Microsoft® Office PerformancePoint™ Server 2007

Planning

Training Manual – CTP4

Delivered By

IT MENTORS
Mind Over Software

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www.itmentors.com

Introduction

- Name
- Company affiliation
- Title/function
- Job responsibility
- CPM experience
- Expectations for the course

Microsoft
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Course Materials

- Name card
- Student Presentation Manual
- Student Lab Manual
- Lab Machine
- Course evaluation

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Course Outline

- **Module 1:** Business Integration
- **Module 2:** Architecture
- **Module 3:** Application Fundamentals
- **Module 4:** Models and Dimensions
- **Module 5:** Data Loading
- **Module 6:** Business Roles Security
- **Module 7:** Excel Add-In Fundamentals
- **Module 8:** Rules and Calculations
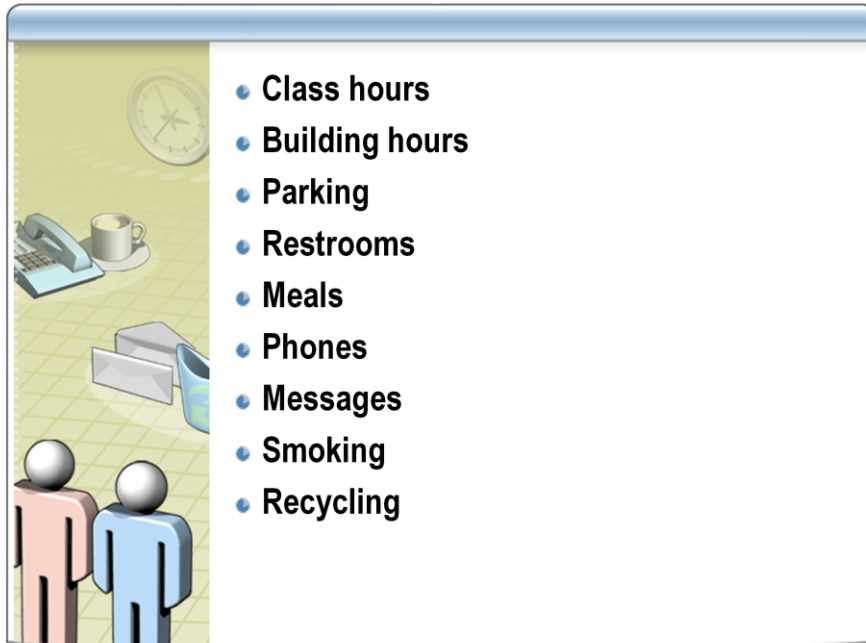- **Module 9:** Process Management

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Initial Logon Procedure

- Account: administrator
- Password: pass@word1

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Facilities

- Class hours
- Building hours
- Parking
- Restrooms
- Meals
- Phones
- Messages
- Smoking
- Recycling

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Chapter 1 – Introduction

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Module 1: Introducing Microsoft® Office PerformancePoint™ Server 2007

Agenda

- **Microsoft Performance Management Strategy**
- **Customer goals and objectives for PerformancePoint Server**
- **PerformancePoint Server functional overview**
- **PerformancePoint Server financial and business intelligence review**

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Microsoft BI Vision

Improving organizations by providing business insights to all employees leading to better, faster, more relevant decisions

- Complete and integrated performance management offering.
- Pervasive delivery of intelligence through Microsoft Office.
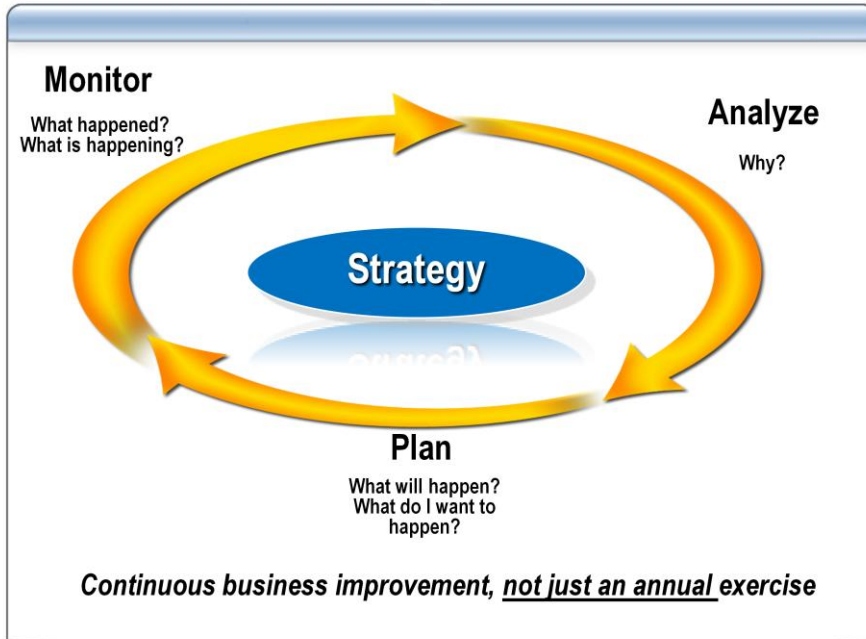- Enterprise grade and affordable.

Better Company

Strategic   Tactical   Operational

Right Information   Right Time   Right Format

Microsoft Office PerformancePoint Server 2007

Our Integrated BI Offering

Performance Management: Better Execute on Strategy

Continuous business improvement, not just an annual exercise

Monitoring - What is happening? What Happened?

- Enable business performance to be measured by achievement on key performance indicators at all levels of a business / organization
    - Scorecards and KPIs are cascaded through-out the business to align, monitor and drive performance

Analysis – Why?

- Enable business users to easily analyze key business measures (sales, profitability…) by eg product, customer, channel, segment…
    - Know the most profitable/unprofitable customers, products, channels, regions..

Planning - What do I want to happen? What will happen?

- Enable planning to be based on a model for each business area with accurate measure of resources and results
    - Assumptions and business drivers are part of the system, not offline
    - Model 'what if' outcomes to determine best course, alternatives and opportunities

Financial Management Goals

Automate
- Reduce reporting cycles and support increasing compliance requirements
- Support Multiple GAAP reporting
    - Manage complex legal and management reporting hierarchies
    - Create consistent business rule definitions that exist outside the GL

Gain Insight
- Analyze key financial and non-financial information
    - Knowing your most profitable/unprofitable customers, products, channels, regions, and so on
    - Identifying, measuring, and monitoring KPIs
    - Foreign currency reporting and variance analysis
    - Competitive benchmarking and analysis

Achieve World-Class Performance
- Improve efficiency of the finance function
- Reduce costs
- Develop role as business and financial strategist

Planning, Budgeting, and Forecasting Goals

Agility
- Mapping between high level plan and detailed budget/actual is explicit and linked
- Top-level changes can be "pushed" into budget for "ballpark" alignment or detailed budget can be "scored" for discrepancies
- Plans are based on key business drivers

Alignment
- Results are measured by achievement on key performance indicators, not expenses
- Plans are based on a model for each business area
  - High level and accurate measure of resources and results
  - Easy to run and consolidate
  - Assumptions are built into the system, not external to it
- Highlights resource expenditures versus results across all businesses

Accountability
- Business unit managers spend more time on planning/managing business drivers
- Budget is more automated; budget and plan are consistent
- Key business drivers and forecast assumptions are captured in the system
- Plans/forecasts are generated on a rolling basis

PerformancePoint Server:
## What Is It? What Does It Do?
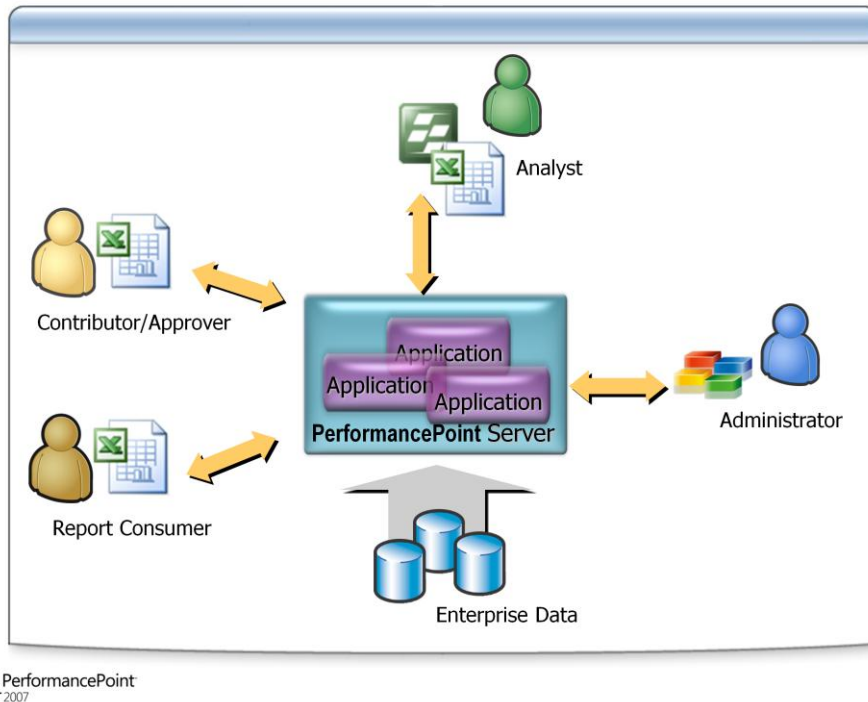
What is PerformancePoint Server?

- The Planning Server, Planning Business Modeler, and PerformancePoint Add-in for Excel suite of applications enables you to build a foundation of useful, actionable business information that pertains to finance, management, sales, marketing, manufacturing, and human resources. The Planning Server components let you monitor and analyze business data and critical assumptions and, most important, to reveal key business drivers and potential projections. This enables business managers to be proactive instead of reactive.

- Planning Server provides the infrastructure between the PerformancePoint client tier, the Microsoft SQL Server 2005-based databases, and SQL Server 2005 Analysis Services-based cubes. Planning Server supplies a run-time environment for business analysts who design and create business applications by using Planning Business Modeler and for their end users, the consumers of those applications.

Planning Server has the following features:

- It is built on the SQL Server database platform.

- It uses Microsoft Office Excel for line-of-business (LOB) reporting and analysis. This makes learning faster and easier for both information technology (IT) professionals and end users.

- Provides a consistent and timely view into a business by using data from multiple systems that are already in place, without changing those systems.

- Centrally manages business logic and business metadata.

- Allows business analysts, through Planning Business Modeler, to access Planning Server data views and create model sites, data mappings, and applications, all of which end users can access through PerformancePoint Add-in for Excel.

## PerformancePoint Server Functional Architecture
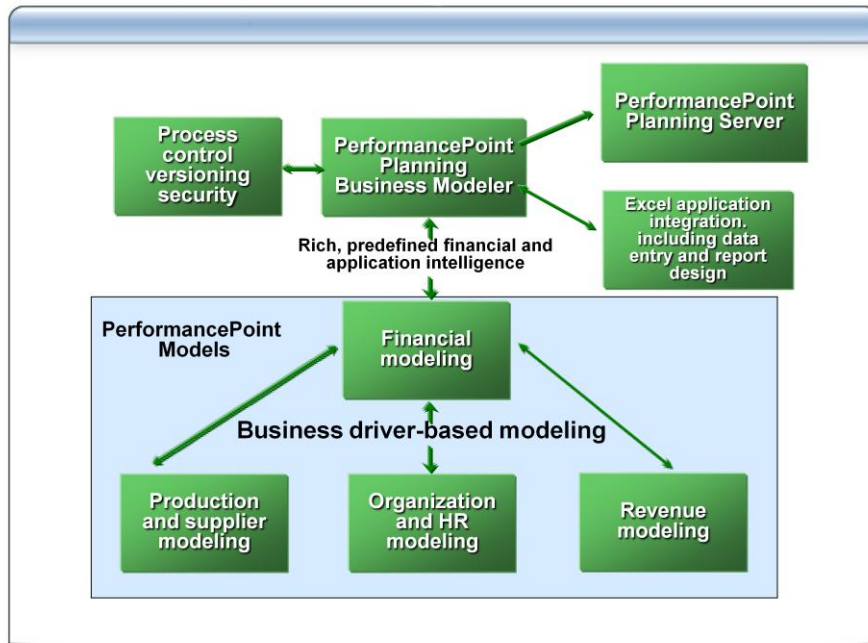
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Complete end-user experience for building PerformancePoint Server applications – designed specifically for financial and business analysts

- End user experience through Excel & SharePoint Portal Server (SPS)
- Design and running of reports and analysis
- Data entry
- Distribution and consumption of information

Application Scenarios

- Integrated target setting
- Scorecards showing current results and progress towards objectives
- Collaborative forecasting to synchronize Sales, Production, and Finance
- Sales and profitability analysis by product, customer, and channel
- Synchronizing changes across systems for re-orgs
- Compliance

Consistent Business Definitions
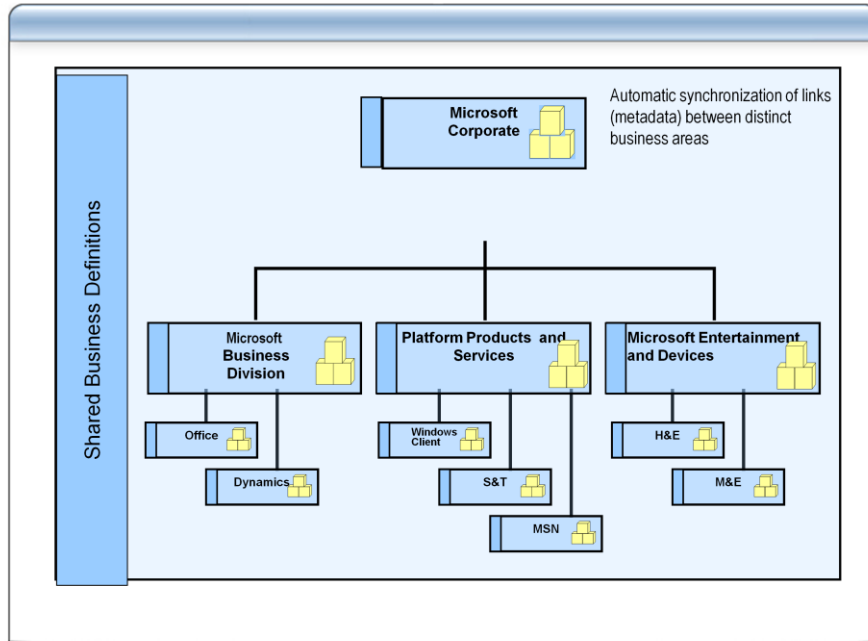
Express corporate view and distinct view of each major business

- Support tops-down/ bottoms-up integration
- Support consolidation, reporting, planning in matrix organizations
- Provide shared mapping and business rules
- Provide re-use of business rules and mapping structures through metadata
- Enable each distinct business area to extend, create and manage its own business models

Financial Intelligence

Financial Intelligence
- Business Modeling, including financial modeling of income statement, balance sheet, cash flow
- Calculation rules
    - Business drivers, ratios
    - Allocations, validations
    - User defined
- Multi-currency conversions and automated adjustments
- Intercompany eliminations and reconciliations
- Consolidation rules and adjustments for partial ownerships
    - Acquisition, equity, investment methods
    - % ownership and control, investment in subs
    - Minority interest
    - Group/consolidation interest
    - Goodwill/badwill treatment
- Journals

Excel Integration

Excel Integration

- Design data entry form and report templates in Excel
- Use interactive model calculations when entering data or viewing forms and reports
- Enter data offline
- Annotate model data through forms and reports
- Process integration to submit, review, reject and approve form submissions
- Launch application server routines such as consolidations

Security

Security, Permissions, Audit

- Role and template based
- Permissions for application access and actions
- Permissions for data access and actions
- Full "cradle to grave" audit trail for both data and application changes

Process Management

Process Management

- Create discreet and recurring cycles for management processes
- Create and assign status for versions of cycles
- Assign and manage data entry forms
- Assign process status to data
- Determine submission and review/approval deadlines
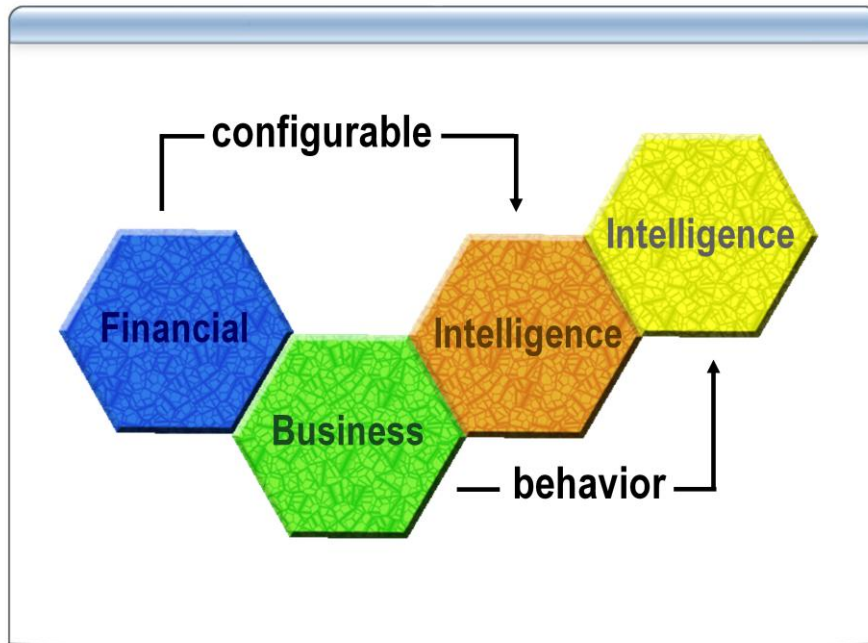- Receive alerts and notifications in Outlook
- Use status tracking

Data Management Control

Data Management Control
- Load data from ERP/LOB systems
- Load data from Excel

Financial and Business Intelligence

Dimensions with built in intelligence:

- Account, Entity, Flow, Time Currency, Exchange Rate, Business Process, Scenario

Assignable dimension member "Types" to drive financial and business behavior

- Account types, Exchange Rate Types, Entity Types….

Business models with built-in intelligence

- Consolidation, Planning Budgeting Forecasting, Generic…

Business rules with built-in intelligence

- Consolidation, Currency translation and adjustments, Intercompany eliminations and reconciliations, validations, allocations, mappings, business drivers, regular calculations, ratios…

**Business Process design and control**

- Design processes for regular information and reporting needs and associated security settings
- Audit trail

Form and Report design in Excel

- End users use Excel for entering and reviewing data through forms and reports

PerformancePoint Scorecard Builder integration for Scorecard, KPIs and Management Portal views

Business Type Libraries
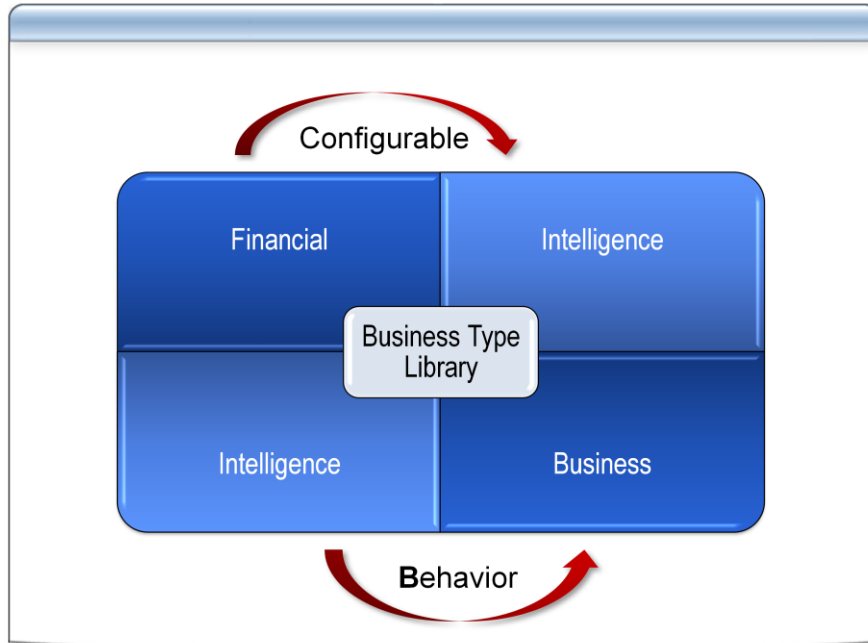
PerformancePoint Business type library

- Provides the ability for the user to create new member, property, dimension… and automatically inherit behavior by tagging these new objects with the appropriate types.
- Provides unified fundamental building blocks and a reliable framework across a PerformancePoint application that ensures the integrity of the business rules and data.
- Derives automatic behavior in a model but also across models.

Business Type Library Example
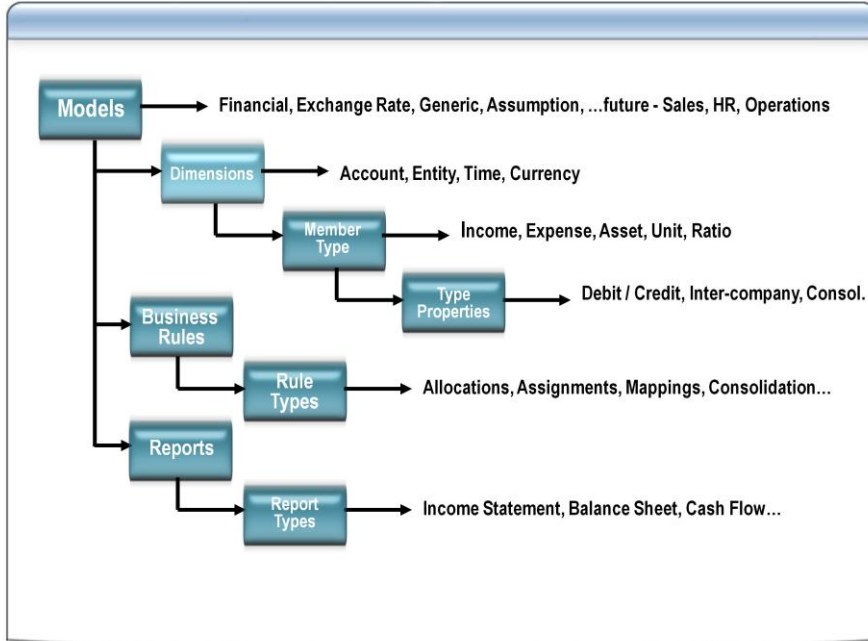
Case Study Example

ASH – Alpine Ski House

Is a holding company for a large, multinational ski resort operation, Alpine Ski House Resorts (ASHR)

Has resorts in the U.S., Canada, Germany, France and Japan

Owns a 27% interest in a bicycle manufacturer, Mittenwald Cycles and Manufacturing (MWCM)

Is exploring the possibility of acquiring controlling interest in MWCM

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ASH – Business Flow

- Performs all external reporting and planning functions by using Excel spreadsheets.
- Has problems accessing shared files by some of their resorts.
- Has problems with version control of files.
- Performs forecast monthly.
- Produces budgets once a year.
- Centers on three key areas: Headcount, Capital, and Operating Expenditures.
- Because of differences in dimensionality, Headcount has its own process.
- Capital and Operating Expenditures could be combined into a single process.
- Certain corporate costs are allocated to the Resorts and others remain in Corporate.
- The Resorts forecast and budget Headcount, Capital and Operating Expenditures.
- The Resorts create budgets for Revenue and COGS.
- Forecasts/Budget results are merged into a single "Resort Management Reporting" process.
- Resort and Corporate data are then merged into the "Corporate Management Reporting" process.

Questions
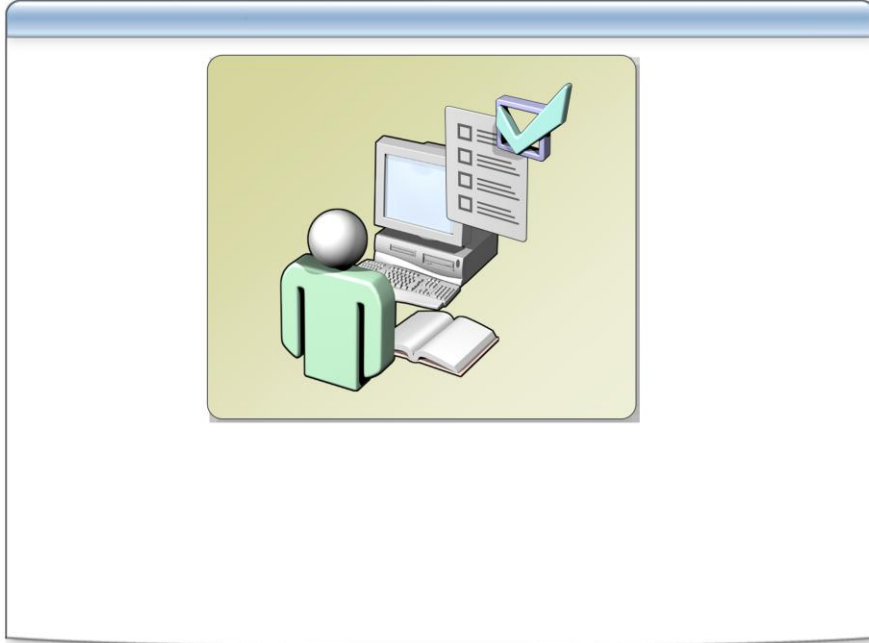
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Chapter 2 – Architecture

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Module 2:
Microsoft® Office
PerformancePoint™ Server
Product Architecture

Agenda

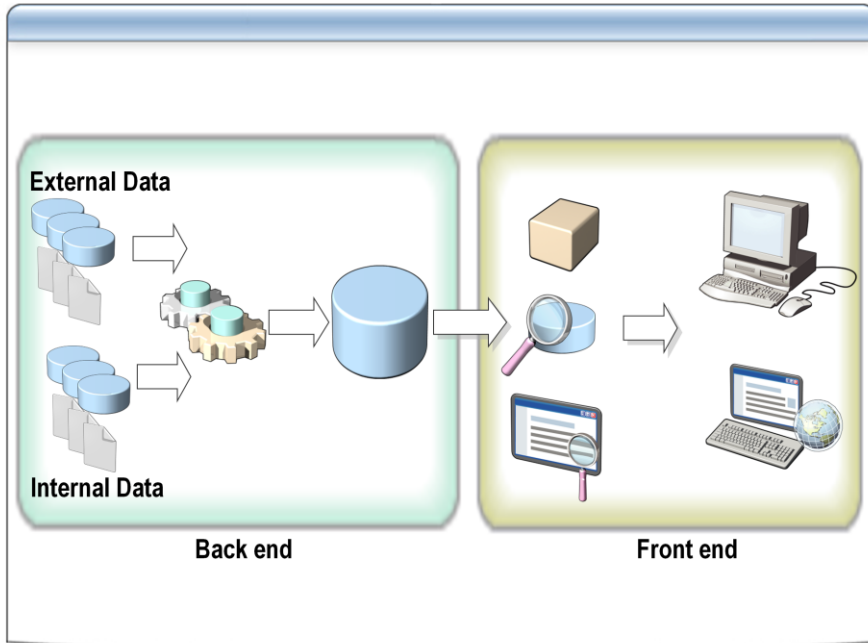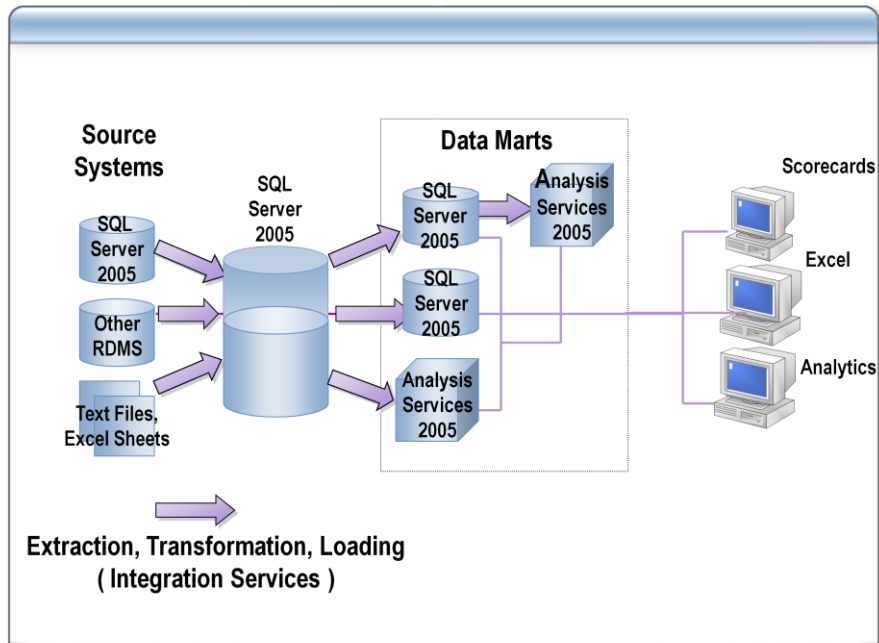- **What does a PerformancePoint Server solution look like?**
- **How do end users interact with a PerformancePoint Server solution?**
- **How do analysts build a PerformancePoint Server solution?**
- **What are the functional components of PerformancePoint Server?**
  - Architecture
  - PerformancePoint Server Process Flow

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Components and Processes

Architecture

Source Systems → SQL Server 2005 → **Data Marts** (SQL Server 2005, SQL Server 2005, Analysis Services 2005, Analysis Services 2005) → Scorecards, Excel, Analytics

Source systems: SQL Server 2005, Other RDMS, Text Files, Excel Sheets

Extraction, Transformation, Loading (Integration Services)

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Introduction

- A data mart is a relational or multidimensional database that contains data for a particular subject area or department. It typically includes all information that covers a single business area, such as customers, products, and sales.
- A relational data mart is stored in a relational database such as Microsoft SQL Server.

Relational data mart

- The advantages of a relational data mart are that it supports a wide variety of applications that are based upon the SQL language and that it does not require a specialized OLAP system.
- Complex queries against relational data marts, or queries that analyze large amounts of data, however, can perform poorly.

Multidimensional data mart

- A multidimensional data mart stores its data in an inherently multidimensional format, referred to as a cube. In addition, it stores numeric summaries of data that are called aggregations. They support fast query response time for requests that are made at a higher level, such as sales for all stores in a state as opposed to sales for all stores in a particular city.
- Finally, multidimensional data marts do not store empty fields. Unlike a relational data mart which is based upon uniform rows and columns, multidimensional data marts do not allocate space for fields that do not contain data.
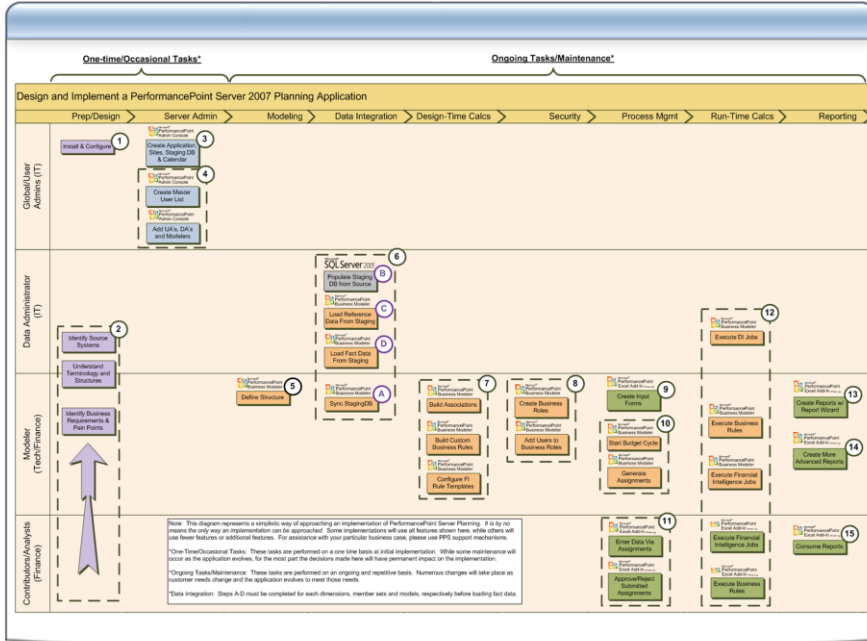
PerformancePoint Server Solution Overview
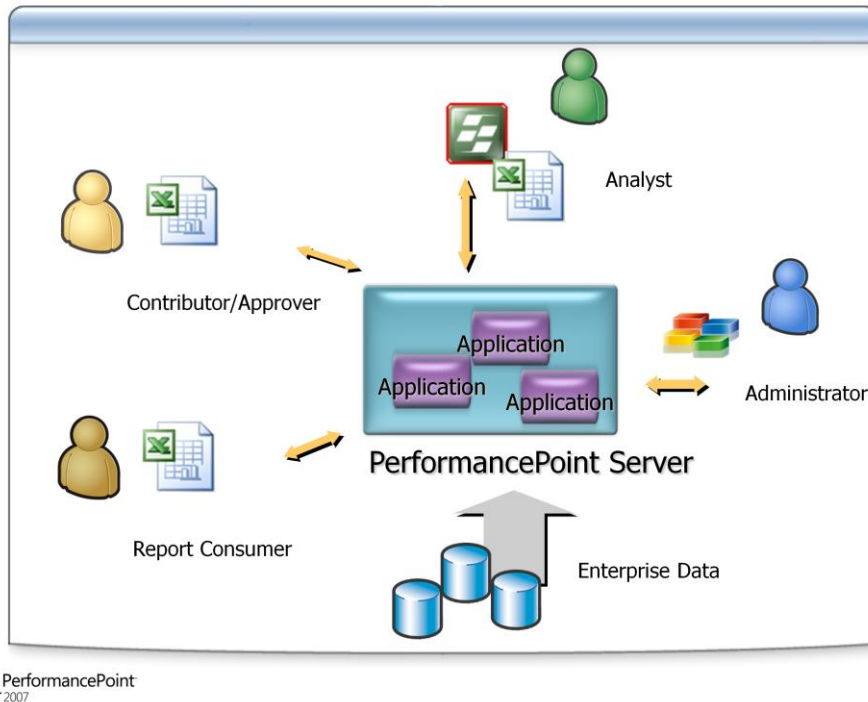
Solution Overview

- In PerformancePoint Planning Business Modeler, an application defines models, forms and reports, local and shared dimensions, and associated business processes. As a result, applications can be used to represent logical, existing organizations within your enterprise. For example, if your company has several divisions working on unrelated projects, separate applications might be needed for each group.

- In PerformancePoint Planning Server, applications can be created in PerformancePoint Planning Server by a user who is assigned to the Global Administrator role. Users who are assigned to either the Global Administrator role or the Modeler role can manage an application in PerformancePoint Planning Business Modeler.

- A PerformancePoint Planning Server administrator who creates an application can specify information such as databases, servers, and URLs for Windows SharePoint Services sites.

PerformancePoint Server Planning Life Cycle

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Functional Overview of PerformancePoint Server Architecture
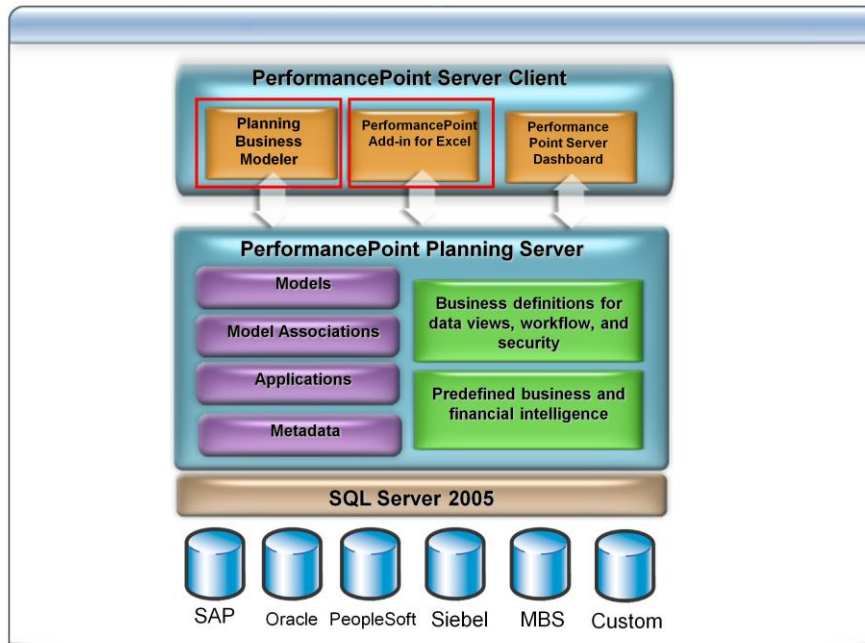
Complete end-user experience for building PerformancePoint applications – designed specifically for financial and business analysts

Extending the value of Microsoft BI platform:
- SQL Server
- Analysis Services
- Reporting Services
- Integration Services

End-user applications through Office that provide
- design and running of reports/analysis
- data entry
- consumption of information through SharePoint Portal Server

PerformancePoint Server Applications:
- Business analytics
- Scorecard management
- Financial reporting
- Consolidation
- Planning
- Budgeting
- Forecasting

PerformancePoint Server Application Components
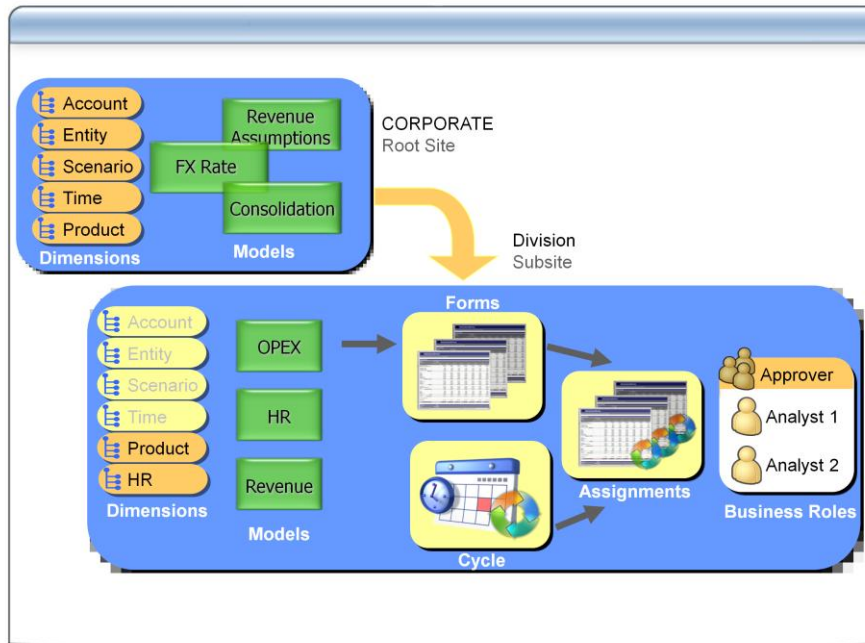
Applications

- Model sites are used to define all business logic and calculations for PerformancePoint Planning Business Modeler business intelligence. Model sites can also contain model subsites, shared libraries for the exclusive use of those model subsites, security information, and task and process scheduling information. Model sites and model subsites are the basic data storage unit in PerformancePoint Planning Business Modeler.

Application Overview
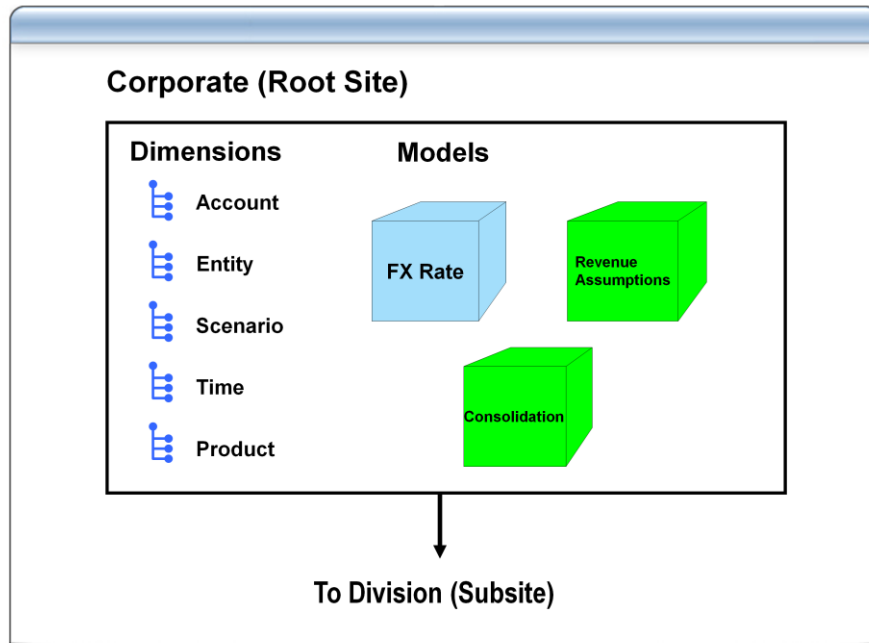
Root Site

- The root model site is the top of the model site hierarchy for an entire application. The root model site contains predefined dimensions, global assumptions models for all subsites, and a shared type library. Some or all dimensions in the root model site might be shared, making them available to the model subsites. Dimensions that are not shared are only available to the root model site.

Application Overview – cont.
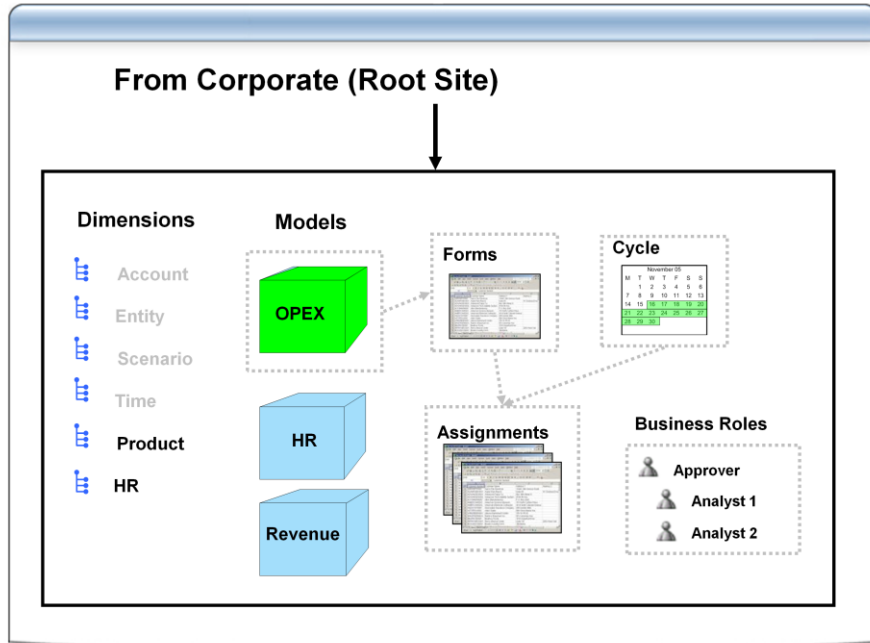
PerformancePoint Server Architectural Flow
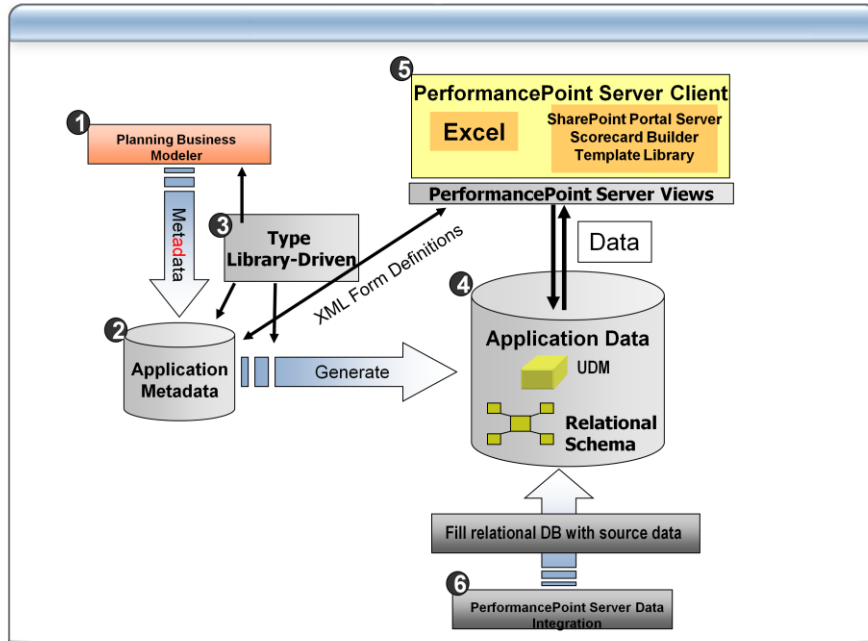
UDM

- Stands for Unified Data Model. It is a concept to take the best benefits of a relational scheme and an analytical scheme. Above you can see in the application data area that PerformancePoint Server supports this with a relational scheme for the application DB and an analysis cube that is used for Models.

Metadata

- When defining Dim, Hierarchy, views, and models through Planning Business Modeler, metadata is created for the application and that metadata is used to generate the application database and the UDM (Cubes).

Reporting

- The core for reporting is through the models (cube) by using clients such as Excel, ProClarity, or others.

ETL

- An Extract, Transform, and Load (ETL) process is required to move data from the Enterprise data source into a staging area to be moved into the application database.

Application Metadata
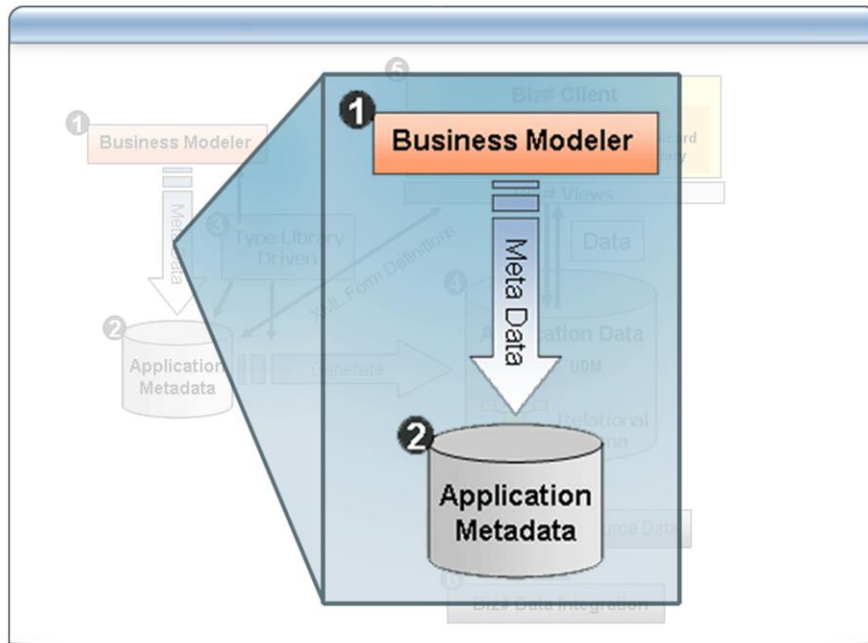
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Application metadata is represented through Business Modeling Object (BMO).

- Application
- Model Site, Sub Model Site
- Dimension, Member Set, Member Set View
  - Type metadata (pre-defined content)
  - Structure metadata
  - Reference metadata (members)
- Model, Assumption, Model Extension (sub Model)
- Business calculation and rules
- Forms and Reports
- Business Process
  - Cycle, Assignment, Job, Schedule
- Security
  - User, Role, Permission
  - Out-of-box dynamic security

Planning Business Modeler creates and maintains application metadata.

- Metadata is saved back to the server (through Web services) and persisted in relational metadata store.
- Based on the metadata, appropriate relational and OLAP structures are generated.

Application Generation
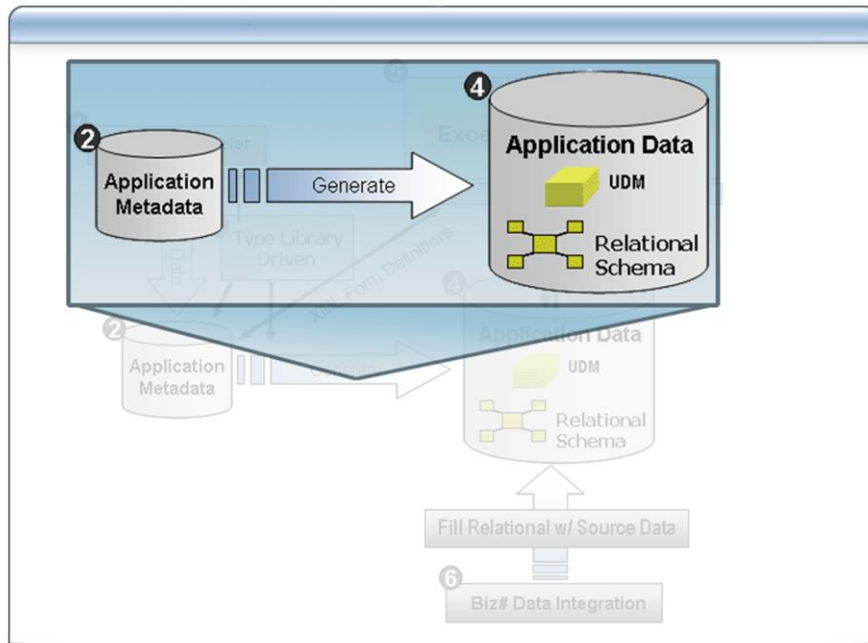
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Metadata based application generation

Each model site is generated into a separate relational + OLAP store.

Use a shared DB store for metadata sharing so that changes can be applied to sub model sites. Also allows sub site private member/structures.

OLAP structure is generated into SQL Server 2005 UDM

- One primary Parent / Child hierarchy for each dimension except time and other native level-based dimension. Different models can use different P-C hierarchies all based on the same base dimensional data.
- Hierarchies are Attribute-based
- Financial intelligence is embedded in attribute values
- Assumptions are linked in through measure groups
- Use Named Query DSV for shared members across sites
- Use multiple data sources to link up member data and fact data from different data sources.
- Leverage the incremental deployment feature of SQL Server Analysis Services.
- Most calculations are generated as MDX scripts.
- Support multiple parent entity hierarchies relationships (for consolidation) and use consolidation engine to aggregate along entity hierarchies.

Where Does PerformancePoint Server Store Data?

- Where is the model stored?
- Where is user-entered data stored?
- Where is the built-in financial intelligence stored?
- Where is the system data stored?

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SSAS Cube

Measure Groups (Fact Tables)

Metadata (App DB)

PPSPlanningService/PPSPlanningSystem

Storage and Data Access Layer (DAL)
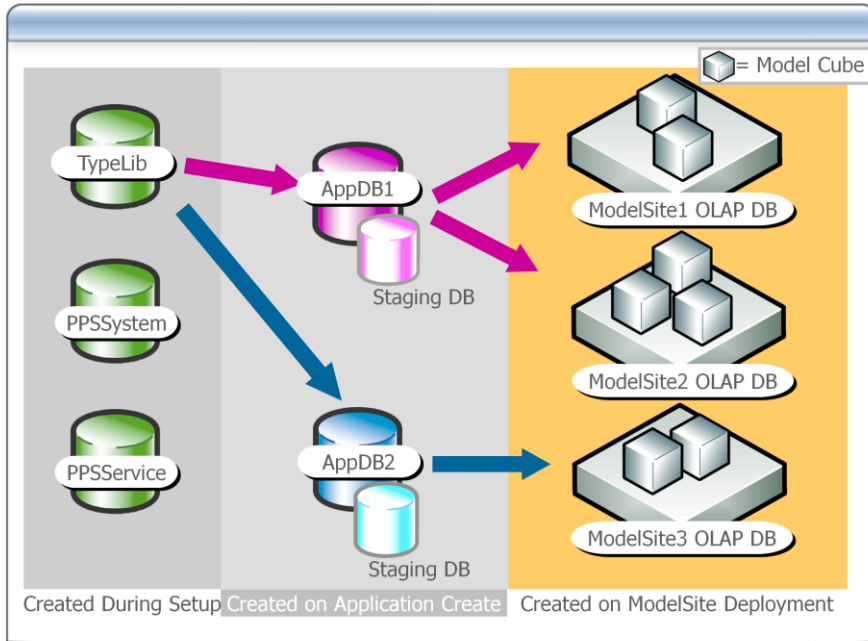
Architecture for Dynamics AX
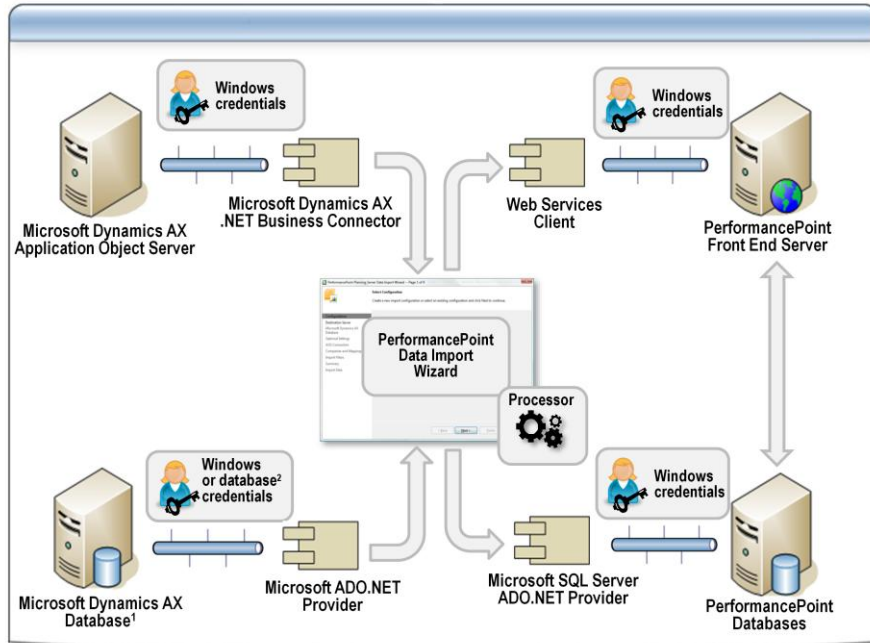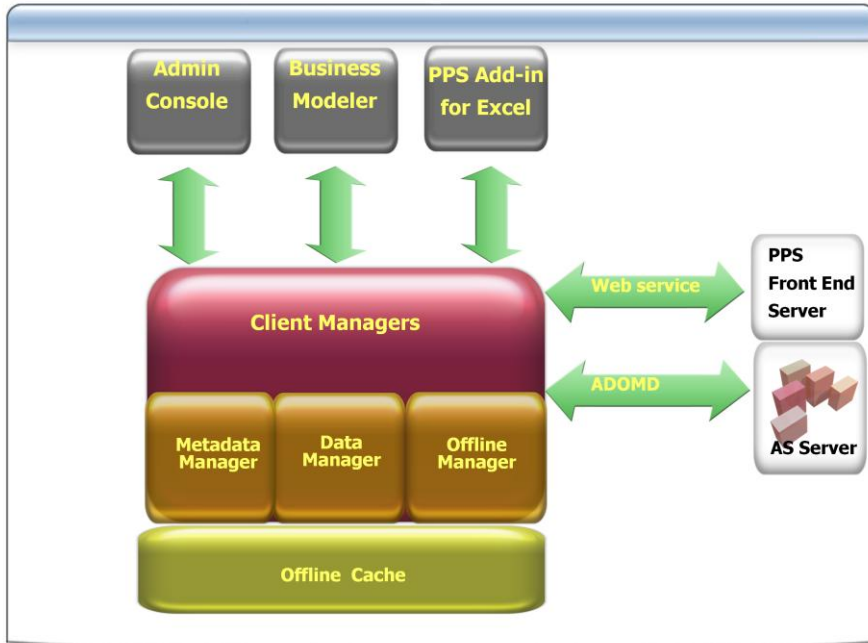
Client Architecture

Front End Server
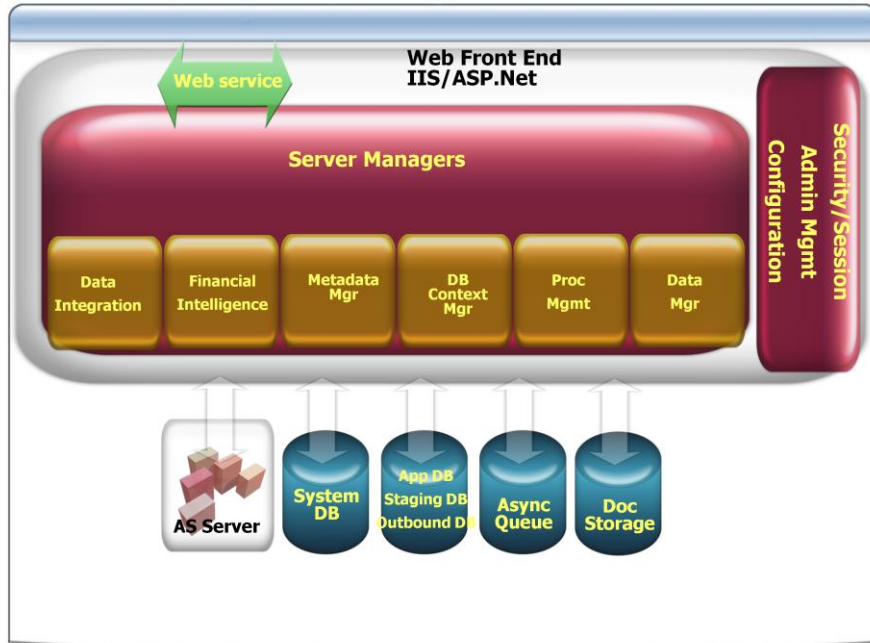
Back End Server
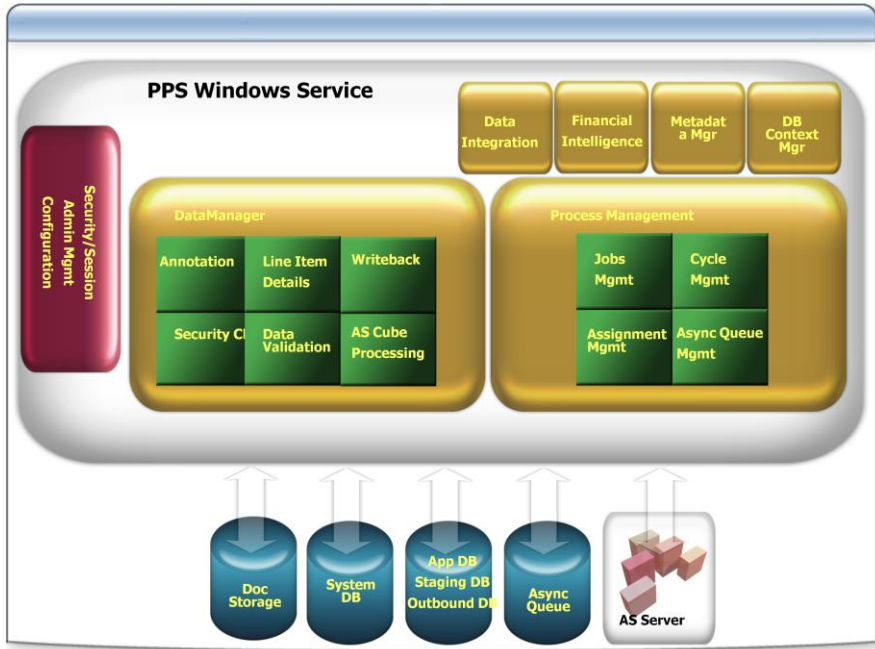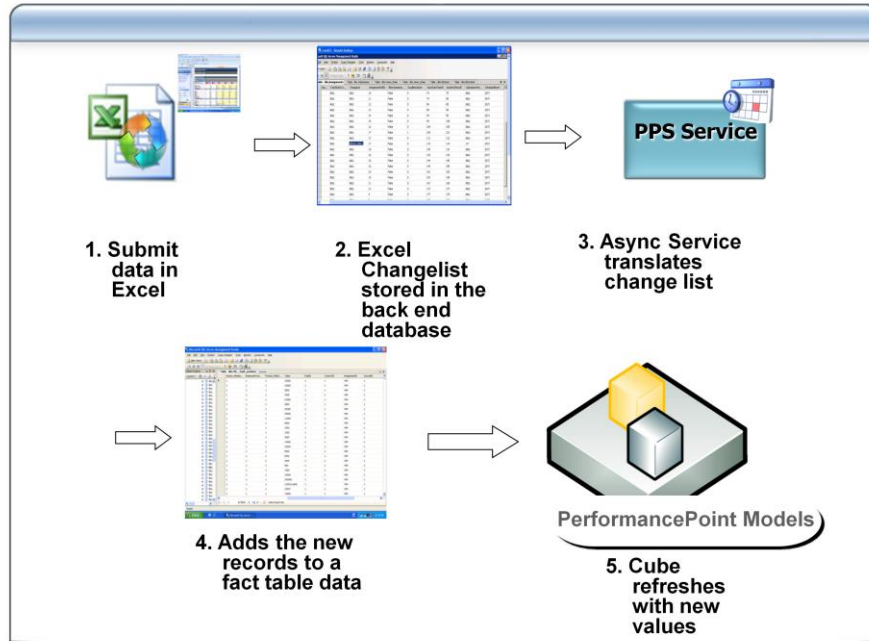
Write-back functionality in PPS-Plan

Write-back functionality in PPS-Plan

- When values are submitted in Excel it stores a change list
- Change list is sent back to the server and stored for that assignment
- On "submit" asynchronous service queues the changelist for processing
- Submission processing translates the table into a temporary data table and validates the entries before replacing/inserting fact data
- Re-processing the Cube refreshes with the model with the new values
- Appears to be a cube write back – but it isn't
    - Provides additional security/process control
    - Async processing supports multi-user better
    - Complete audit trail

Questions
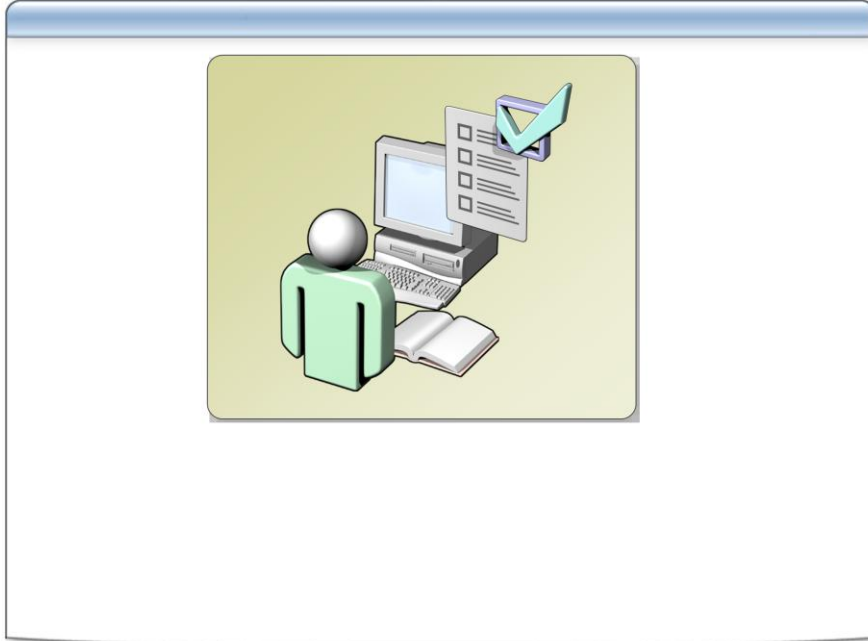
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Chapter 3 – Application Fundamentals

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Module 3:
Application Basics

Planning Administration Console
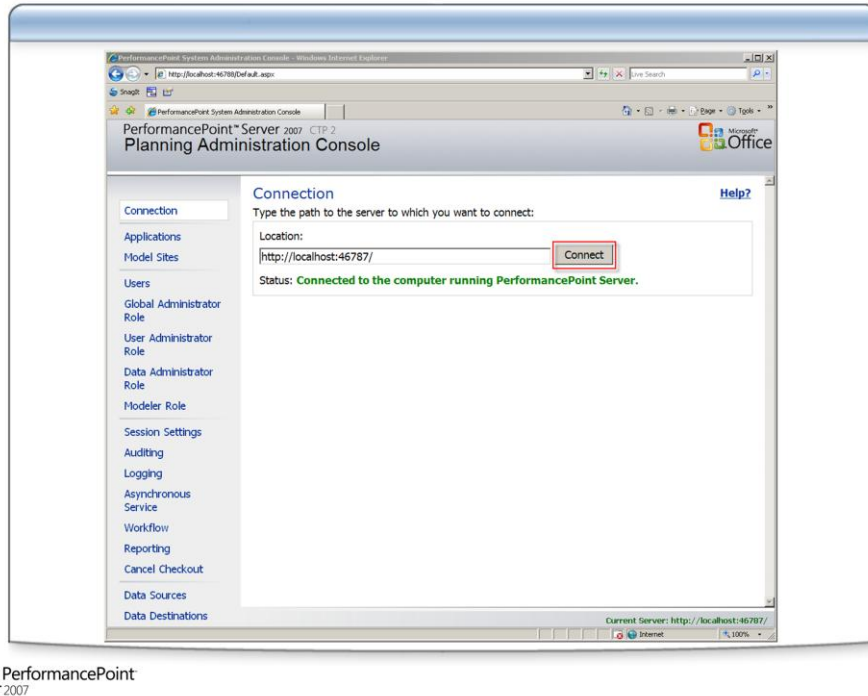
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Administrative interface to
- Configure server settings
- Create & configure applications and models
- Configure security settings
- ASP.NET application run out of port 46788

Connection:
- Enter the location of the Performance Point Server Web service that hosts the location where your application will be stored.

Security:
- All domain users can access the Planning Administration Console; however, a user must be a member of either the Global Administrator role or Modeler role to connect to the computer running PerformancePoint Server. After a user is connected to the PerformancePoint Server system, the options in the left navigation pane of the Planning Administration Console are activated, and the user has full access to the entire Planning Administration Console.

Creating Applications
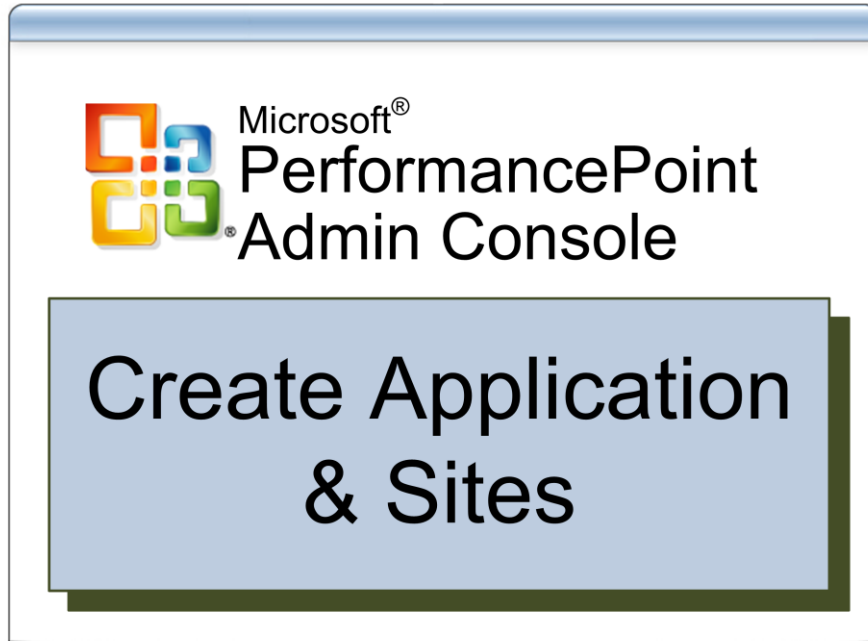
Planning Applications

- **An application is the largest unit in PerformancePoint Server. A PerformancePoint Server application is the container for:**

  A tree of one root model site and any number of model subsites.

- **An application contains assumptions and metadata for**

  Pre-defined and user-defined dimensions

  Forms and reports

  Business model definitions

  Assumption models

  Permissions and security

  Process management

  Other metadata

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Applications:

- An application defines models, forms and reports, local and shared dimensions, and associated business processes. In PerformancePoint Planning Server, an application often represents the existing logical organization of your enterprise. For example, if your company has one group of people working on budgeting and a second group working on statutory consolidation, you might want to create a separate application for each group.

Planning Server Application Root Site
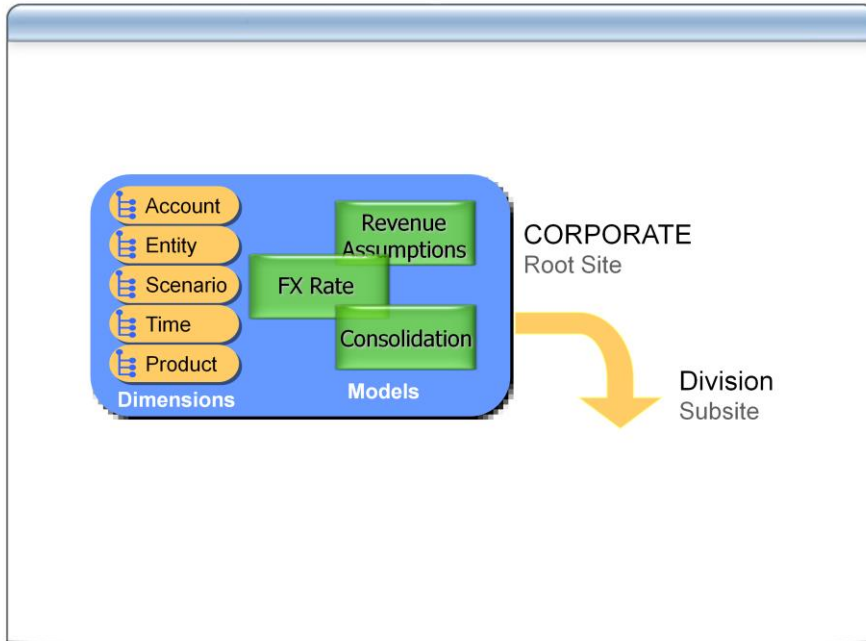
Root Site:

- Applications serve as the primary containers for all the information needed to store and describe your financial data, the processes that control data access, and the security settings that define who can access your data definitions. This includes your business model definitions, predefined and user-defined dimensions, the mappings that connect these business model definitions with your back-end data source, and other Microsoft Office PerformancePoint Server 2007 metadata such as workflow and view/permission information.

- Typically a system administrator and business modeler will collaborate to come up with an application name and then create that application. After the application is created, the business modeler can begin filling it with data and metadata. To further organize this data, model sites and model subsites are created. These model sites and subsites are the containers for all the information in the system that is constrained to a specific security scope, and influenced by the model-site structure. They are often created to follow divisional or business-unit lines within the company. The Alpine Ski House sample application, for example, is set up with a Corporate model site and Resort and Services subsites.

- When an application is created, an initial model site called a root site is generated. Additional subsites can be created as needed to provide separate business-model workspaces. Model sites can also contain child model subsites.

- Model subsites inherit some of the shared metadata associated with the root model site, including models, dimensions, and dimension members. Additionally, model subsites might contain models, dimensions, or dimension members that are unique to that model subsite.

Create an Application – Part 1

Application name
- Defines the name for the new application (Required)

Label
- Create a unique label for the new application for display (Required)

Description
- Free for entry for the description of the application (NOT Required)

SQL Server name
- Stores the name of the server running Microsoft SQL Server™ 2005. That server contains the application database (Required)
- If using a named instance of Microsoft SQL Server™ 2005, type the following in this box: server name\instance name.

Application Database Name
- This will create a database to store the Application on SQL server (Required)

Staging Database Name box
- Stores the name of the SQL Server database on the server that contains the application's staging database. If you do not want the application to have a separate staging database, this step is not necessary (Not Required for sub-sites)

Form Template Location box, type
- Enter the URL for the Microsoft SharePoint® Products and Technologies Web site or the File Share location that stores the application's supporting form templates. (Note: You only have to trademark SharePoint once.
- Form templates are distributed to users through an assignment, which allows users to access the form template they need for submitting data. The URL specified is the location from which users access an assignment's associated form template.

Report Storage Location
- Enter the URL for the Microsoft SharePoint Products and Technologies Web site or the File Share location that stores the application's supporting reports.
- Reports are distributed to users through an assignment. The URL you specify is the location from which users access an assignment's associated report.

Assignment Forms Location
- Enter the URL for the Microsoft SharePoint Products and Technologies Web site or the File Share location that stores the application's assignment instances.

Assignment Master Forms
- Enter the URL for the Microsoft SharePoint Products and Technologies Web site or the File Share location that stores the application's master forms.)

Create an Application – Part 2

Advanced Options

Enable native SQL/MDX

- When enabled, this feature allows business analysts using PerformancePoint Planning Business Modeler to use native SQL Server rules and native MDX rules.
- NOTE: Enabling native SQL Server rules and native MDX rules could pose a security risk, as they have greater processing capabilities that could affect a large number of objects.

Excel macro support

- Enables users of the PerformancePoint Add-in for Excel to use macros they create for the PeformancePoint Server system.
- Note: If you disable Excel macro support, users will not be able to use PerformancePoint Planning Server-related macros, but they will be able to run other Excel macros, depending on each user's security setting in Excel.

Automatically execute application creation scripts

- Choose if you want to execute the SQL Server Data Definition Language (DDL) application creation scripts that PerformancePoint Planning Server generates. The DDL scripts will be generated and automatically executed, and the default model site for the application will be created.
- If you selected Automatically execute application creation scripts, you must provide the following information for the default model site:
    –In the Model site name box, type the name for the new application's default model site.
    –In the Model site label box, type a unique label for the application's default model site.
    –In the SQL FileGroup box, type the name of the SQL FileGroup that will be associated with the default model site.
    –In the Analysis Services server name box, type the name of the computer running SQL Server Analysis Services where model site data is stored.

Generate application creation scripts for manual execution

- Choose if you want to customize the DDL scripts generated by PerformancePoint Planning Server before they are executed. If you select this option, in the Output Folder Location box, type a location where the scripts will be generated. You can then go to that creation, make the necessary configurations to the scripts, and then manually execute the scripts.
- If you choose to manually execute the DDL scripts, you will have to initialize the application after the scripts are executed in order to bring the application online for users. To do this, click **Initialize** on the Applications page to open the **Initialize an Application** dialog box.

Model Sites

ASH Application

Shared Business Definitions (Shared Library)

Model Site
ASH Corporate

Sub Site
Resorts Hotels and Skiing

Sub Site
Ski Sales and Manufacturing

Microsoft Office PerformancePoint Server 2007
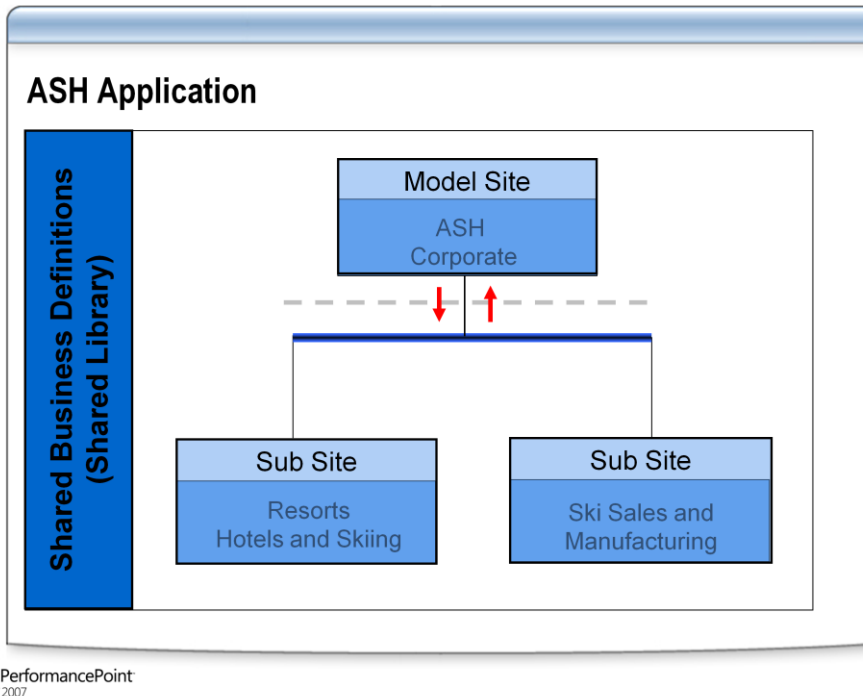
Model Sites

- Managing model sites in PerformancePoint Planning Administration Console includes creating and deleting model sites and changing or updating information about existing model sites, such as the locations of supporting Microsoft SQL Server™ 2005 Analysis Services databases
- Model sites reside within applications. To begin model site management, click to display the **Application** drop-down list and select the parent application that either contains the model site that you want to edit or delete, or that is the location where you want to create a new model site. After you have selected the appropriate application, you can create, edit, or delete a model site.

Type library with content to build business models

- Dimensions and hierarchies
- Predefined application intelligence
- Inter-model mapping I believe this is wrong terminology. You probably mean either "cross-model mapping" or "model associations," which are the two terms we have in our glossary. I put both definitions at the bottom of this page.
- Forms and reports

Sub Sites enable

- Model Site models to be copied and extended
- Private dimensions, hierarchies and calculations and business rules to be created
- Copy models between Model Sites and Sub Sites
- Automatic synchronization of links (metadata) between Model Site models and Sub Site Models
- Cross-model mapping: A one-to-one correspondence that a business rule can establish between members or dimensions of two separate models. When cross-model mapping occurs, it also creates a model-to-model association between the models involved. Cross-model mapping may be specified by using the user interface (UI) within PerformancePoint Planning Business Modeler, or programmatically with PerformancePoint Expression Language (PEL). In PEL, the ALLOCATE statement or the TRANSFER statement can specify mappings.
- Model association: In PerformancePoint Planning Business Modeler, a relationship that allows users to define links between reference data elements to enable fact data movement. Model associations are defined two ways: through the PerformancePoint Expression Language (PEL) via a rule or through the PerformancePoint Business Modeler user interface. The results can be different, depending on the method used to define the association.

Model Sites
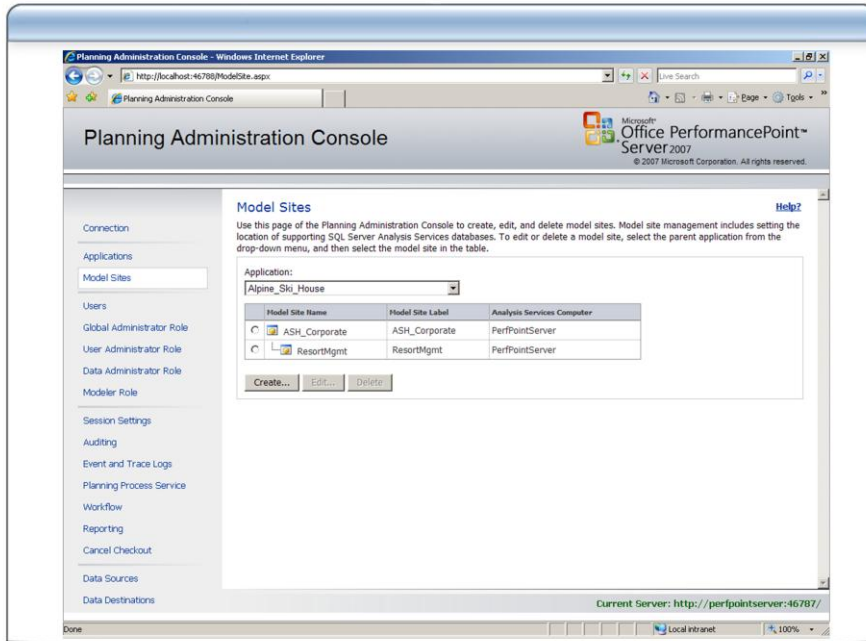
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Model Sites
- To create a new model site using PerformancePoint Planning Administration Console, enter information about the model site as described in the following procedure.
- To create a model site, from the **Application** drop-down menu, select the application in which you want to create the model site.

New Model Site
- Click to select the model site that will be the parent of the model site you are creating. This creates a hierarchical relationship for all sites underneath the parent site.

Model site name
- Enter a name for the new model site. The name must be from one to 256 alphanumeric characters in length, and it is case sensitive. Spaces, punctuation, and special characters are not permitted.

Label
- Enter a unique label for the new model site. The label must be from one to 40 alphanumeric characters in length, must begin with an alphabetical character, and is case sensitive. Spaces, punctuation, and special characters are not permitted.

Description (Optional)
- Enter a description of the model site, such as the type of data it contains or other information that is helpful to users who might not be familiar with the model site. The description can be up to 2,048 characters in length.

Analysis Services computer name
- Enter the name of the server running Microsoft SQL Server™ 2005 Analysis Services. It is also the server that will contain the data for this model site.

Creating PerformancePoint Server System Users
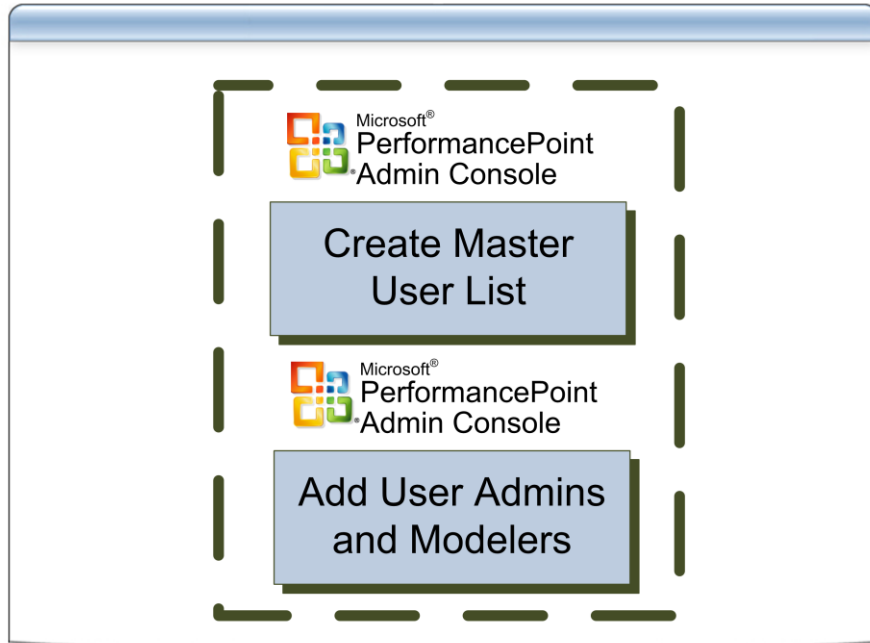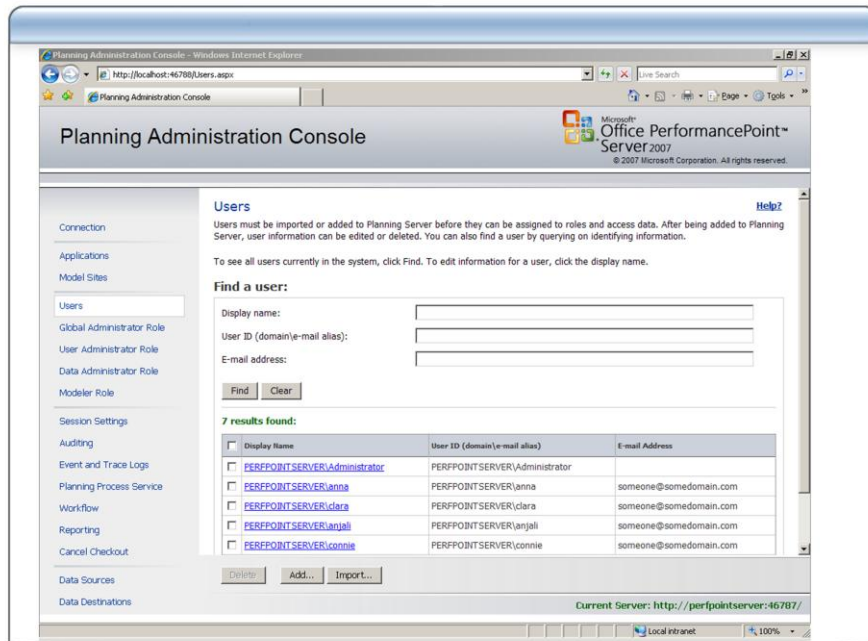
Users

Users

- To administer any part of the PerformancePoint Server system or to access business data, users must be assigned to roles. Users must be imported or added to the PerformancePoint Server system before they can be assigned to roles or use PerformancePoint Server applications.

- After users are added to the PerformancePoint Server system, information about them can be edited or deleted. To find the particular user whose information you want to edit or delete, you can query based on identifying information.

- To view a list of all users that have been added to the PerformancePoint Server system, click **Find**. The results display below the **Find** button.

Security Roles

Global
Administrator

User
Administrator

Database
Administrator

Modeler

Business
Roles
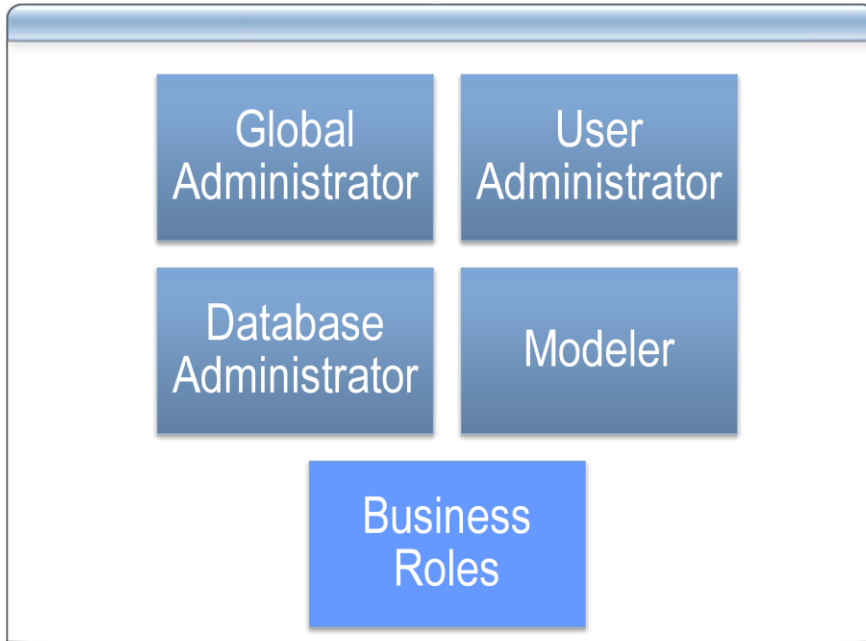
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Server 2007

Security Roles

- The security model for PerformancePoint Planning Server is based on roles. Users are assigned to roles, and their permission levels in the Microsoft Office PerformancePoint Server 2007 system are dictated by the roles to which they belong. Administrators can create a role and then add users to the role, or they can add new users to an existing role. Users can be removed from roles if, for example, their job duties change.

Administrative Roles

- PerformancePoint Planning Server includes three predefined roles for administrative purposes. The administrative roles are for designating key personnel in your PerformancePoint Server system, and for creating applications, model sites, and models. These roles are used first during the design of your PerformancePoint Planning Server infrastructure, and then to maintain that infrastructure after the system is operational.

Business Roles

- Business roles are created by PerformancePoint Planning Business Modeler users for people in their organization who require access to specific data segments. When a business role is created, a member of the Modeler role gives the business role access to specific member sets in the local model site. When a user is added to the business role, by default the user has the same access permissions as the maximum allowed by the role. However, administrators can give different permission levels to two or more users who are members of the same business role. Similarly, a business role receives Read or Write permission(s) to a set of data, and users in that role can have access to different subsets of the role's data set.

Global Administrator
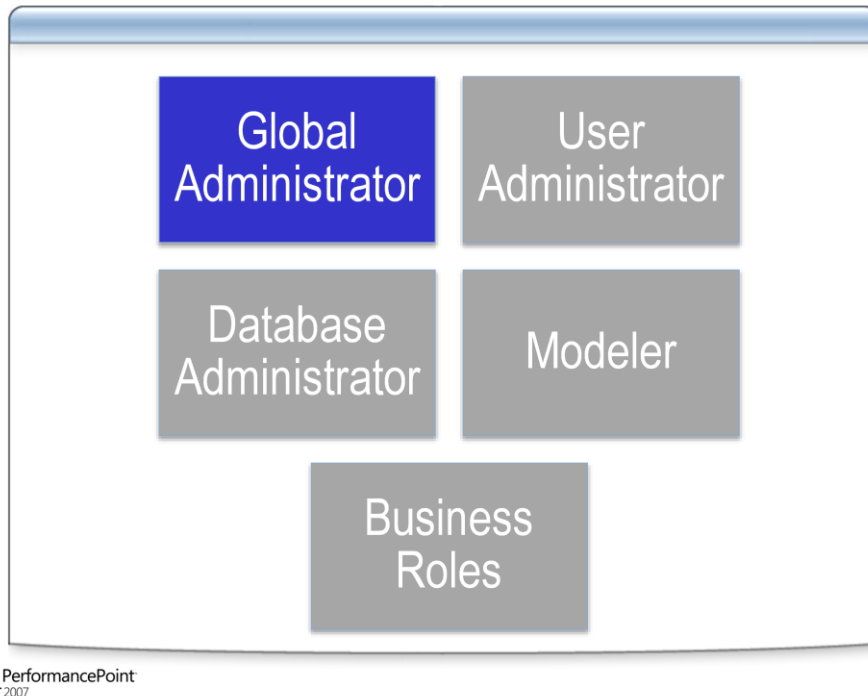
Global Administrator – GA

- Members of the Global Administrator role can configure settings on the entire PerformancePoint Server system and on all computers running PerformancePoint Planning Server within the system. The first member of the Global Administrator role is designated during the installation of PerformancePoint Planning Server. After PerformancePoint Planning Server is installed, only members of the Global Administrator role can add or remove other role members. Members of the Global Administrator role can perform important IT tasks like creating or deleting applications and modifying application metadata.

- Global Administrator role members can also add users to or remove users from the PerformancePoint Server system, as well as add users to or remove users from the User Administrator role.

Note:

- Members of the Global Administrator role can only add User Administrator members at the application level. Adding a user to the User Administrator role with only model-site scope permissions can only be done by another User Administrator member.

User Administrator
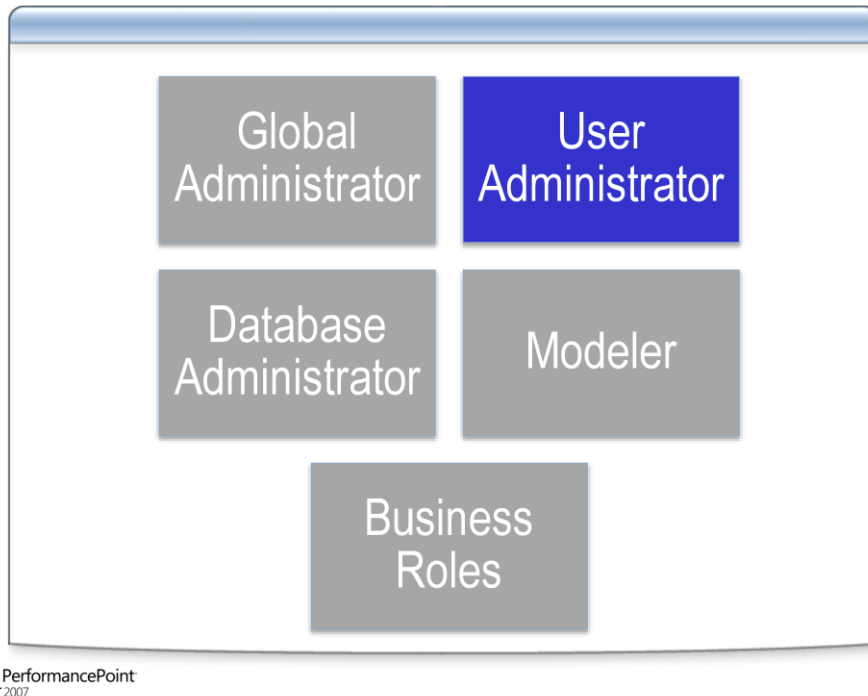
UA = User Administrator

- Members of the User Administrator role have the ability to add or remove PerformancePoint Planning Server users to business roles.
- User Administrator members can also add or remove other User Administrator members.
- A member of the User Administrator role can have application scope permissions or model-site scope permissions. Application scope permissions mean a User Administrator member can add users to any business role created within the application or remove them from it. Model-site scope permissions mean a User Administrator member can administer users within a specified model site only.

Note:

- Members of the User Administrator role cannot create business roles — they can only add users to or remove users from business roles. Members of the Modeler role create business roles.

Database Administrator
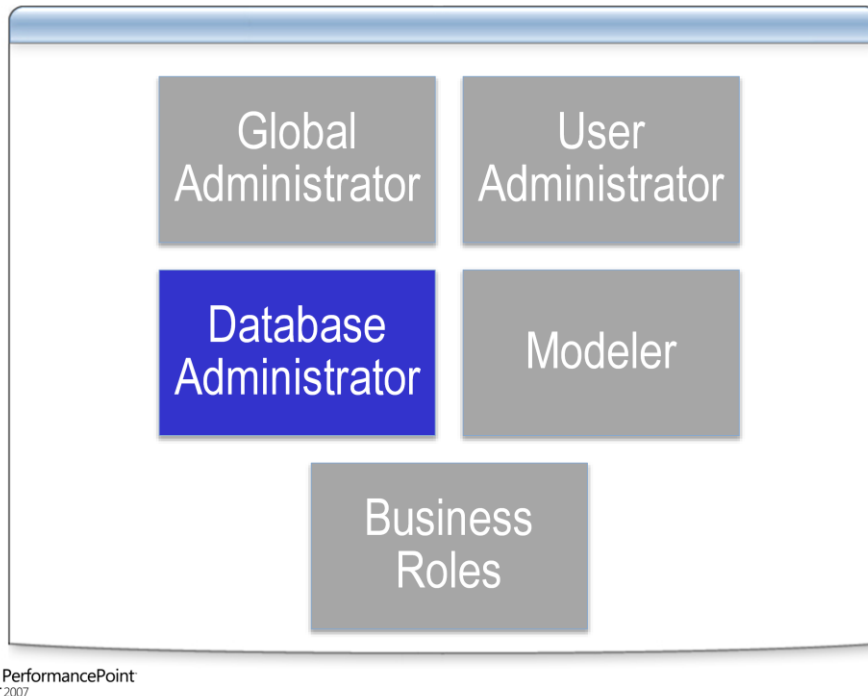
Data Administrator

- Members of the Data Administrator role will use Planning Business Modeler as the primary tool for data integration tasks. They can perform any data integration task or modeling operation within their scope. Members of the Data Administrator role can perform the following tasks in Planning Business Modeler:
- Synchronize data to and load data from the application or staging database. To perform data integration tasks on a staging or application database, a member of the Data Administrator role must also have explicit permissions to the Microsoft SQL Server 2005 database.

    –Create, modify, or delete models, dimensions, hierarchies, and member sets.

    –Deploy models and model sites.

    –Create, modify, or delete assumptions.

    –Create, modify, or delete cycles, workflow assignments, and calendars.

    –Create, modify, delete, execute, or synchronize associations.

    –Create, modify, delete, or execute rules and jobs.

    –Create, modify, or delete business roles within their scope, but only members of the User Administrator role can manage role membership.

Note:

- Users assigned to the Data Administrator role have unrestricted access to all business data within their scope, even if they belong to a business role that has restricted settings.

Modeler
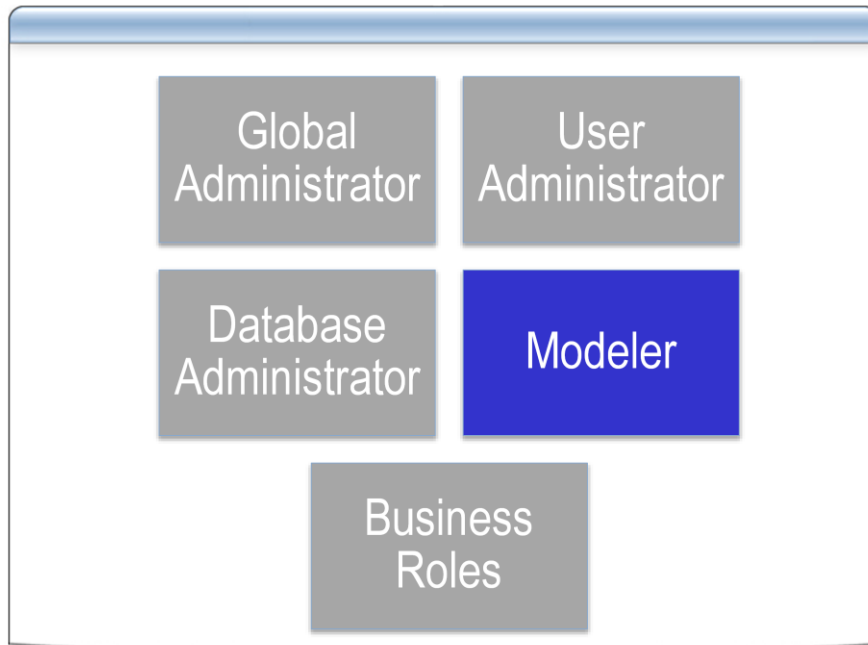
Modeler

- The Modeler role can apply to an entire application or to a model site within an application in PerformancePoint Server. Members of the Modeler role can perform any modeling operation within their scope (application or model site), but they cannot create or delete applications.

- A Modeler member with application scope permissions can modify properties for the application. Modeler members can also create, delete, or modify business roles within their scope. However, only members of the User Administrator or PerformancePoint Server Administrator roles can assign users to business roles or remove them from business roles.

Note:

- Members of the Modeler role can create business roles, but they cannot add users to or remove users from business roles. Members of the User Administrator role with the permissions to access the application can add or remove users.

Questions
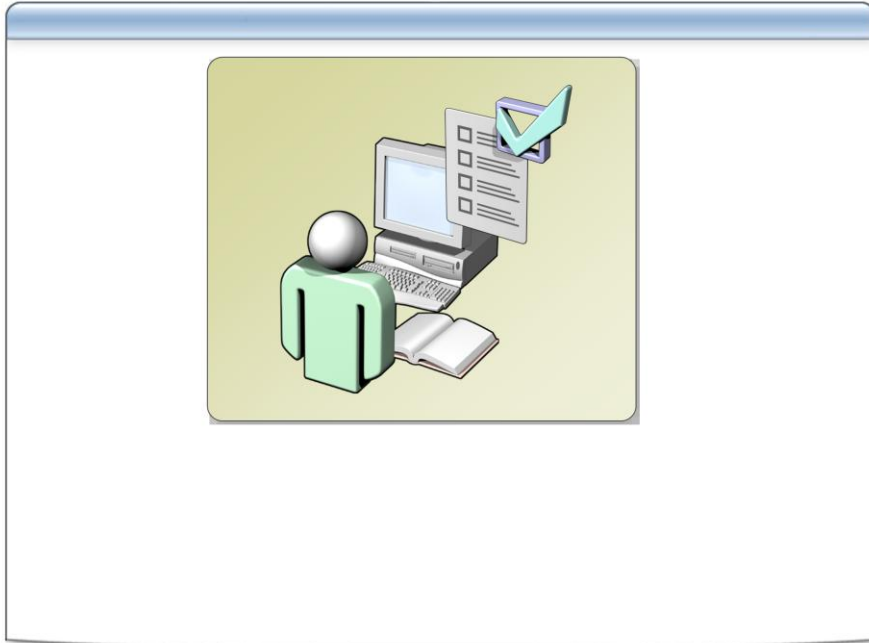
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Chapter 4 – Models and Dimensions

Delivered By:
IT Mentors
pps@itmentors.com
www.itmentors.com

Module 4:
Models and Dimensions

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Creating the Metadata
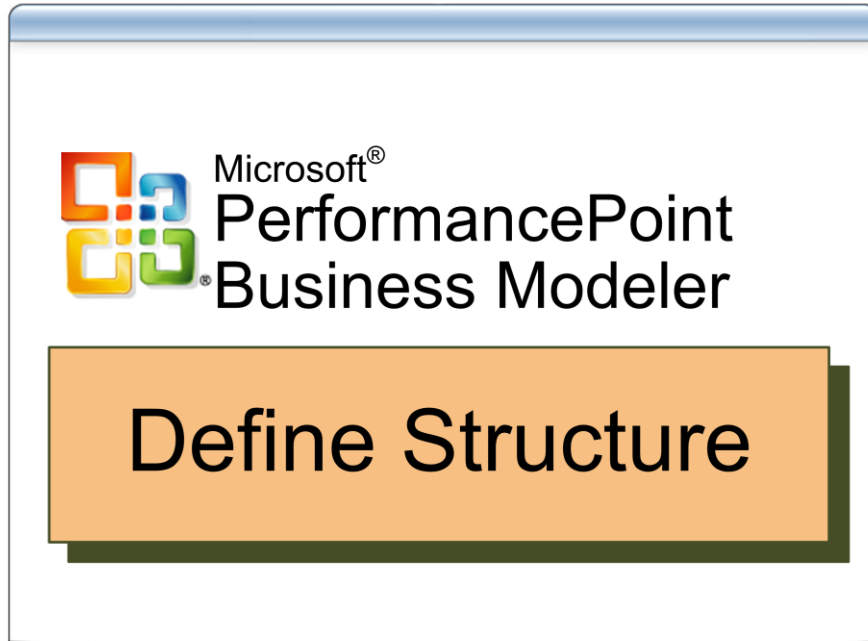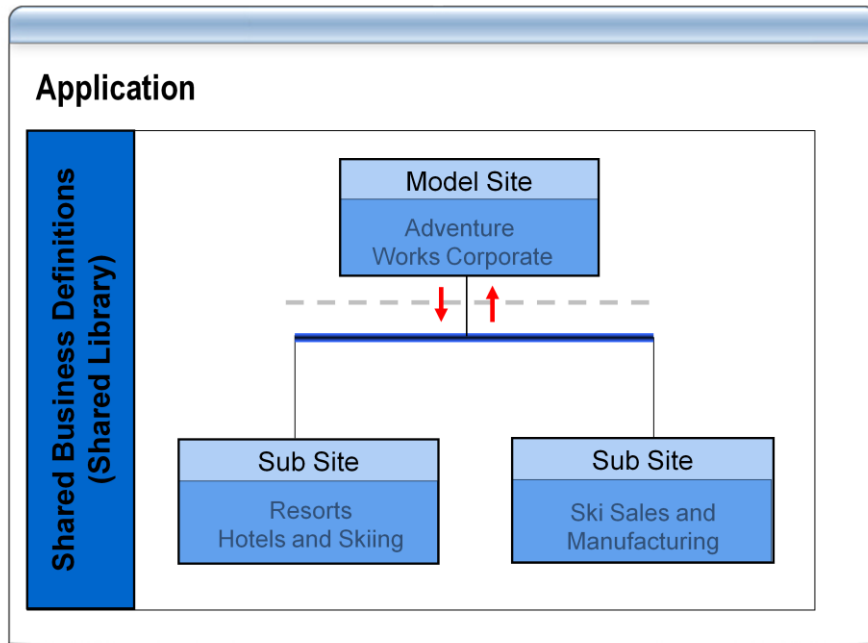
Application design

Type library with content to build business models

- Dimensions and hierarchies
- Predefined application intelligence
- Inter-model mapping See note in the [03] slide re this term. The terminology is wrong.
- Forms and reports

Sub Sites enable

- Model Site models to be copied and extended
- Private dimensions, hierarchies, calculations, and business rules to be created
- Copy models between Model Sites and Sub Sites
- Automatic synchronization of links (metadata) between Model Site models and Sub Site Models

Application design
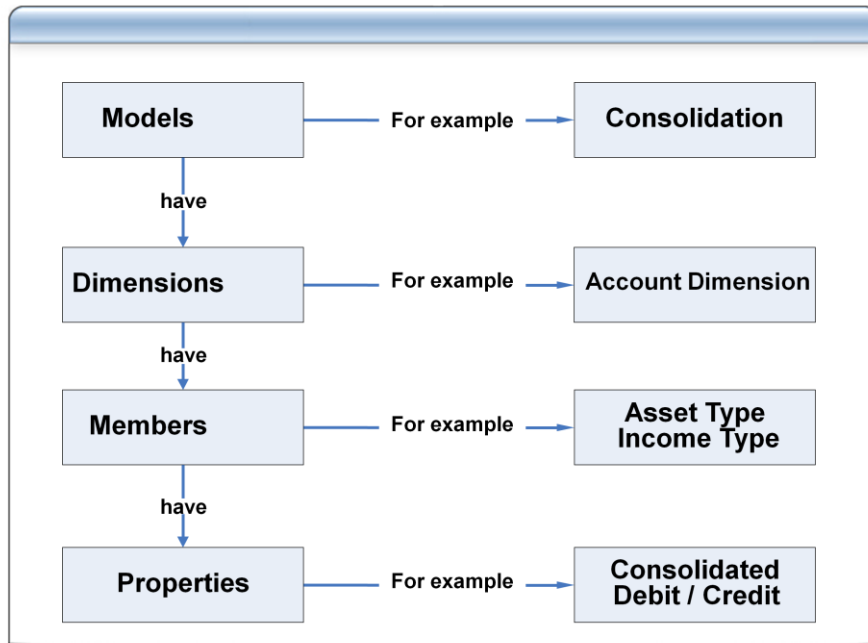
Model

- The basic unit of data storage in PerformancePoint Server. Models define how data from your operational systems should be viewed and define all business logic and calculations. The models you create using Planning Business Modeler integrate disparate but relevant information about your company into a tangible perspective that you can use to accurately measure performance, plan, budget, and forecast.

Dimension

- A structural attribute of an OLAP cube, which is an organized hierarchy of categories, or members, that describe the data in a fact table. These categories typically describe a similar set of elements. For example, a Geography dimension might include the members Country, Region, State or Province, and City. See also view, dimension member, predefined dimension, and user-defined dimension.

Dimension member

- A single position or item in a dimension. The Account dimension, for example, could have a dimension member called Travel Expenses. Dimension members can be user-defined or predefined and can have properties associated with them. See dimension member property for details.

Dimension member property

- A characteristic of a dimension member. Dimension member properties can be alphanumeric, Boolean, or Date/Time data types, and can be user-defined or predefined. For example, the user-defined dimension Product could include the members Mixers and Blenders. Mixers and Blenders could have the associated user-defined property Color. Account, on the other hand, a predefined PerformancePoint Server dimension, includes the predefined member property Account Type. All dimension members, whether user-defined or predefined, include the dimension member properties Label, Short Description, and Long Description.

Dimensions

- **Fundamental building blocks for models to define the metadata structure.**
- **An Account dimension could contain the following**

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Dimensions

- A dimension is an organized hierarchy of categories, or members, that describe data in a fact table. These categories typically describe a similar set of elements. For example, a Geography dimension might include the members Country, Region, State or Province, and City.

- A dimension is made of members. A member represents a specific instance of the characteristic described by the dimension. For example, Black Roller Pen could be a member of the Product dimension. Members can be calculated or used to enter data. If a member is calculated, a formula is associated with it. A property is a characteristic of a dimension member. For example, color could be a property of the dimension member Product. Properties can be system-defined or user-defined. A hierarchy is a structured organization of dimension members. Hierarchies are defined by members, levels, and parent-child relationships.

- There are two broad categories of dimensions: user-defined dimensions that you can create, update, and delete; and predefined dimensions generated by PerformancePoint Planning Business Modeler. You can use predefined dimensions as generated, but typically you will need to modify or expand the predefined dimensions to match your current data structure and naming conventions. The scope of customization for predefined dimensions is more restricted than for user-defined dimensions.

Member Properties

Property	Description
Name	User-friendly name.
Label	Unique, user-defined identifier.
Description	A brief description of the dimension member.
Source member ID	Optional field that can be used to track the dimension member ID in an external source system.

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Properties

- Dimension member properties define the behaviors and characteristics of each dimension member, and take the form of alphanumeric, Boolean, or date/time values. There are three types of dimension member properties: required, system-defined, and user-defined.

Required Dimension Member Properties

- Required dimension member properties are used by PerformancePoint Planning Business Modeler to manage dimension members, and must be present in each member of each dimension that exists in a PerformancePoint Planning Business Modeler application. The required dimension member properties are:

- *Name*

  Each dimension member is assigned a name when it is created. The purpose of the name property is to provide a user-friendly identifier for the dimension member. Names must be unique within the dimension, must consist of no more than 256 characters, and can contain symbols, punctuation marks, and alphanumeric characters. An example of a dimension member name for the predefined Flow dimension is Net Income.

- *Label*

  Each dimension member is assigned a label when it is created. The purpose of the label property is to provide a unique identifier for the dimension member. Labels must be unique within the application, must consist of no more than 40 characters, must start with a letter, and can contain only alphanumeric characters.

- *Description*

  Each dimension member is assigned a description when it is created. The purpose of the description property is to provide a complete description of the dimension member. Descriptions must consist of no more than 2048 characters, must start with a letter, and can contain symbols, punctuation marks, and alphanumeric characters.

System-Defined Dimension Member Properties

- System-defined dimension member properties are part of the predefined dimensions that are provided with PerformancePoint Server. System-defined dimension member properties cannot be deleted because these properties are used for the internal financial logic of. For example, in the Time dimension, the FiscalYear dimension member property is system-defined, and is required for all models that use the Time dimension, including the Expense Assumptions model. User-Defined Dimension Member Properties

- User-defined dimension member properties can be used to track any behavior or characteristic of dimension members. For example, a company that owns radio stations might have a Station dimension with a Format dimension member property that could be used to track the format of each station using values such as talk, country, top 40, and classical.

Member Sets

- A member set is defined by a set of members of a dimension organized in a hierarchy based on specific grouping needs.

Net Income
- Revenue
- Operating Expenses
  - Admin Costs
    - Travel
    - Supplies
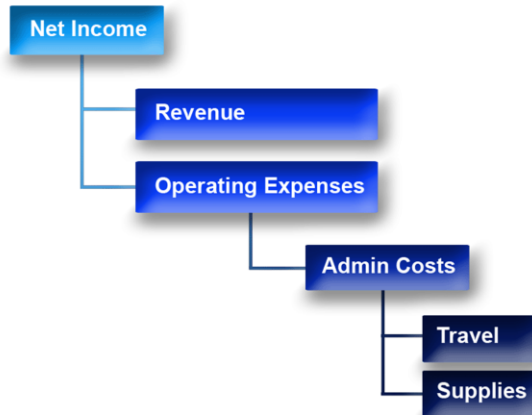
Member Set

- PerformancePoint Planning Business Modeler helps you to manage dimensions by organizing dimension members into member sets. A member set is a collection of members from a dimension. Dimension members can belong to an unlimited number of member sets. Member sets are then used to create models that contain the data used by applications.
- A member set can be flat, with all dimension members organized as siblings. Members in a set can also be organized into a hierarchy, with some dimension members designated as parents and with other members designated as children, nested below the parents in the hierarchy.
- A member set should include all the members that are needed from a dimension for the calculations that will be performed by a model or group of models. One approach to designing member sets is to determine what calculations a model will be used for. Then work backward from those calculations to determine which members will be needed from each dimension, and include those members in a member set from each dimension.

Sporting Goods Example

- ski equipment
  - ski poles
  - ski bindings
  - skis
- football equipment
  - football helmets
  - footballs

Important

- You must deploy the model site after defining or changing member sets to update the dimension in the database. For instructions on how to do this, see the Help topic *Open, Close, and Save a Model Site.

Working with Member Sets

- Use the icons above or right-click to create the hierarchy
- When a member is moved to the member set destination it is removed from the Source listing.

Arranging Members in a Member Set

- You can arrange the members in a member set by moving them up and down the member list; indenting and outdenting them to change the position of members in the hierarchy. You can also expand or collapse the view of members with children.

To arrange members in a member set, do one or more of the following on the left side of the workspace:

- To outdent a dimension member, right-click it and then select **Outdent** or click the **Outdent** button on the toolbar.
- To indent a dimension member, right-click it and then select **Indent** or click the **Indent** button on the toolbar.
- To move a dimension member up in the member set, right-click it and then select **Move up** or click the **Move Up** button on the toolbar.
- To move a dimension member down in the member set, right-click it and then select **Move Down** or click the **Move Down** button on the toolbar.
- To expand a dimension member with children, right-click it and then select **Expand All** or click the **Expand All** button on the toolbar.
- To collapse a dimension member with children, right-click it and then select **Collapse All** or click the **Expand All** button on the toolbar

Member View

- A member view is defined by all members of a dimension or member set organized in a hierarchy based on a specific member property

```
        ┌──────────────────────┐
   Expenses                Income
      │                       │
      ├── Opperating          ├── Revenue
      │   Expenses            │
      ├── Admin Costs         └── . . .
      │
      ├── Travel
      │
      └── Supplies
```
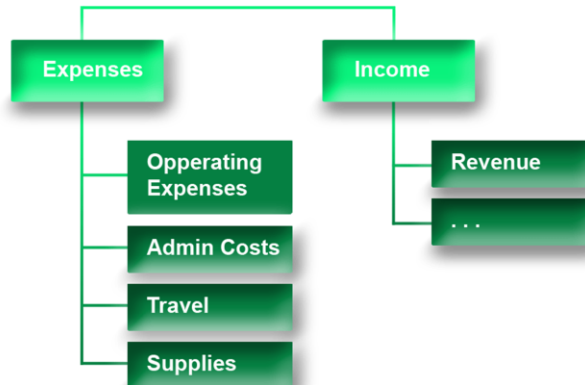
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Member Views

- Dimension members can be organized using member views, which are hierarchies of dimension members that are grouped according to member properties. Member views are not used to build models. Instead they provide an alternative way to create reports on the members of a dimension, by using dimension member properties to analyze groups of related members. After creating a member view, you can use it to calculate the sum of all dimension members with the same value for a given property.

Example

- A Stores dimension for a grocery store chain might have many members corresponding to the many stores in the chain. To analyze total sales according to geography, you would create a member view that makes use of the member properties that relate to geography. In our example, each dimension member might have the following properties: country and continent. Let's assume that this grocery store does business on the continents of North America and South America, and has operations in the countries of the U.S., Canada, Chile, and Brazil. A member view of this dimension with continent as the first property and country as the second property would create a hierarchy with continents shown at the top level, countries shown at the second level, and actual dimension members shown at the bottom, or third, level.

CSV Files for loading

- **Dimensions, Member Sets can be loaded from csv files**
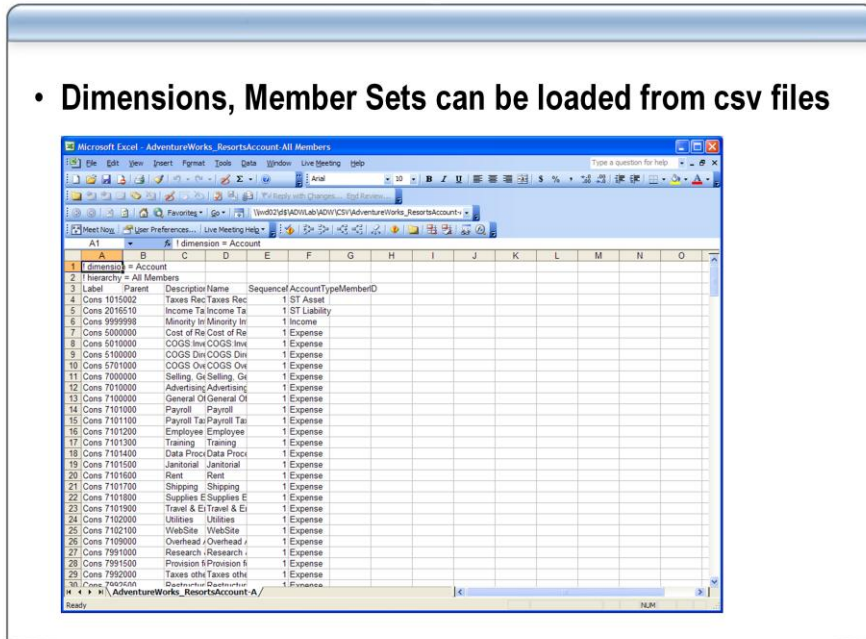
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Dimension Member Proprieties

- Name – The friendly user-facing name for a member of a dimension
- Label –The unique, user defined, text identifier for a member of a dimension
- Description – A long text description for a member of a dimension.
- SourceMemberID – An optional field that can be used to keep track of the ID of this member in an external source system.
- Specific Dimension **properties**
- Custom **properties**

For each dimension you will have D_ table in SQL

For each Member Set you will have a H_ table in SQL

Default Predefined Dimensions

Dimension code	Notes	Dimension description
Entity		Entity
Account		Chart of accounts
Intercompany	Derived from Entity	Intercompany
Scenario		Scenario of data
Flow	Predefined Members	Flow
Business process	Predefined Members	Business process
Exchange Rate	Used in Exchange rate Assumption	
Time	Maintained by Calendar	Time
Time Data View		Time Data View
ConsolidationMethod	Predefined Members Used in share model assumption	
User	NOT IMPLEMENTED	NOT IMPLEMENTED
Currency		Currency

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Predefined Dimensions

- When you create an application in PerformancePoint Planning Business Modeler, PerformancePoint Server automatically generates a set of predefined dimensions to act as starting points in the application development process. Predefined dimensions serve as templates that can be modified and enhanced. By customizing predefined dimensions, and by adding user-defined dimensions, you build the dimension structure of the application. When the dimension structure is complete, you are ready to create models.

Creating the Calendar

- **CRUCIAL first step in creating the application**
- **All aspects of the application refer to the Time dimension created by the Calendar**
- **Flexible creation to match business process**

Name the Application Calendar

| Name the Application Calendar | Name: |
Define the Calendar Pattern	Calendar
Select Optional Frequencies	Description (optional):
How should Periods be named?	
Create Calendar Views	
Review and Create	

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Calendar

- Today we commonly use the Gregorian calendar to schedule and plan events. For many businesses, the Gregorian calendar presents an accounting difficulty as it contains a varied number of business days from year to year. Because accounting principles put a premium on consistency as a means to measuring performance over time, creating your own application calendar is the best way to track your financial data. In order to be consistent and accurate, however, your application calendar must be created carefully. In PerformancePoint Planning Business Modeler, the application calendar is used to set up a time period concept that matches the practices used in your company. From an accounting standpoint, the concept of time and how it is tracked is fundamental to measuring and comparing financial progress over time. Creating an accurate application calendar provides your data — past, present, and forecasted — with the context you need for successful financial tracking and benchmarking. The application calendar is created as part of the application-creation process and is a required step.

Warning

- Creating an application calendar that accurately represents your business processes is crucial to the success and accuracy of your application. After you create a calendar, all aspects of your application refer to the time dimension in one way or another. For example, your data, reports, jobs, cycles, assignments, and so on all reference the time dimension. Use care to assure that the application calendar is created to accurately match your processes, as it cannot be modified later without creating a new application, purging data, and repopulating the data. An essential step in creating an application is specifying accurate start and end dates that match your business processes.

Calendar Patterns

- **Link the Calendar patterns to business patterns**
- **Time frequency groups data**
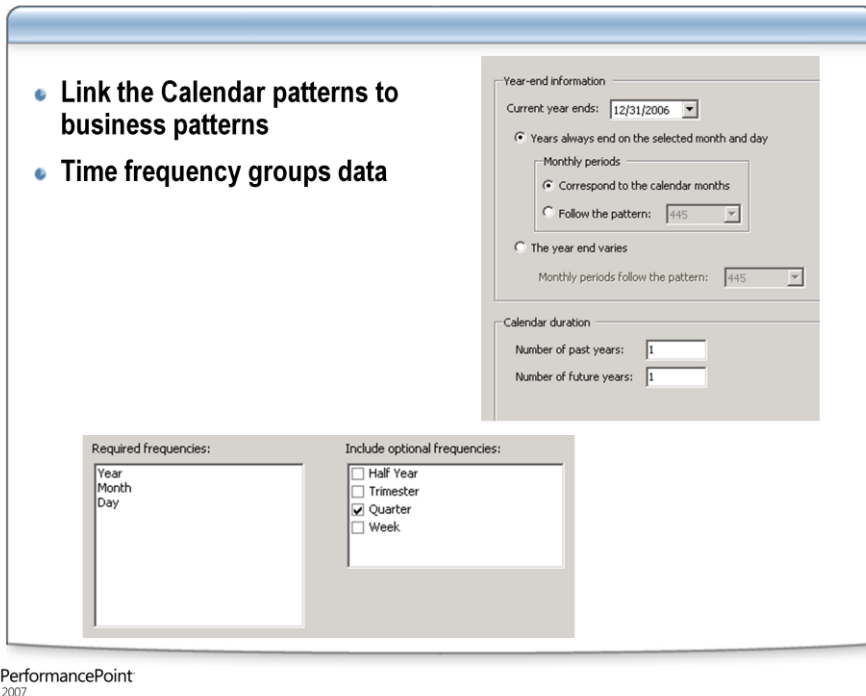
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Calendar Start and End Dates

- Using the PerformancePoint Planning Business Modeler application calendar, you can define a custom calendar for a Planning Business Modeler application. By doing so, you can create a calendar that matches the specific patterns of your financial system. For example, you can create a calendar that starts on July 1st and ends on June 30th, or you can create a more traditional calendar that begins on January 1st and ends on December 31st. To track different aspects of business, multiple applications might be needed to establish multiple calendars because a single application can have only one calendar. For example, while your internal fiscal reporting calendar might end on December 31st, your calendar for the manufacturing division might have to track year end on June 30th. In addition, in cases where are you using a calendar with a varying year end, you have the option of adding an extra week to years in the calendar. For example, your company might want to add an extra week once every four years (which is about the average). This allows you to account for the extra days that occur at the end of the year.
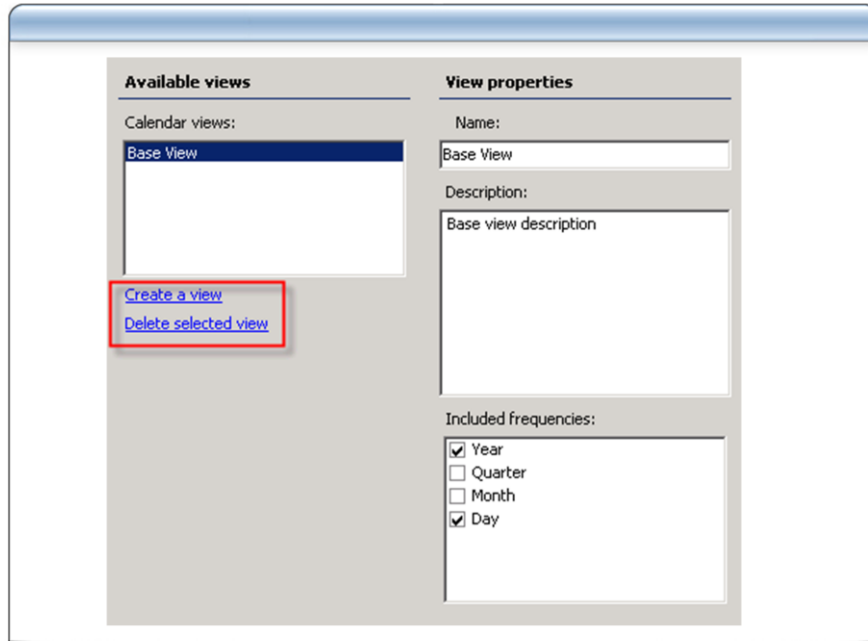
Time Frequency

- A time frequency is used for grouping data. For example, weeks and months are commonly-used time frequencies. In PerformancePoint Planning, you can select from the predefined set of frequency types while year, month, and day are required frequencies. Optional frequencies include half year, trimester, quarter, and week, depending on how you define your monthly periods. For example, if your months correspond with calendar months and the year always ends on the same day, the half year, quarter, and trimester frequencies are available. However, if your year end varies, the half year and trimester frequencies are not available.

Time Periods

- Time periods in PerformancePoint Planning Server are individual instances of time frequencies. For example, the time period "Jan 2005" is an instance of the month frequency.

Calendar Views

Calendar Views

- When creating the application calendar, or by extending the calendar, you can create additional custom views of the calendar data. Calendar views can be used to display members of the time dimension in a convenient way. For example, if your calendar includes the frequencies year, quarter, month, and day, you can create a view of the data that shows only year and month data. In addition, when using a calendar view for the time dimension, you can roll up the frequencies by hierarchy if more than one frequency is displayed in a particular view.

Predefined Prepopulated Dimensions

- Exchange Rate
- Business Process
- Consolidation Method
- Flow
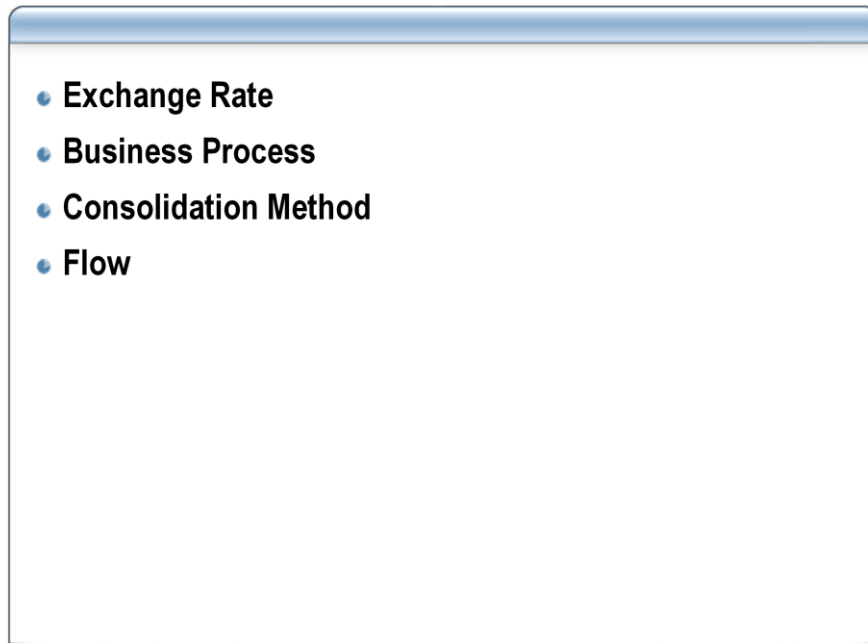
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Exchange Rate

- The Exchange Rate model uses the Exchange Rate dimension to store values for various calculation scenarios.

Business Process

- The Business Process dimension is useful for auditing and custom calculations. It contains a staging hierarchy that is used to store the results from business rules such as consolidation, allocation, and currency translation

Consolidation Method

- The Consolidation Method dimension is used to classify the type of consolidation to perform on a given entity. This dimension is intended for financial models with shares calculations.

Flow

- The Flow dimension consists of a standard set of entity members used to track cash flows between periods for financial models. When used with the Account and Time dimensions in a model, the Flow dimension automatically performs predefined tasks. For example, at the close of a period, balances are automatically copied from the Flow dimension's CLOSING member into the OPENING member for the following period.

Predefined Empty Dimensions

- Currency
- Entity
- Scenario
- Time
- User
- Inter**c**ompany
- Account
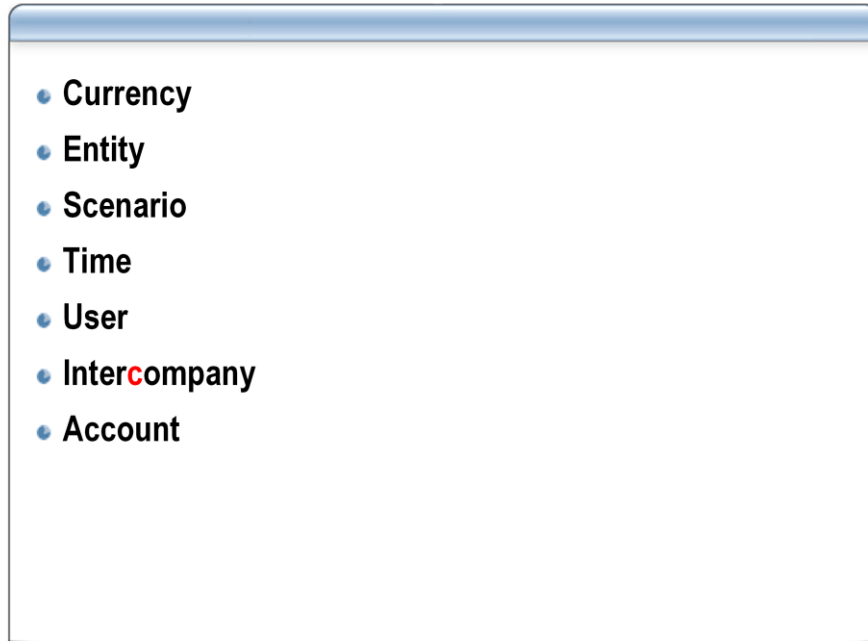
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Currency
- The Currency dimension stores a list of currencies. The Exchange Rate model is the primary user of this dimension. The rules associated with the Entity dimension use the currencies in this dimension to assign currency types to entities.

Entity
- Models use the Entity dimension to maintain a list of business entities for a financial model.

Scenario
- The Scenario dimension is used to differentiate between different modeling scenarios. For example, you could use this dimension to track values for budget, actual, and forecasted scenarios for any given period of time. It is automatically included with every model.

Time
- The predefined Time dimension is a system dimension for maintaining a common time scale within an application. Automatically included with every model, the Time dimension is created and maintained by the *Create a New Calendar. The Time dimension typically contains thousands of members, depending on the range and granularity (quarter, month, day, and so on) that you define for the calendar.

User
- The predefined User dimension maintains user-related information such as workflow reviewer, approver hierarchies, and business roles.

Interc**ompany**
- The Intercompany dimension is a system-maintained dimension that contains copies of entities involved in intercompany transactions with other entities in the system. A member from the Entity dimension is automatically copied into this dimension if the Intercompany property is set to true in the Entity dimension. Similarly, it is removed if the Intercompany property is set to false.

Account
- You can use the Account dimension and its associated rules to create and maintain a chart of accounts for various financial models.

Models
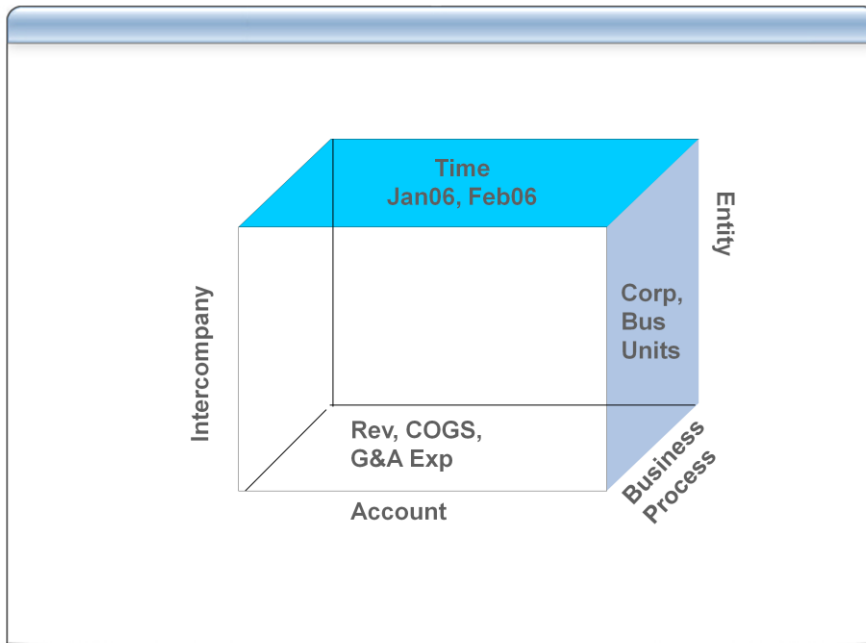
Models

- *Models* are the most basic unit of data storage in Planning Business Modeler. They contain dimension member sets, which are user-defined sets of members. For example, a company might generate and analyze its daily sales activity based on a price list that is updated quarterly. To accomplish this, the company could use the following:
  - –A Revenue Units model with daily sales units
  - –A Revenue Rates model with the quarterly price list, and
  - –A Daily Revenue model that calculates the daily sales activity.
- After the Daily Revenue model is associated with the global assumption model, it is populated by using rules that multiply the daily Revenue Units by the quarterly Revenue Rates to calculate the daily extended values.
- *Model sites* are used to organize your application and data. Each application has one parent model site that contains predefined dimensions and global assumption models. All other model sites in the application are referred to as model subsites.
- *Model subsites* represent the business structure of a company. They can be based on a company's reporting structure, financial processes, operational processes, and so on. For example, a company may create subsites based on divisions, on business units, or on security access restrictions that require separation of processes or functions.
- Model subsites inherit some of the shared metadata that is associated with the parent model site. This includes models, dimensions, and dimension members. Additionally, model subsites might contain models, dimensions, or dimension members that are unique to that model subsite.

Root Model Site
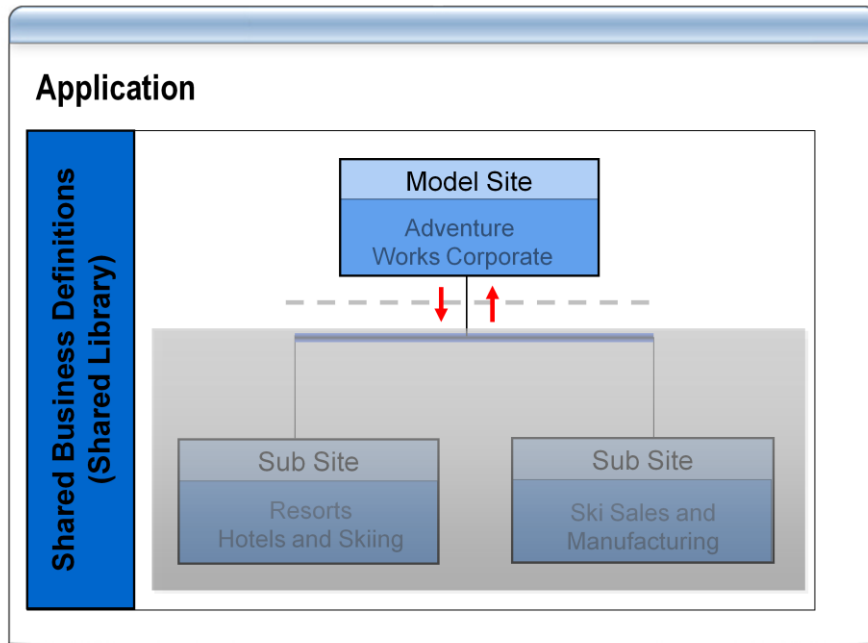
Model Sites

- Model sites are used to define all business logic and calculations for
  PerformancePoint Planning Business Modeler business intelligence. Model sites
  can also contain model subsites, shared libraries for the exclusive use of those
  model subsites, security information, and task and process scheduling
  information. Model sites and model subsites are the basic data storage unit in
  PerformancePoint Planning Business Modeler.

Root Model Site

- The root model site is the top of the model site hierarchy for an entire application.
  The root model site contains predefined dimensions, global assumptions models
  for all subsites, and a shared type library. Some or all dimensions in the root
  model site might be shared, making them available to the model subsites.
  Dimensions that are not shared are only available to the root model site.

Sub Site
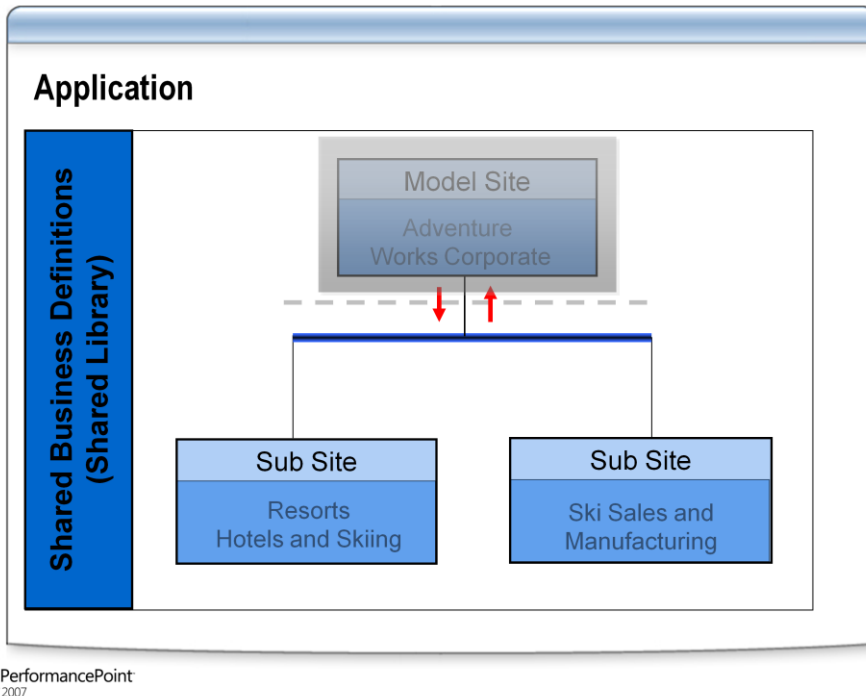
Sub Sites

- Model subsites are created in a root model site to provide modeling related to a specific business unit, subsidiary, or strategic objective. Model subsites inherit the type libraries of the root model site, including models, dimensions, and dimension members. Additionally, model subsites might contain models, dimensions, or dimension members that are unique to that model subsite.

Example:

- A diversified advertising company might have a root model site for the entire corporation, with model subsites for the billboard advertising division, the online advertising division, and the radio advertising division. The model subsite for each division would contain dimension members unique to that subsite to track sales in a manner appropriate to each business segment.

- In this example, the product dimension would be included in each division's subsite, but would be used to track different product revenue. The product dimension would be used by the radio advertising division subsite to track revenue attributable to each radio station, with a dimension member for each station. The online advertising division subsite would use the product dimension to track the revenue attributable to each Web site, with a dimension member for each Web site. The online advertising division subsite would use the product dimension to track the revenue attributable to each billboard, with a dimension member for each billboard.

- However, the city dimension, defined in the corporate root model site, would not be used by all divisions. The billboard advertising division subsite and the radio advertising division subsite would use the dimension, but the online advertising division subsite would not use this dimension, as online advertising revenues cannot be analyzed geographically.

Creating the Model

Creating a model

- You can create additional models for an application by using the **Create a Model** wizard with a data source view (DSV) file, or by copying from an existing model.

Model Types

- **Generic Models**
- **Global Assumption Model**
- **Exchange Rate Model**
- **Financial Models**
  - With Shares
  - Without Shares
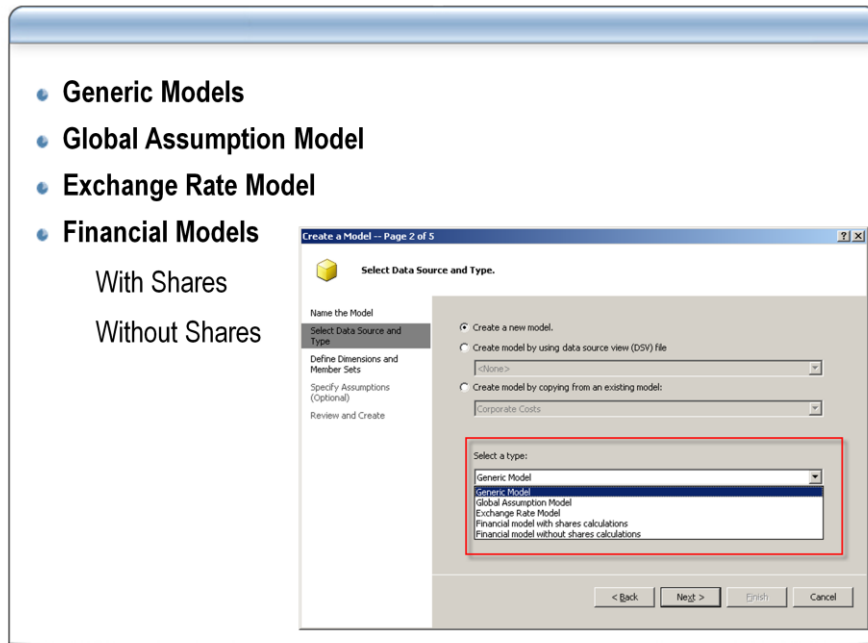
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Generic Model
- The predefined dimensions Scenario and Time are automatically added to this model type.

Generic Assumption Model
- Creates a generic assumptions model for use in the current model site or child sites. The assumptions are not shared.

Global Assumption Model
- Creates a global assumptions model available to all model sites. The assumptions are shared.

Exchange Rate Model
- Creates an exchange rate model to track various foreign exchange values for a given period, exchange type, and all currencies within the system.

Financial model with shares calculations
- Creates a model with built-in logic to perform a statutory consolidation with shares calculations. The predefined dimensions Scenario, Time, Account, Business Process, Entity, Time Data View, Flow, Consolidation Method, and Entity are automatically added to this model type.

Financial model without shares calculations
- Creates a model with built-in logic to perform a statutory consolidation without shares calculations. The predefined dimensions Scenario, Time, Account, Business Process, Entity, and Time Data View are automatically added to this model type.

Link Dimensions to Models

- **Builds the structure that will eventually define the cube**

Assumptions

Baseline Data Implemented through Models
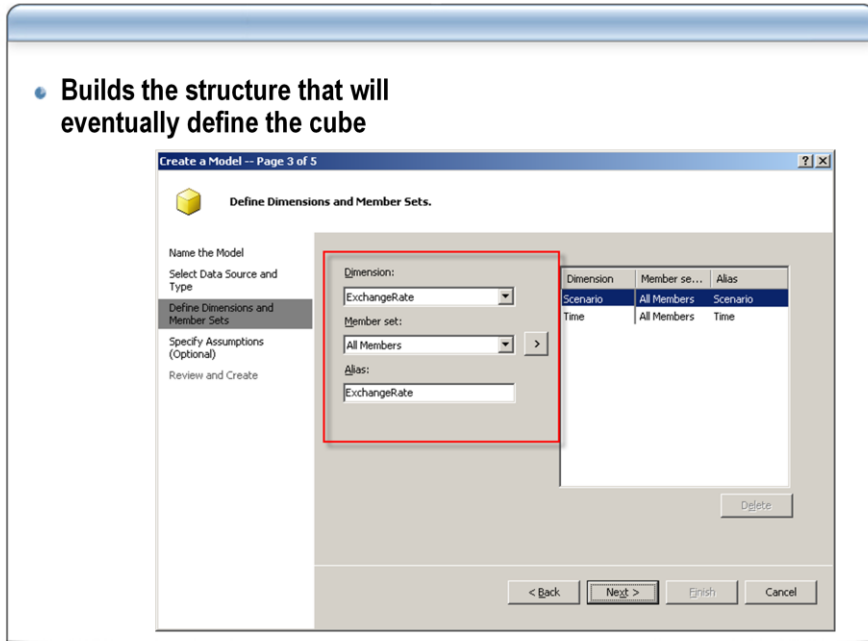
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Assumptions

- Assumptions are baseline data that apply throughout a business or to a financial model. Assumptions are often the business drivers in a financial model. For example, in a PBF (Planning, Budgeting, and Forecasting) model, payroll costs, price lists, or exchange rates are prime assumption candidates. Assumptions are organized into logical groups so that they can be updated in and universally applied from one place, rather than across the several models that use them.

- In PerformancePoint Planning Business Modeler, both generic and global assumptions are available for use to the current model site and to their child sites; however, they can only be edited at the sites where they were created. Unlike generic assumption models, global assumptions include predefined dimensions. In addition, PerformancePoint Planning Business Modeler provides another type of assumption model — exchange rate — for tracking foreign exchange values. An exchange rate model is also global in scope and includes predefined dimensions.

Model Properties

- **Variables linked to the model**
- **Can be accessed during calculations**
- **Dynamically Updated**

Model: Expenditure Assumptions

| Summary | Model Properties | Business Rules |

Label	Description	Type	Value	Status
Enable annotations	Supports annotation...	True/false (boolean)	True	Active
Enable line item details	Supports line item d...	True/false (boolean)	True	Active
Enable offline cube	Supports offline cub...	True/false (boolean)	True	Active
Dimension Data Has Changed	Indicates an update...	True/false (boolean)	False	Active
Dimension Structure Has Changed	Indicates an update...	True/false (boolean)	False	Active
Enable input at all levels	Supports writeback ...	True/false (boolean)	False	Active
Model Data Has Changed	Indicates a change ...	True/false (boolean)	False	Active
Model Structure Has Changed	Indicates a change ...	True/false (boolean)	True	Active
Export location	Indicates the default...	Text (string)		Active
Enable model export	Supports export of d...	True/false (boolean)	True	Active
Enable Parent Writeback		True/false (boolean)	False	Active

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Properties

- In Planning Business Modeler, you can create and use model properties as variables that can be referenced elsewhere. For example, you can create a model property to denote a budget growth ratio for a given year. After you specify a growth ratio, such as 1.02 (a 2-percent increase), you can use the model property in calculations to affect a desired budget. You can also use model properties in a form when dealing with the current period.
- Model properties, unlike many elements within Planning Business Modeler, are dynamically updated when saved. After you save changes you make to model properties, they are automatically updated and referenced in the model site without the need to redeploy. Some elements, such as models and member sets, are not updated with changes until you have redeployed the model site.

Associations

Associations

- The data in your application is built around numerical measurements of the enterprise. With the ability to manipulate the arrangement of interpretive data and its accompanying measurements, you can generate the data needed for advanced analytical and visualization capabilities.

- An association defines the relationship between the source and destination model when models are mapped in PerformancePoint Planning Business Modeler for the purpose of manipulating the arrangement of interpretive data and aggregating its corresponding numerical measurements. When an association is created, it enables the movement of fact data when a data movement job is performed. Fact data is also called a measure that exists in context with one or more dimensions. A measure is a summarizable numeric value that you can use to monitor your business.

- Associations created between models will include corresponding dimensions and members. Models can be associated between two separate model sites.

- An association may be created from an existing model's data to reuse the data to create a model in its own right. Purposes for this kind of association may be to segment a corporate model for each of its divisions. This allows the divisions to work on the model to meet financial planning requirements. This association is also used for taking a snapshot of data for what-if analysis. The following diagram visually demonstrates a larger model contributing to a segment model.

- An association may be created to contribute to a larger model as a method to feed data from a business segment or division into a corporate model. For example, by creating a model for analysis that can contribute to a larger model, each division can do its own planning and feed its final numbers into a corporate model. The following diagram visually demonstrates a segment model contributing to a larger model.

Questions
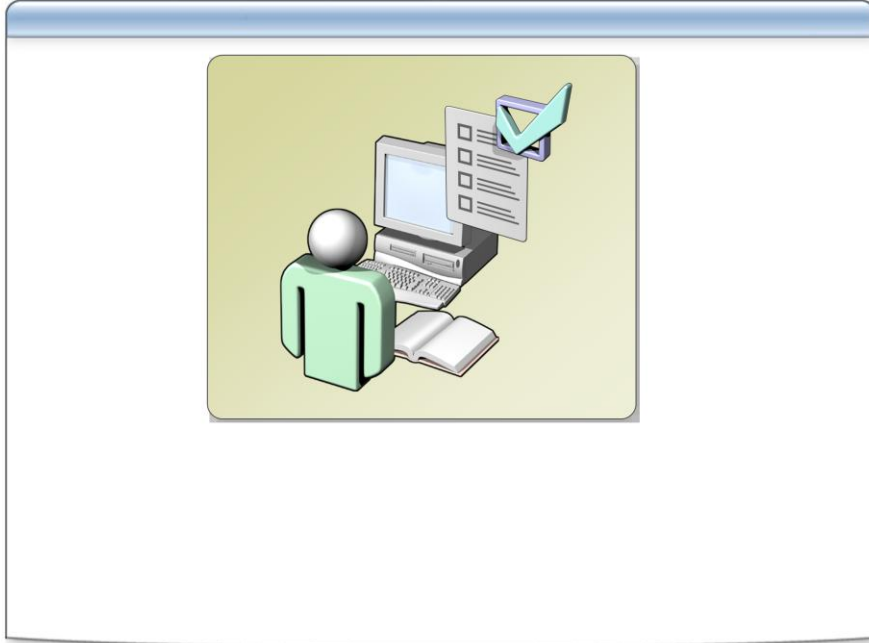
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Chapter 5 – Data Integration

Module 5:
Data Integration

Data Integration Value

- **Automated creation and synchronization of the staging area database**
- **Validation of foreign key relationships for referential integrity**
- **Consistent permission validation**

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Data Integration

- The PerformancePoint Planning Business Modeler data integration feature allows the business user to populate models. This is done using a staging area database that contains data accumulated and validated from many different systems. After accumulating data in the staging area database, use PerformancePoint Planning Business Modeler to load this data into the application database, and then deploy the model site or model as appropriate.

Permissions

- In order to create the staging area database and run the validation stored procedure, you must have the following permissions on the database server running SQL Server:
- Create databases (dbcreator, server role).
- Create or alter structures (ddl admin for staging area db role).
- Run stored procedures (execute permissions).

Notes:

- The staging database and the application database must exist on the same instance of SQL Server.
- Any changes in the application database after deployment of a model will result in a complete refresh of the staging database.

Architecture

Data integration architecture

PerformancePoint Planning Server

Dimensions / Hierarchies — System Data / Measure Groups

Application DB

Source data

Source DBs
CSV Files
XML Files
Other...

Reference data loading — Synchronization — Fact data loading

Data import (manual process)

Staging DB

Dimensions / Hierarchies — System Data / Measure Groups

Planning Business Modeler

SQL Server Analysis Services

SQL Server Reporting Services

Add-in for Excel

ProClarity

Other applications

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Data Integration Architecture

- Before data analysis and planning is available in any business application, Planning Server must get data from one or more combinations of business data. Data can be moved from any one of the data sources to the staging database. The data can then be validated and moved from the staging database to the application database.

Data Integration Overview
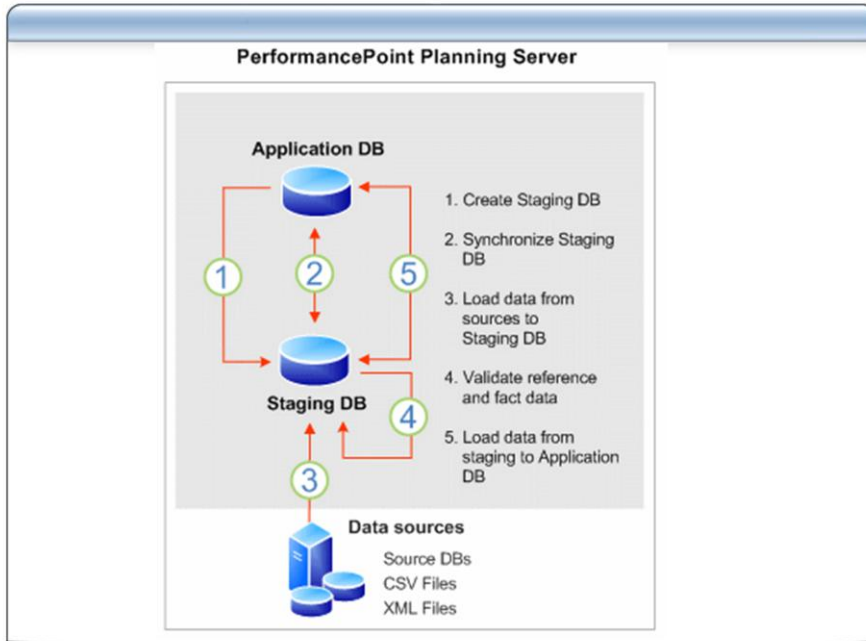
Create Staging Database

Staging Database

PerformancePoint Planning Server

Application DB

1. Create Staging DB
2. Synchronize Staging DB
3. Load data from sources to Staging DB
4. Validate reference and fact data
5. Load data from staging to Application DB

Staging DB

Data sources
Source DBs
CSV Files
XML Files

Microsoft Office PerformancePoint Server 2007
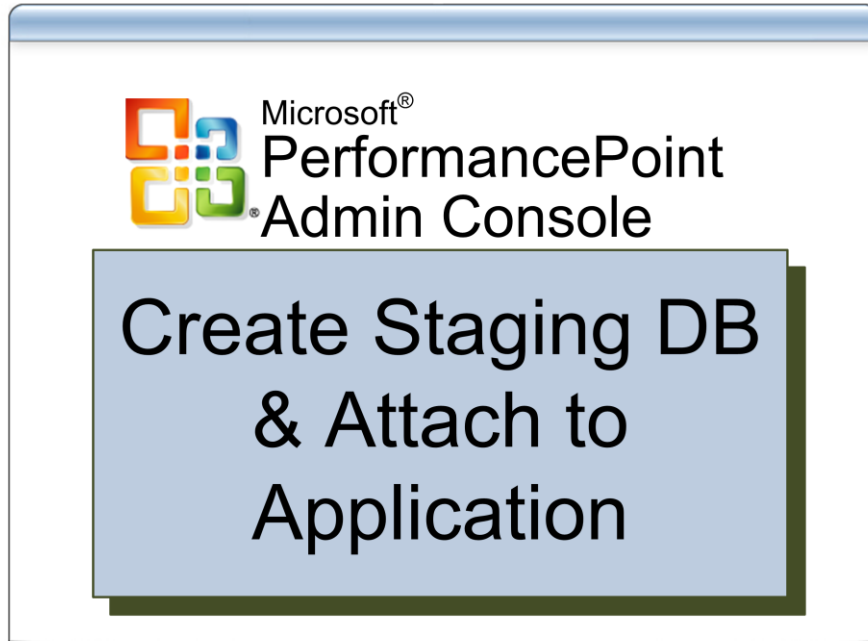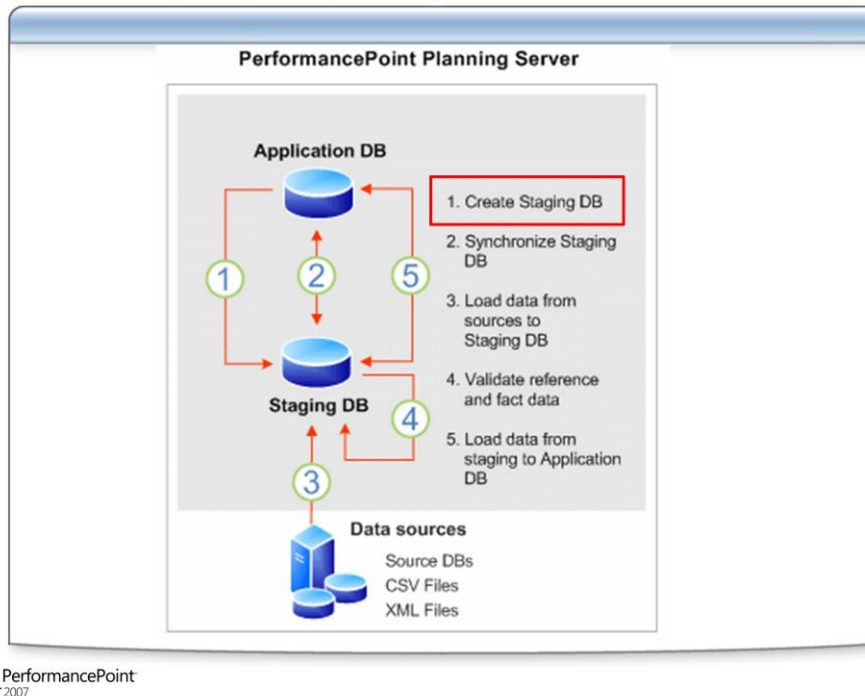
Create the Staging Database

- Each application needs a corresponding staging database to load fact table information. Use the Planning Administration Console to create the staging database during the application creation or at a later time.

Synchronize and Load to AppDB in Iterations whenever a change is made to the following

- Dimensions
- Member Sets (made from dimensions)
- Models (made from model sets)

Structure of the Staging Area Database

- The staging area database structure is similar to the application database structure; including schema and content; however, unneeded, system-generated columns are not included.
- One additional column, SystemFlag, is added to the staging area structures. The SystemFlag column is used to control the import of records from the staging area database into the application database.
- The foreign key relationship table, FK_Relationships, is created to track the staging area database structure dependency.
- The stored procedure, SPU_ValidateForeignKeys, is created. This stored procedure can be used to validate data in the staging area database.

Simple Example
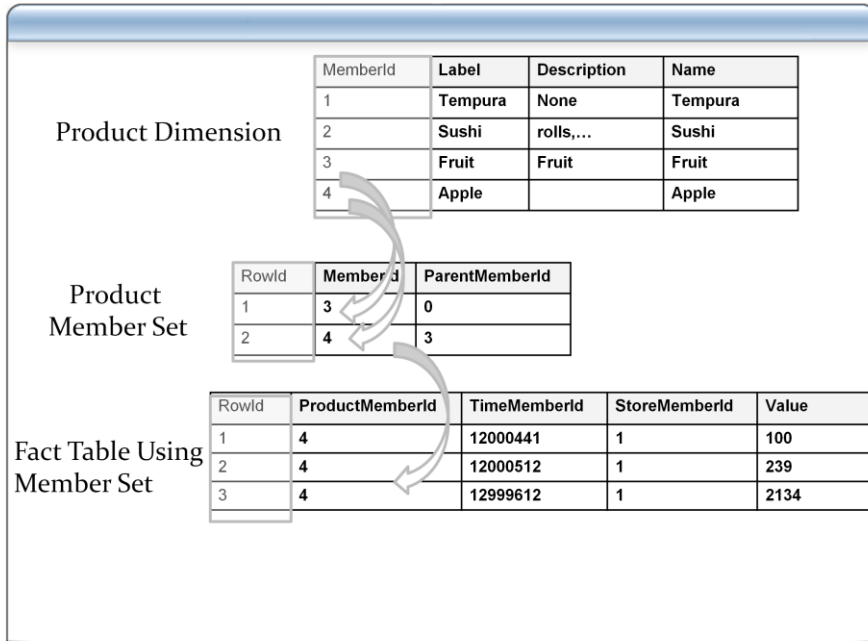
Product Dimension

MemberId	Label	Description	Name
1	Tempura	None	Tempura
2	Sushi	rolls,…	Sushi
3	Fruit	Fruit	Fruit
4	Apple		Apple

Product
Member Set

RowId	MemberId	ParentMemberId
1	3	0
2	4	3

Fact Table Using
Member Set

RowId	ProductMemberId	TimeMemberId	StoreMemberId	Value
1	4	12000441	1	100
2	4	12000512	1	239
3	4	12999612	1	2134
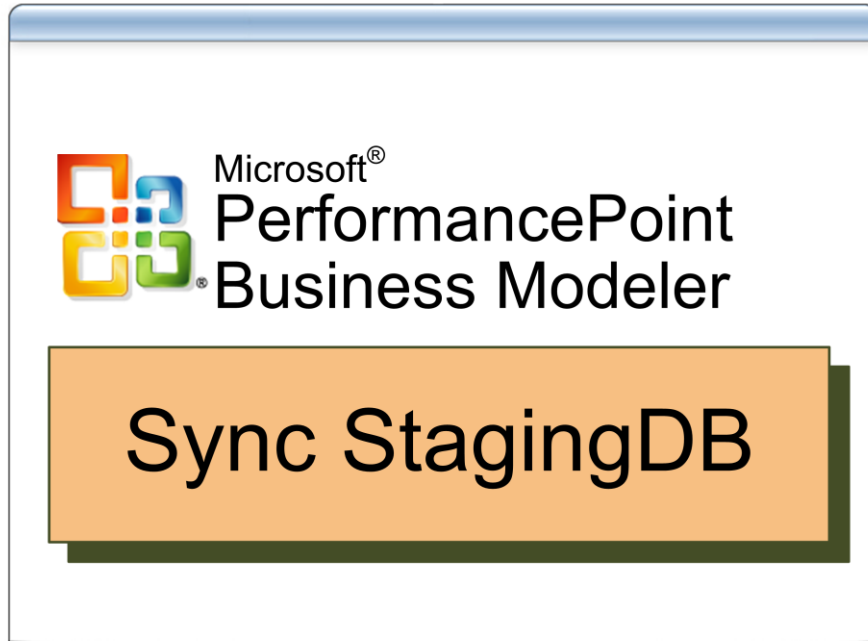
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Synchronize Staging Database

Synchronize Staging Database

PerformancePoint Planning Server

Application DB

1. Create Staging DB
2. Synchronize Staging DB
3. Load data from sources to Staging DB
4. Validate reference and fact data
5. Load data from staging to Application DB

Staging DB

Data sources
Source DBs
CSV Files
XML Files

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Synchronize

- After creating the staging area database, load your model, and then synchronize the staging database to the application database. Synchronization copies the existing structure and data from the application database into the staging area database. Unneeded system fields are not copied into the staging area database.
- For the BizValidationStatus you don't have to set any value, for it is a validation column for business logic. When you load your data the BizValidationStatus column value should be 0 for valid data.
- The BizSystemFlag is used by the validations and uploading system to know what action to take on each row.

Synchronize Models

- In Planning Business Modeler you can synchronize one model at a time or all models at the same time in a model site. The following actions occur during synchronization:
  - The measure groups and related annotations, dimensions, and hierarchies that belong to the specified model are copied to the staging database.
  - Troubleshooting columns are added to the new tables.
  - The FK_Relationships table is updated

Synchronize Dimensions

- You can synchronize one dimension or all dimensions in a model site. When the specified dimension is synchronized the following actions occur:
  - The referenced dimensions and its related hierarchies are created in the staging database.
  - Troubleshooting columns are added to the new tables.
  - The FK_Relationships table is updated.

BizSystemFlag: Value/Action

- 100/Data is in the Application, will be used to validate other structures only. Ex. 200 rows in a H_Y for D_X will be validated against 100 rows in D_X
- 200/Upload row to application
- 300/Update row to application
- 400/Delete row in application
- 900+/This specifies error in row after validation. No action to data will occur when uploading

Populate Datav

Data Sources

PerformancePoint Planning Server

Application DB

1. Create Staging DB
2. Synchronize Staging DB
3. Load data from sources to Staging DB
4. Validate reference and fact data
5. Load data from staging to Application DB

Staging DB

Data sources
Source DBs
CSV Files
XML Files
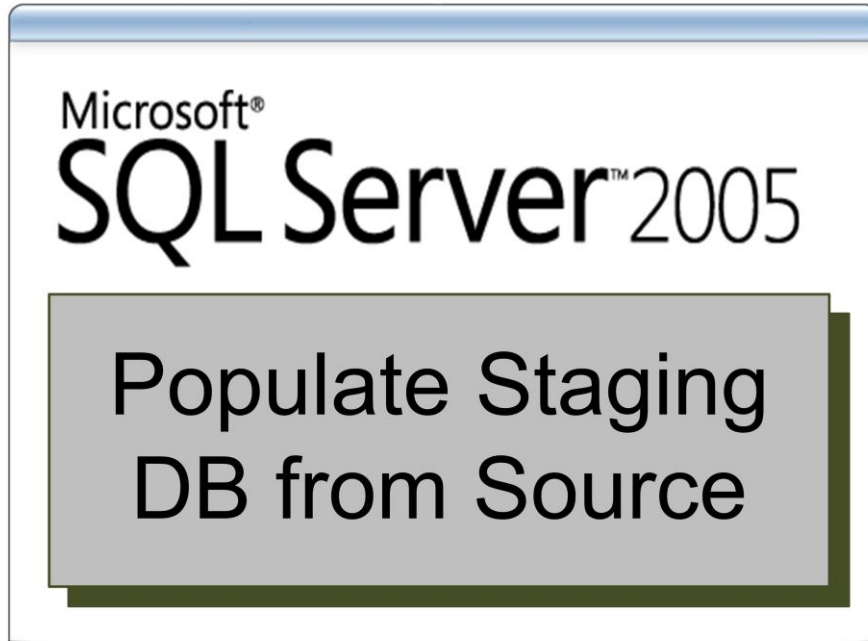
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Data Sources

- Using SQL Server Integration Services (SSIS) packages or other processes, map and load metadata and fact data from source systems to Staging DB and use labels as unique identifiers.

Validate Foreign Keys

PerformancePoint Planning Server

Application DB

1. Create Staging DB
2. Synchronize Staging DB
3. Load data from sources to Staging DB
4. Validate reference and fact data
5. Load data from staging to Application DB

Staging DB

Data sources
Source DBs
CSV Files
XML Files

Microsoft Office PerformancePoint Server 2007

Validation
- Uses provided stored procedures and validates foreign key relationships between Staging DB and App DB
- Sets status flags for each record

Available Stored Procedures
- Bsp_DI_ValidateDimension
- Bsp_DI_ValidateHiearchiesForADimension
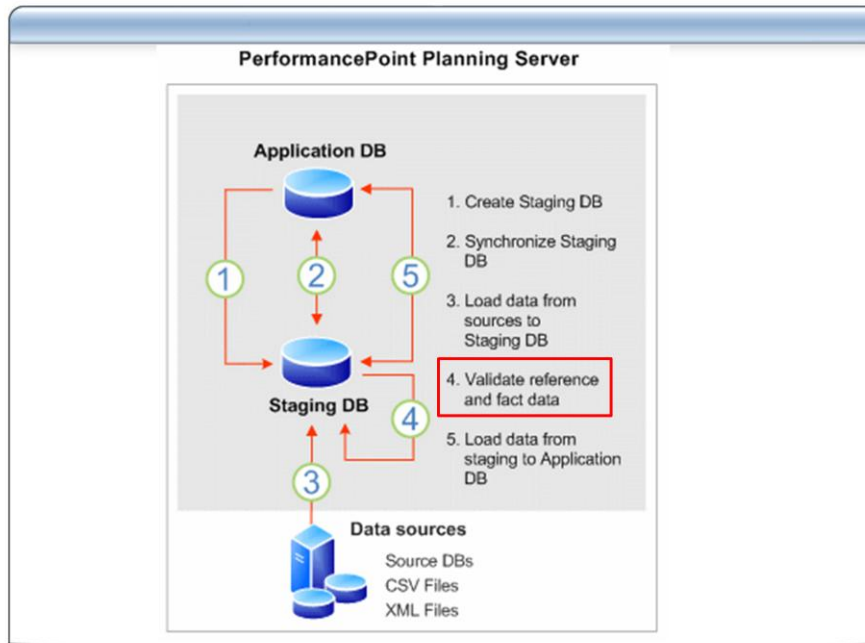- Bsp_DI_ValidateMeasureGroupForModel
- Bsp_CreateHierarchyFromDimension
- Bsp_CreateTableForLabelColumnIntputForModel
- Bsp_ConvertLabelColumnToMemberIdForModel
- bsp_ValidateLabelTable
- bsp_CreateHierarchyTableForLabelColumnInput
- bsp_CreateHierarchyTableForLabelColumnInputForDimension
- bsp_ConvertHierarchyLabelColumnToMemberId
- bsp_ConvertHierarchyLabelColumnToMemberIdForDimension
- bsp_DI_ValidateHierarchy
- bsp_DI_ValidateHierarchiesForADimension

Load Data

Load from Staging to Application

PerformancePoint Planning Server

Application DB

1. Create Staging DB
2. Synchronize Staging DB
3. Load data from sources to Staging DB
4. Validate reference and fact data
5. Load data from staging to Application DB

Staging DB

Data sources
Source DBs
CSV Files
XML Files
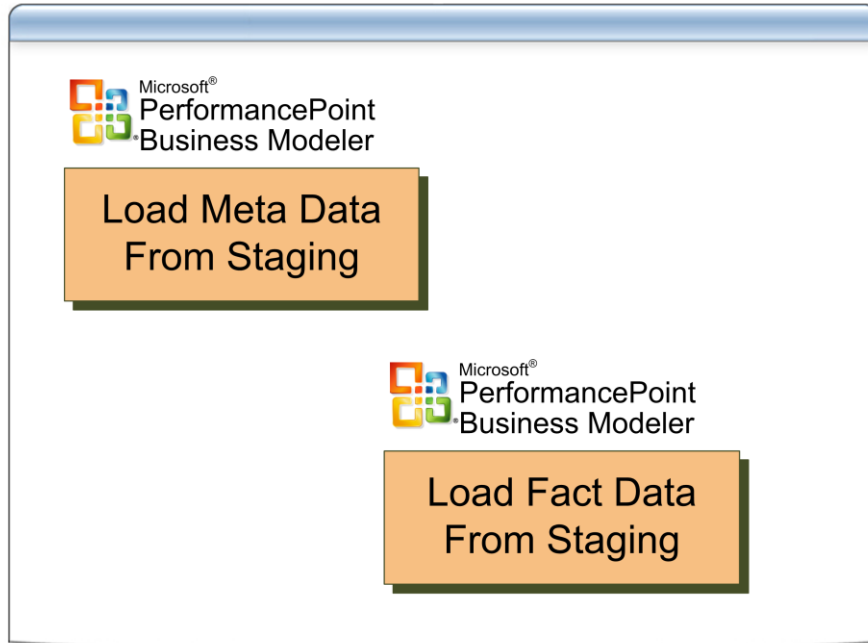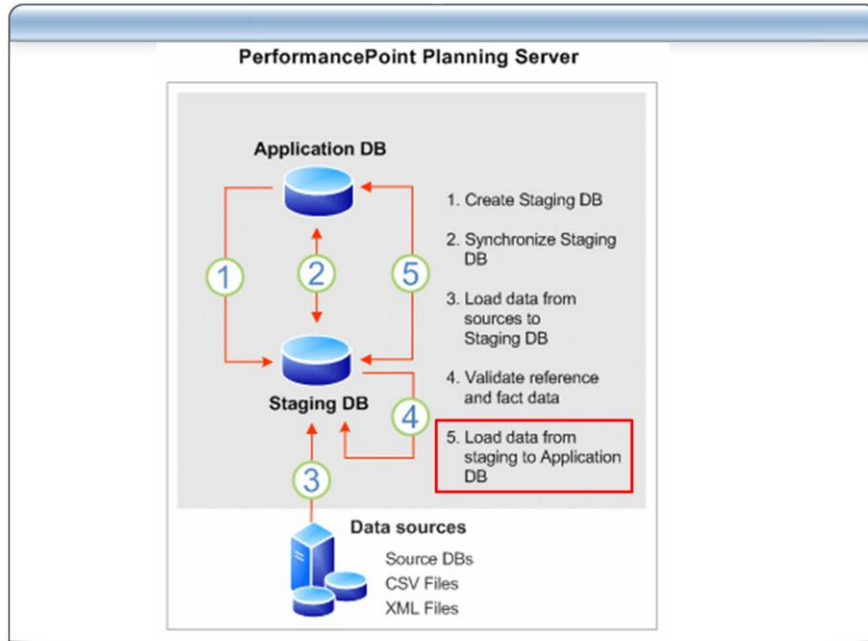
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Prior to loading the data into the application database, confirm that you have:

- Synchronized the databases.
- Imported all data to be loaded into the staging area database.
- Validated the data in the staging area database.
- Verified that the values in the SystemFlags field are set correctly.

Troubleshooting

- **Auditing and logging information is stored in the SystemFlag field of the staging area database**

  Use the SystemFlag values to troubleshoot invalid rows in the staging area database.

- **900**

  Error rows (General Error)

- **930**

  Error – Invalid foreign key relationship
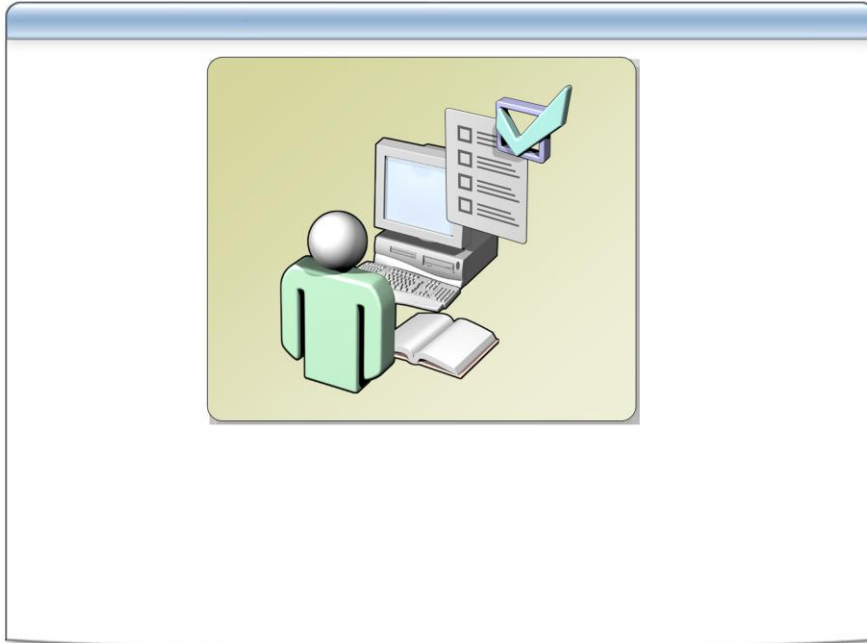
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Questions

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Planning

Chapter 6 – Security

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Planning

Chapter 6 – Security

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Module 6:
Security
Business Roles

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PerformancePoint Security Model

Authentication

- Active Directory Integration

Authorization: Role Based Security

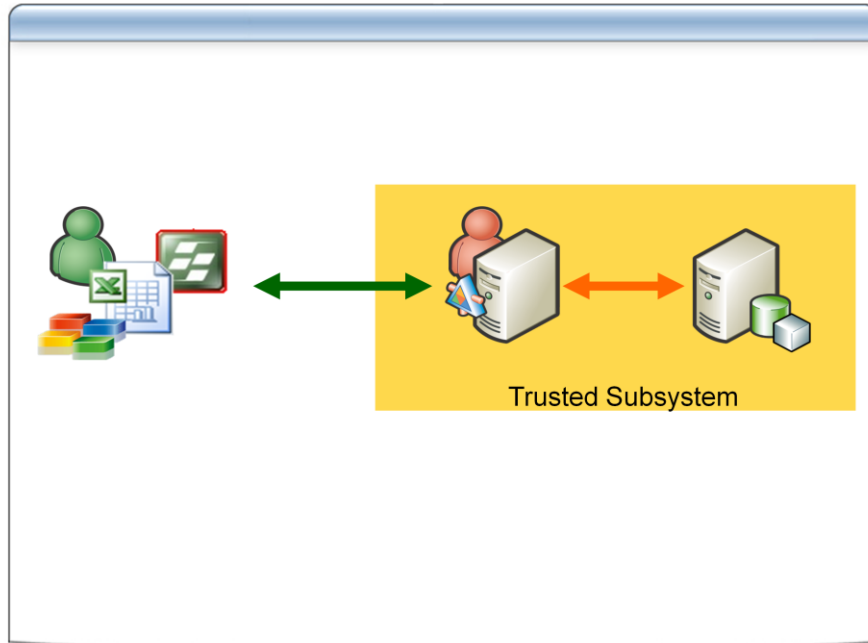- The security model for PerformancePoint is based on both built-in and user-created roles. Users are assigned to roles, and their permission levels within the PerformancePoint system are dictated by the roles to which they belong. Administrators can create a role and then add users to the role, or they can add new users to an existing role. Users can be removed from roles if their job duties change. It is also possible to give different users different permission levels within the same role.

Security Roles

Global Administrator	User Administrator
Database Administrator	Modeler
Business Roles	
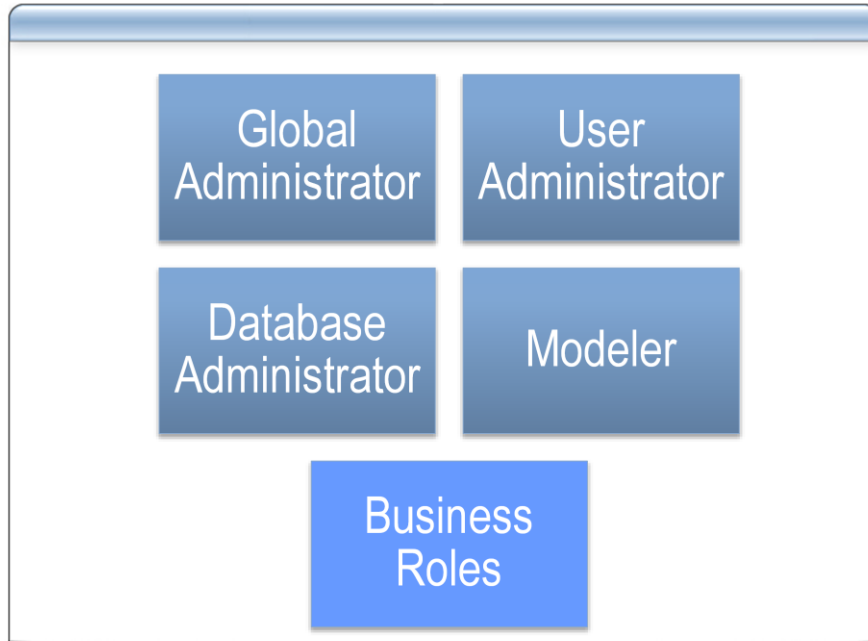
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Role Based Security

- The security model for PerformancePoint Planning Server is based on roles. Users are assigned to roles, and their permission levels in the Microsoft Office PerformancePoint Server 2007 system are dictated by the roles to which they belong. Administrators can create a role and then add users to the role, or they can add new users to an existing role. Users can be removed from roles if, for example, their job duties change.

Administrative Roles

- PerformancePoint Planning Server includes three predefined roles for administrative purposes. The administrative roles are for designating key personnel in your PerformancePoint Server system, and for creating applications, model sites, and models. These roles are used first during the design of your PerformancePoint Planning Server infrastructure, and then to maintain that infrastructure after the system is operational.

Business Roles

- Business roles are created by PerformancePoint Planning Business Modeler users for people in their organization who require access to specific data segments. When a business role is created, a member of the Modeler role gives the business role access to specific member sets in the local model site. When a user is added to the business role, by default the user has the same access permissions as the maximum allowed by the role. However, administrators can give different permission levels to two or more users who are members of the same business role. Similarly, a business role receives Read or Write permission(s) to a set of data, and users in that role can have access to different subsets of the role's data set.

Security Roles

Global Administrator	User Administrator
Database Administrator	Modeler
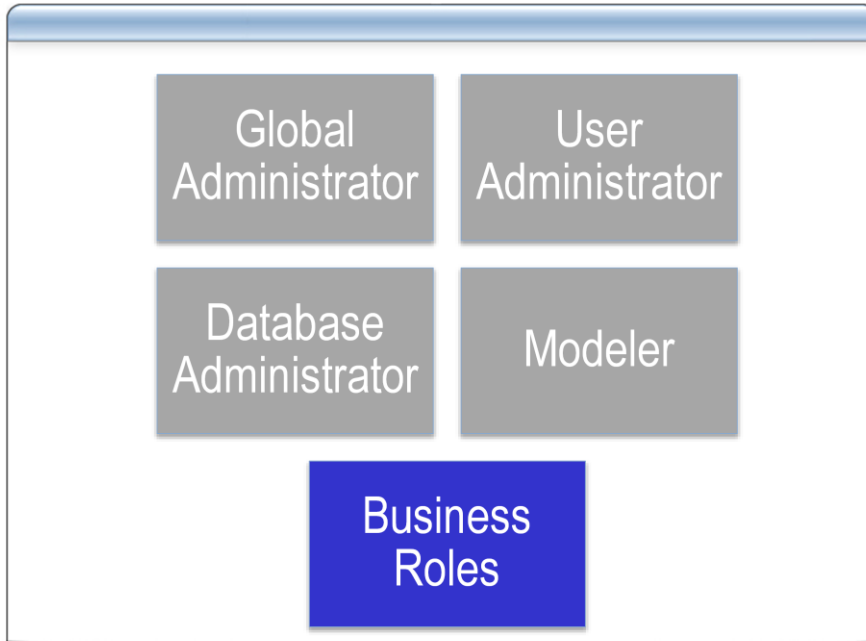
Business Roles

Microsoft Office PerformancePoint Server 2007

Business Roles
- Business roles are user-defined roles created in PerformancePoint Planning Business Modeler for working with business data. Business roles are created by members of the Modeler role, who are likely to be business analysts in the organization. While administrative roles such as Global Administrator and Modeler focus on how to create and maintain the PerformancePoint Server environment, business roles are for end users who must view, analyze, or otherwise work with actual business data.
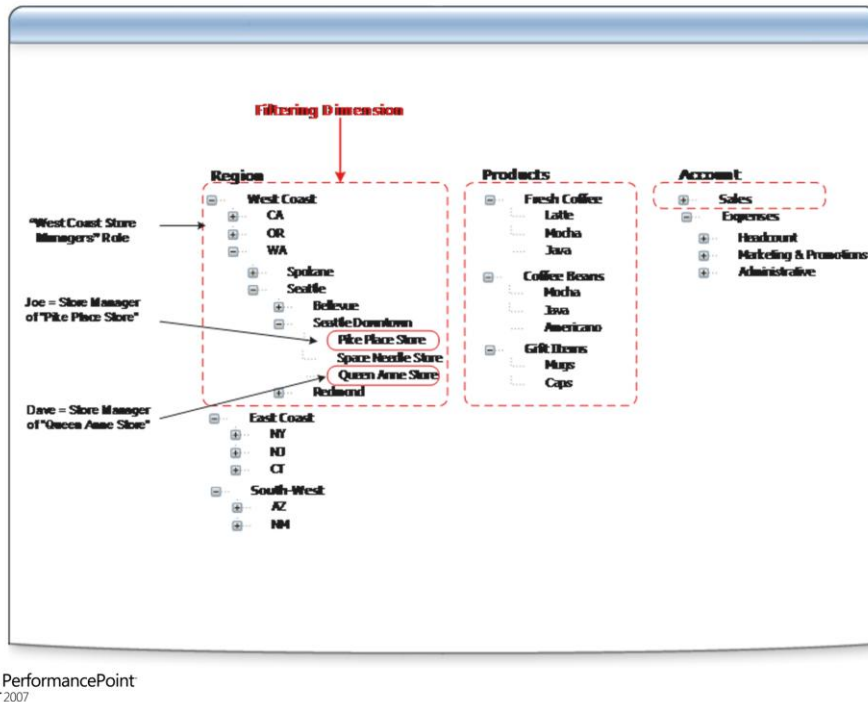
Permissions for a Role
- You create a business role in a model site and then give read or write permission to specific member sets of dimensions in the model site. The role creator bases each business role's member set access on the particular tasks to be performed by users assigned to the roles (role members). Access permissions are granted or denied accordingly.
- By default, business roles cannot access any models in the model site in which they were created, even if the models contain member sets that the business role has permission to access (read or write). Members of the Modeler role must specify which models a business role can access.
- If model access is set to On, members of the business role have the same access to member sets in the model (read, write, both) as those defined by the role. If model access is set to Off (the default setting), the business role cannot access any data in that model, even if the model contains member sets to which the role was given access permissions.
- Model access is a second layer of security in addition to the permissions defined in the business role.

Permissions for Users in a Role
- When a business role is created and then populated with users, by default all users have the same access permissions as those defined by the role. A role member's access permissions cannot exceed those of the role. If a business role has read access to a certain member set, a member of that role can, at maximum, have read permission on the member set. The role member cannot have write access to that member set, for example.

Dynamic Data Permission

Permissions for a business role

- The tasks that users are required to perform should dictate the permissions that you define for the role. The following settings determine the permissions for a business role.

- Access to models. Members of a business role cannot view any data that is contained in a model unless access is granted to the model. This applies even when the role has permissions to member sets in a model. After access to the model is enabled, users can work with the data according to the Read and Write permissions that are defined in the role

Default permissions.

- Default permissions apply for all member sets in the model site and for all users in the role unless explicit permissions have been specified. Default permissions settings let you deny all access, give Read-only access, or give both Read and Write access.

Explicit permissions for member sets or members.

- Explicit permissions override default permissions. You can explicitly specify Read or Write access to specific member sets or members.

Customized permissions for users.

- By default, all users who belong to a role have the same permissions as those that are defined by the role. After a user has been added to a role, his or her permissions can be restricted if the Custom user permissions feature has been enabled for the member set.

Working with Business Roles
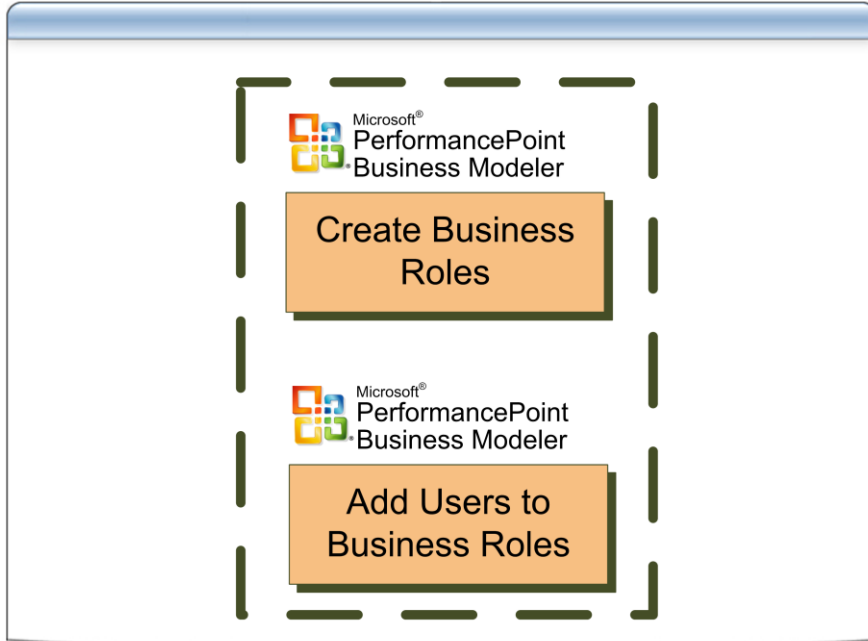
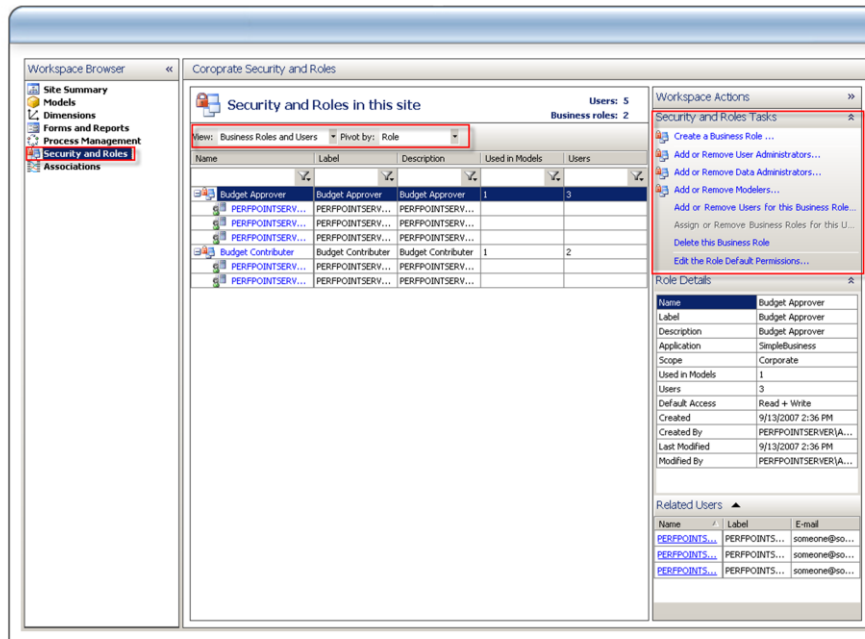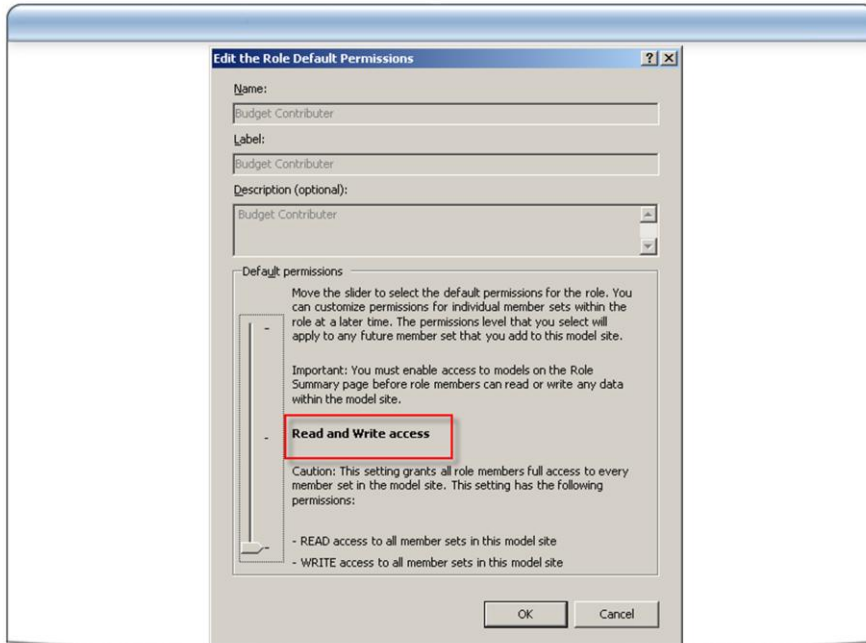# Creating a Business Role

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Creating Roles

- Business roles are created in Planning Business Modeler to control access to business data for PerformancePoint Add-in for Excel users. A business role applies only to the model site that it is created in. Creating a business role consists of three main iterative processes.

- Create the role and configure the permissions for the role. You must belong to the Data Administrator or Modeler role to create a business role or to configure permissions for the role.

- Open access to one or more models. You must belong to the Data Administrator or Modeler role to activate the role to access any business data in a model

- Add users to the role and customize user permissions. You must belong to the User Administrator role to add users to a role or to customize permissions for specific users.

Default Permission Levels

Setting Permission Levels

- The default permissions for a business role apply to all member sets in the model site. Specific Read or Write permissions for a member or member set can exempt them from the defaults. You must belong to the Data Administrator or Modeler role to modify default permissions for the role.

- Changes to this setting will not affect the explicit permissions for the role. However, if a user has customized permissions that exceed those of the role, the user permissions will be restricted accordingly.

- Users who belong to multiple roles may have permissions that exceed those of a particular role. Moreover, Read and Write access are calculated differently.

Adding and Removing users to a Role
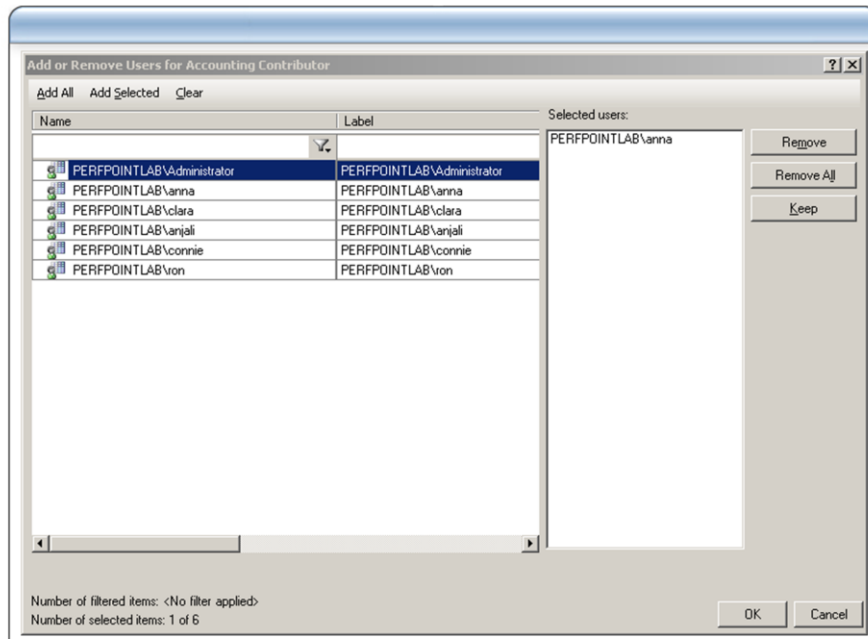
Managing Users

- A business role controls access to business data for users who belong to the role. Before a user can be added to a role, he or she must be added to the Planning Server system from the Planning Administration Console.

- You must belong to the User Administrator role to modify role membership. You can modify business role membership by using one of the following methods.

- Manage role membership for a selected role by using the Add or Remove Users for Role dialog box. This dialog box is especially useful for adding or removing multiple users in a business role.

- Manage role membership for a selected user by using the Assign or Remove Business Roles for User dialog box. This dialog box is especially useful for changing a user's membership in multiple business roles.

Custom Role Permissions
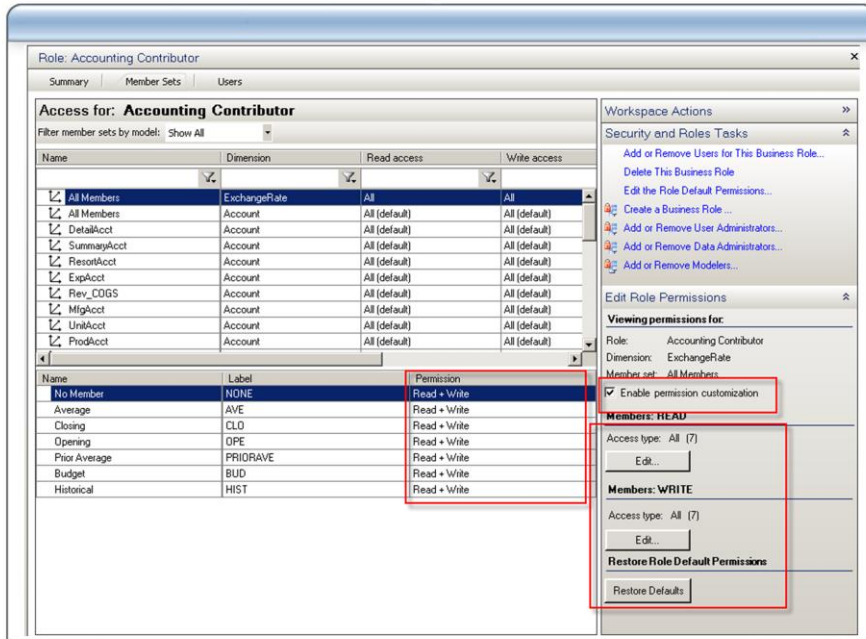
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Custom Permissions

- You can customize user permissions in a business role so that users who are members of the same business role have different read and write access permissions on the same member set or member. You can apply these customized permissions to all models in a model site or just models that you designate.

- When you select the Customize user permissions check box for a member set, the permissions for individual users in the role can be restricted to that member set. You must belong to the Data Administrator or Modeler role to turn on this feature on the Role page. And you must belong to the User Administrator role to customize user permissions on the Users page.

- When you select this check box, both Read access and Write access to the selected member set are set to None for all users in the role and for all users who are added to the role in the future. Therefore, permissions will have to be individually configured for each user who requires Read or Write permissions to the member set. Conversely, clearing the check box removes any customized user permissions to the selected member set.

Changing Specific Permissions
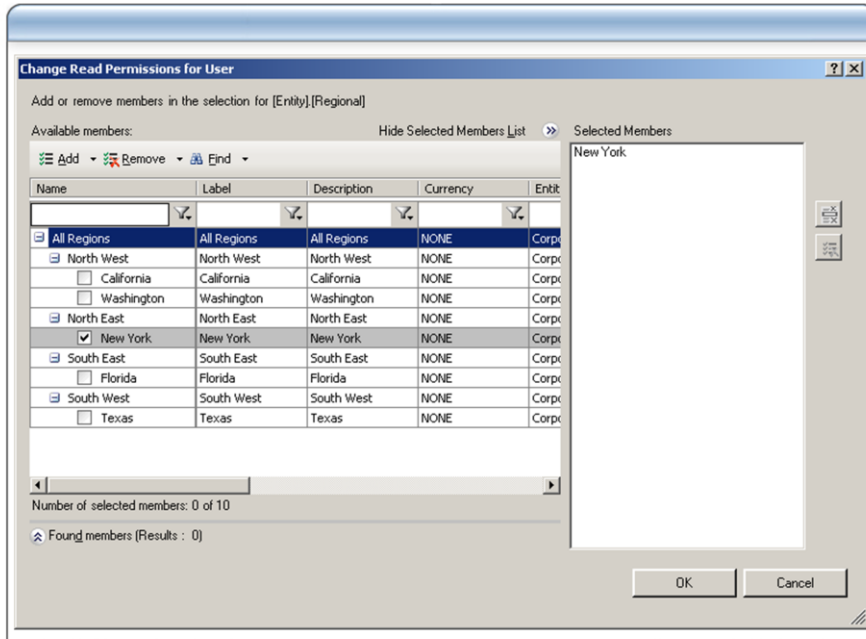
Changing Specific Permissions

- Business roles control Read and Write access to the business data that users work with in PerformancePoint Add-in for Excel forms and reports. In Planning Business Modeler, this business data is represented by the member sets and members that have been added to a model site.

- You can specify permissions for a member set or for individual members in a member set. For example, suppose that you want only the marketing department to view the New Clients member set, but you do not want anyone to view data for Client A in the member set. For the Marketing role, you can give Read access to the New Clients member set and deny Read access to the Client A member.

Questions
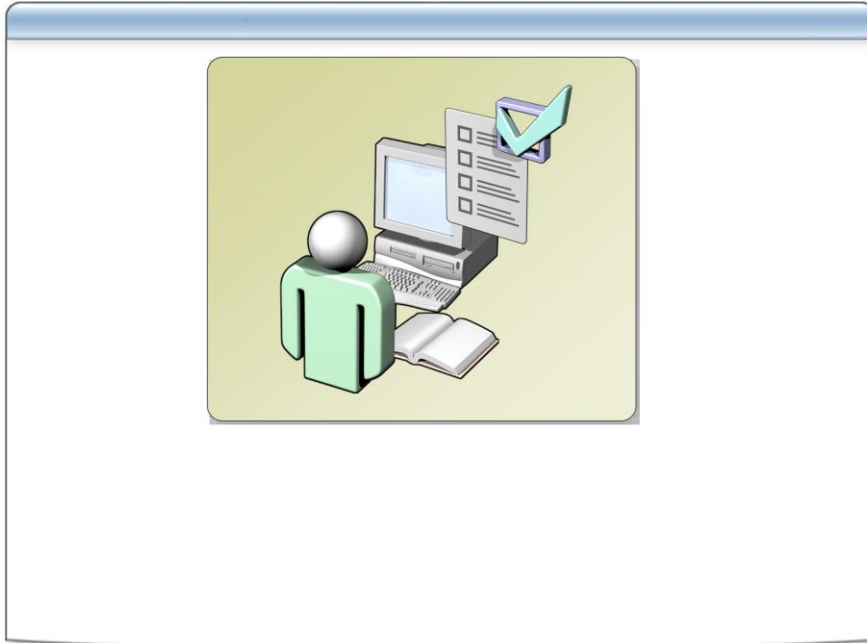
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Planning

Chapter 7 – Excel Integration

Module 7:
Excel Add-In

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Terminology

- **Forms**
- **Reports**
- **Matrix**
- **Filters**

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Forms

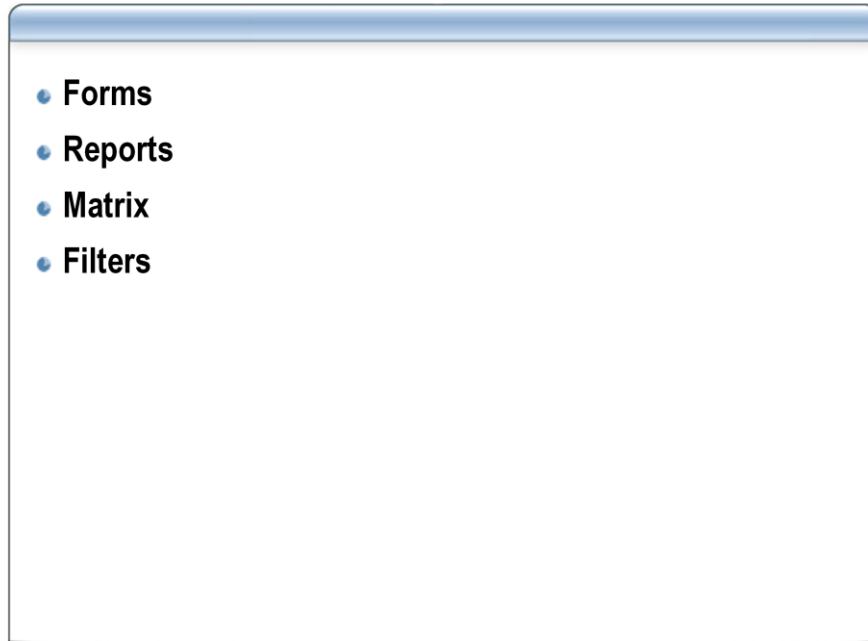- A PerformancePoint form can be blank or can display data from one or several PerformancePoint models. You enter the requested data, which can then be used as input for calculations in other cells in that worksheet. When you submit your data, it is saved on the server running PerformancePoint and possibly sent on to others for review, comment, and/or approval. After it is approved, that data can be used in other PerformancePoint worksheets for planning, budgeting, or forecasting purposes.

- PerformancePoint forms can be financial or custom forms that are specified by your business. PerformancePoint forms are typically designed and vetted by members of your group and then created by a business analyst using Biz Modeler and the PerformancePoint Excel Add-in. Superficially, PerformancePoint forms might look very similar to standard Excel forms but they are supported by planning, budgeting, and forecasting calculations available only through the PerformancePoint Excel Add-in.

- Data should be entered at the leaf level for all dimensions. All dimensions should be represented in the rows, columns or filters of each matrix so there is no question as to where the data will go when submitted.

Reports

- A PerformancePoint report takes data from one or several PerformancePoint models and displays that data in a meaningful way. These reports can be standard financial reports or custom reports that are specific to your business. PerformancePoint reports are typically designed and vetted by members of your group and then created by a business analyst using Biz Modeler and the PerformancePoint Excel Add-in. Superficially, PerformancePoint reports might look very similar to standard Excel reports, but they are supported by planning, budgeting, and forecasting calculations available only through the PerformancePoint Excel Add-in.

Page Filters

- Page filters enable you to restrict the data shown in a form or report to only those cells associated with a particular member property. For forms, you can select only one member property per dimension; for reports you can select all or a subset of the available member properties associated with a dimension.

Connecting
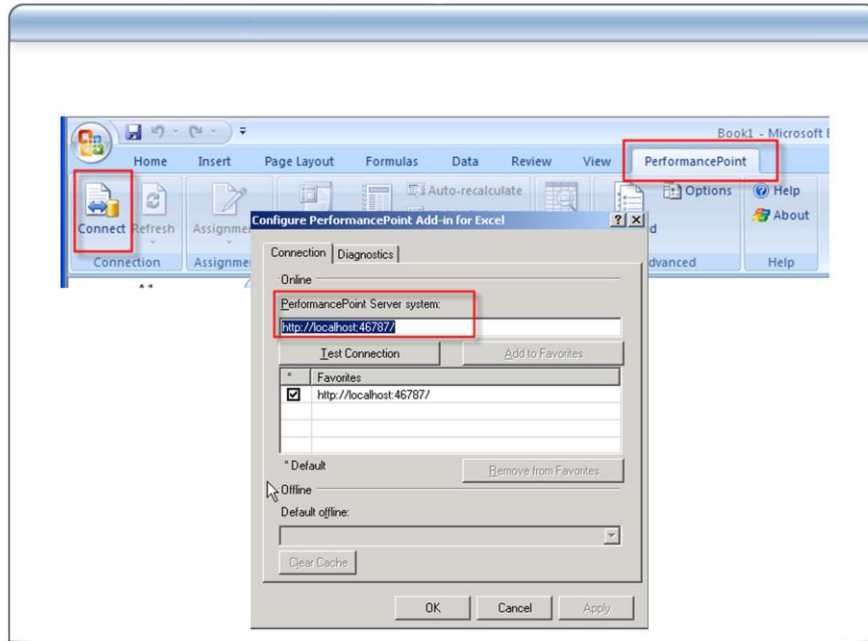
Connecting to PerformancePoint Server

- To begin working in PerformancePoint Add-in for Excel, you must first connect to a server that is running PerformancePoint Planning Server. After your computer is connected to an online PerformancePoint Planning Server system, you can access assignments, forms, and reports from the server. You can also work offline with assignments, forms, and reports that you have downloaded locally. Whether connected to a server or working offline, the action pane is displayed.

Note:

- If a default Microsoft Office PerformancePoint Server 2007 has been set, the PerformancePoint menu item reads Connected to <your server> and the Configure PerformancePoint Planning Add-in for Excel dialog box does not appear. Instead, when you click the menu item, PerformancePoint Planning Server immediately attempts to log on to the default server, requiring no further input from you.

Assignments
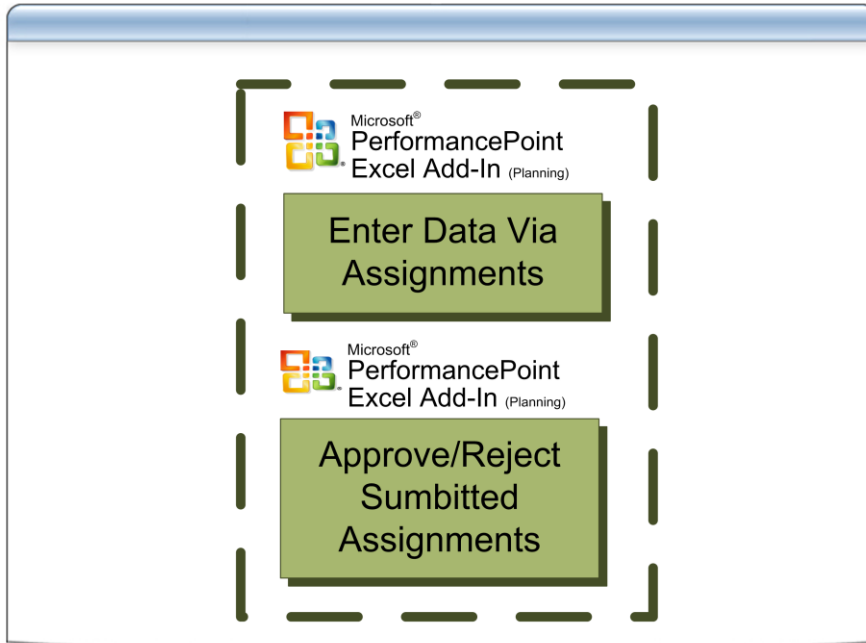
Assignments

- **The Assignments action pane is the default action pane of the PerformancePoint Add-in for Excel.**
- **You can use the action pane to**
  - Open assignments
  - View assignment details
  - Save Privately
  - Submit
    - Draft
    - Final
- **The Assignments action pane contains a toolbar and two sections.**

Submission:
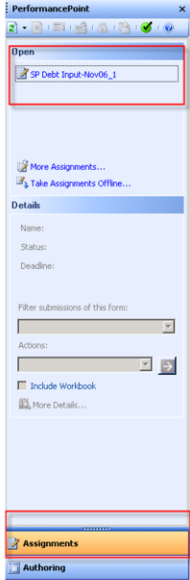- In the PerformancePoint Add-in for Excel, the process of saving your assignments varies slightly depending on whether you are working online or offline.
- If you wish to select the Submit Draft or the Submit Final action again in an assignment, you can avoid duplicated annotations by closing the assignment and reopening it before doing so.

Saving or Submitting Online Assignments
- For online assignments, you can save your changes using the Save Privately, Submit Draft, and Submit Final actions in the action pane. The Save Privately action saves your data to the Planning Server; however, your assignment is saved privately and your changes are not populated to the server. The Submit Draft action saves a version that you can later modify or update. The Submit Final action saves your assignment and populates your changes to the server making them viewable to other users.
- Note For Planning Server assignments, do not use the standard Excel Save and Save As functions. Using these will remove the Planning Server features from your assignment and will save it as a regular Excel .xls file.

Saving or Submitting Offline Assignments
- For assignments you have taken offline and modified, there are two ways that you can save your changes. If you are working on an offline assignment and are still connected to the computer running Planning Server, you can save or submit your changes using the actions on the action pane. Your assignment will be saved or submitted as though you were online. If you are working on an offline assignment without a connection, you must use the Save Privately action before you close the workbook when you are finished working on your assignment. Your changes will then be available to you if you choose to work offline again.

Submitting a Draft of an Assignment
- When you select the Submit Draft action in the action pane, any data you added or changed in the form is saved to the database, but you can still modify the assignment. Thus, the Contributor can add or change data again before using the Submit Final action. The Submit Draft action is available only to Contributors.

Offline
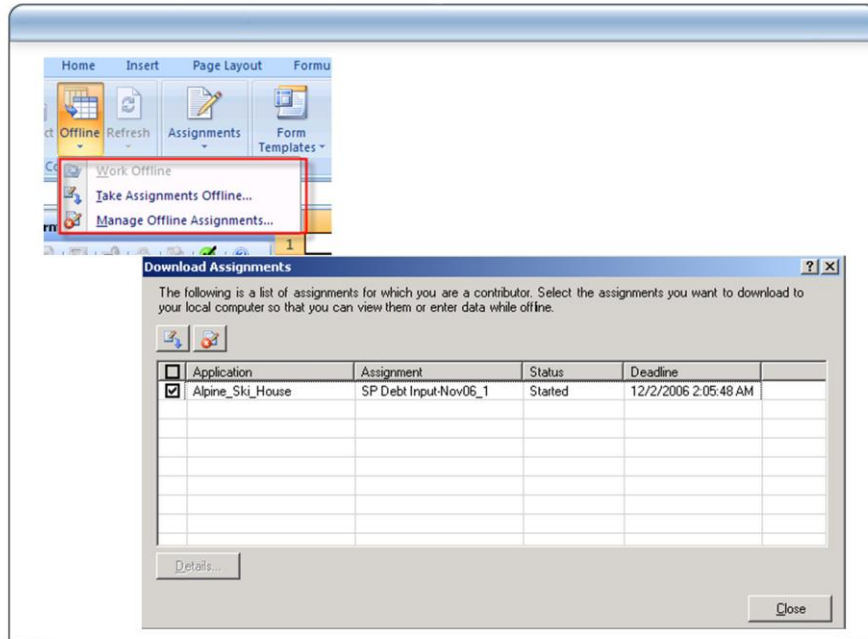
Offline

- When you are using PerformancePoint Add-in for Excel you can choose to work offline and modify downloaded copies of your assignments. You might wish to work offline for one of the following reasons:

    –You are able to realize faster calculations while offline.

    –You are traveling and not able to connect to the computer running PerformancePoint Planning Server.

    –The computer running PerformancePoint Planning Server is unavailable due to maintenance.

- Working offline allows you to build, view, and input data without an active connection to the computer running PerformancePoint Planning Server. You can choose to work offline when you open Excel, or, if you are connected to the computer running PerformancePoint Planning Server, you can disconnect and work offline at any time. If you have previously downloaded any assignments, you can remain offline and work on the assignments. When you reconnect to the computer running PerformancePoint Planning Server, you can upload the changes you made while working offline. If you do not have any downloaded assignments, you must connect to the computer running PerformancePoint Planning Server before working on an assignment.

- While working offline you might realize faster calculations than you would when working directly from the computer running PerformancePoint Planning Server. This is because while working offline, when you download assignments to your local computer, the PerformancePoint Planning Server information is stored in your local cache. When you calculate data in an offline assignment, the calculations are based on the cached information. You can utilize the offline feature when traveling for instance, or you can choose to work offline even when connected to the computer running PerformancePoint Planning Server.

- When you enter data into a form assignment while you are offline, you can save the form and the data. You do this by selecting Save in the Assignments action pane. Be aware, though, that none of the changes you make to the form assignment will be saved to the PerformancePoint Planning Server database until you go back online and submit the form.

- After you work on a form assignment offline, you must go back online to save to the server the changes you made.

Authoring
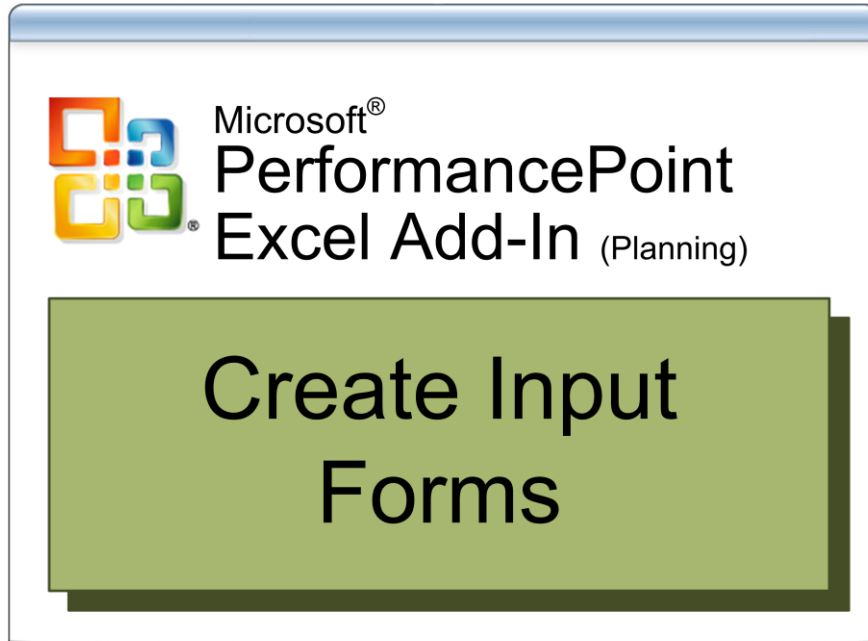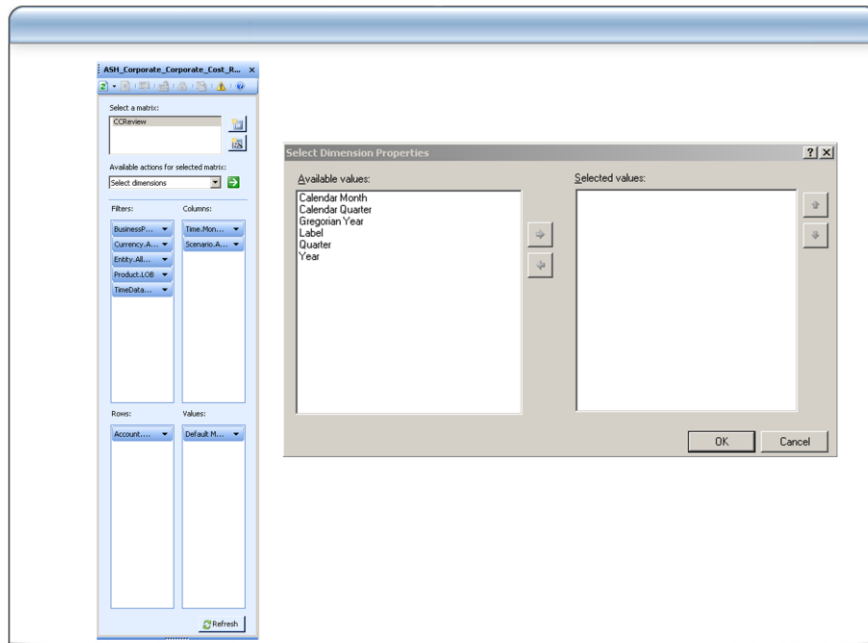
Authoring

Authoring:

- You have two ways to create a form: by using the controls in the Authoring pane on the action pane, or by using the MDX Editor.

Should I Use the Authoring Pane?

- You must have Modeler permissions to create a form using the Authoring pane. The Authoring pane is the quickest and easiest way to create a simple form. It should be used by novice Modelers and when you want to create a simple form. The Authoring pane lets you add and delete matrixes; select dimensions, values, and filters; define member intersections; pivot and reorder dimensions; and select additional properties for use as column and row labels.

Should I Use the MDX Editor?

- You must have Modeler permissions to create a form using the MDX Editor. The MDX Editor is a tool that you can use to create a form using the MDX language. It is for advanced users who know the MDX language well. Coding a form in this manner gives you the most control over customization.

Report Wizard

Report Wizard

Advanced Authoring

Refresh

- In the PerformancePoint Add-in for Excel, you can refresh:
  - Workbooks
  - Worksheets
  - Action pane
  - Local cache

Refresh Cache

- You must be connected to the PerformancePoint Planning Server system to use the Refresh Cache option. This option updates any assignments you have downloaded with the most current version from the server.
- Depending on the state of the assignment, the Refresh Cache action can be used to cache the workbook or to cache the entire cube. When the assignment is opened for the first time, Refresh Cache applies to the workbook only. If the entire cube has been cached, Refresh Cache refreshes the workbook and the data cube.

Refresh Worksheet

- The Refresh Worksheet option refreshes the current worksheet when connected to the PerformancePoint Planning Server system. Matrixes in the worksheet are updated from the server and calculations in the worksheet are completed. If you use the Refresh Worksheet option while working offline, any assignment updates will be calculated, but worksheet data stored on the server and cube data will not be updated.

Refresh Workbook

- The Refresh Workbook option refreshes the current workbook and all worksheets within it when connected to the PerformancePoint Planning Server system. Matrixes in each worksheet are updated from the server and any calculations in the worksheets are completed. If you use the Refresh Workbook option while working offline, any assignment updates will be calculated, but workbook data stored on the server and cube data will not be updated.

Refresh Action Pane

- The Refresh Action Pane option refreshes the Details section of the action pane including assignment status. This option is the default behavior when the Refresh icon is clicked in the action pane. When you are working offline, this option is grayed out and is unavailable.
- In addition, this option refreshes the contents of the top five assignments in the assignment list. This is useful as the most pertinent assignments for the user can frequently change as assignment states change.

Refreshing While Offline

- When you refresh items while working offline, calculations in the workbook or worksheets are executed. However, the data retrieved from the server is not updated during the refresh, as the data is a static snapshot of the server at the time the data was taken offline.

Permissions

- **Permissions are based on Roles created in the PerformancePoint Planning Business Modeler**
- **Users will only see aggregated data totals based on their permissions**

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Security

- Users are permitted to view and edit data based on their specific roles. For instance, a user in the United States can have a contributor role named PacNorthWestControl. This role could be defined to enable the user to view and edit all the sales data for the Pacific Northwest states, but not any data from other states. Another similar role, NewEnglandControl, could view and edit sales data for the New England states. Neither role could see the data for the other.

- When viewing aggregate data, users will only see totals that are based on the data they have permission to see. For example, when the PacNorthWestControl user views the United States total sales data, only the sales numbers for the Pacific Northwest states are included in the total.

- User roles are created, assigned, and managed in PerformancePoint Planning Business Modeler by someone with the modeler role.

Tips and Tricks—General

- Use Selection set functions to make member selections dynamic
- Don't use "All Members" If a Hierarchy is Available
- Use Conditional Formatting to Make Background Color "Stick"
- Include All Dimensions in Matrix for Input Forms
- Set All Dimensions to Leaf Level for Input Forms
- Save Using PerformancePoint Save (not Excel Save)
- Use Import/Export Feature to Copy Forms and Reports Between Applications
- Name all Sheets Before Adding Matrices

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Tips and Tricks—Custom MDX

- **Use Custom MDX to Include Blank Rows/Columns**
- **Use $CurrentPeriod$ in MDX to Make Forms Dynamic**
- **Use Filters or MDX Filter Command in Place of Where Clause**
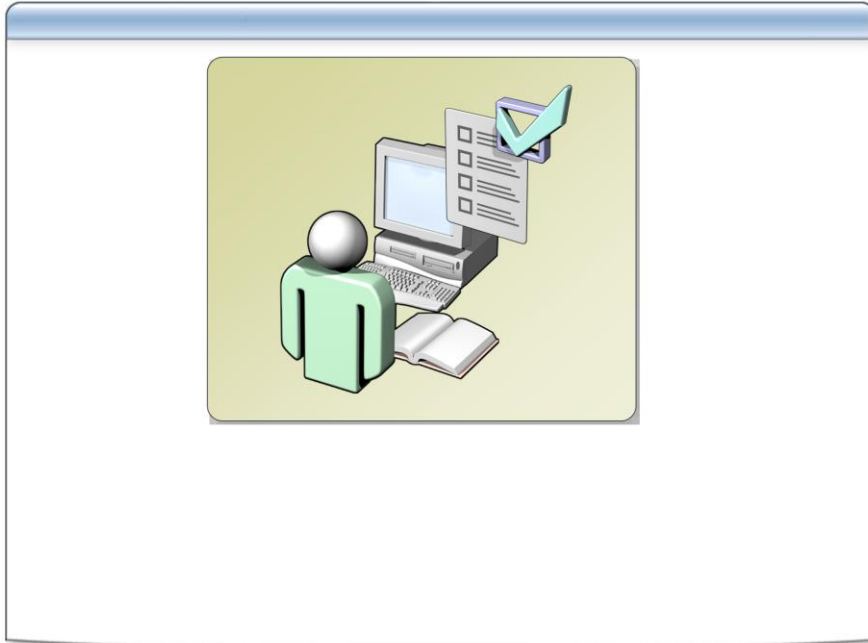
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Questions

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Chapter 8 – Process Management

Delivered By:
IT Mentors
pps@itmentors.com
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Module 8:
Process Management

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Process Management

Cycles
- Stand alone
- Recurrence

Assignments
- Roles/users – contributors
- Reviewers/Approvers
- Approval user hierarchies
- Notifications

Jobs
- Stand alone
- Recur with cycle
- Manual run
- Scheduled run
- Instance can be re-run

Modeler · Cycle · Assignment · Contributor · Reviewer/Approver · Workflow Storage

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Process Management

- PerformancePoint Planning Server process scheduling enables users to create and track data-submission assignments for users, and jobs for automated system actions. An assignment is a process-related task, such as data entry, that is assigned to a user. Assignments can be defined to include review and/or approval by other users. A job is a system task such as loading data, running rule sets, or sending notifications. These assignments and jobs are scheduled within a cycle, which defines the date that the job will occur or that the assignment is due. A cycle might be a one-time occurrence, or it might be scheduled to recur repeatedly over a span of time or a specific number of instances.

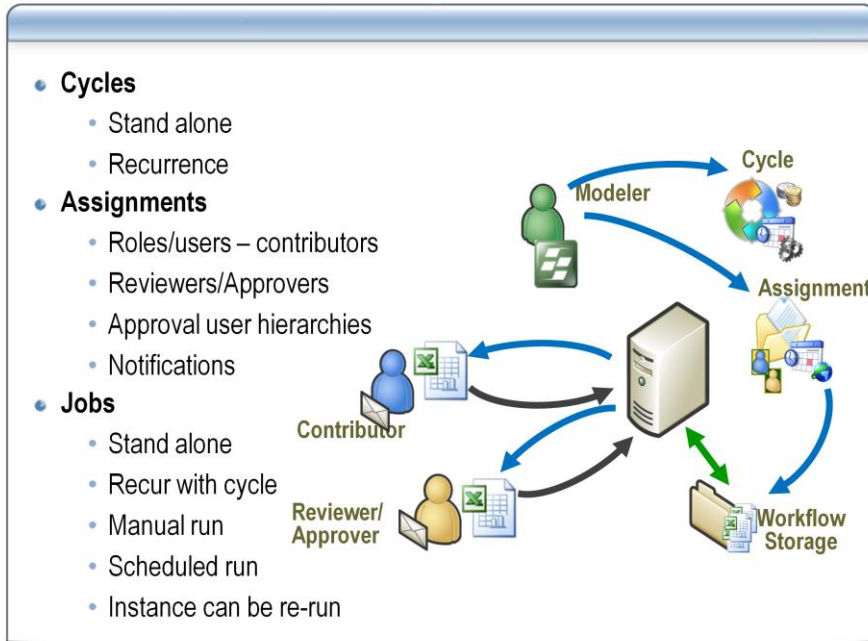- One of the goals of PerformancePoint Planning Server is to expedite the gathering of specific financial data from individuals tasked with generating or tracking that data. Managers and business process owners use PerformancePoint Planning Business Modeler to create process scheduling cycles and assignments (forms and worksheets). Users of the PerformancePoint Add-in for Excel use process scheduling features to complete their assignments. Each user in PerformancePoint Add-in for Excel has one or more roles. A user's role determines what actions the user can take on an assignment. An assignment is a data entry task assigned to a contributor, and it progresses through a series of states as each user in the process completes work on it. When an assignment changes state, the next user in the chain is notified through e-mail or through the PerformancePoint Add-in for Excel when they connect to the computer running PerformancePoint Planning Server. Assignments also contain information about the category, range, or scope of the data that the business user should enter, along with deadline information.

- The process scheduling feature enables the Business Modeler user to define and track the flow of work between individuals and departments. Process scheduling notifies users of new work assigned to them; managers can observe the status of assignments; and reviewers and approvers can access related source data to fulfill their review and approval duties.

Process Relationship

Heirarchy View of
Cycles, Assignments, Forms and Users
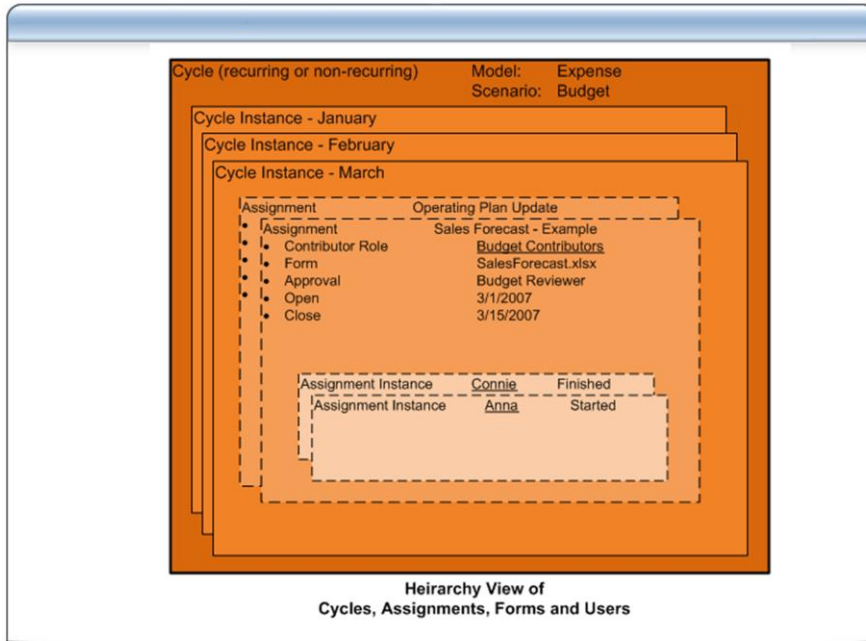
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**Overview of process scheduling in Planning Business Modeler**

- An assignment is a data entry task that is assigned to a user. A process scheduling cycle defines the steps that are required to finish the assignment, and the dates by which the steps must be accomplished. As each user in the process finishes a task in the assignment, Planning Business Modeler changes the state of the assignment to reflect its progress through the steps. Each time an assignment changes state, Planning Business Modeler notifies the next user in the chain.
- Process scheduling enables a Planning Business Modeler user to define and track the flow of work between individuals and departments. Managers can see the status of assignments. Reviewers and approvers can access related source data to fulfill their review and approval duties.

The following list shows the steps in a typical process schedule cycle.

1. A manager creates a process scheduling cycle by using Planning Business Modeler. Within the cycle, the manager creates assignments and assigns contributors, deadlines, review, and approval.
2. When the start date for an assignment occurs, Planning Business Modeler notifies the contributor that an assignment is due. The contributor opens Excel and connects to the appropriate computer that is running Planning Server and the application. The action pane displays the contributor's list of current assignments.
3. The contributor opens an assignment, which loads a form in Excel. The contributor enters the required data and then submits the work. This changes the status of the assignment from Work in Progress to Ready for Review.
4. The specified reviewer receives an e-mail message that states that a new assignment is ready for review. The reviewer reviews the data. When all reviewers who are specified for the assignment have finished, the assignment status changes from Ready for Review to Reviewed.
5. The specified approver receives an e-mail message that states that a new assignment is ready for approval. The approver reviews the data, and approves or rejects the submission. If the approver rejects the submission, the assignment status changes to Rejected, and the job is assigned back to the original contributor for correction.

    When all approvers who are specified for the assignment approve the submitted job, the assignment status changes from Reviewed to Approved/Final.

Cycles and Assignments
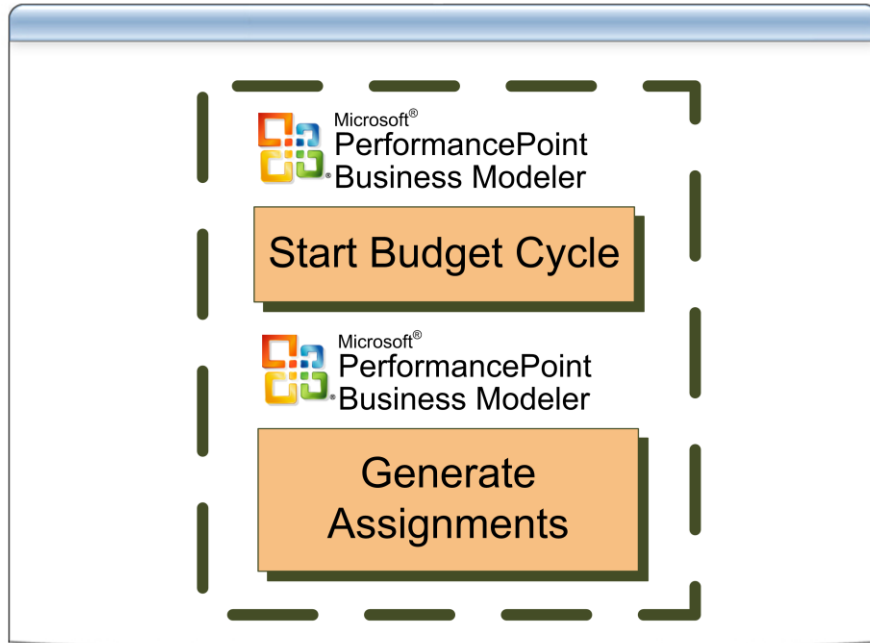
Cycles

- **Create, Define and Schedule**
  - Assignments
  - Jobs
- **A cycle definition specifies:**
  - A recurrence pattern (e.g. Monthly, Quarterly etc)
  - A **Scenario** for all instances (e.g. Budget as opposed to Forecast etc)
  - A **Model** for all instances
  - What period a cycle is active
- **A cycle instance specifies:**
  - What time period users can enter data against (e.g. 3-1-06 to 3-31-06)
  - What period the cycle is active (e.g. 2-1-06 through 2-28-06)

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Cycles
- Process scheduling cycles are used to create, define, and schedule assignments and jobs. Cycles are created and maintained using the Cycle Creation Wizard. For more information on creating a cycle, see the Create a Cycle topic.
- A cycle defines the date that a job will occur or an assignment is due. A cycle might be a one-time occurrence, or it might be scheduled to recur repeatedly over a span of time or a specific number of instances.
- A cycle is associated with a specific model site. However, a cycle can reference other model sites. Within a model site, process scheduling has two primary responsibilities. The first is to enable the orchestration of business processes in a model site. The second is to facilitate processes that cross model sites.

Cycle Definition
- A cycle definition is a template for cycles. You can create cycle instances from cycle templates. Any edits to the cycle definition are applied to every subsequently created cycle instance based on that cycle definition.

Cycle Instance
- A cycle instance is a specific occurrence of a cycle definition. Edits to a cycle instance only affect that cycle instance.

A cycle specifies:
- What time period can users enter data against (e.g. 3-1-06 through 3-31-06)
- Which scenario data can be entered against (e.g. Budget as opposed to Forecast etc)
- What period the cycle is active (e.g. 2-1-06 through 2-28-06)
- These values would result in a cycle which allows entry of March '06 Budget data during the month of February '06

Cycle Requirements

- **The model must contain data**
- **Data preparation, such as seeding rules and allocations, must be performed on the data**
- **Security and role information must be defined for users who will participate in the cycle**

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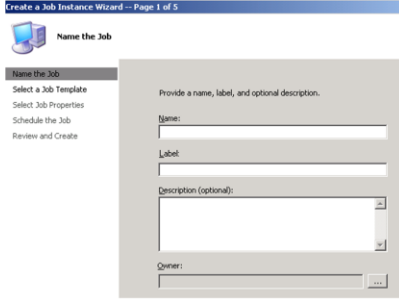
Before creating a cycle, you must know the following:

- What model is data being submitted to?
- What scenario is data being submitted for?
- What members of the time dimension are being submitted to?
- When should users be able to start submitting data?
- What is the deadline for users to submit data?
- Will this be a recurring cycle? If yes, do you want the members of the time dimension to "roll forward"? Is Yes, use the current period variable.
- What data entry forms will be used?
- Which users will be contributors, reviewers, or approvers?

Jobs

- **A job is an automated system task that does not require user interaction**
- **Can exist within cycle or stand alone**
- **Jobs involve executing a predefined process or Ruleset**
- **Scheduled or On-Demand**
- **Job Types**
  - Data Integration Jobs
  - Business Calculations
  - Financial Jobs

Create a Job Instance Wizard -- Page 1 of 5

Name the Job

Name the Job
Select a Job Template   Provide a name, label, and optional description.
Select Job Properties
Schedule the Job   Name:
Review and Create
                           Label:

                           Description (optional):

                           Owner:

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Jobs

- A *job* is an automated system task that does not require user interaction, such as loading data, running rule sets, or sending notifications.
- In Planning Business Modeler, jobs can be created as part of a process schedule inside a cycle. They can also exist independently of a cycle. To create a job outside a cycle, use the Create a Job Instance Wizard in Planning Business Modeler. Alternatively, you can start a job from PerformancePoint Add-in for Excel.

To facilitate the orchestration of business processes, PPLS supports the following types of predefined jobs:

- Calculation Rule
- Consolidation
- Currency Calculation
- Data Export
- Data Load
- Data Movement
- Intercompany Reconciliation
- Opening Balance Calculation
- Shares Calculation

In addition to this set of standard jobs, you can create custom jobs. Custom jobs must have the standard properties listed in the table below, but specific functionality can be customized.

Note Users assigned to the Modeler role can create an unlimited number of jobs. Creating too many jobs, or assigning jobs to too many users, can be detrimental to system performance.

Assignments

- **Exists within cycle**
- **Links Roles/Users and Forms with cycles**
- **Definition and Instance specifies:**
  - Contributors
  - Sets submission deadlines
    (static/relative to cycle start/end)
  - Data Entry Form
  - Submission Period (static/relative to cycle period)
  - Workflow (reviewer/approver/hierarchy optional)
  - Approval/Review deadline (static/relative to cycle start/end)

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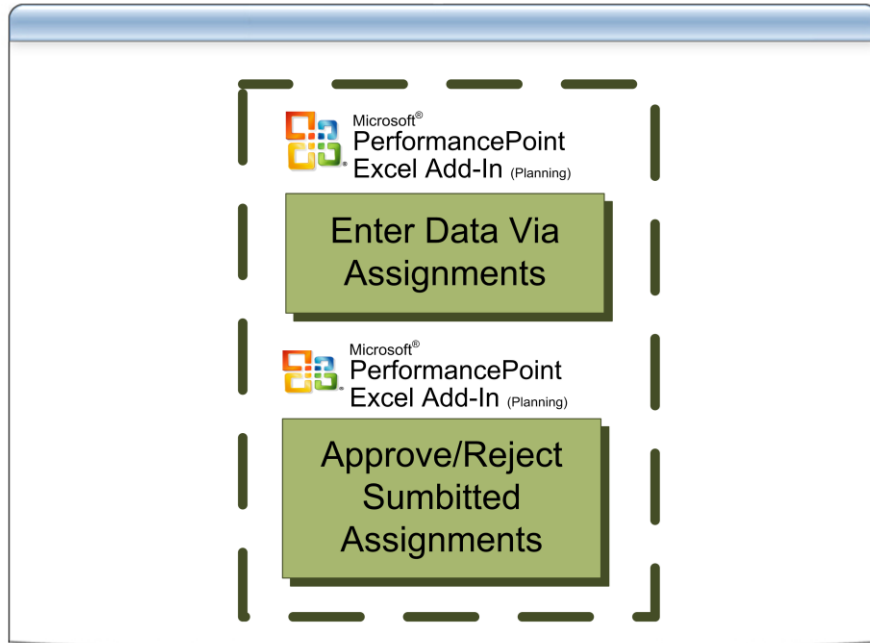

Form Assignments

- Planning Server form assignments appear as worksheets in PerformancePoint Add-in for Excel. The assignments are routed to the appropriate users, who are responsible for adding the requested information and submitting it to the computer that is running Planning Server. Each assignment has a start date, submission and approval deadlines, and a submission, review, and approval process. Together, the dates, processing requirements, and jobs are called a cycle.

From the End-User Perspective

- After a form has been created and added to a cycle, the first person assigned to work with the form is notified about it by e-mail (through Microsoft Office Outlook). The subject field and message body of the e-mail are usually boilerplate text that has been written and agreed upon by other members of the group. It might or might not include some instructions specific to the form, along with the responsibilities of a reviewer or contributor. If instructions are not included in the boilerplate e-mail, they can be included as an attachment to the form, which you can view when you open it in PerformancePoint Excel Add-in.

You can also access assignments in the PerformancePoint Excel Add-in action pane after you connect to a PerformancePoint server.

Excel Add-In Assignments

Assignment Roles

Role	Description	Possible actions
Contributor	Submits data. Contributors enter data in assignment forms, as required, and then submit the assignment. An assignment can have one contributor.	Submit
Reviewer	Review submitted assignments. Reviewers can add comments to aid the approval process. An assignment can have zero or more reviewers.	Review
Approver	Approve, accept or reject the submitted assignment. An assignment can have zero or more approvers.	Approve, Reject, Submit

A user can have multiple roles at the same time in one or more assignments or cycles.

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Roles

- Assignments can be created to include review, approval, and submission. Planning Business Modeler includes three standard functional roles for process scheduling: contributors, reviewers, and approvers. Each role has different actions that are available in a cycle for an assignment.

User permissions

- Access to data in Planning Server is based on assigned permissions. The data or input cells that are available to a user might be different from the data or input cells that are available to a different user. For example, the regional manager for the East Coast might only have permission to see or enter the East Coast sales projections, but not the Midwest or West Coast sales projections.

- Permissions can be set for an individual or for a business role.

Approval Process

State	Description	Dependency	Available actions
Not Started	The assignment is not available for data entry.	The assignment start date has not transpired or a dependency has not been satisfied.	Start
Work in Progress	The assignment is available to the contributor.	The assignment start date has passed and all dependencies have been satisfied.	Submit
Ready for Review	The contributor has submitted the assignment.	The contributor changed the assignment status to Ready for Review.	Approve, Reject, or Review
Reviewed	All reviewers have reviewed the assignment.	The assignment has been approved by all assigned reviewers.	Approve or Reject
Rejected	The approver has rejected the assignment and the contributor must resubmit it after you make modifications.	A single approver changed the status to Rejected.	Submit
Approved/Final	All approvers have approved the assignment.	The assignment has been approved by all assigned approvers.	None

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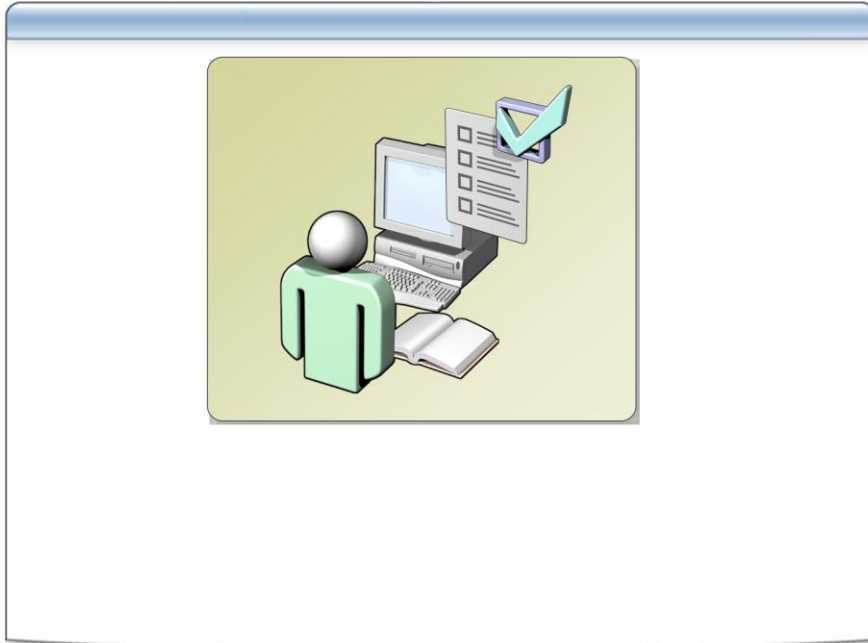Office PerformancePoint
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Process

- Process scheduling provides a standard, formal process for data submission, review, and approval. This process is described by process states, actions, and roles. PerformancePoint Add-in for Excel users take actions (such as submit or review) that change the state of an assignment. States define the status of data at any given point in the process and what actions are available. Actions define what users can do to an assignment, such as approve or submit. Roles specify how different types of users in PerformancePoint Add-in for Excel interact with the process.

States

- The six possible states in which an assignment can be are listed in the table. An assignment can only be in one state at a time, although it can return to previous states based on the actions that are performed. Actions determine to what state an assignment next moves. The state of an assignment can be overridden in Planning Business Modeler. To do this, in the Forms Assignment workspace, click Available Actions in the Assignment Tasks pane.

Questions

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Chapter 9 – Rules and Calculations

Module 9:
Rules and Calculations

Calculation Framework Gives

- **Ability to define a business rule using one language – PEL**
- **Ability to choose most efficient implementation**
- **Functions and Templates**
- **Authoring tools**

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Automate
- Reduce reporting cycles and support increasing compliance requirements
- Support Multiple GAAP reporting
    - Managing complex legal and management reporting hierarchies
    - Consistent business rule definitions that exist outside of the GL

Gain Insight

Analyze key financial and non-financial information
- Knowing your most profitable/unprofitable customers, products, channels, regions..
- Identifying, measuring and monitoring KPIs
- Foreign currency reporting and variance analysis
- Competitive benchmarking and analysis

World class function
- Improving efficiency of the finance function, reduce costs and develop role as business & financial strategist

PEL

- PerformancePoint Expression Language
- Example:

```
SCOPE( [BusinessProcess].[Standard].[INPUT],
[Currency].[All Members].[USD],
[Entity].[ResortOps].[Resort Corp],
[ParentEntity].[All Members].[Resort Mgt],
[Scenario].[All Members].[Budget],
[Time].[Monthly].[Month 1 Year
2005]:[Time].[Monthly].[Month 12 Year 2005);

THIS = ([Scenario].[All Members].[Actual],
[Time].[Monthly].CurrentMember.Lag(12));
END SCOPE;
```

PEL

- Most business rules in Planning Business Modeler are written in PerformancePoint Expression Language (PEL). PEL is a unique language that is designed specifically to create business rules, and to work with multi-dimensional information in Planning Server.
- When you write a business rule in PEL, the PEL compiler automatically applies several optimizations. In addition, the PEL compiler detects many error conditions at compile time. This makes it possible to debug a rule before the rule is integrated into a model and encountered by a user

PEL provides lots of flexibility

- The PEL compiler can generate SQL or MDX. In fact, from the same PEL source, you can generate both and then compare the results.
- Input data can reside in Online Analytical Processing (OLAP) cubes or in relational databases.
- Rule calculations can be performed in the cube by using MDX, or in a relational database by using SQL. You can also perform calculations in main memory by using one of the specialized components in Planning Business Modeler. In addition, PEL supports dozens of powerful functions that you can use to customize your rule.
- Results of calculations can be returned without storage or written to fact tables in the relational database.
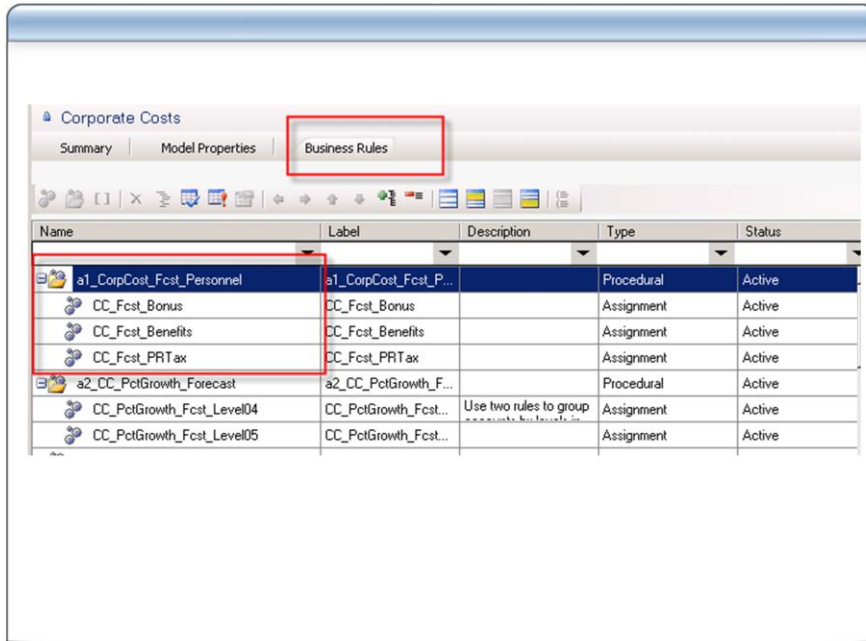
Creating Rules
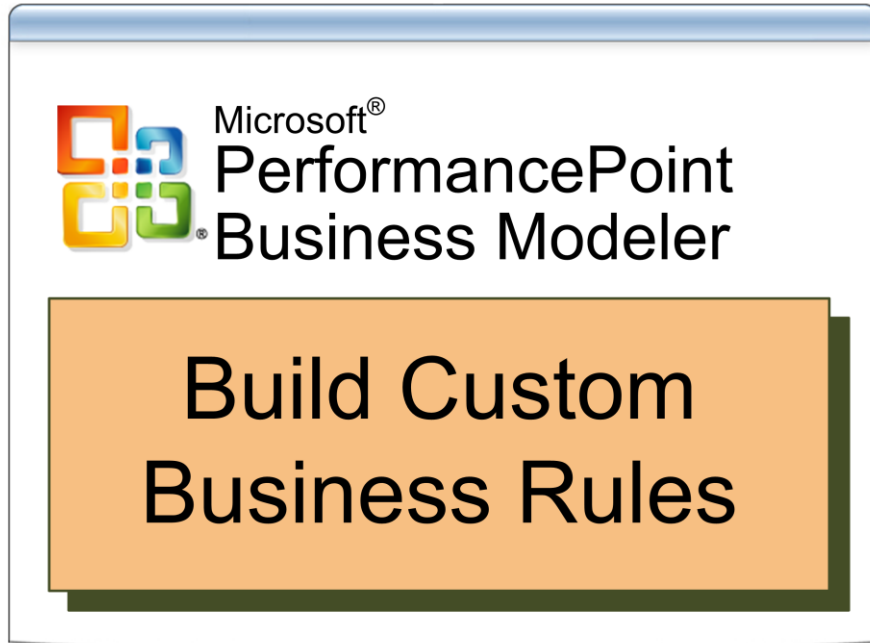
Rule Sets and Rules

Rule Sets and Rules

- A business rule set is a collection of individual rules that perform a common business task. Each individual rule must belong to a rule set. In general, a business rule set may also be nested in a rule set of the same type. PerformancePoint Planning Business Modeler creates some rules and rule sets for you, and provides tools that enable you to create custom rules and rule sets.

- The rules that PerformancePoint Planning Business Modeler creates are called system-defined business rules. When you create a model, links in a collection of elements that are associated with the model. These elements include dimensions, variables, and system-defined business rules. For example, when you create a financial model with shares calculations, adds in a set of important model properties, and then links aggregation, consolidation, and account flow rules.

- When you select the Business Rules tab for a model, the business rules workspace displays rules and definitions, grouped into Rule Sets. The rules displayed are pre-selected for the kind of model you created. The Rule Sets contain all the rules that the system predefined for the model. System defined rules apply at the model site level.

Calculation Rules

There are three properties that identify a business rule:

- TYPE
- IMPLEMENTATION
- BEHAVIOUR

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Rule Types

Rule set type	Permitted rules	Usage	Execution
Automatic	Assignment rules	Use for rules that you want to run automatically.	Directly from the Business Rules workspace. Include in a scheduled job. Automatically runs when the model reprocesses data.
Consolidation	Consolidation rules	Rules that calculate eliminations for a financial model with shares calculation.	Include in a consolidation job.
Currency	Currency rules	Use to perform currency conversions.	Include in a currency translation job.
Definition	Definition rules	Use for calculations that must be calculated every time that the model is deployed, and whose results become part of the model definition	Automatically runs every time that the model is deployed and every time that a cell in the rule scope is queried.
Intercompany reconciliations	Intercompany reconciliation rules	Use to eliminate transactions between sibling entities.	Include in an intercompany reconciliation job.
Outbound	Outbound rules	Use to export data to an external destination.	Include in a data export job.
Procedural	Allocation rules Assignment rules Model Variable rules	Rules that perform allocations that include PushCrossModelAllocation and PullCrossModelAllocation rules. Rules that perform user-defined calculations. Rules that assign values to model properties.	Run directly from the Business Rules workspace. Include in a scheduled job.

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Rule Types

- Different rule set types can contain different kinds of rules. The kind of rule you select determines the options that are available for implementing the rule

Implementation Type

Implementation type	Description	Rule set type	Permitted rule types
SQL implementation	Rules are written in PEL. The destination subsystem generates a SQL stored procedure from the rule that will be run against the relational database.	Automatic Procedural	Allocation rules and Assignment rules
MdxQuery implementation	Rules are written in PEL. The destination subsystem generates an MDX Query statement. When the rule is run, the MDX Query statement is run against the underlying SQL Server Analysis Services (SSAS) system. The query result is written to the relational database.	Automatic Procedural	Assignment rules PushCrossModelAllocation rules PullCrossModelAllocation rules Allocation rules
MdxScript implementation	Rules are written in PEL. The destination subsystem generates MDX script language from the rule. Planning Server installs the script statement in the SSAS system when the model is deployed.	Definition	Definition rules
Specialized implementations	This category includes a group of specialized implementations that are each specific to a selected rule type. The PEL compiler generates an intermediate result that is customized for the destination component.	Consolidation Currency Intercompany reconciliation Outbound Procedural (for Variable rules only)	Rule types with specialized implementations: Consolidation rules Currency rules Intercompany reconciliation rules Outbound rules Model Variable rules

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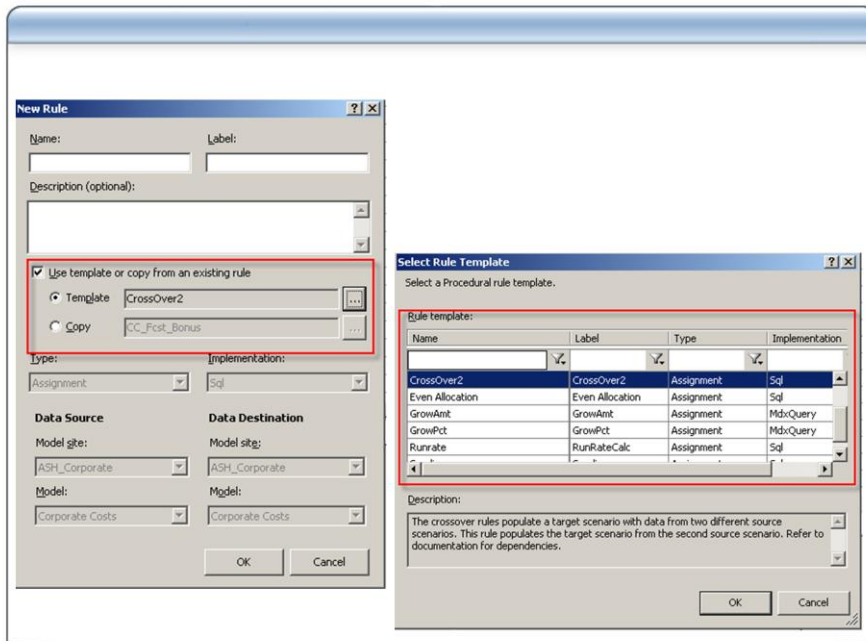Office PerformancePoint
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Rule Behaviours

- **PROCEDURAL**
  - Execution of the calculation results in a persisted value
  - Invoked from Modeler or as a job
- **DEFINITION**
  - Execution of the calculation is performed every time a value is retrieved.
  - Deployed as an MDX Script
- **AUTOMATIC**
  - Runs directly from the Business Rules workspace.
  - Include in a scheduled job.
  - Automatically runs when the model reprocesses data.
- **FI – Financial Intelligence**
  - Can only be invoked by Jobs

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Rule Authoring

- **An empty business rule and then edit the rule text (PEL).**
  - Scope editor and Member picker dialog can be handy
- **A rule using a rule template**
  - Use the Fill template placeholders dialog to replace the place holders with actual members.
- **A rule using another rule from the model**
  - Make the necessary changes by editing the rule text
- **A rule or rules by importing from a previously exported rules file (XML)**

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Rule Templates

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Templates

- You can decide to use a rule template when you write a new business rule in Planning Business Modeler. When you select the **Use template or copy from existing rule** option in the **Create a New Rule** dialog box, Planning Business Modeler displays the associated template in the **Rule Expressions** pane. A rule template contains all the text for a rule. To use the rule template, you must substitute actual values for placeholder expressions.
- The form of a rule template depends on the rule implementation that is associated with that template.
- **Templates that use SQL, MDXQuery, or MDXScript implementation**
- Templates for rules that have MdxScript, MdxQuery, or SQL implementation consist of a PerformancePoint Expression Language (PEL) command statement followed by a collection of placeholder expressions. The following list provides more information about the elements of a template with a PEL command statement and placeholder expressions:

PEL command statement

- PEL command statements include the SCOPE statement (PEL), the ALLOCATE statement (PEL), and the RECONCILE statement (PEL).

- Placeholder expressions appear inside double angle brackets. For example, a placeholder expression for a Scenario dimension member might resemble this line.

  <<[Scenario].[All Members].[Target_Scenario]>>

  The list of placeholder expressions in a template exactly matches the syntax signature of the command statement. Typically, the placeholder represents a dimension expression. However, the placeholder might instead represent a simple string or decimal number.

  The following example shows a placeholder expression from the Intercompany Reconciliation template. This expression indicates that the dimension member must be the buyer entity for the intercompany transaction.

  <<[Intercompany].[All Members].[Buyer Intercompany Member]>>

  You can use the **Fill Template Placeholders** dialog box to fill each replacement expression in a predefined template.

Templates for rules with native code implementation

- To use rules that have NativeMDXScript, NativeMDXQuery, or NativeSql implementation, native rules must be enabled in the application by a Global Administrator.
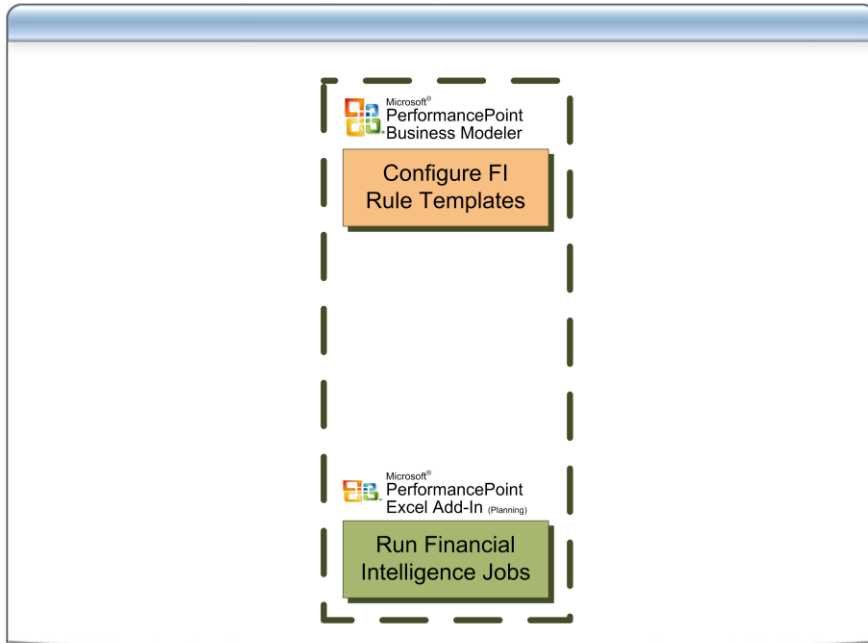
Rule Execution

- Procedural rules can be invoked from Planning Modeler(by the modeler) or as a job by the person who has permissions to execute the job.

- Automatic rules are invoked by the PerformancePoint Server as and when the cube processing is required.

- Definition rules are deployed as MDX Scripts on the cube.

- All FI rules can be invoked via jobs only.

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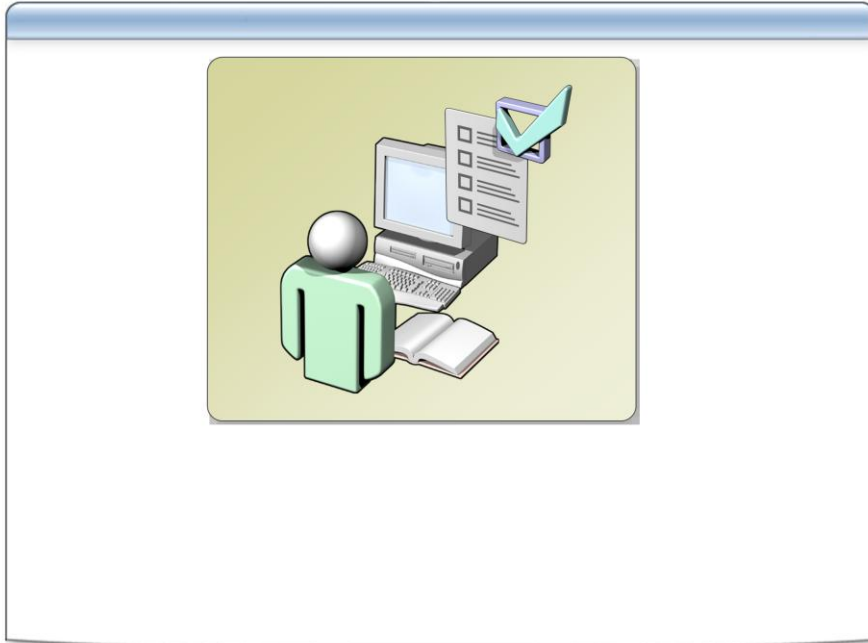Office PerformancePoint
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Debugging

- **Rules with SQL implementation**
  - The debug window will display the generated SP that can be analyzed by a SQL expert for accuracy.
- **Rules with MDXQuery implementation**
  - The debug window will display the generated MDX language equivalent of the PEL rule text.
- **Other implementations**
  - Debug window will not produce any result.

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Rules Relationship

Questions

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