

# Network Revamp Project of Oil India Limited, 2019

## Introduction

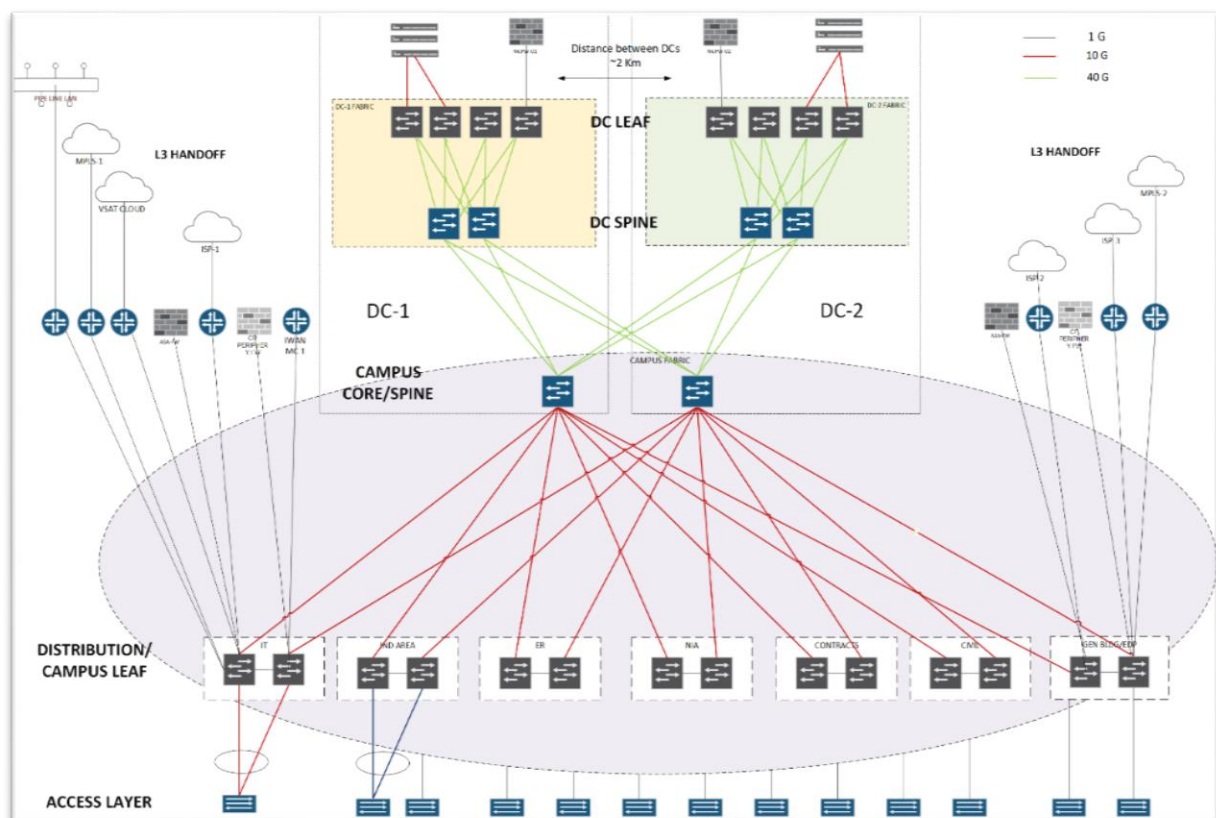
Oil India Limited (OIL) is an Indian National Oil company under the administrative control of Ministry of Petroleum and Natural Gas, Govt. of India, engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG. OIL has offices in 10 locations in India.

Primary data centre of OIL is located at Field Headquarters, Duliajan, Assam and secondary data centre is located at Corp HQ, Noida. OIL is building its 3<sup>rd</sup> data centre in close proximity to its primary data at Field Headquarters, Duliajan. Both the data centres in Duliajan will act in Active-Active manner.

OIL intends to:

- Upgrade its existing network infrastructure in the primary data centre
- Build the network infrastructure for the 3<sup>rd</sup> data centre
- Upgrade Core and Distribution layers in the campus network of Field Headquarters, Duliajan

## Proposed Network Architecture



## Data Centre Network

Both the DC networks shall adopt spine-leaf (Clos) architecture and VXLAN overlay with each DC containing minimum

- Two spine switches

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- Four leaf switches

All servers, Firewalls etc. will connect to the leaf switches. The spine switches will connect to the super spine/campus core.

## Port Requirements

### *Data centre Leaf switch*

- 48 x 1/10-Gbps fiber ports
- 6 x 40-Gbps ports
- All ports shall operate in non-blocking mode

### *Data centre Spine switch*

- 24 x 10/40-Gbps fiber ports
- All ports shall operate in non-blocking mode

## Campus Network

Campus network shall adopt spine-leaf (Clos) architecture and VXLAN overlay with

- Two spine switches (one each will be placed in each DC)
- Fourteen leaf switches implementing the aggregation layer connecting to existing access switches

## Port Requirements

### *Campus Leaf switch*

- 24 x 1/10-Gbps fiber ports
- All ports shall operate in non-blocking mode

### *Campus Spine switch*

- 24 x 10/40-Gbps fiber ports
- All ports shall operate in non-blocking mode

## Functional Requirements

### Underlay Network

1. Open Shortest Path First (OSPF) or Intermediate System - Intermediate System (IS-IS) shall be used as the routing protocol in the underlay network
2. Jumbo frame must be supported in the underlay network
3. IP multicasting shall be implemented in the underlay network using PIM
4. Hosts (servers, L2 switches etc.) shall attach to the leaf switches in redundant active/active mode and hence leaf switches shall support Multi-Chassis Link Aggregation (MC-LAG) functionality.

### Overlay Network

1. Virtual Extensible LAN (VXLAN) as defined in RFC 7348 shall be used as an overlay technology in both data centre and campus fabrics.
2. Only network-based overlay deploying network switches as VXLAN tunnel endpoints (VTEPs) shall be used.
3. Symmetric IRB forwarding shall be used.

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4. EVPN MP-BGP control plane shall be used to distribute reachability information for the VXLAN overlay network, including endpoint MAC addresses, endpoint IP addresses, and subnet reachability information.
5. The VXLAN Fabric must support connecting to non-VXLAN network infrastructure, in this scenario, the VXLAN Fabric is connected to an external Layer 2 network via Ethernet 802.1Q VLAN trunks.
6. Layer 2 broadcast domains between separate VXLAN Fabrics shall be extended.
7. North-south communication between the data centre and the campus network shall traverse the NGFW firewall. In this design, the VXLAN Fabric provides a Layer 2-only service. All communication that requires crossing the Layer 2 demarcation must be sent to the firewall to be routed.

### Operation & Management

1. Tools for Operations, Administration and Management of the VXLAN fabric shall be included in the solution.
2. Tools to automate and aid underlay and overlay configuration shall be included in the solution.

### Scope of Work

The scope of work includes the following

1. Supply of hardware and software items along with licenses and necessary subscriptions for five years
2. OEM Professional services for - Preparation of high-level and low-level design and validation after implementation.
3. Installation and commissioning of the solution as per HLD and LLD.
4. Training
5. AMS for five years

## **Pre-Tender meeting for Network Revamp project of IT department, Oil India Limited**

OIL INDIA LIMITED is in the process of carrying out **Network Revamp project** in its FHQ at Duliajan, Assam.

In this context OIL wishes to hold a **pre-tender meeting** with prospective OEMs/System Integrators to acquire further insight with regard to implementation aspects like recent technologies, deployment modalities etc. OIL wishes to primarily discuss upon the following topics during the said pre-tender meeting:

1. Functional requirement of the project as per the attached copy.
2. BRC
3. Deployment Modalities (CAPEX/OPEX)
4. QCBS Parameters

All capable systems integrators are invited to participate in the event.

The pre-tender meeting shall be held from **9:00 AM to 3:00 PM** on **11th July, 2019** in the L&D Department, OIL India Limited, Duliajan.

Interested parties are requested to note the following email ID for any correspondence related to the above meeting: [chandan@oilindia.in](mailto:chandan@oilindia.in)