Technology Brief

Dialogic and Internet Aware Fax

With over 20 years of fax experience, Dialogic has cemented a solid reputation for delivering value in intelligent fax technology. Dialogic has continued to build on its fax legacy by providing technology that can deliver – in seconds – faxes that used to take minutes.

Dialogic has used Dialogic® Brooktrout® Fax Software to demonstrate the amazing speed at which a fax can be sent with Internet Aware Fax (IAF) technology when used in combination with an IP network. The impressive results speak for themselves – a fax that typically would have taken up to 10 minutes to transmit using T.38 V.17, instead took only 6 seconds.

The Advantages of IAF

IAF is described within the ITU-T T.38 Recommendation as a real-time method for sending faxes directly between two fax-over-IP (FoIP) endpoints over an all-IP network. Accordingly, endpoint devices, such as fax servers or fax machines that support IAF and have an all-IP network between them, are able to send and receive faxes at a much higher speed than via non-IAF T.38. With IAF, the same ITU-T-based methodologies for sending a fax via T.38 are used, unlike other fax solutions that may instead use file transfer to move faxes across portions of an IP network. Moreover, as it is part of the T.38 Recommendation, IAF is compliant with HIPAA, Sarbanes-Oxley and other regulations.

All-IP networks are likely to be in place when faxes are being sent:

- within an enterprise using the enterprise LAN
- between enterprises using the same SIP trunk provider
- between enterprises using multiple SIP trunk providers with peering
- using direct IP-IP services such as public or private ENUM, or a peering service such as XConnect, or NetNumber

SIP Peering

With peering, SIP trunk providers have an agreement to allow the routing and accepting of calls directly in IP. This removes restrictions that would otherwise be introduced by gateways and due to transcoding to TDM/PSTN in the call path.

T.38 with IAF differs from non-IAF T.38 in that the latter supports faxing over IP networks but is constrained by the underlying T.30 timers, by restrictions imposed by gateways (e.g., lack of support for V.34 transmission speeds), and by transcoding delays to and from the PSTN. Figure 1 illustrates an example of T.38 fax in a network using a SIP trunk that does not support SIP peering and, therefore, does not utilize IAF.

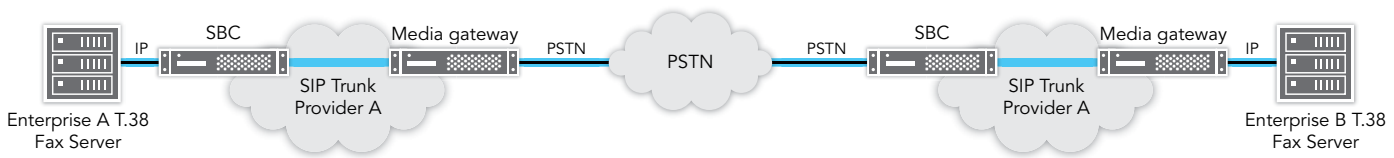

Figure 1: Fax over IP between enterprises using multiple SIP trunk providers without a peering agreement

If fax communication is within an enterprise on an IP network, between endpoints using a direct IP-IP service or peering service, or between enterprises using SIP trunks that support peering, and the endpoints support IAF, then fax communication could occur at high speed. Figure 2 illustrates an example of a network using SIP trunks that supports peering, allowing the fax traffic to stay on an all-IP path rather than traversing gateways or the PSTN.

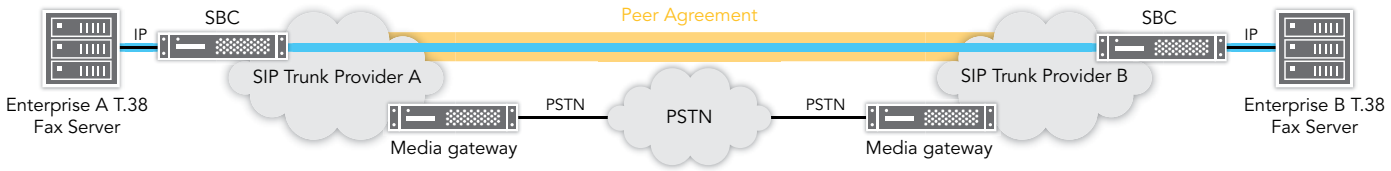

Figure 2: Fax over IP between enterprises using multiple SIP trunk providers with a peering agreement

While not all SIP trunk providers support peering, the ability to reduce costs through keeping their networks all IP by avoiding PSTN sections is influencing growth in peering agreements. Also fueling this growth is the increased use of high definition (HD) voice, video, and unified communications (UC). If IP-based HD voice, video and UC data have to leave an IP network, audio and image improvements are lost during the G.711 transcoding to the PSTN.

The growth in peering agreements provides benefits for non-IAF T.38 fax as well. With SIP trunk peering, the fax media stays in T.38, which results in highly reliable fax transmission due to factors such as:

- G.711 transcoding not being necessary
  - No additional delays introduced by transcoding
  - No image quality degradation introduced by transcoding
- Transfer speeds not restricted by media gateways, only the fax endpoints
  - V.34 fax speeds being achievable, as well as high speed fax if IAF T.38 fax is supported
- T.38 redundancy being retained

IAF Example Use Case

Dialogic used two fax servers with Dialogic® Brooktrout® Fax Software with T.38 IAF support to send faxes across two off-the-shelf, single-number SIP trunks from babyTEL, using the existing Internet connections between two locations (Massachusetts and California). Because connections to destinations within the babyTEL network are peered, fax communications could occur directly between the fax server endpoints. And, because the endpoints also supported T.38 IAF, faxes were sent and received at wire speed. For example, a 15-page fax that was text-dense took 10 minutes to transmit using T.38 V.17 technology, but using T.38 IAF, that same fax took only 6 seconds.

Dialogic® Brooktrout® Fax Technology Leadership

Dialogic is a market leader in fax technology, offering a robust feature set and a broad range of fax and FoIP Platforms for both hardware and software configurations. Dialogic is trusted by over 60 application partners worldwide that use Brooktrout fax technology as an integral component of their document management, business process automation, and other offerings. Brooktrout (which has since become part of Dialogic) was a significant contributor to the T.38 specification, and Dialogic was the first technology provider to offer T.38 V.34 termination support. For information about Dialogic® Brooktrout® Fax Products, contact your local Dialogic representative or contact insidesales@dialogic.com. Product information is also available online.

www.dialogic.com

For a list of Dialogic locations and offices, please visit: https://www.dialogic.com/contact.aspx

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