



News Update: Data Center 3.0 Technology

On February 8, 2010 Cisco is announcing new data center technology capabilities for its Nexus 7000, Catalyst, WAAS and ACE products

These technology enhancements support Cisco's Data Center 3.0 strategy which aims to:

- Optimize data center resources and simplify data center management
- Reduce the Total Cost of Ownership (TCO) of the data center
- Increase business agility and accelerate productivity

By continuing to deliver technology innovation in its data center portfolio, Cisco aims to help IT organizations gain more choice and flexibility, reduce costs, and simplify management. Cisco provides customer choice by supporting multiple form factors, multiple protocols, and multiple design options. In addition, Cisco has over 400 certified data center partners to help our customers in every geography, every size business, and every industry vertical.

NEW - Data Center Interconnect Technology for Nexus 7000 Series Switches: OTV

Cisco is introducing a new Data Center Interconnect (DCI) solution on the Nexus 7000 Series switches, called Overlay Transport Virtualization (OTV). Today's business requires dynamic allocation of compute resources. The ability to allocate resources across multiple data centers provides huge benefits in flexibility and resource optimization. However, the DCI solutions available today are complex to deploy, transport-dependant and offer limited resiliency.

Multiple Data Centers Become One Logical Data Center with Cisco OTV

OTV significantly simplifies Data Center Interconnect deployment by extending Ethernet LANs across geographically distributed data centers over any existing network. OTV is also an ideal solution for IT organizations that are consolidating data centers, are spanning clusters across data centers, or have legacy applications requiring L2 connectivity.

VMware's View of Cisco OTV:

"Moving workloads between data centers has typically involved complex and time-consuming network design and configurations," said Ben Matheson, senior director, global partner marketing, VMware. "VMware VMotion™ can now leverage Cisco OTV to easily and cost-effectively move data center workloads across long distances, providing customers with resource flexibility and workload portability that span across geographically dispersed data centers. This represents a significant advancement for virtualized environments by simplifying and accelerating long-distance workload migrations."

Cisco OTV Solves the Limitations of Current Data Center Interconnect Solutions:

- **Operational Simplicity**- Since OTV is an overlay technology, it does not require a network redesign to deploy. With just four commands per site required, OTV can be enabled in a matter of minutes over existing networks, compared to current DCI solutions that take months of design and planning and entail network disruption. Adding a new data center to the OTV domain is simple, configuration is only required at the new location, OTV automatically synchronizes with all other sites.
- **Transport-independent** – OTV is a MAC routing scheme. Ethernet frames are encapsulated in IP packets and transported over any network that supports IP, therefore, OTV can be deployed over any network such as: Internet, private IP network or MPLS.



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- **Increased Resiliency** - Critical resiliency features are built into OTV and are automatically enabled when OTV is configured. These include multi-pathing, multi-homing and loop prevention. OTV also automatically suppresses flooding of unknown Layer 2 traffic, and since OTV is not dependant on spanning-tree, spanning tree packets are also suppressed. These features ensure that failures (such as broadcast storms or spanning-tree loops) in one data center are contained and do not propagate to other data centers.

Cisco Overlay Transport Virtualization (OTV) will be available in April 2010 and existing Nexus 7000 customers can deploy OTV through a software upgrade.

IT organizations are enthusiastic about Cisco Overlay Transport Virtualization (OTV)

Telenor Group, based in Norway, provides telecommunications services in 14 countries across Europe and Asia. The company is planning to deploy Cisco OTV to help consolidate 22 data centers in Norway down to four large data centers, improving operational efficiency and saving costs. "Cisco OTV will allow us to merge four primary data centers into one large logical data center for easier management and fulfillment of customer services," said Erik Kvarvåg, network architect, Telenor. "Through a design process with Cisco and Telenor subsidiary Datametrx, we selected Cisco OTV and the Cisco Nexus 7000 for our data center interconnect approach because it offers security, scalability and flexibility, and a unified fabric, which we regard as the optimal data center architecture moving forward."

Terremark Worldwide, a Miami-based managed IT infrastructure services company with twelve data centers worldwide, has deployed Nexus 7000 Switches to consolidate our fabric with higher 10 Gigabit Ethernet port density. The company now plans to deploy Cisco OTV to interconnect multiple data centers into a cohesive data center architecture that is easier to manage and fulfill service requirements. "After extensive testing, Cisco OTV appears to be a groundbreaking technology for data center interconnect, and could be a very significant contribution to the industry," said Michael Duckett, Terremark's General Manager of Network Services. "With OTV, we are able to more easily manage virtualization and cluster domains beyond a single data center, enable workload mobility between data centers, optimize compute resources across data centers, and help ensure business continuity by distributing applications and resources. These features have already proven to be beneficial for the multi-site deployments of our Enterprise Cloud and the delivery of our cloud-based disaster recovery services."

Alphawest, in conjunction with its parent company, Optus Networks Pty Ltd, provides integrated Information and Communication Technology (ICT) solutions to private businesses, public companies and government organizations across Australia. "We expect Overlay Transport Virtualisation (OTV) to help our customers simplify their data centre operations and potentially reduce the cost of customer service deployments," said Liam Fraser, General Manager, Marketing, Alphawest. "As an Information and Communication Technology (ICT) service provider, the combination of Cisco Nexus 7000 with OTV will provide us with the foundation to offer flexible and cost effective services to our customers at the layer 2 level, enabling our customers to have LAN-like functionality running across their WANs. This includes stitching together enterprise cloud-based services with the customer's data centre at the layer 2 level, providing integrated, federated and virtualised cloud computing. This will offer customers greater freedom and choice when consuming layer 2 services, possibly leading to reductions in operational complexity and capital expenditure."



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NEW - 10G Base-T for Catalyst and Nexus: next generation server connectivity delivers lower cost entry point for 10Gb Ethernet, increased scalability and implementation ease

For IT organizations planning to deploy 10Gigabit Ethernet technology to increase server bandwidth and accelerate server virtualization, Cisco 10GBASE-T offers significant cost savings by supporting 10 gigabits/second connections between servers over cost effective twisted pair copper cables for distances up to 100 meters, instead of requiring the more expensive fiber currently in use today.

Based on the IEEE 802.3an standard, 10GBASE-T is easy to deploy and will be available across Cisco's broad data center switching portfolio in all form factors – including fixed and modular, Top of Rack (ToR) and End of Row (EoR) switches, providing flexibility for IT organizations to migrate to 10Gb Ethernet at their own pace, while preserving their existing IT infrastructure investments.

Catalyst Modules: Cisco 10GBASE-T technology will be available in Q2 CY2010 with a 16-port 10GBASE-T module for all Catalyst 6500 chassis with a list price of \$22,500, and an 8-port 10GBASE-T module for the Catalyst 4900M top of rack switch with a list price of \$3,500.

Human Kinetics, a worldwide publishing company specializing in physical wellness, is planning to deploy the Cisco 10GBASE-T module for the Catalyst 6500.

“With the new 10GBASE-T module we can consolidate six sets of 1Gb copper ports into two sets of 10GBASE-T ports on each physical server,” said Brad Trankina, Director of Network Services, Human Kinetics. “This reduces the number of ports, number of cables, and the amount of power and cooling needed in our Data Center. The 10GBASE-T line card will also improve our VMware Vsphere virtualization environment by removing the network bottleneck. This will allow us to double VM density to 30 VMs per physical server. “This is a very flexible solution that allows us to mix the new 10GBASE-T line card with existing 1G line cards on the Catalyst 6500 without a forklift upgrade.”

Nexus 7000 XL Modules: Nexus 7000 XL I/O Modules will be available in 8-port 10GbE and 48-port GE configurations, with “pay-as-you-grow” feature scalability, available through software licensing. The Scalable Feature License option increases the services capacity of all XL modules (routing tables, security, QoS) without a hardware change. Both modules offer dual personality to operate in either standard mode or XL mode to increase services capacity. With support for up to 1 million routing entries, these modules are ideal for Enterprise Internet edge and service provider deployments. The modules will be available in April 2010.

NEW- Cisco Wide Area Application Services (WAAS) Enhancement for Cloud-based and SaaS Applications

Enhancements to Cisco WAAS enable it to recognize cloud-based and SaaS applications then automate security and optimize the application delivery. The adoption of cloud-based computing and applications can improve the agility, efficiency, and cost effectiveness of IT operations required to provision, scale, and deliver applications to the enterprise. However, delivering applications from the cloud to remote sites creates additional challenges for application performance, availability, and security. Today over 60% of cloud computing applications are delivered to the enterprise data center and then distributed on to branch offices. The new Cisco WAAS capability helps IT organizations to



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leverage WAN optimization to optimize the performance of cloud-hosted applications delivered to their branch and remote offices.

How Cisco WAAS Works

The most common scenario for enterprises using SaaS applications such as Webex and Sharepoint is to securely access the public or private cloud hosted application through central corporate data centers using SSL encrypted links, and then securely distribute from the data center to distributed sites with SSL encryption. With WAAS enhancements, the SSL connection setup is fully automated and enables enterprise end users to securely access SaaS applications over a secure, optimized link. It also minimizes configuration and troubleshooting for IT teams managing security, applications, and the network.

Cisco's enhanced WAAS solution provides the industry's broadest platform choices for WAN optimization and application acceleration:

- Centrally-deployed data center applications
- Virtual desktop delivery (VDI optimization)
- Virtualized application hosting in the branch (via WAVE and virtual blades)
- SaaS/cloud-hosted application acceleration
- WAN optimization for storage replication and backup across data centers

NEW - Cisco Application Control Engine (ACE) for VMware Environments

In VMware environments, visibility and streamlined provisioning of virtual machines have become increasingly critical. With enhancements to the Cisco Application Networking Manager management suite, IT users can leverage the Cisco Application Control Engine (ACE) to cut operational complexity and increase visibility for VM deployments by offering an integrated provisioning screen within VMware vCenter. The ACE solution offers single-pane provisioning of ACE virtual load balancing instances within VMware vCenter, dashboard visibility for running applications, and streamlined maintenance operations for VMs, such as activation and suspension.

With Cisco ACE, virtualized servers and applications are easier to provision and manage, providing network and server managers with dashboards for insight into application performance, and automating routine steps in the maintenance of server farms, which helps to reduce errors and delays.

NEW - Data Center Tools and Programs: Cisco Data Center Design Zone

The new improved Data Center Design Zone: www.cisco.com/go/dcdesignzone portal provides access to Cisco Validated Designs that consist of system and solution design best practices that are tested, and documented to facilitate, improve and accelerate our customers' ability to deploy data center technology solutions from Cisco and our partners.

An interactive design zone environment provides an intuitive guide to enable easy navigation for specific designs: http://www.cisco.com/cdc_content_elements/flash/dcap/6/

Taking Advantage of Cisco IT's Data Center Experience: www.cisco.com/go/virtualdatacenter

Recently [Cisco on Cisco](#) launched a new expanded version of the virtual data center tour that takes users inside Cisco's global data center through the eyes of IT leaders and architects. Developed to share Cisco's data center strategy and real-life implementation with IT organizations globally, the



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Cisco IT Data Center Experience includes a virtual, real-life tour of Cisco's production data center in Richardson, Texas as well as Cisco IT's deployment of Cisco Nexus Switches and the Cisco Unified Computing System at its Northern California data center.

Cisco CIO Rebecca Jacoby and other executives share how Cisco IT aligns its long-term data center strategy with business goals and technology initiatives. IT architects discuss how Cisco is evolving its data center infrastructure toward a virtualized environment that supports compute, storage, network, and security goals, and how operations and facilities manage global support and organize resources in a services-oriented data center.

Additional Resources: On Feb. 8, the [new technologies will be featured here](#) on the Cisco website