Swedbank

Enterprise Architecture Delivers Services to More Than One Million Banking Customers While Reducing Costs

An IDC eBusiness Case Study
Sponsored by Sun Microsystems Inc.

THE COMPANY

Based in Stockholm, Sweden, Swedbank (FöreningsSparbanken) has more than 6.5 million customers and is one of the largest retail banks in the Nordic region. The bank has 858 branches across the region, 321 in-store banking units, and 1,178 ATMs.

THE SITUATION

Transform Internet banking and brokerage infrastructure and datacenter operations to support growth to more than 2 million visitors by 2003. Unified CRM applications for employees and customers with the goal of reducing costs by moving customer transactions from traditional to online banking channels.

THE SOLUTION

Next-generation Internet banking infrastructure powered by Java™ 2 Platform, Enterprise Edition (J2EE™) technology residing on Sun Fire™ and Sun Enterprise™ servers running the Solaris™ Operating Environment. Sun Services helped design and implement open standards–based application architecture and network infrastructure based on the Services Delivery Network Architecture. The highly scalable, available, secure architecture provides customers and employees with a unified interface for conducting banking and brokerage transactions online.

WHY SUN

"We thought it was natural to work with Sun. We have other suppliers with which we work, but we wanted to go in a direction towards standardizing our Internet banking infrastructure based on the architectural suggestions of Sun."

THE KEY BENEFITS

300% scale in number of Internet banking customers over past two years, adding average of 4,000 weekly, with an average of 250,000 visitors daily generating up to 200 transactions per second. Online channel is 30% less costly than traditional channels, with 30% of transactions now conducted online.

IDC
Analyze the Future

Table of Contents

EXECUTIVE SUMMARY

Driven by customer demand for virtual 24 x 7 x 365 service and the need for greater efficiencies and lower-cost banking processes, banks in Europe began transitioning customers to the Internet in 1997. Swedbank, one of the premier retail banks in northern Europe, quickly developed and deployed Internet banking capabilities, expanding its Internet banking customer base from 30,000 in 1998 to more than 1.2 million in 2002. But this growth did not come easily.

Swedbank had been running most of its applications, including online retail banking, online stock trading, Internet mail, loan transaction processing, and intranet, on a stovepipe architecture. There were significant IT overhead costs associated with maintaining multiple platform infrastructures. To deal with burgeoning Internet traffic and transaction volumes, Swedbank executives decided to make a significant investment in the application and platform infrastructure powering the bank's ebusiness initiatives.

Beginning in 2000, Swedbank engaged consultants from Sun Services to help overhaul its application and platform infrastructure. The first step in a relationship that extends to the present involved the delivery of a SunReady℠ Availability Assessment. This step enabled Sun consultants to identify various quality-of-service requirements and architecture improvements as well as operational processes and skill-level requirements within the datacenter environment. Sun then worked with the Swedbank IT team to implement suggested changes, including a Services Delivery Network Architecture, an application framework powered by Java™ 2 Platform, Enterprise Edition (J2EE™) technology, and platform infrastructure powered by more than 300 Sun Fire™ and Sun Enterprise™ servers running the Solaris™ Operating Environment.

With solidification of its infrastructure architecture and datacenter operations, Swedbank continues to look to Sun for assistance in its efforts to deliver optimal services to employees and customers, with a projection of 2 million online banking customers by 2003. Recent initiatives include delivery of an Enterprise Security Assessment service and accompanying implementation of the findings as well as mentoring and architecture guidance from the Sun Services' Java Center℠.

Figure 1: Swedbank Internet Banking Solution at a Glance

Core Functionality	Customers and employees have unified online access to multiple, disparate applications and data, such as account information, banking transactions, messaging and calendaring functions, brokerage services, and much more
Application Infrastructure	J2EE™ technology, Sun ONE Web Server, Sun ONE Messaging Server, Sun ONE Calendar Server, Oracle8*i* database, IBM WebSphere Application Server
Network Infrastructure	SunScreen Secure Net 3.1, Altheon switches, Cisco Catalyst switches
Platform Infrastructure	300+ Sun Fire™ and Sun Enterprise™ servers running the Solaris™ Operating Environment
Solutions Approach and Architecture	SunReady℠ Availability Assessment to identify quality-of-service requirements related to architecture operational processes and personnel skill sets; Services Delivery Network Architecture for outer-edge architecture design and services-driven network architecture for presentation, application, and data services; SunTone℠ Architecture Methodology for project management, architecture design, and application development practices; security assessment and subsequent implementation via Enterprise Security Assessment and Security Assessment Service for Firewall/DMZ; and Sun Services' Java Center℠ tapped for architecture direction and development best practices
Sustaining Services	SunSpectrum Platinum℠ agreement and skill assessments and training from Sun Services, including project-targeted workshops on Sun technologies such as Java technology; also includes monthly meetings with Sun Services' support engineers to proactively address potential availability issues

Source: IDC, 2003

With more than 30% of total banking transactions now conducted online, Swedbank is revolutionizing the ways in which both its customers and employees do business. Transaction volumes have increased more than 300% during the past two years, with an average of 4,000 new online customers added weekly. The application and platform infrastructure handles up to 15,000 concurrent users and an average of 250,000 daily visitors generating 200,000 transactions per minute. With skill assessments and training from Sun Services and a SunSpectrum Platinum[SM] support agreement, Swedbank is currently sustaining 99.99% availability. The transition to Internet-based banking is translating into a significant return on investment: Swedbank is able to conduct banking transactions online at 30% less than the cost of traditional banking channels.

SITUATION ANALYSIS

The Goals

Near term: *Overhaul Internet banking infrastructure to support growth to more than 2 million users by 2003*

Long term: *Deploy application and platform infrastructure for delivering services and applications to customers and employees via single, secure access*

Located in Stockholm, Sweden, Swedbank (FöreningsSparbanken) is the result of a merger between two banks, FöreningsBanken and Sparbanken. It is one of the largest retail banks in northern Europe, with a significant presence outside Sweden throughout the Nordic and Baltic regions.

Founded in 1820, Swedbank has 15,750 employees, including more than 800 professionals in its IT department. The bank's breadth of services and distribution network includes:

- 858 branches spread across the country
- 6.5 million customers
- 321 in-store banking units
- 1,178 ATMs
- 2 million telephone banking customers
- 41,000 online brokerage (NetTrade) customers

DIVERSE, DISPARATE EBUSINESS ENVIRONMENT

In the mid-1990s, European banks began transitioning customers to the Internet. Customers were demanding the convenience of banking online. At the same time, banks were finding the Internet channel more efficient and less costly in comparison to branch- or even ATM-based banking channels. To capitalize on these potential efficiencies, European banks quickly demonstrated a "me-too" attitude toward Internet banking, rapidly building applications to facilitate Web-based transactions. This shift was coupled with the sudden ability of customers to manage finances, with almost any financial institution, anywhere in the world using the Internet. Having a local branch presence was no longer necessary or even valued for winning new customers and keeping existing ones.

Internet Banking Poised for Growth in Europe

European online bank accounts are set to grow by 18% in the 2001–2006 period, reaching 148.1 million accounts. In 2002, online bank accounts will reach 83.5 million, growing by 29.1% over 2001.

Some key factors impacting this growth include improving services and increasing popularity of the multichannel format throughout Europe. Banks adopt new technology to create a single, multichannel view of the customer, allowing sales and service professionals at call centers to manage, synchronize, and coordinate customer interactions across multiple channels, including email, branch network, telephone, post, and fax. Banks will also be able to provide users with detailed profiling and a complete activity record of each interaction across communication channels.

– Abstracted from *European eBanking: Forecasts and Analysis, 2001–2006* (IDC #FB30J, May 2002)

Feeling competitive pressures and urgency to cut transaction costs, Swedbank sought to maintain its leadership position in the European banking community. In 1996, the bank launched its Internet-based banking business. Its initial focus was on smaller projects within the bank to accommodate early-adopter employees and customers eager to explore the benefits of the Internet channel.

CHALLENGES AND OBJECTIVES

Swedbank's deployment of Internet banking services was driven by fast-emerging industry trends and accompanying customer pressures. The quickly moving, demanding factors of these initiatives contributed to Swedbank's ongoing extension of its application and platform infrastructure without clear architectural planning and processes for datacenter operations, which hampered the bank's ability to meet its ebusiness objectives. This led the bank to the recognition of a number of challenges:

- **Communicating among disparate applications to improve customer service and lower costs.** Despite a multichannel banking environment, Swedbank wanted to present a single face to customers by providing access to the same information and delivering the same level of service regardless of the distribution channel — whether via a clerk or a teller in local branches, an Internet connection, customer service representatives in its call center, or banking kiosks.

  In addition to Internet banking applications, Swedbank was running other mission-critical services that included: NetTrade, an online brokerage application; Internet mail; and intranet applications. These relatively disparate applications all resided on a stovepipe architecture. A common Internet-based interface and open standards–based platform would help Swedbank not only reduce overall costs but enhance customer relationships and loyalty. Fredrick Lundberg, chief technology officer of ebusiness at Swedbank, notes, "We wanted to move our applications to a common infrastructure pool on which we could run all of our mission- and business-critical systems."

- **Meeting scalability and availability requirements.** In the span of 2 years, the bank saw the number of Internet users grow from 30,000 to more than 600,000 in 2000, which doubled to more than 1.2 million in 2002. To accommodate the sheer number of users and help ensure high availability, Swedbank needed to identify peak transaction periods, so that it could configure its platform infrastructure and datacenter operations to accommodate fluctuations in traffic and transaction volumes. For example, Swedbank saw a significant spike in traffic and transactions between the 25th and the 30th of every month, the time when most customers wanted to pay their bills. Swedbank had to design its infrastructure based on these requirements. It also had to configure datacenter operations so that backup and restore functions and new software releases did not occur during these fluctuations.

- **Ensuring secure, reliable transactions with no single point of failure.** Security is one of the greatest hindrances to the adoption of online banking. Swedbank recognized that security of online services would greatly affect its ability to serve the rapidly growing base of Internet banking customers.

- **Providing rapid time to market for new applications and services.** The bank wanted to speed development cycles, finding that its IT staff was spending too much time reprogramming code and writing new applications in the deployment of new ebusiness initiatives. To integrate these applications as well as meet new business opportunities, Swedbank needed a flexible, scalable platform that could enhance productivity and efficiency by allowing the bank to more quickly develop and roll out new applications. Its challenge was to reuse the same components and architecture for the various channels — new or existing — so the same services could be tailored easily.

ACTION PLAN AND DECISION PROCESS

"We want Sun to have the role of being our single point of contact in architecting, building, and maintaining our Internet environment."

– Leif Carlstrom, UNIX Architect, Swedbank

Recognizing the importance of Internet banking to its customers, Swedbank deployed a solution supporting a small number of users and proceeded directly from prototype implementation to full production in late 1998. The bank's initial application and platform infrastructure could not easily scale to meet business objectives. To present a single face to customers and integrate online brokerage applications with online banking applications, Swedbank embarked on bringing together its disparate applications on a single application and platform infrastructure.

In 2000, as the number of Internet banking customers was being projected to quickly approach 1 million, Swedbank recognized that to accommodate this exponential growth and successfully meet its quality-of-service requirements, it needed to reevaluate its application and platform infrastructure and operational processes in the datacenter.

DECISION CRITERIA AND PROCESS

Swedbank's hardware and software relationship with Sun dates back to the mid-1990s. The Nordic banking leader had built most of its applications in a UNIX® environment and a significant part of its platform infrastructure on Sun hardware. The longevity and strength of this relationship between Sun and Swedbank — one that extended to top management — was a key factor in Swedbank's decision to work with Sun.

And though Swedbank conducted a careful evaluation of other technology vendors, it ultimately decided in favor of Sun. Some of the driving factors in this decision included:

- The ability of Sun to assess performance issues and begin exploring causes and solutions using a SunReady Availability Assessment
- The project management capabilities of Sun in coordinating with other technology vendors
- Dominance of the Sun platform infrastructure for powering robust, scalable, Web-based solutions

"We thought it was natural to work with Sun, because we wanted to deepen our relationship with them, as they are obviously a very important vendor to us. We have other suppliers with which we work, but we wanted to go in a direction toward standardizing our Internet banking infrastructure based on the architectural suggestions of Sun."

– Leif Carlstrom, UNIX Architect, Swedbank

- Experience of Sun consultants in designing and implementing flexible, high-performance IT infrastructures supporting mission- and business-critical applications
- Strong collaborative working relationship with the Sun account team that is focused on delivering strategic value; the success of Swedbank is foremost in the strategy of the account team, not on selling more hardware, software, and services
- Strong European presence and knowledge of European culture, with specific experience within the banking and financial services industry
- Long-term stability of Sun as a leader in technology
- Proven security expertise

INITIAL SOLUTION: ADDRESSING AVAILABILITY, FLEXIBILITY, AND SCALABILITY

SUNREADY℠ AVAILABILITY ASSESSMENT

In June 2000, Swedbank engaged Sun Services to conduct a SunReady Availability Assessment. Sun consultants conducted a service-level analysis of Swedbank's major UNIX-based systems, pinpointing critical factors and problems related to each application as well as any weaknesses in the infrastructure, particularly the networking components and datacenter operations. The SunReady Availability Assessment included:

- Collection of critical information on various ebusiness applications
- Analysis of peak service levels on individual applications, including projected quality-of-service requirements
- Review of architecture, including selection of products and configuration of hardware and software components
- Overview of datacenter processes, including security protocols, operational procedures, and production releases
- Strategies for streamlining datacenter operations by consolidating applications
- Assessment of operational processes and skill sets to help ensure that Swedbank employees have the skills to effectively manage and maintain the datacenter infrastructure

ARCHITECTURE DESIGN

Based on the findings of the SunReady Availability Assessment, Sun recommended designing the architecture on the Services Delivery Network Architecture. Such a move was recommended on the basis that Swedbank requirements included network scalability accompanied by extremely high-performance features. The architecture design includes intelligent services routing and load balancing based on server availability and application performance.

"The architecture design of our Internet banking infrastructure is based on sound economy, scalability, and open standards, which allows for the near seamless integration of new components. The Services Delivery Network Architecture gives us the ability to easily add capacity — horizontally and vertically — with full redundancy on all components."

– Bertil Deurell, IT Service Manager, Swedbank

The quality-of-service requirements also included the need for a security architecture that would not inhibit performance and would promote very low latency, all while maintaining a high degree of network security. Sun consultants worked with Swedbank to design and implement services' modules to provide security, load balancing, and other network services. Because network services are configured in a modular design, Swedbank is able to seamlessly integrate additional modules as capacity is reached.

Beyond the edges of the network, Swedbank worked with Sun to move its stovetop architecture to one based on a services-driven network architecture. Part of the process included integration and migration of applications to an open standards application framework based on J2EE technology. The architecture design is broken down into services tiers consisting of client, presentation, application, data, and legacy logic. Separating the architecture into different services tiers allows for greater availability, reliability, scalability, and security. SunScreen™ Secure Net 3.1 running on Sun Enterprise workgroup servers plays a critical role in integrating with the legacy systems across the different platforms.

"From a security standpoint, the Services Delivery Network Architecture is key in that we're able to integrate with the legacy systems on different platforms — firewalls are both outward and inward, with the latter oriented towards legacy environments."

– Bertil Deurell, IT Service Manager, Swedbank

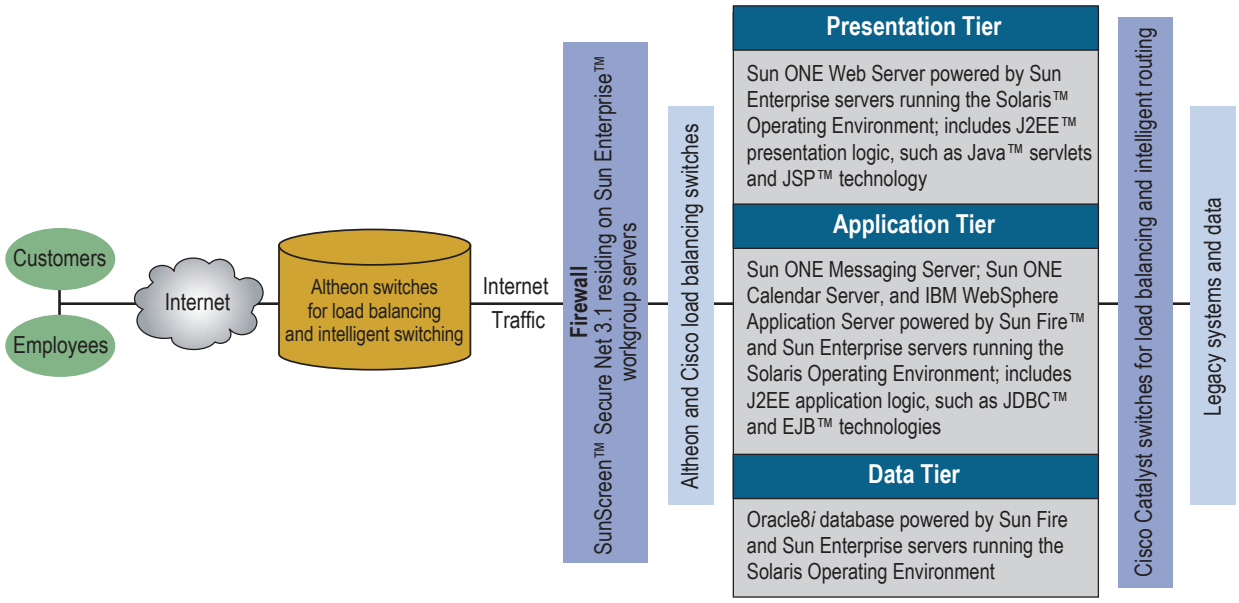
By breaking the architecture into different tiers for each service, Swedbank was able to meet the following requirements:

- Support all Internet banking services, including banking, brokerage (NetTrade), and intranet applications, on a single platform
- Channel independent (i.e., always exhibiting the same presentation and business logic as well as workflow, regardless of the channel)
- Help ensure high availability and secure transactions with no single point of failure
- Provide intelligent service routing for load balancing and reliability

J2EE™ PLATFORM ARCHITECTURE

Sun and Swedbank successfully deployed a prototype of the new platform infrastructure, based on Services Delivery Network Architecture, in May 2001 and proceeded to full production in September 2001 (see Figure 2). The extensible J2EE platform, which runs on IBM WebSphere Application Server, provides the basis for Swedbank to integrate new Internet banking services easily and quickly. Customers have multichannel access to Swedbank's online services. According to Lundberg, "Our vision is to have the same point of entry to the bank, regardless of the channel. This is why we are converting anything and everything to the J2EE technology-based platform."

Figure 2: Overview of Swedbank's J2EE Technology-Based Infrastructure



Source: IDC, 2003

Helping to ensure that no single point of failure exists, Swedbank maintains two separate, mirrored datacenter environments for business continuity.

"The Sun hardware we currently have deployed, both the Sun Fire servers and the Sun Enterprise servers, allows us to build a scalable platform that can grow as our user base continues to increase. This is very important to us as we add 4,000 new banking customers each week."

– Bertil Deurell, IT Service Manager, Swedbank

The presentation tier is powered by Sun ONE Web Server running the Solaris 7 Operating Environment. The J2EE platform instantly translates customers' search queries into database queries, enhancing system performance. Responses are returned in near real time and displayed in HTML on the end user's Web browser using JavaServer Page™ (JSP™) pages. Inquiries from end users are transported via Java servlets, which route requests and inquiries to the appropriate Enterprise JavaBean™ (EJB™) components in the application tier. XML technology is used for presenting documents of disparate formats on the Web browser of the requesting employee or customer.

The application tier runs on IBM WebSphere Application Server and is powered by J2EE technology components that include EJB technology and Java Database Connectivity (JDBC™) technology. The EJB components provide built-in functionality such as payment processing, retrieval of bank statements, deposit information, and more. A JDBC technology layer provides connection pooling and linkage with the Oracle8*i* database in the data tier. XML APIs are used for retrieving and sending documents. Also, parts of the application tier are messaging and calendar functions — used by Swedbank employees — powered by Sun ONE Messaging Server and Sun ONE Calendar Server. The application tier is powered by an assortment of Sun Fire and Sun Enterprise midframe servers running the Solaris 8 Operating Environment.

"Sun Services actually brought to this solution the idea of reliability, rather than just availability. On this note, I mean how well the system operates in various situations during massive spikes in transaction volumes, system failures, and more. The consultants even analyzed how quickly the system would stabilize following these periods of unpredictability and instability."

– Bertil Deurell, IT Service Manager, Swedbank

The data tier, running the Solaris 7 Operating Environment, consists of Oracle8*i* database and VERITAS software. The clustered environment enables Swedbank to maintain high levels of availability and performance, especially during peak traffic periods (e.g., end-of-the-month bill payment cycles).

Swedbank's new ebusiness infrastructure allows it to easily connect customer-facing presentation logic with the application layer. The architecture relies on Cisco Catalyst switches for load balancing, intelligent routing, and security. The bank is able to link its legacy systems and data, such as its NetTrade online brokerage application, Internet mail, and intranet applications, to its J2EE-based infrastructure. This represents an important step because Swedbank is able to utilize an open standards–based platform to reduce overall costs while enhancing customer relationships and loyalty.

SECURITY, SUPPORT, TRAINING, ARCHITECTURE DESIGN AND DEVELOPMENT

After strengthening its infrastructure architecture and datacenter operations, Swedbank continued to look to Sun for assistance in its efforts to deliver optimal services to employees and customers. Most recently, Sun delivered an Enterprise Security Assessment service and accompanying implementation of the findings. The bank also turned to the Sun Services' Java Center[SM] for mentoring and architecture guidance.

SECURITY ASSESSMENT AND IMPLEMENTATION

"Because UNIX is a mission-critical platform for us, it is essential to maintain the appropriate level of security and network access. The security assessment and implementation project with Sun is thus very important to our organization. We need the same level of security around our UNIX platform that we have in the mainframe arena."

– Bertil Deurell, IT Service Manager, Swedbank

In March 2001, Swedbank engaged Sun Services to conduct an Enterprise Security Assessment as well as a Security Assessment Service for Firewall/DMZ, with the intent of helping to ensure no single point of failure in the architecture design as well as operational processes. The Services Delivery Network Architecture that was implemented following the SunReady Availability Assessment included redundant firewall design, but additional security requirements still needed to be addressed. Some of the additional security quality-of-service requirements identified by the two security assessment services included:

- New log-in and password protection features
- Intrusion detection software
- Encryption capabilities

Following delivery of the findings elicited by the two assessments in June 2002, Swedbank sought Sun's assistance in implementing the results of the assessments. The implementation process included improved security functionality across the more than 300 Sun servers deployed in the datacenter.

Completed in November 2002, the security implementation helps ensure that users — customers or employees — have access only to applications, services, and data within the network to which they are entitled. Bertil Deurell, IT service manager at Swedbank, explains: "From a security perspective, it was absolutely critical to have systems safe from intrusion. This was one of our primary concerns going forward."

SUN SERVICES' JAVA CENTER INITIATIVES

To help ensure adherence to J2EE technology standards and instill development best practices in its IT development team, Swedbank engaged the Sun Services' Java Center in January 2002. Sun consultants, during the span of one year, are working with the Swedbank IT team to map development to J2EE technology specifications as well as development practices that follow an iterative, sequential phased approach and reuse architecture patterns and coding. This includes tapping the J2EE Patterns Catalog for design and pattern reuse.

The architectural direction and mentoring from Sun is translating into lower quality risks — as problems are identified via testing before being replicated in subsequent design phases — and faster development cycles. The objective of the engagement is not to become reliant on Sun for architecture design and application development but rather to facilitate knowledge transfer between the Sun consultants and the Swedbank IT team; self-sufficiency is the primary objective. Swedbank is seeing measurable results, with faster time to market for new IT initiatives through reuse of architectural frameworks and patterns.

SUSTAINING HIGH AVAILABILITY AND RELIABILITY

To help maintain high availability and reliability, Swedbank has a SunSpectrum Platinum agreement, which covers both Sun hardware and software. The support agreement proactively addresses system problems and provides assistance in better managing the mission-critical systems. Its key components include:

- **SunVIP℠ (Vendor Integration Program).** Sun works with independent software vendor (ISV) partners, such as Oracle, VERITAS, and Hitachi Data Systems, to address software interoperability issues that cannot be resolved internally.

- **SunSolve℠ via Online Services Center.** This extensive online database of bug reports, informational documents, patches, and white papers provides technical data 24 x 7 x 365. The Online Services Center streamlines support issues, which improves productivity and enables customers, such as Swedbank, to proactively address potential systems issues before they become problems.

- **SunAlert℠.** An email notification service provides alerts of known hardware and software issues specifically related to availability, security, and data loss that may pose risks to Swedbank's computing environments.

In addition, Sun Services' support engineers conduct monthly strategy meetings with the Swedbank IT team to assess potential support issues. These meetings serve as both a proactive mechanism as well as a medium to address system failures. Swedbank currently has a team of more than 30 engineers from Sun Support Services to provide problem resolution with response times of less than 2 hours.

"We have a very close relationship with Sun [Services] support engineers, from hardware and software points of view. Indeed, we have follow-up meetings every month on hardware, software, and ongoing services. This allows us to monitor potential problems before they occur. We have very high availability on all of our applications running on the UNIX platform, and we need that because this is an operation that must be up 24 hours by 365 days; that's what is most important."

– Bertil Deurell, IT Service Manager, Swedbank

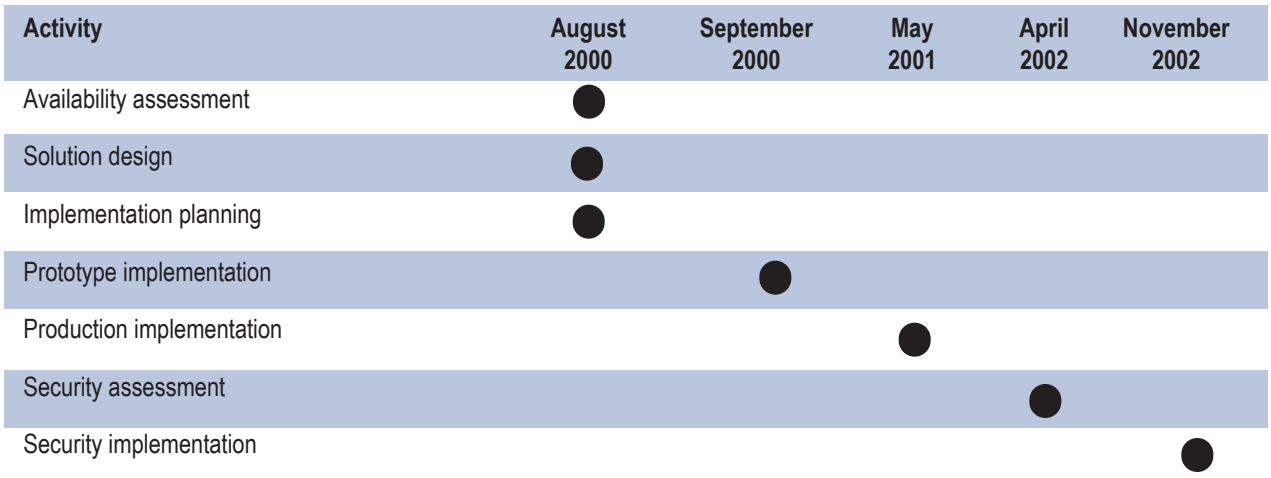
"We use the training workshops with Sun Services to 'evangelize' new solutions, as many typically encompass new technologies or deployments of technologies. Indeed, based on the success we've achieved over the past year, we have a directive to use these training workshops as a project-education vehicle for all projects going forward."

– Bertil Deurell, IT Service Manager, Swedbank

Also assisting Swedbank in its endeavors to maintain high availability and reliability are training specialists from Sun Services. Following the skill assessments performed by Sun Services' training consultants during the SunReady Availability Assessment, Swedbank regularly taps Sun Services for skill assessments and accompanying training to address areas in need of supplementation.

Swedbank's ongoing training includes customized, onsite training courses in the Solaris Operating Environment and Java technology. In particular, as part of its customized training program, Sun Services conducts workshops on various Sun technologies. The intent is to provide knowledge transfer to the Swedbank IT team about recent innovations in the technology underlying its infrastructure. A related, yet very important component of the training program with Sun Services, is the certification of the Swedbank IT team in Sun technologies, specifically Java and the Solaris Operating Environment.

Figure 3: Development Timetable for Swedbank's Internet Infrastructure



Source: IDC, 2003

BUSINESS RESULTS

Swedbank has successfully grown its Internet banking user base by 300% since 1998. The bank has more than 1.2 million current Internet banking customers, and new customers are signing up for Swedbank's Internet bank at a rate of 4,000 new users per week. Swedbank expects to exceed 2 million customers by 2003. The infrastructure is proving to be highly scalable, with an average of 3 million visits per month. In addition, the NetTrade application delivers online brokerage services to about 30,000 customers, which is seamlessly integrated with online banking services. On a peak day, Swedbank serves 250,000 Internet banking customers and generates up to 200 transactions per second.

"It is 30% more expensive to treat the customer at a branch than through the Internet. Currently, 30% of all payment transactions in our banks are done through the Internet, and we can see a very clear trail that cash transactions at branches are decreasing."

– **Bertil Deurell, IT Service Manager, Swedbank**

With Swedbank's success over the past couple of years, customer service has become a business-critical component of the bank's ebusiness initiatives. As Swedbank incorporates additional channels (e.g., more ATMs, new Internet applications, and mobile banking), it has become increasingly important to present a single face to the customer and leverage the same customer information and business logic, regardless of the channel. Deurell explains: "In a customer-oriented bank, customers must be able to choose channels according to needs and preferences."

All of this success would not have been possible if Swedbank had not overhauled its Internet banking infrastructure and datacenter operations. Using Sun technology and services, Swedbank is achieving its ultimate goal of offering its services through any banking channel.

Figure 4: Overview of Swedbank's Business and Technical Results Achieved

Business Process Area	Nature of Benefit	Description or Metric
Customer service	Strengthened relationship	Consolidation of numerous applications on one platform provides single-point access for customers and employees
Application development	Reduced cycle time	Open, extensible J2EE™ technology components are helping to speed development cycles through reuse of architectural frameworks and design patterns
Operations	Cost reduction	Able to move 30% of customers online, a channel that is 30% less costly
Sales and marketing	Scalability, high availability	1.2 million customers online, with an average of 4,000 new users added every week; average of 3 million visitors per month; up to 250,000 daily visitors generate 200 transactions per second
Time to market	Reduced implementation time	Sun consultants enabled Swedbank to reduce time to market by five months
Systems performance	Availability	Currently sustaining up to 99.99% availability

Source: IDC, 2003

"It would have taken us somewhere in the vicinity of five additional months to roll out our new datacenter architecture without the assistance of Sun. And I am not confident that it would have been possible to undertake this project on our own."

– **Bertil Deurell, IT Service Manager, Swedbank**

Swedbank estimates that it was able to shave up to five months from time to market for the overhaul of its datacenter architecture and operations with the assistance of Sun. In addition, the open standards and reusable components of the J2EE platform coupled with development best practices from Sun are helping Swedbank to increase time to market for new initiatives. This translates into cost savings and allows the IT staff to focus on delivering optimal functionality to employees and customers. All of this will help Swedbank maintain its leadership position in the retail banking segment of northern Europe.

In addition to proving high scalability, the application and platform infrastructure is proving to be highly available and reliable; Swedbank is currently achieving 99.99% availability with features such as intrusion detection, new log-in capabilities, and encrypted transmissions.

CASE EPILOGUE

The Swedbank solution is a great example of a traditional business embracing ebusiness for all the classic reasons — to improve customer service, enable rapid time to market, expand market coverage, and reduce costs. Once Swedbank identified its business goals, it relied on Sun to make those goals achievable through the use of technology and thought leadership. After implementing the initial solution, Swedbank again turned to Sun for a security assessment and implementation of the findings. Sun is also providing key thought leadership in the areas of architecture design, application development, and availability.

Sun's business agenda is closely tied to its product business agenda and strategies. This separates Sun from many of its competitors that more aggressively seek services revenue and profit above and beyond those tied to product sales. Sun has leveraged its strengths and its focus on delivering services to optimize its products in its relationship with Swedbank, with a focus on delivering technical and business results to the customer through the use of technology.

IDC Worldwide Offices

CORPORATE HEADQUARTERS

IDC
5 Speen Street
Framingham, MA 01701
United States
508.872.8200

NORTH AMERICA

IDC Canada
36 Toronto Street, Suite 950
Toronto, Ontario M5C 2C5 Canada
416.369.0033

IDC California (Irvine)
18831 Von Karmen Avenue
Suite 200
Irvine, CA 92612
949.250.1960

IDC California (Mountain View)
2131 Landings Drive
Mountain View, CA 94043
650.691.0500

IDC New Jersey
75 Broad Street, 2nd Floor
Red Bank, NJ 07701
732.842.0791

IDC New York
2 Park Avenue
Suite 1505
New York, NY 10016
212.726.0900

IDC Texas
100 Congress Avenue
Suite 2000
Austin, TX 78701
512.469.6333

IDC Virginia
8304 Professional Hill Drive
Fairfax, VA 22031
703.280.5161

EUROPE

IDC Austria
c/o Loisel, Spiel, Zach Consulting
Mayerhofgasse 6
Vienna A-1040, Austria
43.1.50.50.900

IDC Benelux (Belgium)
Boulevard Saint Michel 47
1040 Brussels, Belgium
32.2.737.76.02

IDC Denmark
Omøgade 8
Postbox 2609
2100 Copenhagen, Denmark
45.39.16.2222

IDC Finland
Jarrumiehenkatu2
FIN- 00520 Helsinki
Finland
358.9.8770.466

IDC France
Immeuble La Fayette 2
Place des Vosges Cedex 65
92051 Paris la Defense 5, France
33.1.49.04.8000

IDC Germany
Nibelungenplatz 3, 11th Floor
60318 Frankfurt, Germany
49.69.90.50.20

IDC Italy
Viale Monza, 14
20127 Milan, Italy
39.02.28457.1

IDC Netherlands
A. Fokkerweg 1
Amsterdam1059 CM, Netherlands
31.20.6692.721

IDC Portugal
c/o Ponto de Convergancia SA
Av. Antonio Serpa 36 - 9th Floor
1050-027 Lisbon, Portugal
351.21.796.5487

IDC Spain
Fortuny 18, Planta 5
28010 — Madrid
Spain
34.91.787.2150

IDC Sweden
Box 1096
Kistagangen 21
S-164 25 Kista, Sweden
46.8.751.0415

IDC U.K.
British Standards House
389 Chiswick High Road
London W4 4AE United Kingdom
44.208.987.7100

LATIN AMERICA

IDC Latin America
Regional Headquarters
8200 NW 41 Street, Suite 300
Miami, FL 33166
305.267.2616

IDC Argentina
Trends Consulting
Rivadavia 413, Piso 4, Oficina 6
C1002AAC, Buenos Aires, Argentina
54.11.4343.8899

IDC Brazil
Alameda Ribeirao Preto, 130
Conjunto 41
Sao Paulo, SP CEP: 01331-000 Brazil
55.11. 3371.0000

International Data Corp. Chile
Luis Thayer Ojeda 166 Piso 13
Providencia
Santiago, 9, Chile
56.2.334.1826

IDC Colombia
Carerra 40 105A-12
Bogota, Colombia
571.533.2326

IDC Mexico
Select-IDC
Av. Nuevo Leon No. 54 Desp. 501
Col. Hipodromo Condesa
C.P. 06100, Mexico
525.256.1426

IDC Venezuela
Calle Guaicaipuro
Torre Alianza, 6 Piso, 6D
El Rosal
Caracas, Venezuela
58.2.951.1109

CENTRAL AND EASTERN EUROPE

IDC CEMA
Central and Eastern
European Headquarters
Male Namesti 13
110 00 Praha 1
Czech Republic
420.2.2142.3140

IDC Croatia
Srednjaci 8
1000 Zagreb
Croatia
385.1.3040050

IDC Hungary
Nador utca 23
5th Floor
H-1051 Budapest. Hungary
36.1.473.2370

IDC Poland
Czapli 31A
02-781 Warszawa, Poland
48.22.7540518

IDC Russia
Suites 341-342
Orlikov Pereulok 5
Moscow, Russia 107996
7.095.975.0042

MIDDLE EAST AND AFRICA

IDC Middle East
1001 Al Ettihad Building
Port Saeed
P.O. Box 41856
Dubai, United Arab Emirates
971.4.295.2668

IDC Israel
4 Gershon Street
Tel Aviv 67017, Israel
972.3.561.1660

IDC South Africa
c/o BMI TechKnowledge
3rd Floor
356 Rivonia Boulevard
P.O. Box 4603
Rivonia 2128, South Africa
27.11.803.6412

IDC Turkey
Tevfik Erdonmez Sok. 2/1 Gul
Apt. Kat 9D
46 Esentepe 80280
Istanbul, Turkey
90.212.275.0995

ASIA/PACIFIC

IDC Singapore
Asia/Pacific Headquarters
80 Anson Road
#38-00 IBM Towers
Singapore 079907
65.6226.0330

IDC Australia
Level 3, 157 Walker Street
North Sydney, NSW 2060
Australia
61.2.9922.5300

IDC China
Room 611, Beijing Times Square
88 West Chang'an Avenue
Beijing 100031
People's Republic of China
86.10.8391.3610

IDC Hong Kong
12/F, St. John's Building
33 Garden Road
Central, Hong Kong
852.2530.3831

IDC India Limited
Cyber House
B-35, Sector 32, Institutional
Gurgaon 122002
Haryana India
91.124.6381673

IDC Indonesia
17th Floor, Tower 2
Jakarta Stock Exchange
Jl. Jend. Sudirman Kav. 52-53
Jakarta 12190
62.21.515.7759

IDC Market Research (M) Sdn Bhd
Jakarta Stock Exchange Tower II
17th Floor
Jl. Jend. Sudirman Kav. 52-53
Jakarta 12190
62.21.515.7676

IDC Japan
The Itoyama Tower 10F
3-7-18 Mita, Minato-ku
Tokyo 108-0073, Japan
81.3.5440.3400

IDC Korea Ltd.
Suite 704, Korea Trade Center
159-1, Samsung-Dong
Kangnam-Ku, Seoul, Korea, 135-729
822.551.4380

IDC Market Research (M) Sdn Bhd
Suite 13-03, Level 13
Menara HLA
3, Jalan Kia Peng
50450 Kuala Lumpur, Malaysia
60.3.2163.3715

IDC New Zealand
Level 7, 246 Queen Street
Auckland, New Zealand
64.9.309.8252

IDC Philippines
703-705 SEDCCO I Bldg.
120 Rada cor. Legaspi Streets
Legaspi Village, Makati City
Philippines 1200
632. 867.2288

IDC Taiwan Ltd.
10F, 31 Jen-Ai Road, Sec. 4
Taipei 106
Taiwan, R.O.C.
886.2.2731.7288

IDC Thailand
27 AR building
Soi Charoen Nakorn 14,
Charoen Nakorn Rd., Klongtonsai
Klongsan, Bangkok 10600
Thailand
66.02.439.4591.2

IDC Vietnam
Saigon Trade Centre
37 Ton Duc Thang Street
Unit 1606, District-1
Hochiminh City, Vietnam
84.8.910.1233; 5

IDC is the foremost global market intelligence and advisory firm helping clients gain insight into technology and ebusiness trends to develop sound business strategies. Using a combination of rigorous primary research, in-depth analysis, and client interaction, IDC forecasts worldwide markets and trends to deliver dependable service and client advice. More than 700 analysts in 43 countries provide global research with local content. IDC's customers comprise the world's leading IT suppliers, IT organizations, ebusiness companies and the financial community. Additional information can be found at www.idc.com.

IDC is a division of IDG, the world's leading IT media, research and exposition company.

02C3545SERVIC3545
March 2003
FE1616-1

IDC
Analyze the Future

www.idc.com