z/OS® V1R10 Communications Server

Installation considerations

IBM

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This presentation covers installation and installability considerations for z/OS V1R10 Communications Server

REUSASID support - Background

- REUSASID support available in z/OS V1R9

- Enable by specifying REUSASID(YES) in DIAGxx parmlib member
  - Can also specify REUSASID=YES on START command or ATTR=(REUSASID) on ASCRE macro

- Use for an address space that is not reusable when it terminates
  - IEF352I ADDRESS SPACE UNAVAILABLE message issued
  - TCP/IP stack, Resolver, and TN3270E address spaces are not reusable

- Why would an ASID not be reused

- Without this support, an IPL can be required to reclaim address spaces

The z/OS system assigns an address space identifier (ASID) to an address space when the address space is created. A limited number of ASIDs are available for the system to assign. When all ASIDs are assigned to existing address spaces, the system is unable to start a new address space. This condition might be the result of too many lost ASIDs in the system. A lost ASID is one that is associated with an address space that has terminated, but because of the address space's cross memory connections, the system does not reuse the ASID. In effect, the ASID is "lost from use" for the duration of the IPL, or until all connected address spaces have terminated.

z/OS V1R9 added support for reusable ASIDs. A reusable ASID is one which has at some time been assigned to an address space created by a START command which specified REUSASID=YES, or an ASCRE macro which specified ATTR=REUSASID. Other ASIDs are referred to as ordinary ASIDs. All ASIDs are initially ordinary ASIDs. If no reusable ASIDs are available when a START command or ASCRE requests a reusable ASID, the system converts an available ordinary ASID into a reusable ASID. Once converted, an available reusable ASID can be used only to satisfy a request for a reusable ASID. The system honors a request for a reusable ASID only if REUSASID(YES) is specified in parmlib member DIAGxx. Otherwise, the system assigns an ordinary ASID.

The reusable ASID support should only be used for an address space that is not usable when it terminates (that is, message IEF352I ADDRESS SPACE UNAVAILABLE is issued when the address space terminates). Once an ASID has been used to satisfy a request for a reusable ASID, it can only be used as a reusable ASID. It cannot be used for a START without REUSASID=YES or an ASCRE without ATTR=(REUSASID). Unnecessary use of REUSASID=YES or ATTR=(REUSASID) can reduce the number of ordinary ASIDs available for satisfying ordinary address space requests.

When an ordinary address space terminates, the system considers reusing the ASID that is associated with that address space. Whether the ordinary ASID is available for reuse depends on the cross memory connections that have been established between that address space and other address spaces. An ordinary ASID is unavailable for reuse when the address space owns entry tables that contain space switch entries (created through SSWITCH=YES on the ETDEF macro), and when one of the these statements is true:

Those tables connect to other address spaces through a non-system linkage index (LX), in which case the ASID is not eligible for reuse until all connected address spaces terminate.

Those tables connect to other address spaces through a system LX, in which case the ASID is not eligible for reuse for the duration of the IPL.

A system LX should only be obtained when the cross memory service is to be used by all address spaces and the cross memory service provider is a long-running address space.

ASIDs used for the TCP/IP stack, the Resolver and TN3270E are non-reusable. That is the ASID cannot be reused when TCP/IP, the Resolver or TN3270 is stopped and restarted. Since the TCP/IP, Resolver and TN3270E address spaces provide PC-entered services that must be accessible to other address spaces, the Address Space Identifiers (ASID) associated with these programs are non-reusable. If these address spaces are terminated enough times, all available ASIDs can be exhausted, preventing the creation of a new address space on the system.

ASID reuse for TCP/IP, TN3270E, VTAM® and resolver

- The TCP/IP, TN3270E, VTAM and Resolver address spaces can now be started as reusable ASIDs

- VMCF and TNF subsystems can **not** be started as reusable ASIDs

- Required maintenance:
  - FFST™ ASID Reuse PTF UK37869 must be applied before enabling this function for TCP/IP
  - NPM PTF UA41448 must be applied before enabling this function for VTAM

z/OS V1R10 Communications Server provides support for the ASID reuse function for the TCP/IP, Resolver and TN3270E address spaces. Specifying REUSASID=YES when starting these address spaces ensures that the ASIDs associated with them can be reused and can help avoid an IPL.

The VMCF and TNF subsystems use non-reusable ASIDs. However, they can **not** be started as reusable ASIDs. Any products that use these services can not exploit the reuse ASID function. This includes these Communications Server applications, interfaces and commands:

SNMP Query Engine application, Pascal Socket Interface, SMTP and LPD servers, TSO TELNET, HOMETEST, TESTSITE, RSH, REXEC, and LPR commands.

First Failure Support Technology (FFST) is a licensed program that captures information about a potential problem when it occurs. There are multiple FFST probes contained in Communications Server. When a problem is detected, a software probe is triggered by Communications Server. FFST then collects information about the problem and generates output to help solve the problem. If FFST is used on your system then you must apply the FFST ASID Reuse New Function APAR (PTF UK37869) before enabling the reuse asid function for Communications Server. Otherwise 0D3 abends will occur.

If NPM is being used with VTAM, PTF UA41448 must be applied before enabling this function with VTAM, to prevent 0D3 abends.

Enabling ASID reuse

- Ensure REUSASID(YES) is specified in the DIAGxx parmlib member

- Specify REUSASID=YES on the START command when starting:
  - ▸ TCP/IP
  - ▸ TN3270E
  - ▸ Resolver
  - ▸ VTAM

- Resolver started during z/OS UNIX® initialization will always use a reusable ASID

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When a reusable ASID is requested by the START command a reusable ASID is assigned if REUSASID(YES) is specified in DIAGxx. If REUSASID(NO) is specified in DIAGxx, an ordinary ASID is assigned. The default is REUSASID(NO). REUSASID cannot be specified in JCL because the system must know that the address space is reusable before it reaches the stage or reading JCL for the address space.

The TCP/IP and TN3270 address spaces can now be started as reusable ASIDs by specifying REUSASID=YES on the START command. The Resolver, when started as a result of the BPXPRMxx statement RESOLVER_PROC, will always use a reusable ASID. If the Resolver is stopped and restarted then you can specify REUSASID=YES on the START command.

Traffic regulation in QoS policy - Background

- Traffic Regulation policy provides protection from TCP Denial of Service attacks
  - ▶ a malicious client can overload application with connection requests

- In V1R9, Traffic Regulation policy can be specified using:
  - ▶ PolicyScope TR in QoS PolicyAction statement
  - ▶ Intrusion Detection Services policy type

- As of z/OS V1R8 Communications Server IDS policy is available in LDAP and configuration flat-file.

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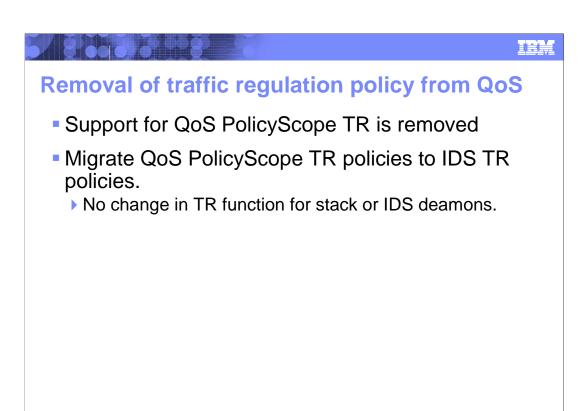
The Traffic Regulation policy provides protection from TCP Denial of Service attack in which a malicious client can overload application with connection requests.

In V1R9 and earlier releases, you can specify the Traffic Regulation policy in two ways. You can use the PolicyScope attribute set to TR in QoS PolicyAction statement, or you can use the Intrusion Detection Services policy type.

As of z/OS V1R8 Communications Server, IDS policy is available in LDAP and configuration flat-file. Before z/OS V1R8, z/OS Communications Server only supported LDAP policy configuration for Intrusion Detection Services.

IBM Configuration Assistant for z/OS Communications Server can configure and deploy Intrusion Detection Services policy, (along with QoS, IPSec, AT-TLS, and Routing), with configuration files, and with no requirement for LDAP.

Removal of traffic regulation policy from QoS

- Support for QoS PolicyScope TR is removed
- Migrate QoS PolicyScope TR policies to IDS TR policies.
  - ▸ No change in TR function for stack or IDS deamons.

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The support for QoS PolicyScope TR has been removed. If you are using this support, you will need to Migrate QoS PolicyScope TR policies to IDS TR policies.

Convert QoS policies that specify the PolicyScope TR parameter on the PolicyAction statement to IDS policies. All PolicyRule statements that reference any such PolicyAction statement must be converted to an IDSRule statement with the ConditionType TR parameter. The PolicyAction statements must be converted to IDSAction statements with the ActionType TR parameter. The new IDS policies must be configured in an existing or new IDS configuration file.

If you were not using IDS policies before the conversion, specify the IDSConfig statement to point to the new image-specific IDS configuration file. Optionally, configure the IDS policies in both common and image-specific configuration files, and specify the CommonIDSConfig statement.

Refresh the policies by issuing the MODIFY procname,UPDATE or MODIFY procname,REFRESH command, waiting for the refresh interval to expire, or restarting the Policy Agent. If you previously started the Policy Agent using the -i startup option, then no action is necessary - the new policies are refreshed as soon as the configuration files are saved.

install1.ppt

Traffic regulation migration considerations

- The z/OS Configuration Assistant supports configuration of Traffic Regulation policy only as part of Intrusion Detection Services policy.
  - ▸ If you use the z/OS Configuration Assistant to do your TR policy definitions, there are no migration issues.

- Migration of QoS PolicyScope TR results in Traffic Regulation function for stack or IDS daemons.

- See z/OS Migration book for detailed instructions on migrating QoS PolicyScope TR policies to Intrusion Detection Services Traffic Regulation policies.

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Use of z/OS Configuration Assistant to configure Traffic Regulation Policy solves any migration issues. Otherwise, the z/OS Migration Guide can help in this conversion.

Functions to be removed

- IBM has issued a statement of direction indicating that V1R10 will be the last release to include these functions:
  - BIND DNS 4.9.3
  - NDB
  - BINL
  - DHCP

z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the Network Database (NDB) function. After z/OS V1.10, the function will be removed from the product. Customers who currently use or plan to use the NDB function should investigate the distributed data facility (DDF) provided by z/OS DB2, and the DB2 Run-Time Client. DDF allows client applications running in an environment that supports DRDA to access data at DB2 servers.

z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support BIND DNS 4.9.3. After z/OS V1.10, the function will be removed from the product. BIND DNS 9.2.0 has been available since z/OS V1.4, and customers should implement this version as a replacement for BIND DNS 4.9.3. Customers that use the load balancing Connection Optimization (DNS/Workload Manager) feature of BIND DNS 4.9.3 should investigate Sysplex Distributor, the Load Balancing Advisor, Automated Domain Name Registration (ADNR), or other solutions.

z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the Boot Information Negotiation Layer (BINL). After z/OS V1.10, the function will be removed from the product. Customers using this function should investigate the use of IBM Tivoli Provisioning Manager for OS Deployment for network based operating system installation services.

z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the DHCP server function. After z/OS V1.10, the function will be removed from the product. Customers who currently use or plan to use the z/OS DHCP server should investigate using a DHCP server on Linux for System z.

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