



NETWORK TRANSFORMATION TO FUEL GROWTH AND OPTIMIZE PERFORMANCE



INDUSTRY
BUSINESS SERVICES

HEADQUARTERS
VERNON HILLS, IL

CHALLENGES

- High network and management costs
- Slow branch office deployment times
- Significant network latency and performance issues

RESULTS

- Robust analytics and diagnostics that inform strategy and decision-making
- Easily deploy new offices and implement new policy changes with single click
- Improve network performance to drive video adoption
- Significant network costs including hardware and management

Manhard Consulting uses SD-WAN to easily deploy new offices, implement new policy changes with a single click, and increase network performance.

Problem Situation

Manhard Consulting offers development services that include civil engineering, surveying, water resources management, construction and program management and other services to over 10,000 clients. With a growing organization and customer base and a network requiring more and more bandwidth, Manhard Consulting began looking for alternatives that would achieve all its network goals.

Manhard Consulting had an MPLS network that it used to connect its headquarters to all of its branch offices. MPLS posed limitations on the organization, limiting its ability to reliably and quickly deliver large files created by its team. It also sought to replace its existing voice network with alternative and would require that any new network implementations work seamlessly with each other.

Cloud usage was an important initiative at Manhard Consulting, with cloud based applications such as Office 365 and Skype for Business being utilized across the entire organization. Storage also shifted to the cloud and video was being heavily used as a primary communication mechanism. MPLS was insufficient to support these applications, causing problems with delay and poor quality of service (QoS).

Additionally, Manhard Consulting's goal was to continue to grow using an acquisition strategy. MPLS posed significant obstacles in enabling this strategy because deploying an MPLS connection to new offices required significant lead time and then adapting that network to Manhard Consulting's network was very time intensive. It needed a solution that would simplify this entire process.

There were several factors driving Manhard Consulting to seek an alternative to its existing network. These included:

- Simplified management
- Reduce cost impact
- Reduction of deployment time for each existing and new branch locations
- Provide an alternative to MPLS

“VeloCloud SD-WAN transformed our network into a dynamic and responsive infrastructure that could support our growth goals, making us excited for what the future will bring.”

DON WILLEMARCK
DIRECTOR OF IT, MANHARD CONSULTING

Solution Selection and Implementation: VMware NSX® SD-WAN by VeloCloud™

Manhard Consulting conducted extensive research to find an alternative to its existing network and found that SD-WAN could be a viable solution. Initially Manhard Consulting chose to deploy SD-WAN through a carrier, but found that there were limitations that prevented it from achieving its established goals for the long-term, including access to only two cloud gateways.

Following an initial deployment with the chosen carrier, Manhard Consulting migrated off the carrier model and to fully managed value added reseller (VAR) Truth Communications, powered by NSX SD-WAN.

To determine if shifting to SD-WAN would be a viable solution for Manhard Consulting, a proof of concept (POC) at three different sites was conducted over a three-month period. The POC was so successful that Manhard Consulting decided to move forward and roll NSX SD-WAN across the rest of its locations and to any new location as it was acquired.

Truth Communications helped Manhard Consulting deploy NSX SD-WAN, which included full access to all NSX SD-WAN Gateways that numbered 18 worldwide, NSX SD-WAN Edges at each branch office for the connection to the cloud, and the NSX SD-WAN Orchestrator for visibility and management.

Manhard Consulting was unable to do a complete shift from its existing MPLS to SD-WAN because it had multiple MPLS contracts to which it was financially obligated. Instead, it implemented a longer-term migration strategy where NSX SD-WAN was fully deployed alongside MPLS and as individual contracts came up for renewal, Manhard Consulting allowed them to expire. Over time, all MPLS contracts expired and only SD-WAN is utilized today.

During the deployment process, Manhard Consulting was able to replace hardware at each of its offices, including legacy routers from Adtran.

Robust Analytics and Diagnostics

Manhard Consulting was extremely limited in its ability to manage its MPLS network because there was no visibility into network behavior or ability to determine where issues were originating.

With NSX SD-WAN, Manhard Consulting gained complete visibility into its entire network, including the NSX SD-WAN Edges, NSX SD-WAN Gateways, and internet connections. This new visibility allowed Manhard Consulting to very quickly identify any and all issues with carriers, which led to a lot less finger pointing as to where the problem originated. Complementing the increased visibility was the robust analytics, reporting, and diagnostics that the platform provided, enabling the IT team to set criteria, measure the impact of changes and new policies, and easily quantify the results.

Ease of Deployment and New Policy Implementation

The ability to deploy to existing and new offices quickly was important to Manhard Consulting. With NSX SD-WAN, deployment times were significantly reduced, oftentimes by weeks at a time. SD-WAN eliminated the limitations that MPLS imposed which included expanding and scaling the network to ensure that all locations had the same access to cloud-applications and services.

“Video is a medium we’re using more and more with our employees and company-wide adoption would have been much lower if we had to rely on MPLS instead of SD-WAN because the experience would have been pretty poor.”

DON WILLEMARCK
DIRECTOR OF IT, MANHARD CONSULTING

Additionally, using the NSX SD-WAN Orchestrator could internally manage its own network, which included direct access to each NSX SD-WAN Edge. With this centralized, single pane of glass perspective, Manhard Consulting’s IT team had read and write capabilities, which was not possible with the MPLS network. In addition, if changes needed to be implemented network wide, it simply had to make the changes in the NSX SD-WAN Orchestrator and it would push all configuration changes to each NSX SD-WAN Edge. This significantly reduced management time and cost because the team no longer had to configure each piece of hardware at each branch office manually and in-person.

Network Performance Improvements

With the switch from MPLS to NSX SD-WAN, Manhard Consulting has experienced significant improvements in voice and video quality as well as reduced network latency. Files are now delivered faster and QoS and QoE statistics are much higher.

Using NSX SD-WAN Dynamic Multipath Optimization (DMPO) improves the instance of packet loss by leveraging multiple links for sharing application performance. DMPO automatically profiles all links by measuring the performance and capacity of each and steers business critical applications the best performing link at that moment in time to optimize delivery.

Maximize Existing Solution Investments

Manhard Consulting utilized an Aktion network for corporate cloud applications and services including the hosting of its ERP accounting software. With the existing WAN infrastructure, all connectivity to Aktion was routed through the MPLS to headquarters and through the VPN before reaching Aktion. The latency in access and response was so high that processes became non-functional and thus usage of Aktion was nearly non-existent.

Following the implementation of NSX SD-WAN, network traffic now had direct access to Aktion via a gateway. Latency to the system was reduced by half, making it much easier to utilize and thus became usable by employees. Using SD-WAN, Manhard Consulting was able to turn what could potentially have been a loss on a large solution investment with Aktion, into a high-return, highly leveraged cloud platform.

Quantification of Change

Following the implementation of NSX SD-WAN, Manhard Consulting realized an immediate 30% savings while introducing redundancy across the network for data and voice, change from an active-passive to active-active network, and introduce packet-by-packet prioritization. These were not possible with the previous MPLS network.

Enabling Future Plans

Manhard Consulting fully expects NSX SD-WAN to enable its future network plans. This includes an initiative to run more business services and applications in the cloud, specifically in Amazon. To support this, Manhard Consulting will spin up NSX SD-WAN Virtual Edges in Amazon to fully realize the benefits that the cloud affords.

