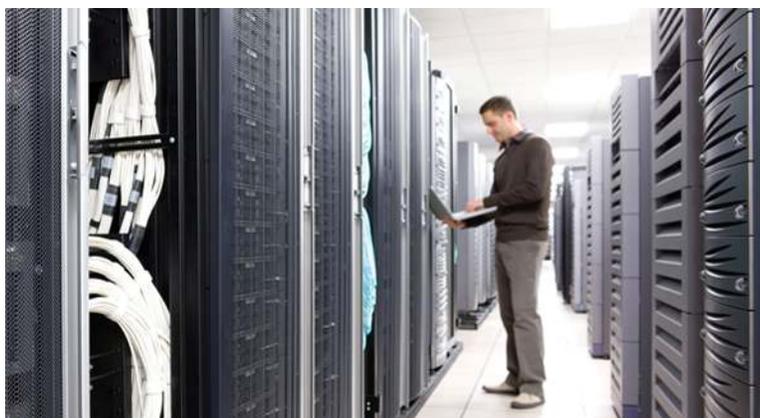


## Service Provider Provides Enterprise Cloud Service

NaviSite, Inc. used Cisco Unified Computing System and Nexus switches to build a cloud service for production applications.

EXECUTIVE SUMMARY
<p><b>NAVISITE, INC.</b></p> <ul style="list-style-type: none"> <li>• Service Provider</li> <li>• Andover, Massachusetts USA</li> <li>• 650 Employees</li> </ul>
<p><b>BUSINESS CHALLENGE</b></p> <ul style="list-style-type: none"> <li>• Deliver enterprise-class cloud service</li> <li>• Offer usage-based billing</li> <li>• Enhance system security, ease of management, and performance</li> </ul>
<p><b>NETWORK SOLUTION</b></p> <ul style="list-style-type: none"> <li>• Built Managed Cloud Services for production applications, hosted on Cisco Unified Computing System™ (UCS)</li> <li>• Built a web interface that customers and NaviSite staff can use to quickly add and decrease resources for each customer</li> </ul>
<p><b>BUSINESS RESULTS</b></p> <ul style="list-style-type: none"> <li>• Created new virtual environments in less than six minutes</li> <li>• Added or decreased resources for existing environments in less than nine minutes</li> <li>• Reduced cost to operate 300 PeopleSoft servers by 20 percent</li> </ul>



### Business Challenge

NaviSite, Inc. provides innovative hosting solutions, applications management, and managed cloud services for the enterprise. Nearly 1400 customers use NaviSite services, delivered from more than a dozen state-of-the-art data centers supported by approximately 650 IT professionals.

NaviSite was among the first service providers to provide application virtualization services, using dedicated servers for each customer.

More recently, customers have begun requesting an enterprise-class cloud service so that they pay only for the compute, memory, and storage resources they actually need and can scale up and down as their requirements change. “Cloud services for test, development, and quality assurance already exist,” says Vishal Sharma, senior director of cloud computing, NaviSite. “Our goal was to provide an enterprise-class cloud infrastructure for production applications.”

To make the service appealing to enterprise customers, NaviSite needed to offer service-level agreements (SLAs) for availability. NaviSite also wanted the flexibility to deploy some application components in the cloud and others on dedicated servers. “Certain customers prefer to maintain their databases on dedicated servers and do processing in the cloud, while others prefer to store time-sensitive data on dedicated servers and non-time-sensitive data in the cloud,” says Sharma.

### Solution

After evaluating leading platforms, NaviSite decided to build its Managed Cloud Services on the Cisco Unified Computing System (UCS), which combines compute, networking, storage access, and virtualization in a cohesive platform, managed as a single entity. “During our technology evaluation, we found that Cisco UCS was the only platform built with cloud computing in mind, including tight integration with VMware,” says Sharma. “Other platforms simply piece together multiple hardware and software components in an attempt to adapt to the cloud. Another

advantage of using the Cisco UCS is that prospective customers trust the Cisco brand because nearly all of them already have Cisco networking gear.”

NaviSite's enterprise cloud platform, NaviCloud, is hosted on a Cisco UCS consisting of five chassis containing 20 Cisco UCS B200 M2 Blade Servers with 96 GB RAM and three Cisco UCS B250 M2 Blade Servers with 192 GB RAM. All blade servers in the system connect through a single pair of Cisco UCS 6140 Fabric Interconnects with redundant 10 Gigabit Ethernet connections to a Cisco Nexus 7000 Series Switch and redundant Fibre Channel connections to IBM XIV Storage. All chassis and blade servers that NaviSite subsequently adds will receive connectivity through the same fabric interconnects, eliminating the costs and delays of connecting cables and provisioning switch ports.

**“The 96 GB memory on our Cisco UCS blade servers reduces the numbers of servers needed for a given workload, reducing customer costs.”**

—Vishal Sharma, Senior Director of Marketing and Business Development, Cloud Services, NaviSite, Inc.

NaviSite has dedicated one chassis in the Cisco UCS for hosting customers' Oracle applications, including PeopleSoft, Oracle E-Business Suite, Hyperion, Siebel, JD Edwards, Oracle Business Intelligence, and Microsoft Dynamics. Oracle 11g Real Application Cluster (RAC) software also resides on the Cisco UCS on a nonvirtualized server.

To keep every customer's data completely separate in the NaviCloud environment, NaviSite uses the Cisco Nexus switches to create virtual LANs. Other Cisco security solutions provide identity-based access control and protect customer applications from denial-of-service attacks. In addition, Cisco Nexus 1000V Switch software on the Cisco UCS ensures that a virtual machine's networking and security policy travels with it as the virtual machine moves between servers.

## Results

NaviSite has received positive feedback from customers since launching the NaviCloud service in June of 2010. “The 96 GB memory on our Cisco UCS blade servers reduces the number of servers needed for a given workload, reducing customer costs,” says Sharma. “Customers have also told us that the NaviCloud service exceeds their performance expectations.”

## Dynamic Scaling

NaviCloud customers pay only for the compute, memory, and storage they need. Customers who use the self-managed option for NaviCloud can add or decrease resources themselves, using a web portal to configure virtual

**“NaviCloud customers can create an entirely new data center in the cloud in just 30 to 40 minutes.”**

—Vishal Sharma, Senior Director of Marketing and Business Development, Cloud Services, NaviSite, Inc.

machines with a selection of operating systems and other resources. Customers can perform any activity they would if the server were local, such as viewing resource usage all the way to the virtual machine level, creating groups, creating servers, starting and stopping servers, and adding load balancing. “A customer who needs to add a server to handle a spike in application workload simply visits the web portal, selects the server, and chooses the ‘clone’ command,” says Sharma.

Customers who prefer the managed option use a web portal to request resources, and then NaviSite's IT staff fulfills the request according to SLAs.

Creating a new virtual environment on the Cisco UCS takes less than six minutes. Adding new resources takes less than nine minutes. "NaviCloud customers can create an entirely new data center in the cloud in just 30 to 45 minutes," Sharma says. "The virtual infrastructure on the Cisco UCS is ready for production as soon as the customer installs the applications."

## PRODUCT LIST

### Data Center

- Cisco Unified Computing System
  - Cisco UCS B200 M2 Blade Servers
  - Cisco UCS 6120 Fabric Interconnect
- Cisco Nexus 7000 Series Switch
- Cisco ASA 5500 Series Adaptive Security Appliance with Firewall Security Module

To learn more about Cisco Unified Computing System, go to [www.cisco.com/go/ucs](http://www.cisco.com/go/ucs).

To learn more about Cisco Data Center 3.0 solutions, go to [www.cisco.com/go/dc](http://www.cisco.com/go/dc).

## High Availability

Every component of the Cisco UCS is redundant, enabling NaviSite to offer SLAs that give enterprise customers the confidence to use the NaviCloud service for production applications. If a server should fail, the NaviSite IT team can provision another in just minutes by applying a service profile containing configuration information about server hardware, interfaces, fabric connectivity, and server and network identity. Then NaviSite uses VMware technologies to move the virtual machines to the freshly configured blade. The virtual machine's network and security policies accompany the virtual machine as it moves between servers, a capability of the Cisco Nexus 1000V Switch software.

## Solid Service Provider Economics

The Cisco UCS minimizes the operating expense of the NaviCloud service both because of the unified management interface and the lower power and cooling costs per server. "We calculated that operating 300 PeopleSoft servers on Cisco UCS costs 20 percent less than on blade servers," Sharma says.

## Next Steps

NaviSite is continuing to expand the NaviCloud service by:

- Implementing a Cisco UCS in the NaviSite London data center
- Providing disaster recovery services between the Massachusetts and California data centers, using VMware vCenter Site Recovery Manager
- Automating the process of increasing or decreasing the number of virtual machines to optimize application performance
- Offering a private cloud service, including a dedicated IT resource for customers



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