

Orange Enhances Service Delivery with Jini™ Technology

Solution Profile



Key Highlights

Company

- Orange

Industry

- Wirefree Communications

Applications

- Orange API (Application Programming Interface)

Hardware/Software

- High performance Sun™ solution for development/production of Orange's Web services platform
- Sun Solaris™ Operating Environment
- Java™ 2 Standard Edition (J2SE) technology
- Jini™ technology

Key Business Results

- The ability to deliver innovative new services and to provide these services on a 24x7 basis
- The implementation of the Orange API has increased their Average Revenue Per User (ARPU) through the introduction of a number of new revenue-generating customer services.
- The Web services offered by Orange's third party partners generate up to 50,000 calls per day.
- Being able to update the platform with new services—without disrupting existing services—is a major benefit to Orange.
- Jini technology is enabling Orange to respond to market demands much more quickly, and to increase quality of service.
- Jini technology is simple and easy to use—leading to reduced development time, simplified system management and reduced administration time and costs.
- Jini technology gives Orange the flexibility to choose from a wide range of development partners, without being locked into proprietary technologies.

Orange is one of the world's most advanced and fastest-growing mobile communications companies, with 13.3 million customers in the UK and over 44 million customers worldwide. Since entering the UK market in 1994, Orange has grown to become the number one operator in the UK. Its network is one of the largest and the fastest-growing digital networks in the UK, and provides coverage to 99% of the population.

Orange launched its network with a simple vision—'Orange makes a difference to people's lives by creating simple and innovative services that help people to communicate and interact better.' Since 1994, Orange has been delivering this vision to its customers. The company's aim has always been to be the first for customer service, innovation, quality and choice, and its success has led to a whole host of 'firsts'—including being the first company to introduce 'per second' billing.

So in order to maintain the highest levels of customer satisfaction, Orange regularly introduces new services—from real-time sporting updates to mobile e-mail—designed to help make life easier for its customers at home, work, or wherever they happen to be.

Enabling Orange to deliver services quickly and efficiently

To provide its customers with the widest range of services, Orange forms partnerships with third party service developers, and deploys state-of-the-art technologies to enable these partners to deliver their products and services to Orange customers.

Key to the successful delivery of these products and services is the ability to add or remove services rapidly—and without causing disruption to the services that are already up and running. To do this, Orange has developed a Web services platform—called the Orange API (Application Programming Interface)—which enables third party developers to interact with Orange resources and deliver their services to Orange customers. The latest version of the Orange API—API 2—incorporates Sun Microsystems™ Jini™ technology, and has created much interest as one of the first implementations of Jini technology in this type of Web services environment, whereby a service such as a function or API call is available over the Web. With API 2, Orange offers authorised partner organisations a number of Web services, including the ability to find the current location of a mobile phone and the ability to send a text or multimedia message.

“Sun has given the project its full support — acting as a trusted technology advisor, and providing expertise and assistance when required.”

— Madhu Surendranath, Third Party Team Manager, Orange

Sun’s Jini technology is an open Java™ technology-based architecture that enables organisations to build network-centric systems that are highly adaptive to change — known as ‘adaptive networks’ — to allow services to be added, upgraded or removed dynamically, whilst the network remains up and running. Additional advantages of Jini technology lie in its simplicity and ease of use, which lead to reduced development time, as well as simplified system management and reduced administration time and costs.

Orange API provides ‘behind the scenes’ support

Madhu Surendranath, Orange’s Third Party Team Manager, discusses the development of the Orange API, and why it is so important to the company: “The Orange API provides behind-the-scenes support for the services that Orange users access via their phones. These services could be games, news updates, the latest share prices or the latest ringtones. Most of these services are provided by third parties who need to have access to necessary data, and to be able to tailor their service to reflect the Orange ‘look and feel’. The API therefore provides a standard interface that allows third party developers to get real-time

access to Orange’s systems, such as telecoms network resources or data sources, whilst ensuring that suitable security and authorisation procedures are in place.

“The API was first developed in 2001, when we designed a very basic Web services platform to allow third parties to connect in. This early version of the API made use of Sun’s best-of-breed Java™ 2 Standard Edition (J2SE™) technology, which was already a common commodity item within Orange’s technical infrastructure, such as our LDAP directory service. And, as the API services were designed and implemented as servlets, we used our SunONE Web server as the servlet engine.

“In pre-API days, interfaces between Orange and third parties would have been via a leased line and an agreed ad hoc interface, so the new API brought many advantages, such as allowing us to share a common environment via a standard interface.

“However, as the API became more heavily used, it was apparent that we needed to be able to add and remove services in a more controlled and less disruptive fashion. The original platform was very static, so when we wanted to introduce a new service, we had to take part of the platform down, update it, and then bring that part of the platform back

up again. We needed the ability to introduce services as rapidly as possible, given that, in the future, some of these services might only be applicable for a few days, or even hours. So we needed a technology that would allow us to add or remove services dynamically — something that would enable us to maintain constant uptime.”

Dynamic deployment of services

Using Jini technology, Orange has been able to modify the original Java-based API architecture to provide a very lightweight, distributed Application Server environment. Orange wanted a more lightweight implementation of the architecture, which would enable any item or component to be replaced, quickly and easily, as the API evolved. Jini technology allows the dynamic, or the ‘hot’, deployment of services, because it assembles systems ‘on-the-fly’, so that individual services can be automatically brought into the system as they are needed. This allows any service to be added, removed, substituted, improved or modified right up until the moment it’s needed, when it can easily be incorporated into the live system. Changes can be made very quickly and transparently, with no interruption to the services already running.

“Using a combination of some of Sun’s standard Jini reference implementations, together with some that we’ve built ourselves, we’ve developed a mechanism within the Orange API 2 to deliver services into the platform, and then control these services,” continues Madhu. “So, Jini technology is allowing third parties to connect in and to interact with Orange’s systems. And because

it's a truly open architecture, Jini technology gives us the flexibility to choose from a wide range of development partners, without being locked into proprietary technologies.

"Sun has given the project its full support — acting as a trusted technology advisor, and providing expertise and assistance when required. We've also attended the 'Programming Distributed Systems with Jini technology' training course at Sun; and my team were full of praise — they were very impressed with the quality of Sun's training."

Jini technology is truly innovative

The ability to deliver innovative new services and to provide these services on a 24x7 basis is important to Orange. The implementation of the API 2 has enabled Orange to increase its average revenue per user (ARPU) through the introduction of a number of new revenue-generating customer services — with the Web services offered by Orange's partners generating up to 50,000 calls per day. Being able to update the platform with new services, without needing to disrupt existing services, is

proving to be of major benefit to Orange.

"Jini technology is an innovative technology — enabling us to respond to market demands much more quickly, and provide our customers with the highest quality of service at all times," Madhu adds.

"Indeed, the API 2 is crucial to driving revenue into the business. Once a new service is up and running, the third party owner of that service can use the API to gain information about Orange customers, and to validate whether the customer is eligible to use the service, such as checking that the customer has enough credit. The developers of some of the services that we've introduced recently, such as new ringtones and the Java games download service, are already using the API 2 in this way, so the API 2 has become key to the way that these services actually operate.

"The Jini technology-enhanced API 2, and the version that preceded it, were both developed and run on the Sun/Solaris™ platform, and we're a true Java technology-centric team. I've been a Java developer for the last 6 or 7 years, and my team are all experienced in Java

technology, so when it came to enhancing the API, we didn't really consider anything else.

We've always had good experiences working in a Sun environment with Java technologies, and Jini technology was a more natural progression of our plans.

"The Jini technology-enhanced API 2 is now core to our developer programme. Our third party developer partners have a standard interface through which they can access necessary Orange data quickly and easily, and deploy and manage new services rapidly. And because Jini technology is so easy to use, it helps to shorten the development cycle, and significantly reduce time to market.

"The Orange API 2 is the first deployment of Jini technology within Orange. Jini technology has proved so far to be reliable and highly functional. It has succeeded in meeting all our requirements."