Cognos 11

Lesson 06: FM, Cognos Admin & Security

Module Objectives :

- **Framework Manager**
  1. Designing a project
  2. Create Namespace, folders, Query Subject, Query Items
  3. Create Relationships and Define Cardinality
  4. Create Filters, Calculations
  5. Create Regular and Measure Dimension
  6. Create Hierarchy (DMR)
  7. Create and Publish package
  8. Defining Usage Property
  9. FM Security
  10. Parameter Maps, Session Parameter, Macro Functions
  11. Define Query Set
  12. Branching & Merging
  13. Governor Settings

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 2

Module Objectives :

- **Cognos Administration**
  1. Manage Accounts, Activities, Contents
  2. Manage & Create Data servers
  3. Manage system configuration setting
  4. Create & schedule jobs
  5. Administration Console, Monitoring and Performance Tuning
- **Security**
  1. Authentication Provider
  2. Cognos Namespace
  3. Initial Security
  4. Built-in entries
  5. Pre-defined entries
  6. Pre-defined roles
  7. Specify Security settings after installation
  8. Demonstration: To Remove Everyone from System Administrator
  9. Optimizing Users, Groups, and Roles in the Cognos Namespace

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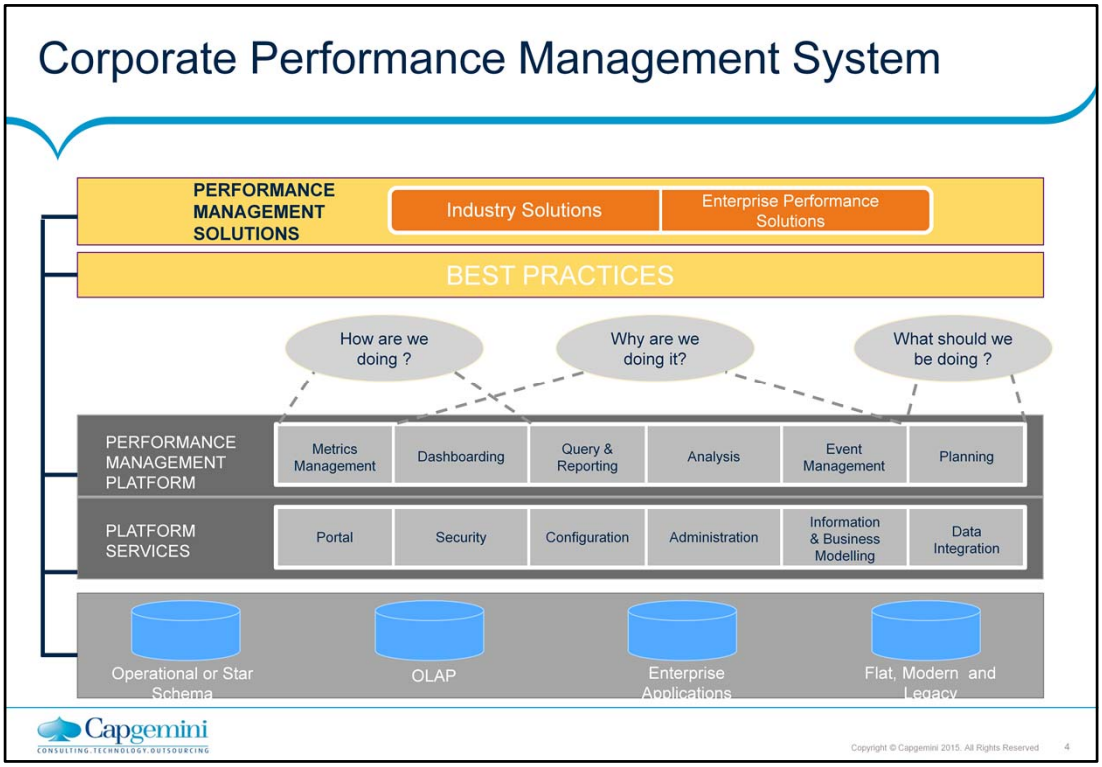
 3


Corporate Performance Management System
PERFORMANCE MANAGEMENT SOLUTIONS
Industry Solutions
Enterprise Performance Solutions
BEST PRACTICES
How are we doing ?
Why are we doing it?
What should we be doing ?
PERFORMANCE MANAGEMENT PLATFORM
Metrics Management
Dashboarding
Query & Reporting
Analysis
Event Management
Planning
PLATFORM SERVICES
Portal
Security
Configuration
Administration
Information & Business Modelling
Data Integration
Operational or Star Schema
OLAP
Enterprise Applications
Flat, Modern and Legacy
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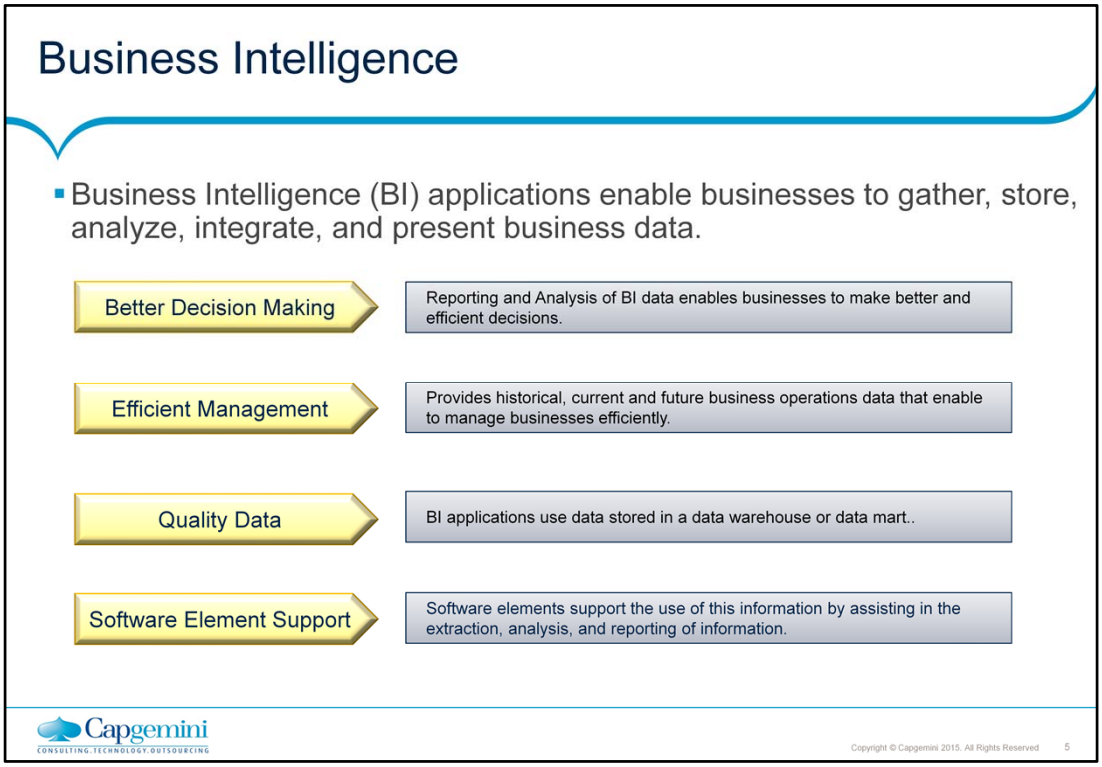
Business Intelligence
Business Intelligence (BI) applications enable businesses to gather, store, analyze, integrate, and present business data.
Better Decision Making
Reporting and Analysis of BI data enables businesses to make better and efficient decisions.
Efficient Management
Provides historical, current and future business operations data that enable to manage businesses efficiently.
Quality Data
BI applications use data stored in a data warehouse or data mart..
Software Element Support
Software elements support the use of this information by assisting in the extraction, analysis, and reporting of information.
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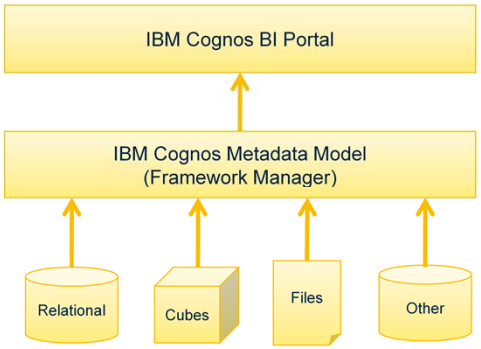
Framework Manager

- Framework Manager is a metadata modeling tool.
  - It takes data from various data sources and creates a data model customized for reporting or analysis needs.
  - It is a Windows-based client tool that you can use to create simplified business presentations of metadata that are derived from one or more data sources.
- Metadata Model is a collection of metadata that is imported into the framework manager from one or more data sources.
  - This metadata model is published as a package to the IBM Cognos BI portal
  - When you add security and multilingual capabilities to this business presentation, one model can serve the reporting, ad hoc querying, and analysis needs of many groups of users around the globe.



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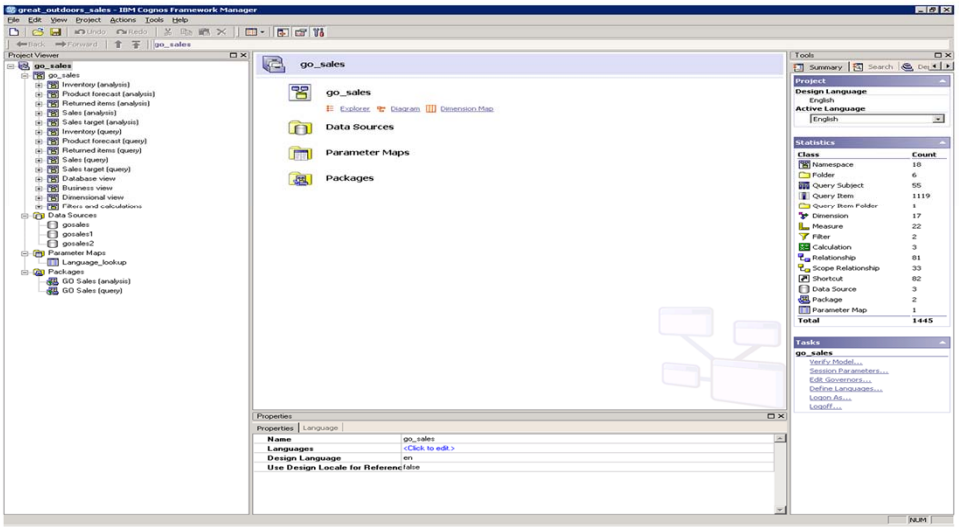
Framework Manager (contd…)



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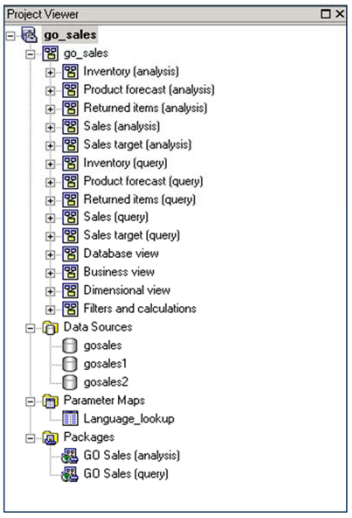
Framework Manager (contd…)

- Project
  - A project is an instance which is opened once a Framework Manager is started.
  - A project at high level contains the following objects:
    - A Model
    - Namespaces
    - Data Sources
    - Parameter Maps
    - Packages



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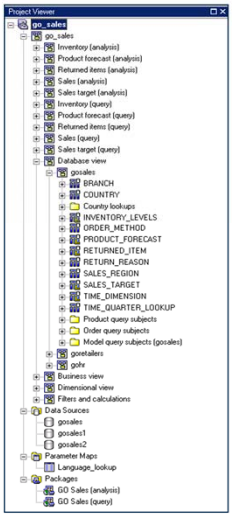
Framework Manager (contd…)

- Metadata Elements
  - In a Framework Manager project, metadata is defined and organized by the following objects:
    - Model
    - Namespace:
    - Folder
    - Query subject
    - Query item
    - Relationship
    - Parameter map
    - Package



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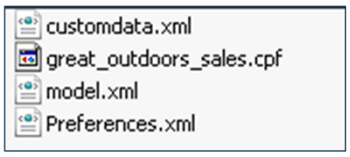
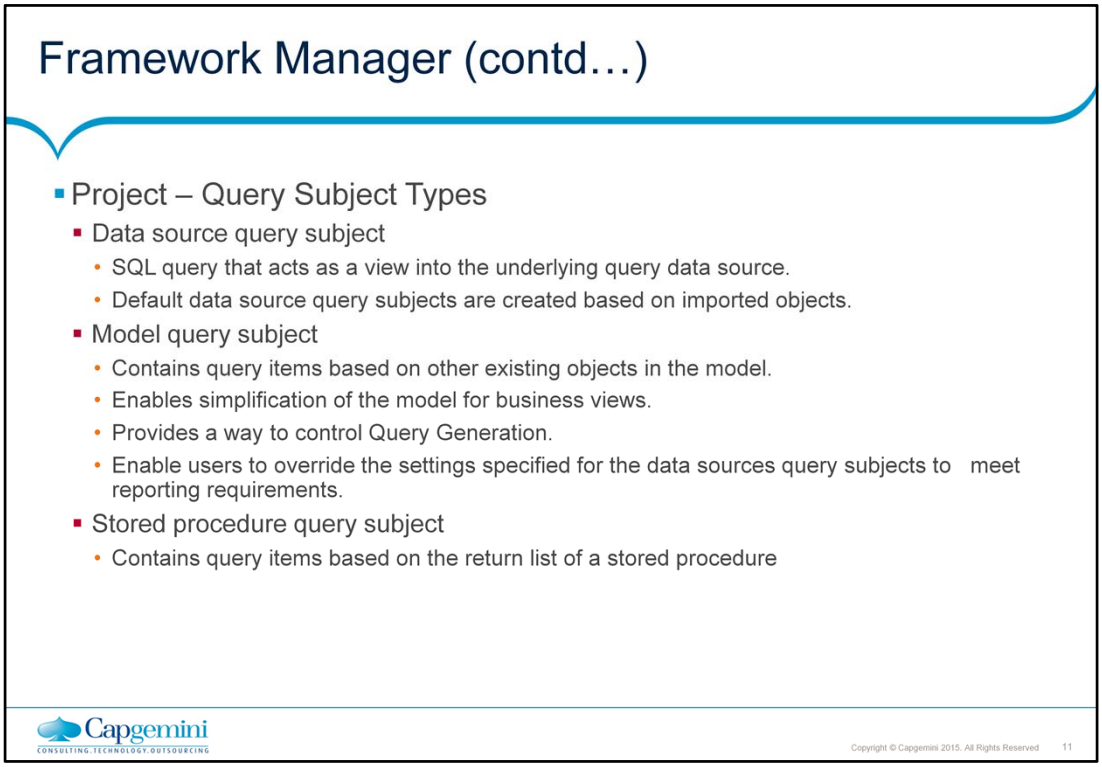
Framework Manager (contd…)

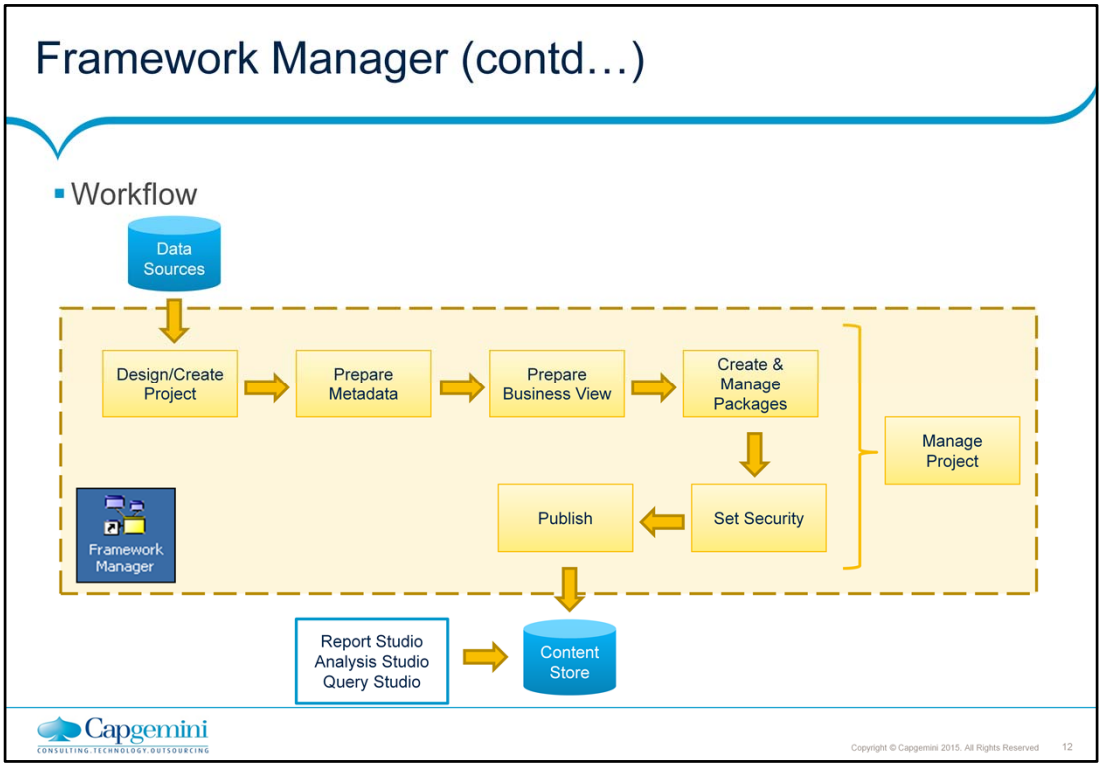
- Project Files
  - A project appears in a file system as a folder that contains a project file (.cpf) and XML files.
    - X.cpf: Project file references to define the business model.
    - Model.xml: Actual model data created by Framework Manager developer.
    - Preferences.xml: Preferences for Framework Manager Projects.
    - Customdata.xml: Stores diagram information, layout, fonts and colors.
    - Repository.xml: Logged version of the History for each project or segment added to the repository.
  - When a package is published, the server compiles the XML specification into binary runtime information.



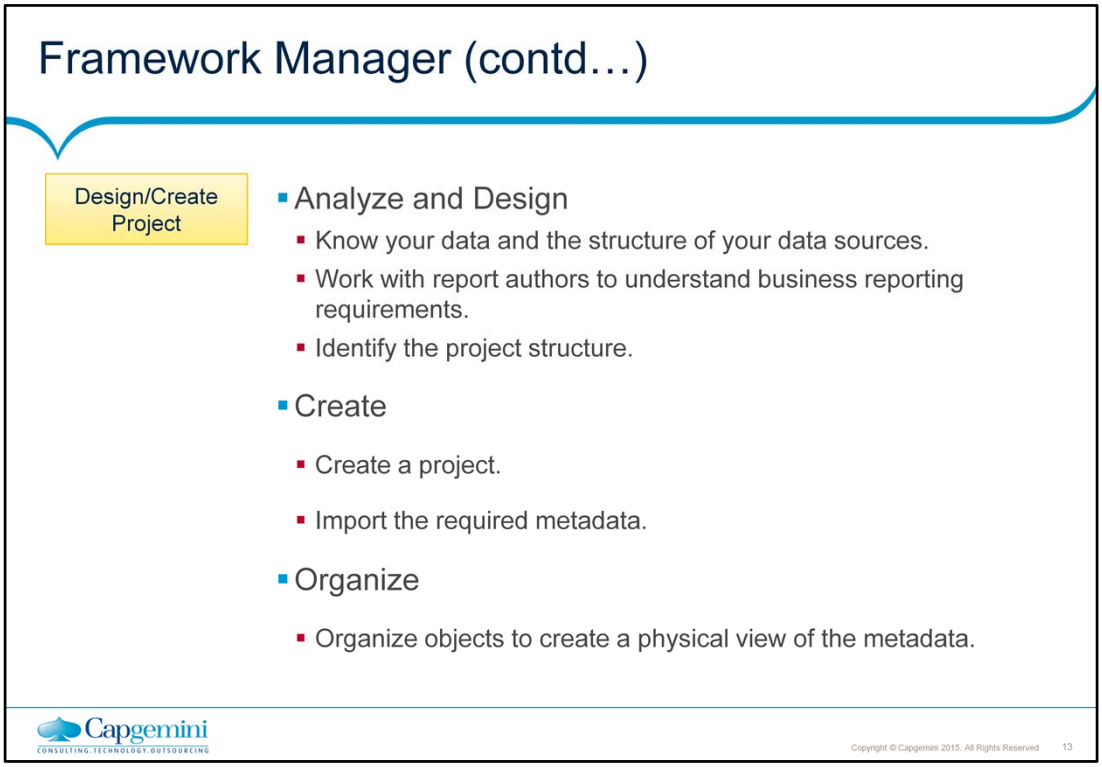
Various files of a model



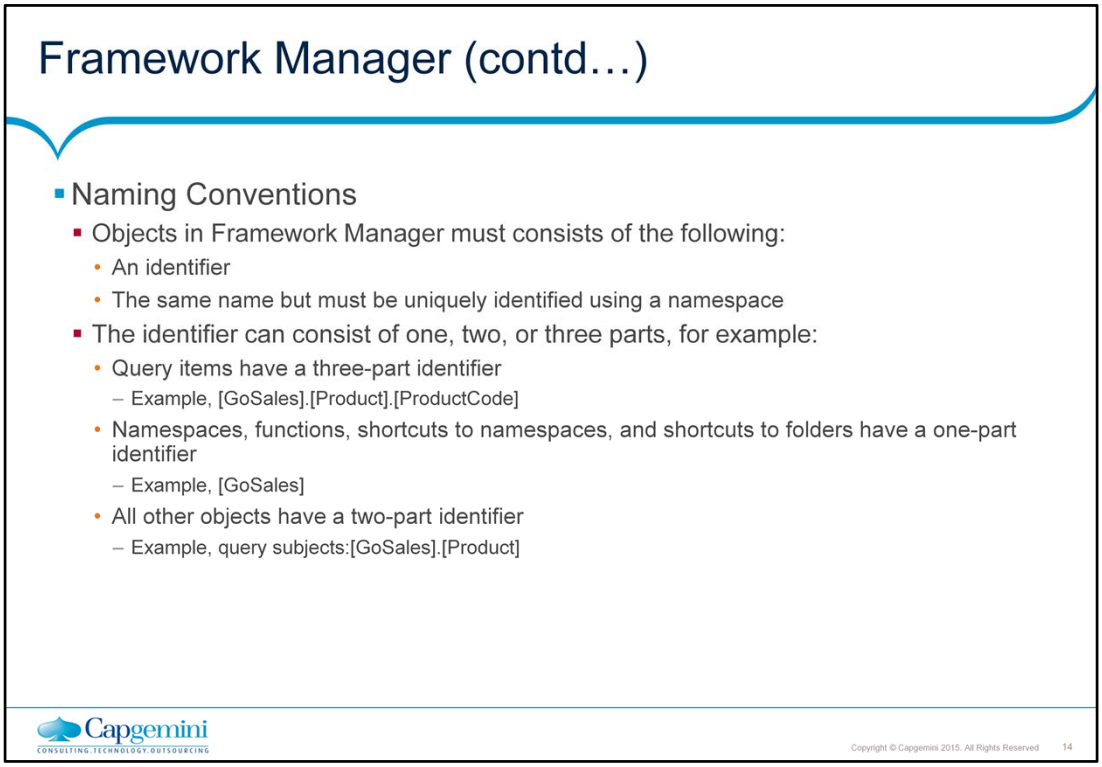
The most important component of the Framework Manager project is the query subject. A project is built upon query subjects. There are several types of query subjects:
Data Source Query Subject
The data source query subject is an SQL query that acts as a view into the underlying query database(s). During the initial metadata import operation, a default data source query subject is created for each object you select and creates the default relationships between query subjects for you automatically. Note: A query subject that is based on a table uses the following general SQL syntax: select * from <table>
Model Query Subject
The model query subject allows you to define the business presentation for the users. Model query subjects can contain query items from other existing objects in the model. Model query subjects can be enhanced even further, perhaps by adding filters or calculations to create more query items. You can also use query subjects from other model query subjects.
Stored Procedure Query Subject
The stored procedure query subject contains query items based on the return list of a database stored procedure.



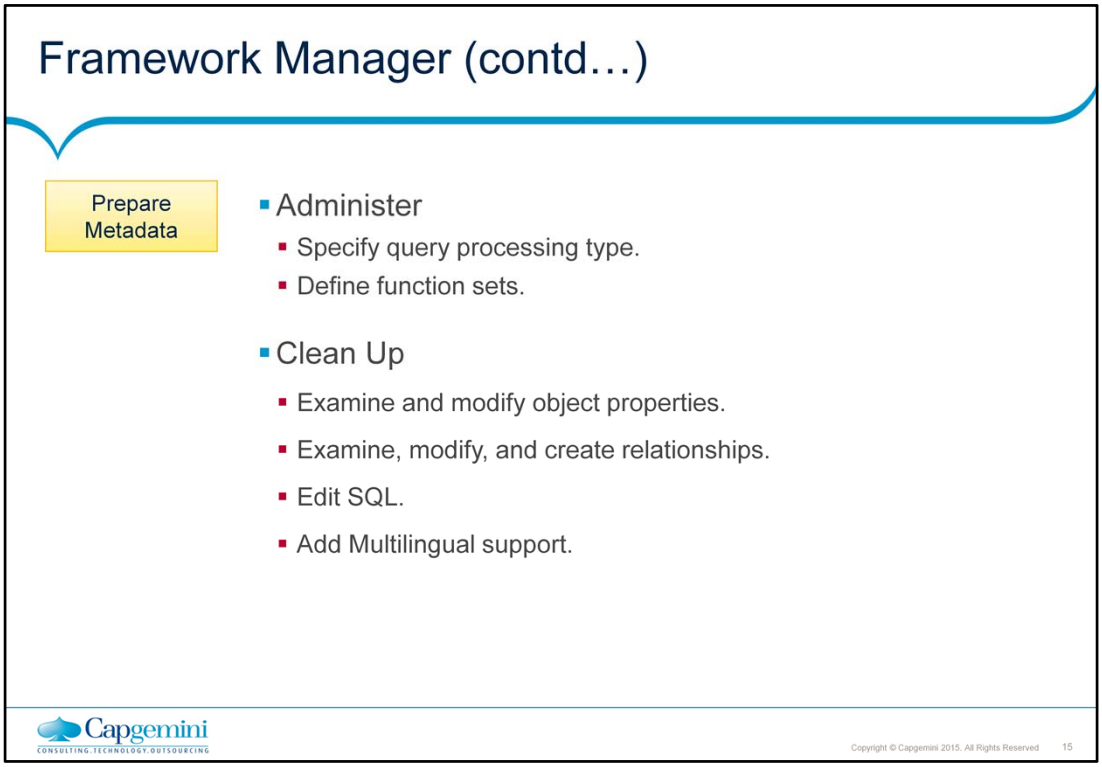
Before report authors can create reports, you must follow a process in Framework Manager:
Design and create project
Foundation for the modeling process
Prepare Metadata
Clean up, Administer, Present
Prepare the Business View
Add business value specific to reporting requirements (e.g., calculations, filters, prompting)
Create and Manage Packages
Identify subsets of the metadata to be published
Set Security
Based on ReportNet security
Set at the package level
Publish
To the ReportNet server for use by report authors to create reports
Note: this graphic shows the FM workflow process, with Publishing models as the final task. For the purposes of course flow we will be publishing models in the demos and workshops in each module. This is to view the results of modifications made to the models, right away, instead of waiting until the end (of a 3 day course) to view them. Otherwise, students may not remember what they have modeled on a previous day, and may not recognize those changes reflected in the reports and queries created in QS and/or RS.
Manage the Project
To be performed throughout the modeling process.
Set of project management features:
to enable multi-user modeling
maintain version control
Link & segment organize a project according to business rules and organizational needs and allow other users to access sections of the project
to manage the project
specify query processing
define function sets
verify the project for errors or problems



Design
Ensure that you know your data and the structure of your data source(s).
Analyze and understand your reporting requirements before you begin.
Identify project structure
Metadata
Data source type, locations, connections
Organization
Two tier model
Create
Create a project
Establish file system location for project files
Import the required metadata
You should import only what you need (tables, relationships) - see design



Naming Conventions for Objects in a Project
All objects in a project have an identifier that is used to reference them. The identifier can consist of one, two, or three parts, depending upon the type of object. The parts include
an object name, and
a location in the project hierarchy, as expressed in the default language of the project.
If you want to have objects with the same name in a project, these objects need a unique identifier. To create a unique identifier for an object, you must create a namespace.
One-part Identifiers
Some objects in a project have a one-part identifier. The one-part identifier must be unique across the entire project, even if the namespace contains other namespaces. These are the objects that have a one-part identifier:
Namespaces
Functions
Shortcuts to namespaces
Shortcuts to folders
Three-part Identifiers
Some objects in a project have a three-part identifier. The three-part identifier is based on the identifier of the containing query subject. Each name must be unique in the containing query subject. These are the objects that have a three-part identifier:
query items
query item folders
For example, you have a GoSales namespace that contains a query subject named Product, and a query item named Product Code. The Product Code query item has the following name, where the square brackets and periods are the syntax Framework Manager uses for object identifiers.
[Go Sales].[Product].[Product Code]
Two-part Identifiers
Most of the objects in a Framework Manager project have a two-part identifier. The two-part identifier consists of the name of the containing namespace and the name of the object. The object name must be unique in the nearest containing namespace. For example, you have a GoSales namespace that contains a query subject named Product. The Product query subject has the following name, where the square brackets and periods are the syntax Framework Manager uses for object identifiers.
[Go Sales].[Product]



Examine and modify object properties (e.g., names, descriptions)
Verify the usage and regular Aggregate property values of each query item, especially if the usage is set to "fact".
Examine and resolve ambiguous relationships (remove redundant relationships, modify cardinality)
Create relationships (e.g. between two data sources)
It is best practice to create relationships only in the data-source layer.

Edit SQL
Specify query processing type (local vs. database)
Defining function sets

Create a two tier model
Create folders that separate query subjects into physical and presentation layers
Add query subjects to the presentation layer that are based on query subjects in the physical layer
Then organize and model objects to provide the business view of the metadata

Framework Manager (contd…)

- Prepare Metadata
  - Usage Property:
    - Identifier – A column to group or summarize the data with which it has relationship, such as, Index columns, Date, time columns. Product Number and Date of Joining.
    - Fact - Column contains numeric data and can be a group or summarize, such as, Product cost and Date ranges.
    - Attribute - A column which is neither a fact or Identifier, such as description, Product name.
    - Unknown - Not defined in the usage properties.
  - Cardinality:
    - 0..1 : Zero occurrences to one occurrences
    - 1..n: One occurrence to Multi occurrences
    - 0…1: Zero occurrence to one occurrence
    - 1…1:Must have one occurrence.
    - (0/1): Optional or Mandatory.
    - (1/n): Minimum or Maximum.

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Framework Manager (contd…)

- Determinants
  - A determinant is the set of query items that can be used to uniquely identify a set of data.
  - Determinants are imported based on key and index information in the data source.
  - We recommend that you always review the determinants that are imported.
  - Model query subjects do not have determinants defined for them automatically. If determinants are needed, you must define them manually.
  - Stored procedure query subjects do not have determinants.
  - You cannot use determinants with user-entered SQL.

Framework Manager (contd…)

Type	Advantage	Disadvantage
Cognos SQL	Cognos SQL improves query subject performance; for example, by removing unused elements at query time. SQL works on any supported database.	You cannot enter non-standard SQL.
Native SQL	Performance is optimized across all related query subjects. You can use SQL that is specific to your database.	You cannot use SQL that the data source does not support for subqueries. The SQL may not work on a different database type.
Pass- Through SQL	You can enter any SQL supported by the database.	There is no opportunity for Framework Manager to automatically optimize performance. The SQL may not work on a different data source.

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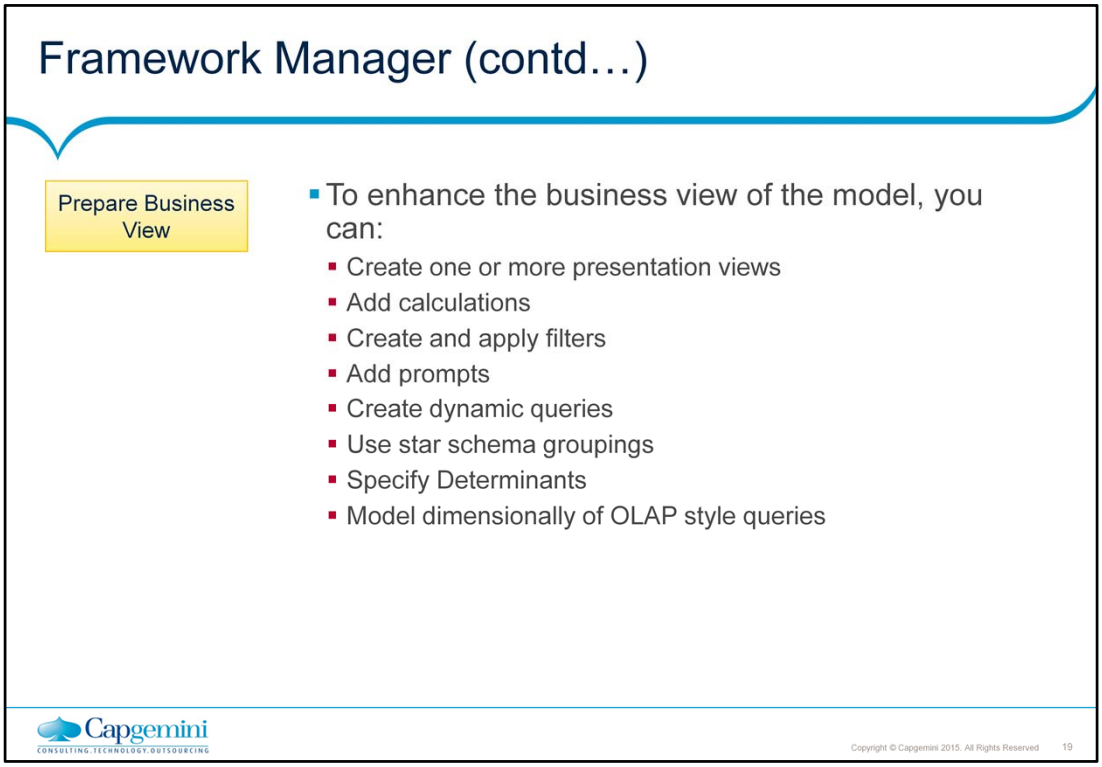
 18



You can add business rules to the query subjects in your model to refine the data retrieved and ensure that the right information is available for report authors. You can

add calculations so that report authors can include calculated data in their reports

create and apply filters so that you can limit the data that a query subject retrieves

add prompts so that users are prompted to filter data when they open a report

use session parameters and parameter maps to create dynamic queries

Use star schema groups to isolate fact tables that share conformed dimension(s) ADVANCED – see Module 8

Specify dimensional information ADVANCED – see Module 8

I.G. note: There may seem a crossover between modeling tasks performed in the Business View preparation and Metadata preparation phases of the workflow process. For example, although we describe adding calculations as part of the Business View preparation phase, this is a modeling technique that can be performed in the Database layer. However, we describe creating the Database layer (as part of creating a two tier model) in the Metadata preparation phase. It is important to emphasize that the workflow process is iterative and not necessarily linear. As such, the tasks we describe in each of the phases are unique to each phase, but that they may occur at different times during the modeling process.

Framework Manager (contd…)

- Business View Preparation
  - Calculations:
    - To add calculated columns, use the following for calculations:
      - Query items
      - Parameters
      - Functions
  - Filters:
    - There are two types of User Interface filters available in Framework manager.
      - Stand-alone: Reusable in multiple Query Subjects
      - Embedded: For a Single Query Subject

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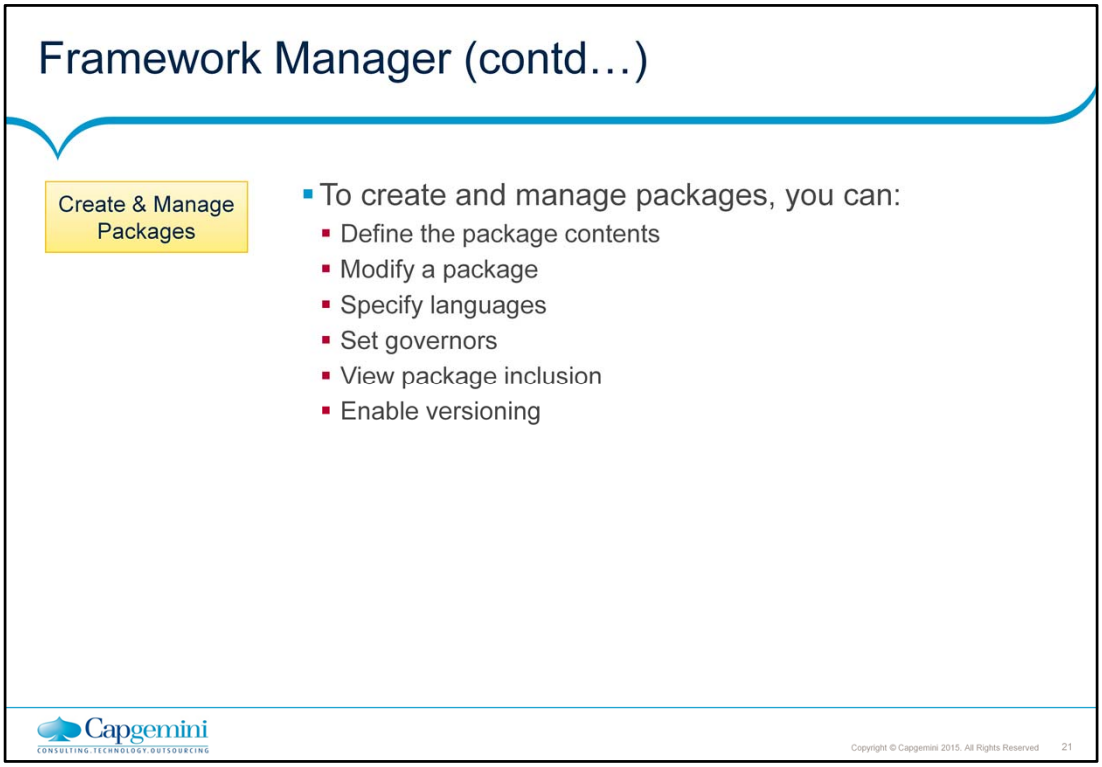
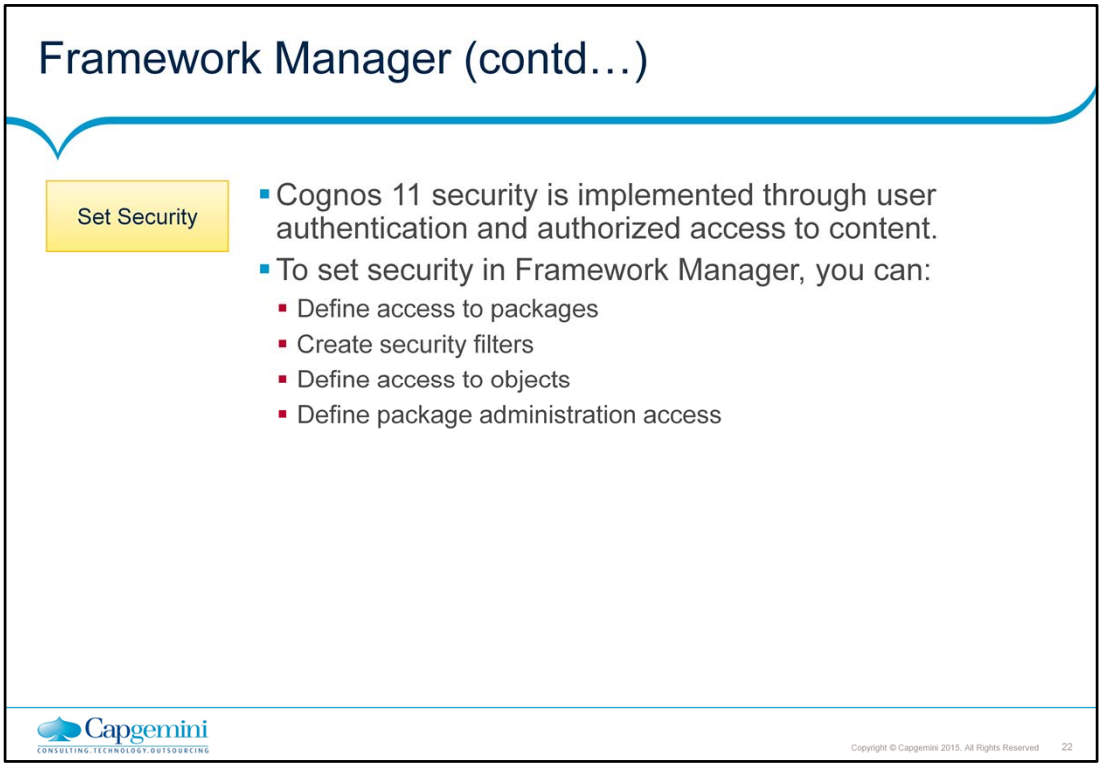
 20



Define the package(s) to be published to the ReportNet server.
Each package contains the query subjects required to meet a reporting need
Modify a Package – select, hide, unselect
Specify Languages – what languages will the report authors be able to see
Set Governors – set data retrieval limits
Explore packages– identify what is hidden, selected/unselected in a package
View package inclusion – select an object and identify which package(s) has been included in Publish a Package
publish packages to the ReportNet server or to a network location
enable versioning



Access to the packages - apply security to a package and identify the user who has access to that package
Security filters – enable row security by creating a security filter that is applied to a specific query subject; the filter controls the data that is shown to report authors when they set up their reports
Access to objects – enable column security by either making an object visible or hiding it.
Package Admin Access – applying security on who can publish and perform other administration

Framework Manager (contd…)

Manage Project

- Perform project management activities such as:
  - Implementing multiuser modeling
    - Repository control
  - Sharing and reusing information
    - Segmenting and linking
    - Action logging and synchronizing
    - Project verification

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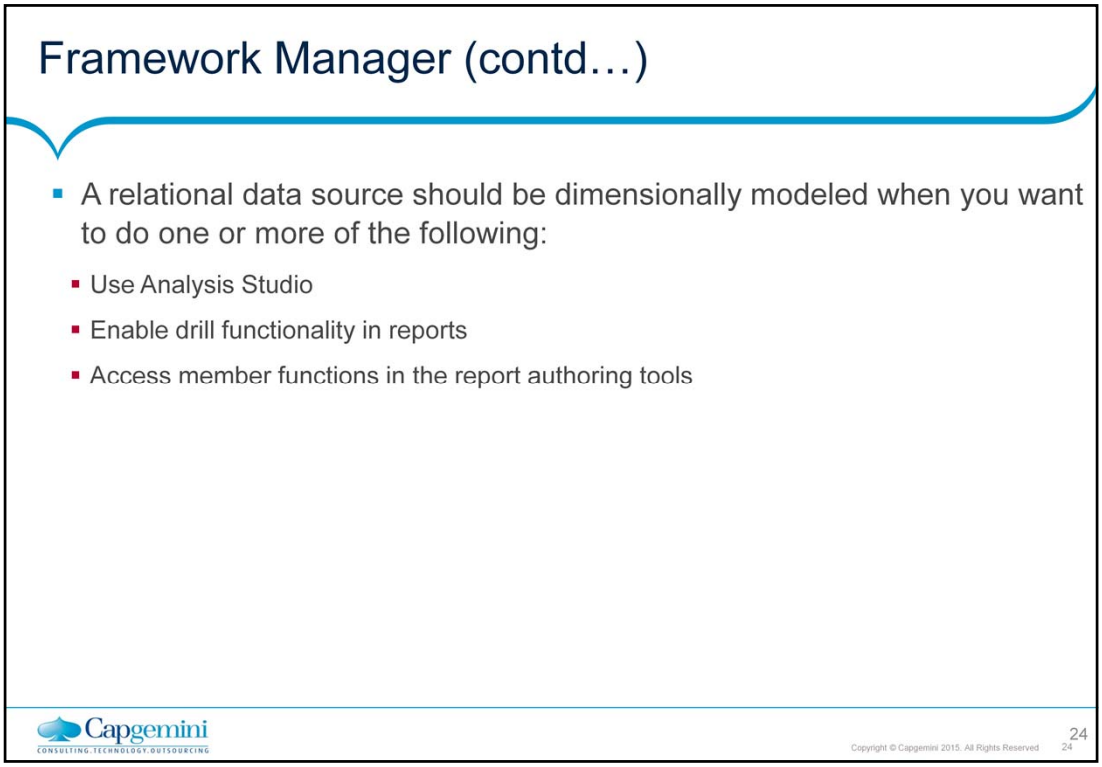
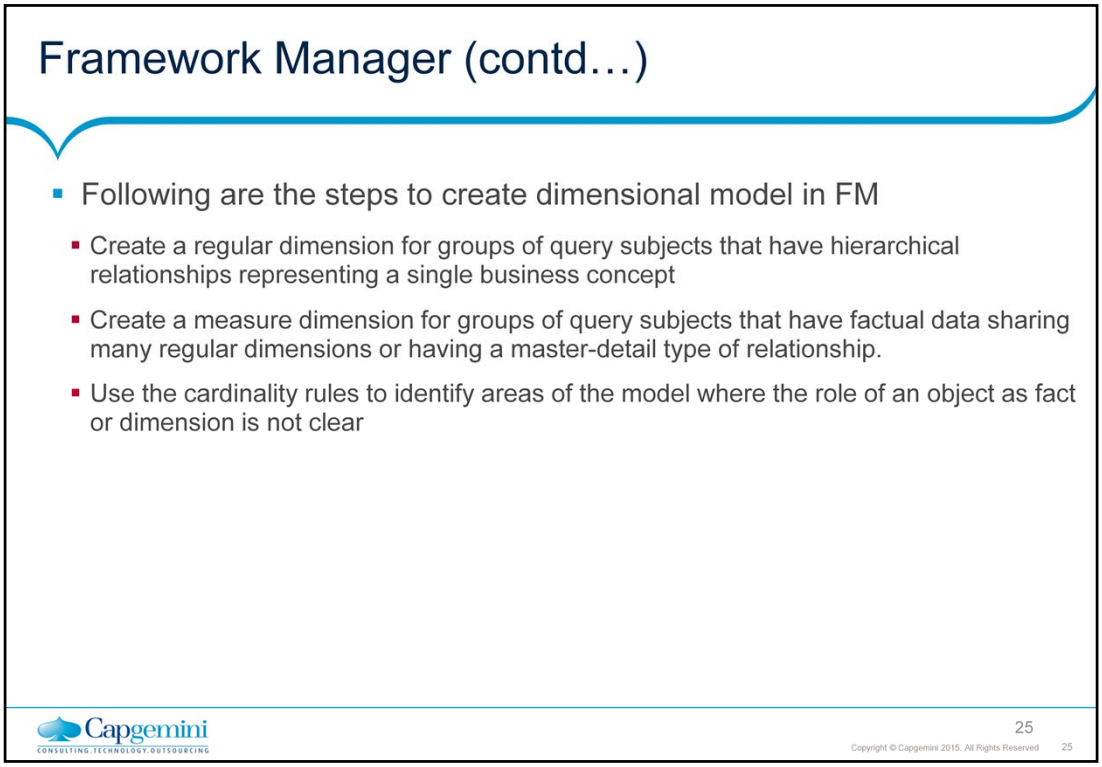
 23



Regular dimensions represent descriptive data that provides context for data modeled in measure dimensions. A regular dimension is broken into groups of information called levels. In turn, the various levels can be organized into hierarchies. For example, a product dimension can contain the levels Product Line, Product Type, and Product organized in a single hierarchy called Product. Another example is a time dimension that has the levels Year, Quarter, Month, Week, and Day, organized into two hierarchies. The one hierarchy YQMD contains the levels Year, Quarter, Month, and Day, and the other hierarchy YWD contains the levels Year, Week, and Day.



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Framework Manager (contd…)

- Regular Dimension contains descriptive and business key information that provides context for data modeled in measure dimensions
- Organizes the information in a hierarchy from the highest level of granularity to the lowest.
- It has multiple levels and may have multiple key segments to define a level.
- It may also have multiple hierarchies.
- Can use only one hierarchy at a time in a query.
- To use two hierarchies in the same report, create two dimensions, one for each hierarchy
- Is broken into groups of information called levels.

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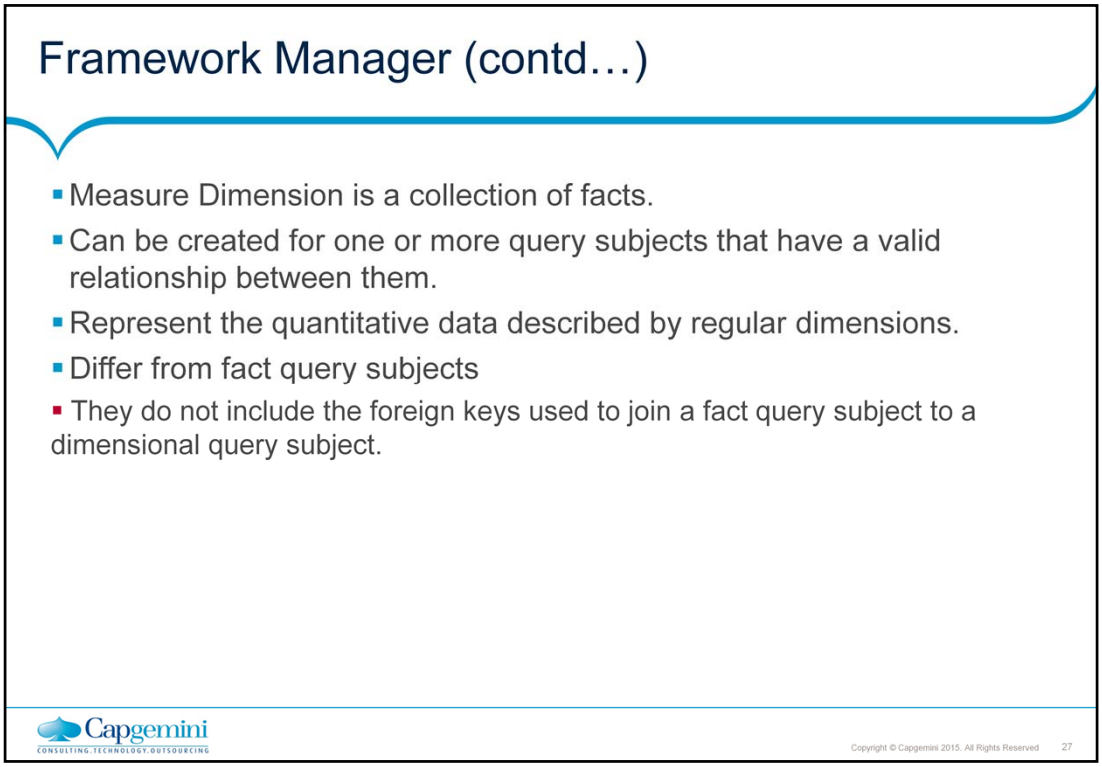
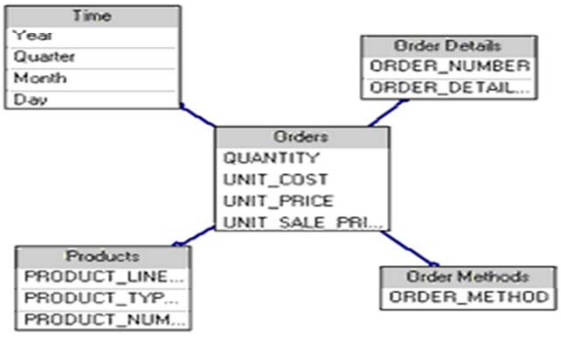


Measure dimensions represent the quantitative data described by regular dimensions. Known by many terms in various OLAP products, a measure dimension is simply the object that contains the fact data. Measure dimensions differ from fact query subjects because they do not include the foreign keys used to join a fact query subject to a dimensional query subject. This is because the measure dimension is not meant to be joined as if it were a relational data object. For query generation purposes, a measure dimension derives its relationship to a regular dimension through the underlying query subjects. Similarly the relationship to other measure dimensions is through regular dimensions that are based on query subjects built to behave as conformed dimensions. To enable multiple-fact, multiple-grain querying, you must have query subjects and determinants created appropriately before you build regular dimensions and measure dimensions.

Framework Manager (contd…)

- To simplify the model in this example, create a model query subject that combines the foreign keys of both Order Header and Order Details and includes all measures at the Order Detail level. Then create a measure dimension based on the model query subject.



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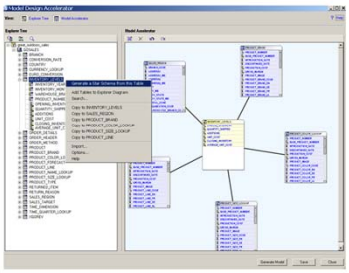
 28

Another example to present Creation of Measure Dimension is presented here.
In this case, create a model query subject that combines the foreign keys of both Order Header and Order Details and includes all measures at the Order Detail level. Then create a measure dimension based on the model query subject.

Framework Manager (contd…)

- Model Design Accelerator
  - Visual design tool in Framework Manager for modelers to easily create new models more quickly and leverage proven practices
- Key Capabilities
  - Quick and easy way for new modelers to create
  - Framework Manager models through a simplified, guided, and automated tool
  - Provides a jump start to the model design process for experienced modelers, who can then augment models in Framework Manager for more complex requirements



  - Guides modelers through proven practices and helps to correct and validate common errors
- Benefits
  - Allows new models to easier and quickly build and deploy new models
  - Expedites the modeling design process through easy, guided and automated model creation
  - Leverages proven practices to reduce common errors and to improve delivery of models

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Framework Manager (contd…)

- Model Design Accelerator
  - Key Facts
  - Visual design tool to jump start the building of new multi-layer Framework Manager models (from within Framework manager) for creating relational packages only
  - Allows new modelers to easily create new models more quickly and leverage proven practices…
  - Work from an empty Star schema template
    - contains single fact and unlimited associated MQS structures
    - Modeler adds fact items and MQS items (filling in the blanks)
    - modeling rules validated as you go… notification rules violated…
  - The model is generated into a new or current project with only the tables necessary to support the items referenced in the star. Modelers can augment further and for more complex modeling immediately
- Target User
  - New modelers that are looking for an easy and simple way to publish models off of simple and well structured data sources
  - Advanced modelers are not likely to use it, other than as a “jump start” for creating a new model.
  - They will then go into Framework Managers afterwards to augment the model

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 30

Framework Manager (contd…)

- Query Processing Types
- Limited Local
  - Visual design tool to jump start the building of new multi-layer Framework Manager models (from within Framework manager) for creating relational packages only
  - Allows new modelers to easily create new models more quickly and leverage proven practices.
- Database only
  - The database server does all the SQL processing and execution with the exception of tasks not supported by the database. An error appears if any reports of report sections require local SQL processing.

Cognos Administration

- IBM Cognos Business Intelligence administrators ensure that IBM Cognos BI runs smoothly and at its optimum performance
  - Define Data Source Connection.
  - Define security permissions for users and groups in the organization.
  - Manage servers and dispatchers and fine-tune the performance of IBM Cognos BI.
  - Customize the appearance and functionality of IBM Cognos BI.
  - Package Deployments.
  - Scheduling Contents.

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 32

Cognos Administration

- After IBM Cognos software is installed and configured, you can perform server administration, data management, security and content administration, activities management, and portal services administration.
- You can also perform the following administrative tasks:
  - automating tasks
  - setting up your environment and configuring your database for multilingual reporting
  - installing fonts
  - setting up printers
  - configuring web browsers
  - allowing user access to Series 7 reports
  - restricting access to IBM Cognos software

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 33

Cognos Security

Introduction About Cognos Security

- IBM Cognos software security is designed to meet the need for security in different environments. You can use it in everything from a proof of concept application where security is rarely enabled to a large scale enterprise deployment.
- Security in IBM Cognos software is optional. If security is not enabled it means that no authentication providers are configured, and therefore all user access is anonymous. Typically, anonymous users have limited, read-only access.

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 34

Cognos Security

- Authentication Providers:
- User authentication in IBM Cognos software is managed by authentication Providers. Authentication providers define users, groups, and roles used for Authentication. User names, IDs, passwords, regional settings, personal preferences are some examples of information stored in the providers.
- If you set up authentication for IBM Cognos software, users must provide valid credentials, such as user ID and password, at logon time. In an IBM Cognos software environment, authentication providers are also referred to as namespaces, and they are represented by namespace entries in the user interface. Manage servers and dispatchers and fine-tune the performance of IBM Cognos BI.
- IBM Cognos software does not replicate the users, groups, and roles defined in your authentication provider. However, you can reference them in IBM Cognos software when you set access permissions to reports and other content.

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 35

Cognos Security

- Authentication Providers:
- IBM Cognos components support the following types of servers as authentication sources:
  - IBM Cognos Series 7 namespace
  - Active Directory Server
  - Custom Authentication Provider
  - LDAP
  - CA SiteMinder
  - RACF®
  - SAP
- If you use more than one Content Manager, you must configure identical authentication providers in each Content Manager location. This means that the type of authentication provider you select and the way you configure it must be identical in all locations for all platforms. The configuration must contain information that is accessible by all Content Managers.

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 36

Cognos Security

- Cognos Namespace:
- The Cognos namespace is the IBM Cognos software built-in namespace. It contains the IBM Cognos objects, such as groups, roles, data sources, distribution lists, and contacts.
- You can rename the Cognos namespace using IBM Cognos Configuration, but you cannot delete it. The namespace is always active.
- When you set security in IBM Cognos software, you may want to use the Cognos namespace to create groups and roles that are specific to IBM Cognos software. In this namespace, you can also create security policies that indirectly reference the security entries in authentication providers so that IBM Cognos software can be more easily deployed from one installation to another “Security and Deployment”.

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 37

Cognos Security

- Initial security:
- When a content store is initialized, a set of security objects is created and stored in the Cognos namespace. These objects are designed to simplify the IBM Cognos administration.
- The initial security policies grant unrestricted access to all objects in the content store to all users. The security administrator must modify the initial security settings to secure the content store

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 38

Cognos Security

- Built-in entries:
- The built-in entries include the Anonymous user account, the groups All Authenticated Users and Everyone, and the roles System Administrators and Tenant Administrators. You cannot delete the built-in entries. They appear in both secured and non-secured environments.
- Anonymous
  - This entry represents a user account shared by members of the general public who can access IBM Cognos software without being prompted for authentication. For example, this type of access is useful when distributing an online catalog.
  - You can disable the Anonymous user account by changing the configuration parameters in the configuration tool.

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 39

Cognos Security

- Built-in entries:
  - All Authenticated Users
    - This group represents users who are authenticated by authentication providers. The membership of this group is maintained by the product and cannot be viewed or altered.
- Everyone:
  - This group represents all authenticated users and the Anonymous user account. The membership of this group is maintained by the product and cannot be viewed or altered.

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 40

Cognos Security

- Built-in entries:
  - System Administrators
    - This is a special role in IBM Cognos software. Members of this role are considered root users or super users. They may access and modify any object in the content store, regardless of any security policies set for the object. Only members of the System Administrators role can modify the membership of this role.
    - The System Administrators role cannot be empty. If you do not want to use System Administrators, you can create an empty group in the Cognos namespace or in your authentication provider, and add this group to the membership of the System Administrators role.

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 41

Cognos Security

- Predefined entries:
  - The predefined entries include several IBM Cognos roles. Each role has a specific set of access permissions and can be used to secure different components and functions in IBM Cognos software. You can use the predefined roles, or delete them.
  - When the predefined roles are created during the content store initialization, the group Everyone is a member of some of them. Some of such roles are Consumers, Query Users, Analysis Users, and Authors. If you want to use the predefined roles, you should modify their initial membership immediately after installing and configuring IBM Cognos software.

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 42

Cognos Security

- Users, Groups, and Roles:
- Users, groups, and roles are created for authentication and authorization purposes.
- You can use groups and roles created in IBM Cognos software, and users, groups, and roles created in authentication providers. The groups and roles created in IBM Cognos software are referred to as Cognos groups and Cognos roles.
- A user entry is created and maintained in an authentication provider to uniquely identify a human or a computer account. You cannot create user entries in IBM Cognos software.

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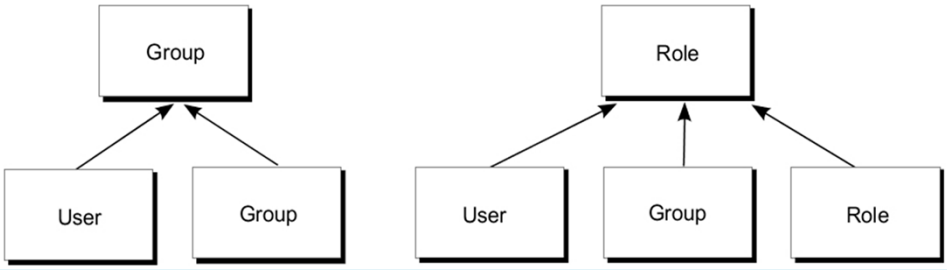
 43

Cognos Security

- Users, Groups, and Roles:
- Groups and roles represent collections of users that perform similar functions, or have a similar status in an organization. Examples of groups are Employees, Developers, or Sales Personnel. Members of groups can be users and other groups. When users log on, they cannot select a group they want to use for a session. They always log on with all the permissions associated with the groups to which they belong.



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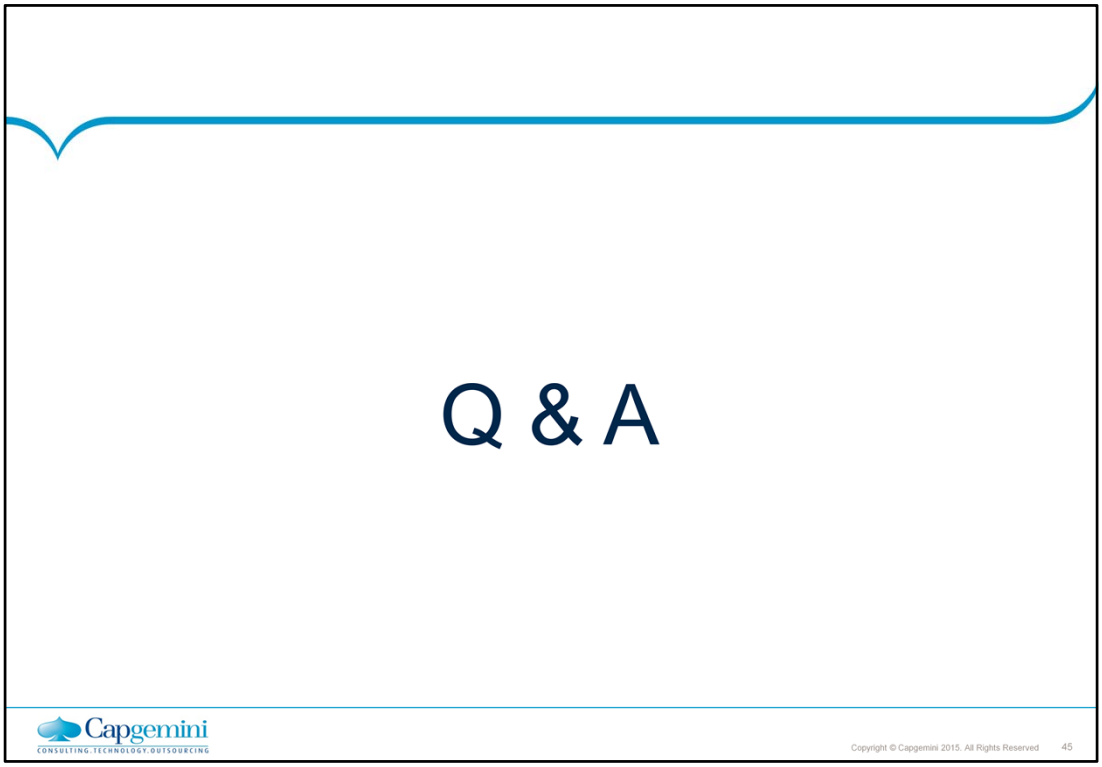
 44


Q & A
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45


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46