Virtual Chassis provides a simple way of interconnecting multiple switches into a ring topology and managing those interconnected switches as a single device. VCF also simplifies network topology by managing or eliminating the need for loop prevention protocols like Spanning Tree Protocol (STP).

Virtual Chassis Fabric uses many of the same principles of Virtual Chassis, but it is purpose-built for data center traffic that requires predictable and consistent performance for virtualized and non-virtualized workloads.

VCF has the following attributes:
- It has a deterministic latency between any two endpoints within the fabric.
- It has a deterministic performance between any two points within the fabric.
- It supports workload mobility — anywhere in the fabric — without impacting performance.
- All host nodes within the fabric are equal distance, equal hops, from each other.
- VCF has a single point of management.
- Once VCF has been deployed, you can automate a variety of day-to-day management tasks using many tools, such as Puppet, Chef, Ansible, Python, and Junos Space.
- VCF allows customers to achieve a consistent fabric. VCF has a deterministic latency between any two endpoints, and it supports workload mobility anywhere within the fabric without impacting performance.

Virtual Chassis Fabric (VCF) evolves Virtual Chassis by allowing customers to interconnect multiple switches into a spine-and-leaf fabric architecture and manage the interconnected switches as a single device. VCF provides many of the benefits of a Virtual Chassis while supporting up to 32 devices. VCF works well for small data centers in which the Point of Delivery (POD) size could be as large as 30 racks, and can still be managed from a single device for the entire fabric.

What are Virtual Chassis and Virtual Chassis Fabric?

How do these technologies work?

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What problems do they solve?

Virtual Chassis solves a problem of complex management. It is optimized for traffic that is directionally North-South traffic, for example, between a user and an application. It is optimized for deployment in campus or enterprise networks.

Virtual Chassis Fabric also tackles complex management by providing connectivity for applications within data centers. This machine-to-machine, or application-to-application traffic, also referred to as East-West traffic, is in addition to the North-South traffic between data center and user. East-West traffic often lives on virtual machines (VMs) and as these VMs move, overall performance still needs to be predictable and deterministic. In order to optimize bandwidth for the growing amount of East-West traffic and support workload mobility, VCF uses a three-stage Clos spine-leaf topology optimized for data centers.

Benefits of Virtual Chassis and Virtual Chassis Fabric

Virtual Chassis is managed from a single IP address, eliminating the need to have an IP address for each device. Traffic can easily be redirected within a Virtual Chassis when a member device fails, increasing fault tolerance. And, Virtual Chassis simplifies network topology by minimizing or eliminating the need for loop prevention protocols like Spanning Tree Protocol (STP).

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What Juniper switches can I use?*

Virtual Chassis: Most EX Series Ethernet switches, as well as QFX Series switches, support Virtual Chassis.

Virtual Chassis Fabric: QFX5100 switches are used as spine devices. QFX5100 and EX4300 switches can be used as leaf devices.

QFX Series: Low-Latency, High-Performance Ethernet Switches
QFX Series data center switches are high-performance, low-latency platforms for top-of-rack or end-of-row installations. They can also be deployed as 100GE or 400GE devices in Virtual Chassis, Virtual Chassis Fabric, and Junos Fusion fabric architectures.

EX Series: Highly-available, Powerful Ethernet Switches
These carrier-class switching solutions are for converged enterprise branch offices, campuses, and cost-optimized data centers, as well as for service provider deployments. They address escalating demands for high availability, unified communications, mobility, and virtualization within enterprise networks.

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*Always check product literature and data sheets for specific Virtual Chassis or VCF compatibility.