Philips: Semiconductors Division

Project Renaissance Revitalizes Extranet Portal Architecture, Delivering Significant Business Value

An IDC eBusiness Case Study
Sponsored By Sun Microsystems, Inc.

THE COMPANY

The semiconductors division of Royal Philips Electronics, with headquarters in Eindhoven, The Netherlands, has approximately 32,000 employees in more than 50 countries. The division, with 2002 revenue of EUR 4.6 billion, has 18 manufacturing and assembly sites and design centers, system laboratories, and 100 offices throughout the world.

THE SITUATION

Extranet Portal

- **Lower total cost of ownership and enhanced performance through migration to common portal architecture via upgrade of all application software**
- **Establish development best practices and architectural frameworks for future IT initiatives**

THE SOLUTION

Next-generation common portal application architecture powered by Sun ONE Application Server, Sun ONE Directory Server, Sun ONE Web Server, J2EE (Java 2 Platform, Enterprise Edition) technology, Netegrity SiteMinder, Isomorphic SmartClient, and Oracle8*i* database residing on Sun Enterprise 3500, 420R, and 220R servers running the Solaris 8 Operating Environment.

WHY SUN

"Sun had significant experience implementing Internet-enabled platforms. We have relied heavily on Sun for our hardware and software infrastructure. They have extensive insight in those areas as well as in their unmatched commitment and knowledge in working with Java [technology]."

THE KEY BENEFITS

Approximately 45% reduction in code through the reuse of architectural frameworks and design patterns that is expected to lead to as much as a projected 30% reduction in development cycles; achieved 5-month time to market an estimated 25% to 35% faster with the assistance of Sun Services and Sun iForce Partners; significant improvement in system reliability and stability, including reduction in monthly service tickets from approximately 40 to 2; currently sustaining in excess of 99.5% availability; able to scale to support more than 10,000 users; projected to substantially lower total cost of ownership through enhanced efficiencies

IDC
Analyze the Future

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The semiconductors division of Royal Philips Electronics embarked on an aggressive ebusiness strategy in 2002, with the objective of lowering total cost of ownership, enhancing system reliability, and improving agility by optimizing and migrating its extranet portal application architecture. Though initially focused on upgrading application software to the most recent releases, Project Renaissance quickly took on larger and more significant proportions. With the assistance of Sun Microsystems, Inc. and iForce Partners Enteka, Inc.; Isomorphic Software, Inc.; eVelopers Corporation; and Netegrity, Inc., Philips migrated a number applications — which included both consolidation and elimination of those no longer required or in use — to a common portal architecture powered by Sun Open Net Environment (Sun ONE) software; Java 2 Platform, Enterprise Edition (J2EE) and XML technologies; Netegrity SiteMinder; Isomorphic SmartClient; and Oracle8*i* database residing on Sun Enterprise 3500, 420R, and 220R servers running the Solaris 8 Operating Environment.

Completed in December 2002, Project Renaissance is achieving significant benefits, including a 45% reduction in application code through the reuse of architectural frameworks and design patterns that is expected to lead to as much as an estimated 30% reduction in development cycles. The new common architecture is improving system reliability and stability, with a reduction in monthly service requests from approximately 40 to 2. With the help of Sun and its iForce Partners, Philips was able to shave an estimated 25% to 35% from time to market — achieving an extremely aggressive 5-month deployment. A SunSpectrum Platinum agreement and ongoing skill assessments and training from Sun Services is helping Philips to currently sustain in excess of 99.5% availability.

Figure 1: Project Renaissance Solution at a Glance

Core Functionality	14 extranet portal applications powered by a common architecture platform. Users, which include distributors, customer care representatives, sales agents, and customers, can access various manufacturing and sales tools for facilitating communication and initiating transactions.
Application Infrastructure	Sun ONE Application Server; Sun ONE Directory Server; Sun ONE Web Server; Java 2 Platform, Enterprise Edition (J2EE) technology; Oracle8*i* database; Netegrity SiteMinder; and Isomorphic SmartClient
Platform Infrastructure	Sun Enterprise 3500, 420R, and 220R servers running the Solaris 8 Operating Environment; Cisco PIX 500 Series Firewall for security management.
Solution Approach and Architecture	Project Renaissance: Optimization of extranet portal environment, including migration of application software to common, standards-based architecture and consolidation and end of life of applications. Sun Services, working with the eBusiness and Information & Communications Technology teams from Philips and various iForce Partners, provided overarching project management and mentoring related to development and architectural best practices (as reflected in the SunTone Architecture Methodology).
Partners	Enteka, Inc.; Isomorphic Software, Inc.; Netegrity, Inc.; and eVelopers Corporation.
Sustaining Services	SunSpectrum Platinum agreement; skill assessments and training from Sun Services related to Sun ONE software, J2EE technology, and the Solaris Operating Environment.

Source: IDC, 2003

BUSINESS ENVIRONMENT

With headquarters in Eindhoven, The Netherlands, and 2002 revenue of EUR 4.6 billion, the semiconductors division of Philips is one of the leading semiconductor manufacturers in the world. It has more than 32,000 employees in more than 50 countries, 18 manufacturing and assembly sites, and numerous design centers, system laboratories, and offices worldwide.

Philips has a wide-ranging network of distributors, suppliers, contract manufacturers, and strategic customers with which it must regularly communicate and collaborate during the manufacturing and sales process. In July 1999, the company embarked on an ebusiness strategy — spearheaded by Director of Worldwide eBusiness Bill Roeder — that would help improve services to these entities. By the end of 2000, the semiconductors division had built a number of extranet applications and services used for facilitating communications and processing transactions with and between distributors as well as customers. Functionality for end users included demand generation, order management, shipping and delivery status, and sales support.

Semiconductor Market to Experience Growth

IDC expects the worldwide semiconductor market to reach $149 billion in 2003, a 9% increase over 2002. The market is expected to grow an additional 15% in 2004, reaching $172 billion in sales worldwide.

The total semiconductor market is expected to equal $246 billion by 2007.

– Abstracted from *Worldwide Semiconductor Market Revenue Forecast and Analysis, 2002–2007,* IDC #28337, November 2002

THE NEED: COMMON PORTAL ARCHITECTURE

As Internet technologies became increasingly pervasive across its IT infrastructure, Philips sought ways to further leverage Internet applications and services as a communication and transaction channel for its semiconductors business. Although only a couple of years had passed since the initial deployment of the extranet application infrastructure, it was quickly aging and in need of numerous software upgrades.

IDC research shows that "many manufacturing companies are turning their attention to the streamlining and Web enablement of the information flow across the supply chain to the distribution channel and logistics partners in an attempt to enhance time to market for success with available-to-promise business models, reduce inventory levels, and increase customer retention and trust. What is now apparent within the manufacturing industry is that advanced players are demanding real-time capabilities as a key ingredient to ebusiness strategy" (see *European Manufacturing Pulse,* IDC #VC24J, October 2002).

Key Business Challenges

"We had a strong focus on providing a single interface for the customer, a seamless environment, and customized solutions that addressed our need for rapid time to market. As a result, we needed a platform that was scalable, configurable, and customizable, a solution that would serve as the foundation of our ebusiness strategy for years to come."

– Bill Roeder, Director of Worldwide eBusiness, Philips: Semiconductors Division

It was at this juncture that the Worldwide eBusiness team — led by Roeder — engaged Philips' Information and Communications Technology (ICT) team — led by Global IT Manager of eBusiness Technology Homer Benjamin. Though the teams initially viewed the project as a matter of upgrading application software to the latest releases, they decided to broaden the scope on the premise that additional benefits could be realized. Though the semiconductors division had established a solid foundation of Web-based applications supporting a number of operations, Philips recognized the need to lower costs and increase efficiencies while enhancing system reliability and functionality associated with these applications.

Selecting Sun

"We had three primary reasons for selecting Sun. The first is that Sun Services has very good project management skills. The second is that their proposal was the most comprehensive, particularly in terms of their preliminary architecture design. The third is Sun's low price for high-performance servers."

– Bill Roeder, Director of Worldwide eBusiness, Philips: Semiconductors Division

With the support of IT executive management, the eBusiness and ICT groups began to evaluate how to evolve the application infrastructure in spring 2002 and identified several key business drivers around which subsequent development efforts would coalesce:

- Because targeted applications were expected to undergo frequent updates to satisfy evolving business requirements, the ability to flexibly and reliably accommodate future business requirements and technology changes was a core requirement.
- No interruptions or degradation in quality of service could occur during application upgrades or architectural changes.
- Enhancing customer service through performance improvements while concurrently improving flexibility was an important requirement.
- To retain or even increase the competitive edge of the company, the Philips team sought to lower total cost of ownership through reductions in maintenance and support costs as well as more efficient development and deployment for both updated and new applications.

"We wanted a [technology] vendor that could help us quickly implement an open standards–based solution and moreover one with the experience to leverage existing best practices. We could not afford to 'learn from mistakes' as we went along. It was important to work with a services organization that would reduce the risk associated with a project of this magnitude."

– Homer Benjamin, Global IT Manager of eBusiness Technology, Philips: Semiconductors Division

In April 2002, as the Philips team prepared to embark on what would become Project Renaissance, Benjamin assigned Technical Lead Arunabh Chowdhuri to oversee the project. Benjamin reflects on the important role Chowdhuri played: "He [Chowdhuri] provided invaluable oversight and direction that kept Project Renaissance closely attuned to its business and technology objectives. We could not have achieved the project targets that were established at the very beginning without his direction."

With the business case for Project Renaissance in place, the project team determined that a number of technical challenges would need to be addressed to ensure successful deployment, including:

- **Open, extensible architecture.** To avoid proprietary technologies and products and moreover develop a highly adaptable, flexible application architecture, the team needed a next-generation architecture based on open standards.
- **Rapid time to market.** Competitive pressure made time to market a driving factor for project deployment. Though Project Renaissance would not start until July 2002, full production rollout had to occur before the end of 2002.
- **Sophisticated, phased deployment.** Business had to continue as usual, with no interruptions of service to customers. The migration would occur in three phases. Upgraded portal applications had to interoperate and integrate with those portal applications that had not yet been upgraded.
- **Scalability.** The number of users of the extranet portal applications was expected to grow rapidly over the next several years. IDC expects the worldwide semiconductor market will nearly double from $137 billion in 2002 to $246 billion in 2007. The ability to support more than 10,000 end users of the Philips semiconductors division was a requirement.

"Sun had extensive experience in implementing Internet-enabled platforms. We have relied heavily on Sun for our hardware and software infrastructure. They have extensive insight in those areas as well as in their unmatched commitment and knowledge in working with Java [technology]."

– Bill Roeder, Director of Worldwide eBusiness, Philips: Semiconductors Division

- **Availability, performance.** With potential transaction revenue at risk and demands by all end users for high-performance, robust applications, the next-generation application architecture had to meet high-availability, reliability, and performance requirements. Downtime or performance degradation could potentially translate into lost revenue or, at the very least, poor customer service.
- **Adaptability, flexibility.** One of the primary goals of Project Renaissance was to develop a highly adaptable, flexible architecture that would allow for rapid changes to existing applications and development of new applications. An integral component involved significant reuse of architectural frameworks and design patterns.
- **Manageability.** The prior architecture required too much maintenance and management on the back end. One means of reducing cost and increasing efficiencies was to consolidate applications to a common application infrastructure.
- **Security.** Online transactions with and between different customers, distributors, and other business partners required a secure-rich environment.
- **Operational processes.** The technical implementation had to be coupled with significant process change in regard to application development, deployment, and management. This process included the demarcation of development, testing, quality assurance, and production environments.

ACTION PLAN AND DECISION PROCESS

"Project Renaissance is an excellent example of collaboration from a number of different entities, from the eBusiness and ICT teams at Philips, to Sun, to the various iForce Partners. Sun's ability to work closely with a variety of individuals and organizations has proven to be a real asset."

– Homer Benjamin, Global IT Manager, eBusiness Technology, Philips: Semiconductors Division

For the upgrade of its software applications and migration to the J2EE technology standard, Philips turned to Sun, which had previously provided hardware, software, and services. In particular, to help ensure a successful deployment for the short and long terms, the semiconductors unit felt that Sun not only had the "right" products and technologies for its extranet project but that it could provide an end-to-end solution, including overarching project management; architectural direction; coordination with other technology vendors, including the ability to tap strategic "partners" for certain segments of the solution; and mentoring and training in development best practices.

Philips also wanted a technology vendor that would look to its best interests — one willing to relinquish its intellectual capital, helping to equip the semiconductors division to achieve ongoing success on its own. Compliance with J2EE technology standards was an important requirement for Project Renaissance. As a result, Philips, pleased with its relationship with Sun and the results achieved with its software and hardware platforms, determined that Sun should serve as the primary technology vendor for Project Renaissance. Some of the primary reasons for this decision included:

- **Mature, robust, modular software platform.** An early adopter of Sun ONE Application Server, Sun ONE Directory Server, and Sun ONE Web Server (formerly Netscape Application Server, Netscape Directory Server, and Netscape Web Server), Philips drew upon its positive prior experience using the Sun ONE software platform in its selection of a software platform for Project Renaissance. The semiconductors unit felt the combination of the three offered an optimal solution: a mature and highly robust and modular platform compliant with open standards.

- **J2EE technology expertise.** To develop a common architecture based on open standards, and with a successful history of developing applications based on Java technology, Philips determined very early in the evaluation process that J2EE technology should serve as the basis for its next-generation application infrastructure. The semiconductors unit saw Sun as a thought leader in both the development and use of J2EE technology. The documented experience of Sun consultants in architecture design and development using J2EE technology and frameworks was a compelling factor in the decision process. Roeder explains, "Given how closely J2EE [technology] is tied to the various applications and, ultimately, the success of Project Renaissance, the team recognized the need to work with a vendor that really understands how to implement and migrate our applications."
- **Time to market.** The success of Project Renaissance depended on the teams' ability to meet the aggressive design and implementation time frame. Philips realized that Sun would be able to provide valuable intellectual capital around project management and development best practices that would help it achieve rapid time to market while simultaneously improving existing processes, procedures, and operations.
- **Ability to work with third-party products and services.** The upgrade of application software for the extranet portal would involve software products from technology vendors in addition to Sun. The project would also involve several systems integrators. Philips thus sought a technology vendor that was willing to work within this heterogeneous environment. Because Oracle, eVelopers, Enteka, Isomorphic, and Netegrity were part of the Sun iForce Partner Community, the semiconductors unit was confident that Project Renaissance would be a collaborative deployment effort.
- **World-class hardware.** The extranet portal applications would continue to be hosted on Sun Enterprise servers running the Solaris 8 Operating Environment at the corporate datacenter. The semiconductors unit's prior experience running Sun ONE software and Java technology on the Sun Enterprise server platform was quite positive, and it believed the platform would continue to help it meet aggressive quality-of-service requirements.
- **Leadership in the Internet space.** Sun's extensive experience working in the Internet space building end-to-end solutions was also taken into consideration. Philips believed that Sun possessed significant expertise in the design of Web-based applications from a variety of horizontal and vertical solution areas.
- **Network identity management.** The large number of institutional and individual users of the extranet portal necessitated a sophisticated, secure-rich network identity management solution, both in terms of software and architecture. Already using Sun ONE Directory Server and Netegrity SiteMinder as part of its initial extranet application architecture, Philips felt the continued combination offered a robust solution.

"The adherence of our architecture to open standards, including the support for open standards by the Sun ONE software platform and J2EE [technology], provides us with a common services foundation, one from which we can reuse various architectural components and code. This allows us to significantly reduce development cycles and improve the time to market for future applications."

– Arunabh Chowdhuri, Technical Lead, eBusiness Technology, Philips: Semiconductors Division

Meeting the aggressive quality-of-service requirements for Project Renaissance would require that all of these technical challenges be addressed. "We needed an application platform that would serve as our foundation for years to come," notes Roeder. "Having a services-ready application platform will allow us to avoid developing new applications from scratch. The end result of Project Renaissance is a common architectural foundation on which we can build into the future."

"The Sun account team provides outstanding service. We see the account team as a strategic technology advisor. They are not simply looking for ways to drive revenue for Sun but ways to affect our bottom-line results through increased efficiencies, lower costs, and revenue growth. This is an important reason behind the success we've achieved together."

– **Homer Benjamin, Global IT Manager, eBusiness Technology, Philips: Semiconductors Division**

SOLUTION PROFILE AND IMPLEMENTATION STRATEGY

Project Renaissance is a prime example of how Sun Services' intellectual capital around project management, architectural design, and development best practices can serve as the underlying basis for an end-to-end technology solution. Chowdhuri elaborates, "Sun worked closely with us to develop a best-in-breed approach to project management. This played an integral role in helping to keep Project Renaissance on target in terms of budget, timelines, and scope."

DEVELOPMENT APPROACH AND IMPLEMENTATION TIMETABLE

Project Renaissance included a Sun Services dedicated project manager, who provided project management from inception to completion. The project manager worked with Chowdhuri to coordinate the activities of all participants — including the eBusiness and ICT groups and the various technology vendors. As part of the process, key implementation milestones were established to monitor progress in a sequential manner. Weekly meetings took place, and weekly reports were issued to help keep the project on track. Any milestone delays were identified early in the escalation process, and actions were taken to address them.

An iterative, sequential approach served as the basis for architecture design and then implementation. It included use cases for the development of business logic addressing specific business drivers. In particular, project deliverables were broken into manageable "chunks" that helped speed time to market while reducing development risks. Sun Services drew on the SunTone Architecture Methodology for architectural direction as well as project management and development best practices.

The team from Philips, in conjunction with Sun and iForce Partners Enteka, Isomorphic, eVelopers, and Netegrity, began work on Project Renaissance in July 2002. The initial two phases of the project focused on analysis, design, and prototyping and then systems, infrastructure, and operational processes. The latter three phases involved a phased migration of the portal applications. In addition to the project manager, Sun Services supplied Java technology and Sun ONE architects, who worked alongside the ICT team and consultants from Enteka, eVelopers, Isomorphic, and Netegrity. The eBusiness group for the semiconductors division was responsible for defining the functional and business requirements of the applications.

The eBusiness and ICT teams identified 24 different portal applications for migration. During the first two phases of Project Renaissance, they conducted an in-depth analysis of the applications that revolved around business and end-user requirements and determined that some could be eliminated (end of life) while others could be consolidated. The result was the consolidation of the portal environment from 24 applications to 14 applications. As part of this process, the teams also identified applications that would be migrated to the common architecture during the three-phased migration deployment.

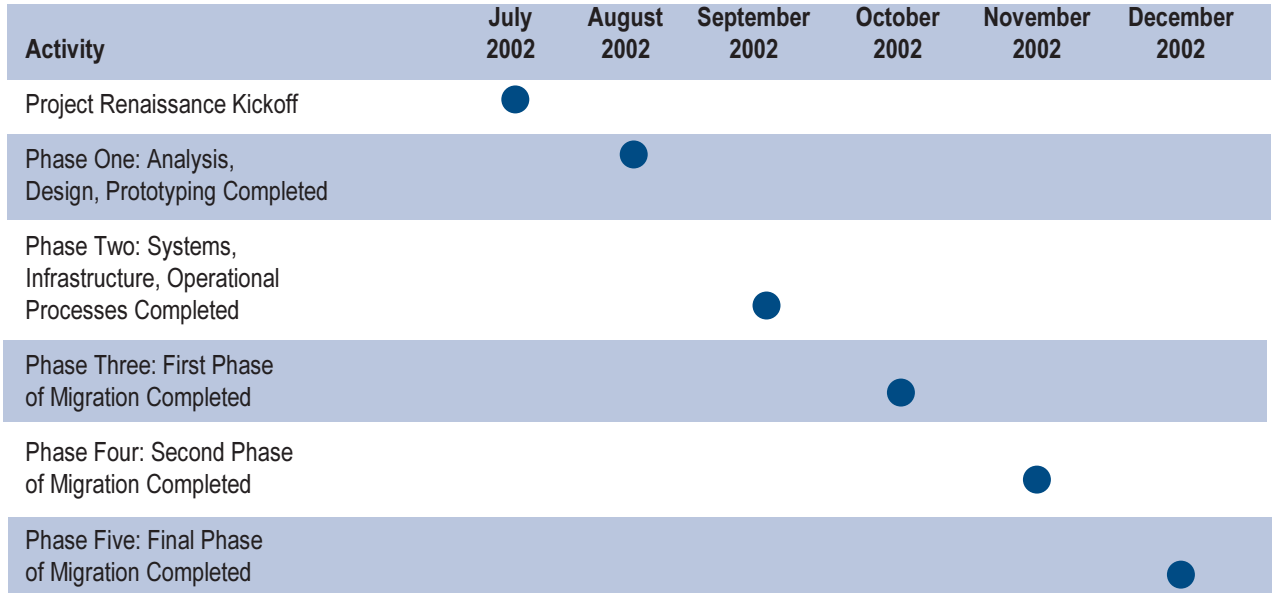
Among other responsibilities, Chowdhuri and Sun Services coordinated the activities of third-party product vendors such as Oracle, Isomorphic, and Netegrity in upgrading their products to the most recent releases. Enteka provided assistance to determine system and network configurations, including security firewalls, switches, routers, and load balancers. eVelopers and Isomorphic provided migration and application development assistance to the Philips ICT team.

The first phase was completed in late August and the second in late September/early October. Somewhat concurrent with the first two phases of the project, the three-phased migration rollout started in early August. The first and second phases of the migration (third and fourth phases of Project Renaissance) were completed and deployed in production in mid-October and at the end of November, respectively. Final rollout of the next-generation extranet portal took place in mid-December.

Java and Sun ONE architects from Sun Services worked with the Philips ICT team, providing overarching architectural direction and mentoring in development best practices, such as usage of the J2EE Patterns Catalog and reuse of architectural frameworks and design patterns. The result was targeted not only at providing the Philips team with the necessary tools to manage its extranet portal but also at facilitating further application development to meet future business drivers.

During the initial two phases of Project Renaissance, the project team designed and implemented development, QA, staging, and production environments, including a version control system, tracking system, and various support subsystems. Establishment of this operational environment helped ensure that the three-phased migration — as well as future development and changes to the portal applications — was void of quality and time-delay issues; each of the migrated applications were tested before being moved into the production environment. This was particularly important because the migrated applications would need to seamlessly integrate with existing applications that were slated for subsequent migrations during the project.

Figure 2: Project Renaissance Implementation Timetable



Source: IDC, 2003

APPLICATION AND PLATFORM ARCHITECTURE

"Project Renaissance gives us an application platform for the long term. The common services-based architecture is highly adaptable and flexible, providing us with a extranet portal framework that will last for years to come. We will not need to overhaul our application architecture as new business requirements arise."

– **Arunabh Chowdhuri, Technical Lead, eBusiness Technology, Philips: Semiconductors Division**

The common portal architecture is built upon a services-driven network architecture design that the semiconductors unit and Sun had deployed in 2000. The different services for each of the portal applications are broken into different tiers to promote quality-of-service requirements. In particular, because presentation, application, and data logic are grouped into separate tiers, changes to presentation logic do not necessitate changes to application logic. This configuration promotes faster development cycles because architectural modifications are virtually eliminated and coding changes are dramatically reduced. Development can also occur concurrently on two or more tiers, something not possible with a monolithic design. In addition to flexibility and adaptability, other quality-of-service requirements such as security, scalability, availability, and manageability are promoted by the architecture design.

The services-driven network architecture for the extranet portal is broken into the following tiers: client, presentation, application, data, and legacy. The application tier consists of business logic as well as network identity management. A Cisco PIX 500 Series Firewall is situated between the client and presentation tiers for security management. Overall, the new common architecture consists of 14 different applications residing on 11 Sun Enterprise servers running the Solaris 8 Operating Environment. Philips' decision to end-of-life and consolidate its extranet portal applications allowed it to reduce its server platform from 13 to 11 at its semiconductors division.

CLIENT TIER

The client tier is responsible for supporting all end-user interaction, including the delivery of user data such as displays or reports as well as transmission of user requests and user-supplied data to the presentation tier. The client tier interfaces exclusively with the presentation tier and currently supports Web browsers and Web application programs.

PRESENTATION TIER

"Our very disparate amalgamation of end users, as the extranet portal brings together a number of different parties, requires a very sophisticated network identity management interface. Prior to Project Renaissance, with the assistance of Sun [Services] and Netegrity, we were able to build an architectural framework — combining Sun ONE Directory Server and Netegrity SiteMinder — that provides us with a highly personalized, secure network identity management environment."

– **Bill Roeder, Director of Worldwide eBusiness Operations, Philips: Semiconductors Division**

The presentation tier is powered by Sun ONE Web Server residing on Sun Enterprise 220R servers running the Solaris 8 Operating Environment. The presentation tier is made up of presentation logic that serves as a conduit between the application tier and the client tier. Key components include JavaServer Pages (JSP pages), which consist of more than 3,000 templates used to display content on the client tier, and Java servlets, which route requests, queries, and data submitted by end users on the client tier to the appropriate business logic in the application tier. The J2EE technology components in the presentation tier allow Philips to integrate new end-user requirements by simply creating new JSP pages and, as new applications are added, Java servlets for handling new application services. These J2EE technology components draw on existing frameworks and design patterns, thus facilitating faster time to market.

Isomorphic SmartClient presentation server resides on Sun Enterprise 220R servers running the Solaris 8 Operating Environment. Because Isomorphic SmartClient provides productivity and functionality enhancements by spanning the

client tier, the presentation tier, and the application tier, Philips is able to deliver highly interactive applications and services to end users over standard Web browsers — something typically possible only through desktop applications. Consultants from Isomorphic assisted in the migration and integration of Isomorphic SmartClient into the overall architecture of Project Renaissance.

APPLICATION TIER

"Sun ONE Application Server is an integral piece of our extranet services architecture, providing us with a robust and highly flexible application platform. We are a long-term user of Sun ONE Application Server, and its various transactional services are core to the services we can offer our customers."

– Bill Roeder, Director of Worldwide eBusiness, Philips: Semiconductors Division

The application tier consists of business logic powered by Sun ONE Application Server residing on Sun Enterprise 420R servers running the Solaris 8 Operating Environment and network identity services powered by Sun ONE Directory Server and Netegrity SiteMinder residing on Sun Enterprise 220R servers running the Solaris 8 Operating Environment. For network identity management, Sun and Netegrity consultants worked with Philips in 2000 to design role- and policy-based protocols. Enteka helped with architectural configuration of Java Naming and Directory Interface (JNDI) technology. JNDI technology is an integral component of the solution, in that the extranet portal must present a highly customized interface for end users while promoting a secure-rich environment. Network identity management encompasses each individual user, not simply each particular customer, distributor, or employee.

J2EE technology support within Sun ONE Application Server is at the core of the business logic functions within the application tier. Sun consultants worked with Philips to identify and design approximately 12 Enterprise JavaBeans (EJB) technology components that handle various transactional services such as automated status, design win registration, and much more. The architecture surrounding the EJB technology components is grouped into frameworks that can be reused as additional business logic components that can accommodate new business rules and application services as they are added. Multiple end users are able to work and communicate using data and documentation from the data and legacy tiers in disparate formats using XML.

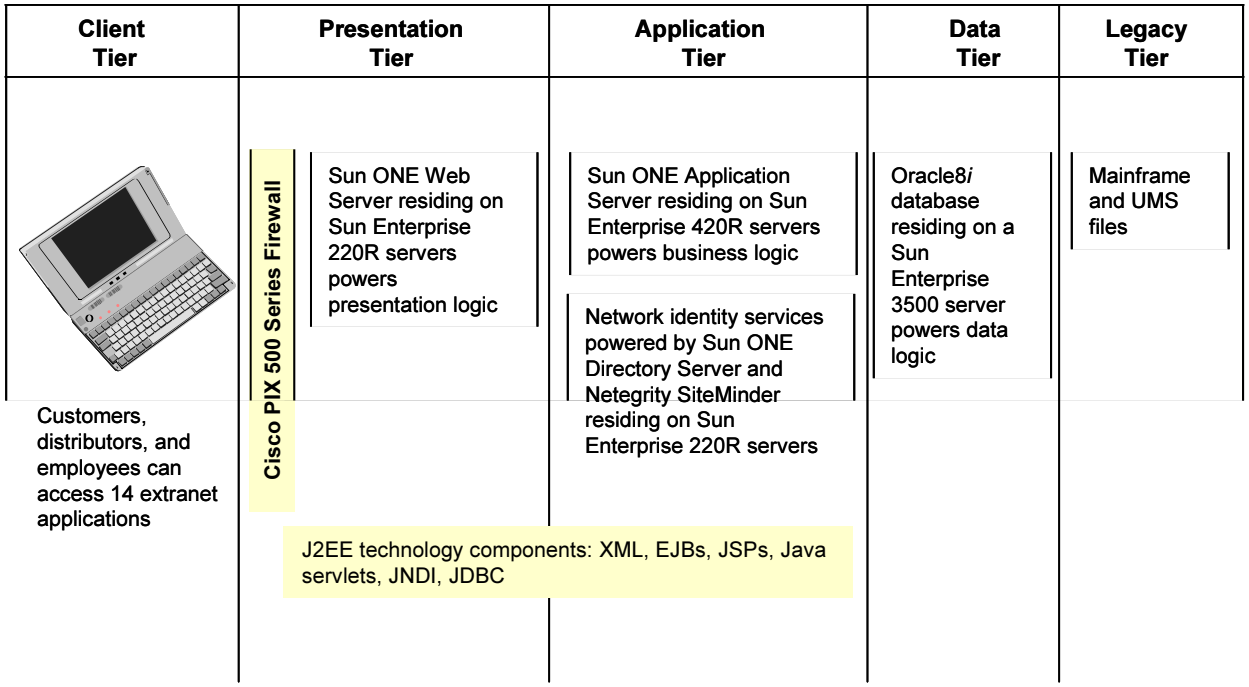
DATA TIER

The data tier is powered by an Oracle8*i* database residing on a Sun Enterprise 3500 server running the Solaris 8 Operating Environment. Data communication with the application tier is facilitated by Java Database Connectivity (JDBC) technology. Its caching mechanisms allow for more frequent requests and data transactions, providing load balancing and failover support that promotes enhanced performance. Chowdhuri notes, "Our upgrade to Oracle8*i* database, in conjunction with the upgrades to the Sun ONE software, Netegrity [SiteMinder], the Solaris Operating Environment, and Isomorphic [SmartClient], provides us with enhanced functionality and performance for the extranet portal."

LEGACY TIER

The extranet portal relies on data and transactional engines in the legacy, back-end tier. Integration with the legacy tier, which runs on mainframe systems and consists of UMS files, is facilitated through the EJB technology components and built-in connectors in Sun ONE Application Server.

Figure 3: Project Renaissance Application Architecture



Source: IDC, 2003

"We immediately recognized that Sun was an excellent choice to guide us in adopting industrywide best practices. Sun consultants have a strong understanding of the best approach for everything from change management to complex deployments. Our engagement with Sun in this technical capacity would allow us to successfully upgrade the architecture. Being able to rely on Sun's experience and expertise was a tremendous advantage."

– Arunabh Chowdhuri, Technical Lead, eBusiness Technology, Philips: Semiconductors Division

SUSTAINING HIGH AVAILABILITY, RELIABILITY

Philips consolidated all applications into its corporate datacenter in 2000. This move led to significant total cost of ownership savings and efficiencies gains. The development, QA, and staging environments are hosted in the semiconductors division's California datacenter facilities. The production environment is hosted by Philips' corporate datacenter.

Philips has a SunSpectrum Platinum agreement and taps Sun Services for ongoing skill assessments and training to help sustain high availability and reliability in its datacenter environment. Components addressed by the support and training agreements include Sun Enterprise technologies, the Solaris Operating Environment, the Sun ONE software platform, and Java technology.

In addition to providing onsite support engineers and a two-hour response team from Sun Services, the SunSpectrum Platinum agreement includes features such as SunVIP (Vendor Integration Program), which addresses software interoperability issues regarding Oracle, Isomorphic, and Netegrity; SunSolve via the Online Services Center, which contains an extensive database of bug reports, information documents, patches, and technical white papers; and SunAlert, which provides an email alert service of known hardware and software issues related to security, availability, and data loss.

BUSINESS BENEFITS

Project Renaissance was recognized as one of two top strategic ebusiness initiatives in 2002 by executive management at Philips because of the business value that it is delivering to the enterprise. The first tangible result is the 5-month time to market, which was hastened by 25% to 35% with the assistance of Sun Services and the Sun iForce Partners. This extremely aggressive timeline was achieved only because Philips and the Sun Services team adhered to strict project management and development methodologies.

The new common architecture promotes greater manageability, which is expected to result in a substantial reduction in total cost of ownership. Through the reuse of architectural frameworks and design patterns, Philips was able to reduce application code by approximately 45%. The former are expected to help Philips to speed development cycles by as much as a projected 30%. Migration to a common architecture is helping to improve system reliability and stability, with a reduction in monthly service tickets from approximately 40 to 2. The extranet portal is currently delivering in excess of 99.5% availability.

Because the new portal architecture will allow the semiconductors unit to integrate new applications and services without overhauling its underlying application infrastructure, the semiconductors leader has a highly adaptable, flexible foundation on which to build for years to come. From an architecture design standpoint, the extranet portal will scale to support more than 10,000 end users. And, ultimately, Project Renaissance ultimately translates into enhanced services for customers, distributors, and employees through the different applications that are now available through the extranet portal.

Figure 4: Business Benefits

Business Process Area	Nature of Benefit	Description or Metric
Time to Market	Faster development cycle	Met aggressive 5-month time to market an estimated 25% to 35% faster with the help of Sun and its iForce Partners.
Customer Service	Strengthened relationships; improved access for distributors, partners, and customers; enhanced system reliability	Able to provide a highly functional, secure-rich data and transaction environment to more than 10,000 distributors, customers, and employees; improved system reliability and stability, with a reduction in monthly service ticket requests from approximately 40 to 2; currently sustaining in excess of 99.5% availability.
Revenue Opportunities	Enhanced flexibility; improved competitive advantage	New consolidated, common architecture provides competitive advantage and potential means for capturing new revenue.
Operations	Enhanced adaptability, flexibility	Approximately 45% reduction in application code via reuse of architectural frameworks and design patterns expected to lead to as much as an estimated 30% faster development cycles.

Source: IDC, 2003

CASE EPILOGUE

Project Renaissance is an excellent example of an enterprise — the semiconductors division of Philips — demonstrating thought leadership in the ongoing transformation of its IT environment. It also is confirmation of how multiple entities and individuals can collaborate to develop a heterogeneous solution. Roeder and Benjamin provided overarching management direction, with Chowdhuri serving as the project catalyst.

As the primary technology vendor, Sun brought together various ISV and systems integrators to help Philips meet an extremely aggressive time to market and quality-of-service requirements. Accordingly, Project Renaissance corroborates Sun's expertise in project management, architecture design, and development practices.

03C3724SERVIC3724
July 2003
FE2007-0