Gain Insight Into your IMS Enterprise

IBM Management Console for IMS and DB2 for z/OS

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04.16.15

IMS Technical Symposium 2015

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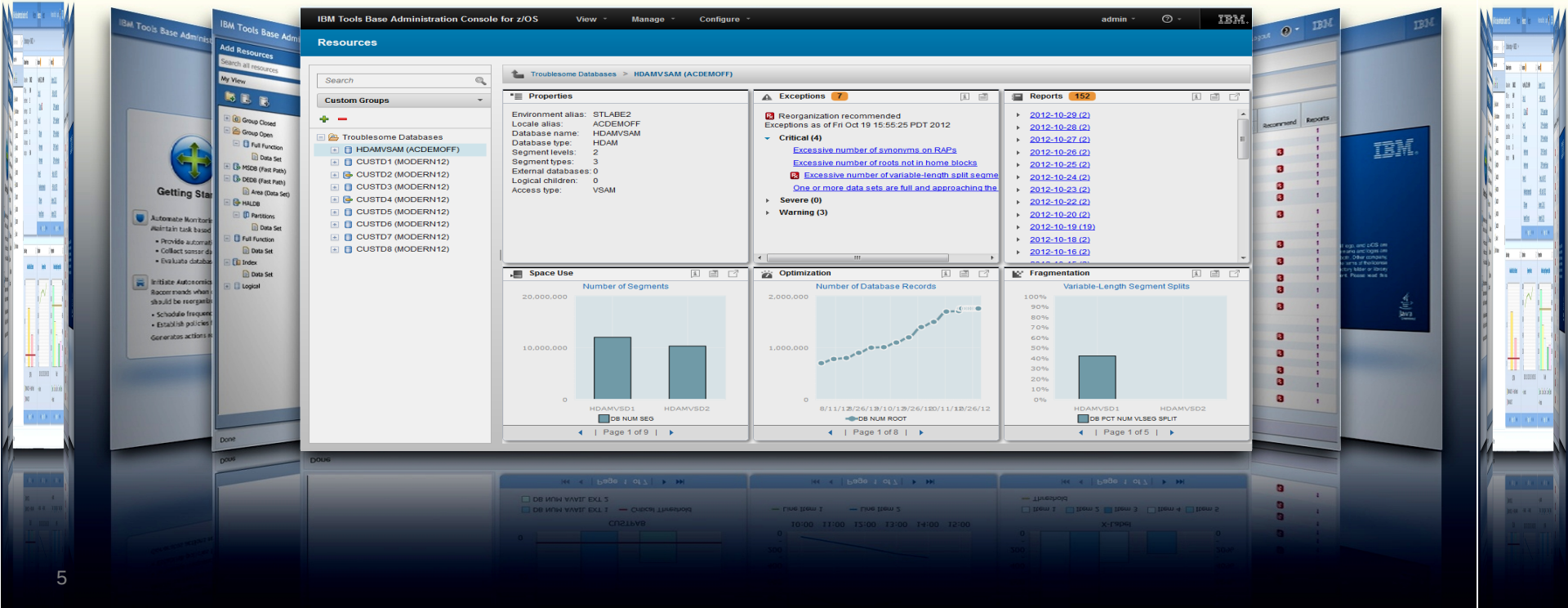
Agenda

- **Management Console**
  - What is it – a unified web interface for IMS and DB2
  - Installation and extensions
- **IMS**
  - Manage IMS
- **Autonomics**
  - IMS
  - DB2
- **IMS Library Integrity Utilities**
- **Demo**

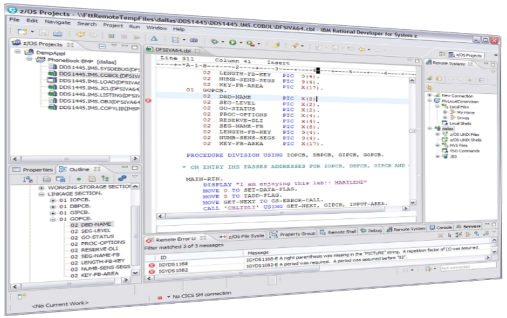
Management Console

Introducing the new…
IBM Management Console for IMS and DB2 for z/OS 1.1



IMS and DB2 Tools User Interface Strategy

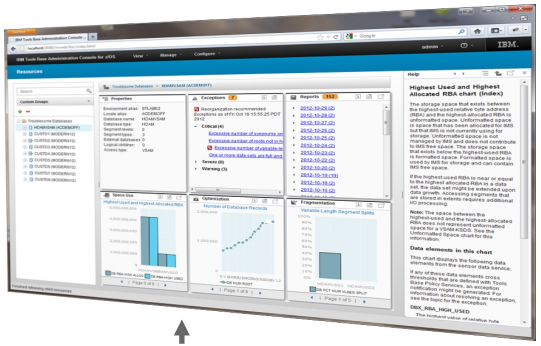
Eclipse
(development)



Developers

Administrators

Web Browser
(administration)

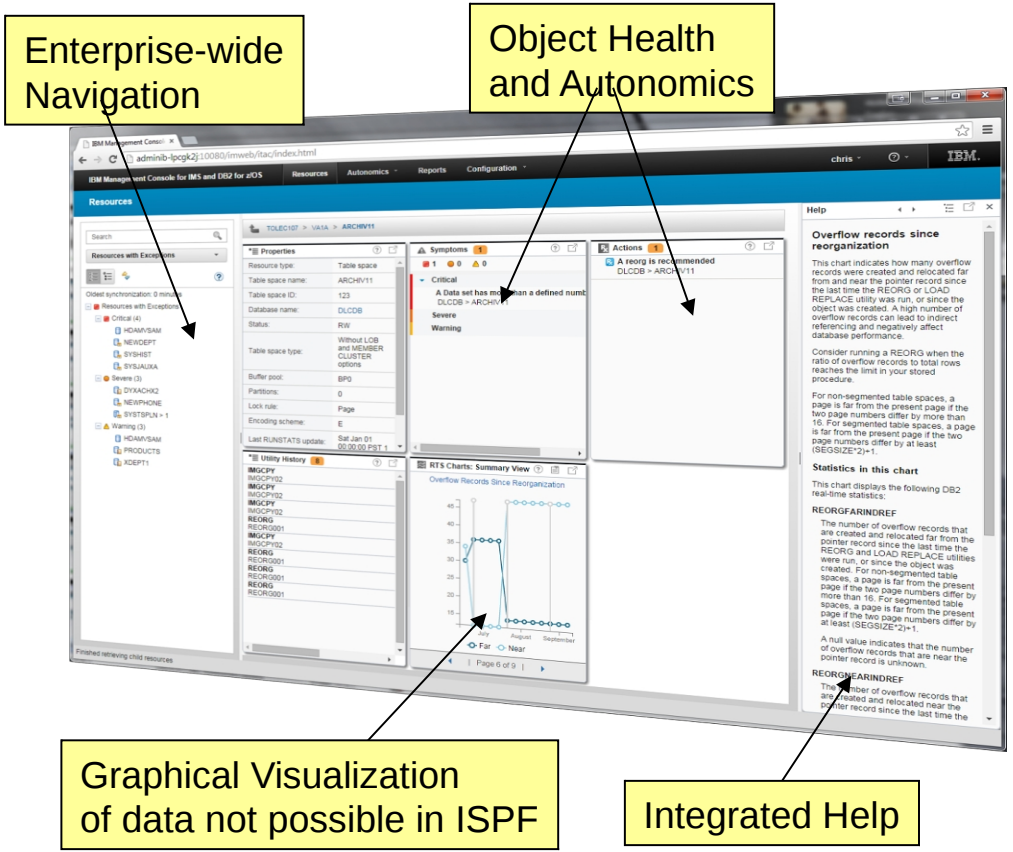


TCP/IP

ISPF

IBM Management Console *for IMS and DB2 for z/OS*

- Provides a single, holistic easy-to-use interface to manage IMS and DB2
  - Zero-install web-based interface
  - Consolidate information from IMS, DB2 and tools for the entire enterprise
  - Reduced time for problem identification and resolution through tight integration with IMS and DB2 Autonomics
  - Dramatically reduced learning curve for new users of IMS and DB2
- Now available as a separate *no-charge* product *(5655-TAC)*
  - Extensible by growing number of products and solution packs adding additional value

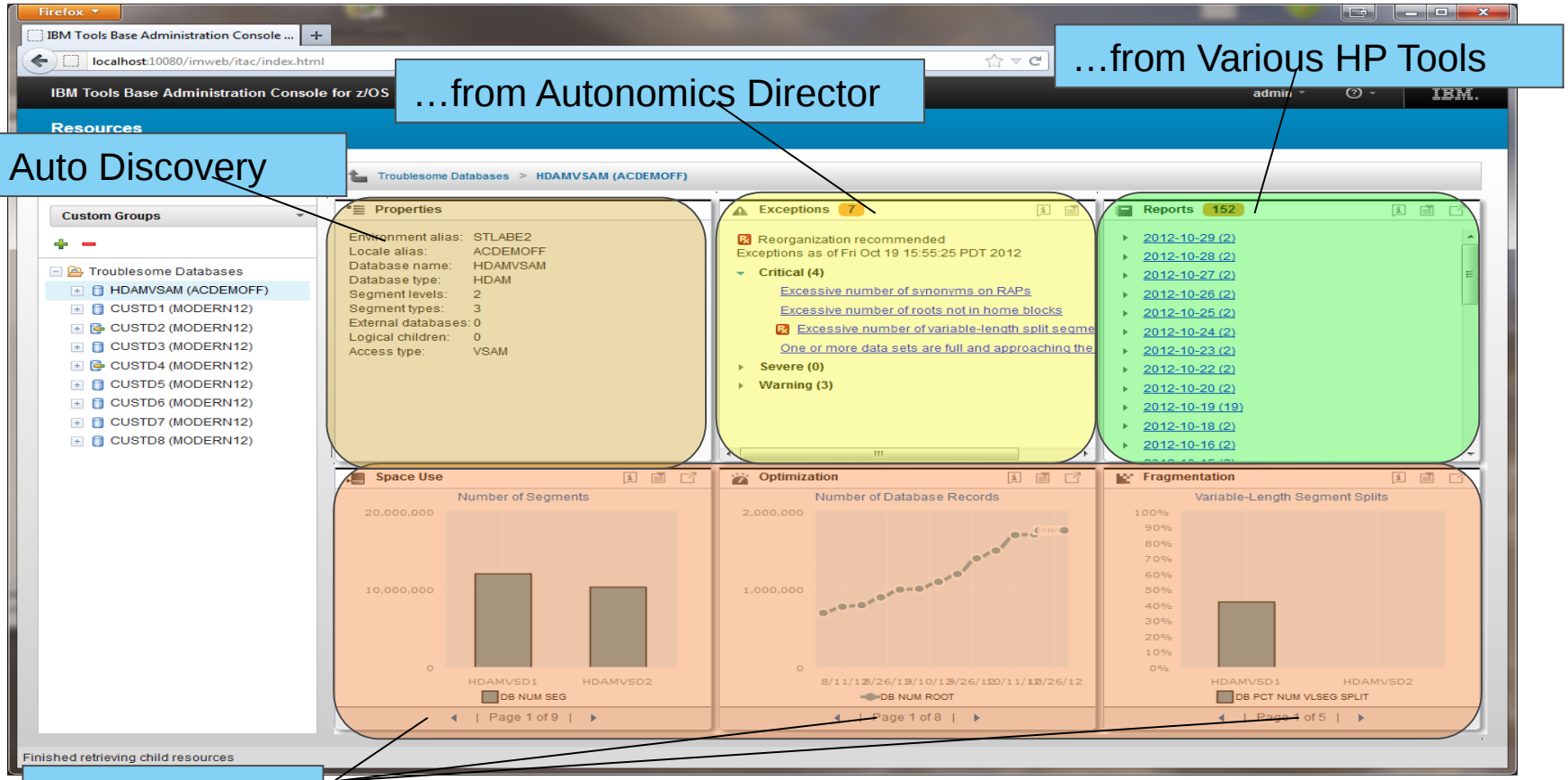


Dashboard based Design

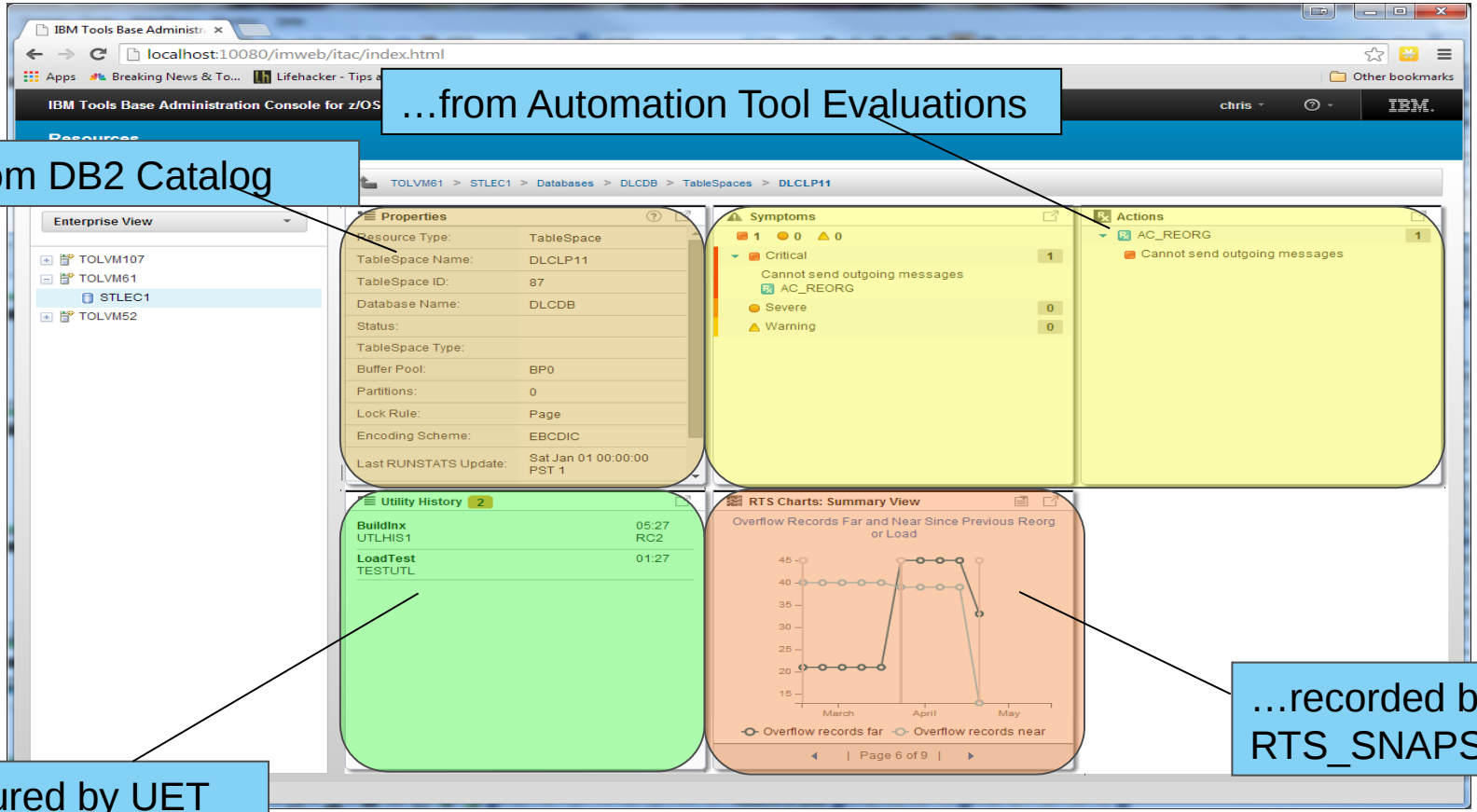
- Current IMS Dashboards
  - IMSPlex
  - IMS Subsystem
  - IMS Connect
  - Databases (HDAM/HIDAM/DEDB/etc)
  - Partitions / Areas
  - Transactions
  - Programs
  - Routing Codes
  - Command Console
- Future Dashboards
  - Message Queues
  - IMS CF Structures
  - etc…

- Current DB2 Dashboards
  - Data Sharing Group
  - Subsystem
  - Database
  - Tablespace
  - Tablespace Partition
  - Indexspace
  - Indexspace Partition
- Future Dashboards
  - Tables
  - Indexes
  - Packages / Collections
  - etc…

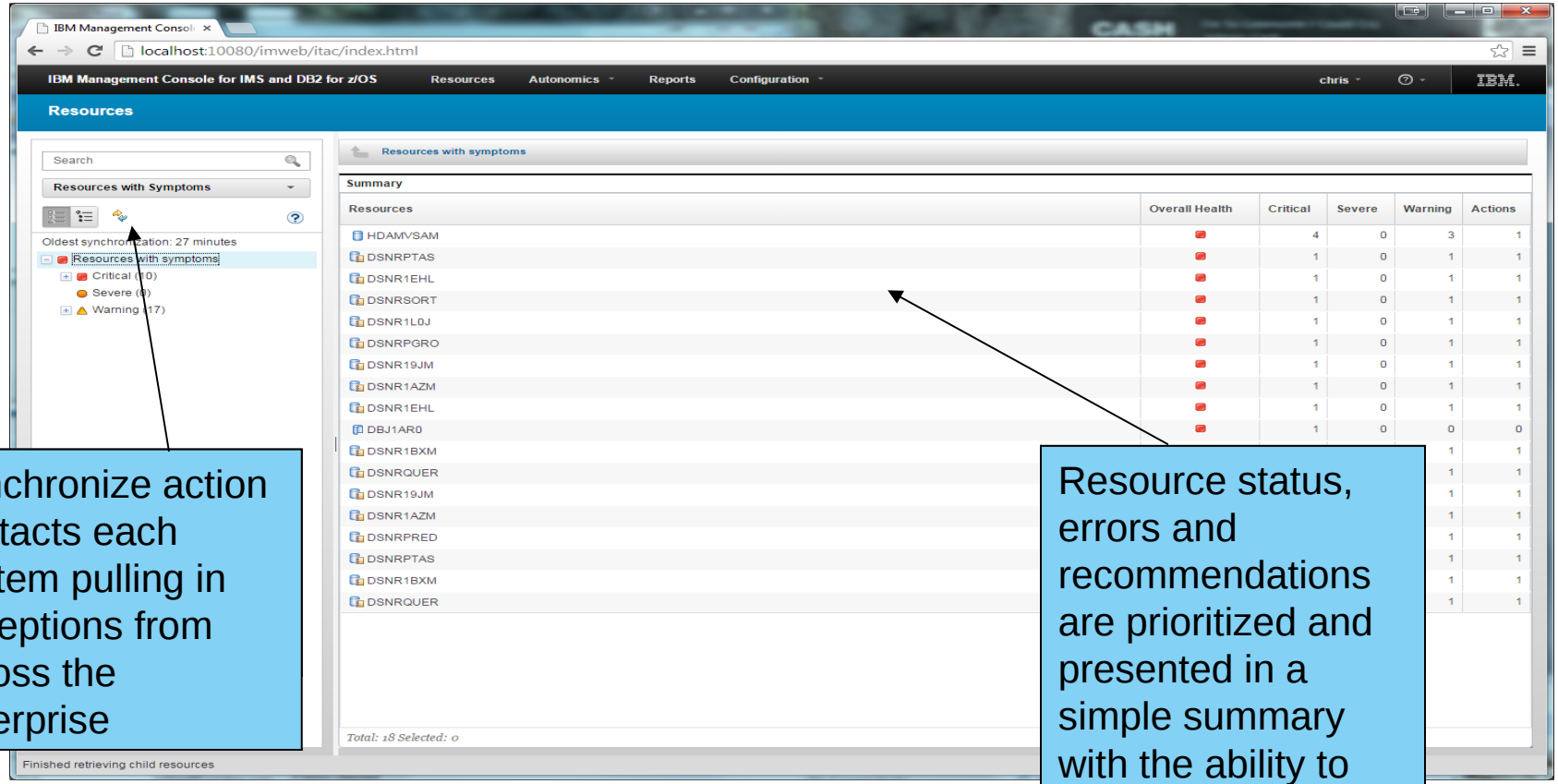
Holistic Dashboards of IMS Databases



Holistic Dashboards of DB2 Objects



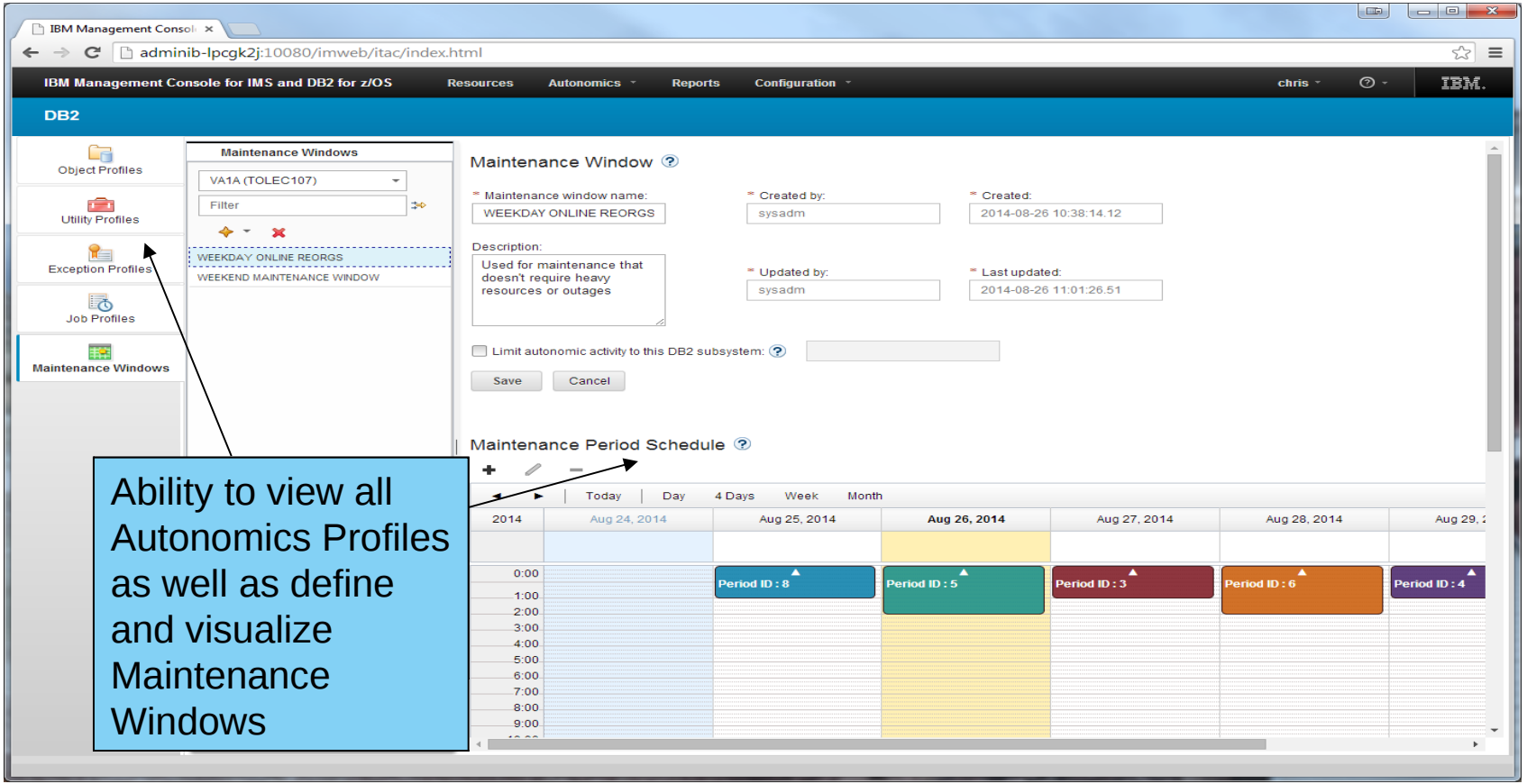
Drill down on Exceptions from an Enterprise-wide View



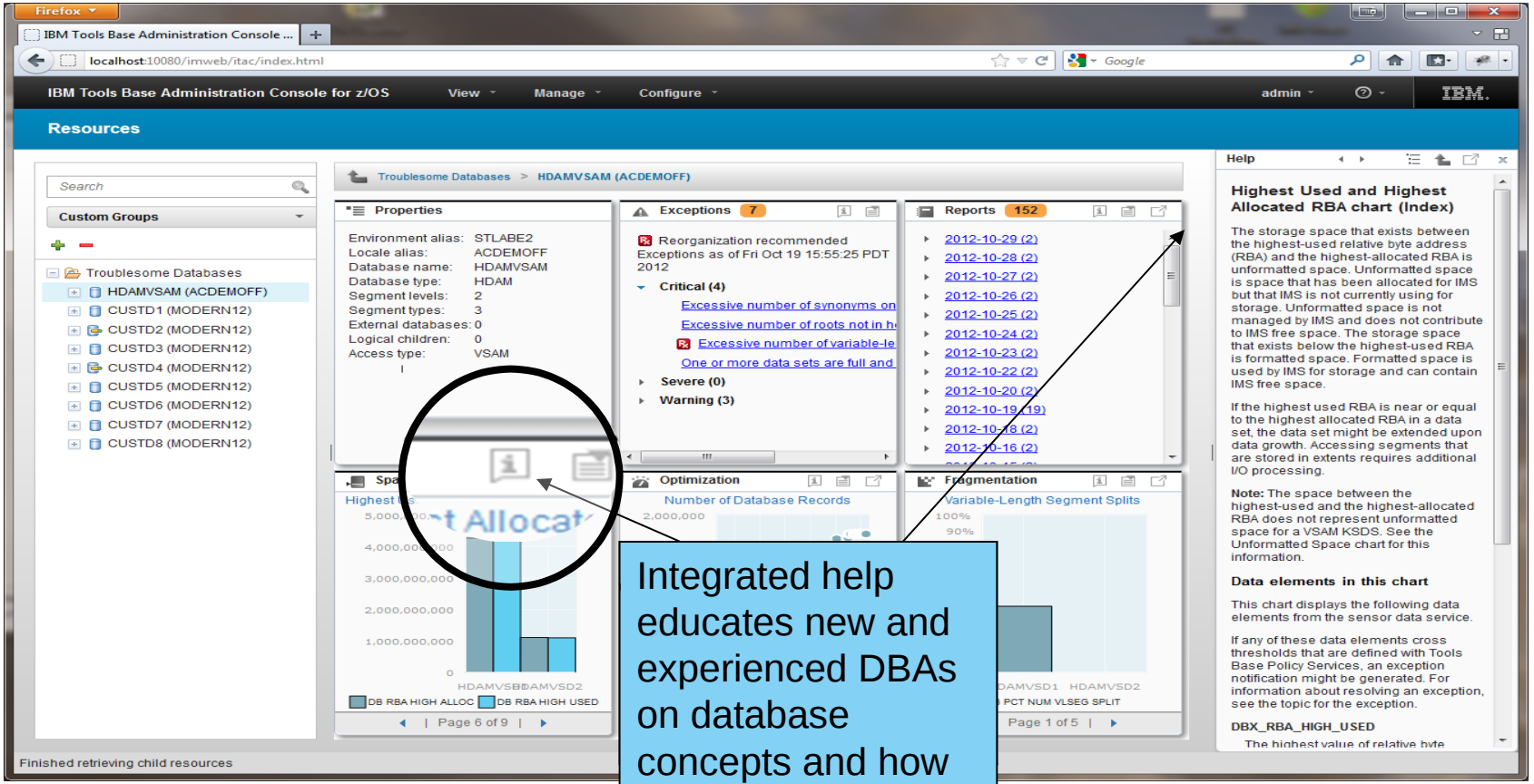
Synchronize action contacts each system pulling in exceptions from across the enterprise

Resource status, errors and recommendations are prioritized and presented in a simple summary with the ability to drill-down

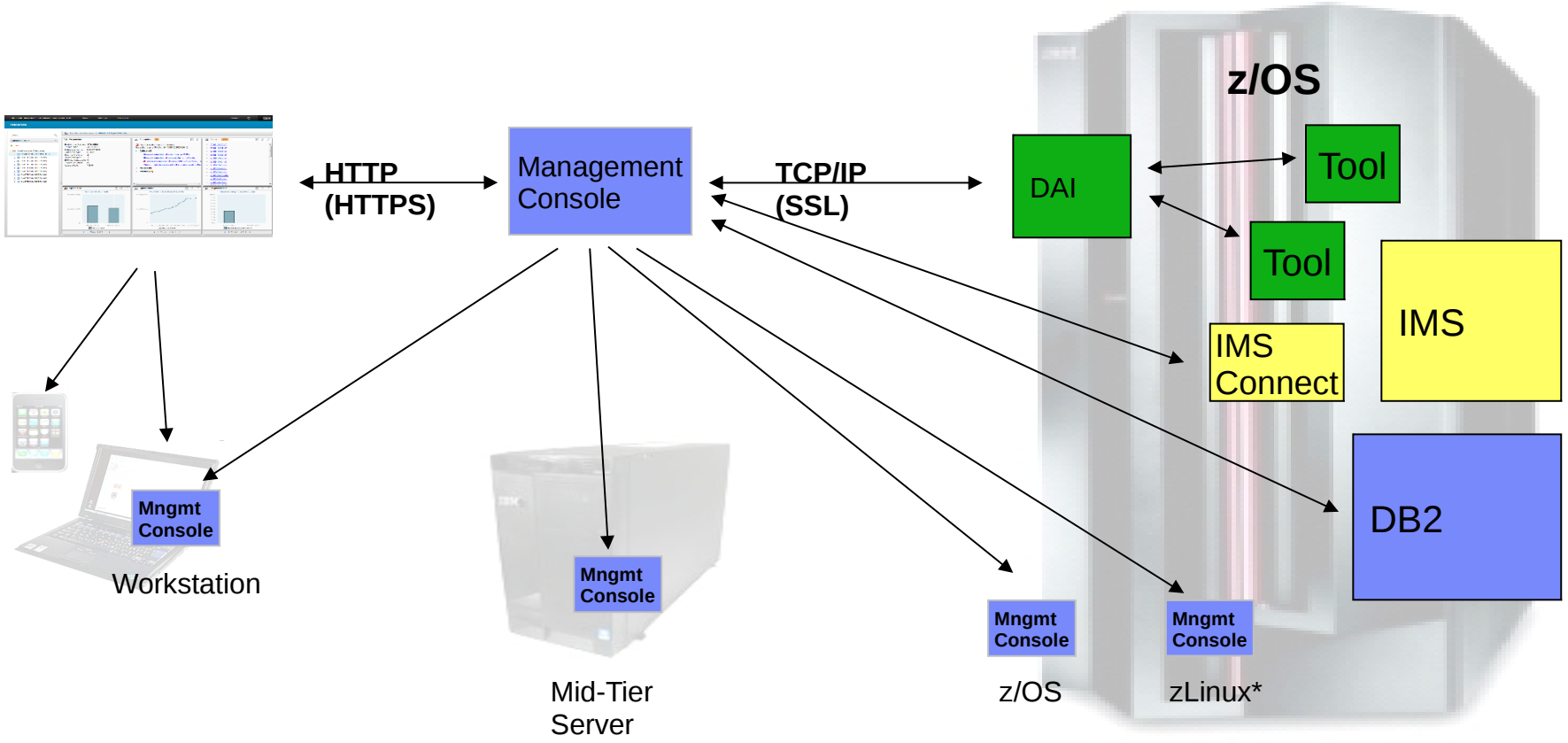
Control of Autonomics for IMS and DB2



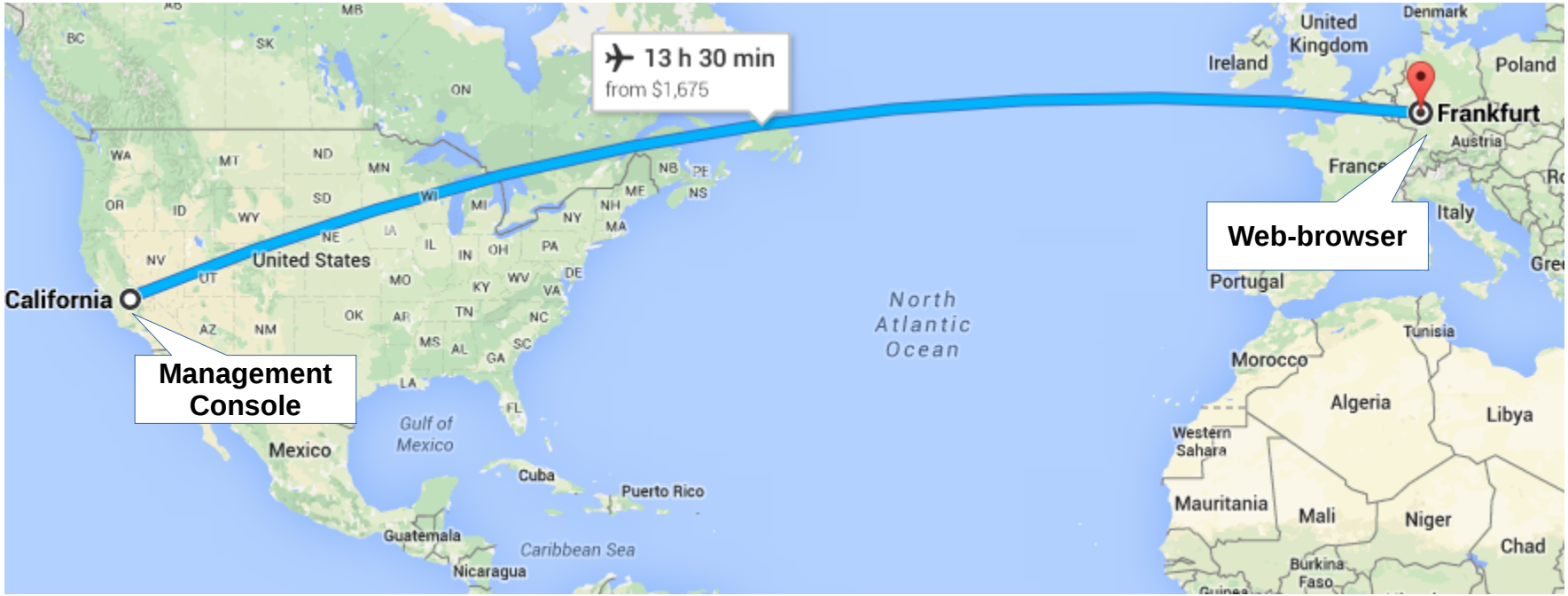
Integrated Help / Education



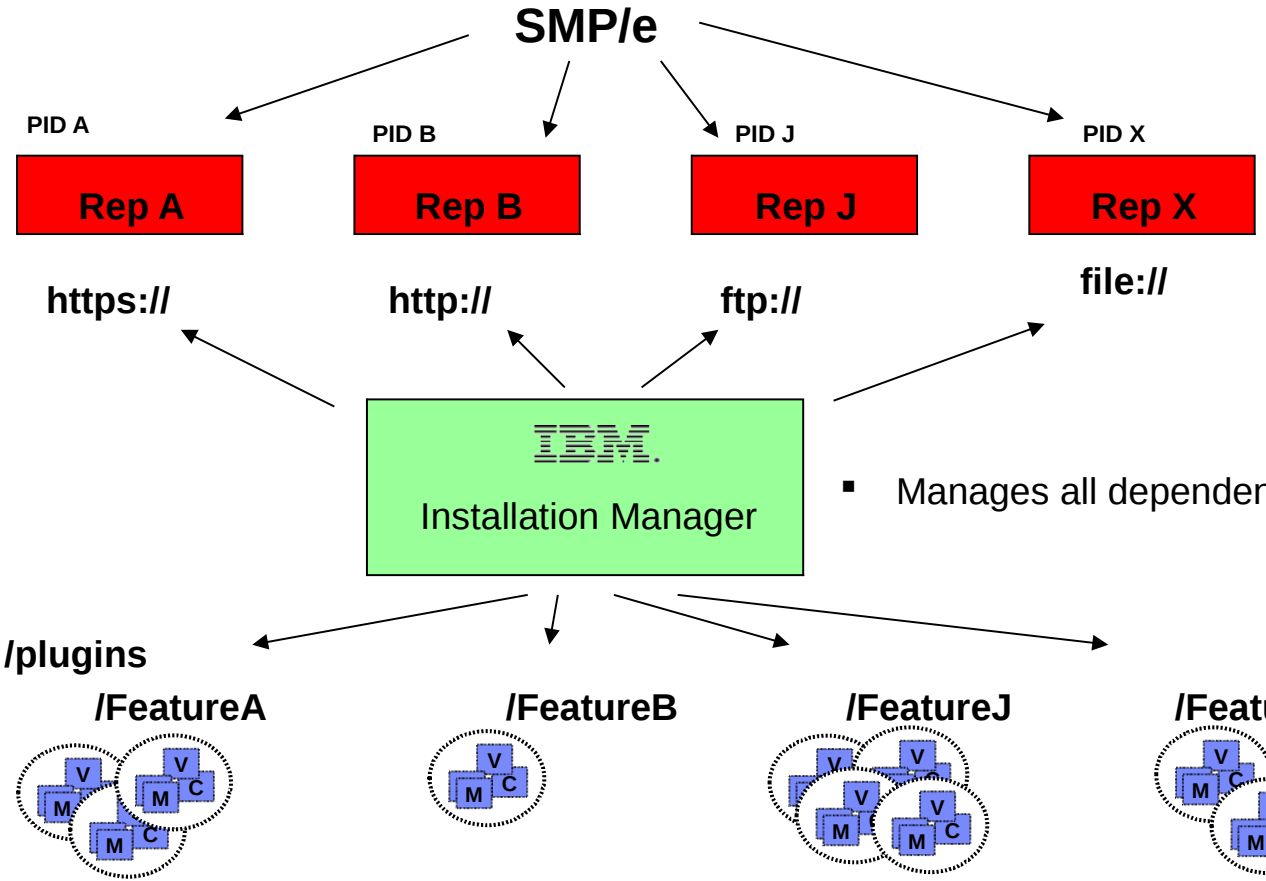
Management Console Deployment



Zero-install Web-based Administration



Installation Manager (managing packages and dependencies)



- Manages all dependencies, etc

IMS

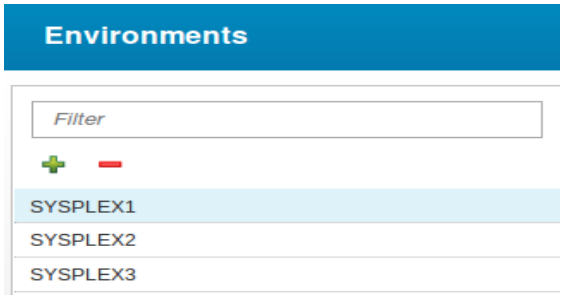
IMS Dashboards

- **Enterprise System View**
  - IMS Resource and IMSPlex discovery
  - Hierarchical representation starting from the SYSPLEX to the IMS Resources
- **Enterprise Search**
  - Search across the entire enterprise
- **Visual Status**
  - Quickly see the status by color for IMS Resources
  - Hover and click status for reason codes and corrective actions
  - Filter IMS Resources
- **Manage IMS Resources**
  - Start and stop IMS Resources
  - Multi-select IMS Resources to manage and update
- **Resource Relationships**
  - View IMS resource relationships
  - At a glance, understand why a transaction is having a problem
- **Customize**
  - Change the column attribute defaults
- **Command Console**
  - Submit IMS commands
- **IMS Connect and IMS dashboard**

Discovery

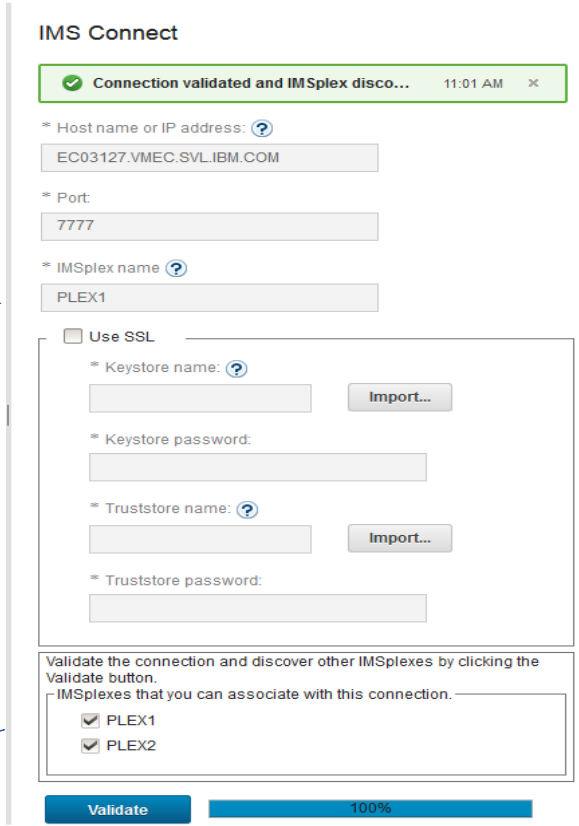
- **Minimal configuration**
  - Create an Environment
    - Add IMS Connects
- **Discovery**
  - IMSPlexes
  - IMSPlex Members
  - IMS Connect
  - IMS
  - Transactions
  - Databases
  - Programs
  - Routing Codes

Configuration



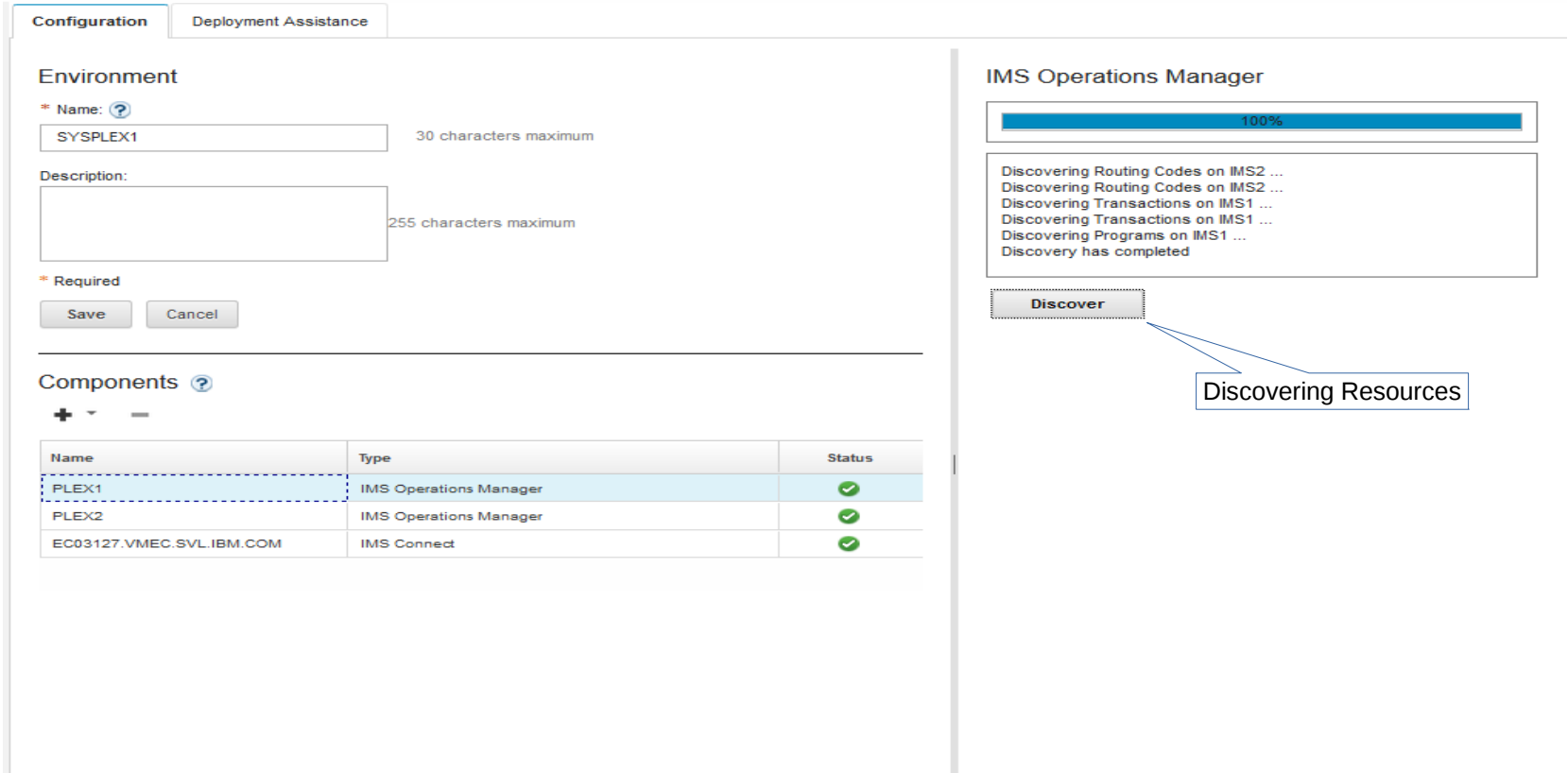
Define Environment

Configure IMS Connect



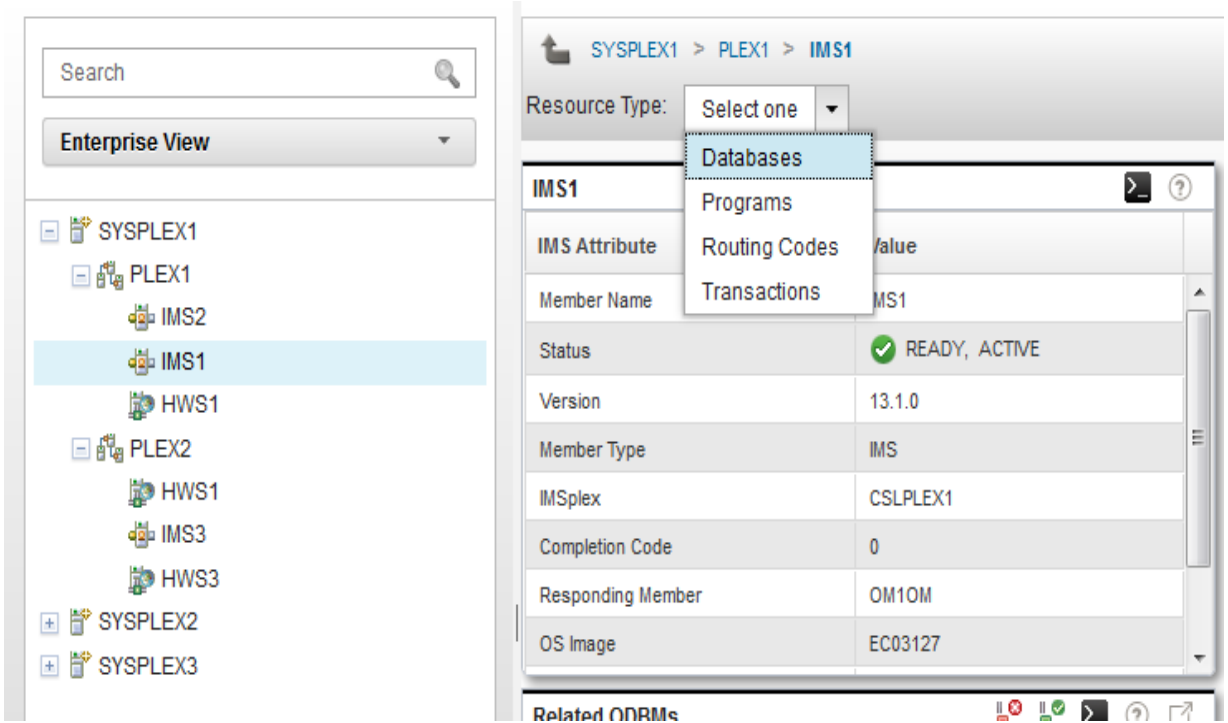
Discovered PLEX1 & PLEX2

Discovering



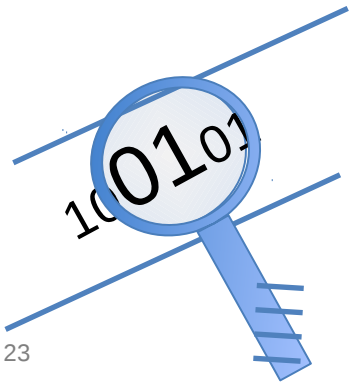
Enterprise View

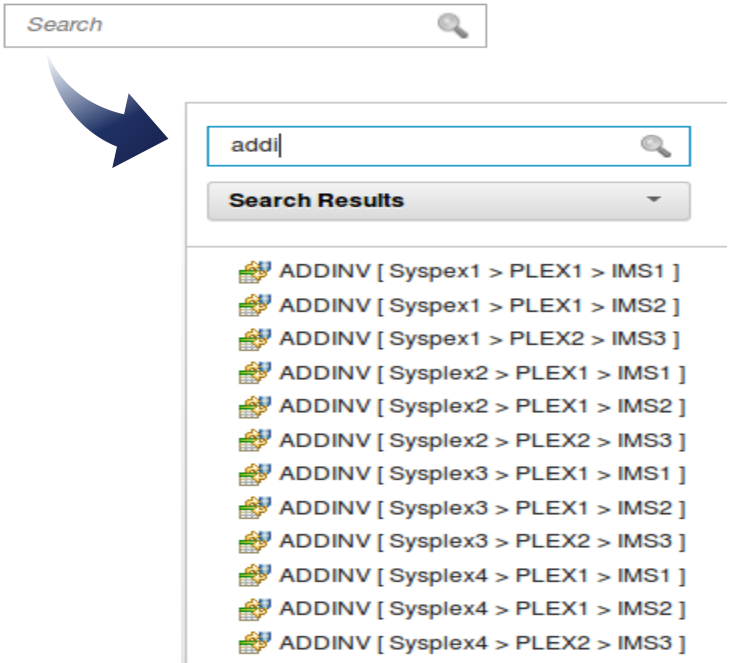
- Hierarchical view of IMS Resources
- Logically grouped and auto discovered
- Quickly navigate from one resource to another



Enterprise Search

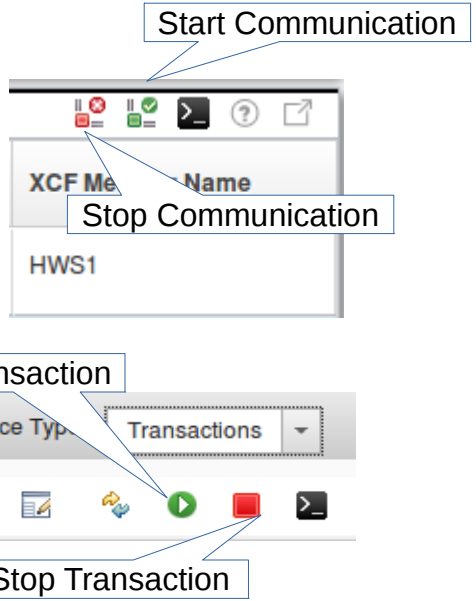
- Search discovered resources by name
  - Transactions
  - Programs
  - Routing Codes
  - Databases
- Type-ahead search
- Visually display resource location
  - SYSPLEX > IMSPlex > IMS



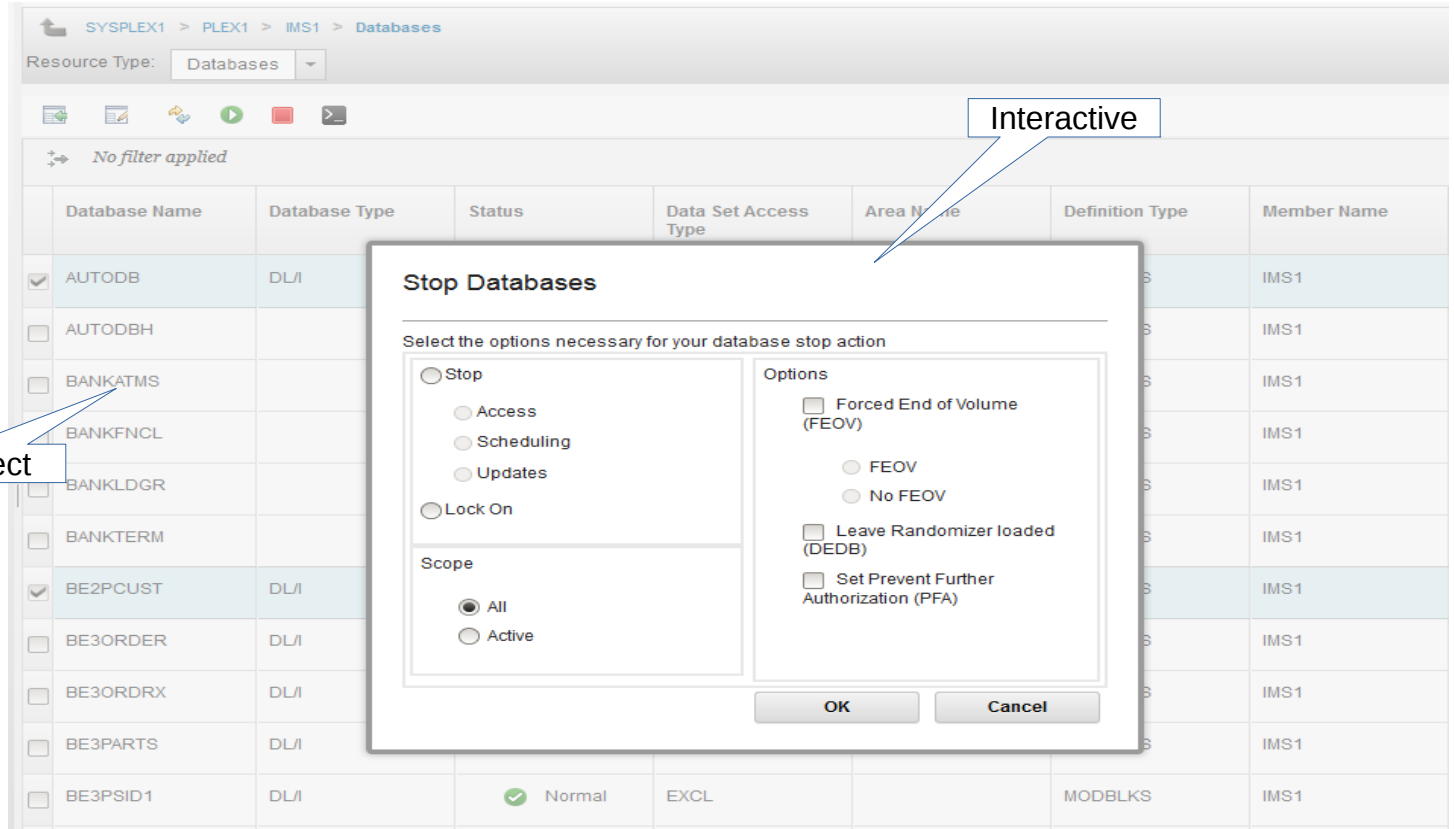


Manage IMS

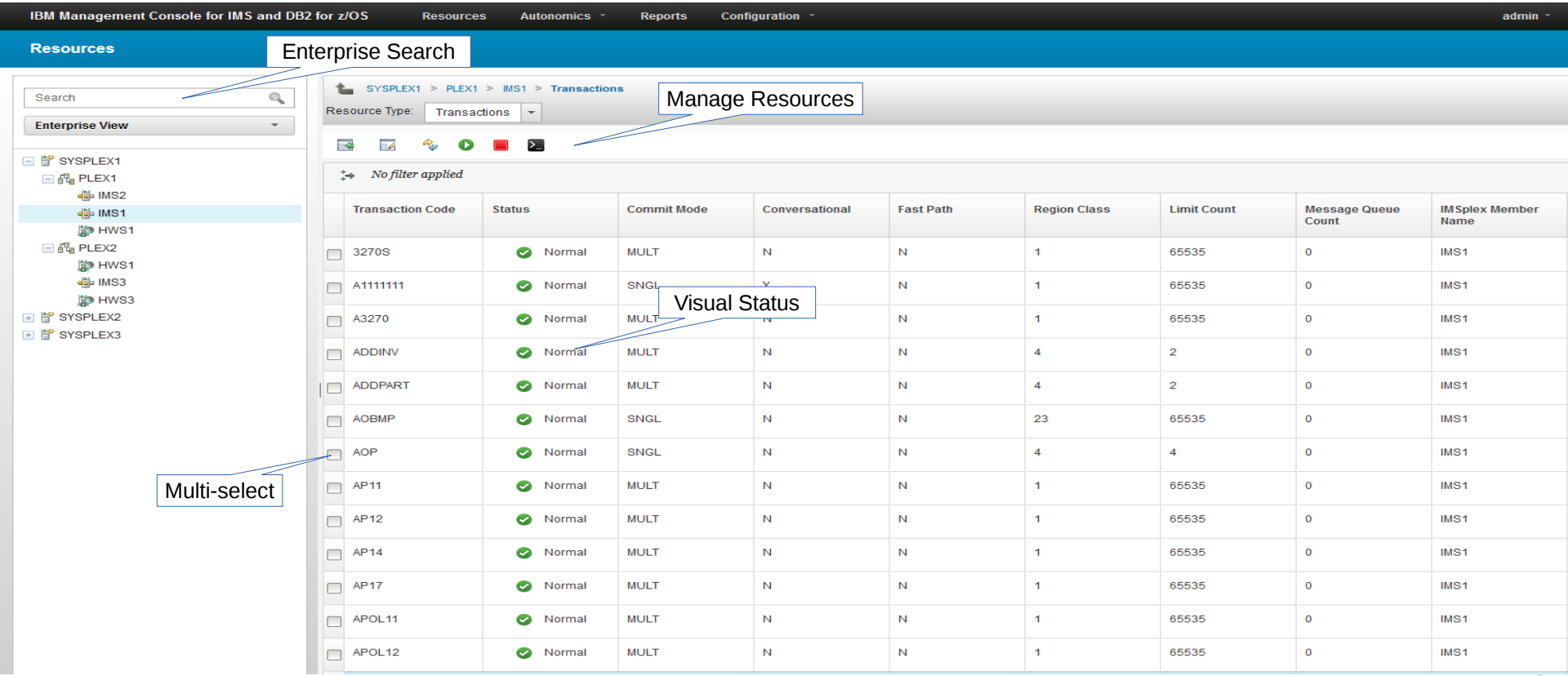
- View IMS statuses at-a-glance
- Start and stop
  - Transactions, Programs, Routing Codes, Databases
- Start/Stop communication link
  - IMSPlex, Datastore, Ports, ODBM, Remote IMS Connect
- Update resources graphically
  - Batch and single mode
- Help panels for reason codes and corrective actions
- Filter displayed results



Manage IMS – Database

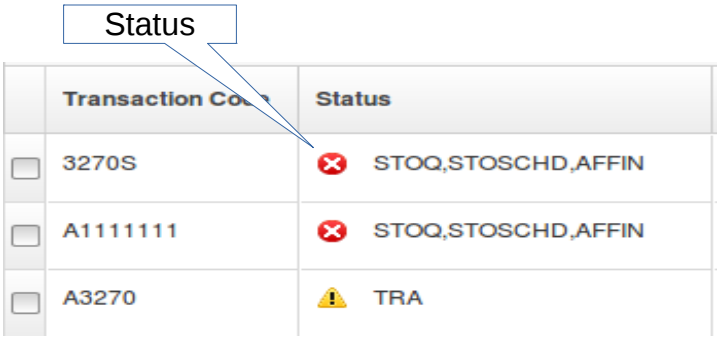


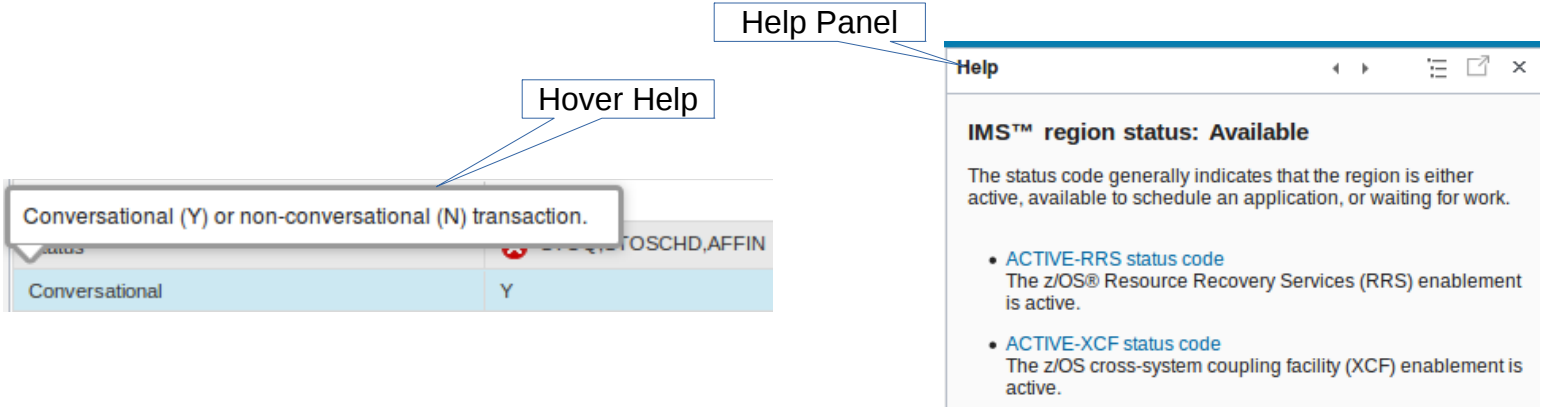
Manage IMS – Resource View



Manage IMS - Help

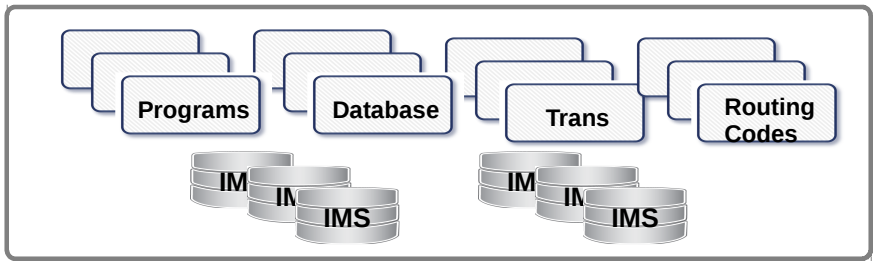
- Hover help
- Status by color
- Help panels



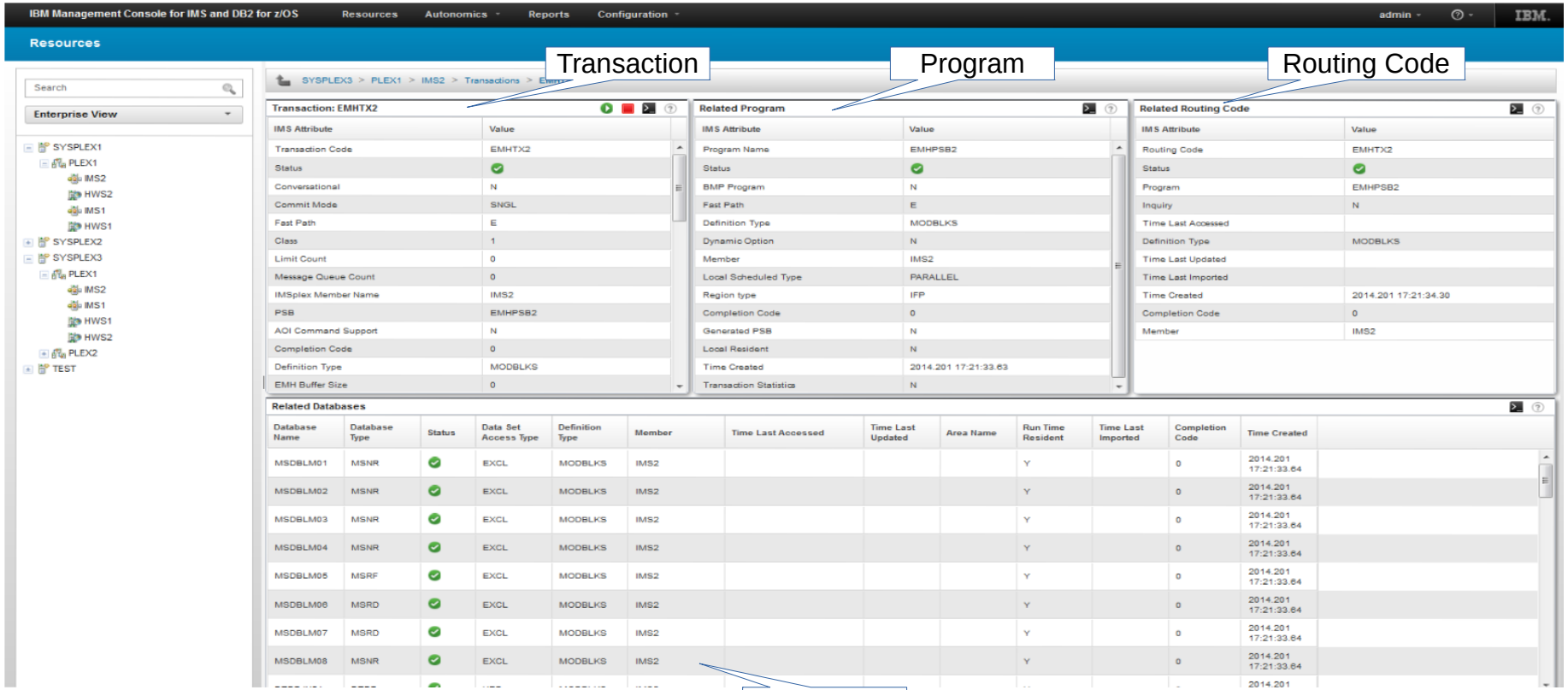


IMS Resource Relationships

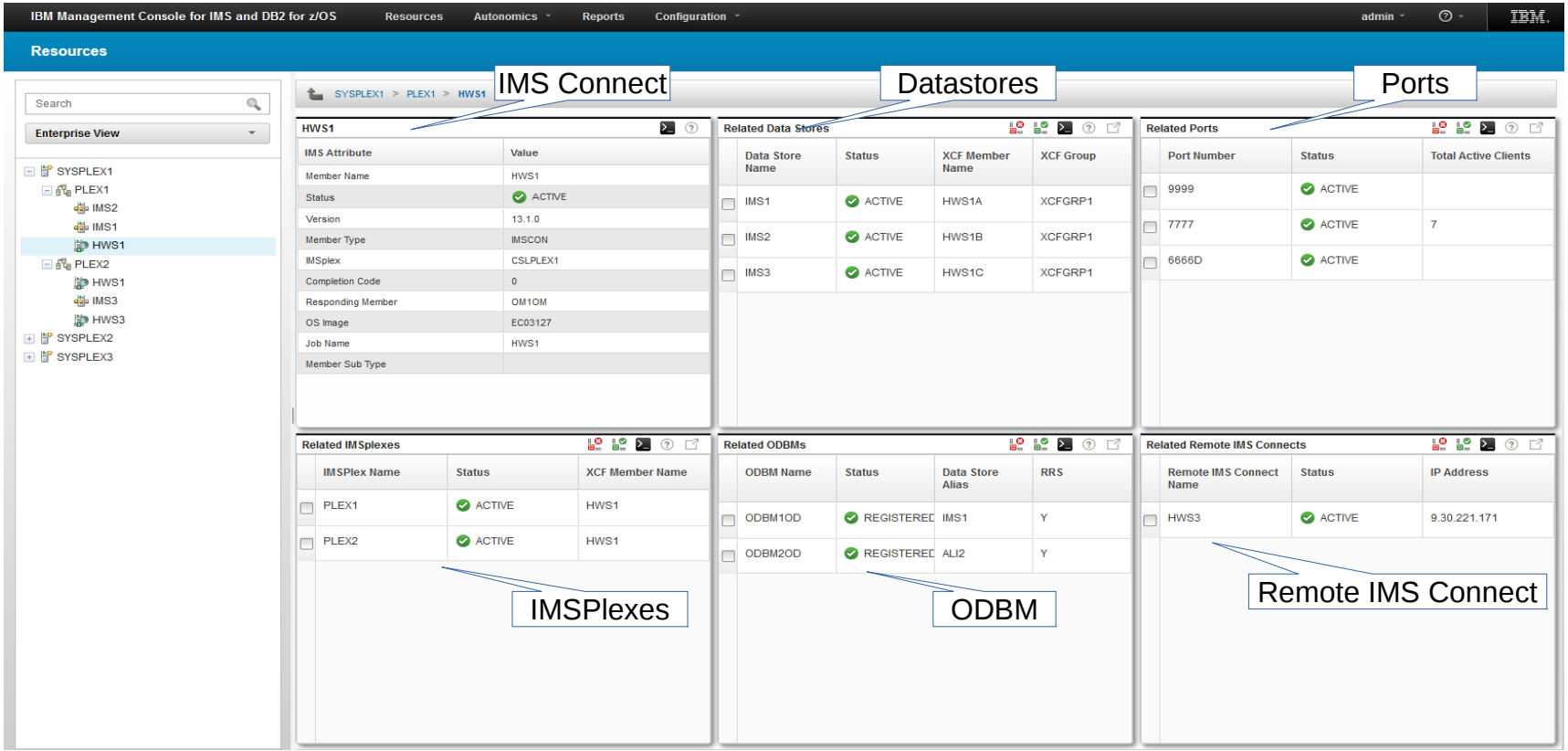
- Visually see how resources are related
  - Which database is this program accessing?
- Visually see how communication is established for IMS and IMS Connect
  - Which ODBM is connected to IMS?
  - Which ODBM is connected to IMS Connect?
  - More.....
    - Remote IMS Connect
    - RECON's
    - Datastores
    - Ports
    - XCF Groups
    - Regions.....



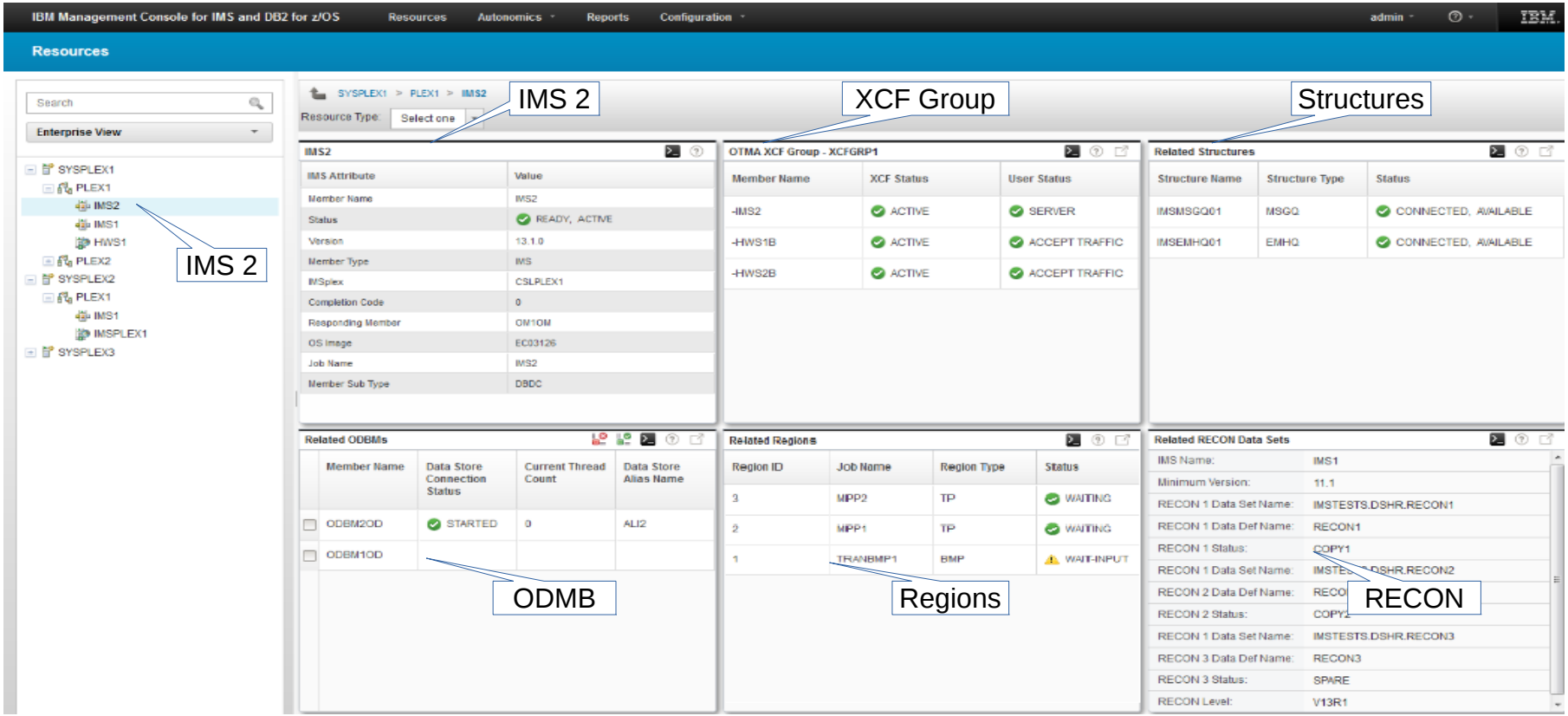
Resource Relationship - Transaction



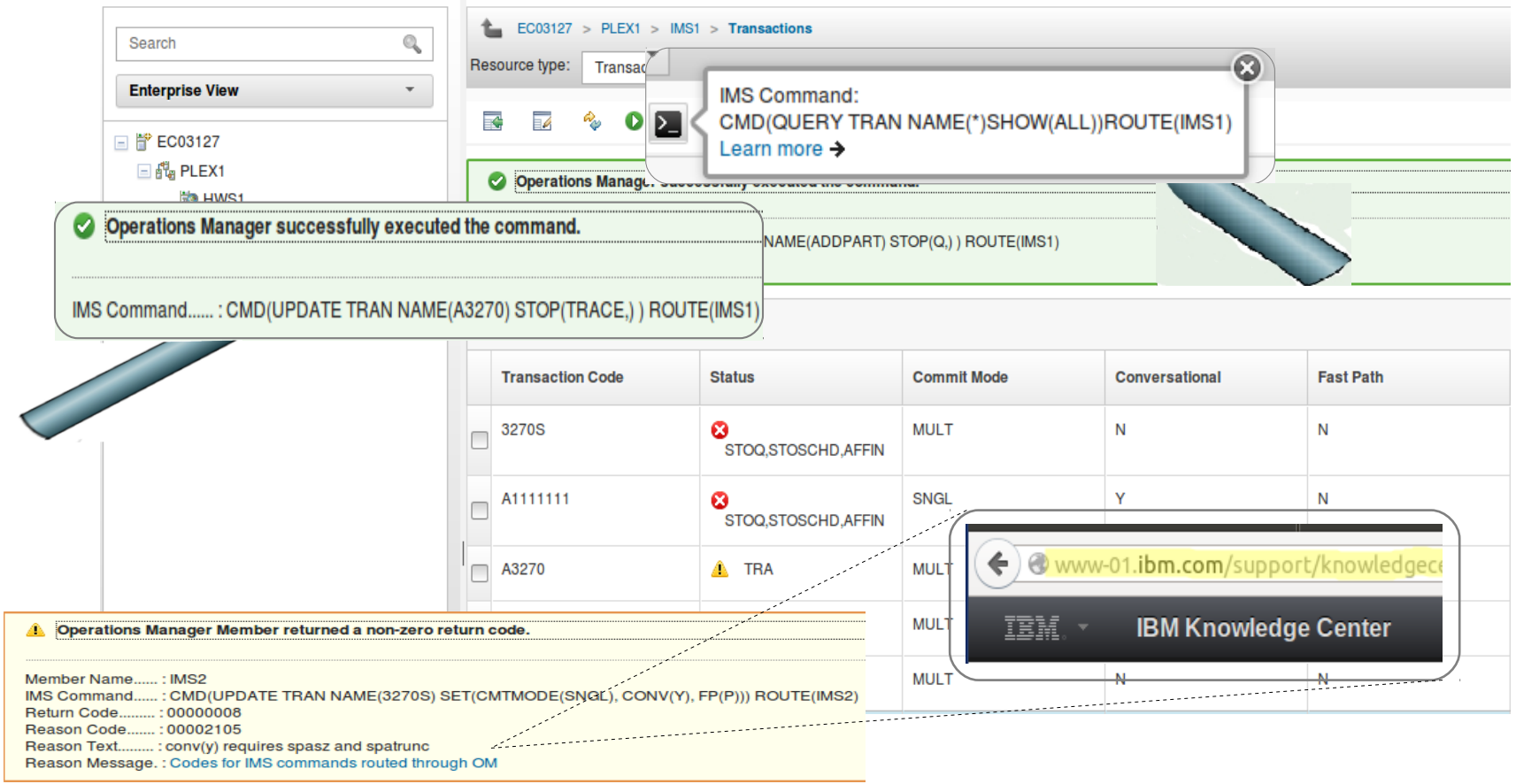
Resource Relationship – IMS Connect



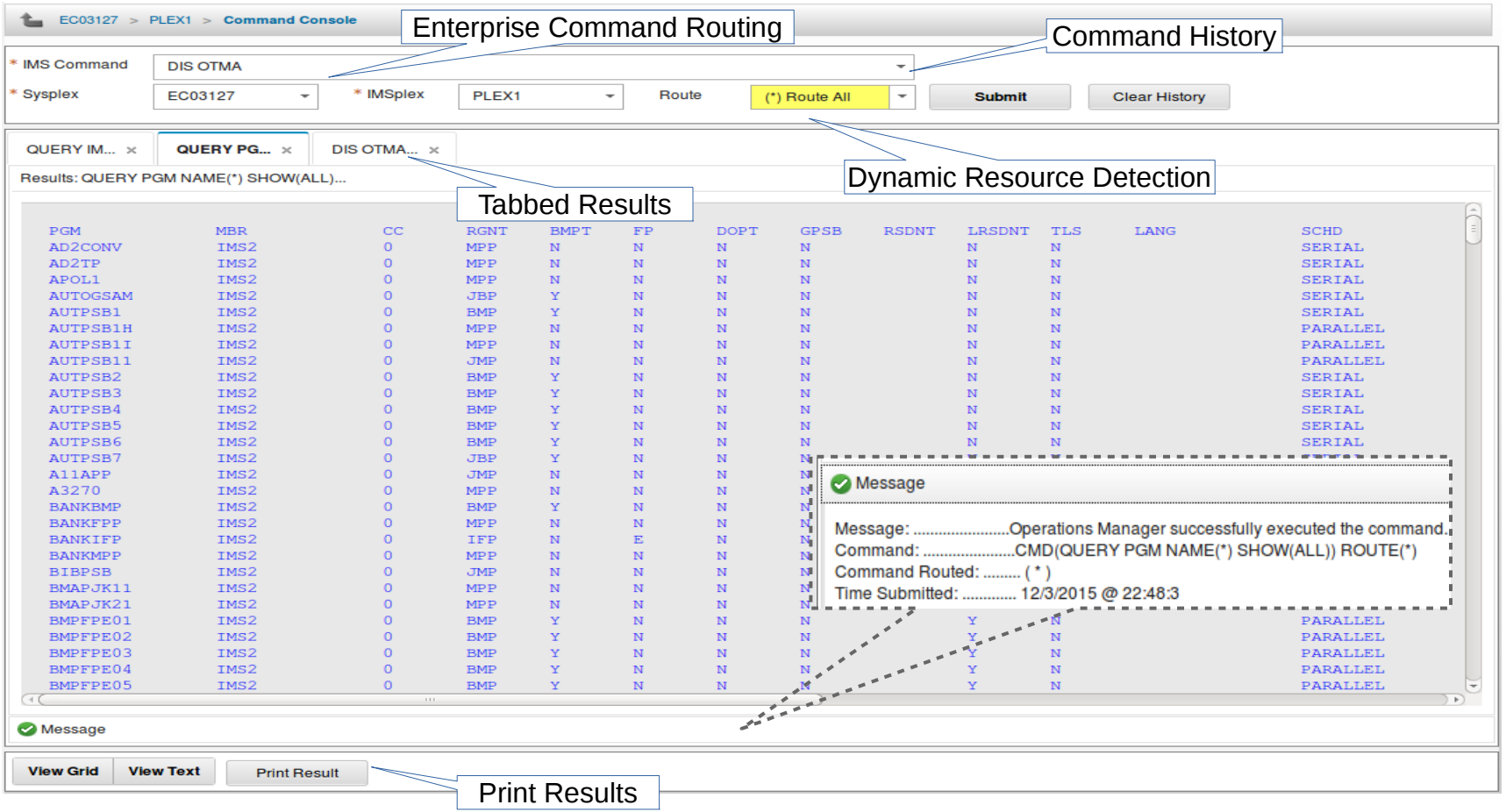
Resource Relationship – IMS



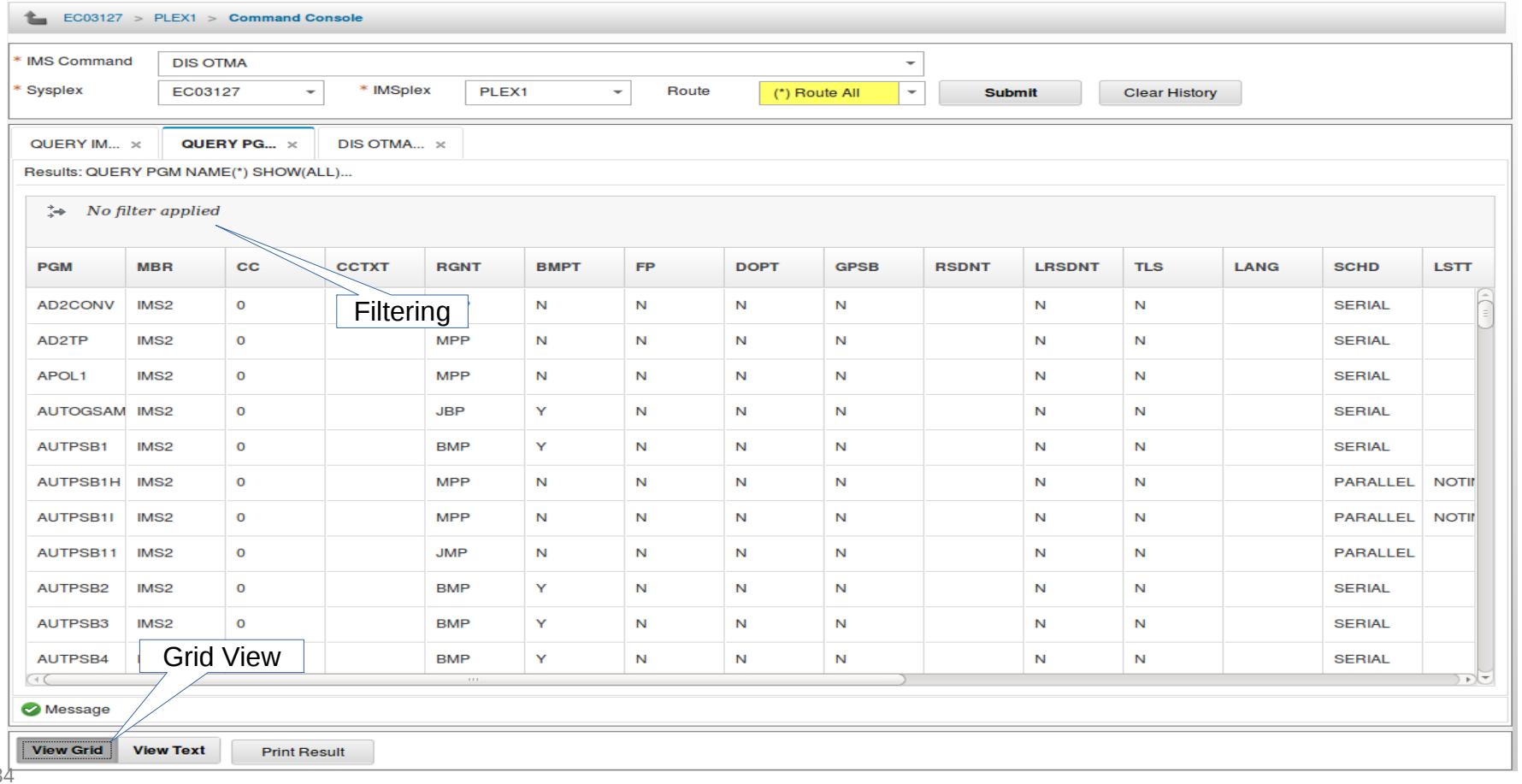
Messages and Commands Displayed



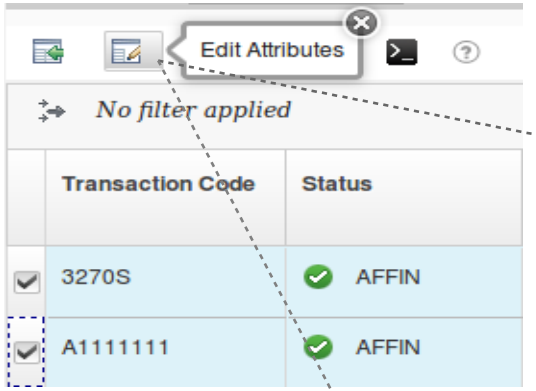
IMS Command Console – Text View



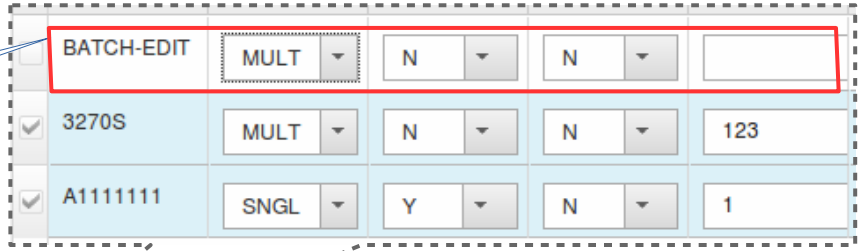
IMS Command Console – Grid View

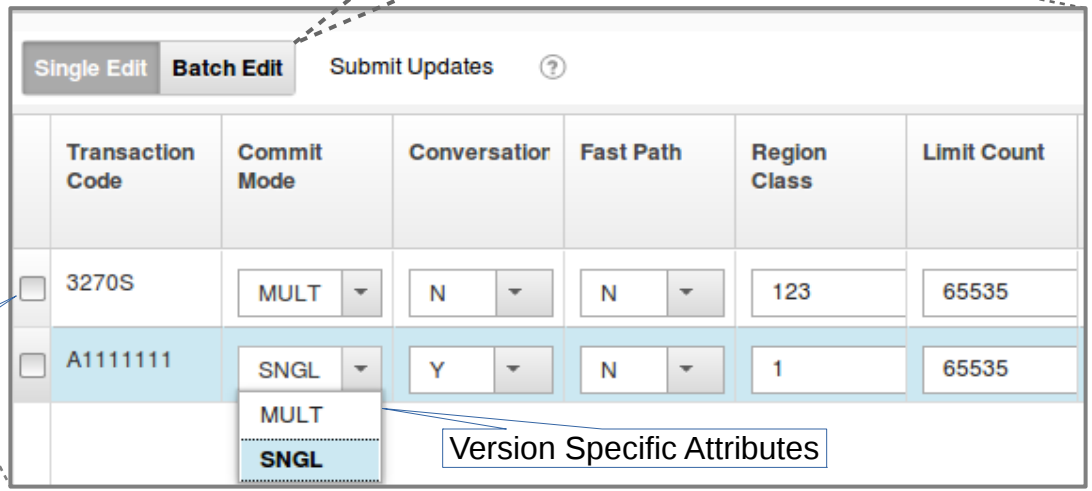


Update Resources



Batch Support

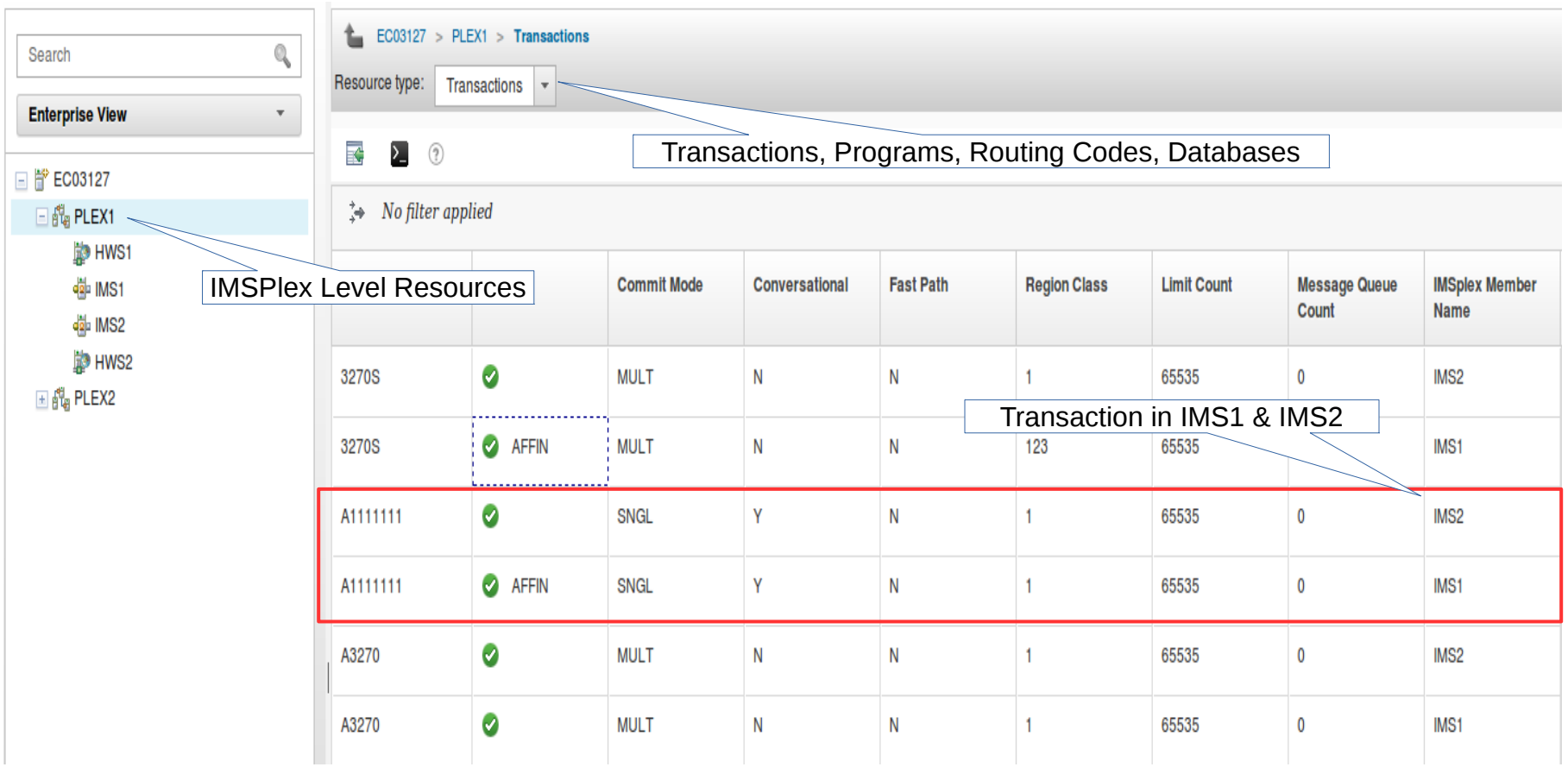




Single Edit

Version Specific Attributes

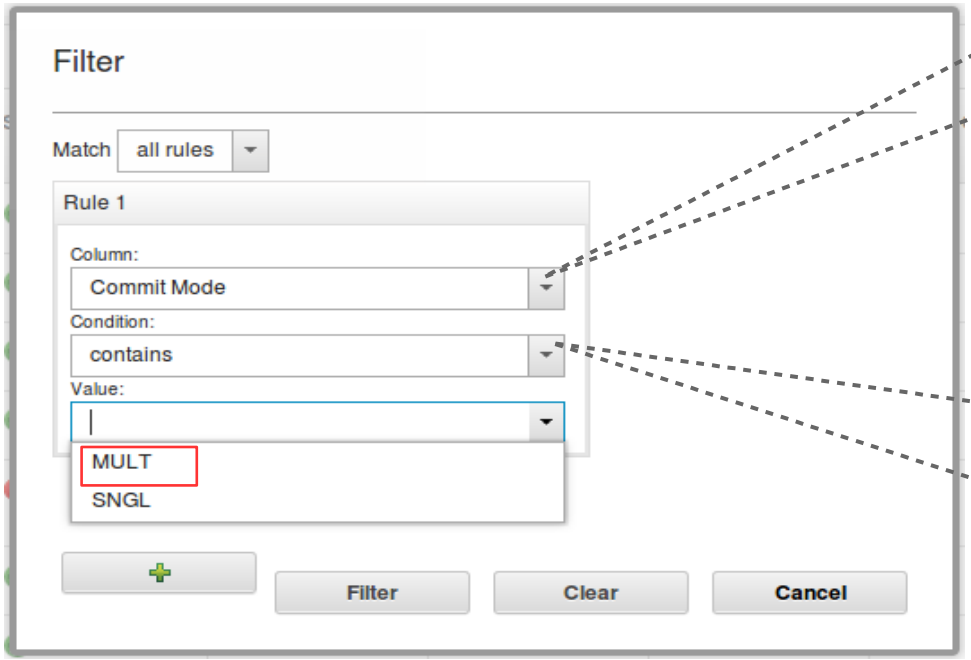
View Resources from the IMSPlex



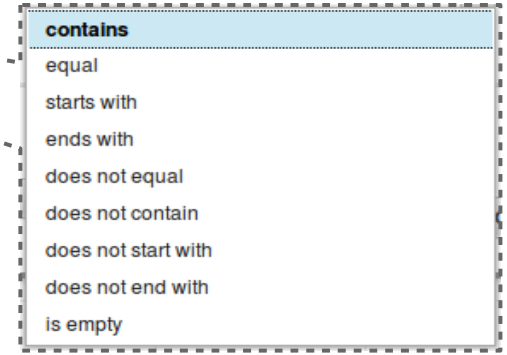
		Commit Mode	Conversational	Fast Path	Region Class	Limit Count	Message Queue Count	IMSplex Member Name
3270S		MULT	N	N	1	65535	0	IMS2
3270S	AFFIN	MULT	N	N	123	65535		IMS1
A1111111		SNGL	Y	N	1	65535	0	IMS2
A1111111	AFFIN	SNGL	Y	N	1	65535	0	IMS1
A3270		MULT	N	N	1	65535	0	IMS2
A3270		MULT	N	N	1	65535	0	IMS1

Filtering Results

Filtered by Commit Mode



Transaction Code	Status	Commit Mode
3270S	AFFIN	MULT
A3270		MULT

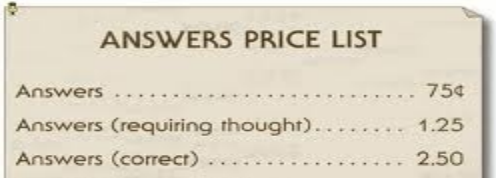


IMS & DB2 Autonomics

The Growing z/OS Skills Gap

- Expert IMS & DB2 z/OS skills are dwindling
  - Experienced DBAs and SysProgs continue to retire
  - New DBAs and SysProgs take years to become “experienced”
  - Industry wide – modern employees spend less time in a single role
    - Becoming less likely to find as many 25+ year experienced DBAs and SysProg
- Yet, the need for expert DBA / SysProg skills is growing
  - Demands for 24x7 high performance operation continue to increase
  - Allowed outage windows are shrinking and are less frequent
    - Maintenance done in those windows is more important than ever
  - Increasing system complexity makes planning, maintaining, and troubleshooting more difficult and time consuming
- DBAs / SysProgs must become more efficient, more quickly

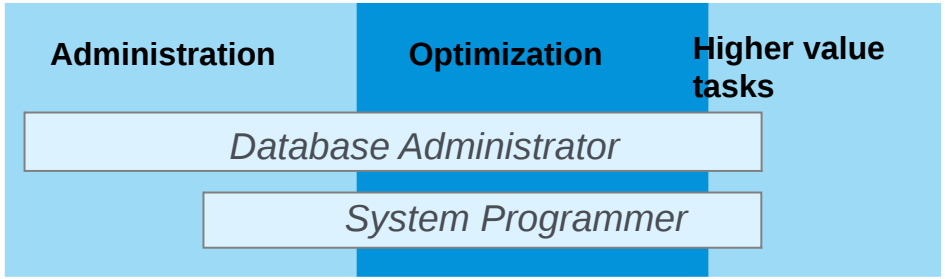
IBM Tools Answer…



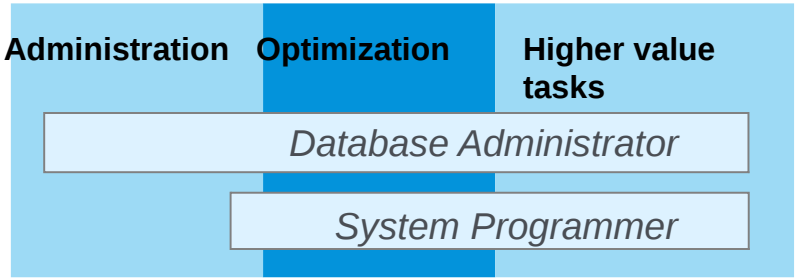
- Autonomics
  - Automate the routine collection of data
  - Automate the simple analysis of this data
  - Automate the obvious decisions based off this analysis
  - Automate the straight-forward execution of decisions
- Advanced Graphical Interfaces
  - Consolidate and simplify information from various sources
  - Simplify the presentation of complex information (visuals)
  - Shorten the learning curve (integrated assistance and doc)
- Convergence of our Tools
- IBM Tools start working together and leverage each others functions
  - “Sum is greater than the total of its parts”

The Value of Autonomics

Today



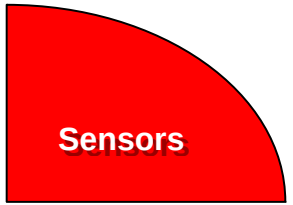
Target: IMz Tools enables productivity



…the essence of autonomic computing is system self-management, delivering better system behavior and **freeing administrators from low-level task management.**

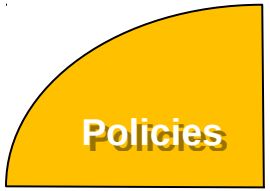
Source: Wikipedia, Oct 2014, http://en.wikipedia.org/wiki/Autonomic_computing

Sensors: Collecting the Basic Information You Need



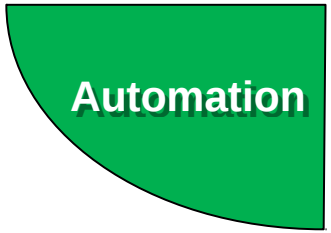
- Statistical point-in-time sensor data on your FF/FP Databases
  - Stored in IMS Tools Knowledge Base repository
  - Historically maintained per user specifications
  - Over 60 / 70 separate data elements related to space usage, optimization, and fragmentation
    - Data set extents, DASD volume usage, data set free space, roots distribution, RAP usage, CI/CA splits, and IMS free space, etc...
- Two methods of collection:
  1. Standalone database Sensor utilities for full-function and Fast Path databases
  2. Integrated with existing IMS Tools
- Integrated Tools support
  - High Performance Image Copy, High Performance Pointer Checker
  - Fast Path Analyzer, Fast Path Online Pointer Checker

Policies: Using Sensor Data to Make Decisions



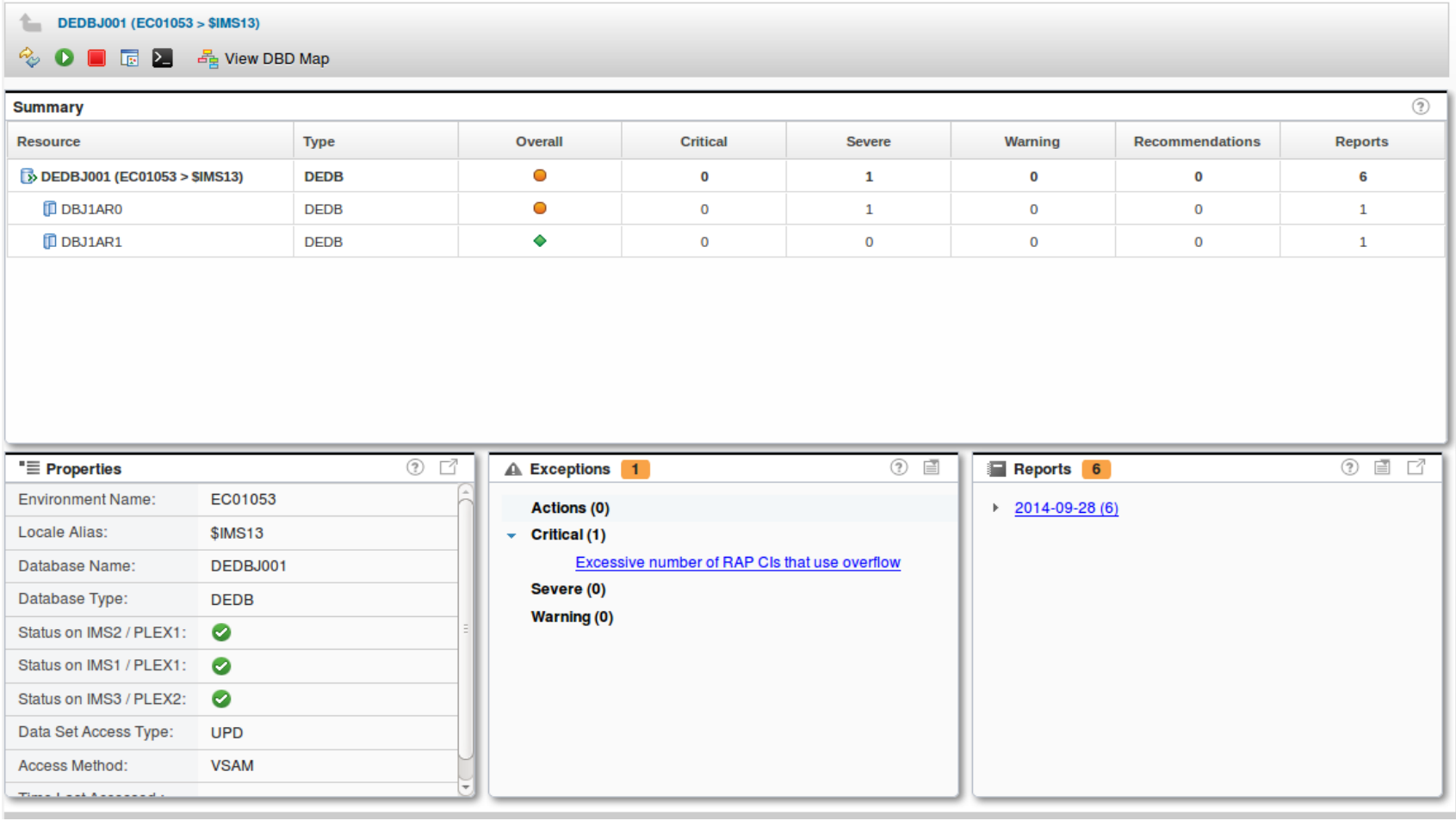
- Policy definitions are used to evaluate specific database states
  - Threshold values are compared against sensor data for a given database or group of databases
  - When thresholds are met or exceeded, exceptions occur
- Works “out of the box”
  - Ships with predefined policies and threshold values
  - Full ISPF interface provided for policy management
- Customizable to fit your shop
  - You can define your own sets of threshold values
  - Customize the messages sent when exceptions do occur
  - Specify who receives which messages and how
    - WTO, e-mail, or text

Automation: Delivering on our Vision

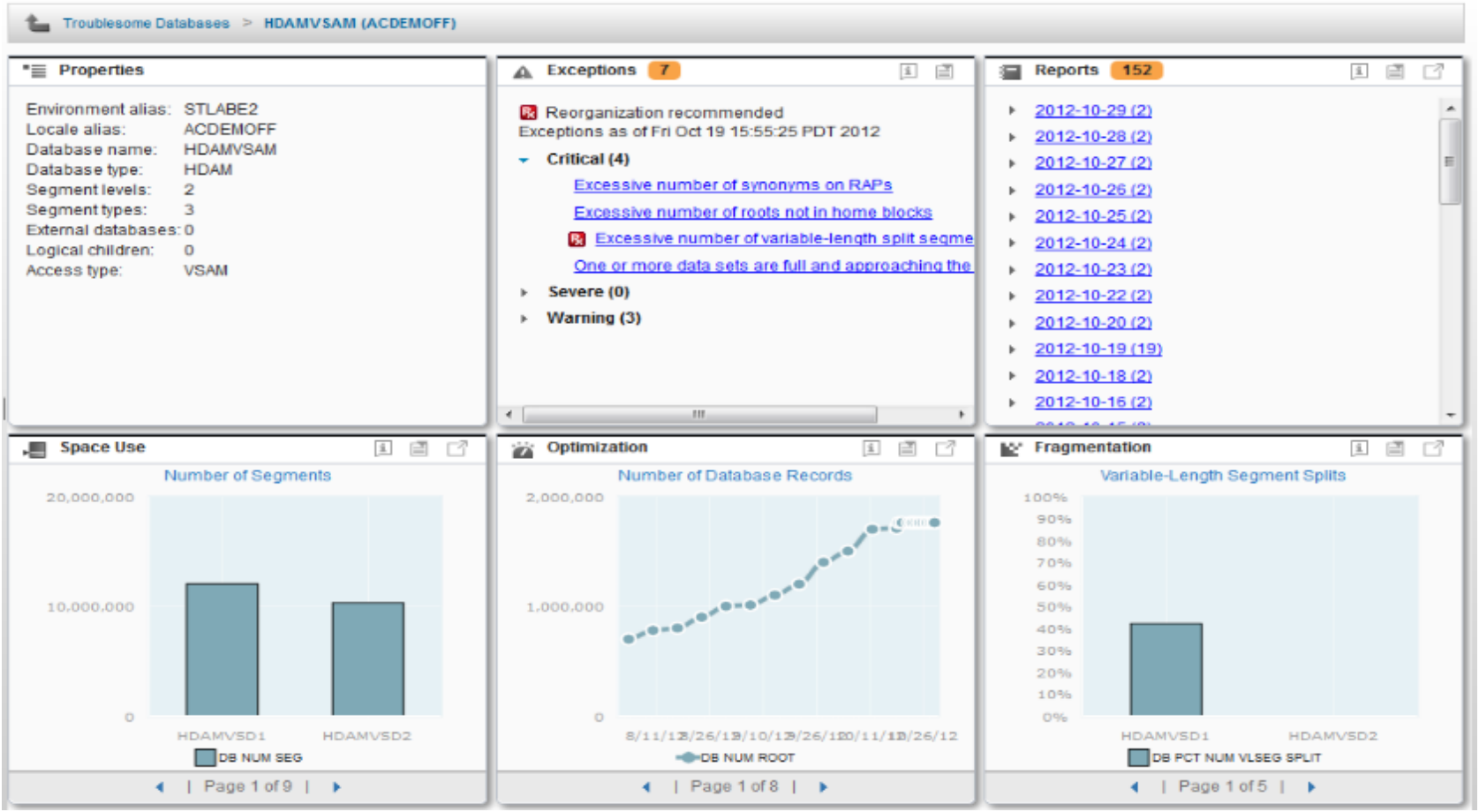


- IBM Tools Autonomics Director 1.3 (Passive)
  - Automates collection and analysis of Sensor Data
  - Recommends when databases should be reorganized
    - With email or text notifications
  - Provides a scheduling feature that allows you to control how frequently sensor data is collected and how frequently policies are evaluated
  - Flexible scheduling around pre-defined PEAK times
- IBM Tools Autonomic Director 1.4 (Active)
  - Actively initiate recommended actions on user-defined database groups
    - Discovery feature for identifying related database groups
    - Ability to manage and coordinate reorganization of multiple IMS database groups as if reorganizing a single database
    - Flexible scheduling only in pre-defined Maintenance windows

IMS Autonomics



IMS Autonomics



DB2 Utilities Solution Pack 2.1

new

- DB2 Utility Autonomics Support
  - Capture historical utility execution
  - Automate analysis and surface potential problems and recommended solutions into the Autonomic Framework
  - Autonomically drive REORG, IC, RUNSTATS only when necessary in user configured maintenance windows
- DB2 Sort v2.1 for z/OS*
  - Greater optimization with a tighter integration between DB2 Sort and IBM DB2 Utilities, delivered via a bi-directional, multi-record interface:
    - Up to 87% reduction of Sort CPU usage when used with zIIP engines (up to 49% w/ no zIIP)
    - Up to 60% reduction of utility CPU usage when used with zIIP engines (up to 39% with no zIIP)
    - Up to 46% reduction of utility elapsed time
- DB2 Automation Tool v 4.2 for z/OS*
  - Job profile grouping provides flexibility to combine utility maintenance functions within a single job profile to meet application and business needs
  - Support for e-mail, text message or Write-to-Operator (WTO) notifications when selected events occur, such as start/end of a job build or start/end of a maintenance window

"More integration, greater value"

Optimize, control manage & automate

Components:

DB2 Automation Tool

DB2 High Performance Unload for z/OS

DB2 Sort for z/OS

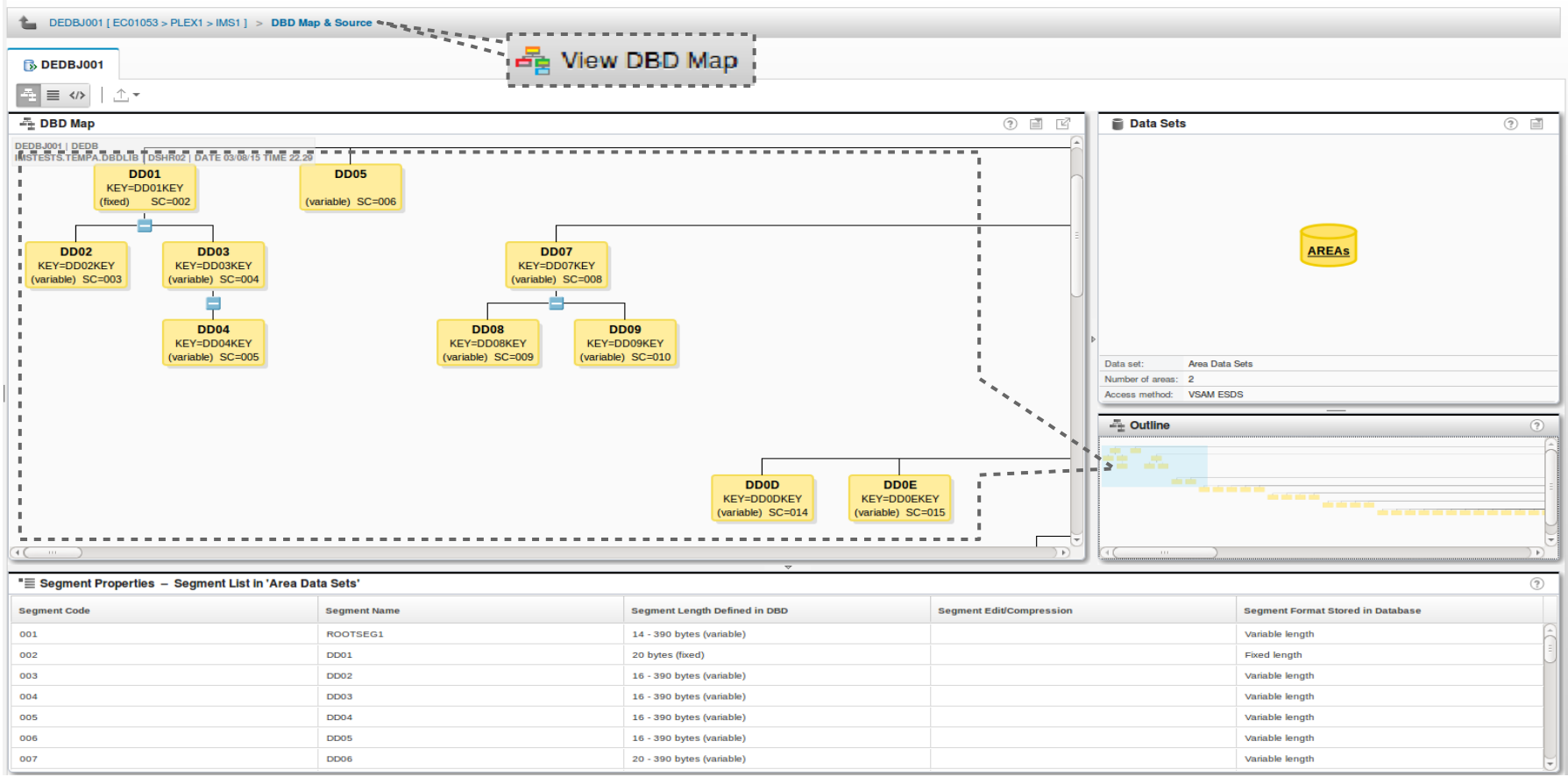
DB2 Utilities Enhancement Tool

+ Autonomics support

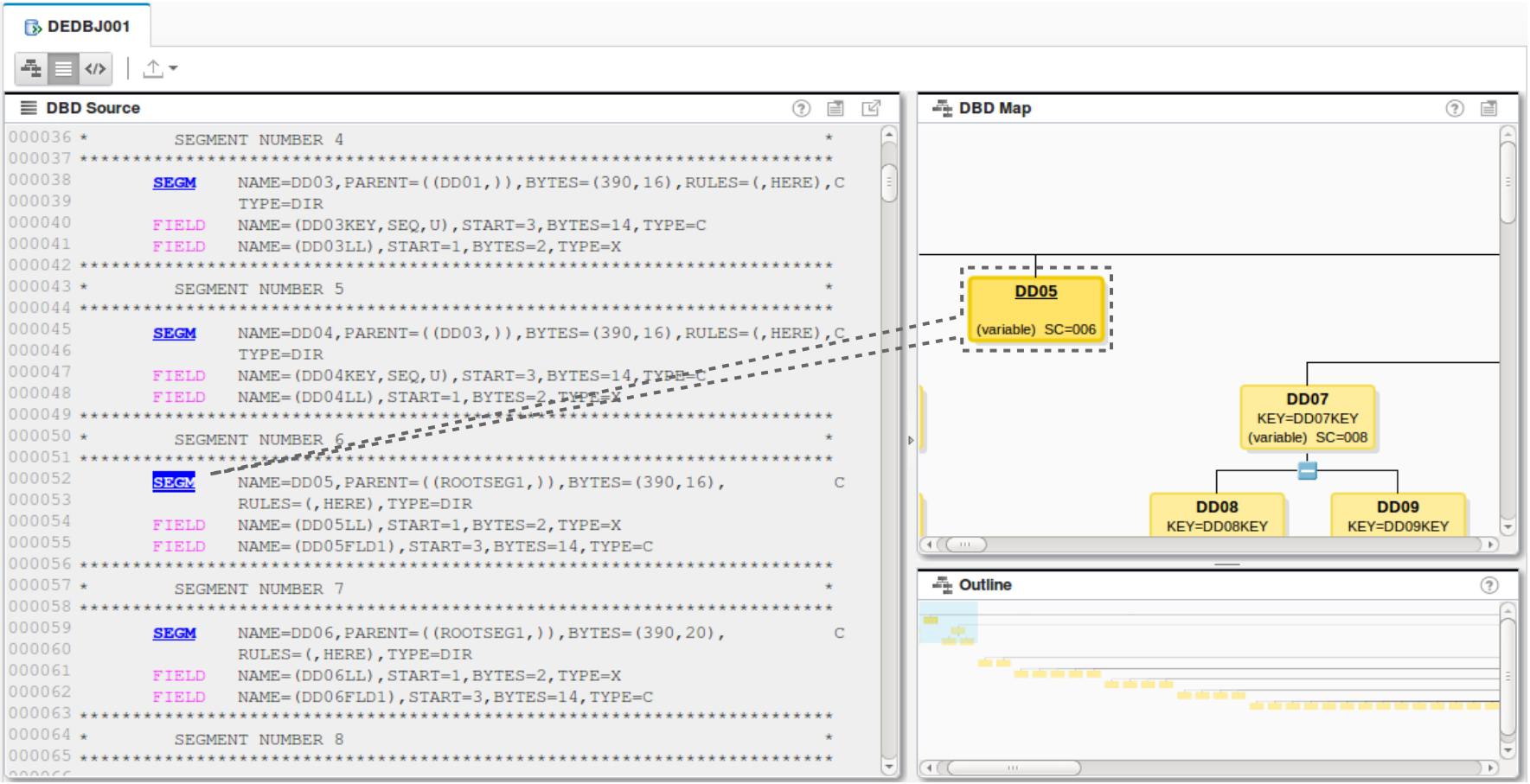
DB2 Utilities Solution

Library Integrity Utilities

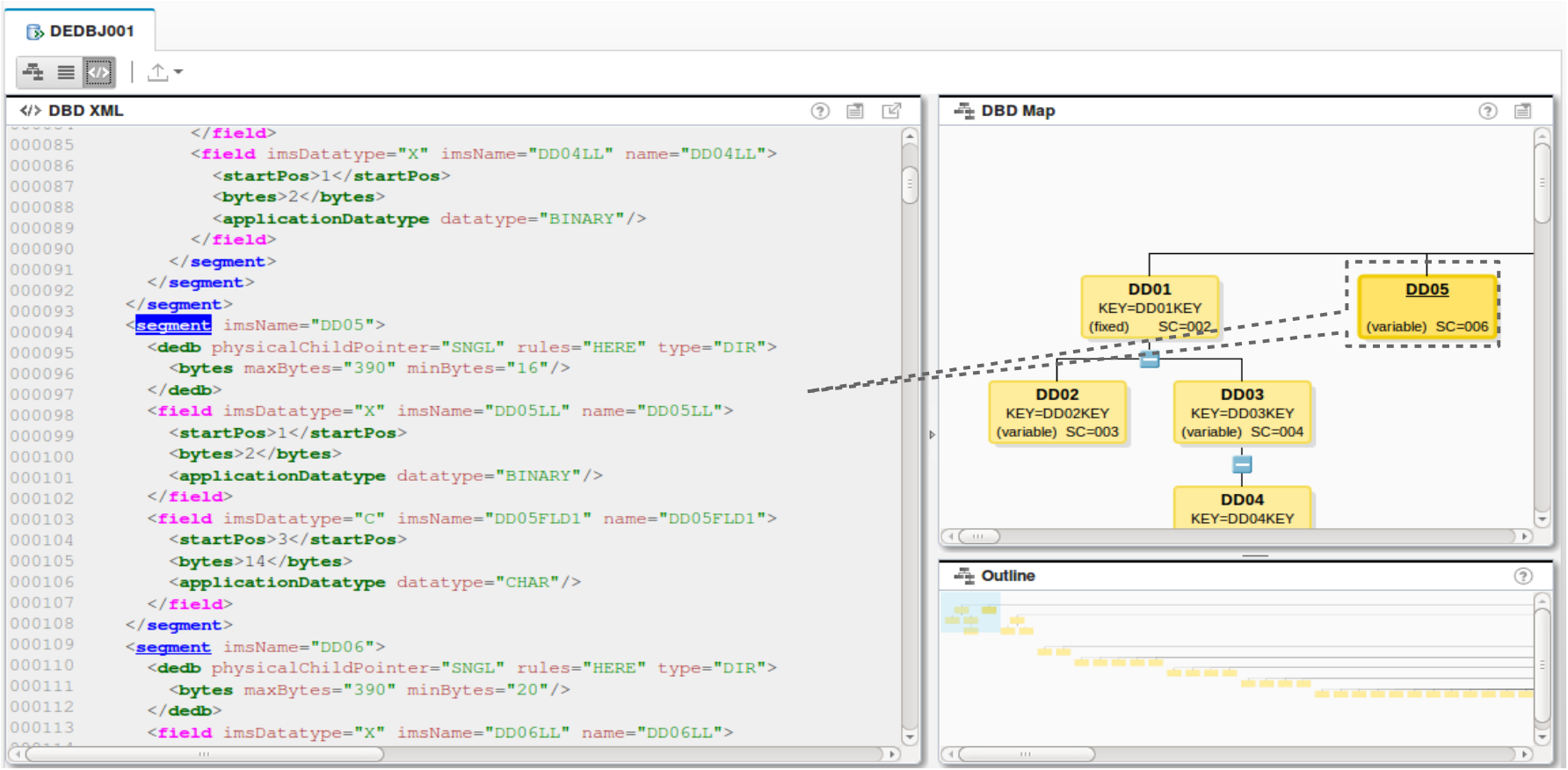
Library Integrity Utilities



Library Integrity Utilities – DBD Source



Library Integrity Utilities – DBD XML



<dedb physicalChildPointer="SNGL" rules="HERE" type="DIR">
<bytes maxBytes="390" minBytes="16"/>
</dedb>
<field imsDatatype="X" imsName="DD05LL" name="DD05LL">
<startPos>1</startPos>
<bytes>2</bytes>
<applicationDatatype datatype="BINARY"/>
</field>
<field imsDatatype="C" imsName="DD05FLD1" name="DD05FLD1">
<startPos>3</startPos>
<bytes>14</bytes>
<applicationDatatype datatype="CHAR"/>
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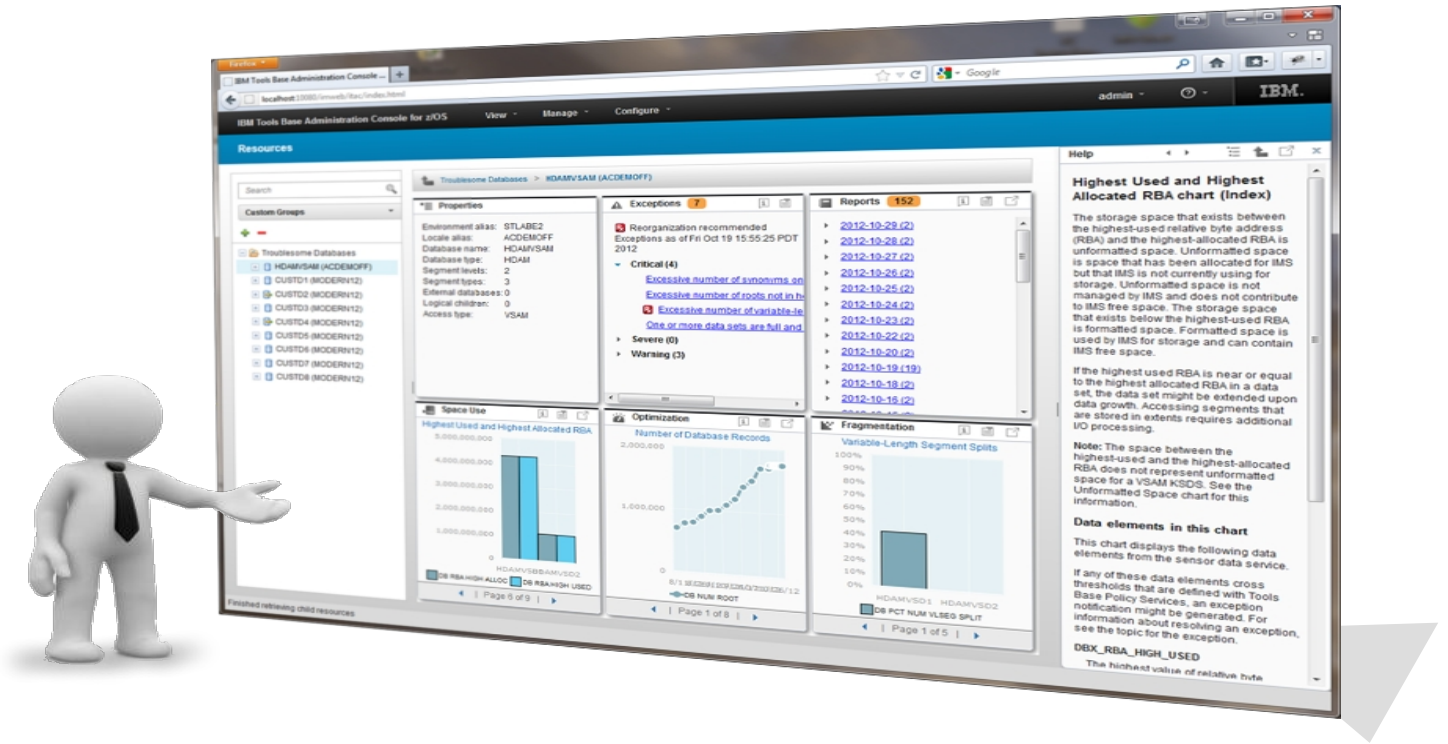
<dedb physicalChildPointer="SNGL" rules="HERE" type="DIR">
<bytes maxBytes="390" minBytes="20"/>
</dedb>
<field imsDatatype="X" imsName="DD06LL" name="DD06LL">
DBD Map
DD01
KEY=DD01KEY
(fixed) SC=002
DD05
(variable) SC=006
DD02
KEY=DD02KEY
(variable) SC=003
DD03
KEY=DD03KEY
(variable) SC=004
DD04
KEY=DD04KEY
Outline

Management Console Demonstration

IBM Management Console Demonstration



Questions ?

Reserved Charts

Futures

Futures

- Display runtime definitions from IMS and the stored resource definitions from the IMSRSC repository
- Display the Datastore Alias for ODBMs communicating with an IMS Connect
- Display the Datastore Alias for ODBMs communicating with an IMS
- Display clients that are connected to IMS Connect ports
- Start/Stop both Dependent Regions
- Batch IMS Commands from the command console
- Batch IMS Commands from the command console with a scheduler
- Export IMS Commands from the command console as comma separated values
- Configure IMS Connect without the need to enter the IMSplex value
- User interface customization preference:
  - configure status icon colors (red,yellow,green)
  - configure column names
  - save filters
  - different roles (Admin, DBA, Programmer, etc...)
  - history of each users commands