



**z/OS® V1R10 Communications Server**

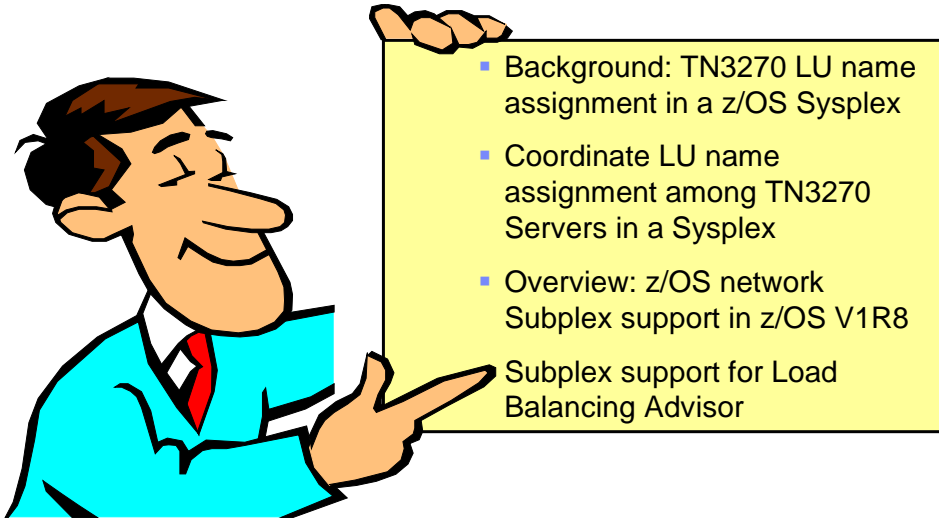
***Overview : Sysplex***

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This presentation is an overview of Sysplex enhancements to Communications Server for z/OS V1R10.

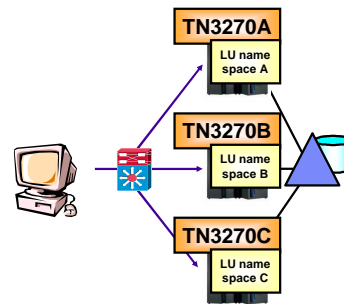
## Agenda



This presentation includes an overview of TN3270 LU name assignment in a z/OS Sysplex and the enhancements to coordinate LU name assignment among TN3270 Servers in a Sysplex. Also, an overview of z/OS network Subplex support in z/OS V1R8 and the new Subplex support for Load Balancing Advisor is presented. LU Name refers to the Logical Unit name in a SNA network.

## Background: TN3270 LU name assignment in a z/OS Sysplex

- TN3270 connections are often load-balanced across a cluster of TN3270 server instances
- Such a topology requires careful planning of how LU names are assigned by the individual TN3270 servers in the Sysplex
- Allows load balancing for generic LU name assignment implementations
- No load balancing for specific (nailed) LU name assignment implementations (certain clients need certain LU names)
  - ▶ But provides recovery from TN3270 server failures



With TN3270 in a sysplex, you have a single system image with one IP address to connect to. This provides high availability with the ability to reconnect immediately. It also promotes scalability to add servers as the number of clients increase. It also includes workload management based on Workload Manager and server health.

Each TN3270 server has its own separately managed LU name space. For this, active LU names must be unique across all LPARs in the Sysplex unless only local SNA sessions are used (TN3270 server secondary LU in the same LPAR as the primary LU it establishes a session to). Also, printer association requests must go to the same TN3270 server that was used to select the LU for the associated display session. Reconnect processing and SNA session clean up functions only work if clients reconnect to the same server as the original connection.

For generic LU name assignment implementations (that is ones with no dependency on specific LU names), you can load balance the initial connection from a client IP address and then use timed affinity in load balancer for all succeeding connections from same client IP address. This is necessary to handle reconnect and printer association request processing correctly, but it does effectively disable the objectives of load balancing for all except the first connection from a given client IP address

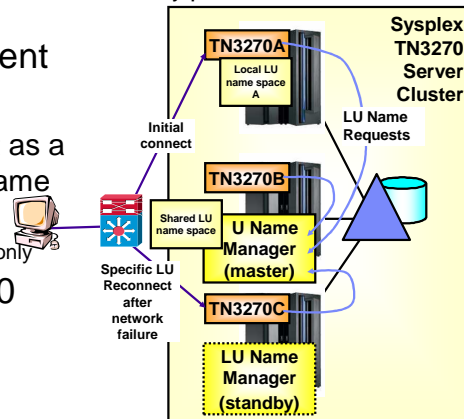
For specific LU name assignment implementations, load balancing typically cannot be done, but you can use DVIPA takeover to address availability of TN3270 servers

## Coordinate LUnicode assignment among TN3270 servers in a sysplex

- TN3270 LU name manager for Sysplex-wide LU name management across Sysplexed TN3270 servers
- LU name manager functions are implemented as extensions to current TN3270 server
  - ▶ A TN3270 server can concurrently act as a normal TN3270 server and as an LU name manager
  - ▶ A TN3270 server can act as an LU name manager only
- VTAM® clone definitions of TN3270 server LUs on all systems

Simplified high-availability and Single System Image design of Sysplexed TN3270 server topologies

Load balancer can be external or Sysplex Distributor



LU name assignment differs for generic and specific requests. For generic requests, an available LU name in the shared name space is selected. For specific requests, it must be verified that the requested LU is not already in use by one of the TN3270 servers in the sysplex.

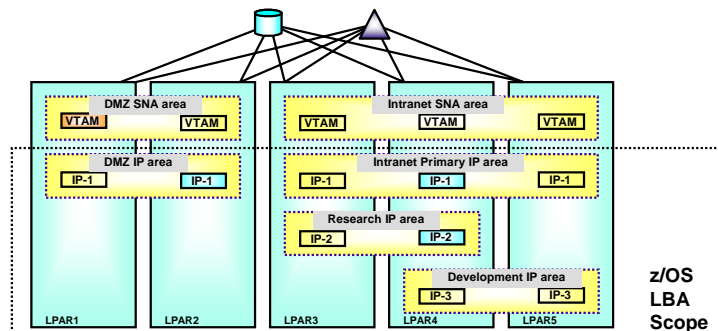
Several processes occur to reconnect with specific LU name requests after temporary network failure. Stale TN3270 connections are terminated. The associated SNA session is terminated and cleaned-up. Then the LU names of the terminated connections are freed. Finally, the reconnection is processed on any TN3270 server in the sysplex.

Some functions will continue to require timed affinity in load balancer. These are the printer association, generic LU name reconnect processing, the check client connection option, and the SNA session reconnect.

A TN3270 server instance can use both a local name space and a shared name space.

## z/OS network subplex support in z/OS V1R8 - overview

- z/OS V1R8 implemented both SNA and TCP/IP subplex support
- But z/OS V1R8 did not enable the z/OS Load Balancing Advisor technology to work within the scope of a TCP/IP subplex
  - ▶ LBA continued to use a fixed scope of a z/OS Sysplex



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Overview : Sysplex

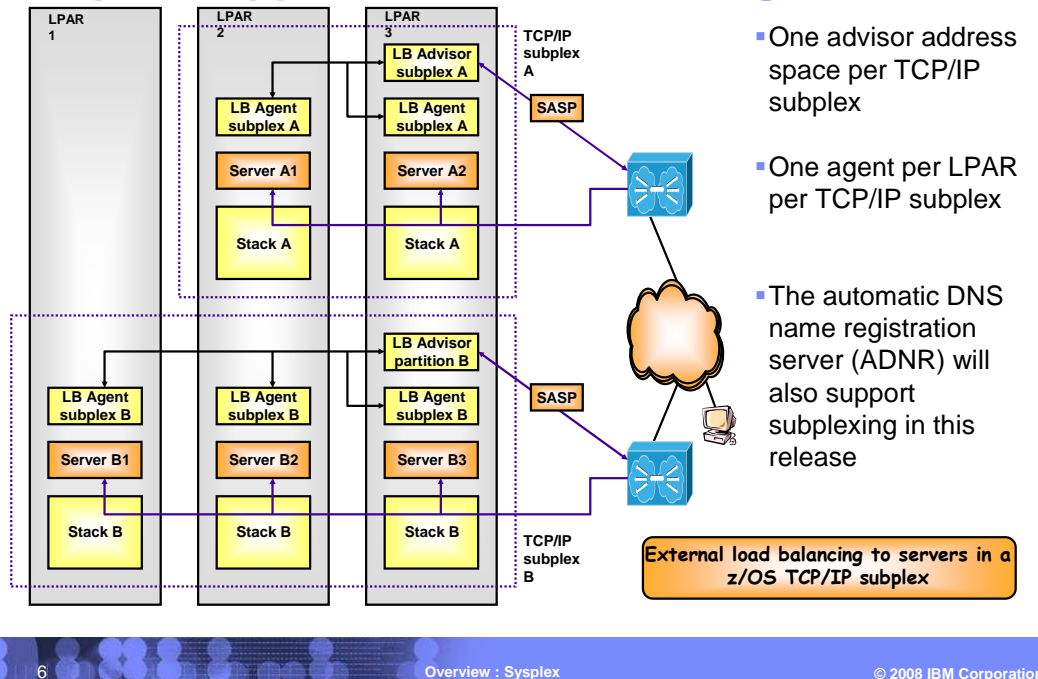
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Multiple network subplex support in z/OS V1R8 includes VTAM Generic Resources (GR) and Multi-Node Persistent Session (MNPS) resources. It can handle automatic connectivity with IP connectivity and VTAM connectivity over XCF (including dynamic IUTSAMEH and dynamic HiperSockets based on Dynamic XCF for IP). It can use IP stack IP address (including dynamic VIPA) awareness and visibility. It supports dynamic VIPA movement candidates and Sysplex Distributor target candidates.

z/OS V1R8 SNA and TCP/IP subplex support allows support for multiple isolated network Sysplex environments within a single z/OS Sysplex where some TCP/IP stacks and applications belong to an HTTP zone, while others belong to an application or data zone. But, it did not allow TCP/IP Sysplex awareness across those zones.

Support was needed within the z/OS LBA environment to have a z/OS Load Balancing Advisor per TCP/IP subplex and enable the z/OS Load Balancing Agents to be aware of the TCP/IP subplex.

## Subplex support for Load Balancing Advisor



- One advisor address space per TCP/IP subplex
- One agent per LPAR per TCP/IP subplex
- The automatic DNS name registration server (ADNR) will also support subplexing in this release

External load balancing to servers in a z/OS TCP/IP subplex

Some configuration guidance is required. For more information, refer to *z/OS Communications Server: IP Configuration Reference*. It is recommended to only specify server IP addresses and ports that belong to the subplex for which the LBA advisor/agent belongs.

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