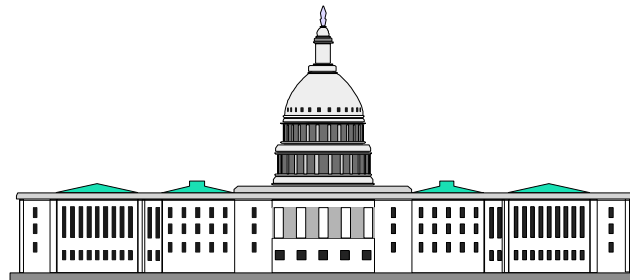


Systems Center Hardware Update (Part 1)

SHARE 98, Session 2402, March 5, 2002

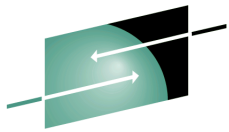


Harv Emery
emeryh@us.ibm.com
Washington Systems Center

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FICON	OS/390*	z/Architecture
GDPS	Parallel Sysplex*	z/OS
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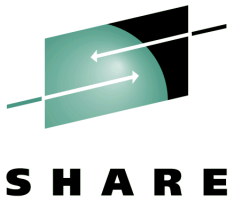
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Topics

- **IBM Resource Link - Request an ID today!**
 - ▶ <http://www.ibm.com/servers/resourcelink>

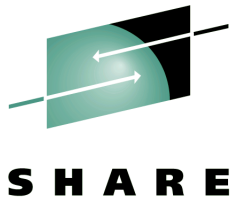
- **New IBM zSeries 800**

- **So, what EC level is that?**
 - ▶ Remote Entire HMC Desktop
 - ▶ EC Level determination
 - ▶ z900 EC levels and functions - 38g and 3Cg
 - ▶ New Function APARs for hardware planners

- **Parallel Sysplex and CFCC Levels**

- **Supported EC levels for zSeries Compatibility**
 - ▶ G5/6 EC Levels
 - ▶ G3/4 EC Levels

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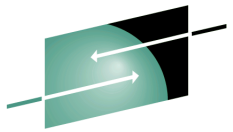


IBM Resource Link

The Site for Hardware Information

- **Planning**
 - ▶ Get ready for system installation
 - ▶ P&D and Exception Letters for new Driver (LIC levels)
- **Education**
 - ▶ Online courses, task-oriented videos, how-to's, pointers to IBM-sponsored education
- **Hardware and Operating System Publications Library**
 - ▶ Documentation including the latest updates
 - PDF format
 - Viewable online or downloadable
- **Technical Support**
 - ▶ Research/Subscribe to APAR status, Customer Assets, Hardware Alerts, Cross Platform Support
- **Group Discussions and ESP Forums**
 - ▶ Early communication between customers and IBM

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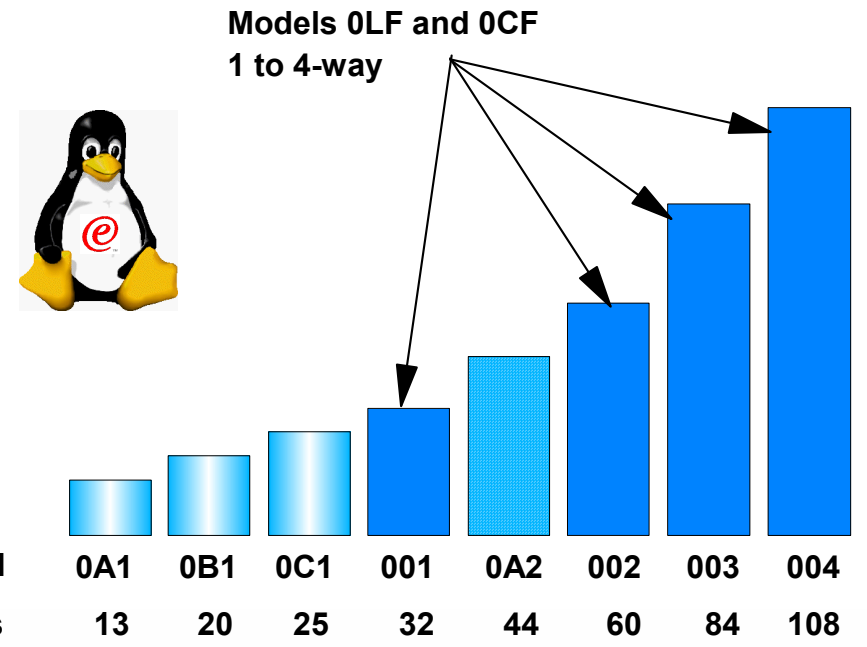
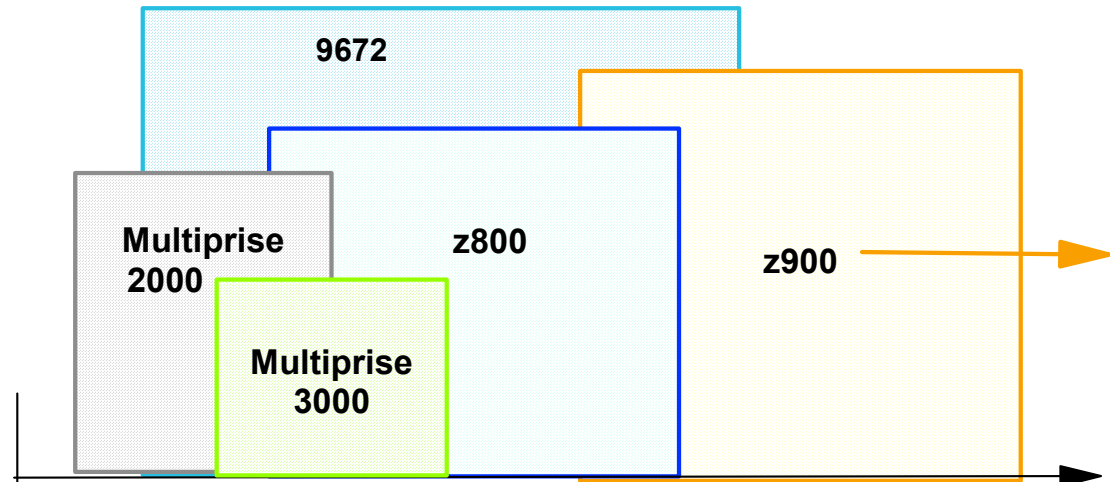
IBM zSeries 800

- **Complete z/Architecture (64 bit)**
 - ▶ OS/390 V2.8 & up, z/OS all, z/OS.e
 - ▶ VM/ESA V2.4 & up, z/VM all
 - ▶ VSE/ESA V2.4 & up, TPF 4.1
 - ▶ Linux Kernel 2.2 & 2.4 (31 and 64 bit)

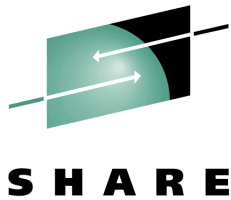
- **Flexible Model Structure**
 - ▶ 1 to 4-way
 - ▶ z800-001 ITRR close to G6-X17
 - ▶ 3 sub-uni, 1 sub-dyadic
 - ▶ CUoD and CBU
 - ▶ Linux Model 0LF, CF Model 0CF
 - ▶ z800-004 upgrades to z900-104

- **8, 16, 24 or 32 GB memory**
 - ▶ No concurrent upgrade

- **zSeries I/O Subsystem supports**
 - ▶ All zSeries I/O cards (16 max)
 - Up to 240 Escon
 - ▶ No Parallel, OSA-2 FDDI, or ICB-2
 - ▶ SOD: Linux FCP support



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Remote Entire HMC Desktop HMC Web Server at Driver 26

Hardware Management Console - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print

Address <https://9.82.135.70/> Go Links

IBM Hardware Management Console

Welcome to the home page for the Hardware Management Console! The Hardware Management Console Web server allows you to do the following:

- [Perform Hardware Management Console Application tasks](#)
- [View the Hardware Management Console Overview](#)
- [Remote entire Hardware Management Console desktop](#)

Desktop On-Call - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History

Address <https://9.82.135.70/dtocabin/dtocabctrl?control> Go Links

Input user ID, password

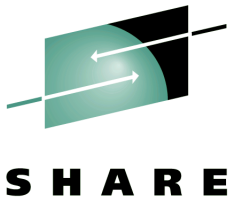
user ID :

password :

OK Cancel

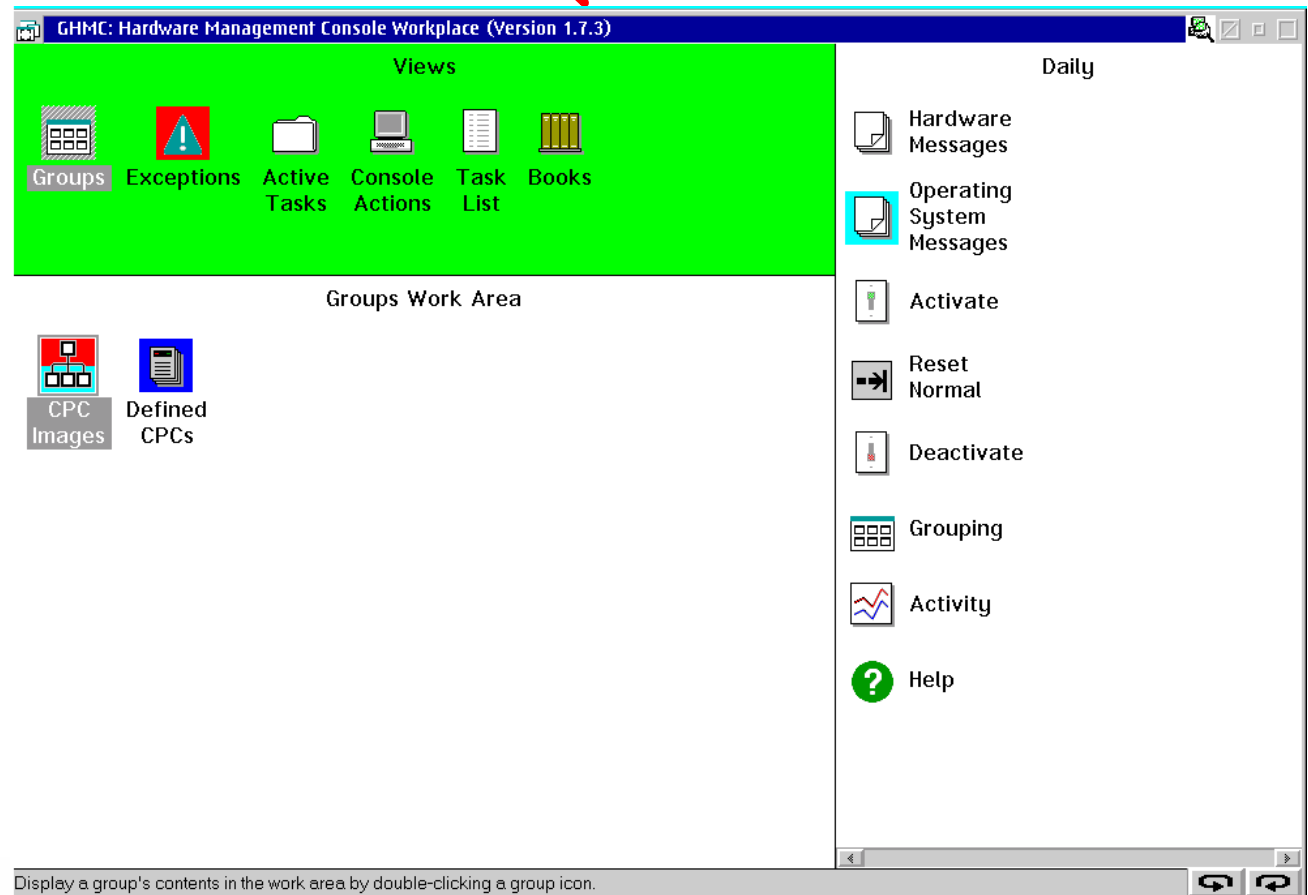
Done Internet

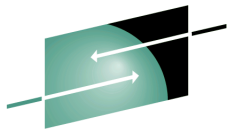
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Driver Level HMC/SE Application Version

Supported Driver	Version
z800 Dr 3G?	1.7.3
z900 Dr 3Cg	1.7.2
z900 Dr 38g	1.7.1
z900 Dr 36j	1.7.0
G5/6 Dr 26w	1.6.2
MP3K Dr 24q	1.6.1
G3/4 Dr A2i	1.4.4





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Driver Level from CEC SI Panel

System Information

Object list:
KSYS

Machine Information

Type: 2064
Model number: 116
Serial number: 000020010B2E

Internal Code Change Information

EC Number	Retrieved Level	Installable Concurrent	Installed Level	Activated Level	Accepted Level	Removable Concurrent	Removed Level
J10005	024	024	024	024	019	020	
J10007							
H25492							
H25489	001	001	001	001		001	
H25493	009	009	009	009	007	008	
H25494							
H25495	003	003	002	002	002		
H25496							
H25497							
H25498	001	001	001	001	001		

Details

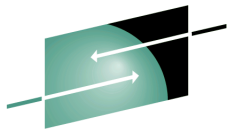
OK Help

SE EC J10005 = Dr 38g

▲ MCL level 024

▲ MCL = Machine Change Level (Patch number)

Level (Patch number)



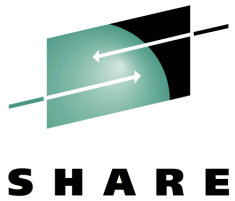
S H A R E

z900 EC Levels

Machine	GA	Dr	HMC LIC EC	SE LIC EC
z900 Server	12/00	36j	H25122	H25177
z900 Server/CF	5/01	38g	J10012	J10005
z900 Server/CF	10/01	3Cg	J10645	J10638

- New Driver Planning - Consider Driver 3Cg NOW!
 - ▶ No charge, ordered as an ECA by service
 - ▶ HMC part applicable to older machines and required on any HMC that will control a CEC at the new level
 - ▶ Old driver MCL support - 6 months (**Dr 36 is out of support**)
 - ▶ Outage to install (today)
- Service Recommendations - Stay current!
 - ▶ Plan nondisruptive MCL apply at least every 3 months
 - ▶ Plan two 4 hour outages for disruptive driver or disruptive MCL apply each year

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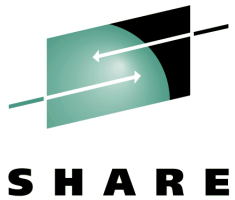
z900 Driver 38g

Available - 3/01, GA - 5/01

- **zSeries 900 Servers**
 - ▶ **IRD Support in PR/SM and Channel Subsystem**
 - Min/Max/Initial Weight, I/O Priority Queueing, Managed Channels
 - ▶ **WLC Support in PR/SM**
 - MSU Defined Capacity, Soft Capping
 - ▶ **FICON SX (short wave)**
 - FICON LX available Driver 36 as FCV only
 - ▶ **FICON native (FC mode) LX and SX**
 - ▶ **Peer mode ISC-3 (CFP) and ICB-3 (CBP)**
 - ICP peer mode was available with Driver 36
 - ICB-2 (or ICB) has no peer mode support
 - ICB-3 supports only peer mode
 - ▶ **Concurrent MES other than CUoD**
 - CUoD for CP/ICF was available with Driver 36
 - ▶ **More Subchannels: HSA up to 512K, IOCDS up to 63K**

- **zSeries 900 Model 100 CF - GA**

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z900 Driver 3Cg

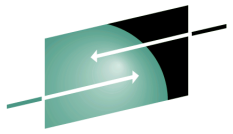
GA 10/2001

- **zSeries 900 Servers**
 - ▶ **Concurrent Memory Upgrade**
 - ▶ **Concurrent CBU model (CP) downgrade**
 - ▶ **IRD LPAR Weight Management for z/VM and Linux**
 - ▶ **HiperSockets (IQD Channels)**
 - **Driver 3C + MCL Bundle 13 (01/16/2002, Concurrent)**
 - ▶ **FICON CTC**
 - **Driver 3C + MCL Bundle 14 (02/08/2002, Concurrent)**
 - ▶ **FICON Express and OSA Express High Speed Token Ring**
 - ▶ **PCI Cryptographic Accelerator**
 - ▶ **Dynamic I/O Change for Peer and Receiver Links**

- **zSeries 900 Model 100 CFs**
 - ▶ **Up to 64 external coupling links**

- **zSeries 900 Servers and CFs**
 - ▶ **CFCC Level 10**
 - ▶ **Sender Links in CF partition**
 - ▶ **Up to 64 total links**

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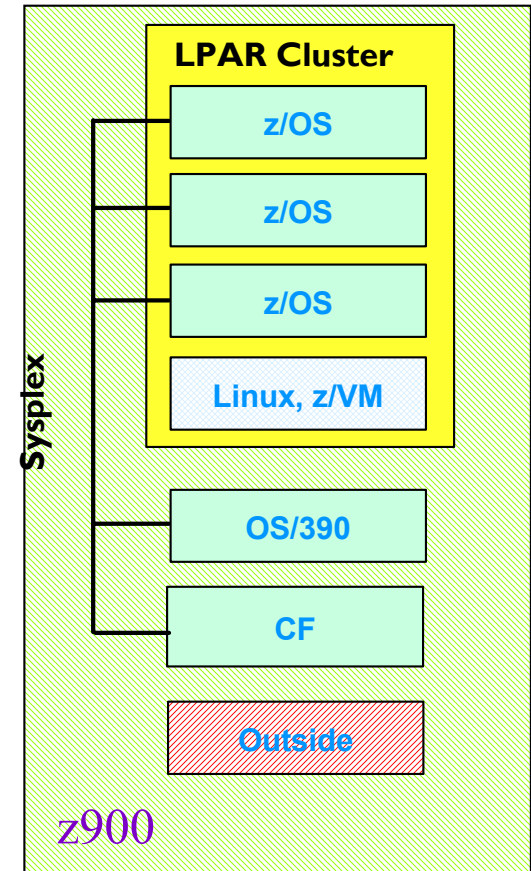


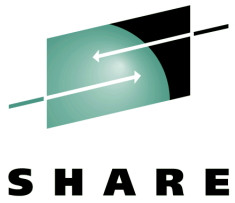
Intelligent Resource Director

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- Leverage platform strengths through integration
 - ▶ Workload Manager
 - ▶ Parallel Sysplex
 - ▶ PR/SM
 - ▶ Channel Subsystem
- View a cluster of LPs on a zSeries as single pool of computing resource
 - ▶ Move physical resource to priority workloads in an LPAR cluster
 - ▶ Extend goal oriented resource management across logical partitions transparently to application subsystems
 - ▶ Initial resources managed: CPU and I/O
 - ▶ Requires Parallel Sysplex, WLM Goal Mode, WLM Structure and Level 9 Coupling Facility
 - ▶ z/OS V1.2 adds z/VM and Linux for zSeries support for LPAR weight management

zSeries IRD Scope

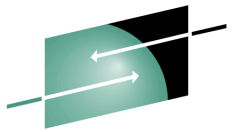




zSeries Image Profile Control CPU Management

A screenshot of a software dialog box titled "Customize Activation Profiles : KSYS". The dialog has a blue title bar and a grey main area. On the left, under "Image options", there are four input fields: "Minimum input/output (I/O) priority" with value 10, "Maximum input/output (I/O) priority" with value 3, "Defined capacity" with value 75, and "CP management cluster name" with value TESTPLEX. A yellow arrow with a red outline points from the text "Cluster Name" to the "CP management cluster name" field. On the right side, there is a vertical list of buttons for different profiles: KSYS, KSYS:CF01, KSYS:CF02, KSYS:CF03, KSYS:CF04, KSYS:OSP1, KSYS:OSP2, KSYS:OSP3, KSYS:OSP4, KSYS:OSP7, KSYS:OSP8, KSYS:OSP9, KSYS:OSPA, KSYS:OSPB, KSYS:OSPC, and KSYS:OSPD. At the bottom of the dialog, there are tabs for "General", "Processor", "Security", "Storage", "Options", and "Load". Below the tabs are several buttons: "Save", "Copy notebook", "Paste notebook", "Assign profile", "Cancel", and "Help".

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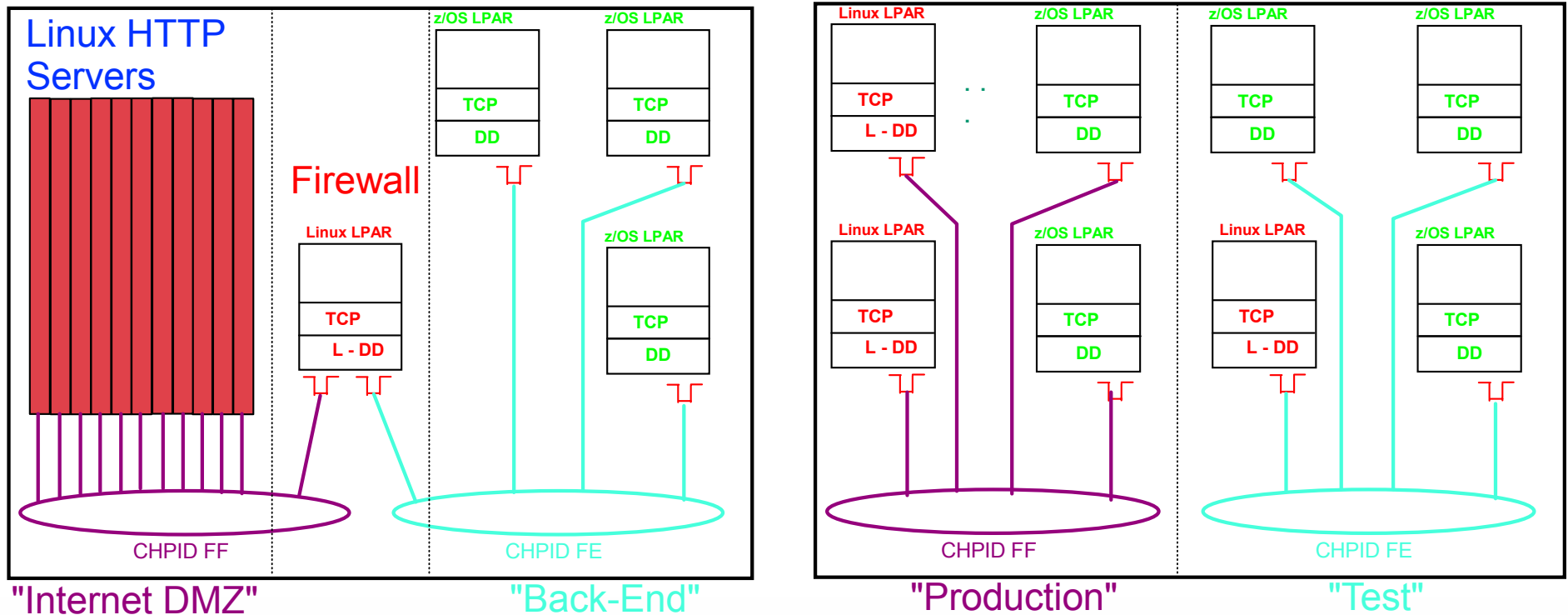
Solution: HiperSockets Multiple "LANs"

SHARE

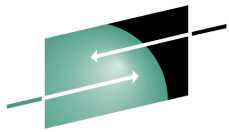
Up to 4 "simulated virtual LANs" per CEC

- Each LAN has its own CHPID. New type (IQD) controlled like regular CHPID
 - Can be shared by all defined LPARs
- Each OS image configures its own usage of available HiperSockets CHPIDs
- Each CHPID has configurable IQD frame size (16K, 24K, 40K, 64K)
 - Allows optimization per HiperSocket for small packets versus large streams (affects MTU size of 8K, 16K, 32K, 56K)

zSeries CEC

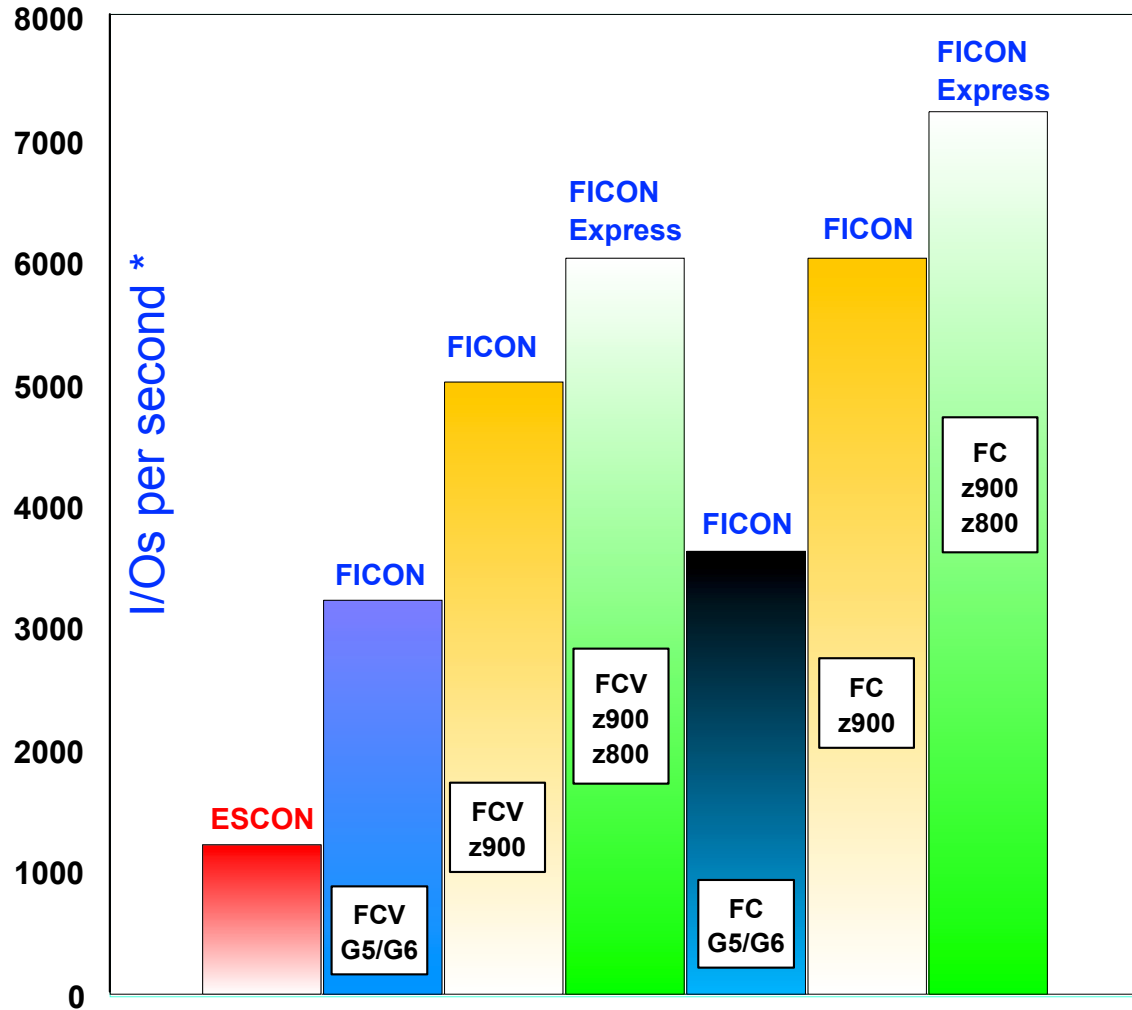


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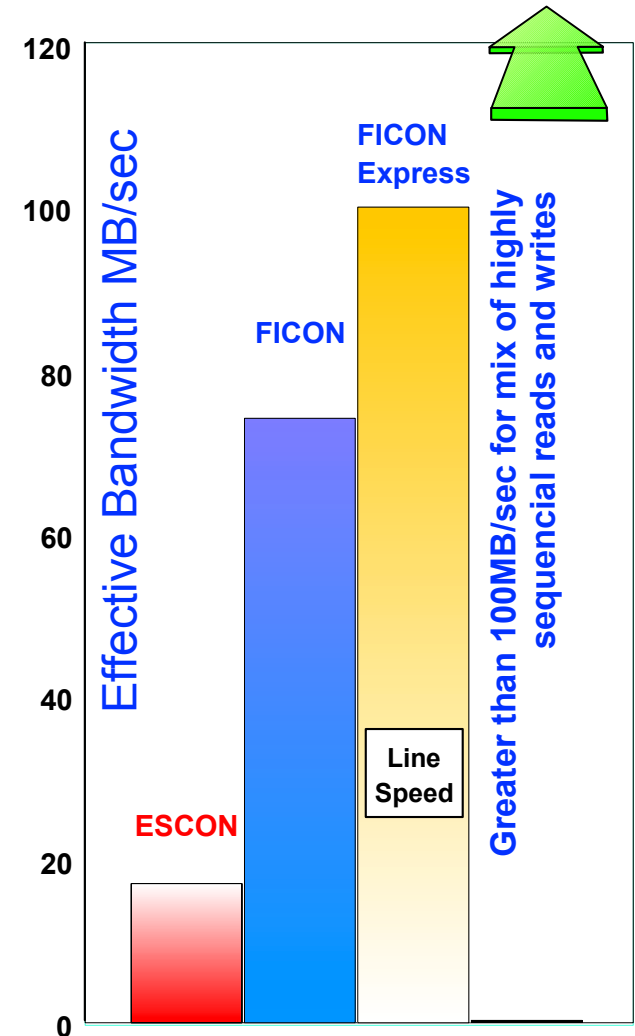


FICON - Breaking the Barrier

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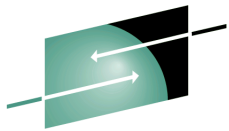


* Channel 100% utilized, 4K block sizes
FCV = Bridge mode, FC = Native



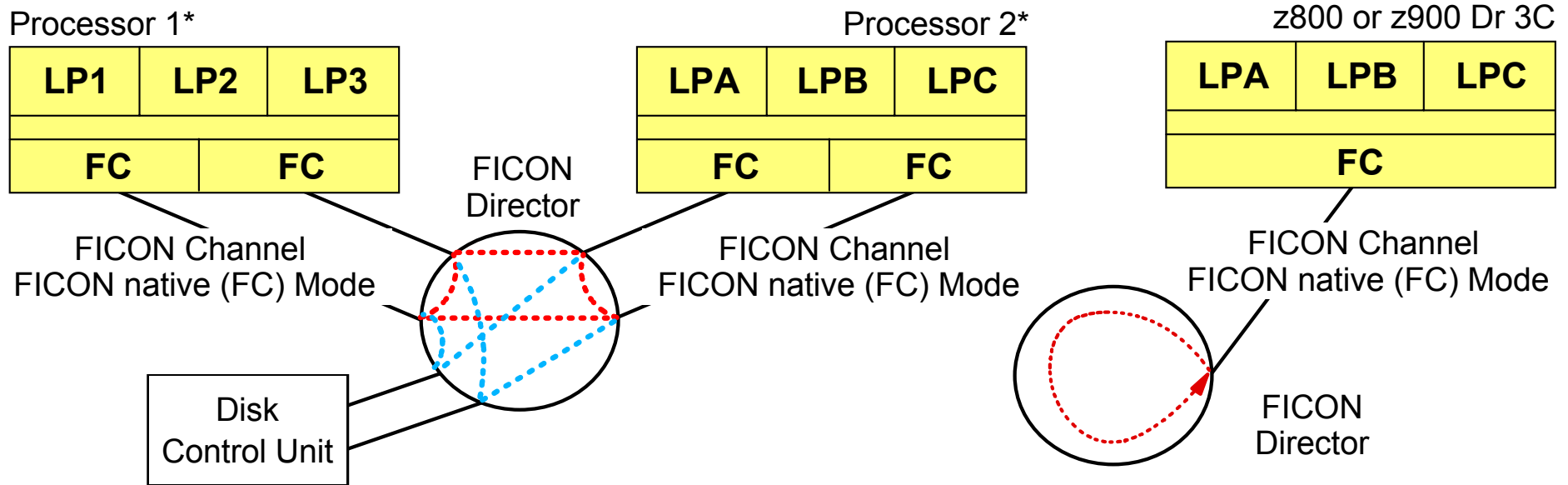
FICON and FICON Express Channel Performance Version 1.0, GM13-0120-00

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zSeries FICON CTC

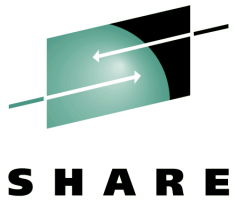
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- A FICON native (FC) channel can be used for both FCTC and normal I/O operations at the same time.
- A single FICON native (FC) mode channel with FCTC control units defined can communicate between LPARs on the same processor as well as images on other processors.
- A pair of FICON native (FC) channels are recommended for larger FICON CTC configurations.

* For FICON CTC function, at least one CEC must be z800 or z900 at Dr 3C. The other can be the same or G5/6 at Dr 26 or z900 at Dr 38. Channels can be FICON or FICON Express.

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APARs for Hardware Planners (New Function)

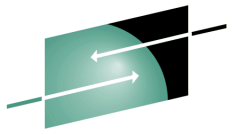
- **IYPIOCP - OS/390 and z/OS (See II02369)**
 - ▶ z900 Driver 3C - Level 1.1.1- OW50966
 - ▶ z800 GA - Level 1.2.0 - OW52993 (PTF still OPEN as of 02/23/02)

- **HCD and HCM support for everything below**
 - ▶ HCD - OW45976, HCM - IR45358 (OS/390 V2.6 & up)

- **HiperSockets - z/OS V1.2 & up (See II13242)**
 - ▶ IOS - OW50750
 - ▶ Comm Server (aka VTAM)- OW49475
 - ▶ TCP/IP - PQ55705

- **FICON CTC - OS/390 V2.8 & up**
 - ▶ IOS - OW48283

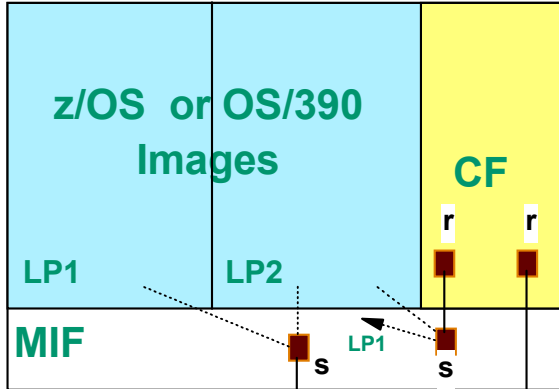
- **Dynamic I/O Peer and Receiver - OS/390 V2.8 & up**
 - ▶ IOS - OW48534 (PTFs still OPEN as of 02/23/02)



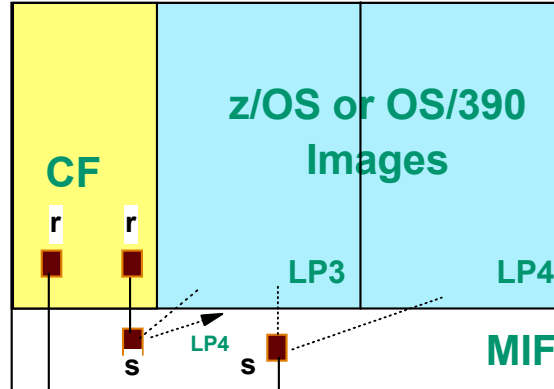
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zSeries Peer Link Sharing CHPID Saving

S/390 or zSeries



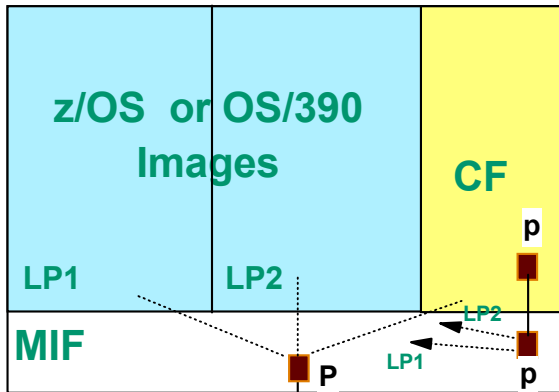
S/390 or zSeries



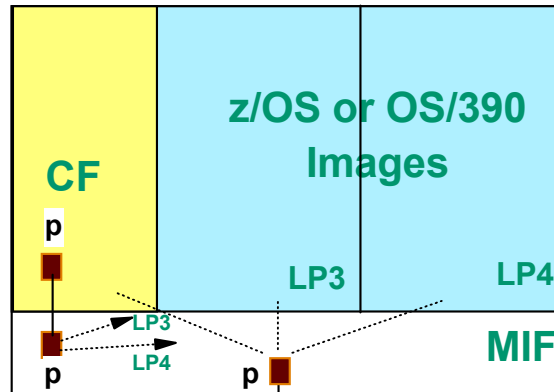
Send/Receive Mode

Send/Receive Links

- zSeries to 9672 (or zSeries)
- ISC-3 and ICB-2 (z900)
- Sender to Receiver
- Sender - MIF shared
- Receiver - No sharing
- 8 CHPIDs



zSeries



zSeries

Peer Mode

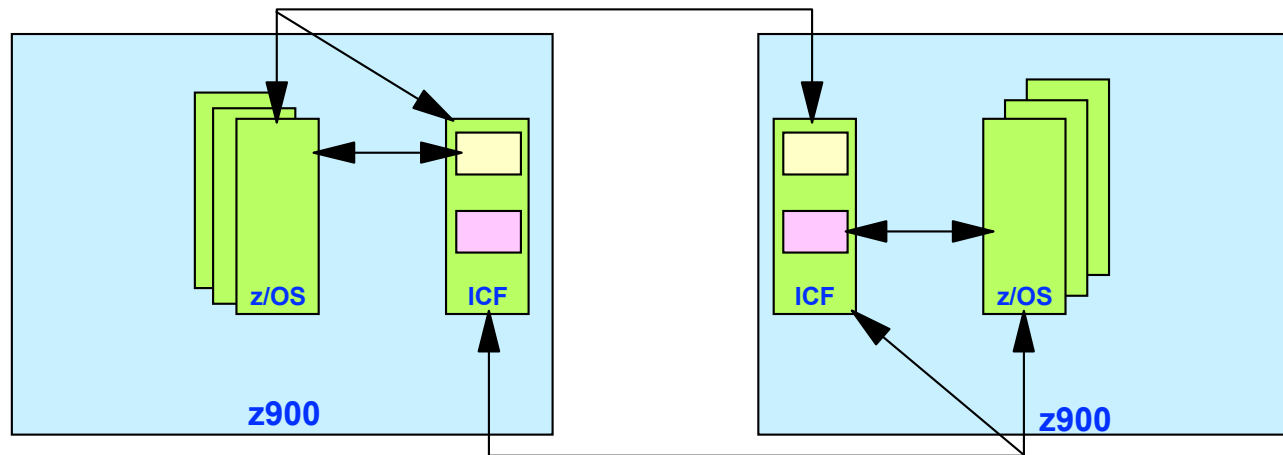
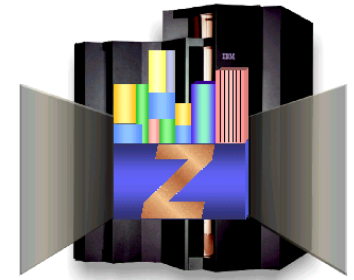
Peer Mode Links

- zSeries to zSeries only
- ISC-3, ICB-3, and ICP
- Peer to Peer
- Peer - One CF; multiple z/OS, OS/390 can share
- 6 CHPIDs - Saves 2 with internal Coupling Facility

Note: Minimum connectivity illustrated, duplicate links are recommended for availability.

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System Managed CF Structure Duplexing



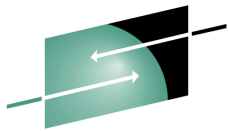
A robust failure recovery capability

BENEFITS:

- Ease of middleware and ISVs to use CF for high availability
- May eliminate the need for standalone CF in some situations

Requirements:

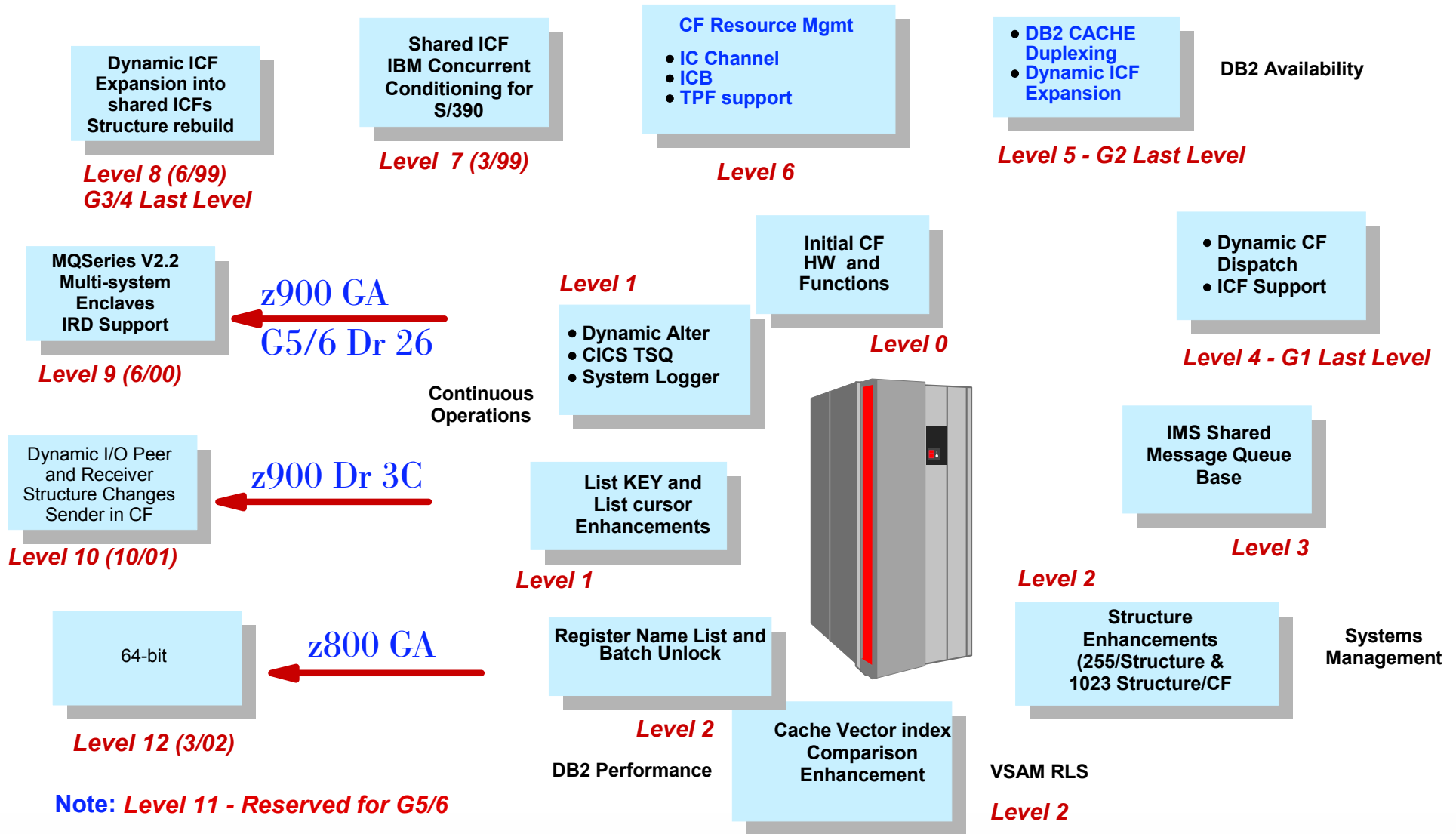
- z/OS v1.2 + PTFs
- zSeries
 - CFCC Level TBD
 - CF: ICF or Model 100
- S/390 G5/6
 - CFCC Level TBD
 - CF: ICF or Model R06



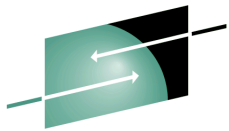
SHARE

IBM Coupling Facility Control Code

World's Leading and Unrivalled Coupling Technology



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S H A R E

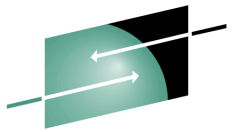
S/390 G5/6 EC Levels

Machine	GA	Dr	HMC LIC EC	SE LIC EC
S/390 G5 Server/CF	9/98	12k	F11114	F11122
S/390 G5 Server/CF	3/99	14x	F11532	F11542
S/390 G6 Server S/390 G5 Server/CF	6/99	22e	F12003	F12010
S/390 G6 Server S/390 G5 Server/CF	6/00	26w	F99933	F99918

Note: MCL support - 12k, 14x, 22e - NONE. Plan to migrate to 26w ASAP! Only Driver 26w is supported for G5/6 sysplex coupling to zSeries.

Note: Driver 26w requires a #0041 or #0061 HMC. For HMC compatibility with z900 upgrade to #0061 or #0073 HMC with #0047 DVD-RAM drive and Driver 3Cg.

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S H A R E

S/390 G3 - G4 EC Levels

Machine	GA	Dr	HMC LIC EC	SE LIC EC
S/390 G4 Server/CF S/390 G3 Server/CF S/390 Multiprise S/390 StarterPak	4/98	A2i	F10972	F10980

Note: Driver A2i is the only G3 - G4 EC level with MCL fix support. It is the only level supported for ISC link connectivity to z900.

Note: For HMC compatibility with z900 migrate to #0061 or #0073 HMC with #0047 DVD-RAM and Driver 3Cg.

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