Printer Working Group
Northbrook, IL
May 22/23, 1996

Attendees:

Ron Bergman - Dataproducts
Luis Cubero - HP
Jay Cummings - Novell
Lee Farrell - Canon Info. Systems
Tom Hastings - Xerox
David Kellerman - Northlake Software
Rick Landau, DEC
Harry Lewis - IBM Printing Systems
Jay Martin - Underscore
Bob Setterbo, Adobe
Randy Turner - Sharp
Bill Wagner - DPI
Don Wright - Lexmark
Atsushi Yuki, Kyocera

The meeting was opened at 8:30 by Don Wright.

Future meetings were discussed:

June 27-8
Montreal Bonaventure Hilton
1 Place Bonaventure, Montreal
514-878-2332
$149 US ($199 CAN)
Reserve by 5/31

July 22-4
Moved from Seattle to Portland.
PWG rehearsal for August "SNMP bake-off" Monday July 22.
Regular PWG meeting July 23-4.

1. Sanctioning of the PWG

Does the PWG need to be sanctioned by ANSI, ISO or someone else?

The following notions were introduced:

- Our previous "official" charter was with the IETF and was temporary. Our initial charter with the DMTF remains in effect but our scope is broader today.
- Will sanctioning actually improve our ability to do the job or our chances of getting standards adopted?
- We need a well articulated purpose and charter.
- Should we describe the PWG as a trade association and allow the sub-projects to associate with any appropriate standards organization?
- We don't want to be constrained with IETF initiatives and scoping. We should establish relationships with other, appropriate standards organizations.
- Look at the W3C model. They work out WWW stuff and fork it to the IETF. Can we adopt their working model but not their size or $ structure?

Assignment accepted:
Don will review old minutes to see what's been done with Charter in the past and see if there is enough to build a strawman from.

Given that we lean toward establishing the PWG as an industry trade association, with charter developed from the strawman mentioned above, the following questions were raised:

- What about the Press? Just putting it on the wire is not good enough. We need to follow up in conjunction - visit, phone etc. We need to get the word out once our charter is developed. Let people know we're larger than just DMTF/IETF.
- How do we sync with upcoming events? Interop (Atlanta) is 9/16. We should combine the bake-off with a Press release, showing the real work output of the group. Talk about moving from Proposed to Draft.
- Will people believe us? Look at what we've done with the Printer MIB - many proprietary software implementations of the "standard" printer MIB.

We talked about "assigning" someone to monitor related standards activities. Currently doing it ad-hoc. What are the other groups? MFPA, Salutation, W3C "Web Printing". Is such an assignment practical and within our desired operating sphere or does it begin to add $$ and structure which we have successfully avoided in the past?

2. Moving the FTP site and Mailing list

Underscore went live Monday night with FTP site www.underscore.com. They would like to create www.pwg.org. As for the Mailing list, how will we get the news out to everyone that it has changed? Binnur should set a message in response to any mail indicating that the reflector has been moved.

Assignment accepted:
Jay will work out the cross over with Binuur. The e-mail list will get 5-days notice of the switch. Password will remain the same.

3. PMP project

Still looking for a Chair and Secretary for the MIB/MIF project.
Harry Lewis - MIF Editor
Randy Turner - MIB Editor

3.1. MIME Proposal (Ray Lutz - MFPA; Ray Lutz absent)

A proposal from Ray Lutz (MFPA) to relate language type enumerations to MIME types was discussed. Ray was not present. In brief, Ray proposed, rather than just registering language family enums, also register the language version that goes with it and relate it to a MIME type which would also be registered with IANA.

Much of the discussion centered around the topic of backward compatibility in given printer interpreter languages. For the most part, it was observed that Ray's comments did not describe anything that couldn't be derived from the intuitive treatment of compatibility and migration from version 3 to 4 to 5 within a language family. PCL and Postscript were the primary (only?) examples and they both attempt to deliver such compatibility by design. It was noted that in reality, each printer model may always have unique properties. With PCL, you really need to know which printer you are emulating. With Postscript you need the printer description file to fully understand it's properties.

We were reminded that, in April, while reviewing another of Ray's proposals, we had agreed that the printer would indicate, separately, each interpreter version it claims to support. What happens, in this case, if PCL3 (for example) is the default and the printer received a PCL5 job? Does the printer restrict itself to the PCL3 command set even though it supports PCL5? No! *We need to clarify this.*

If we can't treat the prevailing printer datastreams as absolutely device independent, is there really a method by which Ray can determine "will my document print" with

absolute fidelity, independent of print driver - across the public network? Probably NOT!

MIME types (RFC1700) are intended to be used for document interchange (Multi Purpose Internet Mail Extensions) not printing. Its a hint about what application is required to render this doc in readable form. Ray's proposal is very specific in terms of level of detail. MIME types are generic tags (hints). How will MIME solve Ray's problem of needing absolute fidelity across the public network?

We could provide permissive information (hints) by allowing whoever owns the existing enums to put registered MIME types into the comments next to their language in the next draft of the standard Printer MIB. Ray - would this help?

In summary, the PWG consensus was:

- MIME itself (as currently reflected in the registry) is a high level advisory, not a guarantee.
- MIME addresses document interchange, not printing or binding to a device.
- Very few of our registered languages are capable of interchange.

Assignment accepted:
Tom Hastings will draft a response to Ray.

3.2. Channels

There was discussion about Randy's suggestion to consider using NSM Network Services Monitoring MIB RFC1565 to enhance the Channels group.

- What functions, from this RFC will we use?
- RFC1565 has been out since 1994. There is an ID (Internet Draft) that proposes to take NSM MIB to Draft status.
- Bad could happen. NMS MIB could be subsumed by System Applications MIB.
- The NMS Internet Draft name is "draft-ietf-madman-nms-mib-01.txt"

Assignment accepted:

Randy will draft a proposal to showing how the NMS MIB will be used to enhance the Channel group. (It was not entirely clear that Randy accepted this assignment - first time for me acting as secretary)

3.3. Printer MIB Draft Status

In April, sections of the draft were assigned for review. We listed which sections are complete and solicited volunteers for remaining sections. The results are recorded below.

- Alerts: Tom Hastings, Harry Lewis (DONE)
- Channel: Jay Martin, Bill Wagner
- Media Path
- Console: Rick Landau, Ron Bergman
- Interpreter: Ron Bergman (DONE)
- Interface: Ron Bergman
- General:
- Covers: Bill Wagner, Bob Setterbo
- Localization: Bill Wagner, Bob Setterbo
- Marker: Don Wright (DONE)
- Input: Harry Lewis
- Media: Harry Lewis
- Output: Harry Lewis
- System Controller: Don Wright.

6/7 target for internet draft. Randy needs comments ASAP. Wants to roll them once.

Randy would like to change all max-access non-accessible Index OIDs to r/o in the new draft. This recommendation was accepted by a ***vote*** of 3 Yes to 11 Abstain.

3.4 Bakeoff

- Bakeoff is RFC1759, not the new draft.
- Need to invite Genoa and IWL
- Need to pool for cost of space at Interop.
- Mixed vendor printing environment managed via some software is what Interop wants to see - not a bunch of little islands.
- Companies need to go back and confirm that they are willing to commit appx $500 for space at Interop.

- Pre-bake Monday July 22 in Portland. Bring your printer. Randy will have 10baseT setup. Win95, NT and SunSolaris, Win3.1 and a full line of MIB browsers. SunNetManager will be there.
- Announce ahead of time who will be there and what you will bring.
- HP, Novell, Xerox, Lexmark, Dataproducts, Sharp
- Novell will try to be there with SNMP version of NDPS.

Break for LUNCH 12:15.

Return from LUNCH 1:15.

Don Wright collected room fees.

3.5. Printer MIB Draft issues found in review.

Is SMIv1 draft on the PWG site the preferred translation? Is it really RFC1759 which has been run through ISO MOSEY compiler. Why did it change max-access not accessible to r/o? Ask Marshall. Randy thinks they are operationally identical. We decided that it's there for convenience, but not condoned or sanctioned by the PWG.

Assignment requested:
Binnur - please create readme on what you did to create the SMIv1 version.

Tom Hastings provided a written summary of questions resulting from his review. Some were discussed at the meeting, then, to save time, it was decided that each question (1-10) would be assigned to the reviewer of that particular section of the MIB as follows...

1. In SMIv2 (the one we developed to), if not stated, is min-access same as max access? Clarification - RFC1759 is a SNMPv1 MIB written in SMIv2. RFC 1904 does not apply. Jay Cummings will review RFC14xx to determine the answer.
2. ? (Did I loose track?)
3. Bob Setterbo
4. Don Wright
5. Bob Setterbo
6. J. Martin

7. J. Martin
8. J. Martin
9. No.

10. Out default Char Set is backchannel. Ron. B. to clarify.

More discussion of Tom's questions.

Add that it's the Print Job datastream that may set the "active character set in", not the PDL (spec).

When you make a textual convention out of an object with enums by moving the enums up front, don't talk about the object in the description of the enums in the textual convention. Also, don't talk about the enums description in the description of the object. . Randy will try.

Should we deprecate warning (4) alert severity - NO!

Move autoswitching group prtInputManualFeedTimeouts so that they are tied together or keep then separate so each manual feed can have it's own time-out. I don't think there was a decision.

We agreed to keep in printer alert 1115 - Toner Cartridge missing. Randy will add in the TCs.

Don ripped the phone off the wall. Randy surfed for the proper RFC related to (1) above.

4. SENSE

I may have taken too many SENSE notes. At first I wasn't sure who was recording, but, later it was established that Rick Landau will publish the "official" SENSE minutes. I'll give you what I got.

Jay reiterated that SENSE will not be designing by committee. The initial SENSE implementors would rather error on side of expediency and provide reference implementations based on assumptions, go off ant test, see if it fly's, and make corrections if necessary.

Jay handed out a preliminary SENSE specification..

Some SENSE terminology:

Condition. (Activity, Health, Support); like (Busyness or Status, Error State, Training Level) in the MIB.

STEP (line oriented - Simple Text Event Protocol). Event code turns out to be the bulk of the condition concept.

Reserved Property Names.
Condition.Code
. Text
.Timestanp
.Previous.Code
.Text
.Timestamp.

3 Publishers implemented today. Lexmark Optra, DEC Printer, STEP Publisher. Minimum amount of code needed to implement a publisher with 4 functions that tie into a well understood state mechanism.

Persistent publications address the fact that the SENSE Server will not be entirely dynamic. Server may go up and down. Publishers and subscribers will come and go. What happens when a "subscription" comes in but the (anticipated) publisher (or edition) is not available yet? Persistent pubs require persistent editions. Say you are writing a printer monitoring application which would contact the server and subscribe to all printers. You don't subscribe to a publisher, you subscribe to 1 or more editions of a publication. Model lightweight security using id.signiature as a quasi password.

Register and Unregister vs suspend/resume. Reg/Unreg facilitates adding and removing subscribers. But, if the publisher needs to say - "I'm not sending anymore events for this publication (edition)", this requires a separate method such as suspended./resume. What if the publisher crashes? Registration has a lifetime and there is a low-cost renewal subsystem. Resuming is tricky because the SENSE Server is using assigned integer ids.

Randy quit surfing. Don restored phone to wall.

Global Object Name - Server must not allow registration of two identical publication. Thus - Global Object Name.

Class
Hostname (NetIdentity - ip:foo, ipx:queue)
Name

There are well understood naming strategies - pick one.
Suppose client wanted to find edition of pub. Outer loop to look at pubs of correct class and find pub. Inner loop for editions (minimal, basic, SNMP). Outer loop uses object GetFirst and GetNext calls with idClass (ie. Printer). Ask for properties, Server fills in. (Id, Name, Host Name, Host Address, list of publications). Inner loop - for all editions where class is a SENSE edition and id is extracted from id list, go through

one by one and retrieve property id.name which is name of edition and look for the proper edition (minimal, basic, SNMP etc).

Distributed naming authority. Need to address marriage of native spooler system and printers. Just want to be told my job is done. Integrating with back end of print subsystems. Name Queue (Fred) after printer named Fred. Don't want two queues called Fred that are the same. Blended in Hostname for local administered naming.

Class Hierarchy.

/SENSE/Printer
/filesystem/UNIX
What if printer is servicing many different host queues? Want the printer to show up only once per server.

The publisher that sponsors the publication or edition may or may not be there! What if the primary publisher is not there but all the editions are there? Should the Server allow this? Only the primary publisher is allowed to reference the condition of the publication. How do you arbitrate such that editions cannot do this too.

Why not have a flat object model - it's just publications. Yes, but don't want the client (subscriber) to have to sort through. Want separation. Here's the object and here's the accreted or related objects.

Primary publisher - responsible for publication
Secondary publisher - responsible for edition.

Example - Accounting edition is still necessary and valuable even if condition (primary) is unknown or has suspended. The fundamental premise is that these things are relatively static, so the primary can vanish and reappear underneath without really disturbing the edition.

2 dimensions that always come up in editions. Syntax (something is wrong TIPSI vs SNMP) and content (alarms vs accounting). Is there a correlation between a primary publisher and a basic edition? When do the publication properties change (condition group being most important). Primary says update properties.. Server sends out even message to all subscribers.

Primary publisher establishes identify of the thing (printer). Primary publisher publishes the publication - not the basic edition. It owns truth regarding the health of the publication. Server publishes basic edition and other editions etc.

Publication is just the name of the managed object and a few descriptive properties. The edition carries the events.

Late June release targeted. 46K lines of code. Embedded footprint not established, but, 10-15K embedded system footprint is probably reasonable. What footprint would we like to have for embedded system publisher and for server. RISC and CISC. Is 10K to big for publisher? Server order of magnitude?

SPARC executable, with debug appx 200K w/ server. SPARC, DEBUG and 50K log stuff.

Adjourned 6pm.

DAY-2

Meeting started at 8:30am

5. Job Monitoring and Resource Accounting

Ron Bergman kicked off the Print Job Monitoring/Resource Accounting Project. Tom Hastings is the secretary. Reference Tom's minutes for a full description of the meeting.

Ron Bergman declares the Charter accepted since there has been no e-mail discussion since April.
Job submission models presented by Tom last month. No comments no additional models. Reviewed models and accepted these as the set of models to be addressed.

Terminology to be defined in a glossary - work in process.

Roles - RFC1759 as modified to include accountant constitutes the roles.
User, Operator, Capacity Planner, Accountant.

Open issues on Goals.
1. Job Ticket/ Job Submission included?
2. What to do about Security? Should we prescribe a method, or allow the implementation to pick one. Randy thinks there will be a predominant security approach for SNMPv2 (STAR and USEC). Jeff CASE STAR. Rose, Waldbusser USEC. So we'll will just write an SNMP MIB. Let SNMP handle security as it may.
We do need the capability to provide different views into the MIB for different forms of client applications but this does not directly address security beyond what is provided by SNMP.
3. What about MFP? Work on generic Job monitoring and bring in Fax and Scan as we go. DPA is adapting for MFPs. We will invite MFP companies to the July meeting. (Who will do this?)
4. Job Submission, Job Ticket. Address in our MIB or map to known platforms.

Job Submission Protocols to map.

LPR/LPD - Ron Bergman
AppleTalk PAP - Ron Bergman
TIIPSI/NPAP - Don
ISO DPA - Tom
Novell - Craig
  QMS (Queue Management System)
  Rprinter/Nprinter
  Pserver
  NDPS
PJL - Binnur
SMB -
IPDS - Harry
Postscript - Bob Setterbo

What information is available to the printer in these job submission protocols?

Whoever finds specs for the above protocols (that are not proprietary), put them on the web server.

Do we want to allow optional groups in the Job Monitoring MIB? No, but we may want to have conditionally mandatory. The example is that if a printer adds spooling then it has to implement the spooling group from the Job mib. But we should still *not* have optional groups if possible!

Lunch 12:15.
Resume 1:15.

We brainstormed, somewhat successfully, on what should be included in the following Mob Monitoring categories.

Job Monitoring MIB Categories
Job Identification
Jab Status
Job Parameters
Accounting Parameters

Job Identification

Client Job ID
Printer Job ID
Intermediate Job ID

UpStream Source ID
Client ID
Source Port / Channel
Printer ID
Client Job Name
Application that submitted job
File Name

Job Status

Status
  Printing
  Complete
  Held
  Pending

Job State Reasons
Times
  Submitted
  At intermediate
  At printer
  Started
  Completed.

Jay Martin says, until AgentX comes out, intermediary agents in the spooler and supervisor are smoke and mirrors. Without a multiplexing, extensible agent technology - it won't work. (Do I take good notes, or what?).

We said the management points of interest are the Printer and the Spool that is ultimately doing the queuing or scheduling - not every intermediate device, spool or queue.

Meeting adjourned 4:10pm.