

Cost and Productivity Benefits

of Implementing an IP Fax Solution

MESSAGEmanager Solutions - September 2009



“ MESSAGEmanager IP FAX software complements VoIP Systems with simple, flexible and field proven capabilities which boost employee productivity by providing rapid fax delivery, with an audit trail fully compliant with security and regulatory requirements.

MESSAGEmanager reduces hardware and maintenance costs, eliminates dedicated analog fax lines, as well as specialised fax equipment, maintenance and supplies. ”

Ivor Livingston
Chief Executive - MESSAGEmanager Solutions



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Executive Summary

Fax is a legally binding and essential means of communication for government and business today.

Government departments and business organisations rely heavily on fax to transfer thousands of documents daily from business critical applications.

Despite attempts to become a paperless society:

- More than 100 billion fax pages are transmitted around the globe annually¹
- Knowledge workers handle an average of 178 facsimile documents per week²
- The average business fax machine consumes 5,000 sheets of paper annually
- The average energy consumption of per business fax machine is 32kWh which translates to 200kg of Co2³

Traditional fax systems do not work reliably on IP networks. Standard VoIP Codecs, such as G.711 allow for a certain amount of latency and packet loss, acceptable in a voice conversation but cannot accurately convey the modem signals necessary for fax transmission. And VoIP connections suffer dropouts and timing adjustments, which fax modems cannot tolerate.

ITU recommendation T.38 provides reliable and cost effective fax communications on IP networks. VoIP vendors such as Avaya, Alcatel-Lucent, Audiocodes, Cisco, Quintum and 3Com have incorporated T.38 into their gateways and routers to manage the delays, jitter and packet loss experienced in packet networks and to provide the interface to the Public Switched Telephone Network.

MESSAGEmanager IP FAX software complements the gateways with simple, flexible and field proven connections for users, applications, and Multi Function Devices, which boost productivity by providing rapid fax delivery and reception and an efficient means of fax broadcasting.

IP Fax streamlines workflow management with an audit trail fully compliant with security and regulatory requirements. It also reduces hardware and maintenance costs, eliminates dedicated fax lines, as well as specialised fax equipment, maintenance and supplies.

IP Fax (FoIP) is an opportunity for business, government & agencies to significantly reduce their total fax bill, dramatically improve business processes and increase security and control over sensitive fax data.

This briefing paper describes the specific cost and productivity benefits of implementing an IP Fax solution.

Reduce Costs and Increase Productivity

The Business Case for Deploying MESSAGEmanager IP FAX Software

By most estimates 90% of documents and forms sent by fax originate on a computer.

Each time you send a fax via a fax machine, you need to print the document, walk to the fax machine, prepare a cover sheet, enter the fax number and then wait by the fax machine while the document is transmitted to confirm delivery.

This process can easily take up to five minutes per fax and if the person responsible for sending faxes is paid \$12-\$18/hour, then the cost of manually sending faxes can range from \$1-\$1.50 per fax.

And this does not take into consideration receiving facsimiles. Receiving faxes involves walking back and forth to the fax machine, finding one's fax and the occasional wasted trips when faxes haven't arrived. On average this takes approximately 5.3 minutes.

Multiply that by the number of faxes you send per day, per month, per year, and the labour cost involved with faxing can easily climb into thousands of dollars.

Number of Faxes Per Day	Cost Per Day		Cost Per Week		Cost Per Year	
	\$1 per fax	\$1.50 per fax	\$1 per fax	\$1.50 per fax	\$1 per fax	\$1.50 per fax
10	\$10	\$15	\$50	\$75	\$2,600	\$3,900
50	\$50	\$75	\$250	\$375	\$13,000	\$19,500
100	\$100	\$150	\$500	\$750	\$26,000	\$39,000

MESSAGEmanager changes your fax processes from paper to digital workflows by integrating Fax with Email, Multi Function Devices, ERP, and CRM business applications.

Desktop fax applications integrate easily with existing e-mail infrastructure, making the addition of fax to end user's e-mail applications as simple as sending e-mail attachments.

Desktop fax reduces time and increases efficiency when you need to send faxes to multiple destinations. Unlike traditional walk up fax machines where you need to enter multiple fax numbers, desktop fax allows you to fax to multiple addresses in a matter of minutes the same way you send e-mail messages to a distribution list.

Desktop fax also provides security and confidentiality as the fax is received at the desktop, not in public view on traditional fax machines.

Production fax is a key requirement for any organisation whose day-to-day operations consist of manually delivering and receiving large numbers of paper documents to and from customers and partners.

Production fax enables organisations to automatically send and receive business critical documents such as purchase orders, invoices, statements, order confirmations, loan applications, loan approval/denial, bills of lading and financial reports electronically.

The following table highlights the savings a typical enterprise would experience with a production fax solution versus the cost to mail or manually fax a document.

	Number of Documents Per Day		
	50	250	500
Yearly Cost to Manually Fax (Cost Per Document: \$1-\$1.50)	\$13,000 - \$19,500	\$65,000 - \$97,500	\$130,000 - \$195,000
Yearly Cost to Manually Mail (Cost Per Document: \$0.65-\$0.80)	\$8,450 - \$10,400	\$42,250 - \$52,000	\$84,500 - \$104,000
Yearly Cost with Production Fax (Cost Per Document: \$0.10)	\$1,300	\$6,500	\$13,000
Production Fax Savings vs. Manual Faxing (Cost Per Document: \$0.9-\$1.40)	\$11,700 - \$18,200	\$58,500 - \$91,000	\$117,000 - \$182,000
Production Fax Savings vs. Mail (Cost Per Document: \$0.55-\$0.70)	\$7,150 - \$9,100	\$35,750 - \$45,500	\$71,500 - \$91,500

STD and IDD Cost Savings

Savings of up to 40% have been reported from shifting fax traffic to IP Networks avoiding international and interstate Public Switched Telephone Network (PSTN) call charges.

The telephony cost of sending a ten-page fax from Australia to the USA is approximately 0.76 cents. Routing that same fax over an IP network eliminates the international call fee.

Multiply that by the number of international and interstate faxes sent and the savings quickly add up.

Reduce Support Costs

Multiple network topologies and disparate network technologies increase the level of management complexity. As data networks have expanded throughout the enterprise, organisations have been forced to manage a data network and a telephone network, each using radically different technologies requiring different technical skill sets and knowledge.

With IP communications, organisations can eliminate the legacy telephone network and combine all communications modes, including fax, in a single network topology reducing staff requirements by transitioning phone and fax services to the data networking group.

Compliance, Privacy and Security

HIPAA, Sarbanes-Oxley, Gramm-Leach-Bliley and other regulations and conventions emphasise more than ever the need for greater privacy protection, document transmission security and accountability.

MESSAGEmanager creates an audit trail of all faxes sent and received, increasing security and control over sensitive fax data to safeguard information security and privacy.

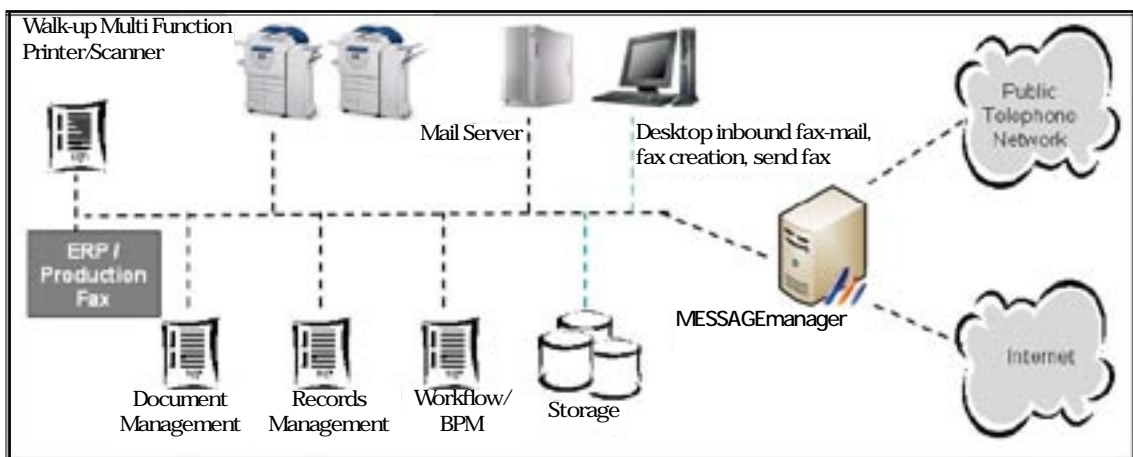
Scalability

MESSAGEmanager easily adapts to changing business needs. To add a remote location additional lines or a new application is as simple as changing a software license.

Multi Function Devices

Integrating Multi Function Devices with MESSAGEmanager IP FAX is far more cost effective than deploying Multi Function Devices on analog lines. The business gains the benefits of IP Fax and the tracking and auditing of all documents sent and received.

MESSAGEmanager supports all popular Multi Function Devices including Canon, HP, Fuji Xerox and Ricoh.



Enhanced Disaster Preparedness

VoIP network architecture enables the location of the server to be independent of the user application, allowing organisations to consolidate Fax servers in one or two strategically located data centers.

This greatly simplifies disaster planning and preparedness by reducing the number of sites that need rapid response capability, and enables organisations to locate the fax server in the most secure and stable environment.

In the circuit switched world, if the network connection between the fax server and the PSTN is unavailable the fax server is unable to send or receive faxes. IP communications architecture, by its nature, is more fault tolerant to network outages than the traditional circuit switched network. IP inherently has the ability to route traffic via fully functional network nodes even if part of the network is down.

With IP, a single fax server or multiple load balanced redundant fax servers can be installed on multiple different network nodes effectively eliminating the likelihood that the fax server will ever be without access to a network.

Bandwidth

Fax over IP traffic typically uses only about 1/3 the bandwidth of VoIP traffic, and therefore will have a much smaller impact on the required network bandwidth needs.

MESSAGEmanager uses T.38 over UDP whereas other products may use a codec such as G.711. G.711 over RTP is a VoIP connection, much like streaming a fax over a VoIP line and consumes 64kbps.

MESSAGEmanager puts traffic on the IP line at the modulation rate negotiated with the end fax device on the PSTN. With a V.17 connection, this will consume IP bandwidth at a rate of 14.4 kbps.

T.38 is reliable on an IP network using UDP as it has the capability to send redundant packets to be sure the connection stays up despite jitter and latency. This is a user configurable parameter which is generally set to send 2x redundancy, which means a V.17 connection would consume 28.8 kbps of bandwidth.

If the modulation rate to the end fax device is less than 14.4 kbps, less bandwidth is required.

Security

T.38 IP Fax introduces no additional threat to security from network attack.

Data is examined at four levels:

- Invalid T.38 packets are dropped
- Invalid T.30 messages are dropped
- Invalid T.4/T.6 image data is dropped
- Invalid T.30 messages or T.4/T.6 image data for a specific point in the call are dropped

Network Delay/Latency/Jitter

Acceptable VoIP latency ranges from 250-300 milliseconds or less for each packet. A network properly configured for VoIP will support IP Fax.

- Loss of consecutive packets can cause the fax process to fail
- T.30 will fail if 3 consecutive signals are missing overcome by the T.38 driver sending redundant packets
- Jitter, variable timing between packets, is overcome by adding time stamps to the T.38 packets ensuring signals are 'played' at the right instance by the gateway

MESSAGEmanager Solutions

Australian based MESSAGEmanager Solutions is a **global leader in IP Fax and Voice Messaging and Communication Solutions**.

Our heritage dates back to 1986 when we developed FaxStream the World's First Fax Server for Telecom Australia and fax diagnostic tools for Telecom and Optus.

Today, MESSAGEmanager FAX enjoys over **60% AsiaPac market share** according to a recent IDC Davidson Consulting Fax Report. ¹

Our locally based experienced Technical and Development services make a real difference supporting customers and partners in their aspirations and developing value propositions in response to individual customer requirements.

Our strategic technology alliances ensure we have access to the latest development platforms and tools for our innovative solutions.

MESSAGEmanager Solutions is a Microsoft Gold Certified Partner, IBM PartnerWorld Member, SAP Certified Solution, HP Development Partner, Dialogic, Nuance, Avaya Gold Partner, Cisco Technology Developer Affiliate and AudioCodes Partner.

1. Davidson Consulting 2005

2. Gallup Institute and the Institute for the Future

3. http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/calc_fax_machines.xls

and http://www.epa.gov/climatechange/emissions/downloadsGHGCalculator_11-06.xls





Level 8, 9 Help Street
Chatswood, NSW 2067
Australia
www.mmanager.com
info@mmanager.com

Australia
Tel: +612 8448 8800
Fax: +612 8448 8811

United Kingdom
Tel: +44 1727 730022
Fax: +44 1727 730023

United Kingdom: 0800 169 8226 *Toll Free

New Zealand: 0800 445 308 *Toll Free

Canada: 1877 3701261 *Toll Free

USA: 1877 8841664 *Toll Free