



RESURGENS<sup>PC</sup>  
ORTHOPAEDICS

## Resurgens Orthopaedics Case Study

### Executive Summary

**Business Profile:** Resurgens Orthopaedics is the second largest orthopedic medical practice in the United States with 20 facilities in the greater Atlanta area.

**Industry:** Healthcare

**Business Challenges:** Resurgens is dependent on the efficient performance of its practice management and e-mail applications containing vital patient records that contain critical medical history, diagnostic reports, scheduling, and billing information. Many of the practice's offices were experiencing dismal performance over 64 Kbps and 128 Kbps frame relay WAN links because of rapid patient growth and high traffic due in large part to data-intensive MRI reports. To resolve its application performance problems that were adversely impacting patient care and customer service, Resurgens evaluated the tradeoffs between costly WAN upgrades and application acceleration alternatives.

**Solution:** By deploying Peribit application acceleration and WAN optimization platforms, Resurgens immediately improved application performance while avoiding the higher recurring expense of a wide-scale WAN upgrade .

### **Business and IT Benefits of a Peribit Solution:**

- Peribit Sequence Reducers increased the effective throughput of Resurgens' WAN links by as much as eight-fold, with an average data reduction of more 80% across its applications.

- As a result of deploying Peribit Sequence Reducers, Resurgens has realized an ROI in only seven months while avoiding a network upgrade that would have cost a minimum of three times the Peribit solution, with additional recurring annual bandwidth costs.
- Application response time improved in many instances from an intolerable three to five minutes to less than two seconds across the organization.
- Resurgens has effectively managed a greater than 30% increase in its case load, which hit a high of just more than 350,000 patients in 2004.
- After a free, 30-day trial of the Peribit Sequence Reducers, Resurgens was able to deploy 20 systems across the organization in just two days.

### **Peribit Helps Resurgens Orthopaedics Serve 30% Greater Patient Load While Improving Application Performance with Existing WAN Links**

When you're on the front lines fulfilling patient scheduling or retrieving medical records for deadline-driven physicians, the last thing you need is "screen paralysis" due to a congested network. Waiting several minutes for key applications to open is not only intensely frustrating, it's an organizational productivity killer that triggers an avalanche of user and management complaints. For Vinnie Greaves, Chief Technology Officer at Resurgens Orthopaedics, fielding daily complaints about the woeful performance of critical applications became the catalyst for finding a WAN optimization cure.

As the second fastest growing orthopedic practice in the United States, Resurgens Orthopaedics maintains 20 facilities throughout the greater Atlanta region. With more than 80 physicians and 700 support staff serving upwards of 300,000 patients at the beginning of 2004, the practice is experiencing explosive growth with collectible revenue forecast to exceed \$100 million. This growth has directly impacted the performance of critical applications traversing Resurgens' WAN.

Resurgens relies on a frame relay WAN with connection speeds ranging from 64 Kbps to 128 Kbps to interconnect its facilities dispersed across a 60-mile radius. The company runs its practice on the Groupcast Practice Management System from IDX -- "the lifeblood of the organization" according to Resurgens Chief Technology Officer Vinnie Greaves. Because this distributed application is constantly accessed by each of its facilities to manage and update patient records, scheduling, and billing, poor response time is

unacceptable because it can adversely impact caseload management. Poor response time also affects quality of patient care since physicians must have immediate access to up-to-date medical records at any given time.

Resurgens also uses Microsoft Exchange to distribute lengthy MRI reports that are attached as Word documents. As the practice has grown, so too has the number and size of MRI reports, and these attachments have greatly increased the congestion on Resurgens' WAN. "Prior to optimizing our WAN application performance, we had some sites where it took two or three minutes to open an e-mail with MRI reports attached," says Greaves. "This delay was beginning to impact the organization's willingness to rely on automated systems and severely hampered overall productivity."

It became clear to Greaves that the application performance of and bandwidth provided by the existing frame relay WAN links was inadequate, so he started investigating several options to improve application delivery. The first option was to simply increase the size of the WAN links to provide more bandwidth, since there was a year remaining on Resurgens' WAN service contract. To do so, however, would have more than doubled the recurring monthly costs. Given the steep cost, his team rejected this alternative.

Greaves and his staff also looked into router compression but concluded that the improvement to bandwidth would be minimal and the impact on the router's CPU utilization would be detrimental. Greaves was also reluctant to add more complexity to the Resurgens WAN. This desire for a simple but effective approach triggered his investigation into WAN optimization systems that combine compression, QoS, and network visibility tools and that could be deployed with a minimum of disruption or IT resources.

### **Peribit: The Plug & Payback Solution**

Greaves' evaluation of WAN optimization solutions led him to Peribit Networks, which offered Resurgens a free, 30-day trial of its application acceleration platforms. A Peribit Sequence Reducer device, an SR-50, was installed in Resurgens' data center, and four smaller units, the SR-20, were deployed at regional sites. "The Peribit systems literally installed in five minutes apiece and started delivering immediate results," says Greaves.

Upon installation, the Peribit Sequence Reducers immediately improved the effective throughput of various WAN links, in some cases by as much as eight-fold. "It was remarkable to see a 128 Kbps link perform as if we had a 768 Kbps pipe attached," says Greaves. "More importantly, end users were telling us that response time for the group practice management application and e-mail attachments had gone from minutes, in some cases, to seconds.

Applications at our remote sites, with much slower links, have started performing as if they were operating on a high-speed LAN here at headquarters.”

At the conclusion of the 30-day trial, Resurgens placed an order for twenty-one Sequence Reducers. The SR-50 remains in the data center, and twenty SR-20s are deployed at Resurgens’ remote sites throughout the greater Atlanta area. “We were able to install all of the Sequence Reducers in two days,” says Greaves. “And we did it all with one network engineer and two tech support staffers.”

Resurgens has realized a seven-month ROI with the Peribit solution. By deploying Peribit Sequence Reducers, Resurgens was able to apply budget money originally allocated to router upgrades toward the purchase of Peribit Sequence Reducers while completely avoiding a WAN upgrade that would have added nearly \$15,000 a month in recurring costs.

Since the initial Peribit installation nearly 10 months ago, Resurgens has been able to serve and process a 30 percent increase in patient load with the existing WAN infrastructure. Resurgens is now serving 350,000 patients annually.

### **The Peribit Compression, QoS, and Visibility Tools**

A combination of technologies embedded in the Peribit PeriSphere™ architecture has enabled Resurgens to achieve such dramatic WAN throughput improvement. One capability is the Peribit patent-pending Molecular Sequence Reduction™ (MSR™) technology. MSR, which has its roots in DNA pattern matching, recognizes repeated data patterns and replaces them with labels, dramatically reducing WAN transmissions. MSR stores patterns in memory and eliminates repeated ones to reduce both short, chatty applications such as Citrix and HTTP as well as larger data patterns, such as Word files. MSR was at the root of the dramatically improved application response times for Resurgens’ e-mail files with Word-based MRI attachments.

Resurgens also takes advantage of the QoS and network monitoring capabilities of the PeriSphere architecture. “With the network traffic monitoring that PeriSphere offers, I can instantly understand what kind of traffic is running across the WAN,” explains Greaves. “This visibility has proven invaluable, especially in the case of our anti-virus scanning software that used to drag down our compression levels significantly. Now that we know virus definitions coming from one of our servers is at the root of this impact on compression, we use the PeriSphere QoS feature to ensure this traffic gets the lowest priority, so we avoid impacting the performance of higher-priority applications.”

## **Support for New Application Rollouts**

Resurgens is also using the Peribit Sequence Reducers to support the rollout of new applications. Since their initial deployment, the SRs have been used to support the rollout of scanned check images as well as an “Explanation of Benefits” application that provides support staff with details on policy coverage. “Prior to the deployment of the Peribit gear, we could not have rolled out these bandwidth-intensive applications to support staff in remote branch offices,” says Greaves.

Resurgens is planning to deploy additional applications including Electronic Medical Records (EMRs), VoIP, remote backup, and disaster recovery over its frame relay WAN. The SRs will be instrumental in supporting these applications through their ability to increase existing network capacity, prioritize traffic flows for optimal performance, protect specific traffic from other traffic types, and – in the case of VoIP – ensure voice call quality with minimal WAN latency.

“In many respects, we’ve just begun to tap into the varied business and IT benefits the Peribit gear is capable of delivering,” says Greaves. “That said, we’ve accomplished a great deal in the ten months since our initial deployment. We’ve accelerated our most critical applications, increased our patient load while improving client service, bypassed an expensive WAN upgrade and rolled out important new applications. Plus, we’ve gained new insights into our network traffic that has directly impacted revenue generation thanks to improved productivity across the organization.”

### **Callouts:**

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**Quick Facts:**

**Company Description:** Atlanta’s premier orthopedic practice providing patient-focused and comprehensive musculoskeletal care.

**Headquarters:** Atlanta, GA

**Remote Sites:** 20 in the Greater Atlanta area

**FY2004 Revenue:** (privately-held; however, Greaves says they will collect \$100 million in fees, which represents only 36% of actual billings since they handle numerous managed-care cases)

**Employees:** 800

**Operational Highlights:** Resurgens is the second-largest orthopedic practice in the United States, providing comprehensive spinal care, rehabilitation, custom orthotic programs, MRI imaging, and worker’s compensation medical care.