



AERODATA, INC. IMPROVES CUSTOMER AGILITY AND AVAILABILITY WITH COST-EFFECTIVE VMWARE NSX SOLUTION



INDUSTRY AIRLINE INDUSTRY

LOCATION ARIZONA, COLORADO

KEY CHALLENGES

- Meet federal and customer compliance requirements to improve security
- Increase availability of its applications to meet growing customer demands
- Hardware-defined data center limitations, including agility, scalability, and availability

SOLUTION

AeroData, Inc. modernized its data centers using VMware NSX as core network virtualization platform, vSAN for storage and partner solutions, including WAN acceleration, intelligent DNS, and MPLS. The data centers were transformed from “hardware-defined” to “software-defined”.

BUSINESS BENEFITS

- Reduced 2,000 firewall rules by over 85% to 250 for better security management
- Improved application availability across three data centers
- Reduced cost by at least 50%
- Achieved 99.999% uptime

AeroData, Inc. offers aircraft performance data, weight and balance data, and load planning services to the airline industry to support approximately 21,000 flights per day. Over 50% of all North American flights—soon to be 85%, depend on AeroData. Growing demand led AeroData to consider a more responsive alternative to their existing hardware defined data centers. The resulting VMware NSX® and vSAN™ solutions provide a modern software-defined data center (SDDC) solution for better customer access to AeroData data centers and improved availability to 99.999%, while also reducing cost, and minimizing management overhead.

AeroData provides critical flight data for major airlines. Its customers appreciate that these services are connected but separate from the airline’s own IT systems. AeroData ensures customer data is secure and flight data is available when needed even when airlines experience issues. AeroData’s flight deck client-server application is the last application used by pilots before the aircraft entry door is closed prior to takeoff. As a result, just five minutes of system downtime can result in over 100 delayed flights and loss of revenue. To meet such high-availability requirements, AeroData established data centers in three physical locations in Arizona and Colorado. In addition, AeroData has invested in multiple circuit providers (MPLS and ISP) to ensure continuous access to its data center circuit failures. While data responsiveness is critical to its customers, AeroData also needs to ensure that the data is protected to meet federal aviation regulations.

The Challenge

AeroData’s rapid growth brought with it the challenge of meeting increasing customer demands and adhering to federal requirements supported by a rigid hardware defined data center. “Managing network equipment in a noncentralized fashion was cumbersome and risky,” said Terry McDonough, President and CEO. The company was forced to code availability features into its applications rather than rely on hardware. This led to this use of backups, versus live-failover of customer requests across data centers. As a result, AeroData had to select one data center as primary and others as secondary and tertiary, resulting in only one active site to support customers’ workloads.

“VMware NSX is the most revolutionary development in our data center security in more than a decade. Not only do we save a significant amount of money in hardware costs, the features available through VMware NSX provides a dramatically more secure and highly available design than we could get with a physical networking appliances.”

TERRY MCDONOUGH
PRESIDENT AND CEO
AERODATA, INC.

VMWARE FOOTPRINT

- VMware NSX 6.2.4
- VMware vSAN 6.2
- vRealize Log Insight 3.3.1
- VMware ESXi™ 6, vRealize 6
- VMware Horizon 6.2

Hardware requires ongoing purchases of new equipment to meet emerging industry requirements such as federally-approved secure access to web servers. “With each introduction of new hardware, AeroData had to identify or hire specific skillsets and assign management overhead,” said McDonough. In addition, new hardware implementations created single points of failure, compromising availability.

Competing business demands were constantly at odds with one another, a typical shortcoming of a hardware-defined data center. “AeroData found that the software-defined data center approach secured by VMware NSX better aligned our smaller company with a base of larger customers base providing unique and compatible services,” said McDonough.

The Solution

AeroData evaluated its existing capabilities with its three existing physical data centers and concluded it needed a fundamental shift in its datacenter approach. It selected VMware NSX as its core network virtualization platform and vSAN for storage. AeroData migrated key networking capabilities from hardware to the NSX platform, including firewall rules, load balancing, routing, switching, logging, and monitoring.

SPJ Solutions, an IT solutions company offering expertise in advanced SDDC and other technologies, played a critical role in AeroData’s SDDC modernization project. As a premier VMware Professional Services delivery partner, SPJ specializes in architecting, planning, deployment, and support of VMware’s NSX and vRealize technologies. AeroData’s environment was complex and it includes NSX, vSAN, VMware vRealize® Log Insight™, VMware Horizon®, and several additional VMware partner products. SPJ Solutions’ extensive experience with NSX and VMware partner products, greatly contributed to the success of AeroData’s initiative.

AeroData uses a WAN acceleration technology to perform policy-based routing from one data center to another. The WAN acceleration technology not only provides protection against circuit failures (i.e. MPLS and ISP), but also improves bandwidth utilization by up to 80%. With NSX and a complementary WAN optimization solution in place, AeroData is able to significantly reduce the clone and migration time of its applications from one data center to another.

AeroData also adopted vSAN to streamline storage management and improve performance. “VMware vSAN has significantly reduced the effort required to setup and maintain storage, which is an important benefit for a small company managing three sites and working to keep costs low for its customers,” said McDonough.

AeroData uses vRealize Log Insight for centralized logging of their VMware and non-VMware environments. They developed a .NET plug-in to forward application logs from .Net applications to Log Insight and to filter them efficiently. Log Insight also provides plug-ins to various other AeroData applications making it easy for them to transition from decentralized log management to a centralized log management approach.

Business Benefits

“The new secure infrastructure including NSX, vSAN and Log Insight helps AeroData reduce costs, better manage its environment and ensure customer data is secure,” explains McDonough. AeroData deployed advanced NSX functions to use all three data center in active-active fashion, essentially utilizing all of the data centers to service customer workloads. NSX cross-data center capabilities allow AeroData to route customer workloads to any of the datacenters, instead of just one in the past. Customer traffic is separated by using the NSX NAT capability to offer security and isolation to each customer.

Key benefits include:

1. Meeting customer and federal security requirements without procuring additional hardware
2. Improving customer service by building application availability across three data centers
3. Maximizing the value of its computing power by distributing workloads to all three data centers
4. Improving management of the network appliances through a single management window
5. Reducing OpEx by eliminating application level coding to meet availability requirements and by centralizing networking operations.

AeroData uses NSX along with a third-party intelligent DNS service. NSX provides global load balancing capabilities. AeroData has very specific needs, including load balancing of web servers and SQL Servers, CIPHER management, Client IP visibility, improved logging, global load balancing, improved health monitoring, and failover management.

AeroData uses micro-segmentation to offer separation of its applications. Without NSX, east-west firewalling was simply not possible using a hardware appliance. Micro-segmentation has improved application security while maintaining customer agility and flexibility. Using NSX, AeroData has been able to create and apply firewall policies from one central management window to all of the NSX applications across all three data centers, a capability that significantly reduced the number of firewall rules and the time it would take to write and manage rules in hardware appliances.

“At AeroData, we have adopted VMware NSX network virtualization to transform our data centers from ‘hardware dependent’ to ‘software managed,’ dramatically improving availability by eliminating single points of failure,” said McDonough. “With VMware NSX, vSAN and Log Insight, AeroData implemented a cost-effective infrastructure to provide better security for our customers,” added McDonough.

Looking Ahead

“VMware NSX is the most revolutionary development in our data center in the past decade,” says McDonough. AeroData is also excited about automating IT, and has plans to also implement VMware vRealize Automation™ and integrate with NSX. Plus, its currently integrating NSX with its existing Horizon environment for greater network security management.

