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Architettura Cluster VSS design

VSS è una tecnologia di clustering utilizzata attraverso switch cisco Catalyst;

I due peers Catalyst sono collegati tra loro attraverso il VSL (Virtual Switch Link);

VSS usa interchassis NFS/SSO (No Stop Forwarding and Stateful Switchover) come funzionalità di alta affidabilità (HA) tra i due chassis;

Il data-plane (piano di forwarding) dei due peers è in stato active-active; questo permette un forwarding dei pacchetti a piena capacità di throughput.

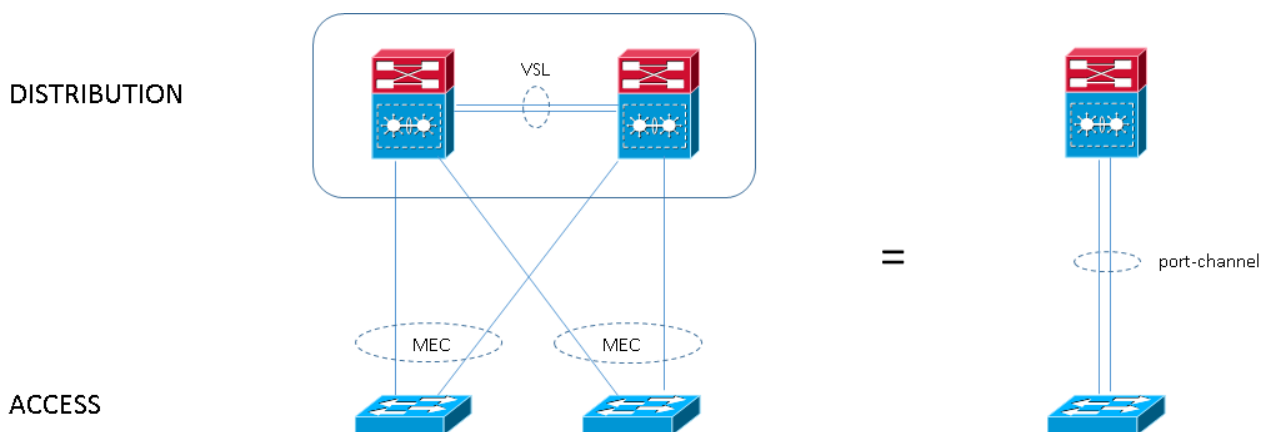
Il control-plane è gestito in modo centralizzato dalla SUP Engine active del peers VSS in modalità active; quando un peers VSS fallisce, non c'è riconvergenza di protocollo nella rete;

No disruption avviene ai flussi di traffico transitanti attraverso i due peers member;

VSS supporta PAgP (Port Aggregation Protocol), LACP (Link Aggregation Protocol), STP via active peers (lo standby peers chassis redirects gli STP BPDU verso l'active chassis attraverso il VSL, VTP (Virtual Trunk Protocol));

VSS supporta L3 port-channel;

VSS supporta IPv4, IPv4 Multicast, IPv6, MPLS, VPLS



Step di Configurazione

VSS Domain

```
SW1 (config)# switch virtual domain 10
```

```
SW1 (config)# switch 1
```

```
SW1 (config)# exit
```

```
SW2 (config)# switch virtual domain 10
```

```
SW2 (config)# switch 2
```

```
SW2 (config)# exit
```

VSL PORT-CHANNEL

```
SW1 (config)# interface port-channel 10
```

```
SW1 (config)# switch virtual link 1
```

→ associa lo switch 1 come responsabile del port-channel 10

```
SW1 (config)# no shut
```

```
SW1 (config) exit
```

```
SW2 (config)# interface port-channel 10
```

```
SW2 (config)# switch virtual link 2
```

→ associa lo switch 2 come responsabile del port-channel 10

```
SW2 (config)# no shut
```

```
SW2 (config) exit
```

VSL PORTS

```
SW1 (config)# interface range gigabitethernet 3/10-12
```

```
SW1 (config)# channel-group 10 mode on
```

```
SW1 (config)# no shut
```

```
SW1 (config) exit
```

```
SW2 (config)# interface range gigabitethernet 5/10-12
```

```
SW2 (config)# channel-group 10 mode on
```

```
SW2 (config)# no shut
```

```
SW2 (config) exit
```

CONVERTING CHASSIS TO VIRTUAL SWITCH MODE

```
SW1 (config)# switch convert mode virtual
```

SW2 (config)# switch convert mode virtual

DISPLAY INFORMATION VSS

show switch virtual → switch domain number and role chassis
show switch virtual role → role, switch number, priority per ciascun chassis in VSS
show switch virtual link → verifica status VSL

Nota:

After you confirm the command (by entering yes at the prompt), the running configuration is automatically saved as the startup configuration and the chassis reboots;

After the reboot, the chassis is in virtual switch mode, so you must specify interfaces with three identifiers (switch_#/module_#/port_#).

The two chassis now form a VSS, and the system will auto-configure the standby VSL. After the merge has completed successfully, enter all configuration commands for the VSS on the active chassis.

The startup configuration file is automatically synchronized to the standby chassis after the standby chassis reaches the ready state.

The VSS mode automatically merges the configuration information on the standby chassis.

All non-VSL interface configurations on the standby chassis revert to the default configuration and non-VSL related configurations are not merged.

If you fail to perform any of the required configurations, you will have to repeat the configuration on the active chassis.

Auto-configuration merges these commands for the standby chassis:

- hw-module switch number slot number
- switch virtual domain number
- switch number priority priority
- power redundancy-mode combined switch number
- no power enable switch num module number
- interface port-channel num switch virtual link number
- interface type switch_#/slot_#/port_# channel-group number mode on

VSS Hardware Cisco Table

Hardware/Software	Requirements
Minimum Software	Cisco IOS® Software Release 12.2(33)SXH1 Feature Set Requirement: IP Base*** or better
Supervisor Engine	Virtual Switching Supervisor 720-10GE (VS-S720-10GE-3C and VS-S720-10GE-3CXL) Note: Initial release supports a single supervisor engine per virtual switch member (or chassis). This restriction will be removed in a future software release.
Modules	All 6700 series modules with Centralized Forwarding card (CFC) All 6700 series modules with Distributed Forwarding Card (DFC) 3C or DFC3CXL Note: Support for WS-X6716-10G line card is available on 12.2(33)SXH2 and later version of software releases.
Distributed Forwarding Card (DFC)	DFC3C (WS-F6700-DFC3C and WS-F6700-DFC3C-XL)
VSL Ports: 10 Gigabit Ethernet Ports	Virtual Switching Supervisor 720-10GE WS-X6708-10G-3C and WS-X6708-10G-3CXL WS-X6716-10G-3C and WS-X6708-10G-3CXL **
Maximum VSL Distance	Maximum VSL distance depends on X2 optics used for VSL 10 Gigabit Ethernet connections: X2-10GB-CX4: 15m X2-10GB-LX4: 300m X2-10GB-SR: 26m (FDDI grade MMF), 300M with OM3 MMF) X2-10GB-LR: 10km X2-10GB-ER: 40km X2-10GB-LRM: 220m over MMF X2-10GB-ZR: 80km **
Chassis	All Cisco Catalyst 6500 chassis*
Power Supply	Cisco Catalyst 6503-E and 6504-E Switches: all supported power supplies Cisco Catalyst 6506, 6506-E, 6509, 6509-E, 6509-NEB-A, 6509-V-E, and 6513 Switches: 2500W and above
Service Modules	Network Analysis Module 1 and 2 Intrusion Detection Module** Wireless Integrated Services Module** Firewall Integrated Services Module** Application Control Engine Module**