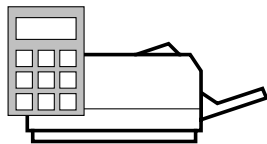
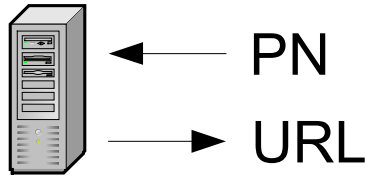
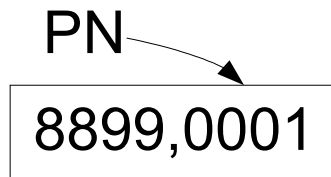


Print Number

An overview of print number and use cases

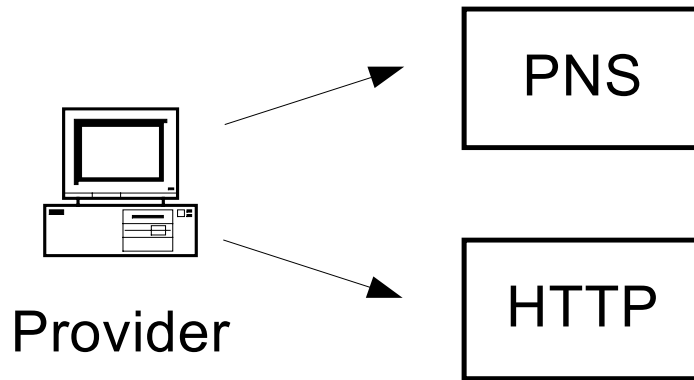


Terms



- **Print Number (PN)**
 - a number that represents URL of a document
 - e.g, 8899,0001 = <http://xxx//doc.prn>
- **Print Number System (PNS)**
 - translates PN into URL in server
 - e.g, 8899,0001 → <http://xxx//doc.prn>
- **Internet Printer**
 - network printer/MFP with a built-in keypad (key: 0-9, Clear, Print), and capabilities to access PNS/HTTP server

How It Work - Document Provider

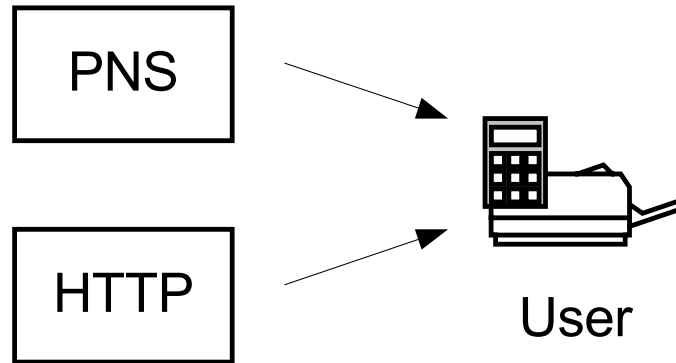


Document providers : Doc→HTTP→URL→PNS→PN

1. Store documents in HTTP server
2. Use URLs to describe access to documents of HTTP server
3. Store URLs in PNS, and use PNs to represent URLs

How It Work - User

Network printer accesses
PNS and HTTP over
Internet.



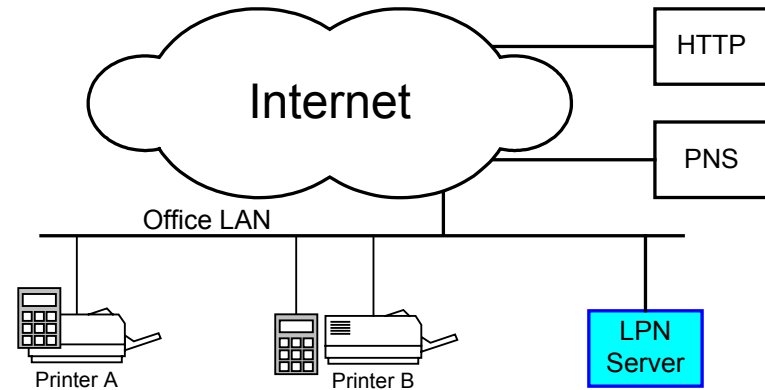
User: PN→PNS→URL→HTTP→DOC→Printer

1. A user enters a PN on the keypad of Internet printer
2. Printer sends the PN to PNS server
3. PNS maps the PN into a URL, and returns URL
4. Printer retrieves document from HTTP using the URL
5. Printer prints the document

How It Work - User in LAN

Network printers don't access PNS and HTTP.

But a local PN (LPN) server accesses PNS and HTTP over Internet for all network printers in a LAN.

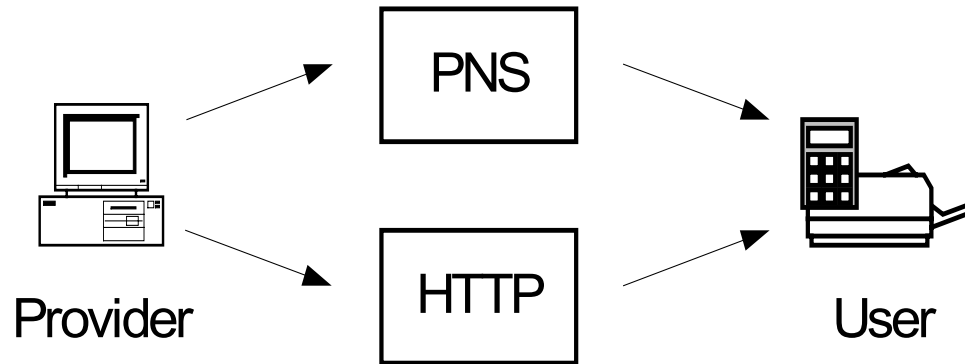


In LAN, users have an alternative method to print:

1. A user enters PN in printer/keypad, which sends PN to LPN server
In the printer: PN→LPN server
2. LPN server accesses PNS/HTTP, and prints document to printers
In LPN server: →PNS→URL→HTTP→Doc→Printer

Benefit: flexibility, using existing network printers and local document printing

How It Work - Summary



Document Provider

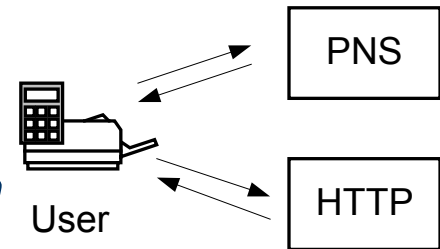
Doc → HTTP → URL → PNS → PN

User

PN → (LPN server) → PNS → URL → HTTP → Doc → Printer

Use case 1: Doc and Ad Printing

1. A bank prepares an ad of a credit card to be published in the newspaper, and a form for the public to apply the card. The ad is published in the newspaper with *Application Form PN (888-0001)*.



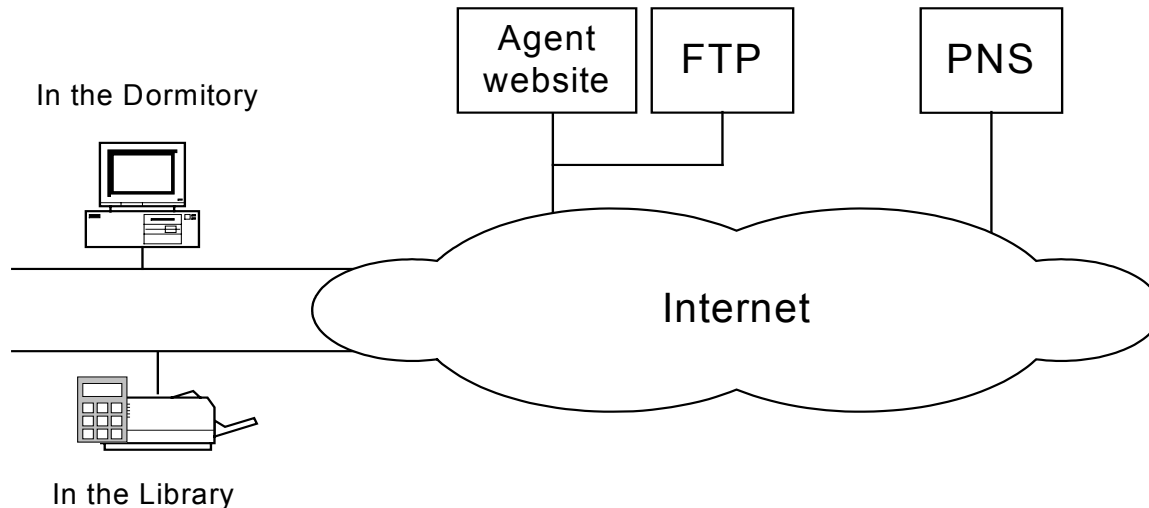
Bank: Form→HTTP→URL→PNS→PN

2. The user enters *PN(888,0001)* in the keypad of printer and prints the form.

The Public: PN→ PNS→URL→HTTP→Form→Printer

Case 2: Public Printing

Public printing for people who do not have their own printers. A student wants to print a paper with a laser printer, but there isn't one in the dormitory. So she prints it in the library.

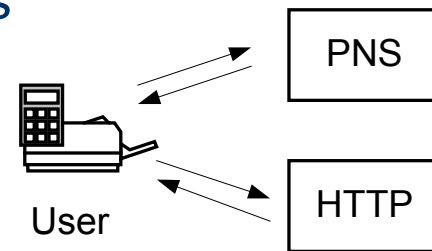


Dormitory: Paper → Printable File → FTP → URL → PNS → PN

Library: PN → PNS → URL → FTP → Printable File → Printer

Case 3: A/C Statement Printing

A bank account holder wants to print his bank statement with his office/home printer.



1. Bank registers a series of a/c no. in PNS

A series of Account No. → URL → PNS

2. The user enters his a/c no. in the keypad of a printer

Account No. → PNS → URL → HTTP → Statement → Printer

User and Benefit

- User

Anyone, range from 7 to 70 years old

Home users, or workers who do not use PC

- Benefit

Print document without needs of PC

Convenient, users enter print number (0-9) at printer only

Not necessary to setup own websites to host documents

Print for travelers and persons who have no printers

May be useful for other applications

Minor change in the structure of network printer (adding keys 0-9, clear. print) and MFP (firmware only).

Case 4: Internet Health Info Printing System

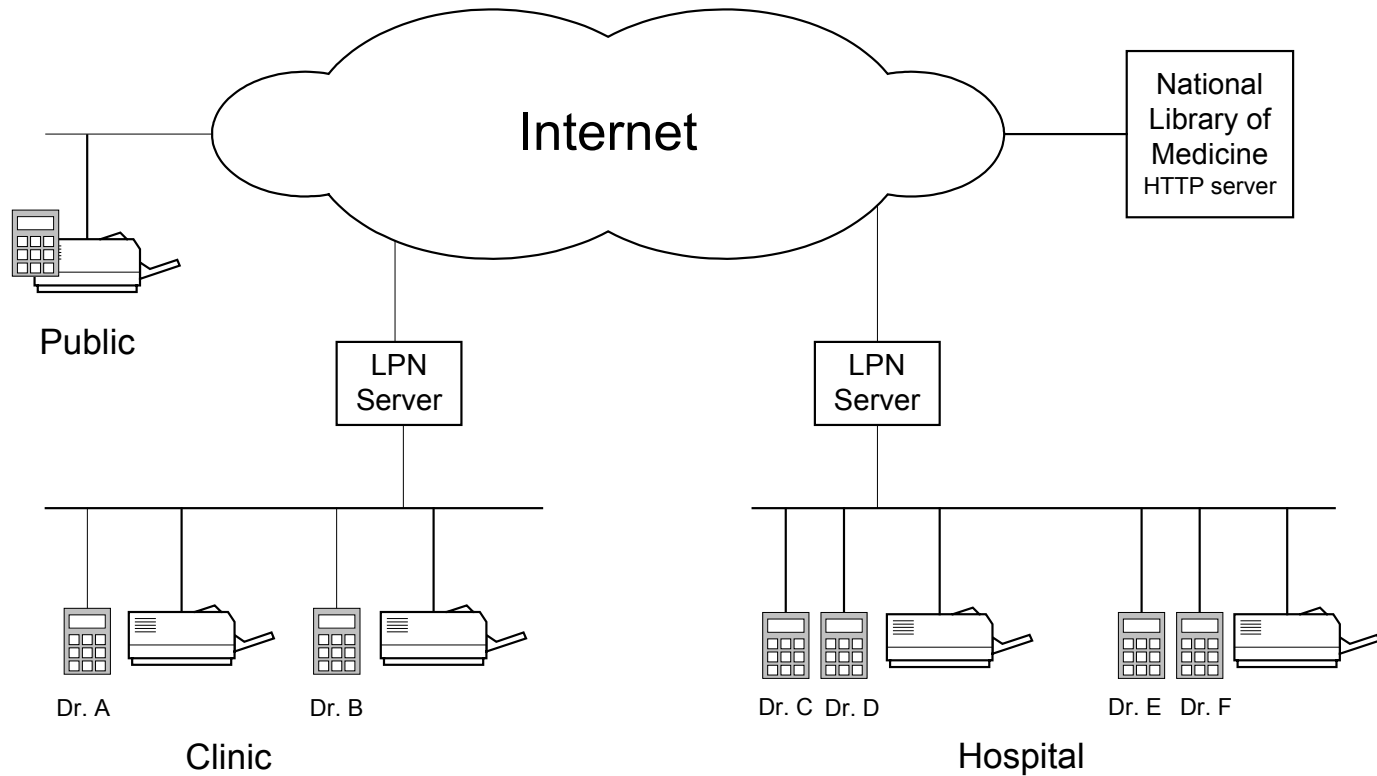
- **Objective**

Assist doctors to provide **printed consultative advices** to patients during regular consultations.

- **Background**

During medical consultations, patients receive medications and consultative advices. Typically they rely on memories to memorize them, and forget them soon. For many diseases, the full consultative advices are critical for the patients to cure and prevent diseases. Patients demand advice that are written down or printed in the paper, but at present there are no efficient ways to provide paper advice during regular consultation time in hospitals and clinics.

Internet Health Info Printing System



How It Work

In the National Library of Medicine

1. Consultative advices of diseases are stored in the HTTP server. Each advice can be identified and accessed according to a code. For example, the advice *Pre-diabetes* has the code 10032.
2. The booklets that include titles and codes of these advices, such as [*Pre-diabetes* 10032], are distributed to doctors.

The Doctor in the Hospital and Clinic

1. When the doctor wants to provide a printed consultative advice to a patient, he refers to the booklet, basing on his medical knowledge, and chooses a advice such as *Pre-diabetes* 10032
2. The doctor keys in the code 10032 on a network keypad
3. The keypad sends the code to LPN server, which downloads advice *Pre-diabetes* from HTTP server, and prints it in a printer

The Future Scenario

A patient visited the doctor. Under the suspicion that the patient was facing the possibility of contracting diabetes, the doctor found it necessary to provide as much consultative advice as possible. However, searching laboriously for required information through Internet or books was not feasible during regular consultation hours. Alternatively, with the assistance of the *Internet Health Info Printing System* now, the doctor can refer to a medical index booklet, select and prints instantly a complete consultative advice *Pre-diabetes* for her.

End

Thank You