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Bachelor's Thesis

InfoSet Based SAP BI HCM Data Modeling

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PREFACE

This Bachelor's Thesis was written for NorthgateArinso Oy. I would like to thank the instructor Tuomo Ropponen for the opportunity and the possibility to do so. Additional thanks to everyone who have assisted me during this project in any way.

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ABSTRACT

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The present study focuses on the data modeling part of an SAP BI system. The objective was to explore ways to accelerate the modeling and make it more flexible. This was intended to be achieved by creating logical views to combine several small components in the database instead of using large, monolithic data structures for the modeling. The results of the study are intended to support everyday data modeling activities in SAP BI.

The contents of the study discuss the subject from the perspective of human capital management, the area of expertise of NorthgateArinso.

Two different methods of SAP BI Modeling were applied to model a piece of human capital management related data for analysis purposes. These methods were compared and tested in a laboratory environment from functional and performance perspectives and the results were analysed.

Based on this analysis, the composite method that is introduced in the study, performed better in this set of tests. A wider analysis should be conducted to include rear world testing and the performance benefits of available advanced technology.

Keywords: SAP, Business Intelligence, Databases

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Tämän insinöörityön aiheena on SAP BI –järjestelmän tiedonmallinnusosuus. Tarkoituksena on tutkia eri toimintatapoja tiedonmallinnuksen nopeuttamiseksi ja tehdä siitä entistä joustavampaa. Tämä yritetään saavuttaa luomalla loogisia näkymiä yhdistämään useita pieniä osia tietokannassa, suurien, pysyvien tietorakenteiden käyttämisen sijaan. Työn tulosten odotetaan tukevan jokapäiväistä tiedonmallinnustyötä SAP BIssä.

Työn sisältö tarkastelee aihetta henkilöstöhallinnon näkökulmasta, joka on NorthgateArinson erikoisosaamisalue.

Kahta eri SAP BI mallinnusmenetelmää hyödynnettiin henkilöstöhallinnon alueen tiedon mallintamisessa analysointia varten. Näitä menetelmiä vertailtiin ja testattiin laboratorioympäristössä toiminnallisuuden ja suorituskyvyn näkökulmista ja tulokset analysoitiin.

Analyysin perusteella, tutkimuksessa esitelty komposiittinen menetelmä suoriutui näissä testeissä paremmin. Laajempi tutkimus tarvittaisiin huomioimaan todellinen testausympäristö ja kehittyneempien teknologioiden tuomat suorituskykyedut.

Avainsanat: SAP, Business Intelligence, tietokannat

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ACRONYMS

ABAP	Advanced Business Application Programming
ALE	Application Link Enabling
BI	Business Intelligence
CSV	Comma Separated Value
EDW	Enterprise Data Warehousing
ERP	Enterprise Resource Planning
ETL	Extraction, Transform, Loading
HCM	Human Capital Management
OLAP	Online Analytical Processing
OLTP	Online Transactional Processing
RDBMS	Relational Database Management System
RFC	Remote Function Call
SQL	Structured Query Language

1 INTRODUCTION

Business Intelligence is a concept first conceived in 1958 by a German computer scientist Hans Peter Luhn. In his white paper published in the IBM Journal he describes a business intelligence system as ‘an automatic system […] to disseminate information to […] any organisation’, where intelligence means ‘the ability to apprehend the interrelationships of […] facts […] to guide action towards a […] goal’. [2] SAP BI is a modern, computer based, realisation of this concept, whose first version became under development in 1997 [3].

The present study focuses on the data modeling part of an SAP BI system, which consists mainly of the extraction, transformation and loading (ETL) processes. ETL is series of activities inside a BI system to read data from the operational system and modify and store it for analysis purposes.

The objective was to explore ways to accelerate the modeling and make it more flexible, while retaining or improving the quality of the data and the ‘status quo’ of the end-user experience. This was intended to be achieved by creating logical views to combine several small components in the database instead of using large, monolithic data structures for the modeling. The results of this study are intended to support everyday data modeling activities in SAP BI.

The contents of the study discuss the subject from the perspective of human capital management, the area of expertise of NorthgateArinso.

2 NORTHGATEARINSO

NorthgateArinso is a company created in 2007 after the acquisition of Arinso by Northgate. NorthgateArinso operates as a division of the UK based Northgate Information Systems. Currently NorthgateArinso employs around 5000 people in more than 50 countries, of which about 30 in Finland. The company headquarters are in London, UK.

NorthgateArinso delivers software and services to support the operations, processes and decision making of the human resources department of companies and organizations. In addition to the HR Software and Services business, NorthgateArinso provides business consulting, systems integration and outsourcing. The customers of NorthgateArinso include both private companies and public sector organizations.

NorthgateArinso partners in delivering these services with SAP, a company that is introduced in section 3.

3 SAP

SAP is a German based computer software company, which produces applications to support different functions of businesses. The company was established in 1972 and it employs more than 50000 people. [15] SAP stands for ‘Systems Applications and Products’.

The most commonly known product by SAP is probably their ERP software, which is often referred to simply as ‘SAP’. Other enterprise solutions in their portfolio are SAP Customer Relationship Management (CRM), SAP Product Lifecycle Management, SAP Supply Chain Management and SAP Supplier Relationship Management to name a few. [14]

3.1 SAP ERP

An ERP is, and stands for, an enterprise resource planning system. The SAP ERP system consists of a database for storing data and an application layer for the user to be able to execute programs. SAP systems are operated via a GUI (graphical user interface).

An enterprise resource planning system is an OLTP (Online Transactional Processing) system, whose purpose is to support the operation of a company. An OLTP database is optimized to process individual transactions quickly. [17] A company can save and process information and transactions, such as financial data, in an OLTP system.

The SAP ERP is a suite of a variety of applications for different purposes. Figure 1 gives an overview to the possible functionalities of an SAP ERP system.

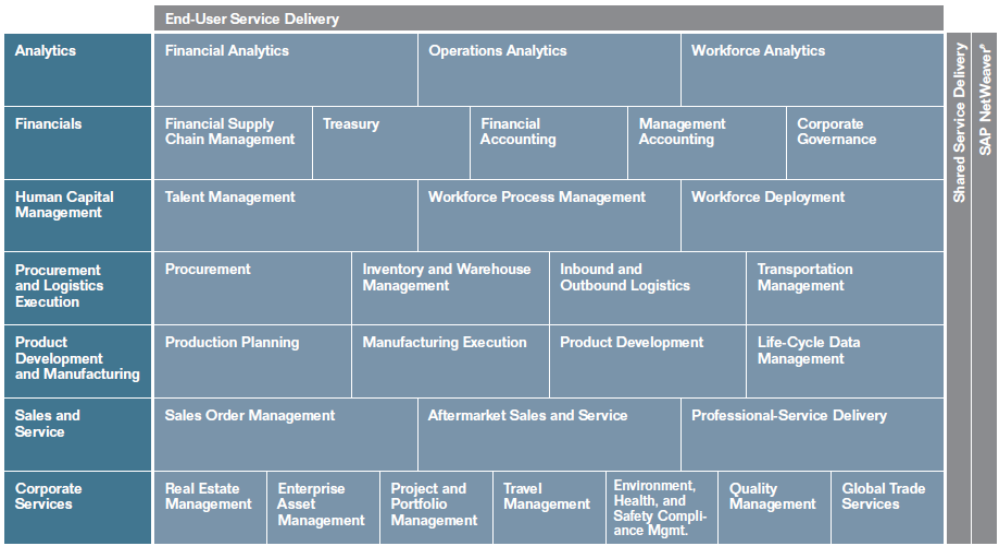

Figure 1: SAP ERP Solution Map [18]

This study uses the Human Capital Management component of the SAP ERP solution as a supporting element for a SAP Netweaver based analysis tool. It is worth noting that the SAP ERP system has some analytical tools itself, but which are mainly intended for operational reporting.

3.1.1 SAP HCM

SAP Human Capital Management is a suite of applications for integrating and automating an enterprise's Human Resources functions. In the current offering, these include Workforce Analytics (e.g. planning and analysis), Workforce Process Management (e.g. personnel administration and payroll), HCM Service Delivery and Talent Management (e.g. recruiting and succession management). [16]

3.1.2 Other Modules

In addition to the HCM module, SAP ERP contains the functionalities listed below:

- End-User Service Delivery
- SAP ERP Financials
- SAP ERP Operations
- SAP ERP Corporate Services
- Performance Management

The components of the SAP ERP system allow tight integration between them. This enables for example using payroll data from the HCM component to feed the financials functionality. Non-professional users are given access to different applications via Self-Services (End-User Service Delivery).

3.2 SAP Netweaver

SAP Netweaver is a technology platform consisting of several components delivering added-value functions to a company's ERP environment, such as Information and Business Process Management. Figure 2 gives an overview to the functionalities and contents of SAP Netweaver.

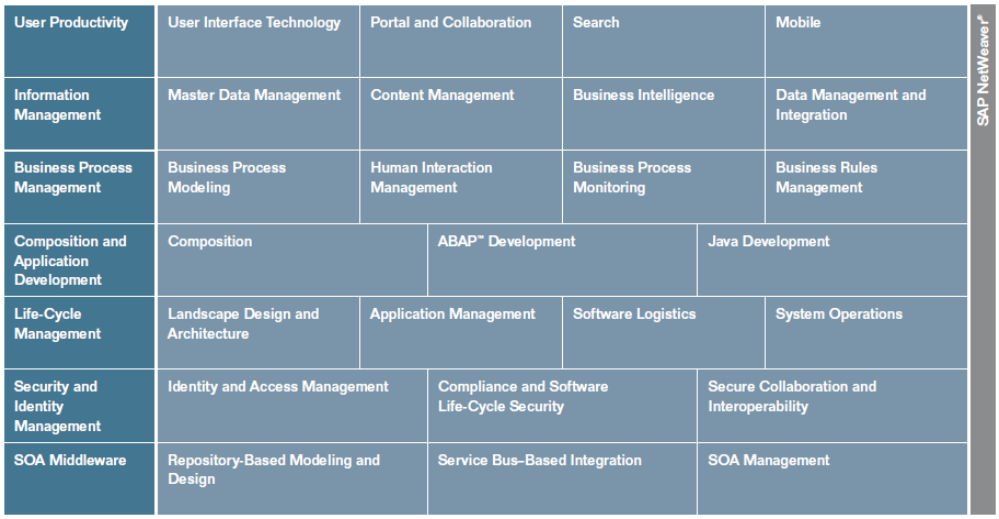

Figure 2: SAP Netweaver Technology Map [12]

This study focuses on the SAP Business Intelligence application, which is an essential part of SAP's Netweaver offering. The SAP Netweaver platform is based on open standards and supports application development in Java and .NET programming languages in addition to ABAP language. [12]

3.2.1 SAP Business Intelligence (BI)

SAP BI is a set of tools that allow enterprises to easily create processes to extract and transform their operational data, load it into a database for analysis purposes, store and archive this data and create reports on top of the database to visualise the data. The goal is to support the decision making process for managers, executives and members of professional groups.

The SAP BI is an OLAP (Online Analytical Processing) system. As opposed to an OLTP system, an OLAP system is used to ‘consolidate, view and analyze data according to multiple dimensions’. [11]

In addition to the analytical reporting, the SAP BI suite offers tools for business planning, data mining and exporting data via an ‘open hub service’ or information broadcasting functionality. [13]

3.2.2 Other Netweaver Components

In addition to the BI, SAP Netweaver consists of the components listed below. [12]

- NetWeaver Application Server
- Business Process Management
- Process Integration
- Master Data Management
- Netweaver Mobile
- Netweaver Portal
- Auto-ID Infrastructure
- Netweaver Identity Management

The Netweaver Portal is frequently used to publish analytical reports from the SAP BI system. The above components also enable, for example, implementing single sign-on functionality and utilizing Active Directory for user management as well as integrating the SAP Netweaver with third party environments.

Section 4 introduces the structure and elements of an SAP BI environment.

4 SAP BI ENVIRONMENT

An SAP BI environment is built of modeling objects, such as InfoProviders, DataSources and Transformations, and on a larger scale, of multiple BI systems. The following subsections describe the BI system architecture and the BI InfoProviders in detail. This study focuses on the internal functionality of an SAP BI system.

4.1 SAP BI Systems

A typical SAP BI architecture consists of an ERP system (the source system) and a separate BI installation. In most cases the overall landscape includes a development, a quality assurance and a production environment.

The applications are developed in the development system and the changes are then transported into the quality assurance environment for testing. Tested and approved changes are finally imported into the production system. Figure 3 illustrates a common system landscape.

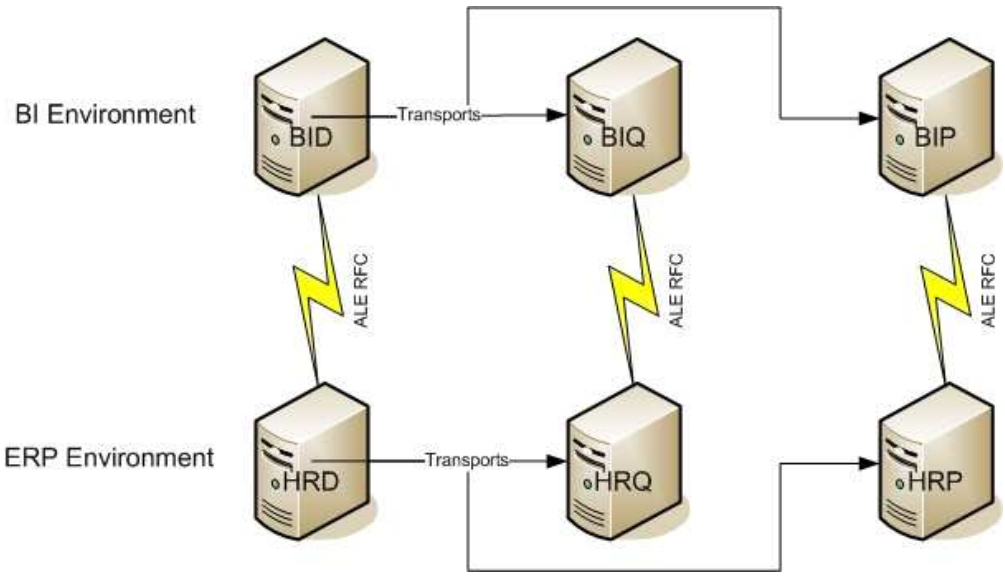

Figure 3: A sample system landscape [1]

In this type of landscape, the ERP systems act as source systems for data extraction to their respective BI systems. Other configurations are also possible, such as the simulation ERP can feed both, the development and simulation BI systems. The production ERP is usually connected only to the production BI, but companies often take periodical copies (client-copy) of the data to other systems to provide real, up-to-date data to test and develop the BI systems on.

4.2 SAP BI InfoProviders

An InfoProvider is an SAP BI object that can be used as a source of data for a query.

SAP divides InfoProviders into two categories; those that physically contain data (in a database table) and those that do not. The data containing InfoProviders are InfoCubes, DataStoreObjects (DSO) and InfoObjects. Those that do not contain any data themselves refer to other InfoObjects and/or systems for data. Among these are the VirtualProviders, InfoSets, and MultiProviders. [4]

Five of the aforementioned objects are described further below as they are an important part of the present study.

4.2.1 InfoObject

An InfoObject is a basic building block in the SAP BI data modeling. It acts as a definition for the data (metadata), describing elements such as the type and length of the data, but can also contain data itself. InfoObjects are divided into KeyFigures (contain numerical values, amounts, currencies etc.) and Characteristics (texts and ids of objects).

A Characteristic, which contains other InfoObjects (either KeyFigures or other Characteristics) as attributes that further describe it, can be used as an InfoProvider.

4.2.2 DataStoreObject

A DataStoreObject is a store for transactional data that is described by InfoObjects. Some of the InfoObjects are defined as key fields and the rest contain the ‘trunk’ of the data. Data records with an identical key part can be summed or overwritten.

There are three types of DataStoreObjects; standard, write-optimised and direct-update. In this paper the term always refers to the Standard DataStoreObject if not otherwise specified. Physically the standard DataStoreObject consists of three database tables, one for new data (has additional, technical key elements), an active data table (only the semantic key) and a change log.

DataStoreObjects can act as InfoProviders alone, but usually are a part of an InfoSet or act as an intermediate step in updating the data into an InfoCube (Enterprise Data Warehousing model).

4.2.3 InfoCube

An InfoCube is possibly the most commonly used InfoProvider for reporting purposes. It is built from multiple InfoObjects that are grouped together into ‘Dimensions’. This structure is referred to as the ‘Star Schema’. The transaction data is stored in a fact table, to which the dimensions are linked. InfoCubes in SAP BI are either standard or real-time. In this paper the term always refers to standard InfoCubes. The Figure 4 visualises the general structure of the Star Schema in SAP BI.

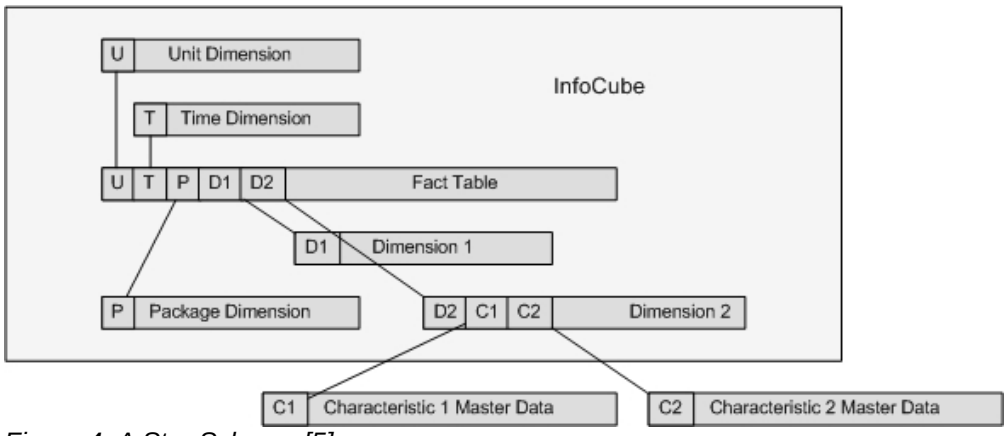

Figure 4: A Star Schema [5]

The Star Schema is a Data Warehouse modeling schema consisting of a fact table and a number of dimension tables, which are joined to the fact table by Dimension ids. The Dimensions contain the ‘surrogate ids’ of master data elements, which join the dimension tables to the master data tables of characteristics. The Star Schema allows using small database tables which, along with reducing of data volume by aggregation, has performance benefits. [5]

In SAP BI, an InfoCube always has three technical dimensions (Unit, Time and Package) in addition to the user definable dimensions. The unit dimension contains the units or currencies of the key figures, the time characteristics are included in the time dimension, and the package dimension contains technical characteristics relevant to each data load.

4.2.4 InfoSet

An InfoSet is a logical view to one or more InfoProviders that physically contain data. The InfoProviders are linked together by using database joins (inner and/or outer). The combination of the joins, along with user definable preferences, such as key date and time-dependencies, form the view to the data. With time-dependent data, InfoSets allow using certain virtual time characteristics, such as the ‘valid time interval’, which can be used in defining a query.

In its simplest form, an InfoSet can contain one InfoProvider, but usually is built of several, such as InfoObjects and DataStoreObjects.

4.2.5 MultiProvider

A MultiProvider is also a logical view to other InfoProviders, like the InfoSet. The most important differentiating factor from the InfoSet is the database function used. MultiProviders use database unions instead of joins, thus providing a combination of the individual records without modifying them in any way.

MultiProviders are often used ‘on top of’ other InfoProviders to simplify the structure to an end-user and to join two InfoProviders of similar structure together. A classic example is to join two InfoCubes together which are identical in design, but the other contains actual values, the other contains planned values. The MultiProvider allows easy creation of queries, where these two sets of values can be compared.

Using a MultiProvider can also bring performance benefits if it consists of two or more sub-providers as database operations can be parallelized for each underlying provider.

Section 5 discusses two different methods to utilize the elements described above.

5 COMPOSITE AND TRADITIONAL BI

The terms ‘composite BI’ and ‘traditional BI’ were chosen to represent two different approaches to model the same piece of data. Traditional BI refers to the use of InfoCubes and MultiProviders, which have been generally used from the earliest versions of SAP BI. Using this method has made it possible to create reasonably well performing queries in spite of massive amounts of data by utilizing the performance benefits of the star schema. Composite on the other hand is a term already used by SAP in the context of web application development. In that context, as well as here in ‘composite BI’, it has the same meaning; create once, reuse elsewhere. Specifically, this means the reusability of the contents of InfoProviders; the BI objects themselves are already reusable. To achieve this goal, InfoSets are used to join the individual parts of the data as required to create a complex data model.

SAP has already begun taking some steps into the direction of compositeness. For example, during 2008, SAP started providing two InfoSets in the HR BI Content with the same functionality as the frequently used InfoCube for Headcount and Personnel Actions (technical name 0PA_C01) [6], [7]. The composite method suits well for modeling HR data, as it largely consists of master data, where data volumes are relatively small and the information is time-dependent. This SAP’s delivery, however, has some limitations compared to the InfoCube model. Most notably, the absence of annually changing master data and key figures, such as the age and the length of service of an employee. A proof-of-concept method to fill this gap is introduced in Appendix F.

5.1 Enterprise Data Warehousing

Enterprise Data Warehousing (EDW) is a system wide (i.e. not only concerning the modeling part) concept endorsed by SAP to create advanced and sustainable BI systems. One of the aspects of EDW is BI modeling, whose main objective is flexibility. [8] Flexibility is attained by using a layered structure in the data model and utilizing DataStoreObjects to refine the transaction data before storing it into InfoCubes. The EDW modeling approach is also the backbone of composite BI.

5.2 Basic Principle of Composite BI

The principle behind the concept of Composite BI is the same as in modular design in programming. In modular design the aim is to divide a complex application into smaller entities (modules), which can be developed and (re)used independently. These are also easier to maintain and test separately, thus making the entire application easier to maintain and test. [19]

An example scenario is a situation where absences are inspected per employee. The InfoSet would contain the master data of employees and a data store containing the relevant transaction data. The two sets of data are linked with a database join on the employee id. Even though the InfoSet join does not contain all of the characteristics of calling a function in modular programming (such as input and output of values), the functionality when combined with a query can be comprehended similarly as a black box program. Figure 5 illustrates the functionality of an InfoSet.

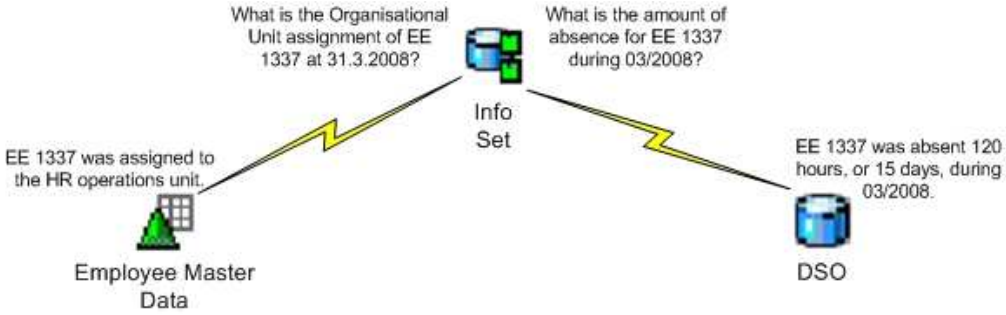

Figure 5: Functionality of InfoSet communication

In the example above, the key fields, time type, employee id and month, of a DataStoreObject would be equivalent to the input values and data fields, the duration in hours and days, to the output values of a function. A key date and the employee id are used to read the employee master data.

5.3 Objectives and Advantages

The aim of the composite modeling is to simplify and accelerate the modeling process and maintenance of an SAP BI system. While the number of InfoProviders needed in a productive reporting system is expected to remain about the same, a reasonable amount of time is expected to be saved in modeling and administering the InfoCubes and their data flow.

Along with the goals stated above, applying the principles mentioned in the previous section is expected to bring several benefits to the overall process of implementing and maintaining an SAP BI system. The following subsections introduce those that were identified prior to writing this study.

5.3.1 Instant Adjusting to Data Changes

Updating of transaction data after changes in data (if delta update mode is not supported), or an addition of characteristic attributes are not required in an InfoSet. InfoCubes, in contrast to InfoSets, do not adjust to the changes in data automatically. An InfoCube needs to be emptied and refilled if the change is required to take place retroactively. Standard DataStoreObjects support overwriting of data, an activity where a previously stored record is overwritten by a new one having an identical semantic key.

InfoSets also support reporting based on un-activated master data, that is, master data, for which the attribute change run has not yet been executed for. The attribute change run is a process that adjusts the active version of the master data according to the changes imposed by a new version.

5.3.2 Fewer Steps in Modeling

This is a rather subjective measurement. However, practice suggests, that in many cases an InfoSet can join two pieces of data together, where an ABAP (a programming language for SAP systems) routine (or several) would have been used traditionally.

For example, in a scenario where it is required to report headcount figures, the standard solution offers the attributes of 0EMPLOYEE and 0PERSON InfoObjects, which contain information about a person as an employee of a company and as an individual, for filtering and navigation. If the requirement also specifies the need for an attribute of an attribute of either InfoObject for reporting, this cannot be achieved by configuration. There are two options: use an ABAP routine to read the master data tables of the two in serial or remodel the dataflow. Also, the selected method must be applied once for every instance and item, where the requirement is identified. By using the InfoSet approach, the goal is achieved by adding the required attribute as a part of the InfoSet and defining the appropriate join. This needs to be done for every instance of the requirement, but all items are included.

Every option fills the requirement, but by using an InfoSet, it is not needed to modify essential parts of the dataflow or write and test a custom routine for each entity. Additionally, the defined attribute(s) are instantly available for reporting, without the need to reload data and refill an InfoCube.

5.3.3 Cross-Application and Cross-Component Reporting

Applying the composite approach to data modeling simplifies the process of creating reports containing data from multiple applications (e.g. Personnel administration, compensation management and performance appraisals in HR) or multiple components (e.g. Human Capital Management, Financials and Controlling).

In the standard content, InfoCubes are application specific (contain transaction data from a single application), and cross-application reporting is done via MultiProviders. Usually, this leads to customizing the standard model, as the structures of the data models and the sources and focusing of the data (especially master data) are inconsistent.

The composite approach allows creating the required combination of transaction and master data from various components and utilizing the single point of truth approach. For example the used master data needs not to be extracted and aligned for a special purpose, but the modeling takes place in the BI system.

5.3.4 Increased Flexibility of Data Models

It is often the case in the standard content that the modeling the data is to take place in transformation rules. This means reading the master data of objects, aggregating the values, and applying other business rules and requirements. This can lead to complex transformations, which are all but entirely dependent on the source and the destination of the transformation. Thus, if the requirement of the model or the InfoProvider changes needs to be duplicated or removed, the effort put in to creating the transformations could be lost in part or completely.

In the composite approach the business rules are intended to be applied in the Enterprise Data Warehousing layer, where it remains reusable for all applications. The data is then combined logically in the InfoSet (no transformations in this point) and consumed as-is. Here, the largest efforts

will remain in the system, even if the requirements for the model or the InfoProvider change. A related advantage here would be using 1:1 field mappings from the InfoSet, should the data be stored in an InfoCube at a later stage.

5.3.5 Reduced Redundancy of Data

By definition, the suggested method is expected to slower the rate of increase of the data storage space requirement or even decrease it. If the BI system utilizes the EDW model, the transaction data is stored in the DataStoreObjects in the same form as it would be in the following InfoCube. Also, the master data of the corresponding objects is stored in master data tables. In the event of populating the InfoCube, a portion (or all) of the data is duplicated and stored in the fact and dimension tables of the InfoCube. This happens for each InfoCube independently, which can lead to fast growth of the database. The composite method would use the existing DataStoreObjects as the source of transaction data (fact table) and the existing master data tables instead of the dimension tables with no additional data stored (excluding the amount of meta data).

Examining of this subject in detail is not in the scope of the present study, but should there be a noticeable difference, the resources put into expanding the storage capacity could be used for other purposes.

5.4 Disadvantages

The most influential acknowledged disadvantage of the composite method is the expected performance loss. The strength of InfoCubes in this account is the star schema, which leads to a number of relatively small dimension tables, instead of one or several larger master data table. Database operations, such as selections, are expected to perform faster on smaller tables. This performance benefit is expected to be more significant the more complex the analysed query is. Various types of calculations, restrictions and exceptions are possible on a query, all of which add to the overall runtime of a query.

Another notable disadvantage is that by replacing an InfoCube with an InfoSet in a data model, an opportunity to manipulate the data in a transformation is forfeited. However, another DataStoreObject can be

modelled for this purpose and a transformation can be defined between the two DataStoreObjects. In this case the transaction data is replicated as when using an InfoCube, but without the performance benefits. The contribution of this new data for the entire data warehouse should be evaluated when defining such a data model.

The two methods introduced in this section are compared in the study. The methods to make this comparison are described in detail in section 6.

6 COMPARISON METHOD

The two approaches to modeling a piece of information introduced in section 5 were compared by testing the functional capabilities and the processing performance of both. The environment and conditions used in the testing process are documented in the following subsections.

Prior to testing, it was defined that the most important aspects were functionality and performance. The reports based on the composite design should have the same functionality as the ones based on the standard design, as well as have the same output on the same dataset. Furthermore, the initial runtime of the non-standard version should be of the same magnitude as that of the standard one.

In addition to benchmarking of the initial runtime, also the execution times of drill down and filter functions were tested. These are often used basic runtime navigation functions.

6.1 Testing

A NorthgateArinso internal system was selected as the test environment to have full access on a supported, up-to-date system. Support from a SAP Basis expert was required to configure the Universal Data connection between the external database and the Netweaver application server.

6.1.1 Test System

The BI installation, where the tests were executed is a NorthgateArinso internal demo/test system. The system is running Linux and an Oracle database on Intel x86_64 architecture (4 CPU cores) with 8 GB system memory.

The used software components and their support levels (version) are listed in Table 1.

Software Component	Description	Highest Support Package
SAP_ABA	Cross-Application Component	SAPKA70016
SAP_BASIS	SAP Basis Component	SAPKB70016
SAP_BW	SAP Netweaver BI 7.0	SAPKW70018
BI_CONT	Business Intelligence Content	SAPKIBIIP9

Table 1: Support Levels of Selected Components

The Support Levels are documented here as performance and functionality may slightly vary between versions. The SAP_BW component was at the highest possible support level at the time of testing (SPS 18).

6.1.2 Test Case

The test population consisted of 1000 ‘employees’, who are active for the period 01.01.2009 - 31.12.2011. During these exactly three years, they generated one record for each day for a hundred different time types. The total number of records generated was 1000 * 3 * 365 * 100 = 109500000. Tests were run on four different selections of this data.

Each employee had a set of relevant master data. The number of records in the table of each used characteristic is documented in Table 2.

Table name	Description	Number of Rows
/BIC/MZFJT_EMP	View of Master Data Tables: Characteristic Employee	4001
/BIC/MZFJT_PER	View of Master Data Tables: Characteristic Person	3001
/BI0/MORGUNIT	View of Master Data Tables: Characteristic Organizational Unit	1730
/BI0/MHRPOSITION	View of Master Data Tables: Characteristic Position	1112
/BI0/MJOB	View of Master Data Tables: Characteristic Job	278

Table 2: Number of Rows in Master Data Tables

The numbers do not support any comparison in the number of master data records between the two InfoProviders as the data in this case was constant and largely uniform. This resulted in relatively low number of records in the dimension tables of the InfoCube. The numbers of data records in the technical tables of the InfoCube are documented in Table 3.

Table name	Description	Number of Rows
/BIC/DZFJT_C011	Employee	1001
/BIC/DZFJT_C012	Time Type	6
/BIC/DZFJT_C013	Personnel Area	3
/BIC/DZFJT_C014	Cost Center	1
/BIC/DZFJT_C015	Organizational Assignment	2
/BIC/DZFJT_C016	Employment	2
/BIC/DZFJT_C017	Different Payment	1
/BIC/DZFJT_C018	Activity Allocation (Sender)	1
/BIC/DZFJT_C019	Activity Allocation (Receiver)	1
/BIC/DZFJT_C01A	Cost Assignment	1
/BIC/DZFJT_C01B	Fund Accounting	1
/BIC/DZFJT_C01P	Data Package	2

/BIC/DZFJT_C01T	Time	25
/BIC/DZFJT_C01U	Unit	2
/BIC/EZFJT_C01	Thesis: Time and Labor	0
/BIC/FZFJT_C01	Thesis: Time and Labor	120000

Table 3: Number of Rows in Technical Tables of InfoCube ZFJT_C01

The numbers in Table 3 reflect the status during functionality testing (see section 6.2.) when the InfoCube was filled with 120000 records of transaction data.

6.1.3 Test Setup

Testing was done in a lab environment with fabricated data. Time management was selected as the application of the simulated data, as it is easy to create a suitable amount of data by increasing the time scale (years) and the number of time types (e.g. sickness, holiday etc).

In addition to the transaction data, master data was fabricated for the custom made ‘Employee’ and ‘Person’ objects. This was done to make sure that required master data existed for the entire reporting period and that it remained unchanged for the execution of tests.

6.1.3.1 Lab Test Data

The fabricated data was transferred into the BI system using flat-file (CSV) extraction for master data and Universal Data extraction for transaction data. All data was first created using a spreadsheet application as a CSV file. Master data files were then directly transferred to BI and updated into their respective master data tables. Due to the large data volume of transaction data (approx. 1.9 million records) they were first loaded into an RDBMS (mySQL 5.0), and then using a remote database connector into the BI system. Figure 6 illustrates the data transfer setup.

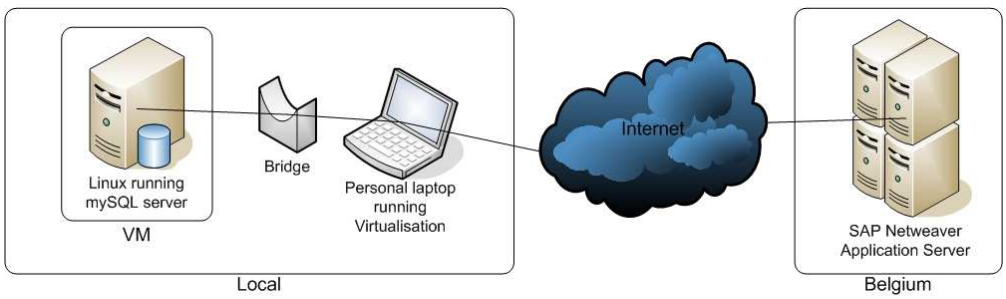

Figure 6: Transaction data transfer setup

The local database was running on a Linux based virtual machine, which was connected to a virtual network with the host laptop. The laptop was

connected to the internal company network, where the traffic is routed via virtual private networking between countries. The SAP Netweaver application server was physically located in Belgium.

The data created as CSV files was run through a routine (documented in Appendix G), which generated more time types out of the original five. The total number of data transaction data records was over 109 million.

6.1.3.2 BI Technical Setup

The data modeling in the BI system was based on recommendations from SAP, featuring a multilayered structure, where the first DataStoreObject (write-optimised) contains the transaction data in a granular form (per employee, per day, per type). The data was subsequently aggregated into the InfoCube and the second DataStoreObject (per month instead of per day) reducing the number of records significantly (12:365). The aggregation takes place in the Transformations, which link the objects in the dataflow, with a summation function. The data is passed through transformations by executing Data Transfer Processes.

The transformation, where the InfoCube is the target InfoProvider, used standard functionality to read the master data table of a characteristic (in this case ZFJT_EMP - Employee) to fill characteristic fields in the InfoCube. Last date of the period Calendar Year/Month was defined as the key date for the master data reading function. Figure 7 illustrates the complete dataflow in the BI system.

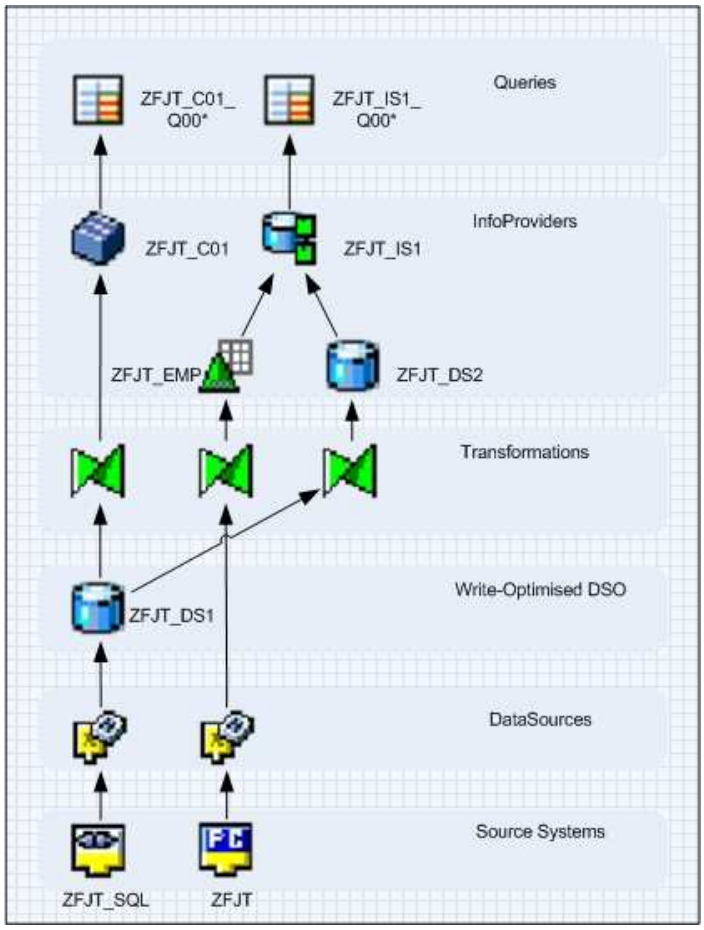

Figure 7: Data model of the Thesis setup

The dataflow starts in the source system from where the data is extracted. The transaction data is initially stored in a write-optimised DataStoreObject unmodified and then transferred to the subsequent data targets. Master data is directly stored in the master data table of the ZFJT_EMP InfoObject.

The InfoCube used in testing is a copy of the standard BI Content InfoCube 0PT_C01. Figure 8 illustrates the star schema structure of the InfoCube.

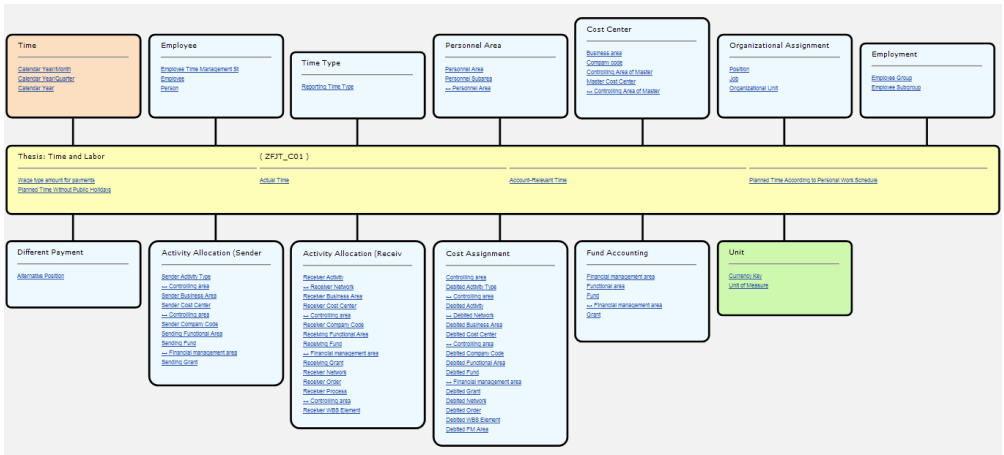

Figure 8: Star Schema of InfoCube ZFJT_C01

The InfoCube is built of 14 dimensions (package dimension is not shown here), most of which remained unused in this research, but were left untouched to conform to the standard content.

The used InfoSet is a customer object with an inner join between the Employee characteristic and the DataStoreObject containing the transaction data aggregated per month. Figure 9 illustrates the definition of the InfoSet.

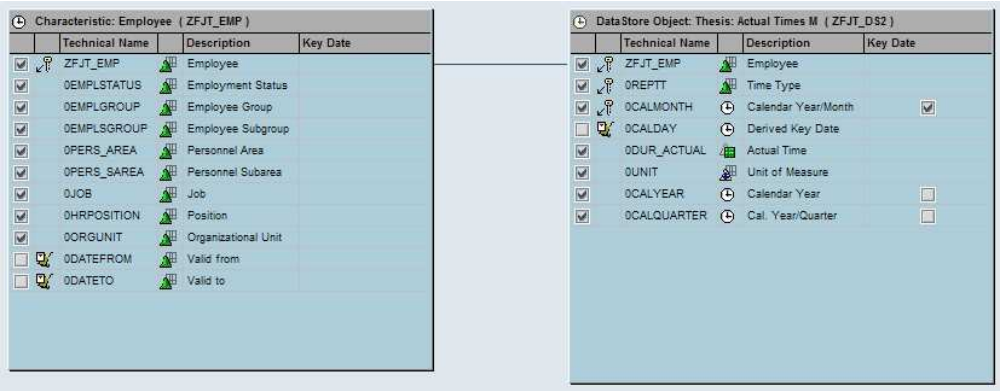

Figure 9: Join Definition of InfoSet ZFJT_IS1

The figure shows that all fields are displayed from the underlying InfoProviders, except for the validity period dates of the employee master data (the leftmost column), and that the Calendar Year/Month Characteristic is selected as the key date for the InfoSet (the exact date is the last date of the period). The key date defines the date for validity of time-dependant data, for example the attributes of the employee (such as status and position) display the value, which is valid on the key date.

6.1.3.3 Test Queries

Testing was done on two different queries. The first was a ‘real’ query, with a simple filter, a single drilldown element on the rows and the key figure and two drilldown elements on the columns. The elements were chosen to bring a very limited amount of data to display on the first execution, resulting in a short runtime. This is also as recommended by SAP (SAP Note 1030279 and others). The second was a ‘stress test’ query with several drilldown elements in the rows and columns. In this query, the InfoObjects were chosen to show all transaction data records in the data set individually, resulting in a long runtime. Whether or not this type of queries should be used in an analytical system, is arguable, but are often requested by customers to replace existing operational reports.

The two types of queries are defined in detail in Tables 4 and 5. Here the queries are documented by using the concepts and methodology used when creating the queries in SAP BEx Query Designer. The technical database queries for the real queries are documented in the detailed results section for comparison.

Filter	InfoObject	ID and Description
Rows	InfoObject	Description
	0REPTT	Reporting TimeType
Columns		Description
	0DUR_ACTUAL	Actual Time
	0CALYEAR	Calendar Year
Free Chars.	InfoObject	Description
	0EMPLOYEE	Employee
	0EMPLGROUP	Employee Group
	0EMPLSGROUP	Employee Subgroup
	0JOB	Job
	0ORGUNIT	Organizational Unit
	0PERS_AREA	Personnel Area
	0PERS_SAREA	Personnel Subarea
	0HRPOSITION	Position

Table 4: 'Real' Query – ZFJT_C01_Q001, ZFJT_IS1_Q001

Filter	InfoObject	ID and Description
Rows	InfoObject	Description
	ZFJT_EMP	Employee
	0REPTT	Reporting TimeType
Columns		Description
	0DUR_ACTUAL	Actual Time
	0CALMONTH	Calendar Month
Free Chars.	InfoObject	Description
	0EMPLGROUP	Employee Group
	0EMPLSGROUP	Employee Subgroup
	0JOB	Job
	0ORGUNIT	Organizational Unit
	0PERS_AREA	Personnel Area
	0PERS_SAREA	Personnel Subarea
	0HRPOSITION	Position

Table 5: 'Stress Test' Query – ZFJT_C01_Q002, ZFJT_IS1_Q002

The tables show that the queries are identical, except that in the stress query the Employee characteristic is included in the drill down by default. No

static filters were defined in this test case. Free characteristics are objects that can be used for navigation and filtering during the runtime of a query.

6.2 Functionality

Functionality was tested by comparing the result set of both queries. The result sets should be identical in both InfoProviders. For transaction data, the totals and subtotals must be equal and the characteristic values should be the same and display the same description. Also, all functionality during the runtime of the query should be identical. Filter and drill down functions were tested as follows:

- Filter on employee IDs [1, 500]
- Drill down by Employee as the first item on the row axis

Functionality testing was done using a data set of 120000 records, consisting of 5 reporting time types and 24 months (during two calendar years). This data set produced a table of 18 cells on the ‘real’ query (including the result row and column) on the initial run.

For the purpose of testing, the queries were executed in a web browser to take advantage of the functionality of the Java stack on the Netweaver application server for improved usability and visualization.

6.3 Performance

Performance testing focused on the initial runtime of the query. This is an important aspect of the end-user experience, as the query execution time is responsible for the largest part of the time to open a report.

Testing was conducted using the benchmarking tool provided by SAP. After each test run, the SAP GUI session was terminated and a new one opened to have the same conditions for each run. Testing was done outside of office hours to minimise any interference and server load fluctuations caused by other users.

Prior to filling the InfoCube and the DataStoreObject with the transaction data, the contents of both items were completely deleted with the ‘delete data’ function. This empties the all tables of the InfoProviders, including the

dimension tables of an InfoCube, as well as deletes the change log of the DataStoreObject. Additionally, the database index of the InfoCube was deleted prior to and regenerated after the loading.

The runtime benchmarking was done in the SAP BI system using transaction RSRT (Query monitor). Each test run was executed in ‘List’ display mode with the ‘Execute and Debug’ function.

Selected debug options were:

- Display Statistical Data
- Do Not Use Cache

The generated Front-end/Calculation layer statistics were exported into a spreadsheet file for later analysis. The result tables are included in Appendices A and B.

6.4 Detailed Analysis

The detailed analysis contains the SQL query output, as well as further analysis of the OLAP activities. The SQL query listings is sections 7.3.1 and 7.3.2 were extracted by using the ‘Execute and Debug’ function in transaction RSRT with the option ‘Display SQL/BIA query’ selected.

Small scale testing was done to benchmark the time to make a drill down navigation and to filter the data set. The independently executed steps were:

- Drill down by InfoObject Personnel Area
- Filter by Personnel Area value [NZ01]

The runtime performance in subsections 7.3.3 and 7.3.4 was measured using the same method as the benchmarking defined in section 6.3, but the results were filtered to include the time used for OLAP operations in the relevant step only.

The results of the tests and benchmarking that applied the methods described in this section are analysed in section 7.

7 RESULTS

The following subsections disseminate the results as defined above. The detailed runtime statistics for performance benchmarking are included in Appendices A and B.

7.1 Functionality

Results of the functionality tests are described by screenshots of the query output from each case. The referred query key date in each case is the current date at the time of execution (separate from the InfoSet key date). Changing the key date affects the displayed master data such as texts and hierarchies, if they are defined as time-dependent.

7.1.1 Query Output

Figures 10 and 11 below, display the results of the queries after executing them in a web browser. The data cells in the table contain values per year and per time type in hours (unit H), and the overall results in columns and in rows. Here, only the technical ids of the time types are displayed, but in a real system, the ids would be replaced by descriptions, such as ‘Overtime’ and ‘Sickness Absence’.

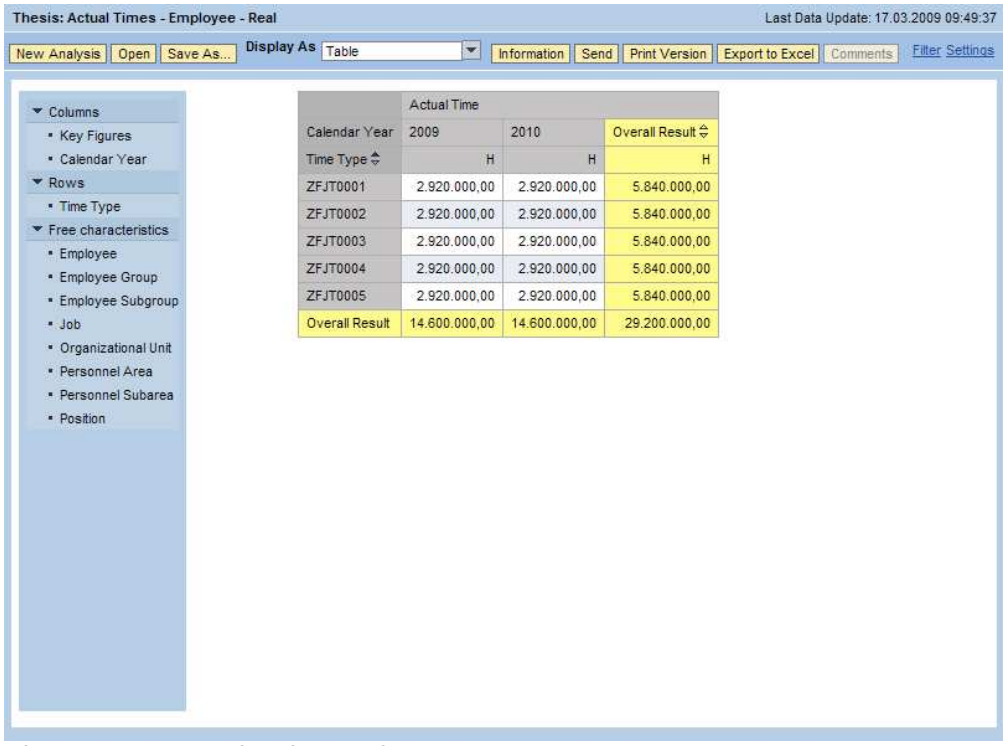

Figure 10: Output of real query from ZFJT_C01

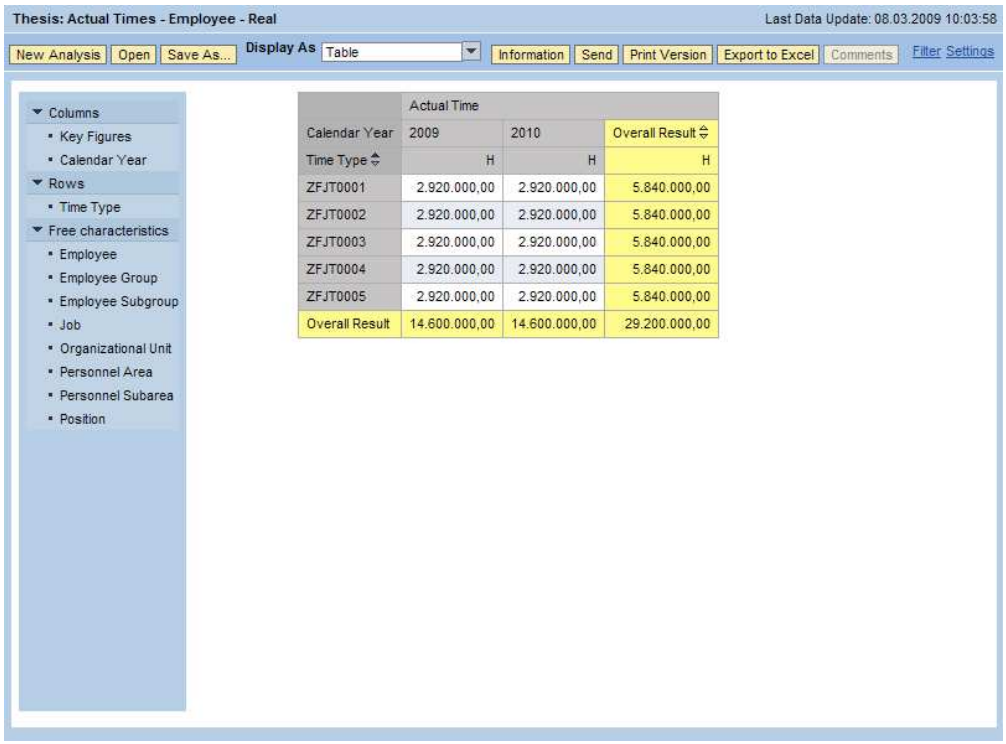

Figure 11: Output of real query from ZFJT_IS1

The elements on top and to the left of the data table contain various interactive functions and activities to navigate and modify the result table, export it and display various pieces of information.

By comparing the figures in the cells, it can be concluded that when executing identical queries based on identical data, the output from both InfoProviders is identical, assuming that the logical operators (e.g. the key date) are the same.

7.1.2 Filtering and Drill Down

The drill down function can be executed by dragging an object in the navigation element on the left edge of the screen (see Figures 10 and 11) to a desired position. The filtering function was executed from the context menu (right click) of the characteristic. Both actions can be carried out in several ways, which all come to the same result.

After executing the navigation functions, the report refreshes automatically in the browser window to adjust to the activities. Figures 12 and 13 are screenshots of queries based on both InfoProviders after the navigation steps defined in section 6.2.

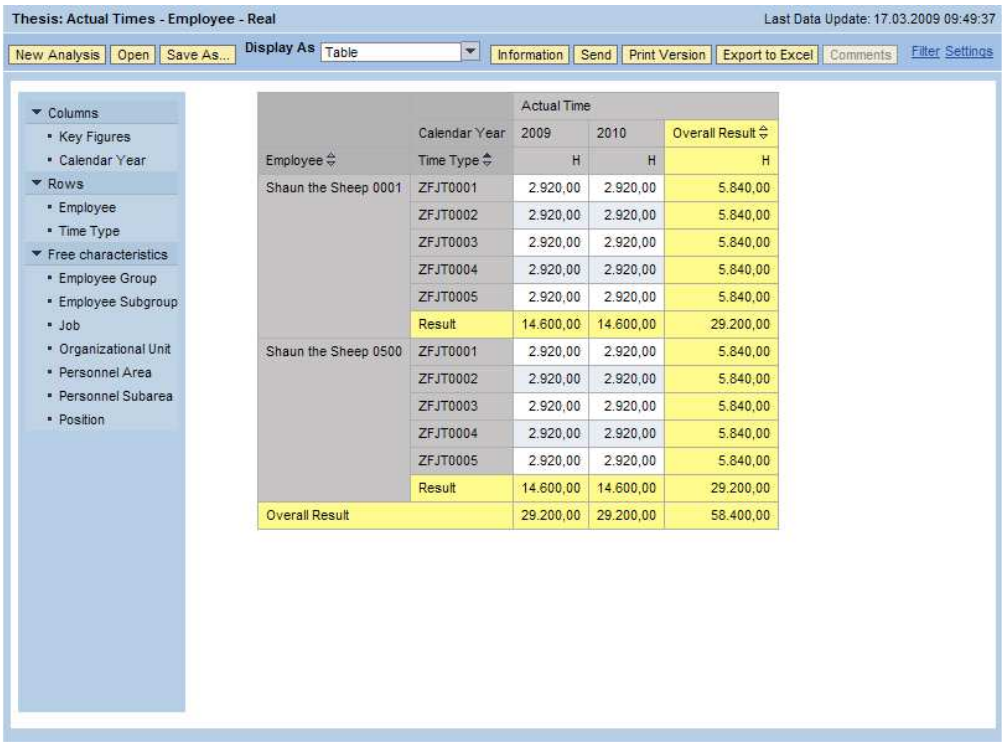

Figure 12: InfoCube query after navigation

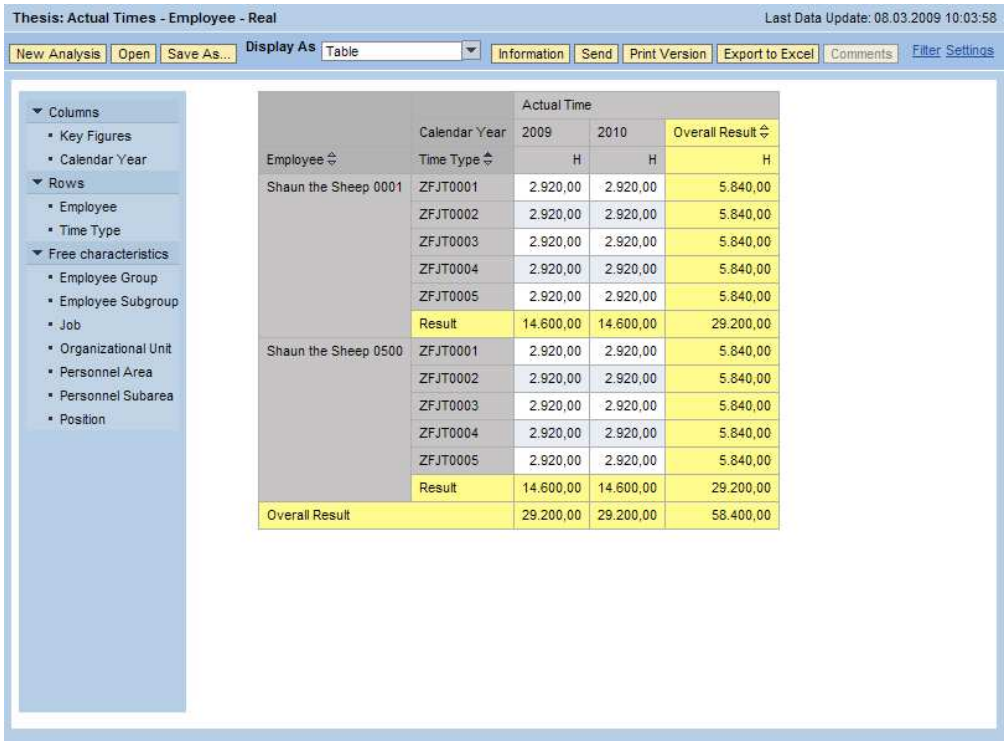

Figure 13: InfoSet query after navigation

The pictures suggest that the navigation steps and the resulting output is identical, assuming that the data and the key date of the query are identical.

7.2 Performance

The outcomes of the results of the runtime benchmarking are depicted with a fitted linear curve in the charts below. Both axes are displayed with a logarithmic scale. This is to better illustrate the values in the lower end of the scale and to adjust to the nature of the source data.

7.2.1 Real Query

The real query was run successfully on both InfoProviders with all data volumes. Figure 14 illustrates the development of initial runtime of the real queries over different amounts of transaction data.

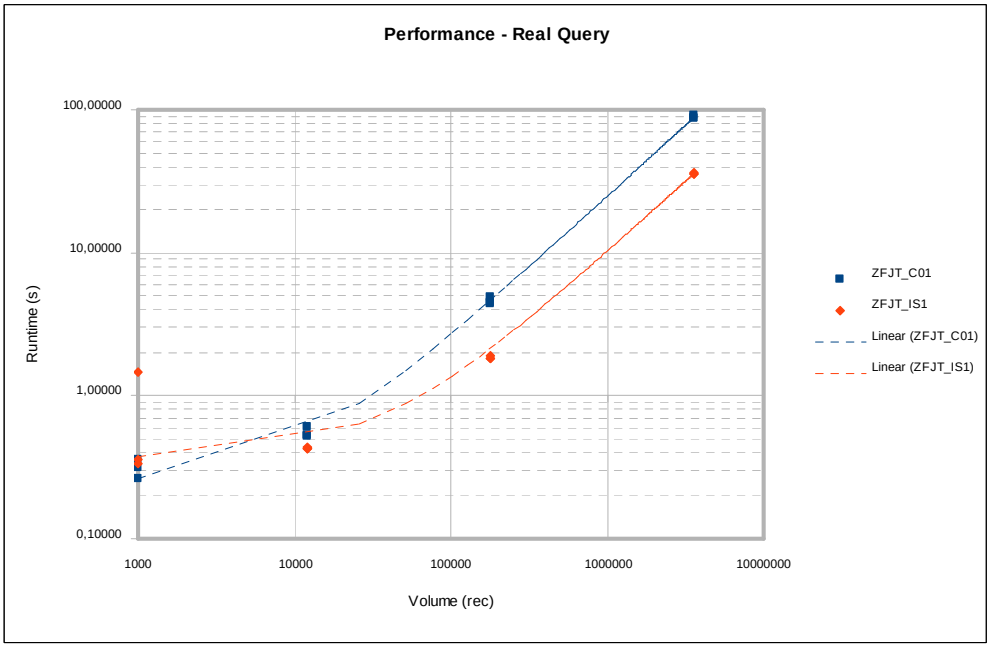

Figure 14: Performance of Real Queries

On the two lowest data volumes both performed almost identically, resulting in runtimes less than 1s. In the third case, with 180000 records of data, the InfoCube based query took over two times as long to run as the InfoSet query. Here the runtimes are ~2s compared to ~4s. While this is not a large difference in the absolute values, the ratio seems to stay constant over the next step to 3600000 records. In this magnitude, the InfoSet query still performed about two times as fast as the InfoCube based one. Here, the runtimes were less than 40s and ~90s respectively, which is a considerable gap in performance in favour of the Composite model.

7.2.2 *Stress Query*

The stress query was successfully executed only on the three smallest data volumes. Figure 15 illustrates the development of the initial runtime of the stress queries.

Figure 15: Performance of Stress Queries

The two InfoProviders performed almost identically on the smallest data volume, but on the next two data volumes the InfoCube query performed over three and over four times faster respectively. On the largest volume, the InfoCube query resulted in a runtime error due to lack of memory at about 25 minutes of runtime and the InfoSet query was manually terminated at 1 hour of runtime. Had the query been successfully executed, the result set would have consisted of 3,6 million cells (all available transaction data records). On this type of query, the InfoCube has significantly better performance.

7.2.3 *Number of Joins*

The influence of the number of joins in the InfoSet was tested with a DataStoreObject containing 120000 transaction data records and 1-4 master data bearing InfoObjects. All tests were executed successfully (on the real query) and the results are depicted below in Figure 16. Here, both axes are linear.

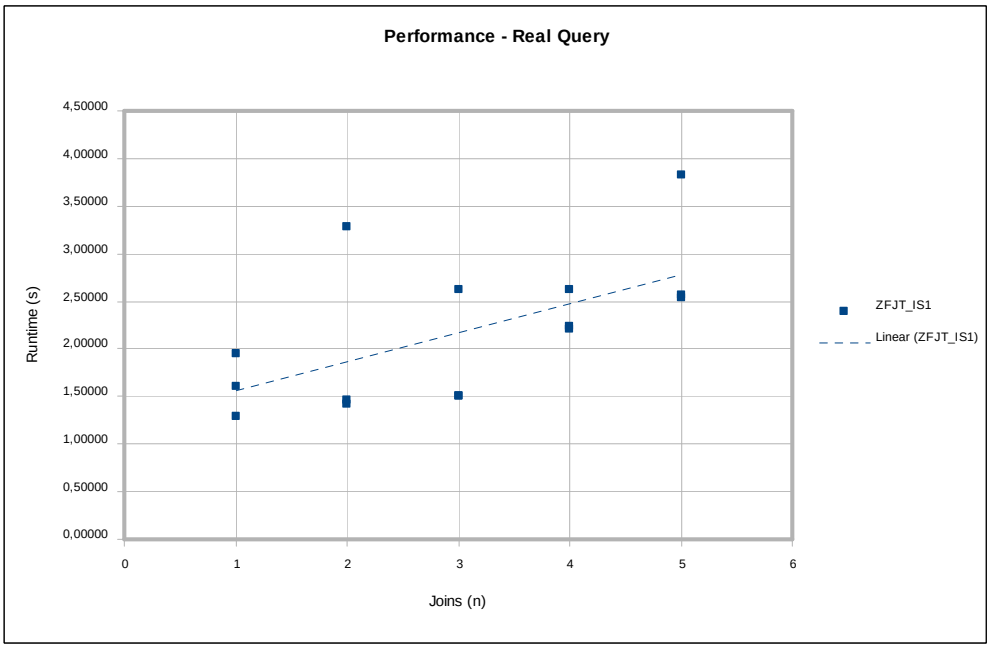

Figure 16: Performance over the number of joins

The fitted linear curve implies a slight increase of runtime over the number of joins in the initial run. The dispersion of the runtimes is, however, relatively large and a more thorough testing should be conducted. Also the increase of about one second over four additional joins seems questionable with such a small amount of testing. The number of joins seems to have only a small effect on the initial runtime on this type of query. It is, however, worth noting that even though no elements from the additional characteristics are included in the query definition, the amount of joins in the InfoSet has a measurable effect on the performance.

7.3 Details

The SQL query listings of the real query on both InfoProviders are included in the subsections 7.3.1 and 7.3.2 below. The detailed runtime benchmarking results of the OLAP operations in subsections 7.3.3 and 7.3.4 are included in Appendix C.

7.3.1 ZFJT_C01_Q001 SQL Query

The SQL query listing below defines the database functions used to build the real query from the InfoCube.

The database tables used in the listing below are documented in detail in Appendix D.

```
SELECT
/*+  FACT(F) */
"DU"."SID_0UNIT" AS "S____003"
,"DT"."SID_0CALYEAR" AS "S____061"
,"D2"."SID_0REPTT" AS "S____353"
, SUM (  "F"."DUR_ACTUAL"  )  AS "Z____387"
, COUNT( * )  AS "Z____056"
FROM
"/BIC/FZFJT_C01" "F"
JOIN
"/BIC/DZFJT_C01U" "DU"
ON
"F" . "KEY_ZFJT_C01U"
= "DU" . "DIMID"
JOIN
"/BIC/DZFJT_C01T" "DT"
ON
"F" . "KEY_ZFJT_C01T"
= "DT" . "DIMID"
JOIN
"/BIC/DZFJT_C012" "D2"
ON
"F" . "KEY_ZFJT_C012"
= "D2" . "DIMID"
JOIN
"/BIC/DZFJT_C01P" "DP"
ON
"F" . "KEY_ZFJT_C01P"
= "DP" . "DIMID"
WHERE
( ( ( (
"DP"."SID_0CHNGID"
= 0
) ) AND  ( (
"DP"."SID_0RECORDTP"
= 0
) ) AND  ( (
"DP"."SID_0REQUID"
<= 1690
) ) ) )
GROUP BY
"DU"."SID_0UNIT"
,"DT"."SID_0CALYEAR"
,"D2"."SID_0REPTT"
```

The InfoCube query used five selects and four joins to output the real query. Joins were used here to join the technical dimensions Unit, Time and Package and a single user defined dimension to the fact table.

7.3.2 ZFJT_IS1_Q001 SQL Query

The SQL query listing below defines the database functions used to build the real query from the InfoSet.

The database tables used in the listing below are documented in detail in the Appendix D.

```
SELECT
"T00003"."UNIT" AS "K____1034"
,"T00003"."REPTT" AS "K____1031"
,"T00003"."CALYEAR" AS "K____1035"
```

```
,"T00003"."CALMONTH" AS "&ZFJT_IS1_F29"
,"T00001"."DATEFROM" AS "&ZFJT_IS1_F10"
,"T00001"."DATETO" AS "&ZFJT_IS1_F11"
, SUM (  "T00003"."DUR_ACTUAL"  )  AS "Z____1033"
, COUNT( * )  AS "Z____056"
FROM
"/BIC/MZFJT_EMP" "T00001"
JOIN
"/BIC/AZFJT_DS200" "T00003"
ON
 "T00001" . "/BIC/ZFJT_EMP"
= "T00003" . "/BIC/ZFJT_EMP"
WHERE
"T00001"."OBJVERS"
= 'A'
GROUP BY
"T00003"."UNIT"
,"T00003"."REPTT"
,"T00003"."CALYEAR"
,"T00003"."CALMONTH"
,"T00001"."DATEFROM"
,"T00001"."DATETO"
ORDER BY
 "K____1034" ASC
, "K____1031" ASC
, "K____1035" ASC
, "&ZFJT_IS1_F29" ASC
, "&ZFJT_IS1_F10" ASC
, "&ZFJT_IS1_F11" ASC
```

The InfoSet query used eight selects and one join to output the real query. The only join is that defined in the InfoSet.

The examination of the generated SQL queries showed, that in this sample the queries from both InfoProviders use the same number of database operations to build the dataset (excluding grouping).

7.3.3 Execution Time of a Drill Down Function

The average runtime of the drill down function defined in section 6.4 was approximately 3,45 seconds on the InfoCube query against 1,11 seconds on the InfoSet query. In this test the InfoSet query performed in about a third of the runtime required by the InfoCube query.

7.3.4 Execution Time of a Filter Function

The average runtime of the drill down function defined in section 6.4 was approximately 1,77 seconds on the InfoCube query against 0,21 seconds on the InfoSet query. In this test, the InfoCube query took over 8 times as long to execute the filter function than the InfoSet Query.

Performance analysis on the runtime navigation and filtering showed that the InfoSet query performs faster in the selected operations. These results are

significant from the end user perspective as the runtimes of these functions accumulate to the total wait time when analyzing a data set.

Conclusions were drawn based on the results of the performed testing. These conclusions and other findings are discussed in section 8.

8 DISCUSSION AND CONCLUSIONS

Functionality testing showed that the Composite and the traditional modeling methods give the same output and functionality at query runtime, if the modeling logic and the data are identical.

Out of the four performance comparisons between the two, the composite method performed better in three. The significant gap (double) in runtime between the two approaches in the large volume testing (real query) and the similar differences in the runtime of navigational functions are in favour of the composite approach.

Regardless of the seemingly ‘monolithic’ structure of the InfoCube, it in fact internally works in a similar fashion as the InfoSet; by defining database joins between the fact table and the dimension tables. The InfoCube, however, contains the data in a more refined format (e.g. no time-dependencies), which can result in performance gain over the InfoSet on more complex queries. The InfoCube appears to also have a performance lead in queries showing large result sets on the initial run. This type of queries are not what BI is intended for, but are often requested by customers to replace reports from the operational system.

Based on the results of both functional and performance tests, it can be concluded that the Composite method in the data modeling is a viable option to the standard content, especially, if the Enterprise Data Warehousing approach is used in the system design. Building queries based on InfoSets may require some adjusting of details, that is often not necessary in InfoCubes, as well as some effort in building the underlying model, but can ultimately result in a better performing system that is easier to manage and more flexible to develop.

Having done this research in a lab environment with lab quality data, the same tests should next be carried out in a production-like system to see if the results can be replicated. In a real-world environment, especially the available master data would be a key factor in the results. In the lab data of the present study, the master data was coherent and the volume of the data was modest; a fact that may have favoured the composite model. On the other hand, the transaction data used in the study is not very different from a

real-world sample and the volume (over 3,6 million records) is a fair representation of real personnel time management transaction data.

An important performance factor, which was intentionally left outside the scope of the study, was the SAP BI Accelerator (BIA). The BIA is an appliance, which allows running the OLAP operations of the BI system inside the system memory of a dedicated server farm. According to evaluations, this can result in up to a hundred times faster response times. Currently, the BIA can only be utilised in conjunction with InfoCubes, but the current BI Accelerator roadmap implies that also the acceleration for DataStoreObjects would be available during 2009 or 2010.

Leaving the two subjects mentioned above aside, the query performance is a sum of many additional factors in a production system. For example, the analysis authorizations, number of concurrent users and possible background processes to name a few, cause additional load on the execution and to the system as a whole. For this reason, defining universally valid guidelines for modeling from the performance perspective is problematic.

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15.03.2009 Dynamic List Display 1
Volume: 1000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000771	0,000712	0,000772	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,00786	0,006357	0,008065	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000625	0,000568	0,000682	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3010	OLAP: Query Gen.	0,011968	0,010712	0,017145	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	0,02034	0,015097	0,020915	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19950	3.x Query View Open	0,008402	0,008292	0,008452	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19900	3.x Analyzer Server	0,014812	0,013133	0,01963	10	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4600	Authorization Buffer	0,023004	0,020034	0,023145	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3510	OLAP: EXIT Variables	0,001847	0,001035	0,001883	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3500	OLAP Initialization	0,033202	0,02545	0,034618	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4300	Value Authorizations	0,000769	0,000754	0,000763	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,07344	0,063666	0,073656	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2500	Cache Generation	0,001222	0,001205	0,001232	0	10
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9010	Total DBTRANS	0	0	0	1	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9011	Total DBSEL	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9000	Data Manager	0,11358	0,053695	0,060609	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3110	OLAP: Data Selection	0,001495	0,001421	0,001526	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2520	Cache Commit	0,000498	0,000498	0,0005	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3100	OLAP: Read Data	0,009918	0,009575	0,010002	1	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3900	OLAP: Read Texts	0,00698	0,006727	0,007067	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3200	OLAP: Data Transfer	0,014556	0,012872	0,014783	5	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19952	3.x Query View Data	0,008561	0,008597	0,008625	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000729	0,000717	0,000755	0	1
						Total	0,354579	0,261117	0,314825		
						Avg. Tot.				0,310174	

15.03.2009 Dynamic List Display 1
Volume: 12000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000785	0,000727	0,00071	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,018477	0,006735	0,006853	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000666	0,000611	0,000618	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3010	OLAP: Query Gen.	0,011706	0,011618	0,011804	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	0,020153	0,016787	0,017369	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19950	3.x Query View Open	0,008391	0,008309	0,011818	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19900	3.x Analyzer Server	0,014982	0,014079	0,013503	10	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4600	Authorization Buffer	0,022946	0,021636	0,023179	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3510	OLAP: EXIT Variables	0,001884	0,001207	0,001037	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3500	OLAP Initialization	0,031789	0,028386	0,027857	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4300	Value Authorizations	0,000769	0,000772	0,000779	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,073856	0,072731	0,075165	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2500	Cache Generation	0,001243	0,001218	0,001247	0	10
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9010	Total DBTRANS	0	0	0	1	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9011	Total DBSEL	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9000	Data Manager	0,358098	0,298014	0,297384	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3110	OLAP: Data Selection	0,001523	0,001466	0,001484	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2520	Cache Commit	0,000499	0,000496	0,000506	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3100	OLAP: Read Data	0,009982	0,00979	0,010081	1	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3900	OLAP: Read Texts	0,007026	0,007014	0,006956	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3200	OLAP: Data Transfer	0,013965	0,013824	0,013715	5	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19952	3.x Query View Data	0,008552	0,008561	0,008518	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,00078	0,000734	0,000718	0	1
						Total	0,608072	0,524715	0,531301		
						Avg. Tot.				0,554696	

15.03.2009 Dynamic List Display 1
Volume: 180000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000814	0,000741	0,000733	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,008686	0,006762	0,006753	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000674	0,000597	0,0006	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3010	OLAP: Query Gen.	0,011788	0,011715	0,01168	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	0,020905	0,01679	0,016822	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19950	3.x Query View Open	0,008737	0,008263	0,008269	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19900	3.x Analyzer Server	0,428576	0,049876	0,015678	36	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4600	Authorization Buffer	0,020886	0,019805	0,021772	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3510	OLAP: EXIT Variables	0,001556	0,001039	0,001232	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3500	OLAP Initialization	0,032451	0,026079	0,027381	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4300	Value Authorizations	0,000756	0,000755	0,000774	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,067137	0,06377	0,072832	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2500	Cache Generation	0,001241	0,001193	0,001198	0	10
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9010	Total DBTRANS	0	0	0	15	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9011	Total DBSEL	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9000	Data Manager	4,288731	4,203351	4,205985	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3110	OLAP: Data Selection	0,001765	0,001711	0,001688	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2520	Cache Commit	0,000493	0,000508	0,000496	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3100	OLAP: Read Data	0,010103	0,009604	0,009565	15	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3900	OLAP: Read Texts	0,008407	0,008316	0,008023	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3200	OLAP: Data Transfer	0,016822	0,015786	0,01483	25	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19952	3.x Query View Data	0,008633	0,008581	0,008604	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000762	0,000733	0,000728	0	1
						Total	4,939923	4,455975	4,435643		
						Avg. Tot.				4,610514	

15.03.2009 Dynamic List Display 1
Volume: 3600000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,016219	0,000736	0,000726	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,109042	0,006755	0,00676	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000784	0,000599	0,000603	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3010	OLAP: Query Gen.	0,049418	0,01164	0,011572	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	1,132361	0,018118	0,01832	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19950	3.x Query View Open	0,070192	0,008281	0,008281	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19900	3.x Analyzer Server	0,138483	0,046279	0,046407	511	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4600	Authorization Buffer	0,053405	0,021706	0,022039	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3510	OLAP: EXIT Variables	0,03622	0,001308	0,001303	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3500	OLAP Initialization	0,295305	0,062269	0,02924	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	4300	Value Authorizations	0,000775	0,000767	0,000769	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,233063	0,072675	0,072589	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2500	Cache Generation	0,001976	0,001215	0,001217	0	10
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9010	Total DBTRANS	0	0	0	300	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9011	Total DBSEL	0	0	0	3.600.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	9000	Data Manager	89,390348	86,90713	86,96053	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3110	OLAP: Data Selection	0,017774	0,00608	0,006077	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	2520	Cache Commit	0,000513	0,000502	0,000497	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3100	OLAP: Read Data	0,021526	0,009782	0,009827	300	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3900	OLAP: Read Texts	0,064587	0,036118	0,036161	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	3200	OLAP: Data Transfer	0,591951	0,051347	0,052553	405	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q001	19952	3.x Query View Data	0,009975	0,009023	0,009032	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000894	0,000738	0,000771	0	1
						Total	92,234811	87,273068	87,295274		
						Avg. Tot.				88,93438	

15.03.2009 Dynamic List Display 1
Volume: 1000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000732	0,000752	0,00072	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_I	10000	RFC call	0,006855	0,00673	0,006771	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,0006	0,000605	0,000604	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3010	OLAP: Query Gen.	0,011825	0,011914	0,011676	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3999	OLAP Other Time	0,016855	0,016916	0,016915	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19950	3.x Query View Open	0,008104	0,008151	0,00811	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19900	3.x Analyzer Server	0,584392	0,583628	0,58371	8.008	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4600	Authorization Buffer	0,023713	0,023879	0,021801	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3510	OLAP: EXIT Variables	0,001221	0,001233	0,001054	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3500	OLAP Initialization	0,028111	0,028359	0,025753	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4300	Value Authorizations	0,000753	0,000755	0,000757	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3000	OLAP: Settings	0,07607	0,076168	0,067399	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2500	Cache Generation	0,001628	0,001618	0,001609	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9010	Total DBTRANS	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9011	Total DBSEL	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9000	Data Manager	0,250748	0,065407	0,062392	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3110	OLAP: Data Selection	0,016978	0,017029	0,016923	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2520	Cache Commit	0,000778	0,000756	0,000787	0	6
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3100	OLAP: Read Data	0,00993	0,009953	0,009707	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3900	OLAP: Read Texts	0,12052	0,119889	0,120473	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3200	OLAP: Data Transfer	0,408376	0,406043	0,404454	4.003	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19952	3.x Query View Data	0,016562	0,016612	0,016545	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000859	0,000863	0,000878	0	1
						Total	1,58561	1,39726	1,379038		
						Avg. Tot.				1,453969	

15.03.2009 Dynamic List Display 1
Volume: 12000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000729	0,000721	0,000722	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_I	10000	RFC call	0,00683	0,00678	0,006745	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000609	0,000748	0,000617	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3010	OLAP: Query Gen.	0,011734	0,207333	0,011787	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3999	OLAP Other Time	0,016878	0,016777	0,016889	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19950	3.x Query View Open	0,008098	0,008139	0,008151	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19900	3.x Analyzer Server	1,88899	1,896191	1,898105	30.030	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4600	Authorization Buffer	0,023912	0,024151	0,023786	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3510	OLAP: EXIT Variables	0,001231	0,001234	0,00122	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3500	OLAP Initialization	0,028174	0,028214	0,028327	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4300	Value Authorizations	0,000752	0,000749	0,000752	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3000	OLAP: Settings	0,076329	0,076438	0,076808	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2500	Cache Generation	0,001638	0,001621	0,001642	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9010	Total DBTRANS	0,570942	0,384461	0,385724	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9011	Total DBSEL	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9000	Data Manager	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3110	OLAP: Data Selection	0,190852	0,19026	0,192726	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2520	Cache Commit	0,000849	0,000832	0,000839	0	6
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3100	OLAP: Read Data	0,009931	0,009923	0,010003	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3900	OLAP: Read Texts	0,118039	0,118029	0,11848	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3200	OLAP: Data Transfer	2,445695	2,442677	2,453898	26.014	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19952	3.x Query View Data	0,016923	0,016906	0,016996	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000872	0,000861	0,000848	0	1
						Total	5,420007	5,433045	5,255065		
						Avg. Tot.				5,369372	

15.03.2009 Dynamic List Display 1
Volume: 180000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000729	0,000738	0,000715	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_I	10000	RFC call	0,007183	0,006736	0,006723	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,0006	0,000592	0,000594	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3010	OLAP: Query Gen.	0,011639	0,011681	0,011622	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3999	OLAP Other Time	0,016824	0,017005	0,016756	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19950	3.x Query View Open	0,008085	0,008102	0,008075	0	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19900	3.x Analyzer Server	14,4726	14,49059	14,490822	230.078	2
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4600	Authorization Buffer	0,023751	0,023718	0,02363	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3510	OLAP: EXIT Variables	0,00122	0,001234	0,001232	0	3
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3500	OLAP Initialization	0,028102	0,0284	0,028229	0	12
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4300	Value Authorizations	0,000742	0,000758	0,000752	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3000	OLAP: Settings	0,075996	0,076263	0,075901	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2500	Cache Generation	0,001673	0,001687	0,001658	0	14
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9010	Total DBTRANS	5,659503	5,473436	5,480459	0	19
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9011	Total DBSEL	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9000	Data Manager	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3110	OLAP: Data Selection	2,867093	2,870155	2,867707	0	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2520	Cache Commit	0,000888	0,000884	0,000876	0	6
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3100	OLAP: Read Data	0,009974	0,009944	0,009925	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3900	OLAP: Read Texts	0,140027	0,137621	0,137601	0	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3200	OLAP: Data Transfer	22,96567	22,83988	22,878534	222.038	4
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19952	3.x Query View Data	0,0304	0,03008	0,029972	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000864	0,000885	0,000881	0	1
						Total	46,323563	46,030389	46,072664		
						Avg. Tot.				46,14221	

15.03.2009 Dynamic List Display 1
Volume: 3600000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned					
BEX3	JUKKAA	BRFC		RRX_SESSION_I	10000	RFC call					
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3010	OLAP: Query Gen.					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3999	OLAP Other Time					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19950	3.x Query View Open					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19900	3.x Analyzer Server					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4600	Authorization Buffer					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3510	OLAP: EXIT Variables					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3500	OLAP Initialization					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	4300	Value Authorizations					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3000	OLAP: Settings					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2500	Cache Generation					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9010	Total DBTRANS					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9011	Total DBSEL					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	9000	Data Manager					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3110	OLAP: Data Selection					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	2520	Cache Commit					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3100	OLAP: Read Data					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3900	OLAP: Read Texts					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	3200	OLAP: Data Transfer					
BEX3	JUKKAA	OLAP	ZFJT_C01	ZFJT_C01_Q002	19952	3.x Query View Data					
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call					
						Total	0	0	0		
						Avg. Tot.				0	

15.03.2009 Dynamic List Display 1
Volume: 1000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000718	0,000768	0,000719	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006397	0,006765	0,006892	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000577	0,000604	0,000608	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,031152	0,033899	1,177305	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,032226	0,032626	0,031898	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008548	0,008529	0,008552	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,013702	0,014341	0,013832	10	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,02435	0,026876	0,02422	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,001074	0,001268	0,001179	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,024172	0,026544	0,023966	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000737	0,000772	0,00074	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,07576	0,083981	0,073362	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001214	0,001272	0,001235	0	10
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	1	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	0,079036	0,078261	0,073349	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,001398	0,001411	0,001383	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000494	0,00049	0,000497	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,009715	0,009936	0,00973	1	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,006013	0,005958	0,006019	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,010113	0,010164	0,010153	5	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,00933	0,009383	0,009382	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,00079	0,000753	0,000747	0	1
						Total	0,337516	0,354601	1,475768		
						Avg. Tot.				0,722628	

15.03.2009 Dynamic List Display 1
Volume: 12000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000726	0,000763	0,000738	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006801	0,007282	0,006751	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000606	0,000675	0,000607	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,033867	0,034393	0,03399	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,03483	0,03267	0,03268	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008552	0,008569	0,00855	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,014179	0,014499	0,014306	10	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,027366	0,027355	0,026944	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,001263	0,001262	0,001284	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,026516	0,027079	0,026538	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000748	0,00075	0,000748	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,085758	0,084195	0,082626	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001274	0,001253	0,001234	0	10
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	12	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	0,158987	0,15184	0,151657	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,001574	0,001559	0,001581	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000494	0,000497	0,000501	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,010145	0,009898	0,009891	1	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,005963	0,005977	0,006034	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,010133	0,010172	0,010186	5	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,009464	0,009313	0,00937	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000746	0,000752	0,00078	0	1
						Total	0,439992	0,430753	0,426996		
						Avg. Tot.				0,43258	

15.03.2009 Dynamic List Display 1
Volume: 180000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000726	0,000738	0,000738	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006712	0,006723	0,006789	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000609	0,000604	0,000601	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,033843	0,034014	0,033946	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,034811	0,032677	0,032729	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008547	0,008555	0,00852	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,015962	0,017865	0,015836	36	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,026957	0,026882	0,026894	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,001275	0,001261	0,001259	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,026509	0,026813	0,025799	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000755	0,000742	0,000752	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,085202	0,083954	0,081381	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001221	0,001245	0,00122	0	10
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	180	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	1,529435	1,532821	1,633316	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,003979	0,003978	0,00396	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000497	0,000498	0,000491	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,00988	0,009902	0,009664	15	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007355	0,007348	0,007347	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,012092	0,012132	0,012118	25	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,009342	0,009432	0,009349	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000762	0,000761	0,000774	0	1
						Total	1,816471	1,818945	1,913483		
						Avg. Tot.				1,849633	

15.03.2009 Dynamic List Display 1
Volume: 3600000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000739	0,000745	0,000754	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006756	0,00672	0,006729	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000605	0,000607	0,000597	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,034016	0,034069	0,033932	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,248413	0,032677	0,032629	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008555	0,008564	0,008543	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,046699	0,046316	0,046423	511	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,027025	0,026972	0,026831	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,00136	0,001266	0,001257	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,02804	0,026562	0,026615	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000758	0,000754	0,000755	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,09046	0,091772	0,082414	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001243	0,001233	0,001237	0	10
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	35,915342	35,418213	35,426326	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	3.600	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	0	0	0	3.600.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,05497	0,054607	0,054521	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000503	0,000512	0,000505	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,009918	0,009923	0,009971	300	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,036268	0,036127	0,036033	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,048766	0,049057	0,048698	405	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,010568	0,010604	0,010533	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000777	0,000784	0,000779	0	1
						Total	36,571781	35,858084	35,856082		
						Avg. Tot.				36,09532	

15.03.2009 Dynamic List Display 1
Volume: 1000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000757	0,000752	0,000746	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006732	0,006733	0,006791	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000604	0,000607	0,000632	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3010	OLAP: Query Gen.	0,034322	0,034337	0,034424	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3999	OLAP Other Time	0,032856	0,032708	0,033192	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19950	3.x Query View Open	0,008858	0,008882	0,008898	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19900	3.x Analyzer Server	0,5306	0,530302	0,529808	7.008	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4600	Authorization Buffer	0,02846	0,028416	0,02865	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3510	OLAP: EXIT Variables	0,001251	0,001247	0,001309	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3500	OLAP Initialization	0,02616	0,026225	0,026351	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4300	Value Authorizations	0,000784	0,000774	0,0008	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3000	OLAP: Settings	0,084754	0,084859	0,084969	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2500	Cache Generation	0,001632	0,001635	0,001619	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9010	Total DBTRANS	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9011	Total DBSEL	0	0	0	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9000	Data Manager	1,207971	1,205757	1,206626	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3110	OLAP: Data Selection	0,017281	0,017283	0,017297	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2520	Cache Commit	0,000773	0,000796	0,000779	0	6
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3100	OLAP: Read Data	0,010051	0,010127	0,010037	1.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3900	OLAP: Read Texts	0,094257	0,092955	0,093383	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3200	OLAP: Data Transfer	0,405674	0,403798	0,404748	4.003	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19952	3.x Query View Data	0,01842	0,018595	0,01837	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000878	0,000869	0,000889	0	1
						Total	2,513075	2,507657	2,510318		
						Avg. Tot.				2,51035	

15.03.2009 Dynamic List Display 1
Volume: 12000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000741	0,000708	0,000732	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,00674	0,00642	0,006746	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000614	0,000577	0,000612	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3010	OLAP: Query Gen.	0,034029	0,031092	0,034237	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3999	OLAP Other Time	0,032738	0,030781	0,032525	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19950	3.x Query View Open	0,008891	0,008894	0,008972	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19900	3.x Analyzer Server	1,847109	1,853374	1,851577	29.030	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4600	Authorization Buffer	0,028577	0,025768	0,028448	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3510	OLAP: EXIT Variables	0,001265	0,00107	0,001274	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3500	OLAP Initialization	0,026263	0,023748	0,026691	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4300	Value Authorizations	0,000788	0,000777	0,000789	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3000	OLAP: Settings	0,084894	0,076369	0,084789	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2500	Cache Generation	0,001639	0,001652	0,00166	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9010	Total DBTRANS	12,573994	12,446685	12,795494	0	5
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9011	Total DBSEL	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9000	Data Manager	0	0	0	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3110	OLAP: Data Selection	0,204879	0,1966	0,221043	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2520	Cache Commit	0,000843	0,000874	0,000835	0	6
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3100	OLAP: Read Data	0,010045	0,009858	0,010057	12.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3900	OLAP: Read Texts	0,093161	0,092983	0,093251	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3200	OLAP: Data Transfer	2,461964	2,445454	2,448939	26.014	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19952	3.x Query View Data	0,017525	0,017458	0,0175	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000911	0,000899	0,000901	0	1
						Total	17,43761	17,272041	17,667072		
						Avg. Tot.				17,45891	

15.03.2009 Dynamic List Display 1
Volume: 180000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned	0,000768	0,000771	0,000782	0	1
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call	0,006742	0,006813	0,008161	0	1
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call	0,000597	0,000607	0,000671	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3010	OLAP: Query Gen.	0,034038	0,034088	0,031093	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3999	OLAP Other Time	0,032748	0,032972	0,409701	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19950	3.x Query View Open	0,008887	0,008949	0,009006	0	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19900	3.x Analyzer Server	14,348126	14,295048	14,270995	229.078	2
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4600	Authorization Buffer	0,02834	0,02862	0,026619	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3510	OLAP: EXIT Variables	0,001259	0,001333	0,001602	0	3
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3500	OLAP Initialization	0,026241	0,026562	0,028623	0	12
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4300	Value Authorizations	0,000785	0,000792	0,000758	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3000	OLAP: Settings	0,084732	0,084918	0,077632	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2500	Cache Generation	0,001684	0,001671	0,001695	0	14
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9010	Total DBTRANS	186,538272	191,73945	192,294524	0	73
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9011	Total DBSEL	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9000	Data Manager	0	0	0	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3110	OLAP: Data Selection	2,928566	2,952165	2,938029	0	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2520	Cache Commit	0,000924	0,000897	0,000899	0	6
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3100	OLAP: Read Data	0,009943	0,010103	0,010188	180.000	1
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3900	OLAP: Read Texts	0,111354	0,112371	0,111695	0	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3200	OLAP: Data Transfer	22,805091	22,820056	22,784996	222.038	4
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19952	3.x Query View Data	0,030896	0,030638	0,03079	0	1
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call	0,000935	0,000904	0,00093	0	1
						Total	227,000928	232,189728	233,039389		
						Avg. Tot.				230,7433	

15.03.2009 Dynamic List Display 1
Volume: 3600000 records

Step Type	User	Handle Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3	JUKKAA	DFLT				Not Assigned					
BEX3	JUKKAA	BRFC		RRX_SESSION_IN	10000	RFC call					
BEX3	JUKKAA	BRFC		RRX_REPORT_O	10000	RFC call					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3010	OLAP: Query Gen.					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3999	OLAP Other Time					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19950	3.x Query View Open					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19900	3.x Analyzer Server					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4600	Authorization Buffer					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3510	OLAP: EXIT Variables					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3500	OLAP Initialization					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	4300	Value Authorizations					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3000	OLAP: Settings					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2500	Cache Generation					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9010	Total DBTRANS					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9011	Total DBSEL					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	9000	Data Manager					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3110	OLAP: Data Selection					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	2520	Cache Commit					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3100	OLAP: Read Data					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3900	OLAP: Read Texts					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	3200	OLAP: Data Transfer					
BEX3	JUKKAA	OLAP	ZFJT_IS1	ZFJT_IS1_Q002	19952	3.x Query View Data					
BEX3	JUKKAA	BRFC		RRX_GRID_CMD_	10000	RFC call					
						Total	0	0	0		
						Avg. Tot.				0	

15.03.2009 Dynamic List Display 1

1 join(s)

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	DFLT					Not Assigned	0,0009	0,00075	0,000778	0	1
BEX3		JUKKAA	BRFC			RRX_SESSION_IN	10000	RFC call	0,030644	0,006768	0,007906	0	1
BEX3		JUKKAA	BRFC			RRX_REPORT_OI	10000	RFC call	0,000728	0,000601	0,000624	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,034155	0,036004	0,035325	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,062755	0,034656	0,03443	0	14
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008838	0,008576	0,008675	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,021479	0,015942	0,016533	29	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,028421	0,028038	0,028273	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,002074	0,001107	0,001884	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,060812	0,025124	0,029091	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000748	0,00078	0,00076	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,092854	0,074537	0,362686	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001313	0,001217	0,001234	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	1,046082	1,014465	1,027718	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,009133	0,00313	0,003137	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000495	0,000498	0,000498	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,010338	0,00979	0,010087	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007531	0,00736	0,007335	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,011956	0,011592	0,011559	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,009524	0,00934	0,009364	0	1
BEX3		JUKKAA	BRFC			RRX_GRID_CMD_	10000	RFC call	0,507929	0,000773	0,000759	0	1
								Total	1,948709	1,291048	1,598656		
								Avg. Tot.					1,612804

15.03.2009 Dynamic List Display 1

2 join(s)

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	DFLT					Not Assigned	0,000765	0,000744	0,000772	0	1
BEX3		JUKKAA	BRFC			RRX_SESSION_IN	10000	RFC call	0,011384	0,006729	0,030047	0	1
BEX3		JUKKAA	BRFC			RRX_REPORT_OI	10000	RFC call	0,000612	0,000602	0,000625	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,037772	0,036425	0,033411	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,03831	0,036867	0,047288	0	14
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,008562	0,008526	0,008635	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,016283	0,015588	0,023986	29	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,029126	0,02784	0,029142	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,001888	0,001259	0,001914	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,028075	0,026693	0,030493	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,00076	0,000768	0,000753	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,881117	0,085649	0,094638	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001241	0,001236	0,001239	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	2,189113	1,121496	1,111381	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,003152	0,003164	0,003178	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000494	0,000498	0,000494	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,009935	0,009869	0,009918	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007345	0,007382	0,007354	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,010856	0,010859	0,010911	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,010213	0,010191	0,010094	0	1
BEX3		JUKKAA	BRFC			RRX_GRID_CMD_	10000	RFC call	0,000762	0,000758	0,00077	0	1
								Total	3,287765	1,413143	1,457043		
								Avg. Tot.					2,05265

15.03.2009 Dynamic List Display 1

3 join(s)

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	DFLT					Not Assigned	0,000722	0,000729	0,000727	0	1
BEX3		JUKKAA	BRFC			RRX_SESSION_IN	10000	RFC call	0,006333	0,006788	0,006723	0	1
BEX3		JUKKAA	BRFC			RRX_REPORT_OI	10000	RFC call	0,00059	0,0006	0,000659	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,041136	0,043503	0,043859	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,049172	0,050031	0,050006	0	14
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,021806	0,008616	0,008569	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,015214	0,015984	0,015682	29	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,030029	0,033437	0,033681	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,00156	0,001285	0,001318	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,025185	0,027135	0,026779	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000742	0,000753	0,000753	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,37772	0,082756	0,082288	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001254	0,001242	0,001236	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	2,009517	1,185589	1,187682	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,003182	0,003158	0,003189	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000501	0,000502	0,000503	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,009907	0,009913	0,009905	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007362	0,007373	0,007403	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,010857	0,010949	0,010881	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,010275	0,01017	0,010288	0	1
BEX3		JUKKAA	BRFC			RRX_GRID_CMD_	10000	RFC call	0,000757	0,00077	0,000759	0	1
								Total	2,623821	1,501283	1,50289		
								Avg. Tot.					1,875998

15.03.2009 Dynamic List Display 1

4 join(s)

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	DFLT					Not Assigned	0,000756	0,000764	0,000729	0	1
BEX3		JUKKAA	BRFC			RRX_SESSION_IN	10000	RFC call	0,008538	0,006754	0,006769	0	1
BEX3		JUKKAA	BRFC			RRX_REPORT_OI	10000	RFC call	0,000617	0,000598	0,000587	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,055343	0,054597	0,056575	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,071352	0,069696	0,069589	0	14
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,02163	0,008708	0,008688	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,016399	0,019528	0,015073	29	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,043539	0,04186	0,035643	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,001902	0,001274	0,001082	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,027484	0,026803	0,024153	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000771	0,000773	0,000753	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,306366	0,073558	0,068504	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,002156	0,002904	0,002102	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	2,020594	1,878775	1,87127	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,003222	0,004657	0,003178	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,00051	0,00076	0,000519	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,01008	0,010426	0,009776	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007446	0,009418	0,007393	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,011015	0,015126	0,010977	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,00941	0,010599	0,009402	0	1
BEX3		JUKKAA	BRFC			RRX_GRID_CMD_	10000	RFC call	0,000768	0,001005	0,000742	0	1
								Total	2,619898	2,238583	2,203504		
								Avg. Tot.					2,353995

15.03.2009 Dynamic List Display 1

5 join(s)

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	DFLT					Not Assigned	0,000727	0,000782	0,000772	0	1
BEX3		JUKKAA	BRFC			RRX_SESSION_IN	10000	RFC call	0,04837	0,00685	0,006725	0	1
BEX3		JUKKAA	BRFC			RRX_REPORT_OI	10000	RFC call	0,000614	0,000599	0,000607	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3010	OLAP: Query Gen.	0,05588	0,058835	0,057733	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,075786	0,078696	0,077281	0	14
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19950	3.x Query View Open	0,021542	0,008716	0,008762	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19900	3.x Analyzer Server	0,015477	0,016274	0,01589	29	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4600	Authorization Buffer	0,039077	0,044931	0,045062	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3510	OLAP: EXIT Variables	0,00162	0,001267	0,001297	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3500	OLAP Initialization	0,025103	0,027316	0,026975	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	4300	Value Authorizations	0,000747	0,000766	0,000757	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,239717	0,077957	0,077464	0	12
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001247	0,001241	0,00125	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	3,255326	2,196179	2,175494	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,003243	0,00319	0,003206	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,0005	0,000501	0,000508	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,009851	0,010316	0,010096	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,007447	0,007425	0,00747	0	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,010965	0,011003	0,011	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,010316	0,0104	0,010388	0	1
BEX3		JUKKAA	BRFC			RRX_GRID_CMD_	10000	RFC call	0,000756	0,000757	0,000775	0	1
								Total	3,824311	2,564001	2,539512		
								Avg. Tot.					2,975941

30.03.2009 Dynamic List Display 1
Function: Drill Down

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,001603	0,001596	0,001555	0	10
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	0,000687	0,000686	0,000676	0	7
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	2500	Cache Generation	0,001054	0,001062	0,001075	0	13
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	9010	Total DBTRANS	0	0	0	20	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	9000	Data Manager	3,419173	3,395569	3,396058	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3110	OLAP: Data Selection	0,001277	0,001276	0,001275	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	2520	Cache Commit	0,000251	0,000254	0,000256	0	2
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3100	OLAP: Read Data	0,003059	0,003059	0,003044	20	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3900	OLAP: Read Texts	0,002731	0,002735	0,002731	0	2
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3200	OLAP: Data Transfer	0,015917	0,015989	0,015839	49	4
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	19952	3.x Query View Data	0,016394	0,016358	0,016245	0	1
								Total	3,462146	3,438584	3,438754		
								Avg. Tot.				3,446495	

30.03.2009 Dynamic List Display 1
Function: Drill Down

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,001636	0,001596	0,001612	0	10
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,000685	0,000677	0,00068	0	7
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,001088	0,00106	0,001079	0	13
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	240	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	120.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	1,06983	1,061601	1,061782	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,004514	0,004459	0,004458	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000253	0,000255	0,000251	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,003133	0,003069	0,003075	20	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,003728	0,003752	0,003804	0	2
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,015922	0,015849	0,016123	49	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,018038	0,017923	0,018076	0	1
								Total	1,118827	1,110241	1,11094		
								Avg. Tot.				1,113336	

30.03.2009 Dynamic List Display 1
Function: Filter

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001		Not Assigned	0,000722	0,000729	0,000727	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	10000	RFC call	0,006333	0,006788	0,006723	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	10000	RFC call	0,00059	0,0006	0,000659	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3010	OLAP: Query Gen.	0,041136	0,043503	0,043859	0	1
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3999	OLAP Other Time	0,049172	0,050031	0,050006	0	14
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	19950	3.x Query View Open	0,021806	0,008616	0,008569	0	2
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	19900	3.x Analyzer Server	0,015214	0,015984	0,015682	29	2
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	4600	Authorization Buffer	0,030029	0,033437	0,033681	0	3
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3510	OLAP: EXIT Variables	0,00156	0,001285	0,001318	0	3
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3500	OLAP Initialization	0,025185	0,027135	0,026779	0	12
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	4300	Value Authorizations	0,000742	0,000753	0,000753	0	4
BEX3		JUKKAA	OLAP		ZFJT_C01	ZFJT_C01_Q001	3000	OLAP: Settings	0,37772	0,082756	0,082288	0	12
								Total	0,570209	0,271617	0,271044		
								Avg. Tot.				0,370957	

30.03.2009 Dynamic List Display 1
Function: Filter

Step	Type	User	Handle	Type	InfoProvider	Object Name	Event ID	Event Text	Duration (run1)	Duration (run2)	Duration (run3)	Counter	Event Counter
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3000	OLAP: Settings	0,00148	0,001521	0,001474	0	9
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3999	OLAP Other Time	0,000882	0,000901	0,000887	0	8
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2500	Cache Generation	0,000882	0,000869	0,00086	0	9
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9010	Total DBTRANS	0	0	0	120	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9011	Total DBSEL	0	0	0	60.000	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	9000	Data Manager	0,167541	0,165629	0,165095	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3110	OLAP: Data Selection	0,002974	0,002894	0,002925	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	2520	Cache Commit	0,000514	0,00051	0,000517	0	4
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3100	OLAP: Read Data	0,003042	0,003052	0,003044	10	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3900	OLAP: Read Texts	0,000485	0,000488	0,000482	0	1
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	3200	OLAP: Data Transfer	0,009141	0,009121	0,009115	19	3
BEX3		JUKKAA	OLAP		ZFJT_IS1	ZFJT_IS1_Q001	19952	3.x Query View Data	0,027037	0,027348	0,026574	0	1
								Total	0,213978	0,212333	0,210973		
								Avg. Tot.				0,212428	

The following tables describe the tables occurring in the SQL listings in section 7.3 in order of appearance.

Technical structure of table /BIC/FZFJT_C01

Field	Key	Data Element	Data Type	Length, dec	Description
KEY_ZFJT_C01P	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C01T	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C01U	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C011	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C012	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C013	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C014	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C015	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C016	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C017	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C018	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C019	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C01A	X	RSDIMID	INT4	10	Dimension Table Key
KEY_ZFJT_C01B	X	RSDIMID	INT4	10	Dimension Table Key
ALP_AMOUNT		/BI0/OIALP_AMOUNT	CURR	17,2	Wage type amount for payments
DUR_ACTUAL		/BI0/OIDUR_ACTUAL	QUAN	17,3	Actual Time
DUR_VALUE		/BI0/OIDUR_VALUE	QUAN	17,3	Account-Relevant Time
PLHRS		/BI0/OIPLHRS	QUAN	17,3	Planned Time According to Personal Work Schedule
WRHRS		/BI0/OIWRHRS	QUAN	17,3	Planned Time Without Public Holidays

Technical structure of table /BIC/DZFJT_C01U

Field	Key	Data Element	Data Type	Length, dec	Description
DIMID	X	RSDIMID	INT4	10	Dimension Table Key
SID_0CURRENCY		RSSID	INT4	10	Master data ID
SID_0UNIT		RSSID	INT4	10	Master data ID

Technical structure of table /BIC/DZFJT_C01T

Field	Key	Data Element	Data Type	Length, dec	Description
DIMID	X	RSDIMID	INT4	10	Dimension Table Key
SID_0CALMONTH		RSSID	INT4	10	Master data ID
SID_0CALQUARTER		RSSID	INT4	10	Master data ID
SID_0CALYEAR		RSSID	INT4	10	Master data ID

Technical structure of table /BIC/DZFJT_C012

Field	Key	Data Element	Data Type	Length, dec	Description
DIMID	X	RSDIMID	INT4	10	Dimension Table Key
SID_0REPTT		RSSID	INT4	10	Master data ID

Technical structure of table /BIC/DZFJT_C01P

Field	Key	Data Element	Data Type	Length, dec	Description
DIMID	X	RSDIMID	INT4	10	Dimension Table Key
SID_0CHNGID		RSSID	INT4	10	Master data ID
SID_0RECORDTP		RSSID	INT4	10	Master data ID
SID_0REQUID		RSSID	INT4	10	Master data ID

Technical structure of table /BIC/MZFJT_EMP (view on table /BIC/QZFJT_EMP)

Field	Key	Data Element	Data Type	Length, dec	Description
/BIC/ZFJT_EMP	x	/BIC/OIZFJT_EMP	NUMC	8	Employee
OBJVERS	x	RSOBJVERS	CHAR	1	Object version
DATETO	x	RSDATETO	DATS	8	Valid-to date
DATEFROM		RSDATEFROM	DATS	8	Valid-From Date
CHANGED		RSRCHANGEFLAG	CHAR	1	Change flag (I inserted / D deleted)
EMPLSTATUS		/BI0/OIEMPLSTATUS	CHAR	1	Employment Status
EMPLGROUP		/BI0/OIEMPLGROUP	CHAR	1	Employee Group
EMPLSGROUP		/BI0/OIEMPLSGROUP	CHAR	2	Employee Subgroup
PERS_AREA		/BI0/OIPERS_AREA	CHAR	4	Personnel Area
PERS_SAREA		/BI0/OIPERS_SAREA	CHAR	4	Personnel Subarea
JOB		/BI0/OIJOB	NUMC	8	Job
HRPOSITION		/BI0/OIHRPOSITION	NUMC	8	Position
ORGUNIT		/BI0/OIORGUNIT	NUMC	8	Organizational Unit

Technical structure of table /BIC/AZFJT_DS200

Field	Key	Data Element	Data Type	Length, dec	Description
/BIC/ZFJT_EMP	x	/BIC/OIZFJT_EMP	NUMC	8	Employee
REPTT	x	/BI0/OIREPTT	CHAR	8	Reporting Time Type
CALMONTH	x	/BI0/OICALMONTH	NUMC	6	Calendar Year/Month
DUR_ACTUAL		/BI0/OIDUR_ACTUAL	QUAN	17,3	Actual Time
UNIT		/BI0/OIUNIT	UNIT	3	Unit of Measure
RECORDMODE		RODMUPDMOD	CHAR	1	BW Delta Process: Record Mode
CALYEAR		/BI0/OICALYEAR	NUMC	4	Calendar Year
CALQUARTER		/BI0/OICALQUARTER	NUMC	5	Calendar Year/Quarter

The following routine was used to multiply the data in a transformation start routine to achieve the needed data volume.

```
*$*$ begin of routine - insert your code only below this line        *-*
* Define data elements
    DATA: l_s_source type _ty_s_SC_1,
          l_t_source type _ty_t_SC_1,
          l_v_iteration(2) TYPE N.

* Define constants
    CONSTANTS: l_c_iteration(2) TYPE N value 01,
               l_c_year(4)      TYPE N value 2009.

* Run the routine for each record
    LOOP at SOURCE_PACKAGE assigning <SOURCE_FIELDS>.
* Clear variable and assign it with an initial value
      CLEAR: l_v_iteration.
      l_v_iteration = l_c_iteration.
* Move the original fields into a local structure
      MOVE <SOURCE_FIELDS> to l_s_source.
      l_s_source-calday(4) = l_c_year.
* Append the first (original record) into the result table
      APPEND l_s_source to l_t_source.

      DO 19 TIMES.

* Modify the time type id and append the record to the result table
        l_s_source-REPTT+5(2) = l_v_iteration.
        APPEND l_s_source to l_t_source.

* Add 1 to the variable
        l_v_iteration = l_v_iteration + 1.
      ENDDO.

    ENDLOOP.

* Handle record changes
    REFRESH SOURCE_PACKAGE.
    MOVE l_t_source[] to SOURCE_PACKAGE[].
*$*$ end of routine - insert your code only before this line         *-*
```

The following routine is part of the proof-of-concept method of including annually changing, pseudo time-dependant master data in the composite BI. In this example, the routine is used in a transformation between standard content 0PERSON attributes and a DataStoreObject as an expert routine to calculate the age of persons and output the values as characteristic values and numerical values. The start and end dates of the calculation range are read from a configuration table to avoid hard coding the values. The validity of a record starts at birth date (excluding the first record) and ends on the day before birth date (excluding the last record).

The table below defines the target DataStoreObject:

Field	Key	Data Element	Data Type	Length, dec	Description
PERSON	x	/BI0/OIPERSON	NUMC	8	Person
DATETO	x	/BI0/OIDATETO	DATS	8	Valid to
DATEFROM		/BI0/OIDATEFROM	DATS	8	Valid from
AGE		/BI0/OIAGE	NUMC	3	Age in Years
AGE_KYF		/BI0/OIAGE_KYF	DEC	17,3	Age in Years
RECORDMODE		RODMUPDMOD	CHAR	1	BW Delta Process: Record Mode

```
*$*$ begin of routine - insert your code only below this line        *-*
    DATA:     l_s_source type _ty_s_SC_1,
              l_s_result type _ty_s_TG_1,
              l_t_result type _ty_t_TG_1,
              l_v_dob    type /BI0/OIDATEBIRTH,
              l_v_done   type C,
              l_c_begda(8)  type C,
              l_c_endda(8)  type C,
              l_d_begda  type D,
              l_d_endda  type D.


*    Fetch the masterdata calculation range from RSADMIN
    SELECT SINGLE VALUE FROM RSADMIN INTO l_c_begda
      where OBJECT EQ 'ZFIJ_MD_BEGDA'.

    SELECT SINGLE VALUE FROM RSADMIN INTO l_c_endda
    where OBJECT EQ 'ZFIJ_MD_ENDDA'.

    MOVE l_c_begda to l_d_begda.
    MOVE l_c_endda to l_d_endda.

*    Loop through valid records
    LOOP at SOURCE_PACKAGE assigning <SOURCE_FIELDS>
     where datefrom LE sy-datum and dateto GE sy-datum and person NE ' '
     and datebirth NE '00000000'.

*      Clear the variables for each run
      CLEAR: l_v_done,
             l_v_dob.

      MOVE <SOURCE_FIELDS>-PERSON to l_s_result-person.
      MOVE <SOURCE_FIELDS>-DATEBIRTH to l_v_dob.

*      Create the 1st record
```

```
*       First record starts from the given start date
        l_s_result-datefrom = l_d_begda.
*       Find the end date for record
        IF l_s_result-datefrom+4(4) GE l_v_dob+4(4).
          l_s_result-dateto(4) = l_s_result-datefrom(4) + 1.
          l_s_result-dateto+4(4) = l_v_dob+4(4).
          l_s_result-dateto = l_s_result-dateto - 1.
        ELSE.
          l_s_result-dateto(4) = l_s_result-datefrom(4).
          l_s_result-dateto+4(4) = l_v_dob+4(4).
          l_s_result-dateto = l_s_result-dateto - 1.
        ENDIF.
*       Limit the end date to the given date if valid
        IF l_s_result-dateto GT l_d_endda.
          l_s_result-dateto = l_d_endda.
        ENDIF.
*       Calculate age
        l_s_result-age = l_s_result-datefrom(4) - l_v_dob(4).
        l_s_result-age_kyf = l_s_result-datefrom(4) - l_v_dob(4).
*       Substract -1 if the person's dob hasn't been passed at the start date
        IF l_s_result-datefrom+4(4) LT l_v_dob+4(4).
          l_s_result-age = l_s_result-age - 1.
          l_s_result-age_kyf = l_s_result-age_kyf - 1.
        ENDIF.

        APPEND l_s_result to l_t_result.

*       Use the 1st record to create more until we're done
        WHILE l_s_result-dateto LT l_d_endda and l_v_done NE 'X'.
          l_s_result-datefrom = l_s_result-dateto + 1.
          l_s_result-dateto(4) = l_s_result-dateto(4) + 1.
          IF l_s_result-dateto GT l_d_endda.
*           Last record ends on the given end date, indicate last record
            l_s_result-dateto = l_d_endda.
            l_v_done = 'X'.
          ENDIF.
          l_s_result-age = l_s_result-datefrom(4) - l_v_dob(4).
          l_s_result-age_kyf = l_s_result-datefrom(4) - l_v_dob(4).
          APPEND l_s_result to l_t_result.
        ENDWHILE.
      ENDLOOP.

*       Handle record changes
      DELETE l_t_result where datefrom GT l_d_endda.
      REFRESH RESULT_PACKAGE.
      MOVE l_t_result to RESULT_PACKAGE.

*$*$ end of routine - insert your code only before this line         *-*
```

The figure below displays example results for a person. The birthdate of person 117 is 21.3.1977 and the static calculation range is 1.1.2008 – 31.7.2010.

0PERSON	0DATEFROM	0DATETO	0AGE_KYF	0AGE
117	01.01.2008	20.03.2008	30,000	30
117	21.03.2008	20.03.2009	31,000	31
117	21.03.2009	20.03.2010	32,000	32
117	21.03.2010	31.07.2010	33,000	33