

IPP - The Internet Print Protocol As a Facsimile Transmission Model

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Presented By

- **Richard Shockey**
Shockey Consulting LLC
8045 Big Bend Boulevard, Suite 110
Saint Louis, Missouri 63119 USA
(314) 918.9020 Voice
(314) 918.9015 Fax
- **E.Mail/IFAX rshockey@ix.netcom.com**

Personal Background

- **Strategic Consulting, Standards Development for the Technology Industry, Enterprises and Entrepreneurial Firms in the areas of Internet Fax, Internet Document Technology, IP Telephony and IP Directory Services**
- **IETF / FAX - IPP - IPTEL Participant for 3 years in Standards Development**
- **Founder CEO - Nuntius Corporation - Fax on Demand Developers - Sold to AVT-RightFax 1997**

Store & Forward Internet Fax [T.37 RFC2305 *Simple* RFC 2532 *Extended*]

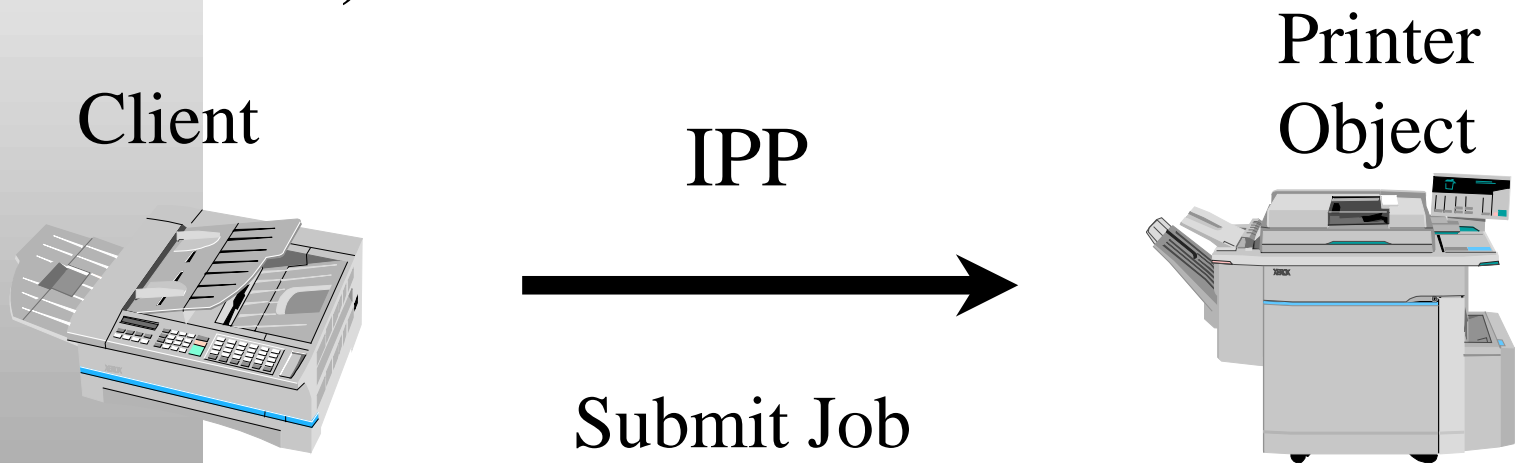
- **Lack of Return Receipt serious issue..**
 - DSN available Server to Server only
 - MDN Client to Client can be repudiated by recipient
- **Mail Security difficult for end users to implement**
 - S/MIME - PGP
- **Capabilities Exchange Difficult**
 - Can the recipient read the attachment?
- **Not “Realtime”**

Realtime [ITU -T.38] - IMHO

- **Oriented towards Carrier / LanFax GSTN Gateway operations**
 - LanFax Least Cost Routing
 - Service Provider Routing
- **H.323 Interoperability ?**
 - Protocol Complexity
- **Is it a Fax Machine / MFP protocol ?**
 - Addressing issue

Internet Print Protocol - What is it?

- **HTTP 1.1- POST (vs PULL as in Web Browser)**



- **Attributes define “Job” and “Printer Objects”**

IPP History

- **3 year standards effort in IETF in association with the Printer Work Group**
- **Home Page - <http://www.pwg.org/ipp>**
- **2 Formal Bake-Off's including**

Apple

Epson

Hewlett Packard

Komatsu

Netsilicon

Sun

AUCO

Extended Systems

i-data

Kyocera

Shinesoft

Tektronix

Axis

Fuji Xerox

IBM

Lexmark

Novell

Xerox

EFI

Genoa

JCI

Microsoft

Ricoh

Canon

Internet Print Protocol [IPP]

- **Are Remote Printing and Faxing 2 sides of the same coin?**
- **Similarities FAX and IPP**
 - Creation [*PDL stream*]
 - Addressing [*URL*]
 - Negotiation [*Get IPP Printer Attributes*]
 - Transmission [*HTTP 1.1 Post*]
 - Delivery Receipt [*response on the Post + poll IPP Get Jobs Request*]
 - Security [*HTTP Digest Auth - SSL3/TLS*]

Internet Print Protocol How do you use it?

● **ipp://ipp/domain.com/printer_1**

or

● **ipp://ipp/domain.com/richard_shockey**

- Goes on your business card
- Alias to printer or desktop
- Possible Gateway to GSTN Fax

Internet Print Protocol - Simple Transaction

- **Client - Contact IPP Printer Object - URL**
- **Client - “Get_Printer_Attributes”**
 - Request for Capabilities
- **Server - “Get_Printer_Attributes_Response”**
 - Response to Capabilities Request
- **Client “Print_Job_Request”**
 - Submit document for processing
 - Client can “Print by URL Reference” or submit multiple documents at the same time.

Internet Print Protocol - Simple Transaction

- **Client - Listen for response to HTTP- POST or “Get_Jobs_Request”**
 - Request for status or “receipt”
- **Server - “Get_Jobs_Response”**
 - Response to request for status or “receipt” of transaction

Internet Print Protocol [IPP]

● PRO

- IP End to End
- Client / Server Capabilities Negotiation
- No quality restrictions
- “Realtime” looks like GSTN Fax
- TLS Security Point to Point
- Receipt Confirmation - Notification Coming
- Low Protocol Overhead
- Very Extensible
- Robust Finishing Options
- “Never Busy Fax”

Internet Print Protocol [IPP]

● CON

- New - Not well deployed
- Requires Persistent IP connections - Enterprise only for the time being
- Auto DL' of PDL driver outside 1.1 scope
- Needs to crack the Firewall - #1 issue
- Need to satisfy legal as well as “general custom and practice of “fax”

IPP - Status

● **Version 1.0 Approved “Experimental”**

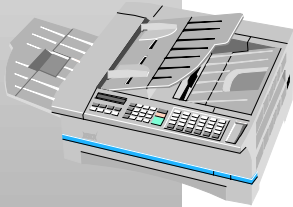
- RFC 2565 - Internet Printing Protocol/1.0 Encoding and Transport
- RFC 2566 - Internet Printing Protocol/1.0 Model and Semantics
- RFC 2567 Design Goals for an Internet Printing Protocol
- RFC 2568 Rationale for the Structure of the Model and Protocol for the Internet Printing Protocol

IPP - Status

- **Version 1.1 “Standards Track” Nov 99
Final ?**
- **draft-ietf-ipp-model-v11-04.txt**
- **draft-ietf-ipp-protocol-v11-03.txt**
 - New requirements for time/date
 - TLS security
 - Digest Authentication Optional
 - IPP Scheme
 - Use of Port 631
 - URL - **ipp://domain.com/printer** vs **http://xxxx**

IPP – Status - Notification

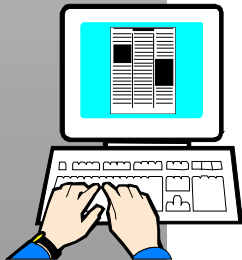
- **Notification Requirements for IPP**
 - **draft-ietf-ipp-not-02.txt**



**Create Job with “Subscription”
for Notification**



Job and Printer Notifications



Job and Printer Notifications

QUALDOCS - IETF

- **Quality Document Distribution**
- **Proposed IETF WG - QUALDOCS**
 - draft-ietf-shockey-ipp2ifax-goals.txt
 - New Goals Draft Forthcoming
 - **Mail List - To Subscribe send message to:**
 - Majordomo@pwg.org
 - In body of message : subscribe ifx [your email address]
 - Subject line should be blank

QUALDOCS IETF - BOF

- **Transaction Security, Authenticity and Confidentiality**
- **Legal identity exchange**
- **Document format selection based on confirmed capabilities of sender and/or receiver.**
- **NonRepudiable Proof of Delivery (Receipt Notification)**
- **Study will be given to the requirements of 3rd party document delivery service providers. [UPS - FedEx -USPS]**

QUALDOCS - Profile ?

- **IPP Query for :**
 - **“facsimile_service_mode_supported” Attribute**
 - Mandate some IPP attributes currently Optional
- **Identity Exchange by use of vCard**
- **Support for RFC 2301 TIFF as Least Common Denominator**
- **IPP Gateway Behavior Attributes**
 - GSTN - SMTP Address

Addendum - IPP Product URL's

● Clients

- **HP - Client Software (1.0)**
 - http://www.hp.com/net_printing/ppss/ipt_tech.html
- **Xerox - Test Client - Java Based**
 - <http://www.xerox.com/research/ipp>
- **Shinesoft - Client & Server**
 - <http://www.shinesoft.com>
- **Microsoft - Commitment**
 - Windows 2000 ??

Addendum - IPP Product URL's

● Servers

- IBM OS/390 Version 2 Release 7 - OS/390 Print Server (IPP 1.0)
- HP - JetDirect 300X / 500X (IPP 1.0)

● Embedded Systems

- Allegro Software - <http://www.allegrosoft.com>
- Iready - <http://www.iready.com>
- Auco – <http://www.auco.com>

● UNIX - Common UNIX Print Service

- <http://www.cups.org>