Enterprise Core Systems Engineering Reference Manual: Smart Managed Switches Distributor

PRODUCT IDENTIFICATION

The Smart Managed Switches Distributor (SMSD) platform represents a fundamental paradigm shift in network device lifecycle logistics and remote provisioning. Designed for the Carrier-Grade and Large Enterprise Distributor, the SMSD functions not merely as a passthrough agent but as an intelligent Layer 2/3 edge aggregation and pre-provisioning node. It facilitates zero-touch provisioning (ZTP), automated firmware reconciliation, and real-time inventory telemetry, bridging the gap between warehouse logistics and active network topology.



CORE INTERNAL TOPOLOGY

The SMSD architecture is defined by its dual-plane logic: a high-speed non-blocking switching fabric for data plane operations and a segregated x86 control plane for inventory management. The unit integrates a 24-port Gigabit Ethernet interface bank for local device connectivity and a 4-port 10GbE SFP+ uplink complex for headquarters telemetry synchronization. Internally, a 2.5-inch SSD bay hosts the Distributor Operating System (DOS) which manages serial number authentication, regional compliance profiles, and firmware staging. The platform supports Hardware Trust Root (TPM 2.0) to validate the integrity of stored firmware images before dispatch.

SWITCHING SUBSYSTEM CAPABILITIES

- Switching Fabric Capacity: 128 Gbps (non-blocking)
- Forwarding Rate: 95.23 Mpps (64-byte packets)
- MAC Address Table: 32,000 entries
- VLAN IDs Supported: 4094 (802.1Q)
- Jumbo Frame Support: up to 9216 bytes
- Link Aggregation: IEEE 802.3ad (up to 8 groups)

OPERATIONAL ADVANTAGES

- Zero-Touch Provisioning (ZTP): Auto-downloads site-specific configuration upon WAN uplink detection.

- Remote Inventory Audit: SNMPv3 traps provide real-time SKU-level tracking of connected switches.

- Firmware Staging & Validation: Pre-loads up to 16 different firmware variants for different switch SKUs.

- Automated Compliance Patching: Enforces regional telecom standards (e.g., FCC, CE) before shipment.

SPECIFICATION MATRIX

Parameter	**Specification**
Form Factor	1RU Standard 19-inch Rackmount
Switching Capacity	128 Gbps (Non-blocking)
Power Supply	Dual Hot-Swappable Redundant AC (100-240V, 50/60Hz)
Interface Composition	24x Gigabit RJ45, 4x 10GbE SFP+
Forwarding Rate	95.23 Mpps
Operating Temperature	0°C to 50°C (32°F to 122°F)
Mean Time Between Failures (MTBF)	285,000 hours
Dimensions (HxWxD)	1.73 x 17.32 x 15.75 inches (44 x 440 x 400 mm)

Weight	6.2 kg (13.67 lbs) with dual PSUs
Management Ports	1x RJ45 Console, 1x 1GbE Management Ethernet

REGULATORY COMPLIANCE

The SMSD complies with rigorous international standards for safety, emissions, and environmental management:

- Safety: IEC 62368-1, UL 60950-1
- Emissions: FCC Part 15 Class A, EN 55032 Class A, CISPR 32
- Environmental: RoHS 3 (2015/863/EU), WEEE, REACH
- Telecom: NEBS Level 3 (GR-1089-CORE, GR-63-CORE) for carrier central office deployment
- Energy Efficiency: ENERGY STAR 3.0 Network Equipment

