Motorola Netopia® Broadband Server (NBBS)
O_2 Germany

TECHNICAL CASE STUDY

INDUSTRY/MARKET
Integrated communications, including mobile and fixed voice and data, throughout Germany.

CUSTOMER PROFILE
O2, a Telefónica company, is an established mobile service and integrated communications provider in Europe offering mobile GSM phone, fixed DSL data, and Voice-over-IP (VoIP) services. O2 has more than 38 million customers across Europe, 11 million in Germany.

THE CHALLENGE
To enable O_2's broadband data and VoIP network with a system that provides CPE auto-configuration, dynamic service provisioning, centralized support for firmware image management, status, and performance monitoring, and diagnostics for O_2's network operations and customer support staff.

THE SOLUTION
Motorola's NBBS and Motorola Professional Services for system integration.

THE BENEFITS
Virtual elimination of costly truck rolls for service initialization and customer support, and cost reduction through operational efficiencies from centralized management of remote CPE.

Motorola's NBBS Enables Broadband Service Assurance for Germany's Premier Provider of Converged Communication Services

When O_2 Germany decided to launch a new business by entering the high-speed DSL data and VoIP telephony market, two of their pre-eminent requirements were that the customer premises equipment (CPE) on their network must be easy for customers to install and easy for O_2 to manage.

Ease of installation would be determined by how much user intervention, or "touch," would be necessary during the CPE set-up process. A "zero-touch" set-up experience for their customers was O_2's ultimate goal. Ease of management would be determined by O_2's requirements for centralized CPE management from their network operations center, including the ability to remotely update firmware, manage configurations, enable new services, and provide dynamic customer support.

O_2 set an ambitious schedule. In less than one year, O_2 wanted to go from concept to commercial launch of a new converged communications service comprised of mobile communications, high-speed DSL Internet access, and VoIP. There would be no compromises on milestones or planned services.

To convert ambition into a business, O_2 needed not only a technical solution for their service requirements, but also a solutions provider who would take responsibility for O_2's unique requirements from implementation through service launch.

Motorola delivers the product, reducing risk and time to market for O_2

"As a company we were very experienced in the mobile communications arena, but we wanted to enter the broadband market in a very short timeframe with the best products," recalls Peter Hlawna, manager of user equipment engineering for O_2 Germany. "O_2's product marketing team wanted a zero-touch solution for our customers. The network operations team wanted a platform that provided extensive flexibility for CPE management. Motorola's Netopia® Broadband Server (NBBS) was a market-proven product that contained almost the complete functionality we needed. And Motorola's deep experience in this market added a major comfort factor. For implementation and integration services we used Motorola's Professional Services Organization, who proved to be reliable throughout the project. The team's attitude was always, 'How can we make it happen?' They were essential in realizing our vision."

> "Right from the proof of concept it was clear to us that NBBS was the high-quality product we needed. From day one Motorola demonstrated total flexibility to support our needs. Motorola's commitment to us and to delivering results gave us confidence that we could launch our service at the quality levels we required."
>
> Stergios Tsiolas,
> ACS Technical Lead – Service Engineering,
> O_2 Germany

Motorola's NBBS is a service management platform that provides centralized service and device management for IP-based CPE, including broadband gateways, modems, VoIP phones, webcams, and set-tops. Developed to the DSL Forum's TR-069 specification, NBBS allows service providers like O_2 to automate service provisioning and provides them with a comprehensive suite of device management features. Motorola offers a range of carrier-class software solutions to assure the delivery of broadband services from the gateway to the desktop and beyond.

Cost-saving simplicity, enabled by NBBS

NBBS plays a central role in the cost-effective configuration and ongoing management of O_2's CPE. When an O_2 subscriber connects their router for the first time, NBBS will take over and remotely manage a seamless initialization and configuration of the CPE to establish the broadband connection and initialize the VoIP lines. All of this is done without the need for any subscriber intervention.

Hlawna explains the associated benefits. "In the highly competitive market for broadband subscribers, O_2 Germany is the first to deliver a zero-touch installation experience to customers in our market. This feature of NBBS virtually eliminates costly truck rolls."

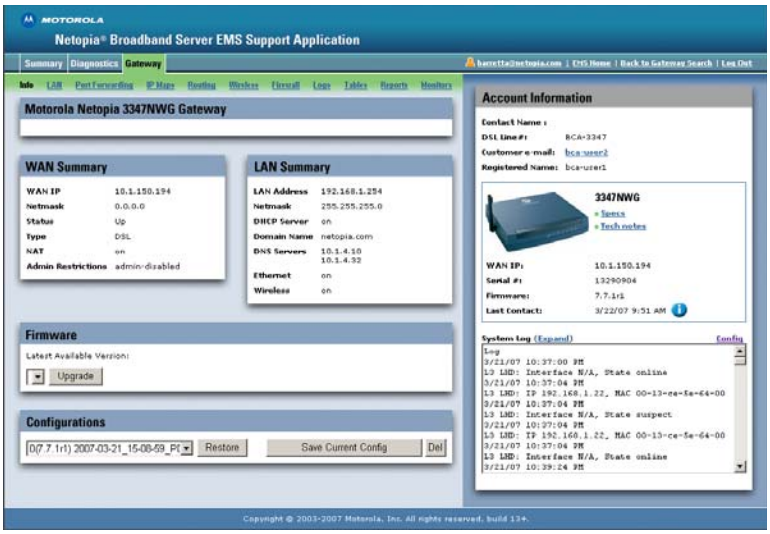
"With NBBS in place we see the additional benefits of simplicity," he continues. "After initial deployment, O_2 can control the CPE, a domain that was previously impossible to manage remotely. Now we have the benefit of knowing exactly which equipment is out there, and if there is a problem we can quickly identify and test it. NBBS allows us to manage the firmware in the CPE. Among other things, we can ensure the appropriate version has been deployed. This dramatically streamlines operations and reduces costs."

NBBS technology: based on a commitment to standards and innovation

O_2 selected the NBBS platform for its support of industry standards, flexibility, scalability, robust architecture, and ability to support CPE from multiple vendors.

Support for industry standards, including DSL Forum specifications TR-069, TR-104, TR-098, and others, was a critical requirement for O_2's platform of choice. Adherence to such standards offered O_2 the flexibility to more easily support CPE and other IP devices from multiple vendors.

Stergios Tsiolas, ACS technical lead, Service Engineering for O_2 Germany, further elaborates on the benefits of O_2's choice. "TR-069 and other specifications of the DSL Forum are important to us. We are extremely pleased with how extensively NBBS incorporated our requirements for standards support. We were impressed with Motorola's expertise with these specifications and their long-standing, active participation in the DSL Forum. Motorola demonstrated that they stay on top of standards development and are adept at incorporating related specifications into NBBS."



Third-party CPE is being supported by NBBS on O_2's network. Was this ever a concern for O_2? "Yes," states Tsiolas, "but the NBBS platform has accommodated our needs for interoperability with the CPE we're using. Motorola proved to be a significant benefit for O_2 in terms of support for the third-party CPE."

The flexibility of NBBS allows new standards to be easily incorporated without the need for extensive redevelopment. In this regard, Tsiolas refers to NBBS's unique scripting language as one example for the ease of ongoing management that NBBS enables. "NBBS's scripting feature is important because as we start to service customers and the offering evolves, we know we'll need a tool that can facilitate service changes without requiring modifications to the core software," he says. "If we had to change the core software, we would have to do extensive testing. The NBBS scripting language allows us to change features on the upper layer of the stack, while avoiding all the work and heartache associated with making changes to core functionality."

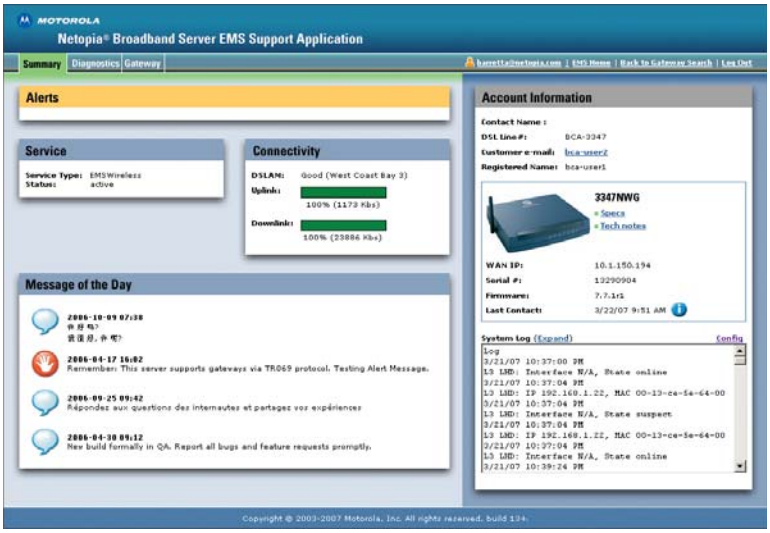
Integration with O_2's back-end operational support systems for provisioning, administration, maintenance, and billing was also a key requirement. For this, NBBS's northbound interface, or NBI, was a feature that O_2 found noteworthy. "Motorola's NBI impressed me very much," Tsiolas recalls. "From a full systems perspective, it was very easy to integrate our back-end systems using the NBI. For example, later in the project we realized we had a requirement for an LDAP interface, critical for interfacing to our OSS. The NBI accommodated this requirement very well and thus helped enable an automated CPE provisioning process."

NBBS speeds positive results for O_2's high-speed broadband services

Tsiolas concludes, "It was clear that only Motorola could deliver the high-quality product we needed. From day one Motorola demonstrated total flexibility to support our needs. Motorola's commitment to us and to delivering results gave us confidence that we could launch our service at the quality levels we required. It's been a remarkable collaboration, every step of the way."

> "Motorola's deep experience in this market was a major comfort factor. NBBS is a robust, market-proven product with the flexibility to adapt to our business needs. The strength of the NBBS architecture and Motorola's reliability made us realize that our converged communications offering is scalable enough to serve millions of subscribers and positions O_2 for market leadership today and into the future."
>
> Peter Hlawna,
> Manager, User Equipment Engineering
> O_2 Germany

"O_2's unique offering and associated value proposition are new to the German Market," says Hlawna. "First, it is a complete replacement for fixed-line voice service, including emergency numbers. And second, the zero-touch capability makes CPE installation incredibly easy for consumers and small businesses. If you know where your phone jack is, you can quickly be up and running with our DSL/VoIP service."



Although technology was at the top of Hlawna's list of project risks, he said the quality of Motorola's solution quickly built his confidence, allowing him to turn his attention to unanticipated challenges. "It has been a wild ride, starting at zero and arriving at a zero-touch CPE solution in just one year," he says, concluding, "The strength of the NBBS architecture and Motorola's reliability made us realize that our converged communications offering is scalable enough to serve millions of subscribers and positions O_2 for market leadership today and into the future."

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