

Robust VPN network design drives down cost, improves performance and resiliency for MMCC

Introduction

Metric & Multistandard Components Corporation (MMCC) is a premier metric fasteners and industrial components supplier. Headquartered in Hawthorne, NY, they have branch offices strategically located nationally. Connected by a Frame-Relay network, inter-office communication consists of real time inventory, customer ordering information and back office administration traffic. Reliability and performance of the network are critical to everyday operations as well as the overall success of the company's sales and distribution goals.

The Challenge

With five locations across the United States and headquartered in Hawthorne, NY, MMCC sought a scalable solution to meet their increasing wide area network bandwidth needs. With their business growing rapidly and their operations expanding proportionally with their revenue, MMCC was confronted with the challenge of having an expensive frame-relay network, limited bandwidth to meet their growing data demands, and an overall inefficient legacy system of interoffice network communications.

It became apparent that MMCC had outgrown their current frame-relay networks. To increase the CIR (Committed Information Rates) in their frame-relay network would not have been economically viable because of the vast distance between their offices. Needless to say the situation was not acceptable for a company with increasing revenue and a priority of delivering quality products.

The new solution needs to satisfy the following requirements:

- **Reliable:** The solution has to be reliable and provide a high degree of fault tolerance to ensure business operation.
- **Scalable:** The solution has to be able to scale with MMCC's growing business demands.
- **Secure:** The solution has to be secure to ensure confidentiality and integrity of MMCC's corporate data.
- **Economical:** The solution has to provide a cost savings over the existing frame-relay networks.
- **Low administrative overheads:** The solution has to be low maintenance and require minimum effort to maintain.

In addition, the new design has to be implemented in parallel with the existing networks and the switchover has to take place during scheduled off-hour

maintenance windows. Proper project management and a precise project plan are required to ensure the tight schedule is met.

The Solution

Hi-Link Computer Corporation (Hi-Link), a Cisco premier partner with Security and VPN as one of their four Cisco specializations was contracted to provide the proper design and implementation. After a meticulous examination of MMCC's networks, a discussion to understand their business operation requirements and goals, Hi-Link's consulting engineers devised the following solutions to satisfy MMCC's requirements.

Reliability

To prevent link layer failures, BGP was implemented to provide fault tolerance against Internet outage. BGP will automatically failover to the remaining active connection in the event of single T1 failure. Furthermore, automatic ISDN dial backup was implemented to prevent multiple T1 failures and Internet congestion.

Cisco hardware was chosen as the end-to-end solution. Cisco is the industry leader in network performance and reliability. MMCC also purchased Cisco advanced 4-hour hardware replacement maintenance contracts to further enhance network uptime.

Scalability

Hi-Link's design provides easy scalability on demand. Cisco GRE (Generic Routing Encapsulation) tunnel enables otherwise inflexible VPN tunnels to behave like a traditional lease line. This implementation allows most enabling technologies such as multicasting, QOS and dynamic routing, which traditionally are not available for VPN to work correctly.

Every remote office is configured exactly the same and it can be easily duplicated to bring up any new location. Extra bandwidth can also be easily added to meet additional demands.

Security

IPSEC triple DES with dynamic, time limited session keys was employed to encrypt the VPN tunnels. This was the most secure encryption commercially available at the time of implementation.

To provide a high level of security without penalizing network performance, hardware based encryption was chosen to provide wire-speed triple DES encryption. This design provides the best balance of security and performance.

Cost Savings

MMCC's VPN Wide Area Network backbone completely replaced their frame-relay network. The VPN implementation yields more than 60% net monthly savings for a yearly aggregate savings of over \$77,000 plus it provides better performance at the same time. The return on investment (ROI) took place in only six months.

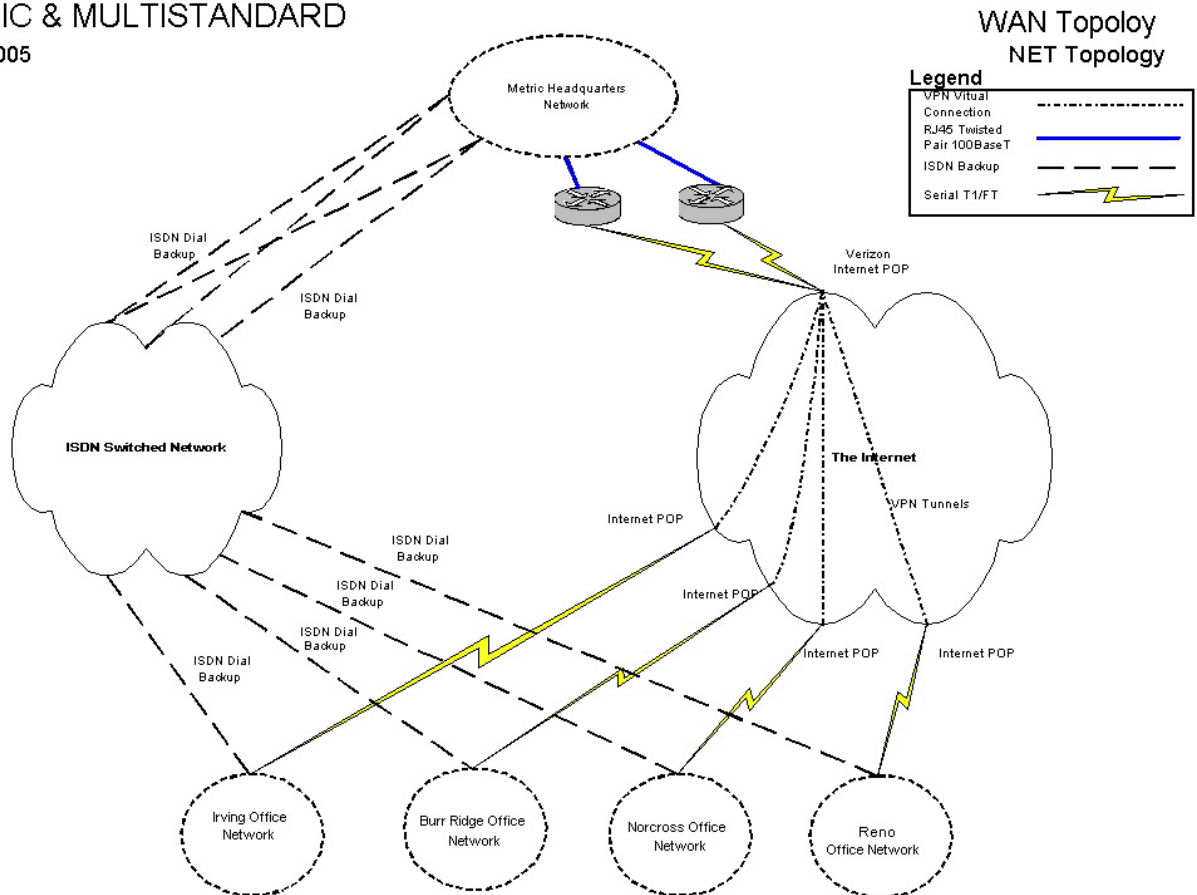
Easy Administration

From BGP fault tolerance to ISDN dial backup and VPN dynamic session keying, Hi-Link's design is completely self-healing and requires little maintenance. Network management was set up to notify an administrator when an outage or network congestion occurs. The design frees up IT personnel to be more productive and yet maintain control of the network.

Hi-Link's experience and certified expertise enabled them to address all of the above requirements to MMCC's complete satisfaction.

Below is a high-level topological diagram of the design.

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Customer Benefits:

MMCC eliminated the lease on their Frame-Relay network and they transparently replaced it with an IPSEC VPN network. MMCC has eliminated their network congestion, added more bandwidth, added a network monitoring system to proactively monitor their system and alert them by e-mail of any issues. Most importantly MMCC now has a transparent remote access solution that is a reliable, high-performing system that saves them money and yields better results. Hi-Link made this implementation as simple as possible by working efficiently, at the times that best suited the customer. Hi-Link handled all of the minute details such as working through all the problems and scheduling that are often associated with Internet providers and project management.

Cost Savings and a more efficient system are only part of the benefits that MMCC is currently experiencing. Another benefit can best be explained by MMCC's IT Manager:

"Our new Cisco VPN system is self-managed. The managed frame relay system was a nightmare with endless arguments with poorly trained telephone support people, opening tickets, waiting for hours for status reports. We couldn't access routers or talk to the local Telco. Everything was thru the provider and they were always blaming their problems on our equipment as their first response to everything.

Our new VPN is self-managed. We can access our Cisco routers. We can see the errors and logs. We can have an informed discussion of problems with the Telco. All our T1s are contracted directly with the Local Exchange Carrier (ILEC), which gives us a direct communications link to resolve troubles. The occasional problems are addressed and resolved quickly.

With Hi-Link as our partner, we were confident that we could run a self-managed VPN network. We have a highly reliable network with a lot less problems."

John Bellnier, IT Manager, Metric & Multistandard Components Corp.

About Hi-Link:

Hi-Link Computer Corp. is an Information Technology solutions provider that specializes in helping its clients build a network infrastructure to make their businesses more efficient. Hi-Link has been servicing the Tri-State area with its unique customer-focused solutions since 1990.

Hi-Link provides five primary solutions: Network Security, Wireless Networking, IP Communications, Network management and high-performance infrastructure design. Within each one of these areas of expertise Hi-Link offers numerous focal points: Remote access (including VPN and SSL), two-factor authentication, anti-virus, anti-SPAM, IDS/IPS, endpoint security, backup/storage solutions, content filtering, security assessments, wireless site surveys, IP telephony solution designs, and complete installations and implementation.

Hi-Link is backed by industry certifications and partnerships to achieve all of these solutions. A few of its more prestigious certifications from Cisco include: Security,



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Routing and Switching, Wireless, and IP Communications. Hi-Link also holds numerous certifications from: Microsoft, Hewlett Packard, Citrix, and Veritas; as well as maintaining all of the necessary qualifications that are required to be partners with companies such as: Symantec, Fortinet, RSA, APC, Zone Labs, and Barracuda.

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