Now that you’ve been introduced to OLAP modeling concepts, let’s take a look at OLAP modeling with SQL Server Analysis Services (SSAS). In this chapter, you will continue to discover OLAP modeling concepts and techniques using SSAS, and you will build your first cube. It is quite common to prototype cubes built on subsets of enterprise data quickly in a BI project. As with any other type of development, you can expect cube development to be iterative. Generally, extract, transform, and load (ETL) development runs somewhat concurrently to these cube iterations, assuming that you have the resources to commit to both of these processes.

This chapter assumes you have a couple of populated star schemas in SQL Server to work with. The data in the samples are, of course, very clean. This is not to ignore the real-world situation of data cleansing, validation, and transformation; rather, it allows you to focus on cube building using the many features available in SSAS. So, you’ll use the handy AdventureWorks 2008R2 sample that is part of the SQL Server sample databases as a source for building your first cube. If you haven’t yet installed the sample database, refer to the explanation in “Building the First Sample—Using AdventureWorks” in Chapter 1. This chapter will cover the following topics:

- Using SSAS in BIDS, and understanding the development environment
- Creating data sources and Data Source View objects
- Creating cubes using the UDM and the Cube Build Wizard
- Refining dimensions and measures in BIDS

Using BIDS to Build a Cube

In this section, you will use the Business Intelligence Development Studio (BIDS) to create SSAS cubes. This environment is also used to create SSAS data mining structures and models (which are covered in Chapter 14) and SQL Server Reporting Services reports and report models (covered in Chapter 10). To start your work, open BIDS, and select File ➤ New ➤ Project. Select the Analysis Services Project template under the “Visual Studio installed templates” heading, as shown in Figure 3–1.
Figure 3–1. The New Project dialog box in BIDS allows you to select project templates to create a new Analysis Services solution or to import an SSAS database.

In Solution Explorer, you’ll note several new folders or nodes. Each node is designed to hold a different type of item or file. The first node, Data Sources, will contain connections that can be used in multiple packages. A data source stores server, database, and security information. Data Source Views (DSVs), shown in the second node, are defined against one of your data sources. These views, which are analogous to database views, allow you to create calculated columns and define relationships between tables in the DSV. DSVs are an important feature for SSAS designers who want to make usability improvements against the star schema. In some situations, SSAS designers will not have permissions to create objects (such as views) in source star schema databases.

Some of the enhancements that can be made via DSVs are as follows:

- Rename tables or columns to create more end-user friendly names.
- Add calculated columns, which can include column concatenations, or other manipulations that the source database understands (in our case, using T-SQL).
- Remove columns that are not needed for the UDM.
- Add derived measures to the fact table, much like calculated columns for the dimension tables (in our case using T-SQL).