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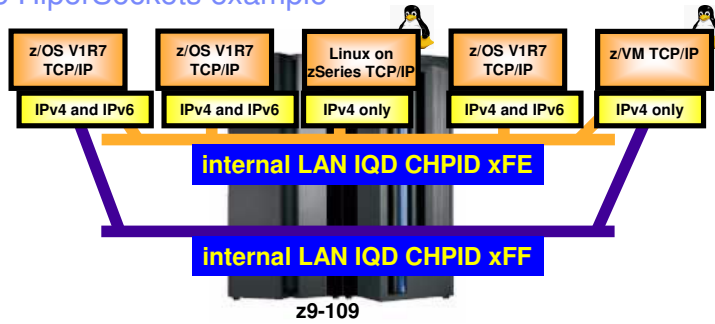
# CS z/OS zSeries and System z9 IPv6 HiperSockets Support

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## z9-109 IPv6 HiperSockets support

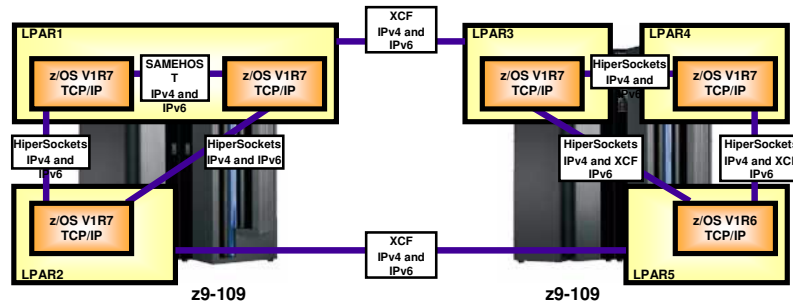
- **z/OS V1R4 introduced IPv6, but only provided connectivity via OSA-Express QDIO**
- **z/OS V1R5 added MPCPTP IPv6 connectivity**
- **z/OS V1R5 IPCONFIG6 DYNAMICXCF support does not include HiperSockets**
- **z/OS V1R7 adds IPv6 connectivity over HiperSockets**
  - ⌋ Include HiperSockets in IPv6 automatic connectivity options under IPCONFIG6 DYNAMICXCF
  - ⌋ Requires a z9-109 processor
  - ⌋ No IPv6 support for HiperSockets Accelerator function
- **Configure INTERFACE statement for IPAQIDIO6**
  - ⌋ CHPID keyword identifies the HiperSockets CHPID
  - ⌋ To use HiperSockets for both IPv4 and IPv6 for the same CHPID, specify the same value both on the CHPID keyword of the INTERFACE statement and the xx suffix of the IUTIQDxx device\_name on the DEVICE statement
  - ⌋ Optional INTFID keyword to specify interface ID (and override value returned by the hardware)
- **Similar attributes to existing IPv6 support**
  - ⌋ INTERFACE statement options to:
    - Add/delete/deprecate addresses
    - Specify a VIPA for SOURCEVIPA
  - ⌋ Use interface name for START/STOP and on static routes (BEGINROUTES)
  - ⌋ Separate START/STOP of IPv4 and IPv6
  - ⌋ Separate interface counters for IPv4 and IPv6

## IPv6 HiperSockets example



- **Hardware platform is a z9-109 processor**
- **Both Linux, z/OS, and z/VM currently support IPv6**
  - ⌋ But only z/OS currently supports IPv6 over HiperSockets
- **A HiperSockets CHPID can be used for IPv4 and IPv6 concurrently**

## DynamicXCF - IPv4 and IPv6



- > All stacks in this example specify IPCONFIG DYNAMICXCF and IPCONFIG6 DYNAMICXCF.
- > The DYNAMICXCF connectivity between the two LPAR1 stacks is IUTSAMEH for both IPv4 and IPv6 (because the stacks are on the same LPAR).
- > The DYNAMICXCF connectivity between LPAR2 and LPAR5 and between LPAR1 and LPAR3 is XCF for both IPv4 and IPv6 (because the stacks are on different CPCs).
- > The DYNAMICXCF connectivity between LPAR3 and LPAR4 and LPAR1 and LPAR2 is HiperSockets for both IPv4 and IPv6 (because the stacks are on the same CPC and are both V1R7).
- > The DYNAMICXCF connectivity between LPAR3 and LPAR5 and between LPAR4 and LPAR5 is HiperSockets for IPv4 (because the stacks are on the same CPC), but XCF for IPv6 (because LPAR 5 is pre-V1R7 and doesn't support IPv6 HiperSockets).
- > The DYNAMICXCF connectivity between each pair of stacks not explicitly shown on the chart is XCF for both IPv4 and IPv6.
- > The LPAR1 stacks can get packets destined for the DYNAMICXCF address over IUTSAMEH, XCF, and HiperSockets (all for both IPv4 and IPv6).

## INTERFACE statement for IPAQIDIO6

### ➤ New INTERFACE statement for IPAQIDIO6

```

>>-INTERFACE--interface_name--+DEFINE--Interface Definition-->
      +DELETE-----+
      |               V-----+
      +ADDADDR--ipaddr_spec+-----+
      |               V-----+
      +DELADDR--ipaddr_spec+-----+
      |               V-----+
      +DEPRADDR--ipaddr_spec+-----+

Interface Definition:
|--IPAQIDIO6---CHPID---chpid----->
>+-----+-----+
'-INTFID--interface_id-' '-SOURCEVIPAINterface--vipa_name-'

      .-READSTORAGE GLOBAL---
>+-----+-----+
|               .-----+ '-READSTORAGE--+MAX--+
|               V-----+               +-AVG--+
'-IPADDR  ----ipaddr_spec-----+               '-MIN-'

ipaddr_spec:
|--+ipv6_address-----+
'-prefix/prefix_length-'
    
```

## IPCONFIG6 DYNAMICXCF

- > HiperSockets is included in the connectivity options for IPCONFIG6 DYNAMICXCF for connectivity to other stacks in the Sysplex
- > TCP/IP automatically generates and activates IPv6 HiperSockets INTERFACE definition when hardware supports HiperSockets IPv6
  - / Interface name IQDIOINTF6
  - / Optional prefix\_route\_len value to have stack generate a prefix route
    - Similar to subnet route generated for IPv4 IPCONFIG DYNAMICXCF
    - Allows connectivity to stacks outside of the Sysplex
- > Cannot mix static and dynamic IPv4 and IPv6 definitions for HiperSockets to the Dynamic XCF IQD CHPID
- > New prefix\_route\_len on IPCONFIG6 DYNAMICXCF
  - > Value can be from 1-128

```

>>-IPCONFIG6
    ...

    .-NODYNAMICXCF-----+
+ +-----+
+ +'-DYNAMICXCF +-ipv6_address-----+-'
+ +'-ipv6_address/prefix_route_len-' '-INTFID interface_id-'

```



## Things to think about

- **HiperSockets IPv6 connectivity not supported to pre-V1R7 z/OS stacks**
- **Existing message EZZ4347I if hardware does not support IPv6 HiperSockets**
  - Note: This message is suppressed for XCF Dynamics.



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