

▶▶ GCS IP Communications

▶▶ Improve productivity and simplify IT infrastructure with GlobalComServer IP Technology connector.

GCS IP Communications, a fax server for an IP Telephony Environment

▶▶ Introduction

It is estimated that there are 112 million fax machines in use in the world today with more than 6 million new units sold each year. Despite the rise of email and the Internet, fax continues to be an important means for business communications. One of the main reasons that fax has seen continued growth is its simplicity. Fax machines are easy to use and hence a simple way to receive documents quickly, safely and securely.

Faxing has traditionally been done in real-time over the Public Switched Telephone Network, via the T.30 fax protocol and several modem standards.

The reasons for the popularity of real-time circuit-switched fax are the following:

- ◆ the real-time receipt of a fax,
- ◆ notification that the fax has been successfully sent,
- ◆ the receiver gets information on the sender's telephone number and the time the fax was received.

These features have become essential parts of the fax experience and have set expectations that will continue to apply for advances in fax communication, including fax over IP.

As businesses migrate their voice traffic to an IP environment, there also exists a natural inclination to migrate their fax traffic to IP.

This paper will review the growing need for real-time fax over IP with GlobalComServer and its newly introduced compatibility to Fax over IP T.38.

▶▶ Why companies need fax over IP ? (FoIP)

One of the most fundamental reasons to implement FoIP in GlobalComServer is the data-voice convergence onto a single IP network. As IP environments increase, businesses will have less access to PSTN phone jacks for their fax machines and fax servers. In the most extreme example, a customer installing an all-IP PBX will require a fax over IP solution to integrate their communications infrastructure.

Installing IP technologies allow users to get Fax, voice and multimedia tools on their desktop. But in a Pure IP environment, companies will no longer be able to use their



phones, faxes and servers on their network. Even if it's an important point, they only realize after they have bought an IP PABX that they need to move all their equipment to IP technology. Unfortunately even recent fax servers don't support Fax over IP except GlobalComServer which is fully IP compatible.

▶▶ How Real-Time Fax Over IP Works ?

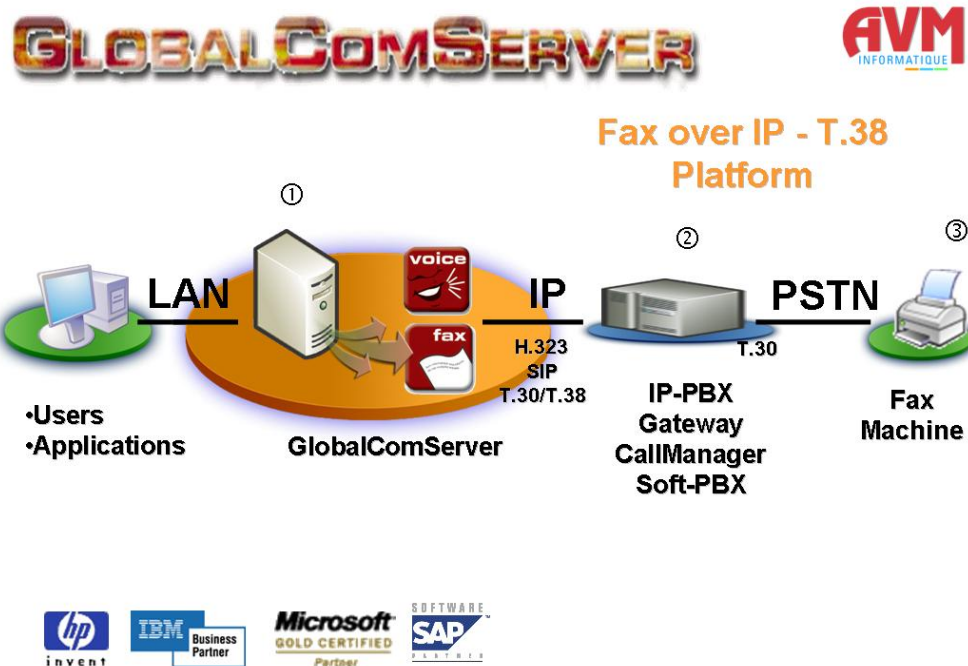
There are two methods for sending faxes over an IP network:

- ◆ T.37, which is a "store and forward" approach but not real-time
- ◆ T.38, where faxes are sent and received in real-time, the same way as on a PSTN-based fax call.

In this distributed architecture the quality of the fax communication depends on 2 elements :

- ◆ The fax server and its T.30/T.38 protocol
- ◆ The phone network gateway

That's why AVM integrates the best fax over IP software layers to insure performance and reliability.



① The fax server is connected to the company IP network. Fax T.30 data and image are sent to the gateway using T.38 packets.

② The IP PABX acts as a gateway and transmit the data to the fax machine through the phone network.

③ The destination receives in real time the document sent through the gateway.

GlobalComServer

GLOBALCOMSERVER

►► Affordable and based on recognized standards

One of the key success factors of IP Telephony is its openness and its adoption of common industry standards for IP-based call control and data transfer.

GlobalComServer is based entirely on leading industry VoIP standards such as ITU-T H.323 and IETF SIP and is fully compatible with leader's hardware like IP gateways, IP phones and telephony platforms.

Furthermore significant cost savings can be performed thanks to intra-company communications through the private IP network and the communication server centralization.

►► Technical Specifications

VoIP call control	H.323 v4 SIP H.225 call signaling	H.225 RAS H.245 Control
Supplementary services	H.450.2 Call Transfer H.450.4 Call Hold	H.450.3 H.450.7 Message Waiting Indicator
Fax Services	T.38 fax sur IP Fax Compression MH, MR, MMR	T.30 Fax group 3 up to 14.400 Baud, Error correction mode
Conferencing services	Up to 120 parties Conference	Line interconnect
Voice processing features	Inband and Outband DTMF generation and recognition	
Media Streaming	IP Real-time transport protocol (RTP) G.711 codec, 64 kbits A-law, u-law	G.729 codec, 8 kbits
Network Interface	IP over Ethernet with any NDIS-5 compatible Ethernet adapter	
Channel density	Up to 240 concurrent channels (depending on application and processor speed)	
Operating System Requirements	Microsoft Windows 2000 Professional Microsoft Windows 2000 Server	Microsoft Windows 2003 Server
Interoperability	Cisco (Callmanager, Callmanager Express, VoIP Gateway). Innovaphone (Gateways, IP Phone) Microsoft (NetMeeting) Radvision (Protocol Stack) Snom (IP Phone) Telebau (Gateway, IP Phone)	Elink (Gateway, IP Phone) Inalp (Gateways) OpenH323 (Protocol Stack) Siemens (Soft-PBX, IP Phone) Swissvoice (IP Phone) Tenovis (Soft-PBX)



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