REVIEW ARTICLE

AN INTRODUCTION TO HYPERION ESSBASE

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Abstract: Essbase is multidimensional database software that is optimized for planning, analysis, and management-reporting applications. Essbase uniquely blends an innovative technical design with an open, client-server architecture. The product enables you to extend decision support system beyond ad hoc queries and reports on historical performance to dynamic, operational systems that combine historical analysis and future planning. Hyperion Essbase is the industry-leading multi-dimensional online analytical processing server, providing a rich environment for effectively developing custom analytic and enterprise performance management applications. By leveraging its self-managed, rapid application development capabilities, business users can quickly model complex business scenarios. In this paper we see how Hyperion Essbase supports extremely fast query response times for vast numbers of users, large data sets, and complex business models.

Keywords: Hyperion; Essbase; database; software

INTRODUCTION

For years, business managers and financial analysts have been asking questions and thinking about their budgets, sales data and nearly every other piece of business information in multidimensional term. They might want to know how a particular product sells in one market versus another, or which customer actually nets them the highest profit. With Essbase Analytic services, multidimensional analysis is easy to do. Essbase is multidimensional database application tool that lets us continually analyze and compare aspects of our business.

Hyperion Essbase allows users to model, analyze, and interpret the most complex business scenarios. Essbase is an object oriented database that provides users with multidimensional analysis capabilities. Essbase Databases are often called "Cubes" and are defined by dimensions, which themselves are hierarchical groups of members Data is organized into cross sectional groups that can be accessed by users depending on what sections of the hierarchal dimensions they wish to see. The Dimensions are hierarchical representations of descriptors that business users are familiar with, such as a Product Hierarchy. By simply choosing any point in the various dimension hierarchies users are instantly presented with the data values. Users can drill up or down, or users can pivot different dimensions to form new cross sections and better analyze the information. Essbase is optimized to support On-Line Analytical Processing (OLAP) as opposed to the more traditional transaction processing (OLTP) found in relational databases. This enables rapid response times for large volumes of users and large volumes of information.

Essbase gets its name from Extended Spreadsheet Database and is commonly accessed via a spreadsheet add-in that provides users the capability to analyze information within a familiar environment such as Microsoft Excel. Essbase can accept data input from end users which makes it a very capable budgeting tool in addition to its analytic capabilities. Essbase also contains a very powerful calculation engine and is often used to create Profitability Costing models or other types of analytic models that require allocations or more advanced calculations.

BUSINESS INTELLIGENCE

Business Intelligence (BI) refers to computer-based techniques used in spotting, digging-out, and analyzing business data, such as sales revenue by products and/or departments, or by associated costs and incomes. BI technologies provide historical, current, and predictive views of business operations. Common functions of business intelligence technologies are reporting, online analytical processing, analytics, data mining, business performance management, benchmarking, text mining, and predictive analytics. Business intelligence aims to support better business decision-making. Thus a BI system can be called a decision support system (DSS).Though the term business intelligence is sometimes used as a synonym for competitive intelligence, because they both support decision making, BI uses technologies, processes, and applications to analyze mostly internal, structured data and business processes while competitive intelligence gathers, analyzes and disseminates information with a topical focus on company competitors. Business intelligence understood broadly can include the subset of competitive intelligence.

DATA WAREHOUSE

This definition of the data warehouse focuses on data storage. The main source of the data is cleaned, transformed catalogued,and made available for use by managers and other business professionals for data mining, online analytical processing, market research and decision support (Marakas & O'Brien 2009). However, the means to retrieve and analyze data, to extract, transform and load data, and to manage the data dictionary are also considered essential components of a data warehousing system. Many references to data warehousing use this broader context. Thus, an expanded definition for data warehousing includes business intelligence tools, tools to extract, transform and load data

into the repository, and tools to manage and retrieve metadata.

HYPERION

Hyperion is a Business Intelligence (BI) and Business Performance Management (BPM) Tool. It's the market leader in Financial, Operational and Strategic Planning. It has applications for Planning, Financial consolidation, and score carding, reporting, dashboards, Analysis, Workspace, Master Data Management and Foundation. Hyperion can deliver this sort of breakthrough performance management because we offer the most comprehensive set of features, functionality and flexibility in one system.

ESSBASE

Essbase products provide companies with the ability to deliver critical business information to the right people when they need it. With Essbase, companies quickly leverage and integrate data from multiple existing data sources and distribute filtered information to end-user communities in the format that best meets the users' needs. Users interact and intuitively explore data in realtime and along familiar business dimensions, enabling them to perform speed-of-thought analytics.

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By consolidating and staging historical and projected data for detailed analysis, you gain perspectives about your business that enable you to take appropriate actions.
Essbase provides both power and flexibility. Thus, it can be used for a broad range of online analytical processing (OLAP) applications, including those in the following list:

- Budgeting
- Forecasting and seasonal planning
- Financial consolidations and reporting
- Customer and product profitability analysis
- Price, volume, and mix analysis
- Executive information systems

Essbase enables you and others in the organization to share, access, update, and analyze enterprise data from any perspective and at any level of detail without learning new tools, query languages, or programming skills.

ESSBASE PRODUCT COMPONENTS

Essbase products incorporate powerful architectural features to handle a wide range of analytic applications across large multi-user environments. Figure 1 provides a high-level view of the information flow between the source data and the product components.
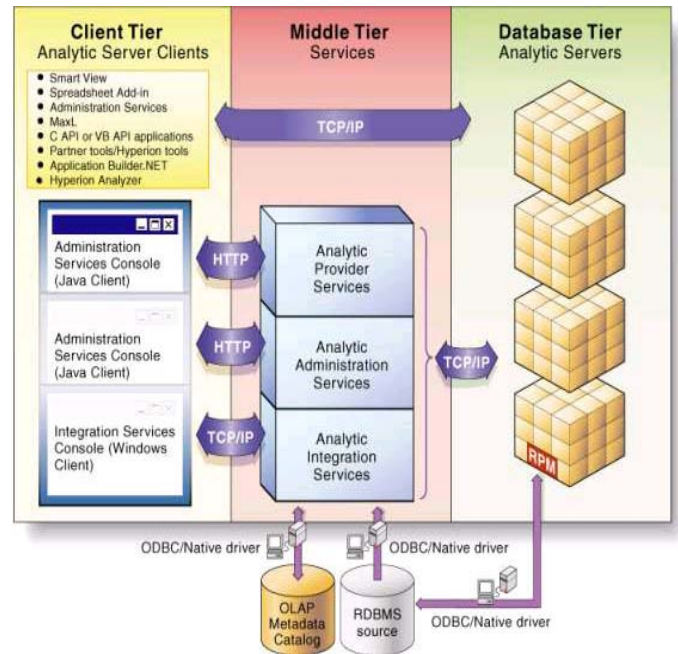

Figure: 1 High-level Information Flow Between Product Components

ADMINISTRATION SERVICES ARCHITECTURE

Administration Services works with Essbase Servers in a three-tiered system that consists of a client user interface (UI), a middle-tier server, and one or more Essbase Servers. The middle tier coordinates interactions and resources between the UI and Essbase Servers. The three tiers may or may not be on the same computer or platform. The three tiers include the following components, as illustrated below:
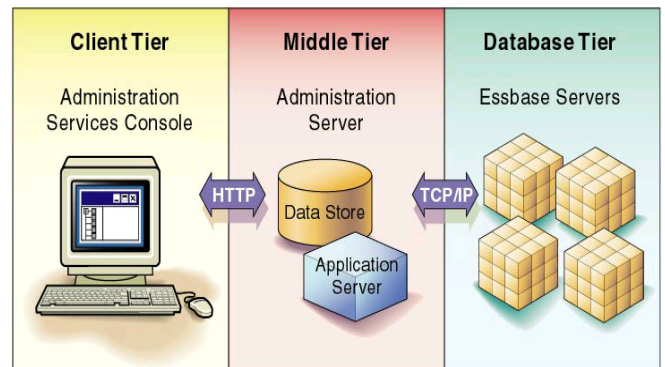

Figure: 2 Administration Services Architecture

- Client tier (Administration Services Console): A Java-based client console provides a UI to manage the Essbase environment.
- Middle tier (Essbase Administration Server): A Java-based server maintains communication, session, and security information for connections to Essbase Servers.
- Database tier (Essbase Server): One or more Essbase Servers store and process multidimensional database information.

PROCESS OF DESIGNING A DATABASE

Figure 3 :The Database Design Cycle

As illustrated in Figure3, designing an application is a cyclic process that moves from a planning stage to a verification stage.

Analyze business needs and plan:
Where does each department currently store data?
Is data in a form that Essbase can use?
Who updates the database and how frequently?
Does the data support the desired analysis and reporting goals?
Do those who need to update data have access to it?

Creating Database outline
Most businesses analyse the following areas:
Time periods
Accounting measures
Distribution channels
Geographical regions
Business units
If you need to analyze a business area by classification or attribute, such as by the size or color of products, you can use attribute dimensions to represent the classification views.

Checking System Requirements
Now you are ready to determine the system requirements for the database.
Ensure that you have enough disk space.
Ensure that you have enough memory.
Ensure that your caches are set correctly.

Loading Test Data
Before you can test Essbase - Calculations, consolidations, and reports, you need data in the database. During the design process, loading mocked-up data or a subset of real data provides flexibility and shortens the time required to test and analyze results.

Defining Calculations
Use the following checklist when you define a Essbase - Calculations:
Does the default calculation logic achieve accurate results?
Which members require Essbase - Formulas?
Which members require Essbase - Two-Pass Calculations ?
Which members can be tagged as Dynamic cal ?

Defining Reports
To ensure that the design meets user information requirements, you must view data as users view it. Users typically view data through spreadsheets, printed reports, or reports published on the Web.

Verifying the Design
Ensure that the database satisfies all of their goals Do the calculations provide the information they need? Are they able to generate reports quickly?

MULTIDIMENSIONAL DATABASE

A multidimensional database is a computer software system designed to allow for the efficient and convenient storage and retrieval of large volumes of data that is (1) intimately related and (2) stored, viewed and analyzed from different perspectives. These perspectives are called dimensions.
A multidimensional database is a form of database that is designed to make the best use of storing and utilizing data. Usually structured in order to optimize online analytical processing (OLAP) and data warehouse applications, the multidimensional database can receive data from a variety of relational databases and structure the information into categories and sections that can be accessed in a number of different ways. Even persons who have relatively little experience working with a database often find that a multidimensional database, or MDB, requires only a short time to master.
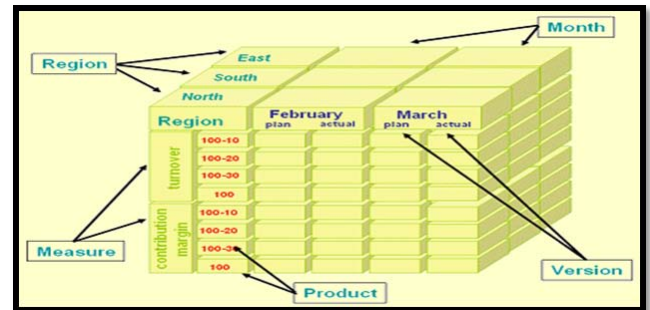

Figure4: Multidimentional Database

OLAP

On-Line Analytical Processing (OLAP) is a category of software technology that enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user.
OLAP tools enable users to interactively analyze multidimensional data from multiple perspectives. OLAP consists of three basic analytical operations: consolidation (roll-up), drill-down, and slicing and dicing. Consolidation involves the aggregation of data that can be accumulated and computed in one or more dimensions. For example, all sales offices are rolled up to the sales department or sales division to anticipate sales trends. In contrast, the drill-down is a technique that allows users to navigate through the details. For instance, users can view the sales by individual products that make up a region's sales. Slicing and dicing is a feature whereby users can take out (slicing) a specific set of data of the OLAP cube and view (dicing) the slices from different viewpoints.

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Analytic Services provides powerful analytical processing to fulfill a broad spectrum of business performance management needs across all levels and functional areas of your business. Information is stored in multiple dimensions and hierarchies that provide a concise and intuitive application model, because they define multiple views of information in the same way users organize, navigate and select information for analysis.

Modules of Hyperion

- Hyperion Essbase.
  Essbase is mdbms that provide multidimensional database platform.
- Shared services
  All the other components that are installed need to be registered with shared services .Shared Services integrates the products to provide these functionalities:
  - ➤ User provisioning.
  - ➤ External authentication definition.
  - ➤ Task flow management
  - ➤ Essbase Administrative Service
  - ➤ Essbase Server
  - ➤ Essbase Client
- Hyperion Financial Management:
  It provides financial managers the ability to rapidly close and report financial results, meet global regulatory requirements, reduce the cost of compliance and deliver confidence in the numbers.
- Hyperion Financial Data Quality Management.
  Oracle Hyperion Financial Data Quality Management is a packaged solution for finance users that helps develop standardized financial data management processes with its Web-based guided workflow user interface.
- Hyperion Performance Scorecard:
  It provides a flexible approach to the development of scorecards, supporting.
- Hyperion Capital Expense Planning.
  Specialized planning module that enables users to easily plan for capital assets and capital asset-related expenses, including depreciation, maintenance, and insurance.
- Hyperion Workforce Planning.
  Oracle Hyperion Workforce Planning is a special purpose planning module that makes head count, salary, and compensation planning efficient across the enterprise.
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- Hyperion Data Integration Management Adapter.
  An option for data loading into Essbase cubes.
- Hyperion Strategic Finance.
  Oracle Hyperion Strategic Finance is a feature rich financial forecasting and modeling solution with on-the-fly scenario analysis and modeling capabilities.

Benefits of Hyperion

- Reduced business risk by centralizing all master data in one, complete solution. Corporate resources are aligned, financial controls improved, spreadsheets eliminated and timely and accurate information is accessible in just a few clicks. Increased end-user productivity and a significant shift in the access, navigation and management.
- Customers have much more flexibility in change management by allowing them to leverage on what is already built .
- We can build multiple database using same tool.
- Individual applications are better integrated with each other.
- Only one environment needs to be supported for development, deployment, training,and technical support.

CONCLUSION

Essbase is multidimensional database application tool that lets you continually analyze and compare aspects of your business. An Essbase database works with multidimensional data and rollup hierarchies within dimensions. Essbase deals with some level of sumarized data, not transaction. Essbase can be adapted to many different reporting and analysis enviroment.With the help of essbase we can analyze the same business information from different perspectives .Essbase allow data storageand analysis to occur at different level of detail.

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