VMWARE IN GOVERNMENT
How VMware Helps Government Organizations Transform Public Service Delivery and Mission Outcomes

Enter »
# Table of Contents

Introduction ......................................................................................................................................................... 3

**CASE STUDY 1: MECKLENBURG COUNTY** ........................................................................................................... 4
How Mecklenburg County Increases Employee Productivity and Information Security ................................................. 5

**CASE STUDY 2: CALIFORNIA NATURAL RESOURCES AGENCY** ................................................................. 9
How a Software-Defined Architecture Enables Mission-Critical Services for the California Natural Resources Agency .......................................................................................................................... 10

**CASE STUDY 3: CITY OF AVONDALE** .................................................................................................................. 13
How the City of Avondale Protects Critical City Services with a Comprehensive Disaster Recovery Environment ........................................................................................................................................ 14

**CASE STUDY 4: OHIO DEPARTMENT OF TRANSPORTATION** ................................................................. 17
How the Ohio Department of Transportation Fast-Tracks State Road Maintenance and Repair .................................. 18

**CASE STUDY 5: VALLEJO SANITATION AND FLOOD CONTROL DISTRICT** ................................................. 21
How the Vallejo Sanitation and Flood Control District Keeps Both Water and Data Flowing Smoothly, Safely, and Securely ........................................................................................................................................ 22
Introduction

VMware® delivers groundbreaking software-defined solutions that accelerate digital transformation for national, regional, and local governments around the world. The VMware portfolio of cross-cloud IT solutions transforms legacy infrastructure, mobilizes personnel, and strengthens cybersecurity and compliance across endpoints. With VMware, government organizations can modernize IT to increase operational efficiency and performance while advancing mission outcomes and service delivery goals.

This e-book features five case studies that illustrate how VMware has partnered with a variety of government entities to:

• Modernize IT infrastructure to boost agency performance and efficiency.
• Leverage multiple clouds to improve resource allocation and operational models.
• Mobilize personnel to improve citizen service delivery and mission outcomes.
• Strengthen cybersecurity from data center to endpoint device.

For more information on how VMware solutions and support can help you securely modernize and mobilize IT infrastructure to advance missions, go to http://www.vmware.com/solutions/industry/government.
CASE STUDY 1: MECKLENBURG COUNTY
How Mecklenburg County Increases Employee Productivity and Information Security

With more than 6,000 employees, Mecklenburg County is home to the City of Charlotte, North Carolina. County services include parks and recreation, law enforcement, and youth and family services.

The Challenge

Like all local governments, Mecklenburg County is always seeking ways to better serve its citizens while operating within a tight budget. Increasingly mobile employees, heightened security concerns, and issues with workforce productivity and interdepartmental collaboration led the Technical Services team to take a closer look at improving its workflows and end-user experience.

The team struggled to manage the thousands of devices used by county employees—including desktops, tablets, mobile devices, and laptops. That limitation compromised the county’s ability to protect sensitive citizen data—e.g., personally identifiable information (PII) and personal health information (PHI)—and maintain compliance with the Health Insurance Portability and Accountability Act (HIPAA) and Payment Card Industry (PCI) Data Security Standards.

An all-encompassing, scalable solution was needed that could securely deliver, authenticate, and manage applications across employee profiles, devices, and locations.
The Solution

To improve employee productivity and reduce costs, the county undertook an aggressive “One Person, One Device” digital workspace initiative: in which it gave each employee a tablet to use as their primary computing device.

The county had already standardized on VMware vSphere® for server virtualization. With that institutional knowledge, the Technical Services team began to roll out its mobility initiative based on VMware Horizon® virtual desktop infrastructure (VDI) and VMware AirWatch® Enterprise Mobility Management™.

The county could preserve mission-critical legacy applications with VMware Horizon, while managing its fleet of iOS, Android, and Microsoft Windows 10 devices through AirWatch Enterprise Mobility Management. And users could access any application—including SaaS apps, native apps, Win32 apps, remote apps, and virtual desktops—from a unified application catalog.

The county also uses AirWatch Enterprise Mobility Management to manage, streamline, and secure its Windows 10 and Microsoft Office 365 deployments. AirWatch Unified Endpoint Management (UEM) provides tight integration with Microsoft Azure Active Directory, Windows 10 management features, and the new Windows Update as a Service. That means staff can push out Windows software patches and updates automatically, in addition to leveraging advanced role-based access and data loss prevention (DLP) controls.

Using VMware Horizon to deliver virtual applications on demand and AirWatch Enterprise Mobility Management to secure and manage any application across any device, Mecklenburg County has significantly reduced costs, strengthened data security and compliance, increased operational efficiency, and improved service delivery.

What’s more, because the IT staff virtualizes applications using VMware ThinApp®, IT staff can manage and update their virtual apps via VMware Horizon, saving an additional 10–15 hours of IT staff time per device by eliminating reimaging.
Business Results and Benefits

The county’s digital workspace solution has saved the county approximately $3.2 million per year in hardware cost avoidance and operating expenses.

The IT team can now deliver a consistent user experience, securely and reliably, across applications on any device for nearly 6,000 employees.

Using a virtualized application catalog, the team is also improving application performance, as well as application compatibility, for both internally developed and commercial off-the-shelf applications. Staff can use AirWatch to push out Windows software patches and updates automatically—all without requiring user interaction.

Most importantly, the county is rising to the challenge of providing better service to its constituents:

- **Youth and Family Services (YFS)** social workers can now remotely handle case files and reporting from the field, reducing travel time back to the office, improving timeliness of response and collaboration with other county departments.

- **Parks and Recreation** has added a secure mobile point-of-sale system for county park festivals and services. Previously, the department required cash-only for all services, because it could not find a solution that would securely integrate with its existing back-end financial systems. Today, visitors can pay for fees and services using a credit card, improving the convenience and delivery of the department’s offerings.

- **School nurses** with the department of health have a full desktop experience as they travel from school to school. Robust, policy-based security and automation protect PHI and enable these systems to remain in compliance with HIPAA.

- **Mecklenburg County Food Services** personnel access virtual desktops on mobile devices for restaurant inspections. They can now quickly and easily access back-end reporting systems while reducing sync times.
“The benefits of using VMware are in hardware cost avoidance and time savings. It equals out to be about $3.2 million in cost avoidance per year for the organization. That’s money we can put back into services for the citizens of Mecklenburg County.”

CLIFF DUPUY
DIRECTOR OF TECHNICAL SERVICES
MECKLENBURG COUNTY, NORTH CAROLINA
CASE STUDY 2: CALIFORNIA NATURAL RESOURCES AGENCY
How a Software-Defined Architecture Enables Mission-Critical Services for the California Natural Resources Agency

The California Natural Resources Agency (CNRA) restores, protects, and manages the state’s natural, historical, and cultural resources. The agency supports 33 departments, including: the Department of Water Resources (largest water delivery system in the U.S.), California State Parks (largest state park system in the U.S.), Cal Fire, the Energy Commission, and Fish and Wildlife.

The Challenge
Until recently, most of these California state organizations had their own dedicated IT departments. But budget and technical-resource shortfalls throughout the state—coupled with redundant IT architecture silos—prevented the departments from achieving their individual and collective objectives. To achieve economies of scale and improve IT services to the different departments, CNRA began a journey to consolidate infrastructure and unify IT operations.

CUSTOMER PROFILE
Industry: State Government
Location: California

KEY CHALLENGES
• Achieve economies of scale and improve IT service delivery to multiple state departments
• Improve field worker productivity
• Improve disaster recovery
The Solution

CNRA leveraged VMware’s software-defined data center and hybrid cloud solutions to consolidate 24 data centers into one data center. The agency then deployed a private cloud that accelerated application delivery. “All departments can take advantage of the benefits and efficiencies of virtualization, automation, everything that goes along with having a cloud environment,” Tim Garza, CNRA’s IT director, pointed out.

Since many of their applications are mission-critical (in addition to hosting sensitive data), CNRA also needed to ensure complete app isolation and security across the various departments. VMware NSX® enabled the agency to automate network management and dynamically segment applications within the data center.

"Network automation allows us to be secure, it allows us to be predictable. It’s always provisioned the same way and it’s consistent,” Tim continued. Michael Hom, the agency’s data center chief, added, “With micro-segmentation, our tenants have a higher level of security, which they have not had before.”

CNRA became a shared-services provider, with services available on-premises or through a hybrid cloud. Public clouds allow the agency to extend resources and deliver IT services more cost effectively, while VMware vRealize® Suite helps CNRA operate their hybrid cloud at peak efficiency. VMware vRealize® Air® Automation maintains the consistency and reliability of all IT services. And VMware vRealize® Operations™ allows them to accurately monitor the health, performance, and utilization of their environment.

In addition, several departments have outfitted their field operations with VMware Horizon (virtual desktop infrastructure) for remote anytime, anywhere access to information and analytics. Field workers can now quickly and remotely spin up full desktops and access all the relevant information they need—for example, to fight fires, communicate relevant information, collaborate with other departments within the agency, enter data, and more.

Disaster recovery was another important factor in the solution. The agency’s departments depend on real-time access to data and systems to make decisions and respond quickly to disasters. The agency’s disaster recovery solution had to ensure that operations could continue in the event of a disruption. VMware vCloud® Air™, as part of the disaster recovery plan, now protects business-critical, tier 1-3 applications, such as the fire-dispatching program.
Business Results and Benefits

CNRA has been able to reduce CapEx and OpEx across-the-board costs by more than 30%—in addition to increasing technology capabilities by more than 300%. IT was once considered a constraint to the agency’s departmental operations. Now, through a software-defined approach to compute and networking, IT has become a key enabler of mission success in all of the agency’s program areas.

“If you ask our business people what the biggest benefit is to them, it will be time-to-market. The ability to be a service provider allows us to quickly deliver technology capacity and capability to them, and we’ve really embraced this new way of doing business.”

TIM GARZA
IT DIRECTOR, CALIFORNIA NATURAL RESOURCES AGENCY

RESULTS

- Increased capacity by 300% while shrinking physical footprint by more than 60%
- Reduced CapEx by 40% and OpEx by 30%
- Increased overall system reliability by 200%
- Projected 60% improvement in provisioning times
- Projected 100% improvement in workload placement and movement flexibility

RESOURCES

IT Transformation at the California Natural Resources
CASE STUDY 3: CITY OF AVONDALE
How the City of Avondale Protects Critical City Services with a Comprehensive Disaster Recovery Environment

The City of Avondale, a fast-growing community in Phoenix, Arizona, is responsible for making critical health, safety, utility, and financial services information available to its 80,000 residents.

The Challenge
A few years ago, this fast-growing Arizona city moved to a hybrid cloud IT environment to ensure the availability of critical health, safety, utility, and financial services for its residents. VMware vSphere—on a FlexPod environment—was used to build their internal cloud-computing infrastructure. This important step in modernization enabled the IT organization to meet the city's growing needs, while reducing their hardware footprint as well as capital and operating costs.

With this new software-defined environment in place, Avondale was then ready to step up to the next big challenge: improving their disaster recovery (DR) capabilities. Up until then, the city had been severely limited in disaster recovery. "We wanted to do a better job with fast recovery and business resumption," says Rob Lloyd, CIO for the City of Avondale.
The Solution

The city had local backups for fast recovery, but wanted a separate regional site—in case of a catastrophic event—plus a disaster recovery cloud offering that could integrate with its existing VMware vSphere environment. Specifically, they required a comprehensive solution that would host critical data on a trusted replicated environment, be simple to deploy, require only minimal maintenance, and reduce CapEx.

Leveraging their familiarity with VMware technology, the IT team chose VMware vCloud Air Disaster Recovery to build an affordable, extensible, cloud-based failover environment. It runs 15 of Avondale’s most critical business applications, including finance, human resources, water and wastewater utilities, traffic, and web servers.

In addition to meeting the city’s disaster recovery objectives, the solution also had to meet their data retention objectives, addressing government regulatory policies and laws for records management. Given that the range for keeping records can span from 1 to 30 years (or forever, for capital crimes), the IT team implemented a nightly replication cycle to local and semi-local recovery points using vCloud technology to cost-effectively address this compliance requirement.
Business Results and Benefits

The city was able to fulfill its goal of enabling cost-effective, reliable disaster recovery. Their cloud-based solution easily integrates into existing infrastructure, reduces administration by technical staff, and meets recovery point objectives.

“Ten to 15 years ago, the IT environment looked much different. We had to have a server for everything, which took time to procure and provision. Using VMware solutions simplifies our work and makes us more nimble and responsive to stakeholders.”

ROB LLOYD
CIO
CITY OF AVONDALE
How the Ohio Department of Transportation Fast-Tracks State Road Maintenance and Repair

Last year, the Ohio Department of Transportation (ODOT) managed 1,500 construction and repair projects at a cost of nearly $3 billion. Responsible for more than 49,000 miles of highways and roadways, the department has 5,000 employees. In addition, about 4,500 contractors and vendors—who also need access to ODOT’s internal business systems—are brought in every year to supplement their permanent staff.

The Challenge

To staff construction and repair projects, ODOT’s construction management division hires numerous contractors and vendors each year. Many are not employees, but they do need access to ODOT’s internal business systems. Registering these non-ODOT personnel—and modifying project documents in the construction-management application—often took 30 to 45 days, delaying progress on essential transportation projects.

The agency needed a solution that would:

• Streamline and automate the onboarding and payment processes for new workers.
• Create a secure way for non-agency workers to access the construction management system without compromising system security.
• At the same time, help its small IT staff efficiently manage thousands of devices for both internal and external users.
The Solution
To allow external contractors to securely access internal business systems, ODOT combined their VMware Horizon virtual desktop infrastructure (VDI), which was already in place, with VMware NSX network virtualization. This powerful combination gave authorized contractors secure remote access to ODOT systems, even when they were using their own devices.

VMware Professional Services worked with the ODOT team to engineer a VDI solution that included: 40 hosts and 4,000 desktops; VMware Horizon licenses for 4,500 concurrent external users and 600 concurrent internal users; and 58 CPUs for the VMware NSX for vSphere solution.

Business Results and Benefits
The new solution helped ODOT save time for contractors and improve processing efficiency.

The department also achieved additional value by ensuring security between desktops using NSX virtualization to create segmentation; i.e., eliminating unwanted traffic among virtual desktops and between adjacent critical workloads.

What’s more, where it used to take up to six weeks for contract modifications, approvals, and change requests, these processes can now be completed in just a few days, or even hours.

Perhaps most important, automated provisioning and services through the VMware Horizon solution helped ODOT manage more technology resources with limited finances. As Wally Renner, a member of the Endpoint Computing team, summarized, “Unlike updating physical workstations, we can modify a single image, and that will update every virtual workstation. Our four-person team can efficiently manage more than 15,000 devices.”
The micro-segmentation capabilities of the NSX solution nearly eliminated the need for ODOT’s existing virtual private network (VPN), which will be retired over the next few years. This change will decrease spending and reduce operational costs. The agency also expects to realize savings from a reduction in paper mailings to contractors.

“Finding a secure user solution that could be implemented at a reasonable cost, and to the satisfaction of our security team, was a tremendous accomplishment.”

KEVIN HARTMAN
MANAGER OF ENDPOINT COMPUTING
OHIO DEPARTMENT OF TRANSPORTATION

RESULTS
• Contractor onboarding reduced from weeks to days or hours
• Contract modifications, approvals, and change requests reduced from 4–6 weeks to days or hours
• Significant operational efficiencies and cost savings achieved
CASE STUDY 5: VALLEJO SANITATION AND FLOOD CONTROL DISTRICT
How the Vallejo Sanitation and Flood Control District Keeps Both Water and Data Flowing Smoothly, Safely, and Securely

The Vallejo Sanitation and Flood Control District (VSFCD) is an independent district in Northern California that provides wastewater collection, treatment, and disposal as well as storm-water transmission and pollution-control services.

The Challenge

At the primary VSFCD water-treatment facility, safety and health are paramount. “The district here is very important to the environment and to the health of the community,” emphasized Frank Silvera, IT and Electrical Department superintendent for VSFCD. “Our primary goal is to keep our wastewater-treatment plant running 24 hours a day, 7 days a week, all year long, without any shutdown.” Jason Kaduk, VSFCD’s IT director, added, “The safety of the district’s data is just as important as the safety of our water. We are listed as ‘critical infrastructure’, and, these days, you have to have security.”

The challenge for the district’s small IT staff was both to ensure security and to improve operational efficiency and field productivity. Silvera went on to note the importance of also keeping costs low: “Our customers are the rate payers, and we want to continue to provide quality services to them as cost-effectively as possible.”

CUSTOMER PROFILE
Industry: State Agency
Location: Vallejo, California

KEY CHALLENGES
• Maintain business continuity for critical operations
• Improve field productivity with secure mobility solutions
The Solution
VMware Horizon allowed VSFCD to provision virtual desktops and save money on hardware replacement and upgrades. Virtualization keeps apps, desktops, and data secure in the data center and off the endpoint. With desktop pools, employees can now use any endpoint to log in to their own desktops and access mission-critical applications from the field.

VSFCD also installed VMware AirWatch to manage a fleet of iPads and iPhones for both field and office workers. Terry Chatman, the district’s information systems specialist, summarized their new capabilities: “With AirWatch we’re able to push out profiles to the devices and keep track of our assets in the field. If a worker loses their mobile device, the IT team can quickly provision a new device with the same applications, security, and network profiles. When workers need maps of property lines, pipes, or other infrastructure in the field, they can use VMware AirWatch Content Locker™ to push updated and detailed maps to their mobile devices, saving travel time back to the office and keeping sensitive information secure.”

VSFCD virtualized their network with VMware NSX, improving efficiency by allowing the district to maintain the network with minimal staff. NSX micro-segmentation capabilities also enhance security. “We’re able to set up groups and policies based on virtualized context, and configuration is way easier,” Chatman explained. “VMware allows us to deploy desktops for new users and different configurations that wouldn’t be possible with physical machines.”
Business Results and Benefits

VSFCD has achieved new levels of operational efficiency, field productivity and security—saving time, costs, and power. Replacing traditional PCs with lower-power devices running virtual desktops saves energy, which is important to a county committed to sustainable operations.

VMware solutions have also eased the district’s IT workload, enabling them to run their systems 24/7 with only two administrators.

The combination of mobile device management, network access controls, and VDI secures data and applications from the endpoint device to the data center while empowering employees with secure digital workspaces accessible anytime, anywhere, and on any device.

“I can actually manage my entire network in the palm of my hand and have my organization online 24 hours a day, 365 days a year.”

JASON KADUK
IT DIRECTOR
VALLEJO SANITATION AND FLOOD CONTROL DISTRICT

RESULTS
• Continuity of operations: 99.99% uptime
• Desktop provisioning reduced from 14 days to 10 minutes
• Secure digital workspaces, extending from the endpoint to the data center to employees—anytime, anywhere, on any device
• Operational efficiencies for small IT department

RESOURCES
Security and Mobility Transformation with VMware NSX, AirWatch & Horizon Solution