

The Most Trusted Name in Enterprise Cloud

Why Voice Over IP is Unreliable for Faxing and how the Cloud can Help



It's logical to assume that fax, like other communications, will work seamlessly with your new Voice over IP network.

But can your fax machine tolerate a small packet loss in transit? A short delay? A protocol incompatibility with a recipient's fax network?

The fact is it probably can't.

So the question is – how important is reliable faxing to your business?

If the answer is "important," keep reading to learn why you should not entrust your critical business faxes to a VoIP or SIP Trunking network, and how eFax Corporate[®] can provide a safe alternative in the Cloud. As counterintuitive as it seems, migrating your company's fax infrastructure to Internet Protocol (IP) is not a simple upgrade. This is true whether your network is based on the latest Voice-over-IP (VoIP) technology or even (how's this for counterintuitive?) fax-over-IP, or FoIP.

One advantage of IP is compression. You can combine data, voice and video, broken into packets, over an IP network in compressed form — to save bandwidth and, usually, maintain acceptable quality. With a VoIP phone call, dropping packets is annoying, but the connection survives. Worst case: You need to ask, *"Could you repeat that last thing you said?"*

Fax, however, cannot be compressed, and it actually takes more bandwidth to send a fax over IP than a regular phone call. Worse, even a small amount of packet loss along the way can cause the entire fax to fail. The longer the fax, the less likely it is to go through. And that's only one of many problems fax has with IP.

That is why many VoIP service providers actually recommend placing critical fax applications on plain old telephone lines (an extra expense), since faxing is known to be problematic on IP networks.

Fortunately, there is a better way. eFax Corporate offers a cloud-based solution specifically designed to send and receive Fax efficiently and securely regardless of the underlying network technology.



Why the Benefits of IP Don't Accrue to Fax

Compression is a key benefit of IP — letting you converge and compress voice and data on the same pipe and save on bandwidth. But you can't compress a fax, so there's no savings to be had.

Why Fax Can Fail over VoIP/SIP

- Packet delay, jitter and loss While mostly reliable, VoIP (also known as SIP trunking) can delay or drop a packet here and there, by design. But even a 1% packet loss can kill an entire fax transmission.
- Protocol incompatibility For example, many VoIP services use the G.729 protocol to compress voice calls; since faxes cannot be compressed, they require the standard-rate G.711 protocol. The brief gaps in fax tones that occur as the system tries to negotiate between the two protocols can cause the fax to fail.

Even Fax-over-IP protocols have inefficiency and reliability problems

G.711 — Consider that the G.711 protocol, actually designed to digitize voice, converts fax tones into a digital signal at 64kbps. Packetizing the G.711 signal adds IP overhead totaling 88Kbps, which is 38% more bandwidth than a standard voice call and 175% more than a VoIP call compressed to 32Kbps.

T.38 — The newer T.38 protocol was intended to transmit faxes directly over IP (FoIP), so the fax doesn't need to be converted to an audio stream first. But T.38 must be on both ends of a network to work, and many service providers never implemented the protocol. If the fax has to traverse networks that do not support T.38, it will need to be transcoded, which can add latency, increase cost, and may cause the call to disconnect.

eFax Corporate: The Cloud Fax Solution

While moving to an IP infrastructure makes sense for real-time services like voice and video conferencing, fax, as we have seen, is a different dynamic. The most reliable, secure and cost-effective protocol for enterprise-level faxing is a cloud fax model, and eFax Corporate has built the most advanced global cloud faxing network for businesses.

How Cloud Faxing Works

Users send and receive faxes as email attachments directly from their desktop, as well as from networked multi-function printers and even mobile devices. Faxes travel over eFax Corporate®'s geographically diverse global network, comprised of redundant data centers and Tier III or IV colocations, providing 99.9% uptime, rapid delivery and unparalleled transmission security. Additional security features include Transport Layer Security (TLS) for faxes in transit and AES 256-bit encryption for faxes at rest.

This is why many of the largest and most heavily regulated companies trust only eFax Corporate to transmit and store their sensitive document faxes.

VoIP (Voice-over-Internet Protocol)

A technique for sending voice over the Internet — in discrete packets, instead of the traditional circuit-based telephone network.

SIP (Session Initiation Protocol)

SIP is the signaling system that sets up a VoIP call over an IP network. VoIP services that use SIP are known as SIP Trunking services.

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