

Nippon Paint Co., Ltd.

http://www.nipponpaint.co.jp/index_e.html



By implementing a Sun Java™ Enterprise System,
a 35 year-old mainframe was transformed into an open business system.

Key Highlights

Major issues

- Strengthen relationships with clients
- Strengthen connectivity with external systems
- Eliminate mainframe constraints

Solutions

- Sun Fire™ V1280 × 2
- Sun Fire V880 × 2
- Sun Fire V440 × 2
- Sun Fire V240 × 4
- Sun Fire B1600 × 2
- Sun Fire B100s × 28
- Sun Fire V10n × 2
- Sun Fire V10p × 2
- Solaris™ 9 OS
- Java
- Sun Java Enterprise System
- Oracle® Database
- Oracle E-Business Suite
- BEA WebLogic Server
- Mainframe to Open
- Sun Microsystems Finance

Sales Partner

ITOCHU TECHNO-SCIENCE CORPORATION

Integrator

CSK CORPORATION

Results

- Transformation into an open business system
- Reduction in operation cost
- Eliminated limitations in terminal placement locations and operating systems, improving operational efficiency

Introduction

Established in 1881, Nippon Paint is a pioneer in Japan's paint and coatings industry, with over 120 years of history to its credit. It was the first enterprise in Japan to successfully manufacture paint, which had previously been imported, and grew to become a leader in the industry. Recently, Nippon Paint has introduced a new type of paint called Maziora that polarizes the light it reflects, creating color variations depending upon the light and viewing angle. This new product is now being used on automobiles and many other products.

Employing some 2,152 people (as of March 31, 2004), Nippon Paint is headquartered in the Kita district of Osaka, with sales offices in Tokyo and Neyagawa (in Osaka) and eight factories in Japan. As a company with an exceptionally long history, it has a conservative image, yet it has always sought out the newest information technology to apply to its business operations, and was one of the first major companies to begin using a mainframe computer back in the 1960s. When Nippon Paint began to feel some limitations in its mainframe-based system, the company made the decision to reform its IT infrastructure. They chose a Solaris operating system with UNIX as the de facto standard, and became the first company in Japan to adopt the Sun Java Enterprise System.

Background:

New IT brought them closer to their customers, and opened up their mainframe

To find out what kind of new system Nippon Paint implemented, we went to talk to their Chief of Information System Dept, Mr. Kenichi Kambara . Nippon Paint became an early mainframe user when it acquired an IBM System 360 in 1964. They began to experience limitations with their old system. Before this current revamping, their mainframe system at the time still had a module that was designed some 30 years ago.

Nippon Paint's core business is the

manufacture and sale of various types of paints and coatings for automotive, construction, shipbuilding, metal materials, electronic equipment, manufacturing equipment, road building and residential use. Naturally, they supply paint to all the Japanese auto manufacturers. Among them, Toyota has become famous for their "kanban" system, in which logistics and procurement are under strict control. In order to further strengthen their communication and cooperation when doing business with Toyota, they wanted an IT system with this as one of the requirements. However, since Nippon Paint had conventionally sold its products

Using the Sun Java Enterprise System enabled them to “open” their mainframe

particularly good since the main system had just undergone a large-scale makeover, and it would be difficult to begin work to achieve open operation. The lack of good connections with customer companies only began to be pointed out two years before, and a directive was issued at a Managers Meeting to start developing new IT infrastructure. Eventually, eight years after the Information Planning Project was founded, the renewal project finally got off the ground.

“It was good we didn’t start building the new system right away,” explained Mr. Kambara, “because system requirements should be considered from a more long-term viewpoint.” After considerable study and research, and the gathering of a great deal of information, it was decided to create a system with a high degree of flexibility, and one that would enhance communication between Nippon Paint and its customers.

In the meantime, a new trend was developing in the IT world. Host computing was giving way to the client-server model in the shift toward distributed systems. As a

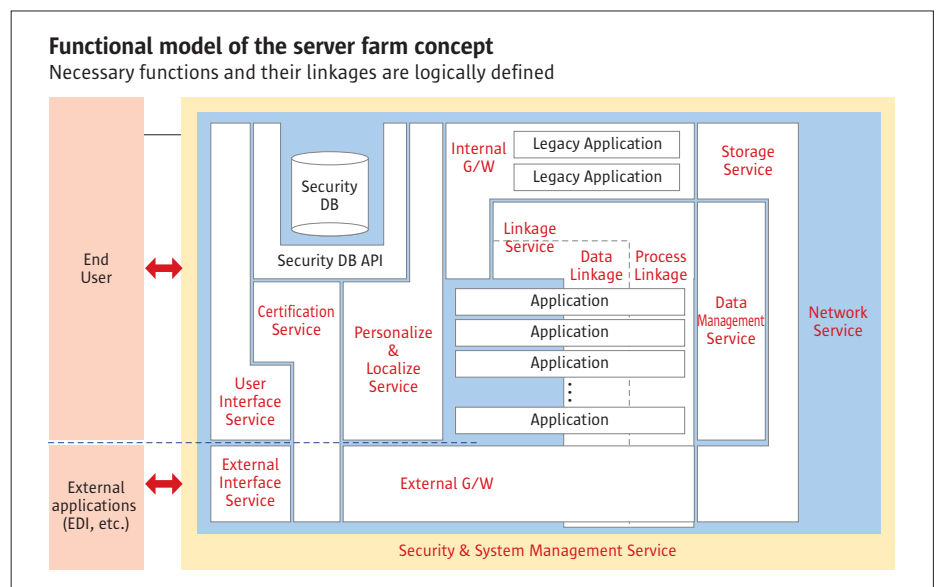
through retailers and sales companies, they had no established system to directly provide them with information. Because of this, customers obtained necessary information from dealers and sales companies. Therefore, the problem was that they did not know about information from Nippon Paint itself. For example, to confirm the stock availability of a product, they could find out about dealer or sales company inventory, but had no way of checking Nippon Paint’s inventory. The only information they had was what the dealer or sales company could give them. Since this was insufficient, some customers began inquiring directly, and this triggered the need for a new system.

Vendor Selection:
Shared functions and information sharing made the choice obvious.
Sun was chosen as the platform for the server farm.

At a management meeting, the policy of “open operation” was approved. Several members of the Information Planning Project were transferred to the Information System Dept, and work began on configuring the next-generation data system for Nippon Paint. Actually, Mr. Kambara was one of the project members, and was transferred along with them.

The timing, some ten years ago, was not

About 10 years ago, Nippon Paint started its Information Planning Project, and began studying what should be expected of a new information system. This was studied from the viewpoint of what customers outside the company needed to know. “At the time, the idea that the mainframe system should be retained was rather widespread in our Information System Dept,” recalls Mr. Kambara, “and there was little awareness of what sort of information should be supplied to the customers.” After studying requirements from this new viewpoint, “it was clear that ‘open’ would be the keyword in developing the new system.”



result of observing this development, an open system based on UNIX machines was selected. However, as Mr. Kambara explains, “We did understand that it was more than a matter of simply changing the hardware from a mainframe to UNIX machines.”

Nippon Paint also benefited from system integration partner CSK. After taking all the arguments into account, a ‘server farm’ concept was chosen for the basic architecture. When executing this ‘server farm’ concept, CSK played an important role. To learn more, we called upon CSK’s operation headquarters for western Japan, and spoke to Mr. Yoshihiro Kotera, Senior Assistant Manager of Solution Department, Nishinohon Business Division of CSK Corporation, and Mr. Masakazu Chaki, Manager of Manufacturing Systems Department, Nishinohon Business Division of CSK Corporation

“From around 2001, work began on the infrastructure concepts for the next generation,” explained Mr. Yoshihiro Kotera. “The future was the ‘server farm,’ and in this concept, the requirement specifications are defined according to function within the IT infrastructure. Just having each application operate won’t do; the functions of each infrastructure layer are thoroughly modeled, and by creating functions that share each application on the infrastructure side, you can build an infrastructure that’s more robust against changes. These infrastructure functions are offered at no charge, and we also take into account the orientation of utility computing.”

Actual construction of the new system started in 2002. “There’s little value in simply building the infrastructure,” cautions Mr. Yoshihiro Kotera. Accordingly, application development must be carried

out simultaneously. The first to be reconfigured was the logistics system, and to be compatible with that development, a scaled down version of the infrastructure section was constructed. After that, development progressed with transitioning the applications used in the mainframe, one by one, into the new infrastructure. Along with this, the extensions on the infrastructure side were carried out.

All the while, from CSK’s viewpoint, steps were taken to make sure that they would achieve the kind of IT infrastructure that Nippon Paint wanted. This was one in which user control would be maintained. The thinking behind this was that they did not want to be limited to the realm of one manufacturer. When a mainframe is used, the system is basically locked into one company. On the other hand, open architecture would enable the user to freely select the components of the infrastructure.

“There was a strong desire for the use of standard components,” relates Mr. Yoshihiro Kotera. There was great concern that if special components were used, in the future they could become insufficient or obsolete. As long as the user maintained control over the system, they can freely make replacements in the infrastructure as they became necessary. Accordingly, it was necessary to avoid specialized gear in favor of standard off-the-shelf products when constructing the system. For example, Oracle was chosen for RDB, and Solaris for UNIX, and so forth. Therefore, in the future, when different people are likely to be managing the system, when changes are made there won’t be any surprises.

“The expression ‘standard’ is just another way of saying ‘something that will be around for a long time. When setting up ready-made package applications,

depending upon the organization of the developer, it is impossible to verify that they will operate, even in the case of upgraded OS versions,” explains Mr. Masakazu Chaki “In order to hold this risk to a minimum, we make sure to select standard components.”

The thinking behind the server farm concept is that functions the system requires can be called up and shared, so the basic design policy is object-oriented. Functions that should exist in IT infrastructure are defined as objects, with clearly defined processing content and interfaces. If it is thought of in this way, even when adding changes to special functions, effects on the operation of other parts of the system will be minimized. This results in a system that is flexible in the face of changes.

When configuring the server farm concept, which is a design on the concept level, into an actual system, it is necessary to map the functions, which are elements of construction, into the product when actually configuring the required functions. In considering this process, the Sun Java Enterprise System was chosen because of the construction cost of a portal server. According to Mr. Kenichi Kambara, Sun system was already being used in Nippon Paint’s R & D Department for paint development. Because of the successful operation and good reputation of this system, the UNIX de facto standard SPARC®/Solaris would be adopted for the basic platform architecture.

Sun Added Value:

Finance solution from Sun

Sun Microsystems Finance was also in the picture, offering Nippon Paint a variety of financial services designed to control costs and stay within the company’s budget. This turned out to be a significant factor in the

choice of Sun as a vendor. As a result, payment for the cost of the launch was deferred until the following year, while out-of-budget limitations were minimized, making it possible to introduce the system sooner rather than later. In addition, another big feature was that system development would be under the control of the user.

Results:

Shorter development time for new applications, without limitations on terminal locations and OS environment.

During the course of system development work, the Sun Java Enterprise System was announced, and after looking at its merits, it was quickly decided that it could function as middleware products in the new open system. However, this created a problem because the logistics system, which was the first to be completed, was already in operation. While it was being used, it was realized that software products from another company, including messaging servers, clusters and portal servers, were needed for expansion. As the purchase and verification of various software products had already begun, a problem arose with mounting costs.

For the portal server, a Blade Server was employed because of expectations about the merits of its new technology. When the portal server was actually put into operation, though, performance was meager, and there was no data available on how much load each blade could withstand. When the performance of a portal server drops as all users attempt access, there is an adverse effect on business operations, creating a significant problem. As a portal server, distributing the work across several blades was thought to be good, although it was difficult to accurately predict

beforehand. What's more, there was another problem. "Portal server software from any vendor is still rather expensive," Mr. Kenichi Kambara explained. This made the purchase impossible in light of budgetary limitations. "Since there was no data, we had no idea how many servers we would need, so we couldn't determine how many licenses to purchase."

After actual operation was underway, even though they knew there was insufficient processing power, they ended up purchasing additional portal servers, pushing them over budget. It was at this point that the Sun Java Enterprise System appeared on the market. The licensing fees for this server software solution are based on the number of employees, with no limitations on which software is used on how many servers. Because of this, there was no worry about cost, and depending on the company's requirements, additional servers could be freely added as necessary. "This made everything a lot easier for us," said Mr. Kenichi Kambara knowingly. This high cost-performance turned out to be their reason for choosing a Sun Java Enterprise system.

Regarding the Sun Java Enterprise System, Mr. Yoshihiro Kotera explained that "Sun's software business is like that of a materials provider. Other companies sell portals as discrete products, like 'this is a portal server, this is a database.' Since Sun takes the position of 'materials' it makes the product easier to bundle them up and use. So when they present the Sun Java Enterprise System as a set of materials, it represents a large merit to users."

Users also have free choice when introducing the system. From the idea of 'standard, off-the-shelf components,' even a single operation monitoring system, for

instance, is designed to function only with standardized techniques like shell script. So when you have to move to a data center, you won't need to bring anything with you. This is their policy, and it absolutely ensures that the users are free to use alternatives, and is one measure that allows users to develop their own systems.

While Nippon Paint is still in the middle of carrying out their infrastructure renewal project, at this stage they have already begun to realize a large measure of success. Under the previous system which operated on a mainframe, there were limitations in connectivity with the outside, and it was difficult to respond to requests from users inside the company. For example, a request such as "please make it possible to output these types of ledgers" coming from a job site would take about two months to develop and fulfill. Remarkably, this sort of situation was considered normal.

Nevertheless, Nippon Paint aimed to make improvements in service, vastly improve connectivity, and create a system that was highly flexible to changes by completely replacing the existing mainframe system with an entirely new IT infrastructure. The first step was to concentrate on innovation in the infrastructure itself. Although there were no major changes to the operation logic of the system, changes in the IT infrastructure resulted in a number of merits. For example, since client applications became Web-based, there were no longer any limitations on the location of user terminals and the OS environment. Sun will continue to support Nippon Paint in using the Unix de facto standard SPARC/Solaris and Sun Java Enterprise System to promote open architecture in their mainframe system.

The Sun Java Enterprise System

In October of 2003, Sun integrated over 200 types of software products and related services into new Sun Java System packages.

- Sun Java Enterprise System
- Sun Java Desktop System
- Sun Java Mobility System
- Sun Java Studio
- Sun Java Card System

Among them, the Sun Java Enterprise System functions as the core system for business operations. Specifically, this package contains various types of middleware products as software, sold together as one package. A major feature of the Sun Java Enterprise System is that the software components it contains have been optimized to function well together, with regularly scheduled upgrades. These upgrades are released simultaneously, with the compatibility of each component verified, and then given an extensive battery of tests before shipment to ensure



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that when they are used together there will be no difficulties. This approach dramatically reduces the burden of verification on the user side. Sun also gives thorough consideration to the issue of licensing. Fees for the Sun Java Enterprise System are not based on the number of servers or processors, but rather on the number of employees in the customer's business. For example, for each employee the yearly fee is 11,000 yen (about US\$100). So, for a business with 100 employees, it comes to 1,100,000 yen, or 11 million yen for 1,000 employees. Therefore, even when system usage increases and servers are added, the cost is fixed despite changes to

the operating environment, greatly simplifying cost management for the customer. In most cases, the cost is far lower than the conventional method of contracting for separate licenses.

Drawing attention for its unique pricing structure, the Sun Java Enterprise System has already enjoyed tremendous success since its introduction just last year. In Japan, the very first user was Nippon Paint, a company that for half a century has always been ahead of its time in adopting new information technology.

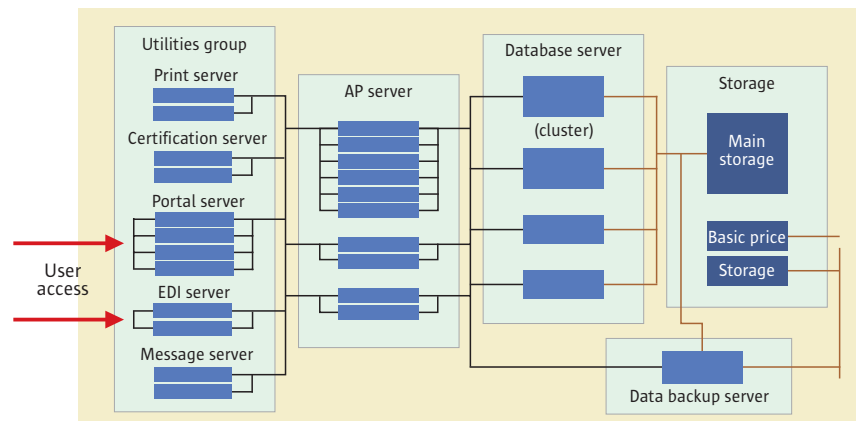
This article is an edited and abridged version of the article "Industry & Enterprise" which appeared in the July, 2004 issue of Open Enterprise Magazine, a monthly publication.



The powerful Sun servers in operation at the Data Center are installed in an easy-to-use rack pre-wired for high-speed network operation.

Using layered construction, nearly all servers are backed up

Use of the Solaris IPMP function is backed up, even on the network



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