Cisco Catalyst 6880-X Series Extensible Fixed Aggregation Switch

The latest technology trends such as Bring Your Own Device (BYOD), Collaboration, Internet of Everything (IoT), and workforce mobility, are driving Enterprise IT to roll out rich network-based services and deliver on the growing demands of the next-generation enterprise. Cisco® Catalyst® 6800 Series Switches are next-generation SDN ready campus backbone switches optimized for 10G/40G/100G services. They provide **scalable, smart, simple, and secure** services based on the Cisco Catalyst 6500 DNA for investment protection.

The Cisco Catalyst 6880-X Series Switch, part of the Cisco Catalyst 6800 product family, is an extensible fixed aggregation switch that delivers best-in-class Cisco Catalyst 6500 features in a fixed form factor. This 40G/100G ready platform is ideal for those who want to introduce premium 10G services in small or midsize campus backbones. Based on the proven and stable Cisco Catalyst 6500 Series Supervisor Engine 2T architecture, this unique platform delivers unprecedented capabilities on day one that include best-in-class scalability, flexible 10G port density, a complete suite of L2/L3 virtualization, Virtual Switching System (VSS), Cisco Instant Access[1], Application Visibility and Control (AVC), Security (Cisco TrustSec®), multicast, IPv6, and rich media services (Medianet). With full MPLS/VPLS functionality and large table sizes (up to 2M IPv4 routes), this platform also offers a cost-optimal solution for Internet edge/peering deployments as well as emerging leaf-spine models.

Figure 1 shows the Cisco Catalyst 6880-X and port cards.

Figure 2 shows typical deployments for Cisco Catalyst 6880-X switches.

Deployment Options

- Standard and large table models
- Base supervisor module with 16 ports of 10 Gigabit Ethernet Small Form-Factor Pluggable Plus (SFP+) transceivers
- Up to 4 pluggable port cards[2], each supporting 16 ports of 10 Gigabit Ethernet SFP+
- Expandable from 16 to 80 ports of 10 Gigabit Ethernet per system in multiples of 16
- Single or optional dual redundant AC or DC platinum high efficiency power supplies
- Standalone or VSS configuration
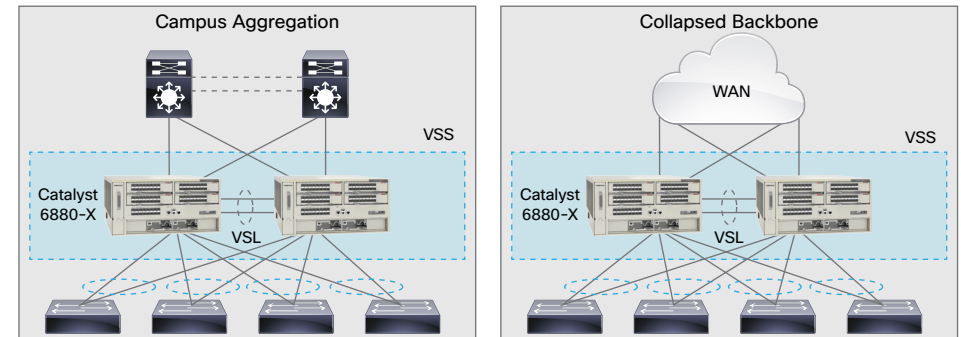- All ports support SFP/SFP+ 1G or 10G transceivers with no manual reconfiguration

Performance and Scalability Attributes

- Up to 300 Mpps IPv4 or 150 Mpps IPv6 forwarding rate
- Up to 300 Mpps L2 switching rate
- Up to 2M IPv4 or 1M IPv6 unicast routes or dual stack (shared)
- Up to 128K multicast routes for IPv4 or IPv6
- Up to 128K MAC entries
- Up to 256K security ACL/QoS shared entries
- Up to 5M Flexible Netflow entries per system, up to 1M per module slot
- Full suite of MPLS features with 16K VPN labels
- 16 paths load sharing (unicast, multicast, and MPLS)
- Hardware control plane policing (CoPP) and rate limiters
- Aggregate QoS policing, two-level shaping, dual strict priority queueing
- Each port is multirate supporting interface speeds from 1 Gbps[3] up to 40 Gbps[4]

[1] Cisco Instant Access on Cisco Catalyst 6880-X will be supported in Q1CY2014.
[2] Port cards will be supported in Q1CY2014.

Rich Network Software Services

The Cisco Catalyst 6880-X delivers industry-leading features that are proven on the Cisco Catalyst 6500 platform and deployed widely across different verticals in enterprise and service providers such as education, financials, healthcare, retail, transportation, and managed services. Primary benefits and innovations include:

- **Platform Scalability:** Pay as you grow model to meet and expand the growing enterprise 10G port density requirements in radically improved economics.
- **Application Visibility and Control (AVC):** Support for advanced applications such as Flexible Netflow for deeper visibility into the applications to optimize network resource usage, plan network capacity, and enhance security monitoring at application level. The platform also offers several rich media features, including Medianet, to ease video deployments in the enterprise and offer a rich user viewing experience for IPTV, Telepresence, and video surveillance.
- **Security:** Support for Cisco TrustSec (CTS), to provide IEEE 802.1AE MACsec encryption and role-based ACL, CoPP to prevent DoS attacks and Cisco ISE to safeguard and manage end-to-end security for the enterprise.
- **Virtualization:** Comprehensive suite of Virtualization features including L2/L3 VPN, full MPLS, EVN, VRF aware applications for NAT Netflow, GRE for v4/v6, L2 extensions with VPLS etc. to segment different user groups and serve unique security/QoS policy requirements of each of these diverse user groups.
- **High Availability:** By connecting two of the switches in VSS mode, the platform supports nonstop communication with stateful interchassis failover and subsecond virtual switch recovery. VSS mode eliminates the need for a First Hop Redundancy Protocol (FHRP) such as HSRP or VRRP in a simplified loop-free topology.

Smart Operations

The Cisco Catalyst 6880-X offers several smart solutions to manage the complex and growing demands of the enterprise and hence delivers significant operational benefits, including ease of management, configuration, and provisioning for the next-generation backbone. These solutions include:

- VSS, a widely deployed solution for smart management with a single IP address and configuration, with support for Multichassis EtherChannel (MEC).

- Smart Install Director for zero-touch installation, upgrade, and replacement. This solution provides significant ease of use to automate software image management, configuration, and upgrade of directly connected switches. In addition, this solution simplifies provisioning of new switches with network expansion and faster replacement of switches for quick failure recovery.
- Cisco Instant Access, an innovative technology to simplify, manage, and troubleshoot with a single point of management. This technology allows users to manage an entire distribution pod of connected access switches in one domain therby eliminating repetitive configuration of VLANs and portchannels across the pod. This solution not only extends several backbone features to the access layer that would otherwise not be available on the access but it also preserves the widely deployed access features such as PoE+ and stacking.
- Enhanced Fast Software Upgrade (EFSU) in an interchassis VSS configuration.
- Cisco Prime™ support, an integrated device management solution.

Reduced Total Cost of Ownership

Cisco Catalyst 6880-X Series Switches reduce operating expenses and lower total cost of ownership (TCO) in a small form factor with premium features, and efficient power consumption. These benefits include:

- Feature parity with Catalyst 6500, thereby providing operational investment protection while offering an upgrade path to the next generation backbone technologies.
- Expandability with a pay-as-you-grow model, allowing to meet the growing needs of enterprise backbone as they arise.
- Unprecedented investment protection with one platform designed to meet the high density 10G requirements of enterprise today while providing capabilities to support the emerging 40G/100G trends of the backbone in future.
- Simplified licensing with IP Services and Advanced Enterprise Services software license options to address the different services needs of the emerging backbone.

The Cisco Catalyst 6880-X redefines the next generation backbone by providing best-in-class features and scalability in a small form factor, at radically improved economics.

For More Information

Please visit http://www.cisco.com/en/US/products/hw/switches/index.html

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[3] SFP+ ports capable of supporting 1G SFPs and 10G SFP+s. Using the Cisco GLC-T SFP (1G Copper SFP) 1G/1000 Mbps Copper is also supported.
[4] With a reverse breakout cable(future support) combining four 10G ports to act as a 40G port.