

## Advanced Data Center Switching

**Durée: 5 Jours**    **Réf de cours: ADCX**    **Méthodes d'apprentissage: Virtual Learning**

### Résumé:

This five-day course provides a comprehensive focus on Juniper Networks data center switching technologies. The first three days are designed to introduce the data center features including zero touch provisioning (ZTP), unified in-service software upgrade (ISSU), multichassis link aggregation (MC-LAG), Mixed Virtual Fabric, and Virtual Chassis Fabric (VCF) and provide students with knowledge of troubleshooting some of the key data center features including MC-LAG, Virtual Chassis, and VCF deployments. The last two days of the course are designed to introduce data center features that are more advanced including IP Fabric, Virtual eXtensible Local Area Network (VXLAN) Layer 2 and Layer 3 Gateways, VXLAN with Ethernet VPN (EVPN) signaling and Data Center Interconnect (DCI) for a VXLAN overlay. Students will learn to configure and monitor these features on the Junos operating system running on the QFX5100, EX4300, and vMX Series platforms. Through demonstrations and hands-on labs, students will gain experience configuring, monitoring, troubleshooting, and analyzing the mentioned features of the Junos OS.

### Public visé:

This course benefits individuals responsible for configuring, monitoring, and troubleshooting data center features that exist on the Junos OS running on data center-oriented platforms such as EX Series, QFX Series, MX Series, and vMX Series devices. This includes individuals in professional services, sales and support organizations, and the end users.

### Objectifs pédagogiques:

- List the various models of QFX5100 Series switches and explain how they solve current challenges.
- Describe the requirements and upgrade procedure of Virtual Chassis Fabric.
- List some data center architecture options.
- Describe how to manage a Virtual Chassis Fabric with Junos Space.
- Explain the purpose, components, and operations of ZTP.
- List and use available troubleshooting tools.
- Deploy a QFX5100 Series switch using ZTP.
- Identify and resolve potential issues with MC LAG.
- Explain the purpose, components, and operations of ISSU.
- Identify and resolve potential issues with Virtual Chassis.
- Upgrade a QFX5100 Series switch using ISSU.
- Identify and resolve potential issues with VCF.
- Explain the purpose, components, and operations of MC-LAG.
- Describe the various data center fabric architectures.
- Implement an MC-LAG on QFX5100 Series switches.
- Explain and configure routing in an IP Fabric.
- Describe key concepts, components, and operation of a mixed Virtual Chassis.
- Explain, configure, and monitor VXLAN when using multicast signaling.
- Implement a mixed Virtual Chassis and verify its operations.
- Describe configure, and monitor EVPN signaling for VXLAN.
- Describe Virtual Chassis Fabric concepts and components.
- Describe the control and data plane of an MPLS VPN.
- Describe how to provision a Virtual Chassis Fabric using different methods.
- Describe the DCI options when using a VXLAN overlay with EVPN signaling.

### Pré-requis:

- Understanding of the OSI model;
- Advanced routing knowledge—the Advanced Junos Enterprise Routing (AJER) course or equivalent knowledge
- Intermediate switching knowledge—the Junos Enterprise

## Contenu:

Day 1 :

COURSE INTRODUCTION:

2 System Overview :

- Traditional Multitier Architecture Challenges
- Next Generation data Center Fabrics
- QFX5100 Series Switches
- Additional Features

3. Zero Touch Provisioning :

- Understanding Zero Touch Provisioning
- ZTP in Action: A Working Example

4. In-Service Software Upgrade:

- Understanding ISSU on QFX5100 Series Switches
- ISSU in Action: A Working Example
- LAB 2: In-Service Software Upgrade

Day 2 :

5. MC-LAG • MC-LAG Overview :

- MC-LAG Operations
- Deploying MC-LAGs
- LAB 3: MC-LAG

6 .Troubleshooting Multichassis LAG :

- MC-LAG: An Operational Review
- Connections and Communications
- Troubleshooting Example
- LAB 4: Troubleshooting Multichassis LAG

7 Mixed Virtual Chassis:

- Overview of Mixed Virtual Chassis
- Provisioning a Mixed Virtual Chassis
- Software Requirements and Upgrades
- Configuring and Monitoring a mixed Virtual Chassis
- LAB 5: Mixed Virtual Chassis

Day 3 :

8 .Virtual Chassis Fabric :

- Overview of Virtual Chassis Fabric
- VCF Control and Forwarding Plane

9 .Virtual Chassis Fabric Management :

- Managing a Virtual Chassis Fabric using the CLI
- Dynamically Provisioning a Virtual Chassis Fabric
- Preprovisioning and Autoprovisioning a Virtual Chassis Fabric
- Software Requirements and Upgrades
- Managing a Virtual Chassis Fabric with Space
- LAB 6: Virtual Chassis Fabric

10 .Troubleshooting Virtual Chassis Technologies:

- Virtual Chassis Technology Review
- Processes and Components
- Troubleshooting Case Study
- LAB 7: Troubleshooting Virtual Chassis Technologies

Day 4:

11 IP Fabric :

- IP Fabric Overview
- IP Fabric Routing
- IP Fabric Scaling
- Configure an IP Fabric

LAB 8: IP Fabric

Day 5 :

12. VXLAN :

- Layer 2 Connectivity over a Layer 3 Network
- VXLAN using Multicast Control Plane
- VXLAN Configuration
- LAB 9: VXLAN

13. EVPN :

- The Benefits of EVPN
- VXLAN using EVPN Control Plane
- EVPN/VXLAN Configuration
- Lab 10: VXLAN and EVPN Signaling

14 .Data Center Interconnect

- DCI Overview
- MPLS VPN Review
- DCI Options for a VXLAN Overlay

## Autres moyens pédagogiques et de suivi:

- Compétence du formateur : Les experts qui animent la formation sont des spécialistes des matières abordées et ont au minimum cinq ans d'expérience d'animation. Nos équipes ont validé à la fois leurs connaissances techniques (certifications le cas échéant) ainsi que leur compétence pédagogique.
- Suivi d'exécution : Une feuille d'émargement par demi-journée de présence est signée par tous les participants et le formateur.
- Modalités d'évaluation : le participant est invité à s'auto-évaluer par rapport aux objectifs énoncés.
- Chaque participant, à l'issue de la formation, répond à un questionnaire de satisfaction qui est ensuite étudié par nos équipes pédagogiques en vue de maintenir et d'améliorer la qualité de nos prestations.