Business Value of Performance – The NetScaler Experience

By Peter Sevcik, Rebecca Wetzel, and John Bartlett
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Many vendors claim they improve the performance of networked applications - but what does that really mean for your business? NetForecast's mission is to answer the question: "How do I quantify the value of better performance?"

The days of buying technology for technology's sake are over. In order to justify a technology purchase, you must know that the technology you choose will deliver maximum business benefit. Although vendor-provided data is essential, there is no better source of information than the actual experience of users. For this reason NetForecast interviewed NetScaler customers to learn how NetScaler's solution delivered business value to their enterprises, and to have them quantify that value wherever possible.

Business Value and Performance

Enterprises buy new applications to help operate a business. The investment in cash, people, and time is often substantial - and the associated benefits are typically linked to successful improvements in a business process, made possible by a new application. Much is at stake when an enterprise rolls out a new application, so management routinely does due diligence to understand the business benefits as well as the risks of deployment.

Application deployment is usually done with all eyes on the high level goal (e.g. increasing sales or improving profitability), with much research into how the new application can achieve the goal. It is usually just assumed that the application will perform well - after all, with so many people working so hard to achieve the high level goal, SURELY they made the right choices along the way to ensure adequate application performance. Performance is implied, but often it is not specifically designed for and verified.

Some time after the application is up and running, management often realizes that expectations are not being met, or the costs of meeting them are too high, and starts asking why. The answers often revolve around the way in which the application is delivered. Applications are often 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.

If the underlying business goal for an application is vital to the success of the business, and if that goal is not being met because of inadequate performance, then application delivery performance becomes paramount. Once brought to light – usually late in the game – the task is to pinpoint the delivery problem and evaluate alternative solutions. There is a confusing array of ways to change the delivery of an application, but only a few of them will lead to the best outcome.

This study identifies links between application delivery performance, and the effectiveness of business goals for a variety of enterprises, and it documents the real business value achieved by customers who have deployed NetScaler's technology to improve their application delivery.

The NetScaler Solution

The NetScaler 9000 performance solution sits at the edge of the data center, and manages the connection between users on the outside, and the servers within. Figure 1 shows the

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NetScaler appliance placement, filtering and managing traffic as it enters the data center. The NetScaler solution includes a number of technologies, which address performance from an asset management view as well as from an experience management view.
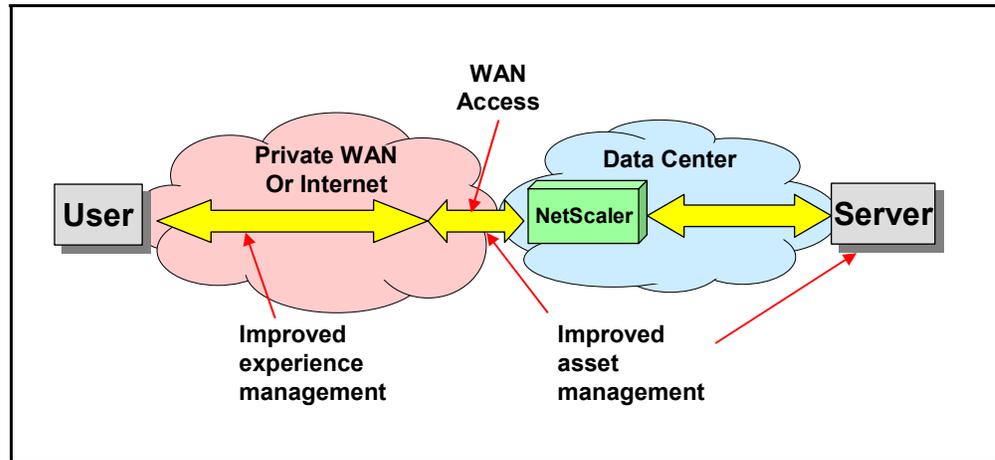
Figure 1 – Where NetScaler is Deployed

Asset Management – Provisioning, Efficiency, Protection

The NetScaler product facilitates provisioning by incorporating a number of data center front-end functions into a single box. It combines caching, load balancing, application protection, SSL offload, and compression into a single appliance - which means there are fewer boxes to manage, and fewer boxes to fail. Load balancing provides redundancy among the servers, improving data center availability.

The NetScaler 9000 is a high performance platform designed specifically for TCP connection management and SSL termination, therefore, it is much more efficient at handling these functions than the application servers. Deploying the NetScaler appliance reduces the server load, increasing asset efficiency. Compression and caching also offload the servers, and reduce the complexity of the server tasks. Additionally, compression reduces data center bandwidth demand, and can keep peak demand below cost thresholds.

Load balancing and surge protection ensure that server demand is spread evenly across available resources, or directed to an alternate data center. Smoothing out demand assures that servers operate in their peak performance range, and are not driven into an overload condition.

NetScaler protects assets through its DDoS attack protection and content intelligent intrusion filtering capabilities. These features detect and manage malicious data center attacks, and prevent the sudden demand created by those attacks from adversely affecting the ability to deliver content to users.

Experience Management – Accessibility, Quality, Safety

The NetScaler product also enhances the user experience. Compression improves application performance and therefore the user experience, by reducing the amount of data transferred. TCP offloading and caching enhance performance as well, by handling TCP open and close functions much faster, and by providing cached content without

incurring server delay. WAN load balancing helps make better use of multiple access lines, which improves user accessibility from a greater number of global ISPs.

Surge protection ensures that peaks in user demand don't overwhelm the servers, causing them to slow or crash. This feature increases availability by ensuring that the server farm is accessible even during peak demand periods.

Lastly, SSL and VPN client-side cleanup contribute to a safer user experience. SSL encryption provides privacy by ensuring that user data is not snooped or stolen during its trip through the network. Client-side cleanup deletes personal data cached in a client. This is important when using a public Internet terminal, so a subsequent user of that terminal has no access to user names or passwords, cookies, cached information, or VPN connection information that may have been left behind.

The NetForecast Survey

NetForecast performed primary market research to gather information about the business benefits experienced by enterprises using the NetScaler 9000 product. We performed in-depth telephone interviews with technical professionals responsible for application performance in six US enterprises. Three of the enterprises surveyed were using the NetScaler technology to improve performance of applications within their enterprises, and three were using the technology to improve the performance of public-facing Web sites.

We asked a series of questions aimed at determining how each enterprises translated the improved performance they experienced using NetScaler's technology into business value, and what benefits they actually experienced. We also sought to determine if the primary business motivator for enterprises to install the technology was to reduce costs or to improve conditions for transacting business.

The Companies We Interviewed

The three companies we interviewed, which were using NetScaler's technology for their public-facing Web sites provided shopping and/or information services to their users. All three companies had revenues exceeding one billion dollars, and each considered its Web presence to be business critical.

The primary application performance concerns for these three enterprises centered around efficiently and consistently servicing users over the Internet. Privacy using SSL encryption was a must have for all three customers, and each felt that user satisfaction was key to the success of their online business.

The three enterprises using NetScaler's products for internal-facing operations, applied NetScaler's capabilities to applications supporting employees and/or business partners. Two of the enterprises, a multi-billion dollar company and an educational institution, were using the product for internal Peoplesoft applications, and the third enterprise, a multi-billion dollar company, used it to support an extranet for supplier and sales channel partners.

For companies using NetScaler for internal-facing applications, application performance issues focused on providing high functional efficiency through cost reduction and/or through the simplification of deployment and management. As with the public-facing applications, SSL-enabled privacy was a must have.

Key Findings and Conclusions

The business benefits the interviewees derived from NetScaler's technology differed depending on the application type supported. Interviewees using NetScaler's product to improve performance of public-facing Web applications generally valued the product's ability to deliver bandwidth savings most highly, following by its ability to deliver better end-user satisfaction, and then its ability to ease the burden on system administrators, help desk personnel and other IT professionals. Enterprises supporting private applications tended to place highest business value on server savings, followed by security, and improved end-user satisfaction.

Saving money was a primary and quantifiable business value for both public-facing and private applications. Bandwidth cost savings constituted the single most quantifiable benefit for Web site owners - and server cost savings were the most quantifiable benefit for those supporting private applications.

The NetScaler users interviewed experienced the following savings:

- 30 percent or better bandwidth cost savings for public-facing Web applications,
- Pay-back period of 3 to 6 months for public-facing Web applications, and
- 60 percent server cost savings for private applications.

Server costs savings proved substantial for some private applications. According to one user, "Microsoft estimated that we would have to buy nine Exchange servers to handle our load with them doing SSL encryption. We ended up only buying two because of the NetScalers. We had actual savings of seven times $2500 a month. That's what it costs us to host boxes in our data centers. The return on investment was in months."

User satisfaction was cited among the top business benefits for both public-facing Web applications and private applications, but it proved elusive to quantify. According to one interviewee, "The most visible benefit [from installing the NetScaler product] was the pages coming up quicker. To most people that was - like wow - what happened to the site? What did you do?"

Although also not quantified, one interviewee described how NetScaler's dramatic performance improvement of his company's Web site, enabled more ads to be served, and therefore increased corporate revenue. "I can turn [improved performance] into money," he said. "The more people I have looking at pages, the more ads I can serve."

Additional Business Value Observations

Hard cost savings in server and/or 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 happy users, and although hardest to quantify, these benefits have largest positive effect on a business, and should be assessed most carefully.