

Agenda

- Event/Notification subsystems
- Printing Architecture
- Conclusions/Recommendations

Typical Event/Notification Systems

- Message Queue
 - Pull (and Push)
- Publish/Subscribe
 - Push (and Pull)
- QoS
 - Privacy, Latency, Authentication, Authorization
- Variants
 - durable, once, at-least-once, at-most-once, maybe

Event/Notification: Industry Examples

- **OMG**
 - Event Service
 - Notification Service
- **The Open Group**
- **Java Message Service**
 - event messages (not email messages)
- **SNMPv3**
 - Traps and Informs
 - Event MIB
 - Notification MIB

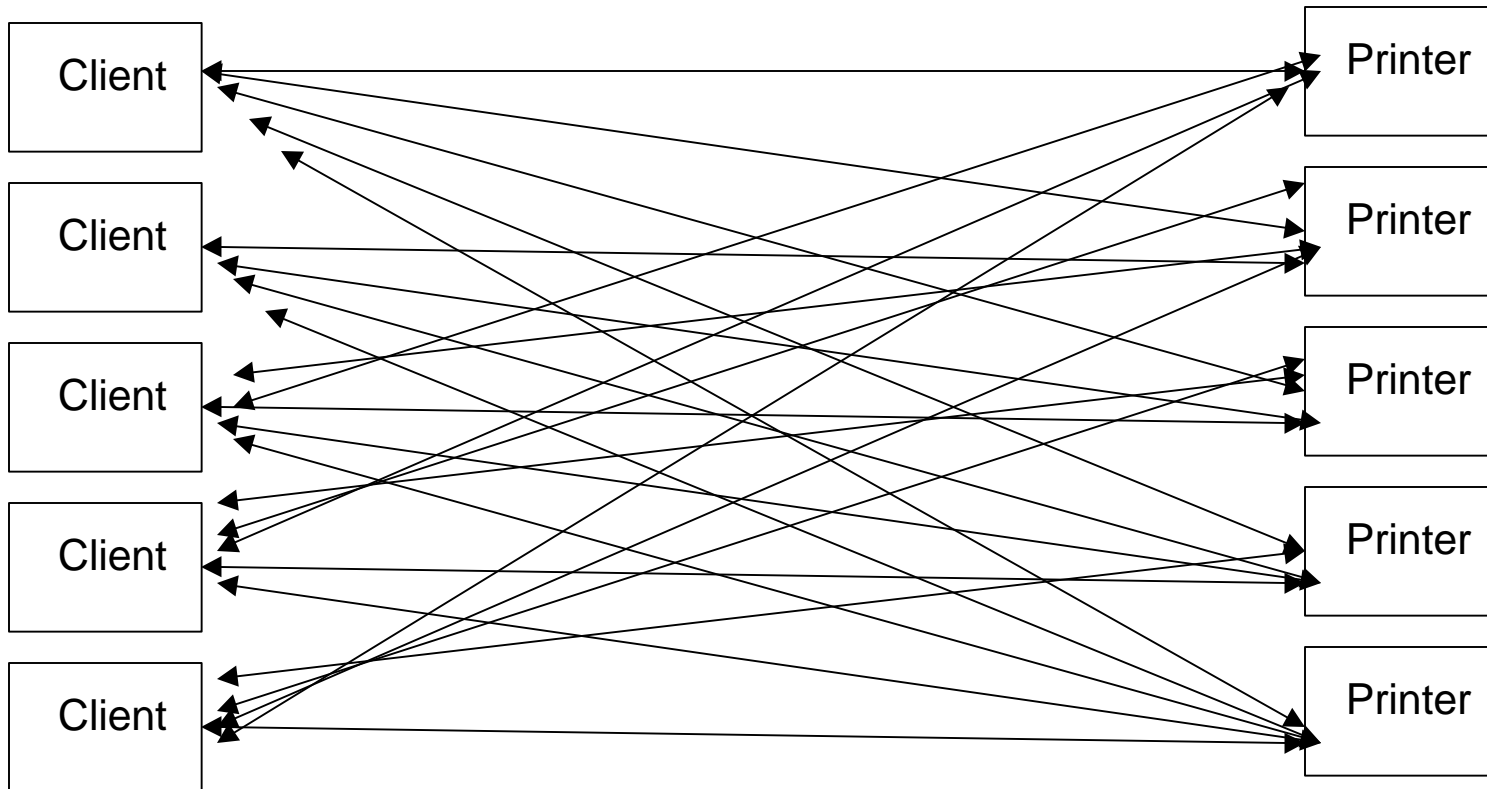
Event/Notification: Common Themes

- Event Consumer(s)
- Event Producer(s)
- Intermediary channel
- Common subsystem for many applications

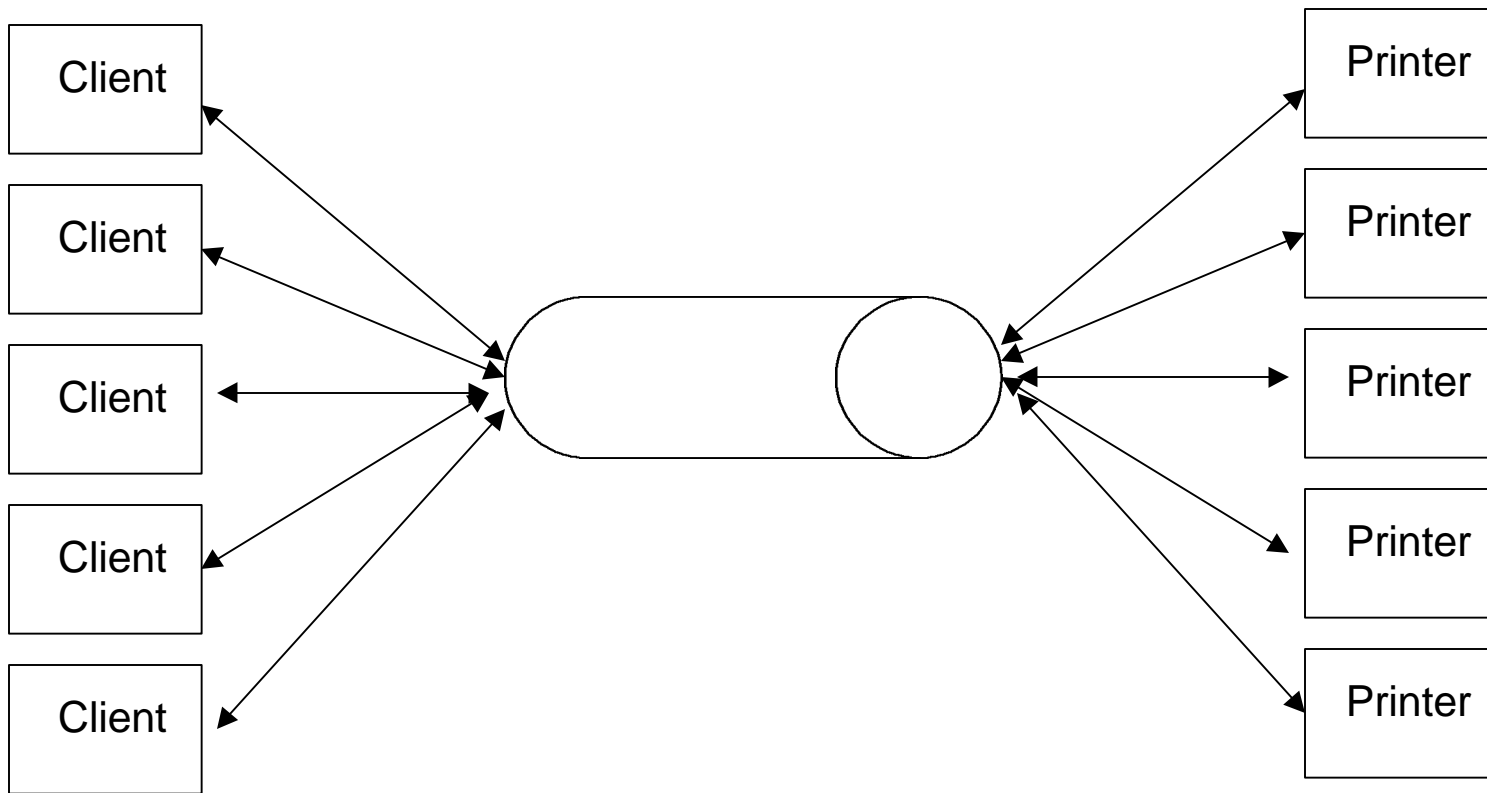
Printing and Notification

- Event Consumer(s)
 - Notification Recipient
- Event Producer(s)
 - IPP "Printer" and "Print Job"
- Multiple notification methods
 - e-mail, programmatic, log file

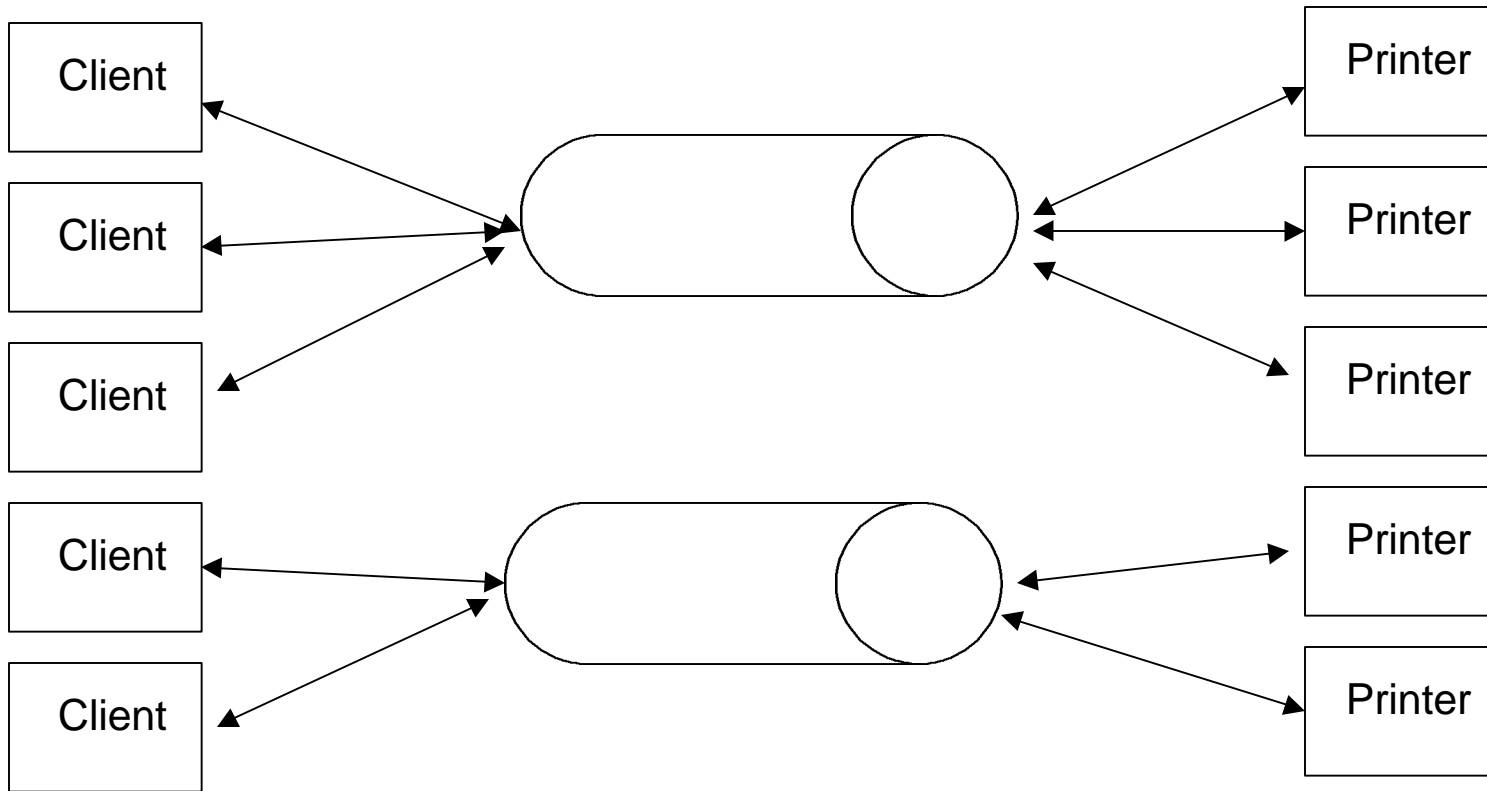
No Channel



Single Channel

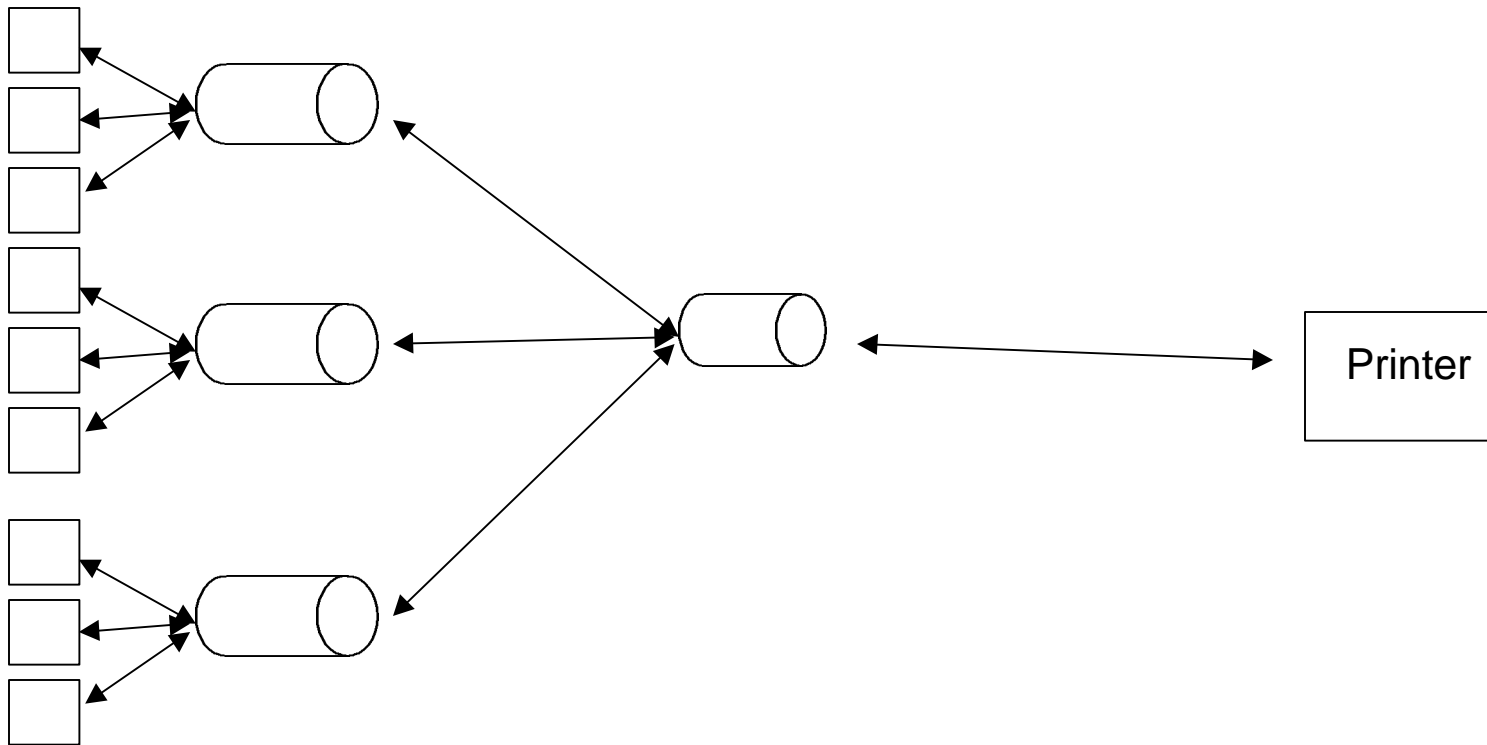


Communities of Interest: Multiple Channels

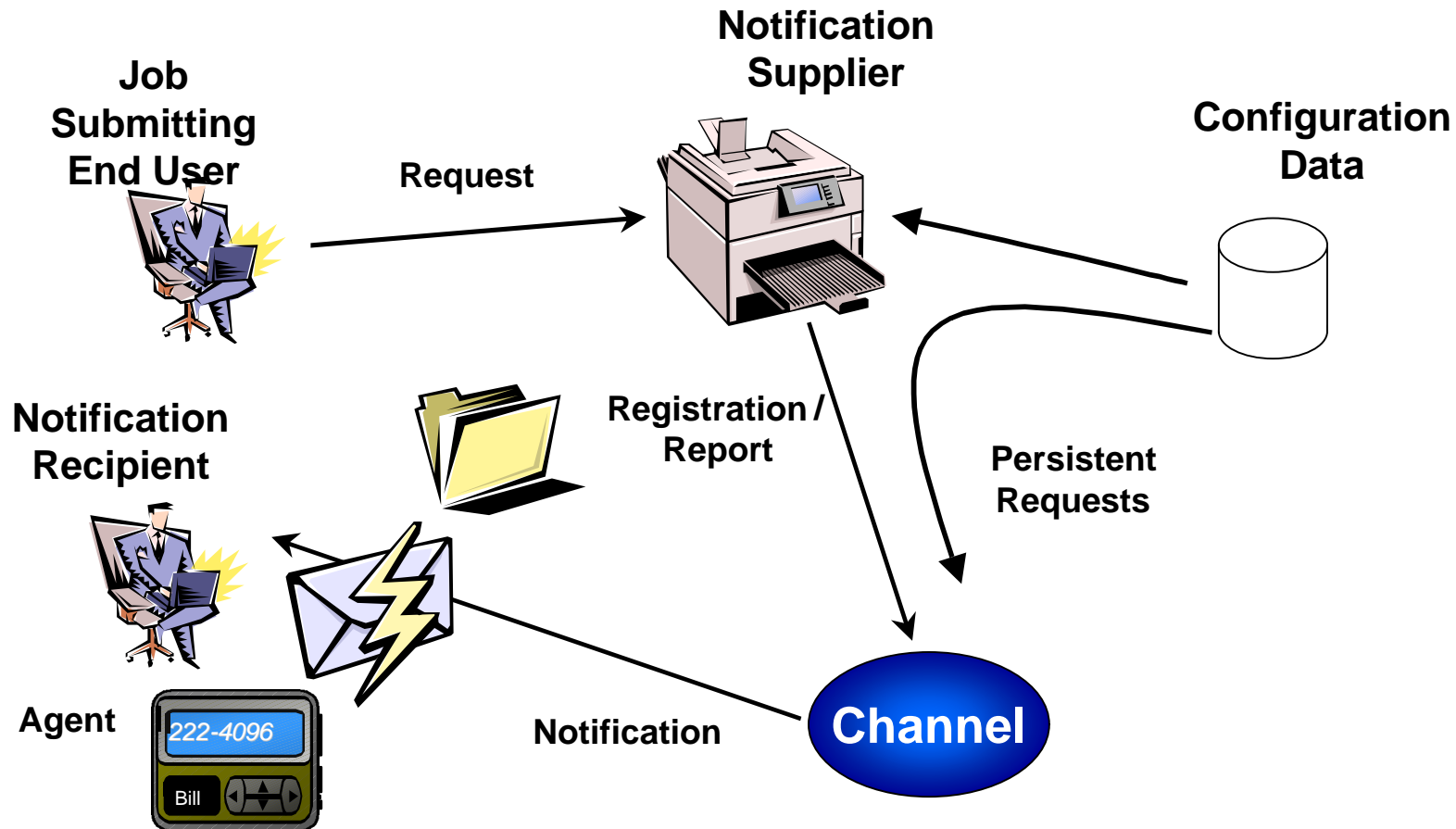


Very Large Numbers of Clients

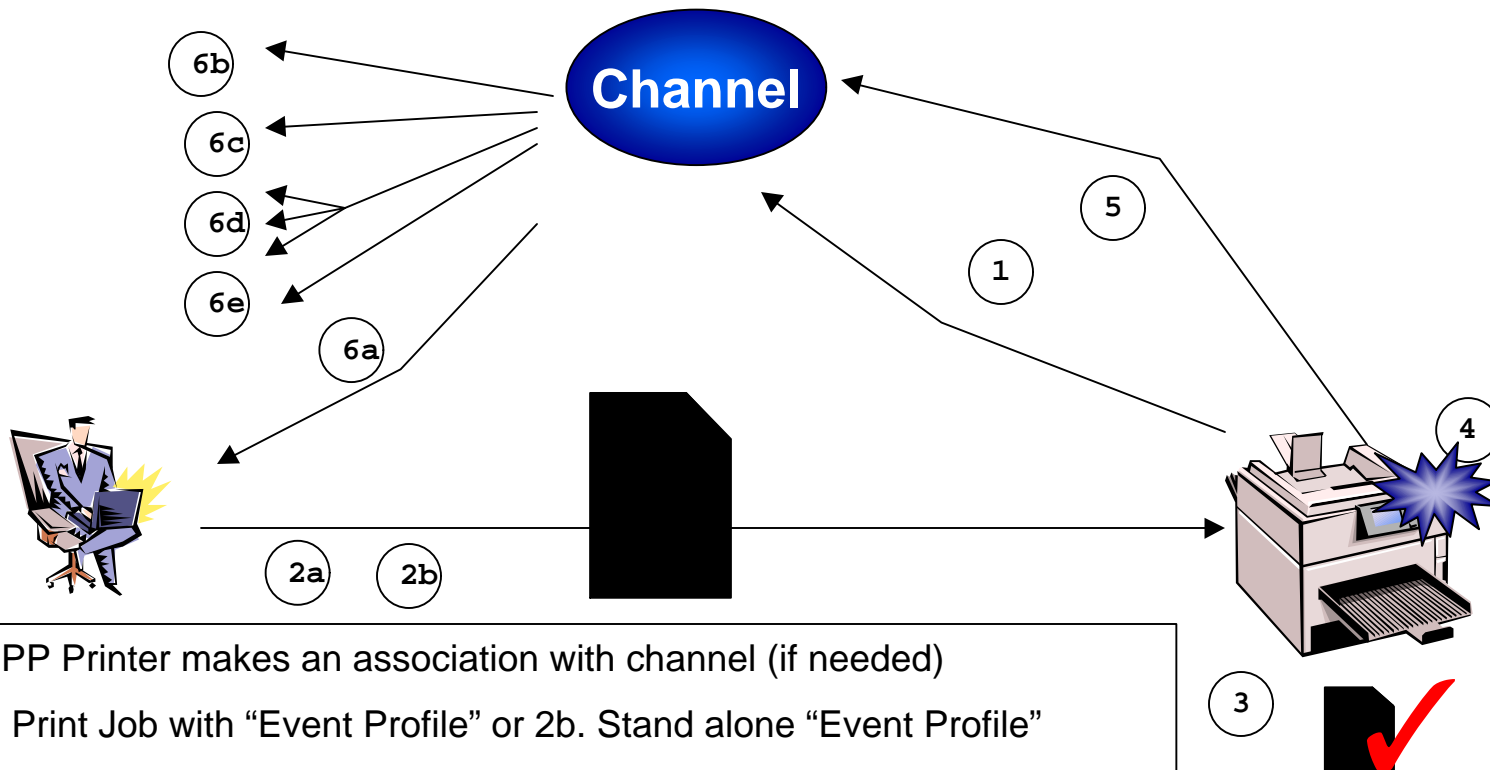
Clients



Notification Architecture



Notification Scenario



1. IPP Printer makes an association with channel (if needed)
- 2a. Print Job with "Event Profile" or 2b. Stand alone "Event Profile"
3. Optimization: IPP Printer remembers "some interest" (not who, where)
4. Something happens
5. Report the event
6. a) programmatic; b) log; c) email; d) other multi; e) other directed

Finding a Channel

- Admin configuration
 - Name, address
- LDAP
 - Directory object for the channel
- SLP
 - Registered "channel service"

Submitting a Profile

- IPP Printer only reports an event if there is some interest
- Profile with Job
 - Policy: OK if end-user is allowed to print
 - Job and Printer events
 - ┆ Option for “Printer events only while Job is active”
- Profile outside of Job
 - Policy: OK if “operator”
 - Printer and All Jobs

I18N

- Client requests a “language”
- Report Contains
 - Identifiers: IPP keywords
 - Strings
 - | In client preference, if possible
 - | In Printer default, otherwise
- Assume: client has access to a “keyword to localized string” database/cache

Types of Events

- Abstract Events

- Printer

- | Error, Warning, Report

- Job

- | Error, Warning, Report

- State Change

- "input tray 1 media count goes below 50"

- Focus only on Abstract Events first

UI and Profiles

- UI for:
 - All Printer events
 - All Printer Error events
 - Specific Printer Error events

Event Report

- Event Report

- event type

- optional event attribute set

- time

Conclusions

Recommendations

- Profile support for multiple notification methods
- Subscribe by proxy through the Printer
 - Just find Printer
 - Subscription is made
- Support Internationalization/Localization
- Support optional data (attributes)
- Allow any notification channel

