



z/OS Introduction and Workshop

Sysplex, Parallel Sysplex & Geographically Dispersed Parallel Sysplex

Unit Objectives

After completing this unit, you should be able to:

- Describe difference between Sysplex, Parallel Sysplex, and GDPS
- Describe Coupling Facility
- Describe Sysplex Timer
- List types of GDPS configurations

System z Clustering Terminology

A **sysplex** is a collection of z/OS systems that cooperate, using certain hardware and software products, to process work. It is a clustering technology that can provide near-continuous availability.

A **Parallel Sysplex** is a sysplex that uses multisystem data-sharing technology. It allows **direct, concurrent read/write access to shared data from all processing nodes** (or servers) in the configuration without impacting performance or data integrity. As many as **32** servers can concurrently cache shared data in local processor memory through hardware-assisted cluster-wide serialization and coherency controls. As a result, **work requests** that are associated with a **single workload**, such as business transactions or database queries, can be **dynamically distributed** for parallel execution on nodes in the sysplex cluster based on available processor capacity.

In many ways a **Parallel Sysplex** system appears as a single large system.

Parallel Sysplex Benefits

The primary goal of a Parallel Sysplex is to provide data sharing capabilities, allowing multiple databases for direct reads and writes to shared data. Benefits include:

- Help remove single points of failure within the server, LPAR, or subsystems
- Application Availability
- Single System Image
- Dynamic Session Balancing
- Dynamic Transaction Routing
- Scalable capacity

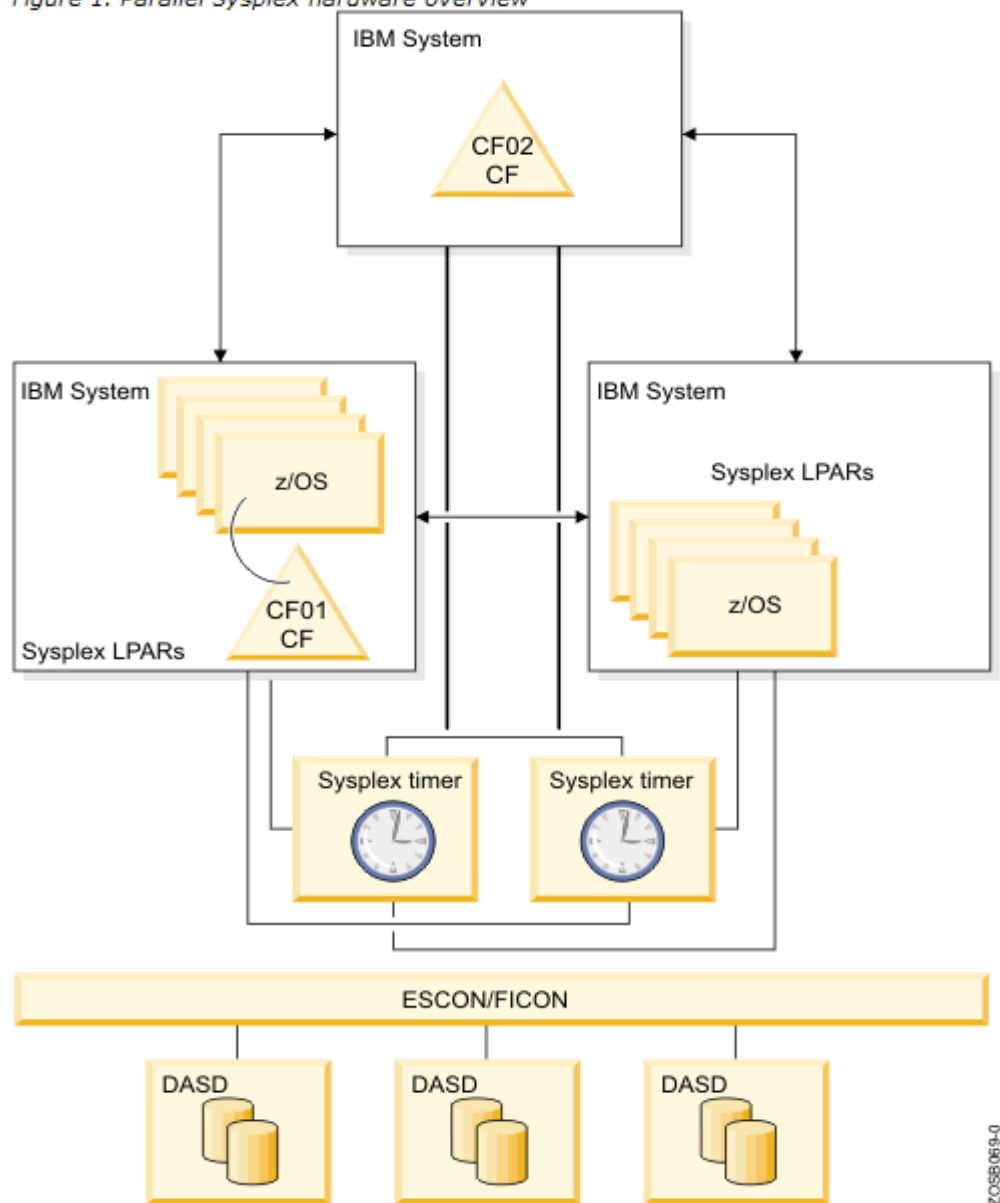
CF (Coupling Facility)

LPAR microcode serving as shared memory for all participating z/OS environments

Sysplex Timer

Synchronize clocks of all member systems

Figure 1. Parallel Sysplex hardware overview



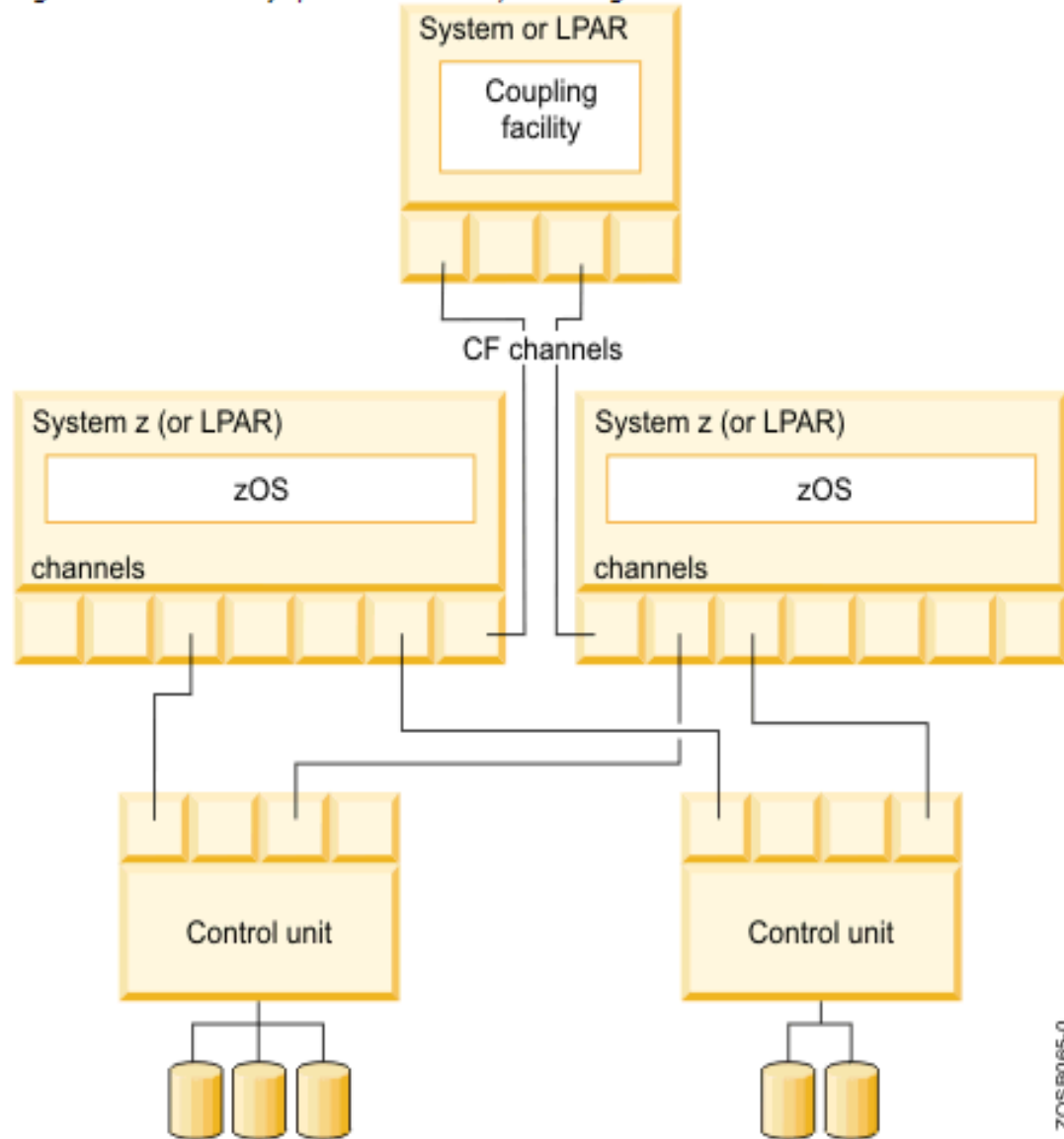
LPAR

Logical Partition enable sharing of processors and channels (not memory)

Coupling Facility

Has memory accessible to all participating members using CF channels for communication between participating members

Figure 2. Parallel Sysplex with two z/OS images



GDPS – Highest Availability

Geographically Dispersed Parallel Sysplex (GDPS) is an extension of Parallel Sysplex of mainframes located, potentially, in different cities.

GDPS includes **configurations** for single site or multiple site configurations:

HyperSwap Manager (peer-to-peer copy, same data center)

PPRC (peer-to-peer copy, up to 120 miles data center separation)

XRC (extended remote copy, no distance restrictions, recovery process must be initiated)

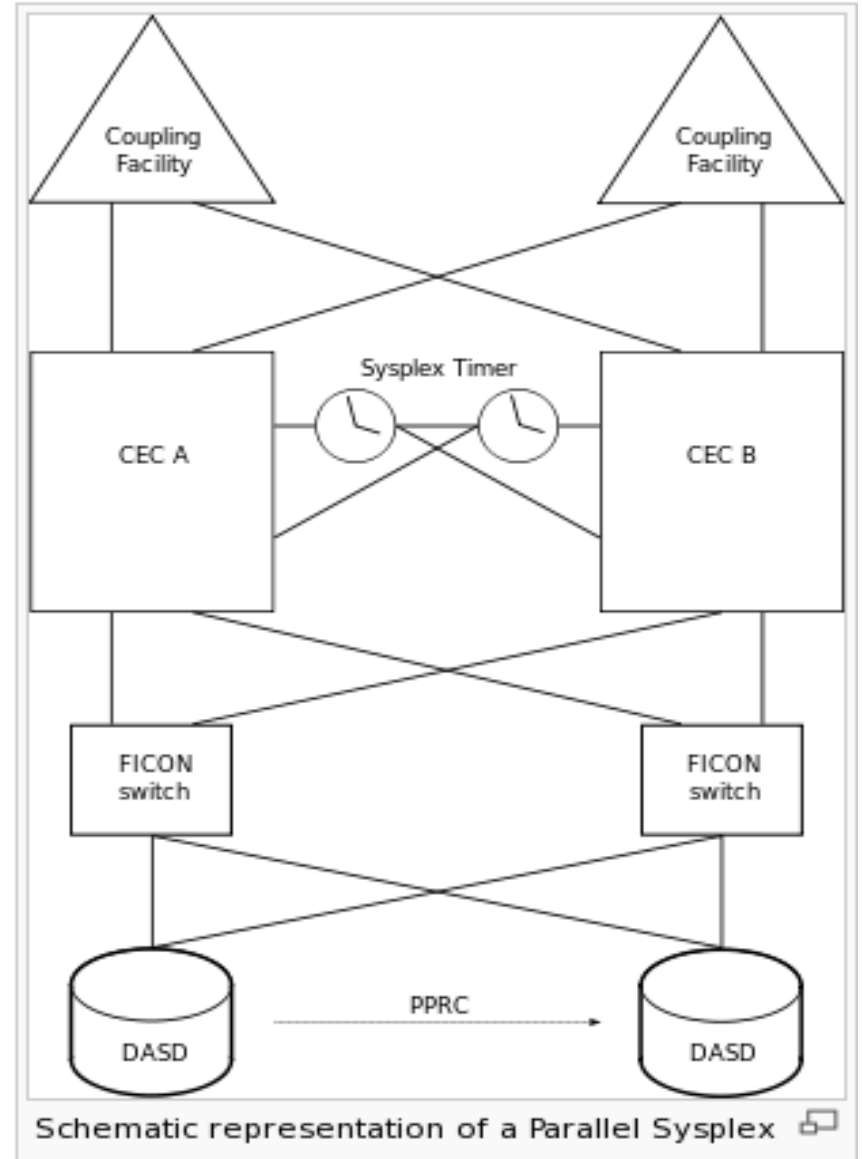
GM (global mirroring, designed to recover from total failure)

MGM (more than two sites)

Active-Active (continuous availability, multiple sites, load balancing)

GDPS

Processing memory and disk storage updates are maintained protecting against failures



Parallel Sysplex Documentation & Information

IBM Redbooks

[z/OS Parallel Sysplex Configuration Overview \(SG24-6485-00\)](#)

IBM Manuals

[Setting Up a Sysplex \(SA22-7625-18\)](#)

[Sysplex Services Guide \(SA22-7617-13\)](#)

[Sysplex Services References \(SA22-7618-12\)](#)

Unit summary

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- ✓ Describe difference between sysplex, Parallel Sysplex, and GDPS
- ✓ Describe Coupling Facility
- ✓ Describe Sysplex Timer
- ✓ List types of GDPS configurations