

Ceph Cluster – High Level Specification Sheet

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		S822LC - Ceph OSD		5
		S822LC - Ceph OSD		4
		S822LC - Ceph OSD		3
		S822LC - Ceph OSD		2
		Cable ingress/egress		1

Ubuntu 16.04 (all nodes)

Software:

Ceph

OpsMgr+ OpenStack compute cloud control plane

- OpenStack: Horizon, Keystone, Nova, Cinder, Glance, RabbitMQ, Galera, etc
- Nagios Core
- ELK Stack (Elasticsearch, Logstash, Kibana)

Network : (HA – with Bonding)

2 x Mellanox SX1410 (8831-S48)

1 x Lenovo G8052 (7120-48E)

Rack:

QTY: 1

SlimRack 7965-94Y (Standard 19" rack)

PDUs x 4: Each node should have 2 power cords cabled to two different PDUs

Ceph Mon & Operational Management

QTY: 3

Server Config: (Stratton S821LC MTM 8001-12C)
(1U)

16 Cores (2.3Ghz), 128 GB,

1 x 1.9TB SSD (1.2 DWPD)

1 x 2-Port 10G NIC (Intel 10G/Mellanox)

Ceph OSD :

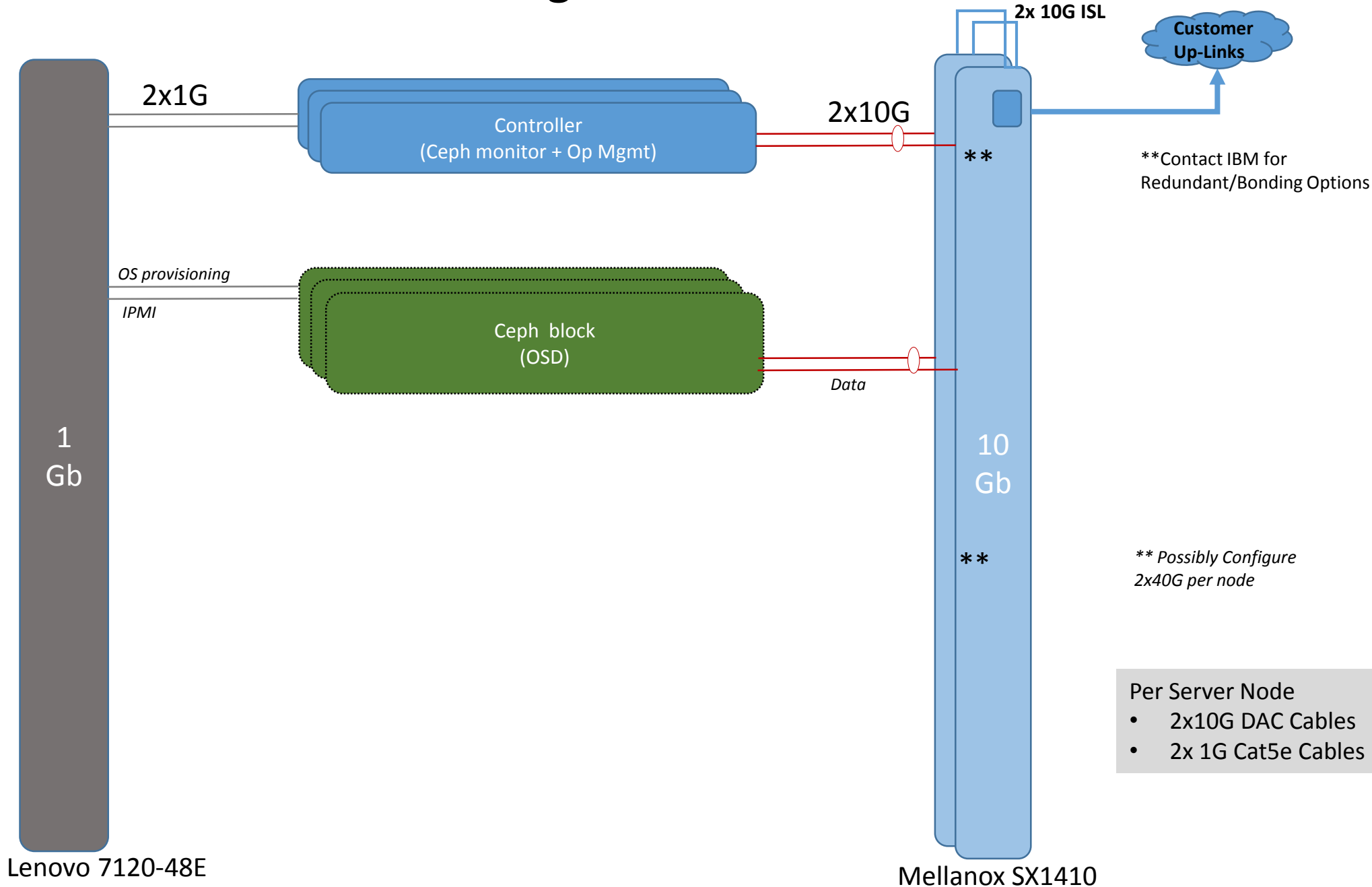
QTY: 9

Per Server Config: (Briggs S822LC MTM 8001-22C)
(2U)

16 Cores (3.32 Ghz), 128 GB

- (OS) 1x 240GB SSD (1.2 DWPD)+ (Journal) 2x 240GB SSD (1.2 DWPD) + (Storage) 9 x 8TB SAS HDDs (~72TB)
- 1 x 2-Port 10G NIC (Intel/Mellanox)
- Integrated SATA Controller
- SAS RAID controller based on LSI 3008L

High Level Network Architecture Diagram



Suggested Racking Rule

Reserved for accessibility

Reserved **U37-U41** for **Rack-Rack** Switches
if ordered

Reserved U24-U26 for In-rack Network Switches

Start at U2 and go UP

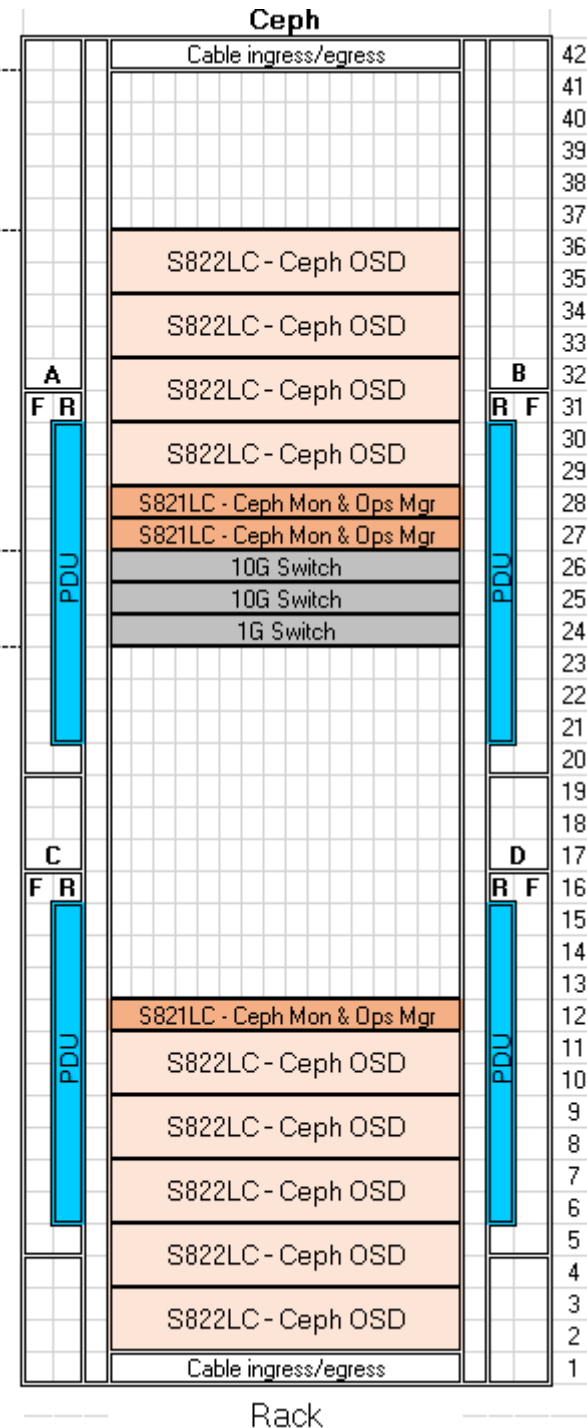
Common Rule:

- Place Heavier MTMs first starting at U2
- Observe native MTM unique racking requirements

Ceph Racking Rules:

- Recommend (0-18) 2U Servers per Rack
- Ceph monitors should use different sets of PDUs for redundancy
- OSD nodes should use different sets of PDUs for redundancy

Reserved for accessibility



Ceph monitor and OpsMgr Control plane Server BOM

MT	Model	Description	Config count	Min	Max	Comments
S812C Server Config; Ceph monitor and OpsMgr Control Plane						
8001	12C	S821LC (8001)	3	3	**	
	Solution ID	Solution Specify Code (for grouping only)	1	1	1	n/a
	Pod Type	Login Server Specify Code	1	1	1	n/a
	Processor	8-core POWER8 2.328 GHz	2	1	2	
	Memory	EKM2 (PS) 16GB DDR4 MEMORY DIMM	8	4	16	
	Bezel	EKB4 2S base system with LFF high-function drive midplane (NVMe drives supported.)	1	1	1	
	Storage Adapter	Integrated Sata controller	1	1	1	Build-in HDDs : Integrate SATA controller + Optional SAS /RAID Controller
			0	0	1	Optional - Exteral SAS adapter for Expansion SAS drawer
	Disks	EKS5 1.9 TB, SFF SATA SSD; 1.2 DWPD Kit	1	1	2	OS Boot Disk
			0	0	4	If SAS drive is selected, please choose Bezel Assembly to match drive size (.5" or 2.5" SATA or SAS)
	NVme PCI		0	4	2	
	GPU		0	0	1	
S812C Server (Base config) -- Required Inter-connect						
Required for Mfg Genesis	Network Adapter	EKA2 PCIe3 2-port 10 GbE SFP+ Adapter, based on Intel XL710	1	1	3	(Required) For High Speed Network
			0	0	3	Section IO device (optional)
	Power	EKLJ (PS #6665) PWR CBL DRWR TO IBM PDU, 2.8m (9.2ft), 250V/10A, IEC320/C13, IEC320/C20	2	2	2	Select Proper Line cord if not connected to IBM PDU
	Cables	CAT5E SWITCH CABLE, BLUE (2M)	1	1	*	(Required) For OS 1G Network (Recommended 2M length min)
		CAT5E SWITCH CABLE, GREEN (2M)	1	1	*	(Required) For IPMI 1G Network (Recommended 2M length min)
		EKC1 3M- Active Twinax cable	2	2	*	(Required) For High Speed Network (Recommended 2M length min)
	Misc	No rack integration	1	1	1	
		Country specific FCs (keyboards, language groups) are selectable	1	1	1	User select
		Shipping and Handling	1	1	1	User select

Ceph OSD Server BOM

MT	Model	Description	Config count	Min	Max	Comments
S822C Server Config : Ceph OSD						
8001	22C	ServerConfig- S822C	9	3	**	This section Defined the Common config of the Server node (in group servers) -- Next Section : Defined any unique config that you may need (Optional)
	Processor	EKP4 8-core POWER8 3.32 GHz	2	1	2	
	Memory	EKM2 (PS) 16GB DDR4 MEMORY DIMM	8	4	16	
	Bezel	EKB9 25 base system with LFF high function drive midplane (NVMe drives supported)	1	1	1	Need to Choose drive assembly to match your Disks (LFF/SFF) and Controller type (SAS)
	Storage Adapter	Integrated Sata controller	1	1	1	Build-in HDDs : Integrate SATA controller + Optional SAS /RAID Controller
		EKEB PCIe3 SAS RAID Controller w/cable for 2U server, based on LSI 3008L	1	1	1	Internal SAS adapter for Expansion SAS drawer
	Disks	EKS1 240 GB, SFF SATA SSD; 1.2 Disk Writes Per Day (DWPD) kit	1	0	2	OS Boot Disk
		EKS1 240 GB, SFF SATA SSD; 1.2 Disk Writes Per Day (DWPD) kit	2	0	4	If SAS drive is selected, please choose Bezel Assembly to match drive size (.5" or
		EKDD 8TB 3.5" SATA HDD	9	0	4	If SAS drive is selected, please choose Bezel Assembly to match drive size (.5" or
	NVme PCI		0	4	2	
	GPU		0	0	1	
S822C Server (Base config) -- Required Inter-connect						
Required for Mfg Genesis	Network Adapter	EKA2 (PS) INTEL 82599ES 2-PORT SFP+ 10G GEN2 x8 STANDARD	1	1	3	(Required) For High Speed Network
			0	0	3	Section IO device (optional)
	Power	EKLJ (PS #6665) PWR CBL DRWR TO IBM PDU, 2.8m (9.2ft), 250V/10A, IEC320/C13, IEC320/C20	2	2	2	Select Proper Line cord if not connected to IBM PDU
	Cables	CAT5E SWITCH CABLE, BLUE (2M)	1	1	*	(Required) For OS 1G Network (Recommended 2M length min)
		CAT5E SWITCH CABLE, GREEN (2M)	1	1	*	(Required) For IPMI 1G Network (Recommended 2M length min)
		EKC1 3M- Active Twinax cable	2	2	*	(Required) For High Speed Network (Recommended 2M length min)
	Misc	Country specific FCs (keyboards, language groups) are selectable	1	1	1	User select
		Shipping and Handling	1	1	1	User select

Network Switch BOMs

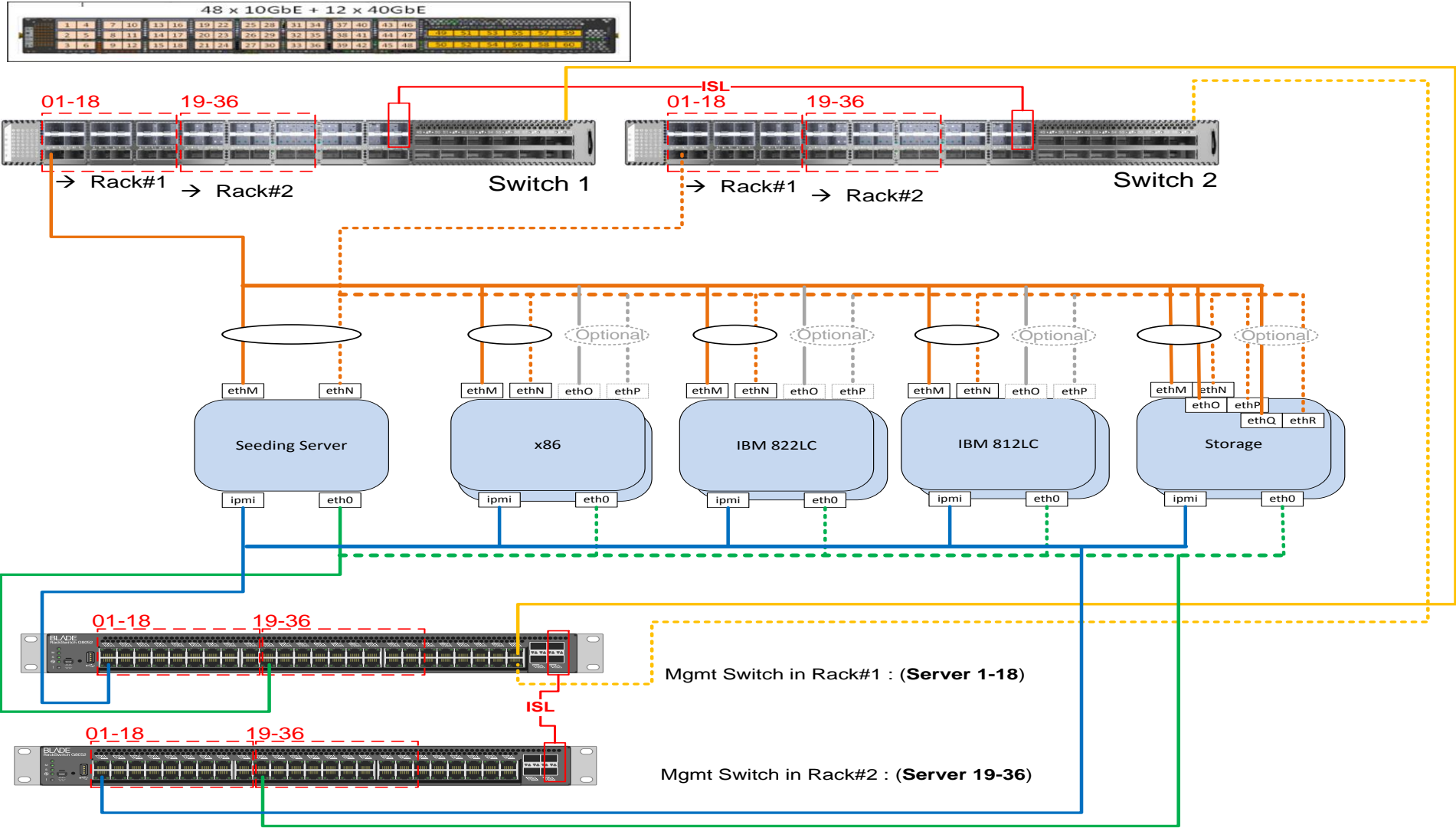
	MT	Model	FC	Description	
1G Mgmt (Based)	7120	48E		Lenovo G8052 1GbE Switch (48x 10GbE ports + 4x 10GbE ports)	1
			1118	CAT5E SWITCH CABLE, 3M, YELLOW	1
			6577	PWR CBL, DRWR TO IBM PDU, MFG SEL LENGTH, 200-240V/10A, IEC320C13, IEC320C14	2
				Include all existing FCs; except FCs 0010, 0011, 0712, 0714, EGSx, EHKx, EHLA, 4649 (Rack Integration Services), and 0456 (Customer Specified Placement); do not include these FCs.	

10G Data Network	8831	S48		Mellanox 1410 ..10GB Switch (48x10G + 12x40G)	2
			EDT6	1U AIR DUCT FOR S48	1
			EN01	1m DAC cable SFP+ to SFP+	1
				Include all existing FCs; except FC 4649, FC 0456 (Customer Specified Placement) and ESC1 (Shipping & Handling), do not include these FCs	1

NOTE: 1m DAC SFP+ to SFP+ cables provide interpeer link connections

Network Plug Rule - Sample

Mellanox SX1410 10G Switch



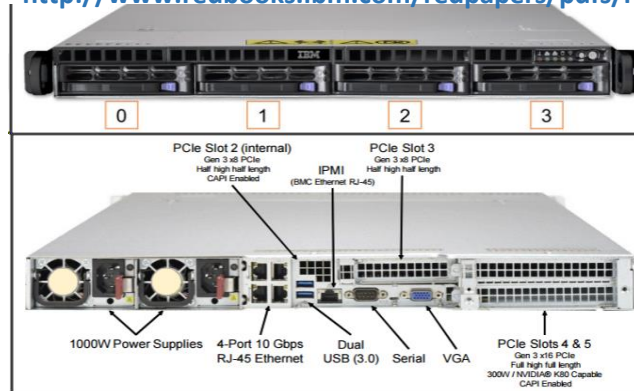
Lenovo G8052 1G Switch or Equivalent

Notes:
Switch 2 is Optional.
Rack #2 is for future expansion

Network Plug P2P Label -- Sample

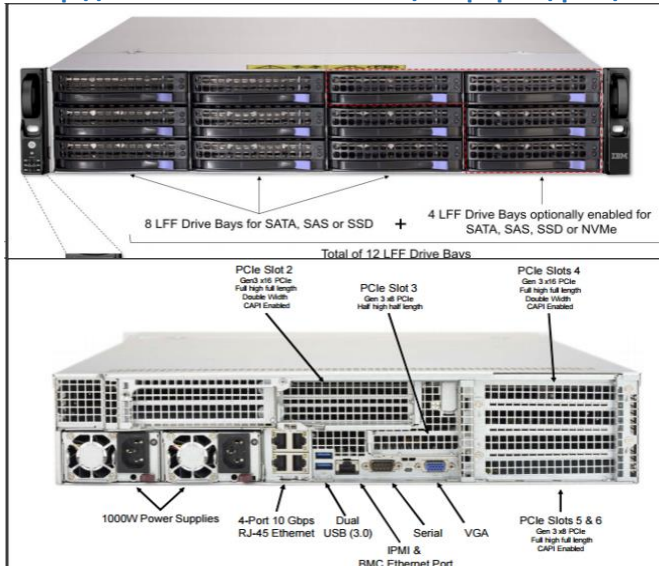
MTM: 8001-12C

<http://www.redbooks.ibm.com/redpapers/pdfs/redp5406.pdf>



MTM: 8001-22C

<http://www.redbooks.ibm.com/redpapers/pdfs/redp5407.pdf>



Cable P2P Label for H_TOR#1-2

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