

# Cloud Dynamics Leverages SDN to Speed Customers' Journey to the Cloud

## Summary

### Company:

Cloud Dynamics

### Industry:

Cloud Provider

### Challenges:

Build a scalable, agile cloud data center solution to help clients move quickly to public or private clouds

### Selection Criteria:

Virtual network solution to provide a complete, end-to-end converged cloud infrastructure that allows customers to quickly and securely deploy an open cloud environment.

### Network Solution:

- MetaFabric Architecture including:
  - Contrail SDN solution
  - EX4500 and EX4200 Ethernet Switch
  - QFX3500 Switch
  - SRX650 Services Gateway
  - Junos Space Network Management Platform

### Results:

- Quick migration to the cloud using an easily deployable, out-of-the-box, green cloud data center solution
- Improved client confidence in cloud computing through integrated, multilayered, and secure open MetaFabric architecture
- Achieved faster service delivery, greater IT agility, and significant cost savings through automation



Cloud Dynamics has set out to enable the cloud. Cloud Dynamics delivers highly-efficient private cloud infrastructure with a patented cloud operating system, a converged infrastructure fabric, a cloud resource management tool, and a green power and cooling system. With Cloud Dynamics, service provider, enterprise and public-sector customers can move to cloud services faster and at a lower cost.

## Challenge

“Traditional IT departments operate in a silo environment,” observes Vijai Karthigesu, chief operating officer at Cloud Dynamics. “Cloud computing demands a more integrated approach.”

CloudDC includes a converged infrastructure fabric that is open, standards-based, and integrated with high levels of automation and orchestration. “In designing CloudDC, we needed a flat network architecture to ensure a greatly simplified and extremely fast data path,” says Karthigesu. “Location cannot be a barrier with our need to provide any-to-any connectivity. A network fabric is critical to enable us to minimize latency, eliminate congestion, and ensure optimal network performance for applications for all of our clients.”

*“The integration of Juniper Contrail with our powerful CloudDC solution enables our customers to maximize service agility and deliver advanced network-as-services without compromising security and privacy.”*

Vijai Karthigesu, Chief Operating Officer, Cloud Dynamics

## Selection Criteria

Cloud Dynamics needed a simple, smart, and open network fabric for CloudDC that would enable the creation of highly scalable virtual networks. The network fabric used as part of CloudDC had to integrate easily with its cloud resource management tool.

Cloud Dynamics sought a partnership with a Tier 1 networking and security company with a proven track record of operating in multivendor environments with solutions that could scale to meet future demands. Cloud Dynamics also wanted a strategic partner that was committed to its clients' success. Cloud Dynamics found all of these key ingredients with Juniper Networks.

## Solution

Juniper's MetaFabric architecture is the foundation of CloudDC's converged infrastructure fabric. Juniper's MetaFabric data center architecture enables a simple, open, and smart data center that accelerates the deployment and delivery of applications within and across multiple sites and clouds. This architecture is delivered through a combination of high-IQ switching, routing, and security platforms, combined with adaptable software that delivers advanced services, orchestration, and SDN solutions.

The Juniper solution delivered the following three key success factors that differentiated the Cloud Dynamics offering in the enterprise cloud services market:

**1) Quickly deploy an open cloud environment and maximize enterprise service agility without compromising privacy and security.** In alignment with its corporate mission, Cloud Dynamics wanted to make the transition to the cloud quick, simple, and secure for its enterprise customers by offering cloud-based Infrastructure-as-a-Service (IaaS) as a virtual private, public, or hybrid cloud. Enabling service agility and delivering advanced network-as-a-service (NaaS) without compromising security and privacy are key objectives for Cloud Dynamics, and Juniper's solution delivered on those critical requirements.

*"We view Junos Space as a critical component of our SDN strategy, with its open APIs as core building blocks for new innovation and with no need to build solutions from scratch."*

Vijai Karthigesu, Chief Operating Officer, Cloud Dynamics

Juniper's Contrail SDN solution, a key component of the MetaFabric architecture, allows Cloud Dynamics to connect the virtual environment with the physical network and provision underlying services, reducing the time, cost and risk for users when configuring the network. Contrail enables Cloud Dynamics to automate and orchestrate services across geographically distributed data centers to achieve highly efficient convergence of discrete compute, storage, and network resources. Contrail also provides data center infrastructure federation capabilities that allow Cloud Dynamics' public and private customers to perform cloud-based hosting from a common CloudDC platform.

For privacy and security, Juniper Networks® SRX650 Series Services Gateway secures CloudDC's perimeter and provides effective network segmentation and secure flows with IPsec VPN encryption, Network Address Translation (NAT), web filtering, and application-specific malware detection and protection.

**2) Automate and orchestrate entire cloud infrastructure.**

With a razor-sharp focus on faster service delivery, greater IT agility, and lower costs, Cloud Dynamics wanted to enhance CloudDC's automation and orchestration capabilities to support multivendor virtual and physical infrastructure in

multi-cloud environments enabling private, public, and hybrid cloud models. Towards this end, Cloud Dynamics has been testing and piloting a cloud computing environment based on Juniper's Contrail solution to increase CloudDC responsiveness, agility and robustness. With full automation and zero-touch service provisioning, use of open standards and OpenStack, gateway scalability, and performance, Contrail successfully automates the provisioning and orchestration of Cloud Dynamics' interconnected micro data center virtual infrastructure for SDN-connected data center WANs.

To seamlessly integrate management of the network's physical and virtual environments, Cloud Dynamics leverages Junos Space SDK open APIs, which integrate with the company's cloud orchestration tools to roll out new services and applications more quickly. By streamlining configuration, incident, and inventory management via Junos Space SDK, Junos Space Service Now and Junos Space Network Management Platform, Cloud Dynamics is able to streamline provisioning, improve fault detection, and resolve issues much faster.

"We view Junos Space as a critical component of our SDN strategy, with its open APIs as core building blocks for new innovation and with no need to build solutions from scratch," says Karthigesu. "Finally, the power and simplicity from Junos OS ensures that our cloud solution helps end users focus on their evolving business opportunities, without struggling with intricate technical details."

**3) High performance and reliability.** Juniper Networks high-performance switching solutions are at the heart of CloudDC's MetaFabric architecture. The Juniper switches are interconnected to create a flatter network topology that closely maps to the traffic flow, easily facilitating workload mobility in the virtualized compute and storage environments. Cloud Dynamics uses Juniper Networks EX4200 Ethernet Switches and Juniper Networks EX4500 Ethernet Switches to support a mix of 1GbE and 10GbE server connections. For the high-density 10GbE compute environment, Cloud Dynamics standardized on Juniper's high-performance, low-latency QFX3500 Switch to achieve a step-change improvement in both user experience and economics.

"This low latency architecture eliminates complexity by collapsing our data center network into a single tier, enabling any-to-any connectivity for servers and storage for Layer 2 switching and Layer 3 routing," explains Karthigesu.

Karthigesu appreciates the power of Juniper Networks Junos® operating system to reduce the time needed to deploy new network services and to reduce operation costs. "For years, I have understood the power of using Juniper's common operating system across multiple platforms such as firewalls, switches, and routers. Junos OS software is the special ingredient for our data center solution," he says.

*“With MetaFabric at the core of its cloud-based data centers, Cloud Dynamics can streamline data center operations through automation while ensuring high accountability of secure, standards-based cloud computing.”*

Vijai Karthigesu, Chief Operating Officer, Cloud Dynamics

## Results

Cloud Dynamics has leveraged the Juniper MetaFabric architecture to build the best cloud solution for its customers. With MetaFabric at the core of its cloud data centers, Cloud Dynamics can streamline data center operations through automation while ensuring high accountability of secure, standards-based cloud computing services. This, along with a simple and open approach to the infrastructure, has yielded greater agility as well as cost savings and investment protection.

“The integration of Juniper Contrail with our powerful CloudDC solution enables our customers to maximize service agility and deliver advanced network-as-services without compromising security and privacy,” says Karthigesu. “Contrail’s API support and the ability to gather deep analytical information from across all aspects of the network enables Cloud Dynamics to optimize, automate, and control our interconnected data center network.”

## Next Steps and Lessons Learned

The speed of business and the volume of data are expected to accelerate and Cloud Dynamics is committed to helping organizations take advantage of public, private, and hybrid clouds to improve business agility and reduce operating costs. “Forward-thinking leaders leverage technology to respond and address business issues. At Cloud Dynamics, we don’t stop with the status quo. The needs of our clients continually evolve as their businesses change and IT feels the pinch ahead of other departments,” concludes Karthigesu.

## For More Information

To find out more about Juniper Networks products and solutions, please visit [www.juniper.net](http://www.juniper.net).

## About Cloud Dynamics

Cloud Dynamics Inc. is a provider of game-changing green data center and cloud computing technology solutions. Its proven, patented technologies include ecoDC (ultra-high-density heat exchanging technology and adaptive ultra-high-efficiency Data Center Cooling System), which can deliver the equivalent of a 10,000-square foot data center capacity in a space ten times smaller at 90% less energy costs, CRU (Cloud Resource Unit), a unified, dimensionless unit to meter cloud resource usage, and cDOS (Cloud Data Center Operating System), a vendor-neutral cloud management and provisioning tool. For more information, please visit [www.CloudDynamicsInc.com](http://www.CloudDynamicsInc.com).

## About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at [www.juniper.net](http://www.juniper.net).

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