Customer Case Study

Software Company Optimizes Development While Reducing Costs

Executive Summary

Customer Name: Magma Design Automation

Industry: Software

Location: San Jose, California

Number of Employees: 1000

Challenge

- Reduce time and cost associated with managing complex multivendor environment
- Reduce cabling complexity in preparation for data center move
- Improve performance and scalability for software development and testing operations

Solution

- Cisco Unified Computing System (UCS) optimizes software development and testing
- Cisco Nexus Series Switches support efficient growth in data center architecture
- Cisco Nexus Fabric Extenders create scalable access layer for unified server environment

Results

- Reduced cables from 48 to 2, greatly simplifying management and reducing costs
- Saved up to 10 hours per week in time required for cabling work
- Reduced new server provisioning and deployment from days to minutes

Magma Design Automation frees time and budget with Cisco data center solutions.

Challenge

Leading semiconductor manufacturers rely on Magma Design Automation for electronic design automation (EDA) software that optimizes manufacturing of complex and high-performance chips. Magma's digital design, analog implementation, mixed-signal design, physical verification, circuit simulation, and other EDA solutions help its customers accelerate chip development for tablet computing devices, mobile devices, electronic games, digital video, networking, military/aerospace, and memory applications.

Speed and efficiency are the name of the game in software development. Magma's engineering network infrastructure is used solely for software development and testing. Now seven years old, the infrastructure was composed of equipment from a wide range of vendors. A multivendor collection of servers had become increasingly difficult to integrate, reducing the network's ability to deliver peak performance. Although several servers had 10 Gb connectivity, the network switches were not connected to each other with 10 Gb links, which affected network performance and ultimately slowed software development.

Cabling was equally challenging. Magma's IT team wanted to reduce the number of cables deployed to reduce cabling costs as well as cooling and energy costs. Sixty cables were in place, which cost approximately US$50,000 to $60,000 to run, and with a data center move planned within two years, the team expected to have to pay close to $200,000 to re-deploy all of the cabling.

"We wanted to upgrade our infrastructure with a complete solution," says Manish Doshi, network director for Magma. "A complete solution would include integrated networking, compute, and storage capabilities with single-vendor accountability. Cisco data center solutions offered the best end-to-end environment."

"The Cisco UCS and Cisco Nexus platforms give us a single platform from which we can grow without operational disruption or requiring significant additional resources. The moment that 40 Gb capacity becomes available, it will be a seamless transition for us. We believe that we have made a solid investment for the coming 10 years."

– Manish Doshi
Network Director
Magma Design Automation

Solution

The Magma team worked with Cisco through a series of exploratory and design meetings, developing a technical vision and a migration path from the existing infrastructure. The teams created an integrated, next-generation data center that will ultimately unify Magma's network, compute, and virtualization resources.

The new infrastructure upgraded Cisco Catalyst® Series Switches to Cisco Nexus® 7000 Series Switches, which provide a 10 Gb network backbone. The Cisco® Nexus 7000 Series is designed for mission-critical core, aggregation, and high-density connectivity in a single platform. These switches use virtualization, efficient power and cooling, density, and performance to support efficient growth in data center infrastructure. Hardware, software, and management are integrated to support zero-downtime environments. Magma also deployed 15 Cisco Nexus 2248TP Fabric Extenders to create a cost-effective, scalable access layer for its unified server environment. The Fabric Extender reduces data center cabling costs and footprint while simplifying management. Virtual PortChannel (vPC) and in-service software upgrades increase resilience to help ensure maximum uptime.

Cisco Unified Computing System™ (UCS™) B-Series Blade Servers provide the compute power for Magma's end-to-end data center solution. The Cisco UCS B200 M2 not only provides substantial throughput and scalability, but also delivers superior performance and efficiency. Specifically, Cisco UCS Blade Servers optimize capacity for Magma's software development and quality assurance testing. The Cisco UCS Blade Servers balance simplicity, performance, and density for production-level compiled software development tools, as well as other mainstream data center workloads. In addition, they also enable Magma to deploy a range of enterprise and EDA applications, while meeting high standards for availability and reliability. Together with the Cisco Nexus 10 Gb infrastructure, the Cisco UCS platform greatly reduces overhead and allows Magma to operate in a tailored and efficient environment.

Results

"Once we deployed the Cisco Nexus environment with the Virtual PortChannel, we gained a seamless environment," says Manish Desai, data center manager at Magma. "It requires minimal configuration compared to a spanning tree network, and it greatly reduces our management requirements. The system is working very well."

Migrating to the Cisco NX-OS from Cisco IOS® Software was simplified by highly detailed documentation. With a lean staff, Desai is impressed by the productivity boost delivered by the systems. Instead of having to configure 10 switches every time that a change is introduced, centralized management allows team members to quickly identify and reconfigure switches once.

In addition to easy initial configuration for the Cisco Nexus switches, the Cisco UCS server profile feature allows the team to deploy new servers in minutes, rather than days. A service profile defines a single server and its storage and networking characteristics. When a service profile is deployed to a server, UCS Manager automatically configures the server, adapters, fabric extenders, and fabric interconnects to match the configuration specified in the service profile. Automating device configuration reduces the number of manual steps required to configure servers, network interface cards (NICs), host bus adapters (HBAs), and LAN and SAN switches, which further accelerates software development.

Product List

Data Center Solutions

- Cisco Unified Computing System (UCS)
- Cisco CS B-Series B200 M2 Blade Servers

Routing and Switching

- Nexus 7000 Series Switches
- Cisco Nexus 2000 Series Fabric Extenders

The new infrastructure also reduced cabling, which saves time and reduces costs for Magma. The previous infrastructure required 48 cables per rack. Now it requires only two primary cables. With a data center move planned within the next 18 months, the cost of redeploying cabling was estimated to be approximately $200,000. Now that cost can be avoided. Fewer cables also greatly increase airflow in the data center, which Desai expects to translate to a reduction in cooling costs. And because the Cisco UCS Blade Servers and Cisco Nexus Switches are highly energy efficient, the new data center is expected to demand less power than the existing data center.

"We definitely save 5 to 10 hours of daytime per week," says Desai. "From a cabling point of view, we used to spend a half an hour on about 16 servers. Now it takes about 10 minutes."

Next Steps

The Magma team plans to migrate the remainder of its servers to Cisco Nexus Fabric Extenders, and it looks forward to the availability of 40 Gb capacity.

"The Cisco UCS and Cisco Nexus platforms give us a single platform from which we can grow without operational disruption or requiring significant additional resources," says Doshi. "The moment that 40 Gb capacity becomes available, it will be a seamless transition for us. We believe that we have made a solid investment for the coming 10 years."

For More Information

To find out more about Cisco Unified Computing, visit: www.cisco.com/go/ucs.

To find out more about Cisco Nexus Switches, visit: www.cisco.com/go/nexus.

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