IPP FAX - Meeting Minutes

December 8, 2000
San Diego, California

Attendees:

Ron Bergman	Hitachi Koki
Lee Farrell	Canon Info Systems
Satoshi Fujitani	Ricoh
Roelof Hamberg	Oce'
Tom Hastings	Xerox
Koichi "Hurry" Izuhara	Minolta
Raymond Lutz	Cognisys
Toru Maeda	Canon
Satoshi Matsushita	Brother Industries Ltd.
Paul Moore	Netreon
John Pulera	Minolta
Stuart Rowley	Kyocera
Amir Shahindoust	Toshiba
Shinichi Tsuruyama	Epson
Bill Wagner	NetSilicon
Don Wright	Lexmark

Minutes:

Progress:

Agreements from the Chicago meeting (September)

- The charter has been approved.
- The sender makes right.
- At least one mandatory set of quality settings will be defined.
- IPP Get shall be used to send a job from the client.

Agreements from the Boston meeting (October)

- The transport definition will be split from the data format.
- The data format will be named "UIF" (Universal Image Format) and registered as ***application/uif***.
- The URL will be ipp:
- We need to establish a set of scenarios and requirements. "What are we trying to accomplish?"

Milestones review:

December 2000 Requirements are to be finalized in this meeting.
January 2001 Draft specifications are to be available.

Usage Scenarios:

(From Paul Moore's presentation at the IOC)

1. High quality fax: Integrate the good parts of PSTN fax (delivery confirmation and a negotiated data format that is optimized) with the advantages of the internet (high speed transfer and high quality images).

T.38 (real time internet fax) was briefly discussed and appears to have significant support by fax vendors, in spite of some recent comments to the contrary. Toru Maeda emphasized this point and commented that the primary issue with T.38 is the penetration of firewalls. It was also noted that there is no standard relative to the transport layer and implementations exist using both TCP and UDP.

2. Print anywhere: A common UIF driver will be able to print to any UIF printer and provide high quality printing. The user is located close to the printer but the user may be anywhere (e.g. a hotel, airport, etc). A printer specific driver is not required for UIF.

Tom noted that JPEG compression is useful only for images and a mixture of text and images is not efficient with JPEG. An alternative of using MRC has been described as very complicated.

Bill Wagner noted that the complexity that may be required to provide high quality output and a goal for low cost appear to be conflicting requirements. The "print anywhere" goal should not be a primary target, only a "nice to have".

3. Remote copying: A copier can send its output to one or more other copiers or printers, either intranet or internet. Allows vendor independent interoperability. Gang copying allows a user to simultaneously use several copiers.

This assumes that IPP FAX defines a copy mode (as distinguished from a fax mode) that does not include a watermark, with a time stamp, or cover page. It was agreed that this is a useful mode and should be included as an option in the specification.

4. Remote printing: (not from Paul's presentation) Same as #2, but the printer can be anywhere that is not local to the user (i.e. it must be remote relative to the user).

5. 3rd Party Remote print distribution: (from Tom Hastings) A third party service can use IPP FAX to send a document to multiple sites, print the document and then distribute the document to the intended recipient.

6. Remote print distribution: (from Tom Hastings) Quality documents are distributed to multiple parties from an output management system that is able to use IPP FAX.

7. Data image transfer: (multiple suggestions) In reality, the data sink can be other than a printer and the receiver can determine if the data should be printed, viewed, deleted, or stored. Or, the data sink can be a data store.

Legal Issue: Legacy fax actually has three points where the document transaction is logged. 1) the sender, 2) the receiver, and 3) the phone company. Will the lack of the 3rd party transaction log affect the legal status of IPP FAX?

File Format Choices:

The issue of file format seemed to continually arise, so it was decided to discuss this subject at this time to see if the group could reach a consensus.

PDF There are three PDF formats; 1) image only format, 2) image with text, and 3) image with hidden text. PDF supports tools for viewing documents on a large number of platforms. Text only files will be significantly smaller using PDF than a raster image. There are open source products that support both generation and rendering of PDF files.

Image only PDF Type 1 defined above. There did not appear to be any support for this format due to the larger file sizes.

TIFF-FX The current standard for Internet fax. A viewer is included in windows platforms for TIFF.

TIFF-FX subset / superset (tweeked) A current limitation of TIFF-FX is the available paper sizes supported. An extension would need to be defined to add additional paper sizes. TIFF-FX currently supports Letter, Legal, and A4. Color and MRC is also are potential problem areas. In addition, page ordering is a "must". Can MRC support multiple resolutions in the same file?

The vote on the above was PDF = 3 and TIFF-FX tweeked = 9.

IPP FAX Compatibility:

This discussion attempted to determine if compatibility of IPP FAX with the current fax variants should be a requirement. What would be the necessary requirements of a gateway (on-ramp / off-ramp) to provide interoperability with this variant? Which directions should be considered?

Internet Fax: None of the participants could provide information regarding the installed base or the popularity of these devices.

Quality:

300 and 600 dpi are both required for the receiver, as agreed in the last meeting. The resolution actually used must be the higher of the resolutions available, unless overridden by the user. The need for 300 dpi was again questioned. One of the reasons for allowing lower resolutions is to reduce the required bandwidth for document transmission. It was agreed that the required resolution will be 600 dpi only. Further discussion indicated that color pictures could be at a much lower resolution than text to be comparable with 600 dpi text. Further work will be required to resolve this issue. Tom Hastings has volunteered to have an expert from Xerox (Rob Buckley) provide additional information prior to the next meeting.

Security:

Security could provide a big differentiator for IPP FAX. For the maximum security, we could require the client to always submit a digital certificate with an encrypted job. It was suggested that this should be an option and, unless required by either side, would not need to be used. It was also suggested that a digital certificate be a requirement for fax mode, but not for remote copy mode.

Do we want to define a "secure IPP FAX" suite that would include encryption, and authorization?

Bill Wagner noted that, for security reasons, some federal government agencies will not install a printer with an embedded HTTP server unless it can be disabled. The concern is that this can provide a path into the internal network.

A discussion of firewalls quickly became the next hot topic. Are there any significant numbers of IPP printers connected directly to the internet? Will companies allow an IPP FAX device to be seen through the firewall?

Raymond Lutz indicated that direct printing is the least likely scenario. Most enterprises will send the documents to a server and then they will be reviewed and determined if they will be printed, saved, or deleted.

Paul suggested that the above issues, if they are real and cannot be resolved, do not make IPP FAX a viable product. Should we then eliminate the first scenario (i.e. fax)?

Maeda-San indicated that Canon's internet fax product also offers a fax to email option, which differs from Internet Fax in that it offers JPEG and PDF file format transfers. Customers prefer these file formats over the TIFF formats used with Internet Fax.

Several participants stated that no company will be willing to place an IPP FAX printer outside of the firewall or configure their firewall to provide this feature. Don Wright, however, believes that there is a market within small to medium size companies for a high quality fax replacement and they would be willing to open their firewall to provide this feature.

IPP FAX Compatibility:

SSDP: The UPnP Steering Committee has defined a method for a device to announce that it supports non-UPnP protocols. This protocol could be used if the network was local and small, since SSDP does not scale well to large networks.

SLP: Widely used in the enterprise, but not available globally.

LDAP: There are currently no global LDAP directories available. It is not believed that a company directory will be visible outside of the corporate firewall. A Toronto company is currently working on a global directory which could be a possibility. Paul will contact them to obtain more information.

ENUM: This is a new effort instigated by Richard Shokey to use DNS for locating phone numbers. Can this be extended to provide URLs that can be used with IPP FAX?

CONNEG:

CONNEG allows a remote device to discover the capabilities and interdependencies of a the target output device. CONNEG is verbose and can be somewhat cumbersome, but no alternative proposals have been provided .

The sender first sends his capabilities to the receiver and the recipient analyzes the request to determine what he can support. The receiver's response indicates what he can support.

Tom suggested that this function could be performed using the Create-Job, with a new attribute that provided a list of preferences. Paul countered that a new operation (or operations) would be better for this purpose.

The 1024 byte IPP limit for strings is a potential problem for CONNEG and we will have to define a new maximum for these strings. Alternatively, a new operation could be defined that sends the CONNEG request as a data block. By sending a configuration proposal to the receiver and the receiver returning his capabilities based upon this proposal, an agreed configuration could be achieved with relatively few exchanges.

Bill Wagner has volunteered to generate a counter proposal to CONNEG before the next meeting.

Next Meeting:

The next meeting will be January 26, at the Sheraton Maui Ka'anapalli Beach (Lahaina, Hawai'i).

Paul is planning to update the current Internet-Draft, which is about a year old.

The CONNEG discussion will be continued. All new proposals to accomplish the communication of capabilities and interdependencies will also be reviewed.

Any information concerning the security issues should be sent to the list prior to the meeting.