z/OS Communications Server – Sysplex Overview
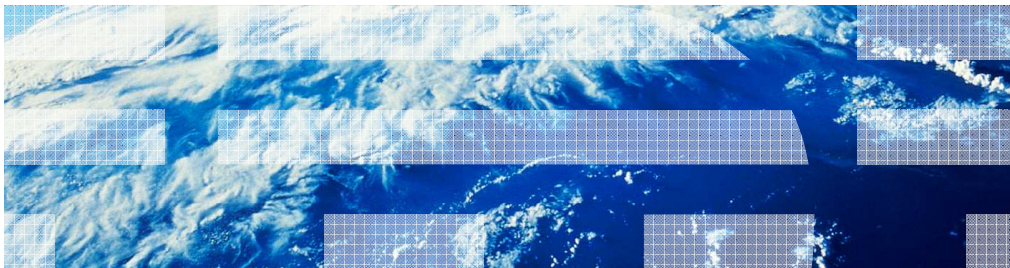
This presentation provides an overview of the new functions in z/OS V1R13 Communications Server for sysplex enhancements.

VIPAROUTE target cache update during initialization

- VIPAROUTE target cache is used to route a Sysplex Distributor packet
  - Updated every 60 seconds
- z/OS V1R13 shortens the interval for VIPAROUTE route lookups when the stack joins a Sysplex, or OMPROUTE is restarted
 - Will now start with five seconds, and gradually increase to 60 seconds
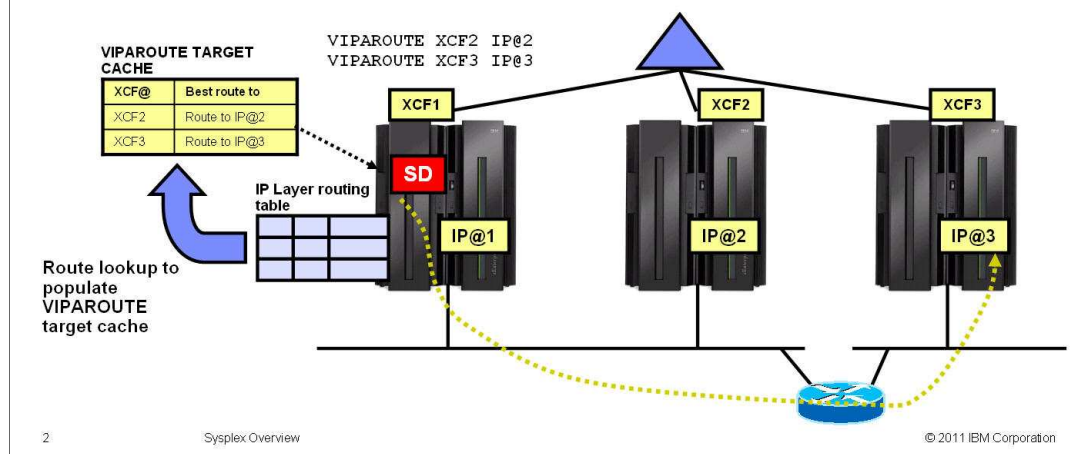
With VIPAROUTE support, distributed DVIPA traffic forwarded to a target stack can use any IP routing interface. An IP destination address is configured for each target XCF address. After the configuration profile is processed, normal IP routing rules are used to pick the best available route to that destination (IP routing table or policy-based routing). The IP route selected is cached for each target. Once a route to a target is cached, new connection requests distributed to that target use the cached target route.

Periodically (every 60 seconds), a target cache refresh routine checks to see if the routing table has changed. If it has changed, a new route lookup is done to update each target's routing cache. If no route exists, the target is no longer considered as a distribution target; there is no fall back to use an XCF interface.

During a takeover that occurs because the primary routing stack is restarted, a route is unavailable until its interface finishes activating. If the initial target cache refresh occurs before this route is available, then there is a delay of close to 60 seconds until the next refresh. During this time, packets for distributed connections using VIPAROUTE might use non-optimal routes or might not be able to reach their targets.

This function substantially reduces this initial delay before acquiring a preferred VIPAROUTE by starting with smaller target cache refresh intervals. The initial refresh pattern is five, five, 15, 35, and 60 seconds. After reaching 60 seconds, the refresh interval will remain at 60 seconds. The initial refresh pattern is used whenever the stack joins the sysplex group or OMPROUTE is recycled.

Sysplex autonomics extended with CSM storage constrained monitoring
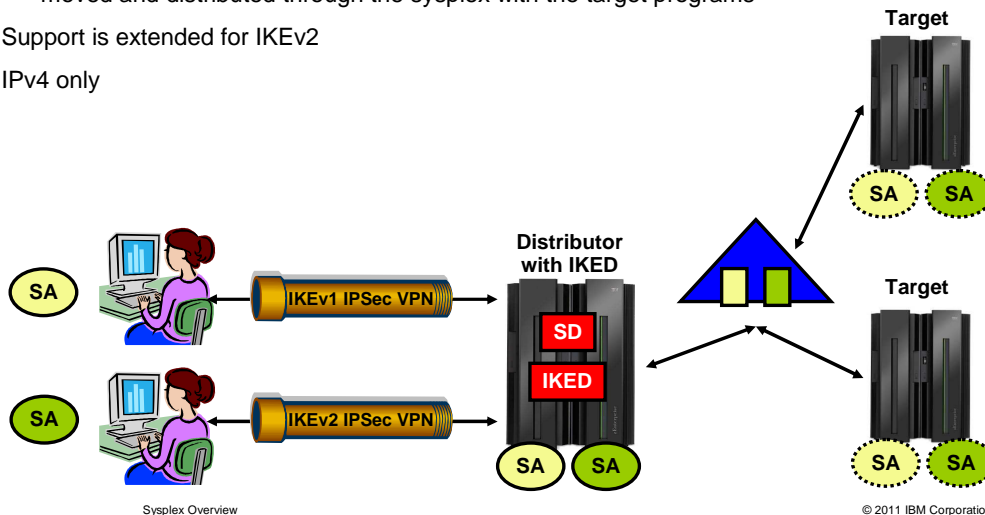
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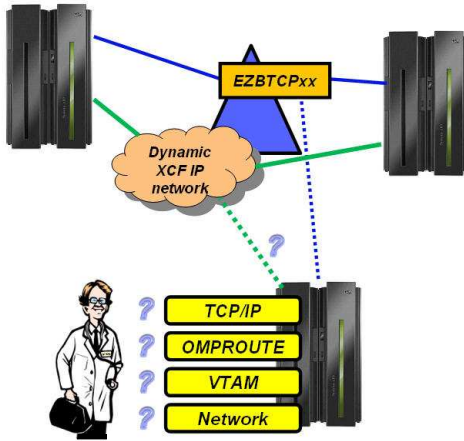
- **Monitoring:**
  - Comm Server health indicators
  - Dependent networking functions
  - Abends in Sysplex-related stack components
  - Selected network interface availability and routing
  - Repetitive internal abends in non-Sysplex related stack components
  - *Detect when CSM FIXED or CSM ECSA has been constrained for multiple monitoring intervals*

- **Actions:**
  - Remove the stack from the IP Sysplex (manual or automatic)
  - Reactivate the currently inactive Sysplex configuration when a stack rejoins the Sysplex (manual or automatic)

EZBTCPxx

Dynamic XCF IP network

TCP/IP
OMPROUTE
VTAM
Network

Sick? Better remove myself from the IP Sysplex!

Feeling better? Maybe it's time to rejoin the IP Sysplex

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In V1R13, z/OS Communications Server more closely monitors common storage (CSM) usage and performs the recovery action if CSM is constrained (higher than 80% of defined CSM limit). Previous support only performs the recovery action when CSM is critical (higher than 90% of CSM limit). This reduces the impact of sysplex processing on other z/OS processes.

Sysplex Distributor negotiates security associations (SA) with the remote Client using the Internet Key Exchange protocol, IKE version 1 or IKE version 2. It sends copies of the SAs (shadows) to the targets for VPNs negotiated with either version of IKE. Targets use the SAs negotiated with either IKEv1 or IKEv2 to encrypt and decrypt data. The backup can recover SAs negotiated with either IKEv1 or IKEv2 in case of DVIPA takeover. The coupling facility stores shared data for SAs negotiated with either IKEv1 or IKEv2.

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