

Business Value of Performance – The Peribit Experience

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Many vendors claim to improve the performance of networked applications - but what does that really mean for your business? NetForecast's mission is to quantify the value of better performance.

To justify a technology purchase, you must be confident that the technology you choose will deliver maximum business benefit. Although vendor-provided data is essential, there is no better information source than actual user experience. For this reason NetForecast interviewed Peribit customers to learn first hand how Peribit's solution delivers business value.

Business Value of Performance

Enterprises buy new applications based on business objectives – often to improve processes, scale productivity, reduce cost, or increase sales and customer satisfaction. The investment in cash, people, and time is substantial – and the resulting benefits of new applications are typically measured against the business objectives. Much is at stake when an enterprise deploys a new application, so management routinely does due diligence to understand the business benefits as well as the risks of deployment.

When deploying a new application, all eyes are usually on the high level goal (e.g. increasing sales or improving productivity), with research focused on how the new application can achieve that goal. It is usually simply assumed that the application will perform well. After all, with so many people working hard to achieve the high-level goal, *surely* they made the right choices along the way to ensure adequate application performance. Performance is taken for granted, but often it is not specifically designed for and verified.

Soon after the application goes live, management is surprised to learn that expectations are not being met, and they start asking why. The answer often centers on the way in which the application is delivered. Applications with a global user population are typically deployed without a complete support system in place to ensure success. This is akin to marching troops into battle without first ensuring they will be fed.

When an application is vital to business success and inadequate performance jeopardizes that success, then improving application delivery performance becomes paramount. Once in the limelight – usually late in the game – the job is to pinpoint the delivery problem and evaluate available solutions. There is a confusing array of approaches to improve the performance and delivery of an application, and only a few of them will lead to the best outcome.

This study links application delivery performance with business goals for a variety of enterprises and it documents the tangible business value realized by customers who have deployed Peribit's technology.

The Peribit Solution

The Peribit Sequence Reducer™ (SR™) series is a dual-ended performance solution that optimizes traffic flow over the enterprise wide area network. Figure 1 shows a Peribit appliance at the edge of a remote office connecting to the WAN, and another at a home office or data center. The Peribit solution is based on the PeriSphere™ architecture

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which integrates a large number of technologies to address both the asset management and the experience management aspects of application delivery.

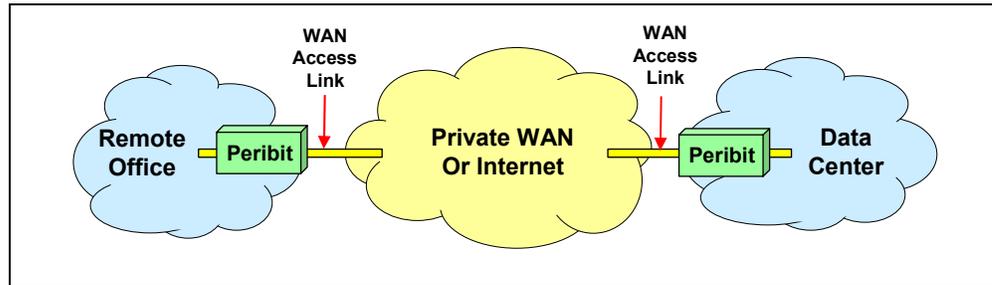


Figure 1 – Where Peribit is Deployed

Asset Management – Provisioning, Efficiency, Protection

Peribit starts with a sophisticated compression technology that captures data patterns of nearly any size and catalogs them in a library. When subsequent instances of the patterns are recognized, substantial compression results from removing the pattern and replacing it with a reference to the catalog. Compression reduces WAN bandwidth demand, allowing more users to share the same link, and often alleviating the need for WAN link upgrades as traffic grows.

Peribit also supports policy-based multipath. This technology allows multiple connections between two offices, one via leased lines and one via the Internet. The Internet can often provide high bandwidth inexpensively, but it may not be sufficiently reliable for corporate needs. Policy based multipath allows the enterprise to capitalize on Internet bandwidth when available, yet direct time-sensitive traffic through leased infrastructure. This approach provides bandwidth at a lower cost, without sacrificing reliability. IPsec encryption is provided to secure traffic flowing across the Internet connection.

Experience Management – Accessibility, Quality, Safety

The same compression technology described above contributes to user satisfaction by improving performance. When traffic for a specific application flow is reduced, response time for that application improves. This occurs because fewer round trip delays are required to obtain the data, and because the WAN link is less congested. In an office where the same data is likely to be viewed by multiple users, bandwidth savings are even greater. Portions of the same file will be recognized as a pattern, even if one of the files is a modified version. Using the Peribit approach, these large file chunks don't have to be transmitted across the WAN more than once.

Peribit also implements quality of service (QoS) in its WAN link connection. This QoS recognizes any packet markings established by upstream sources, and classifies traffic within the system. Implementing QoS across the WAN ensures that real-time and interactive traffic types will experience low latency, helping these applications perform reliably even during periods of congestion.

Fast Connection Setup and Packet Flow Acceleration work in parallel to overcome traffic delays caused by long latency links. By strategically modifying the behavior of TCP/IP, Peribit can increase the data throughput for each application flow. This contributes to improved response time for the user, supporting user productivity.

The NetForecast Survey

NetForecast performed primary market research to gather information about the business benefits experienced by enterprises using the Peribit product. We performed in-depth telephone interviews with technical professionals responsible for application performance in five enterprises, two of which had global operations, one transnational company, and two with national operations. All of the enterprises surveyed were using Peribit's technology to improve performance of applications within their enterprise networks.

We asked a series of questions to identify the business motivation for the enterprises to install the Peribit technology, to determine what benefits enterprises actually experienced, and to determine how each enterprise translated the improved performance they experienced into business value.

The Companies We Interviewed

The companies interviewed were using Peribit to enhance the performance of a variety of mission-critical applications including ERP, email, voice over IP, and video conferencing. The companies, which varied in size from \$150M to \$800M, included chemical manufacturer Quaker Chemical, high-tech manufacturer Finisar, Absa, a transnational bank, waste disposal service company Waste Connections, Inc., and the law firm of Fenwick and West. All use Peribit to enhance application performance for their employees over private or virtual private wide area networks.

Key Findings

Bandwidth savings, improving user satisfaction, increasing employee productivity, and lowering personnel costs were the primary reasons that the companies chose Peribit. Bandwidth savings received the highest overall ranking as a reason for deploying Peribit's technology, with three of the five companies interviewed ranking it first in order of importance, one second, and one third. User satisfaction ranked second in overall importance, with one of the companies interviewed ranking it highest in importance, two as second, one as third, and one as fourth. Employee productivity and personnel savings ranked third in aggregate importance among those interviewed.

Quaker Chemical chose Peribit's technology primarily to make its corporate ERP strategy successful. According to Quaker Chemical's CIO, "There was no way we could implement the ERP system, or any other system at certain locations, unless we had [deployed Peribit's technology]. We had a short window to grow our global reach and our effectiveness in terms of connectivity. We were able to do that very quickly and at a very low cost point, without adding staff, without adding management, and without adding bandwidth."

Bandwidth Savings

Bandwidth savings and the ability to deploy "virtual bandwidth" quickly constituted the most tangible benefit to companies interviewed. Quaker Chemical's CIO explained that his firm does not "have to go back to the well year after year and increase our connection costs. We haven't had a single increase in bandwidth since 1999. We haven't seen any [performance] problem at any of the sites, no matter what size the original pipeline was."

The enterprises interviewed experienced a return on their Peribit investment ranging from three to 10 months, with a direct relationship between bandwidth cost and the length of the payback period. Companies with a predominance of low-speed connections, such as 64 to 128Kbps frame relay access, took up to 10 months to cost justify a Peribit

investment – whereas companies with high-speed, dedicated T1 or T3 lines reached breakeven within just a few months. Overall bandwidth savings across all of the customers interviewed averaged 75 percent, with specific bandwidth savings depending on the customer’s use scenario.

Companies operating in regions where bandwidth is expensive and difficult to procure experienced an especially fast return on investment. According to a senior network architect at Finisar, “The basic return on investment with Peribit is that you don’t have to throw more bandwidth at a problem. You have the one-time fixed cost of a Peribit, versus the repeating cost of doubling circuits at overseas locations. In places like Malaysia and China, when you double bandwidth, your costs go from \$6,000 to \$12,000 [and higher] per month, versus the one-time cost of a Peribit - so the return on our investment is in months.”

The law firm of Fenwick and West has seen a consistent bandwidth savings. Fenwick and West’s CTO told us, “We’ve seen seven times the amount of traffic get through every line we’ve put [the Peribit product] on. We’ve had it on VPNs, T1s, bonded T1s, 10 Mbps fiber connections, and it has always worked.”

In addition Peribit adds capacity quickly. In Finisar’s experience, “The Peribit bypasses the whole [bandwidth provisioning] function, so you get more bandwidth faster by purchasing a Peribit than if you go to a provider and buy more bandwidth. Peribit might take minutes to install, versus months to buy more bandwidth.”

Application Performance Improvement

A fundamental driver for the enterprises we interviewed to install Peribit was the need to improve the users’ experience. The enterprises were keenly aware that making applications faster has business value.

Although Peribit customers interviewed said they experienced performance improvements for a variety of applications including IP, IPX, video and voice, performance improved most for applications involving large file delivery. A group consultant in the network architecture group of South African bank Absa, described how Peribit dramatically reduced large file transfer times for banking operations. “In the local environment, we run distributed storage management and synchronized backup. We found that we would have had to upgrade bandwidth for nonessential business purposes. It was after hours, but even so, we couldn’t get the backup through, so we had to extend it to regular business hours. With the Peribit, we dropped the after hours backup from 14 to 6.5 hours, so it didn’t have to happen during regular business hours.”

Finisar experienced similar improvements in replication time. “Peribit greatly reduces the amount of time and bandwidth in replicating data between sites. We ran a test where we were able to replicate 100MB over 384Kbps of bandwidth in four minutes, which sounds impossible. That’s attributable to some of the content being repetitive, and the packet flow acceleration.” Sending 100 MB in four minutes is nearly ten times the throughput possible at 384Kbps. To achieve this high throughput without the Peribit, Finisar would have required a 5MB link.

Diagnostic Tool

Three of the five companies interviewed also highly valued Peribit’s traffic statistics. They found the information helpful for locating and solving a wide range of problems – beyond basic performance issues – and they used Peribit as a first-level diagnostic tool.

Faster problem resolution increased network management staff productivity, and information about what traffic is traversing which parts of the network gave network managers data needed to resolve issues with other departments.

Summary of Benefits

The business benefits to the Peribit customers we interviewed were clear, and included the following:

- Peribit accelerated many applications resulting in improved user satisfaction.
- The payback period for T1 or faster links was in the three-month range and less than one year for sub T-1 speeds.
- The average bandwidth savings was approximately 75 percent.
- The biggest acceleration benefit was for large file deliveries.
- Customers experienced improved reach to locations where higher speed WAN services could not be provisioned.
- Peribit delivered enhanced visibility and management of the WAN.

The companies we interviewed which had strategic requirements to reach many networked destinations at faster speeds cost-effectively felt that the Peribit technology was a “must have.” Similarly, companies deploying Peribit for such tasks as supporting corporate ERP initiatives found that Peribit technology was critical to the success of their IT strategies.

Additional Business Value Observations

Hard cost savings in bandwidth reduction or manageability are relatively easy to quantify, and often can directly justify the purchase of application performance enhancing technology. Harder to quantify are softer savings in reduced complexity, increased system manageability or reduced staff workload - but they also directly support the purchase of a system. Hardest of all business benefits to quantify are productivity increases and revenue increases attributable to satisfied users - but although most difficult to quantify, these benefits often have the largest positive effect on a business, and should be assessed carefully.

NetForecast develops customized models to determine the business value of new technology.

Additional information on managing and improving application performance is available at:

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