



F O R U M N O K I A

Smarter Duality Mobilizes The Enterprise

Version 1.0; March 19, 2004

Messaging

NOKIA

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Change History

March 19, 2004	V1.0	Initial document release
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1 Improving Work Efficiency

Real business benefit often derives more from improving existing processes than providing complex mobile solutions. Anywhere-anytime access to e-mail is one instance of this. Time spent waiting at airports or between out-of-office meetings is often frittered away, so it would be very useful if one could use that time to keep up-to-date with e-mail.



Figure 1: Ari Backholm is executive vice president, products and marketing, at Smartner Information Systems.

“It is about working more efficiently,” says Ari Backholm, executive vice president, products and marketing, at Smartner Information Systems Ltd., a Helsinki, Finland-based specialist in mobile e-mail (www.smartner.com) (see Figure 1). “It is not about extending the working day or trying to have access ‘24-7’ but about making use of dead time, perhaps even eliminating unnecessary travel.”

Mobile efficiency is much in demand. Rethink Research Associates, London-based analysts, recently surveyed a representative sample of senior IT management selected from 2,000 European organizations and found that 27 percent saw the deployment of mobile devices as critical and 40 percent were planning mobile projects in the following six months, citing intense end-user pressure.¹

2 The Smartner Approach

Smartner's Office Extender solution has been used for mobile e-mail and related services from Vodafone, Radiolinja, Swisscom, DNA, and other operators. In May 2003, Smartner acquired Commtag, a wireless technology company based in Cambridge, England.



Commtag had specialized in innovative technology for always-on wireless services, and its Duality product had been recognized as the "Best Corporate Wireless Application or Service" at 3GSM World Congress 2003.² Smartner has now enhanced Office Extender, incorporating Duality's complementary Push technology, and renamed the product Smartner Duality. The enhanced product lets users view, edit, forward, file, and delete e-mail from almost any mobile device, and all actions are mirrored on the desktop, so the e-mail store on the two devices is always synchronized.

3 Smartner Duality

The key differentiators of Duality Always-On Mail are:

Security — Smartner Duality uses a 128-bit symmetric key-encryption algorithm to encrypt all messages that are moved between the enterprise network and the Duality Push client using a PDA or smartphone. The Duality application generates a user-specific encryption key that is shared by only the Push connector or desktop client and the Duality client in the device. Encryption codes are never sent over the air (OTA), meaning that only the Push connector or desktop client and the Push client, including the relay server, can decrypt and read messages.

Uncompromised user experience — Smartner Duality automatically and immediately delivers new and updated e-mail and personal information manager (PIM) information to the mobile device without any user interaction. All actions are mirrored simultaneously to the user's desktop office system. All technical details are hidden from the user — wireless connectivity is handled in the background and reconnection takes place automatically whenever needed. The user interacts with the application using the device's native e-mail, calendar, contact, and task applications.

Lowest total cost of ownership — Smartner Duality is very easy to install. The first enterprise-level installation takes two hours, while a single-user installation takes 15 minutes. There is no need for firewall configurations. A mobile device is installed with zero configurations at the device, and can be preinstalled by the device OEM or distributor. Further, the Push protocol used in Smartner Duality is designed with wireless connectivity in mind. By using effective compression and connectivity-management technologies, the data transferred over the wireless network is minimized.

Operator point of control — Smartner Duality architecture is designed to be provisioned by an operator or service provider. An operator has full control over users, but it can delegate the day-to-day administration to IT managers, where applicable. This capability means that Smartner Duality can be sold effectively as a subscription service, and such an offering was launched by Smartner late in February 2004.

Smartner Duality requires no specialized client infrastructure or detailed technical knowledge. It has very good scalability, and operator management is straightforward. A single setup can be shared by multiple enterprise customers, as service upgrades are made without closing down the service.

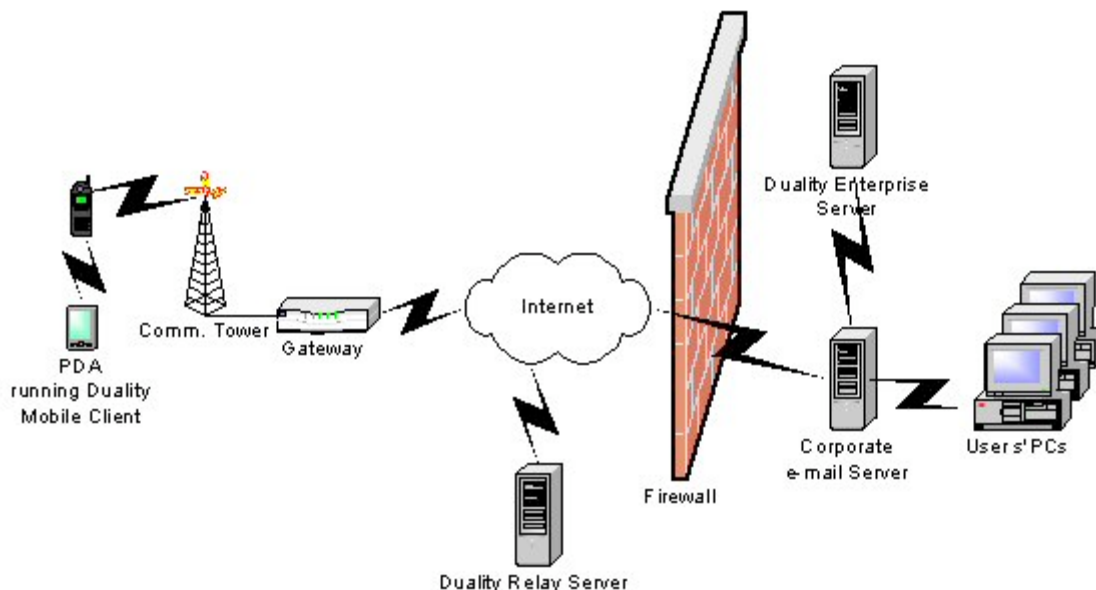


Figure 2: Here is how the Smartner Duality system, Enterprise version, works.

Two versions of Smartner Duality are available: Professional and Enterprise. Professional is designed for individual users and runs interactively on a PC permanently connected to the Internet. The Enterprise version runs on a corporate server that supports groups of users (see Figure 2). With Enterprise, the individual PCs need neither direct Internet connectivity nor even to be switched on. The two versions have similar architectures, however, which consist of three elements: a mobile client, a relay server, and a desktop client or enterprise server, as appropriate.

Symbian OS is supported, and a user might conveniently use a Series 60 smartphone, such as a Nokia 6600 imaging phone or a Nokia 7650 imaging phone, with GSM or General Packet Radio Service (GPRS) connectivity. When an e-mail message arrives at the user's desktop, the Duality desktop client creates a protocol e-mail message with an encrypted representation of the original message and forwards it to the Duality relay server, a Unix system typically managed by an operator or service provider.

The relay server extracts the message from the protocol e-mail message and pushes it, still encrypted, over a conventional TCP connection to the mobile device. The mobile client, written in C/C++, decrypts the message and provides additional functionality, including letting the user specify how much of an e-mail message should be delivered and whether the device needs to be awakened at intervals for new mail. E-mail management on the smartphone is handled using the familiar native e-mail application.

When the remote user replies or otherwise manages the e-mail store, the information flow is simply reversed. Smartner Duality also keeps the desktop and mobile devices synchronized, so the user's view of the e-mail messages is the same on all devices.

Smartner's approach to security is comprehensive. Before first use, and optionally thereafter, the mobile device must be physically connected to the desktop PC or the network and under the control of the authorized user. A new 128-bit key is then generated and sent to the mobile device. This is used with the Advanced Encryption Standard (AES) algorithm³ to encrypt everything passing OTA between the desktop and the mobile device. There's also support for Mobile Subscriber Integrated Services Digital Network (MSISDN) authentication, with or without a PIN code, and support for Transport Layer Security/Wireless Transport Layer Security (TLS/WTLS) mobile-client connections (see Figure 3).

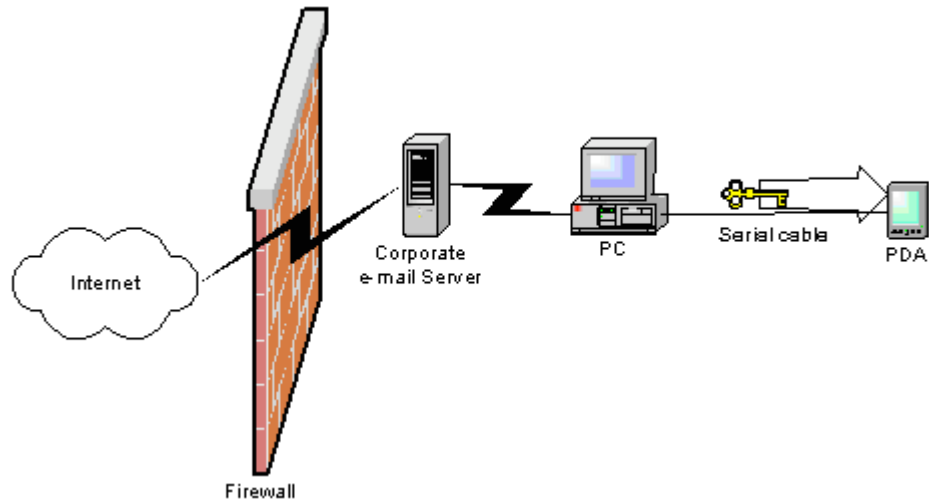


Figure 3: A new secret key is generated when, and only when, the mobile device is connected and the user is properly authenticated.

One special area of risk with mobile devices is the loss or theft of the mobile device. In such cases, operators can immediately block phones and, more generally, turn off the Push element, ensuring that no new e-mail messages will be sent. Operators can also send a “clear all” order to devices to ensure that no sensitive data are left accessible.

4 How Nokia Helped

Smaller companies often have difficulty making contact with potential buyers. This can be a matter of credibility — senior management at large operators and service providers can be very busy and, as a result, reluctant to meet with small new companies — or it can simply be a matter of finding the right people to talk to and demonstrating what's relevant.

“Partnering with Nokia gives us credibility with operators,” says Otto Arosilto, Smartner’s marketing manager. “But it’s not all one way. Duality is excellent technology, and I think it’s good for Nokia to be seen as supporting something that more and more users are finding valuable.”

Nokia works closely with its partners and helps introduce them to potential customers at exhibitions and special events. “Last year’s 3GSM Congress in Cannes was very useful for us,” says Arosilto, “and we’ll be exhibiting again this year as part of the Nokia section. People come to see what Nokia has to offer, and we’ll definitely benefit from being there.”



Figure 4: Jussi Räisänen is Smartner’s vice president of sales.

Jussi Räisänen, vice president of sales and one of Smartner’s founders (see Figure 4), makes the same point. “Nokia has provided Smartner with excellent opportunities to network with mobile industry decision makers and influencers,” he says. “I’ve personally made dozens of extremely valuable contacts at Nokia’s events, which have been an outstanding mix of to-the-point business content and informal networking.”

5 Business Issues

By the end of the third quarter of 2003, Smartner had sold more than 40,000 European licenses, significantly more than its principal competitor, BlackBerry, from Research in Motion Ltd., suggesting that it is getting things right with both operators and users.

Operators and service providers can benefit, Smartner claims, by increasing average revenue per unit (ARPU) through new-service revenues and increasing the overall airtime and transaction-fee billings. The demand for the service helps minimize customer churn, and providers can enhance loyalty by offering other advanced business services on the back of the product.

In December 2003, Smartner signed up for O2's Accelerator Program in the United Kingdom, entering its "incubator process." Its products thus have become available through the O2 sales network.

In late February 2004, Smartner signed an agreement with Manx Telecom to bring the Smartner Duality platform to business users in the Isle of Man. In March 2004, a similar agreement was concluded with Vodafone Italy.

Return on investment (ROI) is notoriously difficult to calculate when a service enhances existing processes. However, many Smartner customers report being able to work during periods of daily travel or waiting time, thus avoiding having to deal with mountains of e-mail later. If one can work efficiently on the train for an hour daily, for example, then a forward-looking employer could reasonably enhance employees' quality of life by counting that time as part of the normal workday.

Pricing for Smartner's Duality differs among regions and countries, but, generally, it ranges between 10 euros and 20 euros (\$12 USD to \$25 USD) per user per month for the Enterprise Edition and 4 euros (\$5 USD) for the Professional Edition. For the Enterprise edition, volume discounts apply for installations of 500 users or more.

In many cases, laptops are overkill, and companies have reported saving money by replacing expensive laptops with smartphones or phone-and-PDA combinations, which, using Duality, can provide everything needed, whether for e-mail management or for tasks such as gaining access to inventory.

6 Conclusion

Mobile use is growing steadily. New smartphones, such as the Nokia 7650 phone and the Nokia 6600 phone, enhanced with Duality's innovative synchronizing and Push capabilities, are increasingly giving users flexibility in how they work while helping operators increase revenues and improve customer loyalty.

Nokia's support is invaluable, says Räisänen. "The proactive, open communication from Nokia has ensured that Smartner stays up-to-date with what's happening in and around Nokia itself. Nokia helps us focus on the right things."

7 References

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