# Cloud Imaging Model WG Minutes
# February 6, 2013

Meeting was called to order at approximately 10:00am PT February 6, 2013.

## Attendees

Russell Brudnicki (Kyocera)
Nancy Chen (Okidata)
Steve Kang (QualityLogic)
Smith Kennedy (HP - call in)
Shane Lin (Monotype)
Daniel Manchala (Xerox)
Tim McCann (Konica Minolta)
Ira McDonald (High North - call in)
Joe Murdock (Sharp)
Glen Petrie (Epson - call in)
Randal (Toshiba)
David Sponable (Xerox)
Alan Sukert (Xerox)
Michael Sweet (Apple - call in)
Randy Turner (Amalfi - call in)
Larry Upthegrove (End-User - call in)
Bill Wagner (TIC)
Rick Yardumian (Canon)

## Agenda Items

1.  IP Policy and Minute Taker
    a.  Policy accepted with Mike taking the minutes
2.  Review previous minutes
    a.  ftp://ftp.pwg.org/pub/pwg/cloud/minutes/cloud-concall-minutes-20130121.pdf
    b.  Accepted as posted
3.  Review Cloud Model
    a.  ftp://ftp.pwg.org/pub/pwg/cloud/wd/wd-cloudmodel10-20130205.pdf
    b.  Q: Is there always hardware behind the Device?
        -  A: No, you can have software-only implementations
        -  Might want to revisit definition of Device to include both physical hardcopy devices and software-only solutions (e.g. EmailIn/EmailOut/FaxIn/FaxOut) - the "Device" isn't just a traditional printer or MFD
        -  Should be compatible with the SM definition; IPP has Printer, Physical Printer, Logical Printer, SM should have Device, Logical Device, Physical Device
    c.  Line 281: "between" Cloud Print Service and Cloud Print Manager
    d.  Line 284: Remove "down" from "down through a Firewall"
    e.  WW2: Print by Reference Use Case?
        -  Yes, but identify additional issues with network accessibility for a given URL: client may be able to access a URL but maybe not from CPS or CPM
        -  Add use cases (successful and failed print-by-reference, reporting of failures and reasons)
        -  Add sections discussing use case issues and how to report
        -  Also whether document is retrieved by CPS, CPM, or Printer - need to be able to report capabilities
    f.  Use cases a la IPP Everywhere/JPS3:
        -  Print Attached Document
        -  Print Referenced Document
        -  Cancel Job
        -  Paper Out Exception

- Document Access Exception
- Connection Lost between CPS and CPM Exception

g. WW3: Do we need a keep-alive mechanism for CPS/CPM link?
- Some mechanisms could be done in model (require Get-Notiifcations or somesuch), others are binding requirement
- A: Make it a requirement of the bindings to provide a reliable transport with a keep-alive mechanism
- Model needs to provide status of connection between CPS and CPM
  - JobStateReason keyword
  - <service>StateReason keyword

h. Q: Do we need to have the Client re-submit on failed comm between CPS and CPM?
- A: No, CPS manages jobs and retries. Client only re-submits if the job is aborted by the CPS
- Client can query CPS for status - client doesn't manage retries, but can report status and cancel the job if desired
- Should require that the CPS is a spooling service (do not allow streaming/non-spooling implementations) so that the client does not have to handle retries on a failed connection between CPS and CPM

i. Q: Do we need to talk about redundancy/reassignment of jobs to different output devices?
- A: Good to talk about it as a feature that comes with the SM - fan-out devices
- Can happen in CPS (directed to other services as output devices) and CPM (assigned to output device)
- Rerouting cannot happen by the Cloud Print Service that loses the connection to its Cloud Print Manager (because it has only one output device)

j. Recovery from lost connection is as previously discussed, allows CPM to report the disposition of jobs, documents, and the printer since the last connection with the CPS
- CPM job state takes precedence over CPS job state in this case due to race condition:
  - Client submits job
  - Job starts printing
  - CPM loses connection to CPS
  - CPS reports lost connection status
  - Client cancels job in CPS
  - Job state in CPS changes to ???
  - CPM finishes printing job
  - CPM reestablishes connection with CPS
  - CPM reports that job completed successfully, changes CPS job state to completed

k. Line 496: "Client Print Service accepts"

l. Line 497: "Cloud Print Manager initiates"

m. Second 3.5.2: Add requirement that the Cloud Print Service has the ability to communicate the connection status to the Client

n. Section 3.5.3: Transforms
- Add requirements for Client and CPM to discover capabilities of CPS, e.g. conversion of documents to PWG Raster, retrieval of referenced documents, etc.

o. Section 3.5.4: Logging
- Limit requirements to CPM and CPS - need logging/job history for reliable reconnections
- Require a way to discover/provide a URI to the log
- Reference PWG Log Format spec

p. New actors:
- ftp://ftp.pwg.org/pub/pwg/cloud/white/New%20Actors.docx
- Device Owner: same definition as is used implicitly in Semantic Model
  - Adding to IDS model and Cloud model
- Cloud Service Administrator:
  - 2: for manual registration of CPM to CPS? Maybe drop?
  - Deals with Cloud Print Manager, not the device
  - Add to cloud model document?
- Continue discussion of actors on Cloud mailing list to reach consensus on names, definitions, and terms to be included in the Cloud Print Requirements and Model document.

a. Figure 1:
   - Should make it more clear that Printer Registration creates an instance of a Cloud Print Service
   - Increase size of notes in legend
   - Align Printer Registration labels with lines
b. Section 4:
   - Add discussion of fan-out here, documenting why fan-out is not possible between CPS and CPM (one-to-one relationship), just CPS to CPS and CPM to Printer
c. Section 4.2.1:
   - Add sentence introducing Figure 2 and referencing the section with the use case
d. Section 4.2.2:
   - Add sentence introducing Figure 3 and referencing the section with the use case
   - Retrieves cancel: GetPrint*Job*Elements instead of GetPrint*Service*Elements
   - Eliminate overlap between blue and black text
e. Section 4.2.3:
   - Add sentence introducing Figure 4 and referencing the section with the use case
   - Add optional UpdatePrintJobState and UpdateDocumentState operations between UpdatePrintServiceState and ResetFetchableJobs
f. Q: Do we show keep-alive in Figures 2-4?
   - A: Unless we have a keep-alive operation in the model, no, just have a note in the diagrams that a keep-alive mechanism exists between the CPS and CPM
g. Q: Do we show a configuration change sequence diagram, e.g. changing media loads?
   - A: Sure, but it just uses UpdatePrintServiceState
h. Figures 2-4: Drop dotted line coming down from Printer box and the note at the bottom of each figure about the CPM and Printer communication (none is shown)
i. Add 4.2.x: Print By Reference succeeds and Print By Reference fails
   - Intro sentences talk about CPS or CPM doing print-by-reference, CPS case is identical to SM, CPM shows how status is reported upstream
j. Section 4.4: From posted Semantic Model schema
k. Section 4.5: Delete
l. Section 4.6:
   - Define required and optional operations based on the Common Model (in the absence of a Print Service spec)
m. Action: Larry to do additional sequence diagrams and changes in section 4 of the model
n. Action: Bill to generate an initial list of Cloud Print Service operations for section 4.4
5. Google Cloud Print CDD
   a. See emails posted to the Cloud mailing list
   b. Q: Do we send PWG PJT to Google?
      - A: Yes
      - Action: Mike to send Google a copy of PWG PJT
   c. Q: Do we ask Semantic Model WG to take on storage capabilities WRT resource service
      - A: Yes
   d. CDD seems to expose implementation details, not sure why they have been defined differently from the Semantic Model
   e. Important to work with Google to resolve these discrepancies, they seem to be open to this
   f. CDD also seems to expose vendor-specific extensions, unsure how that maps?
   g. What elements of the PWG PJT should be exposed in CDD?
      - No objection to compatible/proper subset of PWG PJT mapped to JSON/protobuf
      - Glen will look into feasibility of writing something up
      - Action: Glen to find out if he can spend time making a proper subset of PWG PJT for GCP/CDD
   h. Another significant source of information would be the mapping document (even the current version, since PPD is in decent shape)
      - Still need more work on MSPS
      - Send drafts to Google as well
   i. "Tiger team" for GCP:
      - Do we make a JSON/protobuf mapping/binding of PWG PJT?
      - Pete Zehler has a JSON version of Semantic Model - maybe we can get it and subset it?

- Action: Mike to send email to Pete requesting copy of JSON files for PWG PJT

## Next Steps / Open Actions

- Next Cloud conference call is February 18, 2013 at 3pm ET
- All members to look at section 3 of cloud print requirements and model
- Action: Larry to do additional sequence diagrams and changes in section 4 of the model
- Action: Bill to generate an initial list of Cloud Print Service operations for section 4.4
- Action: Glen to find out if he can spend time making a proper subset of PWG PJT for GCP/CDD
- Action: Mike to send email to Pete requesting copy of JSON files for PWG PJT
- Action: Ron to prepare Cloud slides for F2F (DONE)
- Action: Mike to provide updated text for Cloud Model introduction (PENDING)
- Action: Joe to update definition of visible/visibility to cover AAA (PENDING - definition proposed but subject to rework)