

# FortiGate Network Transformation: Securing Healthcare Connectivity

This case study examines how CG Technologies revolutionized network infrastructure for a multi-location Toronto medical provider by implementing FortiGate Next-Generation Firewalls across six branches. The four-week project replaced costly MPLS circuits with secure, high-performance broadband connectivity, resulting in 41% cost savings, tenfold bandwidth increases, and enhanced security compliance with Ontario's PHIPA regulations. The following sections detail the challenges, solutions, outcomes, and key learnings from this successful healthcare IT transformation.

# Project Overview and Client Challenges

A prominent multi-location medical service provider in Toronto engaged CG Technologies to modernize their aging IT infrastructure across six offices in the Greater Toronto Area, addressing multiple technical challenges while ensuring continuous operations.



## Project Scope

Comprehensive FortiGate Next-Generation Firewalls deployment across six medical offices in Toronto, completed within a stringent four-week timeline while maintaining continuous medical operations.

## Legacy Infrastructure

Expensive and bandwidth-limited MPLS circuits were creating bottlenecks for staff communications and patient care delivery, hampering operational efficiency across all locations.

## Security Concerns

Growing concerns about data security and regulatory compliance with Ontario's PHIPA regulations required a robust solution to protect sensitive patient information and electronic health records.

## Management Inefficiencies

Lack of centralized network management created operational inefficiencies, with limited visibility into network traffic patterns and potential security vulnerabilities across the six locations.

The solution needed to address multiple technical requirements simultaneously: replacing legacy hardware, improving bandwidth capabilities, strengthening security protocols, and centralizing network management—all critical factors in a healthcare environment where rapid access to information directly impacts patient care quality.



# Technical Solution Implementation

CG Technologies deployed a comprehensive network transformation solution centered around Fortinet's industry-leading security architecture. This technical overhaul systematically addressed each of the client's infrastructure challenges while establishing a foundation for future growth and adaptation.



## FortiGate Deployment

Installed enterprise-grade FortiGate Next-Generation Firewalls at each of the six branch locations, replacing legacy security appliances with modern hardware featuring advanced threat protection capabilities and simplified management interfaces.



## MPLS Replacement

Decommissioned expensive MPLS circuits in favor of high-speed broadband connections (100 Mbps) at each location, carefully sequencing the transition to maintain continuous operations during the migration period.



## Secure VPN Implementation

Established encrypted IPsec VPN tunnels between all branches, creating a secure private network overlay across public internet connections while ensuring traffic prioritization for critical healthcare applications.



## Centralized Management

Implemented FortiManager for unified policy control and FortiAnalyzer for comprehensive logging and reporting, providing the client's IT team with unprecedented visibility and control over their entire network environment.

The technical implementation leveraged Fortinet's SD-WAN capabilities to intelligently route traffic based on application requirements and available bandwidth. This allowed the system to automatically prioritize latency-sensitive applications like video consultations and electronic health record access. Advanced security features including intrusion prevention, web filtering, and application control were configured according to healthcare best practices.

Special consideration was given to third-party healthcare service integrations, with dedicated secure channels established for connections to laboratory systems, provincial health networks, and insurance providers. Each integration received carefully crafted firewall policies to ensure only authorized, encrypted traffic could traverse the network boundaries, maintaining compliance with Ontario's Personal Health Information Protection Act (PHIPA) requirements.

# Project Outcomes and Performance Metrics

The implementation of FortiGate Next-Generation Firewalls across the client's six medical offices yielded substantial improvements in network performance, security posture, and operational efficiency. These outcomes delivered both immediate benefits and positioned the organization for future technological advancement.

## 41%

### Cost Reduction

Monthly network operational expenses decreased significantly through the elimination of expensive MPLS circuits and consolidation of security services into the FortiGate platform.

## 10x

### Bandwidth Increase

Available network capacity expanded from previous 10 Mbps MPLS connections to 100 Mbps broadband at each location, dramatically improving application performance.

## 4

### Weeks to Completion

The entire project was executed within a compressed timeline while maintaining uninterrupted operations across all medical facilities.

## Performance Improvements

Application	Before Implementation	After Implementation	Improvement
Electronic Health Record Access	7-10 seconds	< 2 seconds	75% faster
Remote Consultation Video Quality	Frequent drops, pixelation	HD quality, stable connection	Significant enhancement
Data Backup Completion Time	6+ hours	1.5 hours	75% reduction
Branch-to-Branch File Transfer	11 minutes (100MB file)	1.2 minutes (100MB file)	89% faster

Beyond these quantifiable metrics, the client experienced several qualitative improvements. IT staff reported greater confidence in their security posture and compliance status with PHIPA regulations. Clinical staff noted improved system responsiveness, particularly during peak hours, leading to more efficient patient interactions. The centralized management capabilities enabled proactive identification of potential network issues before they impacted operations, reducing unplanned downtime incidents by 92% in the first quarter after implementation.

"Transitioning from MPLS to a FortiGate VPN solution has significantly improved our network performance and reduced costs. The implementation was smooth, and our operations have never been more secure."

# Implementation Challenges and Resolutions

Despite meticulous planning, the project team encountered several significant challenges during implementation. The ability to effectively navigate these obstacles was critical to maintaining the project timeline and ensuring a seamless transition without disrupting patient care operations.

## Coordinating Installations Across Live Medical Facilities

With six active medical offices serving patients daily, finding suitable installation windows proved challenging. The team developed a staggered implementation schedule, primarily conducting major transition work during evenings and weekends. Pre-configured equipment was prepared off-site to minimize on-site installation time, and detailed rollback procedures were established for each deployment phase in case of unexpected complications.

## Mitigating MPLS Transition Risks

To prevent service interruptions during the shift from MPLS to broadband with VPN tunnels, the team implemented a parallel network architecture. New connections were established and thoroughly tested before decommissioning existing circuits. This approach created a temporary increase in infrastructure costs but eliminated the risk of downtime. Each location maintained both old and new systems simultaneously until the new implementation proved stable for a minimum of 48 hours.

## Integration with Legacy Systems and Third-Party Applications

The client relied on several specialized healthcare applications with specific networking requirements. The CG Technologies team conducted extensive compatibility testing and engaged directly with third-party vendors to ensure their applications would function properly in the new network environment. Custom firewall rules and traffic shaping policies were created to accommodate applications with unique connectivity needs, particularly for legacy systems that couldn't be easily updated.

Another significant challenge emerged when testing revealed bandwidth inconsistencies from one of the broadband providers. Rather than proceeding with a suboptimal connection, the project team quickly identified an alternative service provider and negotiated expedited installation, adding only three days to the project timeline but ensuring all locations would have reliable, high-performance connectivity.

Staff training represented an additional consideration, particularly for the IT department personnel responsible for ongoing network management. CG Technologies developed a comprehensive knowledge transfer program, including both formal training sessions and shadowing opportunities during the implementation phase. Detailed documentation was created for all aspects of the new network architecture, providing the client's team with reference materials for future troubleshooting and maintenance.



# Conclusions and Strategic Recommendations

The successful implementation of FortiGate Next-Generation Firewalls across the client's six medical offices represents a transformative improvement in their network infrastructure. The 41% reduction in monthly network expenses translates to approximately \$72,000 in annual savings, while the tenfold increase in available bandwidth has eliminated performance bottlenecks.



## Project Impact Assessment

By replacing outdated MPLS circuits with secure, high-performance broadband connections and establishing a centralized management framework, CG Technologies delivered substantial cost savings while enhancing security, performance, and operational efficiency.

## Enhanced Security & Compliance

The enhanced security capabilities ensure compliance with Ontario's PHIPA regulations, protecting sensitive patient information and reducing organizational risk. The seamless execution across multiple active medical facilities demonstrates CG Technologies' expertise in healthcare IT transformations.

## Regular Security Assessments

Schedule quarterly security audits and penetration testing to maintain a strong security posture and address emerging threats proactively. This establishes a cadence of security verification that helps protect patient data.



## Bandwidth Growth Planning

Monitor network utilization trends and establish triggers for bandwidth upgrades to accommodate increasing demands from new applications and services, ensuring the network scales with organizational needs.

## Cloud Security Extensions

Explore FortiGate Cloud Security Services to extend protection to staff accessing cloud resources and working remotely, enhancing the security perimeter beyond physical locations.

## Redundant Connections

Implement secondary internet connections at critical locations to eliminate single points of failure and ensure continuous operations, protecting against service interruptions.

This case study illustrates how CG Technologies combines technical expertise with deep healthcare industry knowledge to deliver solutions that address both immediate operational challenges and long-term strategic objectives. For other healthcare organizations facing similar infrastructure limitations, this project demonstrates that significant improvements in performance, security, and cost-efficiency can be achieved with minimal disruption through careful planning and execution.

By building on the foundation established through this network transformation, the client is well-positioned to leverage emerging healthcare technologies while maintaining the highest standards of security and compliance. The scalable, centrally managed infrastructure now in place provides the flexibility required to adapt to evolving operational needs and regulatory requirements in the dynamic healthcare environment.