

Symbian Smartphones for the Enterprise

Working without boundaries

The growth of wireless computing belongs to the smartphone, a powerful device that extends the superb voice functionality of a mobile phone into the realm of data communications. From inception, it has been Symbian's mission to supply operating systems that enable a mass market for enhanced communications and information services based on mobile phones. Already, Symbian OS is the industry's standard choice for feature-rich phones that not only can handle calendars, contacts, messaging, email and Web browsing, but that can also integrate with virtually any enterprise information system.

Though the market has already embraced smartphones, with over ten million of them sold in 2003, most people don't fully grasp the impact that they will have on working life as these devices become more pervasive. For the enterprise, smartphones will have an impact on par with that of mobile telephony itself. Most of us already take for granted our ability to place and receive voice calls from anywhere at any time. But few of us yet take advantage of instantly having any data we wish at any time from that very same mobile phone.

The implications are far reaching. For business travelers (or even managers and other workers that spend a lot of time away from their desks) it will mean having access to time-sensitive data and the ability to "stay in touch" with work teams on important issues in a manner that hasn't previously been possible. This is readily achieved by delivering email, web access and instant messaging directly to the user's phone. For a sales person, it will mean instant access to inventory, shipment status and current pricing information directly from client locations. For a real estate agent it will mean immediate notification of a new property that meets a customer's desires and the ability to instantly convey that information to the customer, even to show them a picture of the property. For a project manager, it will mean immediate communication of project details among team members and dynamic rescheduling of tasks.

All these tasks have been possible for the last decade using laptops with wireless modems and many companies have utilized such an approach for vertical market solutions. What is fundamentally different now is that it is possible for every worker to affordably have a smartphone without the additional cost and inconvenience of another dedicated wireless data terminal. And whereas laptops with wireless modems are bulky, have a long boot up time, require the worker to be seated, and are not always readily accessible, smartphones are small, always on, available while standing or walking and as easily available to the worker as their mobile phone. And even while out of network coverage, the smartphone provides for local operation of applications and local storage of data. This is a major advance over previous browser-only approaches.

Smartphones maximize the effectiveness of a broad range of mobile workers, from road warriors whose office might be in the backseat of a taxi, to corridor warriors who are mobile throughout the enterprise. The key to achieving the full productivity potential of all mobile workers is the smartphone.



- Symbian OS and UIQ user interface platform
- folded for phone operation, open for large display and stylus input
- optimized for email, calendar and PIM
- web access and document viewing

Example of Symbian OS Smartphone – the Sony Ericsson P900

Every year over the last decade, we have seen predictions that this year will be the year of wireless data. At last we see this prediction coming true. The availability of attractive new open smartphones based on Symbian OS with its built-in support for Java and other industry-standard deployment environments, in combination with global roll-out of high speed cellular data services, puts in place all the pieces needed for enterprise users to adopt this more flexible way of working.

Enterprises have a complete choice of solutions: selecting off-the-shelf wireless solutions hosted by a new breed of Wireless Application Service Providers, engaging a growing number of wireless system integrators for more bespoke solutions, or developing applications in-house using available tools.

This paper explains why smartphones make so much sense, how enterprises are adopting them, how they will make PDAs obsolete, and how Symbian is delivering the best smartphone operating system.

Why Smartphones?

Many of today's most progressive mobile professionals reluctantly carry three digital devices with them on the road: a notebook computer, a PDA and a mobile phone. If pressed, most of these same users would acknowledge the inefficiency of carrying all three devices, but such a strategy is often necessary because each device provides specific functions not available on the others.

The notebook computer is ideal for emulating the office environment and connecting to enterprise information systems, but try using it to check for an important email while in a cab or to inquire about the status of an order with a client at lunch. The PDA helps alleviate some of the mobility and portability issues, but today's PDAs lack key voice functionality. The simple mobile phone is an excellent purpose-built device, but lacks the power and flexibility to serve as a wireless computing device. This leaves the smartphone, which combines functionality from each device into a highly portable form factor that is optimized for voice, but still has very strong data communications capability.

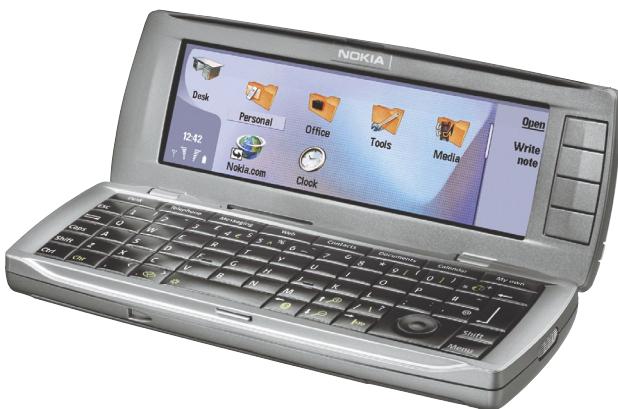
Based on the above thinking, it is clear that converged device functionality is imminent. It seems equally clear that a phone-centric evolution is the preferred path of technical development due to its size, battery life, portability, and user preference. The optimum smartphone approach, and the one that Symbian has chosen, is to build enterprise-grade data capabilities on a platform that already provides best-of-breed phone functionality. Opening up the data capabilities of a Symbian OS-powered smartphone is a small incremental investment, because in many cases the end user is already familiar with the way in which their phone works. This makes the step to data services a comfortable and intuitive one for enterprises and lowers the barriers to mass adoption.

Another way in which Symbian OS continues to lower the barriers of mass smartphone adoption in enterprise is their commitment to work with ISVs and developers. The good news is that application developers have actually been out in front of the adoption curve to produce highly effective mobile solutions that take advantage of Symbian OS. Sophisticated data synchronization and mobile middleware systems, for example, have been available for several years from a variety of vendors.

For most enterprises, however, mobile email will prove to be the most popular smartphone application. Once mobile professionals gain over-the-air access to email on their smartphones, they simply won't give it up. Preliminary studies have illustrated that increasing the productivity of such individuals by as little as thirty minutes per day can easily pay for the device and network services.

Mobile email is undoubtedly a high-volume application with appeal even to casual commuters. Other applications that have similar mass appeal include group calendaring, scheduling, and contact management – all of which come standard on Symbian OS-based phones. Having this data locally available on an end-user's phone regardless of time and location, is a key productivity tool that is beneficial to enterprises of all size.

Smartphones offer compelling advantages, not only to the degree that they mitigate the need to carry multiple devices, but also because they allow for integration of voice and data applications. This convergence facilitates both simple capabilities like easily calling someone by highlighting the phone number in their email signature, to more advanced integrated and interactive messaging capabilities.



- Symbian OS and Series 80 user interface platform
- folded for phone operation, open for large display and keyboard access
- optimized for intensive data input, email, and editing documents

Second Example of Symbian OS Smartphone – the Nokia 9500

Beyond email, messaging, calendaring, and contact management, even greater payback may be achieved by integrating smartphone technology into business processes. Once organizations get to the point where their mobile workforces are always connected, many more processes become real-time. For example, by using smartphones as part of a sales force automation strategy, up-to-the-minute information can be provided to customers leading to new accounts, closed sales, and greater customer satisfaction. Business effectiveness is enhanced by increasing top-line revenues.

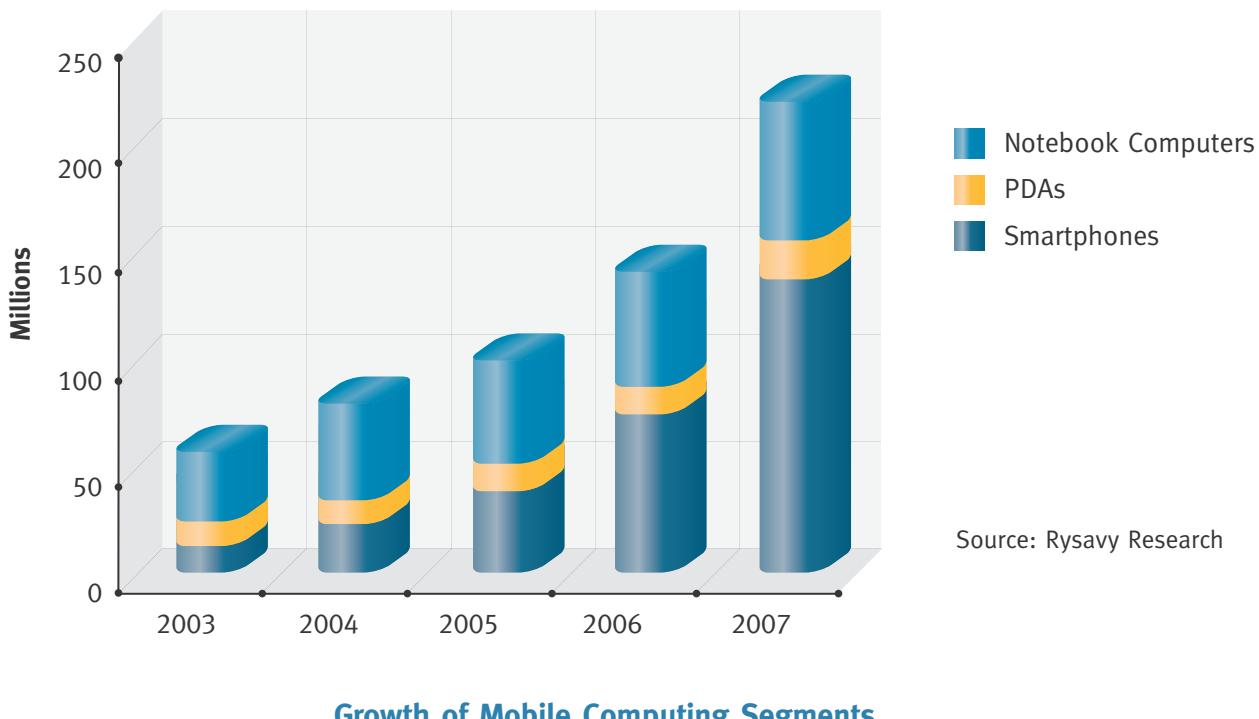
Efficiency is also a prime target for bottom-line savings. Once mobile employees have direct access to enterprise information databases, processes become ripe for reengineering efforts, with significant potential for cost efficiencies in serving both field workers and back-office needs. Taken further, even end-customers can be provided with access to extranet services via smartphone technology, providing them with the ability to conduct secure transactions without the intermediation of others.

The Smartphone Market

There are two notable trends in mobile computing that can be readily quantified. One is the meteoric rise in sales of smartphones. The other is the declining PDA market. According to Ovum("Symbian and the Smartphone Market" 2003), the smartphone market has grown from just two million units sold in 2002 to some 10 million sold in 2003, with 25 million expected to be sold in 2004 and 130 million in 2007. Projections from other market research firms are consistent, with IDC forecasting 30 million devices in 2004 and 86% compound annual growth through 2007 (IDC "Worldwide Mobile Phone Forecast and Analysis Report, 2003-2007" and "IDC Worldwide Smart Handheld Devices Forecast and Analysis, 2003-2007").

ABI (Research, in a press release of Oct 28, 2003), predicts similar growth, expecting 150 million units by 2008. These global sales figures include both consumer and enterprise markets.

Based on various market reports, we can project the relative growth of smartphones with respect to other mobile computing segments as follows:



Skeptics might assert they read similar numbers from analyst years ago, only to have the market disappear on them when in fact, it is entirely possible the figures are understated. The actual adoption rate could be higher because the forecasts simply extrapolate linearly from current trends. Moreover, the forecasts do not take into account the synergistic effects of an increased population of devices making Symbian OS-based smartphones a high priority for independent software vendors, middleware providers and tools suppliers, thus increasing the number of available applications and further increasing the attractiveness and usage of the platform.

The synergies don't stop with ISVs, developers and tool providers, they continue with users managing aspects of their personal and professional life on a smartphone. Consumers are excited by options for entertainment, including gaming, advanced messaging, audio and video. Meanwhile, enterprises see the smartphone as a powerful business tool. For example, a business traveler stuck at an airport can gain access to corporate information, watch CNN news clips and check the weather report for his destination. In another example, a delivery driver using her phone for dispatch instructions can also use the same phone for electronic receipt of shopping discount coupons. The result is a genuinely mass market with higher unit volumes, lower prices and exponential growth.

Since people will use smartphones for so many of their tasks, both work-related and personal, it is essential they have a wide variety of devices from which to choose. Today, more types of phones are available on Symbian OS than any other smartphone platform, a fact attributable not only to the OS's capabilities but also to its maturity. Symbian OS supports multiple device configurations with multiple types of user interface, whether keypad, keyboard or stylus-based. Only Symbian powers such a wide selection of product offerings while delivering a common OS for application developers.

The second trend, reported by IDC, places the PDA market in its second year of decline, with just over ten million units sold in 2003. The reasons are obvious. In the same way that the mobile phone with SMS essentially makes the traditional pager obsolete, the smartphone subsumes most common functions of the PDA, particularly for contact, calendar and task management. The PDA market will not disappear, but it will increasingly be relegated to niche applications demanding larger displays or specialist accessories. At the same time, most new PDAs will have wireless capability, and as they adopt voice functions, may just become a segment of the smartphone market, though current experience suggests that it is challenging to graft effective phone functionality onto a PDA platform.

There is clear momentum for smartphones and for Symbian OS in particular. Every leading indicator and analyst report suggests this market is real today, and in many ways only the tip of the iceberg has surfaced. The primary reason is simple – only a portion of today's phones are considered "smartphones." However, with declining component costs and continued advances in the capability of phones, it is safe to predict that all phones will eventually become "smart".

Dynamics of Enterprise Smartphone Adoption

Having illustrated the overall growth of the market and Symbian's prominent position within it, we now turn to the adoption of smartphones by enterprise, their mobile information needs and how a smartphone can address those needs.

Current adoption of smartphones is easy to understand. Many devices are purchased by professionals as a phone first, but with additional capability in reserve for business and entertainment. Once users have the phones, they quickly learn to use functions such as organizer capabilities, messaging and email, as all of these are immediately available, simple to configure, and provide instantaneous productivity benefits. Users immediately grasp the power of the smartphone concept as they find themselves with all their contacts now on the phone, calendars that can update over the air and ready access to email.

As an increasing number of smartphones permeate enterprises, and as users start asking their IT departments how they might access additional corporate information, enterprises have begun to formulate mobility plans that make smartphones the cornerstone of their strategy.

Over the next year, many of these deployments will occur on a case-by-case basis, often involving single departments. However, as industry awareness grows, and more and more of these departments make isolated decisions, enterprises will rapidly come to the inevitable conclusion that a platform-based decision for smartphones is just as important as a decision on desktop or server platforms. Corporates that move in this direction will be able to gain significant competitive advantage from their workforces.

Smartphones also greatly simplify the economic equation. Not only are they much less expensive than other wireless solutions, such as a laptop with wireless modem, an increasing number of workers will already have them. Further, it's likely that carriers, in their effort to promote greater use of data services, will provide economic incentives to purchase smartphones rather than more limited telephony devices.

While this projected scenario is a rosy one, the speed of adoption will be dictated by the degree to which enterprise needs are truly met and this means much more than just providing advanced computing capabilities on a phone. It also means manageability, security, rich integration with enterprise systems, cost effectiveness, expandability, support for important standards and an open platform that is widely supported in the industry. Furthermore, enterprises want to limit the number of computing platforms they support as each represents a huge investment in application integration, training and support. Only by making thoughtful and strategic choices regarding platforms and applications can enterprises maximize their overall efficiency and competitiveness.

Complicating this picture somewhat is the obvious fact that no two organizations are alike. Smaller ones are likely to adopt off-the-shelf horizontal-market solutions, while larger organizations will want to augment these with customized vertical applications for specific segments of their workforces. Depending upon the requirements of each application, the form factors will vary to meet those needs. Forms-based applications, for example, may require large screens and stylus input while other needs can be serviced with a smaller device that uses a simple keypad.

The wide range of flexible solutions powered by Symbian OS enables just this level of choice in the market.



- Symbian OS and Series 60 user interface platform
- compact form factor with innovative keypad designed for thumb operation
- optimized for text messaging and reading email

Third Example of Symbian OS Smartphone – the Siemens SX-1

Thus in order to choose the right mobile platform, enterprises are well advised to choose a platform that:

- provides maximum flexibility
- supports the applications they need, both today and tomorrow
- provides off-line capabilities so work can be performed when a wireless connection is not available, such as on a plane
- includes local storage of data to make network transactions efficient and to better support off-line operation
- provides robust tools for custom application deployment
- provides a consistent OS environment while also giving users the greatest selection of devices to meet their unique needs and preferences
- does not lock them into proprietary technologies
- is based on standards
- has widespread support throughout the mobile and wireless value chain
- represents a low-risk investment

Most importantly, the device needs to provide the most dependable and intuitive voice experience possible. As we show in the next section, there is only one platform that meets all of these requirements, and that is Symbian OS.

Symbian's Leading Smartphone Position

Symbian OS is the market-leading smartphone operating system, with the broadest support of the industry's top phone manufacturers resulting in the largest range of smartphones in the market. In addition to the high level of support from phone manufacturers, Symbian also has partnered with key ISVs to deliver the entire range of business solutions, including essential management and security features.

As a result of these actions and support throughout the mobile community, Symbian continues to outpace its competitors in every key metric: more smartphones sold, more 3G phones in the market and more available devices from more manufacturers on the market today. As the market continues to expand and evolve, Symbian is poised to grow with it.

Support from Phone Manufacturers:

The Symbian OS licensees, which include Nokia, Sony Ericsson, Siemens, Panasonic, Fujitsu, Motorola and Samsung, are the leading mobile phone manufacturers in the world and account for over 85% of worldwide mobile phone sales. (Source: Gartner, December 2003, Mobile Terminal Market Shares: Worldwide, 3Q03). They have selected Symbian OS because it was designed from the ground up as an operating system for phones, offering superb voice functionality, while also providing a no-compromise, flexible and powerful computing platform that can take advantage of wireless data services. In comparison to competitors, it provides superior phone functionality and more seamless integration with high speed cellular data services.

Flexibility:

Unlike some other computing platforms, which can be imposed upon users, successful smartphone adoption strategies involve giving users choice. Mobile telephones are highly personal items as users interact with them at all hours of the day and night. Give a user a phone they dislike and they will be unhappy. Give a user a smartphone they dislike and they will be less productive. Users want phones that offer uncompromised voice capability, meaning intuitive user interfaces and tight integration between voice functions and data applications that run on the phone, including contact managers and email.

People use their phones regularly and become intimately familiar with the phone operating environment for voice functions. Since the Symbian OS-powered interface presents data and voice functions in the same consistent operating environment, it becomes a small step for voice users to start taking advantage of data functions. Their confidence with the phone platform makes sophisticated data applications less intimidating, and makes users more receptive to the applications that enterprises deploy. One size does not fit all, and the flexibility to choose multiple devices with alternative user interfaces optimized for certain capabilities, yet based on a common platform, is an important consideration. This is where Symbian OS truly excels.

The large number of licensees are already offering a broad range of devices, including compact phones with easy to use keypads, mid-size phones with larger screens that have an optional stylus for more intensive user input, and communicators with full keyboards for road warriors who need to engage in more interactive computing and communication activities. There are far more Symbian OS-based smartphones than any other type of smartphone on the market today.

Application Availability:

Beyond users, Symbian OS also satisfies software developers and enterprise information architects. Developers, whether independent or within enterprises, are presented with a flexible programming environment on an open and fully supported platform where they can develop in native languages such as C++ for maximum performance and control, or in Java or Visual Basic for a more managed programming environment and for maximum portability across platforms. Programming support comes from leading tool vendors such as Appforge, Metrowerks and Borland. As a consequence of Symbian's market leading position, independent software developers are assured of a large and growing market for their products, which further drives the demand for Symbian OS-based products.

In addition to tools, the Symbian OS platform offers enterprises all the items they demand from other computing platforms that they deploy on a widespread basis. This includes an open platform supported by a large number of companies; support for key computing and communications standards; manageability for tracking and maintaining deployed devices; flexible communications over different types of channels such as cellular, IR and Bluetooth; a comprehensive security model that includes application control as well as communications security; fully featured browsers; complete Java support; and strong email and messaging capabilities.

Not only is Symbian OS supported by the major phone manufacturers, it is also supported by the major software vendors such as IBM and Oracle, as well as by important mobile middleware vendors such as Extended Systems and Synchrologic. There is a large number of applications already available, and many others are in the pipeline.

Summary

Symbian OS provides a complete offering for the Enterprise. The platform is supported by nearly all the major players in the mobile computing industry. Because so many workers need mobile phones anyway, and will already be leaning towards more powerful smartphones, costs are minimized. The phones can be readily integrated into existing enterprise information systems, whether through off-the-shelf or customized approaches. And most important of all, Symbian OS-based smartphones offer the enterprise an unparalleled opportunity to increase productivity and competitiveness.

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