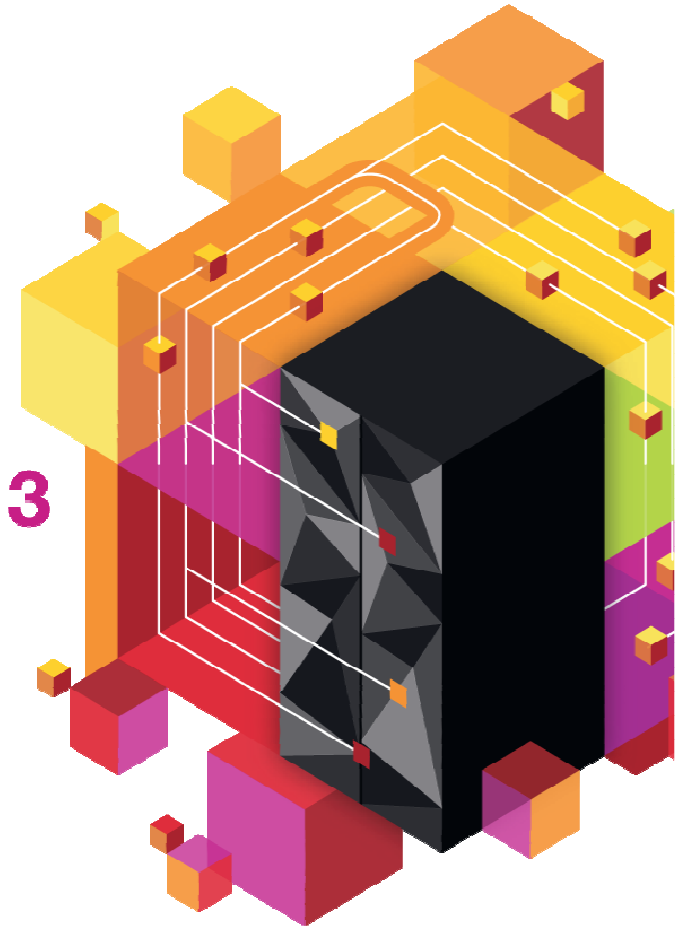


# Université du Mainframe 2013

4-5 avril





# Optim Configuration Manager

*DB2 z/OS : connaître les clients qui s'y connectent*

*et agir ...*

**Catherine Chochoy**  
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# Agenda



- **Optim Configuration Manager**
- **Demo**
- **Annexes :**
  - *Informations collectées*
  - *Fonctions clés : Règles*



# Optim Configuration Manager



*Centralizes management of database configurations both servers and clients on z/OS and LUW*

## *Clients des bases de données*

- Seule solution du marché conçue pour gérer de manière centralisée les clients de bases de données et pister les changements de configuration advenus sur les clients et les serveurs.

## *Serveurs*

- Accroît l'efficacité opérationnelle en facilitant la mise en conformité avec les standards définis par les DBAs.

The screenshot displays the Optim Configuration Manager interface with three main panels:

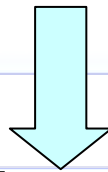
- Explore:** A table listing database instances. The table has columns: Instance Name, Partitions, Databases, Clients, Hosted On, Port, Type, Version, Is Partitionable, and Is DB2. A row for instance 'DB2' is highlighted. Below the table is a 'Details' section for the selected instance, showing: Instance Name: DB2, Version: DB2 V9.7.400.S01, Clients: 1, Databases: 1, Partitions: 1, Is Partitionable: true, Port: 50000, Hosted On: 192.168.88.130, Type: DB2LUW.
- Track changes:** A table showing configuration changes. It has columns: ClientName, Host Name, HostDescription, Host Type, Change Type, Action, and New Value. It lists various configuration items like 'DB2LUW' and 'DB2LUW' with their respective change types and actions.
- Take action:** A configuration rule editor. It shows a condition: 'WHEN serverName IS 127.0.0.1 AND portNumber IS 50000 AND databaseName IS QSDB AND clientIP IS 9.0.0.1'. Below the condition, there is a 'Rule action that redirects the clients' section with fields for 'HostName/IP' (set to 'iam.on.standby.com'), 'Port' (set to '5000'), and 'Database Name' (set to 'QSDBRZD').

# Fonctions d'OCM



## Comprendre l' environnement

- **Explorer** les propriétés des serveurs de bases de données et leurs clients
- **Etablir** un inventaire des clients pour en faciliter les évolutions



## Control Clients (JCC, CLI, .NET)

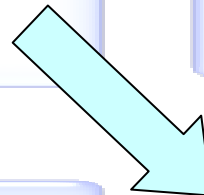
- **Isolate/Throttle** : agir sur les applications "rogue" et limiter leur impact sur le SYSPLEX
- **Appliquer** les bonnes pratiques—WLM, WLB, WAS Pool
- **Rediriger** les connexions client d'un DB2 vers un autre (ex: haute disponibilité)

*Note: With OCM client install*



## Résoudre plus rapidement les problèmes

- **Prévenir** les problèmes en planifiant des jobs de comparaison de configuration qui alertent sur les différences
- **Garder** les configurations en cohérence
- **Déboguer** plus rapidement en retrouvant les changements récents intervenus sur les configurations des clients ou des serveurs

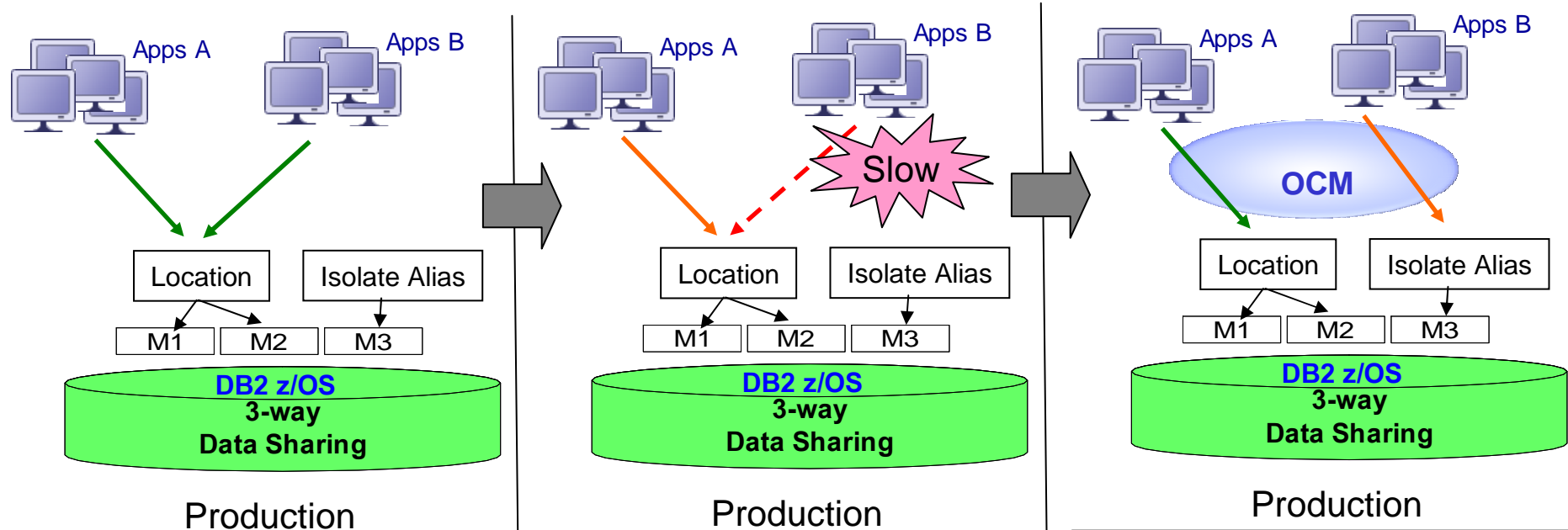


## Gérer de manière centralisée la totalité de l' environnement DB2 z/OS

- **Déployer** les alias de localisation ou les profils d'application en DB2 z/OS v10
- **Définir** les zParms de DB2 z/OS v9 ou DB2 z/OS v10
- **Voir** les changements faits par les outils d'administration



# Scenario d'utilisation - étape 1: Isoler



A good day!  
Apps A SLA is 5 secs  
Apps B SLA is 5 secs

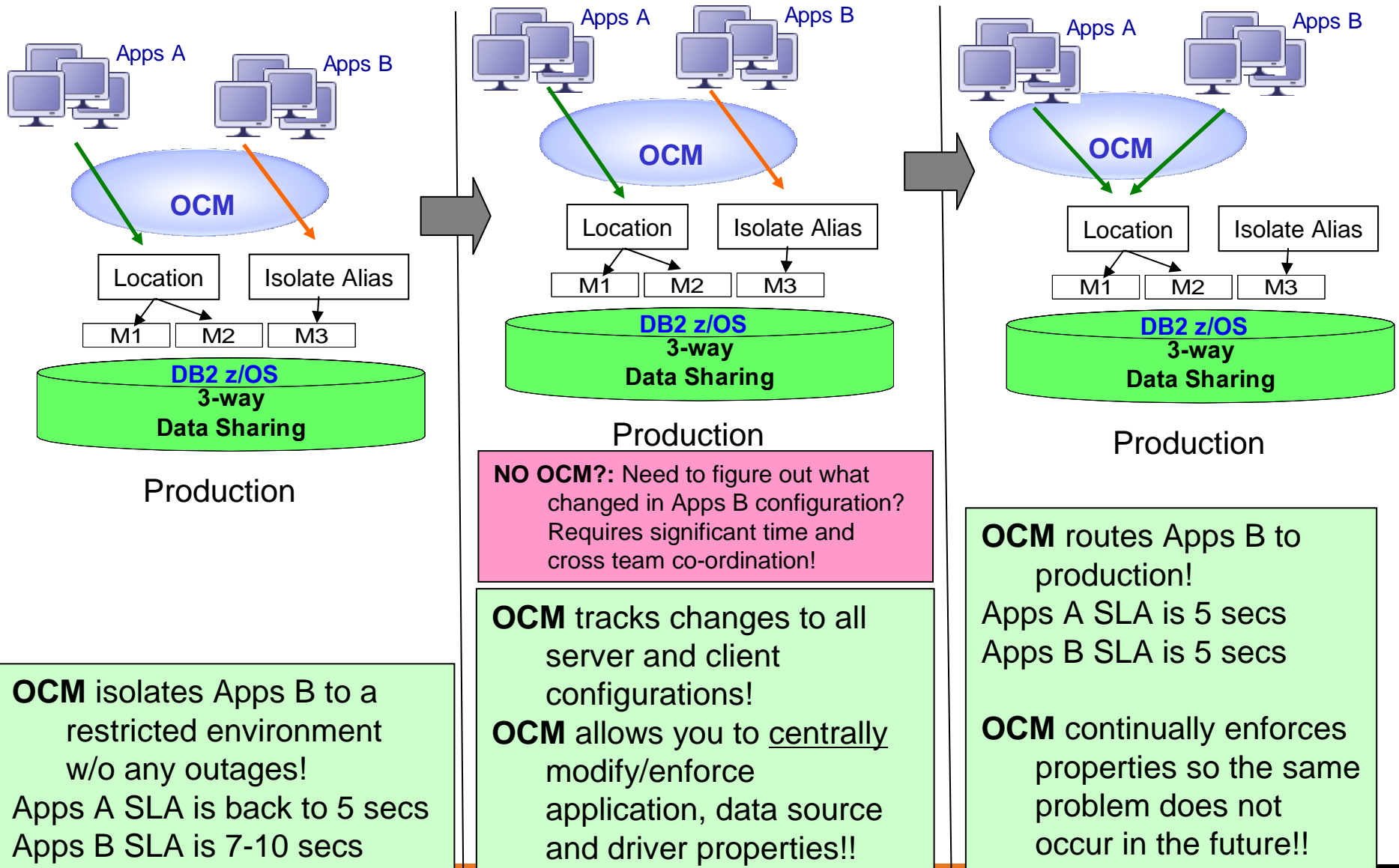
Apps B starts to misbehave!  
Apps B SLA is down to 10 secs...  
Apps A is also affected!  
Apps A SLA is down to 7 secs...  
Costs the company M\$/hour

**NO OCM?:** Need an outage on Apps B!  
Outage could last until Apps B is fixed!!

**OCM** isolates Apps B to a restricted environment w/o any outages!  
Apps A SLA is back to 5 secs  
Apps B SLA is 7-10 secs  
Instantly save costs; allow more time to debug!



# Scenario d'utilisation - étape 2: Diagnostiquer & prévenir



# Optim Configuration Manager

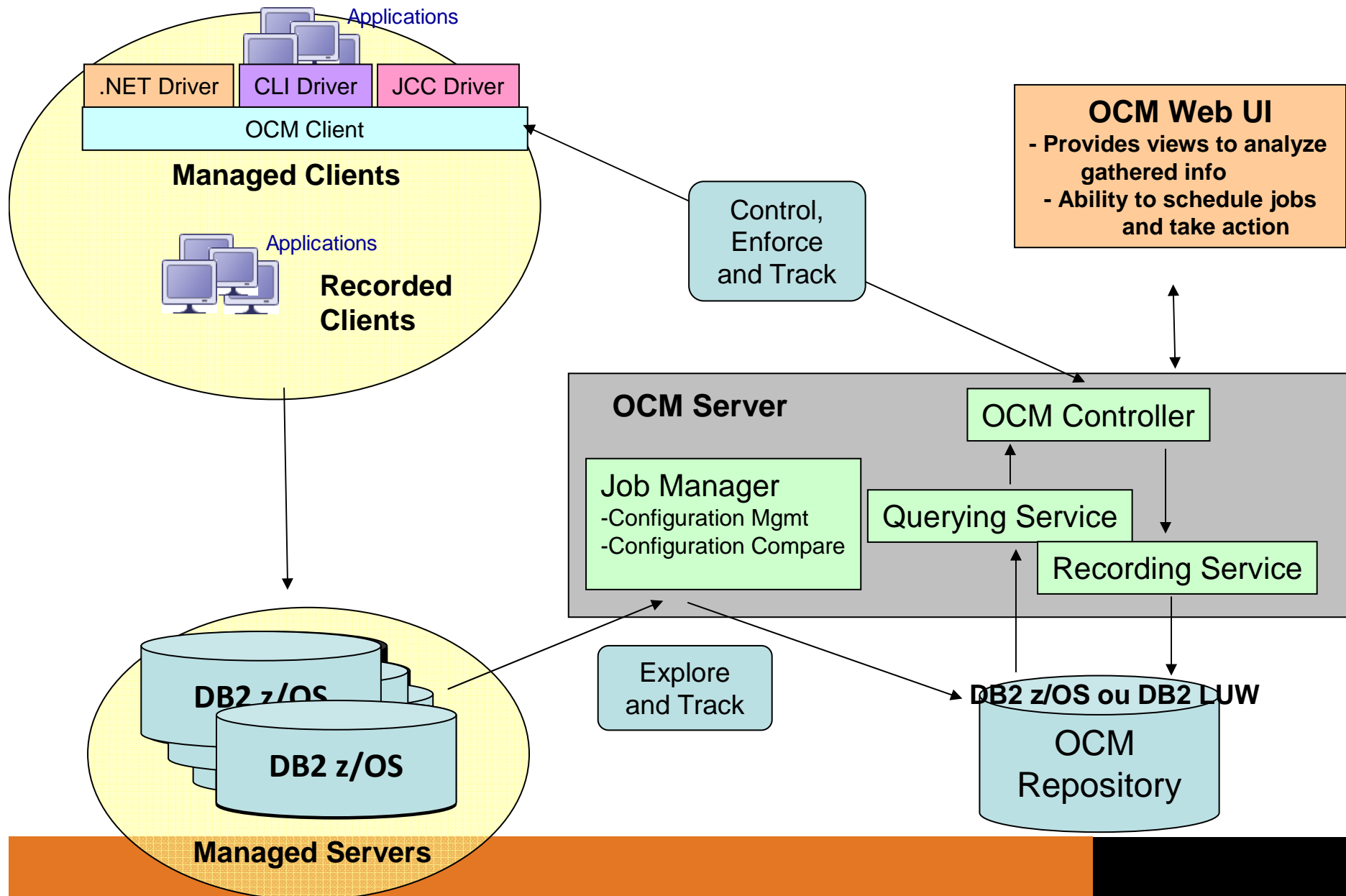


- ✓ Maintenir en conformité des serveurs et des clients de bases de données
- ✓ Simplifier les plannings de migration avec un inventaire des serveurs et des clients de bases de données
- ✓ Gagner du temps (et \$) dans la résolution des problèmes
- ✓ Économiser en réduisant certains coûts opérationnels en agissant rapidement sur les applications en cause
  - ✓ ***Unique IBM en cours de brevet***





# Architecture OCM



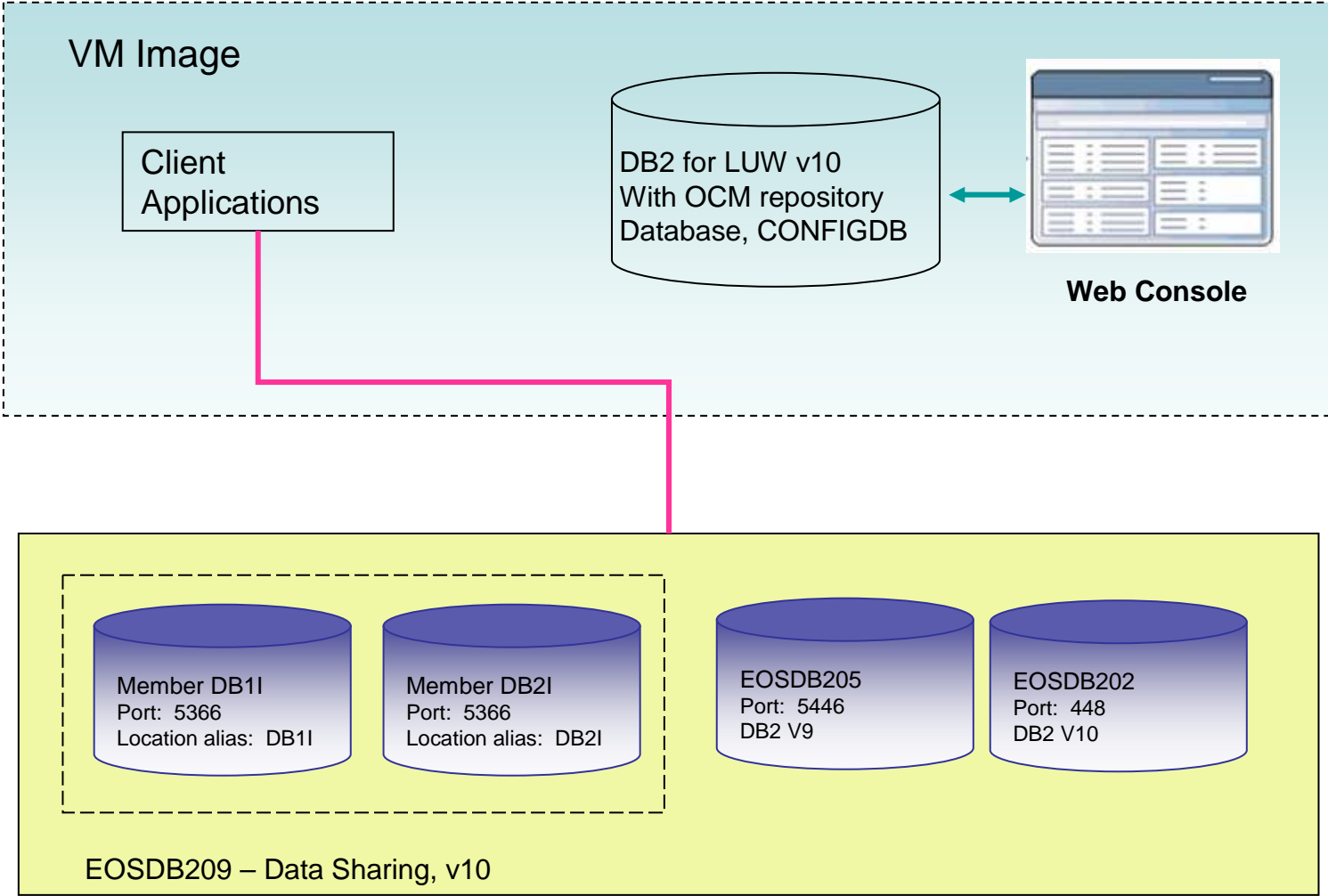
# Agenda



- ***Optim Configuration Manager***
- **Demo**
- ***Annexes :***
  - *Informations collectées*
  - *Fonctions clés : Règles*



# Environnement de démonstration



DB2 z/OS Host: [zserveros.demos.ibm.com](http://zserveros.demos.ibm.com)





# Demo

- *Bases de données : serveurs et clients*
  - Déclarer des serveurs
  - **Explorer** leurs configurations
  - Comparer
- *Pister et analyser les changements*
  - Définir des jobs de **comparaison** de configuration
  - Constater les **changements** intervenus
  - Alertes
  - Rapport de job
- *Isoler des transactions (penalty boxing)*
  - Gérer les 'location alias'
  - Créer une règle pour **isoler une application**
  - L'appliquer à un workload qui sera rerouté vers un autre membre

# Agenda



- ***Optim Configuration Manager***
- ***Demo***
- **Annexes :**
  - **Informations collectées**
  - **Fonctions clés : Règles**



# Cas d'usage d'OCM : 'Explorer' en profondeur



**Explore**

**Track changes**

**Take action**

The screenshot displays the Oracle Cloud Manager (OCM) interface. On the left, a table lists database instances, with 'DB2' selected. Below it, the 'Details' section shows instance information: Instance Name: DB2, Version: DB2 v9.7.400.501, Clients: 1, Databases: 1, Partitions: 1, Is Partitionable: true, Port: 50000, Hosted On: 192.168.88.130, Type: EB21LW. The central pane shows configuration options for 'Database Clients' and 'Database Servers'. On the right, a table lists database users with columns for Username, Role Name, Change Date, and Action. Below this, a rule configuration is shown with the condition: 'WHEN serverName IS 127.0.0.1 AND portNumber IS 50000 AND databaseName IS GCDB AND clientIP IS 9.0.22.0'. The rule action is 'Redirect the clients' to 'hostname.oracle.com' for 'T4508' on 'Database Name: GCDBREP'.





## Informations capturées sur les serveurs

- **Systems:**
  - Host name, IP address, Clients, Instances, DBs, Subsystems, OS name, etc
- **Data sharing Groups:**
  - Group name, Systems hosted on, Members List, Clients
- **Instances, Databases:**
  - DB2 version and fixpak, Clients
- **Subsystems:**
  - System hosted on, Port, DB2 version





# Explorer les serveurs de données

*Utiliser le job manager pour capturer périodiquement l'information sur les serveurs*

The screenshot displays the Job Manager interface. At the top, there's a 'Job Manager' tab with sub-tabs for 'Job List', 'Schedules', 'Notifications', and 'History'. Below this is a toolbar with 'Add Job...', 'Edit', and 'Run Job...' buttons. A table lists jobs, with one job selected: Job ID 1341941853132, Job Name 'Track changes', Job Type 'Configuration management', Enabled 'No', Number of Schedules '0', Chain 'No', Number of Notifications '0', Created By 'db2admin', and Last Modified '2012-07-10 18:41:13'.

Below the table, there's a 'Templates' section with checkboxes for 'Database', 'Authorization', and 'Explore' (checked). Under 'Database Objects', there are checkboxes for 'Column', 'Table', 'Index', 'Table space', 'Package', and 'Trigger'. Under 'Authorization Objects', there are checkboxes for 'Column Authorization', 'Role Authorization', 'Table Authorization', 'Database Authorization', 'Routine Authorization', 'Table space Authorization', 'Index Au', 'Schema', and 'User Aut'. The 'Explore Objects' section has a checked checkbox for 'Client, Server, and System Objects'.

To the right, a 'Schedule Details' dialog box is open, showing: 'This schedule is active' (checked), 'Start date: 7/10/2012', 'Start time: 7:14 PM', 'Repeats: Daily' (checked), 'Every 1 Days', and 'Until:' (empty).

At the bottom, there's a 'Job History' section with buttons for 'Job History Settings...', 'View log in browser', 'Cancel', and 'Run Job...'. Below these buttons is a table showing job history:

| Job ID        | Job Name      | Start Time          | End time            | Status    | Database name |
|---------------|---------------|---------------------|---------------------|-----------|---------------|
| 1341941853192 | Track changes | 2012-07-10 19:14:33 | 2012-07-10 19:15:03 | Succeeded | MDCDB205      |





# Explorer les serveurs (suite)

*Résultats :*

- **System**

| Host Name                | IP Address  | Instances/Data Sharing Groups | Databases/Subsystem | Recorded Clients | OS Name  | OS Version         |
|--------------------------|-------------|-------------------------------|---------------------|------------------|----------|--------------------|
| 192.168.24.130           |             | 1                             | 1                   | 1                | WIN32_NT | 5.1 Service Pack 2 |
| demomvs.demopkg.ibm.com  | 9.39.68.147 | 1                             | 1                   | 1                | z/OS     | z/OS 01.13.00      |
| demomvs2.demopkg.ibm.com | 9.39.68.146 | 1                             | 1                   | 0                | z/OS     | z/OS 01.13.00      |

- **Subsystems**

| Name | Managed Database ID | Recorded Clients | Group Name | Hosted On                | IP Address  | Port | Version |
|------|---------------------|------------------|------------|--------------------------|-------------|------|---------|
| DB1S | NDCDB205            | 1                | DSNSG      | demomvs.demopkg.ibm.com  | 9.39.68.147 | 5446 | 910     |
| DB2S | NDCDB205            | 0                | DSNSG      | demomvs2.demopkg.ibm.com | 9.39.68.146 | 5446 | 910     |

- **Data sharing groups**

| Group Name | Version | Shared | Recorded Clients | Members | Main Location | Hosted On   | IP Address                  | Port | Members List |
|------------|---------|--------|------------------|---------|---------------|---|-----------------------------|------|--------------|
| DSNSG      | 910     | true   | 1                | 2       | NDCDB205      | demomvs.demopkg.ibm.com ,<br>demomvs2.demopkg.ibm.com | 9.39.68.147,<br>9.39.68.146 | 5446 | DB1S, DB2S   |





# Informations capturées sur les clients

- Recorded clients i.e. informations client récupérées depuis DB2 – display threads (z/OS)
  - Authentication ID, Where Hosted?
  - DB name, client driver information
- Managed clients i.e. clients munis du code client OCM
  - IP address, UUID, client information fields
  - JDBC/JNDI information, WAS information, client driver information
  - Target IP, Port, DB name





# Explorer les “Recorded Clients”

- *Lancer le job manager pour capturer périodiquement l'information sur les clients connectés*
- *Prerequis: procédure stockée SYSPROC.ADMIN\* sur la base de données cible*
- **Collecte:**
  - Origin, driver information (type, version), connection information

| Name        | Host Name | Drivers Used | Last Connection Start Time                                | Last Connection Authentication ID | Last Connection System  | Last Connection Database Name | Last Connection Driver | Last Connection ID         |
|-------------|-----------|--------------|---|-----------------------------------|-------------------------|-------------------------------|------------------------|----------------------------|
| DS_ConnMgt_ | 93.148    | JCC03630     | Tue Jul 24 2012 21:14:42 GMT-0700 (Pacific Daylight Time) | DD80737                           | demoive.demopkg.ibm.com | DB15                          | JCC03630               | 391E12E2.D687.C9D91B0351E5 |

- **Utiliser cette information pour identifier les clients ‘impactés’ lors**
  - D’une montée de niveau de Driver (qui utilise un driver non supporté?)
  - De migrations (qui accèdent un serveur?)





# Explorer les “Managed Clients”

- **Collecte :**
  - Connection information
  - Driver type, driver version, ...
  - Driver configuration
  - Data source configuration
  - WAS information

| ▼ Details               |  |
|-------------------------|--|
| <b>Row Information:</b> |  |
| UUID                    | 1a906109-7f6c-4c71-b8fd-cd992696dfcc   |
| IP Addresses            | , 192.168.88.133   |
| Target IP               | demomvs.demopkg.ibm.com  |
| Target Port             | 5446   |
| Target Database Name    | ND\CDB205  |
| Client Accounting Info  | appAcctValue   |
| Client Application Info | BadApplication   |
| Client User             |  |
| Client Workstation      |  |
| Driver Properties       | <b>ccsid1390Mapping=1</b><br><b>ccsid943Mapping=1</b><br><b>dumpPool=0</b><br><b>enableT2zosLBF=0</b><br><b>maxRefreshInterval=30</b><br><b>minTransportObjects=0</b><br><b>traceFileAppend=false</b><br><b>traceOption=0</b>  |
| Data Source Descriptors | <b>currentQueryOptimization=-2147483647</b><br><b>databaseName=ND\CDB205</b><br><b>decimalSeparator=0</b><br><b>downgradeHoldCursorsUnderXa=false</b><br><b>enableAlternateServerListFirstConnect=0</b><br><b>enableMultirowInsertSupport=true</b><br><b>enableSysplexWLB=true</b><br><b>encryptionAlgorithm=0</b><br><b>fullyMaterializeInputStreams=false</b><br><b>implicitRollbackOption=0</b><br><b>keepDynamic=0</b> |



# Cas d'usage d'OCM : “Pister les changements”



**Explore**

| Instance Name | Partitions | Databases | Clients | Hosted On      | Port | Type | Version | Is Partitionable | Is DB2 |
|---------------|------------|-----------|---------|----------------|------|------|---------|------------------|--------|
| DB2           | 1          | 1         | 1       | 192.168.88.130 |      |      |         |                  |        |

**Track changes**

**Take action**

Specify condition: **AND** Field: **clientUID** Value:

**WHEN serverName IS 127.0.0.1 AND portNumber IS 50000 AND databaseName IS GCDB  
AND clientIP IS 9.0.22.0**

**Rule action that redirects the clients**  
Define a different DB2 for Linux, UNIX, and Windows database or a different DB2 for z/OS subsystem to which the clients will be redirected.

Hostname/IP: **haman.otenby.com**  
Port: **50000**  
Database name: **GCDBREP**



# Pister les changements de configuration



- **Identifier les changements via le log viewer.**
  - Connection profile
  - Information : client, server, system, data sharing group, subsystem, connections, zPARMs, locations, location aliases, WLM service classes, table objects, index objects ...
  - Date (range)

Database:  Item Type:  Time Interval:

| Time stamp   | Item Name                               | Item Description                      | Item Type        | Change Type            | Attribute   | Old Value | New Value          |
|--|---|---------------------------------------|------------------|------------------------|---|-----------|--------------------|
| Tue Jul 10 2012 19:14:39<br>GMT-0700 (Pacific Daylight Time) | DB2SubSystem/DB1S<br>/System Parameters | System<br>Configuration<br>Parameters | SystemParameters | Add_Discovery_Database | /DSN6SPRM<br>/RGFDEFLT/DSNTIPZ<br>/UNREGISTERED DDL<br>DEFAULTA |           | ACCEPT/ONLINE=N    |
| Tue Jul 10 2012 19:14:39<br>GMT-0700 (Pacific Daylight Time) | DB2SubSystem/DB1S<br>/System Parameters | System<br>Configuration<br>Parameters | SystemParameters | Add_Discovery_Database | /DSN6SPRM<br>/MFCBSET   |           | NO/ONLINE=N        |
| Tue Jul 10 2012 19:14:39<br>GMT-0700 (Pacific Daylight Time) | DB2SubSystem/DB1S<br>/System Parameters | System<br>Configuration<br>Parameters | SystemParameters | Add_Discovery_Database | /DSNHDECP<br>/CHARSET   |           | ALPHA/NUM/ONLINE=N |
| Tue Jul 10 2012 19:14:39<br>GMT-0700 (Pacific Daylight Time) | DB2SubSystem/DB1S<br>/System Parameters | System<br>Configuration<br>Parameters | SystemParameters | Add_Discovery_Database | /DSN6SPRM<br>/CACHEDYN_FREELOC                                  |           | UUUU/ONLINE=Y      |



# Agenda



- ***Optim Configuration Manager***
- ***Demo***
- **Annexes :**
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# Gérer les Clients



- Pour contrôler à distance les “managed clients” via la web console d’OCM :
  - Identifier la cible
  - Définir les règles qui identifient : QUI contrôler et QUOI faire
  - Activer / désactiver la règle selon le besoin

Rules that isolate application transactions

Step 1: Select a database. \*  
NDCDB205

Step 2: (Optional) Set the Client Info Policy  
Set Client Info Policy

Step 3: Create and manage rules by using

Target location

Which managed clients have to abide by the rule

What special processing should be performed

Rule status

| Enabled | Rule ID | Rule Condition   | Rule Action  |
|---------|---------|--|--|
| Yes     | 21      | WHEN serverName IS demomvs.demopkg.ibm.com AND portNumber IS 5446 AND databaseName IS NDCDB205 | Location Alias=ALTDB205<br>Hostname/IP=demomvs2.demopkg.ibm.com<br>Port=5446 |





# Gérer les Clients

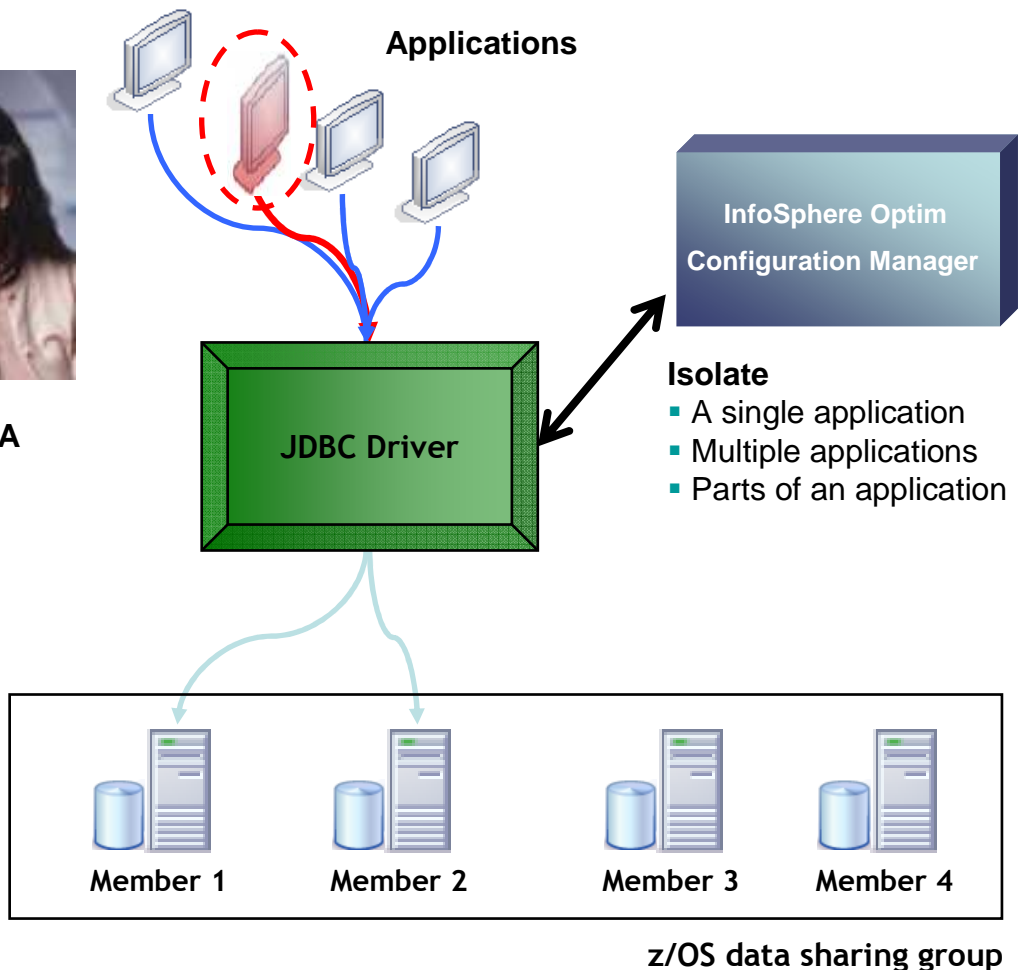
- **Règles définies par “location”**
- **Type de règles :**
  - Isoler des transactions applicatives (workloads)
  - Rediriger les connections database
  - Jouer sur le nombre de connections
  - Ajuster les propriétés de WLB
  - Mapper les classes de service WLM
- **Conditions**
  - Identifier l’application qui nécessite d’être gouvernée



# Scenario: Isoler une application



Shelly, DBA

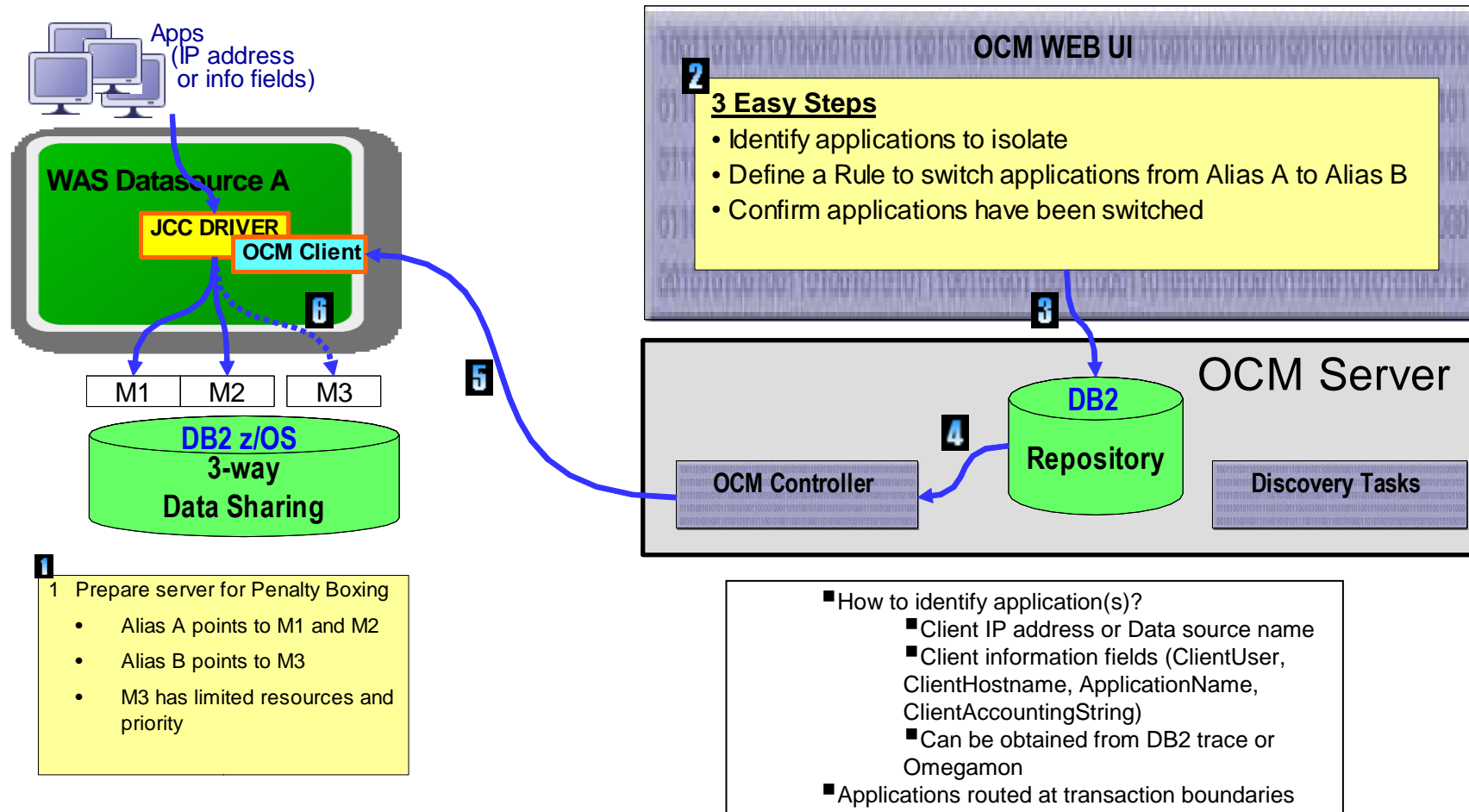


- Goals
  - Minimize the impact of an application on the applications that share the same resources
- Challenges
  - Difficult to isolate individual applications without causing outages
  - Requires coordination of different roles within the enterprise

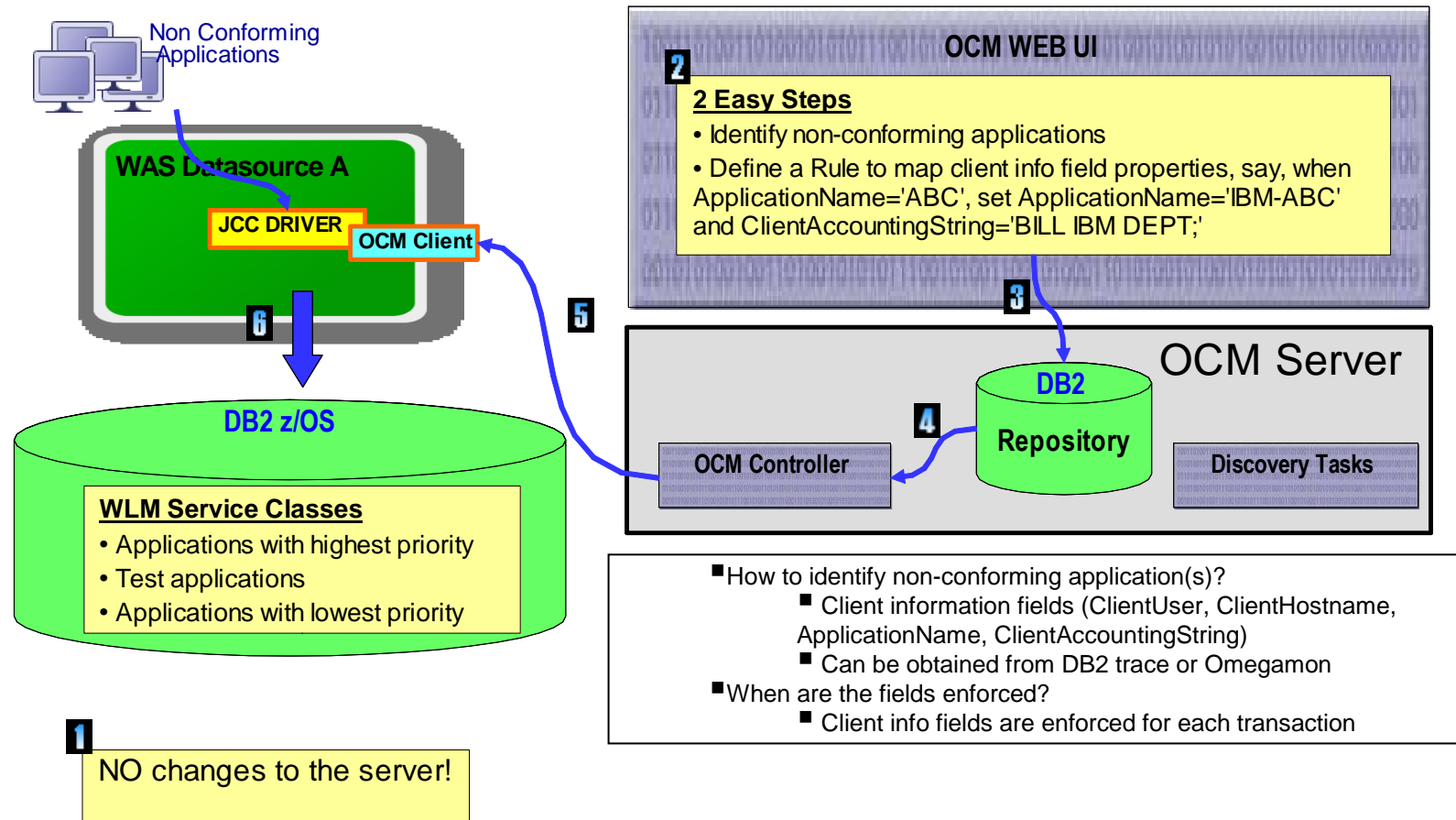




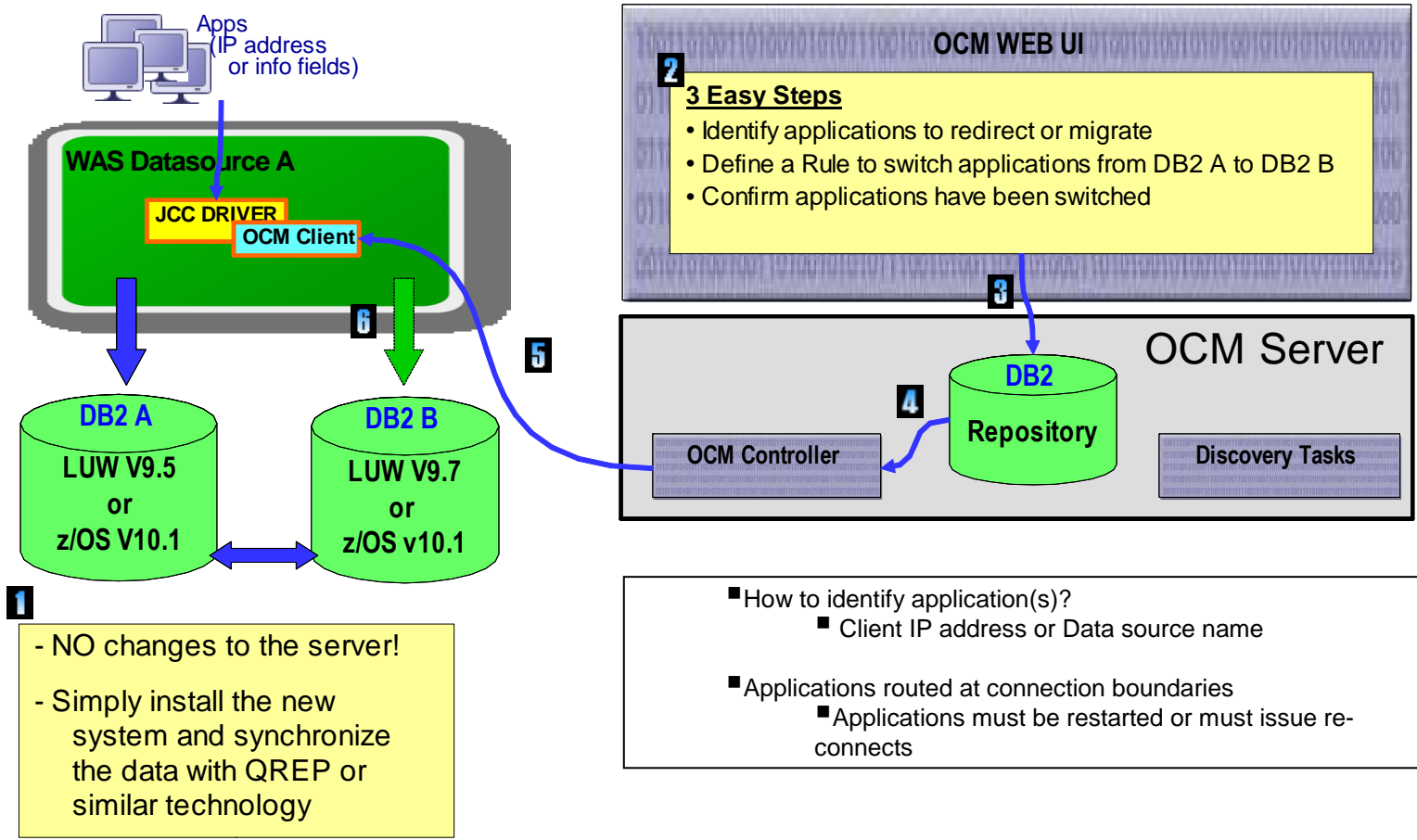
# Isoler des applications dans un environnement en datasharing (\*)



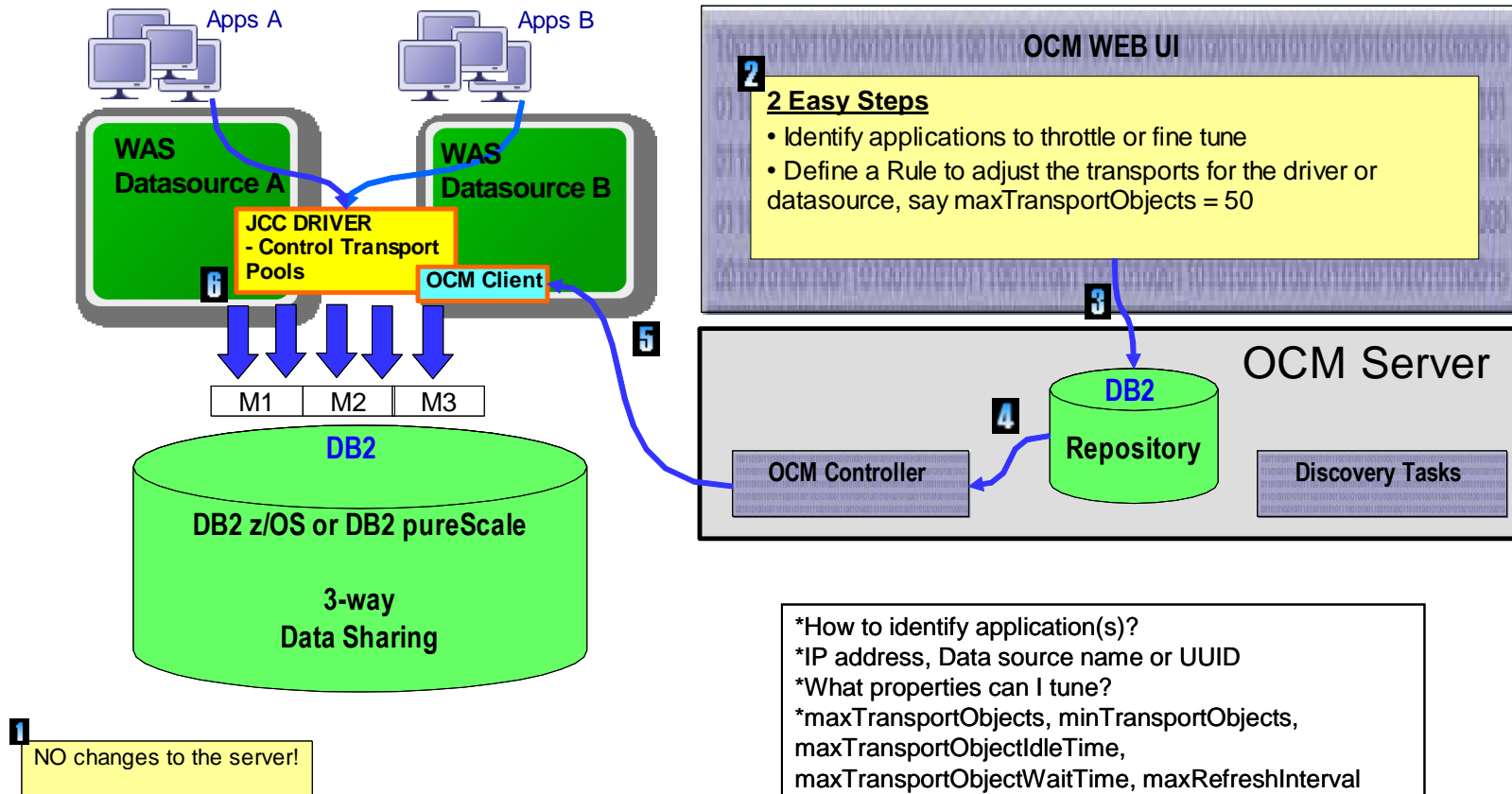
# Mapper les classes de service WLM (\*)



# Rediriger des connections



# Maîtriser les connexions à DB2 z/OS “tuner” les propriétés de Workload Balancing

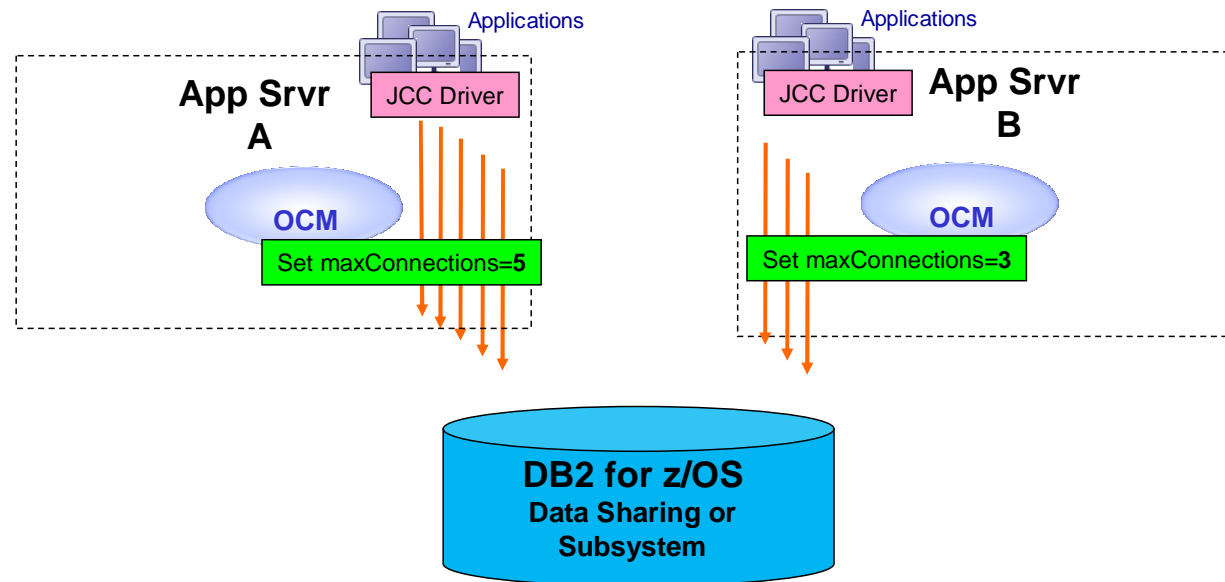


# Gérer le pool de connexion WAS



## Remotely Manage WAS Connection Pool

IBM

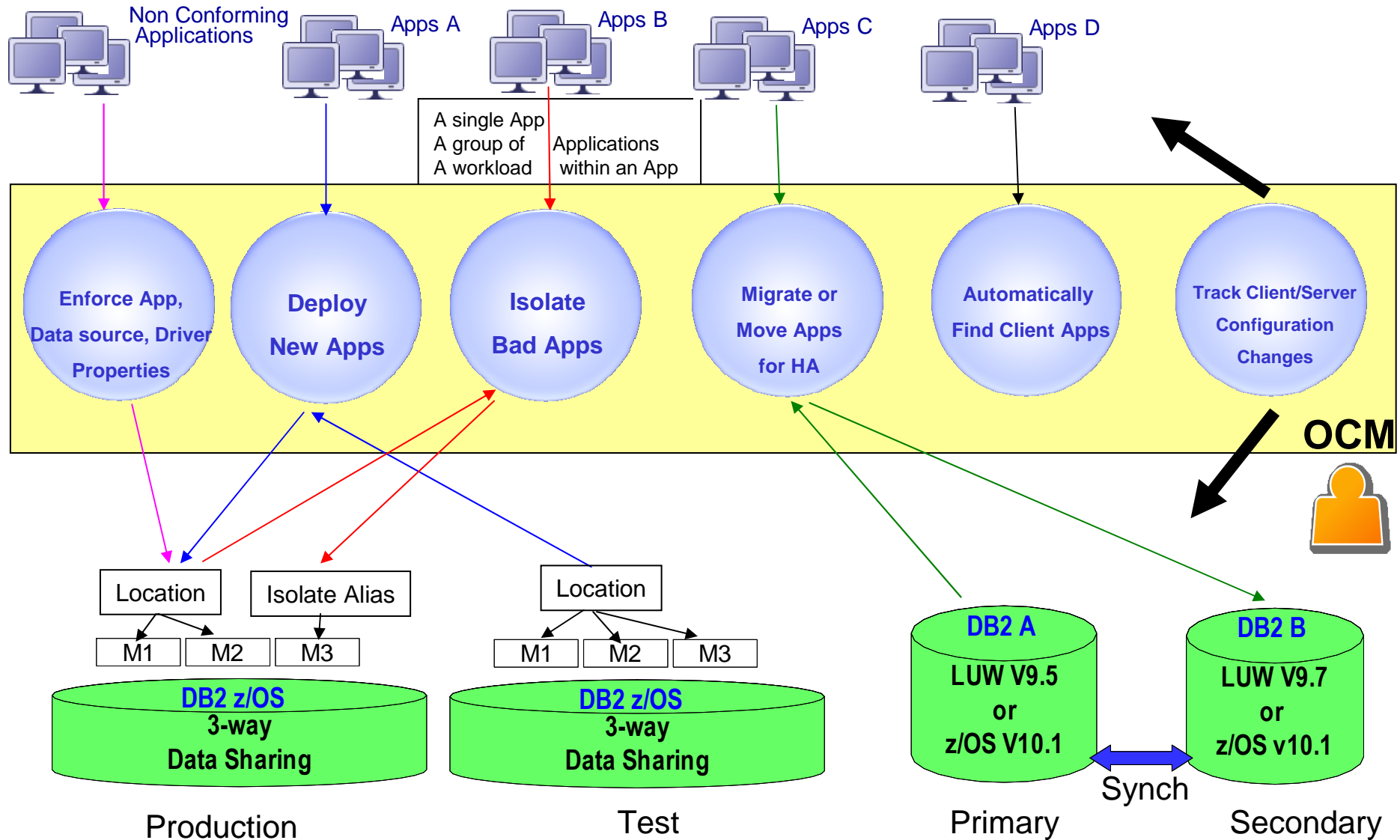


**OCM** allows you to centrally modify/enforce/tune Websphere Application Server connection pool size!





# En synthèse, ce qu' OCM fait pour vous ...



# Ressources aditionnelles



- IOCM demo video
  - [Optimize data availability and resource utilization with InfoSphere Optim Configuration Manager](#)
- IOCM podcasts
  - [Curt Cotner Exec Talk: Infosphere Optim Tools in DB2 v10](#)
- IOCM Information Roadmap
  - [Information roadmap on DeveloperWorks](#)
- IOCM forum
  - [IOCM forum](#)







# InfoSphere Optim Configuration Manager (OCM)

|   | z/OS      | LUW              |
|---|-----------|------------------|
| <b>Explore</b> data servers, <b>track changes</b> and <b>compare</b> configurations   | ✓         | ✓                |
| <b>Explore</b> clients, <b>track changes</b> and <b>compare</b> configurations  | ✓         | ✓                |
| <b>Redirect</b> database <b>connection</b> requests   | ✓         | ✓                |
| <b>Isolate applications</b> ; (penalty box, proving ground or general purpose)  | ✓<br>(* ) |                  |
| <b>Enforce client properties</b> so that they conform to the established policies of z/OS Workload Management Service Classes | ✓<br>(* ) |                  |
| Modify properties of deployed database clients and drivers to achieve optimal workload balancing in the database              | ✓         | ✓<br>(pureScale) |
| <b>Identify storage optimization opportunities</b> through reclaimed storage, compression and least used objects              |           | ✓                |

