Minutes of IPP Working Group Meeting
August 18-19, 1999

1. Meeting Attendees

Jan Sonnvik	Axis Communication
Shigeru Ueda	Canon
Lee Farrell	Canon Information Systems
Rick Yardumian	Canon Information Systems
Rob Zirnstein	Canon Information Systems
Bill Wagner	DPI/NetSilicon
Mike Moldovan	G3 Nova
Amar Rajan	Genoa
Ben Brezinski	Hewlett Packard
Sandra Matts	Hewlett Packard
Shivaun Albright	Hewlett Packard
Ron Bergman	Hitachi-Koki
Harry Lewis	IBM
Stuart Rowley	Kyocera
Don Wright	Lexmark
Hugo Parra	Novell
Hitoshi Sekine	Ricoh
Craig Whittle	Sharp
Chuck Adams	Tektronix
Bob Herriot	Xerox
Carl-Uno Manros (Chair)	Xerox
Pete Zehler	Xerox
Tom Hastings	Xerox

2. Day 1

Carl Uno-Manros opened the IPP meeting and provided the suggested agenda topics:

- IPP Notifications
- IPP/1.1 Implementer's Guide
- New IETF Charter
- Administration Operations

2.1 IPP Notifications – Model

Carl-Uno provided a brief background summary of past discussions on IPP Notification.

Tom Hastings then led a review of the IPP Notification New Model Attribute Summary document (ftp://ftp.pwg.org/pub/pwg/ipp/new_NOT/ipp-notification-attr-summary-990811.doc.) He identified that the problem being addressed includes both user and administrative needs, both high and low granularity.

Tom reviewed and explained each of the Operations, Subscriptions, and Attributes in the object model being proposed. Tom reviewed the [complex] chart of attributes and recorded several modifications

agreed to by the group. He also noted which attributes are included in the Job object collection. Tom will include the updated chart in the next draft of the document.

There were a few concerns regarding the complexity involved in the use of an "exclude-event-mask" for handling subscriptions with multiple-recipients—where the recipients receive different event notifications. Some people even questioned whether support for multiple-recipient subscriptions was necessary.

It was agreed that multiple recipients support is optional. If only single recipient subscriptions are supported, the exclude-event-mask does not need to be supported. However, if multiple recipients are supported, then an exclude-event-mask MUST be supported.

After further discussion, the concept of supporting Collections as a new data type was raised again. Bob Herriot said that he had developed an improved method for encoding Collections. The group agreed that Collections should be re-considered as a possible mechanism for handling multiple-recipient subscriptions. The group also agreed that if Collections were used, only the "events" parameter would be a Collection. For multiple recipients, the approach would be to have each individual recipient associated with its own collection of events.

After the lunch break, Tom provided a proposed collection data type syntax for handling a subscription. A concern was raised about whether this syntax would allow an implementation that does not recognize Collections to easily "skip over" the entry and report non-support. After a long discussion, the group agreed that the proposal was acceptable.

A straw poll showed that only one person preferred using the "exclude-event-mask" approach over the Collection approach.

While reviewing the per-printer subscriptions, it was agreed that an implementation may grant *any* value for a lease time—less, more, or equal to the request value, including "infinite." It was also agreed that a minimum of one subscription object must be supported.

There was a discussion about whether or not the "persistent-subscriptions-supported" attribute is useful or redundant with the lease attribute. Perhaps if persistence is not supported, a lease should not be granted? Wouldn't everyone always ask for persistence?

In conclusion, the group agreed that persistence should remain as an attribute—in both the request and the response. It is required to be returned, but it is not required for the client to supply it in the request.

Tom pointed out that the model does not support any operation to change existing subscriptions. To achieve any subscription change, the current subscription must be cancelled and a new subscription must be requested.

It was agreed that Get-Printer-Subscriptions creates the need to have a new attribute tag defined.

The group agreed that printer-name will not be required for the notification content. Job-name will not be required for state-change.

Printer-uri, attributes-charset, and attributes-natural-language are all required for the Subscription object.

Printer-state-change-time will be an optional attribute. Job-trigger event, time, and date will not be included.

Subscription-id should be included in "per-job" notifications.

Delivery-failure-count was eliminated.

[The next day, Tom distributed an updated version of the chart in the Model Summary document via e-mail (ftp://ftp.pwg.org/pub/pwg/ipp/new_NOT/ipp-notification-attr-summary-990819.pdf.)]

3. Day 2

3.1 IPP Notifications (continued)

Carl-Uno started the second day by presenting a list of transports under possible consideration for notifications. With a few additions from the group, the list expanded to:

- SMTP   e-mail
- HTTP   initiated from client
- SNMP   "Ira McDonald special" (see Ira's proposal)
- HTTP   initiated from server
- TCP/IP   raw
- UDP   raw
- Instant   AOL, Microsoft, ICQ
  messaging
- Novell   Broadcast
- Pager
- FTP
- Jini
- SENSE
- TFTP

There was a discussion about how selective the group should be in identifying possible transports. Some people felt that the initial list should be very complete, others were concerned that we should attempt to focus on a shorter list.

There was a debate about whether *any* single transport should be selected as the required transport. At least one individual believes that none of them should be required—instead, a set of transports should be identified as possibilities. Other people feel that unless one of the options is required, there is no way to ensure interoperability.

After much time and discussion, the following comparison chart was developed (most entries did not get assigned an agreed value, including entire columns labeled "Latency," Standard vs. Proprietary," "Deployed," and "Security"):

Transport	Human vs. Machine	Firewall Penetration	Reliable	Limitations
SMTP mailto*	either/both	yes	high	
HTTP inband*	either/both	yes	high	limited # of connections good for SDP
HTTP		no		
FTP		no		
SNMP*		no	v1 low	
TCP/IP*		no		
TFTP		no		
UDP		no	low w/o ACK	
IM	human only	yes		
Jini		no		
SENSE		no		
Pager	human only	yes		
Broadcast		no		
AppleTalk		no		
Novell Popup		no		
Novell TCP		no		
Novell notify		no		

* identified as "primary" transport candidate(s)

There was much debate about what should go in each of the entries for the Firewall Penetration column—it was noted that this is highly dependent upon the Administration configuration. Someone also noted that we need to agree on the assumptions of how "HTTP inband" works. A few people explained that "inband" means within an existing, open connection. This was later defined as "IPP command concurrent."

Should a connection remain open to receive notifications? There seemed to be a variety of "it depends" opinions on this question. Carl-Uno referenced a proposal for a new operation that creates a connection and requests any outstanding (non-delivered) notifications.

After the group was unable to make progress with the chart content, they then began discussing details about the "payload" of the notification message. Carl-Uno noted that the payload could contain Human readable and/or Machine readable content. He would like to decide on one or both.

If IPP supports both formats, we need to define how a client will specify which format(s) it would like to receive. Various alternatives were identified:
1. Each scheme is defined to be a specific format (or both)
2. A format parameter is defined and the value is set by the subscriber
3. The implementation selects the format(s)
4. Both formats are required for all schemes

No one could identify a practical scenario that requires the use of both formats. As a result, it was suggested AND AGREED that alternative 2 would be specified—with possible values of Human or Machine, but *not* both. It was also agreed that a default format would be defined for each scheme, and that a query mechanism should be defined for determining whether the non-default format is also supported.

ISSUE: Should the IPP WG define "user-friendly" names for each of the notification schemes?

Tom Hastings drew a variety of scenario diagrams illustrating different configuration environments and the related "paths of notification."

The group agreed that the diagrams should be added to the Notifications Requirements document for future reference.

3.2 IPP Notifications – Model (continued)

Tom raised the following questions:
- Should notify-user-data octetString(63) be increased in size?
  The group agreed to leave it at 63.
- Is Per-Printer subscriptions REQUIRED or OPTIONAL if doing notification—since only one object instance is required?

Chuck Adams made the following proposal:
> If an implementation supports Notifications, then it is REQUIRED to support both Printer and Job notifications, where the minimum *total* number of subscriptions required is one.

The group agreed to Chuck's proposal.

3.3 New IETF Charter

The IETF Area Director has advised Carl-Uno that the IPP WG should close down their activity before the end of the year. The IETF prefers to charter Working Groups with strong focus and short duration. Carl-Uno suggests that continued work on IPP is still possible, but it should be organized under a new Charter (i.e. a new WG) within the IETF.

He identified some possible candidates for future IPP-related activity:
- Notification
- Administration
  * set operations
  * other operations
- Other IPP extensions
  * document object
  * XML printing (printing XML-formatted documents)
- Server-Device
  * different mappings

It was noted that some of the above topics might not be of much interest to the IETF.

The group agreed that they need to spend more time to further refine their goals and schedule estimates before they are ready to submit anything as a proposed WG Charter to the IETF. Tom suggested that a draft Charter should be written before the next meeting to help progress in this area. Carl-Uno volunteered to do so.

3.4 Administration (or is it "Operator"?) Operations

A few people were concerned that there is not a clear understanding of the requirements behind IBM's proposed operations to be added to IPP. Bill Wagner has requested that a concise statement (document?) should be written to explain the need, purpose, and scope of the proposed operations.

Harry Lewis led a review of Carl Kugler's e-mail on the proposed operations.

Some of the comments that were raised during the review:
- Is "shut down" printer limited to the *logical* IPP printer, or is it intended to affect the physical device? the print channel?
- The operation name "space_current_job" is confusing to some people—perhaps it needs better explanation. Is it the same as "form feed"?
- Perhaps these operations should only be defined with regard to a single client talking to a single server? Beyond that, it could be left up to the implementation.

3.5 Implementer's Guide

Carl-Uno says that he is anxious to complete the Implementer's Guide soon. He noted that Pete Zehler has proposed a few changes to the document. Carl-Uno would like to finalize the document after a review of updates at the next meeting.

3.6 IPP Test Specification

Mike Moldovan distributed a short description (~80 pages) of the various IPP Tests that Genoa has developed and a page describing the Test Requirements limitations.

It was agreed at the previous meeting that the IPP web site would include a reference to the Genoa Test Suite as an informational White Paper—accompanied with appropriate disclaimers. The web site will also suggest that people contact Genoa directly for additional information about the Test Suite contents.

Genoa is interested in continuing with IPP and developing additional Tests for the IPP/1.1 specification (when it is published as an RFC.)

3.7 IPP Notifications – Issues

Tom Hastings led a quick review of the Issues in both the New Model and Event Notification documents (ftp://ftp.pwg.org/pub/pwg/ipp/new_NOT/ipp-notification-new-model-990811.pdf and ftp://ftp.pwg.org/pub/pwg/ipp/new_NOT/ipp-notification-990722.pdf.) Several of the Issues were resolved based on agreements made earlier in the meeting, and were noted by Tom for the next draft updates.

3.8 Notification Documents

Carl Uno suggested that the Notification solutions material should be organized into the following document titles/topics:

- Model and Subscription
- Payload
- Transport (one document each)
- Set Job Operation
- Collections

Meeting adjourned.

IPP meeting adjourned.