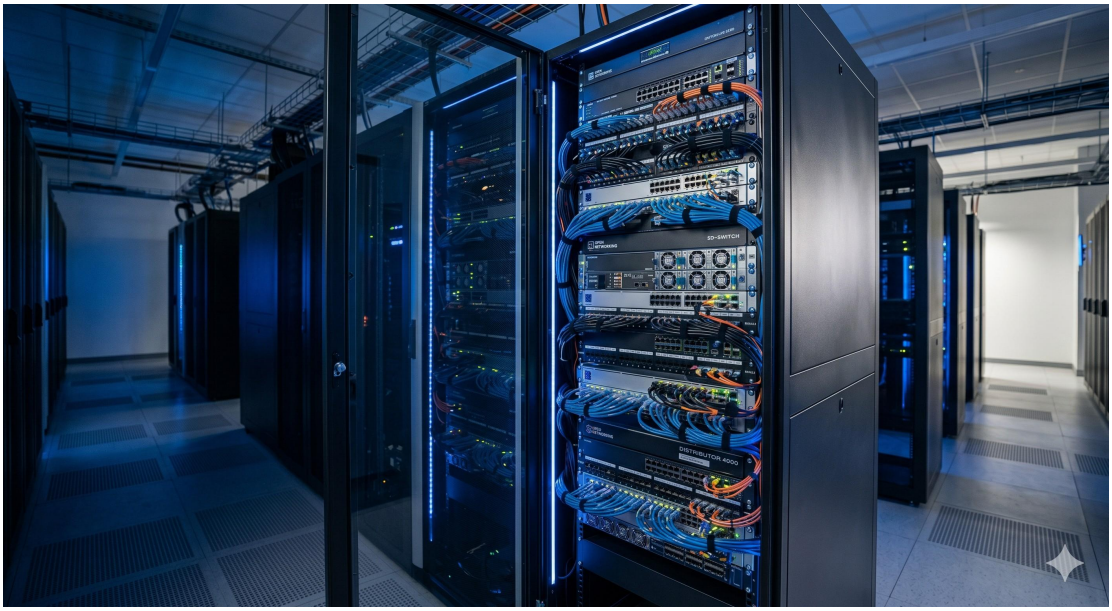
Open Networking Switch Distributor Platform Specification & Architectural Whitepaper

PRODUCT IDENTIFICATION

The Open Networking Switch Distributor (ONSD) series represents a paradigm shift in disaggregated networking infrastructure. Serving as a critical supply channel and hardware aggregation point, the ONSD platform is neither a conventional Top-of-Rack (ToR) switch nor a simple distribution switch. It is a purpose-built, high-density aggregation and forwarding node designed specifically for operators, system integrators, and data center architects who require hardware-agnostic, software-defined networking (SDN) readiness. This whitepaper details the systems engineering specifications, hardware topology, and operational compliance of the ONSD-7200 and ONSD-9800 series.



## SYSTEM HARDWARE TOPOLOGY

The ONSD chassis architecture is predicated on a fully non-blocking, cut-through switching fabric. Unlike traditional distribution switches that rely on shared memory architectures, the ONSD utilizes a distributed forwarding engine with a dedicated Packet Processor per 12-port bank. The hardware implements a clean separation between the Data Plane and Control Plane, utilizing a dual-core x86 host CPU for the Open Network Install Environment (ONIE) and support for third-party Network Operating Systems (NOS) such as SONiC, Cumulus Linux, or Pica8. The backplane is designed to support 400GbE SerDes channels, ensuring future-proof optical compatibility with QSFP-DD and OSFP cages.

## DATA & CONTROL PLANE CAPABILITIES

The ONSD distributor is engineered for line-rate throughput across all ports simultaneously. The forwarding Application-Specific Integrated Circuit (ASIC) provides a fully shared packet buffer of 32MB, dynamically allocated to prevent head-of-line blocking during traffic bursts. Control plane policing (CoPP) is enforced at the hardware level to ensure that protocol traffic (BGP, OSPF, LLDP) is never starved by data plane congestion. Key capabilities include: VXLAN routing and bridging, hardware-based GRE termination, and fine-grained

flow-based hashing via equal-cost multi-path (ECMP).

## COMPONENT BREAKDOWN

Front Panel Access: The front panel comprises hot-swappable power supply units (PSUs) and a field-replaceable fan tray module with N+1 redundancy. Port Side: The ONSD-9800 features 32 x 400GbE OSFP ports and 4 x 10GbE SFP+ management uplinks. The ONSD-7200 features 48 x 25GbE SFP28 and 8 x 100GbE QSFP28. Baseboard Management Controller (BMC): An integrated BMC provides out-of-band management via a dedicated 1GbE RJ45 port, supporting IPMI 2.0 for remote hardware monitoring, power cycling, and console access.

## OPERATIONAL SPECS MATRIX

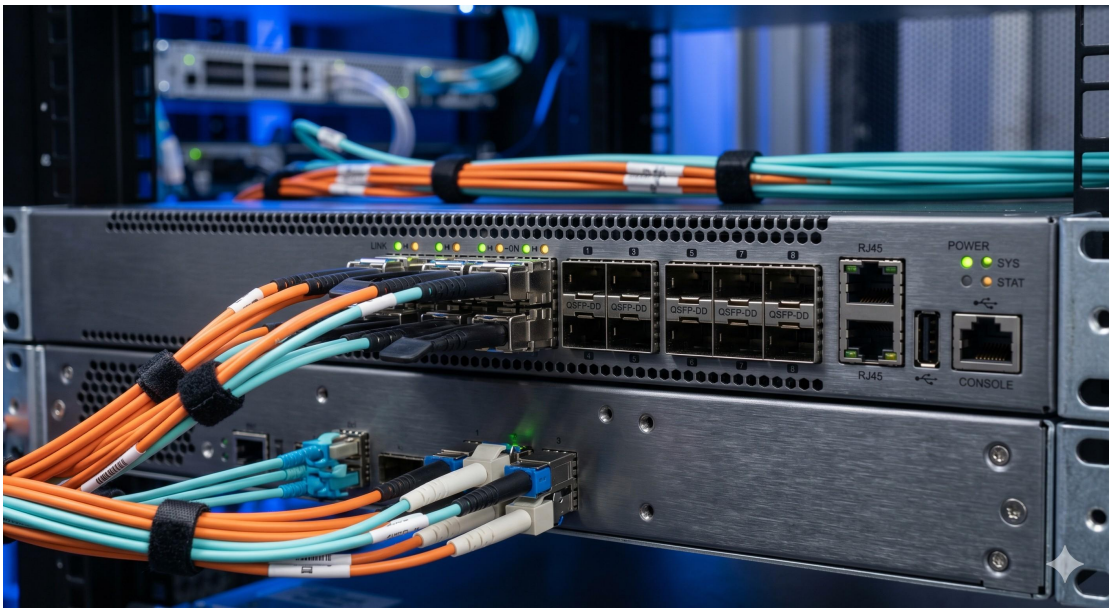
[IMAGE_1 placeholder is already above. Continuing with text.]

The hardware supports dual redundant, load-sharing power supplies (AC or DC variants). Thermal management is handled by a variable-speed fan array that adjusts based on intake air temperature and ASIC die temperature, capable of operating in ambient temperatures up to 45°C. The central processing unit is an Intel Atom C3758 (8-core, 2.2GHz) with 16GB of DDR4 ECC RAM and 64GB of industrial-grade M.2 SSD storage for NOS persistence.

| Parameter | Specification (ONSD-9800) | Specification (ONSD-7200) |
|---|---|---|
| Form Factor | 2RU Chassis | 1RU Chassis |
| Switching Capacity | 25.6 Tbps (Full Duplex) | 4.0 Tbps (Full Duplex) |
| Forwarding Rate | 8.4 Bpps | 5.95 Bpps |
| CPU / Memory | Intel Xeon D-1622 / 32GB RAM | Intel Atom C3758 / 16GB RAM |
| Power Supply | 1+1 Redundant (AC/DC, 2000W) | 1+1 Redundant (AC, 550W) |
| Operating Temperature | 0C to 45C | 0C to 45C |

REGULATORY COMPLIANCE

The ONSD series carries full certification for global distribution, including FCC Part 15 Class A, CE Mark (EMC Directive 2014/30/EU), and VCCI-CI. For carrier and telecom standards, the platform complies with NEBS Level 3 (GR-63-CORE and GR-1089-CORE) when equipped with the optional DC power filter and airflow conversion kit. Safety certifications include UL 60950-1 and IEC 60950-1. Additionally, the hardware is RoHS2 and WEEE compliant, ensuring environmentally responsible procurement.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