

Deploying Fax over IP Solutions using Dialogic® Brooktrout® SR140 Fax Software and Dialogic® Media Gateways

Technology Brief

Although often overlooked, fax services and applications need to be part of a solid migration plan for moving communications services from PSTN- and PBX-based networks to IP networks and unified communications environments. Replacing traditional enterprise fax with a unified software solution (Fax over IP, also known as FoIP) can provide several very important benefits:

- Increased deployment flexibility, resulting in optimal network usage
- Ability to add fax to a data center virtualization scheme
- Very significant reductions in capital and operational expenses

This technology brief discusses the technical issues to consider when moving to a FoIP solution, and in particular discusses Dialogic® Brooktrout® SR140 Fax Software, which is FoIP software based on field-proven Dialogic® Brooktrout® fax technology, and Dialogic® Media Gateways (DMG Gateways), which are important in bridging legacy PSTN/PBX and new IP networks.

Software Versus a Hardware Solution for Fax

As with many IP-based communications solutions, FoIP does not require specialized hardware. Because it can be deployed as a pure software solution on standard computing platforms and IP networks, new and very efficient IP communications protocols and host-based FoIP media processing engines can be used. Today's powerful host microprocessors can also be harnessed to generate fax images, and expensive, dedicated digital signal processors (DSPs) are no longer necessary.

Industry Standard Protocols for Reliable FoIP

Because the enterprise market values reliability, especially when important fax transmissions are involved, FoIP media processing engines take advantage of the following protocols, which have become industry standards with solid reputations for reliability:

- **Session Initiation Protocol (SIP)** — Typically used for FoIP signaling, that is, for establishing and managing fax transmissions, also known as sessions
- **T.30 Protocol** — Signaling stack used for traditional fax communications
- **T.38 (FoIP) Protocol** — Created to carry fax image data across IP networks

Bridging Legacy and IP Networks

Because an immediate and complete move from a legacy to an IP network can be very expensive and extremely disruptive, migrating to IP communications is normally a phased activity in both enterprise and service provider networks. Such a gradual migration requires gateways to bridge legacy circuit-switched technology and new packet-switched technology. FoIP is no exception to this rule, and gateways involved in migrations that include FoIP must be thoroughly tested for handling the special demands of FoIP.

Dialogic's FoIP Technology

Brooktrout SR140 provides proven Brooktrout fax technology that can be used to integrate fax servers and fax document management solutions with VoIP networks. The Brooktrout brand has a longstanding sterling reputation in the commercial fax industry for high levels of performance, reliability, and scalability, but Brooktrout fax technology was previously only available in hardware board-based solutions.

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By carefully transferring its fax algorithms and related fax technology to a completely software-based product, backed by thorough testing, Dialogic has produced Brooktrout SR140, which can provide advanced FoIP services suitable for a wide variety of network-based fax applications. SR140 can also be integrated with document management and business process automation systems to support compliance with regulations such as Sarbanes-Oxley, HIPAA, and Basel II.

Highlights

Brooktrout SR140 provides the following important features:

- **Server density** — 120 channels per single physical server or virtual machine, supporting up to 480 channels per physical server with virtualization
- **Virtualization** — VMWare and Microsoft® Hyper-V™ Server (support planned for July 2010)
- **Direct SIP interoperability** — Extensive testing with a variety of SIP trunking and IP-PBX providers
- **FoIP gateway optimization** — Thoroughly tested with DMG Gateways

Dialogic® Media Gateways

DMG Gateways combine Dialogic's engineering expertise in both media gateway and fax technology. DMG Gateways can be used to provide solid connectivity between the IP network and legacy PSTN or PBX equipment. Referred to collectively as the Dialogic® Media Gateway Series, DMG Gateways include both turnkey appliances and integrated platforms that range from low-density analog devices to powerful four-span T1/E1 gateways.

The DMG Gateway and Brooktrout SR140 engineering groups have shared their expertise to provide solid interconnectivity between the two product lines to enable reliable fax transmissions between IP packet-switched and legacy circuit-switched networks with proven Dialogic® technology.

Highlights

- **Gateway density** — 4 to 120 channels per gateway
- **PSTN/PBX protocol support** — Analog, PBX Emulation, BRI, PRI, T1/E1 CAS, and QSIG
- **Fax/FoIP protocol support** — SIP, T.30, and T.38
- **FoIP software optimization** — Thoroughly tested with Brooktrout SR140

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FoIP Deployment in the Enterprise

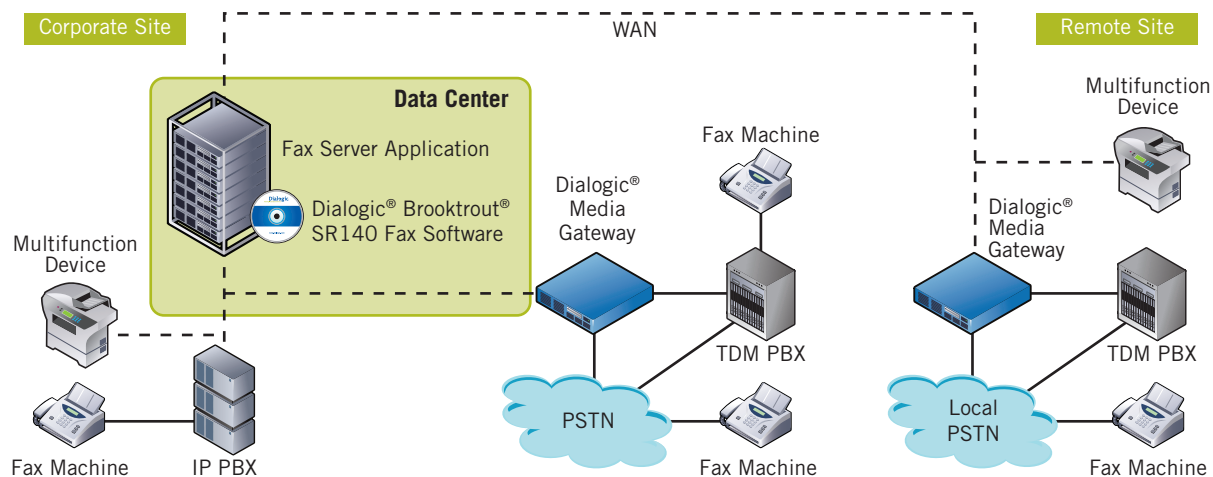


Figure 1. FoIP Deployment in the Enterprise

Figure 1 illustrates some of the most important benefits of deploying a FoIP solution built on Brooktrout SR140 and DMG Gateways in the enterprise. Features and benefits are summarized in Table 1.

Features	Benefits
All fax servers and fax applications can be consolidated and managed from a single centralized location for all sites	Centralized servers reduce capital and operational expenses; separate servers, supported by redundant groups of support personnel, are not required at each site
Server virtualization support	Fax server applications can be deployed on virtual machines with leading server virtualization software, increasing data center efficiency
Standardization	Brooktrout SR140 is standards-based, running on lower-cost standard server hardware
Interoperability between SIP and PSTN/PBX environments	Dialogic has conducted extensive testing of the T.38 FoIP protocol with its products and third-party SIP trunking and IP-PBX vendors
FoIP and media gateway optimization, especially in the translation of T.38 (FoIP) and T.30 (PSTN) fax protocols	Brooktrout SR140 and DMG Gateway product teams at Dialogic have shared expertise and performed extensive interoperability testing
Remote access of centralized resources	DMG Gateways enable toll bypass, providing savings as cross-continent and international sites take advantage of centralized fax resources over a corporate IP network instead of the PSTN

Table 1. Features and Benefits of a FoIP Solution with Dialogic® Brooktrout® SR140 Fax Software and Dialogic® Media Gateways

Questions?

If you have questions about the technology or Dialogic® products discussed in this technology brief, [contact](#) your local Dialogic representative.

Detailed information is also available on the Dialogic website for these products:

[Dialogic® Brooktrout® SR140 Fax Software](#)

[Dialogic® Media Gateway Series](#)

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