Oracle® Communications

Diameter Signaling Router

DSR Rack Mount Server Network Interconnect Guide

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ORACLE

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1. INTRODUCTION

1.1 PURPOSE

This document describes the Diameter Signaling Router 7.1.1/7.2/8.x networking for DSR on rack mount servers. In this deployment, all network elements such as NOAM, SOAM, DA-MP, SS7-MP, IPFE, SDS DP(Oracle X5-2/Netra X5-2/X6-2/X7-2 HP DL380 Gen 9 Only), SBR (Oracle X5-2/Netra X5-2/X6-2/X7-2/ HP DL380 Gen 9 Only), IDIH and PMAC are running as guests on a rack mount servers running TVOE.

This document specifies point to point interconnection and is intended for the use of Oracle internal departments.

The only server types supported in this TR are HP DL380 Gen8/Gen9, Oracle X5-2/X6-2/X7-2 and Netra X5-2. They are all referred to as RMS (Rack Mount Server) throughout this TR.

1.2 ACRONYMS

Item	DESCRIPTION
10G	10 Gigabits per second
1G	1 Gigabit per second
DSR	Diameter Signaling Router
iLO	Integrated Lights-Out
iLOM	Integrated Lights Out Manager
NIC	Network Interface Card
OOBM	Out of Band Management - references access via iLO, ILOM, or other out of band access method
PCI	Peripheral Component Interconnect
RJ45	Registered Jack 45 (RJ45) is a standard type of physical connector for network cables. RJ45 connectors are most commonly seen with Ethernet cables and networks.
RMS	Rack Mount Server
SFP	Small form-factor pluggable, or SFP, devices are hot-swappable I/O gear used primarily in network and storage switches.
VLAN	Virtual Local Area Network
VM	Virtual Machine

1.3 REFERENCES

1.3.1 *External References*

[1] Oracle® Server X5-2 Service Manual, https://docs.oracle.com/cd/E41059_01/pdf/E48320.pdf
[2] Netra Server X5-2 Service Manual, https://docs.oracle.com/cd/E53596_01/pdf/E53601.pdf
[3] Oracle® Server X6-2 Service Manual, https://docs.oracle.com/cd/E62159_01/pdf/E62171.pdf
[4] Oracle® Server X7-2 Service Manual, https://docs.oracle.com/cd/E72435_01/pdf/E72445.pdf

1.3.2 *Internal References*

[5] HP Gen8 HW, CGBU_ENG_24_2297
[6] HPE Gen9 HW, CGBU_ENG_24_2434
[7] Oracle CGBU 10GE RMS Frame Design, Technical Reference, CGBU_018401

2. INTERCONNECTION NAMING CONVENTIONS

The following is the naming convention:

- ag(x)
    - where ag(x) = aggregate_switch(number) ie, ag1 (aka switch1A)

- rms(x)
    - where rms(x)=rackmount server(number) ie, rms1, rms2

- rms(x)-ms(y)
    - where rms(x)=rack mount server(number) ie, rms1, rms2
    - where ms(y) = management_server(number) ie, ms1, ms2

- NICx / NETx
    - where x=the port number as per port designations of respective hardware.

Table 1: NIC/Server Type Cross Reference

NIC ID	HP DL380 Gen 8 (Refer to section A-1 for the port designations used below)	HP DL380 Gen 9 (Refer to section A-2 for the port designations used below)	Oracle X5-2 / X6-2 Config 0 (LOM only) (Refer to section A-3 for the port designations used below)	Oracle X5-2 / X6-2 Config 1 (LOM and qty 1 dual port PCI) (Refer to section A-3 for the port designations used below)	Netra X5-2 Config 0 (LOM only) (Refer to section A-4 for the port designations used below)	Netra X5-2 Config 1 (LOM and qty 1 dual port PCI) (Refer to section A-4 for the port designations used below)	Netra X7-2 10GE-RMS-1 [7] (Refer to section A-5 for the port designations used below)
NIC1	NIC1	NIC5	NET0	NET0	NET0	NET0	NET1
NIC2	NIC2	NIC6	NET2	NET2	NET2	NET2	NET2
NIC3	NIC3	N/A	N/A	N/A	N/A	N/A	N/A
NIC4	NIC4	N/A	N/A	NET31	N/A	NET11	N/A
NIC5	NIC11	NIC11 or NIC31	NET1	NET1	NET1	NET1	N/A
NIC6	NIC12	NIC12 or NIC32	NET3	NET3	NET3	NET3	N/A
NIC7	NIC13	N/A	N/A	NET30	N/A	NET10	N/A
NIC8	NIC14	N/A	N/A	N/A	N/A	N/A	N/A

Note: Ethernet ports on Oracle servers (i.e. X5-2 / X6-2 / X7-2 and Netra X5-2) are labelled as NETx. Although, Ethernet ports for HP machines are labelled as NICx.

3. OVERVIEW OF DSR NETWORKS

The following table presents an overview of the networks configured and used by DSR. Based on the deployment type/requirments, the networks could be physically or logically separated via VLANs.

Table 2: DSR Networks

Network Name	Default VLAN ID*	Routable	Description
Control	1	No	Network used by PMAC to IPM the servers/blades/VMs. (IPs are assigned via by the PMAC using DHCP)
Management	2	Yes	Network used for iLO interfaces, OAs, and enclosure switches. Also used to provide remote access to the TVOE and PMAC servers
XMI	3	Yes	Network used to provide access to the DSR entities (GUI, ssh), and for inter-site communication
IMI	4	No	Network used for intra-site communication
XSI-1	5	Yes	Network used for DSR signaling Traffic
XSI-2**	6	Yes	Network used for DSR signaling Traffic
XSI-3**	7	Yes	Network used for DSR signaling Traffic
XSI-4**	8	Yes	Network used for DSR signaling Traffic
Replication**	9	Yes	Network used for DSR secondary replication traffic (i.e PCA)
INT**	10	No	Network used for IDIH intra-site communication
Backup**	N/A	Yes	Optional dedicated network used for backup purposes

4. RMS PRODUCTIZATION HP DL380 GEN 8 / 1G HP DL380 GEN 9 NETWORK TOPOLOGIES

4.1 DEPLOYMENT NON-SEGREGATED SIGNALING WITH AGGREGATION SWITCHES WITH L2/L3 DEMARCATION

Characteristics:

- Aggregate all traffic from rack mount servers into a smaller number of uplinks.
- Reduce number of interconnects into Customer network.
- Support separation of traffic (such as OAM and Signaling traffic) at the aggregation switch level by providing separate uplinks into Customer networks.
- Prevent any inter-enclosure traffic from impacting Customer network.
- In some cases, allow integration with customer Layer 2 domain
- In some cases, allow customer routers/firewalls to define the Layer 2 boundaries.
- In some cases, hide the Layer-2 topology and provide Layer-3 interfaces to customer networks.
- In layer 3 demarcation configurations, prevent any VLAN ID conflicts with Customer L2 domain.
- For inter-server traffic, prevent any private IP address conflicts with Customer network.
- Provides an optional connection to a customer provided backup Network

Note: HP DL380 Gen8 / 1G HP DL380 GEN 9 network topologies are valid only for RMS productization.

Figure 1: Logical Diagram of HP DL380 GEN 8 / GEN 9 RMS deployment using aggregation switches(L2/L3 Demarcation)

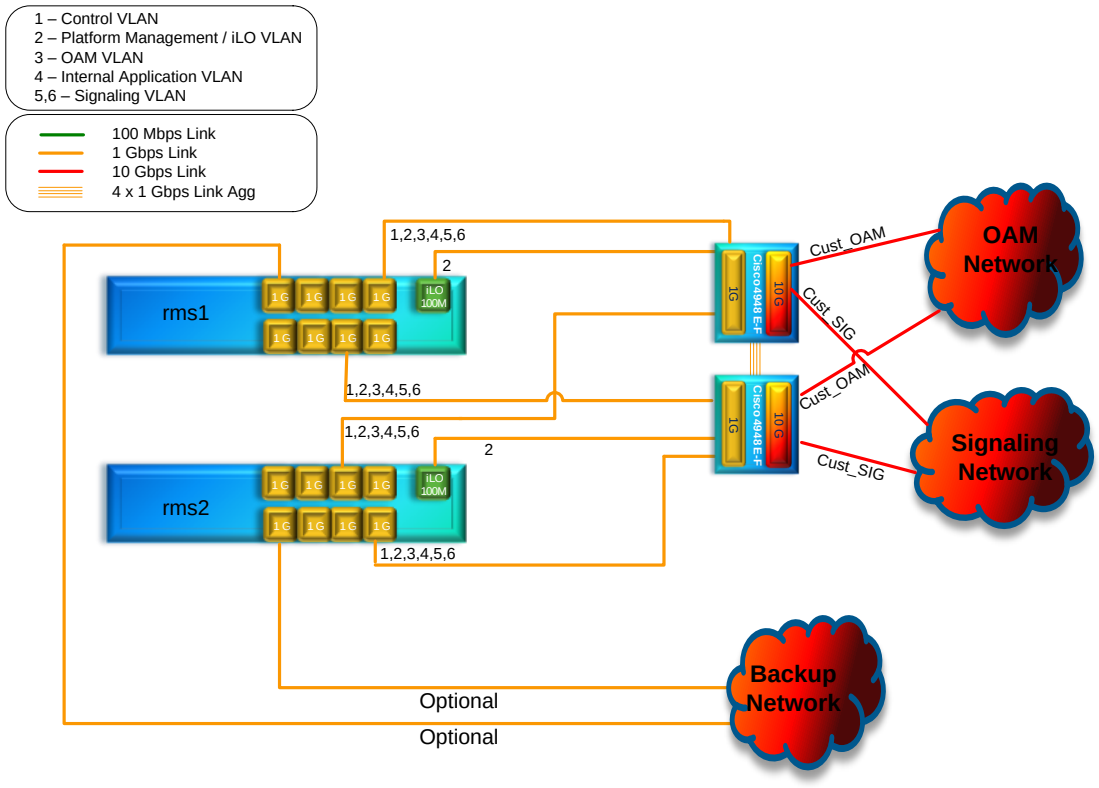


Table 3: Aggregation Switch (L2/L3 Demarcation) Interconnect Table

Item #	Port (to)	Port (from)
Aggregation Switches		
1	ag1 port 1	ag2 port 1
2	ag1 port 2	ag2 port 2
3	ag1 port 3	ag2 port 3
4	ag1 port 4	ag2 port 4
5	ag1 port 49	Uplink to Customer OAM Network
6	ag1 port 50	Uplink to Customer Signaling Network
7	ag2 port 49	Uplink to Customer OAM Network
8	ag2 port 50	Uplink to Customer Signaling Network
Rack Mount Server 1		
9	rms1 NIC1	ag1 port 40
10	rms1 NIC2	ag2 port 40
11	rms1 NIC8	Customer Backup Network (Optional)
12	rms1 iLO	Customer OAM Network / Optional ag1 port 41
13	rms1 Serial 1 (fan-out cable)	ag1 console
14	rms1 Serial 2 (fan-out cable)	ag2 console
Rack Mount Server 2		
15	rms2 NIC1	ag1 port 42
16	rms2 NIC2	ag2 port 42
17	rms2 NIC8	Backup Network (Optional)
18	rms2 iLO	Customer OAM Network / Optional ag2 port 41
Rack Mount Server 3 – Optional		
19	rms3 NIC1	ag1 port 32
20	rms3 NIC2	ag2 port 32
21	rms4 NIC3 (Only used if running DIH)	ag1 port 43
22	rms3 NIC4 (Only used if running DIH)	ag2 port 43
23	rms3 iLO	ag1 port 39
Rack Mount Server 4 - Optional		
1	rms4 NIC1	ag1 port 31
2	rms4 NIC2	ag2 port 31
3	rms4 iLO	ag2 port 39
Rack Mount Server 5 – Optional		
1	rms5 NIC1	ag1 port 30
2	rms5 NIC2	ag2 port 30
3	rms5 iLO	ag1 port 38
Rack Mount Server 6 – Optional		
1	rms6 NIC1	ag1 port 29
2	rms6 NIC2	ag2 port 29
3	rms6 iLO	ag2 port 38
Rack Mount Server 7 - Optional		
4	rms7 NIC1	ag1 port 28
5	rms7 NIC2	ag2 port 28
6	rms7 iLO	ag1 port 37

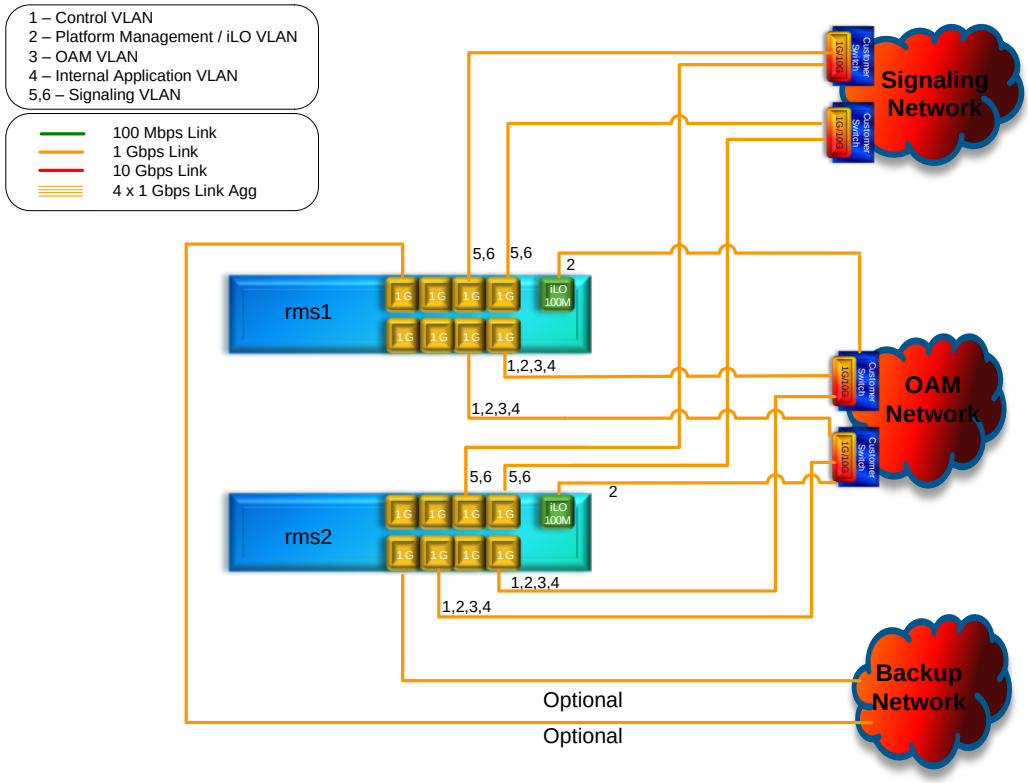
4.2 DEPLOYMENT SEGREGATED SIGNALING W/O AGGREGATION SWITCHES

Characteristics:

- Support Customer deployments where aggregation switches are not feasible (for network policy reasons etc.).
- Although Control and IMI traffic are not routable, they need to use the customer-provided switches for interconnectivity and should be logically separated via VLANs.
- OAM and Management traffic is logically separated via VLANs.
- Provides a dedicated physical connection for Signaling traffic.
- Provides an optional connection to a customer provided backup Network

Note: DL380 Gen8 network topologies are valid only for RMS productization.

Figure 2: Logical Diagram of HP DL380 GEN 8 / GEN 9 RMS deployment without Aggregation Switches



Note: This deployment assumes that the customer will allow non-routable traffic (control, IMI) to be handled by the switches to which the servers are connected.

Note: This figure is a logical representation to show the network design, and not meant in any way to define actual physical port locations on the servers. This figure also doesn't show the connections for optional expansion RMSs which might by used to host additional MPs, iDiH. Please refer to the interconnect tables below for information regarding how the physical ports are connected.

Table 4: HPDL380 Gen 8 without Aggregation Switches Interconnect Table

Item #	Port (to)	Port (from)
Rack Mount Server 1		
1	rms1 NIC1	Customer Switch 1/OAM Network
2	rms1 NIC2	Customer Switch 2/OAM Network
3	rms1 NIC3	Customer Switch 1/Signaling Network
4	rms1 NIC7	Customer Switch 2/Signaling Network
5	rms1 NIC8	Backup Network (Optional)
6	rms1 iLO	Customer Switch 1/OAM Network
Rack Mount Server 2		
7	rms2 NIC1	Customer Switch 1/OAM Network
8	rms2 NIC2	Customer Switch 2/OAM Network
9	rms2 NIC3	Customer Switch 1/Signaling Network
10	rms2 NIC7	Customer Switch 2/Signaling Network
11	rms2 NIC8	Backup Network (Optional)
12	rms2 iLO	Customer Switch 2/OAM Network
Rack Mount Server 3 - Optional		
13	rms3 NIC1	Customer Switch 1/OAM Network
14	rms3 NIC2	Customer Switch 2/OAM Network
15	rms3 NIC3	Customer Switch 1/Signaling Network
16	rms3 NIC7	Customer Switch 2/Signaling Network
17	rms3 iLO	Customer Switch 1/OAM Network
Rack Mount Server 4 – Optional		
18	rms4 NIC1	Customer Switch 1/OAM Network
19	rms4 NIC2	Customer Switch 2/OAM Network
20	rms4 NIC3	Customer Switch 1/Signaling Network
21	rms4 NIC7	Customer Switch 2/Signaling Network
22	rms4 iLO	Customer Switch 1/OAM Network
Rack Mount Server 5 – Optional		
23	rms5 NIC1	Customer Switch 1/OAM Network
24	rms5 NIC2	Customer Switch 2/OAM Network
25	rms5 NIC3	Customer Switch 1/Signaling Network
26	rms5 NIC7	Customer Switch 2/Signaling Network
27	rms5 iLO	Customer Switch 1/OAM Network
Rack Mount Server 6 – Optional		
28	rms6 NIC1	Customer Switch 1/OAM Network
29	rms6 NIC2	Customer Switch 2/OAM Network
30	rms6 NIC3	Customer Switch 1/Signaling Network
31	rms6 NIC7	Customer Switch 2/Signaling Network
32	rms6 iLO	Customer Switch 1/OAM Network
Rack Mount Server 7 – Optional		
33	rms7 NIC1	Customer Switch 1/OAM Network
34	rms7 NIC2	Customer Switch 2/OAM Network
35	rms7 NIC3	Customer Switch 1/Signaling Network
36	rms7 NIC7	Customer Switch 2/Signaling Network
37	rms7 iLO	Customer Switch 1/OAM Network

5. VEDSR ORACLE X5-2/NETRA X5-2/X6-2/HP DL380 GEN 9 NETWORK TOPOLOGIES

5.1 ORACLE X5-2 / X6-2 / NETRA X5-2 / 10G HP DL380 GEN 9 DEPLOYMENT SEGGREGATED SIGNALING NETWORK W/O AGGREGATION SWITCHES

Characteristics:

- Deployment on Cisco 4948E-F is **NOT** supported on Oracle X5-2/Netra X5-2/X6-2/HP DL380 Gen 9 rack mount servers due to the 1Gbps port brandwidth limitaiton. It is recommended that a customer deployed switch capable of 10Gbps port bandwidth capabalities be deployed to achieve optimal performance.
- Although Control and IMI traffic are not routable, they need to use the customer-provided switches for interconnectivity and should be logically separated via VLANs.
- OAM and Management traffic is logically separated via VLANs.
- Provides a dedicated physical connection for Signaling traffic.
- Provides an optional connection to a customer provided backup Network

Notes:

- Oracle X5-2 / X6-2 / Netra X5-2 and DL380 Gen9 network topologies are only valid for RMS VE-DSR based deployments.
- For HP DL380 Gen 9 servers, one 2pt 10 Gigabit FlexibleLOM card and one 2pt 10 Gigabit PCI card are required while running the segregated signaling network topology

Figure 3 Logical Diagram of Oracle X5-2/Netra X5-2/X6-2/HP DL380 Gen 9 Deployment with Seggregated Signalling network

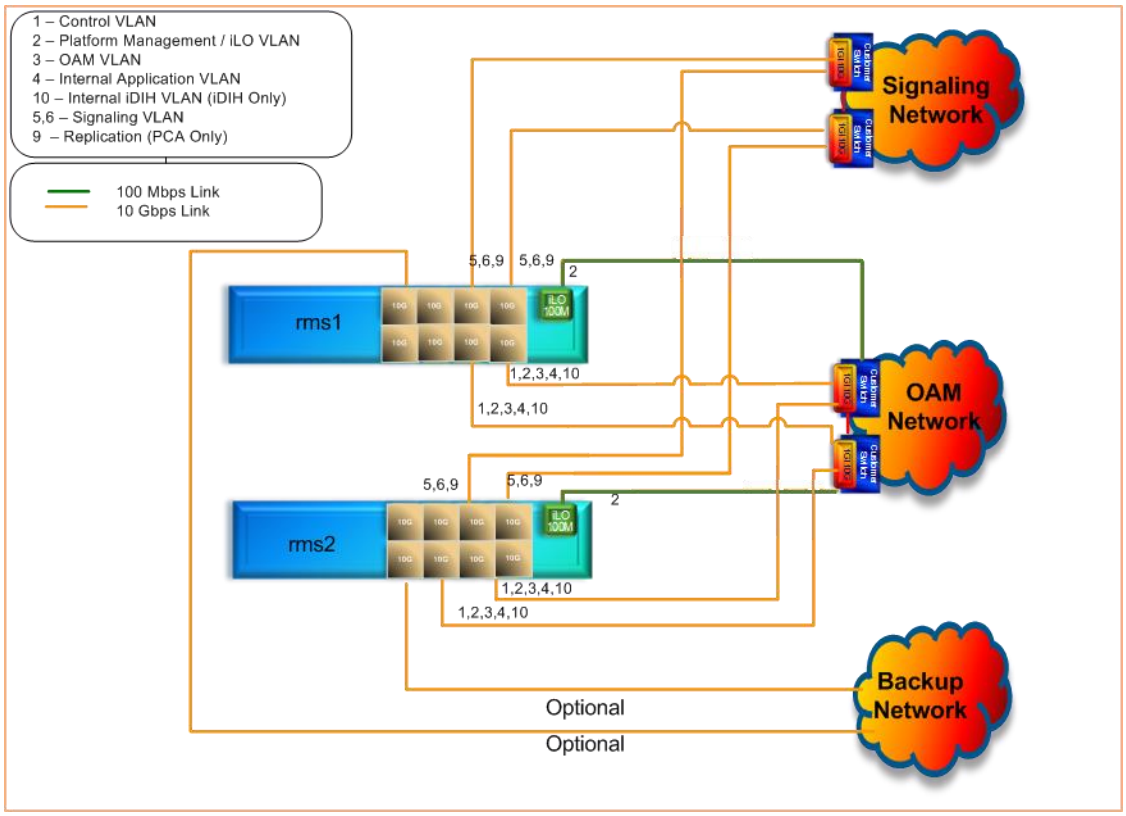


Table 5: Interconnect Table for Segregated Signaling Network

Item #	Port (to)	Port (from)
Rack Mount Server 1		
1	rms1 NIC1	Customer Switch 1/OAM Network
2	rms1 NIC2	Customer Switch 2/OAM Network
3	rms1 NIC5	Customer Switch 1/Signaling Network
4	rms1 NIC6	Customer Switch 2/Signaling Network
5	rms1 NIC4	Backup Network (Optional)
6	rms1 iLO	Customer Switch 1/OAM Network
Rack Mount Server 2		
7	rms2 NIC1	Customer Switch 1/OAM Network
8	rms2 NIC2	Customer Switch 2/OAM Network
9	rms2 NIC5	Customer Switch 1/Signaling Network
10	rms2 NIC6	Customer Switch 2/Signaling Network
11	rms2 NIC4	Backup Network (Optional)
12	rms2 iLO	Customer Switch 2/OAM Network
Rack Mount Server 3		
13	rms3 NIC1	Customer Switch 1/OAM Network
14	rms3 NIC2	Customer Switch 2/OAM Network
15	rms3 NIC5	Customer Switch 1/Signaling Network
16	rms3 NIC6	Customer Switch 2/Signaling Network
17	rms3 iLO	Customer Switch 1/OAM Network
Rack Mount Server 4		
18	rms4 NIC1	Customer Switch 1/OAM Network
19	rms4 NIC2	Customer Switch 2/OAM Network
20	rms4 NIC5	Customer Switch 1/Signaling Network
21	rms4 NIC6	Customer Switch 2/Signaling Network
22	rms4 iLO	Customer Switch 1/OAM Network
Rack Mount Server 5		
23	rms5 NIC1	Customer Switch 1/OAM Network
24	rms5 NIC2	Customer Switch 2/OAM Network
25	rms5 NIC5	Customer Switch 1/Signaling Network
26	rms5 NIC6	Customer Switch 2/Signaling Network
27	rms5 iLO	Customer Switch 1/OAM Network
Rack Mount Server 6		
28	rms6 NIC1	Customer Switch 1/OAM Network
29	rms6 NIC2	Customer Switch 2/OAM Network
30	rms6 NIC5	Customer Switch 1/Signaling Network
31	rms6 NIC6	Customer Switch 2/Signaling Network
32	rms6 iLO	Customer Switch 1/OAM Network
Rack Mount Server 7		
33	rms7 NIC1	Customer Switch 1/OAM Network
34	rms7 NIC2	Customer Switch 2/OAM Network
35	rms7 NIC5	Customer Switch 1/Signaling Network
36	rms7 NIC6	Customer Switch 2/Signaling Network
37	rms7 iLO	Customer Switch 1/OAM Network
Rack Mount Server 8		
38	rms8 NIC1	Customer Switch 1/OAM Network
39	rms8 NIC2	Customer Switch 2/OAM Network
40	rms8 NIC5	Customer Switch 1/Signaling Network
41	rms8 NIC6	Customer Switch 2/Signaling Network
42	rms8 iLO	Customer Switch 1/OAM Network

5.2 ORACLE X5-2 / X6-2 / NETRA X5-2 / 10G HP DL380 GEN 9 DEPLOYMENT NON-SEGGREGATED SIGNALING NETWORK

Characteristics:

- Deployment on Cisco 4948E-F is **NOT** supported on Oracle X5-2/Netra X5-2/X6-2/HP DL380 Gen 9 rack mount servers due to the 1Gbps port brandwidth limitaiton. It is recommended that a customer deployed switch capable of 10Gbps port bandwidth capabalities be deployed to achieve optimal performance.
- Although Control and IMI traffic are not routable, they need to use the customer-provided switches for interconnectivity and should be logically separated via VLANs.
- Provides an optional connection to a customer provided backup Network
- Deployment with X7-2s is not supported.

Note:

- Oracle X5-2 / X6-2 / Netra X5-2 and DL380 Gen9 network topologies are only valid for RMS VE-DSR based deployments.
- For HP DL380 Gen 9 servers, one 2pt 10 Gigabit FlexibleLOM card is required while running the non-segregated signaling network topology

Figure 4:Logical Diagram of Oracle X5-2/Netra X5-2/X6-2/HP DL380 Gen 9 Deployment without Seggregated Signalling network

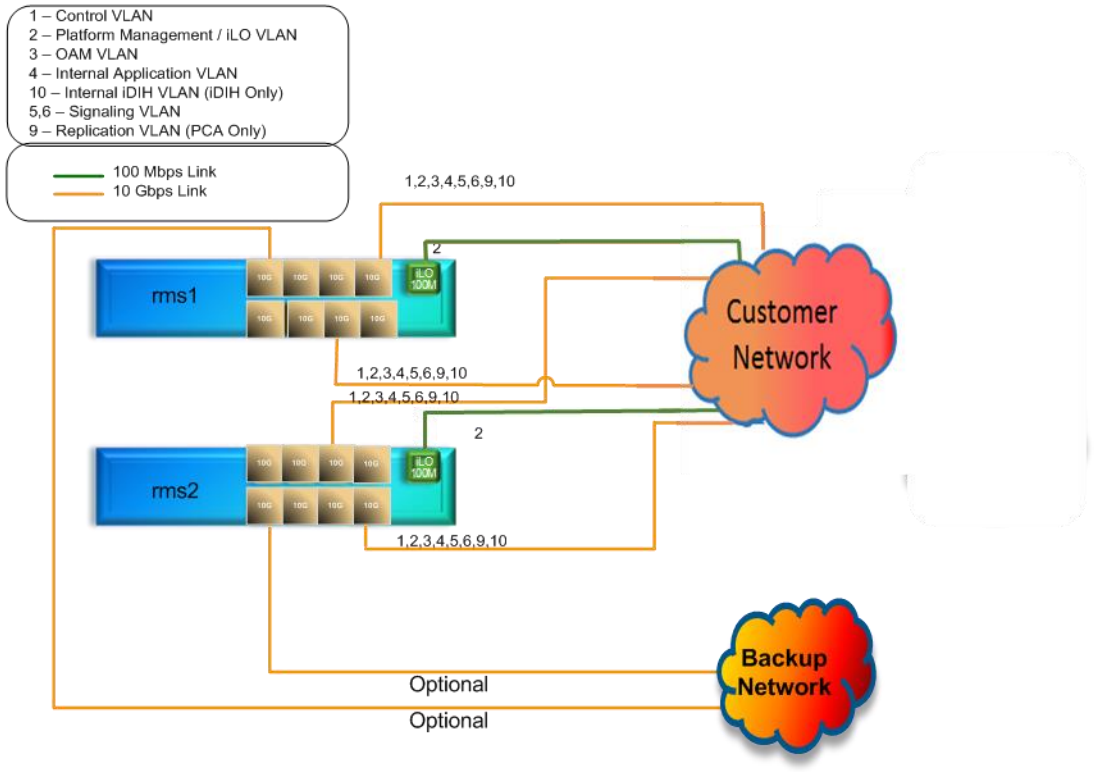


Table 6: Interconnect Table for Non-Segregated Signaling Network for Oracle X5-2/X6-2/Netra X5-2/10G HP DL380 Gen9

Item #	Port (to)	Port (from)
Rack Mount Server 1		
1	rms1 NIC1	Customer Switch 1/OAM,Signaling Network
2	rms1 NIC2	Customer Switch 2/ OAM,Signaling Network
3	rms1 NIC4	Backup Network (Optional)
4	rms1 iLO	Customer Switch 1/OAM Network
Rack Mount Server 2		
5	rms2 NIC1	Customer Switch 1/ OAM,Signaling Network
6	rms2 NIC2	Customer Switch 2/ OAM,Signaling Network
7	rms2 NIC4	Backup Network (Optional)
8	rms2 iLO	Customer Switch 2/OAM Network
Rack Mount Server 3		
9	rms3 NIC1	Customer Switch 1/ OAM,Signaling Network
10	rms3 NIC2	Customer Switch 2/ OAM,Signaling Network
11	rms3 iLO	Customer Switch 1/OAM Network
Rack Mount Server 4		
12	rms4 NIC1	Customer Switch 1/ OAM,Signaling Network
13	rms4 NIC2	Customer Switch 2/ OAM,Signaling Network
14	rms4 iLO	Customer Switch 1/OAM Network
Rack Mount Server 5		
15	rms5 NIC1	Customer Switch 1/ OAM,Signaling Network
16	rms5 NIC2	Customer Switch 2/ OAM,Signaling Network
17	rms5 iLO	Customer Switch 1/OAM Network
Rack Mount Server 6		
18	rms6 NIC1	Customer Switch 1/ OAM,Signaling Network
19	rms6 NIC2	Customer Switch 2/ OAM,Signaling Network
20	rms6 iLO	Customer Switch 1/OAM Network
Rack Mount Server 7		
21	rms7 NIC1	Customer Switch 1/ OAM,Signaling Network
22	rms7 NIC2	Customer Switch 2/ OAM,Signaling Network
23	rms7 iLO	Customer Switch 1/OAM Network
Rack Mount Server 8		
24	rms8 NIC1	Customer Switch 1/ OAM, Signaling Network
25	rms8 NIC2	Customer Switch 2/ OAM, Signaling Network
26	rms8 iLO	Customer Switch 1/OAM Network

5.3 ORACLE X7-2 DEPLOYMENT NON-SEGGREGATED SIGNALING NETWORK W/O AGGREGATION SWITCHES

Characteristics:

- This deployment is only supported for X7-2s.
- Although Control and IMI traffic are not routable, they need to use the customer-provided switches for interconnectivity and should be logically separated via VLANs.
- No provision for configuring backup network.

Figure 5:Logical Diagram of Oracle X7-2 Deployment without Seggregated Signalling network

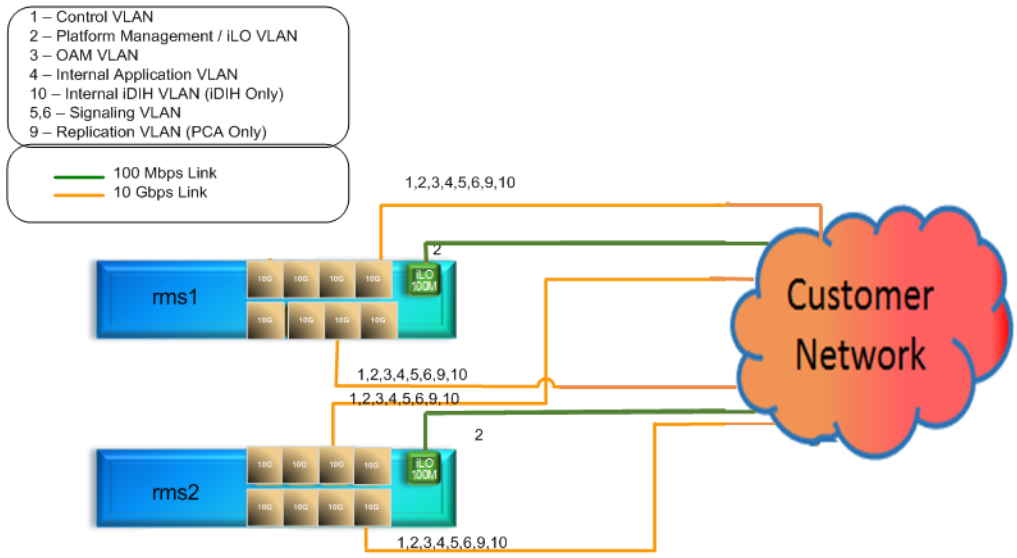


Table 7: Interconnect Table for Non-Segregated Signaling Network for Oracle X7-2

Item #	Port (to)	Port (from)
Rack Mount Server 1		
1	rms1 NIC1	Customer Switch 1/OAM,Signaling Network
2	rms1 NIC2	Customer Switch 2/ OAM,Signaling Network
3	rms1 iLO	Customer Switch 1/OAM Network
Rack Mount Server 2		
4	rms2 NIC1	Customer Switch 1/ OAM,Signaling Network
5	rms2 NIC2	Customer Switch 2/ OAM,Signaling Network
6	rms2 iLO	Customer Switch 2/OAM Network
Rack Mount Server 3		
7	rms3 NIC1	Customer Switch 1/ OAM,Signaling Network
8	rms3 NIC2	Customer Switch 2/ OAM,Signaling Network
9	rms3 iLO	Customer Switch 1/OAM Network

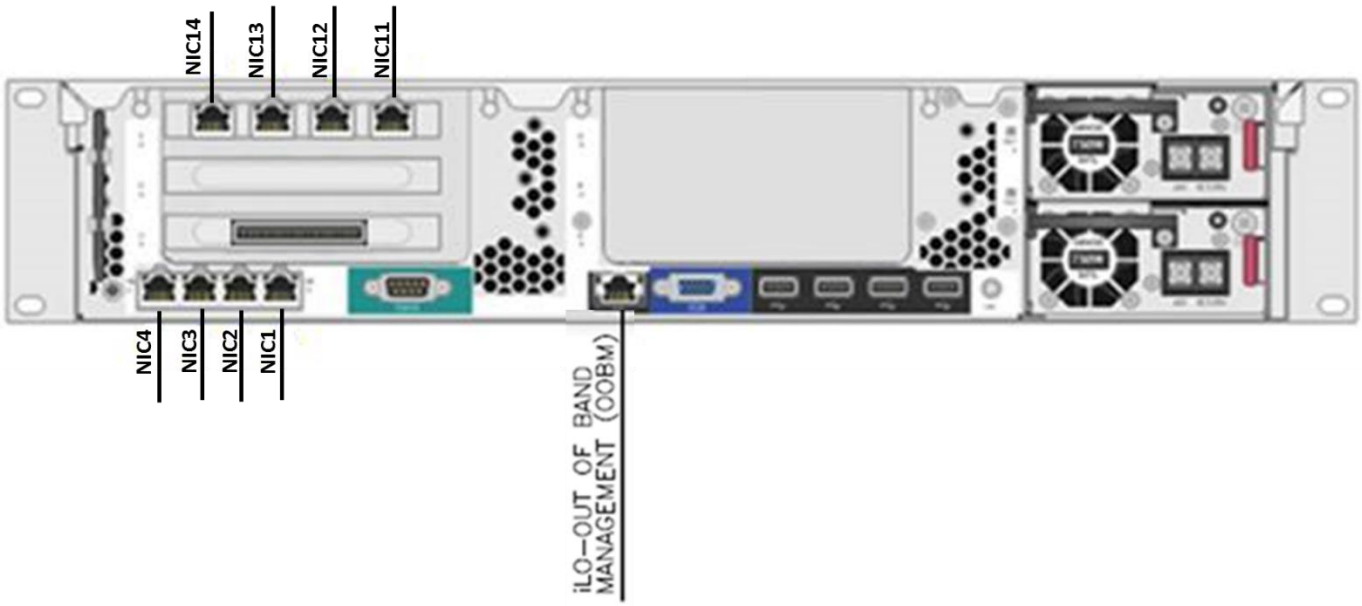
Item #	Port (to)	Port (from)
Rack Mount Server 4		
10	rms4 NIC1	Customer Switch 1/ OAM,Signaling Network
11	rms4 NIC2	Customer Switch 2/ OAM,Signaling Network
12	rms4 iLO	Customer Switch 1/OAM Network
Rack Mount Server 5		
13	rms5 NIC1	Customer Switch 1/ OAM,Signaling Network
14	rms5 NIC2	Customer Switch 2/ OAM,Signaling Network
15	rms5 iLO	Customer Switch 1/OAM Network
Rack Mount Server 6		
16	rms6 NIC1	Customer Switch 1/ OAM,Signaling Network
17	rms6 NIC2	Customer Switch 2/ OAM,Signaling Network
18	rms6 iLO	Customer Switch 1/OAM Network
Rack Mount Server 7		
19	rms7 NIC1	Customer Switch 1/ OAM,Signaling Network
20	rms7 NIC2	Customer Switch 2/ OAM,Signaling Network
21	rms7 iLO	Customer Switch 1/OAM Network
Rack Mount Server 8		
22	rms8 NIC1	Customer Switch 1/ OAM, Signaling Network
23	rms8 NIC2	Customer Switch 2/ OAM, Signaling Network
24	rms8 iLO	Customer Switch 1/OAM Network

Appendix A. Port Designations

A-1 HP DL380 Gen8 Port Designations

Following figure indicates the port designations of the NICs labelled in Table *1*: NIC/Server Type Cross Reference for DL 380 Gen8 servers [5].

Figure 6: HP DL380 Gen8 Port Designations



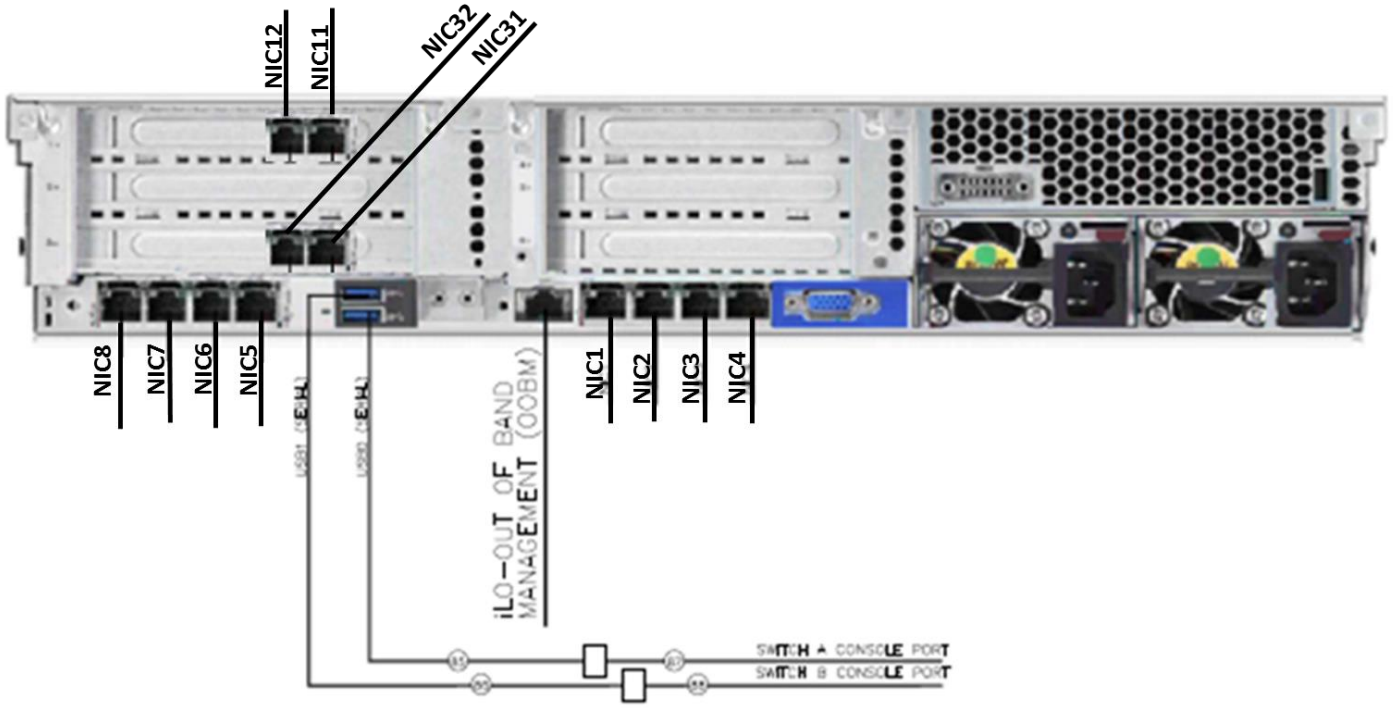
Note:

- NIC1 to NIC4 are HP FlexLOM 1Gb 4-port 331FLR Ethernet Adapter
- NIC11 to NIC14 are 10 Gigabit PCI cards in Slot-1.

A-2 HP DL380 Gen9 Port Designations

Following figure indicates the port designations of the NICs labelled in Table *1*: NIC/Server Type Cross Reference for DL 380 Gen9 servers [6].

Figure 7: HP DL380 Gen9 Port Designations



Notes:

- NIC(1-4) only support 1Gigabit. They are not used right now.
- One 2-port 10-Gigabit Flexible LOM card(s) are required. This shall be used for Management traffic for Segregated signaling topology and shall be used for both Management and Signaling traffic for Non-segregated signaling topology.
- 1 additional 2 port 10 Gigabit PCI cards is required while running the segragated signaling (either SLOT-1 i.e. NIC 11 and NIC12 or SLOT-3 i.e. NIC31 and NIC32 shown above).

A-3 Oracle X5-2 / X6-2 Config-0 and CONFIG-1 Port Designations

Following figure indicates the port designations of the NICs labelled in Table *1*: NIC/Server Type Cross Reference for Oracle X5-2 [1] and Oracle X6-2 [3] servers:

Figure 8: Oracle X5-2 / X6-2 Config 0 Port Designations

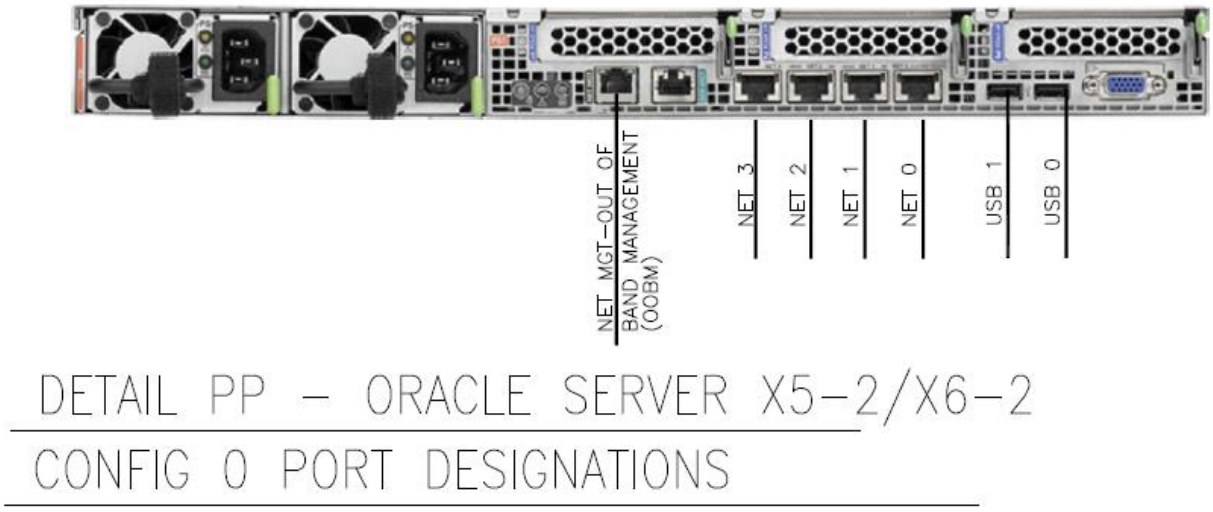
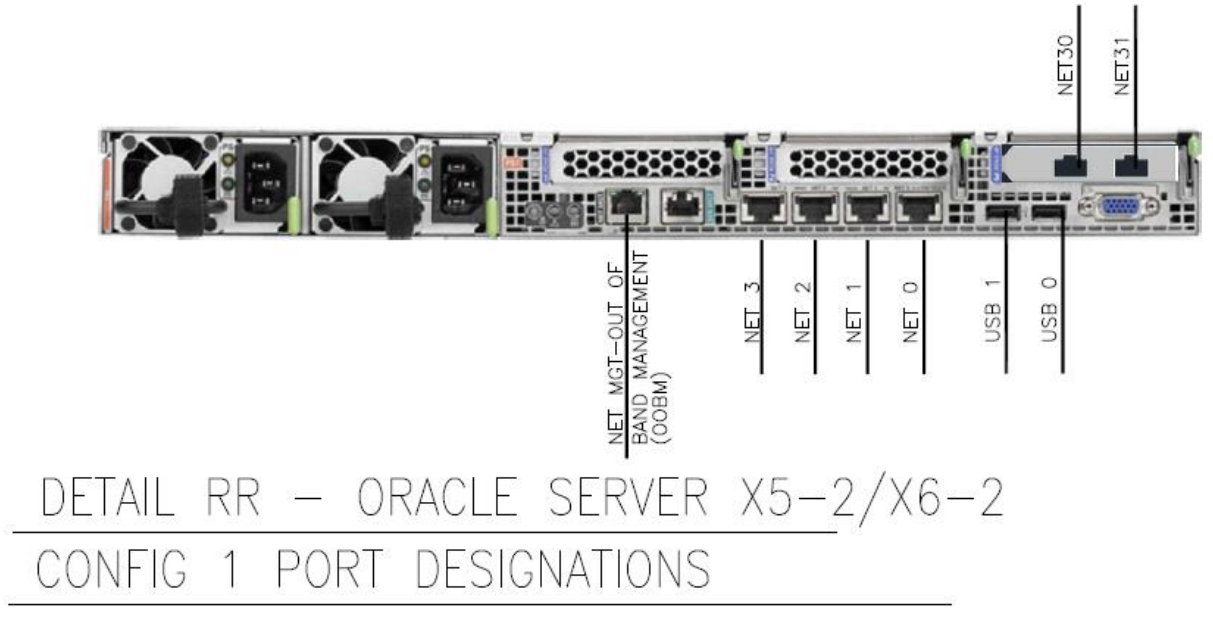


Figure 9: Oracle X5-2 / X6-2 Config 1 Port Designations



Notes:

- Rear view of Oracle X5-2 and X6-2 server(s) are almost identical. Therefore we have only referred NIC the labelling as per Oracle 6-2 server. Same applied for Oracle X5-2 servers as well.
- Ethernet ports NET0 to NET3 are 10G onboard ethernet NICs.
- NET30 and NET31 are on 10G PCI card slots #3.
- Config-0 does not have any provision for Backup network.

A-4 Netra X5-2 Config-0 and Config-1 Port Designations

Following figure indicates the port designations of the NICs labelled in Table *1*: NIC/Server Type Cross Reference for Netra X5-2 [2] servers:

Figure 10: Netra X5-2 Config 0 Port Designations

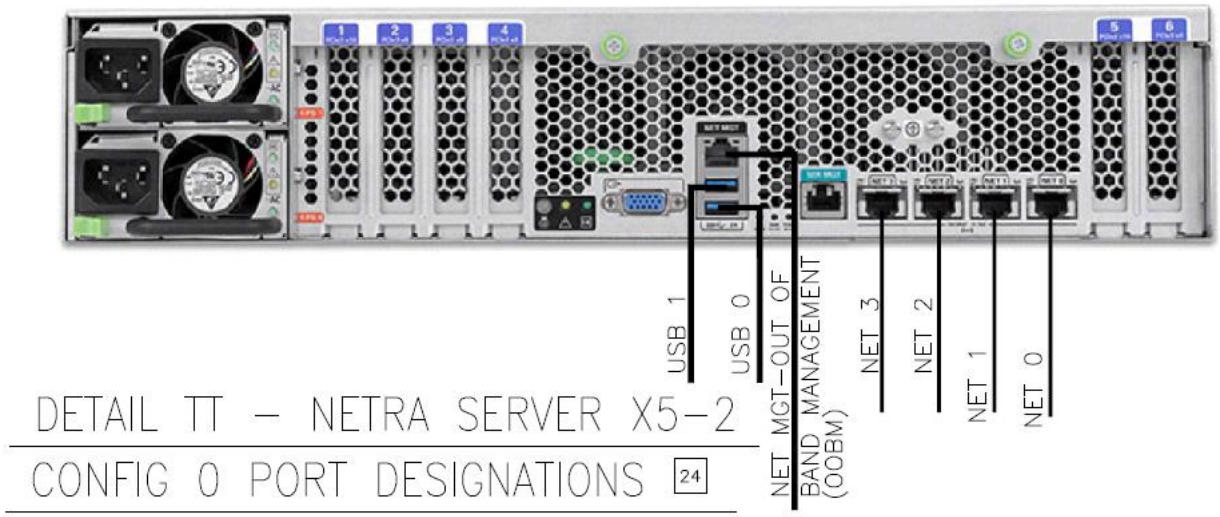
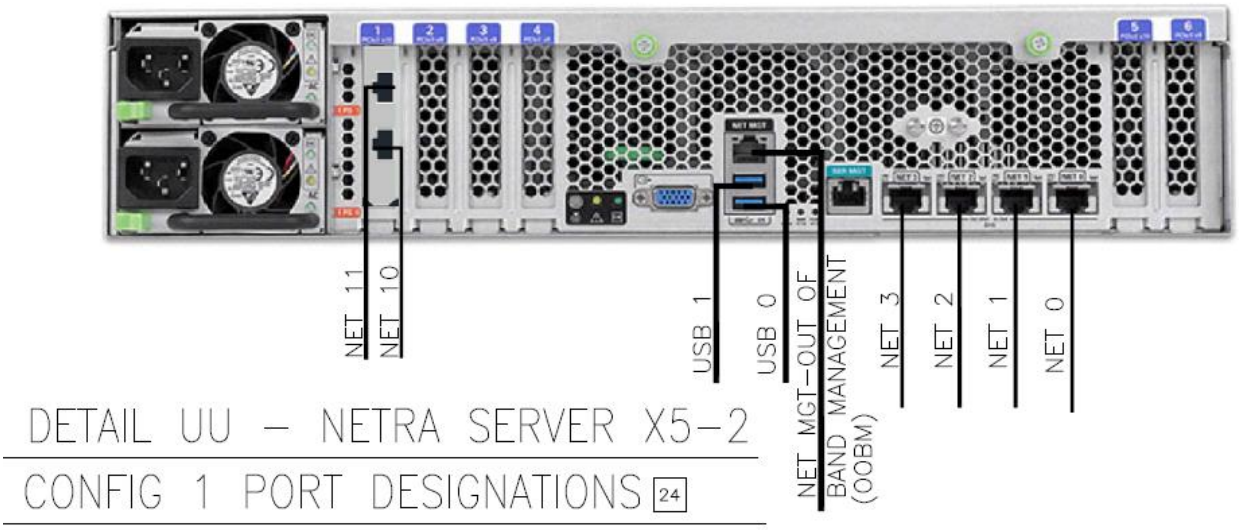


Figure 11: Netra X5-2 Config 1 Port Designations



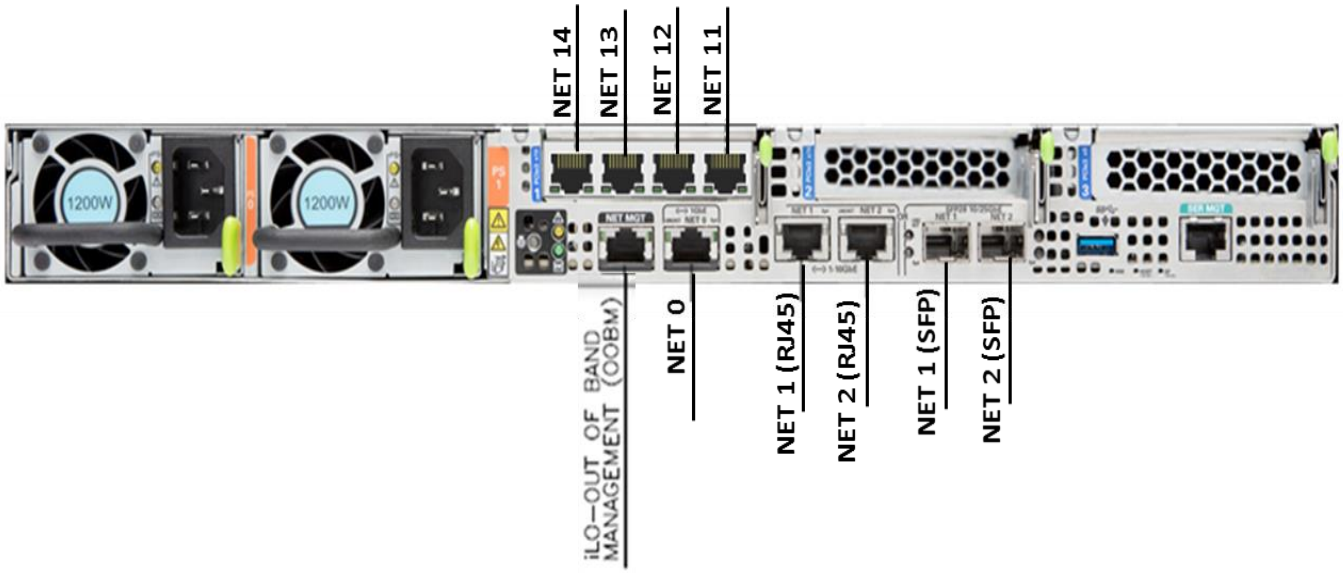
Notes:

- Ethernet ports NET0 to NET3 are 10G onboard ethernet NICs.
- NET10 and NET11 are on 10G PCI card slots #1.
- Config-0 does not have any provision for Backup network.

A-5 Oracle X7-2 10GE-RMS-1 Port Designations

Following figure indicates the port designations of the NICs labelled in Table *1*: NIC/Server Type Cross Reference for Oracle X7-2 servers [4]:

Figure 12: Oracle X7-2 10GE-RMS-1 Port Designations



Note:

- Ethernet port NET0 is unused.
- Ethernet ports NET1 and NET2 are 10G each. They are optionally available as RJ45 or SFP (not both).
- NET11 – NET14 are on 10G PCI slot #1.
- Refer to [7] for details on 10GE-RMS-1 topology.