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■ Microsoft* Mobile Information Server 2002 on Hewlett-Packard Servers

Industry

Businesses and mobile network operators

Business Challenge

Delivery of mobile data services and corporate content to employees using any wireless device

Technology Solution

Microsoft Mobile Information Server 2002

Enterprise Hardware Platform

Hewlett Packard* Servers optimized for the Intel® Processor Family

SOLUTION ARCHITECTS



i n v e n t

Microsoft®

intel.

Meeting New Market Demands

The Microsoft® Mobile Information Server 2002 from the HP Intel Solution Center provides businesses and mobile network operators with a ready-made solution for delivering real-time mobile data services and corporate content to any wireless device. Microsoft Mobile Information Server 2002 (MIS) is a mobile-access middleware layer. It ties together wireless applications, devices and networks from multiple vendors and wireless carriers, as well as an out-of-the-box application for mobile access to Microsoft Exchange® server. A company's employees can wirelessly access and interact with its applications and other corporate intranet resources that are stored within the company firewall using MIS. Microsoft Mobile Information Server 2002 runs on Hewlett-Packard servers, powered by Intel® Xeon™ processors, for speed, fast deployment and dependability.

The Business Challenge

The cost of mobilizing a company's workforce often prohibits it from equipping its employees with wireless access to its intranet resources and email. Yet employees need that access when they're away from the office. Wireless technology is about empowering people to get the information and data they want anywhere, anytime, on any device. Phone calls, e-mails, instant messages and alerts – the rising tide of information – doesn't stop when people are away from their desks. More and more people have an array of devices they use to stay connected, and they need information around the clock.

Along with companies looking for ways to keep employees continuously connected, service providers (including traditional voice carriers, wireless carriers, application services providers and Internet service providers) are also looking for additional revenue streams. This need dovetails almost perfectly with the increasing demand for wireless information. A win/win answer would be a cost-effective wireless solution for delivering mobile data services that companies can afford.

The Solution Overview

The Microsoft Mobile Information Server (MIS) 2002/Hewlett-Packard Solution Stack extends the reach of Microsoft .NET® enterprise server applications, enterprise data and intranet content to the mobile user. By combining MIS with Microsoft Outlook® Mobile Access®, businesses can bring the power of the corporate intranet to the latest generation of mobile devices and securely gain access to email messages, contacts, calendars and tasks. MIS also works seamlessly with mobile controls and Web forms, so people can create applications and documents with a single user interface (UI). These can be viewed on different mobile devices in real time, wherever the user happens to be. Features include:

- **Application Server** – Provides a foundation for mobile applications that is reliable and scalable.
- **Secure Infrastructure** – Provides secure access to any data source and enables transformation of content to any device interface. Emphasizes end-to-end security

- **Browser Support** – Supports both secure notification and browse capabilities.
- **Internet and Wireless Standards** – Offer non-proprietary interface based on standards that make them more stable.
- **Out-of-the-Box Applications Provided** – Mobilize Exchange Server.
- **Windows® 2000 Architecture** – Offers performance, reliability and scalability.
- **Integration** – Integrates with and provides infrastructure for applications developed using the .NET Mobile Web Software Development Kit (SDK).
- **Management Tools** – Provides tools to manage mobile users, security, system performance and diagnostic support.

Technology

A mobile applications server, Microsoft Mobile Information Server 2002, Enterprise Edition functions as the corporate mobile firewall. It enables information technology (IT) administrators to set up and manage security for users who need mobile access to other intranet sites or line-of-business .NET applications within the enterprise. In addition, MIS acts as the mobile notification router for .NET applications, allowing them to send notifications to devices on mobile networks around the world.

Microsoft Mobile Information Server 2002, Carrier Edition gives mobile network operators a carrier-class server product that interfaces with their existing mobile data infrastructure to provide subscribers with greater security and performance for notifications originating from Microsoft Mobile Information Server 2002, Enterprise Edition.

MIS runs on Hewlett-Packard servers powered by Intel® architecture. The data-center reliability, availability, serviceability and manageability of servers powered by the Intel® processor family helps enable the success of both enterprises and carriers. In today's evolving economy, industry benefits from the speed and dependability of Intel® architecture.

Hardware components include:

- Intel® Xeon™ Processors
- HP server based on Intel® architecture
- Hewlett-Packard Storage Solutions

Software components include:

- Microsoft Windows 2000 Advanced Server*
- Microsoft Mobile Information Server*
- Microsoft Outlook Mobile Access
- Nokia Active Server* WAP Gateway
- Allaire Jrun* v. 3.x (Java* servlet engine)
- Java Virtual Machine* JVM v.1.2.2 or higher

Industry Standard Technologies:

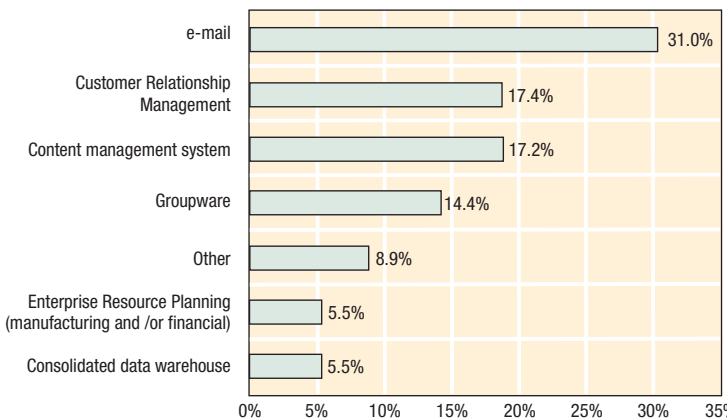
MIS is based on Internet and security standards, such as SMTP, HTTP, IPsec and SSL for both secure browse and notification networking. The wireless standards that MIS 2002 supports, includes short message service (SMS) for push notifications and support for wireless application protocol (WAP 1.1), along with wireless transport layer security (WTLS) for secure browse functions to wireless markup language (WML) Internet and intranet sites.

Who the Solution Will Benefit

Major corporations that need access to the corporate infrastructure from a variety of wireless devices, such as personal digital assistants (PDAs) and Web-enable cell phones. For example, a company might want to enable employees to have access to email from handheld PCs while attending trade shows, to obtain live updates.

Business and mobile network operators selling real time mobile data to corporations using wireless devices. A corporate sales force, for example, might need instant external access to an internal customer relationship management system using a PDA.

Several management functions within corporations and business and mobile network operators benefit from MIS, illustrated by the following chart:



Chief Operating Officers (COOs) will achieve competitive advantage in the marketplace through a mobile-enabled workforce, and will see increased customer satisfaction from the provision of real-time information from the field direct to clients.

Chief Technology Officers (CTOs) will see a reduction in the cost of managing and supporting mobile solutions. A wireless data network will provide mobile access to corporate intranet information and resources from almost anywhere, making knowledge workers more productive through increased communication and collaboration on joint projects.

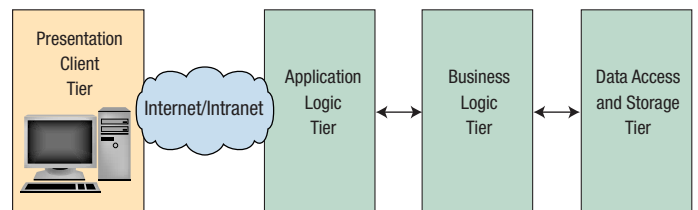
IT Managers benefit from better and more productive usage of wireless devices. The implementation of wireless solution is quicker, and time to market for new applications is reduced. Deployment is streamlined through pre-designed configuration, and a sizing guide gives customer what they need. Customers can avoid pitfalls as the procedures are tested and standardized. They can have procedures tuned for their own infrastructure with some specific modules written to operate with network elements. The MIS infrastructure is extendable to allow mobile access to potentially any corporate application written for the platform.

For the **Solution Integrator (SI)**, MIS is a more cost-effective solution than others on the market. It shortens sales cycles by putting technical procedures in place and helps to prepare for deployment.

Functional Business Concept

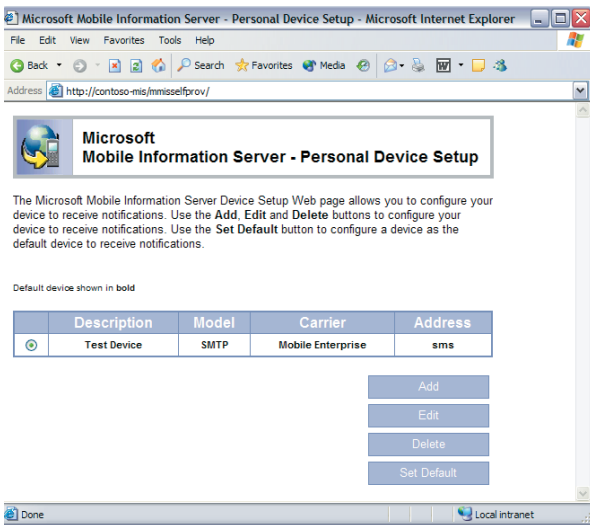
The advent of browser-based clients has extended 3-tier logical layering by splitting clients into client agents. These agents can implement application-interaction logic and client browsers, which render the application interface.

Conceptually, the Microsoft Mobile Information Server 2002/ Hewlett-Packard Solution Stack adds additional client tiers, such as client-network modules. These modules adapt applications to the network employed by a given user's device. Client device modules, however, adapt the application's UI to the properties of the device in use. User modules customize application behavior based on user preferences and factors such as location.



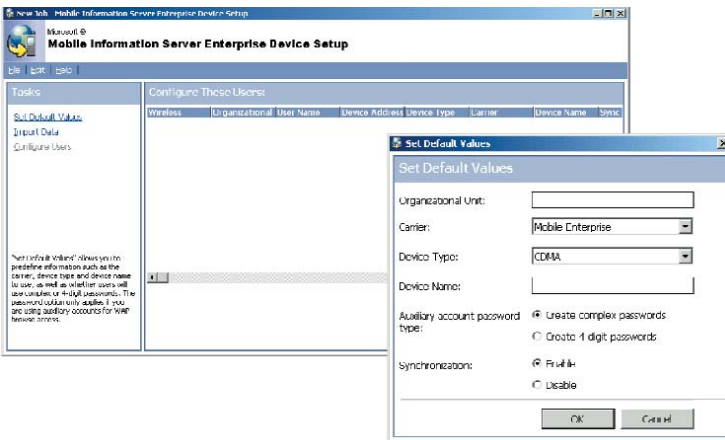
User Experience

Administrators find the Microsoft Mobile Information Server 2002/Hewlett-Packard Solution Stack fairly simple to set up as shown below.



Personal Device Setup tool

This tool enables an administrator to use a Web-based interface to configure devices without need for Microsoft Management Console* (MMC) tools.

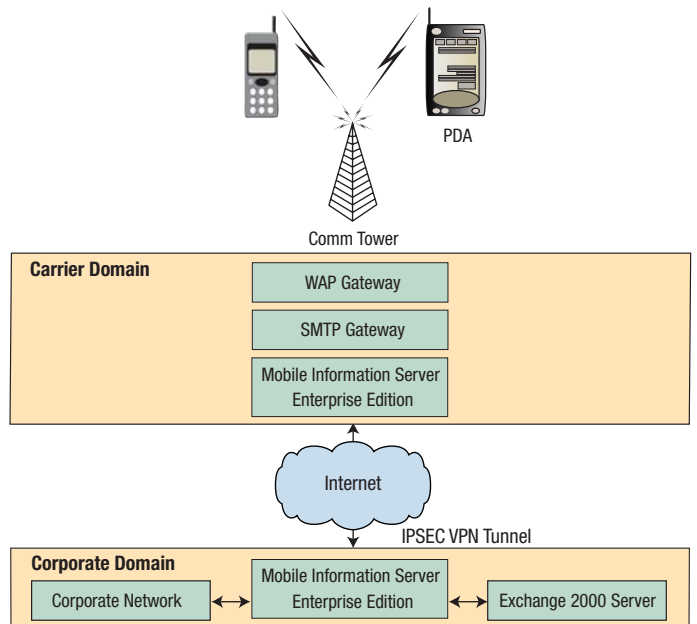


Enterprise Device Setup Tool

The Enterprise Device Setup tool, an auto-mated tool that generates a mobile account, automatically assigns a personal identification number (PIN) to that account, then sends the result to the end user.

Application Architecture

The simple architecture of the Microsoft Mobile Information Server 2002/Hewlett-Packard Solution Stack allows corporate users to connect to their corporate network and browse information using mobile devices from nearly anywhere. This is achieved through a WAP gateway part of the carrier's infrastructure. Messaging is the first type of application for MIS. On the corporate side, Exchange 5.5 or Exchange 2000 Server and Active Directory* are mandatory. MIS has been designed in a modular fashion to let users access other data sources in the future (such as databases and e-Commerce information). A mobile user accesses Exchange information, including email, distribution lists, calendars, contacts and tasks.



With the help of the MIS SDK, developers can create modules to provide e-Commerce information to mobile users. For clarity and simplicity, not all servers are shown in the picture below. This first architecture requires Active Directory Server and Exchange 2000 Server to function correctly.

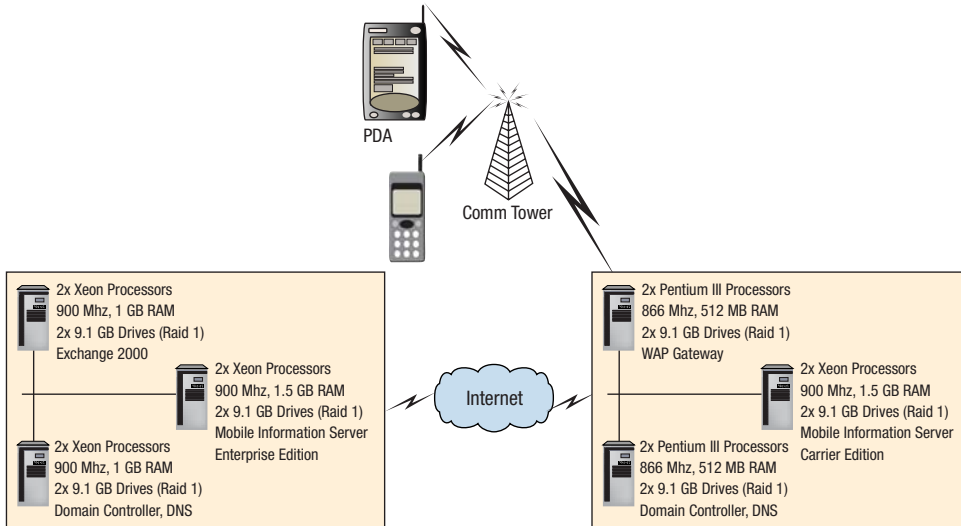
On top of the above architecture, if corporate mobile users are expecting urgent mail, they cannot stay connected to the network for obvious cost reasons. A notification must be generated to let users know that the expected mail has arrived. The notification can be sent to a front-end server (SMTP gateway) at the carrier, then forwarded to the SMS gateway to reach the mobile phone.

In this scenario, the notification may or may not arrive, or may or may not be displayed correctly to fit the mobile device format. The MIS-Enterprise Edition (MIS-EE) does not even know if the message has reached its final destination, nor whether the notification has been sent securely over the Internet.

This is where the MIS-Carrier Edition (MIS-CE) comes into play. Carriers can consider the carrier edition to offer reliable, secure notification services to corporations using MIS-EE. Carriers can also use MIS-CE to offer mobility services to their hosted email subscribers. The carrier uses Exchange Servers along with the Active Directory Servers in this case.

System Architecture

This is the system architecture for a typical Microsoft Mobile Information Server 2002 deployment. (Note that there are two versions of MIS: the Enterprise Edition in the corporate domain and the Carrier Edition in the carrier domain.)



For More Information

Microsoft Mobile Information Server 2002 running on Hewlett-Packard servers offers a cost-effective way to extend the reach of Microsoft .NET enterprise server applications, enterprise data and intranet content to the mobile user. By combining MIS with Microsoft Outlook Mobile Access, businesses can bring the power of the corporate intranet to the latest generation of mobile devices.

Running on Hewlett-Packard servers powered by Intel® Xeon™ processors, MIS offers scalability, speed and dependability. The flexibility in implementing solutions with Intel® architecture enables custom deployments and can provide a faster return on your investment.

How To Engage

The HP Intel Solution Center is chartered to help customers complete Proof Of Concept (POC) testing and sizing to prove this is the best solution available for you. If you want to verify this solution will work for you please fill-in our qualification:

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