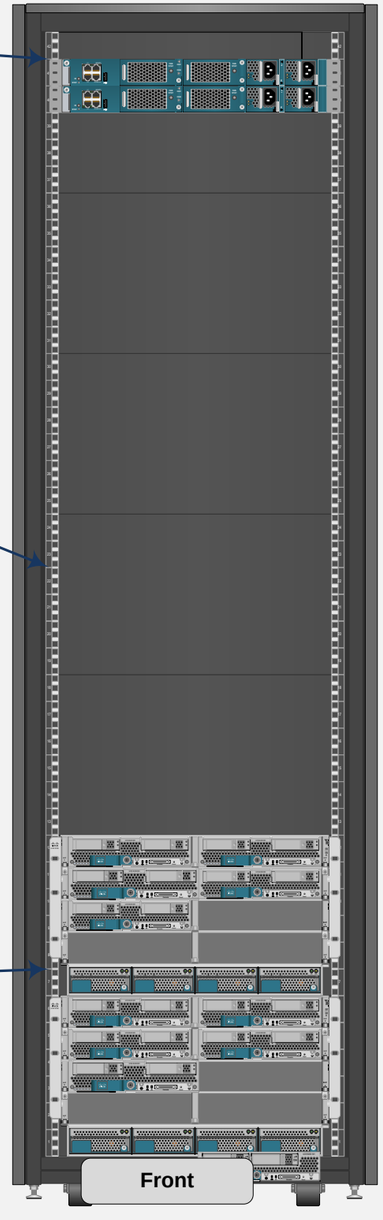
- 2 x Intel E5 X2680 2.70 GHz Processors
- 384GB RAM - DDR3-1600MHz PC3-12800
- UCS 1240/1280 Virtual Interface Cards

2 x UCS B200 M3 Blade Servers

- 2 x Intel E5 X2620 2.00 GHz Processors
- 644 GB RAM - DDR3-1600MHz PC3-12800
- UCS 1240/1280 Virtual Interface Cards

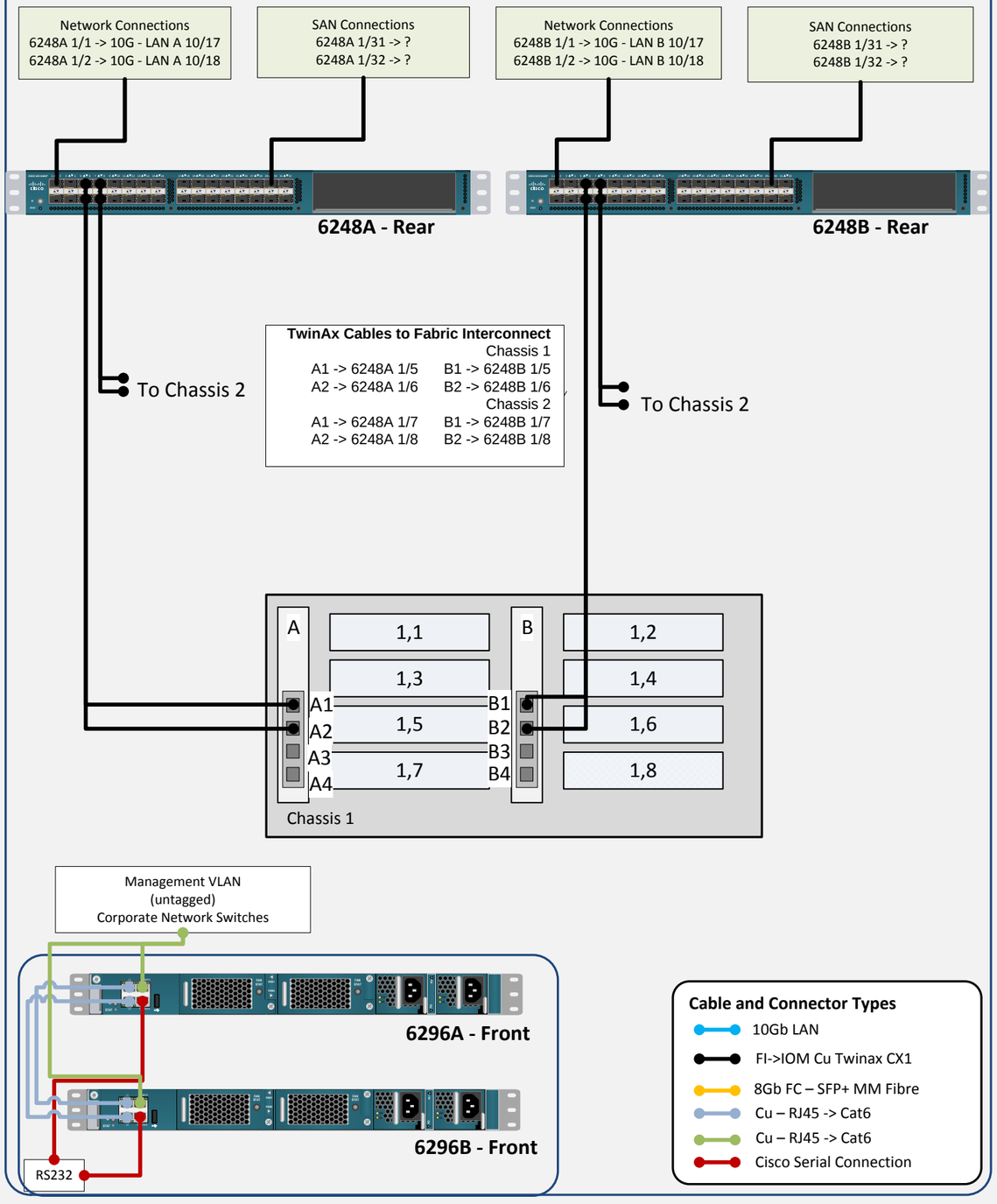
2 x UCS B200 M3 Blade Servers

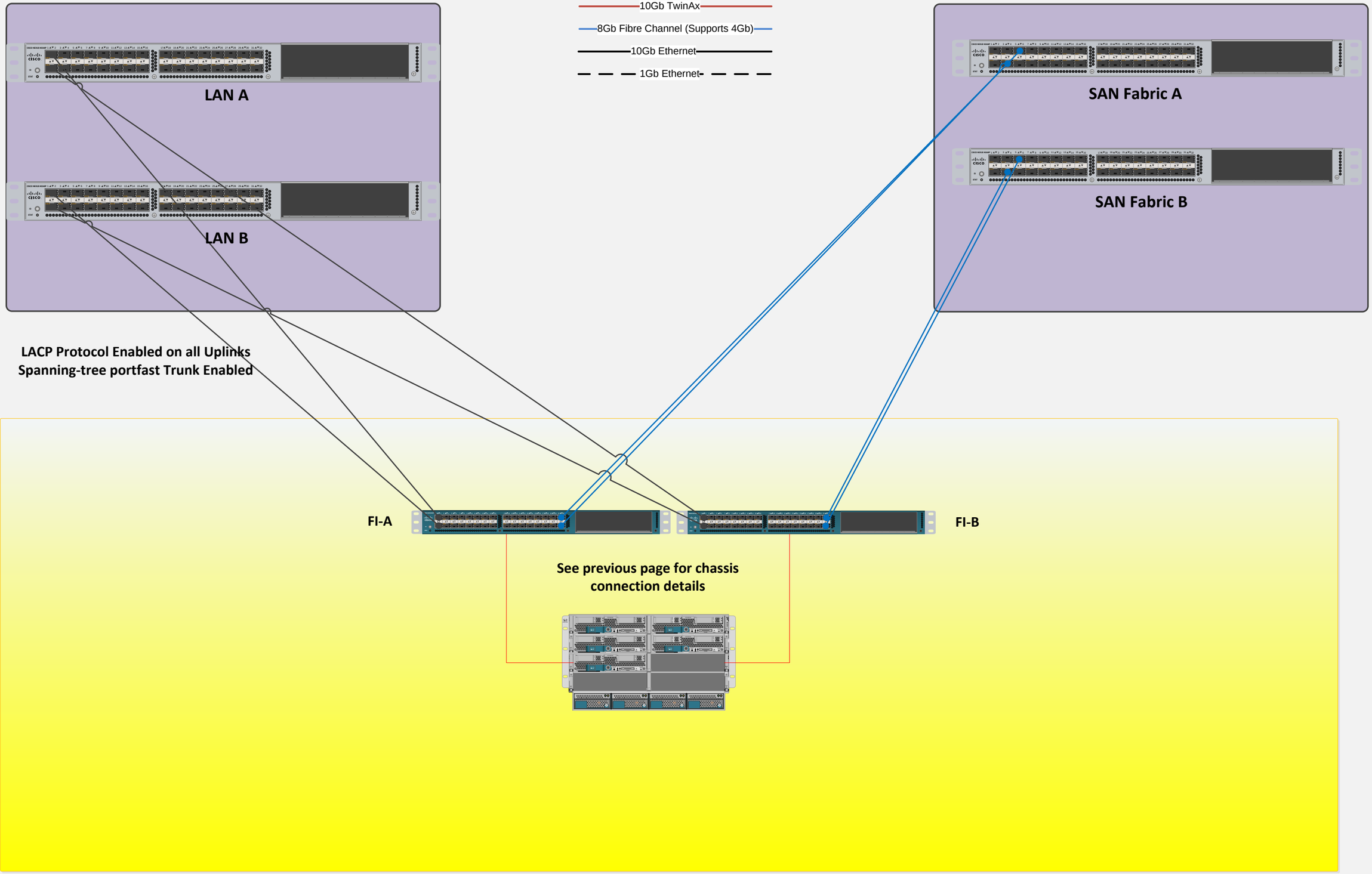
- POC



Chassis and Cabling Configuration

LACP Protocol Enabled on all Uplinks
Spanning-tree portfast Trunk Enabled




10Gb TwinAx
8Gb Fibre Channel (Supports 4Gb)
10Gb Ethernet
1Gb Ethernet
LAN A
LAN B
SAN Fabric A
SAN Fabric B
LACP Protocol Enabled on all Uplinks
Spanning-tree portfast Trunk Enabled
FI-A
FI-B
See previous page for chassis connection details