

Implementation and Use of Generic VTAM Resources with Parallel Sysplex Features

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Abstract

- This session will cover the Generic VTAM Resource enhancement and Parallel Sysplex Features and how the two options combined can be leveraged to Improve 24X7 availability, balance workloads, and eliminate single point of failure for your CA IDMS systems.

Agenda

- Why High Availability?
- Generic VTAM Resources
- Parallel Sysplex Features
 - Shared Cache
 - Data Sharing
 - Dynamic Run Unit Routing

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Why High Availability?

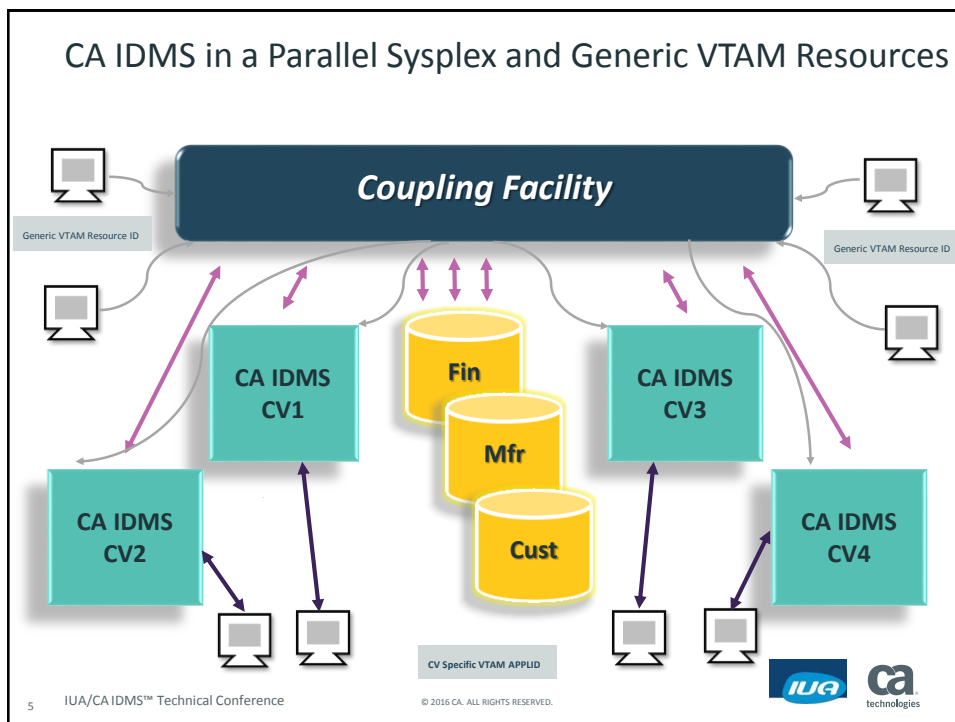
- 24x7 business and service
- International operations
- Zero outage initiatives

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Generic VTAM Resources Definitions and Specifics

- Definition of the Generic VTAM Resource on the VTAM line definition is the only IDMS specification required to use Generic VTAM resources

```
ADD LINE VTAM01
APPLICATION ID IS U31II110
GENERIC RESOURCE IS IDMSGVR2
```

Generic VTAM Resource value

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Generic VTAM Resources Definitions and Specifics

- Generic VTAM resource value cannot be defined in the VTAMLST dataset for VTAM

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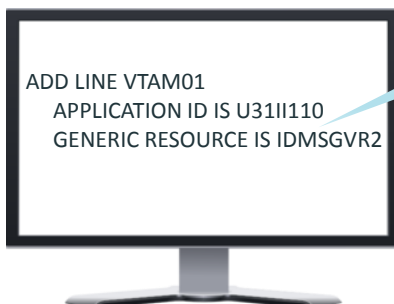
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Generic VTAM Resources Definitions and Specifics

- Generic VTAM resource and the standard VTAM application ID are both required when defining a Generic VTAM resource



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Generic VTAM Resources Definitions and Specifics

- Generic ID can be thought of as another name that can be used to connect to any IDMS system that is using the same Generic VTAM resource
- Generic Resource ID allows one or more IDMS systems to be known to VTAM using the same Generic value ID

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Generic VTAM Resources Definitions and Specifics

- The use of Generic VTAM Resources does not require the use of IDMS Parallel Sysplex features
- Since a connection is going to be routed to any IDMS instance running on any LPAR within the SYSPLEX the IDMS regions must have all transactions defined and must have the required Database access to support the transaction
- Inflight transactions on CA IDMS systems that are taken offline or fail will not automatically be restarted on another CA IDMS system sharing the same Generic VTAM resource
 - These transaction will ABEND and rollout as necessary just as they would without the use of Generic VTAM Resources

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Generic VTAM Resources Benefits

- Removes a single point of failure
 - Users do not connect to a specific instance of an IDMS system
 - If one or more of the IDMS systems using the generic id are taken down, fail, or even if the LPAR is taken down or lost, users will still be able to connect to any remaining IDMS systems on any of the LPARs that are part of the SYSPLEX
- Provides an additional level of Workload Balancing
 - The Work Load Manager (WLM) will attempt to balance and route work to the IDMS systems that are using the Generic VTAM resource if WLM=YES is specified in the GRPREFS file contained in the VTAMLST used by VTAM (Discussed later)

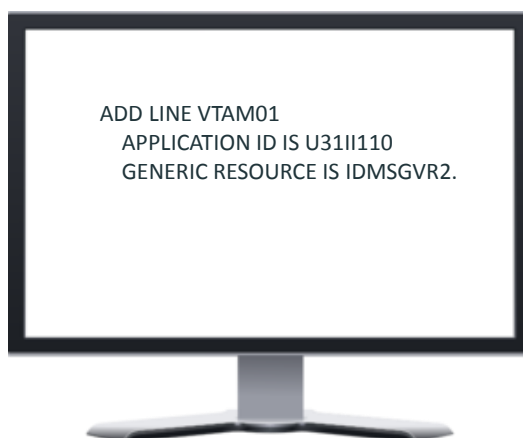
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Generic VTAM Resources CA IDMS definition



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Generic VTAM Resources Naming

- Generic Resource is
 - Must follow VTAM definitional guidelines.
 - Cannot start with a numeric value
 - For example, 1 (Starting with a numeric is invalid) but A1 would be ok.
 - Any Character or Special character can be used.
 - For example, @@@@@@@@ is acceptable.
 - A (just the letter A) is acceptable.
 - The words OFF or NONE cannot be used since these values are used to drop or remove an existing Generic VTAM Resource specification.
 - Generic Resource is " also clears the value in SYSGEN

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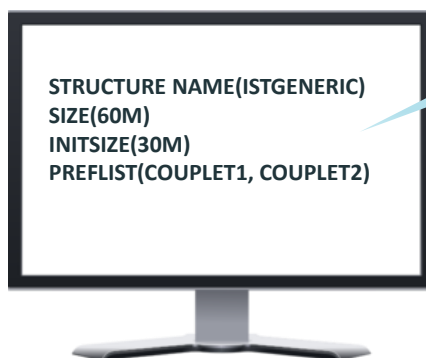
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Generic VTAM Resources XCF Definitions (non-IDMS)

- XCF group ISTCFS01 and XES Structure ISTGENERIC are used
- ISTCFS01 is provided by IBM for VTAM when using XCF
 - Talk to VTAM, SYSPROG, or person at your site responsible for creating or maintaining IBM provided definitions



Sample ISTGENERIC
definition

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Generic VTAM Resources VTAM Definitions (non-IDMS)

- To allow the WLM to balance and route requests to systems in the SYSPLEX
 - Requires a definition in the VTAMLST “GRPREFS” dataset
 - Definition can be a default definition (not specifically named and shown below)



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Generic VTAM Resources VTAM Definitions (Optional -IDMS)

- To allow the WLM to balance and route requests to systems in the SYSPLEX
 - Requires a definition in the VTAMLST “GRPREFS” dataset
 - Or Specifically named for the IDMS Generic VTAM resource (as shown here)



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Generic VTAM Resources VTAM Definitions (non-IDMS)

- GRPREFS

WLM=YES is needed to use the WLM for Generic VTAM resource resolution

See [z/OS Communications Server SNA Resource Definition Reference](#) for additional information

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Generic VTAM Resources Problems or Failures

- Failures when trying to connect to the Generic VTAM resource at line open time will result in the following message being displayed:
- **CA IDMS - Request for VTAM Generic Resource failed - not supported by this environment**
 - Some of the probable causes of this message are:
 - No Coupling Facility being used
 - The LPAR is not a member of a SYSPLEX
 - One or more of the required Coupling Facility definitions are missing
 - XES structure ISTGENERIC and/or XCF Group ISTCFS01
 - Value specified for Generic VTAM resource is invalid

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Generic VTAM Resources – VTAM Displays

```

Command: D NET,ID=IDMSGVR2 <-- VTAM Generic Resource Name used in CA IDMS a CV line definition
Display:
IST097I DISPLAY ACCEPTED
IST075I NAME = IDMSGVR2, TYPE = GENERIC RESOURCE
IST1359I MEMBER NAME      OWNING CP  SELECTABLE  APPC
IST1360I USILDA01.U3111110  A31X99          DEL          NO
IST1360I USILDA01.U11ITCH8  A11X99          YES         NO
IST2210I GR PREFERENCE TABLE ENTRY = **DEFAULT**
IST2202I GREKIT  = NO      WLM      = YES      LOCLU   = YES
IST2204I LOCAPPL = YES      PASSOLU = NO
IST314I END
    
```

Generic VTAM Resources DISPLAYS

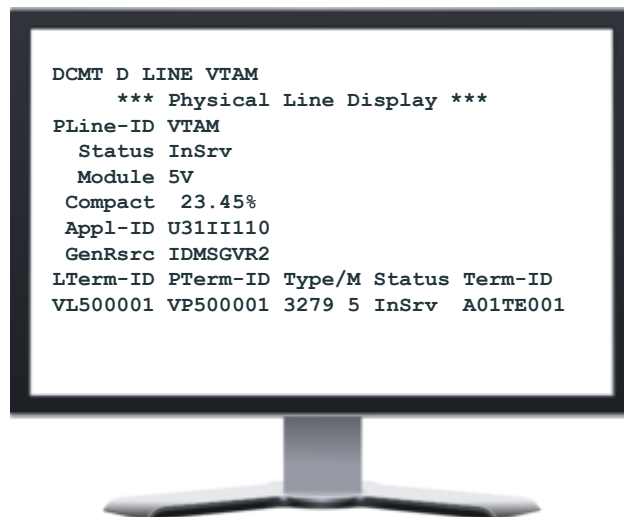
```

DCMT D LINES
*** Display Lines (ALL) Request ***

```

| Line-ID | Status | Driver Module | Type and/or Access Method | APPL/Table DD/Other | Number of PTerms | VTAM Resource |
|---------|--------|------------------|------------------------------|------------------------|---------------------|------------------|
| UCFLINE | InSrv | RHDCD02U | UCF | RHDCFSTB | 79 | |
| CCILINE | InSrv | RHDCD01V | CCI | TECHD120 | 96 | |
| VTAM | InSrv | RHDCD05V | VTAM 3270 | U3111110 | 510 | IDMSGVR2 |

Generic VTAM Resources DISPLAYS



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Generic VTAM Resources Implementation

- Apply 18.5 PTF RO89482 to implement Generic VTAM Resources
- Included in version 19.0 IR4

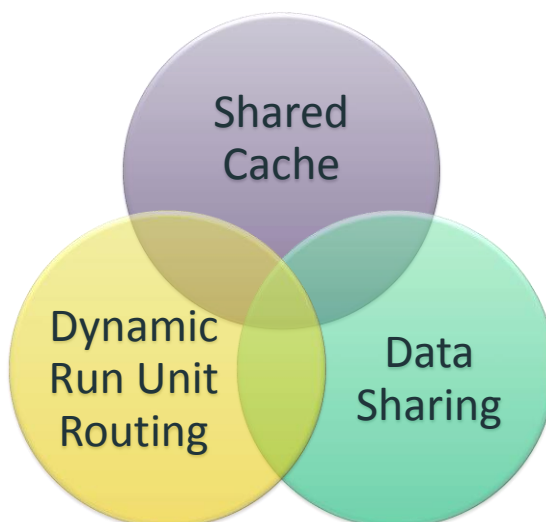
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CA IDMS Parallel Sysplex Features



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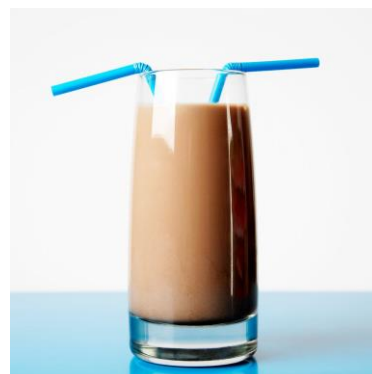
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Parallel Sysplex Shared Cache

- Enables multiple CV retrieval
 - One update system
 - Multiple retrieval systems
- Enables data sharing (multiple update systems)



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Defining the Shared Cache

- Define the Shared Cache to the Coupling Facility



```
STRUCTURE NAME(IDMSSUPPCACHE002)  
SIZE(5120) PREFLIST(COUPLET1)
```

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Defining the Shared Cache to CA IDMS



```
ALTER  
DMCL GLBLDMCL  
DATA SHARING DEFAULT  
SHARED CACHE IDMSSUPPCACHE002  
LOCK ENTRIES 100000 MEMBERS 5  
ON CONNECTIVITY LOSS NOABEND
```

```
INCLUDE SEGMENT DBCR  
DATA SHARING YES  
DEFAULT SHARED CACHE  
IDMSSUPPCACHE002
```

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Shared Cache Benefits

Improve performance

- For update and retrieval CVs
- Second level of buffering

Share data in retrieval across multiple CVs

Retrieval CVs stay active when update CV is down

Enables Data Sharing

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Parallel Sysplex Data Sharing

Multiple CVs update the same DB

Key elements

- **Data sharing group**
 - Named collection of CA IDMS systems in a Sysplex
 - Each CA IDMS system is a member of that group
- **Shared Cache** maintains file data

Not the same as a DBGROUP



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Parallel Sysplex Data Sharing

Definitions

- Coupling facility in K bytes
 - Define a list structure
 - Define a lock structure

- Definition in DMCL
 - Default data sharing attribute
 - Segment or file data sharing attribute

- SYSIDMS (next slide)

```
STRUCTURE NAME(CAIDMSUPPGRP1LI)
SIZE(4096) PREFLIST(COUPLET1)
```

```
STRUCTURE NAME(CAIDMSUPPGRP1LK)
SIZE(5120) PREFLIST(COUPLET1)
```

```
+-- DEFAULT SHARED CACHE default-
cache-name -1
```

```
DATA SHARING YES
```

```
DATA SHARING YES/NO/DEFAULT
```

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Parallel Sysplex Data Sharing

SYSIDMS definition in CV JCL

```
//SYSIDMS DD *
DSGROUP=SUPPGRP1
DCNAME=TECHD110
```

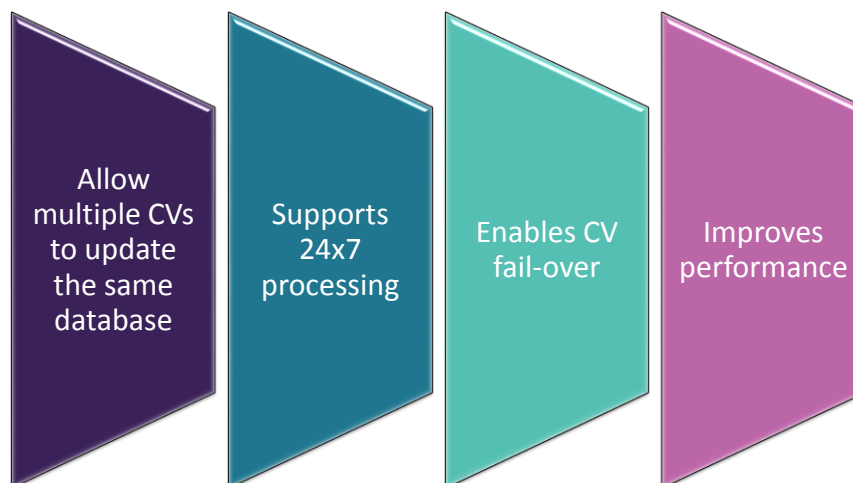
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Parallel Sysplex Features Data Sharing Benefits



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Parallel Sysplex Dynamic Run Unit Routing

Workload balancing

- Between CA IDMS/DB systems in a Sysplex
- Dynamic based on actual system load
- DBGROUP

- Definitions
 - Backend and frontend IDMS
 - Coupling facility structure



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Parallel Sysplex Dynamic Run Unit Routing

DBGROUPs

- **Backend definitions**
 - Add DBGROUP statement(s) to Database Name Table
 - CREATE DBGROUP assigns the backend(s) to a DBGROUP(S)

```
CREATE DBGROUP R185DBTB.SPGROUP1 ENABLED
```
- **Frontend definitions**
 - Define backend DBGROUP as a node in the Resource name table

```
ADD NODE SPGROUP1 GROUP DEFAULT NODE TECHD110
```

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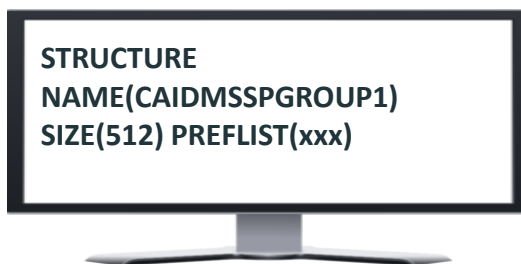
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Parallel Sysplex Dynamic Run Unit Routing

Coupling facility definition

- Define a Coupling Facility structure for each DBGROUP
- DBGROUP name prefixed with "CAIDMS"
- Size is in K bytes



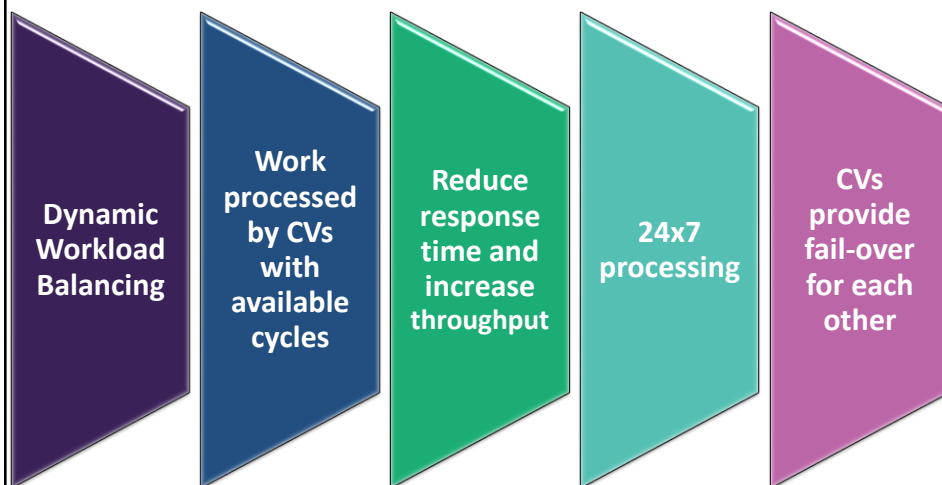
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Parallel Sysplex Dynamic Run Unit Routing Benefits



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Summary

- Why High Availability?
- Generic VTAM Resources
- Parallel Sysplex Features
 - Shared Cache
 - Data Sharing
 - Dynamic Run Unit Routing

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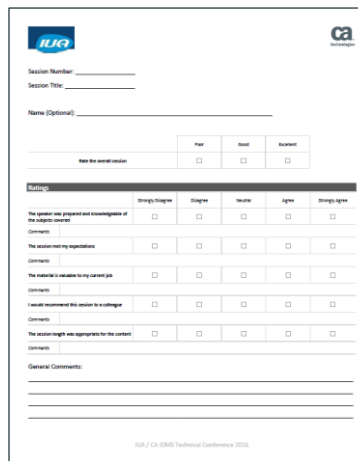
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