The growing popularity and adoption of switching fabrics, new protocols, automation, orchestration, security technologies, and software-defined networks (SDNs) are strong indicators of the need for a more agile network in the data center. Juniper Networks has applied its networking expertise to the problems of today's data centers to develop the MetaFabric Architecture—a combination of switching, routing, security, software, orchestration, and SDN, all working in conjunction with an open technology ecosystem to accelerate the deployment and delivery of applications for enterprises and service providers.

The MetaFabric Architecture addresses the problems common in today's data center by delivering a network and security architecture that accelerates time to value, while simultaneously increasing value over time.

MetaFabric Architecture 1.0 Solution Design Highlights

**Feature** | **Implementation**
--- | ---
Compute and Virtualization | IBM Flex System Servers, VMware vSphere 5.1, vCenter
Core and Edge Networks | MX240 Routers, EX9214 Switches
Access and Aggregation | QFX3000-M QFabric System
Layer 2 and Layer 3 Protocols | OSPF, BGP, IRB, and VLANs
Storage | EMC VNX5500 Unified Storage
Applications | Microsoft SharePoint, Microsoft Exchange, and WikiMedia Run at Scale
High Availability | Nonstop Software Upgrade, In-service Software Upgrade, SRX J-BRP Cluster, MC-LAG Active/Active with VRBP
Class of Service | Lossless Ethernet, End-to-end Application Class of Service
Security | SRX3600, Firefly Host
Remote Access | Junos Pulse Gateway SA
Network Management | Junos Space Network Director 1.5, Security Director
Out-of-band Management Network | EX9214 Virtual Chassis
Application Load Balancer | F5 LTM Load Balancer

MetaFabric Architecture 1.0 Sizing Options

<table>
<thead>
<tr>
<th>Role</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge</td>
<td>MX240 SRX1400</td>
<td>MX240-5SRX3400</td>
<td>MX240-5SRX3600</td>
</tr>
<tr>
<td>Core</td>
<td>QFX3600</td>
<td>QFX3000-M</td>
<td>EX9214</td>
</tr>
<tr>
<td>Aggregation</td>
<td>QFX3000-M (x6 PODs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>QFX3500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Density</td>
<td>336 Ports</td>
<td>768 Ports</td>
<td>4032 Ports</td>
</tr>
</tbody>
</table>

The MetaFabric Architecture 1.0 solution uses two QFabric systems and each QFabric system acts like a single, large switch requiring only one management IP address for sixteen racks of equipment. In effect, management tasks are reduced by over 90%.

Juniper Networks devices use standards-based Layer 3 protocols and interact with VMware vCenter APIs. In addition, this solution includes interoperability with ecosystem partners such as VMware, EMC, IBM, and F5 Networks.

Open

Juniper Networks devices use standards-based Layer 3 protocols and interact with VMware vCenter APIs. In addition, this solution includes interoperability with ecosystem partners such as VMware, EMC, IBM, and F5 Networks.

Smart

In this solution, smart workload mobility with automated orchestration and template-based provisioning is provided by using Junos® Space Network Director.