

## Fax Server Virtualization

### *Eliminate Hardware Dependency through Software Virtualization*

- *Take advantage of existing IP infrastructure.*
- *Remove inter-company PSTN charges.*
- *Simplify disaster recovery by leveraging virtualization.*
- *Lower total equipment, maintenance, and operating costs through network consolidation.*
- *Reduce long distance costs.*
- *Eliminate the need to maintain fax ports on your PBX system.*
- *Have a migration path from traditional fax to IP fax as you move to VoIP networks.*
- *Supports Windows 2008 and Windows Server 2012 R2.*
- *Connects to analog or digital phone lines, such as T1, PRI, EI, and BRI, or SIP trunks provided by either the PBX or a SIP trunk provider.*
- *Does NOT require a VoIP network.*

### Fax Server Virtualization

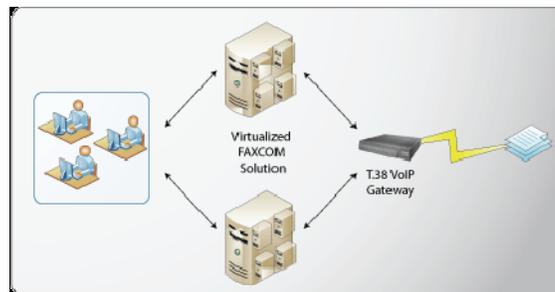
Virtualized fax server solutions are quickly becoming the standard platform of choice as corporations make the paradigm shift from physical servers to such virtualization technologies as VMware, Microsoft Hyper-V, XEN and Citrix. FAXCOM Server enables you to leverage virtualization technologies. It is a fax solution of enterprise scope and flexibility that, when virtualized, lowers capital and operational costs.

A virtualized FAXCOM server uses the Dialogic Brooktrout SR140 software to enable a seamless integration with Cisco, Avaya, Nortel, Quintum, and Dialogic Voice over IP networks and media gateways. The FAXCOM Server can thus be installed in a virtual server farm to provide high availability and redundancy, with the fax server configured automatically to relocate from one host to another.

### What is Fax over IP?

Fax over IP (FoIP) refers to the process of sending and receiving faxes via a Voice over IP (VoIP) network – such as those from Cisco, Avaya, Alcatel-Lucent, Quintum, and others

FoIP works via T.38, where T.38 is a protocol that describes how to send a fax over a computer data network. As shown in this illustration, T.38 requires a T.38-capable VoIP gateway as well as a T.38-capable fax device.



The FAXCOM Server functions as a T.38-capable fax device via the Dialogic Brooktrout SR140 fax software, available in densities ranging from 2 to 60 channels and supporting up to 120 ports in a single server. (Additional channels can be installed with new software license keys.)

The Dialogic SR140 FoIP product is compliant with the T.38, SIP, and H.323 industry standards, and Dialogic regularly tests its T.38 FoIP solution with additional PBXs, Gateways, SIP Trunking interfaces, and other devices, to confirm additional interoperability

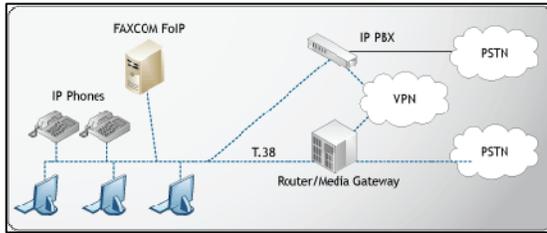
Since deploying T.38 FoIP requires a VoIP implementation with routers and gateways configured for T.38 support (which is typically not a default), organizations need to ensure that technical personnel able to configure VoIP routers and gateways is available to assist Biscom with the implementation.

### What if no VoIP Network is in Place?

In the cases where connecting the fax solution to a VoIP network or to a SIP trunk is not an option, the fax solution can still be installed in a virtual environment by using an appliance that seamlessly merges the PSTN with an IP Voice network or application — such as the Dialogic Media Gateway (DMG) which connects using analog lines, PRI, or T1 E&M. A VoIP network does **not** have to be in place to deploy FoIP.

### Traditional Fax Servers vs. Virtual Fax Servers?

In a traditional fax server implementation the fax server includes fax boards that connect directly to the Public Switched Telephone Network (PSTN) Central Office or through a local PBX. The fax server then sends/receives faxes over the phone network to remote fax devices.



In a T.38 FoIP implementation — shown in the illustration above — the fax server routes faxes to T.38-enabled endpoints on the VoIP network, such as VoIP routers or gateways, which then connect to the phone network to send/receive. That means that even though the VoIP network is the endpoint for sending faxes over the phone network, **the fax communication is still a point-to-point, real-time delivery from the IP fax server.**

Supported hypervisors include:

- VMWare vSphere 4 or later
- Microsoft Server 2008 with Hyper-V
- Microsoft Server 2012 R2 with Hyper-V
- Citrix XenServer 5.0 or later

The following tables outline the required resources based on the total number of licensed fax ports and whether OCR is enabled.

#### Virtual Fax Server Configuration No OCR

# of Fax Ports	# of vCP Us	Amt. of vMemory in GB	Amt. of vDisk in GB
Up to 24	1	2	20
Up to 60	2	2	20
Up to 96	4	2	20

#### Virtual Fax Server Configuration with OCR

# of Fax Ports	# of vCP Us	Amt. of vMemory in GB	Amt. of vDisk in GB
Up to 24	2	2	20
Up to 60	4	4	20
Up to 96	8	4	20

The table below outlines the network utilization for a virtualized fax server on VMware ESXi server with a gigabit network card.

VMware SR140	Active	VMware Networking Usage			Avg.
	Lines	min	max	average	mb/sec
SIP RX	42	0.10%	0.44%	0.15%	1.157
SIP TX	42	0.14%	1.00%	0.18%	1.327
H.323 RX	42	0.10%	0.38%	0.16%	1.225
H.323 TX	42	0.10%	0.66%	0.20%	1.317

### About Biscom

Biscom, headquartered in Chelmsford Massachusetts, pioneered the development of the first enterprise fax server. Since 1986, Biscom has provided the most scalable and reliable secure document delivery and file sharing solutions to the world's largest enterprises.