Aiding life-changing research

Broad Institute uses OpenStack running in a Cisco® environment to help power its fight against cancer and other diseases.

"Cisco is a true partner, giving us what we need to respond to our researchers quickly and efficiently."

- Chris Dwan, director, research computing and data services, Broad Institute

Cancer. Ebola. Infectious disease. Every day, researchers at the Broad Institute work towards understanding and treating some of the most critical challenges in medicine.

For the past decade, the Broad Institute has raised the bar for molecular medicine, bringing together expert researchers in an open and collaborative environment. The organization continues the work started through the Human Genome Project (HGP), extending knowledge to identify the biological underpinnings of cancer and other diseases.

The research and analysis performed at the Broad Institute often involves CPU and data-intensive applications and workflows. Many researchers were purchasing equipment as needed for particular projects, but the IT team at the Broad Institute saw an opportunity to harness economy of scale and simplify management by consolidating diverse IT environments.

“By moving to a more centralized IT environment, we could provide researchers with more economical and higher-quality support. The goal is to provide systems that work so seamlessly that they become invisible in terms of their day-to-day scientific operations,” says Chris Dwan, director of research computing and data services, Broad Institute. “In order to provide our internal customers with revolutionary service, we needed to supply powerful and dynamic resources.”

Case Study | The Broad Institute

- Size: 1,000 Employees
- Location: Cambridge, MA
- Industry: Research/Public Sector
With Cisco, we’re delivering secure, high-performance virtual and cloud computing through OpenStack.

**Solutions**

- Deployed OpenStack on a Cisco Unified Computing System™ (Cisco UCS®) environment for greater flexibility and responsiveness
- Used the expertise of Cisco and partner services to accelerate deployment

**Flexibility to meet dynamic requirements**

OpenStack gives us a flexible and scalable private cloud solution to meet our researchers’ dynamic requirements. We can quickly and effectively deploy and adjust resources depending on research needs and opportunities.

**Partnering with the experts**

Typical OpenStack deployments take at least half a year, but Cisco services brought in the expertise of partners like Red Hat and Solinea to get our new data center environment operational in less than two months.

Solinea played an especially big role by answering all of our OpenStack questions. “We brought our experiences and best practices with OpenStack to the table,” says Ken Peppele, lead architect from Solinea. “We put in as much automation as possible so that the IT team can support researchers in working faster and better than before.”

**Fast production scaling**

Bulk analysis on a major international cancer research project was expected to take 18 months, so the Broad decided to do it in three. Cisco’s powerful computing and network resources helped us scale up without impacting regular production.

**Adjust and allocate resources**

A virology researcher urgently needed additional capacity to determine the epicenter of the Ebola outbreak in west Africa. We reallocated resources to give her the power she needed in minutes.

**Easy management with a single vendor**

“By concentrating on a single vendor, we’re reducing IT administration overhead,” says Dwan. “Cisco UCS Manager gives us straightforward, centralized visibility into the entire environment.”
Developing a solid partnership

"By focusing on a few trusted partners, we can shift our time and energy from management of multiple independent environments to developing more valuable services for all of our researchers," says Dwan. "Cisco is a true partner, providing us expert guidance and building a relationship that will continue for years to come."

Results

- Supported fast response to medical research
- Gained flexibility to scale and adjust resources as needed
- Simplified management by working with select partner solutions

Products & Services

Data Center and Desktop Virtualization
- Cisco UCS B Series Blade Servers
- Cisco UCS C Series Rack Servers

Routing and Switching
- Cisco Nexus switches
- Cisco Catalyst switches
- Cisco Integrated Service Routers (ISRs)

Network Management
- Cisco Unified Computing System Manager
- Cisco Prime™ Infrastructure

Security
- Cisco ASA 5500 Series Adaptive Security Appliances

Applications
- Red Hat Enterprise Linux OpenStack running on KVM
- SAP HANA

Services
- Cisco Data Center Design and deployment services for OpenStack

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