



# Keeping DB2 SQL Queries on a Short Leash: New Advancements in Query Monitoring

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Thomas J. Hubbard

Product Specialist Manager



# Introduction to DB2 Query Monitor

- **SQL Monitoring Tool**
  - Not Thread or Subsystem monitor
- **Low overhead SQL statement monitor**
- **Identify problem SQL activity**
- **Determine the tables and indexes used by SQL statement**

# DB2 Query Monitor Features

- **Collects, summarizes, and displays**
  - SQL resource consumption down to the level of the individual SQL text statement
  - DB2 object access statistics down to the individual table and index
  - View historical data from the VSAM back-stores or DB2 tables
- **Enables users to view current activity**
- **Collects and displays DB2 command history**
- **Collects and displays negative SQLCODE information**
- **Provides Exception Monitoring**
  - **Collects information relating to exceptional SQL-related events with a complete picture of the environment surrounding the event**

## DB2 Query Monitor Features -GUI

- **Performs real-time knowledge-based analysis of exceptional events**
  - Root Cause Analysis
    - Enables users to analyze and diagnose the conditions under which exceptional events occur
- **Proactive event notification**
  - Provides real time alerts to exceptional events on a monitored DB2 subsystems
- **Autonomic functionality**
  - Enables DB2 Query Monitor to execute user-configurable responses
    - e-mail, pager, WTO notifications
    - corrective actions
      - console commands, batch job submission, DB2 commands, cancel threads

# Metrics Summarization

- Summarization by
  - **DB2 Subsystem, Plan name, Program, Collection, Section number, Statement type, Static SQL Text**
- Can optionally specify additional summarization
  - **OPTKEYS parameter**
    - Dynamic Text, Authid, Corrid, Corrname, WSuser, WStran, WSname, Calls
    - Level of summarization affects overhead
      - OPTKEY CALLS has the highest overhead
      - OPTKEY CALLS also adds collections of Statement number

# DB2 Query Monitor Data Storage

- **Interval-based VSAM Datasets for data storage**
  - A group of VSAM Datasets make up one Interval
    - SQL Metrics
    - DB2 object access
    - SQL text and host variables
    - DB2 commands
    - negative SLQCODES
    - Information about the exceptions
  - 1 to all Intervals of data viewable online
  - CQMPARMS control
    - number of intervals retained
    - Interval length
    - VSAM DATASET name mask and allocation configuration

# DB2 Query Monitor User Interfaces

- **ISPF**

- View all collected SQL data
- Configure Profiles

- **Web Browser Client**

- View across enterprise from a single console
- Consolidated view of data sharing group activity
- Everything that is in ISPF Plus
  - Alerts, Root Cause, Action / Response configuration

# Collecting SQL Performance Data

- **Data Collection is controlled by**
  - Monitoring profiles
    - Refreshable online
    - Profile WORKLOAD allow override OPTKEYS
  - CQMPARMS OPTKEYS
    - Must re-cycle Data Collector Started Task to refresh
    - Best not to put OPTKEYS in CQMPARMS



# Monitoring Profiles

- **Define one or more WORKLOADS for exception collection**
- **By default, nothing is included in collection**
- **Include/Exclude**
  - If Exclude, only workload specification and the disable summary reporting flags are checked
- **Multiple workload definitions within a single profile**
  - Definitions within a profile are processed sequentially
- **Profiles can be changed for a monitoring agent while the agent is still collecting information**

# Exceptions

- **Completed SQL statements which exceed specified thresholds**
- **All information in one record**
  - Written to VSAM file
- **How to find that 'one time'**
- **Supported thresholds include**
  - CPU Time
  - Elapsed Time
  - Getpages
  - SQLCALL count
- **Negative SQLCODES are exceptions**
  - All or Specific SQLCODES may be excluded

# Alerts

- **SQL statements which exceed specified thresholds**
- **Notice provided when the threshold is first crossed**
  - Allows for action while SQL running
  - Sent to Server not VSAM file
- **Supported thresholds include**
  - CPU Time
  - Elapsed Time
  - Getpages
  - SQLCALL count
- **Negative SQLCODES are alerts**
  - All or Specific SQLCODES may be excluded

# Viewing SQL Performance Data

- **DB2 Query Monitor Clients**

- ISPF Client

- Provides Display Customization

- Browser GUI Client

- Provides Display Customization

# Display Customization

- **User customization of screen layouts**
  - At an installation level
  - At an individual user level
- **Multiple column sorting capability**
- **Permanent or temporary views**
  - User's can toggle between permanent and temporary views
  - ISPF Customized displays saved in user.ISPTLIB
    - Allocated in CQM clist
  - GUI Customized displays saved on client PC

# Display Filters

- **Filters enable you to specify display criteria.**
  - Look for 'Filter Enabled' in upper left
- **Filters do not affect the data that is collected by DB2 Query Monitor**
- **Filters can be saved and reused**
  - **Must pre-allocate PDS**

# Field Level Help

- **ISPF**

- Cursor on field
- Command CHELP

# Viewing different intervals of collected data

- INTV command
  - **View Activity Summaries**
  - **View Exceptions**
  - **View SQLCODES**
  - **View DB2 Commands**
- Select one or a group of intervals
  - NEXT – **Select the next Interval to process**
  - PREV – **Select the previous Interval to process**
- Interval time range is displayed in top right
- Number of intervals available and time length of interval
  - **Defined in CQMPARMS**
    - INTERVAL and RETAIN



# ACTIVITY SUMMARY

- **Activity Summary** – View all SQL metrics information in the current and past intervals
  - **Operational Views** – Viewing SQL information from the perspective of the application program
    - Summarized by either DB2, Plan, Package, or Authid
  - **Structural Views** – Viewing information from the perspective of the DB2 objects on which the SQL statements act
    - Summarized by DB2, Database, Buffer Pool, or Page Set
  - REMEMBER – summarized not single execution

# CURRENT ACTIVITY

- **Real time, what is running now**
  - Longer than 5 sec
  - Normal drill down
  - Cancel Thread
  - Color change if exception/alert

# NEGATIVE SQLCODEs

- **View negative SQLCODE summary**
  - Grouping by SQLCODE, Authid, Plan, DBRM/Package, or none
  - Saved in backstores VSAM
  - Display both statement text and the SQLCA
  - CQMPARMS controls
    - Max SQLCODES
    - Max Detail

# DB2 COMMANDS

- **View DB2 Commands**
  - All commands in the system
  - Saved in backstores VSAM

# EXCEPTIONS / ALERTS

- **View Exception**
  - Single record of all detail about a single SQL Statement
  - Designed to be viewed on demand
  - Saved in backstores
- **View Alerts from GUI**
  - Alerts are view from Message Board
  - Relates Alert messages for Root cause
  - Designed to be responded to with an action
  - Saved on CAE Server
- **Optional – activated in Monitoring Profile**

## QM Tool Interfaces

- **Web Client**
  - Alert message board
- **Visual Explain integration**
- **OSC/OE integration**
- **DB2 Performance Expert launch capability**
- **SQL/PA invoked with a temporary data set**

# Offload QM data

- **Optional process to offload QM data**

- Allows option to retain performance data longer
- Enables you to perform SQL queries and create reports
  - Sample queries and batch reports provided with QM v3.1.
- Utility provided to extract VSAM datasets
  - Offload selected VSAM backstore data into DB2 tables
  - Select intervals for offloading by relative interval or relative day
  - Select ranges of intervals or days
  - Select type of data to be off-loaded
- Load to DB2 Tables
- DDL provided to create QM performance Database

# WHAT'S NEW IN QUERY MONITOR V3.1



# ISPF View of Data Sharing Group

- Users will be able to view data from the perspective of a data sharing group
  - DB2 Data Sharing Group perspective valid for:
    - Summaries, Exception, DB2 commands, SQLCODES and Current Activity
  - New Columns added to the Current Activity and Exception to display the data sharing group name and SMFID
  - Note: Filtering by data sharing group is currently listed as an outplan item for this feature

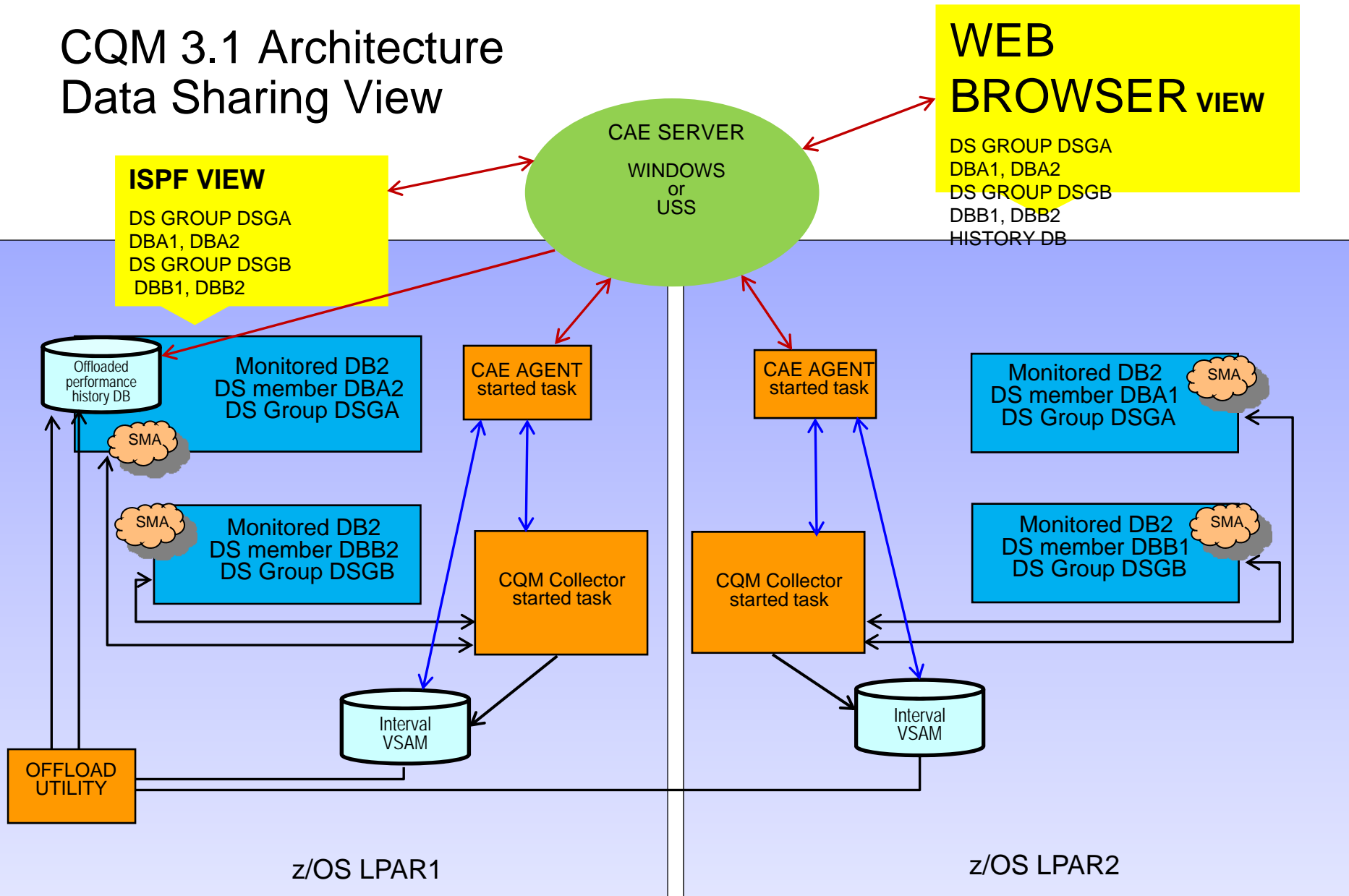
# ISPF View of Data Sharing Group Implementation

- Requires a CAE server to be running
- Requires CAE Agent to be running on each LPAR
- Must select CAE Server at first usage or after CLEARCAE command
  - Popup screen to select server from a list
  - CAE Server selection saved as user ISPF Variable
- Select DB2 QM Subsystem ID
  - Enter “?” for DB2 QM Subsystem ID to get QM Subsystem Discovery display which now shows ‘QM Subsystems’ and ‘Data Sharing Groups’
    - Make selection from either QM Subsystems list or Data Sharing Group list
  - Selection status display in upper RH of panels
    - “DB2 DS Group : QDS4” or “DB2 QM Subsystem: PM31”
  - To change selection, repeat for selection list or type in DSG or QM name
- QM Main Menu selection 6 (Work with Monitoring Agents) is disable if in Data Sharing Group perspective

# Cross-System Support Implementation

- Requires a CAE server to be running
- Requires CAEAGENT to be running on each LPAR
- CQMPARMS New startup parameters
  - CAE\_SERVER\_ADDRESS(cae\_server\_address)
  - CAE\_SERVER\_PORT(cae\_port\_number)
    - instructs an instance of CQM to connect to the CAE Server
    - Once the CQM subsystem has connected to the CAE server, data will be available for DB2 Data Sharing Members that are being monitored by other CQM instances that are also connected to the CAE Server.

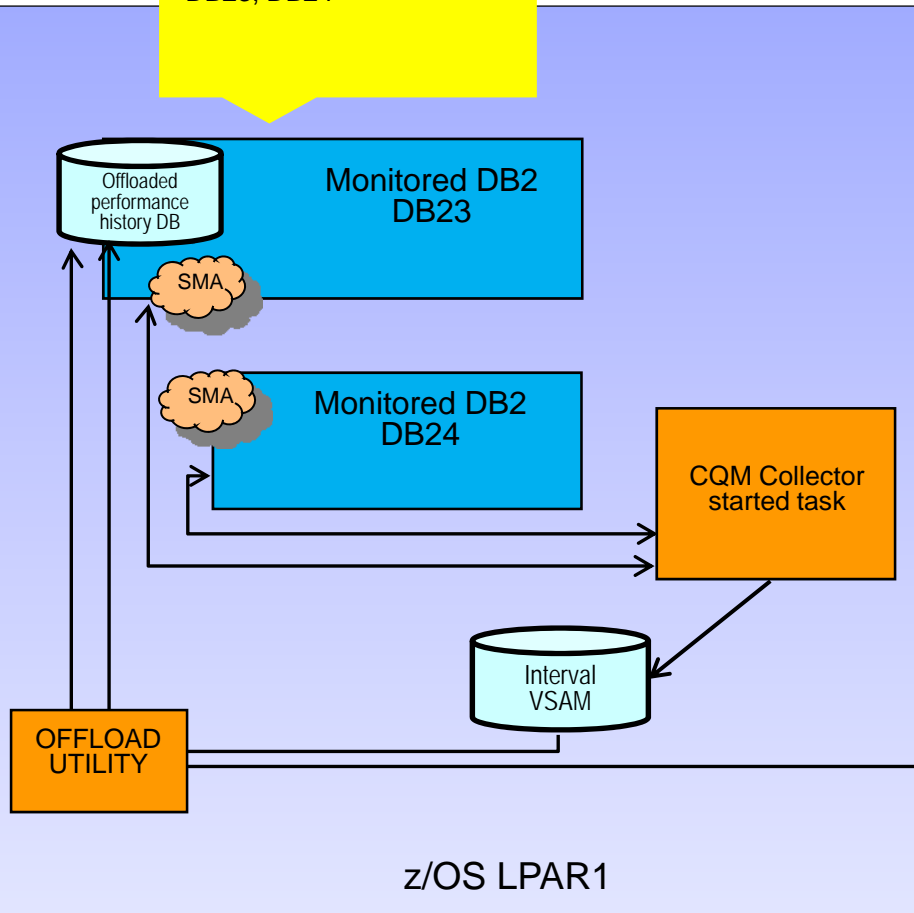
# CQM 3.1 Architecture Data Sharing View



# CQM 3.1 Architecture non-Data Sharing

## ISPF VIEW

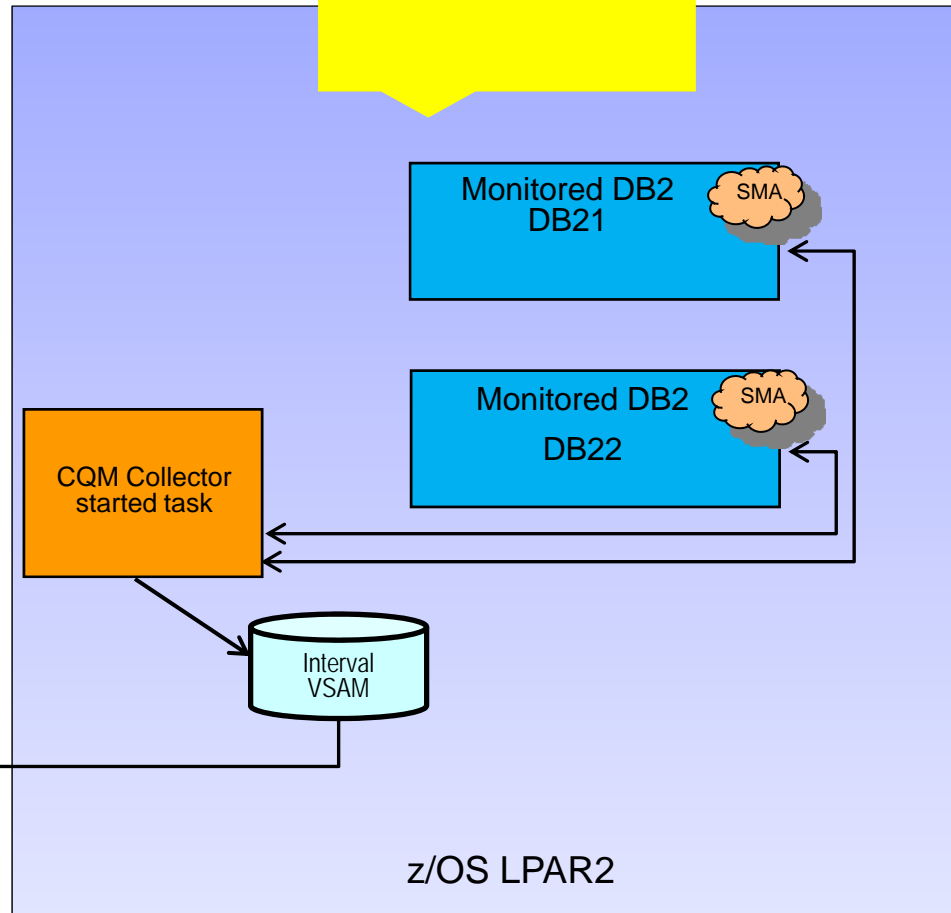
DB23, DB24



z/OS LPAR1

## ISPF VIEW

DB21, DB22



z/OS LPAR2

# CQM 3.1- Components

## ▪ Consolidation and Analysis Engine (CAE)

- CAE Server for SYSPLEX
  - Can run on Windows Server or USS
  - One per SYSPLEX
  - Allow viewing of DB2 data sharing members that are being monitored by other DB2 Query Monitor
  - HTTP WEB BROWSER Server
- CAE Agent
  - required on every MVS.image hosting Query Monitor subsystems

## ▪ Query Monitor subsystem

- Data collector started task
- Backstores

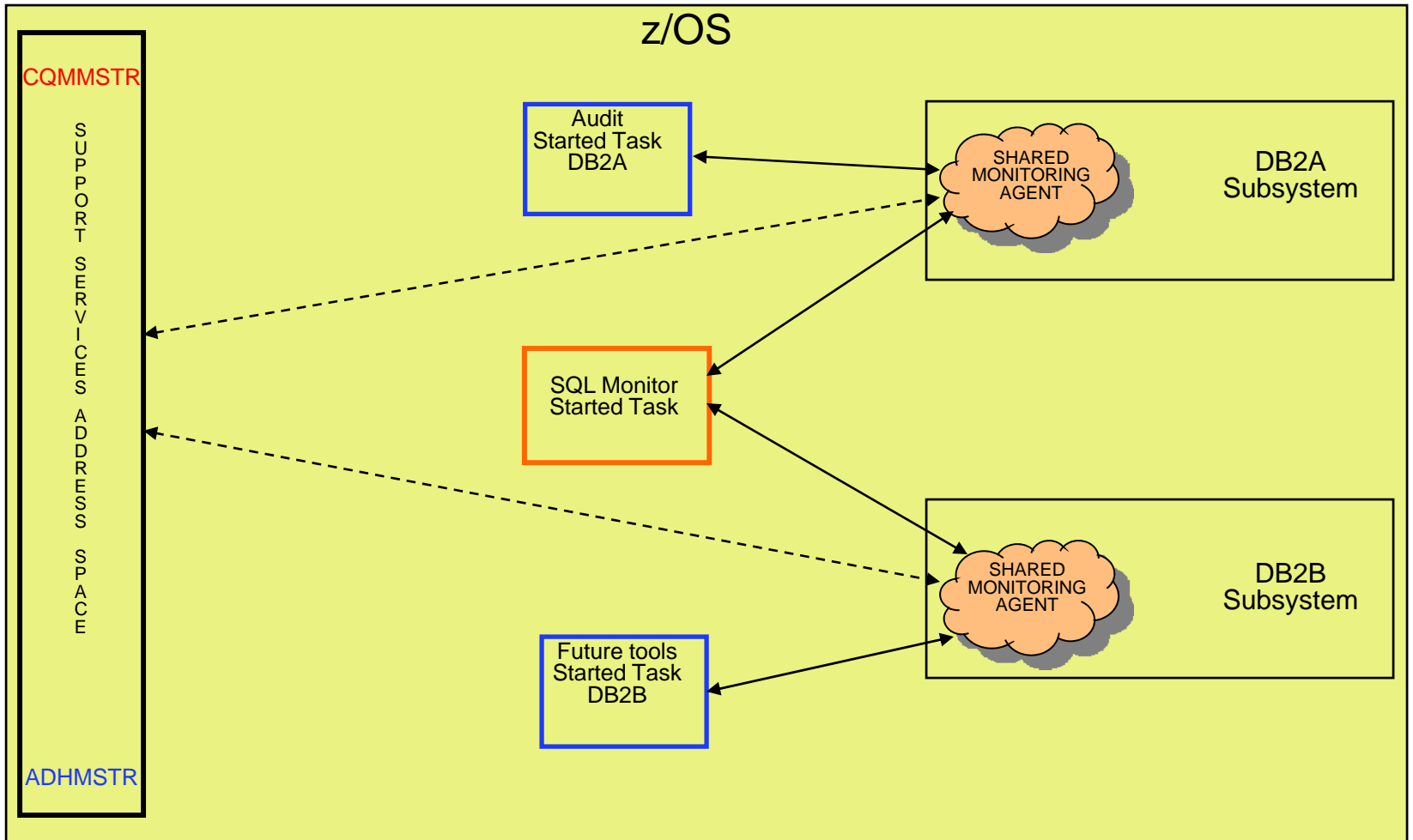
## ▪ ISPF Clist

- Drives ISPF interface

## ▪ SUPPORT SERVICES ADDRESS SPACE (CQMMSTR)

- Used to anchor control blocks, no CPU consumption associated with this, the address space is started when the CQM Collector starts first time

# Under standing the Support Services Address Space and Shared Monitoring Agent

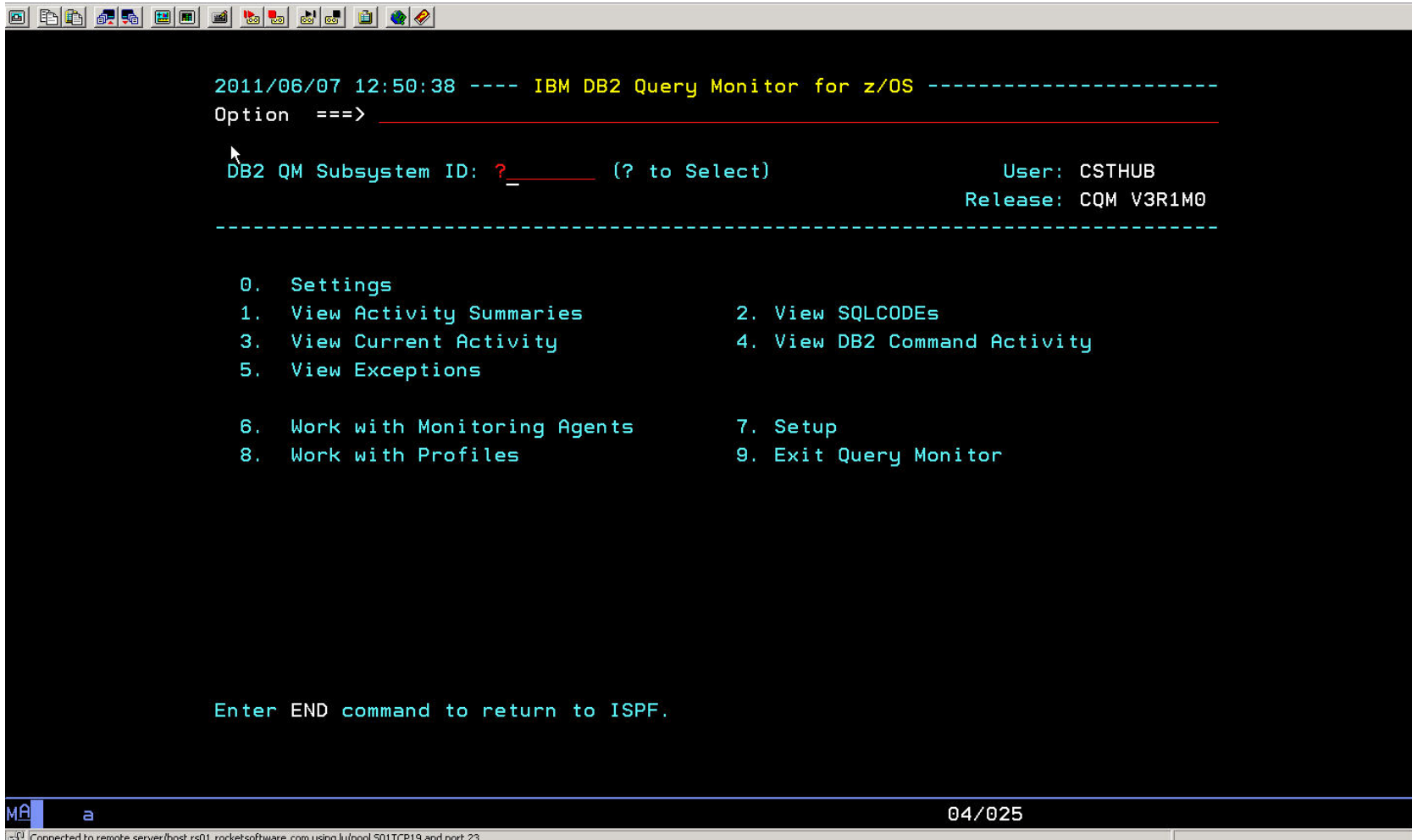


## QM 3.1 ISPF

- Live Walk through of features and screens



# ISPF Main Menu



```
2011/06/07 12:50:38 ---- IBM DB2 Query Monitor for z/OS -----
Option ==> _____
DB2 QM Subsystem ID: ?_ ( ? to Select)                               User: CSTHUB
                                                                    Release: CQM V3R1M0
-----
0.  Settings
1.  View Activity Summaries      2.  View SQLCODEs
3.  View Current Activity        4.  View DB2 Command Activity
5.  View Exceptions

6.  Work with Monitoring Agents  7.  Setup
8.  Work with Profiles           9.  Exit Query Monitor

Enter END command to return to ISPF.
```

MA a 04/025

Connected to remote server/host: rs01.rocketsoftware.com using lu/pool 501TCP19 and port 23

# QM System Selection

```

2011/06/07 12:57:30 ----- QM Subsystem Discovery ----- Row 1 of 8
Option ==> _ Scroll ==> PAGE
C:S-Select
-----
                        QM Subsystems

CMD  QM      VER DB2  VER      DS GROUP MSTATUS  CURRENT INTERVAL STRT
-----
_   QMR1    310 I9A2 V09R1M0  IDS2     ACTIVE   06/06/2011 - 23:59:58

                        Data Sharing

DS GROUP VER DB2  VER      MSTATUS  CURRENT INTERVAL STRT
-----
_   IDS2    310 I9A2 V09R1M0  ACTIVE   06/07/2011 - 3:59:58
      310 I9B2 V09R1M0  ACTIVE   06/07/2011 - 3:59:58
***** Bottom of Data *****
*

```

# Plan Listing

```

2011/06/07 13:00:39 ----- Operational Summaries ----- Row 1 of 20
Option ==> _ Scroll ==> PAGE
DB2 DS Group : IDS2 Interval Start Date: 06/06/2011 Time: 23:59:58
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WStran: CorrID:
C: 2-DB2 (Op) , R-Pgm, U-Auth, 5-DB2 (St) , J-DBase, F-Buff, G-PSet, O-Objs, I-Corr,
  T-Sect, C-Call, W-WSUs, M-WSNm, N-WSTr, S-SQL, D-Delay, L-Lock, Q-Misc, B-BStat,
  E-Excp, A-CAct
-----+>
CMD Plan Calls Elapsed %Elap Avg Elapsed
-- ----
--- ADB 3293 1.210916 27.85 0.000367
--- CQMPG02A 21 0.000827 0.01 0.000039
--- CQMPG01A 997 0.108339 2.49 0.000108
--- CQMPG02B 21 0.000676 0.01 0.000032
--- CQMPG02C 21 0.000735 0.01 0.000035
--- CQMPG02D 21 0.000653 0.01 0.000031
--- CQMPG02E 21 0.000709 0.01 0.000033
--- CQMPG02F 21 0.007929 0.18 0.000377
--- CQMPG02G 21 0.000599 0.01 0.000028

```

MA a 02/015

Connected to remote server/host: rs01.rocketsoftware.com using lu/pool S01TCP23 and port: 23

# Members Where the Plans Have Run

```

2011/06/07 13:01:27 ----- Operational Summaries ----- Row 1 of 2
Option ==> _ Scroll ==> PAGE
DB2 DS Group : IDS2 Interval Start Date: 06/06/2011 Time: 23:59:58
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: ADB Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WStran: CorrID:
C: P-Plan, R-Pgm, U-Auth, 5-DB2 (St) , J-DBase, F-Buff, G-PSet, 0-Obj, I-Corr,
  T-Sect, C-Call, W-WSUs, M-WSNm, N-WStr, S-SQL, D-Delay, L-Lock, Q-Misc, B-BStat,
  E-Excp, A-CAct
----->
CMD DB2 Calls Elapsed %Elap Avg Elapsed CPU
-- --
I9A2 2033 1.051752 86.85 0.000517 0.029871
I9B2 1260 0.159163 13.14 0.000126 0.014070
***** Bottom of Data *****
  
```

# Full-Featured Web Browser Client

- Provides access via a web browser to all functionality currently provided by the CAE Client
- Provides access to Archive (offloaded intervals) performance metrics
- Custom views allowing user to manage column preferences
- Charts and Analysis

# Full-Featured Web Browser Client Implementation

- Requires a CAE server to be running
- Requires CAE Agent to be running on each LPAR
- IE 8 or Firefox 2.0.0.13 or higher
- point web browser at the host running the CAE server

## Additional new CAE enhancements

- CAE Server supports Windows 7
- IPv6 Support
- Import digital certificates into the CAE Server's Java keystore
- CAE Server deployment on read-only file system under USS
  - Implementation via user creating a r/w directory path and running unpx of customizable and data files

## QM 3.1 WEB Browser Client

- Live Walk through of features and screens



# Main Menu

The screenshot shows a web browser window displaying the main menu of the IBM DB2 Query Monitor for z/OS V 3.1. The browser's address bar shows the URL <https://cqmdemo.rocketsoftware.com/webclient/welcome.html>. The page title is "IBM DB2 Query Monitor for z/OS V 3.1". The navigation bar includes links for "HOME", "ACTIVITY BROWSER", "ALERTS", "CONFIGURATION", and "TOOLS". The main content area features a welcome message, a section titled "Access Your Query Monitor Web Components" with a list of links, and a "Status" section providing system and user information.

File Edit View History Bookmarks Tools Help

rocketsoftware.com <https://cqmdemo.rocketsoftware.com/webclient/welcome.html> ☆ Google

IBM DB2 Query Monitor for z/OS V 3.1

DB2 Query Monitor for z/OS v3.1 Welcome PDDAVI About Help Logout IBM

HOME | ACTIVITY BROWSER | ALERTS | CONFIGURATION | TOOLS

Welcome to the Query Monitor (QM) Web Client. The QM Web Client provides you with access to QM's Web-based functionality which includes the Activity Browser, Message Board, Profiles, and CAE Configurations.

## Access Your Query Monitor Web Components

Select from the following QM Web components:

- [Activity Browser](#) - Browse data about SQL and DB2 command activity in your monitored DB2 Subsystems.
- [Alerts](#) - View and manage message boards and important alerts about activity in your DB2 Subsystems.
- [Configuration](#) - Edit and Manage Configuration Information
- [Tools](#) - View Tools
- [Help](#) - Access online help for the Query Monitor Consolidation and Analysis Engine (CAE).

## Status

**Status**

You are currently running: **Query Monitor 3.1 (build 3054)**

Login Status: Logged in as: PDDAVI (role: Administrator) [Logout >](#)  
(Logging out will terminate all Query Monitor CAE Mainframe Sessions)

Local Date/Time: *Mon May 23 2011 18:08:04 GMT-0400 (Eastern Daylight Time)*

Done

# Plan List

File Edit View History Bookmarks Tools Help

rocketsoftware.com https://cqdemo.rocketsoftware.com/webclient/outerpage/browse#ds=summaries&fltOn=false&cmds=plan&target=RS01:QMR1&tr

CQM Summaries:Plan(RS01:QMR1)

DB2 Query Monitor for z/OS v3.1 Welcome PDDAVI About Help Logout

HOME ACTIVITY BROWSER ALERTS CONFIGURATION TOOLS Summaries:Plan(RS01:QMR1)

Go Source QM Subsystems Target RS01:QMR1 Perspectives Summaries Initial Summary plan View Tools

Status: Done (06:02:00 PM) Path:

Filter Intervals\* Start: May 23 17:43:15 End: Current X Top N N/A Custom View Standard View Details

Cmd.	Plan	SQLCalls	Elapsed	%Elap	Avg Elapsed	CPU	%CPU	Avg CPU	<%CPU>	Delay	%Delay	Avg Delay
▼	CQMPGM02	21	0.807397	0.54	0.038447	0.003083	0.00	0.000146	0.38	0.365967	5.22	0.017427
▼	CQMPG02A	21	0.000881	0.00	0.000041	0.000660	0.00	0.000031	74.91	0.000000	0.00	0.000000
▼	CQMPG02B	21	0.000716	0.00	0.000034	0.000592	0.00	0.000028	82.74	0.000000	0.00	0.000000
▼	CQMPG02C	21	0.000806	0.00	0.000038	0.000623	0.00	0.000029	77.35	0.000000	0.00	0.000000
▼	CQMPG02D	21	0.000708	0.00	0.000033	0.000589	0.00	0.000028	83.20	0.000000	0.00	0.000000
▼	CQMPG02E	21	0.000628	0.00	0.000029	0.000568	0.00	0.000027	90.51	0.000000	0.00	0.000000
▼	CQMPG02F	21	0.000719	0.00	0.000034	0.000575	0.00	0.000027	79.98	0.000000	0.00	0.000000
▼	CQMPG02G	21	0.000703	0.00	0.000033	0.000552	0.00	0.000026	70.50	0.000000	0.00	0.000000
▼	CQMPG02H	21	0.000665	0.00	0.000031	0.000533	0.00	0.000025	80.17	0.000000	0.00	0.000000
▼	CQMPG02I	21	0.000849	0.00	0.000040	0.000591	0.00	0.000028	69.66	0.000000	0.00	0.000000
▼	CQMPG02J	21	0.000634	0.00	0.000030	0.000566	0.00	0.000026	89.25	0.000000	0.00	0.000000
▼	CQMPG02K	21	0.000712	0.00	0.000033	0.000622	0.00	0.000029	87.41	0.000000	0.00	0.000000
▼	CQMPG02L	21	0.000732	0.00	0.000034	0.000611	0.00	0.000029	83.48	0.000000	0.00	0.000000
▼	CQMPG02M	21	0.000783	0.00	0.000037	0.000589	0.00	0.000028	75.19	0.000000	0.00	0.000000
▼	CQMPG02N	21	0.000733	0.00	0.000034	0.000612	0.00	0.000029	83.45	0.000000	0.00	0.000000
▼	CQMPGM01	543	1.216812	0.82	0.002240	0.027989	0.02	0.000051	2.30	0.569048	8.11	0.001047
▼	DSNUTIL	64	5.879359	3.98	0.091864	0.029375	0.02	0.000458	0.49	3.381459	48.24	0.052835
▼	DSNTEP2	38	2:19.462579	94.63	3.670068	1:58.281705	99.94	3.112676	84.81	2.692282	38.41	0.070849

Start Row 1 End Row 18 Page Size 50 Full Record Count 18 First Prev. Next Chart

Transferring data from cqdemo.rocketsoftware.com...

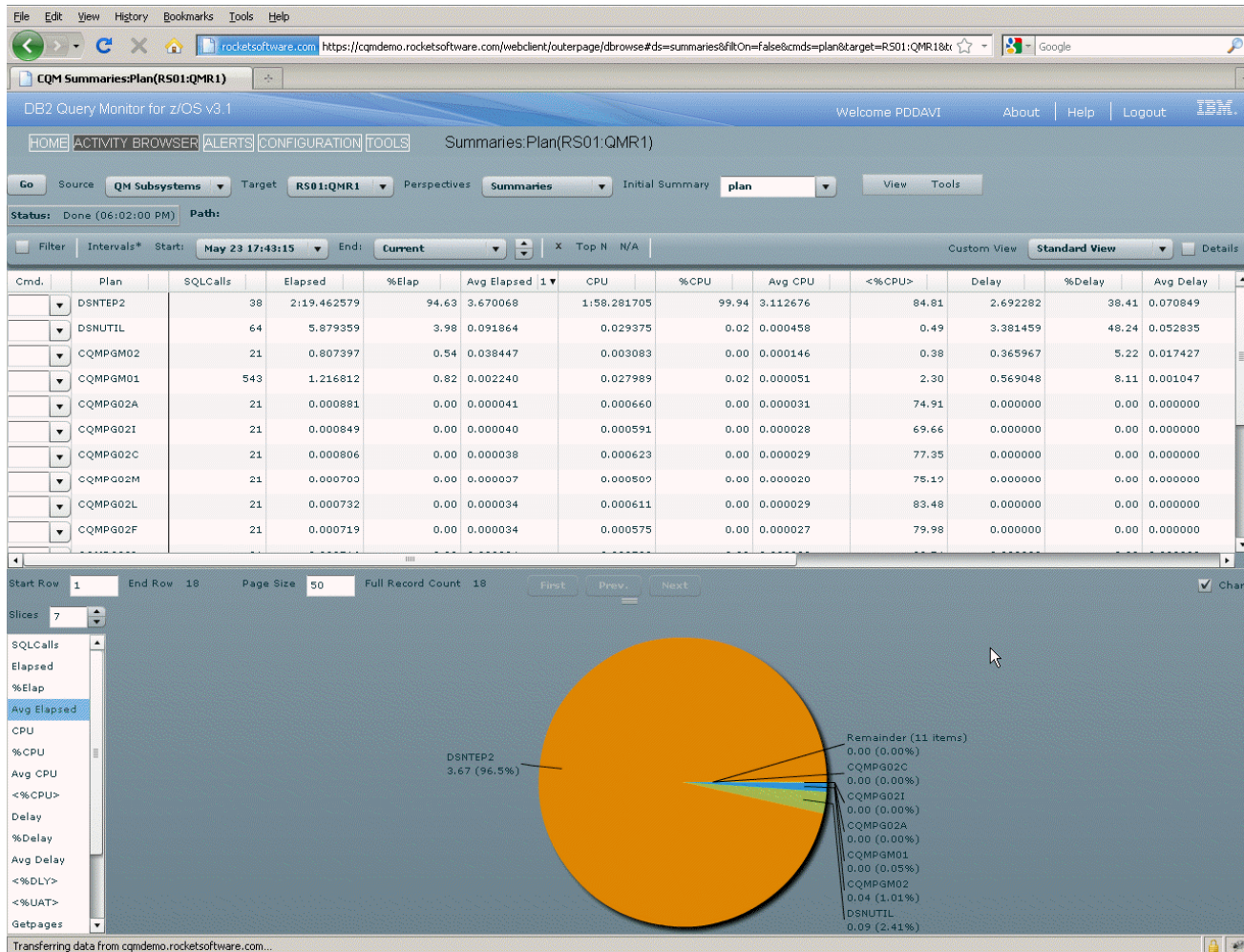
# Source Selection

The screenshot shows the DB2 Query Monitor for z/OS v3.1 interface. The main window displays a summary table for the plan RS01:QMR1. The table has columns for Command (Cmd.), Plan, SQL Calls, Elapsed time, % Elapsed, Avg Elapsed, CPU, % CPU, Avg CPU, <% CPU>, Delay, % Delay, and Avg Delay. The data is sorted by CPU usage, with DSNTEP2 being the most significant command.

Cmd.	Plan	SQL Calls	Elapsed	%Elap	Avg Elapsed	CPU	%CPU	Avg CPU	<%CPU>	Delay	%Delay	Avg Delay
▼	CQMPG02	21	0.807397	0.54	0.038447	0.003083	0.00	0.000146	0.38	0.365967	5.22	0.017427
▼	CQMPG02A	21	0.000881	0.00	0.000041	0.000660	0.00	0.000031	74.91	0.000000	0.00	0.000000
▼	CQMPG02B	21	0.000716	0.00	0.000034	0.000592	0.00	0.000028	82.74	0.000000	0.00	0.000000
▼	CQMPG02C	21	0.000806	0.00	0.000038	0.000623	0.00	0.000029	77.35	0.000000	0.00	0.000000
▼	CQMPG02D	21	0.000708	0.00	0.000033	0.000589	0.00	0.000028	83.20	0.000000	0.00	0.000000
▼	CQMPG02E	21	0.000628	0.00	0.000029	0.000568	0.00	0.000027	90.51	0.000000	0.00	0.000000
▼	CQMPG02F	21	0.000719	0.00	0.000034	0.000575	0.00	0.000027	79.98	0.000000	0.00	0.000000
▼	CQMPG02G	21	0.000700	0.00	0.000030	0.000582	0.00	0.000026	70.50	0.000000	0.00	0.000000
▼	CQMPG02H	21	0.000665	0.00	0.000031	0.000533	0.00	0.000025	80.17	0.000000	0.00	0.000000
▼	CQMPG02I	21	0.000849	0.00	0.000040	0.000591	0.00	0.000028	69.66	0.000000	0.00	0.000000
▼	CQMPG02J	21	0.000634	0.00	0.000030	0.000566	0.00	0.000026	89.25	0.000000	0.00	0.000000
▼	CQMPG02K	21	0.000712	0.00	0.000033	0.000622	0.00	0.000029	87.41	0.000000	0.00	0.000000
▼	CQMPG02L	21	0.000732	0.00	0.000034	0.000611	0.00	0.000029	83.48	0.000000	0.00	0.000000
▼	CQMPG02M	21	0.000783	0.00	0.000037	0.000589	0.00	0.000028	75.19	0.000000	0.00	0.000000
▼	CQMPG02N	21	0.000733	0.00	0.000034	0.000612	0.00	0.000029	83.45	0.000000	0.00	0.000000
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▼	DSNUTIL	64	5.879359	3.98	0.091864	0.029375	0.02	0.000458	0.49	3.381459	48.24	0.052835
▼	DSNTEP2	38	2:19.462579	94.63	3.670068	1:58.281705	99.94	3.112676	84.81	2.692282	38.41	0.070849

The interface also shows a 'Source' dropdown menu with a tooltip listing system and subsystem information: System (Sysname): RS01, CQM Subsystems: QMR1, DB2 Subsystems: I9A2, and [IDS2] - I9A2, I9B2. The status bar at the bottom indicates 'Start Row 1', 'End Row 18', 'Page Size 50', and 'Full Record Count 18'.

# Pie Chart





File Edit View History Bookmarks Tools Help

rocketsoftware.com https://cqmdemo.rocketsoftware.com/webclient/outerpage/dbrowse#target=IDS2&ds=summaries&path=DB2\_SUBSYSTEM:19A2[ds:su]

CQM Summaries:SQL(IDS2:19A2)

DB2 Query Monitor for z/OS v3.1 Welcome PDDAVI About Help Logout IBM.

HOME ACTIVITY BROWSER ALERTS CONFIGURATION TOOLS Summaries:SQL(IDS2:19A2)

Go Source QM Subsystems Target IDS2 Perspectives Summaries Initial Summary db2 View Tools

Status: Done (06:32:09 PM) Path: DB2(Op.) 19A2

Filter Intervals\* Start: May 23 17:42:50 End: Current X Top N Custom View Standard View Details

Cmd.	SQLCalls	DB2 SSID	Plan	Program	Section	Collection ID	Elapsed
		5 19A2				0	2:17.1920
		1 19A2				0	4.1357
		6 19A2				0	1.82770
		1 19A2				0	1.6641
		5 19A2				0	0.8509
		935 19A2	CQMPGM01	CQMPGM01	2		0.7527
		4 19A2				0	0.5237
		10 19A2	CQMPGM02	CQMPGM02	1		0.4955
		12 19A2				0	0.4303
		5 19A2				0	0.3420

Start Row 1 End Row 50 Page Size 50 Full Record Count 50 First Prev. Next Char

Slices: 7

SQLCalls  
Elapsed  
%Elap  
Avg Elapsed  
CPU  
%CPU  
Avg CPU  
<%CPU>  
Delay  
%Delay  
Avg Delay  
<%DLY>  
<%LAT>  
Getpages

0:50F05A0076ADA3745353  
2:17.19 (91.5%)

Remainder (43 items)  
2.85 (1.90%)  
0:B7BAA3F2E0E7B9A2514E  
0.52 (0.34%)  
CQMPGM01:CQMPGM01:2:N/A  
0.75 (0.50%)  
0:508BFBE3F13A5562540A  
0.85 (0.56%)  
0:94C6885D96AB8F445420  
1.66 (1.11%)  
0:9401B3522EB9AF792053  
1.83 (1.22%)  
0:80EBB0D5D6D6E0DA5320  
4.14 (2.76%)

Details

General Delays Locks Buffer Pool Misc. SQL Text Analysis

Name	Value
SQLCalls	6
DB2 SSID	19A2
Plan	
Program	
Section	0
Collection ID	
Elapsed	1.827709
%Elap	1.22
Avg Elapsed	0.304618
CPU	0.001939
%CPU	0.00
Avg CPU	0.000323

Slices: 7

CPU  
0.00 (85.1%)

Delay  
0.00 (14.8%)

Connecting to localhost...

# Alert Message Board

The screenshot shows a web browser window displaying the 'Query Monitor Alert Browser (cqmdemo...)' interface. The page title is 'DB2 Query Monitor for z/OS v3.1'. The user is logged in as 'PDDAVI'. The navigation menu includes 'HOME', 'ACTIVITY BROWSER', 'ALERTS', 'CONFIGURATION', and 'TOOLS'. The 'Alerts' section is active, showing a 'Default Message Board' with a table of alerts.

Ack.	Pri.	Correlation	Event Type	Sub.	System	DB2 subsystem	Subject	Received	Rep. Count
<input type="checkbox"/>	3		Application Runtime Error	[0]	RSD1	ISA2	ISA2.DSNTEP2.DSN@EP2L:1:PDDAVI:::DSNTEP2.80	Monday, May 23, 2011 6:00:11 PM	1
<input type="checkbox"/>	4		Application Coding Error	[0]	RSD1	ISA2	ISA2.DSNTEP2.DSN@EP2L:1:PDDAVI:::DSNTEP2.84	Monday, May 23, 2011 5:57:56 PM	1
<input type="checkbox"/>	3		General Sql Error	[0]	RSD1	ISA2	ISA2.DSNTEP2.DSN@EP2L:1:PDDAVI:::DSNTEP2.80	Monday, May 23, 2011 5:57:54 PM	1
<input type="checkbox"/>	3		Get Page Count Exceeded Problem	[1]	RSD1	ISA2	ISA2.DSNTEP2.DSN@EP2L:1:PDDAVI:::DSNTEP2.80	Monday, May 23, 2011 5:57:54 PM	1
<input type="checkbox"/>	6		Monitoring Agent Connect Event	[0]			cqmdemo GM	Monday, May 23, 2011 5:52:15 PM	1
<input type="checkbox"/>	6		Self Configuration Change Event	[0]			!knowledge/domains/Query+Monitor	Monday, May 23, 2011 5:52:12 PM	1
<input type="checkbox"/>	6		Server Started Event	[0]			cqmdemo GM	Monday, May 23, 2011 5:52:12 PM	1
<input type="checkbox"/>	6		Monitoring Change Event	[0]			cqmdemo GM	Monday, May 23, 2011 5:52:06 PM	1
<input type="checkbox"/>	4		Application Coding Error	[0]	RSD1	ISA2	ISA2.DSNTEP2.DSN@EP2L:1:CSREGG:::DSNTEP2.3	Thursday, May 19, 2011 10:18:11 PM	1

Page 1 of 1 | Rows 1 - 9 of 9

# Configuring Responses

The screenshot displays the IBM Query Monitor Actions (cqdemo) web application. The browser address bar shows the URL: <https://cqdemo.rocketsoftware.com/webclient/outerpage/actions/actionsCfg>. The application title is "DB2 Query Monitor for z/OS v3.1". The user is logged in as "PDDAV1". The navigation menu includes: HOME, ACTIVITY BROWSER, ALERTS, CONFIGURATION, and TOOLS. The "Actions" page is active, showing a list of folders and actions on the left and a detailed view on the right.

**Actions**

These folders contain the actions that can be triggered in response to events, by user menu choice or by schedule. For an action to be executed it must be referenced in either a **Response**, **Device Menu Choice**, or **Schedule**.

The folder **Server-based Actions** contains actions that will be executed by the server application host. The folder **Web Browser Actions** contains actions that will be executed locally by the web browser application.

Select a folder, then press the add button to create a new action within the selected folder.

**CAE-Agent-based Actions**

- Automatic Cancel Thread
- B Display Restricted
- B Display Trace
- Barry Cancel Thread
- Batch Explain
- command test
- CQM31 PLAN HISTORY
- CQM31 PROGRAM HISTORY
- DISPLAY BP0
- DISPLAY DB
- DISPLAY RESTRICTED
- DISPLAY TRACE
- IBM
- NE@ SQL
- PLAN HISTORY
- PROGRAM HISTORY
- QW SQLCODE
- RUN DSNTPT2 I@1A
- RUN SQL I@A2
- Sample WTO
- SMF
- SQLPA
- SQLPA ADH
- TestTrace

**CAE-Server-based Actions**

- email on demand
- email on demand2
- getpage email
- SampleEmailAction

**Client-based Actions**

- Cancel Thread
- Get SQLCODE
- SQLCODE enter
- Thin

# CAE Server and CAE Agent

- FYI for customers not currently running CAE components
  - CAE Server
    - Run on Windows or USS
    - No Implementation changes from QM 2.3
  - CAE Agent
    - Run as Started Task on z/OS
    - No Implementation changes from QM 2.3
  - QM 3.1 now requires a CAE Server and CAE Agents to support DSG Cross-System Support in ISPF



# MASTER\_PROCNAME

- This CQMPARMS parameter allows the user to specify the PROCNAME to be used for the CQM Master Address Space
  - If it is omitted system default will be used (CQMMSTR)
  - Specifying this parameter has no operational consequence for CQM
  - Parameter allows the user to set the CQM Master Address Space PROCNAME to meet shop standards and/or run multiple versions of Master Address Space for testing

## zIIP metrics

- This feature provides new metrics indicating the amount of zIIP processor usage
  - The new metric will be added to the Activity Summaries and Exceptions/Current Activity data
    - When a particular SQL ends and is seen by the CQM collector, the CPU will be examined and the amount of CPU will be added to the current DB2\_CPU\_TIME metrics fields and the new DB2\_CPU\_TIME\_ZIIP field
- The new fields that Query Monitor will report include:
  - DB2\_CPU\_TIME\_ZIIP - This indicates the amount of CPU time accumulated while executing in DB2 on a zIIP processor
  - The ISPF and CAE Summary and Exceptions/Current Activity displays will be enhanced to display the zIIP DB2 CPU time metrics (including %zIIP-Usage, which is zIIP/Total CPU)

Questions???