



## MULTIPLE DIVISIONS TRANSMITTING TERABYTE-SIZED FILES IS NO MATCH FOR SD-WAN



### INDUSTRY

CIVIL ENGINEERING, SURVEYING,  
AND LANDSCAPE

### CHALLENGES

- Slow and to little bandwidth to support large files
- Legacy network devices and systems that limited expansion

### RESULTS

- Increased bandwidth and internet speed (15MB to 200MB)
- Consistent network experience for all employees regardless of location
- Productivity gains from simplified network management
- Significant cost savings
- Future-proofing the network for future expansion

With network inefficiencies impacting its productivity, The Kleingers Group knew it needed to make a change to keep up with its growing business.

### Problem Situation

The Kleingers Group is a well-respected full-service civil engineering, surveying, and landscaper architecture firms in Ohio. With over 100 employees, it services its diverse customer base through several divisions that include:

- Civil engineering for addressing issues with transportation, interstate, and traffic congestion. This is The Kleingers Group biggest users, which includes services at customer sites and surveys for both a consumer and business audience.
- Sports organizations for both high school and collegiate football fields.
- Truescan 3D imaging that utilizes aerial drones and other tools to create 3D survey maps of landscape and building interiors. The software used for these types of mapping is typically Leica Cyclone and Autodesk Recap, which produces extremely large software files.

The Kleingers Group has grown large enough to split its organization into a several offices based on responsibility. Most recently, it opened a fifth office in Louisville, OH. Connections between offices is important to the business, so that regardless of location, all employees working on a similar project have the same access to the same files. To provide this connection, The Kleingers Group has run dark fiber between the various buildings.

Various vendors have been sourced to create the The Kleingers Group network, including devices from both Adtran and NetGear. All of its offices are connected together using point-to-point configuration, but with only a 15MB line between the sites, the network had proven to be unreliable and inadequate to handle the large files created with the AutoCAD program and drone files that The Kleingers Group relies on for its renderings.

Additionally, The Kleingers Group relied on a traditional PBX phone system across its offices but was considering replacing the network equipment and the phones currently in place.

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

With network inefficiencies impacting its productivity, The Kleingers Group knew it needed to make a change to keep up with its growing business. This included replacing all existing network devices and phone systems with more reliable and integrated solutions.

“I am thrilled that our network has been transformed into a robust platform with SD-WAN that allows us to quickly and easily transmit large-sized files easily from site-to-site and thereby increase our productivity and efficiency.”

MIKE PILLMAN  
SYSTEM ADMINISTRATOR,  
THE KLEINGERS GROUP

Understanding that this was a large task, The Kleingers Group worked with third parties to assess its situation, provide reasonable solutions, and implement it across the entire network. Turning to CBTS, a leading service provider headquartered in Ohio but with a national reach, The Kleingers Group was guided to deploying its SD-WAN platform as the digitally transformative solution that would provide them with increased bandwidth, optimized file delivery, and optimized productivity.

The CBTS team worked with The Kleingers Group to map out the entire network, including connection to the cloud-based Office365 suite of applications, and ultimately decided to use a hub-and-spoke design between its offices. Its Cincinnati office became the central office and hub of the network and the other offices in Dayton, Columbus, and Louisville were its spokes. Additionally, the main data center is located in West Chester, with a smaller data center located in Columbus. All were connected together using VMware SD-WAN by VeloCloud.

### Increased Bandwidth and Speed

Low and slow bandwidth is a detriment to a business, particularly one that relies on the transfer of extremely large files from site to site. The Kleingers Group existing transport was extremely limited at 15MB with outages. Engineers were unable to move their AutoCAD files efficiently which significantly reduced productivity.

With the adoption of VMware SD-WAN, The Kleingers Group was able utilize standard broadband connections at a much lower rate than its previous connectivity choice and enjoy between 30MB and 50MB of bandwidth, which was then optimized using VMware SD-WAN Dynamic Multipath Optimization (DMPO).

Several of The Kleingers Group's departments use Civil 3D programs, which are similar to regular AutoCAD programs but incorporate additional features, such as those for scanning an entire building to produce renderings of its architecture with a high degree of detail. The results are larger files that those generated with AutoCAD with a 1.5TB size not being uncommon. With SD-WAN, the files were able to be transported with no issue.

### Consistent Network Experience

Because The Kleingers Group has various branch sites, it can be difficult to ensure that each employee has the same exceptional network experience as another employee at a separate branch office as connectivity can vary from location to location. But The Kleingers Group needs all employees regardless of location to be able to view the firms files and renderings to provide design and review feedback quickly. The implementation of SD-WAN across all of its sites has turned The Kleingers Group into a much more agile enterprise. CBTS has implemented VMware SD-WAN site-to-site, ensuring always-on network uptime.

### Productivity Gains: Network Management

Despite The Kleingers Group dependence on its network and connectivity to be able to run the business, employing more than two individuals to manage the IT needs of the company was excessive for its size. However, the minimal team was finding it difficult to keep up with the demands and troubleshooting issues across all branch sites.

“Completely replacing an existing company’s network infrastructure with another is a difficult task, but with our partners CBTS and VMware SD-WAN, The Kleingers Group was able to do so with limited to no interruption and with minimal effort”

MIKE PILLMAN  
SYSTEM ADMINISTRATOR,  
THE KLEINGERS GROUP

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CBTS and VMware SD-WAN was able to increase productivity of the existing team, allowing the management of all IT requirements much simpler. Additionally, the easy installation process for VMware SD-WAN enables new offices to be set up quickly and increase the efficiency of the existing IT staff. Whereas previous installations could often take days or weeks to establish, with VMware SD-WAN and the help of CBTS technical staff, site-to-site connectivity and office turn-up could be completed within an hour’s time.

### Significant Cost Savings

The combination of faster deployments, easier IT and network management, and the infrastructure cost, the implementation of SD-WAN across all of The Kleingers Group’s sites provided to significantly save costs. With SD-WAN, The Kleingers Group is able to attain enterprise-level connectivity for a fraction of its previous budget.

### What the Future Holds

The Kleingers Group envisions continued growth. While it currently has four offices and 100 employees, it foresees those statistics to increase, necessitating a robust network platform that will future-proof its plans for expansion. As its various divisions expand, The Kleingers Group expects each division to required dedicated resources, including individual websites for each. With SD-WAN, The Kleingers Group is now able to develop its plans for growth and feel assured that its network will be prepared to handle the expansion.

