

Arizona City Streamlines Data Center Operation to Improve Services

City of Mesa deploys next-generation Unified Computing System, increasing overall technical efficiency and reducing operating costs.

EXECUTIVE SUMMARY
CITY OF MESA, ARIZONA <ul style="list-style-type: none"> • State and Local Government • Mesa, Arizona USA • 3,600 Full Time Employees • 470,000 Citizens
BUSINESS CHALLENGE <ul style="list-style-type: none"> • Steady rise in data center power and cooling costs • Lack of consolidated, citywide IT environment • Time-consuming new application deployment
NETWORK SOLUTION <ul style="list-style-type: none"> • Next-generation Cisco data center platform that unites computing, network, storage access, and virtualization into cohesive system
BUSINESS RESULTS <ul style="list-style-type: none"> • Allows for real-time interdepartmental communications and well-informed decision making Consolidated technology resources • Automated data center processes • Reduced overall data center power, cooling, and maintenance costs and freed-up valuable data storage space

Business Challenge

The City of Mesa is located in Maricopa County, approximately 15 miles east of Phoenix, Arizona. It is the third-largest city in Arizona behind Phoenix and Tucson, and is currently the 38th largest city in the country. Mesa is home to a diverse population of approximately 470,000 citizens, which is larger than more recognizable cities such as Miami, St. Louis, and Oakland. With dynamic recreational, educational, and business environments, Mesa enjoys the best in a variety of amenities, including parks within easy walking distance from home, a variety of sports facilities that cater to athletes young and old, highly rated golf courses for every skill level, a diversity of special events and community festivals, and Mesa's ever-popular Chicago Cubs Spring Training baseball.

IT officials sustained the city's servers and data centers for many years on a traditional rack mount server platform. The city's IT infrastructure was in the process of developing a long-term server virtualization strategy when, in 2007, Alex Deshuk,

current city manager of technology and innovation, came to work for Mesa. Deshuk introduced a number of progressive ideas. Providing strong support for these ideas was city manager Chris Brady and the newly elected mayor and council majority.

Data center virtualization created a market opportunity for IT teams, such as Deshuk's, to reduce operating costs and increase management flexibility. Working against inflexible hardware platforms, administrators often spend a significant amount of time on manual procedures for basic tasks instead of focusing on more strategic initiatives.

"We all agreed we needed a strategic planning system and an increase in strategic initiatives for the city to execute across the board," Deshuk says. "The Valley of the Sun has approximately 28 different municipal agencies across a 100-mile diameter of land. Each agency has a different ability level to provide technology to our citizens. Our council and expectative goal was to elevate Mesa to the status of regional leadership in many areas, with IT seizing this opportunity through

technical innovation and collaboration with neighboring cities and agencies as well as to our internal city customers.”

Over time, the data center grew in complexity and became increasingly more difficult to manage and monitor. “Legacy management toolsets weren’t up to the task of keeping track of virtual machines and physical machines running side by side and keeping track of the dependencies between them,” says Harry Meier, IT architect for the City of Mesa. “Additionally, the network and storage cabling needs for new VM hosts exploded in size and complexity. Despite tight budgets, demand for server computing power in the city had not let up. The server team was strained for time and resources, and something needed to be done.”

With an increase in power and cooling costs, lack of consolidated server environment, time-consuming new application deployment, and a necessary refresh for server equipment approaching, Deshuk and his team conducted a formal internal evaluation to determine the best vendor and solution to provide a multi-tenancy platform with which the city could grow. In previous years, the team had evaluated the cost and complexity of going to a blade server infrastructure, but the entry cost and the added complexity of managing networking and storage components within every chassis outweighed the advantages.

Solution

Cisco presented its Unified Computing System™ (UCS) to Deshuk and his team through product demonstrations, a comprehensive “roadmap,” and many customer references. Cisco® UCS is a next-generation data center platform that unites computing, network, storage access, and virtualization into a cohesive platform. The UCS solution integrates a low-latency, lossless, 10 gigabit Fibre Channel over Ethernet unified network fabric with enterprise-class, Intel-based, x86-architecture, and ties it all together with a single pane of glass management system. This approach decouples scale from complexity and is designed to reduce the total cost of ownership and increase business agility.

Going into the vendor evaluation, Deshuk and his team had a slew of requirements that they knew would be needed for the long-term success of any new platform. The requirements included a five-year cost-of-growth, ease of management and deployment, initial impact to power and cooling facilities, network and storage system impact and compatibility, support for city-standard operating system deployments, the presence of a backward-compatible and forward-looking architecture, redundancy and disaster recovery options, and the support for strategic initiatives of intergovernmental cooperation and multi-tenancy.

“Through the evaluation process, it became clear that UCS would provide Mesa with the foundation for a broad spectrum of virtualization initiatives that consolidates resources and automates data center processes,” says Deshuk. “This, in turn, reduces equipment and operating costs, while providing us the strategic platform for growth.”

The City of Mesa also worked with Cisco partner InSight to design the UCS to fit city requirements. Cisco Services was engaged at the implementation phase and ensured customer success criteria was well defined, thus guaranteeing the smooth migration of priority applications, meeting of aggressive timelines, and overcoming hiccups associated with the incredibly complex network environment. Cisco Services also created a real-world lab environment to train staffers on how to react if the data center went down. “Cisco was fully committed to making this project a success,” says Deshuk. “The team provided the necessary resources for success and the knowledge transfer and training gave our IT staff confidence in the UCS solution.”

“UCS brings a single operational tool that enhances the efficiency of the data center management teams,” says Adam Baum, IT architect for the City of Mesa. “First, the use of service profiles allows the city to reconfigure equipment as customer requirements change in a matter of minutes, versus hours or days. Second, the single point of management that is inherent in UCS provides the ability to view server, network, and storage health and performance from one ‘pane of glass.’”

Business Results

“By running multiple instances of a virtual resource on fewer physical machines, we will reduce our overall data center power, cooling, and maintenance costs and free up valuable space,” says

“(Cisco Unified Computing System) provides Mesa with the foundation for a broad spectrum of virtualization initiatives that consolidate resources and automate data center processes. This, in turn, reduces our equipment and operating costs while expanding our IT service delivery portfolio.”

—Alex Deshuk, Manager of Technology and Innovation, City of Mesa, Arizona

Deshuk. “We are able to move quicker, perform faster, and cover diverse agency business and operational needs. The private cloud created for city and other agency consumption greatly reduces costs across the board.”

With city agencies and departments minimizing costs to provide the same citizen services that have always been offered, the ability to provide network efficiency to constituents is critical. “Mesa’s city council is very supportive of the new technology as they fully understand the benefits of automation in terms of business results,” says Deshuk.

“Our public schools, as a well as other local government budgets, are being hurt by the dwindling economic environment,” says Deshuk. “UCS, our private cloud services, and other technology-sharing initiatives, are being proposed to help students, teachers, faculty, and other agencies cut down on the amount of deployed software and systems in multiple areas.”

Mesa currently has a broad agreement with the local school district to partner on technology projects. “We are working with the school district to find opportunities to consolidate efforts and technology. UCS could represent great potential in this area,” says Dale Shaw, Mesa’s chief technology officer. “We already partner with the schools on facility connectivity and radio communications and will soon be piloting shared video-conferencing infrastructure. It’s a natural extension to look at other infrastructure services, such as UCS, to determine if there are efficiencies to be gained beyond our data center. I expect there will be.”

Since deploying the UCS platform, Mesa’s server team has been able to virtualize and/or move tens of legacy rack-mount servers to blade servers with very little downtime. At current rates, the team estimates several rows of racks filled with servers will soon easily be replaced by two racks of UCS equipment. At the time of this case study, 20 more legacy 2U servers were being carted out the door for auction and disposal.

Mesa has also been able break down some of the silos that existed between the different infrastructure disciplines and cross-train between different teams. This has resulted in enhanced staff skill sets. “This gain in efficiency has manifested itself in the reduction of staff needed to deploy, manage, and troubleshoot the UCS infrastructure,” says Baum.

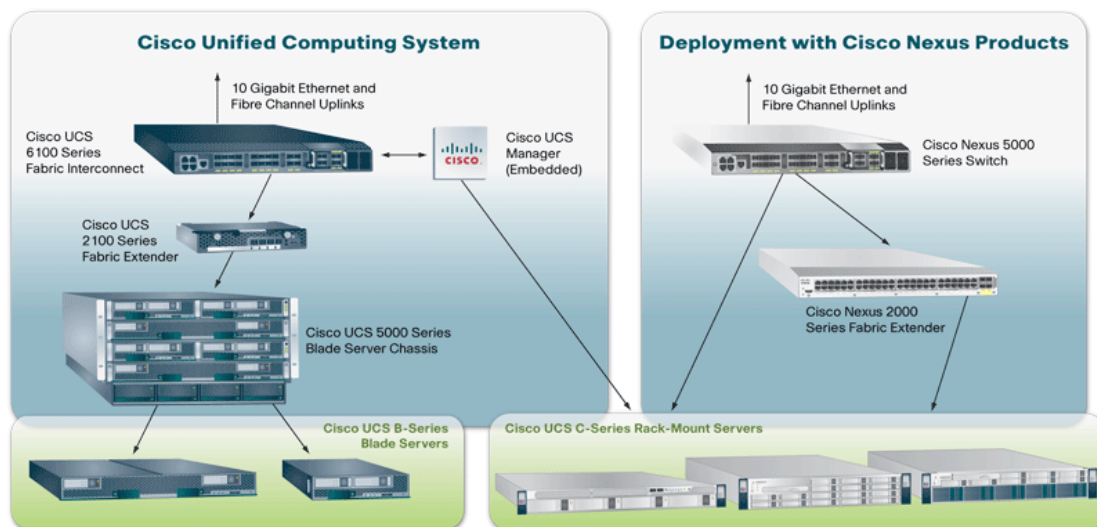
PRODUCT LIST
Network Management <ul style="list-style-type: none"> • Cisco Unified Computing System

Next Steps

Deshuk plans to build on the UCS deployment through the addition of increased storage and capability. “In an effort to continue meeting our business goals, my team is currently planning to add virtualized storage in 2011 and is exploring virtual desktop infrastructure as a possible replacement option to traditional desktop computing,” says Deshuk. The centralization of employee desktops, applications, and data in the data center would allow Mesa to enhance and improve services to citizens, city employees, and our partner agencies.

The team is already expanding its commitment to the UCS platform by purchasing several more chassis worth of equipment to replace the city’s aging financial system currently running on mainframe. The “CityEdge” project will convert all of the city’s finance, budgeting, HR, payroll, and planning systems onto UCS by 2013.

Figure 1. A typical Cisco Unified Computing System



For More Information

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

To find out more about Cisco Services, go to: www.cisco.com/go/services.



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