# Intel Omni-Path

2020



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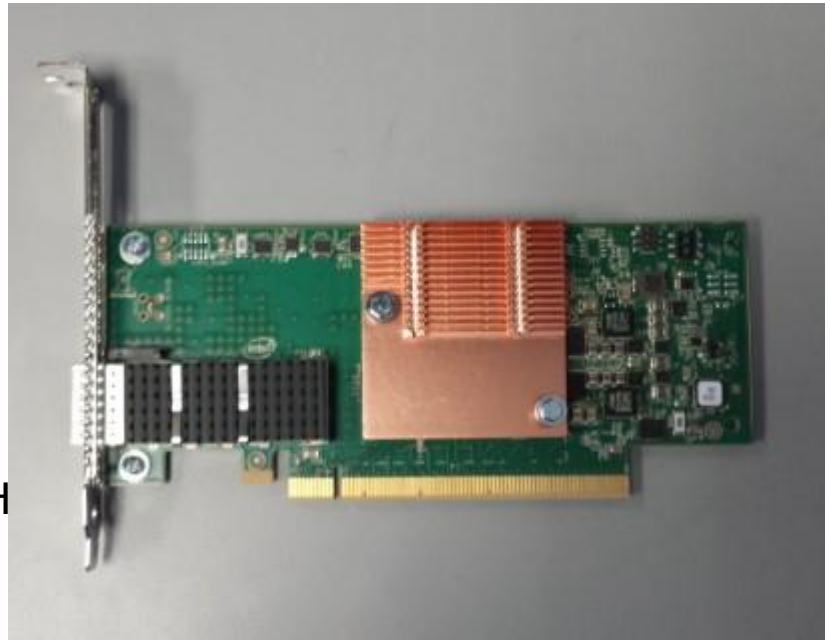
# Intel Omni-Path Architecture (OPA)

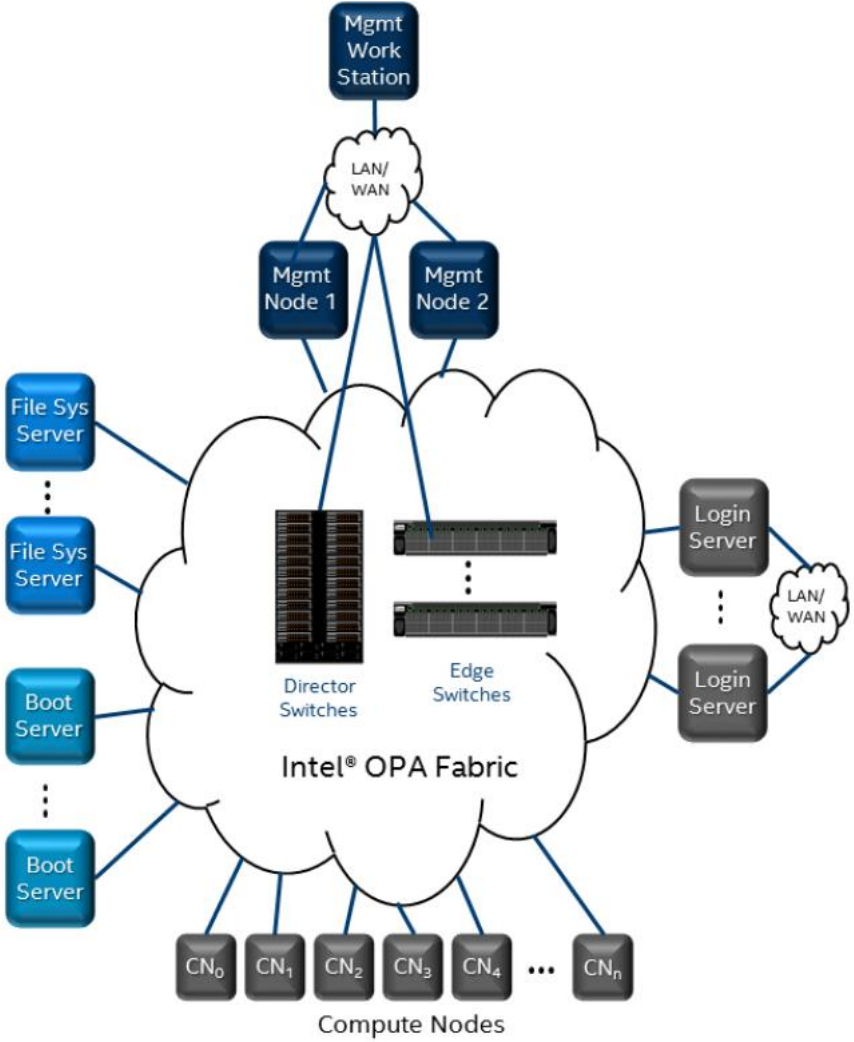
- Latency ~1μs
- Bandwidth 100Gbps
- Supported MPI libraries:
  - Intel MPI, OpenMPI, MVAPICH2, ..
  - Based on open-source libpsm2
- Connected to NUMA1 (cores 24-47)

- Network also used for HOME and SCRATCH



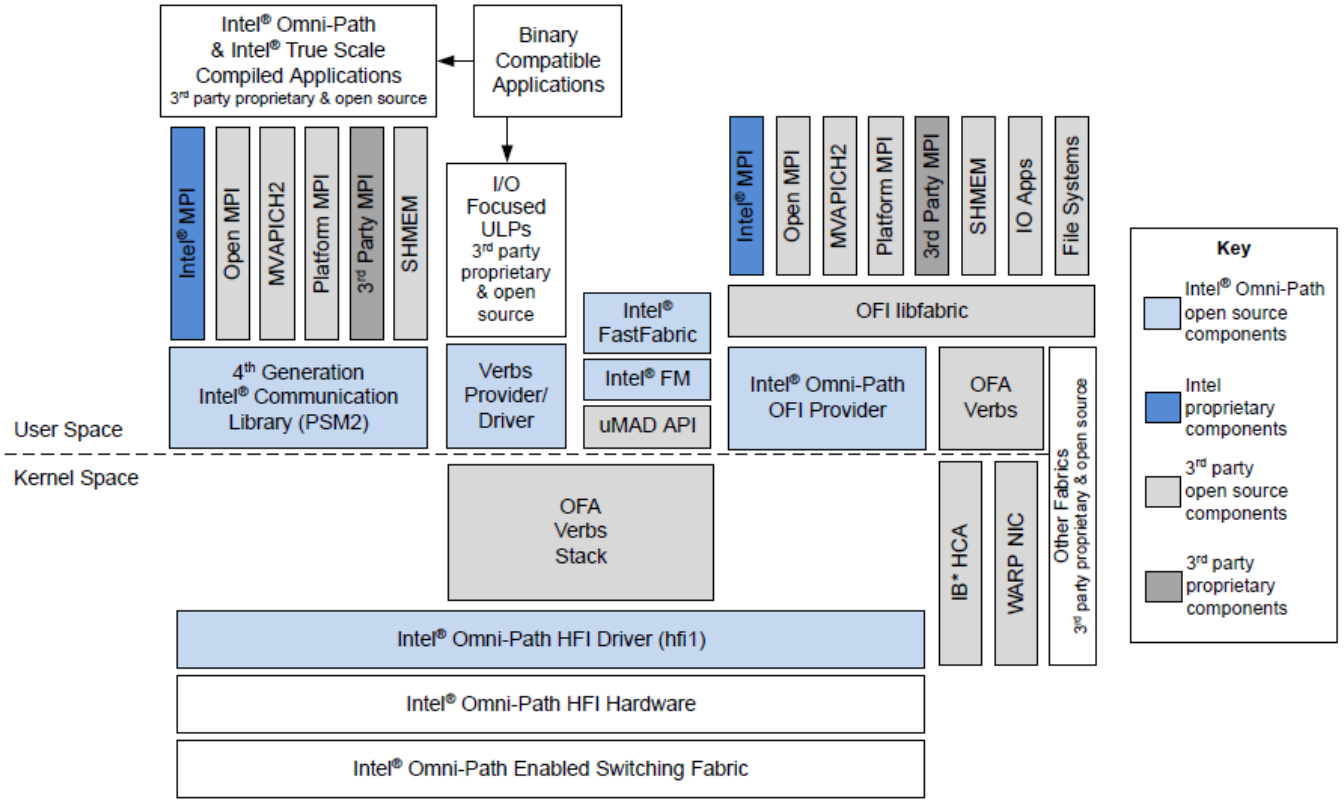
# Intel OPA Fabric

- All nodes connected via OPA
- 1 Director switch
  - 480 ports
  - 18x leaf, 9x spine




Picture from Intel Omni-Path Fabric Host software User Guide

# Intel Omni-Path Host software stack



# Node

# Chassis

# Rack

# System

# SLURM

- Automatically chooses nodes close together in the fabric
- Therefore, jobs run usually on either odd or even numbered nodes.

# Dispersive routing

- OPA Fabric Manager configures 4 routes between each set of 2 nodes
- Packets are spread over these 4 routes, to better utilize the network