Millennia Business Systems Ltd

z/Consultancy

millennia   ...

Speaker: Julie-Ann Williams, Senior Technical Consultant

NewEra Software

z/OS Integrity and Compliance

On the Road to *enhanced* z/OS integrity and *sustained* compliance:

NewEra Software

z/OS Integrity and Compliance

IODF Explorer 6.0 – Why the IODF is Critical to System Integrity

IODF Explorer 6.0 – The IODF is The Major z/Platform Control Point

✓ The Input/Output Definition File (IODF) is the set of logical configuration statements that are used to define a network of hardware resources. These resources are generally available to both the z/OS operating system (OSCP) and the z/OS platform hardware (IOCP) and related ESCON/FICON Directors (SWCP), if any.

✓ Because of its vital role in shaping the environment, the IODF should be viewed as a major _Control Point_ of high informational value in maintaining the accuracy and integrity of the z/OS Operating System and its associated z/Series Hardware Platform (The Mainframe).

z/Auditing Essentials – A Beginners Guide
By Julie-Ann Williams

…IBM first announced MVS as the operating system to run its "big iron" way back in April 1964. In the 46 years since, it has morphed into z/OS running in increasingly complex configurations. The z/Hardware Platform has bucked the "Technological Discontinuity" trend identified in the Stages Theory of Computer Growth by continually evolving to serve Business better…

IODF Explorer 6.0 – Why the IODF is Critical to System Integrity

- ✓ Placement
- ✓ Pathing
- ✓ Conflicts
- ✓ Impact
- ✓ Sharing

- ✓ Capacity
- ✓ Performance
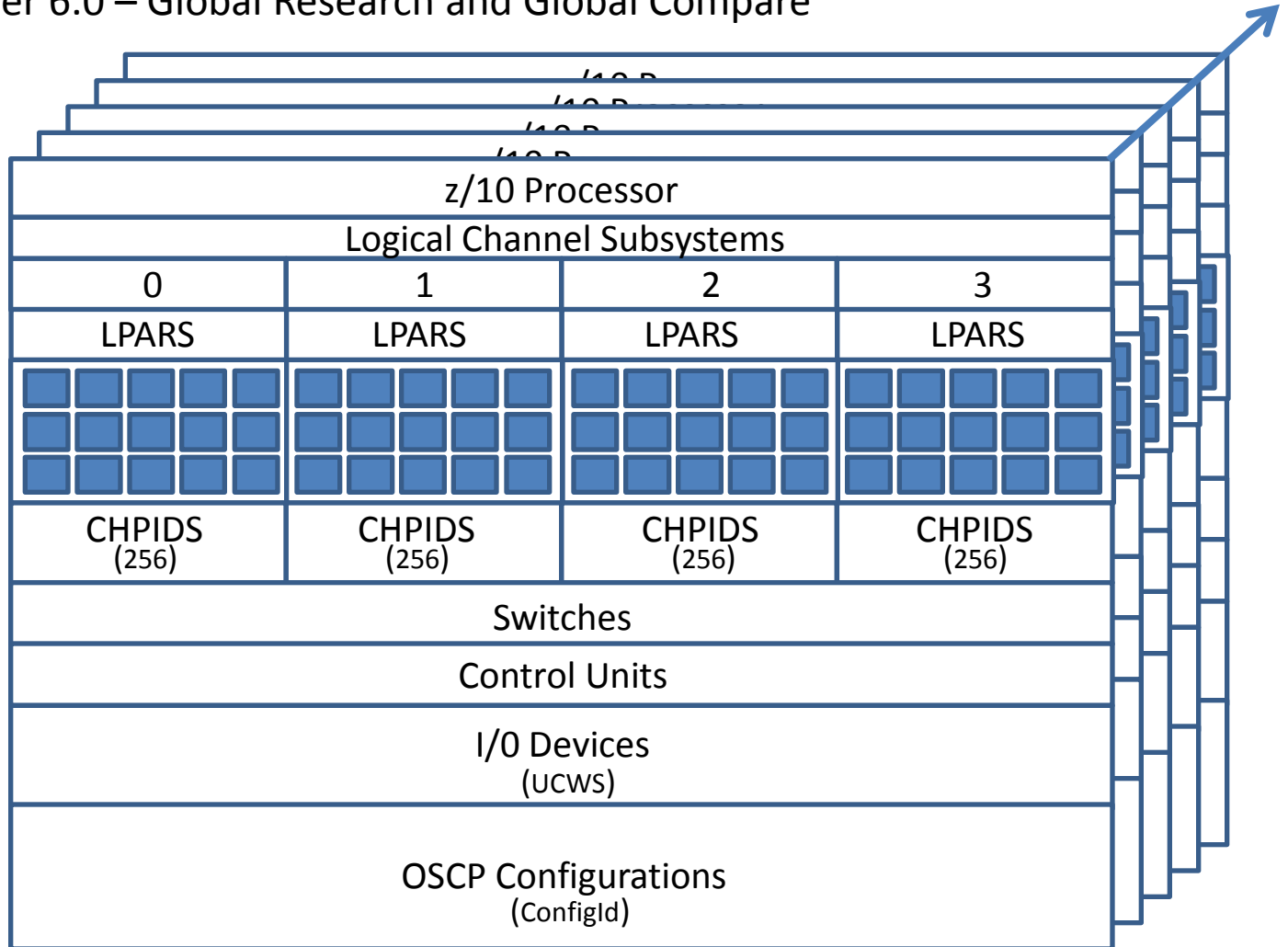- ✓ Changes
- ✓ Planning
- ✓ Compliance

NewEra Software

z/OS Integrity and Compliance

IODF Explorer 6.0 – Global Research and Global Compare
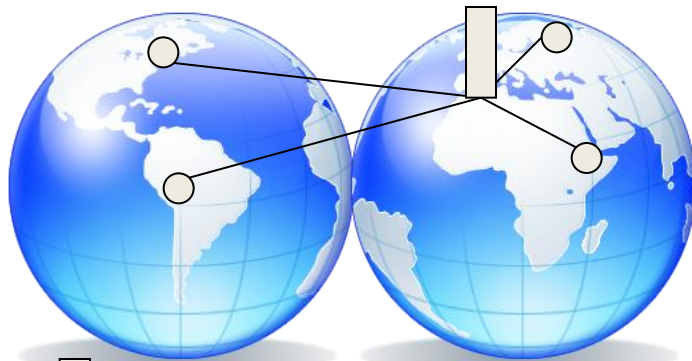
IODF Topics

- ❑ PROCID
- ❑ LCSS
- ❑ MCS
- ❑ ALIST
- ❑ CLIST
- ❑ CHPID
- ❑ PCHID
- ❑ CTYPE
- ❑ SWID
- ❑ CNTLU
- ❑ SERIAL
- ❑ HWIOD
- ❑ DCLIST
- ❑ SERIAL
- ❑ CONFIG
- ❑ EDTNAME
- ❑ OFFLINE
- ❑ NIPSCON

| z/10 Processor			
Logical Channel Subsystems			
0	1	2	3
LPARS	LPARS	LPARS	LPARS
CHPIDS (256)	CHPIDS (256)	CHPIDS (256)	CHPIDS (256)
Switches			
Control Units			
I/0 Devices (UCWS)			
OSCP Configurations (ConfigId)			

NewEra Software

z/OS Integrity and Compliance

International (mid-19th to early 20th century)
Most operations are centered in the home country, with overseas sales and distribution.

15 mainframes and growing
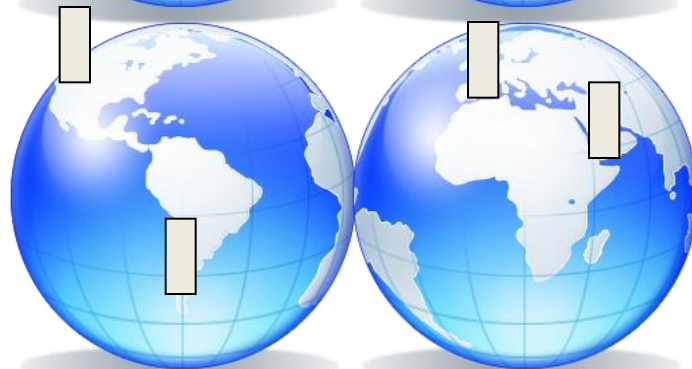
Multinational (mid-20th century)
Creates smaller versions of itself in countries around the world and makes heavy local investments.

1000s of mainframes and still growing

Globally Integrated Enterprise (21st century)
Locates operations and functions anywhere in the world based on the right cost, skills and business environment.
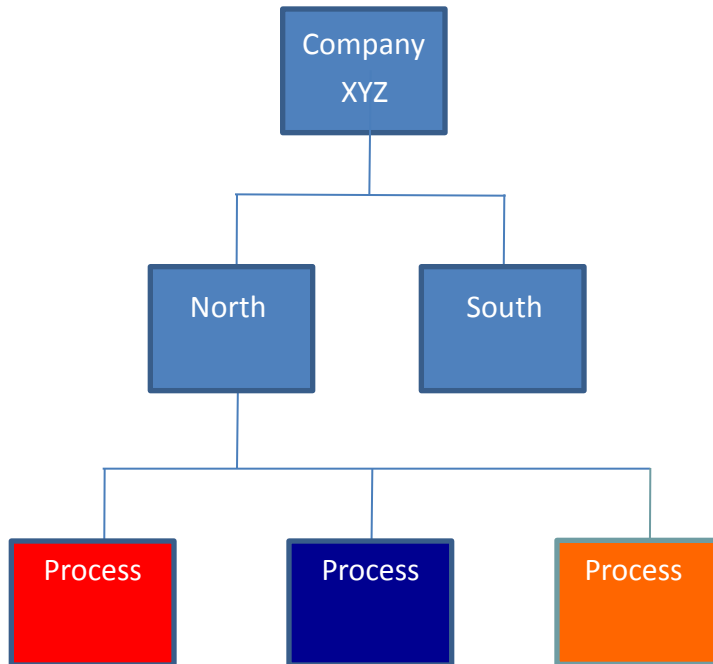
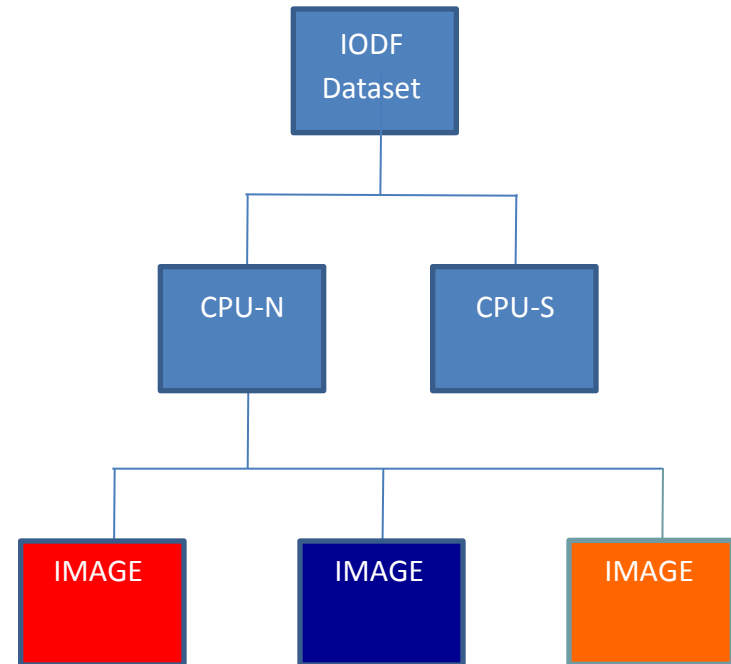In excess of 10,000 mainframes and **still** growing

NewEra Software

z/OS Integrity and Compliance

IODF Explorer 6.0 – The Impact of the IODF of Organizational Development
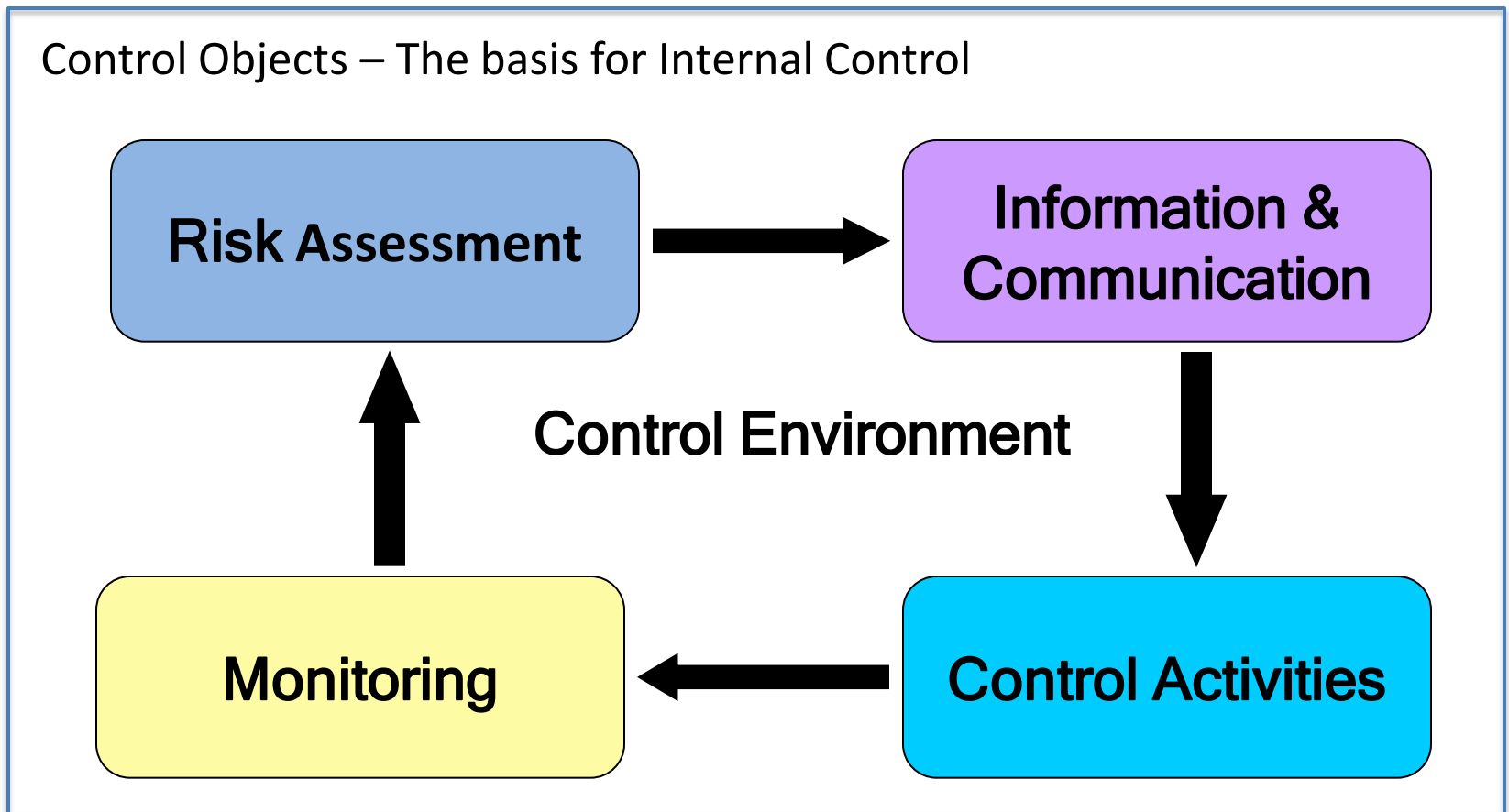
Business and Control Objects

z/Platform Control Objects

NewEra Software

z/OS Integrity and Compliance

On the Road to *enhanced* z/OS integrity and *sustained* compliance:

Control Objects – The basis for Internal Control

Risk Assessment → Information & Communication

Control Environment

Monitoring ← Control Activities

NewEra Software

z/OS Integrity and Compliance

z/OS Configuration Management and Auditing - ICE 8 - Overview

Image Control Environment - Release 8

Image Sentry Explorers

| IODF | DFHz | UACC |

System Specific:

- ➢ Inspections
- ➢ Packages
- ➢ Blueprints
- ➢ Journals
- ➢ Views
- ➢ Query
- ➢ Reports
- ➢ OSAudit

The Control Editor

Image FOCUS

Discovery & Extraction
(Unique and Common)

IFO Audit Log

Repositories
(Packages, Blueprints, Control Journals)

Sysplex Wide:

- ➢ z/OS
- ➢ JES
- ➢ VTAM
- ➢ TCPIP
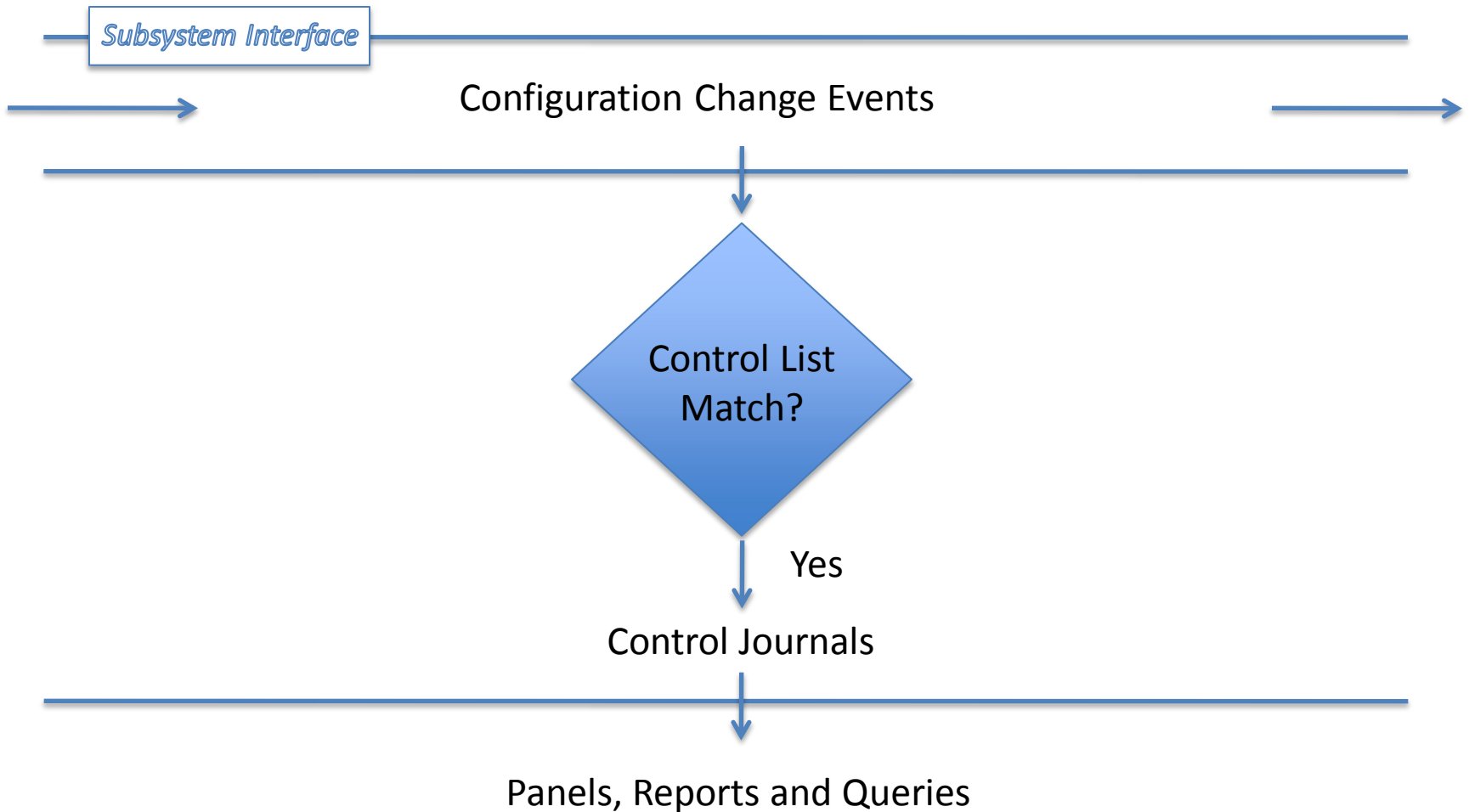- ➢ CICS
- ➢ HZSPROC
- ➢ LINUX
- ➢ Mod/Mbr

Trusted Elements

About The Control Editor – Product Overview

✓ The Control Editor (TCE) is a z/OS system change management tool that captures configuration change events recording them at varying levels of detail in *Control Journals* and thereafter making them immediately available to a collection of interactive panels, reports, queries and batch processes.

✓ The Control Editor can be viewed as a "Compensating Control" providing a layer of non-invasive security over the z/OS configuration members housed in a defined set of partitioned datasets. TCE significantly enhances the level of control over members provided by an External Security Manager (ESM).

✓ One way to envision the primary functions of The Control Editor is to think of it as a "Listener" on a subsystem interface that allows it to "Hear" all "Events", recording only those that match a predetermined event profile (Control List) and optionally logging all defined events when forensic system analysis is required.

NewEra Software

z/OS Integrity and Compliance

z/OS Configuration Management and Auditing - The Control Editor

Subsystem Interface

Configuration Change Events

Control List Match?

Yes

Control Journals

Panels, Reports and Queries

About Image FOCUS – Product Overview

Image FOCUS is an Image Control Environment (ICE) Application whose primary function is to provide Inspection and Baseline Services to users of the z/OS Operating System, its Subsystems and Parallel Sysplex.
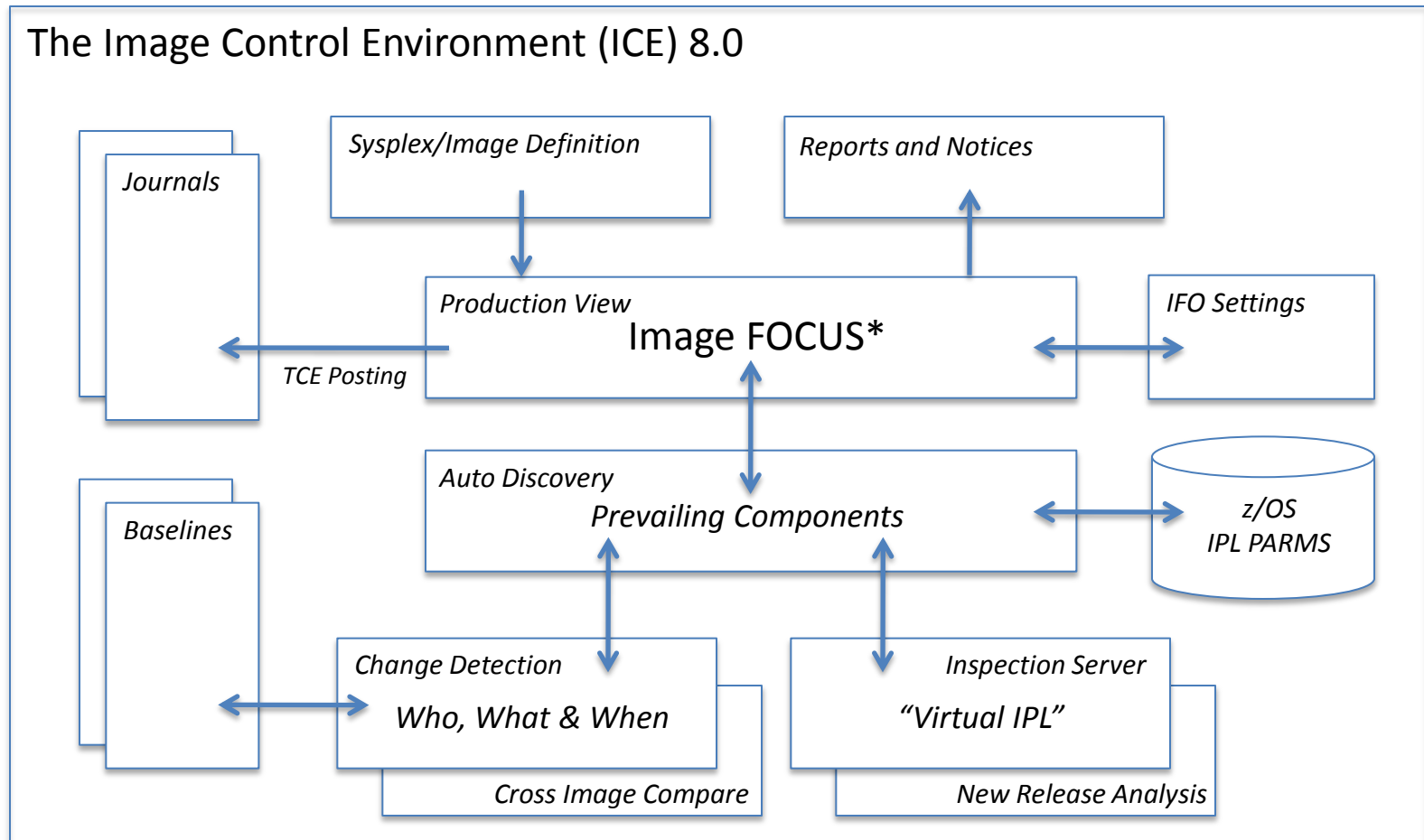
▪ Inspection Services performs a "Virtual IPL" of each Image beginning with the validation of the IPL Unit and LOADPARM, PARMLIB and PROCLIB. Members are checked for syntactical correctness and related datasets for referential integrity and attribute characteristics that would result in a future IPL failure. Subsystem and Sysplex relationships are inspected and/or cross-checked with other Images.

▪ Baseline Services builds and stores "Blueprints" of valid, viable configurations. Each contains the content of configuration members and/or files discovered during the "Virtual IPL". Each Baseline is automatically updated at a defined monitoring Interval. Continuous updates ensure working configuration copies and provide the basis for configuration change detection and notification.

NewEra Software

z/OS Integrity and Compliance

About Image FOCUS - Product Overview - Production View Detailed

The Image Control Environment (ICE) 8.0

- Journals
- Sysplex/Image Definition
- Reports and Notices

Production View

Image FOCUS*

TCE Posting

IFO Settings

Auto Discovery

Prevailing Components

z/OS
IPL PARMS

- Baselines

Change Detection

Who, What & When

Inspection Server

"Virtual IPL"

Cross Image Compare

New Release Analysis

* In addition to the z/OS Operating System Image FOCUS supports JES2/3, VTAM, TCPIP, CICS, MODULES and MEMBERS
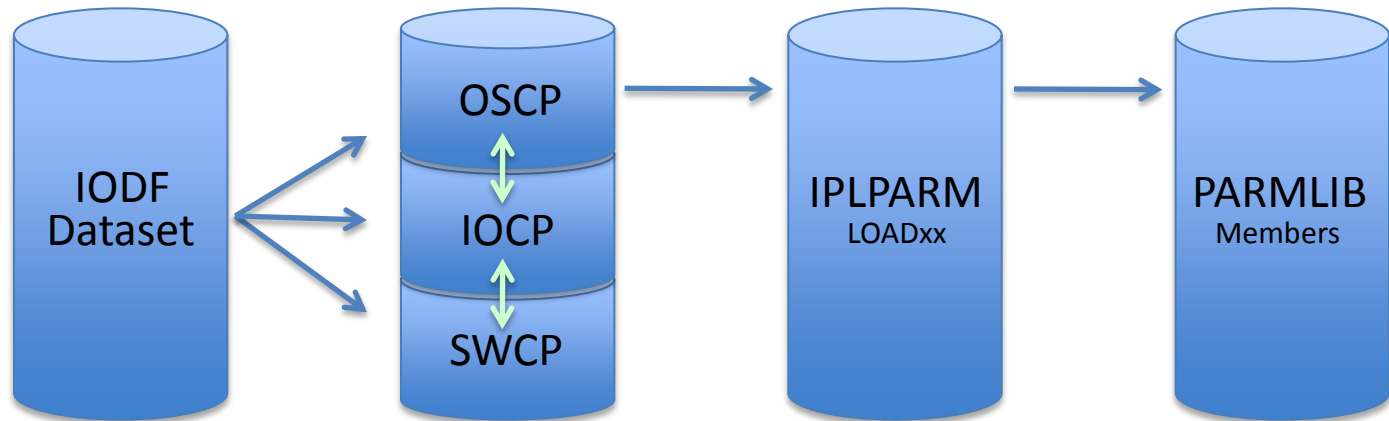
About The IODF Explorer – Product Overview

The IODF Explorer unlocks the latent potential of the information contained in the IODF Dataset by providing several practical and effective methods for using and sharing it with anyone who must understand the z/Platform configuration.

✓ It provide users with much more complete and accurate information about an IODF configuration so they can provide service improvements to z/OS in a faster, more efficient and economical way.

✓ It makes it easy to identify changes, understand the effects of the changes, analyze IODF configurations, and share the information easily with others who require access to the information.

✓ It links LPARS created by the IODF to other critical z/System Elements used during system initialization – LOADxx, PARMLIB – examining each for integrity.
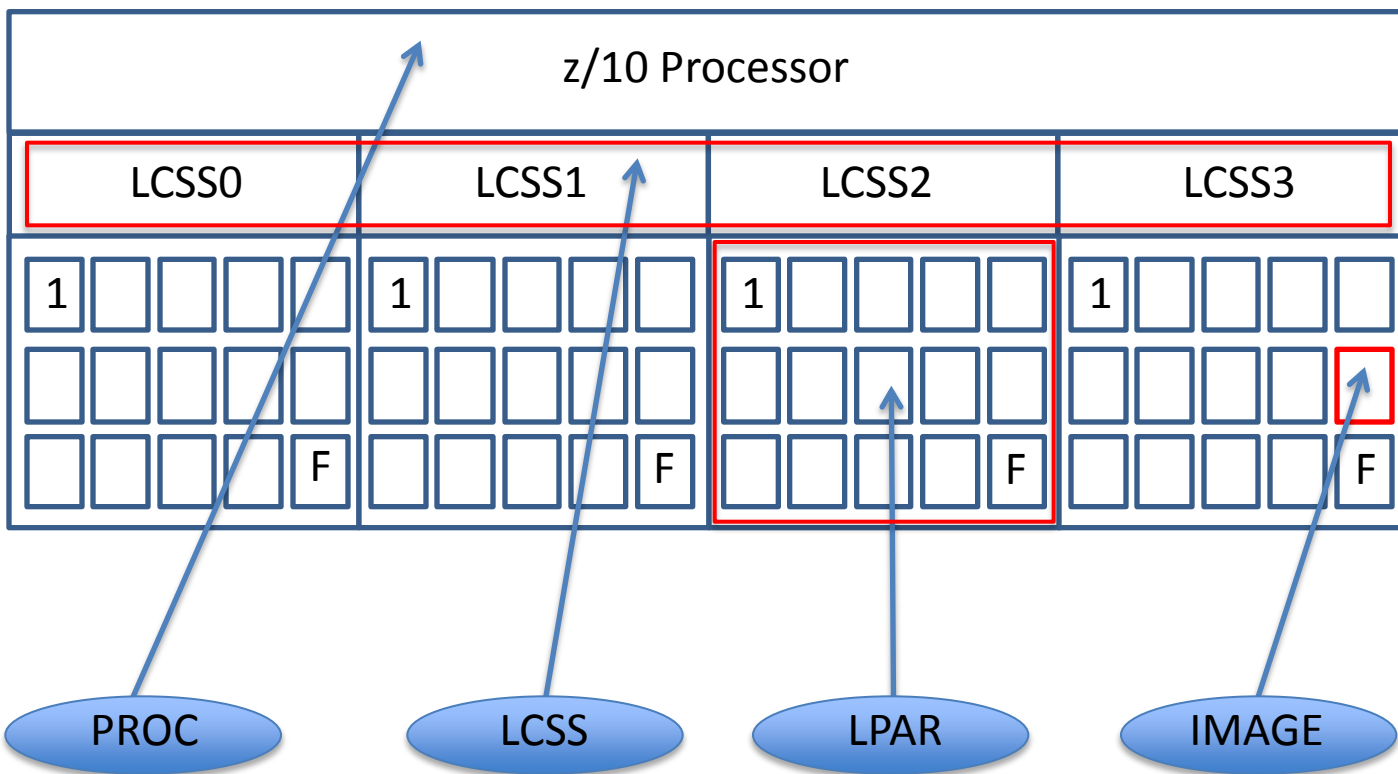
NewEra Software

z/OS Integrity and Compliance

About The IODF Explorer – Product Overview – IOCP Report and Analytic Views

NewEra Software

z/OS Integrity and Compliance

IODF Explorer 6.0 – Component Specific Query - SWID/PORT Structures

PROCID	Z10P01				Z10P05				Z10P07				Z10P11			
LCSS	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
LPARS	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15	1-15
CHPIDS	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256

Outbound Traffic

SWID=D0

01 02 03 04 05 06 07 08

Inbound Traffic

CtlUnit=1000   CtlUnit=2000   CtlUnit=3000   CtlUnit=4000
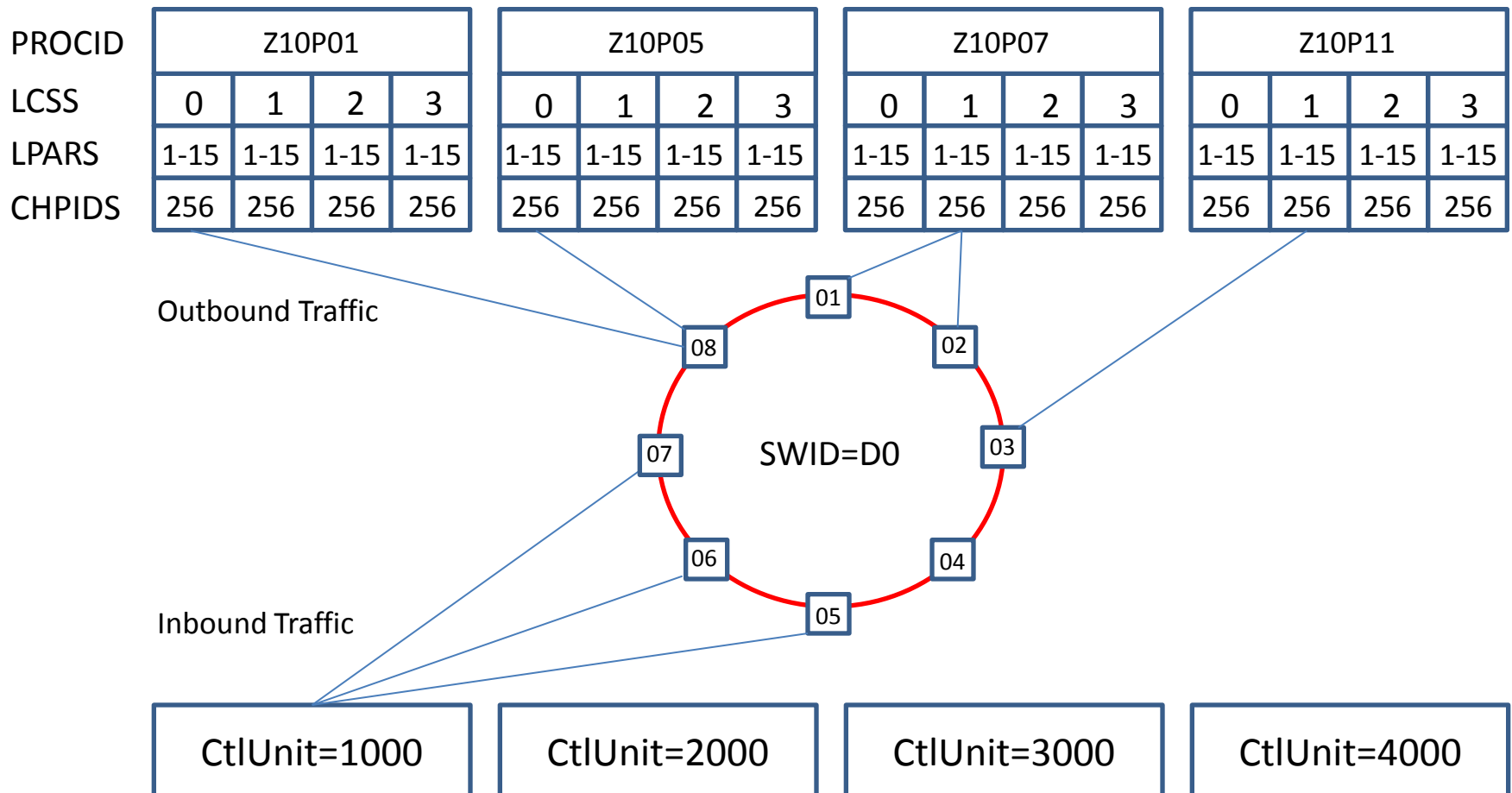
IODF Explorer 6.0 – OSCP Vs. IOCP LPAR Device Validation

OSCP/OSConfig

IOCP/LCSS/LPAR

UCB

Matching Devices

UCW

No Matching UCW

No Matching UCB

IPL

POR

No Logical Path

Not Connected

SQA

HSA

Central Storage

Private Storage
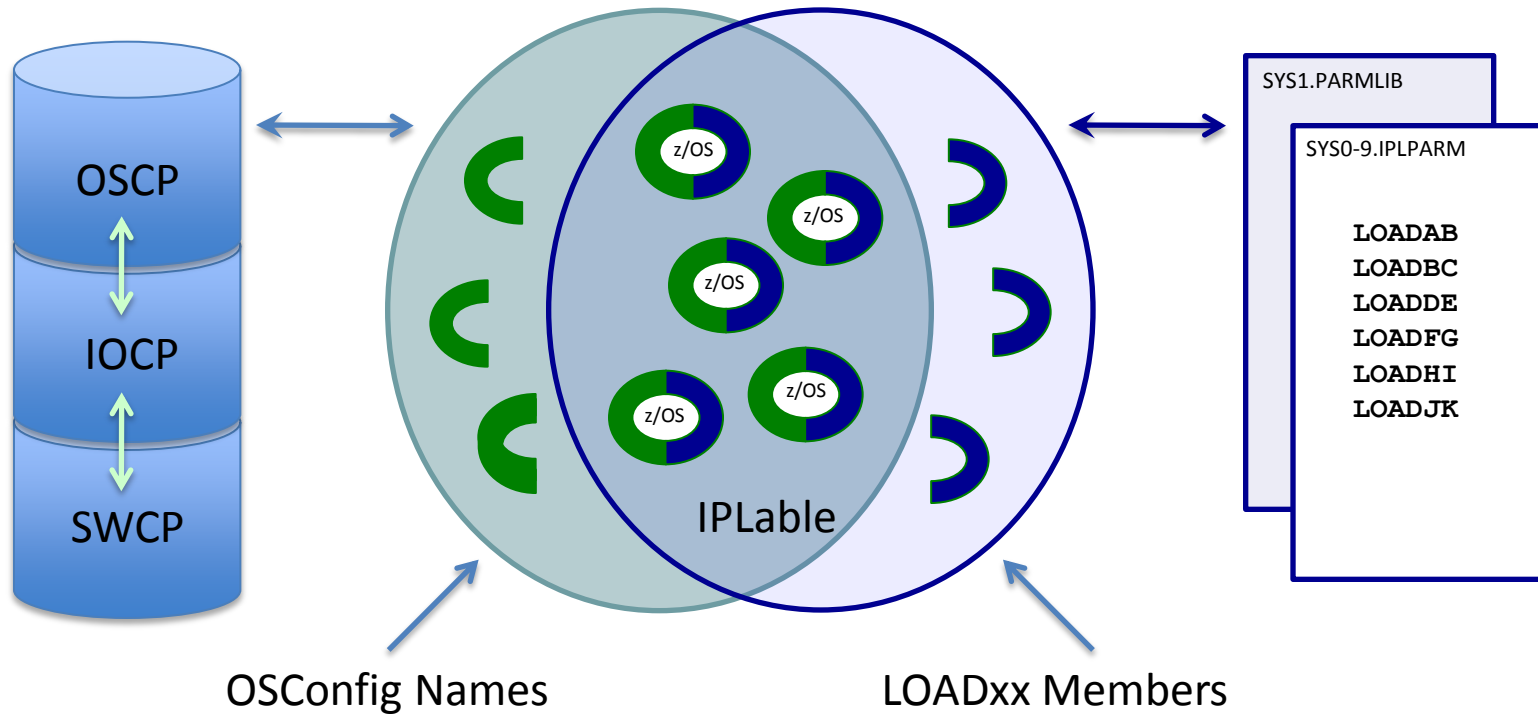
Connected
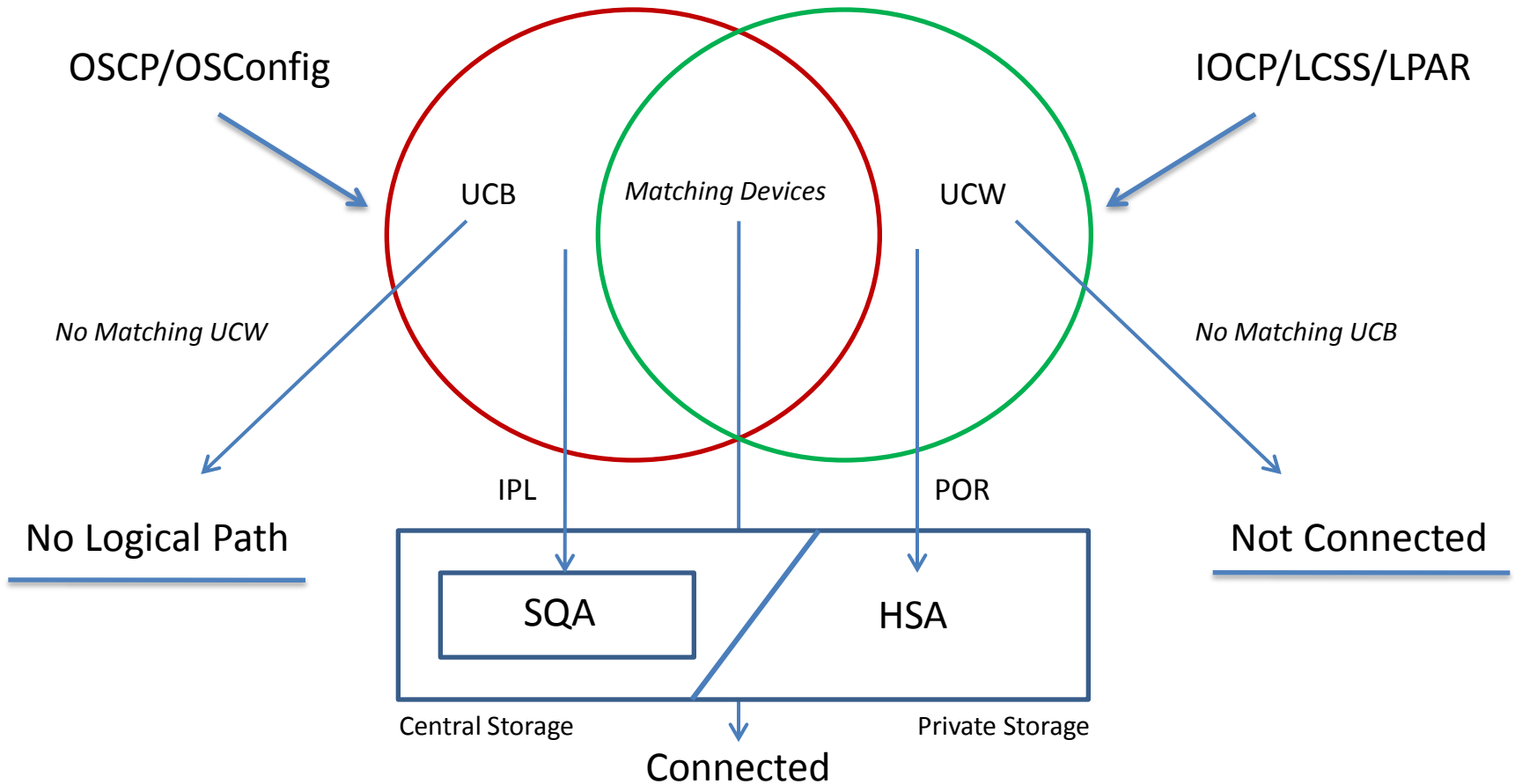
SQA=System Queue Area

HSA=Hardware Storage Area

NewEra Software

z/OS Integrity and Compliance

IODF Explorer 6.0 – OSCP Vs. LOADxx LPAR Validation

OSCP

IOCP

SWCP

z/OS

z/OS

z/OS

z/OS

z/OS

IPLable

SYS1.PARMLIB

SYS0-9.IPLPARM

LOADAB
LOADBC
LOADDE
LOADFG
LOADHI
LOADJK

OSConfig Names

LOADxx Members

About The IODF Explorer – Product Overview – Live Demo – TSO/ISPF

```
-------- Image SENTRY - IODF Explorer 6.0 - Target Selection - IOCP --------

------ SYSA.IODF24 - 2010-04-18 16:16:27 - LPARS:115 ------


-------------Processors------------- -----------Logical Partitions----------
-Unit- -Modl- --Serial-- cm -ProcId- -Total- -LCSS0- -LCSS1- -LCSS2- -LCSS3-
------ ------ --Number-- -- -------- cm Numb cm Numb cm Numb cm Numb cm Numb
 2097    E26 02DBE22097 .. CPU1CPL1 ..    7 ..    4 ..    0 ..    3 ..    0
 2097    E26 02DBD22097 .. CPU2CPL2 ..    6 ..    3 ..    0 ..    3 ..    0
 2097    E56 015BD42097 .. CPU3CPL3 ..   16 ..    3 ..    0 ..    0 ..   13
 2097    E56 0CDA512097 .. CPUACPUA ..   18 ..    2 ..    0 ..    6 ..   10
 2097    E56 0CDA412097 .. CPU1CPUL ..   13 ..    1 ..    0 ..    0 ..   12
 2097    E26 0000002097 .. CF2ASA   ..    4 ..    2 ..    0 ..    2 ..    0
------ ------ ---------- -- -------- -- ---- -- ---- -- ---- -- ---- -- ----
 2097    E56 015BE42097 .. CPUASA   ..    8 ..    7 ..    0 ..    1 ..    0
 2097    E56 03D4222097 .. CPUEAST  ..   14 ..   11 ..    0 ..    3 ..    0
 2097    E56 03D4022097 .. CPUINTL  ..   22 ..   14 ..    8 ..    0 ..    0
 2097    E56 03D3E22097 .. CPUWEST  ..    7 ..    2 ..    5 ..    0 ..    0
                         ..          ..      ..      ..      ..      ..
                         ..          ..      ..      ..      ..      ..

         Working directly with Targets found in an IOCP Extract


 Option ===>
```
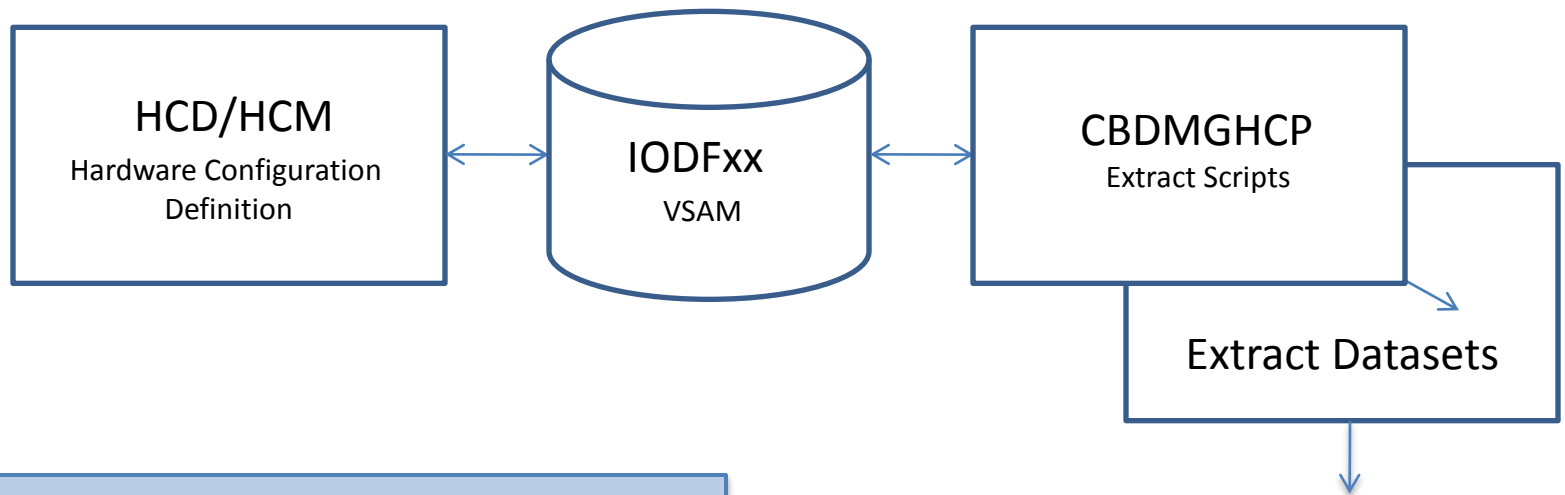
NewEra Software

z/OS Integrity and Compliance

About The IODF Explorer – The Next Step – Run CBDMGHCP Scripts, Send in Extracts

```
HCD/HCM
Hardware Configuration
Definition
```

⟷

```
IODFxx
VSAM
```

⟷

```
CBDMGHCP
Extract Scripts
```

Extract Datasets

Send Output via EMail

support@newera.com
Subject:Schedule Web Cast

Send Request via Email

support@newera.com
Subject:Send Extract Scripts

About The IODF Explorer – The Next Step – Recommended Reading

http://www.redbooks.ibm.com/redpieces/pdfs/sg247804.pdf
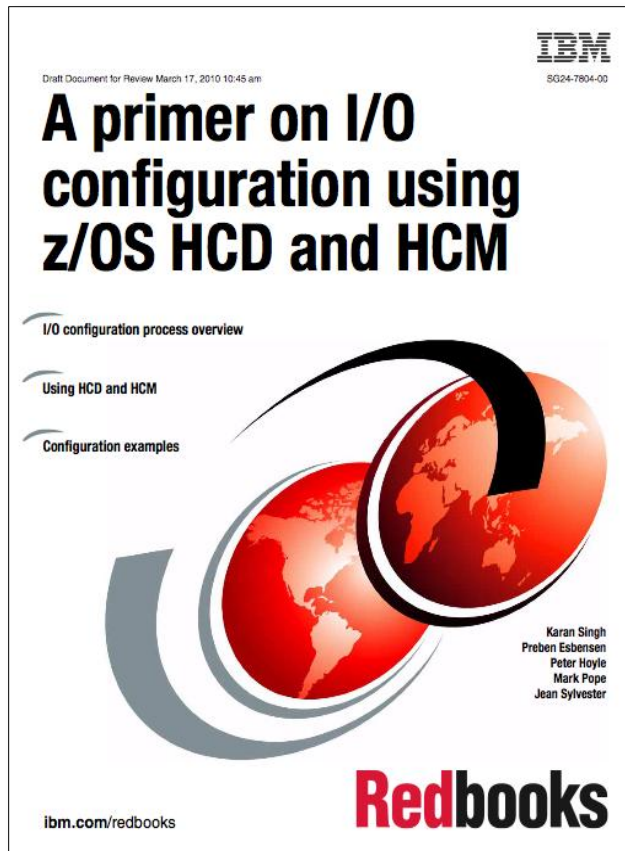
NewEra Software

z/OS Integrity and Compliance

Our Job?

Helping you make repairs, avoid problems and improve z/OS integrity.

This results in a safer and more secure environment for your business applications.