



# SAP NetWeaver BI

## Administration Cockpit Technical Content BI Statistics

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**Version 4.1**

**THE BEST-RUN BUSINESSES RUN SAP**





## **Administration Cockpit & Technical Content**

Query Runtime Statistics

Migration & Maintenance

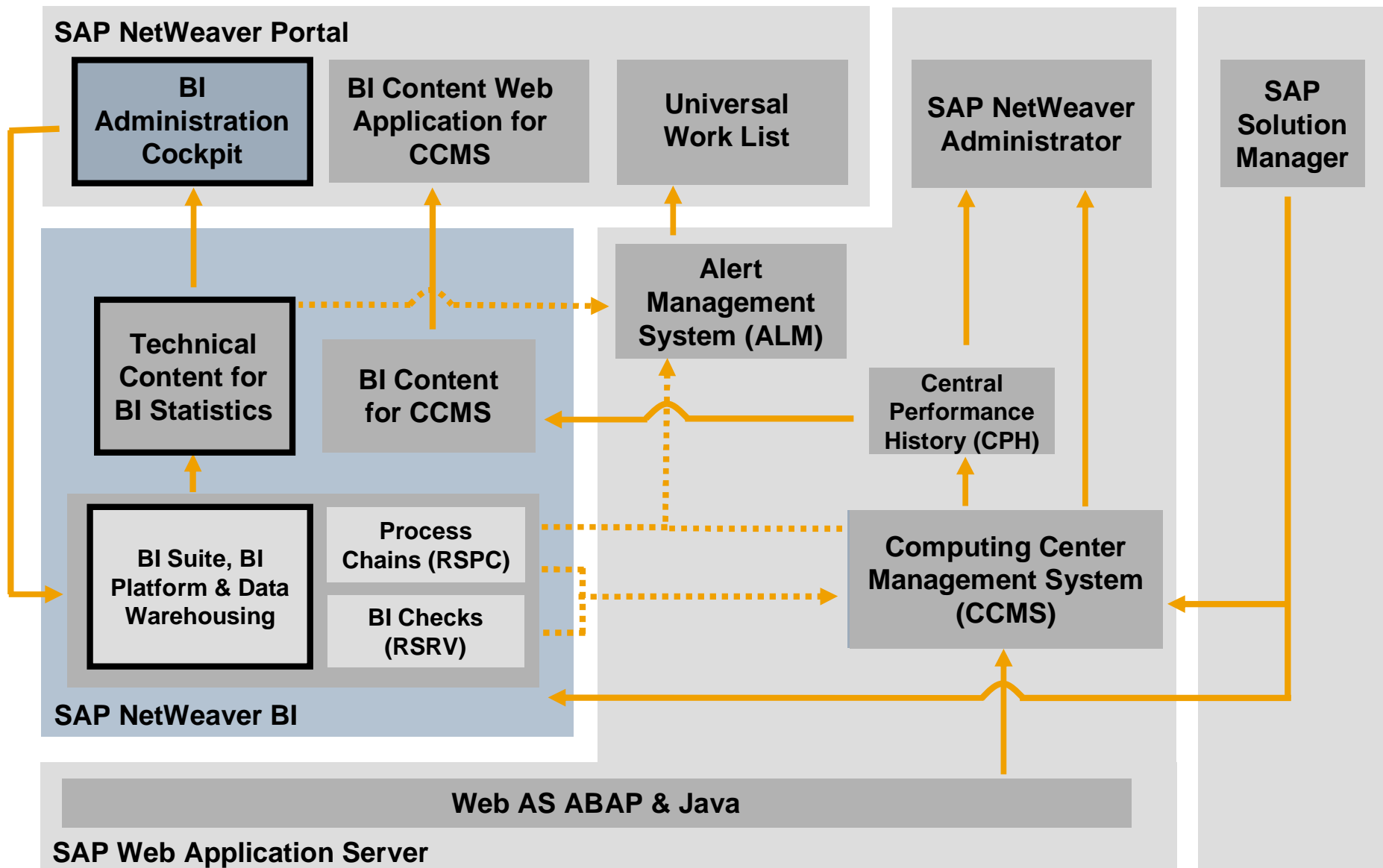
Analysis Tools

Tips & Tricks

Data Load Statistics

Data Load Status

# SAP NetWeaver Administration and BI



# BI Administration Cockpit - Motivation

Easy administration  
for complex  
Enterprise Data Warehouses  
using the  
BI Administration Cockpit



# BI Administration Cockpit - Scope

## Support the BI administrator in

- Performance optimization
- Monitor BI system usage
- Status tracking

## ...in the areas of

- Enterprise Data Warehousing
- Enterprise Query, Reporting and Analysis
- Business Planning and Analytical Services

## ...by providing a central point of entry with cockpits

- Real-time monitors
- Runtime Statistics
- Cross system monitoring

## ...including context-specific

- Drill-down to details
- Processing options
- Exceptions (optional)

## ...using proven technology

- BI Queries
- BI Web Applications
- SAP NetWeaver Portal

## ...to make administration easier and faster

## ...and thus to lower the TCO

# BI Administration Cockpit - Overview

Central access to most important BI monitoring information

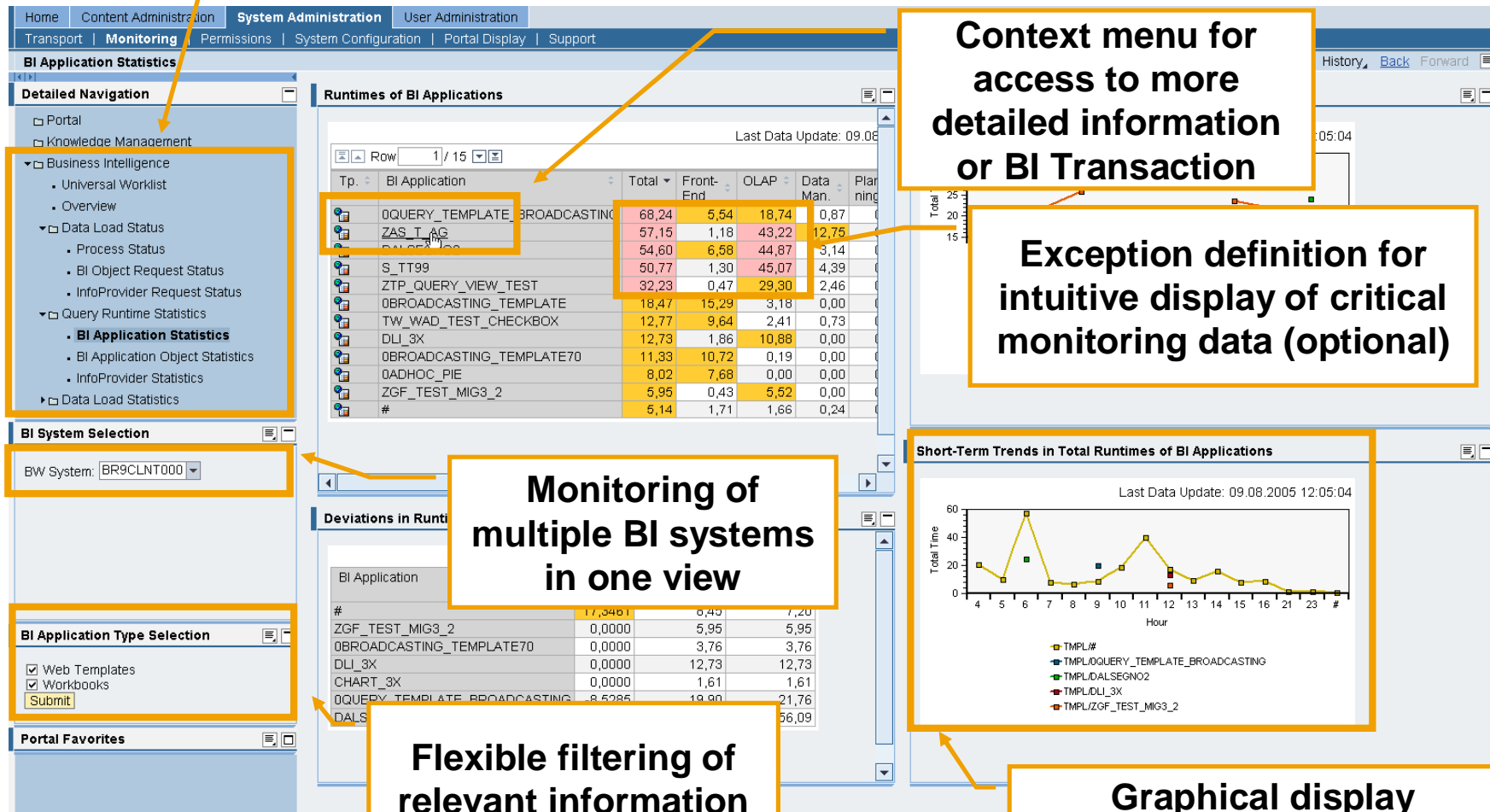
Context menu for access to more detailed information or BI Transaction

Exception definition for intuitive display of critical monitoring data (optional)

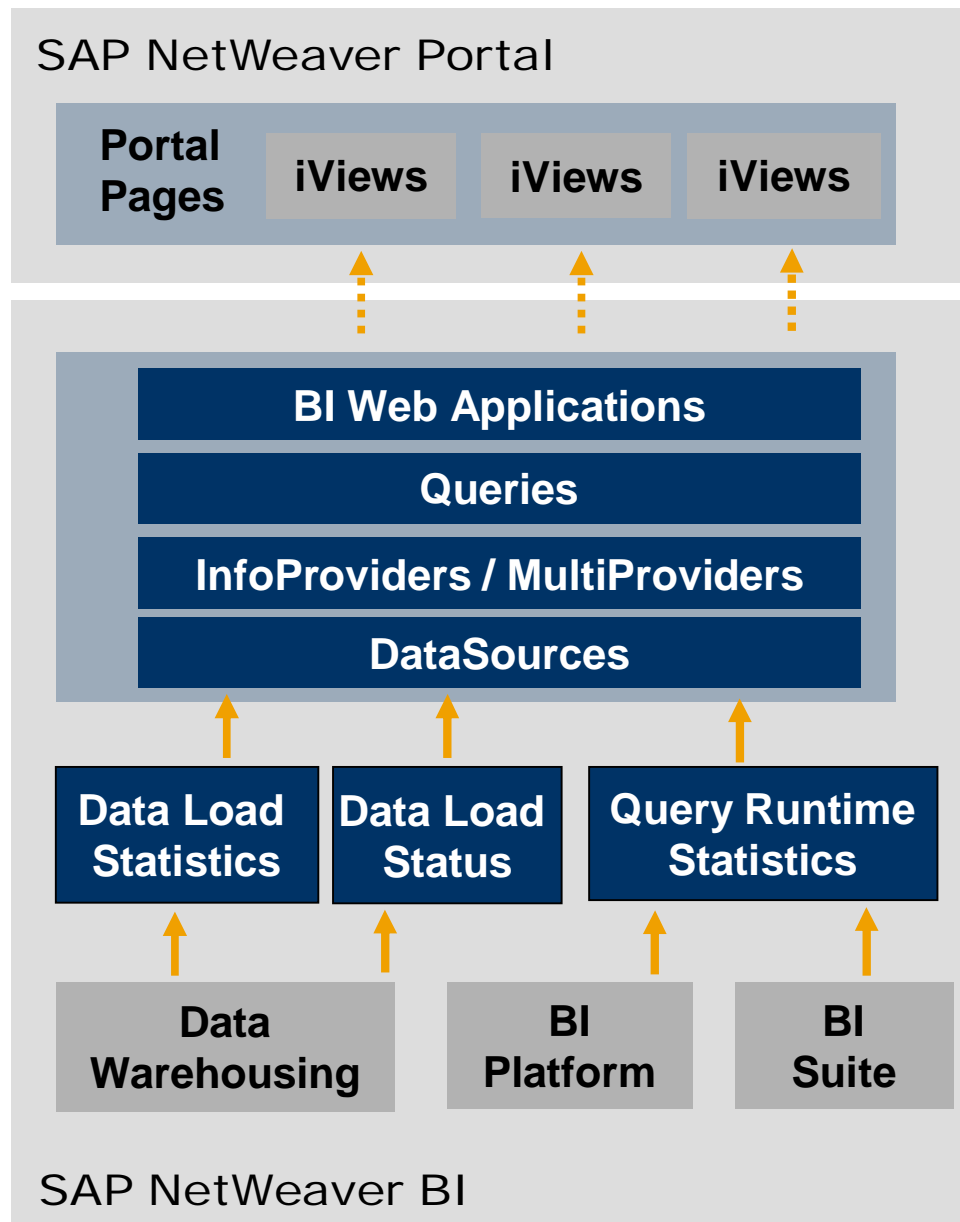
Monitoring of multiple BI systems in one view

Flexible filtering of relevant information

Graphical display



# BI Administration Cockpit – Architecture



**Business Package „BI Administration 1.0“** from the Portal Content Portfolio. BI Administration Cockpit can run in a central or in a local portal.

**Technical Content for SAP NetWeaver BI** (software component BI\_CONT, release 7.0.3), The Technical Content is entirely based on SAP BW 3.x functionality not requiring BI\_JAVA.

**SAP NetWeaver 7.0 BI technology** (software component SAP\_BW)

# BI Administration Cockpit – Main building blocks

SAP NetWeaver Portal

## BI Administration Cockpit (Business Package)

- Single point of entry and integration with other (non BI related) portal content (example: Universal Work List)

Recommended

## Technical Content (Web Application and Queries)

- Flexible analysis of statistics data and sophisticated presentation of information (graphs, charts, tables)

## Technical Content (InfoProviders and DataSources)

- Central Data Basis for BI Administration Cockpit and BI system load transaction ST03
- Persistent Data Storage and Remote Access to BI Statistics Information

Mandatory

## BI Statistics

- Detailed Runtime Statistics Data collection for various BI Objects in Data Warehousing, Enterprise Reporting and Planning

Built-In

SAP NetWeaver BI



# Overview on Technical Content

## Technical Content: general objects

### ■ BI Objects that are required for running the SAP NetWeaver BI system

- Analysis Authorizations, BI Trace Tool, Personalization,...

### ■ Shipped as part of BI Technology (software component SAP\_BW) and installed automatically

- Some objects are already installed in the XPRa phase during the upgrade
- Most objects are installed when you call the Data Warehousing Workbench (DWB) for the first time.

### ■ Important Notes

- 834280 Installing technical BI Content after upgrade
- 1069134 Improved monitoring RSTCO\_ADMIN
- 1008758 Automatic installation of technical BI Content



## Technical Content: BI Statistics

- Monitoring Performance and Status of BI Objects
- Main focus of this presentation
- Shipped as part of BI Content (software component BI\_CONT)

## Main enhancements

- **New Technical Content for new and enhanced BI Statistics**
  - ◆ **New Query Runtime Statistics**
  - ◆ **Process Chain and DTP Statistics**
  - ◆ **BI Object Request and Process Status**
- **Technical Content for direct access and analysis on persistent data**
  - ◆ **Per default, queries from the Technical Content filter on reading from persistent InfoProviders only**
  - ◆ **Reading from Virtual Providers can be enabled on query level by customers**
- **Technical Content on detailed and aggregated level**
  - ◆ **For Query Runtime Statistics**
- **New maintenance for query statistics data collection**
  - ◆ **Enabling statistics and selection of detail level for statistics**
- **Data load statistics are collected automatically**
  - ◆ **No maintenance necessary (as of SAP NetWeaver 7.0 BI, SPS9 and SAP Note 952191)**

# BI Administration Cockpit - Configuration

SAP NetWeaver Portal

**Business Package  
“BI Administration  
1.0”**

**Technical  
Content for SAP  
NetWeaver BI**

**BI Statistics**

SAP NetWeaver BI

## Configuration steps (executed from IMG, Transaction SPRO)

7. Set Up Call to BI Administration Cockpit
  6. Install Business Package 'BI Administration 1.0'
  5. Connect BI System and Portal
  4. Schedule Technical Content Process Chains
  3. Check Updating of Statistics
  2. Assign the BI Administrator Role
  1. Activate the new technical content in SAP NetWeaver BI  
(automatic activation, no manual activation needed)
- Available with installation or upgrade to  
SAP NetWeaver 7.0 BI

# BI Administration Cockpit – IMG for Configuration

## Configuration of the BI Administration Cockpit (Transaction SPRO)

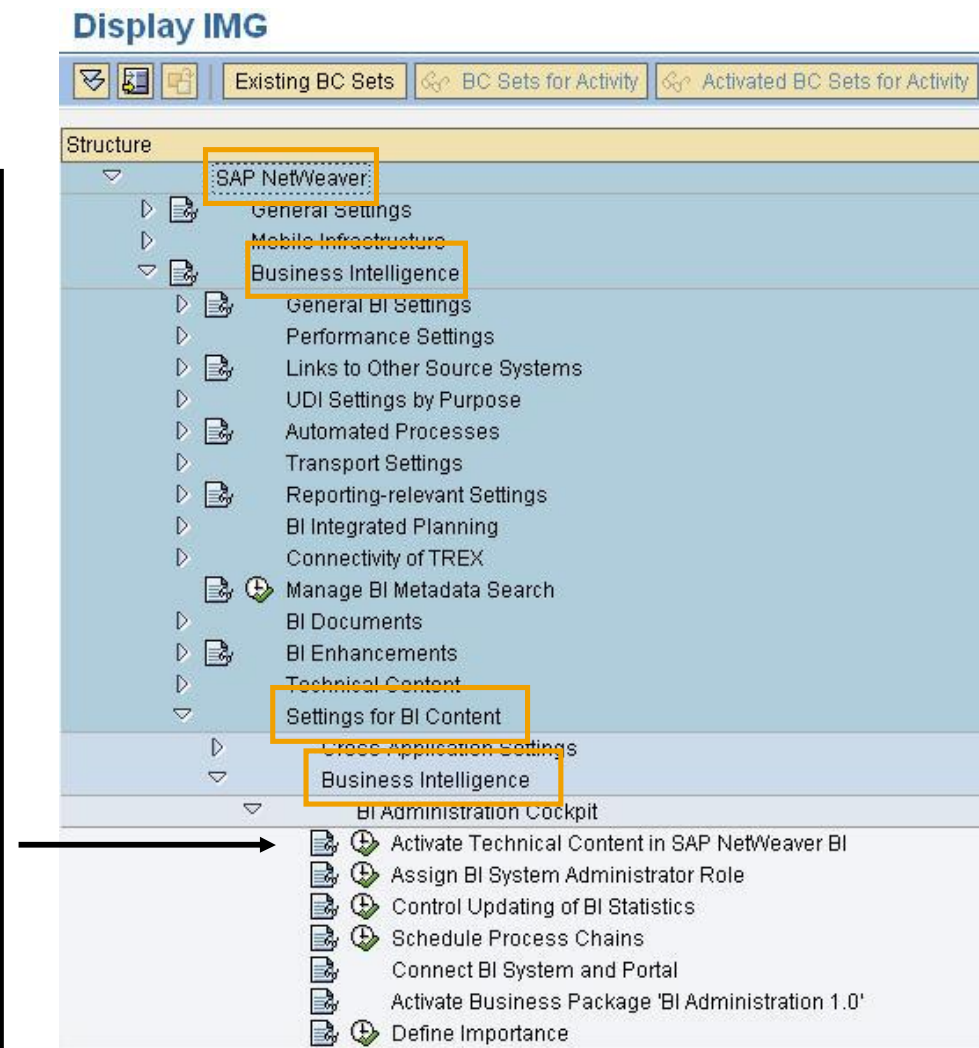
**This activity starts transaction RSTCC\_INST\_BIAC**

■ which links a report for automatic installation of the Technical Content

■ activating all the Technical Content objects that are assigned to role SAP\_BW\_BI\_ADMINISTRATOR, including the relevant data flows.

■ **Prerequisite:**

- Software component BI\_CONT 7.0.3, Support Package 4 or
- Software component BI\_CONT 7.0.2, Support Package 7
- It is recommended to install BI\_CONT 7.0.3 as BI\_CONT 7.0.2 is out of maintenance!



## SAP Service Marketplace note

### 934848 “Collective note: (FAQ) BI Administration Cockpit”

- Prerequisites for running the Technical Content and the BI Administration Cockpit
- General comments on installation
- Specific comments on the installation steps to be performed
- Tips on Running and Maintaining the Technical Content
- Important corrections



Administration Cockpit & Technical Content

**Query Runtime Statistics**

Migration & Maintenance

Analysis Tools

Tips & Tricks

Data Load Statistics

Data Load Status

## Front end / OLAP Statistics and Data Manager Statistics ...

- Splitting the BW 3.x OLAP statistics into Frontend / OLAP statistics and Data Manager statistics
- Serial execution (Front-End/OLAP) vs. parallel execution (Data Manager, mostly)
- Many different events (FE/OLAP) vs. small number of events (DM)

## Statistic detail levels

- Introducing statistic detail levels on query level
- Customize the level of detail of statistic data collection for a certain object

## Event Concept

- Introducing the concept of the Event ID (characteristic)
- Flexible and extensible framework

## Enhanced coverage of BI functionality

- Enhanced: BEx Web, Planning
- New: BI Accelerator



# Decentralized Statistics Data Storage (1)

## RSDDSTATHEADER

SESSIONUID	STEPUID	HANDLEID	HANDLETP	INFOPROV	OBJNAME	STATLEVEL
3VQ4A5TR6JAB81JNB8MHTT90V	3VQ4A5M1XOLPFO75EN5JAB3	1	OLAP	ZFABCB5	CC_TEST_STORAGE_MEDIA	
3VQ4A5TR6JAB81JNB8MHTT90V	3VQ4A614GHQ9MJMMWR6DX6GF	1	OLAP	ZFABCB5	CC_TEST_STORAGE_MEDIA	
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	2	W3_I			
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	3	W3_I		HEADLINE	2
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	4	W3_I		QUERYDESIGNER	2
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	5	W3_I		GR1GR2NAVBLOCK	2
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	6	W3_I			
3VQ963EJS4M6BSPCDT26CDFJK	3VQ9636V960GT65W7YZU2BGT8	7	W3_I			

## RSDDSTATINFO

STEPUID	STEPTP	UNAME	STARTTIME	UTIME	CALDAY	RUNTIME
3VOC1ATHGYAE7P9PJVEH2U8UV		ULKE	20.041.105.114.122,7880900	11:41:22	05.11.2004	31,746094
3VOCCTZ9058MXU0XU8GHLJX3		GERSTMAIR	20.041.105.140.049,3123370	14:00:49	05.11.2004	1,023438
3VOCUMAL11RHPNABQNF0G2F		GERSTMAIR	20.041.105.140.050,3709860	14:00:50	05.11.2004	20,218750
3VOCUPK2QCELSIB6GF75QCQ8		MEINCKEB	20.041.105.113.506,7788180	11:35:06	05.11.2004	0,363281
3VOCUPZF89M0W1L714JVPUA5S		MEINCKEB	20.041.105.113.508,2705500	11:35:08	05.11.2004	0,039063
3VOCVD10W4TIFDERNP8HNLNCR		MEINCKEB	20.041.105.140.908,1947430	14:09:08	05.11.2004	2,371094
3VOCVGA5DLC2XNRXCQWPSDS		MEINCKEB	20.041.105.114.210,0176670	11:42:10	05.11.2004	0,039063
3VOCVH2YOC71LK7836T76RR3K		MEINCKEB	20.041.105.114.214,9963210	11:42:14	05.11.2004	0,082031

## RSDDSTATEVDATA

STEPUID	HANDLEID	HANDLETP	EVENID	EVTIME	EVCOUNT	EVENTIDCNT
3VOHJCCEZJ7WBQ8WFSNXXMGVK		OLAP	99999	0,000000	0	1
3VOHJCCEZJ7WBQ8WFSNXXMGVK	1	W3_T	19910	38,231772	0	2
3VOHJCCEZJ7WBQ8WFSNXXMGVK	2	OLAP	99999	1,000000	0	1
3VOIG4Y2GNINNXE7JB3E912I8		OLAP	99999	0,000000	0	
3VOIG4Y2GNINNXE7JB3E912I8	1	W3_I	99999	0,000000	0	
3VOIG4Y2GNINNXE7JB3E912I8	1	W3_T	19910	0,002761	0	

## RSDDSTATEVENTS

EVENTID	STARTFL	COUNTFL	TXTSH	TXTLG
	X		Nicht zugeordnet	Globales Event für "nicht zugeordnete" Zeiten
1			Wartezeit, Benutzer	Wartezeit des Benutzers
1000	X		FE- nicht zugeordnet	Frontend - Nicht zugeordnete Zeiten
2500	X		Cache Erzeugung	Erzeugung eines Cache Eintrages
2505	X		Cache lesen	Cache Einträge lesen
2510	X		Cache schreiben	Cache Einträge schreiben
2515	X		Cache löschen	Löschen von Cache Einträgen oder gesamten Cache
2520	X		Cacheelemente suchen	Suchen von Cache Einträgen
			OLAP: Settings	OLAP: Settings

## RSDDSTATDM

STEPUID	H...	HAND...	DMUID	A...	INFOPROV	PARTPROV	AGGREGATE	TABLTP	TIMEDMPREP	TIMEDMPOST	TIMEREAD
3VGNJEHB8WS6VPVWS0YODA0V	1	OLAP	3VGNJGEFZK7KDIKXDA16UYGV	3	DALSEGNO	0D_DX_C03	0D_DX_C03	F	0,000000	0,000000	0,109375
3VGNP1QARNXT2B11VJJ128E7	2	OLAP	3VGNP55771L5CB08GWKZHXNUN		ZFABCB5				2,457031	0,000000	0,000000
3VGNP1QARNXT2B11VJJ128E7	2	OLAP	3VGNP55771L5CB08GWKZHXNUN	1	ZFABCB5	ZFABCB5	ZFABCB5	E	0,000000	0,000000	0,570312
3VGNP1QARNXT2B11VJJ128E7	2	OLAP	3VGNP55771L5CB08GWKZHXNUN	2	ZFABCB5	ZFABCB5	ZFABCB5	E	0,000000	0,000000	0,687500
3VGNPIS5WK6IGE8YUCGTDFD0F	1	OLAP	3VGNPKX667LMNNGGPE85ZOU7		0D_DX_C01				10,175781	0,000000	0,000000
3VGNPIS5WK6IGE8YUCGTDFD0F	1	OLAP	3VGNPKX667LMNNGGPE85ZOU7	1	0D_DX_C01	0D_DX_C01	0D_DX_C01	F	0,000000	0,000000	87,957031
3VGNQIGTBOH3UK2KS4M3WFZZ	2	OLAP	3VGNQJ5W87W53MYWG9A00DFJ		0D_DX_M01				12,187501	0,000000	0,000000
3VGNQIGTBOH3UK2KS4M3WFZZ	2	OLAP	3VGNQJ5W87W53MYWG9A00DFJ	1	0D_DX_M01	0D_DX_C01	0D_DX_C01	F	0,000000	0,000000	4,695312
3VGNQIGTBOH3UK2KS4M3WFZZ	2	OLAP	3VGNQJ5W87W53MYWG9A00DFJ	2	0D_DX_M01	0D_DX_C02	0D_DX_C02	F	0,000000	0,000000	0,257812

## RSDDSTATAGGRDEF

STATUID	AGGRNUM	IOBJNM	STEPUID	HANDLEID	HANDLETP	QUERYCU...	AGGRST	HIESID	TLEVEL	VALUE	FIXSID
3VQL4E1HRDA3PIZLMEBOJXGCF	1	ZFABSHPTO	3VQL4CJQ2N25357GHJVALJPBZ	1	OLAP	ZFABCB5	*	0			0
3VQL4OX8ME193GJHVZN2SPMV3	1	ZREGION	3VQL4NN56MEZPASWZ914DUKF	1	OLAP	ZFABCPY5	*	0			0
3VQL4TM87JAUH8FDGD2KXWUM7	1	ZFABSHPTO	3VQL4SC51ROLDH60HCOJ9L2BJ	1	OLAP	ZFABCB5	*	0			0
3VQL5A0QCFCJJVBNAF68VA9ZWF	1	ZCOORDER	3VQL59EN6NXARKELG5VTL7YLR	1	OLAP	ZFABCB5	*	0			0
	1	ZFABSHPTO	3VQL59EN6NXARKELG5VTL7YLR	1	OLAP	ZFABCB5	*	0			0
3VQMKB55LH0P92P7WVENKE8SF	1	ZFABSHPTO	3VQMK9V2FQ2G5BGIMW0LW2GHR	1	OLAP	ZFABCB5	*	0			0



# Decentralized Statistics Data Storage (2)


... use the new DB\_VIEWS to analyse the statistics:

**RSDDSTAT\_OLAP**



Viewfeld	M...	DTyp	Länge	Kurzbeschreibung
SESSIONUID	<input type="checkbox"/>	CHAR	25	UUID in komprimierter Form
STEPUID	<input type="checkbox"/>	CHAR	25	UUID in komprimierter Form
HANDLEID	<input type="checkbox"/>	NUMC	4	Interne ID eines Query Laufzeitobjekts
HANDLETP	<input type="checkbox"/>	CHAR	4	Handle type in OLAP statistics
EVENTID	<input type="checkbox"/>	NUMC	9	OLAP Statistik Event (Typ NUMC9)
UNAME	<input type="checkbox"/>	CHAR	12	Benutzername
STEPTP	<input type="checkbox"/>	CHAR	4	OLAP Statistik: Schritt-Typ (ODBO, BEX, ...)
UTIME	<input type="checkbox"/>	TIMS	6	BW Statistik Zeit
CALDAY	<input type="checkbox"/>	DATS	8	BW Statistik: Tag
RUNTIME	<input type="checkbox"/>	DEC	21	Laufzeit
INFOPROV	<input type="checkbox"/>	CHAR	30	InfoProvider
OBJNAME	<input type="checkbox"/>	CHAR	30	OLAP Statistik Objektname (QueryID, TemplateID,...)
STATLEVEL	<input type="checkbox"/>	NUMC	1	Detail Level der OLAP Statistik Aufzeichnung
EVTIME	<input type="checkbox"/>	DEC	21	Laufzeit
EVCOUNT	<input type="checkbox"/>	DEC	15	BW Statistik: Anzahl
EVENTIDCNT	<input type="checkbox"/>	INT4	10	Natürliche Zahl
STARTTIME	<input type="checkbox"/>	DEC	21	UTC-Zeitstempel in Langform (JJJJMMTTThhmmss,mmm)

**RSDDSTAT\_DM**



Viewfeld	M...	DTyp	Länge	Kurzbeschreibung
STEPUID	<input type="checkbox"/>	CHAR	25	UUID in komprimierter Form
HANDLEID	<input type="checkbox"/>	NUMC	4	Interne ID eines Query Laufzeitobjekts
HANDLETP	<input type="checkbox"/>	CHAR	4	Handle type in OLAP statistics
UNAME	<input type="checkbox"/>	CHAR	12	Benutzername
UTIME	<input type="checkbox"/>	TIMS	6	BW Statistik Zeit
CALDAY	<input type="checkbox"/>	DATS	8	BW Statistik: Tag
OBJNAME	<input type="checkbox"/>	CHAR	30	OLAP Statistik Objektname (QueryID, TemplateID,...)
DMUID	<input type="checkbox"/>	CHAR	25	UUID in komprimierter Form
ACCESSCNT	<input type="checkbox"/>	NUMC	10	DM Statistik: DM -Zugriff Zähler
INFOPROV	<input type="checkbox"/>	CHAR	30	InfoCube
PARTPROV	<input type="checkbox"/>	CHAR	30	InfoCube
AGGREGATE	<input type="checkbox"/>	CHAR	30	InfoCube
TABLTP	<input type="checkbox"/>	CHAR	1	Einstelliges Kennzeichen
TIMEDMPREP	<input type="checkbox"/>	DEC	21	Laufzeit
TIMEDMPOST	<input type="checkbox"/>	DEC	21	Laufzeit
TIMERREAD	<input type="checkbox"/>	DEC	21	Laufzeit
TIMESID	<input type="checkbox"/>	DEC	21	Laufzeit
TIMENAVATTR	<input type="checkbox"/>	DEC	21	Laufzeit
TIMEHIERARCHY	<input type="checkbox"/>	DEC	21	Laufzeit
DBSEL	<input type="checkbox"/>	INT4	10	Natürliche Zahl
DBTRANS	<input type="checkbox"/>	INT4	10	Natürliche Zahl
WP_ID	<input type="checkbox"/>	INT4	10	Prozess-Id eines Workprozesses

... or use the new real-time reporting features – see below.

## Event ID

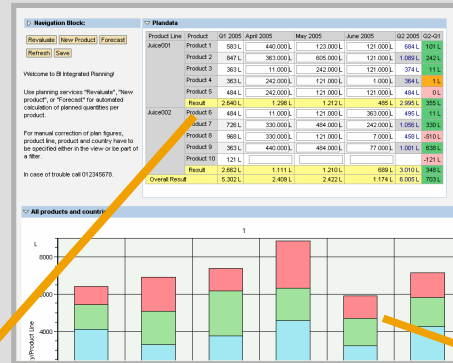
- At many different events in processing, runtime information gets collected
- Common concept used in query runtime, planning and warehouse management statistics
- Guarantees flexibility for further extensions
- Is the basis for end to end runtime monitoring of processing in SAP NetWeaver BI
- Depending on the event, the time is measured from start to end point or only at end point (time since last end point)

Excerpt from table  
RSDDSTATEVENTS

EVENTID	TXTSH
000000000	Not Assigned
000000001	Wait Time, User
000003000	OLAP: Settings
000003100	OLAP: Read Data
000003110	OLAP: Data Selection
000003200	OLAP: Data Transfer
000003210	Reading master data
000003500	OLAP Initialization
000003900	OLAP: Read Texts
000003999	OLAP Other Time
000012600	Web: Process Request
000012601	Web: Build Page
000012602	Web: Rendering
000012603	Web: Binary Content
000012604	Web: Late Rendering
000012605	Web: Text Content
000012606	Web: Send Event
000012607	Web: Read MIME
000050000	Write Plan Data
000050001	Planning Enqueue
000050002	Planning: Derivation
000050003	Planning: Save
010000000	InfoPackage
012000000	Delet. fr. InfoCube
012200000	Del. InfoCube Conten
012210000	Request fr. InfoCube
012220000	Reverse Posting
016000000	InfoCube Reconstr.
019000000	Total Process
019300000	Process up to Save
019300011	Data Transmission
019300012	Extractor

# Query Runtime Statistics - Overview (example)

## Frontend



**BI Web Application containing two web items**

## OLAP



**Query 1**



**Query 2**

## Data Manager



**InfoCube 1**



**DS Object 3**



**InfoCube 2**

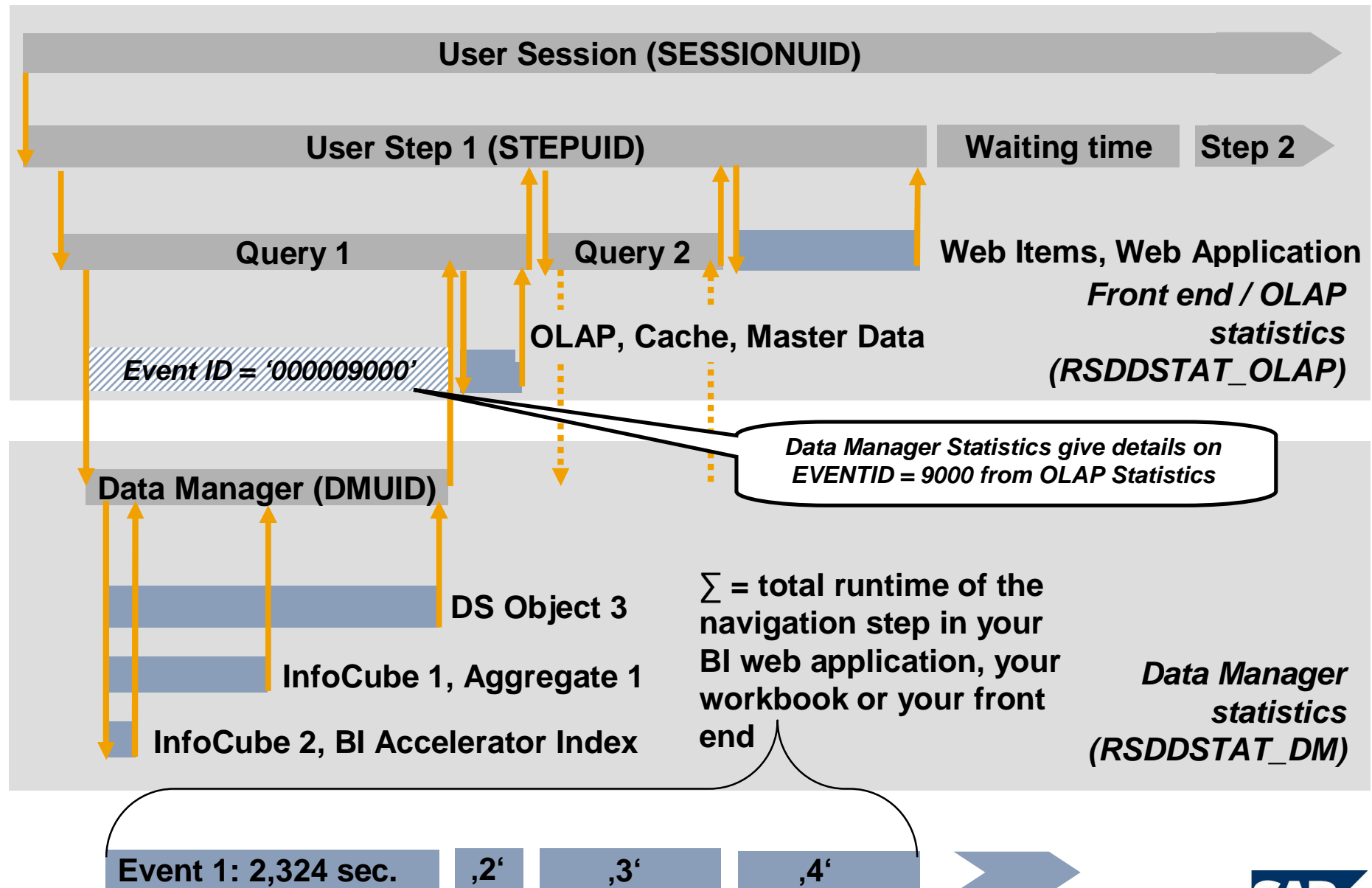


**Aggregate**



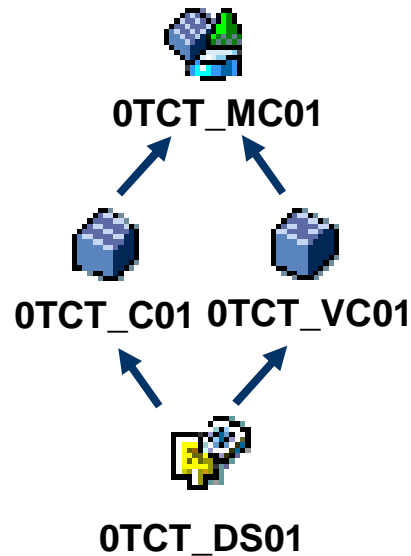
**BI Accelerator**

# Query Runtime Statistics - Overview (example)



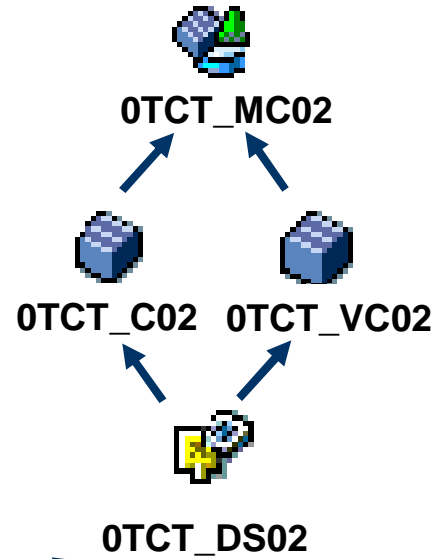
# Technical Content for Query Runtime Statistics: Data Flow

## Front-End and OLAP Statistics (Aggregated)



**RSDDSTAT\_OLAP**  
(database view)

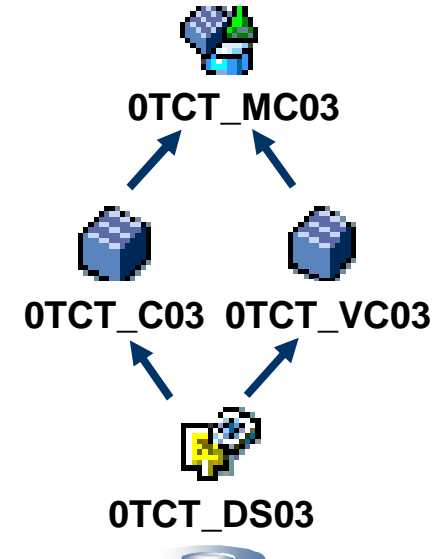
## Front-End and OLAP Statistics (Details)



### Use Cases

- Average Query Runtimes
  - Predefined runtime categories
  - Drilldown to navigation step
  - Monitor query activity
- (example: navigations / day)

## Data Manager Statistics (Details)



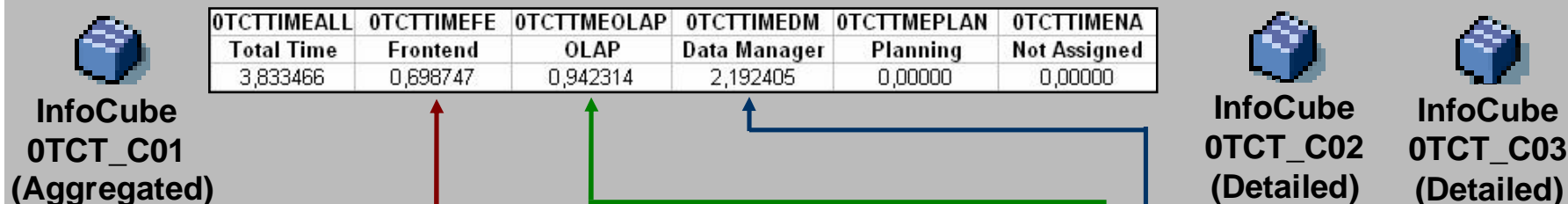
**RSDDSTAT\_DM**  
(database view)

### Use Cases

- MultiProvider runtimes
- Query performance tuning using the BI Accelerator or Aggregates

# Technical Content for Query Runtime Statistics: Details

## Data in Technical Content



## Data in BI Statistic Tables

Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration
OLAP	RHMPRO	RHMPRO_Q0003	000002500	Cache Generation	0,001586
OLAP	RHMPRO	RHMPRO_Q0003	000003000	OLAP: Settings	0,425987
OLAP	RHMPRO	RHMPRO_Q0003	000003010	OLAP: Query Gen.	0,138525
OLAP	RHMPRO	RHMPRO_Q0003	000003110	OLAP: Data Selection	0,002622
OLAP	RHMPRO	RHMPRO_Q0003	000003100	OLAP: Read Data	0,028711
OLAP	RHMPRO	RHMPRO_Q0003	000003200	OLAP: Data Transfer	0,330171
OLAP	RHMPRO	RHMPRO_Q0003	000003900	OLAP: Read Texts	0,014712
OLAP	RHMPRO	RHMPRO_Q0003	000009000	Data Manager	2,192405
APPL		RHWT_SALES_1	000019910	Web Application	0,689432
ITEM		TITLE	000019911	Web Item	0,001499
ITEM		NAVBLOCK	000019911	Web Item	0,002398
ITEM		TABLE	000019911	Web Item	0,005418

all details

Table RSDDSTAT\_OLAP

Details on Data Manager

InfoProvider	Basis Provider	Aggregate	Table Type	DM Prep.	Viewed at	Selected	Transferred
RHMPRO	IUSALES	IUSALES\$X		0,013461	1,386750	103.629.831	24.581
RHMPRO	ODS1	ODS1		0,018324	1,792405	8.922	63
RHMPRO	OBWVC_006	OBWVC_006 F		0,023554	0,293511	3.004	2.976
RHMPRO				0,381402			

all details

Table RSDDSTAT\_DM



## Query Runtime Statistics: Aggregation in Extraction

**BI statistics data is aggregated within DataSource 0TCT\_DS01 which populates the main Technical Content InfoCube 0TCT\_C01 (Aggregated Query Runtime Statistics)**

- Data is assigned to aggregated key figures using the **HANDLETP** (Handle type) and the **EVENTID** (Event ID) of the BI statistics data

	0TCTTIMEFE	0TCTTMEOLAP	0TCTTIMEDM	0TCTTMEPLAN	0TCTTIMENA	no extraction
<b>Handle Type</b>	Time recorded on front-end side	Time recorded for OLAP	Time recorded for DataManager	Time recorded for Planning	Time not assigned to front-end, OLAP or DataManager	
W3_T (Web BW 3.x)	all EVENTIDs					
W3_I (Web BW 3.x Item)	all EVENTIDs					
APPL (BEx Application)	all EVENTIDs					
ITEM (BEx Item)	all EVENTIDs					
DP (BEx Data Provider)	all EVENTIDs					
DIAL (BEx Dialog)	all EVENTIDs					
BRFC (BEx Remote Call)	all EVENTIDs					
DFLT (Default Handle)					all other EVENTIDs	000000001
BTCH (Batch Queries)		all other EVENTIDs	000009000			
MDX (OLAP BAPI)		all other EVENTIDs	000009000			
PLAN (Planning)				all EVENTIDs		
EXTN (External Read)		000004500	000009001 000009010 000009011		all other EVENTIDs	
OLAP (OLAP)	000019950 000019951 000019952	all other EVENTIDs	000009000 000009010 000009011			000000001
all other HANDLETPs (for example: F4 (value help)					all EVENTIDs	

## Technical content queries for analyzing the runtime of ...

- **Queries**
- **BI Web Applications**

## ... each with various key figures (excerpt) ...

- **Ø Frontend-time**
- **Ø OLAP-time**
- **Ø DM-time**
- **Ø Planning time**

## ... being calculated as ...

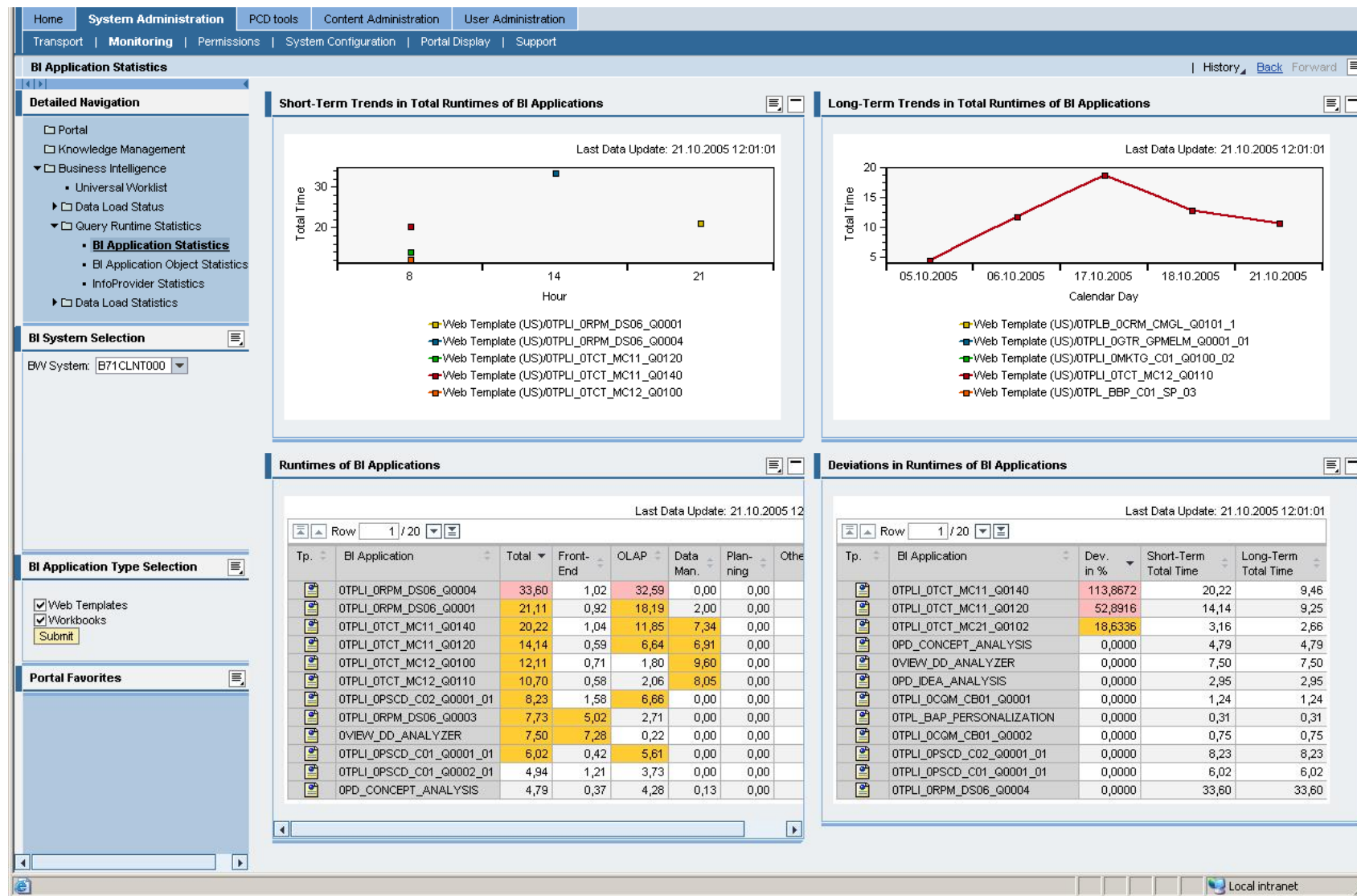
- **Averages, Long Term & Short Term Deviations, Rankings**

## ...and displayed in different time intervals:

- **Hours per day, Days per month, Weeks per quarter**



# Administration Cockpit: Query Runtime Statistics





Administration Cockpit & Technical Content

**Query Runtime Statistics**

**Migration & Maintenance**

Analysis Tools

Tips & Tricks

Data Load Statistics

Data Load Status

# Maintenance of the query statistic data collection (1)

**Maintenance of Statistic Properties**

Information Delete Statistical Data

Query InfoProvider Web Template Workbook

Replace Values Settings

For Queries, InfoProviders, Web Templates, Workbooks

Switch Statistics data collection on or off

Set the statistic detail level  
,0' = Aggregated data only  
,1' = No detail on data manager  
,2' = Detail on all levels

Query Name	InfoProvider	Author	Last Changed	Status	OLA...	Chan...
AT3_BI_QD_FORMULA2	ZFABCB5	KOLINTZC	09.09.2005 17:4...	D	1	<input type="checkbox"/>
AT3_BI_QD_FORMULA3	ZFABCB5		09.2005 17:5...	D	1	<input type="checkbox"/>
AT3_BI_QD_FORMULA4	ZFABCB5		09.2005 18:1...	D	1	<input type="checkbox"/>
ZMAD_TEST_20050906_KONST_SE1:0BWV...			09.2005 09:1...	D	1	<input type="checkbox"/>
ZMAD_TEST_20050906_KONST_SE1:0BWVM_006		D030725	08.09.2005 09:2...	X	2	<input checked="" type="checkbox"/>
JBMHQUERY_26	JBMHCITEM	HUANGM	09.09.2005 14:2...	X	2	<input checked="" type="checkbox"/>
SMR_DD_BOXES	ZFABCB6	KALISZ	08.09.2005 11:3...	D	1	<input type="checkbox"/>
JBMHQUERY22			05 18:2...			<input checked="" type="checkbox"/>
GM_MIT_HIERARCHIE			06 12:4...	D	1	<input type="checkbox"/>

...accessible from the Data Warehousing Workbench → Tools  
or using transaction RSDDSTAT

# Maintenance of the query statistic data collection (2)

## Default settings for statistic data collection

**For newly created queries: InfoProvider default**

- All new queries of this InfoProvider will inherit the setting

**→ If no InfoProvider setting exists: custom system default for all queries**

- Extras → Change Default or
- Change entry „Default Value“ in list

**→ If no (custom) system default exists: (Delivered) System Default:**

- D = 'X' = On,
- Statistic Detail level: D = '1' = Only Front End/Calculation Layer Data

## Statistic Data Management

■ Please review the (delivered) system default and disable statistic data collection where performance monitoring is not necessary

- Example: InfoProviders with low data volume

■ Setting Statistic Detail Level '2' for all queries will result in large amounts of data in statistic data collection tables (rule of thumb: ~ 30 - 40 records per query navigation step)

- Frequent transfer to Technical Content InfoProviders recommended
- Frequent deletion of Statistics Data (in transaction RSDDSTAT) recommended

## Estimated data volume in query runtime statistics

- Depending on the detail statistics level 20 – 60 records may be written per navigation step to the BI Statistics Tables (for those InfoProviders and Queries where statistics data collection is turned on)
- Example: 500 Users / day with each 6 navigation steps in average =  $500 \times 6 \times 30 = 90.000$  records / day in BI Statistics Tables

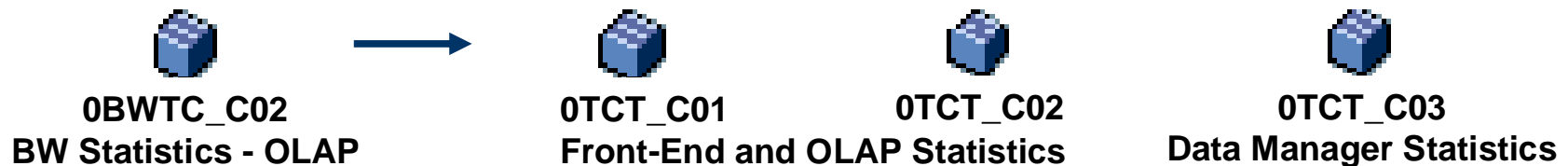
### 1. Manual deletion of statistics data

- In transaction RSDDSTAT. Dates to be deleted are selected.
- Using program RSDDSTAT\_DATA\_DELETE

### 2. Automatic deletion during data load

- Per default, with each delta load for query runtime statistics, data of the last 14 days is deleted out of the BI Statistics Tables. This time frame can be customized using the TCT\_KEEP\_OLAP\_DM\_DATA\_N\_DAYS parameter in the RSADMIN table.
- Please see SAP Note 891740 “Query runtime statistics: Corrections for extractors” for more information.

## Migration mandatory



- **3.x InfoCube 0BWTC\_C02 will not receive any new data as source table RSDDSTAT is not used for statistics data collection anymore**

## No migration: Technical content 3.x still valid



- **With SAP NetWeaver 7.0, table RSDDSTATAGGRDEF has been enhanced. The technical content 3.x is currently not reflecting this update but can still be used**



# Query Runtime Statistics Key Figures in 3.x and 7.0

SAP BW 3.x BI Statistics 3.x	Technical Content (0BWTC_C02)		SAP NetWeaver 7.0 BI Statistics	Technical Content (0TCT_MC01 - 0TCT_MC03)
QDBSEL	0TCTNDBSEL	Records Selected on the Database	for all Queries: = RSDDSTAT_DM-DBSEL (statistic detail level needs to be = 2) only for Queries selecting out of single InfoProvider = RSDDSTAT_OLAP-EVCOUNT for EVENTID = '000009011'	for all Queries: 0TCT_MC03: 0TCTNDBSEL (statistic detail level needs to be = 2) only for Queries selecting out of single InfoProvider 0TCT_MC01: 0TCT_DBSEL
QDBTRANS	0TCTNDBTRA	Records transferred from the Database to the Server	= RSDDSTAT_DM-DBTRANS only for Queries selecting out of single InfoProvider = RSDDSTAT_OLAP-EVCOUNT for EVENTID = '000009010'	for all Queries: 0TCT_MC03: 0TCTNDBTRA (statistic detail level needs to be = 2) only for Queries selecting out of single InfoProvider 0TCT_MC01: 0TCT_DBTRA
QNUMCELLS	0TCTNCELLS	Cells Transferred to the Frontend	= RSDDSTAT_OLAP-EVENTCNT for EVENTID = '000015010'	0TCT_C02-0TCTSTATCNT for 0TCTSTATEVT = '000015010'
QTIMEOLAPINIT	0TCTTOLINI	Time, OLAP Processor Initialization	RSDDSTAT_OLAP-EVTIME for EVENTIDs = '000003000', '000003010' and '000003500'	0TCT_MC02: 0TCTSTATTIM for 0TCTSTATEVT = '000003000', '000003010' and '000003500'
QTIMEOLAP	0TCTTOLAP	Time, OLAP Processor	RSDDSTAT_OLAP-EVTIME for EVENTIDs = '000003xxx'	0TCT_MC02: 0TCTSTATTIM for 0TCTSTATEVT = '000003xxx'
QTIMEDB	0TCTTDBRD	Time, Reading on the Database	for all Queries: = RSDDSTAT_DM-TIMEREAD (statistic detail level needs to be = 2) only for Queries selecting out of single InfoProvider = RSDDSTAT_OLAP-EVTIME for EVENTID = '000009000'	for all Queries: 0TCT_MC03: 0TCTTDMREAD (statistic detail level needs to be = 2) only for Queries selecting out of single InfoProvider 0TCT_MC01: 0TCTTIMEDM
QTIMEVARDP	0TCTTVARDP	Time, Inputting Variables	Variable Pop Ups are not captured separately as of note 981686. They are recorded under HANDLETP = DFLT with EVENTID = 1.	part of 0TCT_MC01: 0TCTTIMENA
QTIMEUSER	0TCTTNAVIG	Time Between Navigation Steps	RSDDSTAT_OLAP-EVTIME for EVENTID = '000000001'	0TCT_MC02: 0TCTSTATTIM for 0TCTSTATEVT = '000000001'
QTIMECLIENT	0TCTTFRONT	Time, Frontend	calculated as sum of various EVENTIDs in RSDDSTAT_OLAP in extraction to 0TCT_MC01 (see "Detail: Aggregation in query runtime statistics extraction")	0TCT_MC01: 0TCTTIMEFE
TIMEAUTHCHECK	0TCTTAUTH	Time, Authorization Check	RSDDSTAT_OLAP-EVTIME for EVENTID = '000004xxx'	0TCT_MC02: 0TCTSTATTIM for 0TCTSTATEVT = '000003210' and '000004xxx'
TIMEREST	0TCTTREST	Time That the System Was Unable to Assign	mainly times record with RSDDSTAT_OLAP-HANDLETP = DFLT	0TCT_MC01: 0TCTTIMENA

More information on

[http://help.sap.com/saphelp\\_nw70/helpdata/en/43/e39fd25ff502d2e10000000a1553f7/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/en/43/e39fd25ff502d2e10000000a1553f7/frameset.htm)



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# Analysis of BI Statistics data in SAP NetWeaver 7.0

Response Times of Queries in seconds

Sort by: Average Response Time Show ☒ InfoCubes ☒ ODS Objects

St.	InfoProvider	Description	# Nav. St.	Init. Call	Aver.	Var.	Total
QNF_DS05	Nota Fiscal P...		923	54	47		543,381
QUS_S001	Logistics data		534	32	28		214,952
QFIGL_C02	General ledge...		2,438	13	19		346,322
QD_DX_C01	DalSegno turn...		1,235	15	12		414,820
IUSALES	USA internal ...		186	12	11		1,2046

BI Administration Cockpit

Workload Monitor

Full screen on/off

Expert mode

Workload

- us9054\_Q12\_12
- us4041\_Q12\_12
- us4042\_Q12\_12
- us4106\_Q12\_12
- Total
- Detailed Analysis
- Load History
- Collector and Performance DB

**New: ST03 based on Technical Content**

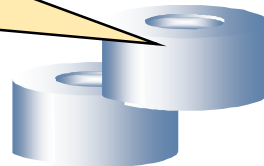
ST03 BI System Load\*



New and enhanced Technical Content



**New: Persistent data storage and direct access**



New set of BI Statistics tables

**New: Ad hoc analysis of statistics data**

Query Monitor

Execute Debug Generate Report Properties Messages

Performance Info Technical Information Debug Options

Query: R0\_DX\_R01/RHRC01

Query Display: List

- ☐ Default Breakpoints
- ☐ Authorization Breakpoints
- ☐ Cache Breakpoints
- ☐ Apps
- ☐ HPA Server
- ☐ Data Manager
- ☒ Display Statistics Data
  - ☐ Do Not Use Cache
  - ☐ R0 Transformations
  - ☐ Do not Use Enhanced Checks
  - ☐ Do Not Suppress Messages/Warnings

Query Monitor (RSRT)

Table Edit Goto Settings Utilities System Help

SAP

Data Browser: Initial Screen

Table Name: RSDDSTAT\_OLAP

Table: | 072 (4) 003 | bal0011 | BMS |

Direct analysis of RSDDSTAT\*

BI-UP Performance Toolset

Selection for BI-UP Performance Toolset

- BI Objects List
- Planning Functions
- BI Events List (RSDDSTAT\_OLAP)
- Data Manager List (RSDDSTAT\_OLAP)
- Selection ID
- Table ID
- User Name
- Client
- BI-UP System Type (Production)
- Unpackable Methodology of last Selection
- BI-UP Statistics from Custom Structure

BI Integrated Planning Perf. Toolset

Ad hoc Analysis in (new) BEx Web and (new) BEx Analyzer

Table: | 072 (4) 003 | bal0011 | BMS |

Ad hoc Analysis in (new) BEx Web and (new) BEx Analyzer

\* Available as of SAP NetWeaver 7.0 BI, SPS 9

# Analysis of Query Runtime Statistics: ST03

**Precondition:  
EXPERT mode**

**Header information:**

- Timeframe
- Source system (Default: MYSELF)

**Workload in System Q75**

Full screen on/off Save view

Expert mode

Workload  
Detailed Analysis  
Load History and Distribut

BI Workload  
User-Defined Time Se  
Day  
Today  
13.09.2006 Wed  
12.09.2006 Tues  
Week  
This week  
04.09.2006 - 10.09  
28.08.2006 - 03.09  
Month  
This month  
08/2006

Analysis Views  
Reporting  
Workload Overview  
Query Runtimes  
BEX 3.x Queries  
JAVA Queries  
Hit Lists  
User Profile  
Load Data  
Load InfoPackage  
Process Chains

Instance TOTAL  
Period 12.09.2006  
Source System Q75CLNT003

First record 12.09.2006 00:00:00  
Last record 12.09.2006 23:59:59  
Time period 0 Day(s) 23:59:59

Share of Runtime Average Times (AVG) All data

Aggregation

Reporting - InfoCubes: Share of Total Time (s) / All Data - Totaled

InfoCube	No. Queries	No. of Nav.	Total time	% OLAP	% DB	% Frontend	% Plan	% Un	OLAP Time	DB Time	Frontend	Planning	Unass. Time
TOTAL	5	23	77,7	53,41	39,90	6,44	0,00	0,26	41,5	31,0	5,0	0,0	0,2
0BA_M									0,6	27,4	2,1	0,0	0,2
0CRM_MC08									22,4	2,7	0,7	0,0	0,0
0DF_MC08									16,1	0,5	0,3	0,0	0,0
ZISCM_WC1									2,4	0,4	1,9	0,0	0,0

**Timeframe selection  
(User-defined is possible)**

**Analysis views for  
different BI areas**

## ■ Based on Technical Content for BI Statistics

■ Accessing persistent data (0TCT\_C\*) and real-time data from BI Statistics through VirtualProviders (0TCT\_VC\*)

■ See note 964418: Adjusting ST03N to new BI-OLAP statistics in Release 7.0

# Analysis of Query Runtime Statistics: Query Monitor

In the Query Monitor (transaction RSRT) detailed query runtime statistics can be displayed:

**Query Monitor**

Query: 0D\_DX\_M01/0D\_DX\_M01\_Q0002

Query Display: List

**Debug Options**

- ☐ Default Breakpoints
- ☐ Authorization Breakpoints
- ☐ Cache Breakpoints
- ☐ Aggs
- ☐ BIA Server
- ☐ Data Manager
- ☒ Display Statistics Data
- ☐ Do Not Use Cache
- ☐ RRI Transformations
- ☐ Do not Use Enhanced C
- ☒ Do Not Suppress Mess
- ☐ Display of Empty Query

**Statistic Data for Query Runtime**

Start Time	Ha	InfoProvider	Object Name	D	Eve	Event Text	Duration	Co	Eve
28.03.2006 11:31:20			RRX_SESSION_INITIALIZE	2	1000	Not Assigned	0,016000	0	1
28.03.2006 11:31:20	1		RRX_REPORT_OPEN	2	1000	RFC call	0,234000	0	1
28.03.2006 11:31:20	2		RRX_REPORT_OPEN	2	1000	RFC call	0,109000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	3010	OLAP: Query Gen.	0,157000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	3999	OLAP Other Time	0,031000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1995	3.x Query View Open	0,062000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1980	3.x Analyzer Sener	0,172000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,235000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,000000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,031000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,078000	0	2
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,031000	0	8
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,094000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,235000	0	10
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,000000	0	4
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,032000	0	5
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,000000	0	3
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,094000	0	4
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	17,3740...	0	3
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	1	Wait Time, User	0,204000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	2520	Cache Commit	0,265000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	3100	OLAP: Read Data	0,047000	0	1
28.03.2006 11:31:20	1	0D_DX_M01	0D_DX_M01_Q0001	2	3200	OLAP: Data Transfer	0,110000	0	1

**Statistic Data for Query**

Acc	InfoProvider	Basis Provi	Aggregate	T	D	DM Post	Viewed at	SID Proc	Attribute	Hierarch	Records	Reco	Work
1	0D_DX_M01	0D_DX_C01	0D_DX_C01	F	0	0,000000	0,000000	16,797000	0,000000	0,000000	47.154	1	1
2	0D_DX_M01	0D_DX_C02	0D_DX_C02	F	0	0,000000	0,000000	0,922000	0,000000	0,000000	217	1	2
3	0D_DX_M01	0D_DX_C03	0D_DX_C03	F	0	0,000000	0,000000	0,406000	0,000000	0,000000	55	1	0
	0D_DX_M01				0	0,109000	0,000000	0,000000	0,000000	0,000000	0	0	0

# Analysis of Query Runtime Statistics: Profiling

In the (new) BEx Web, experts / administrators can display query runtime statistics of the current user session using the expert mode ,profiling‘.

**&profiling=X**

BI Statistics

### Sales Analysis

Calendar month	Billed Quantity	Billed Quantity Plan	Lost Deals	Number of Lost Deals
	ST	ST	\$	ST
1	128.863.683	126.894.142	129.435.461	35.547.749
2	127.194.088	126.207.407	148.272.083	38.783.511
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Overall Result				

**BW Statistic Dialog - Microsoft Internet Explorer**

BI Statistic

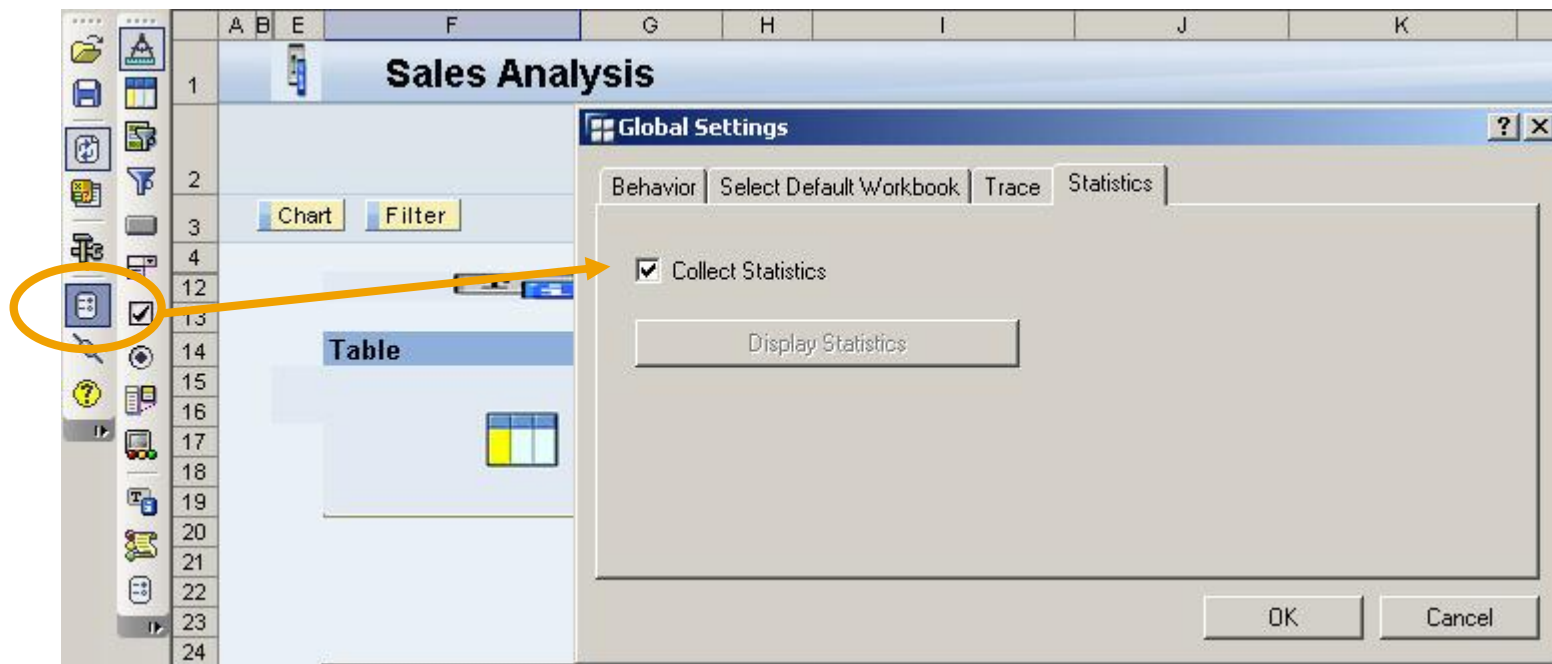
Open Print View | Download Text File

Session UID: 414H54E94PGBJ1GICNBJPZ3QC

Step	Step Summary	Java Events	Olap Events	Data Manager Events
Step: 0 Step UID: 414H54E94PGBJ1GICNBJPZ3QC	Step runtime: 34891 ms Remote runtime :34376 ms Local runtime :515 ms  Handle types olap frontend events: - APPL: 359 ms - DFLT: 280 ms - DP: 967 ms - OLAP: 32911 ms - BRFC: 79 ms	34891 ms: Java Events 34810 ms: Application step (12500) 281 ms: RFC: Java to Abap	34596 ms: OLAP Frontend Events	27680 ms: Data Manager Even 25621 ms: InfoProvider: OD_I 992 ms: InfoProvider: OD_DX 919 ms: InfoProvider: OD_DX 148 ms: InfoProvider: OD_DX
Step: 1 Step UID: 414HBW2AIME3SE2F7GDL20ADGK	Step runtime: 3907 ms Remote runtime :204 ms Local runtime :3703 ms Wait time: 730442 ms Wait time Olap Frontend: -1808 ms  Handle types olap frontend events: - ITEM: 297 ms - DIAL: 3312 ms - APPL: 94 ms - DFLT: 110 ms - BRFC: 5 ms	3907 ms: Java Events	3818 ms: OLAP Frontend Events	No Events

# Analysis of Query Runtime Statistics: BEx Analyzer

In the (new) BEx Analyzer, experts / administrators can enable the analysis of query runtime statistics of the last user navigation step using the “Statistics” settings in the Global Properties.



**This setting is used for ad hoc analysis of runtime statistics in BEx Analyzer itself and does not interfere with settings made in transaction RSDDSTAT in order to collect runtime statistics in RSDDSTAT\* tables.**



# Analysis of Query Runtime Statistics: BEx Analyzer II

After having set the flag “Collect Statistics” in the Global Properties, the runtime statistics for the last navigation step of the corresponding Workbook can be displayed:

The screenshot displays the SAP BEx Analyzer II interface. On the left, a toolbar contains various icons, with the 'Statistics' icon (a document with a bar chart) circled in orange. An orange arrow points from this icon to the 'Global Settings' dialog box on the right. The dialog box has four tabs: 'Behavior', 'Select Default Workbook', 'Trace', and 'Statistics'. The 'Statistics' tab is active, showing a checked checkbox for 'Collect Statistics' and a 'Display Statistics' button. In the background, a table displays runtime statistics for a workbook.

STEP	CNT	TEXTSH	PERCENTS	EVTIME	EVCOUNT	HANDLEID
1						
2	4	Wait Time, User	85%	10.818	0	0
3	4	Not Assigned	15%	1.897	0	0
4	4	RFC call	0%	0.030	0	1
5	4	RFC call	0%	0.001	0	2
6	4	Total		12.746		
7	5	Wait Time, User	84%			
8	5	Not Assigned	15%			
9	5	RFC call	0%			
10	5	Load Workbook	1%			
11	5	Total				
12	6	Wait Time, User	59%			
13	6	Not Assigned	3%			
14	6	RFC call	2%			
15	6	Generate Workbook	12%			
16	6	Process Command	0%			
17	6	OLAP: Query Gen.	2%			
18	6	OLAP Other Time	2%			
19	6	3.x Query View Open	2%			
20	6	Authorization Buffer	1%			
21	6	OLAP Initialization	2%			
22	6	OLAP: Settings	1%			
23	6	Read Cache	1%			
24	6	Cache Read Access	0%	0.000	0	4
25	6	Cache Generation	0%	0.021	0	4
26	6	Cache Commit	0%	0.001	0	4
27	6	OLAP: Read Data	0%	0.008	1	4

## BI Integrated Planning Performance Toolset

- Available as of note 1035990 (Report ZBPPPOIP)
- It is planned to deliver this report within a ST-A/PI (Solution Manager Plug In) Release

BI-IP Performance Toolset

Selection for BI Statistical Records

☒ Overview on Steps

☐ BI Objects List

    All Objects ☐

    Planning Functions ☒

    Queries ☐

☐ BI Events List (RSDDSTAT\_OLAP)

☐ DataManager List (RSDDSTAT\_DM)

Session ID

Step ID

User Name  to

Date  to

UTC (System Time - 02h00min ) 00:00:00 to 23:59:59

☐ Deactivate Buffering of last Selection

☐ Read Statistics from Content InfoCube



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### How to get additional information on EVENT IDs?

- This information is contained in the query runtime statistics documentation. For more information see [http://help.sap.com/saphelp\\_nw70/helpdata/en/45/f0488a1aa03115e10000000a1553f7/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/en/45/f0488a1aa03115e10000000a1553f7/frameset.htm)

### How to monitor query usage / query activity in the system?

- The Technical Content for BI Statistics does not provide any standard queries for doing this. But you can easily create your monitoring query based on the InfoProvider 0TCT\_MC01 or 0TCT\_C01 by using the key figures 0TCTQUCOUNT (counts every navigation in a query) and 0TCTWTCOUNT (counts every call of a BI Application = initial opening of Workbook or Web Template).

### How can I check whether a certain query navigation step used the OLAP Cache?

- You can analyze this in InfoProvider 0TCT\_MC02 or in database view RSDDSTAT\_OLAP. If the EVENT IDs ,2505' or ,2525' appear for the given STEPUIID the OLAP Cache has been read.

**In my own queries based on Technical Content InfoProviders, runtimes appear that are not linked to the query execution. What do they mean?**

- Please filter on `OTCTBISOTYP = ,ELEM'` and `,QVIW'` and `OTCTBIOTYP = ,XLWB'`, `,BTMP'`, `,TMPL'` and `,ERPT'` in order to filter out additional times such as „OPEN\_DIALOG“.

**Why appears a total time (OTCTTIMEALL) of a certain query execution much higher than expected?**

- Currently, in certain cases system times such as the OPEN\_DIALOG or user interaction appear as Not Assigned Time (OTCTTIMENA) which is part of the total time OTCTTIMEALL. To ignore OTCTTIMENA in total time, you might calculate the total time for querying as sum of OTCTTIMEFE, OTCTTMEOLAP and OTCTTIMEDM.

**What does the BI Application Object ,RSDRI' mean that shows high runtimes in performance monitors?**

- This is the time spent on reading InfoProvider through the Data Manager Interface (RSDRI\_INFOPROV\_READ) or through Data Mart Extractions (3.x technology). You can filter this out by restricting characteristic OTCTBIBOBJ

### **How can I compare performance of queries that used the BI Accelerator to queries that use aggregates?**

- You can analyze this using InfoProvider 0TCT\_MC03. BI Accelerator accesses will appear as 0TCTAGPROV = <INFOCUBE>\$X) whereas aggregates will appear as 0TCTAGPROV = 1xxxxx. For easy restriction in queries you might add an additional characteristic deriving this access type in transformations or update rules.

### **How to get the BI Accelerator kernel runtime for a query?**

- Execute a query with statistics data in transaction RSRT. From the Aggregation Layer within the statistics data, note the Data Manager UID. Then start transaction SE16 and enter the table name RSDDSTATTREXSERV. There, enter the Data Manager UID and select the call type Q. When you choose "Execute", the TREX\_KERNEL\_TIME becomes visible.

# Query Runtimes Statistics: DBSEL and DBTRANS









**0TCTNDBSEL: Selected records (from DB or BI Accelerator)**

**0TCTNDBTRA: Transferred records (from DB or BI Accelerator)**

→ These two key figures indicate the aggregation (factor) that took place before data was handed over to the Analytical Engine. This is important for improving the performance of your aggregates and your data modeling in general

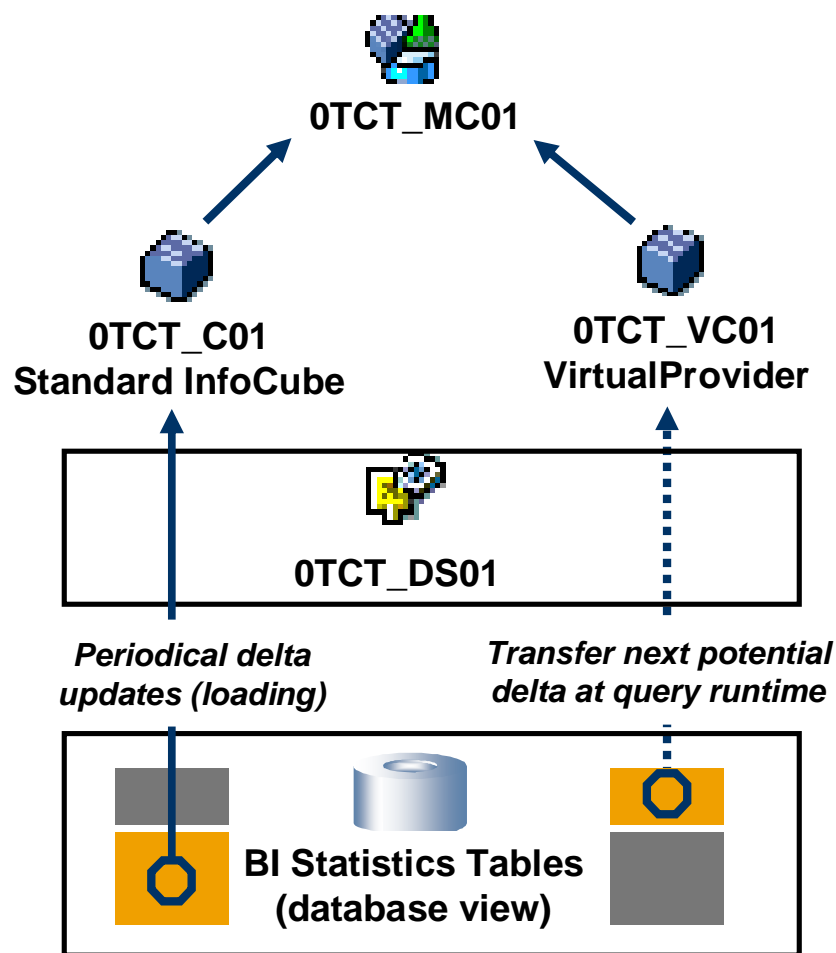
**0TCTNDBSEL / 0TCTNDBTRA should be monitored using InfoProvider 0TCT\_MC03**

- Prerequisite: statistics detail level for query is set to ,2' in statistics customizing)
- 0TCTNDBSEL / 0TCTNDBTRA in 0TCT\_MC01 are only meaningful if query data was selected out of one InfoProvider only. In case of „PartProvider“ queries within a MultiProvider, data will be aggregated (results not meaningful). Example:

MultiProvider	PartProvider	Selected	Transferred	Technical Content
		<del>144000000</del>	<del>3608860</del>	 0TCT_MC01
		4000000	3600000	 0TCT_MC03
		135000000	260	 0TCT_MC03
		5000000	860	 0TCT_MC03

# VirtualProviders in Technical Content

## Real-time Analysis of BI statistics data through VirtualProviders in Technical Content (example: Query Runtimes Statistics):



### Access to VirtualProvider

- Disabled in Technical Content Queries used in the BI Administration Cockpit
  - Can be enabled in customer defined queries on Technical Content by removing restriction on characteristic 0INFOPROV
  - Enabled in ST03 queries accessing the Technical Content
- **Frequent loading of delta data is needed (recommendation: once a day)**  
**= few remaining delta data in BI Statistics Tables**  
**= fast (virtual) query access!**

# Time Zones in BI Statistics and Technical Content

TCT Characteristic	BI Statistics Field	BI Statistics Time Zone	TCT Time Zone
0TCTTIMSTMP	STARTTIMESTAMP	UTC	UTC
0TIME	STARTTIMESTAMP	UTC	UTC
0CALDAY	STARTTIMESTAMP	UTC	UTC
0TCTUTIME	UTIME	UTC	LOCAL
0TCTHOURLT	HOUR_SLOT	UTC	LOCAL

TCT Key Figure	BI Statistics Field	BI Statistics Time Zone	TCT Time Zone
0TCTSTRTTST	STARTTIMESTAMP	UTC	UTC
0TCTSTRTDAT	STARTTIMESTAMP	UTC	UTC
0TCTSTRTTIM	STARTTIMESTAMP	UTC	Local
0TCTSTIMEK	STARTTIMESTAMP	UTC	UTC
0TCTENDTST	ENDTIMESTAMP	UTC	UTC
0TCTENDDAT	ENDTIMESTAMP	UTC	UTC
0TCTENDTIM	ENDTIMESTAMP	UTC	UTC

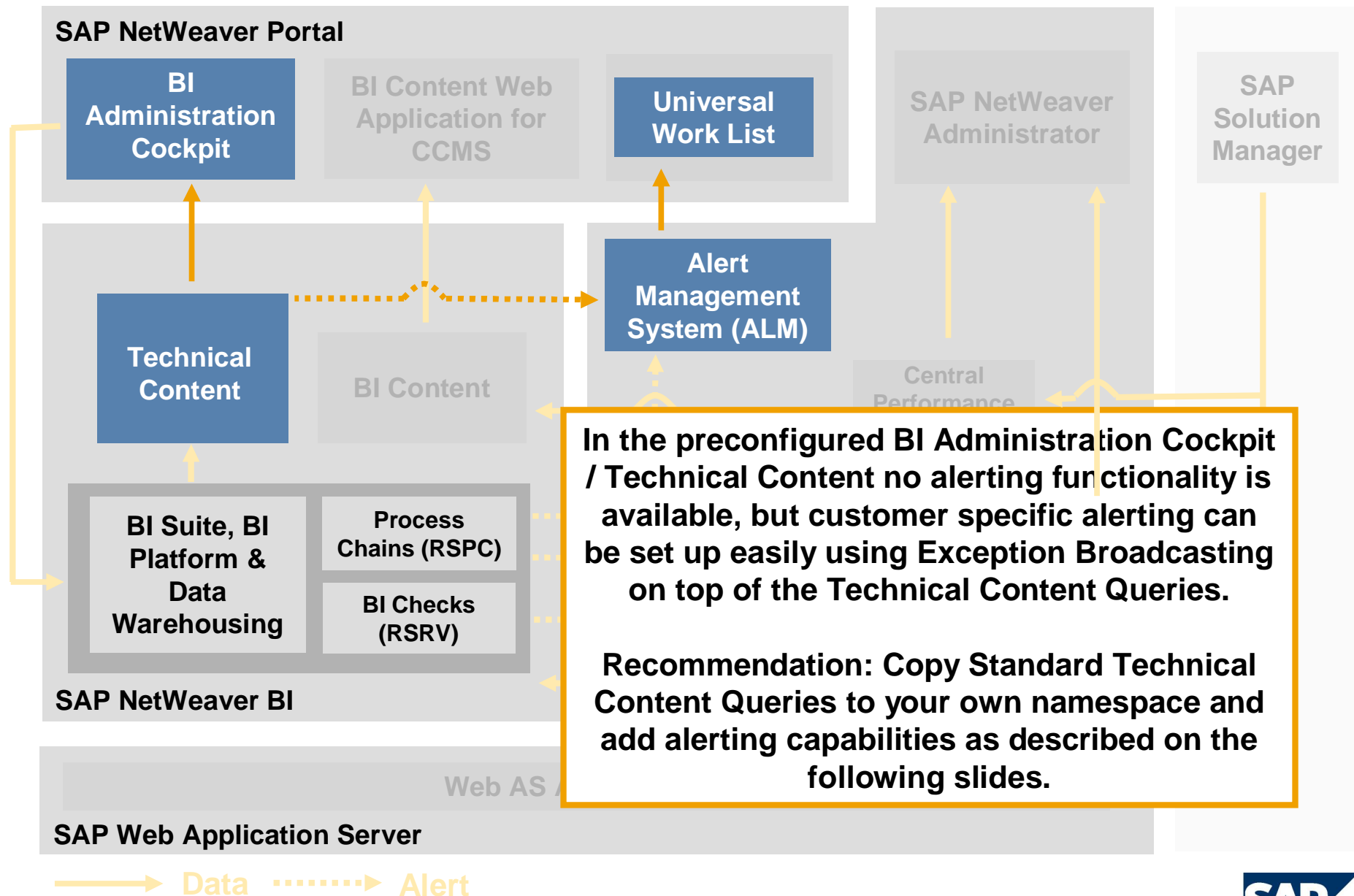
*Data Load Statistics*

*Used in both*

*Query Runtime Statistics*

LOCAL = System time zone, customized in transaction STZAC, can be displayed in System → Status  
 UTC = Coordinated Universal Time = Greenwich Mean Time (GMT)

# Alerting in the Technical Content for BI Statistics

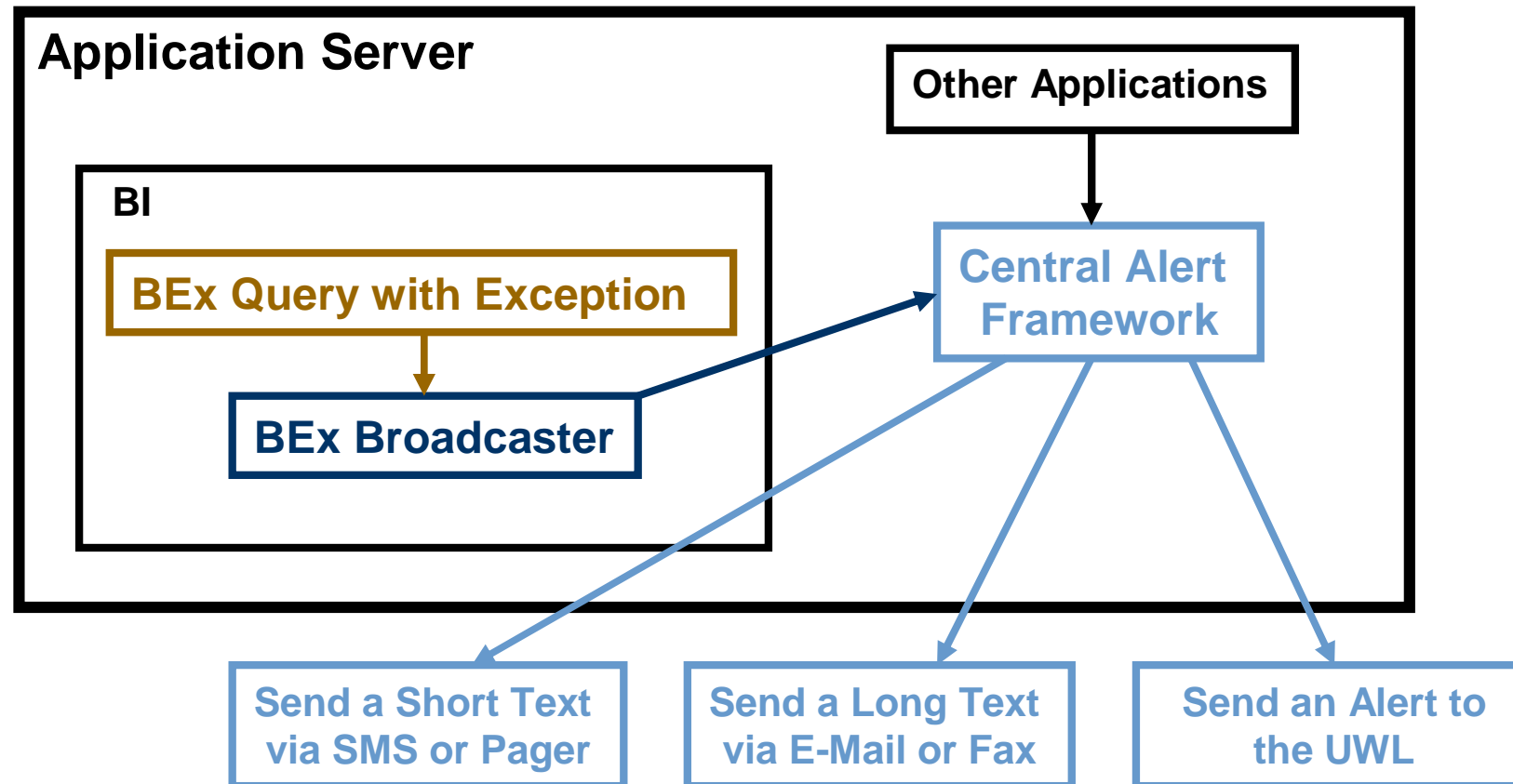




# Implementing Exception Broadcasting -1-

## ■ Integration of Exception Reporting

- Searching queries for exceptions that have occurred
- Distribution of exceptions that have occurred by e-mail or with the Alert Framework



# Implementing Exception Broadcasting -2-

## Query Designer

**Define Exception**

Description:  ☒ Active

Evaluation for

Key Figures

Exception Values | Cell Restrictions

From	To	Alert level
#	100	Bad 9
100	500	Medium 4

### 1. Create Exception...

Country	Distribution channel	Number of documents
Australia	Direct Sales	380,000
	Final Customer Sales	358,000
	Internet Sales	376,000
	Service	381,000
Canada	Final Customer Sales	2.724,000
	Internet Sales	2.556,000
	Service	96,000
Germany	Direct Sales	6.480,000
	Final Customer Sales	8.400,000
	Internet Sales	16.020,000
	Service	2.610,000
France	Final Customer Sales	14.768,000
	Internet Sales	13.174,000
Great Britain	Direct Sales	1.624,000

## BEx Broadcaster

### 2. Create Broadcasting Section...

Distribution type	<input type="text" value="Send E-Mail"/>	Parameter	<a href="#">Create</a>
Selection Criterion	<input type="text" value="Exception"/>	Value	<input type="text" value="Low Sales"/>
Document Type	<input type="text" value="Exception Overview"/>	Layout	<input type="text" value="Text"/>
Distribution type	<input type="text" value="Create Alert"/>	Parameter	<a href="#">Create</a>
Selection Criterion	<input type="text" value="Exception/Alert Level"/>	Value	<input type="text" value="Low Sales / Critical 1"/>
Document Type	<input type="text" value="(No Selection Possible)"/>		

Broadcast whenever  
a certain exception  
takes place

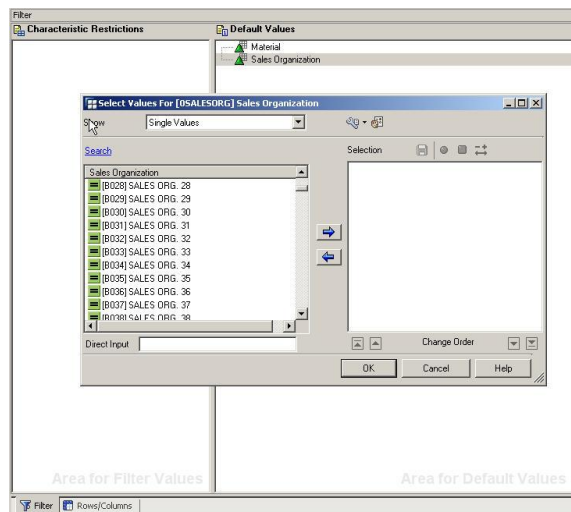
Broadcast only for  
specific exception  
level

# Query Runtimes Statistics: Value helps

Through the new EVENTID concept much more detail and additional information is available in BI Statistics and Technical Content.

## Example:

- Runtime for value helps in query definition and query execution



### RSDDSTAT\_OLAP

HANDLETP	F4
EVENTID	6001
INFOPROV	0SD_C03
OBJNAME	0CALMONTH
OBJPROP	M
EVTIME	0,02574

All EVENTIDs = ,000006\*\*' describe the HANDELTP ,F4' in detail. In this case, 6001 means ,Value Help: Read Data from DB'

Within the object properties, the origin of the data can be analyzed (Q = Posted values for query navigation, D = Values in InfoProvider, M = Values in Master Data)

- In Technical Content, this information can be analyzed through MultiProvider 0TCT\_MC02 (0TCT\_MC01 containing the information as part of the „Not Assigned“ time.

# Query runtimes statistics: SEM-BCS (Consolidation)

Through the new query runtime statistics data storage, improved monitoring for VirtualProvider based query access in SEM-BCS (Consolidation) is possible.

## Data in BI Statistic Tables

Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration
OLAP	0BCS_VC11	BCS_QUERY_01	2500	Cache Generation	0,125
OLAP	0BCS_VC11	BCS_QUERY_01	3000	OLAP: Settings	0,14
OLAP	0BCS_VC11	BCS_QUERY_01	3010	OLAP: Query Gen.	0,047
OLAP	0BCS_VC11	BCS_QUERY_01	3500	OLAP Initialization	0,297
OLAP	0BCS_VC11	BCS_QUERY_01	4400	Node Authorizations	0,016
OLAP	0BCS_VC11	BCS_QUERY_01	4600	Authorization Buffer	0,031
OLAP	0BCS_VC11	BCS_QUERY_01	9000	Data Manager	3,829

Excerpt from Table RSDDSTAT\_OLAP

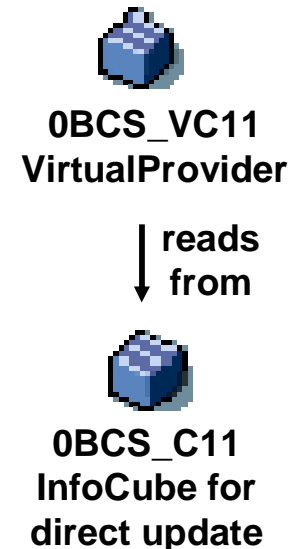
### Details on Data Manager

InfoProvider	Basis Provider	Aggregate	Table Type	DM Preparation	DM Read	Records, Selected	Records, Transferred
0BCS_VC11	0BCS_VC11	0BCS_VC11		0	3,813	0	82
0BCS_VC11				0,016	0	0	0
0BCS_C11	0BCS_C11	0BCS_C11	F	0	1,422	6.156	564
0BCS_C11				0,047	0	0	0

Table RSDDSTAT\_DM

3,8 sec of which 1,4 sec are due to reading from 0BCS\_C11

6.156 records from DB, 564 transferred to 0BCS\_VC11, 82 transferred to OLAP



Example



Administration Cockpit & Technical Content

Query Runtime Statistics

Migration & Maintenance

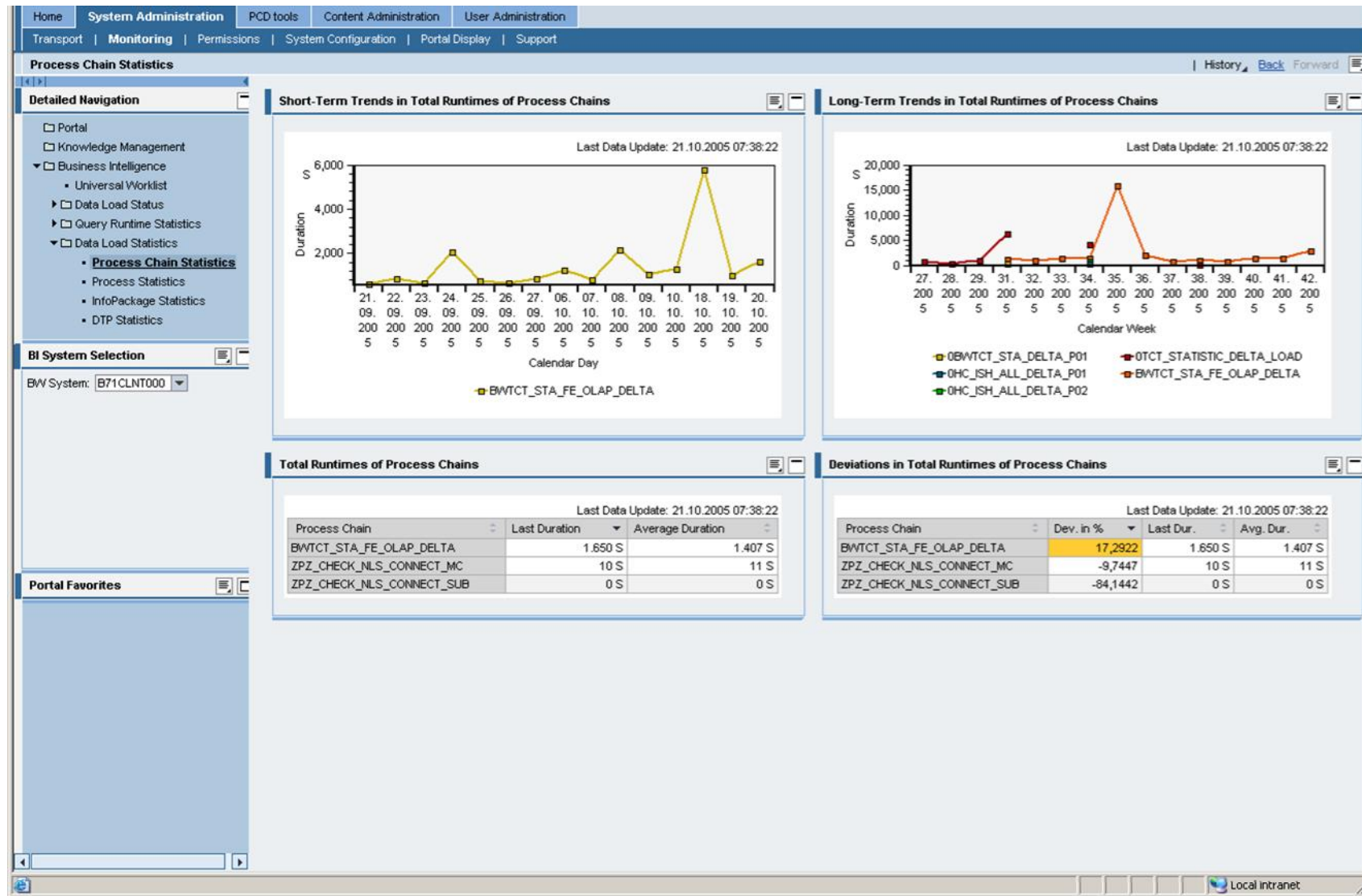
Analysis Tools

Tips & Tricks

**Data Load Statistics**

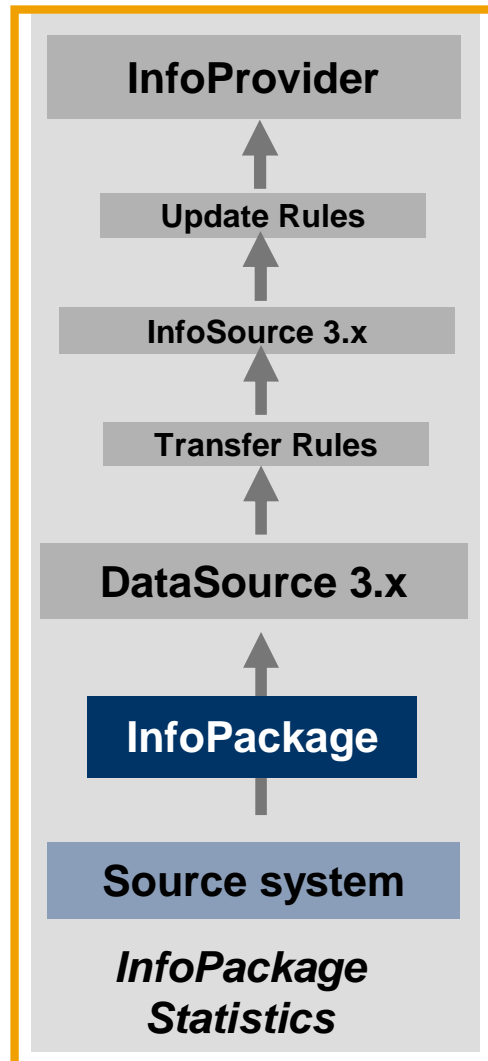
Data Load Status

# Administration Cockpit: Data Load Statistics

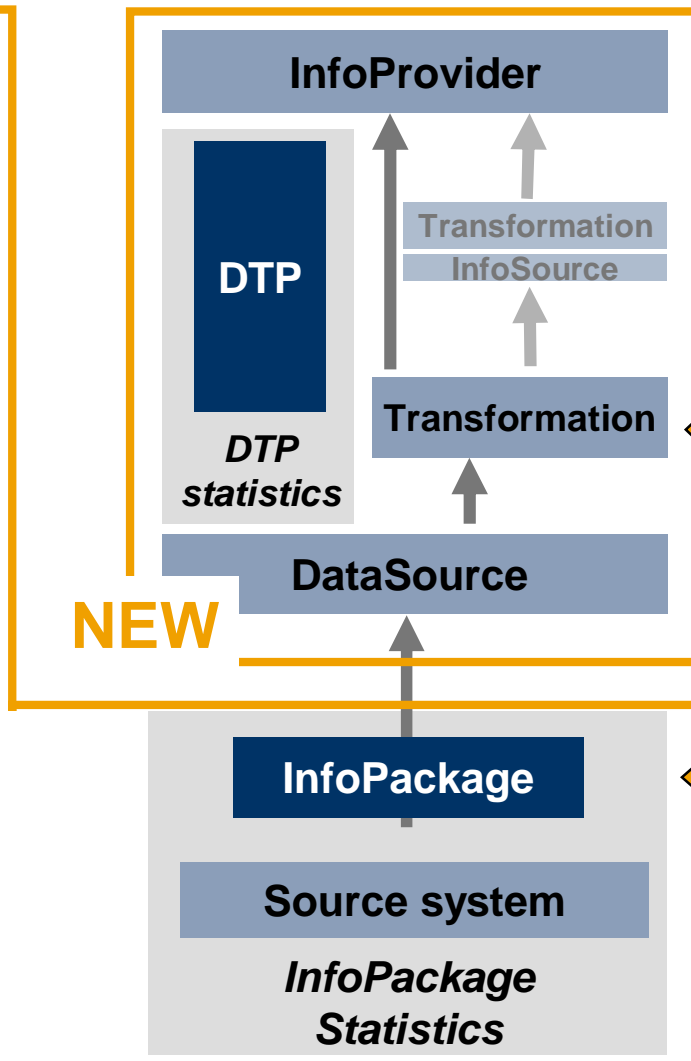


# Data Load Statistics in SAP NetWeaver 7.0

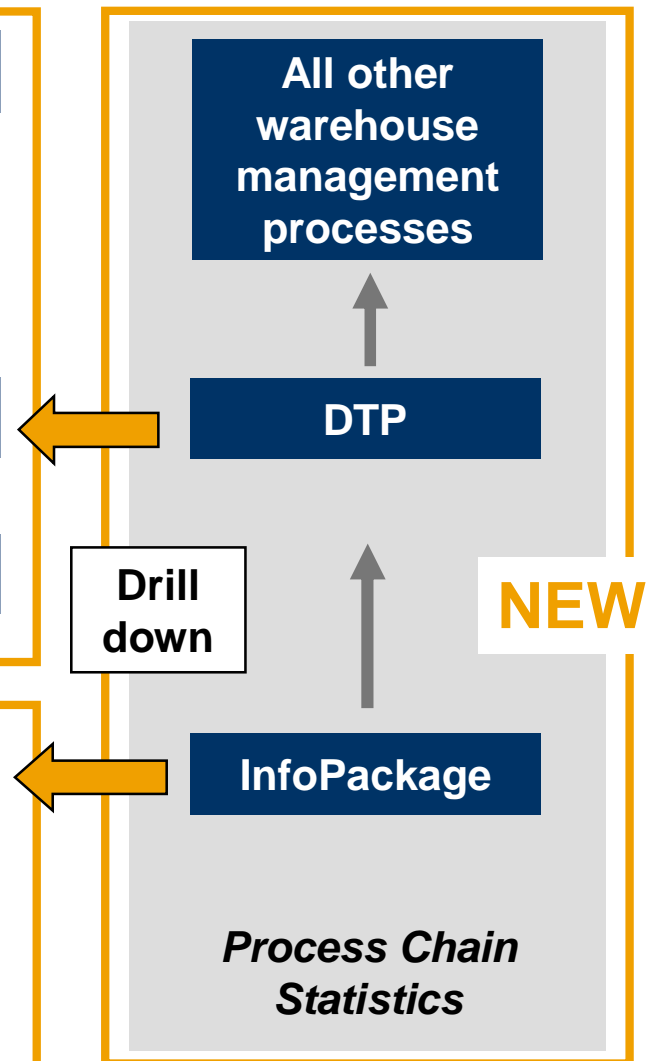
Statistics data for SAP BW 3.x  
data flow technology



Detailed Statistics data  
for new data flow

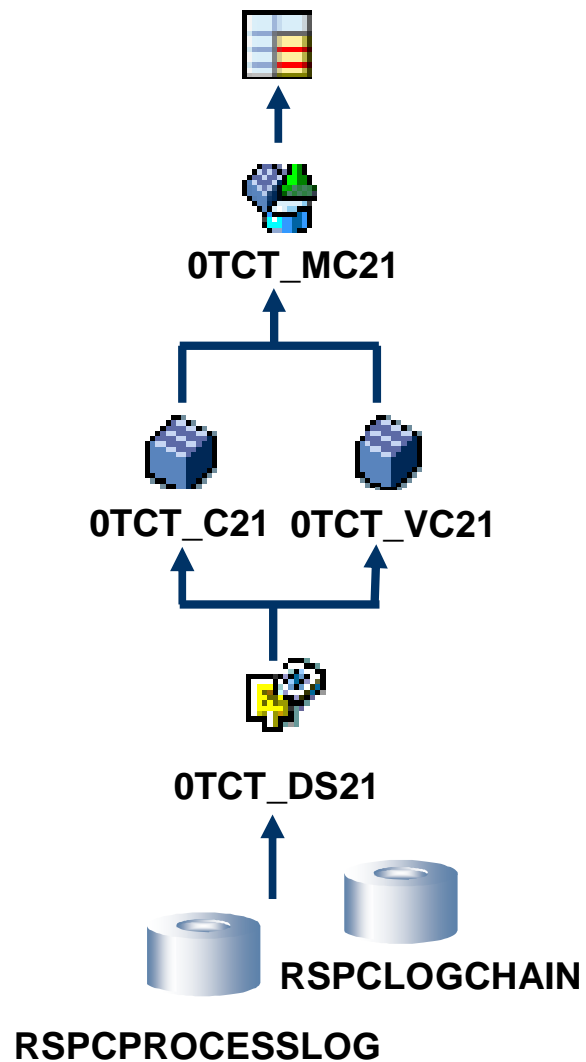


Statistics data on  
process chains

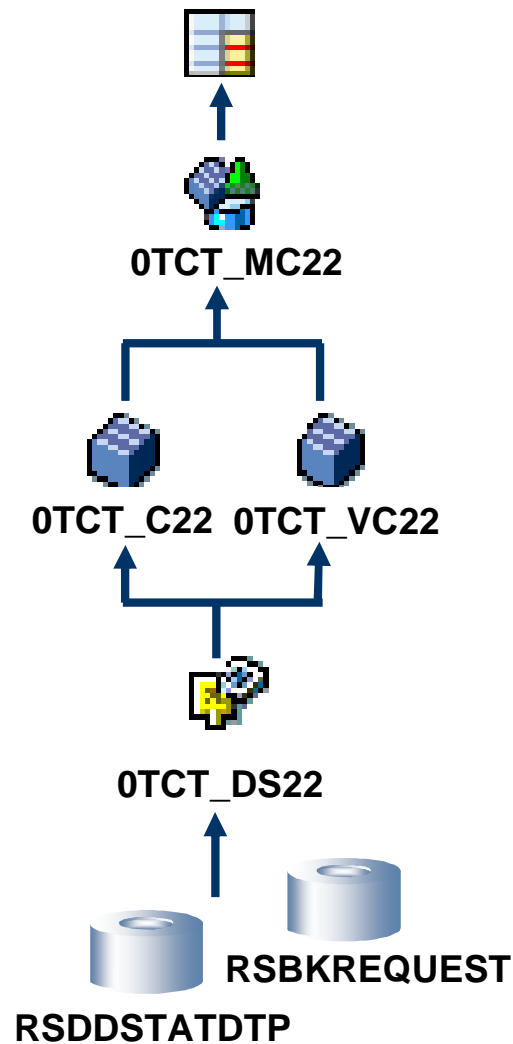




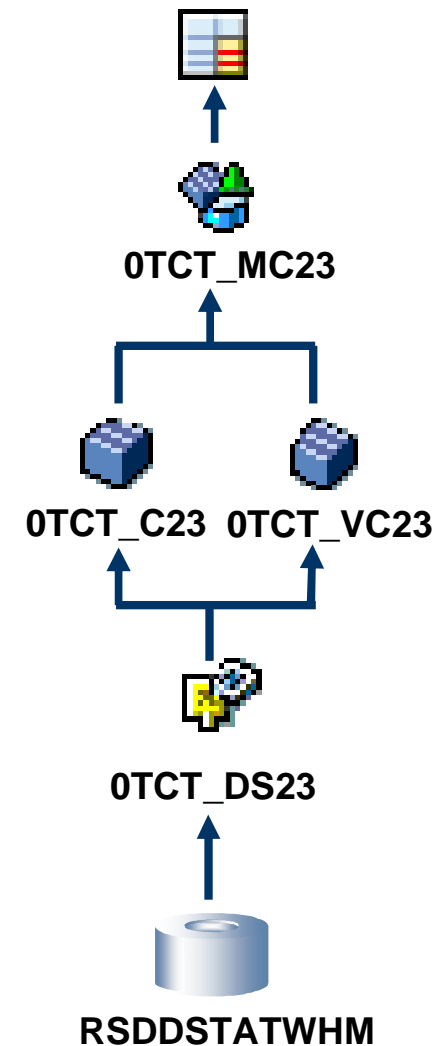
## New Technical Content for Data Load Statistics: Data Flow



**Process (Chain) Statistics**



**DTP Statistics**



**InfoPackage Statistics**

## Technical content queries for analyzing...

### ...performance details of process chains

- Ø Total runtime
- Run-times data load, data update, activation, compression, aggregation, attribute change

### ...performance details of Data Transfer Processes

- Ø Total runtime, Ø Number of records, Ø Amount of data
- Run-times of each step type

### ...performance details of InfoPackages

- Ø Total runtime , Ø Number of records, Ø Amount of data
- Run-times of each action type

# Technical Content for Data Load Statistics: Migration

## Migration recommended



- **3.x InfoCube will still contain data, migration recommended as of new data model and new InfoObjects used**

## No migration: Technical content 3.x still valid





Administration Cockpit & Technical Content

Query Runtime Statistics

Migration & Maintenance

Analysis Tools

Tips & Tricks

Data Load Statistics

**Data Load Status**

# Administration Cockpit: Data Load Status – Processes

**Process Status**

Home | **System Administration** | PCD tools | Content Administration | User Administration

Transport | **Monitoring** | Permissions | System Configuration | Portal Display | Support

History | Back | Forward

**Detailed Navigation**

- Portal
- Knowledge Management
- Business Intelligence
  - Universal Worklist
  - Data Load Status
    - Process Status**
    - BI Object Request Status
    - InfoProvider Request Status
  - Query Runtime Statistics
  - Data Load Statistics

**BI System Selection**

BIW System: BR9CLNT000

**Process Type Selection**

Process Type:  
Load Data

**Portal Favorites**

**Process Chain Status**

Last Data Update: 21.10.2005 17:19:41

Process Chain	Status	UTC Time Stamp
BWTCT_STA_FE_OLAP_DELTA	Undefined	20051020100260
BWTCT_STA_FE_OLAP_DELTA	Undefined	20.10.2005 12:00:04
BWTCT_STA_FE_OLAP_DELTA	Undefined	20.10.2005 12:00:07
BWTCT_STA_FE_OLAP_DELTA	Undefined	21.10.2005 12:00:10
BWTCT_STA_FE_OLAP_DELTA	Undefined	21.10.2005 12:03:16
BWTCT_STA_FE_OLAP_DELTA	Undefined	21.10.2005 12:00:07

**Process Status**

Last Data Update: 21.10.2005 17:19:41

Row 1 / 33

TP.	Variant	Status	Time-Stamp
OPAK_0SQV14PTL65VUXJLLBGHV6DNC	Ended with errors	20.10.2005 15:14:32	
OPAK_0SQV14PTL65VUXJLLBGHV6DNC	Ended with errors	20.10.2005 15:43:16	
ZPAK_D3S6RI563QVG483ZRDIO3TKOO	Ended with errors	20.10.2005 16:02:48	
OPAK_EBCR5G15ELMSRY547163HJR88	Ready	21.10.2005 08:00:49	
ZPAK_BRYQLT2TD7OY0CMCK9UO296ZC	Ready	20.10.2005 07:42:32	
OPAK_0TEZFR9S0ILVCEILSWYBFRO2G	Ready	21.10.2005 06:40:47	
OPAK_EBCR5G15ELMSRY547163HJR88	Undefined	21.10.2005 06:45:24	
OPAK_6Q16LOETYM61NCLG6SQTHHFH2	Undefined	20.10.2005 06:46:39	
OPAK_EBCR5G15ELMSRY547163HJR88	Undefined	21.10.2005 06:48:15	
OPAK_6Q16LOETYM61NCLG6SQTHHFH2	Undefined	21.10.2005 06:51:02	
OPAK_4U8XFFMDD483MES9KT8JIGXW6	Successfully completed	21.10.2005 14:10:27	
OPAK_5JTN7F5HTP45CGZ04PGTMCNTI	Successfully completed	21.10.2005 14:09:30	

Local intranet

# Administration Cockpit: Data Load Status – Requests

Home | **System Administration** | PCD tools | Content Administration | User Administration

Transport | **Monitoring** | Permissions | System Configuration | Portal Display | Support

BI Object Request Status | History | Back | Forward

**Detailed Navigation**

- Portal
- Knowledge Management
- Business Intelligence
  - Universal Worklist
  - Data Load Status
    - Process Status
    - BI Object Request Status**
    - InfoProvider Request Status
  - Query Runtime Statistics
  - Data Load Statistics

**BI System Selection**

BW System: B71CLNT000

**Portal Favorites**

**InfoCube Status** | Last Data Update: 21.10.2005 17:17:17

InfoCube	# Requests Not OK	# Requests Not Compr.	# Requests Not Aggreg.
OTCT_C01	120	0	0
ORPM_C06	39	0	0
OCRM_CIC1	31	0	0
OCRM_JSE2	29	0	0
OCCMWSBTC	26	0	0
OAI_C01	21	0	0
OAI_C03	21	0	0
OAI_C02	21	0	0
ZTST_DS22	8	0	0
OD_DX_C01	7	0	0
OD_SD_C03	6	0	0
ZSRINITST	6	0	0

**DataStore Object Status** | Last Data Update: 21.10.2005 17:17:16

DataStore Object	# Requests Not OK	# Requests Not Activated
OD_SD_O01	88	0
OCRM_CTI	75	75
OCRM_JSE1	31	31
OAI_DS01	23	23
OAI_DS02	23	23
ORPM_DS10	22	22
ORPM_DS09	19	19
OTB_DS15	18	18
OTB_DS23	13	13
ODF_DS03	11	11
OWS_O01	10	10
OTB_DS25	7	7

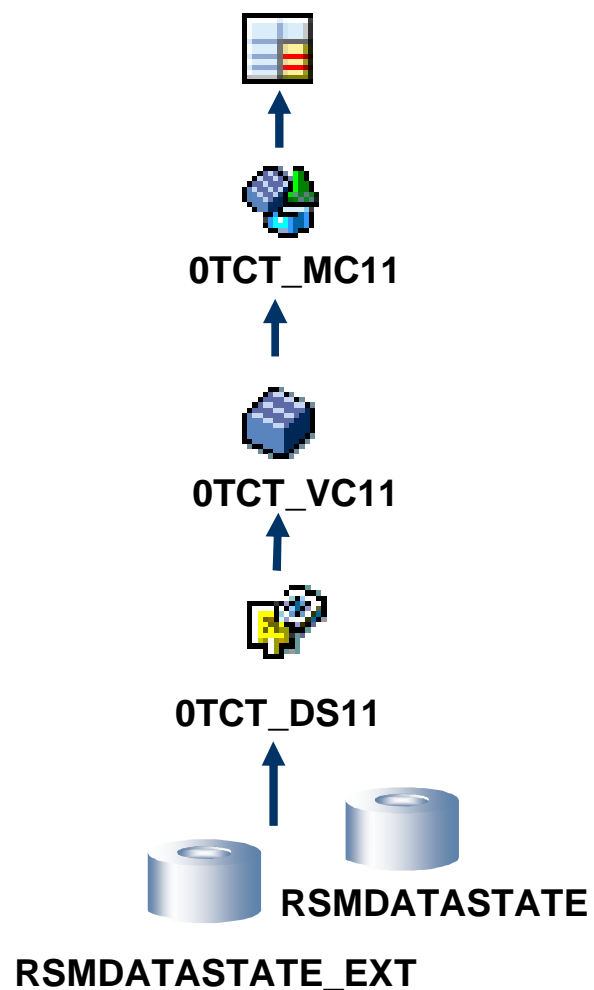
**Master Data Status** | Last Data Update: 21.10.2005 17:17:17

Type	InfoObject	# Requests Not OK	# Records Not OK
ORPM_BUGU\$T		32	0
ORPM_BUID\$T		30	0
OPD_CONCTPL		22	0
ORPM_IHGU\$T		14	0
ORPM_IHID\$T		14	0
OPD_IDEA		11	0
ORPM_IDGU		11	0
OTB_ACCOUNT		9	248.565
OASSET		7	13
OPD_CONCEPT		6	0
OGN_CAT_PUR		4	25.405
OTB_ORG		4	36

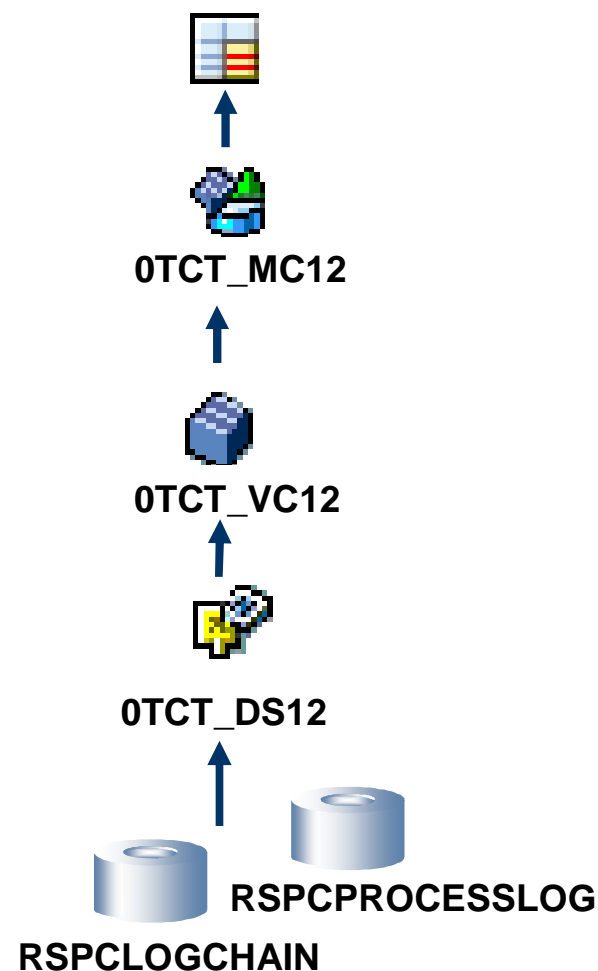
Done | Local intranet



## New Technical Content for Data Load Status: Data Flow



**BI Object Request Status**



**Process Status**

## Technical content queries for analyzing...

### ... status details of

- InfoCubes, DataStore objects, Master data (only flexible update)
- PSA tables

### ... with various key figures and characteristics ...

- Total numbers of requests, Last request, Time-stamp of last change

### ... each for the several criteria

- All requests
- Qualitatively not OK (ranking criterion, not for PSA)
- Technically not OK (filter criterion)
- Not activated (only for DataStore objects)
- Not compressed (only for InfoCubes)
- Not aggregated (only for InfoCubes)

## Technical content queries for analyzing...

### ... status details of ...

- **Process Chains, Data Transfer Processes, InfoPackages, DataStore object activations, InfoCube compressions, Hierarchy and Attribute change runs and various other processes**

### ... with the following status information ...

- **Status (red, yellow, green) (ranking criterion)**
- **Ended with error**
- **Still running**
- **Ended successfully**
- **Not yet started**

## Migration recommended



- **3.x InfoCubes will still contain data, migration recommended as of new data model and direct access capabilities**

### **Documentation BI Query Runtime Statistics**

**[http://help.sap.com/saphelp\\_nw7.0/helpdata/en/43/e37f8a6df402d3e10000000a1553f7/frameset.htm](http://help.sap.com/saphelp_nw7.0/helpdata/en/43/e37f8a6df402d3e10000000a1553f7/frameset.htm)**

### **Documentation BI Administration Cockpit**

**[http://help.sap.com/saphelp\\_nw7.0/helpdata/de/44/08a75d19e32d2fe10000000a11466f/frameset.htm](http://help.sap.com/saphelp_nw7.0/helpdata/de/44/08a75d19e32d2fe10000000a11466f/frameset.htm)**

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