Microsoft Networking

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Overview

- Windows NT Vs windows 95/98
- Network administration models
  - » Windows NT domains
  - » Workgroups
- Network subsystem
  - » Network services
  - » Protocols supported

indows NT/2000 VS Windows 95/98

Windows NT/2000

- Supports multiprocessing
- Supports preemptive multitasking
- File level security
- Applications run in their own address space
- True 32 bit OS
- No plug & play support

Windows 95/98

- No multiprocessing support
- Interrupt driven multitasking
- No file level security
- Shared address space
- Contains some 16 bit code
- Plug & play support
- More hardware support

Common Features

- Same user interface
- Some Common applications

Workgroups and Domains

- Workgroup
  - » Is a logical grouping in which each computer :
  - » Is managed separately and has separate accounts
  - » Has per computer sharing and security policies
  - » User and share level security
- Domain
  - » Is a logical grouping in which there is a centralized accounts and security database, managed by a domain controller
  - » Management is centralized
  - » Users and machines both have accounts in the domain i.E you can control by granting or denying permissions in a centralized manner

Protocols Supported

- Windows 95, 98 and NT support following protocols by default
- TCP/IP
- IPX/SPX
- NetBEUI

- DLC (for printing purposes only)

mportant Network Services

Some important information exchange utilities of Windows NT/2000

- Computer Browser
- Dynamic host configuration protocol (DHCP)
- Domain name system (DNS) for TCP/IP
- Dynamic DNS (DDNS)

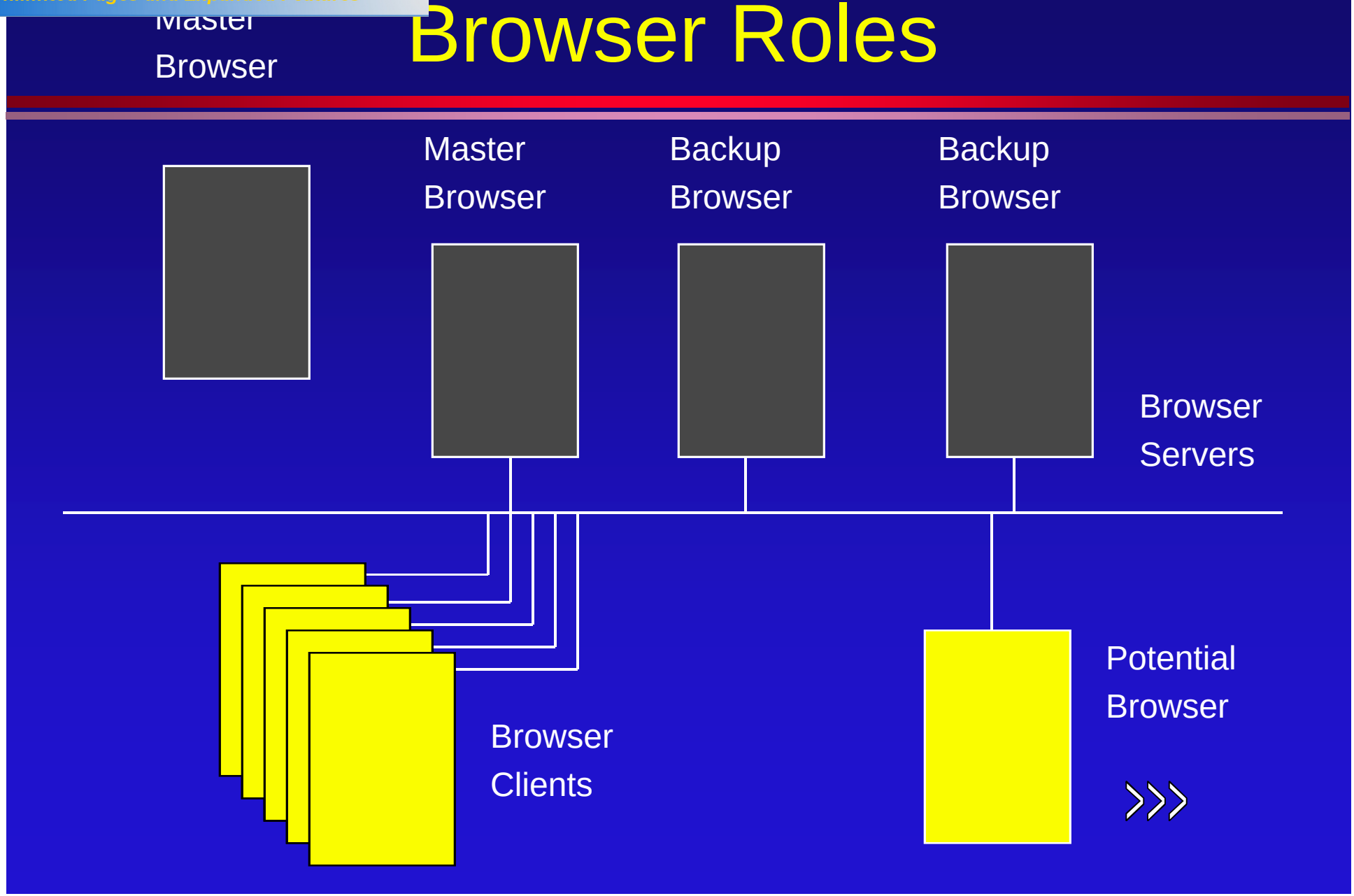
Browser Overview

- Browsing is a Windows default resource information system
- Resource database is maintained on a computer called a Master Browser. The database is called a *browse list*
- Each subnet must have its own (single) Master Browser at all times
- Master Browser is elected through an election process

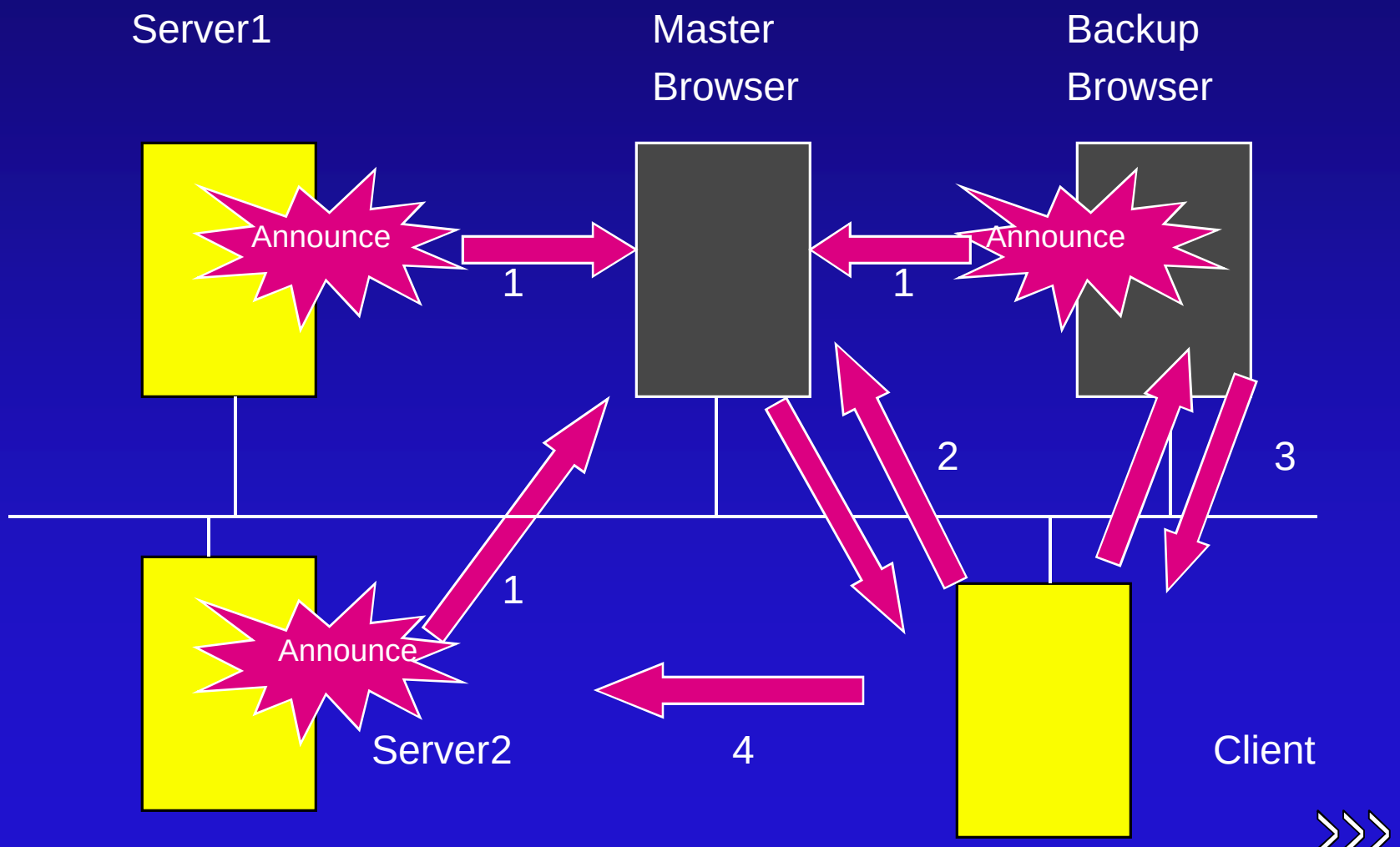
Advantages

- Reduces network traffic.
- Reduces CPU workload.
- Improves network performance.

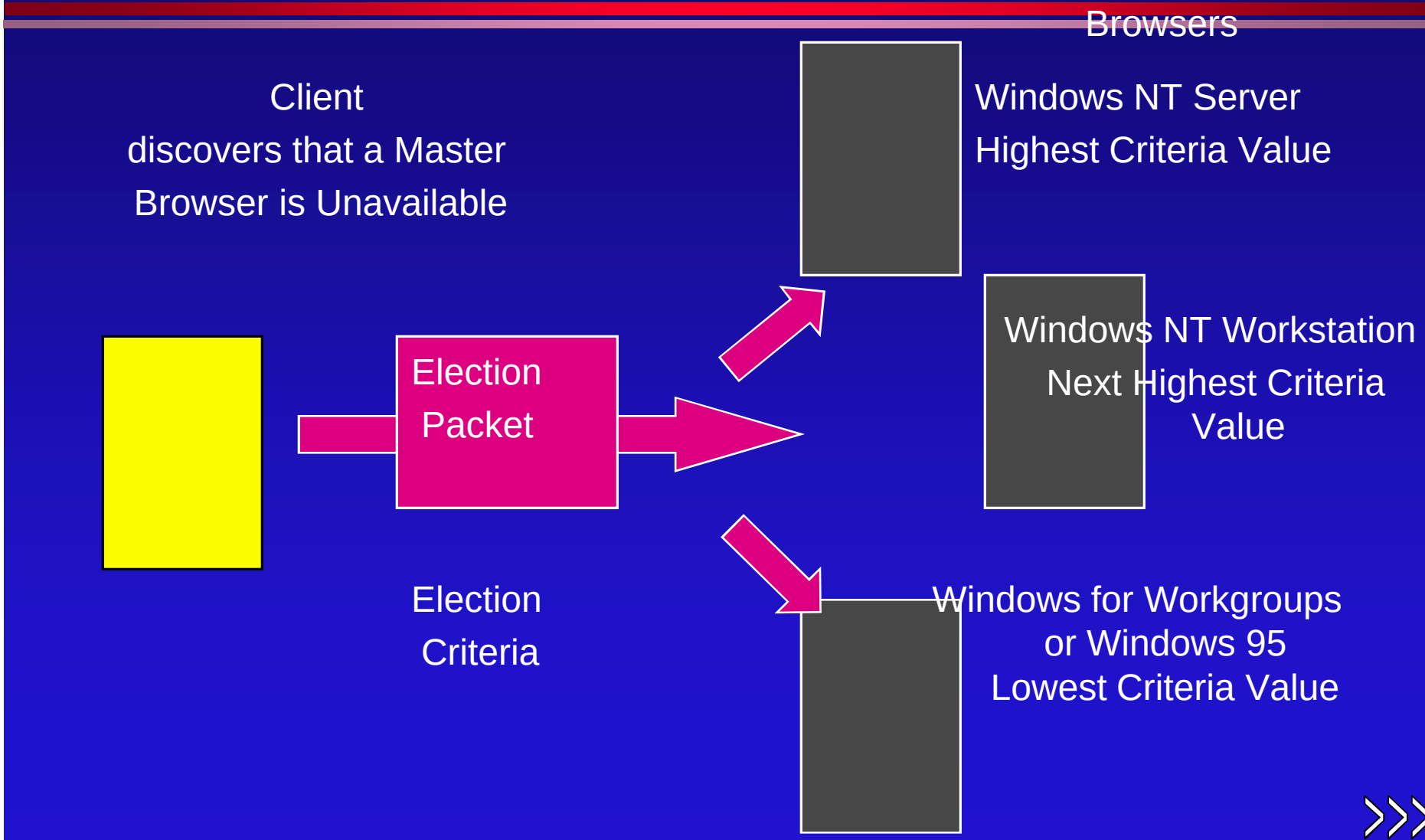
Browser Roles



Browse Process



Browser Election



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- It determines the hierarchical order of the different types of computer systems in the workgroup or domain. The criteria includes:
  - The operating system like NT server, NT workstations, 95 or Windows for Workgroups
  - The operating system version
  - The configured role in the browsing environment like master, backup, potential, non browser etc

In Windows NT computers the browsing function is configurable

WINS Overview

WINS Server can only run on a computer running Windows NT, with TCP/IP installed

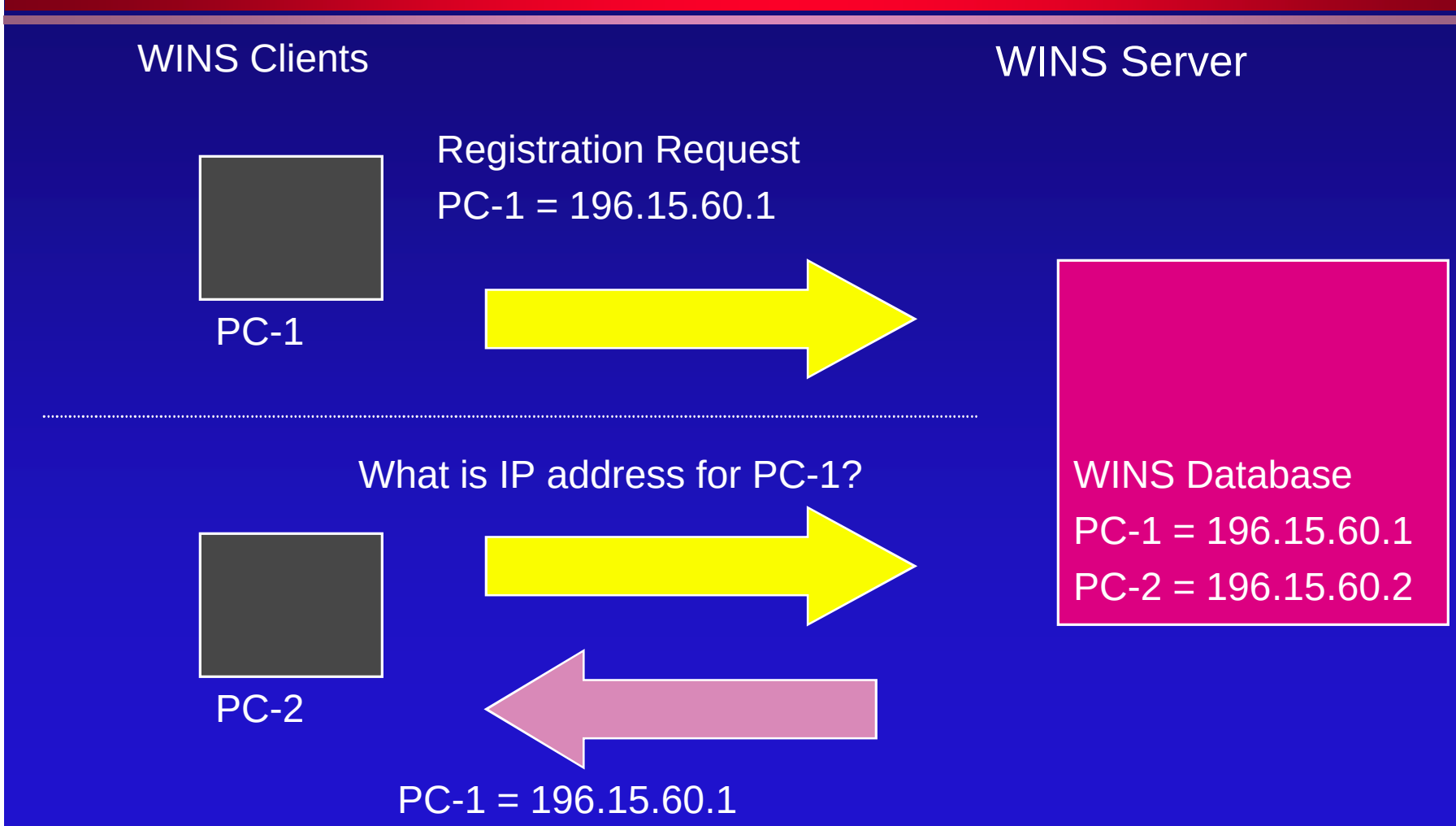
- WINS Server
  - » Maintains a dynamic database that maps the NetBIOS computer names of WINS clients to their IP addresses
  - » Handles name registration and queries
  - » resolves NetBIOS computer names to IP addresses

- WINS clients
  - » At system startup WINS clients, register their computer names and IP addresses with the WINS server

WINS Overview

- Windows-based WINS enabled networking clients can directly access WINS service.
- Non-WINS computers use may use WINS proxies.

WINS Overview



WINS Operation

- Each time a WINS client is started, it registers its NetBIOS name/IP address mapping with a designated WINS server.
- When a client initiates a NetBIOS command to communicate with another host, the name query is directly sent to the WINS server .
- If the server finds a NetBIOS name <--> IP address mapping for the destination host, it returns the IP address for the destination host to the WINS client.
- If the WINS server is unavailable the client may switch to b-node operation and send the query as a broadcast message on the local subnet.

WINS Partners

- WINS servers on different subnets can exchange information using ⊕Push℮and ⊕Pull℮mechanisms
- Push operation:
  - » Initiates exchange of information when specified number of new clients have been added to database
- Pull operation:
  - » Initiates exchange of information at a specified time during the day