



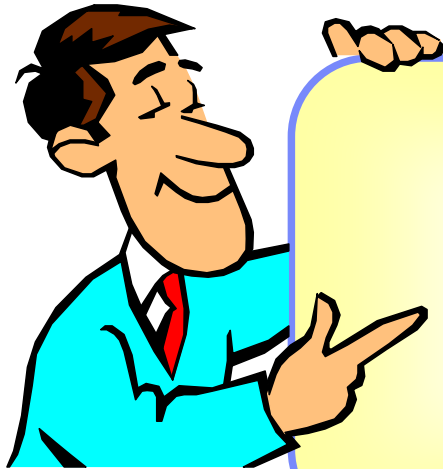
IBM eServer™

Sysplex: Other sysplex improvements

@business on demand software

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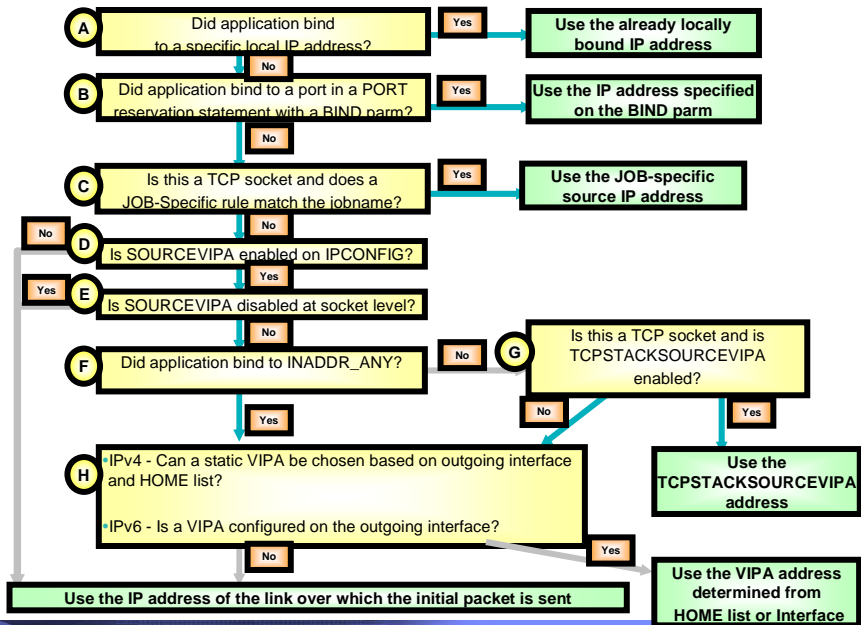
Agenda - Other Sysplex Improvements



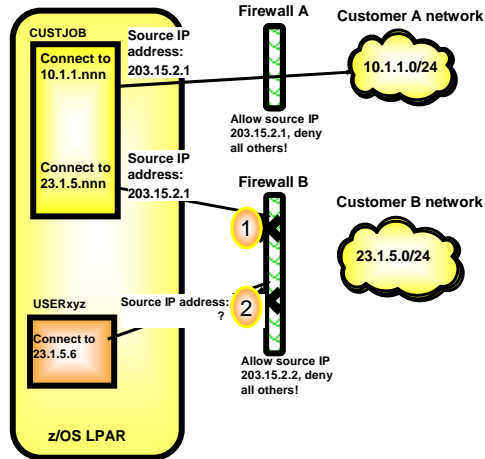
- 1 Source IP address selection based on connection destination IP address
- 2 Tracking of where DIVPAs are at any given time
- 3 Improve reliability of DVIPA creation

Source IP address selection
based on connection destination
IP address

Selecting source IP address for outbound TCP connections CS z/OS® V1R7



SRCIP-ENDSRCIP block options as of z/OS V1R7



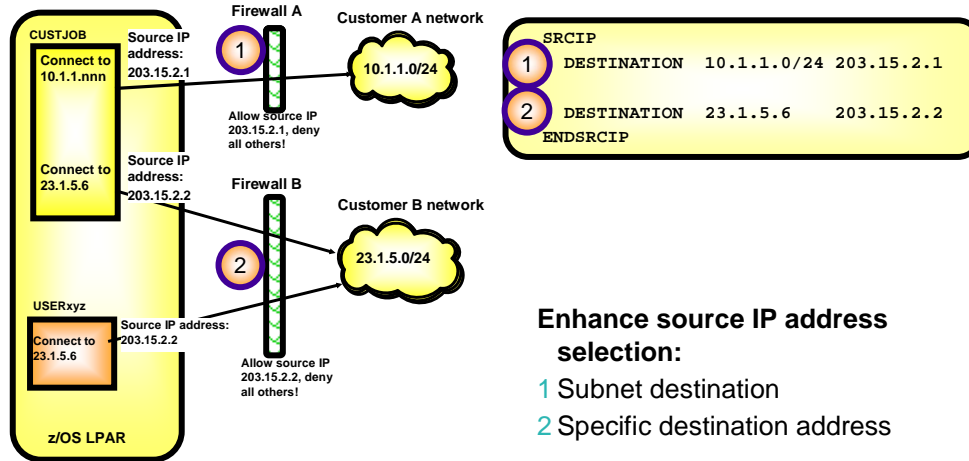
```

SRCIP
JOBNAME CUSTJOB 203.15.2.1
ENDSRCIP
    
```

Issues:

- 1 A jobname can only map to one source IP address per address family
- 2 Cannot use SRCIP if jobname is not predictable

Destination-specific source IP addressing added in z/OS V1R8



Expanded SRCIP-ENDSRCIP Profile statements

➤ New DESTINATION entry for SRCIP statement

```

SRCIP
JOBNAME      CUST*          203.15.2.1
JOBNAME      CUST*          2003::15:1:1
JOBNAME      *              203.15.2.3
DESTINATION  192.1.1.98      203.15.2.2
DESTINATION  2001::981:1/120 2003::15:1:2
DESTINATION  2003:0D02:11::78:5:7 INTFV6
ENDSRCIP

```

- Destination may be specified as subnet address or specific address
 - most specific match is used
- Source may be specified as IP address or IPv6 interface name
 - restriction: source may not be a distributed DVIPA
- Destination will normally not override a jobname
 - exception - destination will override a full wildcard jobname
 - "JOBNAME **"

Usage notes

NOTES

➤ SRCIP JOBNAME and/or DESTINATION entries can appear in any order

➤ Why a distributed DVIPA cannot be used for the source IP address on a SRCIP DESTINATION entry:

-A match to a SRCIP DESTINATION entry can not be identified until a connect request is issued and the destination is known. However, some applications establishing outbound TCP connections may issue an explicit bind socket API prior to issuing the connect request. The port assigned during this early bind processing may not be available across the sysplex for the destination-specific source IP that is determined later at connect request time. This could result in an ambiguous situation where multiple outbound connections to the same destination IP address and port have the same source IP address and port. As a result, the use of distributed DVIPAs on SRCIP DESTINATION is not allowed.

-A distributed DVIPA can be used for the source IP address on a SRCIP JOBNAME entry

Tracking of where DVIPAs are at
any point in time

Better tracking of DVIPA creation and deletion

➤ **Issue messages on the MVS™ console and in the job log of the TCP/IP started procedure when application-specific DVIPAs are created or deleted**

- When the application instance DVIPA is created or deleted dynamically through an explicit bind, by executing the MODDVIPA utility, or by invoking the SIOCSVIPAs or SIOCSVIPAs6 ioctl command.

```
EZD1204I - DYNAMIC VIPA dvipa WAS CREATED USING IOCTL BY jobname ON tcpstackname
```

```
EZD1205I - DYNAMIC VIPA dvipa WAS CREATED USING BIND BY jobname ON tcpstackname
```

```
EZD1206I - DYNAMIC VIPA dvipa WAS DELETED USING IOCTL BY jobname ON tcpstackname
```

```
EZD1207I - DYNAMIC VIPA dvipa WAS DELETED USING CLOSE BY jobname ON tcpstackname
```

Enhance Netstat VIPADyn/-v report

➤ Enhance the Netstat VIPADyn/-v report to include

- Timestamp when DVIPA was created
- Name of job that caused it to be created

```

MVS TCP/IP NETSTAT CS V1R8          TCPIP Name: TCPCS          18:29:41
Dynamic VIPA:
  IpAddr/PrefixLen: 201.2.10.11/26
  Status: Active      Origin: VIPADefine      DistStat: Dist
  ActTime: 03/02/2005 16:45:20
  IpAddr/PrefixLen: 201.2.10.12/26
  Status: Active      Origin:                               DistStat: Dest
  ActTime: 03/02/2005 16:48:20
  IpAddr/PrefixLen: 201.2.10.14/26
  Status: Backup      Origin: VIPABackup      DistStat:
  ActTime: n/a
  IPADDR/PREFIXLEN: 199.199.199.8/24
  Status: Active      Origin: VIPARange IOCTL DistStat:
  ActTime: 03/02/2005 16:47:20      JobName: JOBTST1A
  IPADDR/PREFIXLEN: 199.199.199.9/24
  Status: Active      Origin: VIPARange BIND  DistStat:
  ActTime: 03/02/2005 16:47:50      JobName: JOBTST1

```

Enhance Netstat VIPADyn/-v report

NOTES

- The timestamp that this DVIPA was activated on the local stack, either because it is the owner of the DVIPA or a target for this DVIPA, specified as Coordinated Universal Time (UTC).
- A value of n/a indicates that this DVIPA was not owned by this stack or this stack is not the target for distributed connections to this DVIPA.
- The job name of either the application or the MODDVIPA utility which caused this DVIPA to be created. This field is significant only when this DVIPA was created with one of the following methods:
 - A socket did an explicit bind to an IP address that fell within a range of IP addresses configured on a VIPARANGE profile statement.
 - An application, or the MODDVIPA utility, issued an SIOCSVIPA or SIOCSVIPA6 ioctl to create a DVIPA that fell within a range of IP addresses configured on a VIPARANGE profile statement.

Improve reliability of DVIPA
creation

Improve reliability of DVIPA creation

➤ Prior to z/OS V1R8:

- A VIPARANGE DVIPA is created asynchronously from the application process that caused its creation.
- The DVIPA may not yet be active (created) upon successful return from the bind(), ioctl() call, or use of the moddvipa utility.
- Use of the DVIPA may fail if it has not been created yet.
 - Subsequent connect() or other socket calls using that dvipa will fail.
 - External clients unable to connect to this server even though the bind() and listen() were successful.

➤ From z/OS V1R8:

- VIPARANGE DVIPAs are now created, and deleted, synchronously.
- Upon return from a successful bind() or ioctl() call the DVIPA will now be active and ready for use.
- Deletion of VIPARANGE DVIPAs are now also processed synchronously.
- No changes necessary to enable this function.



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MVS z/OS

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