



Dear Decision Maker,

Extranets can shave costs from your operations while increasing productivity by enabling online support, training, and worldwide information distribution. Extranets also provide the means by which suppliers and customers can place orders, confirm status, or search your resources at any time. But performance and global availability problems can impact adoption rates, forcing your partners and customers to use higher-cost methods of interaction.

Akamai, the global leader in distributed computing solutions and services, devotes significant resources to understanding the role that extranets play in business today. And in keeping with our leadership role, we recently commissioned a study to examine the key issues and struggles organizations encounter with when delivering extranet services to their end-users.

The results of the study are contained in the attached report, "*The Role of Extranets in Enterprise Networks*." Some of the key findings include:

- *Extranets effectively extend the reach of the enterprise but often introduce significant challenges in the process.* More than half of those interviewed admit their organization struggles with major issues regarding their extranet services; especially unreliable security, poor connectivity for end-users, not to mention periods of unavailable and unreliable services.
- *Extranets bring savings and customer satisfaction.* Respondents report that extranets save money by boosting service efficiency, reach, and effectiveness, but also by measurably reducing the costs of transactions and user support.

If you face challenges with your extranet, take this opportunity to read the report and learn more about the benefits other companies have realized from extranets. The Appendix provides additional information on how Akamai's Optimized Extranets Solution can improve the performance, scalability, and security of your extranet business applications. Additional information can also be found on our Web site at www.akamai.com.

Sincerely,

Bill Wehl
Chief Technology Officer

The Role of Extranets in Enterprise Networks

August 2004

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Executive summary

As the marketplace increasingly goes global and customers are found in virtually every corner of the world, reaching and supporting those customers 24/7/365 is no longer optional—it's imperative for continued business growth and success. A key component of global enterprise reach is the extranet, or enterprise portal, that allows customers, suppliers, partners, and other key end-users appropriate and secure access to the information, products or services that they need at any given moment.

To understand the extent to which organizations are using extranets, TechRepublic conducted a survey to examine the role they play in the conduct of everyday business, and the key issues and challenges enterprises face in providing extranets to their end-users. Nearly 250 business and IT professionals from U.S. organizations participated in the study.

The key highlights of the study include:

- *Extranets extend enterprise reach but introduce major technical challenges.* More than half of those interviewed confess their organizations grapple with serious issues regarding their extranet services; especially unreliable security, poor connectivity for end-users, along with episodes of unavailable and unreliable services, and unacceptably slow access.
- *The value of extranets translates directly into satisfied customers.* Study participants rush to confirm that extranets boost service efficiency, reach, and effectiveness, as well as user support. The most notable improvement derived from extranets has been in the level of self-service that is now available to end-users with a few clicks of their mouse (reported by more than 50% of participants). Nearly half indicated that great improvements have also been realized in the areas of customer satisfaction, the volume of users that can be supported concurrently, and the speed of response times.
- *Extranets significantly reduce the cost of doing business.* Most study participants confirmed that there is a significant difference in the cost of executing business transactions online, when compared to handling them offline. Nearly a third of participants noted that online costs were only half of offline costs, while nearly forty percent said that online costs were one-third to one-fifth the cost of offline transactions.

Extranets will continue to play a large role in the advance of e-business and the extension of the enterprise across the globe. As such, businesses will increasingly demand more availability, reliability, and security from their extranet solutions. Extranet technology products and services that provide flexibility and scalability, and are highly adaptive to changes in the business and customer base will find the greatest acceptance in the marketplace.

Introduction

As extranets are used more and more to support the advance of global commerce, they are quickly becoming a standard component of enterprise IT infrastructure. To understand the degree to which firms are utilizing extranets, TechRepublic conducted a survey to examine the role this technology plays in daily business operations and processes. We specifically researched:

- Current use of extranet technologies
- Best practices surrounding extranet platforms and applications
- Major obstacles to deploying and managing extranets
- Key value and benefits from extranets

The study also explored the key issues and challenges enterprises face when delivering extranet services to their customers and end-users. The results of the study are highlighted in the following sections.

Research methodology

A survey invitation was sent to registered TechRepublic members between May 5, 2004 and May 24, 2004. The Web-based survey was designed to explore and identify the key issues surrounding network and systems monitoring and management. The results reported here are based on 241 surveys collected during the study.

Respondent demographics

Survey respondents were selected from among TechRepublic members who met certain selection criteria, specifically those who:

- Are from a cross-section of industries (such as manufacturing, healthcare, finance, and government).
- Are affiliated with US organizations with 100 employees or more.
- Are primarily IT and business managers and directors, as well as other technical professionals.

The following tables contain the breakdown of the respondents by key demographics: organization size, job role, and primary industry.

Organizational size

Number of employees (all locations combined)	Percentage of respondents
100 – 499	33%
500 – 999	16%
1,000 – 4,999	19%
5,000 – 9,999	12%
10,000 or more	20%

Primary job role

Job role	Percentage of respondents
IT director and manager	21%
Business management	19%
Network or systems technologist	15%
Other technical professionals	12%
Developer	11%
Technical service and support	10%
IT consultants	9%
IT executive	3%

Primary industry

Industry category	Percentage of respondents
Government (Federal, State, local, incl. military)	16%
Manufacturing	14%
Finance/Banking/Accounting/Insurance	13%
Business services	13%
Education (colleges and universities)	10%
Health care/Life sciences/R & D	10%
Other	10%
Retail	6%
Telecommunication/Transportation/Utilities	6%
Media/Entertainment/Publishing	3%

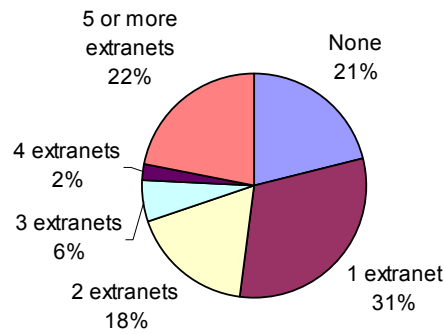
Exceeds 100% due to rounding.

Key findings

Extranets today

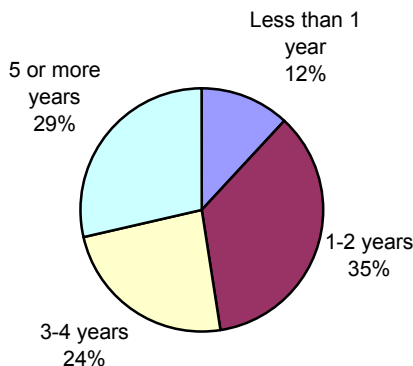
This section of the study provides information on how organizations are currently implementing and managing extranets. We asked participants to describe their organizations' current status with respect to extranets. Here's what they told us—nearly one-fourth have 4 or more extranets, and another 25 percent have 2 to 3 extranets. The largest group, 31 percent, has only 1 extranet.

How many extranets, or portals, does your organization currently have?



Extranets have more of an established base than one might think—almost 30 percent of our sample has had their primary extranet for over 5 years, and roughly 25 percent have had a primary extranet for 4 years. Slightly more than one-third has only had the extranet for 1 to 2 years.

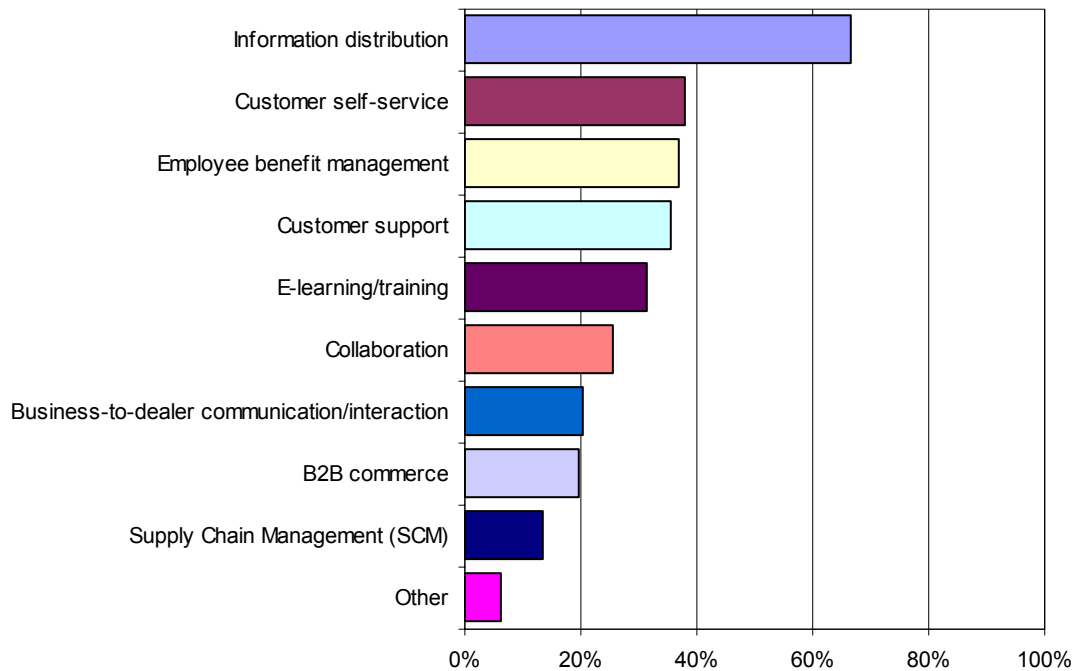
How long have you had your primary extranet?



Respondents replied using their best estimate.

We next explored the types of applications that organizations deploy through their primary extranet. The most frequent use is distribution of information, reported by two-thirds of the sample. Roughly one-third of respondent organizations also provide customer self-service, customer support, and employee benefit management via their extranet (35 to 38 percent of responses for each application). Collaboration is supported in 26 percent of organizations while the other named applications are delivered via extranet by 20 percent or less of the sample.

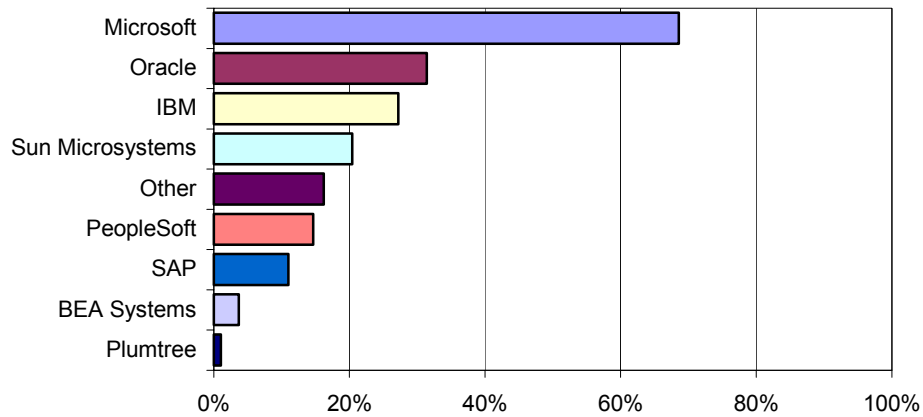
What types of applications are you delivering via your primary extranet?



*Respondents could select more than one answer.
Other applications include database sharing, government-to-government exchanges, legacy system access, and field sales support.*

Microsoft is the dominant platform used by our respondents for deploying the applications identified in the previous question. Approximately 20 to 30 percent also use Oracle, IBM, and/or Sun. Only 15 percent or fewer use PeopleSoft, SAP, BEA or Plumtree. Other platforms include Siebel and proprietary software packages.

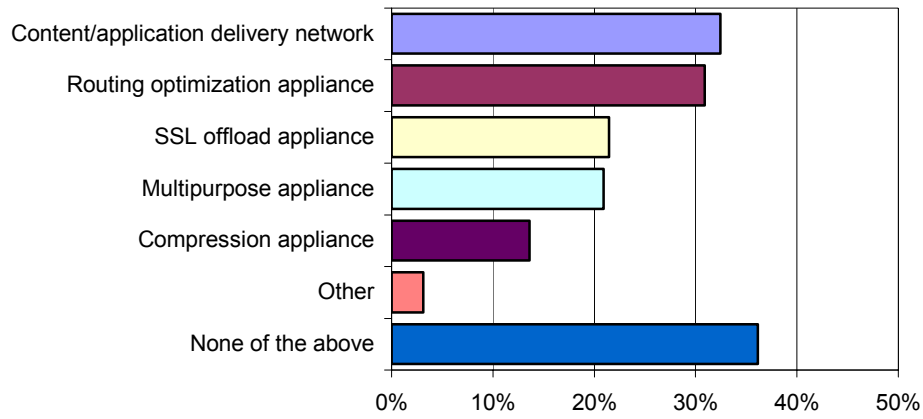
What enterprise software vendor platforms are used for those applications accessed via your extranet(s)?



Respondents could select more than one answer.

We also inquired about the types of supplemental technology our sample was using to support delivering extranet services to their end users. Roughly one-third of respondents use content and/or application delivery networks, with a similar number reporting the use of one or more routing optimization appliances. About 20 percent use SSL offload appliances, and a similar number use multipurpose appliances. Only 14 percent use compression appliance(s). Other technologies include remote server utilities, load balancers, and T1 aggregators.

What kind of additional technology are you using today in combination with your extranet infrastructure?



Respondents could select more than one answer.

We wanted to map the actual combinations of extranet technologies utilized by our participants. The table below shows the distribution of stand-alone and combinations of technologies amongst our data.

Percentage of respondents	Content / application delivery network	Compression appliance	SSL offload appliance	Routing optimization appliance	Multi-purpose	Other
21%	X					
17%				X		
13%	X			X		
10%					X	
10%	X	X	X	X	X	X
7%			X			
6%			X	X		
6%	X				X	
6%	X		X	X		

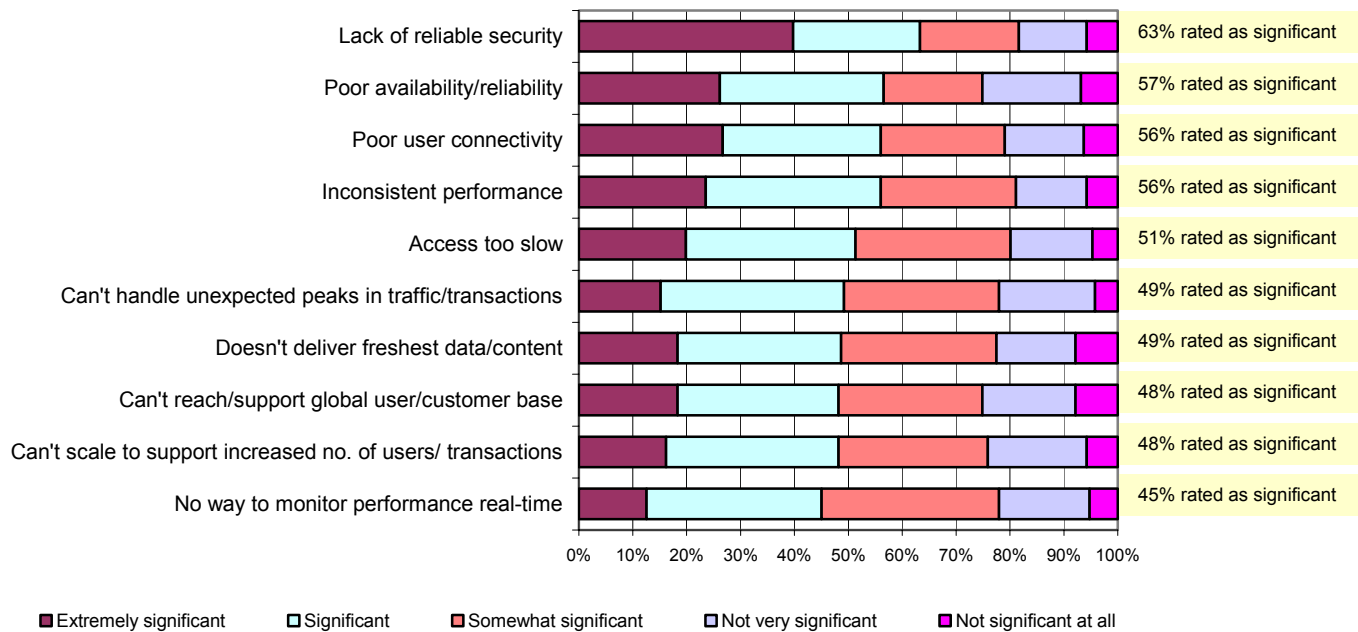
N=85 and includes only those combinations or single-use of additional technologies as reported by at least 3% of respondents.

Extranet deployments: Key challenges

In this section of the study, we explore the types of problems our respondents face because they have an extranet. We asked them to rate a variety of technical issues on a scale of 1 to 5, where 1 indicates an extremely serious problem and 5 indicates no problem at all.

As you can see in the graph below, the single most serious challenge is a lack of reliable security (63 percent rate it as serious to extremely serious). The other major challenges, reported by more than half of respondents, are poor availability and reliability, poor user connectivity, inconsistent performance, and slow access.

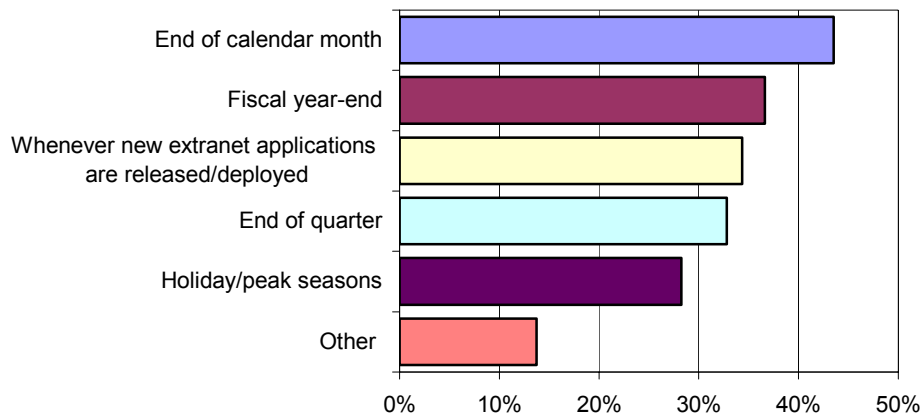
Please rate on a scale of 1-5 how significant each of the following challenges are to you as you provide an extranet to your user base.



Respondents rated each challenge.

Many enterprises experience rather predictable jumps in traffic volume but can't be sure exactly how much more traffic to expect at these times. When we asked participants to tell us when these spikes typically occur we discovered that most organizations deal with increases in traffic on their extranet fairly regularly at the end of a calendar month (45 percent of respondents). Another sizeable portion have year-end traffic pressures (roughly 35 percent), and end of quarter pressures. One-third also struggle when a new extranet application is deployed. So, even though the peaks are predictable, the actual volume of traffic that will occur at these peak times is less predictable.

When, if any, are the times of year that your extranet experiences unpredictable increases in traffic?



Respondents could select more than one answer.

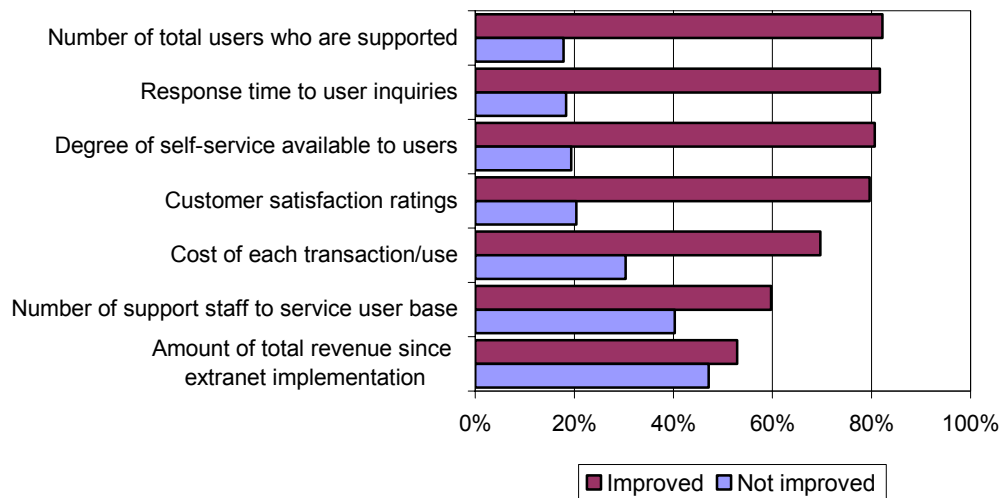
N=131; asked only of those who have problems.

Other peaks include specific days of the week, other close-out periods, and when bids are posted.

The benefits of extranets

Without question, those enterprises that have implemented extranets are convinced about the improvements to business processes and operations that derive from the extranets. The increase in the number of total users who are supported, the faster response time to user inquiries, the greater degree of self-service available to users, and higher customer satisfaction ratings are all indisputable benefits of extranets (each feature or function was graded as “improved” by 80 percent or more of our sample). Approximately 70 percent find the cost of each transaction or use has also improved since their extranet(s) was deployed.

In your opinion, what has the impact of your extranet been on your business processes/operations?



Respondents rated the impact of extranet(s) on each process or operation as improved or not improved.

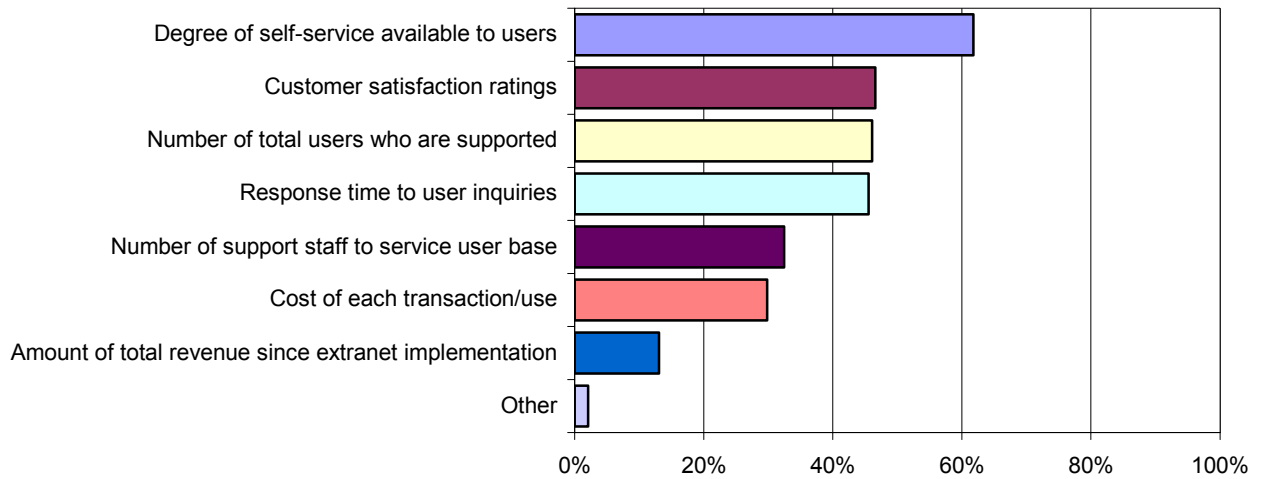
Other responses include reduced development and maintenance costs, better information sharing with employees and customers.

Among the various features and benefits of extranets, we challenged our survey participants to identify the three that had the greatest impact on their business processes or operation. Here is what they told us:

Over 60 percent report the extranet has had the greatest overall impact on the degree of self-service available to users. The second tier of greatest benefits from having an extranet(s), reported by slightly less than half of respondents, include:

- Customer satisfaction ratings
- Number of users who can be supported
- Response time to inquiries

Please select the three items for which the extranet has had the greatest impact on your business processes/operations.

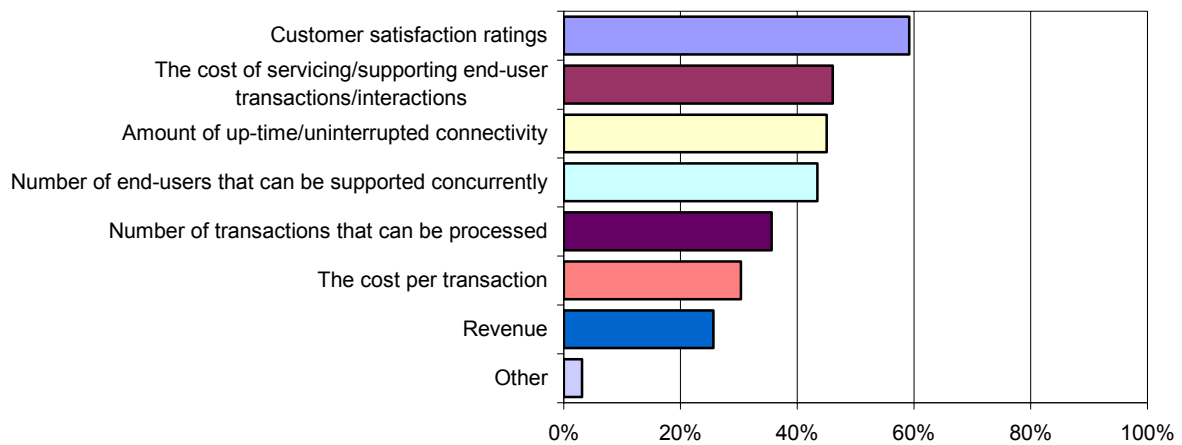


Respondents could select up to 3 answers.

To dig a bit deeper into how respondent organizations actually measure the impact extranets have on their business, we asked them to share the metrics they rely on when evaluating the ROI for their extranet investment.

We discovered that the majority rely on customer satisfaction ratings (almost 60 percent), while around 45 percent measure the cost of servicing and supporting end-user transactions or interactions, the amount of up-time, and the number of concurrent users that can be supported. Twenty-five to 35 percent look at the number of transactions that can be processed, the cost per transaction, and total revenue that derives from the extranet.

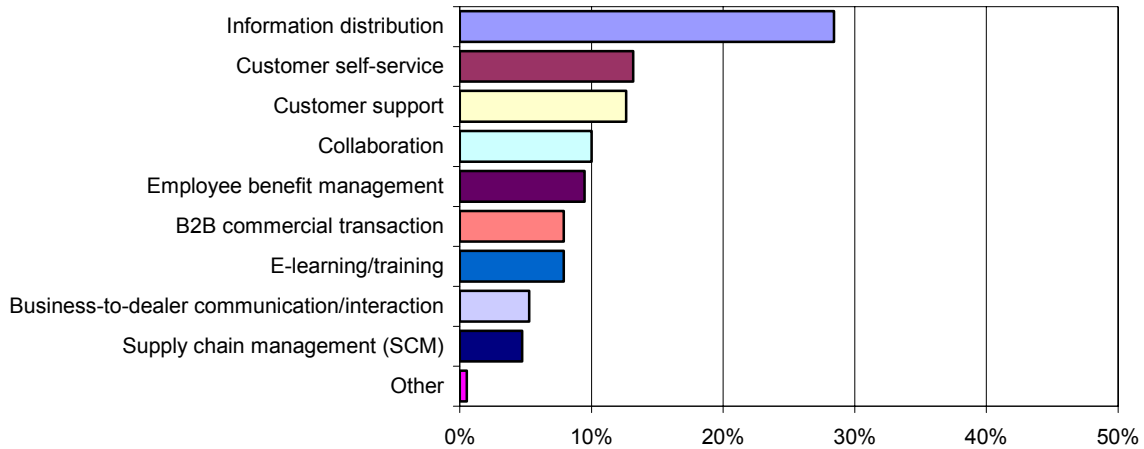
What metrics do you rely on when measuring the return on investment (ROI) of your extranet(s)?



*Respondents could select more than one answer.
Other metrics include mean time-to-repair, and total demand on staff time.*

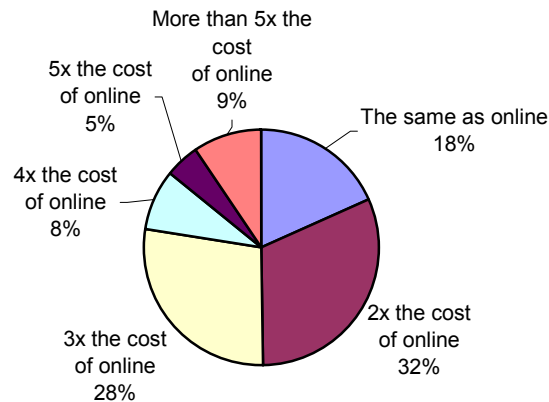
Amongst our sample, nearly one-third use their extranet to distribute information. Customer service and customer support share a distant second place. The other types of transactions are supported by fewer than 10 percent of respondents' extranets.

What is the primary type of transaction completed on your extranet that is most important to your business?



Other transactions include email.

Since the cost of transactions is one of the key ROI metrics, we were curious how much extranets have impacted these costs. We asked participants to give us their best estimate of the ratio of costs between offline and online transactions. The results confirm what we expected, but render a clearer picture of the size of the impact. Less than 20 percent of our sample estimates that the costs of these two transaction formats are identical—that is, extranets have not lowered the cost of transactions. However, nearly one-third report that offline is about 2 times the cost of online, and a little more than one-third indicate that offline transactions cost 3 to 4 times more than online. The remaining 15 percent find that offline costs 5 or more times that of online transactions. Without question, extranets have dramatically reduced the cost of business transactions for the majority of firms.



Key insights

This study presents several important insights in the area of enterprise extranets that will provide invaluable guidance to IT decision-makers as they evaluate their organization's needs. These insights are highlighted below.

Extranets: Best practices

As we've learned, the organizations in our study use extranets to support several key enterprise activities. The majority (over 60 percent) distribute information via their extranet(s). Nearly 40 percent use extranets for one of three forms of end-user service—customer self-service, employee benefit management, or customer support. In addition, extranets play a very important role in supporting collaboration both throughout the company and with external partners.

To aid in the delivery of these applications, roughly 75 percent of the organizations studied use additional technologies to deliver extranet applications to their users. The specific technologies are used either as stand-alone support or in combination with other technologies, and include:

- Content or application delivery network alone (21 percent of responses)
- Routing optimization appliance exclusively (17 percent)
- A combination of content/application delivery network and routing optimization appliance (13 percent)
- A multipurpose appliance (10 percent)
- A combination of all of these technologies (10 percent)

Extranets: Major issues

While extranets extend the reach of the enterprise, this extension doesn't come without challenges and obstacles. More than half of those interviewed report they contend with significant challenges while providing extranets to their users. In particular, they cited:

- Unreliable security
- Poor connectivity for users
- Poor availability and reliability
- Slow access

A major contributor to poor availability and reliability of extranet services can be unexpected jumps in the volume of traffic trying to access extranet applications. These spikes in traffic tend to occur around specific time frames that relate to typical business cycles, specifically:

- End of month
- Fiscal year-end
- End of quarter
- Holiday and peak seasons

The businesses we surveyed also tend to have peak traffic problems when they are deploying a new extranet application, and since this effect is likely planned for by the implementation team, the deployment may not ultimately be as disruptive as truly unexpected traffic jams.

The value of extranets

Without question, extranets are here to stay. Even though there may be challenges in managing this increasingly common business facilitator, the benefits clearly outweigh any problems that are introduced by the technology. Across the board, respondents overwhelmingly (60 to 80 percent of responses) confirmed the improvements that extranets have brought to their business processes and operations:

- More users can be supported
- Response time to inquiries increased
- More self-service available to users
- Higher customer satisfaction
- Lower cost of transactions or uses
- Fewer staff needed to support user base

Among this list of improvements, the greatest improvement has been to the degree of self-service available for users, reported by more than 60 percent of participants. The next bracket of greatest improvements include improved customer satisfaction, more users supported, and faster response times, each endorsed by 45 percent of respondents.

These data also show that extranets have had a dramatic impact on the cost of business transactions. Seventy-five percent of respondents estimate that the costs of online transactions are a mere 20 to 50 percent of the cost of offline transactions. And while the benefit to the bottom line is indisputable, the ultimate challenge to the enterprise is to provide extranet services that are reliable, fast, secure, and scalable in order to optimize all the operational and cost benefits of the technology.

CNET Network's TechRepublic Community Research Programs

CNET Networks TechRepublic Community Research team conducts surveys of the CNET and TechRepublic membership on a project basis. Projects are funded by CNET Networks and in some cases by vendors who have particular interests in topical areas. In cases where the project has been sponsored by a third party, the Community Research team leads the effort in developing survey questions and has final approval of all questions. The Community Research team conducts all analyses and writes the final report that is subject to CNET Networks' editorial review. Funding for this project was provided by Akamai Technologies, Inc. If you have a topic of interest for either editorial or sponsored research, please e-mail us at research@techrepublic.com.

Extranet Challenges

As the TechRepublic “*The Role of Extranets in Enterprise Networks*” white paper demonstrates, extranets and portals have gained acceptance across global enterprises. With over 88% of the survey respondents indicating that their extranet has been in place for more than a year, enterprises should be at the point where they are seeing a return on the investment that has been made in extranet initiatives.

However, there are many challenges that can stand in the way of an enterprise achieving positive returns on their extranet initiatives. The leading challenges cited by survey respondents included:

- **lack of reliable security,**
- **poor availability/reliability,**
- **inconsistent performance,**
- **inadequate scalability,**
- **global reach, and**
- **lack of visibility into performance.**

When these challenges are not sufficiently addressed, the implications include:

- **greater costs,** due to the need to maintain more expensive methods of interaction (such as call centers), as well as the expense of attempting to address the challenges with point solutions,
- **decreased revenue,** due to users being unable to consistently access critical revenue-generating applications, and
- **lost productivity,** due to repeated user attempts to access unavailable applications, as well as the time spent having to troubleshoot problems relating to scalability, availability, performance, and security.

Akamai's Solution

Akamai's Optimized Extranets solution was designed to address all of these challenges. Leveraging Akamai's globally distributed *EdgePlatform*, the solution includes the following capabilities:

- **International Reach:** servers located in networks around the world
- **Application Acceleration:** including compression, dynamic caching, and optimal path determination
- **On Demand Capacity:** addresses concerns about capacity planning
- **Access Control:** including username/password, token-based, access control lists, and client-side certificate support
- **Secure Information Delivery:** all information is encrypted using SSL
- **Visibility and Control:** including extranet usage, network issues, content management, and system configuration

Unlike point solutions that focus on solving only one or two of the challenges faced, Akamai's extranet solution is designed to help customers overcome all of them. And it does so for all extranet content types—static HTML, images, dynamic (application-generated) content, software and document downloads, secure content, personalized content, and streaming media.

Integration and maintenance of the Akamai solution are simple. Integration requires only a simple DNS change, and the available tools help you retain control over how the content is deployed and handled on the Akamai *EdgePlatform*. By leveraging a complete solution to address these challenges, enterprises can avoid the added complexity and cost associated with point solutions.

Profiles of Sample Customers Using Akamai's Optimized Extranets Solution

Leading enterprises and organizations across a number of different industry verticals, including financial services, automotive, high technology, consulting, consumer goods, and the government/public sector have implemented Akamai's Optimized Extranets solution. In the following section, several Optimized Extranets solution customers are profiled to illustrate the real-world challenges they faced in delivering their extranet applications, along with the benefits that they saw after implementing Akamai's solution.

Performance Improvements Increases Adoption, Lowers Costs

A leading hard disk drive manufacturer, with over \$6 billion in annual sales, launched an extranet application that provided online ordering capabilities to their global partner base. One key driver of the extranet was to reduce the costs involved with processing an order—approximately \$10 when orders were entered via phone or fax. However, because of inconsistent and poor performance, especially among partners in Asia, extranet application adoption was low—around 5%. The manufacturer turned to Akamai, implementing our solution in an effort to improve the performance of their extranet. The effort was successful, and download speeds were improved by 43% on average, internationally. The improvement delivered was so significant that the manufacturer was able to achieve nearly 100% adoption of the application, enabling it to lower its processing costs by approximately two-thirds, to about \$3 per order, a savings of approximately \$4 million annually.

Increased Scalability Leads to Reduced Infrastructure

A top automobile manufacturer uses an extranet to communicate with its nationwide network of dealers—over 400 across the United States. As its dealer network grew, and as extranet usage among the connected dealers increased, the manufacturer was faced with the need to expand its back-end infrastructure. Implementing the solution enabled it to significantly increase the site's scalability by offloading the delivery of the extranet content to Akamai. Using Akamai's services enabled the manufacturer to avoid having to expand its infrastructure—in fact, the scalability and availability improvements were so

significant, the customer was able to shut down one of its data centers. These results are similar to those enjoyed by another customer that leveraged Akamai's capabilities to reduce peak Web server utilization by 10x, and peak application server utilization by 3.4x. This enabled the customer to forgo future capital expenditures and maintenance costs for handling continued growth in extranet application usage.

Ensuring Information Remains Secure

A branch of the U.S. military uses an extranet to distribute information to service members and their families. Because service members are deployed around the world, the military needed to ensure that this information remains secure, no matter where the extranet's users are. The military branch chose Akamai's solution to deliver its extranet—communications are encrypted via SSL, and authentication is tightly integrated with their application servers. Akamai's specially designed network of secure servers also serves to protect the application from DDoS attacks, which can impact the availability of extranets.

Summary

As companies place greater importance on their extranets, maintaining their extranet infrastructures becomes mission-critical. The extranet must provide good performance for all users—customers, suppliers, partners, and employees—regardless of their location. It must scale to handle new applications and new users. It must remain up and available 24x7 around the world. Akamai's Optimized Extranets solution addresses all these challenges, helping to ensure higher productivity, higher revenues, and lower support costs.

About Akamai

Akamai® is The Business Internet. We provide solutions for predictable, scalable, and secure e-business, without the cost of building out infrastructure. Customers rely on Akamai's on demand platform, the world's largest, to extend their Web operations anywhere, anytime—increasing productivity, expanding global reach, and ultimately growing revenue. Akamai's unique management capabilities empower organizations with enterprise-class control of their e-business to manage applications and information easier, more cost effectively, and with greater insight. Headquartered in Cambridge, Massachusetts, Akamai's industry-leading services, matched with world-class customer care, are used hundreds of today's most successful enterprises and government agencies worldwide.

For more information, visit www.akamai.com.

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