CHAPTER

1

Overview

What Is OLAP?

Online Analytical Processing (OLAP) is a technology used in creating decision support software that allows application users to quickly analyze information that has been summarized into multidimensional views and hierarchies. By summarizing predicted queries into multidimensional views prior to run time, OLAP tools can provide the benefit of increased performance over traditional database access tools: most of the complex calculation that is required to summarize the data is done long before a query is submitted.

To fully understand the benefits of OLAP and the details of its effective implementation, it helps to examine the technology from two perspectives: (1) from that of the users and (2) from that of the information technology (IT) administrators who are responsible for OLAP implementation. The users, typically business managers and analysts, see OLAP as a way to gain rapid access to business data. They expect the data to be organized according to categories that reflect the way in which they think about the enterprise. For IT administrators, OLAP can present a long list of technical issues, including concerns about

- storage requirements and associated costs
- client/server capabilities
- maintenance activities such as update and backup
- performance considerations such as the amount of time required to build a multidimensional model
- the ability of the OLAP solution to integrate with current or planned data warehouse strategies and architectures.

The challenge for IT administrators charged with implementing OLAP is to find a solution that will both supply the functionality that users expect and address these technical considerations. To satisfy users' OLAP requirements and to answer technical

issues associated with implementing OLAP solutions, SAS Institute provides a variety of OLAP tools, including the following:

- □ SAS OLAP Server software
- □ SAS/MDDB Server software
- □ Open OLAP Server software, a component of SAS/MDDB Server software
- □ SAS/EIS software
- □ MDDB Report Viewer application of SAS/IntrNet software
- □ AppDev Studio software.

What Is SAS OLAP Server Software?

The SAS OLAP Server provides the components that users need to perform multidimensional data analysis in the OS/390 environment. The SAS OLAP Server components include SAS/MDDB Server software, as well as additional capabilities that enable users to register OLAP cubes, generate HOLAP (Hybrid OLAP) registrations, and define and manage Access Control definitions. These components facilitate the implementation of OLAP solutions on expanded platforms for AppDev Studio and the MDDB Report Viewer (MRV), specifically in the OS/390 environment.

The SAS OLAP Server features also include the following:

- □ *Access Control*, which enables OLAP Server administrators to manage user and group access to data, applications, and product functions. In addition, several classes enable administrators to customize access behaviors for their sites.
- □ *Model Coordinator Class*, which enables users to run multiple viewers at once and to display the same subsets of the data in each viewer.

What Is SAS/MDDB Server Software?

SAS/MDDB Server software enables users to create and manage multidimensional databases (MDDBs) to provide fast and easy data access by tools such as multidimensional data viewers. Used as a data summarization, storage, and retrieval mechanism for an organization's OLAP solution, MDDBs enable better decision making by giving business users quick, unlimited views of multiple relationships in large volumes of summarized data at any cross-section of business dimensions. A business dimension can be any vision of the data that is useful in making business decisions—for example, time, geography, or product.

Taking advantage of a graphical user interface or a programming interface, you can use SAS/MDDB Server software to quickly and easily build, maintain, and optimize multidimensional data. For example, you can

- □ use warehouse data to design multidimensional data models based on the least amount of summarization, the most amount of summarization, or projections of the summarizations most likely to be requested by users
- □ build multidimensional data structures for interactive or batch submission
- □ change the way that multidimensional data is structured
- □ control which statistics are stored with which multidimensional data structures
- □ control the balance between storage and performance
- □ perform incremental updates.

SAS/MDDB Server software provides all the functionality expected by those who will use the system, while meeting all the technical requirements of IT. For users,

SAS/MDDB Server software provides fast access to large amounts of shared data through a wealth of OLAP client capabilities. IT administrators can use SAS/MDDB Server software to implement an OLAP solution that enables them to seamlessly integrate MDDBs with transactional systems, existing warehouse data, and powerful client applications.

What Is Open OLAP Server Software?

The Open OLAP Server enables users to access multidimensional data (for example, an MDDB) stored in SAS software from an external source. The Open OLAP Server supports Microsoft Corporation's OLE DB for OLAP API.

What Is SAS/EIS Software?

SAS/EIS software provides a syntax-free environment for building user-friendly enterprise information systems. SAS/EIS software takes advantage of object-oriented applications development technology by allowing you to use blocks of already existing code to build new, customized applications. As a client application component of the OLAP solution, SAS/EIS software enables users to build, analyze, and view multidimensional data using a variety of ready-made, reusable objects.

What Is the MDDB Report Viewer?

The MDDB Report Viewer enables users to generate and view reports and graphs of data that are stored in an MDDB without running a SAS session. This Web-enabled client application component of the OLAP solution provides another method for users to view and create reports using multidimensional data. As an enterprise tool, the MDDB Report Viewer provides a simple, easy-to-use tool for users whose application needs do not require that SAS software be installed on every machine.

The MDDB Report Viewer is a component of SAS/IntrNet software.

Who Should Read This Document?

The information in this document is intended to help SAS OLAP Server software administrators understand how to do the following:

- ☐ Use the access control features of the SAS OLAP Server product.
- ☐ Set up metadata for the HOLAP data model (Multidimensional Data Provider or MDP) and use it with SAS OLAP Server applications.
- ☐ Optimize the OLAP environment when you move applications into production.
- ☐ Use object-oriented programming techniques to extend OLAP applications.

In addition, SAS/EIS software administrators and SAS/MDDB Server administrators will benefit from information in several sections of this book, depending on how their OLAP environment is maintained and the types of applications they are using in that environment.

Software Requirements

A SAS OLAP Server software license or a SAS/MDDB Server software license is required to build permanent MDDBs, which can be used with SAS software Version 8 and later. MDDBs created in Version 8 cannot be accessed by previous releases.

There are several ways of creating MDDBs, so depending on the one you choose, you might need to license additional SAS software products. The set of SAS software products that you need to exploit MDDBs after you create them also depends on how you plan to use your MDDBs. The following sections provide details about the software requirements for creating and using MDDBs.

Software Requirements for Using MDDBs

Once an MDDB is built, you can distribute it to any supported platforms where it will be used. SAS/MDDB Server software need not reside on a platform where the MDDBs will be used. There are three ways that MDDBs can be used, each with different software requirements:

SAS/EIS software
    The required products for using MDDBs with SAS/EIS software are base SAS software, SAS/EIS software, SAS/AF software, SAS/FSP software, SAS/GRAPH software, and, if the MDDB is located on a remote server, SAS/CONNECT software.

SAS/AF software
    The required products for using MDDBs with SAS/AF software are base SAS software, SAS/MDDB Server software, and SAS/AF software.

MDDB Report Viewer application
    The required products for using MDDBs with the MDDB Report Viewer application are base SAS software, SAS/EIS software, SAS/IntrNet software, and SAS/GRAPH software, all installed on the SAS/IntrNet application server. Users employing a web browser on the client platform will access MDDBs that reside on a web server; base SAS software does not need to be installed on the client platform.

For details on transporting files between platforms, see "Transporting MDDBs across Operating Environments" on page 37.

Getting Help

You can turn to several sources for more information on the software described in this book.

Access the online Help from any SAS window for the following:

□ SAS OLAP Server software

□ SAS/MDDB Server software (search for PROC MDDB or individual MDDB classes)

□ Open OLAP Server software

□ MDDB Report Viewer

□ SAS/EIS software

□ AppDev Studio software.

In addition, you can refer to the following for additional information on SAS/EIS software:

☐ *Getting Started with SAS/EIS Software*, which provides step-by-step instructions on how to access the SAS/EIS windows, how to build applications, and how to produce reports.

☐ *Getting Started with SAS/EIS Software-Online Tutorial* walks you through a series of tasks that illustrate how to use the features of the product.