

# Commonwealth of Massachusetts Builds Consolidated Data Center



Converged network, consolidation efforts drive commonwealth to increase data center efficiency.

## Executive Summary

### Commonwealth of Massachusetts

- **Industry:** SLG
- **Location:** Massachusetts
- **Population:** 6.6 million people

### CHALLENGE

- Consolidate and find greater efficiencies
- Support disaster recovery while reducing costs
- Reduce dependency on third-party data center

### SOLUTION

- Designed architecture to support new and existing centers in Commonwealth
- Deployed converged network to further reduce costs
- Built new data center based on LEED guidelines to ensure efficiency

### RESULTS

- Reduced equipment and cable purchasing costs
- Decrease application recovery time by 97 percent
- Achieved greater operational efficiency by consolidating cabling to support data and SAN

## Challenge

Massachusetts, officially the Commonwealth of Massachusetts (CWM), is a state in the New England region of the northeastern United States. Massachusetts is the 7th smallest, but the 14th most populous and the 3rd most densely populated state in the United States. Approximately two-thirds of Massachusetts' population lives in Greater Boston area.

The Commonwealth is tasked with accommodating the needs of its various state agencies. Among those needs is IT support, and in particular support surrounding disaster recovery and data management. The Commonwealth had been using its own data center in Chelsea, Massachusetts, for most of the state's data needs. Over time the center had grown to a multi-tiered environment. For its disaster recovery needs, CWM worked with a third-party data center in New Jersey to house and manage its servers. Although the data was safely managed, outsourcing to a third party meant paying higher costs associated with storage and routine testing.

When the Governor issued Executive Order 510, a call for massive consolidation, CWM's Information Technology Division (ITD) was forced to look at its IT spending with a critical eye and evaluate methods for cost savings, consolidation, and greater efficiency, while keeping as a top priority its commitment to quick disaster recovery support.

Looking at the existing Chelsea data center, the Commonwealth saw major potential for costs savings in reducing its investments in equipment, cabling, and maintenance. In terms of its disaster recovery data center, the Commonwealth examined cost savings potential in making its own technology investments, but also in terms of employee time and productivity. Travel to and from the New Jersey data center site was a cost burden for the Commonwealth. Each time a disaster recovery test was conducted, CWM was required to send 6-10 employees to the location in New Jersey. Those employees lost potential productivity during travel time, and CWM incurred expenses to provide hotels and meals for the employees over several days.

Paying a third party to house data did not just mean extra fees and travel expenses, but also represented a missed business opportunity to offer services to other agencies and cities and missed chances to cut costs by consolidating cables and equipment.

## Solution

After evaluating their options, the Commonwealth decided to bring disaster recovery services in-house, investing in developing its own data centers in the state, and in deploying a converged network. Based in Springfield, Massachusetts, the new center was designed to primarily support disaster recovery, but would also serve as a backup to the Chelsea location.

CWM turned to Cisco to help design and build the architecture that would support the data centers. As a Cisco-standard operation, with employees who are training

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James Girardi, Manager of Enterprise Communications, Commonwealth of Massachusetts

and using the technology every day, the move made sense from a technology and training standpoint and would allow the Commonwealth to easily integrate the solutions with its existing investments.

The Commonwealth turned to the Cisco Unified Computing System™ (UCS®), Nexus® Data Center Switches, and innovative technologies such as Fibre Channel over Ethernet (FCoE) to save money on power, cooling, cabling, and network infrastructure. Cisco® UCS was deployed in the interest of increasing the speed with which the data center could provide services to its clients, and to address the potential multitenant issues that the center anticipated. The Nexus switches provided scale, high availability, and Data Center Interconnect (DCI) capabilities between the primary and secondary data centers with technologies such as Overlay Transport Virtualization (OTV).

One major goal of the Commonwealth, stemming from the Governor’s mandate, was to uncover ways to consolidate its data center operations and reduce financial burdens associated with technology purchases and maintenance. To address that goal, the Commonwealth worked to design an infrastructure that supported consolidating its cabling to a single set of cable and equipment that could manage both the data and SAN streams coming through the center.

“Our tax payers work hard, and part of our goal to maximize efficiencies included maximizing funding to cut expenses and provide better service to our customers and citizens,” says James Girardi, manager of Enterprise Communications for the Commonwealth of Massachusetts. “Consolidating equipment and maintenance needs means employees can focus less on upkeep and more on developing innovative solutions for issues related to disaster recovery.”

To further consolidate operations and equipment, the Commonwealth developed a network that had the ability to pass all of the data’s traffic, eliminating the need for multiple Network Interface Cards (NIC) to provide the high bandwidth required and centralizing the network.

With efficiency goals in mind, the Commonwealth designed and built both data centers to use less energy, consolidate equipment, and maximize efficiency of its resources. One specific measure that the designs took into account were the guidelines provided by LEED rating systems, and the design and implementation teams made plans to build the center with those certifications and ratings as a goal.

## Results

The Commonwealth’s converged network and use of FCoE saved significantly in wiring costs. Because the technology eliminated the need to install separate SAN network or to purchase separate cabling to the SAN, CWM experienced cost savings in power, cooling, labor, and materials.

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## Product List

### Data Center

- Cisco Nexus 7000, 5000, and 2000 Series Switches
- Cisco UCS
- Flexpod: UCS and NetApp FAS
- VBlock 300

After the consolidation, the Commonwealth experienced major improvements in application recovery efficiency, realizing a 97 percent reduction in the hours needed to recover the information.

Thanks to the advantages of housing the data center within Massachusetts, the Commonwealth no longer has to spend tax-payer dollars on transportation and lodging costs, which were previously necessary to send employees to the third-party data center for disaster recovery testing.

Deploying a converged network adapter, and eliminating the need for multiple NIC cards, the Commonwealth was able to centralize its network, saving time on maintenance and gaining the ability to save, back up, and access data on a central server.

Increasing efficiency was a major goal of the project, and both the Springfield and Chelsea data centers were built to address those needs. To date the Springfield data center has been certified LEED Gold, meaning the center has been evaluated and awarded certification on a number of categories including: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation in Design.

The Commonwealth met its goals with its new data centers: to effectively and quickly serve the needs of its customers, and to increase cost savings and efficiency through technology. Beyond those goals, CWM gained the opportunity to extend its data center and services to other cities and states, creating a business opportunity for added income beyond the cost savings.

## Next Steps

Commonwealth has future plans to retrofit its existing data center in Chelsea to reflect many of the benefits that the Springfield data center has provided.

The Commonwealth has also invested in Cisco Nexus switches, which will be used in the future to provide scale, high availability, and Data Center Interconnect (DCI) capabilities between the primary and secondary data centers with technologies such as Overlay Transport Virtualization (OTV).

## For More Information

To find out more about the Cisco Unified Data Center solutions, go to:  
<http://www.cisco.com/go/datacenter>.

