

# Cisco Nexus Training

Cisco Nexus 9000, 7000, 5000, 2000

# Introduction to Nexus Switches

- These switches are designed for data-centers which support and provide High Availability, High Performance, Infrastructure Scalability, Operational Continuity.
- These are designed for wide range of datacentre deployments, mainly focused on high density and performance, mission-critical enterprise and service provider deployments.
- These switches offer most comprehensive data center network feature sets in a single platform.
- There are 8 categories of these hardware – Nexus 9000, 7000, 6000, 5000, 4000, 3000, 2000, 1000

# Cisco Nexus 7000/7700

1. Nexus 7000 switches offer a full feature set in a highly resilient modular platform.
2. These are two different hardware platforms, so remember that the components of 7000 series can't be used in 7700 series and vice-versa.
3. Both Cisco Nexus 7000 and Cisco 7700 series datacenter switch models support 1, 10, 40 and 100 Gbps port density.
4. There are mainly **four** components in nexus 7000 switches – Chassis, I/O modules, Supervisor Engines and Fabric Modules.

# Cisco Nexus 7000/7700

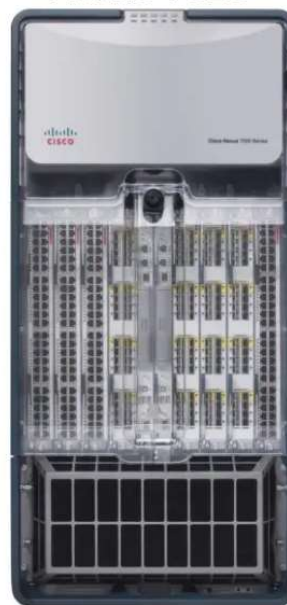
5. **Chassis** is basically a house for all modules, Sup engines, Fabric modules , power supplies and Fan modules and provides Cooling and power infrastructure to everything inside the chassis.
6. **I/O modules** are line cards ( M & F Series) which provide data plane forwarding to the switches.
7. **Supervisor Engine** is brain of the switch and provide management and control plane functions.
8. **Fabric Modules** provide high bandwidth inter-connection between I/O modules.

# Nexus 7000 Series Switches

Nexus 7004



Nexus 7010



Nexus 7018



Nexus 7009



# Nexus 7700 Series Switches

Nexus 7702



Nexus 7710



Nexus 7706



Nexus 7718



# Comparison Nexus 7000 & 7700

	Nexus 7000	Nexus 7700
Models Available	7004, 7009, 7010, 7018	7702, 7706, 7710, 7718
Supervisor Redundancy	Yes	Yes except 7702
Supervisor Modules	Sup 1, 2, 2E	Sup 2E, Sup 3E
Total Slots	4, 9, 10, 18	2, 6, 10, 18
I/O Modules	2, 7, 8, 16	1, 4, 8, 16
Max Bandwidth Per Slot	550 Gbps	2.8 Tbps
Max Switching Capacity	17.6 Tbps (Nexus 7018)	90 Tbps (Nexus 7718)
Supported M Series Line Cards	M1, M2, M3	M3 Only
Supported F Series Line Cards	F1, F2, F2e, F3	F2e, F3, F4
Fabric Modules	Fab1, Fab2	Fab2, Fab3
Max Fabric Modules Supported	5	6

# Comparison Nexus 7000 & 7700

## Calculating Total Switching capacity for 7718

It has **2.8** Tbps bandwidth per slot and 16 I/O modules

So total **Switching capacity** =  $2.8 * 16 * 2$  ( full duplex operation) =  
89.6Tbps  $\approx$  **90Tbps**

# Comparison Nexus 7000 Chassis

	Nexus 7004	Nexus 7009	Nexus 7010	Nexus 7018
Sup Redundancy	Yes	Yes	Yes	Yes
I/O Modules	2	7	8	16
Bandwidth Per Slot	440 Gbps	550 Gbps	550 Gbps	550 Gbps
Switching Capacity	1.92 Tbps	7.7 Tbps	8.8 Tbps	17.6 Tbps
1GE Ports	96	336	384	768
10 GE ports	96	336	384	768
40 GE Ports	24	84	96	192
100 GE Ports	12	42	48	96
Rack Unit ( 1 RU= 1.75 in)	7	14	21	25
AirFlow	Side-Rear	Side-Side	Front-Back	Side-Side

# Comparison Nexus 7700 Chassis

	Nexus 7702	Nexus 7706	Nexus 7710	Nexus 7718
Sup Redundancy	No	Yes	Yes	Yes
I/O Modules	1	4	8	16
Bandwidth Per Slot in Tbps	1.3	2.8	2.8	1.3
Switching Capacity in Tbps	5	23	45	90
1GE Ports	48	192	384	768
10 GE ports	48	192	384	768
40 GE Ports	60	120	240	480
100 GE Ports	60	120	240	480
Rack Unit ( 1 RU= 1.75 inches)	3	9	14	26
AirFlow	Front-Back	Front-Back	Front-Back	Front-Back

# Fabric Module

- Note, Chassis 7004, 7702 do not require Fabric Module as it is inbuilt.

# Supervisor Engine

- The supervisor engine is brain of the switch that controls the Layer 2 and 3 services, redundancy capabilities, configuration management, status monitoring, power and environmental management, and more.
- Management functions are Telnet, SSH, SNMP etc.
- Control plane functions like traffic of Routing Protocols, Spanning-Tree, LACP port channel etc.
- The Cisco Nexus 7000 Supervisor Module incorporates highly advanced analysis and debugging capabilities
- The supervisor module uniquely provides a built-in packet capture and protocol decoding tool that allows analysis of control plane traffic to improve network planning, provide faster operation response times to events, and reduce operating costs.

# Supervisor Engine Comparison Chart

	Nexus 7000 Sup 1	Nexus 7000 Sup 2	Nexus 7000 Sup 2E	Nexus 7700 Sup 2E	Nexus 7700 Sup 3E
CPU	Single Dual Core	Single Quad Core	Dual Quad Cores	Dual Quad Cores	Dual Quad Cores
Speed	1.66 GHz	2.13 GHz	2.13 GHz	2.13 GHz	2.0 GHz
DRAM	4GB	12GB DDR3	32GB DDR3	32GB DDR3	64GB DDR4
Flash Memory	Compact Flash-2GB	USB	USB	USB	USB
FCoE on F2 Module	No	Yes	Yes	Yes	
CPU Share	No	Yes	Yes	Yes	
VDCs	4 VDCs	4+1 Admin VDC	8+1 Admin VDC	8+1 Admin VDC	8+1 Admin VDC
FEX	32 FEX/1536 ports	32 FEX/1536 ports	64 FEX/3072 ports	64 FEX/3072 ports	64 FEX/3072 ports
Connectivity					
Management Processor	Supported	Not Supported	Not Supported	Not Supported	Not Supported
Weight	10 lb (4.5 Kg)	10.34 lb (4.7 Kg)	11.55 lb ( 5.25 Kg)	8.5 lb (3.86 Kg)	7.72 lb (3.5 Kg)
Dimensions(H x W x D)	1.2 x 15.3 x 21.9 inches	1.18 x 15.35 x 21.85 inc	1.18 x 15.35 x 21.85 inches	2.04 x 7.94 x 21.85 inches	2.04 x 7.94 x 21.85 inches

## Supervisor Engine for Nexus 7700



Nexus 7700 Sup 2E



Nexus 7700 Sup 3E

# Supervisor Engine for Nexus 7000



Nexus 7000 Sup 1



Nexus 7000 Sup 2



Nexus 7000 Sup 2E