Open Cloud Interconnect Services

Implement and ensure the operational success of your Open Cloud Interconnect solution

BUILD MORE THAN A NETWORK.

Maximizing the value of your Juniper Networks® Open Cloud Interconnect solution requires a consistent approach to network design, implementation, and operation—regardless of whether you are migrating from current optical networks, adding optical technology to existing data centers, or deploying an entirely new end-to-end multi-data center infrastructure.

Open Cloud Interconnect Services Overview

We live in a connected world where business needs change rapidly. The ability to quickly add, change, or enhance network functionality is critical for today's enterprise networks, and is the impetus behind the industry-wide shift to cloud-based services. Juniper Networks Open Cloud Interconnect is crucial to this effort, providing the necessary infrastructure for delivering end-to-end services as well as application performance and availability in a multi-data center environment.

Open Cloud Interconnect enables any network operator to take advantage of cloud-based services through simple network operations, superior performance, and unconstrained innovation. By supporting multiple approaches to Data Center Interconnect (DCI), including integrated and disaggregated models, Open Cloud Interconnect delivers the flexibility to tailor any solution and service offering to any network operator.

The Open Cloud Interconnect solution includes integrated 100GbE coherent optics on Juniper Networks QFX Series switches; MX Series 3D Universal Edge Routers and PTX Series Packet Transport Routers; and BTI Packet Optical Platforms optimized for DCI. It also includes end-to-end optical network management and control through proNX Service Manager; advanced Layer 3 VPN and Ethernet VPN (EVPN) IP routing services through Juniper Networks Junos® operating system; and network virtualization with Juniper Networks Contrail. Working together, these components provide end-to-end connectivity and seamless services across SDN/overlay, packet, and optical layers all the way through to the data center/cloud endpoints, delivering the flexibility to support various approaches to DCI, such as when there are existing transport/optical layers.

Juniper provides a full suite of services for all aspects of DCI network planning, deployment, and operations across a range of use cases that ensure lower operating expenses, shorter time to revenue, and quicker returns on investment with far less risk. Through the Juniper Networks Professional Services organization, the implementation of Open Cloud Interconnect is customized and optimized to each customer's needs, ensuring that its full potential—as a driver of performance and innovation—is realized.

Challenges

Businesses are moving to the cloud to support and deliver a wide range of services. The cloud, however, fundamentally changes the way applications are built and delivered, creating complex capacity planning and design challenges for network operators. Today's mobile-first, cloud-first application traffic increasingly flows into and out of the data center to peering points, partner networks, and other data centers.

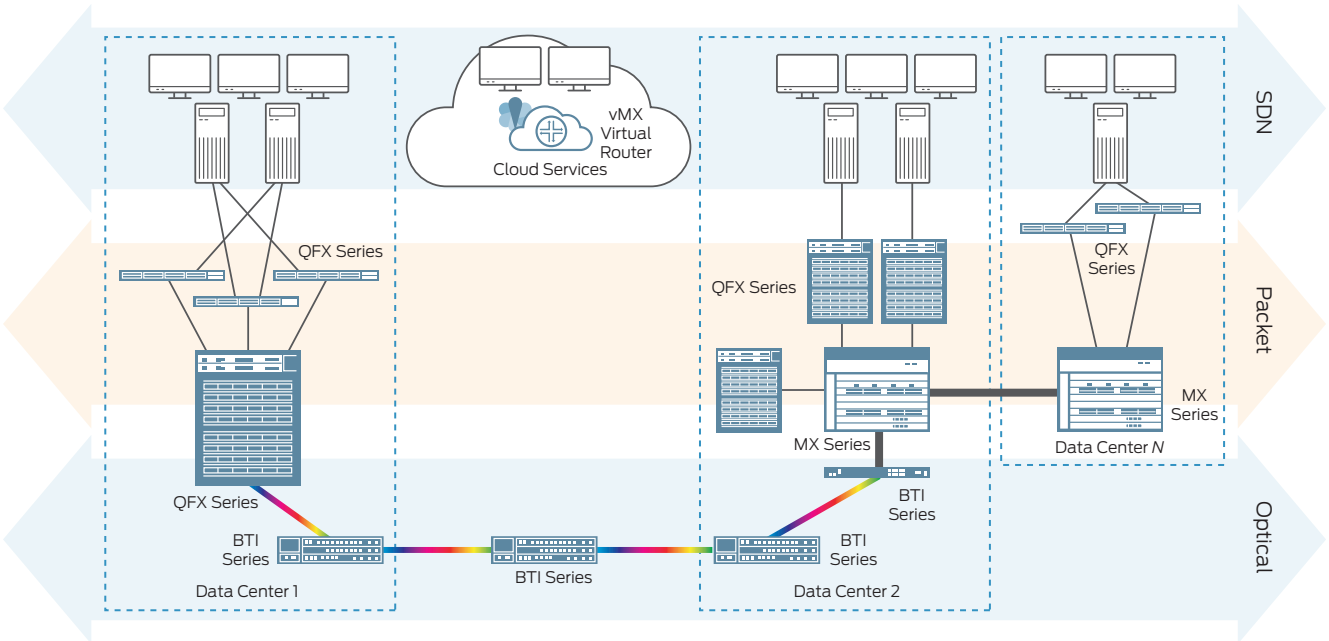

Figure 1: Open Cloud Interconnect components and layers

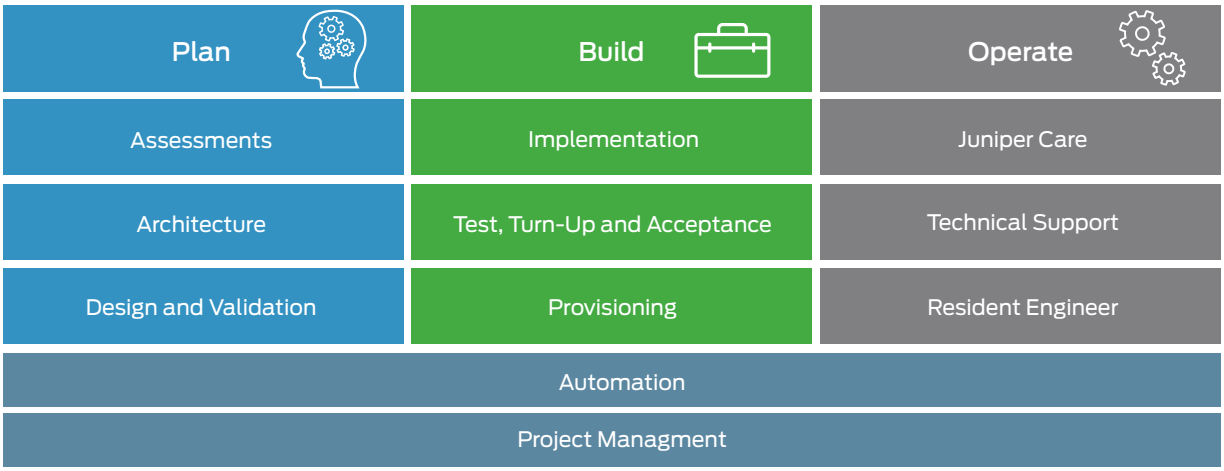

Figure 2: Plan, Build, and Operate life cycle

Networks designed to support traditional traffic flows and data transport services are too costly, complex, and inflexible for today's dynamic cloud environments. The first generation of DCI solutions was designed for scale, but these solutions were typically built on separate layers of switching, routing, and optical networking elements, each with unique vendor-specific administrative interfaces and limited APIs, leading to operational complexity and vendor lock-in. As a result, first-generation solutions tended to hamper network innovation at a time when cloud business opportunities were expanding, impeding growth.

Trends

With Open Cloud Interconnect, Juniper ushers in the next generation of DCI networks. The solution gives operators the versatility to interconnect data centers with a combination of high-capacity coherent optics and DCI-optimized packet, security, virtualization, and network control technologies—all in an open, programmable environment unconstrained by operational silos, vendor lock-in, and interoperability challenges.

The Open Cloud Interconnect network infrastructure portfolio includes MX Series 3D Universal Edge Routers, QFX Series switches, and the BTI7800 line of Packet Optical Transport Systems. To optimize network management and control, data center operators can use the Open Cloud Interconnect software tools—Juniper Networks proNX Service Manager, Junos Space management applications, Contrail SDN-enabled management and control software, and NorthStar Controller—that best suit their needs. Finally, Juniper Professional Services can help customers plan, build, and operate their new Open Cloud Interconnect network.

Open Cloud Interconnect-Related Services

Open Cloud Interconnect-related services are organized around the three phases of any new technology deployment: Plan, Build, and Operate.

Open Cloud Interconnect Plan and Build Services

Open Cloud Interconnect services follow the principles of the data center transformation methodology, which, in conjunction with project management, breaks the Plan and Build phases into four distinct stages: Assess, Design, Validate, and Implement. Additional details can be found in the white paper titled: "A Methodology for Transforming Data Center Networks."

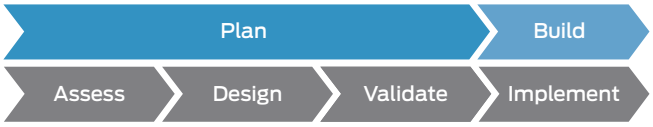

Figure 3: Plan and Build services

Integral to all Professional Services engagements is the need for robust and effective project management and risk mitigation to ensure timely delivery and superior quality of complex projects. This is particularly important with respect to Open Cloud Interconnect, which features multiple layers and components. The Juniper Networks Project Management Methodology (JPMM) offers a combination of globally recognized methodologies, including Project Management Institute (PMI) and PRINCE2, augmented by the accumulated knowledge and experience of Juniper project teams around the world. More details can be found in the "Project Management and Risk Mitigation" datasheet.

Open Cloud Interconnect Solution Plan Services

An initial set of Assessment Services is the best mechanism for evaluating options and defining a strategic technology roadmap for your data center and DCI solution. Juniper offers just such a service, which follows a proven and well-established Assessment Methodology covering Requirements, Gap Analysis, and Recommendation. More details on Juniper's Professional Services Assessment Methodology can be found in the white paper titled: "A Methodology for Transforming Data Center Networks."

DCI Assessment

Juniper's DCI Assessment service helps cloud providers, enterprises, and service providers assess how they should connect their data centers to achieve the best possible Open Cloud Interconnect environment. The DCI Assessment service offers an expert assessment of design and technology options for your data center interconnect strategy, enabling you to support current business activities while also providing a cost-effective, scalable, robust, and adaptable environment for the future. Additional details can be found in the DCI Assessment Service datasheet.

Data Center Migration and Risk Mitigation Assessment

The Data Center Migration and Risk Mitigation Assessment service provides expert guidance on how to transition to a simple, smart, and open data center while enabling organizations to support current business activities during the migration process.

This service is designed to mitigate the technical as well as the financial risks inherent in the migration, and is available to all customers regardless of their existing data center equipment providers. It is delivered by Juniper consultants with practical, in-depth experience in similar data center migrations. Additional details can be found in the Data Center Migration and Risk Mitigation Assessment datasheet.

DCI Design and Validation Services

Complementing the Assessment services, Juniper Professional Services also offers a Design and Validation service that covers overlay, packet, and optical layers, ensuring that there is a single, coherent, consistent design across all Open Cloud Interconnect technology components to support end-to-end service and connectivity requirements.

As part of the Design and Validation service process, customer requirements gathered in the assessment phase come together with the Juniper DCI solution to form a detailed customer-specific design, which is then validated through testing against function and performance requirements.

Open Cloud Interconnect Build Services

Juniper offers a wide variety of DCI-related professional services as part of the Build phase of the network life cycle in order to meet specific implementation goals with the right level of engagement, technical expertise, and automation. The goal of these services is to ensure operational readiness, allowing you to focus on executing your go-to-market strategy in a timely manner.

DCI Implementation

The DCI Implementation service deploys Open Cloud Interconnect in the end customer's production environment. Depending on the customer's use cases, requirements, and/or deployment models, different services or service components may be required.

The overall core services/service components that are part of DCI Implementation are shown in the following table, displayed across the three DCI layers:

Services/Service Components	SDN/Overlay	Packet	Optical
Site Survey Establishing site readiness for installation services.	N/A	N/A	✓
Fiber Characterization A series of tests on all installed links in order to assess the fiber quality and specific ability to support a particular application or applications. As data rates increase and systems become more complex, there are many factors that can impair system performance.	N/A	N/A	✓
Installation and Commissioning Deployment of components in the customer environment.	✓	✓	✓
Implementation Device, infrastructure, and connectivity configuration based on agreed-upon designs.	✓	✓	✓
Test, Turn-Up, and Acceptance Implementation testing and turn-up of network layers and connectivity based on Acceptance Tests.	✓	✓	✓
Provisioning Infrastructure provisioning utilizing direct and management systems.	✓	✓	✓
Live Traffic Cutover/Migration Cutover and migration of services from end to end through packet and optical layer.	✓	✓	✓

More details can be found in the Service Link Professional Services Overview datasheet.

Contrail JumpStart

Juniper Networks Contrail Networking JumpStart Services are a part of an overall set of services designed to enable the rapid adoption of Juniper's core software products. As a component of the Open Cloud Interconnect solution, Contrail can initially be implemented using the JumpStart service or incorporated as part of the overall DCI Implementation service. Additional details can be found in the Contrail Networking JumpStart datasheet.

Automation Services

Juniper's Professional Services team utilizes powerful automation tools and a rich library of solution-specific capabilities to drive quality and efficiency. This allows for more in-depth and agile retest capabilities as enhancements are introduced during the design validation testing phase. For the deployment phase, this speeds setup and adds depth to QA testing for faster ROI with less risk. For ongoing operations, the same automation can be used for auditing, health checks, and upgrades. Automation can be built into the Juniper DCI Implementation service. Custom development of, or integration with, the existing environment is also possible.

Open Cloud Interconnect Operate Services

Juniper offers a combination of Onsite and Remote Operational Services, called Advanced Services, to protect your networking investment and ensure the operational success of your Open Cloud Interconnect solution.

Onsite Operational Services

Juniper's Onsite Operational Services act as an extension of all Juniper resources, delivered directly to your site via a Field Service Engineer, Resident Engineer, or Resident Consultant. The onsite resource, versed in relevant Juniper technologies such as DCI and data center operations, leverages internal Juniper skillsets and expertise to facilitate faster problem resolution and best practices.

Remote Operational Services

Juniper offers a range of remotely delivered services, each designed for different needs:

- **New Customer Onboarding** assists new customers who need help getting Juniper equipment up and running.
- **Juniper Care** is a family of service and support tools that covers Juniper's hardware and software products and includes our Automated Support and Prevention (ASAP) capabilities.
- **Juniper Care Plus** builds closer operational ties between the end user and Juniper experts. It includes a named service manager, expert-to-expert access, and training and service credits.
- **Juniper Optimum Care** provides a rich set of ongoing, proactive technical services that target operational excellence for your network.
- **Customer-Focused Technical Support** provides access to a designated senior support engineering team that has knowledge of your network architecture, topology, devices, and the applications that your network uses. This team responds to your highest priority incidents, accelerating time to resolution and enabling higher availability.

All of these elements are important when running a complex solution such as Open Cloud Interconnect. These services allow you to build a close relationship with the technical experts inside Juniper, giving you a great deal of flexibility regarding the proactive services you choose, including educational service credits. For more information, please consult the Advanced Services webpage.

Summary—Juniper Helps You Plan, Build, and Operate Your Open Cloud Interconnect Solution

Continued rapid inter-data center traffic growth is a given. The challenge ahead for data center operators is to scale the DCI network, simplify network operations, and accelerate the delivery of high-growth cloud services. Juniper Networks Open Cloud Interconnect is designed to meet these challenges head-on by enabling a versatile range of DCI network designs, collapsing operational silos, and opening up the network to drive faster innovation—ultimately helping data center operators build better cloud services.

Juniper Professional Services can help in the Plan, Build, and Operate phases of your transition, letting you capitalize on cloud-based business opportunities quickly and easily through simplified operations, superior performance, and unconstrained innovation.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at Juniper Networks or connect with Juniper on Twitter and Facebook.

Corporate and Sales Headquarters
Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or +1.408.745.2000
Fax: +1.408.745.2100
www.juniper.net

APAC and EMEA Headquarters
Juniper Networks International B.V.
Boeing Avenue 240
1119 PZ Schiphol-Rijk
Amsterdam, The Netherlands
Phone: +31.0.207.125.700
Fax: +31.0.207.125.701

EXPLORE JUNIPER
Get the App.
JUNIPER 1ON1
Download on the App Store
ANDROID APP ON Google Play

Copyright 2017 Juniper Networks, Inc. All rights reserved. Juniper Networks, the Juniper Networks logo, and Junos are registered trademarks of Juniper Networks, Inc. in the United States and other countries. All other trademarks, service marks, registered marks, or registered service marks are the property of their respective owners. Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

1600096-001-EN Mar 2017