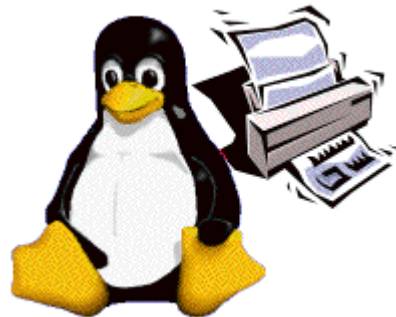# Job Ticket

Free Standards Group

Presented By: Glen W. Petrie
Senior Software Architect
EPSON

1

JTAPI & Objectives

- **What is JTAPI ?**
  - **JTAPI stands for:**
    - Job Ticket Application Programming Interface
    - Pronounced "jay-tappy", "Job Ticket API", or "jay tee API"

  - **A job ticket contains:**
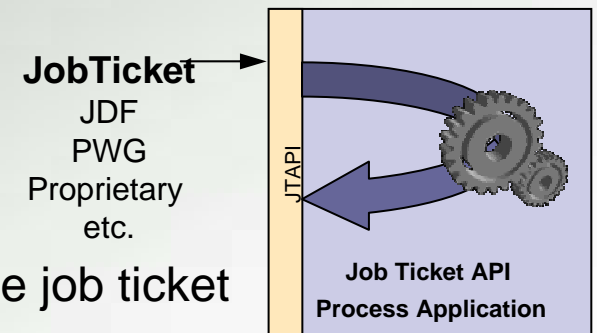   - **Instructions** describing how to process and/or print a job
    - **Information** about the results of a job as it is processed and/or printed

  - **A JTAPI job ticket is:**
    - an electronic replacement of manual hard copy instructions and information

- **Objectives**
  - To create and consume job tickets
  - To be job ticket syntax neutral
  - To isolate the application from the content of the job ticket
  - To be programming language neutral
  - To import and export multiple job ticket formats

JobTicket
JDF
PWG
Proprietary
etc.

JTAPI

Job Ticket API
Process Application

Existing Job Ticket Formats

Technical Review

- **CIP4 JDF (Job Definition Format) Job Ticket**
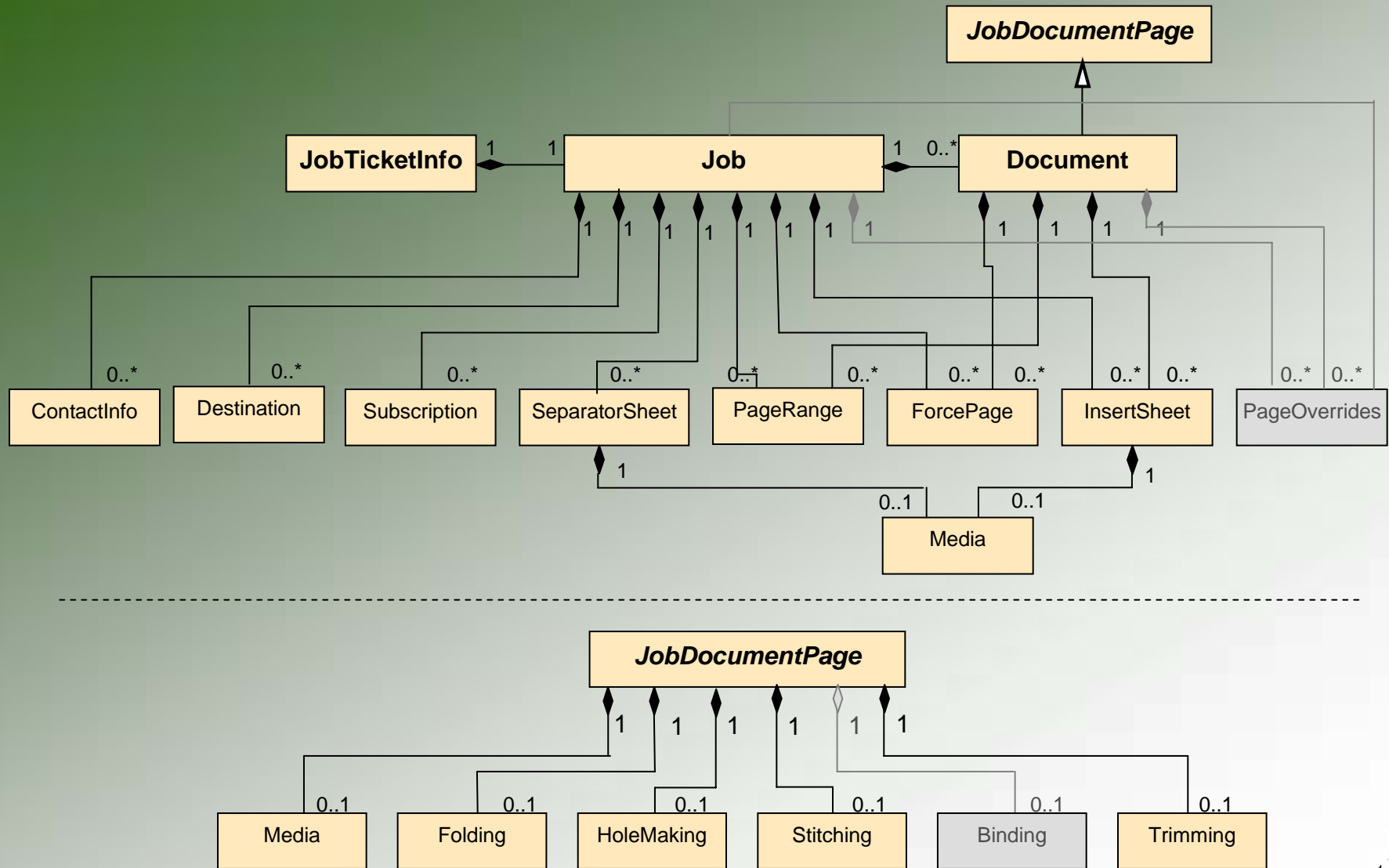 - Defined by CIP4, a world wide standards body with over 150 members
  - Is open, extensible, XML-based job ticket standard
  - JDF Specification versions
    - 1.0 released April 2001
    - 1.1 released April 2002
    - 1.2 released May 2004
    - 1.3 to be released Mid 2005

- **PWG Job Ticket**
  - Defined by PWG Semantic Model 1.0
  - Is open, extensible, XML-based job ticket standard

JTAPI Object Model

JobDocumentPage

JobTicketInfo 1 — 1 **Job** 1 — 0..* **Document**

1 1 1 1 1 1 1 1 1 1 1

0..* ContactInfo

0..* Destination

0..* Subscription

0..* SeparatorSheet

0..* PageRange

0..* ForcePage

0..* InsertSheet

0..* 0..* PageOverrides

1 SeparatorSheet — 0..1 — Media — 0..1 — 1 InsertSheet

Media

JobDocumentPage

1 1 1 1 1 1

0..1 Media

0..1 Folding

0..1 HoleMaking

0..1 Stitching

0..1 Binding

0..1 Trimming

JTAPI Version 1.0 Release

- **Completed C Header Files**
  - **17 objects in separate files**
  - **Common extensible method for attributes**
  - **Data/object model that is object oriented**
  - **Defines objects that are familiar to the printing industry**
    - **Job, Document, Insert Sheet, Media, Stitching, Hole Making, etc.**
  - **Defines relationship between objects**
  - **Defines operations to be performed on objects**
  - **Defines attributes of objects**
  - **Defines well-known enumerated values of all attributes**

JTAPI –Version 1.0 Release Details (1)

- **JobTicketInfo**
  - **fsgjtNewJobTicketInfo**
    - Creates a JobTicketInfo object. Used when a new job ticket is being created without a Job object and not from an existing job ticket.
  - **fsgjtNewJobTicketInfoFromURI**
    - Creates a JobTicketInfo object from the job ticket file at the provided URI. Other JTAPI objects are also created based on the information in the job ticket file.
  - **fsgjtNewJobTicketInfoFromBuffer**
    - Creates a JobTicketInfo object from the provided buffer that contains a job ticket. Other JTAPI objects are also created based on the information in the job ticket buffer.
  - **fsgjtNewJobTicketInfoFromJob**
    - Creates a JobTicketInfo object using the provided Job object. Used when a new job ticket is being created. The Job object must be created first.
  - **fsgjtWriteJobTicketToBuffer**
    - Writes a job ticket to the provided buffer.
  - **fsgjtWriteJobTicketToURI**
    - Writes a job ticket at the provided URI.

- **Job**
  - **fsgjtNewJob**
    - Creates a Job without providing a Document.
  - **fsgjtNewJobFromDocument**
    - Creates a Job containing the provided Document

- **Document**
  - **fsgjtNewDocument**
    - Creates a Document object.
  - **fsgjtNewDocumentFromURI**
    - Creates a Document object using the provided URI that contains the document data.

JTAPI –Version 1.0 Release Details (2)

- ContactInfo
  - **fsgjtNewContactInfo**
    - Creates a ContactInfo object having the specified name.
  - **fsgjtNewContactInfoWithURI**
    - Creates a ContactInfo object having specified name and contact URI

- Subscription
  - **fsgjtNewSubscription**
    - Creates a Subscription object having the specified notification URI.
  - **fsgjtNewSubscriptionForEvent**
    - Creates a Subscription object having the provided notification URI and event.

- SeparatorSheet
  - **fsgjtNewSeparatorSheet**
    - -----.

- ForcePage
  - **fsgjtNewForcePage**
    - Creates a ForcePage object haing the specified page and sheet side.

- InsertSheet
  - **fsgjtNewInsertSheet**
    - Creates a InsertSheet object.

- PageOverrides
  - **fsgjtNewPageOverrides**
    - **Create a PageRange object having a specified start and stop page.**

- Destination
  - **fsgjtNewDestination**
    - Creates a Destination object with a specific URI.

JTAPI –Version 1.0 Release Details (3)

- Media
  - **fsgjtNewMedia**
    - Creates a Media object using the specified name.

- Folding
  - **fsgjtNewFolding**
    - Creates a Folding object having the specified folding type.

- HoleMaking
  - **fsgjtNewHoleMaking**
    - Creates a HoleMaking object having the specified hole count and reference edge.

- Stitching
  - **fsgjtNewStitching**
    - Creates a Stitching object having the specified stitch type.

- Binding
  - **fsgjtNewBinding**
    - Creates a Binding object.

- Trimming
  - **fsgjtNewTrimming**
    - Creates a Trimming object have the specified trimming type.

- PageRange
  - **fsgjtNewRangRange**
    - Creates a PageRange object.

JTAPI –Version 1.0 Release Details (4)

- Attribute

  Generic support for all object/attributes

- **fsgjtNewAttribute**
  - Creates a new Attribute object having the provided attribute name, value type, and value. The value must not be an extension value.
- **fsgjtDestroyAttribute**
  - Free the memory used by the Attribute.
- **fsgjtAddExtensionValue**
  - Add an additional value, that is an extension, to this Attribute.
- **fsgjtAddValue**
  - Add an additional value, that is not an extension, to this Attribute.
- **fsgjtGetName**
  - Get the name of the Attribute.
- **fsgjtGetNextExtensionValue**
  - Return the Attribute's next value that is an extension.
- **fsgjtGetNextValue**
  - Return the Attribute's next value that is not an extension.
- **fsgjtGetNumExtensionValues**
  - Get the number of values, that are extensions, that the Attribute contains.

- **fsgjtGetNumValues**
  - Get the number of values, that are not extensions, that the Attribute contains.
- **fsgjtGetValueType**
  - Returns the type of the Attribute's values.
- **fsgjtIsExtensible**
  - Returns true if this Attribute is extensible, which means that a value other than a pre-defined value can be added. Returns false if no value other than a pre-defined value can be added.
- **fsgjtReplaceExtensionValue**
  - Replaces the existing extension value(s) for this Attribute with the provided value that is an extension. The non-extension value(s) of this Attribute are not affected.
- **fsgjtReplaceValue**
  - Replaces the existing non-extension value(s) for this Attribute with the provided value that is not an extension. The extension value(s) of this Attribute are not affected.
- **fsgjtResetToFirstValue**
  - Reset the iterators to point to the first non-extension value and the first extension value of the Attribute.

JTAPI –Version 1.0 Release Details (5)

- Miscellaneous / Helper

  - **fsgjtDestory**
    - Free the memory used by the an object.
  - **fsgjtGet**
    - Get the Attribute having the specific name.
  - **fsgjtSet**
    - Set the Attribute having the specific name.
  - **fsgjtSetIntegerAttribute**
    - Convenience function for setting an integer attribute.
  - **fsgjtSetObjectAttribute**
    - Convenience function for setting an object attribute.
  - **fsgjtSetObjectAttributeList**
    - Convenience function for setting an object list.
  - **fsgjtSetStringAttribute**
    - Convenience function for setting a string attribute.
  - **fsgjtSetStringAttributeList**
    - Convenience function for setting a string list.

JTAPI - Version 1.0 – Enumerations

Enumerations

- BindTypeEnum
- BooleanEnum*
- CollateEnum
- CompressionEnum
- ContactInfoRoleEnum
- FeedOrientationEnum
- FitPolicyEnum
- FoldTypeEnum
- HoldEnum
- ImageAlignmentXEnum
- ImageAlignmentYEnum
- InputTrayNameEnum*
- InsertSheetContentEnum
- JobTicketTypeVersionEnum*
- JogOffsetEnum
- LengthUnitEnum*
- MandatoryAttributesEnum
- MediaCoatingEnum
- MediaColorEnum

- MediaPrePrintedEnum
- MediaTypeEnum*
- OutputBinEnum
- PageDeliveryEnum
- PositionEnum
- PresentEnum
- PresentationDirectionEnum
- PrintContentOptimizeEnum
- PrintQualityEnum*
- ReferenceEdgeEnum
- RotationEnum*
- SeparatorSheetEnum
- SheetSideEnum
- SidesEnum*
- StitchingTypeEnum*
- SubscriptionEventEnum
- TrimmingTypeEnum
- ValueTypeEnum*

Accomplishments 2002

- Feb 2002
  - Began job ticket discussions in FSG Open Print

- June 2002
  - Initial JTAPI proposal
  - Chartered FSG JT working group

- Nov 2002
  - Created IPP to JDF mapping table
    - In cooperation with PODi and CIP4 Digital Printing working groups

- Dec 2002
  - Prioritized features/functions of JTAPI
  - IBM ships first generation C JTAPI product
    - In a job submission GUI and printer control unit product
      - Based on initial JTAPI specification
      - Based on early version of JDF ICS Specification for Digital Printing

Accomplishments 2003

Introduction

- May 2003
  - Completed detailed JTAPI UML diagrams
    - 19 objects and 33 enumerations
    - 20+ draft versions

- June 2003
  - Defined subset of JTAPI 1.0 content for Alpha version

- Nov 2003
  - Completed version 0.82 JTAPI Specification
  - Started "C" language header files
    - Initial contribution from IBM

- Dec 2003
  - IBM <u>ships</u> second generation C JTAPI product
  - IBM <u>ships</u> first generation Java JTAPI product

Accomplishments 2004

- JTAPI Software Development White Paper
  - May   2004   - Draft white paper completed
  - May   2004   - Completed and distributed to FSG/Japan

- JTAPI Version 1.0 Specification
  - Oct   2004   - Updated JTAPI global UML diagrams
  - Oct   2004   - Updated JTAPI Version 1.0 compliant C header files
  - Oct   2004   - Updated Version 1.0 Specification
  - **When to we release to SC for review and approval.**
  - Nov   2004   - Release headers for review.
  - Nov   2004   - Release Specification for review.

- Finalize JTAPI Version C Header Files
  - Dec   2004   - Finalize requirement / definition document
  - Dec   2004   - Finalize funding issues for code development and validation

JTAPI - What's Next

JTAPI Version 1.0 Specification/Header Release

- Jan 2005 - Release Specification
- Jan 2005 - White Paper Proposal for code implementation

JT Working Group Information

- Weekly FSG Job Ticket conference calls
  - Tuesdays at 3:00 PM US Eastern for 1-2 hours

- To subscribe to FSG Job Ticket mailing list:
  - http://freestandards.org/mailman/listinfo/printing-jobticket

- To post a message to FSG Job Ticket mailing list
  - printing-jobticket@freestandards.org

- To view FSG Job Ticket mailing list archives
  - http://freestandards.org/mailman/listinfo/printing-jobticket

- To find FSG Job Ticket documents
  - ftp://ftp.pwg.org/pub/pwg/fsg/jobticket/

- Participants
  - Claudia Alimpich (IBM) – chair
  - Jody Goldberg (Gnome)
  - Tom Hastings (Xerox)
  - Till Kamppeter (MandrakeSoft)
  - Ira McDonald (High North Inc)
  - Glen Petrie (Epson)

FSG OpenPrinting

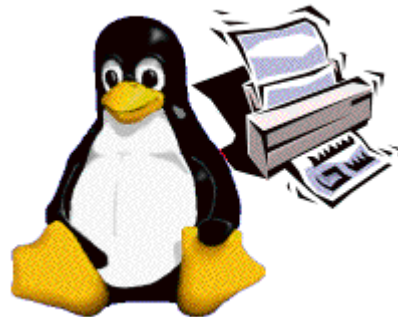# *Thanks*

from the

JTAPI Team

OpenPrinting

By: Glen W. Petrie
Senior Software Architect
EPSON

Organization

Free Standards Group

OpenPrinting

America/Europe	**Japan**

Steering Committee	*Steering Committee*

Architecture	Vector Driver
Job Ticket	Status Monitoring
Application Interface	Print Channel Monitor
Raster Driver	

Objectives/Mission

"Standardizing on a
Scalable Print Environment in Linux."

Mission Statement

The goal of the OpenPrinting is to

develop and promote a set of standards

that will address the needs of

desktop to enterprise-ready printing;

including

management, reliability, security, scalability, printer feature access and network accessibility.

http://www.openprinting.org/

Objectives

- ## **OpenPrinting : Input**

  - OpenPrinting accepts input from interested parties in IT industry, government, education and the open source community

- ## **OpenPrinting : Output**

  - Draft specification and implementation released together

  - Public review of work

  - Once implementation has been accepted by *both* upstream authors and at least two Linux distribution vendors, then it is "real":
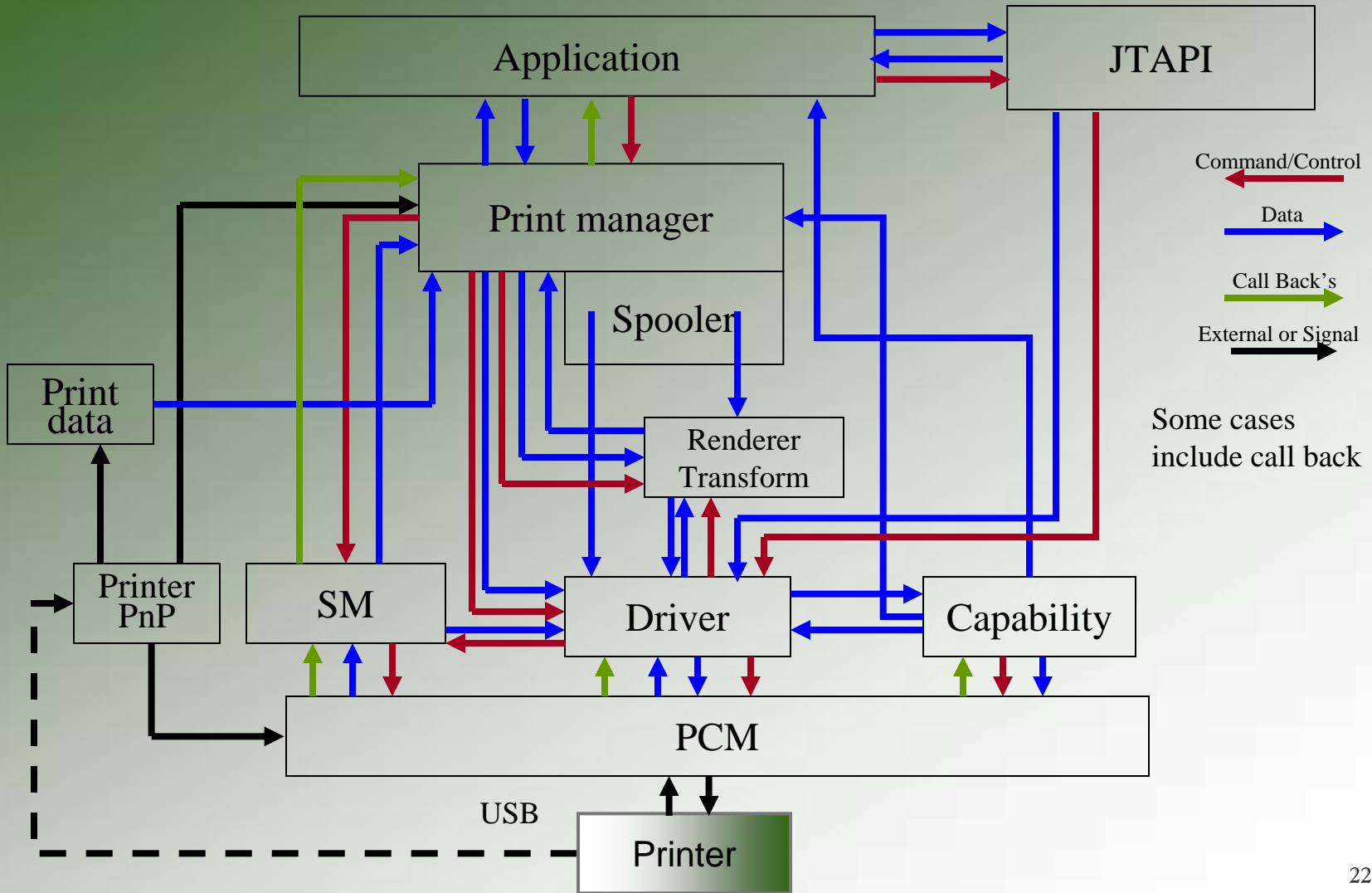
A published specification that points to a globally utilized, open source implementation

OpenPrinting Reference Model

Preliminary Reference Model

Command/Control

Data

Call Back's

External or Signal

Some cases
include call back

Working Groups and Objectives

- Steering Committee

  - Provide overall priorities and top-level coordination.

- Architecture

  - Develop a modern Print System for Linux.

- Job Ticket API (JTAPI)

  - To create/consume job tickets; edit job tickets; write/export job tickets.

- Application/Program Interface (PAPI)

  - Provide applications print services neutral interface.

- Printer Driver (Raster/Vector) (PDAPI)

  - Provide a neutral interface for printing to any printers

- Status Monitoring API (SMAPI)

  - Provide a neutral interface for acquiring static and real-time printer status

- Print Channel Monitor API (PCMAPI)

  - Provide a neutral interface for any output portal/destination.

Activities

- Oct 25-26, 2001 – Print Summit Meeting
  - Began discussion of OpenPrinting and needs.

- June 10, 2003 – FSG Portland Face-to-Face Meeting
  - Defined Reference Model

Planned

- Nov 21, 2004 – FSG San Antonio Face-to-Face Meeting
  - Working Group Status and Interaction

- Weekly Phone Meetings – all working groups

- Email Communications – all working groups