



MWS Hosting Partner: Edition (MWS 2.0)

MWS Technical White Paper > May 2002

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MWS Hosting Partner: Edition 2.0

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1.0 Introduction

1.1 Overview

This document provides an overview of the Meta Wireless Server Hosting Partner Edition (MWS) and associated technical details that pertain to its various proprietary components. MWS can be licensed from Metasoft for installation at a hosting partner's premise to permit reselling of its capabilities to end users of email enabled wireless handheld devices, who wish to:

- View e-mail attachments associated with over 40-different file types, including .doc, .xls and .PDF; and
- Print e-mail messages and attached documents to a nearby facsimile machine.

1.2 Objective

The objective of this document is to provide an overview of the technology associated with MWS and to detail the associated integration of this product within a hosting partner's environment.

2.0 Background

2.1 General

Metasoft Systems Inc. (Metasoft) is a Branham / Financial Post Top 100 Private Software Company that has extensively sold image and document conversion software to many of the world's leading technology firms, including Microsoft, Lucent Technologies, Alcatel, Lotus, AT&T, Nortel, Motorola and WorldCom. Metasoft's suite of 32 "best of breed" messaging software components are known collectively as Imager SDK. These products have been integrated into well known technology products including Microsoft Mail, Microsoft Small Business Server, Lotus Domino, Canon Multi-Pass MFD, NTT multi-

media applications and hundreds more. Imager SDK has been extensively field proven with an estimated product installed base of 55 million clients.

2.2 Technology Transfer

In developing its technology products for MWS, Metasoft has adopted strategic components of proprietary core technology from Imager SDK. An illustration of this core technology transfer is illustrated in [Figure A](#).

2.3 Technology Platform

MWS has been developed on the Microsoft Windows 2000 platform. In recognition of the number of e-mail enabled wireless devices that are and will be used in the marketplace, MWS has been designed to enable any wireless-device platform with its technology capabilities. This platform-agnostic attribute means that the MWS is suitable for any situation regardless of the types of client devices that are in use.

Details pertaining to integration of MWS in a hosting partner's environment are provided in Section 6.0.

2.4 Fortune 500 Beta Testing

Metasoft has been beta testing MWS since the second quarter of 2002 by providing a free hosted service at www.Meta-Wireless.net. Individuals associated with a variety of Fortune 500 and other leading North American organizations have participated in this beta testing program and have provided valuable feedback, which has been incorporated into the development of our technology.

*In order to conduct a free beta trial of MWS capabilities, you are encouraged to sign up for our free hosted service. Please contact a Customer Service Representative at **1-888-METASOFT**.*

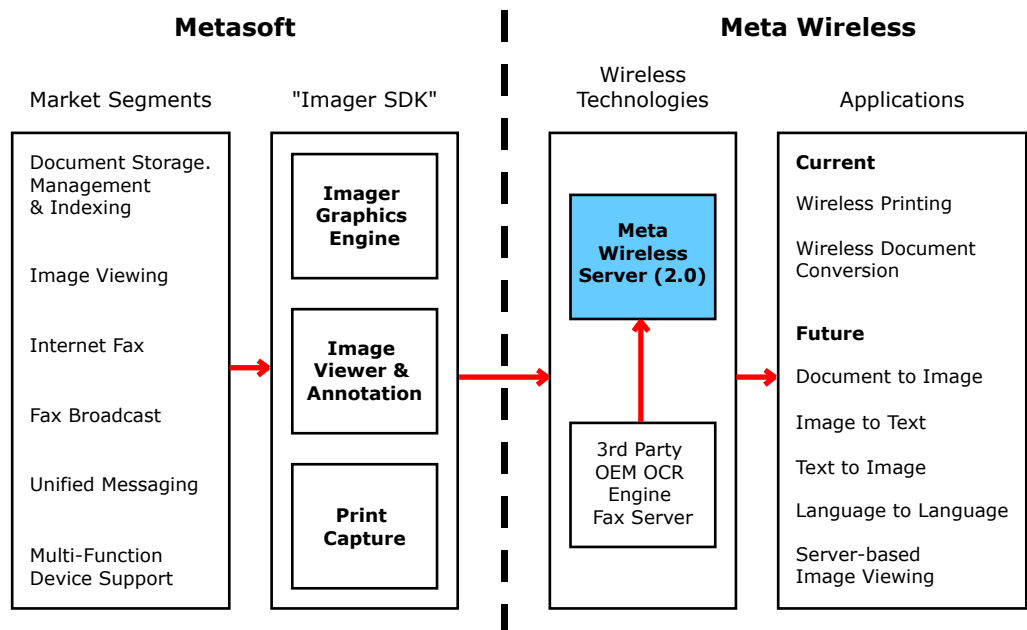


Figure A - Transfer of Core Metasoft Technology

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2.5 Our Approach to Wireless Printing

While certain standards, such as Bluetooth and 802.11, are currently competing for the future of wireless printing, we believe that the current global infrastructure of over 120 million facsimile machines currently provides the most reliable and convenient source of wireless printing destination devices.

Our strategy is to modify MWS and alter the printing destination device available to end users of our technology as more robust technologies mature and the associated infrastructure becomes adequately developed.

2.6 Why Metasoft?

We have developed our MWS product to deliver a robust solution that addresses specific challenges associated with today's wireless communication environment. The primary strengths of MWS are:

- **Security** - MWS can be installed behind a hosting partner's firewall to provide a secure method of allowing its wireless device users to access, view and print email.
- **Reliability** - MWS is based upon Metasoft's Server-Based Document Conversion Engine, which has been rigorously tested by many of the world's leading technology companies. With a base of over 55 million users is considered to be the most reliable print driver in the world.
- **Ease of Integration** - MWS can be easily integrated with a resident e-mail server. In this respect, Metasoft provides e-mail, Folder to Folder (F2F), and SDK solutions.

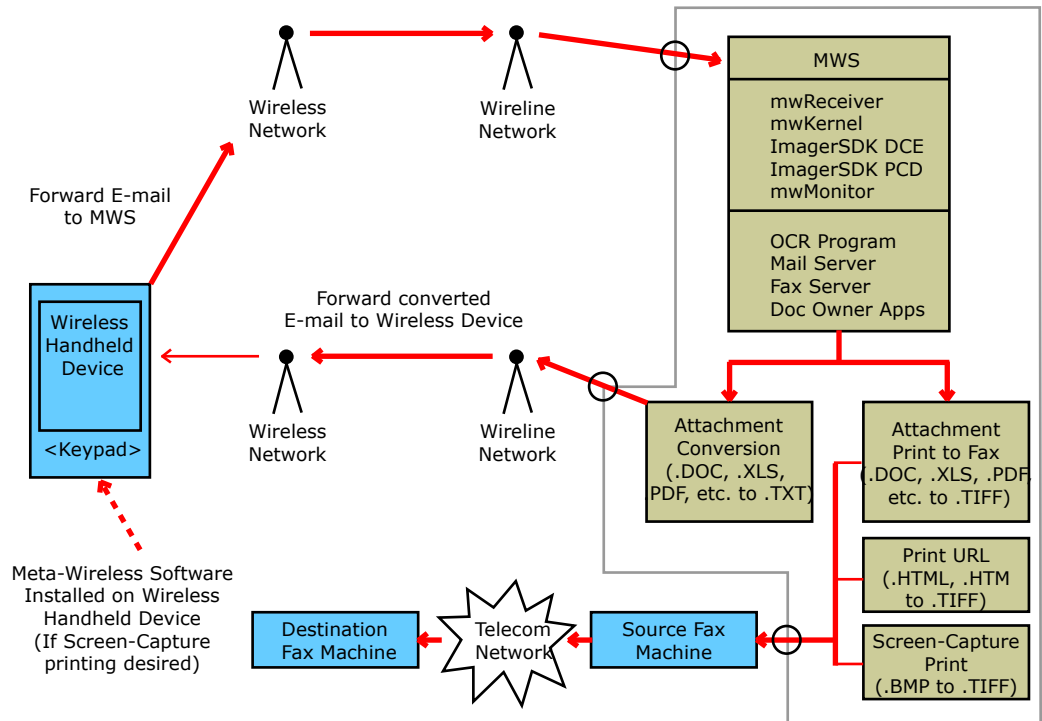


Figure B - Overview of MWS Technology Capabilities

- **Compatible File Formats** - MWS supports over 40 file formats (Section 3.6), including EML, MSG, EPS and PS.
- **Compact Design** - MWS has been designed as a small footprint, robust application that is suited for non-invasive installation in a hosting environment.
- **Speed** - The design of MWS and its incorporation of Metasoft's Server-Based Document Conversion Engine allow for rapid document conversion.

3.0 Technology Capabilities

MWS provides conversion and printing services for wireless devices that are e-mail capable, such as Personal Digital Assistants (PDAs), WAP Phones and pagers. It can be

used without the need to install device specific code as it is platform independent.

3.1 General

An overview of the technology capabilities of MWS is provided in Figure B.

As indicated in Section 1.0, MWS permits users of wireless handheld devices to view e-mail attachments and to print e-mails and attached documents to a nearby facsimile machine.

A brief overview of the each of the associated technology capabilities are provided in Sections 3.3 and 3.4.

3.2 Security

MWS can be installed behind a firewall to ensure a high level of security for the transmission of information.

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3.3 Wireless Document Conversion

MWS allows wireless device users to convert e-mail attachments to formatted text by forwarding such to the server using a specified e-mail address (i.e. text@YourCompany.com). The server performs the appropriate conversion and returns the attachment to the wireless device as formatted text in the body of a new e-mail message. A usage schematic is provided in [Figure C](#).

3.4 Wireless Printing

MWS allows the wireless device user to print e-mail and associated attachments to the nearest available

fax machine by simply forwarding the e-mail to the server using a specified address (i.e. print@YourCompany.com) while indicating the desired facsimile number in the subject line of the e-mail message. The server performs the appropriate conversion and routes the information to the desired facsimile machine for printing.

A wireless-printing usage schematic is provided in [Figure D](#).

3.5 Wireless Screen-Capture Printing

Metasoft has developed a proprietary and patent-pending technology that allows users of wireless devices to print screen-capture information and

route it to a nearby facsimile machine for printing. As this technology requires both the MWS and proprietary client software, it is described in more detail in Section 5.0.

3.6 Compatible File Formats

MWS is compatible with the following files types: Word (.doc), Excel (.xls), Adobe Acrobat (.PDF), Bitmap (.bmp), Tiff (.tif), txt, rtf, html, htm, fax, pcx, att, 301,cal, cif, clp, img, gif, cut, ica, iff, imt, jpg, kfx, lv, mac, pct, wmf, msp, dcx, pbm, pct, pgm, pcd, psd, png, eps, ppm, sgi, gx2, ras, tga, dib, rle, ico, wpg, xbm, xpm and xwd.

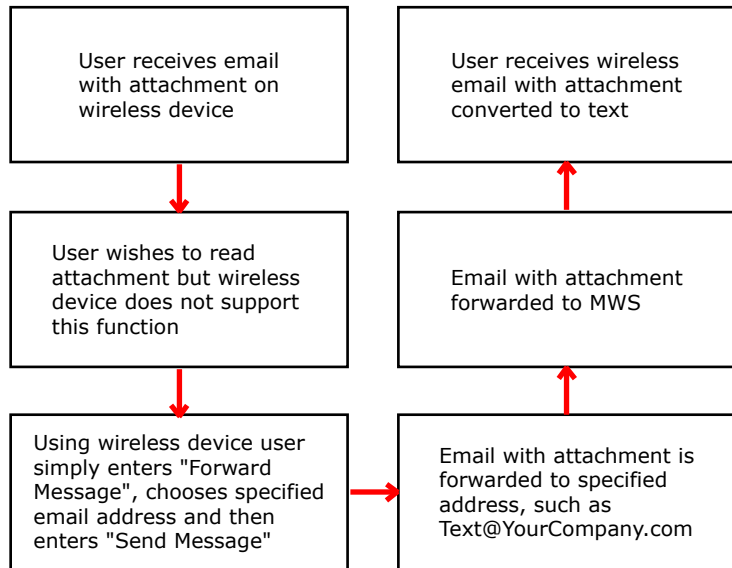


Figure C - Wireless Doc Conversion Usage Schematic

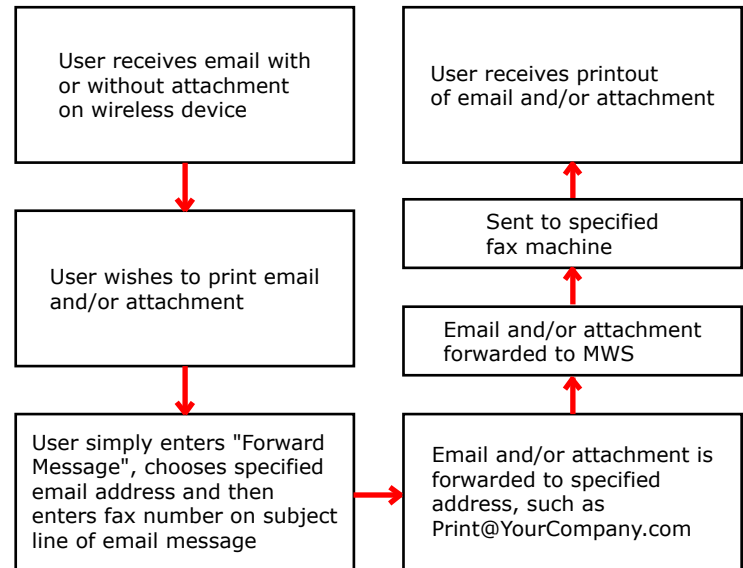


Figure D - Wireless Printing Usage Schematic



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4.0 MWS Components

MWS is comprised of a variety of components as shown in **Figure E**. These components include modules that are proprietary to Metasoft, third-party OEM programs, databases and data files.

Specifically, MWS contains the following five modules that are proprietary to Metasoft:

- mwReceiver
- mwKernel
- Imager SDK Document Conversion Engine
- Imager SDK Print Capture Driver
- mwMonitor

Descriptions of each of these individual components are provided below.

4.1 Proprietary Components

4.1.1 mwReceiver

This is a COM object that fires on receipt of an e-mail. It adds the e-mail to a queue of e-mails to be processed.

4.1.2 mwKernel

This is the core of the MWS. It is made up of an executable program that runs as a Microsoft Windows service. It is constantly checking the queue for e-mails to be processed. It

contains six sub-component applications that each conducts specific functions, as outlined below. When an e-mail is found in the queue, the mwKernel retrieves the e-mail and processes it appropriately through the six sub-component applications.

4.1.2.1 Conversion Control

This executable program checks the file extensions and launches the appropriate application (doc, xls, PDF, etc.). Once an application is launched, the application prints the attached document to an Imager SDK Doc Print Capture Driver, which generates a TIFF file.

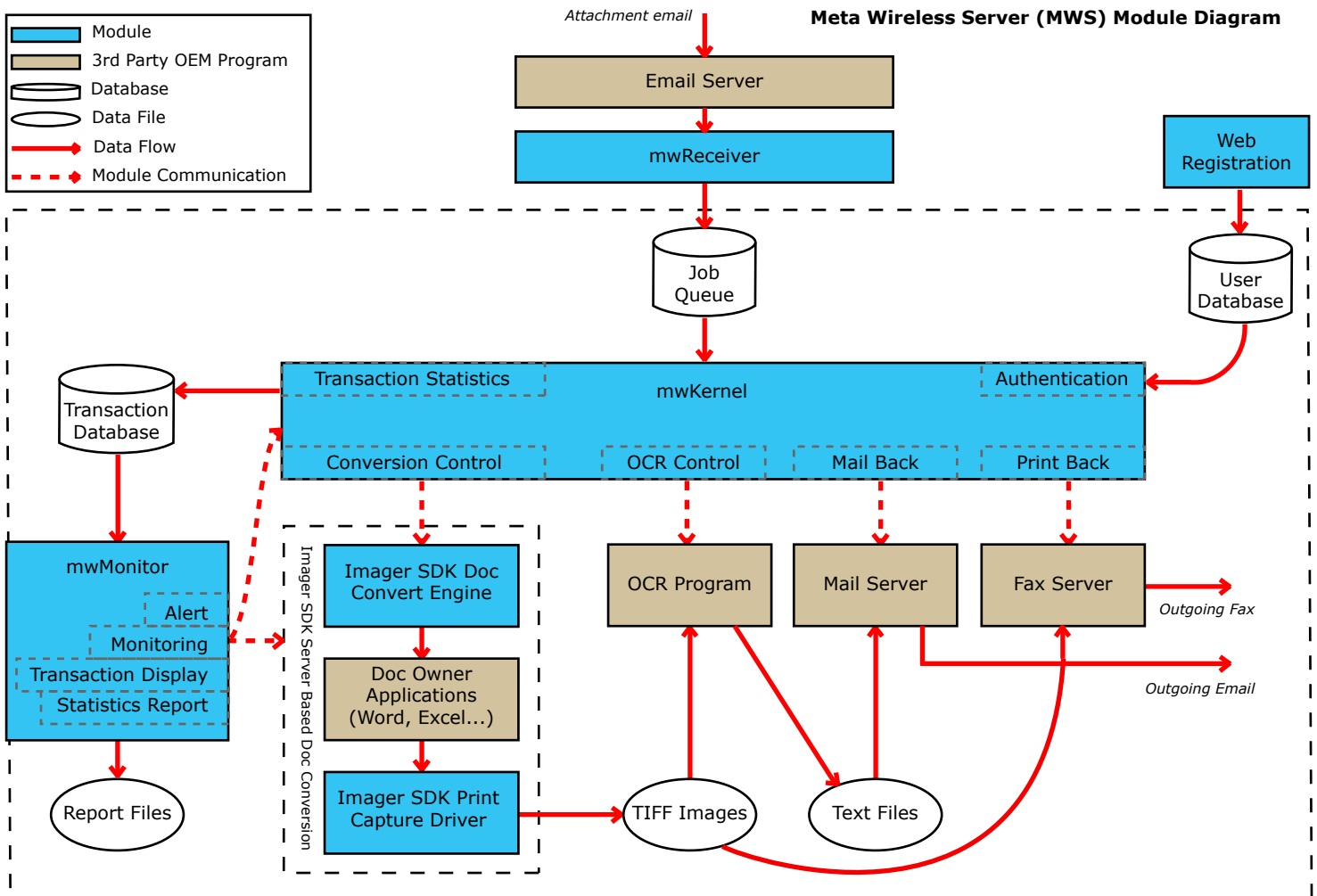


Figure E - Overview of MWS Components

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4.1.2.2 Transaction Statistics

A transaction database is maintained in cooperation with a transaction monitor. Throughout the processing of each e-mail, a transaction DB is updated after each critical stage of processing. Using this transaction history, MWS can produce a number of statistics such as the number of mail and print backs requested and the number of pages faxed for a particular end user.

4.1.2.3 Authentication

User data is kept in an SQL Database. The mwKernel is linked to this database and restricts the use of the MWS to only registered users.

4.1.2.4 OCR Control

This control within the mwKernel simply controls the input and output to the OCR Program where documents are converted from .TIFF to .TXT format.

4.1.2.5 Mail Back

The Mail Back feature enables end users to view attachments received on their wireless handheld devices. End users do so by sending an e-mail message with an attachment to a specified e-mail address, such as text@YourCompany.com and receive the converted document on their device.

Using the Conversion Control component, the Mail Back feature checks the extension of the image file and opens an application that can handle and print the file. Once the file is printed to the Imager SDK Print Capture Driver, a TIFF file is generated. This TIFF file is then run through the OCR component in order to recognize any text that may be in the file. The OCR component then creates a text file, which is pasted into the body of an e-mail and mailed back to the end user.

4.1.2.6 Print Back

The Print Back feature enables end users to print e-mails and attachments that are received on a wireless handheld device to a facsimile machine of their choice. End users do so by sending an e-mail message with or without an attachment to print@YourCompany.com specifying a facsimile number in the subject heading.

In a manner similar to the Mail Back feature, the first step in the Print Back Feature is to convert the document to TIFF using the Conversion Control component. Once a TIFF file is generated it is attached to an e-mail. This e-mail is then sent to a fax server that receives the e-mail with the TIFF attachment and attempts to send the facsimile to the specified facsimile number. If for some reason the specified facsimile machine is unavailable (busy, changed or wrong number etc.), the fax server will attempt to reconnect with the destination facsimile machine multiple times. Upon successful or unsuccessful completion of the facsimile attempt, the fax server sends a status message to the mwKernel via e-mail. The Print Back feature identifies this status message and sends it to the sender of the facsimile request.

Text in the body of the e-mail is provided within a cover page for the facsimile. Attachments are treated as the facsimile itself and will not include a cover page unless there is text in the body of the e-mail.

4.1.3 Imager SDK Document Conversion Engine

This component is a multi-threaded server based facsimile print driver that includes comprehensive source code for a conversion application used to drive the print driver. Conversion methods include the use

of DDE and OLE using native Windows based applications.

When an attachment conversion or printing transaction is requested, this component receives the document from the caller program, opens the appropriate application and then requests the application to print the document in .TIFF format to the Imager SDK Print Capture Driver.

4.1.4 Imager SDK Print Capture Driver

When an attachment conversion is requested, this component receives the document from the application program in .TIFF format and forwards the document to the OCR Program, which subsequently converts the TIFF file to .TXT format. The document is then forwarded to the wireless handheld device.

When a print-to-facsimile event is requested, the Imager SDK Print Capture Driver receives the document from the application program in .TIFF format and forwards the document to the fax server for transmission to the destination facsimile machine.

4.1.5 awMonitor

This stand-alone program will monitor the MWS activities and help the administrator to manage system usage and status.

4.1.5.1 Alert

mwMonitor checks the MWS activities by sending alert-testing message to the server.

4.1.5.2 Monitoring

An auto-recovery mechanism is implemented to ensure high availability.

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4.1.5.3 Transaction Display

The user interface allows the administrator to check and examine the transactions easily.

4.1.5.4 Statistics Reporting

Systems Transactions are logged to facilitate customer problem resolution, billing and management reporting.

5.0 Wireless Screen-Capture Printing

5.1 General

Metasoft has developed proprietary client software that is used in concert with the MWS to allow users of wireless handheld devices to print screen-capture images to nearby facsimile machines. A schematic overview of this software, and its interaction with MWS, is provided in Figure F.

5.2 RIM Screen-Capture Print

Metasoft has developed this technology for the Research In Motion (RIM) Blackberry 950 and 957 devices.

Once installed on a device, a user command event triggers the DLL entry function which conducts the following procedures: capture screen into a memory buffer, store the image into a BMP file and save in memory, prompt dialogue to ask user for facsimile number, user inputs facsimile number, bitmap is sent as an attachment and e-mail is sent through the internet to MWS.

5.3 Additional Devices

Metasoft is working to make the print-capture-screen capability available on a range of additional handheld devices, including those that use the Palm and Windows CE operating systems.

6.0 Integration of MWS in Hosting Partner's Environment

6.1 Software and Hardware

Information pertaining to the specific hardware and software components that are compatible with the MWS is provided below.

6.1.1 Software

The following are required for optimal performance:

- OS - Windows 2000 Advance Server, patched with the latest service packs, including Microsoft Management Console, Component Services and Imaging for Windows.
- MS Exchange 2000, including Web Storage System Tools and Active Directory Users and Computers.
- MS Office 2000 or later, patched with latest service packs, including Word, Excel, Power Point, Netscape 4.61, Acrobat Reader 4.0 and GS Viewer.

6.1.2 Hardware

The following minimum configuration is required to support MWS:

- Processor Speed - Min 600Mhz
- HD - 20 GB
- RAM - Min 128MB
- Dedicated Fax Lines - 1
- Bandwidth - Any connection with static IP
- Fax Modem - Min 9.6K
- NIC - At least 1*

It is important to note that the MWS can be set up in a number of ways. Some setups may require the server be connected to an internal LAN in which case a second NIC would be required.

6.2 Recommended Architecture

MWS is optimally positioned within a hosting partner's environment as a stand alone application that resides behind a firewall and communicates with a resident e-mail server.

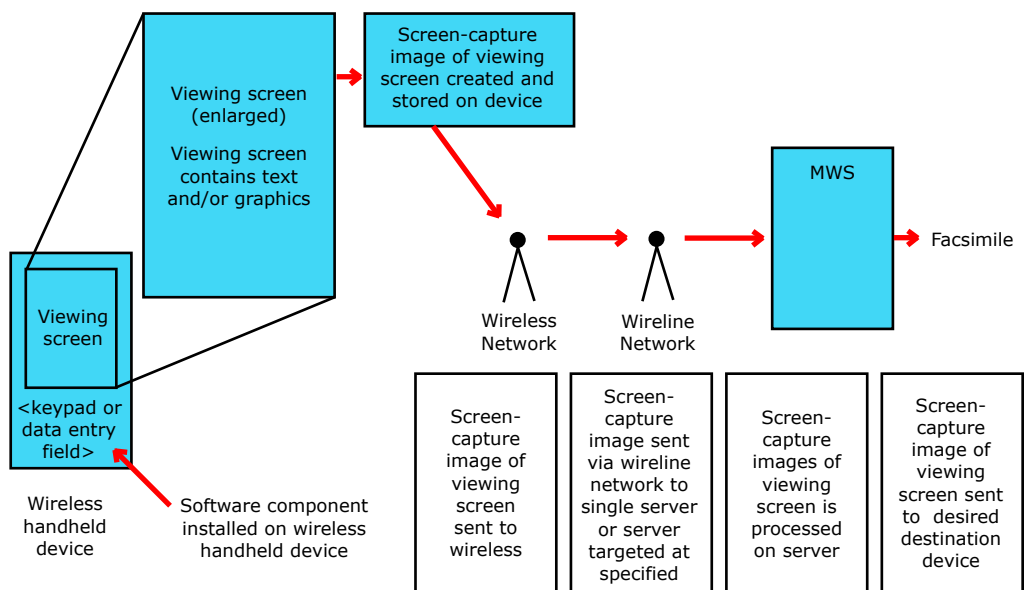


Figure F- Overview of Wireless Screen-Capture Printing