



IBM eServer™

## **z/OS® V1R8 Communications Server Overview - Enterprise Extender and SNA**

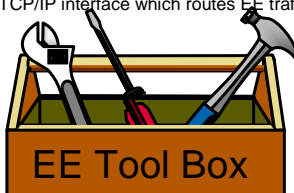
@business on demand software

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EE/SNA - improved operations

## Enterprise Extender Connectivity Test Command

- **The Enterprise Extender connectivity test command is useful in debugging various network problems. This command can be used to test an existing Enterprise Extender connection, or it can be used to assist in diagnosing why an EE connection cannot be established.**
  
- **The EE connectivity test will verify:**
  - EE line availability
  - Address resolution capability
  - EE partner reachability
    - UDP requests with varying TTL (time-to-live) or hop count values are sent to the EE partner host
    - The command then waits for the routers between the local and remote hosts to send TTL-exceeded messages.
      - In the case where TTL-exceeded message are not received, the command allows for maximum number of retry attempts for that particular hop in the route.
    - The output generated from this request will show the reachability to the remote EE endpoint over all five UDP ports reserved for EE.
    - When MULTIPATH function is enabled in the Enterprise Extender capable TCP/IP stack, the EE connectivity test is repeated for each valid TCP/IP interface which routes EE traffic.



## Enterprise Extender Connectivity Test Command...

```

D NET,EEDIAG,TEST=YES,IPADDR=(10.81.1.1,10.81.2.2),LIST=DETAIL
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001C
IST2067I EEDIAG DISPLAY ISSUED ON 09/22/05 AT 14:54:20
IST1680I LOCAL IP ADDRESS 10.81.1.1
IST1680I REMOTE IP ADDRESS 10.81.2.2
IST2023I CONNECTED TO LINE LNEE4001
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END

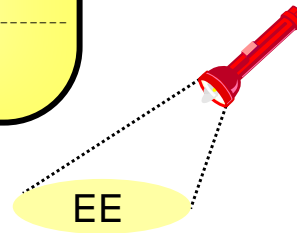
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001C
IST2131I EEDIAG DISPLAY COMPLETED ON 09/22/05 AT 14:54:21
IST2132I LDLC PROBE VERSIONS: VTAM = V1          PARTNER = UNKNOWN
IST1680I LOCAL IP ADDRESS 10.81.1.1
IST1680I REMOTE IP ADDRESS 10.81.2.2
IST924I -----
IST2133I INTFNAME: MPC4121L          INTFTYPE: MPCPTP
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12000
IST2137I 1 10.81.2.2          RTT: 2
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12001
IST2137I 1 10.81.2.2          RTT: 4
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12002
IST2137I 1 10.81.2.2          RTT: 4
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12003
IST2137I 1 10.81.2.2          RTT: 4
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12004
IST2137I 1 10.81.2.2          RTT: 4
...

```

## Enterprise Extender Connectivity Test Command...

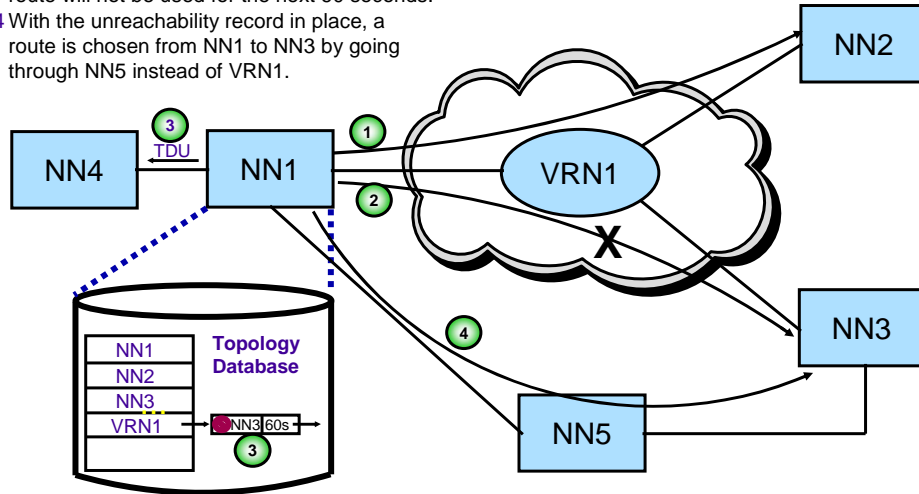
```

...
IST924I -----
IST2133I INTFNAME: MPC4221L          INTFTYPE: MPCPTP
IST2134I  CONNECTIVITY SUCCESSFUL          PORT: 12000
IST2137I  1 10.81.2.2                    RTT: 3
IST2134I  CONNECTIVITY SUCCESSFUL          PORT: 12001
IST2137I  1 10.81.2.2                    RTT: 3
IST2134I  CONNECTIVITY SUCCESSFUL          PORT: 12002
IST2137I  1 10.81.2.2                    RTT: 3
IST2134I  CONNECTIVITY SUCCESSFUL          PORT: 12003
IST2137I  1 10.81.2.2                    RTT: 3
IST2134I  CONNECTIVITY SUCCESSFUL          PORT: 12004
IST2137I  1 10.81.2.2                    RTT: 3
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 2 INTERFACES
IST314I END
  
```



## EE Connection Network Reachability Awareness (V1R6)

- 1 NN1 successfully contacts NN2 across VRN1.
- 2 NN1's attempt to contact NN3 across VRN1 fails.
- 3 In NN1's topology database, an "unreachability record" is associated with VRN1 for the partner NN3 (with a duration of 60 seconds) and a TDU is sent to partner NNs. The NN1->VRN1->NN3 route will not be used for the next 60 seconds.
- 4 With the unreachability record in place, a route is chosen from NN1 to NN3 by going through NN5 instead of VRN1.



## Connection Network Reachability Awareness Enhancements

➤ In V1R8, the maintenance of unreachable partner information is centralized under the virtual routing node records. (Prior to V1R8, unreachable partner information associated with end nodes was associated with end node records.) This centralization allows for improvements in serviceability and usability. In particular:

- DISPLAY TOPO, LIST=UNRCHTIM now uses a VRN= operand instead of the ID operand (that previously specified either a VRN or EN name, sometimes requiring the issuance of multiple display commands to retrieve the full set of unreachable partner information).
- DISPLAY TOPO, LIST=UNRCHTIM now allows ORIG and DEST operands for additional granularity
- MODIFY TOPO,FUNCTION=CLRUNRCH provides similar improvements, including the VRN operand, and support for ORIG and DEST operands.

```
d net,topo,list=unrchtim,orig=neta.sscpla,vrn=vrn1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST2057I UNREACHABLE PARTNER INFORMATION:
IST924I -----
IST2051I VIRTUAL NODE NETA.VRN1 - 6 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE      UNRCHTIM  EXPIRES
IST2055I NETA.SSCP1A          NETA.SSCPAA      300S     00:15:42
IST2055I NETA.SSCP1A          NETWORKB.SSCP7B   45S      23:18:19
IST924I -----
IST314I END
```

## Removal of AnyNet®

➤ Enterprise Extender, TN3270, and distributed Communications Server Remote API functions are the strategic protocols for SNA/IP integration

-AnyNet has not been enhanced in years

➤ EE is functionally superior, but also significantly outperforms AnyNet by all measures:

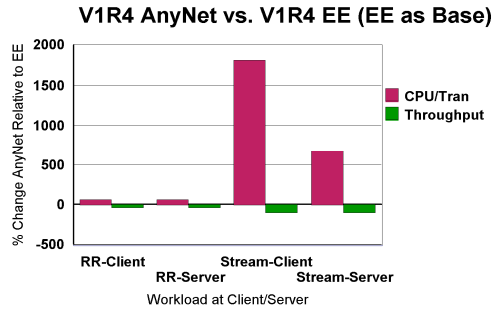
-AnyNet exhibits lower throughput and higher CPU utilization relative to EE:

-Interactive workloads

- Throughput down 39%
- CPU utilization up 63%

-Stream workloads

- Throughput down 89%
- CPU utilization up 682-1817%



➤ As of z/OS V1R8, AnyNet is no longer included as a component of Communications Server



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