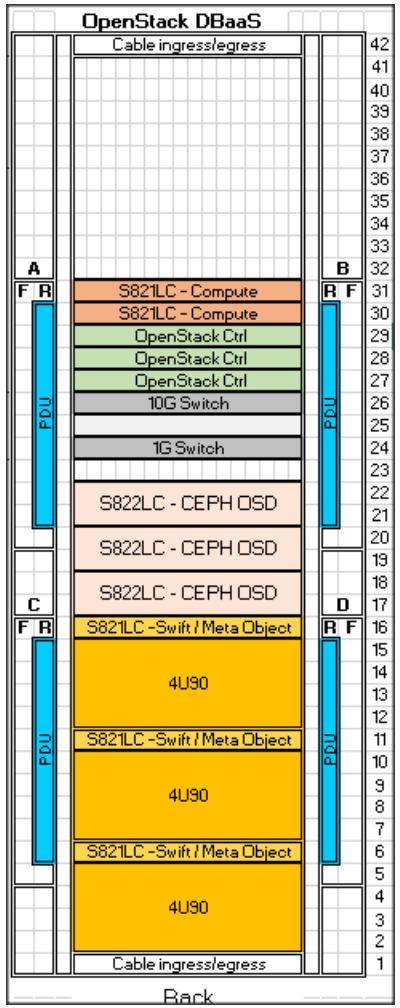
DBaaS– Starter Config– High Level Specification Sheet



OpenStack Software Stack:
Ubuntu 14.04 (all nodes)
..Openstack
..
..OpsPanel + Horizon DashBoard
-Nagios
- ELK Stack (Elasticsearch, Logstash, Kibana)

OpenStack Controller & Proxy: x86
QTY: 3

Server Config: (Lenovo 3550-M5 (1U)
20 Cores (2.0Ghz), 256GB,
2 x 4TB SATA HDDs
1 x 2-Port 10G NIC (Intel 10G/Mellanox)

OpenStack Compute:
QTY: 2

Server Config: (Stratton 8001-12C) (1U)
16 Cores (2.3Ghz), 128GB ,
2 x 4TB SATA HDDs
1 x 2-Port 10G NIC (Intel 10G/Mellanox)

CEPH Config :
QTY: 3

Per Server Config: (Briggs 8001-22C) (2U)
16 Cores (2.3Ghz), 256GB
- (OS) 2+ 128GB DOM + (Journal) 2x SSD 240GB (Journal) (**1.2** DWPD) + (Storage) 10 x 8TB SAS HDDs (~80TB)
- 1 x 2-Port 10G NIC (Intel/Mellanox)
- 1 x MegaRAID SAS controller

**Notes:
a) Openstack & Swift Proxy Node can be combined (if running fewer than 24 SWIFT Objects)
b) Compute qty + Memory config change is required based on actual performance requirement
c) Dedicated Swift Meta Data Server maybe required

**Contact IBM for Redundant/Bonding Options

Network : (non HA) – no Bonding **
1 x Mellanox SX1410 (8831-S48)
1 x Lenovo G8052 (7120-48E)

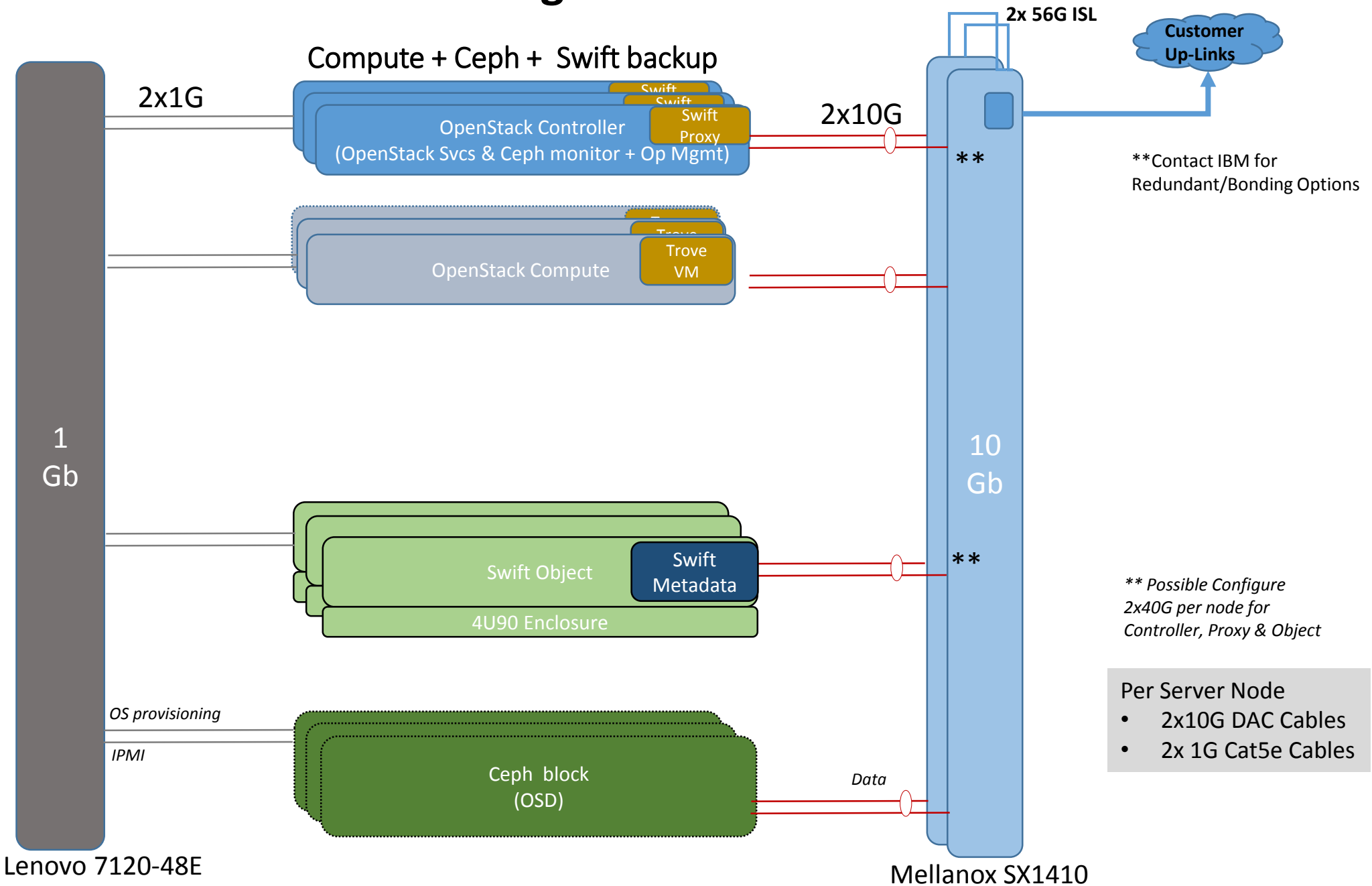
Rack:
QTY: 1
SlimRack 7965-94Y
PDUs x 4

Swift Object /MetaData
QTY: 3

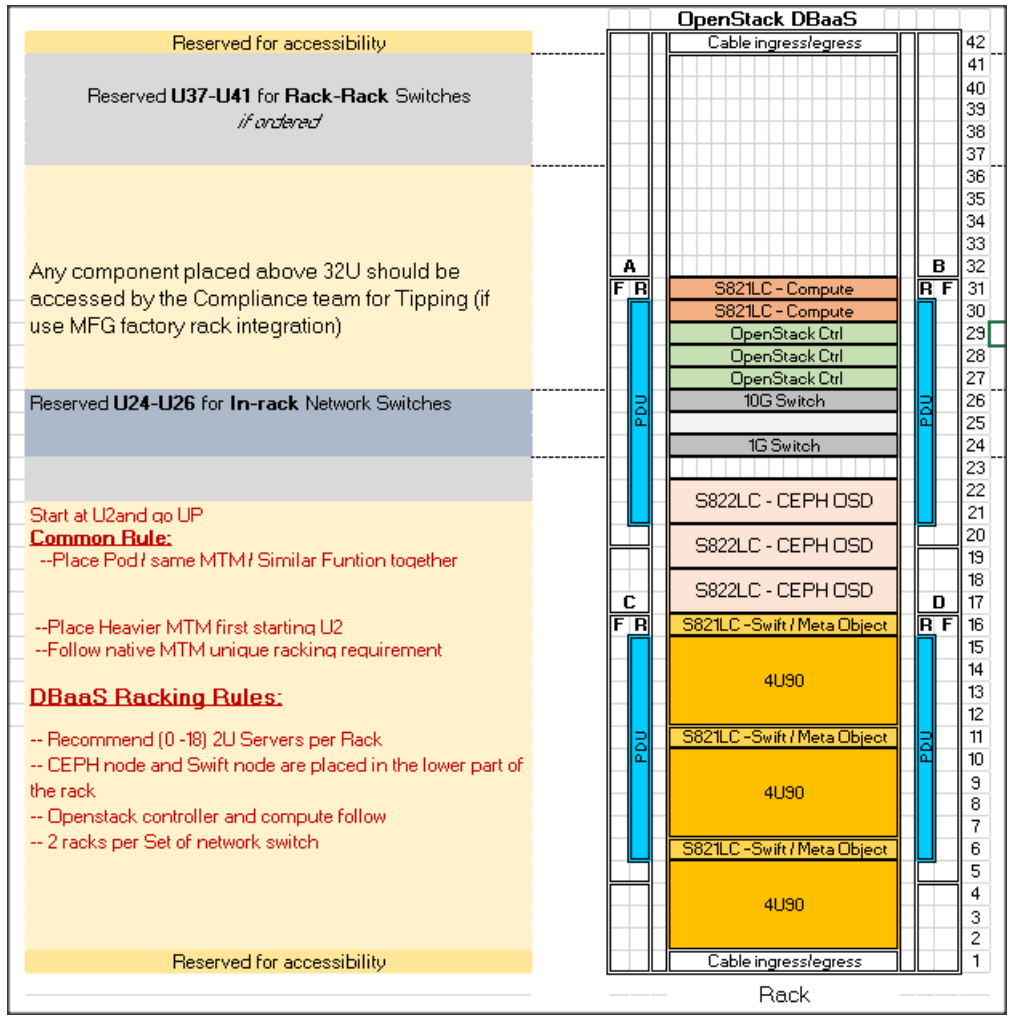
Per Server Config: (Stratton 8001-21C) (1U)
16 Cores (2.3Ghz), 256GB
- (OS) 2+ 128GB DOM + 4 x SSDs x 240GB
- 1 x 2-Port 10G NIC (Intel/Mellanox)
- 1 x LSI 3008 External SAS
- 1 x MegaRAID SAS controller

Expansion Drawer (4U) : Supermicro SC946ED - 4U90
90 LFF – 2TB SAS HDDs

High Level Network Architecture Diagram



Suggested Racking Rule



Server BOMs

Customized Personality for Server Config #1 : OpenStack Controller / Swift Proxy				
			Lenovo x3550-M5	3
	Processor		10-core Intel Xeon E5-2600 v4 GHz	2
	Memory		(PS) 16GB DDR4 MEMORY DIMM	
	Drives		(PS) 4TB 3.5" SATA HDD	2

This Server is offered by external supplier. Customer can configure similar server from other supplier as need

Customized Personality for Server Config #1 : OpenStack Compute				
8001	12C		S821LC (8001)	2
	Processor	EKP1	8-core POWER8 2.328 GHz	2
	Memory	EKM1	(PS) 8GB DDR4 MEMORY DIMM	16
		EKB4	(PS) 2S STRATTON LFF NVMe FAB ASSEMBLY	1
	Drives	EKDB	(PS) 4TB 3.5" SATA HDD	2

Customized Personality for Server Config #1 : Swift Object+Metadata				
8001	22C		S821LC (8001)	3
	Processor	EKP2	10-core POWER8 2.095 GHz	2
	Memory	EKM2	(PS) 16GB DDR4 MEMORY DIMM	16
		EKB6	PS) 2S STRATTON SFF FAB ASSEMBLY	1
	Drives	EKS5	(PS) 1.9TB SFF SSD; 1.2 DWPD	4
		EKSK	128 GB SATA Disk on module SuperDOM	2
	Storage Adpt	EKAD	(PS) STORAGE ADAPTER - SAS-3, 3008 8 PORTS, EXTERNAL	1
	IO Drawer		4U90 IO Drawer - Super Micro **SC946ED**	
			2TB , 3.5" 7K2 SAS HDDs	90
			12G SAS cables	4

Customized Personality for Server Config #2 : CEPH OSD				
8001	22C		CEPH Controller - S822LC (8001)	3
	Processor	EKP5	10-core 2.92 GHz POWER8 processor	2
	Memory	EKM2	(PS) 16GB DDR4 MEMORY DIMM	16
		EKB5	(PS) 2S BRIGGS LFF DIRECT ATTACH FAB ASSEMBLY	1
	HDD Ctrl	EKEA	(PS) LSI MEGARAID 9361-8I SAS3 CONTROLLER	1
	Drive	EKSK	128 GB SATA Disk on module SuperDOM	2
		EKS1	(PS) 240GB SFF SSD; 1.2 DWPD	4
		EKD4	(PS) 8TB 3.5" SAS HDD	10

Based Server Config for 8001-12C: (For All Server Type above)

8001	12C		ServerConfig- S821C	
	OS & Firmware	2147	Primary OS - Linux	1
		EC16	Open Power Abstraction Layer (OPAL)	1
	Network	EKA2	(PS) INTEL 82599ES 2-PORT SFP+ 10G GEN2 x8 STANDARD	1
	Power	EKL2	1.8m (6-ft) Power Cord, 100-127V/15A, C13	2
	Cables		CAT5E SWITCH CABLE, BLUE (2M)	1
			CAT5E SWITCH CABLE, GREEN (2M)	1
		EKC1	3M- Active Twinax cable	1
	MFG MISC	4650	No rack integration	1
		93xx	Country specific FCs (keyboards, language groups) are selectable	1
		ESC5	Shipping and Handling	1

Based Server Config for 8001-22C: (For All Server Type above)

8001	22C		Based ServerConfig- S822C	
	OS & Firmware	2147	Primary OS - Linux	1
		EC16	Open Power Abstraction Layer (OPAL)	1
	Network	EKA2	(PS) INTEL 82599ES 2-PORT SFP+ 10G GEN2 x8 STANDARD	1
	Power	6577	PWR CBL, DRWR TO IBM PDU, MFG SEL LENGTH, 200-240V/10A, IEC320/C13, IEC320/C14	2
	Cables		CAT5E SWITCH CABLE, BLUE (2M)	1
			CAT5E SWITCH CABLE, GREEN (2M)	1
		EKC1	3M- Active Twinax cable	1
	MFG MISC	4650	No rack integration	1
		93xx	Country specific FCs (keyboards, language groups) are selectable	1
		ESC5	Shipping and Handling	1

Network Switch BOMs

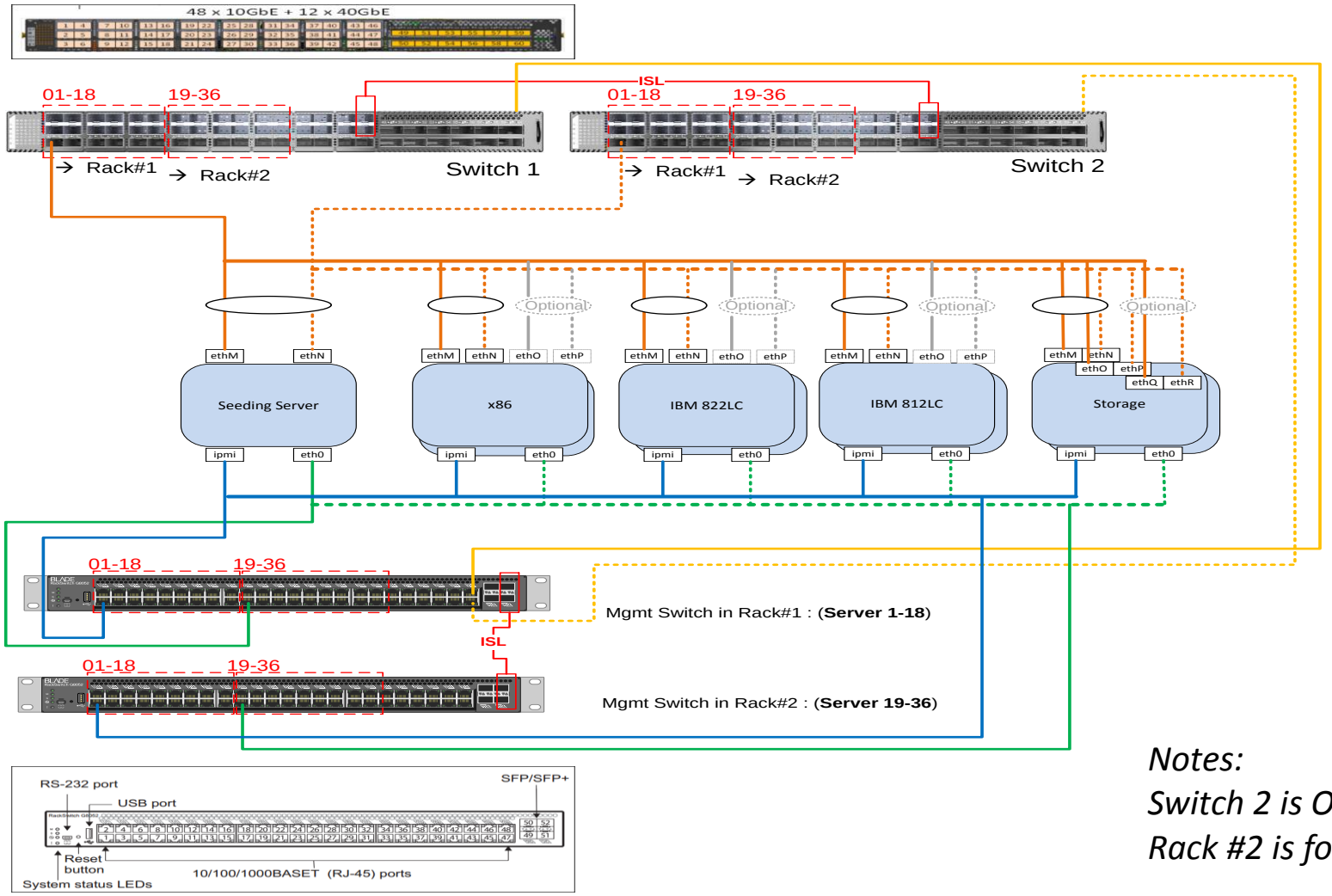
	MT	Model	FC	Description	
1G Mgmt (Based)	7120	48E		Lenovo G8052 1GbE Switch (48x 10GbE ports + 4x 10GbE ports)	1
			1118	CAT5E SWITCH CABLE, 3M, YELLOW	1
			6577	PWR CBL, DRWR TO IBM PDU, MFG SEL LENGTH, 200-240V/10A, IEC320/C13, IEC320/C14	2
				Include all existing FCs; except FCs 0010, 0011, 0712, 0714, EGSx, EHKx, EHLA, 4649 (Rack Integration Services), and 0456 (Customer Specified Placement); do not include these FCs.	

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

Network Plug Rule - Sample

Mellanox SX1410 10G Switch

Lenovo G8052 1G Switch



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

Network Plug P2P Label -- Sample

Server PCI Slot Placement

8001-12C/22C Statton/Briggs

	adapter	PCI slot	Port	Cabling
Primary NIC	10GbE	slot 3	T1	yes
			T2	
Optional NIC	10GbE		T1	
			T2	
Mgmt-OS	1GbE	LOM	T1	yes
BMC	1GbE	LOM	impi	yes

Cable P2P Label for H_TOR : capable of 36 Downlink-36 Uplink (ie Mellanox SX1410) ~1:1 Network Subscriptions

		10GbE	10GbE	1GbE	1GbE
		H_TOR_1	H_TOR_2	M_TOR_1	M_TOR_1
Server #	Name <opt>	P2P Data network Cable Label	P2P Data network Cable Label	P2P Mgmt RJ4-5 Cable Label	P2P IPMI RJ-45 Cable Label
1		1A/SVR1/slot 3/T1 <> H_TOR_1/Port1		1A/SVR1/LOM/T1 <> M_TOR_1/Port1	1A/SVR1/LOM/impi <> M_TOR_1/Port19
2		1A/SVR2/slot 3/T1 <> H_TOR_1/Port2		1A/SVR2/LOM/T1 <> M_TOR_1/Port2	1A/SVR2/LOM/impi <> M_TOR_1/Port20
3		1A/SVR3/slot 3/T1 <> H_TOR_1/Port3		1A/SVR3/LOM/T1 <> M_TOR_1/Port3	1A/SVR3/LOM/impi <> M_TOR_1/Port21
4		1A/SVR4/slot 3/T1 <> H_TOR_1/Port4		1A/SVR4/LOM/T1 <> M_TOR_1/Port4	1A/SVR4/LOM/impi <> M_TOR_1/Port22
5		1A/SVR5/slot 3/T1 <> H_TOR_1/Port5		1A/SVR5/LOM/T1 <> M_TOR_1/Port5	1A/SVR5/LOM/impi <> M_TOR_1/Port23
6		1A/SVR6/slot 3/T1 <> H_TOR_1/Port6		1A/SVR6/LOM/T1 <> M_TOR_1/Port6	1A/SVR6/LOM/impi <> M_TOR_1/Port24
7		1A/SVR7/slot 3/T1 <> H_TOR_1/Port7		1A/SVR7/LOM/T1 <> M_TOR_1/Port7	1A/SVR7/LOM/impi <> M_TOR_1/Port25
8		1A/SVR8/slot 3/T1 <> H_TOR_1/Port8		1A/SVR8/LOM/T1 <> M_TOR_1/Port8	1A/SVR8/LOM/impi <> M_TOR_1/Port26
9		1A/SVR9/slot 3/T1 <> H_TOR_1/Port9		1A/SVR9/LOM/T1 <> M_TOR_1/Port9	1A/SVR9/LOM/impi <> M_TOR_1/Port27
10		1A/SVR10/slot 3/T1 <> H_TOR_1/Port10		1A/SVR10/LOM/T1 <> M_TOR_1/Port10	1A/SVR10/LOM/impi <> M_TOR_1/Port28
11		1A/SVR11/slot 3/T1 <> H_TOR_1/Port11		1A/SVR11/LOM/T1 <> M_TOR_1/Port11	1A/SVR11/LOM/impi <> M_TOR_1/Port29