



smartner

## Smartner Implements Vodafone Ireland's EmailAnywhere

Version 1.0; January 2003

# Java

## Legal Notice

Copyright © Nokia Corporation 2003. All rights reserved.

Reproduction, transfer, distribution, or storage of part or all of the contents in this document in any form without the prior written permission of Nokia is prohibited.

Nokia is a registered trademark of Nokia Corporation. Sun, Java, and J2ME are trademarks of Sun Microsystems. Symbian is a trademark of Symbian, Ltd. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

Nokia operates a policy of continuous development. Nokia reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Under no circumstances shall Nokia be responsible for any loss of data or income or any special, incidental, consequential, or indirect damages howsoever caused.

The contents of this document are provided "as is." Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy, reliability, or contents of this document. Nokia reserves the right to revise this document or withdraw it at any time without prior notice.

# Smartner Implements Vodafone Ireland's EmailAnywhere

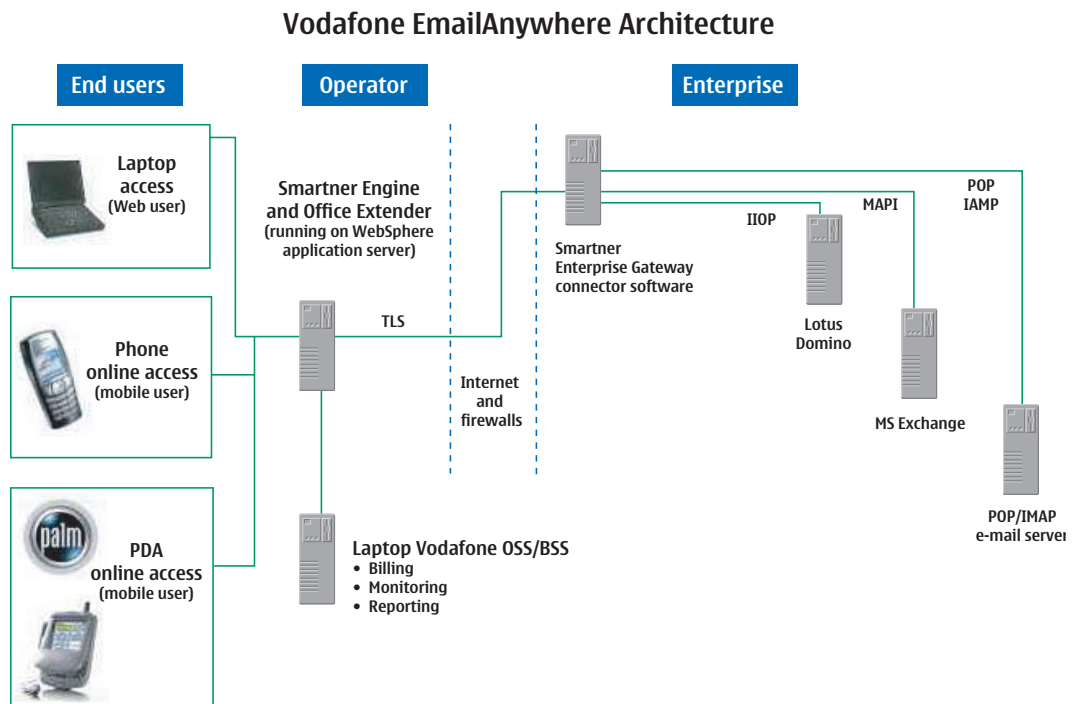
Version 1.0; January 2003

Vodafone Ireland's implementation of remote groupware access, a service called EmailAnywhere introduced by the carrier in November 2002, solved the complex problem of matching various back-end enterprise systems securely with many front-end devices. Vodafone enlisted Smartner Information Systems Ltd. of Helsinki to tackle the technical problems, and IBM to provide local support. After Smartner won the Vodafone contract over eight competitors, the company encountered a long list of challenges to resolve, ranging from Vodafone's need for local support (solved by bringing in partner IBM) to technical snags that required assistance from Forum Nokia.

## Application Summary

Application	Remote access from wireless phones and PDAs to enterprise groupware, e-mail, and calendar applications
Developer	Smartner Information Systems, with support from IBM Global Solutions and Nokia
Tools used	Nokia Mobile Internet Toolkit
Primary revenue source	Vodafone receives user subscription fees for operator-based mobile e-mail and calendar service; Vodafone pays Smartner a licensing fee based on the total number of users
Development environment	Java
Participating carriers	Vodafone Ireland
Mobile technologies	Browser-based online access to groupware (MS Exchange, Lotus Domino) and e-mail (POP/IMAP) servers in the enterprise network. As representation, it is based on WAP, HTML, and SMS. Optimized to use GSM Data, GPRS, or WCDMA as a bearer, but works over any mobile or fixed network
Device platforms	All major mobile devices available in Irish market, including those from Nokia, Sony Ericsson, Motorola, and Siemens; also Palm and Compaq iPaq PDAs
Web servers	IBM HTTP Server (as a part of IBM WebSphere Application Server)
Application servers	IBM WebSphere Application Server, running on Sun Fire 280R hardware
Database servers	Oracle 8i, running on Sun Fire 280R hardware
Hosting company	Vodafone Ireland

## Architectural Diagram



Smartner's Office Extender runs on servers at the mobile operator's facility to connect a wide variety of devices, including Nokia mobile devices and Symbian OS mobile phones to the user's corporate e-mail systems.

## Business Discussion

Smartner's Office Extender is an operator-based service that allows an enterprise to give its mobile-device users remote access to their enterprise-based e-mail and calendaring systems. Smartner resells the service through mobile operators, which host the Smartner software and customize it with their brand interface. Vodafone also learned that Smartner's service was already being offered by several European mobile operators, including Swisscom Mobile in Switzerland, Radiolinja in Finland, and BLU Telecomunicazione in Italy.

After Smartner won the Vodafone contract, Smartner developers turned to its partner of many years, Forum Nokia. Smartner developers downloaded the latest version of Nokia Mobile Internet Toolkit (NMIT) with XHTML support and simulators for newly launched mobile devices. Nokia also provided some mobile devices that had not yet been introduced to the buying public. This allowed the Smartner team to ensure that its software works not only on current Nokia mobile devices, but also on selected forthcoming models.

Forum Nokia technology experts also helped the Smartner team when they were unable to open a secure connection to Vodafone Ireland's HTTP server with either the Nokia 9210 Communicator or a wireless PDA. After some analysis, it became evident that the problem was related to how these mobile devices handle the secure HTTP protocol when connected to the server; the server, in turn, forms the encrypted connection with the client, where the public key infrastructure (PKI) certificates are installed. Further work revealed that neither Nokia 9210 Communicator nor wireless PDAs supported the default encryption algorithm of the HTTP server. A solution came from Forum Nokia, which helped Smartner identify the algorithms that Nokia 9210 Communicator does support. Smartner was then able to reconfigure the HTTP server's algorithms so that Nokia 9210 Communicator could to open a secure connection.



Pekka Leppanen, director of IBM's Solution Partnership Center in Helsinki. "Vodafone's need for a strong local systems integrator and strong local support surfaced, so it was decided that IBM and Smartner would address the opportunity together."

Smartner's other partner was IBM Global Services. This unit of the computing giant is a systems integrator, and its role in the Smartner project was twofold. First, because the Vodafone EmailAnywhere runs on IBM's WebSphere application server and Web server, IBM Finland worked with Smartner

to ensure that the small Finnish supplier's software ran smoothly on its systems. (In fact, IBM and Smartner had worked together before, in Italy, so engineers at the two companies were already familiar with each other's products.) Second, IBM's Global Services group in Ireland is playing a local support role. "Vodafone realized that Smartner had a very compelling offering, but Smartner is a smallish company and far away from Ireland," explains Pekka Leppanen, director of IBM's Solution Partnership Center in Helsinki. "Vodafone's need for a strong local systems integrator and strong local support surfaced, so it was decided that IBM and Smartner would address the opportunity together."



Once Smartner had ensured that its software worked with the Nokia mobile devices and ran on IBM servers, it customized the interface for Vodafone branding. The company then put project manager and technical consultant Jaakko Ahtela (left) and software architect Antti Holappa (right) on the three-hour flight to Dublin, where they installed the system on Vodafone's servers.

## Application Detail

Just as the development work was shared, so is revenue. Enterprise customers pay Vodafone a service fee of €10 to €15 per user per month (depending on the number of users), and either airtime (GSM) or data-transmission (GPRS) fees. Vodafone, in turn, pays Smartner a license fee based on the number of users, additional license batches on a pay-as-you-grow basis, service fees for the delivery project, and a maintenance fee equivalent to 20% of the annual licenses.

From the user's perspective, the Vodafone EmailAnywhere service starts on a subscriber's mobile device or wireless PDA. Since the service is hosted on Vodafone servers, the enterprise customer does not need to add hardware or software; already existing mobile devices and PDAs are ready to go. When mobile users activate the service, they have remote access to their e-mail, calendar, contacts, and tasks in their groupware or e-mail application back at the office.

The service has WAP and HTML interfaces as well as SMS notification of new e-mails. On a WAP handset, the users are identified by their phone numbers, and they can log in without entering a user name, enhancing ease of use. With the Web interface, the service is branded identically to all other Vodafone Web pages.

At the interface level, the service provides browser-based online access to groupware — including MS Exchange and Lotus Domino — and e-mail (both POP and IMAP) servers back at the enterprise via a wide variety of mobile devices and PDAs. On the handset front, the software is optimized to use GSM Data, GPRS, or WCDMA as a bearer. But it is "bearer-agnostic" and can function just fine over any mobile or fixed network. More specifically, the Vodafone/Smartner service is supported on essentially all WAP-enabled phones as well as Web-enabled PCs, and Palm and Compaq iPaq PDAs. The service supports Nokia 3330/5210/5510/6210/6250/6310/6310i/7650/8310, and Nokia 9210 Communicator, as well as several models from Sony Ericsson, Motorola, and Siemens — virtually all platforms currently available in Ireland.

The Vodafone/Smartner service can be used by wired devices, too. The only difference is that when the service is used by a wired device — such as a PC linked to the Internet — Vodafone does not receive GPRS airtime fees.

## Technical Discussion

When users of Vodafone EmailAnywhere log in with their mobile phone or PDA, the system authenticates them by either their phone number and PIN code, or their user name and password. The service also recognizes the device being used so that it can present content in a format optimized for the device's interface.

Once a user is authenticated, the EmailAnywhere service requests the user's e-mail and calendar data to be cached during the session from the enterprise groupware server through the Smartner Enterprise Gateway software component that has been installed in the enterprise network. The data between the enterprise and Vodafone is secured using the TLS protocol.

When the user sends messages or creates appointments, the actions are relayed immediately to the groupware server. These actions are then sent immediately forward to the chosen recipients. This real-time access methodology offers several benefits. One example is that a user can employ entries in the Global Address List as shortcuts when sending messages or adding participants to appointment invitations.

When either the user logs out or an inactivity time-out occurs, all enterprise data is erased from the EmailAnywhere service. There are no replicas of enterprise data anywhere outside the enterprise network.

If a user logs in with an unsupported mobile device, content is displayed on his/her mobile device using the default template for the specific device category, e.g., WAP 1.1. All connections with unsupported mobile devices are logged and monitored continuously, and support for new mobile devices can be applied promptly. Similarly, if a session is lost during a connection, the service maintains its internal session for the period of inactivity time-out. If and when the session is restored, the user can continue browsing as if nothing happened.

Smartner developers are now working on the next-generation version of Office Extender. This new, offline version will provide full office functionality via the native applications in smartphones and PDAs. It will do so with synchronization technologies that include SyncML, IMAP, and Smartner's wireless-optimized transports.

## Conclusion

From Smartner's perspective, the project has confirmed the company's belief in focusing on the user's experience and total cost of ownership. Next will be a push to support Vodafone's sales effort, using lessons Smartner has learned by working with other mobile operators. "The more users Vodafone Ireland gets for licenses, the more licenses we are selling to them," says Ari Backholm, Smartner vice president for business development. "So it's a long-term partnership."

Vodafone's Lorraine McGrath, product manager in Vodafone Ireland's product marketing department in Dublin, adds that the findings of her company's own market research have been proven in the field. "E-mail is the one application that everyone wants mobilized," she says. "And there's no education involved — everybody knows how to send an e-mail." Vodafone also wanted an e-mail solution that could be used by any industry, that required no investment or additional equipment, and that offered top-notch security. The company seems to have attained precisely that.

## Technical Sidebar

While in many ways, Smartner's adaptation of its Office Extender technology for Vodafone Ireland was routine, one aspect of the project was not. This effort involved implementing MSISDN-based authentication. This service authenticates WAP-enabled handset users based on their subscriber number when they sign on to the Vodafone EmailAnywhere service.

MSISDN stands for Mobile Subscriber ISDN. It's essentially the telephone number of a GSM mobile phone. The MSISDN is typically stored in a Subscriber Identity Module (SIM) card inside the phone. GSM phones become programmed immediately after the SIM card is plugged in, which makes the phones easy to borrow or rent. SIM cards can also be programmed to display custom menus for personalized services.

In the case of Smartner's Vodafone development project, the system must be able to verify that all users with MSISDN authentication are accessing the EmailAnywhere service through a trusted WAP gateway. This was done using a separate HTTP front-end server for trusted connections. It required Smartner to configure its Office Extender service so that it could read the HTTP MSISDN header value used by Vodafone's WAP gateway, and to then use that information to authenticate the users.

The challenge was this: While different HTTP front-end servers for both private and public network access must also have different IP addresses, the service domain name must be the same for both Web and WAP access. The solution was to use different DNS mapping for connections originating via the WAP gateway and from the Internet. While both could use the same domain name, the actual IP addresses were different. Smartner developers, working with an IBM Web server with an IBM WebSphere plug-in, and with their own Office Extender System Administrator, got the job done.

## Resources

### Vodafone Ireland

[www.vodafone.ie/](http://www.vodafone.ie/) , tel. +353 42 9331999

### Nokia Tradepoint

[www.tradepoint.nokia.com/NokiaTP/S\\_Login.jsp](http://www.tradepoint.nokia.com/NokiaTP/S_Login.jsp)

### Forum Nokia

[www.forum.nokia.com/business](http://www.forum.nokia.com/business)

### Smartner

[www.smartner.com](http://www.smartner.com), tel. +358 464 2525 200, [info@smartner.com](mailto:info@smartner.com)

### IBM Global Solutions

[www.developer.ibm.com](http://www.developer.ibm.com), [pwd@us.ibm.com](mailto:pwd@us.ibm.com)

### Press release announcing Smartner/Vodafone contract

[www.smartner.com/news/pr18.html](http://www.smartner.com/news/pr18.html)

# Build Test Sell

Developing and marketing mobile applications with Nokia

1

## Go to Forum.Nokia.com

Forum.Nokia.com provides the tools and resources you need for content and application development as well as the channels for sales to operators, enterprises, and consumers.

[Forum.Nokia.com](http://Forum.Nokia.com)



2

## Download tools and emulators

Forum.Nokia.com/tools has links to tools from Nokia and other industry leaders including Borland, Adobe, AppForge, Macromedia, Metrowerks, and Sun.

[Forum.Nokia.com/tools](http://Forum.Nokia.com/tools)



3

## Get documents and specifications

The documents area contains useful white papers, FAQs, tutorials, and APIs for Symbian OS and Series 60 Platform, J2ME™, messaging (including MMS), and other technologies. Forum.Nokia.com/devices lists detailed technical specifications for Nokia devices.

[Forum.Nokia.com/documents](http://Forum.Nokia.com/documents)

[Forum.Nokia.com/devices](http://Forum.Nokia.com/devices)



4

## Test your application and get support

Forum Nokia offers free and fee-based support that provides you with direct access to Nokia engineers and equipment and connects you with other developers around the world. The Nokia OK testing program enables your application to enjoy premium placement in Nokia's sales channels.

[Forum.Nokia.com/support](http://Forum.Nokia.com/support)

[NKN.Forum.Nokia.com](http://NKN.Forum.Nokia.com)

[Forum.Nokia.com/ok](http://Forum.Nokia.com/ok)



5

## Market through Nokia channels

Go to Forum.Nokia.com/business to learn about all of the marketing channels open to you, including Nokia Tradepoint, an online B2B marketplace.

[Forum.Nokia.com/business](http://Forum.Nokia.com/business)



6

## Reach buyers around the globe

Place your applications in Nokia Tradepoint and they're available to dozens of buying organizations around the world, ranging from leading global operators and enterprises to regional operators and XSPs. Your company and applications will also be considered for the regional Nokia Software Markets as well as other global and regional opportunities, including personal introductions to operators, on-device and in-box placement, and participation in invitation-only events around the world.

[Forum.Nokia.com/business](http://Forum.Nokia.com/business)