

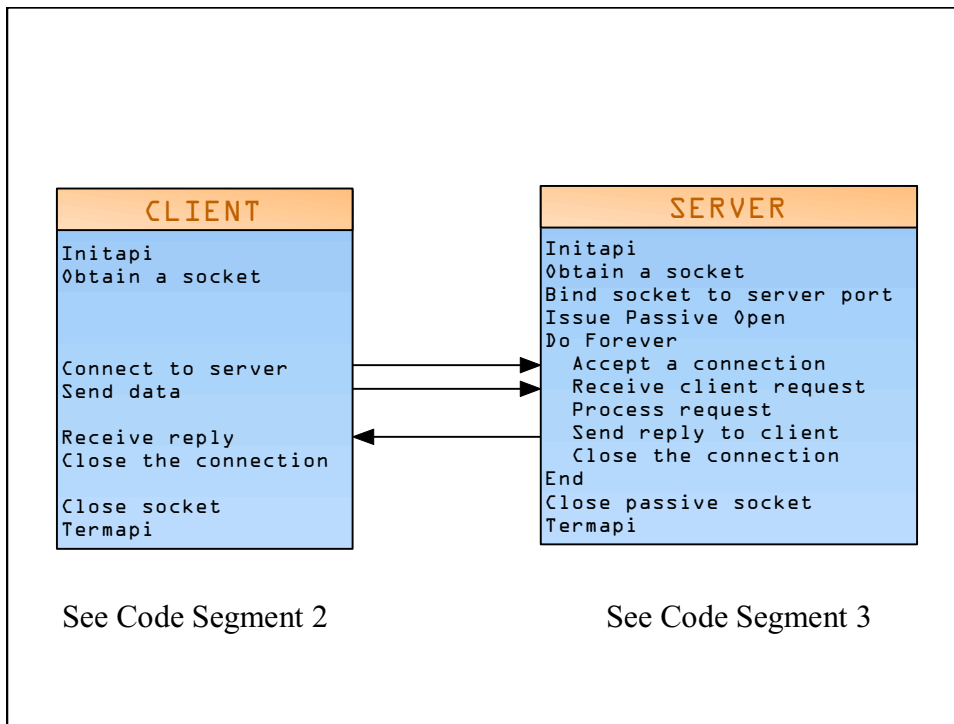
# EZA Programming 106 – IpV6

## WAVV 2010

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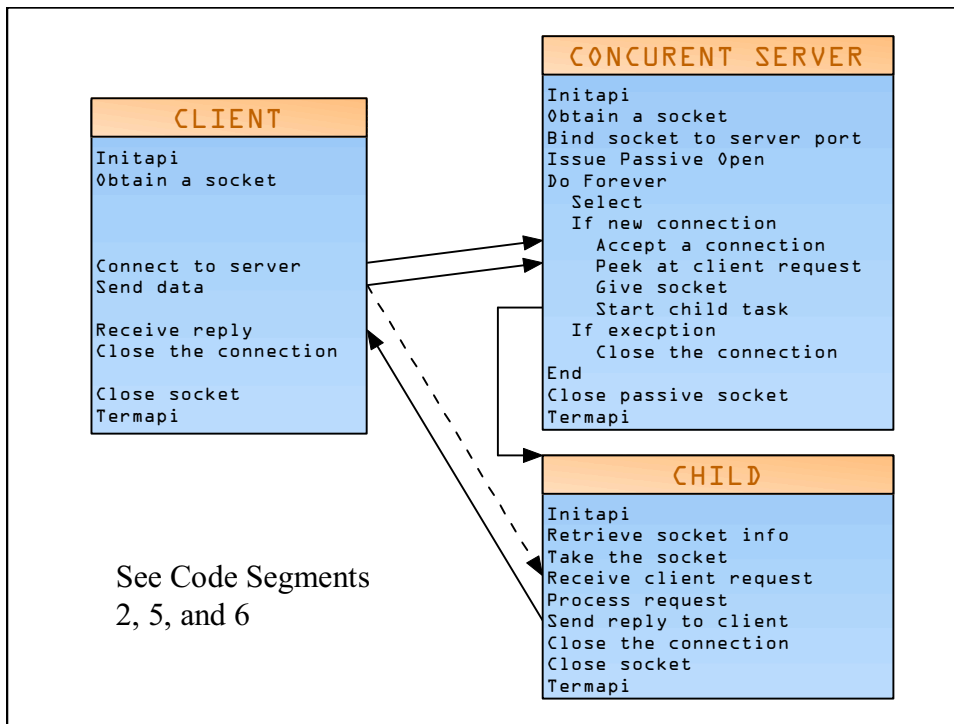
## Types of Programs

- Client
  - Connects to a Server
- Iterative Server
  - All processing is self-contained
- Concurrent Server
  - A Listener that spawns a Child when connected
- Child
  - A “partial” server to handle sends/receives



## Concurrent Server and Child

- Why?
  - Iterative Server has deficiencies
    - 1 to 1 only
    - processing is tied up while handling the sends and receives
    - Additional Clients can not get a connection



## EZA Client Program Flow

- INITAPI
- SOCKET
- CONNECT
- SEND/RECV loop
- SHUTDOWN
- CLOSE
- TERMAPI
- INITAPI
- SOCKET
- SENDTO
- TERMAPI

## EZA Client Program Flow

- INITAPI (EZASMI/EZASOKET only)
  - Loads interface programs into GETVIS
  - Allocates storage
  - Initializes default control information
  - Verifies that the TCP/IP stack is available

## EZA Client Program Flow

- SOCKET
  - Assigns a socket number (Binary half-word)
  - Allocates socket specific storage
  - Informs caller of socket number

## EZA Client Program Flow

- SENDTO
  - Transmits data
- RECVFROM
  - Receives Data

## EZA Client Program Flow

- TERMAPI
  - Releases all storage acquired by the INITAPI call

## EZA Iterative Server Flow

- INITAPI
  - SOCKET
  - BIND
  - LISTEN
  - ACCEPT loop
    - SEND/RECV loop
    - SHUTDOWN
    - CLOSE
  - SHUTDOWN
  - CLOSE
  - TERMAPI
- INITAPI
  - SOCKET
  - BIND
  - SEND/RECV loop
  - CLOSE
  - TERMAPI

## EZA Iterative Server Flow

- INITAPI
  - Same as Client Program
- SOCKET
  - Same as Client Program
- BIND
  - Informs interface as to what local port to use

## EZA Iterative Server Flow

- **RECVFROM/SENDTO**
  - Transfers data (on the SAME socket) from MULTIPLE clients

## EZA Iterative Server Flow

- **SHUTDOWN**
  - Informs the stack that the program no longer wishes to receive data on a specific port
- **CLOSE**
  - Releases socket specific storage acquired by the original SOCKET call

## EZA Iterative Server Flow

- TERMAPI
  - Releases all storage acquired by the INITAPI call

## Control Functions

- FCNTL
- GETHOSTBYADDR
- GETHOSTBYNAME
- GETCLIENTID
- GETHOSTID
- GETHOSTNAME
- GETPEERNAME
- GETSOCKNAME
- GETSOCKOPT
- IOCTL

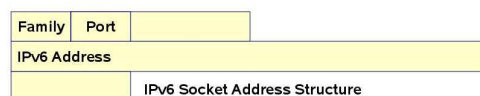
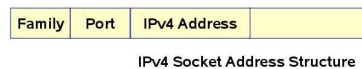


## IPv4 vs IPv6 Addressing

- AF
  - SOCKET
    - “2” for IPv4
    - “19” (x’13’) for IPv6
- Socket Address Information Used By
  - CONNECT
  - BIND

## IPv4 vs IPv6 Addressing

- Socket Address Information
  - AKA:
    - SockAddrInfo
    - SAS (Socket Address Structure)



## IPv4 vs IPv6 Addressing

- Some calls are IPv4 only
  - GETHOSTBYADDR
  - GETHOSTBYNAME
  - GETHOSTID
- Replaced by
  - GETADDRINFO
  - FREEADDRINFO

## DNS Lookup

- GETADDRINFO
  - One of the most complicated calls
  - Parameters copied from BSD/C specifications
    - (That means it was some young C programmer with all his hair.)
  - Performs at least 10 different functions
    - We will only cover the DNS lookup function

## DNS Lookup

- GETADDRINFO
  - Returns a block of storage with multiple pointers
- EZACIC09
  - Deblocks the information returned by GETADDRINFO
- FREEADDRINFO
  - Releases the storage return by GETADDRINFO
- Let's look at the code samples

## Downloads now available

- Batch
  - Server
  - Client
  - Child
- CICS
  - Listener (Server)
  - Client
  - Child
  - Starter/stopper

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