

Salutation Architecture Supports Faxing

Background

Dick needs to get some information to Jane ASAP! This is Dick's usual mode; everything's left to the last minute. He relies on his fax machine for his emergency transmissions. But faxing doesn't always work for him. Although his fax transmissions are received perfectly by Jane's fax machine, sometimes the messages are picked up by the wrong person, and therefore, are not delivered promptly. Then, there are times when Jane is traveling; her fax machine doesn't travel with her, so Dick's messages just pile up. Dick has invented a three step process to ensure his messages are received — 1. He calls Jane to tell her a fax is coming, 2. He sends the fax, then 3. He calls Jane again to see if she has received the fax. Good plan, but Dick's cost of delivery just went up by a factor of three — three phone calls instead of one.

Do you identify with Dick?

According to the Gallup/Pitney Bowes survey, up to 41-50% of all corporate telephone costs may be attributable to fax. And up to 48% of faxes in such organizations are within the company -- a significant cost indeed!¹ The study indicates that faxing accounts for about 40% of all international (telephone) traffic, or an average of \$15 million per year doled out by Fortune 500 companies. Those costs are expected to increase an average of 12% over the next year.² However you define fax, there can be no doubt that it is a significant cost for most organizations! Yet, as widely available and broadly accepted as fax technology is, and as costly as it can be, the technology still presents roadblocks to communications.

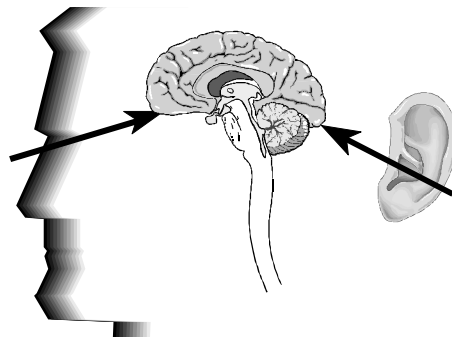
Fax Roadblocks

Security Issues

Fax machines are commonly located in a public areas in and around the office. Anyone can come by and read the content of a fax messages, regardless of who they are intended for. Many a confidential message has languished in the output tray of the fax machine, waiting for the recipient to come by and pick it up. By the time the message is retrieved, most of the office is aware of the contents.

Delivery Issues

The toughest part of human communication is the last few inches -- the ability for you to receive the message as intended. The toughest part of fax communications is the last few feet -- the ability for the message to get from the output tray to you unmolested. Fax machines are typically a shared resource. Messages of varying lengths are received for multiple recipients; all gathering in the machine's output tray. As your colleague sort through the stack for their own



¹FAX: A Strategic Messaging Platform, Computer Facsimile Committee, Electronic Messaging Association

²ROBIN WARREN and CATHLEEN WOODALL, The Internet hosts a faxing frenzy, Telephony, 08-18-1997.

messages, accidents happen; the stack gets shuffled, dropped, and returned out of order. In some instances, messages, or some of their pages, disappear.

Too Much Security

As a reaction to security and delivery issues, the fax machine is often 'secured'. One technique is to place it in a control access room. This limits casual access to inbound information. However, since the fax is a shared device, many people have access to the secure room. The secure room limits, but does not eliminate, the compromising of inbound sensitive information.

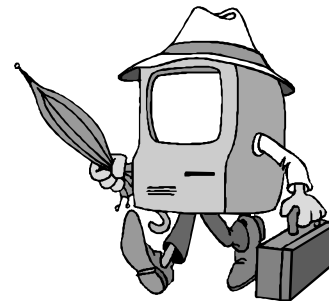


Another technique is to give control of the fax machine to one individual. The theory is to have this trusted individual receive all faxes, sort them and rout them to the recipient through traditional hard-copy inter-office mail. The message was delivered with electronic speed to the fax machine, then slows to the pace of 'snail-mail'. So much for the timely delivery of urgent messages!

Some procedures suggest you turn off the fax machine during non-business hours. This prevents the cleaning crew from reading confidential messages. It also prevents your colleagues in Japan, who are working while you are sleeping, from sending messages to you!

No Remote Access

If the fax machine only had wheels and along extension cord.... The fax machine has a fixed location — you don't. As a result, important fax messages have to wait for you to return to the office.



No Receipt Notification

How do you know when a fax message arrives? Do you frequently walk by the fax machine to check? Does someone call you? Does a colleague pick up your messages and leave them on your chair? Does the sender call you to tell you to check the output tray? Are any of these methods reliable?

No Read Confirmation

When you send a fax message, you are guaranteed that it has been received — by the recipient's fax device. Knowing when the recipient actually picks up the message is another matter. Is he traveling? Is she working from home? Has someone else accidentally picked up the message?

No Knowledge of Capabilities

The introduction of multi-function equipment has added flexibility and functionality to faxing. Devices that can scan, copy, and print now also fax. They can act as gateways between the fax modem and the corporate LAN. These machines have functions such as finishers, staplers, collators, color output, varying print densities, and varying paper input choices that can not be exploited through the standard fax technology. Knowledge of the capabilities of the receiving device can offer new choices to fax transmission.

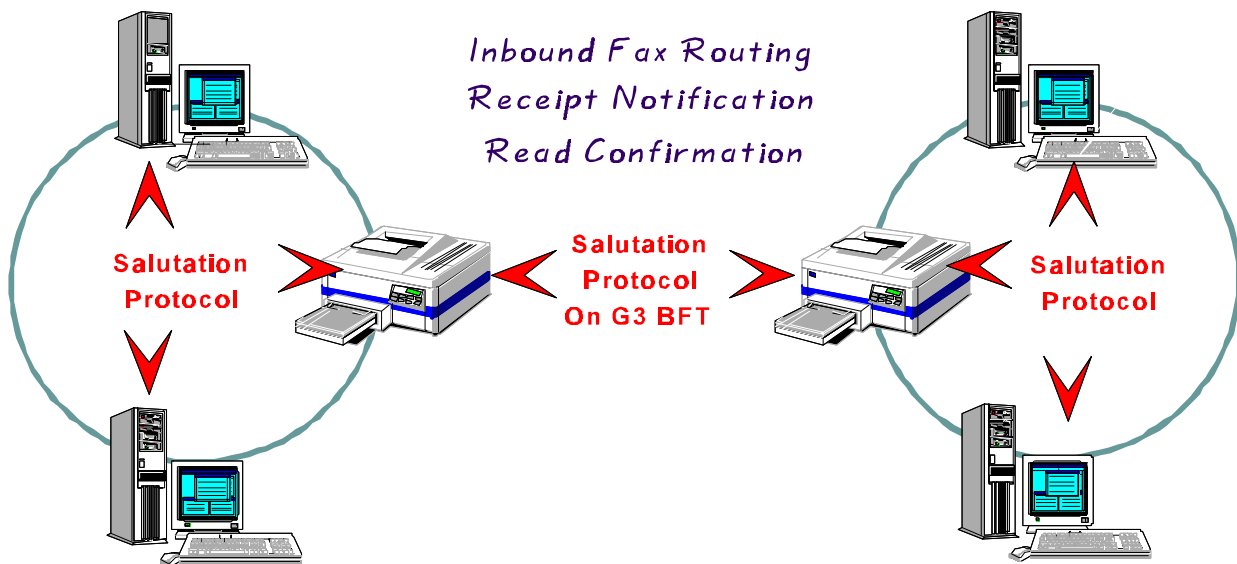
The Salutation Fax Solution

The **Salutation Architecture** was created to solve the problems of service discovery and utilization among a broad set of appliances and equipment and in an environment of widespread connectivity and mobility.³ Faxing falls directly into this target environment.

The architecture provides a standard method for applications, services and devices to describe and to advertise their capabilities to other applications, services and devices and to find out their capabilities. The architecture also enables applications, services and devices to search other applications, services or devices for a particular capability, and to request and establish interoperable sessions with them to utilize their capabilities.

Given the diverse nature of target appliances and equipment in an environment of widespread connectivity, the architecture is processor, operating system, and communication protocol independent, and allows for scalable implementations, even in very low-price devices.

Moreover, the Salutation Architecture has address the roadblocks to fax communication through the [FaxData] Functional Unit.⁴ The architecture can be implemented in Fax devices, multifunction equipment, fax servers and



personal fax applications. It provides security features, store and forward receipt, receipt notification, read confirmations and capability exchange. Lets take a closer look at these functions.

Security Features

³The Salutation Architecture is an open specification that enables an application to locate a particular resource on a network through a broadcast query. The architecture is published by the Salutation Consortium, a non-profit corporation with member organizations in the United States, Europe, and Japan.

⁴The [FaxData] Functional Unit is a specific entity identified by the Salutation Architecture to support the Faxing environment. It is the subject of Part 2 Addendum of the Salutation Architecture Specification, which is available, free of charge, from the Salutation Consortium's web pages, <http://www.salutation.org>.

Salutation fax devices can store inbound messages until the recipient logs in. Login is supported through a User ID/Password technique that can be integrated into your current LAN administration environment. Login id's are assigned to individual users, with the ability for grouping by department such that an administrator may act in your behalf. These User IDs are also used by sending fax environments. Instead of identifying the recipient by routing codes, additional touch tone inputs, or other techniques, the recipients User ID is contained right in the fax message.

Inbound Routing

The User ID is associated with a user, not a device. Therefore, instead of sending the inbound fax message to a specific device or workstation, messages are held until you log in to the fax device. Your fax messages can then be sent directly to where you are; the office, a customers location, a hotel, or airport. And you can select the routing technique. You can have the messages sent to you via e-mil, filed on your hard drive, or sent to the nearest printer or multifunction device. You could even have them forwarded as fax messages to the nearest fax machine!

Routing does not have to be to another device. You may choose to route a message to a colleague or a work flow process. You may choose to route a message to an optical character recognition routine to convert the message to coded text. Or you may choose to route the message to a project file or other data base. Since the inbound message is kept in electronic form, the possibilities are endless.



If the Salutation Fax product receives a message that does not contain a User ID or a message that contains an unrecognizable User ID, it acts as conventional fax device, printing the message.

Receipt Notification

When you log in to a Salutation-enabled fax product, you do not have to route around looking for any messages that arrived while you were logged off. The Salutation fax product automatically notifies you of messages waiting. You then select how to dispose of each message. If new messages arrive while you are logged in, the fax product again automatically notifies you.

Read Confirmation

After you have been notified of an inbound fax message and you have instructed the Salutation Fax product how to route it, the Salutation Fax product automatically notifies the sender that the message has been delivered. The sender then knows that the messages was not only received by your fax product but also 'opened' by you.

The Salutation Architecture supports two types of read confirmation; sender initiated or recipient initiated. With Sender initiated. The Sender of a message or messages can poll the receiving fax product, requesting information on the status of messages it has sent. Recipient initiated read confirmation will send a notification to the sender when received messages have been routed. In this mode, confirmations can be automatically sent as messages are routed, or confirmations can be held for distribution as a package on specifiable time intervals.

Capability Exchange

Since the Salutation Fax product support the Salutation Architecture, it has the ability to discover and communicate with other Salutation enabled devices and applications. This enables the Fax product to determine the capabilities of the device you have identified for inbound routing. Using the capability information provided by the Salutation architecture, the Fax device can format the message for the highest possible presentation fidelity on

the target device. Salutation's service session provides command and control modes for monitoring and controlling product to product interactions.

Finally, The Salutation Architecture is independent of network transport, hardware platform, and operating system software and supports standard Internet and other message formats. Salutation can bring a new dimension to Internet Fax, allowing device-to-device transfers, rather than using the Internet merely as a medium to circumvent long distance charges.

Legacy Support

The Salutation Fax Architecture will support communications with existing G3 fax product - - both inbound and outbound. The Salutation Architecture provides for negotiations between sending and receiving fax products. If either product does not support the Salutation Fax protocols, the devices revert back to standard G3 fax standards.

Current Product Support

The Salutation Architecture has been incorporated into several fax products

Mita Salutation Fax Server for Lotus Notes

Mita Salutation Fax Server for Lotus Notes consists of a PC connected to the LAN which is running the Fax Server software, and a Mita Fax machine connected to the PC via a serial cable. This product interfaces with IBM's NuOffice, a Salutation Server for Lotus Notes. This configuration provides automatic inbound routing of received Faxes via Notes e-mail, with read confirmation returned to the sender when the recipient opens the e-mail message. These confirmation receipts can be held at the Mita Fax Server and sent as a group, thus reducing connect time and toll charges. The Fax Server can also reduce toll charges by supporting multiple recipient for a single image transmission, if the recipients are all Notes users. Notes can also use the Mita Fax machine as a scanner and printer, using the Salutation protocols to find and activate these devices.

Mita has indicated that it is their direction to Salutation-enable future fax products.

Muratec SM-100 Fax Server

The Muratec SM-100 Fax Server is a software product which acts as a network fax modem, faxing documents created on a PC. A document received as a fax can be forwarded without an interim printing step, preserving document quality. Users can query the status of a sent fax and determine whether the document has been opened by the recipient.

Muratec has indicated that it is their direction to Salutation-enable future fax products.

IBM NuOffice

IBM NuOffice V1.1, allows a user to receive fax information as email and to send email to fax machines. In addition to scanning, image import, and print features, the product incorporates a Salutation fax feature.

Running on Lotus Notes Domino Server and Lotus Notes Client, the new product allows one to send and receive faxes as easily as sending and receiving email. For example, a document received from a G3 fax can be imported into a Notes database and information from the database can be sent to individuals and shared by a group. Similarly, fax documents can be sent using the mail function of Notes.

In addition, a receipt acknowledgment feature is available which notifies the sender whether the transmitted

document has accurately been delivered to its destination. There is also a feature that can send alerts via e-mail when fax transmission errors occur. The product is also capable of sending a fax or e-mail even when the destination addresses contain a mix of both e-mail addresses and fax numbers.

Back to Dick and Jane

Jane has just installed a Salutation Fax Machine. This device supports receipt notification, inbound routing, and read confirmation. Now when Dick sends his emergency document, it is received and held by the fax machine until Jane logs in. It doesn't matter where Jane is — in her office, at home or on the road. The Salutation Fax machine recognizes her user ID and password, then reports to her about any faxes received since she last logged in. Jane can then direct the fax machine to route the messages it is storing to her location. This includes sending to his LAN printer at the office, to her personal printer at home, or to her lap top while she is on the road. Since the fax machine has Salutation, it is able to detect the capabilities of the devices at the various locations and reformat the stored faxes accordingly. There is even a feature that will perform a text-to-speech transform, if it detects that Jane is calling in from a phone. After Jane retrieves her messages, the Salutation enabled fax machine will provide a read confirmation to the sender of the original fax as a call-back fax to the originating device's phone number.



All this technology is too much for Dick to comprehend. But he knows that faxing is once again a one step process, with Jane receiving Dick's messages wherever she is, and Dick gets a confirmation message when she has read it.