

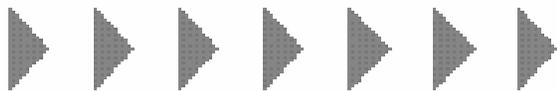
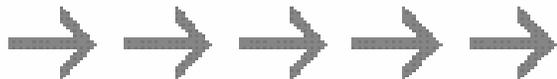


**The  
Salutation  
Consortium**

**Network Resource  
Management**

**Presented to PWG/IPP  
January 20, 1999**

[www.salutation.org](http://www.salutation.org)



Presented by Robert F. Pecora, Managing Director

# Salutation Consortium

## **Agenda Topics**

- ▶ **Focus of Salutation Consortium**
- ▶ **Salutation Architecture/Protocol**
- ▶ **Salutation and the Internet**
- ▶ **IPP and Salutation**
- ▶ **Summary and Wrap-up**
- ▶ **Discussion and Qs & As**

# Salutation Consortium

**User = My Focus**

**I want to work effectively from where I am, not from where the network thinks I am, and with the tools at hand.**

# Salutation Consortium

## Principles

- **Open To Industry**
- **Use Existing Standards Where Appropriate**
- **Simple Design For Interoperability**
- **Independent of Processor, O/S and Transport Protocol**
- **Scaleable Structure and Code**
- **Worldwide Defacto First, Then "Standard" as Required**

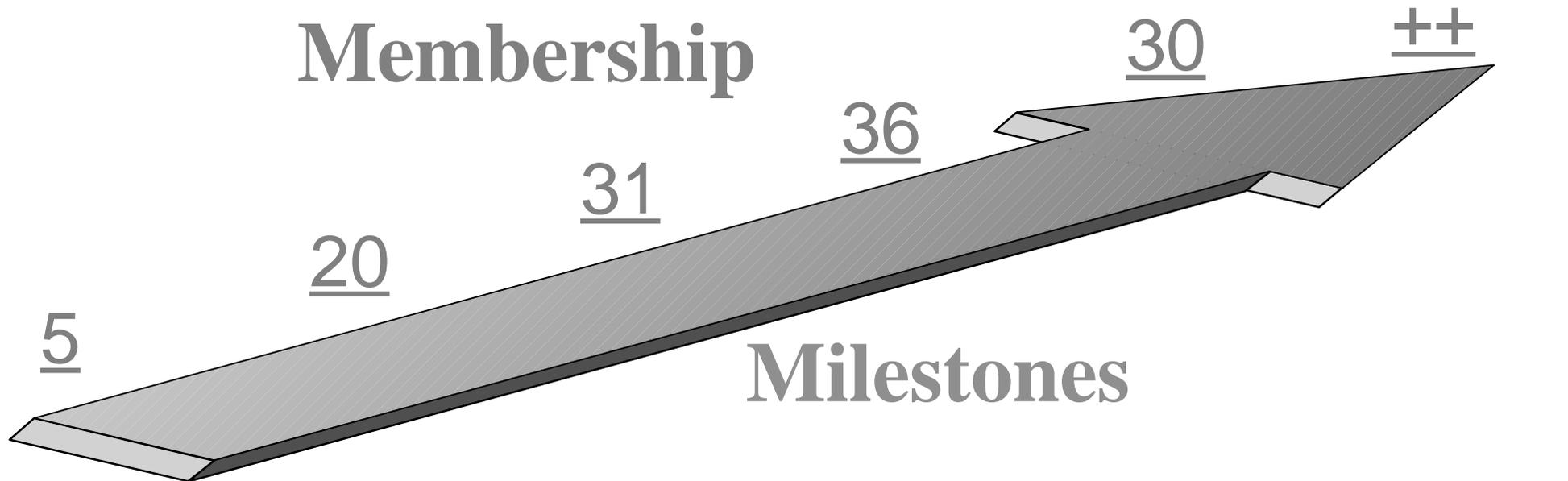
# Salutation Consortium

## Members

**Adobe Systems, Inc.,  
Advanced Peripherals Technologies,  
Axis Communications,  
Brother Industries Ltd.,  
Canon Inc.,  
Cisco Systems, Inc.,  
Fuji Xerox Co., Ltd.,  
Fujitsu Limited,  
Granite Systems,  
Hewlett-Packard,  
Hitachi, Ltd.,  
International Business Machines,  
Kobe Steel, Ltd.,  
Komatsu, Ltd.,  
Konica Corp.,**

**Matsushita Electric Industrial Co.,  
Mita Industrial Co., Ltd.,  
Mitsubishi Electric Corp.,  
Murata Machinery, Ltd.,  
Okamura Corp.,  
Oki Data Corp.,  
Ricoh Company, Ltd.,  
RIOS Systems Co. Ltd.,  
Sanyo Electric Co., Ltd. ,  
Seiko Epson Corp.,  
Sharp Corporation,  
Sun Microsystems, Inc.  
Toshiba Corporation,  
Xerox Corporation**

# Salutation Consortium



1994

Start Up

Initial

Development

1995

Proof of  
Concept

Specification  
Published

1996

Version 2  
Delivered

Demo of  
Prototype  
Products

SLM Tool  
Kit Avail.

1997

8+ Products  
Shipping

in Japan  
Development  
Tools RFIs  
Released

Demos at  
COMDEX

1998

Port of Entry  
Available

New &  
Enhanced  
Products  
Announced/  
Available

1999

Test Tools,  
Ref. Model  
Available

Version 2.1  
Available  
More New  
Products

# Salutation Enabled Products

- **Salutation Products (For Japan Market)**

- ▶ **IBM - NuOffice**

- ▶ **IBM - NetCube for TME10 NetFinity V1.0**

- ▶ **Canon - GP30F Salutation System**

- ▶ **Mita - Antico 30 Network Connection Kit for Notes**

- ▶ **Ricoh - Imagio MF-P series and Print Server software and Scan Server software**

- ▶ **Fuji Xerox - Salutation enabled Network Able**

- ▶ **Muratec - Salutation enabled F-120/F-150**

- ▶ **Kobelco - SLM & TK**

- **Other Products (Available)**

- ▶ **IBM - Salutation Manager and Tool Kit V2.03**

# Salutation Enabled Products

- **Most Recent Announcements**

- ▶ **Availability of XtraWorX Port-of-Entry**
- ▶ **IBM, Lotus, Xerox - US Salutation Support in 1999**

## **Additional Products for Japan**

- ▶ **Ricoh releases Salutation Supported Software**
- ▶ **Sony Offers Network Document Management**
- ▶ **Hitachi Offers Milemasse Salutation Gateway**

- **Additional Products available in 1999**

# Salutation Activities/Direction

- **Salutation Architecture Enhancements**

  - Accepted

    - ▶ Utilize SLP for Directory Service Discovery
    - ▶ Incorporate HP JetSend Functional Unit

  - Proposed

    - ▶ Additional Functional Units
    - ▶ Support Handheld Environment
    - ▶ Support Wireless Networks

- **Consortium Activities**

  - ▶ Propose Salutation Discovery at Bluetooth meeting
  - ▶ Handheld developers session

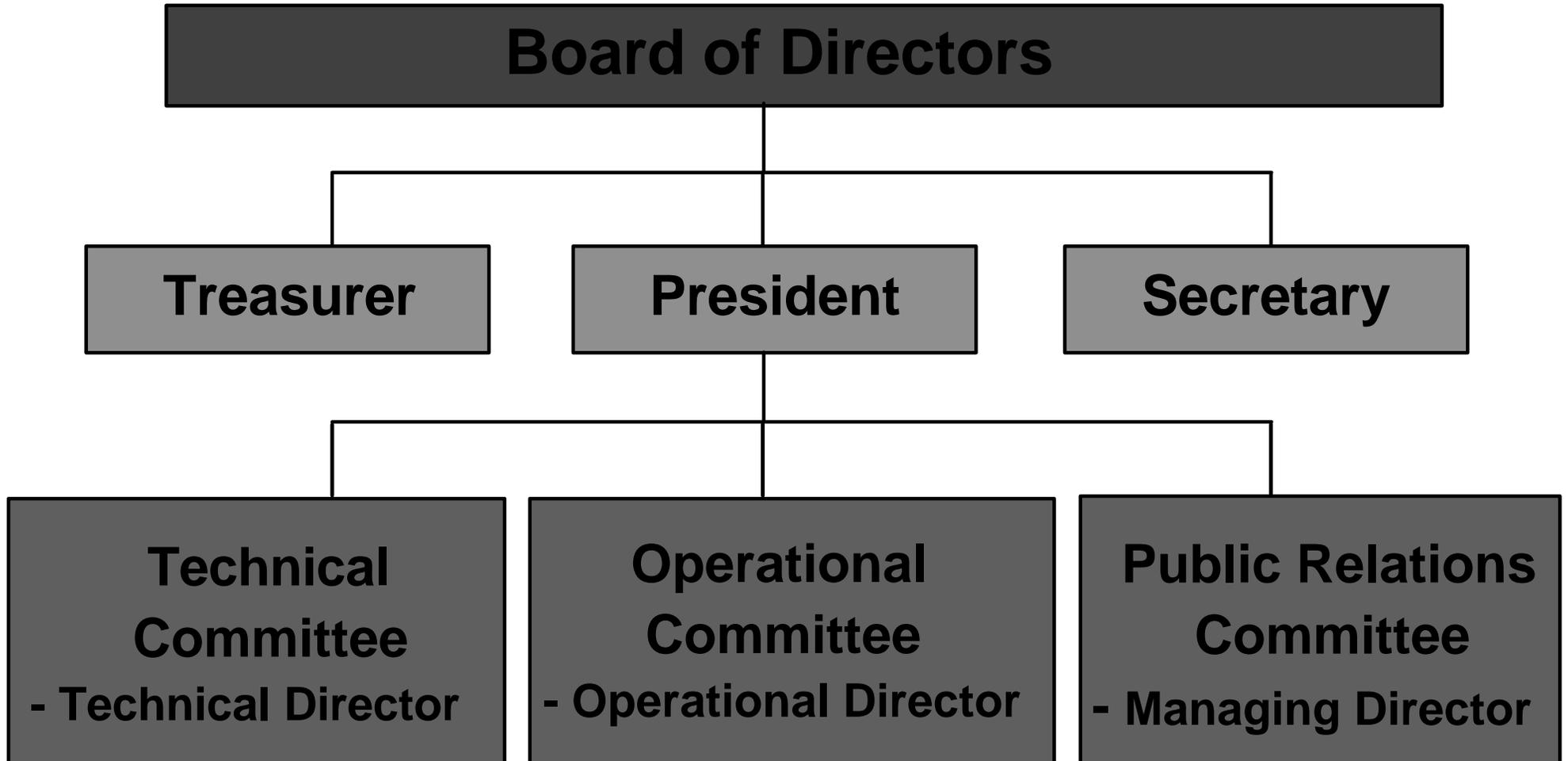
# Salutation Consortium

## Structure of Consortium Membership

- ▶ **Core Membership (Available to Legal Entities)**
  - + Representatives/Vote at any and all committees
  - + Elect Board of Directors from Core Members
  - + Access to Specification as it is being developed
  - + May be eligible for certain discounts
  - + Membership Fee = \$50,000 per year
- ▶ **General Membership (Available to Legal Entities)**
  - + Representatives to any and all committees (No Vote)
  - + Elect 2 Reps to Board of Directors from General Members
  - + May be eligible for certain discounts
  - + Membership Fee = \$5000 per year
- ▶ **Individual Membership (Available to Individuals)**
  - + Attend/Participate in Technical Committee only
  - + Membership Fee = \$300 Per Year

# Salutation Consortium

## Organization



# Salutation Architecture

## **What it does**

**The Salutation Architecture was created to**

- **Solve the problems of service discovery and utilization**
- **Among a broad set of appliances and equipment**
- **In an environment of widespread connectivity & mobility**

# Salutation Architecture

**How it does it**

**The Architecture provides a method to**

- **Advertise capabilities**
- **Search for a particular capability**
- **Request and establish interoperable sessions to utilize found capabilities**

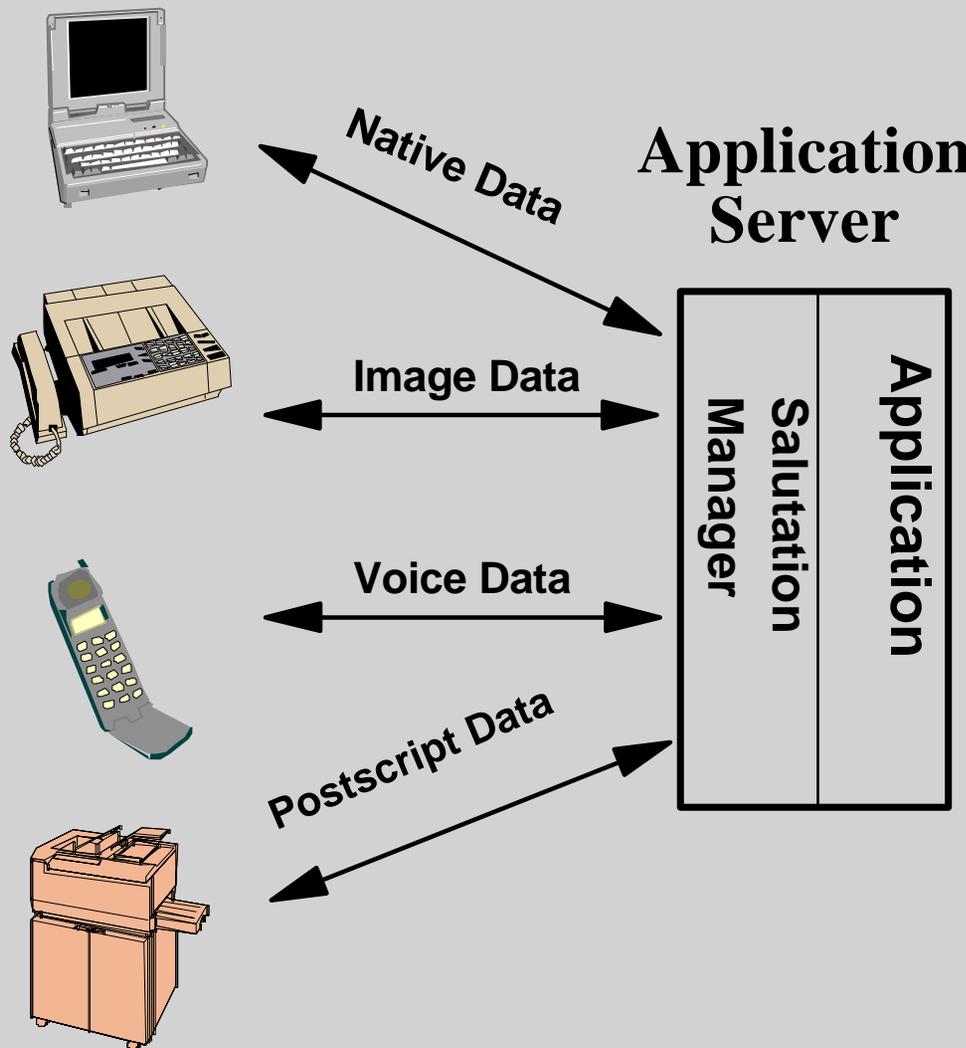
# Salutation Architecture

## ***Characteristics***

- ✓ **Open Interface Protocol**
- ✓ **Initial Dialogue - Network Entities**
- ✓ **Independent of:**
  - **Processor**
  - **Operating System**
  - **Transport Protocol**
- ✓ **Client-Server & Peer-to-Peer**
- ✓ **Point to Point or Directory Centric**
- ✓ **API set simplifies development**
- ✓ **Scaleable, even in low end devices**

# Salutation Scenario Example

## Tailoring Interactions Based on Capabilities



- Each device accesses the Server over existing transport protocol

- Server uses Salutation to determine capabilities of requesting device

- Server adjusts device interactions based on these capabilities

# Salutation Manager

## The model

- **Architected reference implementation**
- **Middleware to isolate application provider from protocol specifics**
- **Resource manager for Capabilities information**
- **Service Broker for Resource interactions**

# Salutation Manager

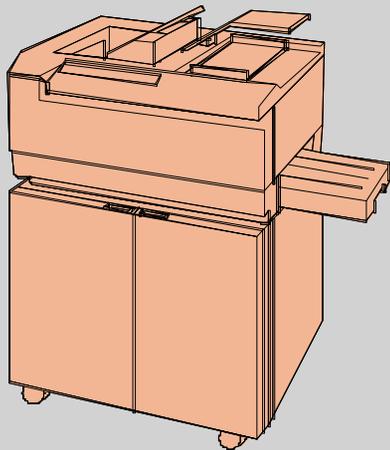
**What resources does it  
manage?**

- **Service Broker for Functional Units**
  - **Applications**
  - **Devices**
  
- **Service Functional Units**
  - **Service Provider**
  - **Registers its Capability with a Salutation Manager**
  
- **Client Functional Unit**
  - **Service User**
  - **Discovers and Requests Services Use through a Salutation Manger**

# Salutation Architecture

## Salutation Manager Locations

### Embedded in Devices



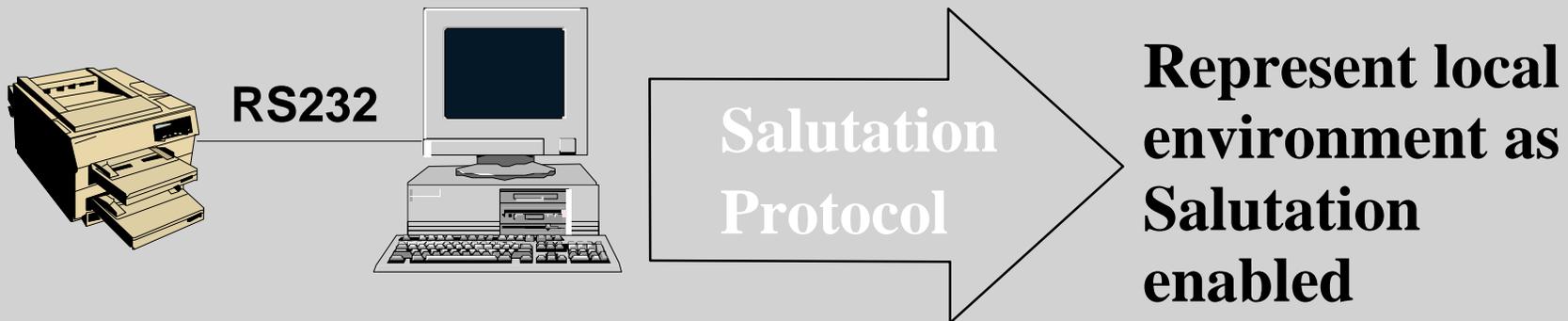
Salutation  
Protocol

**Native Salutation  
Implementation**

# Salutation Architecture

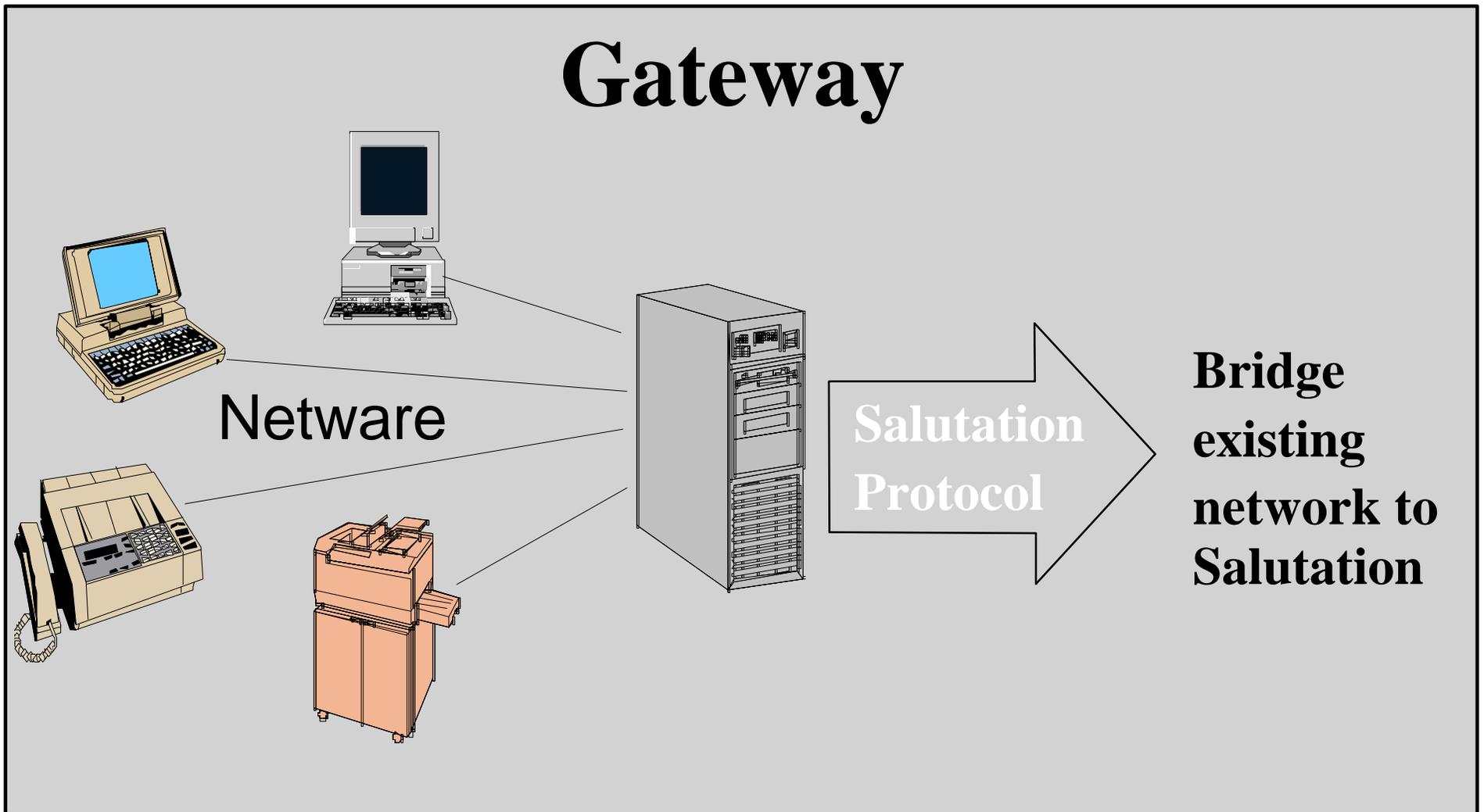
## Salutation Manager Locations

### Port-of-Entry



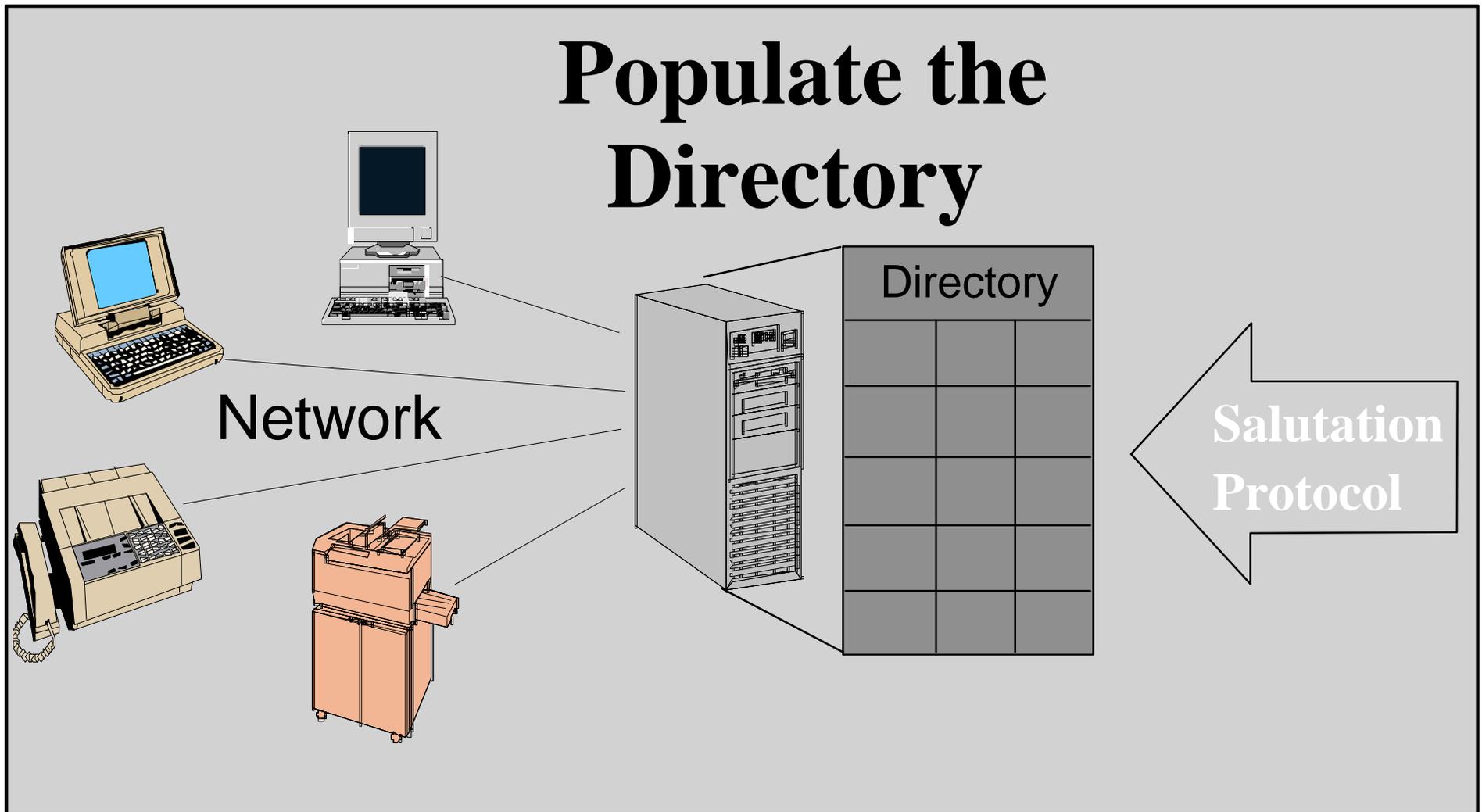
# Salutation Architecture

## Salutation Manager Locations



# Salutation Architecture

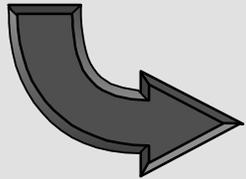
## Enhance Directory Centric Environment



# Capabilities Abstraction

## Architectural Definition & Subdivision

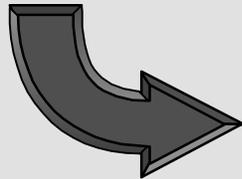
**Device, Application, Service**



**Functional Unit**

**Functional Unit**

**...**



**Attribute (A)**

**Attribute (B)**

**Attribute (C)**

- 
- 
-

# Salutation Functional Units

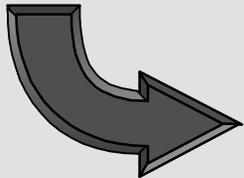
## **Initial Definitions**

- ✓ **Print**
- ✓ **Fax Data / Fax Data Send**
- ✓ **Doc Storage**
  
- ✓ **Address Book**
- ✓ **Schedule**
  
- ✓ **Voice Message Answer**
- ✓ **Voice Message Send**
- ✓ **Voice Message Storage**

# Salutation Print Functional Unit

## An example

**Functional Unit**



**Attribute (A)**

**Attribute (B)**

**Attribute (C)**

•  
•  
•

**Print Functional Unit**

- ▶ **Pel density**
- ▶ **Control Format**
- ▶ **Collate**
- ▶ **Staple**
- ▶ **Paper Source**
- ▶ **Output Trays**
- ▶ **Duplex**
- ▶ **...**

# Salutation Protocol

## Three Functional Categories

### **Capability Exchange**

- Query Capability, Reply Capability

### **Availability Check**

- Check FU Availability, Reply FU Availability

### **Service Request**

- Open Service, ACK Service, Transfer Data,  
Close Service

# Salutation Protocol Example

## Greetings and Salutations



"I need a Postscript, Color, Collating printer"



"I meet your requirements"



"Are you currently available ?"



"Yes"



"I would like to use your print service"



"OK, let's bind"



"DATA ..... DATA"



"OK, that's all I have"

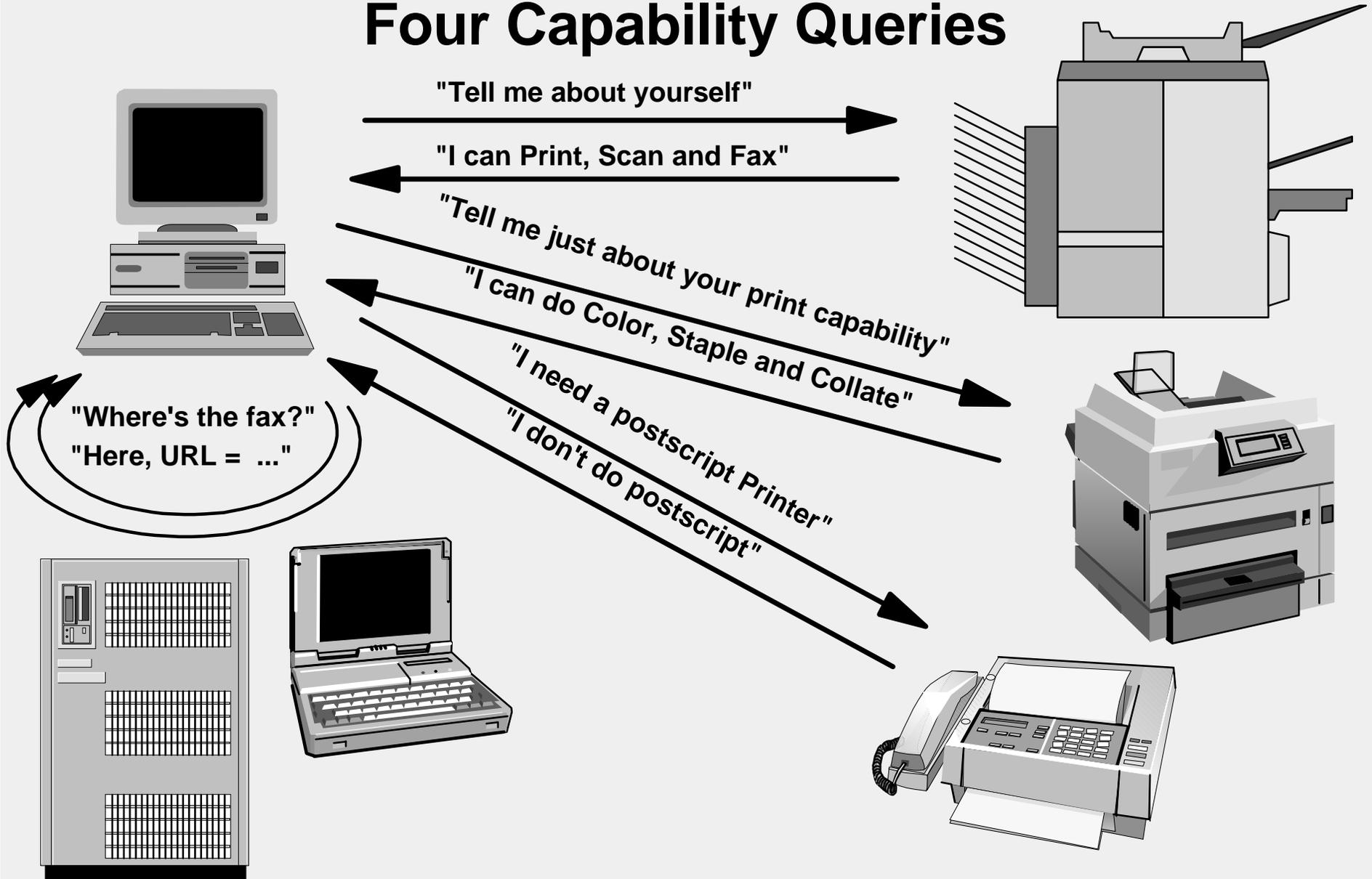


"Great, disconnecting"



# Salutation Discovery Model

## Four Capability Queries



# Salutation Personalities

## ***Three Personality Alternatives***

### ***Native Personality***

**Use solely for discovery of capabilities**

**Messages are not carried by the SLM protocol**

### ***Emulated Personality***

**Messages are carried in Salutation packets**

**Messages exchange native data**

### ***Salutation Personality***

**Message exchange is Salutation Data in Salutation Packets**

# Salutation Personalities

## *Native Personality*

### **Salutation Manager:**

- Set up the data pipe
- Steps into the background
- Allows Client & Server to manage data stream/format

### **Native Personality is useful when...**

- SLM is used solely to discover capabilities
- Applications, Services, Devices manage the interactions
- Messages are NOT carried by the SLM protocol

# Salutation Personalities

## *Emulated Personality*

### **Salutation Manager:**

- Set up the data pipe
- Manages the message streams
- Message exchange is native data in Salutation packets
- Allows Client & Server to still manage data format

### **Emulated Personality is useful when...**

- A common messaging protocol does not exist between a Client and discovered Service

# Salutation Personalities

## Salutation Personality

### **Salutation Manager:**

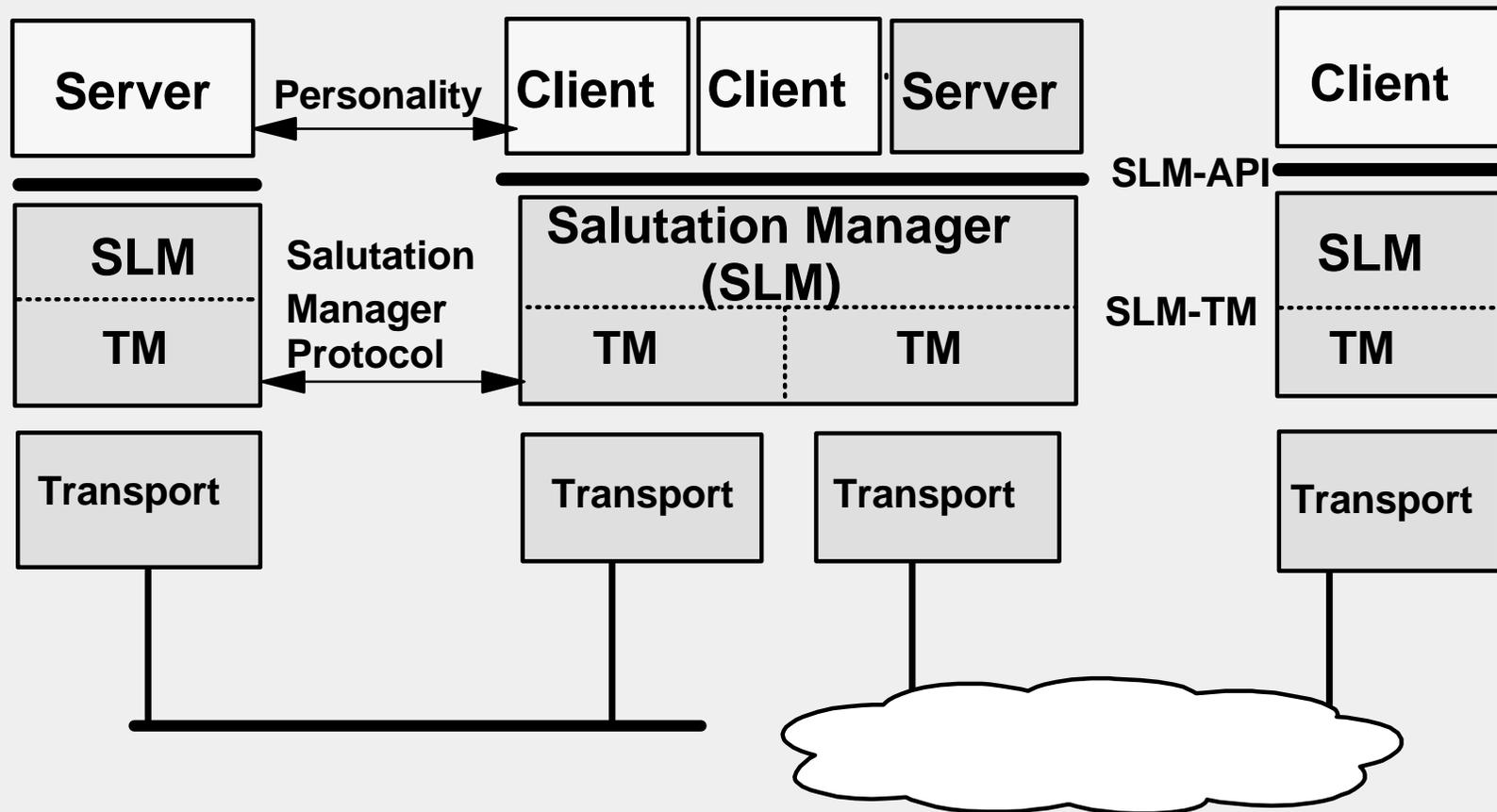
- Set up the data pipe
- Manages the message stream
- Provides the data format definition for the Client/Server Interaction

### **Salutation Personality is useful when...**

- A common messaging protocol does not exist between a Client and discovered Service
- A common data format does not exist between a Client and discovered Service
- Message exchange is Salutation Data in Salutation Packets

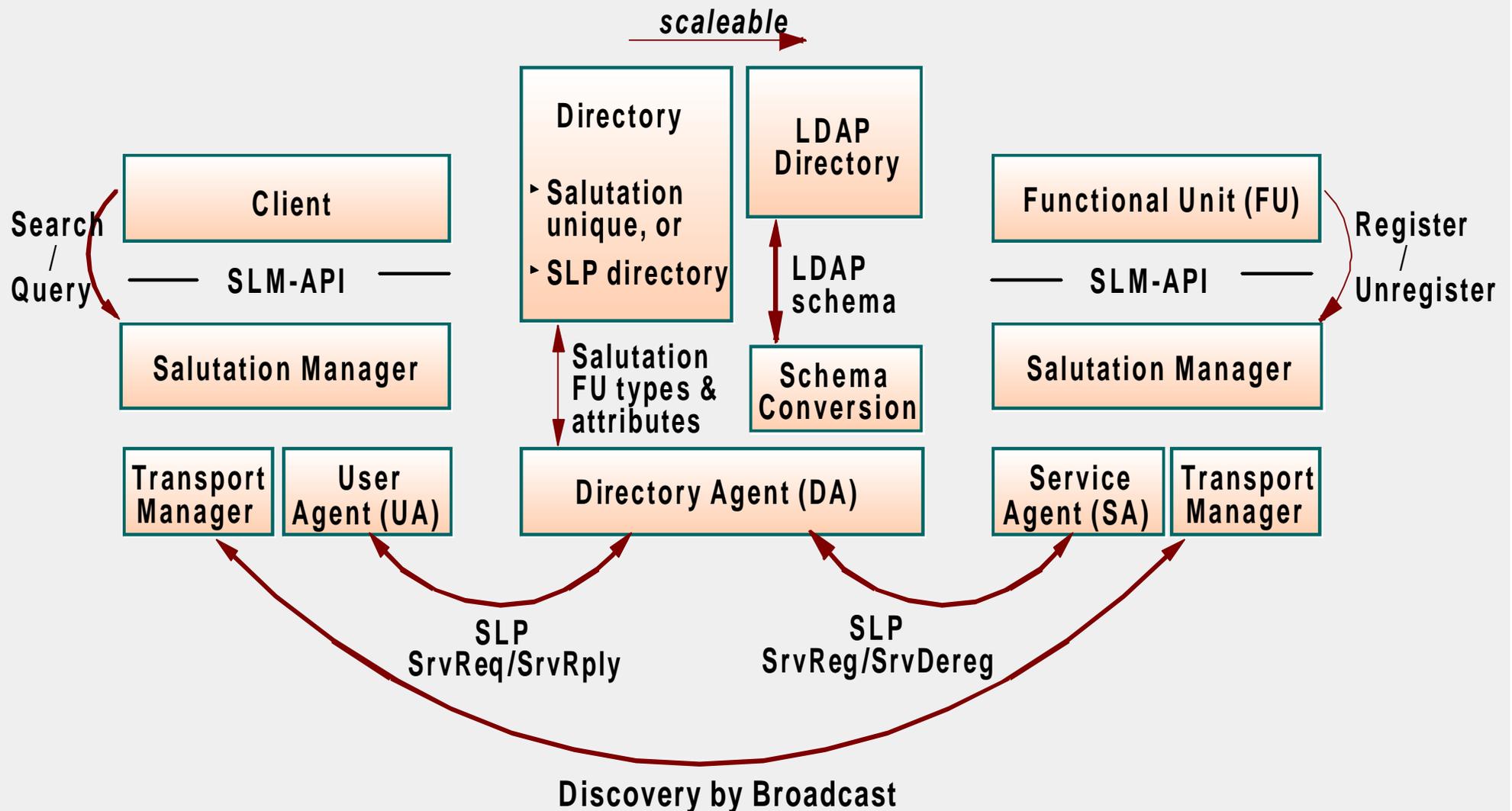
# Salutation and the Internet

## Architecture Model



# Salutation and SLP

## Service Discovery Framework



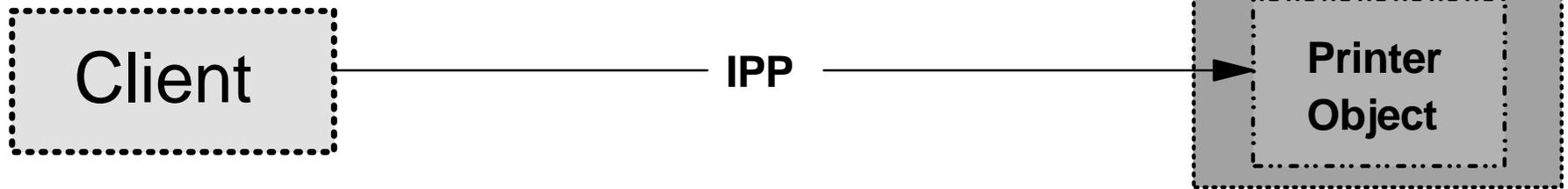
# Salutation and the Internet

## **Service Discovery Framework**

- **Means for Clients to discover Salutation Equipment/Services (FUs) (SLA V 2.0)**
  - ▶ For small/departmental installation - without Directory
    - Preconfiguration of server addresses at each client
    - Automatic discovery within subnet by broadcast
  
- **For larger workgroup/enterprise environments (SLA V2.1)**
  - ▶ Automatic discovery using directory

# IPP and Salutation

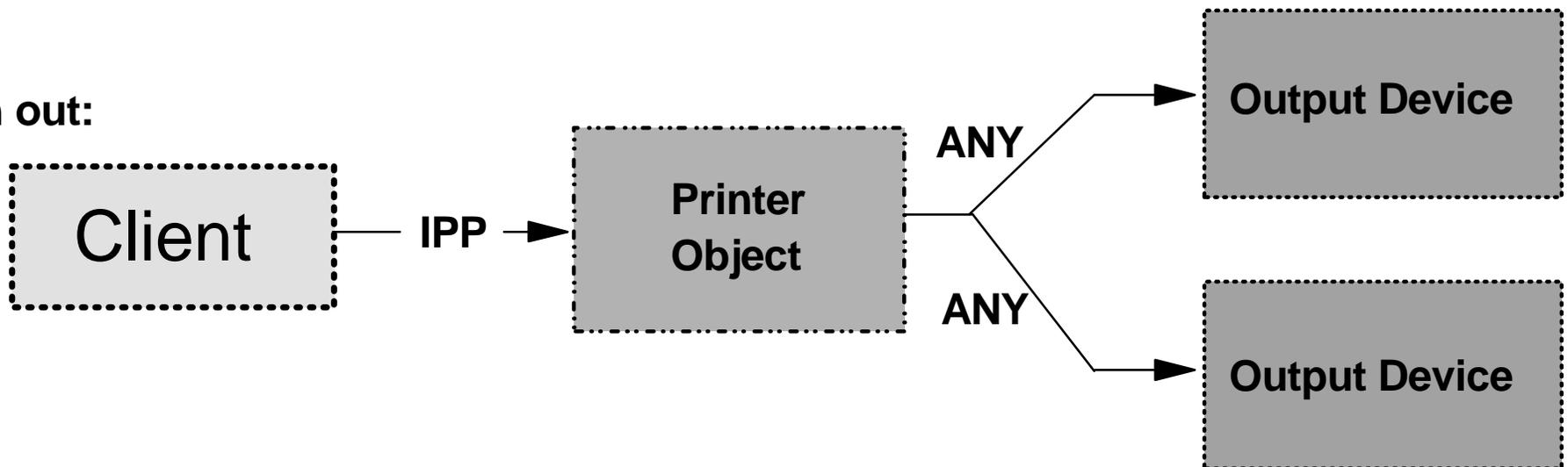
Embedded printer:



Hosted printer:

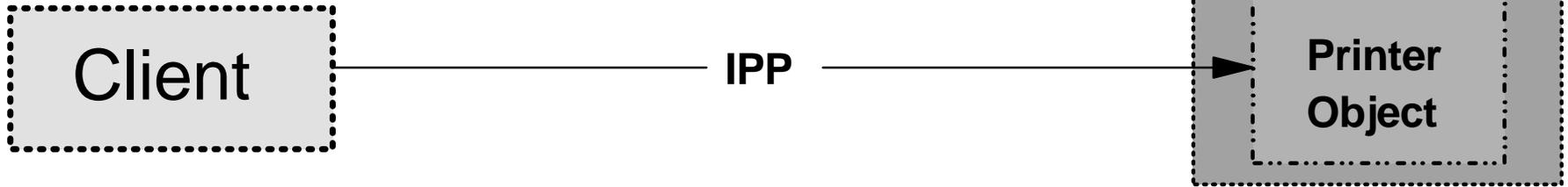


Fan out:



# IPP and Salutation

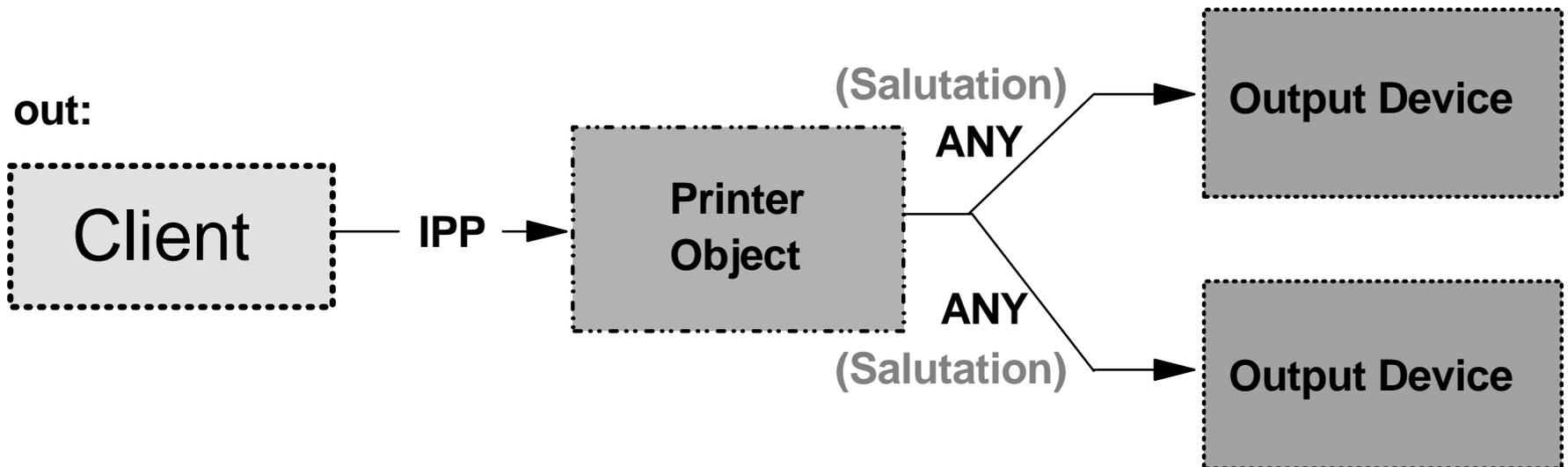
Embedded printer:



Hosted printer:



Fan out:



# IPP and Salutation Proposal

- 1. Agree that Salutation could be used for discovery**
- 2. Possible approach similar to HP JetSend initiative**
  - IPP Known Protocol/Capabilities discovered by Salutation**
  - Define IPP Emulated Mode**
  - IPP Managing the actual printing process**
- 3. Establish a common workgroup to:**
  - Define specific requirements for discovery of IPP devices/services**
  - Recommend enhancements/changes to Salutation Architecture and Specification**

# Summary and Wrap-up

- ✓ **Salutation Architecture**
  - ▶ **Open, Focused, Scaleable, Flexible**
- ✓ **Enabled Products Delivered/More Coming**
- ✓ **Implemented and Working on the Internet**
- ✓ **Enhancements requested and accepted**
- ✓ **Recommend consideration and acceptance of IPP and Salutation Proposal**



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Presented by Robert F. Pecora, Managing Director