



**Cognos:
Implementing Security in a
Global Deployment**

April 18, 2008

Speakers & Agenda

- Brian Wood – BI Manager
- Ranjith Chelasani – Lead Infrastructure/Security Architect
- Tim Nelson – Lead Cognos Architect

Agenda:

- Office Depot Overview - Size and Users
- BI/DW Approach
- Infrastructure
- Application / Data Source Authentication
- Report / Data Level Security

About Office Depot



- Office Depot provides more office products and services to more customers in more countries than any other company.
- Incorporated in 1986 and headquartered in Delray Beach, Fla., Office Depot has annual sales of over \$15.5 billion, and employs approximately 49,000 associates around the world.
- Currently, the Company sells to customers directly or through affiliates in 43 countries.
- Office Depot is a leader in every distribution channel -- from retail stores and contract delivery to catalogs and e-commerce.
- Office Depot has more than 1,200 retail stores in North America and approximately 400 stores, either company-owned, licensed or franchised, in other parts of the world.
- Office Depot serves a wide range of customers through a dedicated sales force, telephone account managers, direct mail offerings, and multiple web sites.
- With \$4.9 billion in online sales during the last twelve months, the Company is also one of the world's largest e-commerce retailers.

ODP: Information Delivery Background

Why:

- Distributed data marts.
 - Replicated data.
 - Multiple database platforms.
 - Varying data business rules.
 - Multiple Reporting tools.
 - Decision support groups operating in silos.
-
- * IT bottleneck for simple business requested analytics.
 - * Why does your number not match my number?

Project Objective:

Create a consolidated global data warehouse supporting all business functions of Office Depot. Globally deploy Cognos as the primary method of information delivery (email distribution, performance alerts, executive dashboards, pre-canned reports, self-service, and ad hoc analysis). Overall shift to an end user self-service reporting methodology.

Cognos BI User Community

Current Cognos users and estimated growth:

*2200 Cognos consumers accessing data via Teradata Data Warehouse

*175 Cognos consumers accessing data via Hyperion Sys 9 Essbase

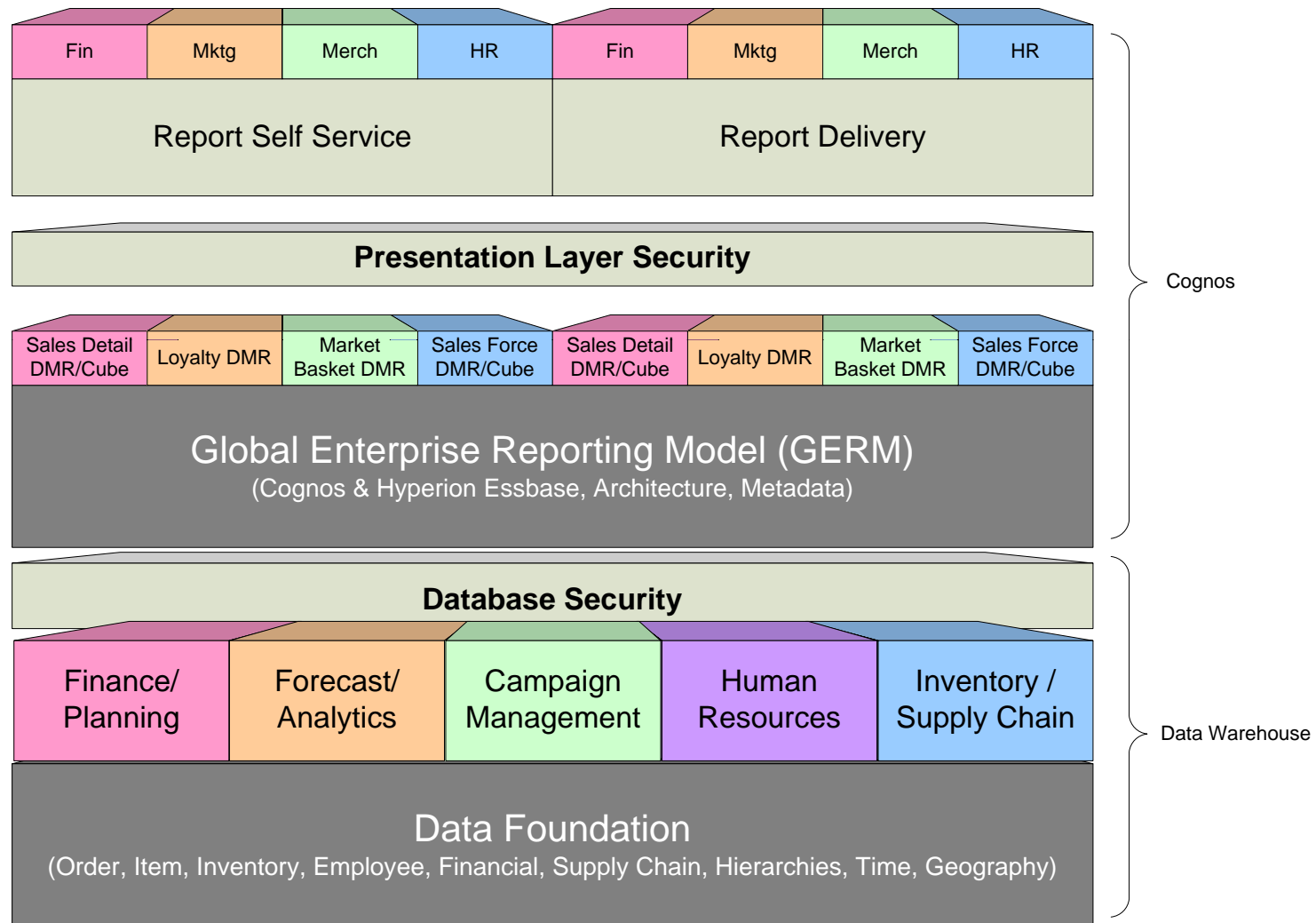
20 Business Administrators supporting 20 different departments within Office Depot.

80 Report Authors.

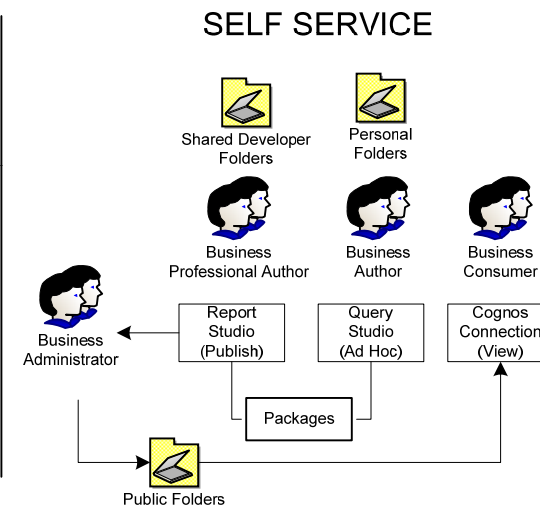
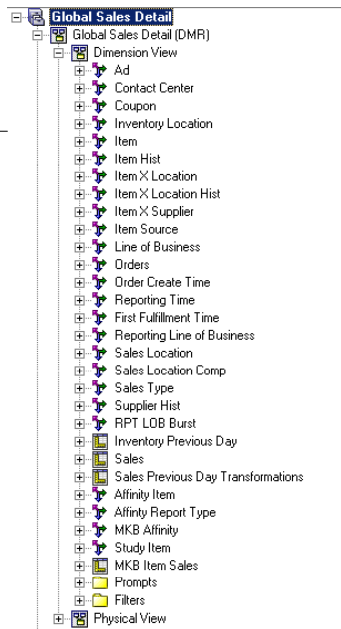
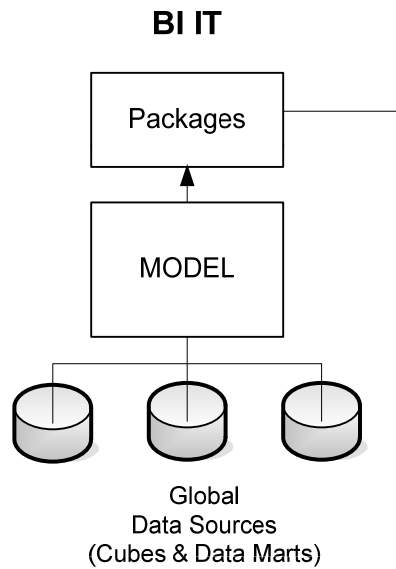
180 Ad hoc users.

By Q4 2008 we expect to have approximately 37,000 end consumers when we have fully rolled out to our Store associates and Sales Force.

Logical BI/DW Model



Self Service



Self Service Reporting Model

Role of the Business Administrator

- Define their departments “Reporting Strategy”
- Create/Define a department Report Portfolio
- Review/Publish Reports to their Department folder in Production
- Train their team on the ad-hoc reporting tools
- Act as a liaison between the BI/DW team to request and define additional data required by their team.
- Act as the first line of support to their team

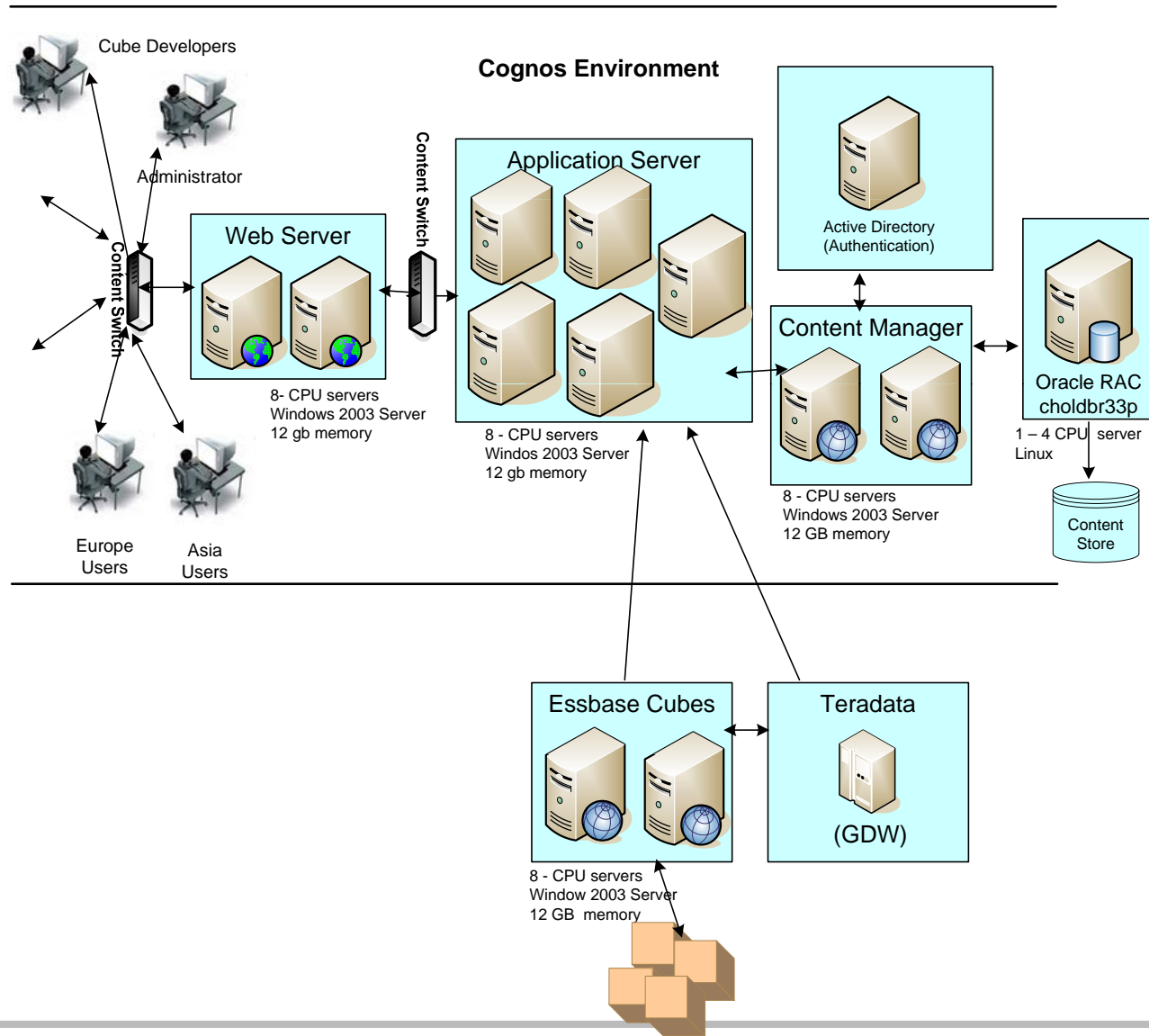
Role of the DW/BI Team

- Identify and store the data needed by the business
- Package the required data into a self service model
- Provide assistance to the Business on complicated reports
- Tuning poor performing reports.
- Provide guidance on the best way to source a report.
- Enforce metric and hierarchy definition and naming standards in the packages delivered to the business (Business Intelligence Competency Center- BICC)
- Enable security
- Maintain the Infrastructure
- Assist in the transition to this new model

1

Infrastructure

Cognos Infrastructure



Cognos Production Infrastructure

Highlights

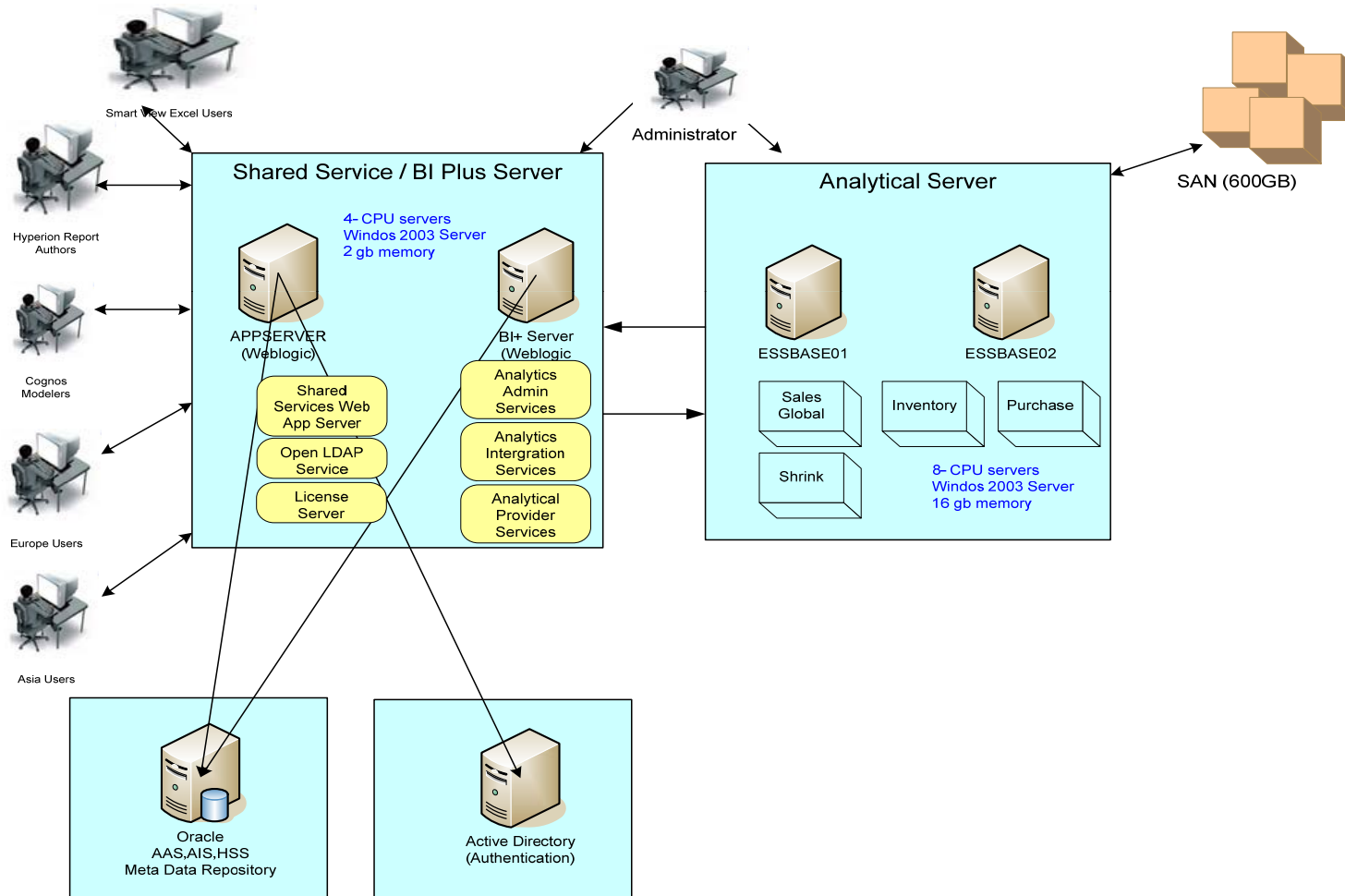
- Single Sign-on enabled and Authenticating against Active Directory.
- High availability and Load balancing is provided between all 3 major components:
 - Gateway: Component which serves the Cognos connection Web portal. Configured through content switch for load balancing and has fail over.
 - Application Tier Components (ATC): This is the application server which does most of the processing and renders the report. Configured on 5 servers for load balancing through content switch.
 - Content Manager: This is the component which reads and write the metadata to the Content Store Database which is residing on Oracle RAC.
- Scheduling of jobs is configured through a Cognos trigger component which is configure to run through ESP.

Business Benefits

- Consolidated reporting applications and GDW as single source of data.
- A single interface for all user accessible reporting needs.

Hyperion Analytical OLAP Infrastructure

Hyperion Essbase Architecture



Hyperion Analytical OLAP Infrastructure

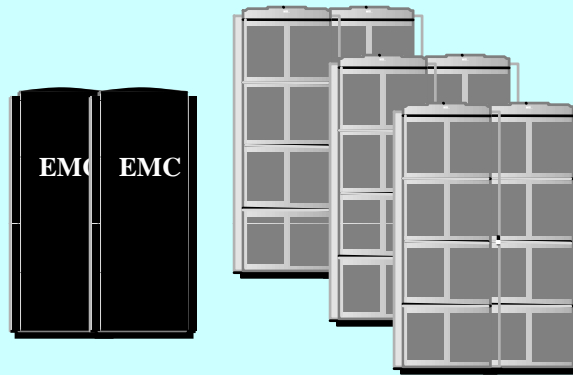
Highlights

- Authentication and Group Security are managed through Shared Services which is connected to Active Directory for all the cubes.
- Cubes are modeled through Analytical Integration Services (AIS) which provides the following advantages:
 - Centralized Data modeling (Dimension, Outline, Load rules)
 - Reuse of dimensions for new cubes (e.g. HN, Inventory, etc.)
 - Easy to Implement and deploy cube changes
 - Allow Drill-through to an External Data Source
- Use of Teradata fast export (DataStage) which provides the following advantages:
 - Faster export than the Teradata ODBC driver for retrieving large volumes of data
 - Data transfer to Essbase Server will be up to 5 times faster
 - It will allow to rebuild cubes faster
 - Backup (Disaster Recovery ready)

Business Benefits

- Improved analytics through enhanced drill-down capabilities.
- Improved DR response time through faster processing.

Production DW Teradata Infrastructure



Nodes: 6 5500H + 2 Hot Standby (12+2 CPUs)

Disk Capacity: 20 Terabytes

2

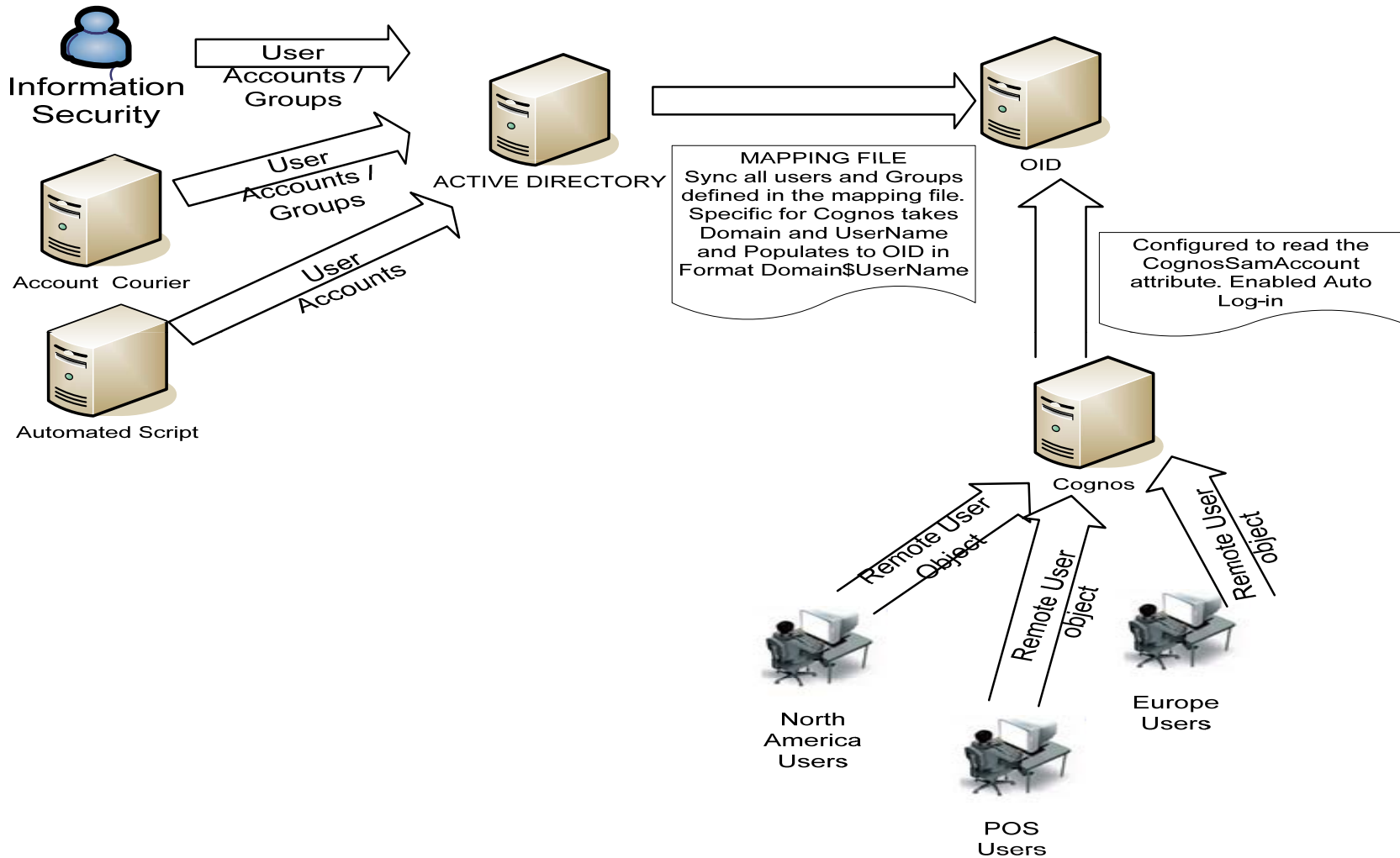
Authentication

Authentication Outline

Single Sign on to Cognos:

- Intranet (Corporate & Stores)
- Europe / Multi-Domains
- Teradata
- Hyperion Essbase System 9.

Single Sign-On Data Flow between OID and Cognos



Single Sign-On Data Flow between Corporate Intranets and Cognos

Highlights

- All user accounts are Created in AD by Account Courion / Automation Script / Manually by Info Security.
- Data gets Synced between AD and OID through a Mapping file containing OU's and Groups to Synch every 15 minutes.
- Logic was added to the mapping file to take Domain and Login information from AD and Populate "CognosSamAccount" attribute in OID in the format Domain\$Login-Name for Cognos Single sign-on to Work.
- Cognos was configured to read the Remote User object on the workstation and compare it with CognosSamAccount attribute value. If a match, the user will Login to Cognos Connection Automatically.
- Configured with the ability to have SSO from Store workstations (domains not trusted with corporate domains).

Business Benefits

- Improved usability / Ease of transition.
- Synchronization is transparent to end user.
- Single Sign-on approach improves on Legacy reporting applications that required separate sign-on accounts.

Single Sign-On between Cognos and Teradata

Phase 1:

- Configured a data source in Cognos to use a single data source sign-on with a single Teradata service account to be used by all users.

Disadvantages:

- All the users who use Cognos share the same account which prevents visibility to individual usage.
- One user having a bad query to Teradata can cause the system instability and crash the Cognos data source affecting all users.

Single Sign-On between Cognos and Teradata

Phase 2:

- Configured a data source in Cognos to use a multiple data source sign-on with a corresponding Teradata service accounts. Individual users are mapped to one of the data source sign-on using Cognos groups.

Advantages:

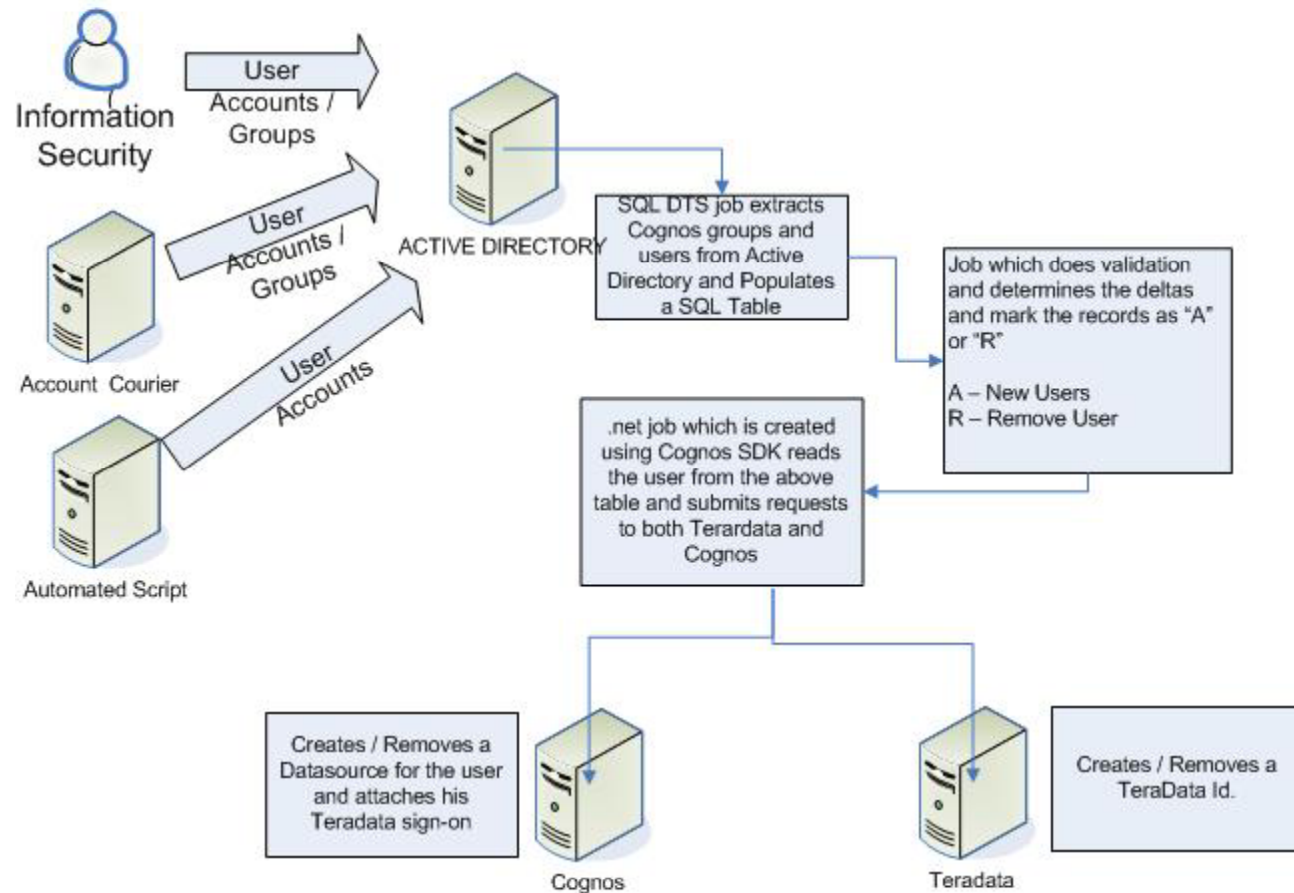
- Risk of data source crash is spread across multiple groups affecting only users in that specific group.

Disadvantages:

- All the users in a group share the same account which prevents visibility to individual usage.
- One user having a bad query to Teradata can cause the system instability for all other users in his/her group.
- Tremendous administrative over head. Specifically, adding individual user accounts to one of the Cognos groups and troubleshooting issues when users get added to multiple groups.

Single Sign-On between Cognos and Teradata (Cont.)

Cognos / Teradata SingleSignOn Process Flow



Single Sign-On between Cognos and Teradata (Cont.)

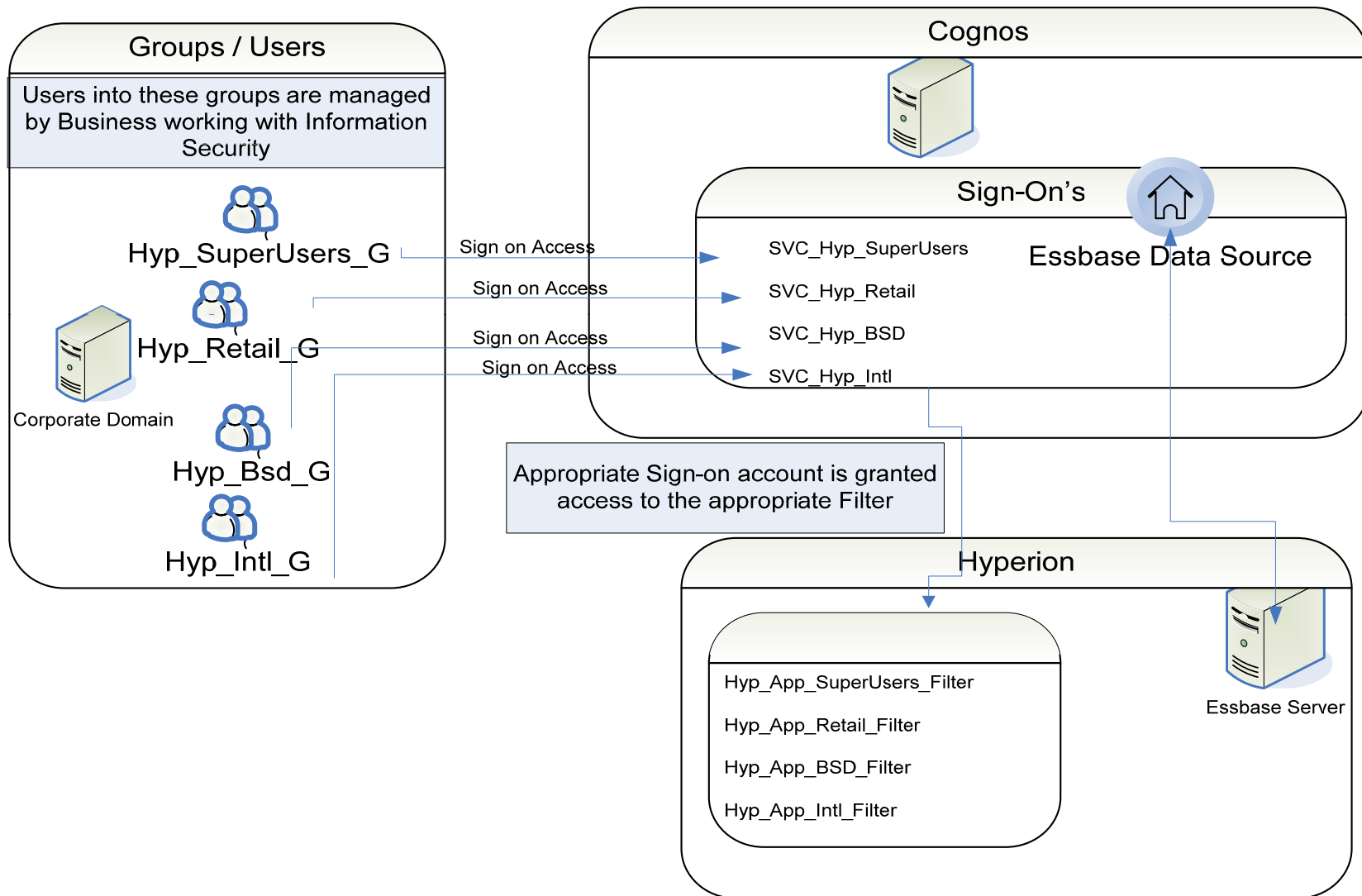
Phase 3:

- Created a process to identify Cognos users who need access to the Teradata data source and automatically created individual teradata id's and individual Cognos data source sign-on's using .Net, the Cognos SDK and Teradata API.

Advantages:

- Individual user visibility
- Administration is streamlined based on the network groups
- Individual users can adversely affect only themselves regarding Teradata data source stability.

Single Sign-On between Cognos and Hyperion Process Flow



Single Sign-On between Cognos and Hyperion

Phase 1:

- Configured a data source in Cognos to use a multiple data source sign-on with a corresponding Hyperion Service Accounts. The Sign-on's have been granted access to security groups.
- The Hyperion Service Accounts service accounts have been granted access to the Filters inside the Essbase cube.

Advantages:

- Access to the data inside Essbase is completely secured based on the individuals network id.

Disadvantages:

- All the users in a group share the same account which prevents visibility to individual usage.
- If a user is part of multiple groups the user will get prompted to select the sign-on for each and every prompt on the report.

Single Sign-On between Cognos and Hyperion (Cont.)

Phase 2 (In future):

- Create a process to identify users who need access to the Essbase data source and automatically create individual data source sign-on's using .Net, the Cognos SDK

Advantages:

- Individual user visibility
- Administration is streamlined based on the network groups

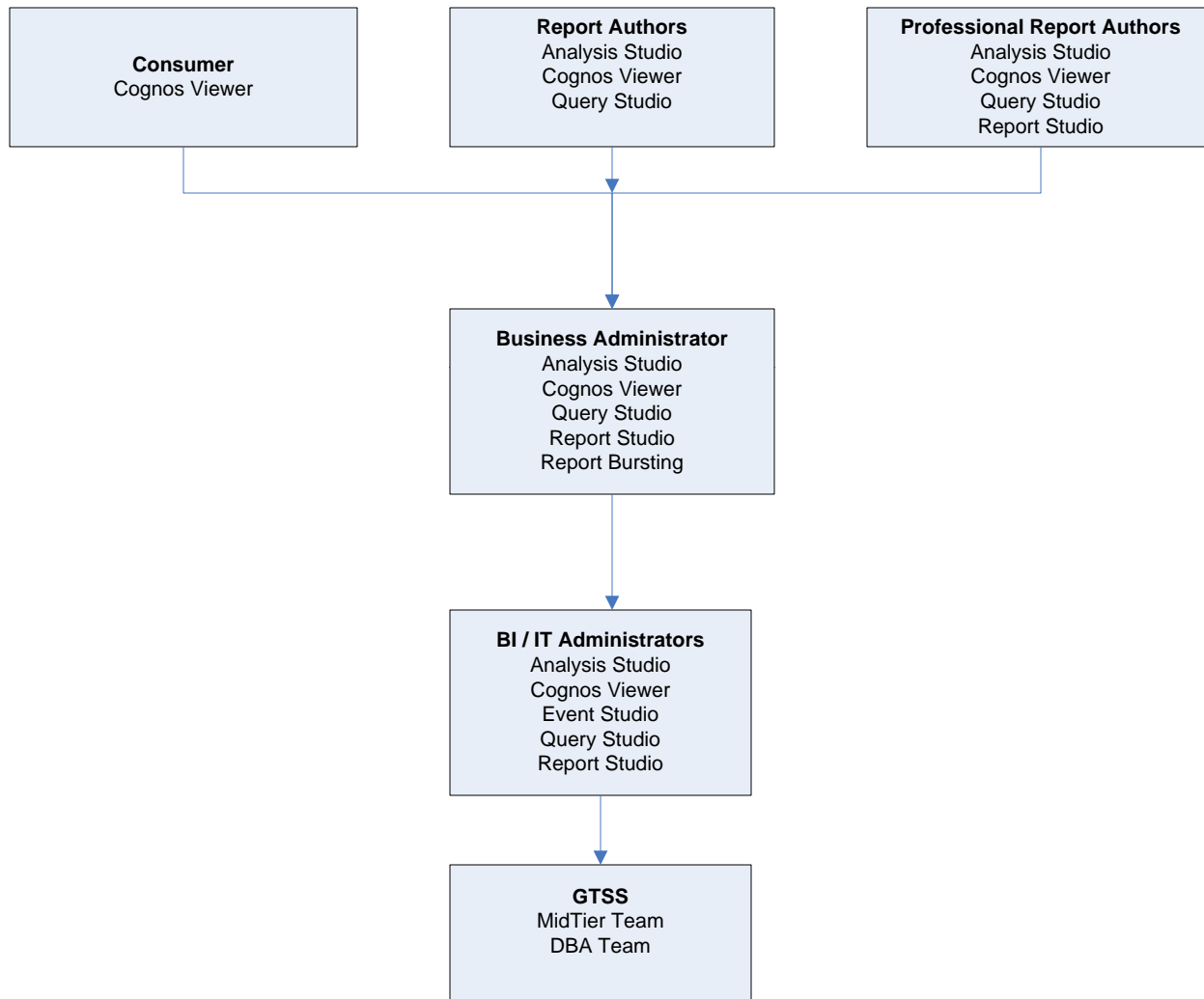
Disadvantages:

- Maintaining thousands of Cognos data source sign-on's and Teradata id's

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Report / Package Security

Cognos Roles & Capabilities



Folder/Report Level Security

Public Folders | My Folders | OD Sales Knowledge

Public Folders

Entries: 1 - 35

<input type="checkbox"/>	Name	Modified	Actions
<input type="checkbox"/>	Customer Service Reports	February 12, 2008 8:51:51 AM	More...
<input type="checkbox"/>	Design Print & Ship	December 7, 2007 11:40:42 AM	More...
<input type="checkbox"/>	Finance	February 15, 2008 2:20:39 PM	More...
<input type="checkbox"/>	Marketing	February 26, 2008 10:04:42 AM	More...
<input type="checkbox"/>	Merchandising	February 13, 2008 10:18:11 AM	More...

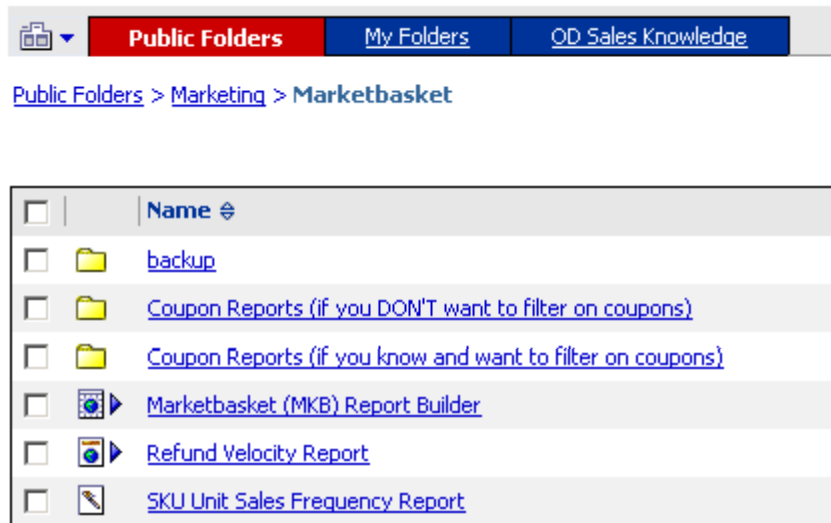
Public Folders | My Folders

Public Folders

Entries: 1 - 12

<input type="checkbox"/>	Name	Modified	Actions
<input type="checkbox"/>	NA Retail Clearance Recap	February 20, 2008 5:49:15 PM	More...
<input type="checkbox"/>	Portals	November 30, 2007 1:27:42 PM	More...

Folder/Report Level Security (Report Views)



Marketbasket (MKB) Report Builder

Original Report



Marketbasket (MKB) Report Builder

Report View

User must have traverse on the original folder, and read, traverse, and execute on the original report to successfully execute the report view.

Folder/Report Level Security

Highlights

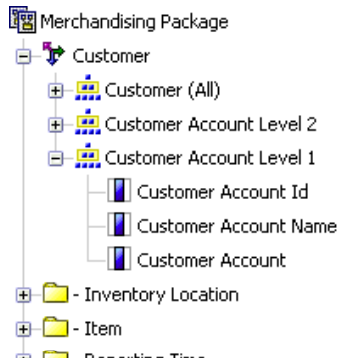
- All reports are owned by a single Business Administrator.
- The BA is given a single folder on the root level of Cognos Connection.
- The BA can request new subfolders as they see fit to organize their departments report portfolio from the Cognos Admin.
- A BA has multiple Security Groups which can be added or removed from the subfolders and individual reports. Requests are sent by the BA to the Cognos Admin to change or apply security to folders and reports.
- A BA can share a report with another Department by utilizing a report view

Business Benefits

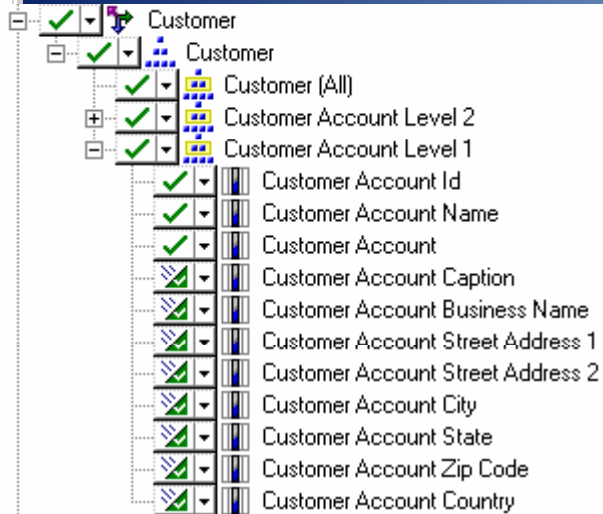
- Consumers only view reports applicable to their job function.
- Consumers navigate to a root folder to view all of their departments reports.
- Report Copies are avoided, to simplify report maintenance.

Package Level Security

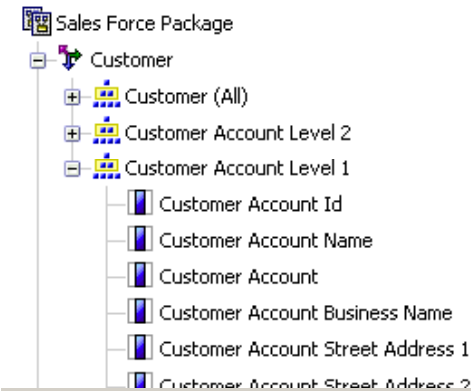
Query Studio



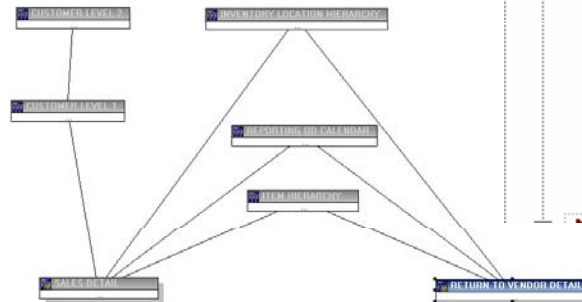
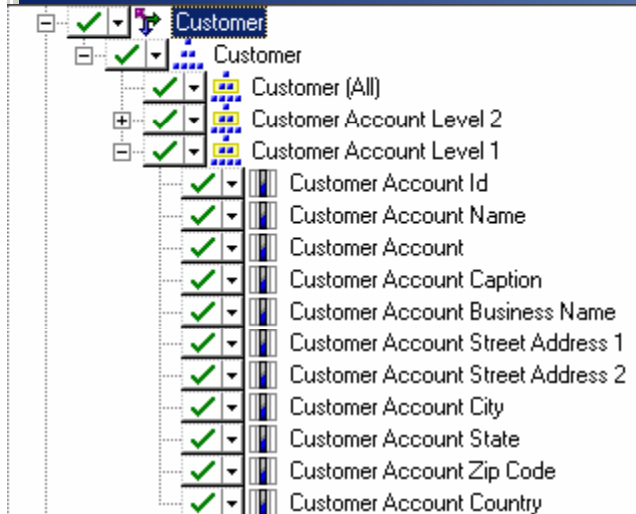
Package Definition - Merchandising Package



Query Studio



Package Definition - Sales Force Package



Package Level Security

Highlights

- Multiple Packages are published from a single Global Enterprise Reporting Model, with shared Regular and Measure Dimensions.
- Dimensions, Dimension Levels , Attributes and Measures are hidden or displayed based on end user data needs and OD security requirements.
- User Groups/Users are granted access to packages.

Business Benefits

- Single Framework Model is supporting multiple departments with different security clearance levels.
- Keeps all attributes and metrics consistent both from a naming perspective and from a definition perspective.
- Simplifies maintenance, because multiple models or copies of dimensions do not need to be maintained.

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Data Security

Table Driven Security

The screenshot shows a software interface for defining dimensions and filters. The main window is titled "Dimension Definition - Customer Bill To" and has tabs for "Dimension", "Filters", "Test", and "Query Information". Under the "Filters" tab, there is a table of filters:

Name	Usage
SECR1 CUSTOMER BILL TO	Always

Below this, a "Filter Definition - SECR1 CUSTOMER BILL TO" dialog box is open. It shows the "Name" as "SECR1 CUSTOMER BILL TO" and the "Expression definition" as:

```
CAST(##$account.personalInfo.userName#, CHAR(10))  
= [Physical View].[COGNOS SECR1 ACCOUNT  
(CUSTOMER SITE BILL TO)].[User Id]
```

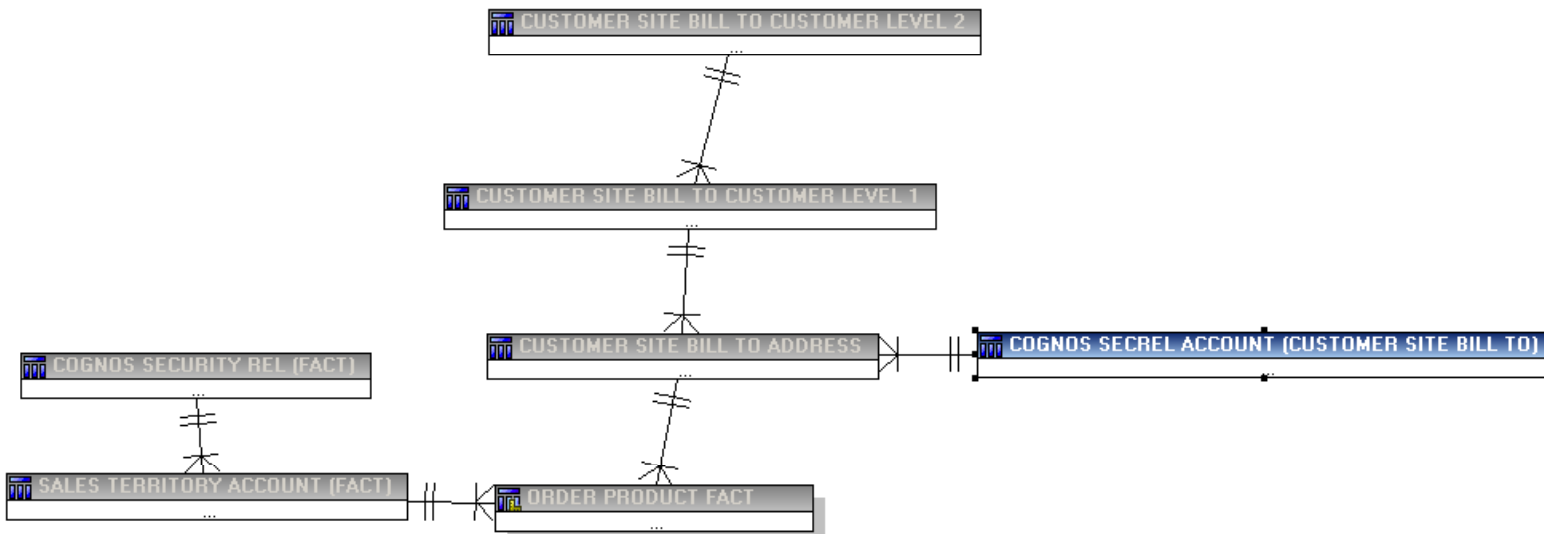
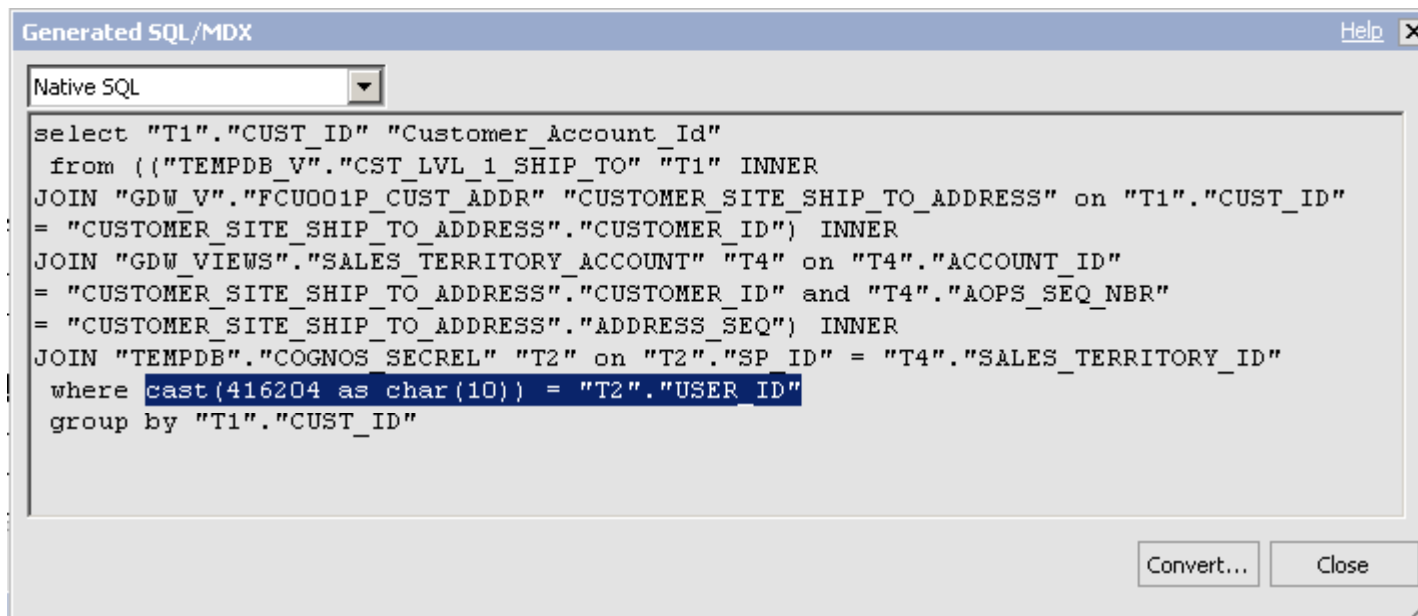


Table Driven Security

Customer Account Id
44388228
41640637
84061024



```
select "T1"."CUST_ID" "Customer_Account_Id"
  from (("TEMPDB_V"."CST_LVL_1_SHIP_TO" "T1" INNER
JOIN "GDW_V"."FCU001P_CUST_ADDR" "CUSTOMER_SITE_SHIP_TO_ADDRESS" on "T1"."CUST_ID"
= "CUSTOMER_SITE_SHIP_TO_ADDRESS"."CUSTOMER_ID") INNER
JOIN "GDW_VIEWS"."SALES_TERRITORY_ACCOUNT" "T4" on "T4"."ACCOUNT_ID"
= "CUSTOMER_SITE_SHIP_TO_ADDRESS"."CUSTOMER_ID" and "T4"."AOPS_SEQ_NBR"
= "CUSTOMER_SITE_SHIP_TO_ADDRESS"."ADDRESS_SEQ") INNER
JOIN "TEMPDB"."COGNOS SECREL" "T2" on "T2"."SP_ID" = "T4"."SALES_TERRITORY_ID"
 where cast(416204 as char(10)) = "T2"."USER_ID"
 group by "T1"."CUST_ID"
```

Table Driven Security

Highlights

- A table is created in the DB listing the customers a user can see.
- Within the Framework Package, the modeler restricts the appropriate fact and dimension tables by inner joining the Security Table to the model.
- A Filter is added to the Measure Dimension and the Regular Dimension within the DMR: (CAST(#\$account.personalInfo.userName#, CHAR(10)) = [Physical View].[COGNOS SECREL ACCOUNT (CUSTOMER SITE BILL TO)].[User Id])

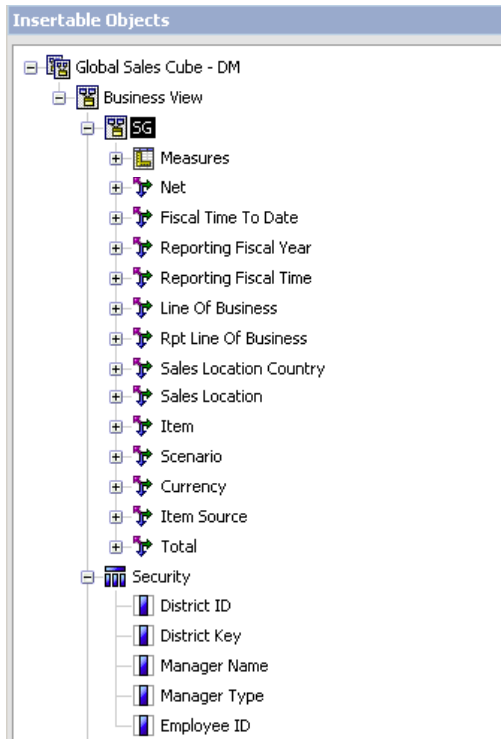
Business Benefits

- Allows Consumer to view restricted subset of data.
- Allows for granular level of data security.
- Applied to the Package so the adhoc reporting tools are still available to the consumers without the risk of displaying sensitive data.

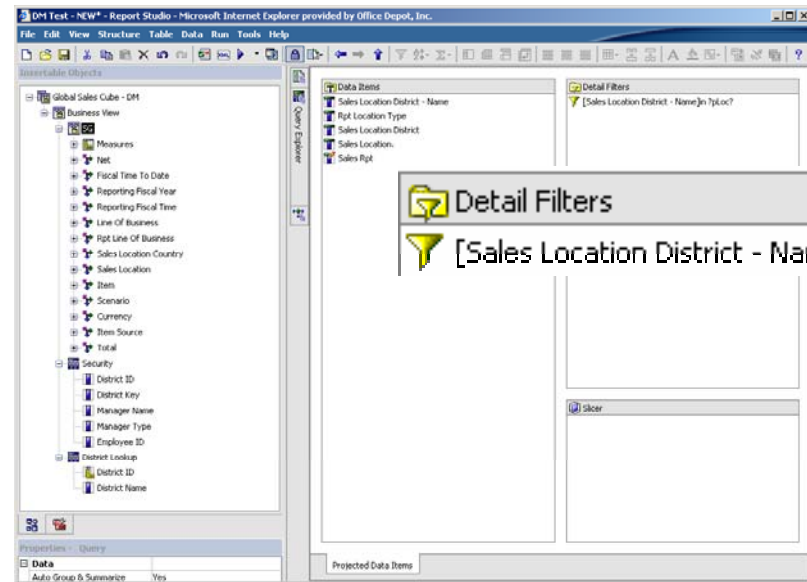
Drawback

- Security table is maintained outside of Cognos. An application interface to the DB is required to maintain the table.

Table Driven Security Combined With an Essbase Cube Method 1



Publish a package containing the cube and the physical security tables



The Sales Location District Caption in the cubes is filtered based on the prompt built off the security table.

Table Driven Security Combined With an Essbase Cube Method 1

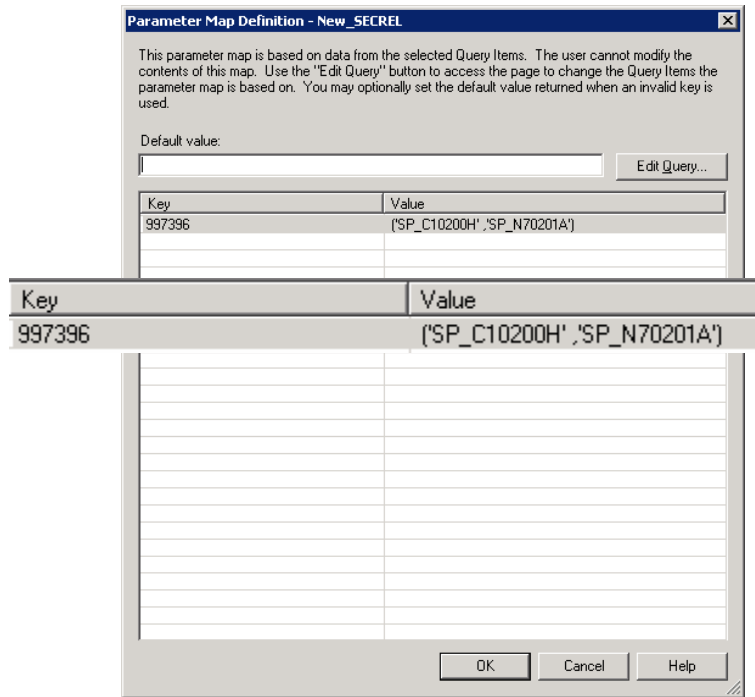
District Key
DISTRICT_59
DISTRICT_6
DISTRICT_60
DISTRICT_61
DISTRICT_62
DISTRICT_63
DISTRICT_65
DISTRICT_66
DISTRICT_69
DISTRICT_7
DISTRICT_70

Available Prompt Values to User are based on districts they can see in the security table

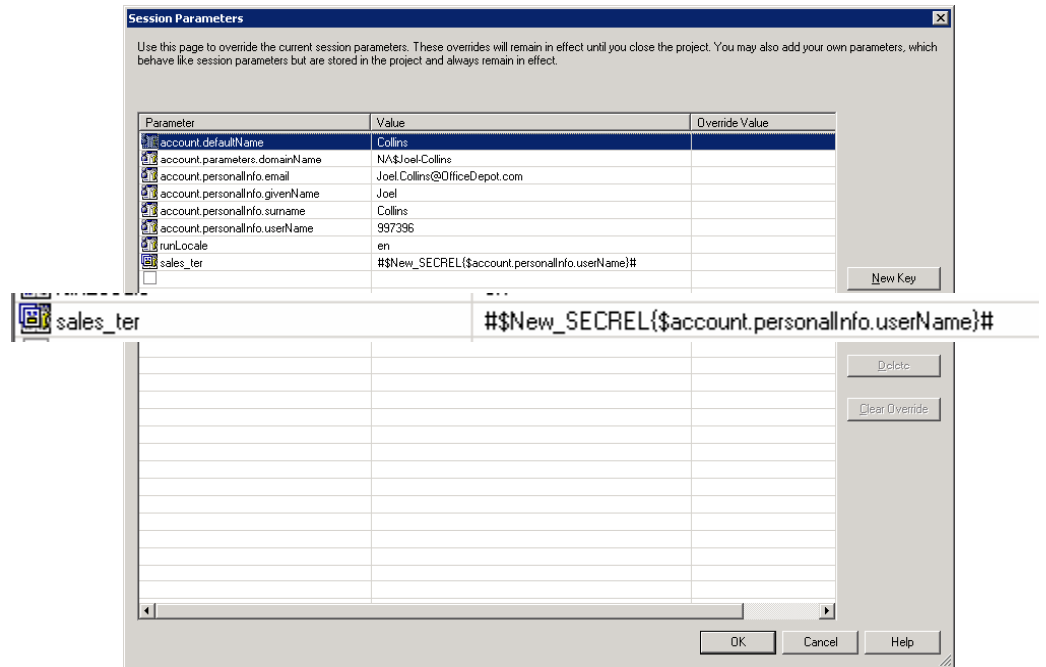
Sales Location District	Sales Location.
DISTRICT 66 OHIO	DAYTON OH (0084)
	DAYTON OH (0087)
	BEAVERCREEK OH (0277)
	BLUE ASH OH (0287)
	HEATH OH (0470)
	MARION OH (0485)
	FLORENCE KY (0512)
	CINCINNATI OH (2151)
	WEST CHESTER OH (2302)
	MILFORD OH (2307)
	DAYTON OH (2395)
	CLERMONT OH (2474)
	SPRINGDALE OH (2479)
	EAST HAMILTON OH (2523)
STORES DIST.66 OFFIC (6020)	

Parameters are passed to the cube and used to filter the resulting data set

Table Driven Security Combined With an Essbase Cube Method 2

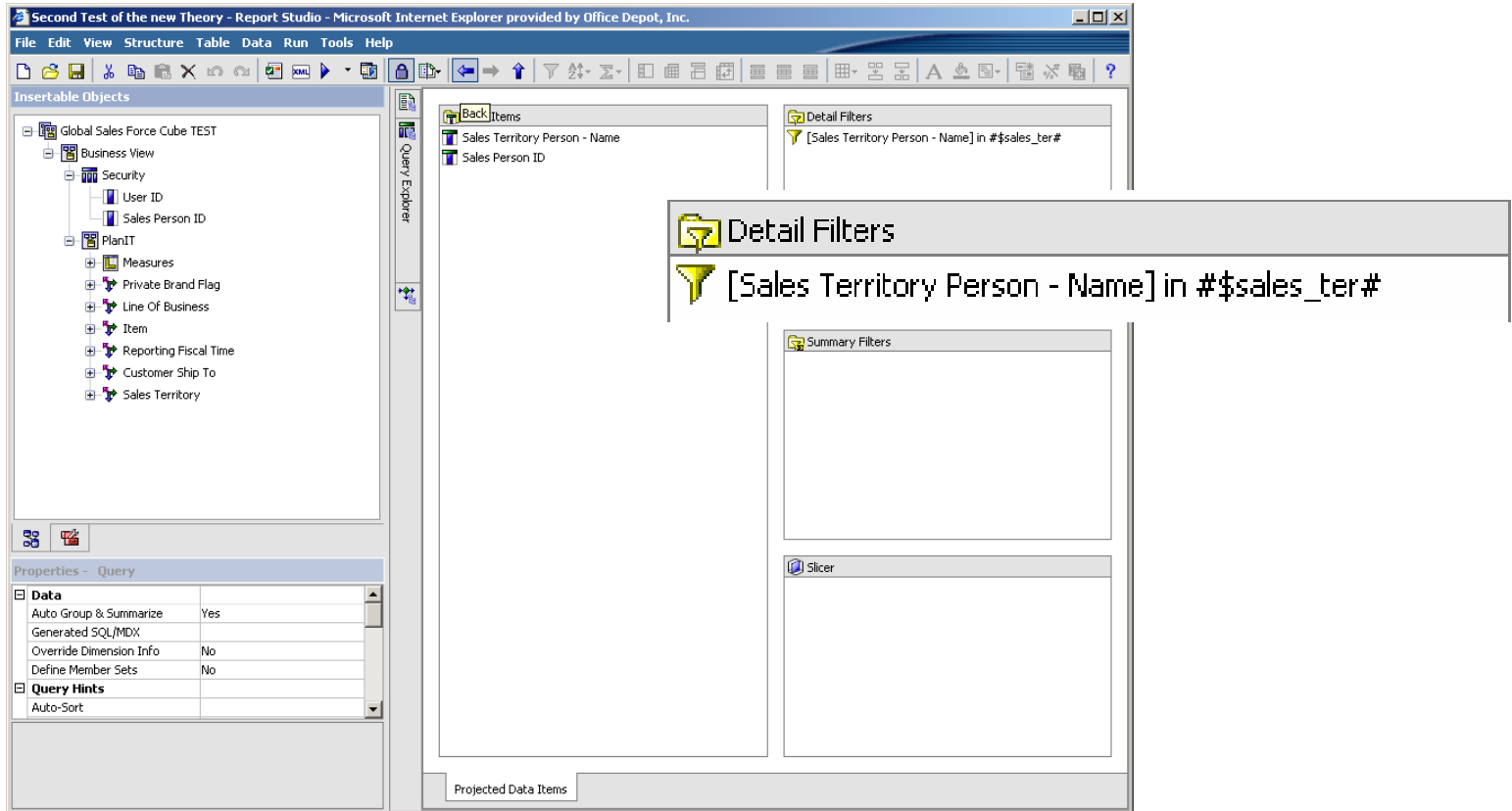


In Framework Manager, create Parameter Map that associates the login id to desired values



In Framework, create a new Session Parameter that refers to your Parameter map.

Table Driven Security Combined With an Essbase Cube Method 2



Create a filter in Report Studio that references your session parameter.

Table Driven Security Combined With an Essbase Cube

Highlights

- A table is created in the DB listing the customers a user can see.
- Within report studio, the report author passes the appropriate parameters from the DB table to the cube.
- Simplifies maintenance for granular data-driven security when developing a Cognos report written against an Essbase cube.

Business Benefits

- Allows Consumer to view restricted subset of data against a fast performing cube.

Drawback

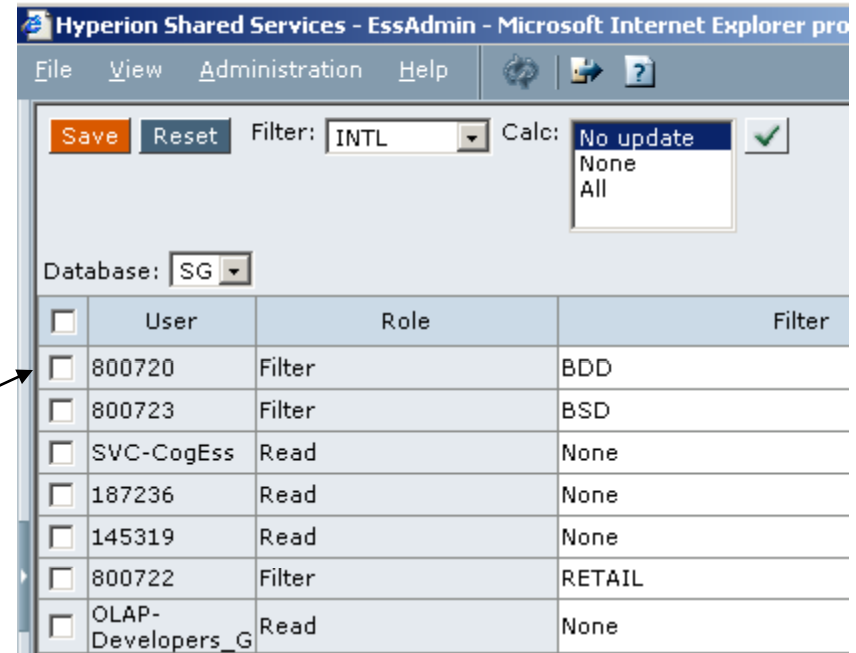
- Applied at the Report Level, so the Ad-hoc reporting tools cannot be used.

Essbase Security Filters



User ID:

Password:



1. Create a datasource to Hyperion Cube
2. Create a sign-on for each security filter.
3. Grant the sign-on access to the respective AD group
4. Select the sign-on user id associating the user to the essbase filter.

Filter Definition	
Filter name	BDD
Filter rows	
Access	Member Specification
MetaRead	@IDESCENDANTS ("Rpt_LOB_OD DIRECT CHILD"),@IDESCENDANTS ("Domestic")
Click here to add	Click here to add

Essbase Security Filters

Highlights

- Map Active Directory groups to Cognos Sign-ons
- Cognos sign-on's are mapped to Essbase security filters allowing Essbase driven data security against the cube.

Business Benefits

- Security is set up one time and completely managed by the business.
- Reports created in any Cognos reporting tool will automatically apply the appropriate security.

Drawback

- Effective only for high level security filters. This is not appropriate for applying granular security.

Burst Report Security

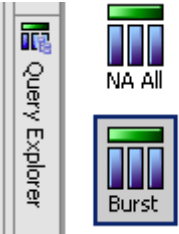


**Interface for
maintaining Cognos
Burst Groups**



```
CREATE SET TABLE COGNOS_USERDB.COGNOS_BURST_TABLE , NO FALLBACK ,  
NO BEFORE JOURNAL,  
NO AFTER JOURNAL,  
CHECKSUM = DEFAULT  
(  
BURST_LIST_ID SMALLINT,  
BURST_LIST_NAME VARCHAR(50) CHARACTER SET LATIN NOT CASESPECIFIC NOT NULL,  
BURST_ID INTEGER,  
BURST_KEY INTEGER,  
BURST_CD VARCHAR(50) CHARACTER SET LATIN NOT CASESPECIFIC NOT NULL,  
BURST_EMAIL_ADDRESS VARCHAR(50) CHARACTER SET LATIN NOT CASESPECIFIC,  
BURST_USERID INTEGER)  
UNIQUE PRIMARY INDEX BURST_LIST_ID_PI ( BURST_LIST_ID ,BURST_ID );
```

Burst Report Security



Query Explorer

NA All

Burst

Data Items

- Reporting Fiscal Long Date
- Report LOB Sort
- Report LOB
- Item Group Id
- Group
- Department
- Class
- Net Sales TY
- Net Sales LY
- Net Sales TY/LY % Var

Detail Filters

- [Dimension View],[Sales Location],[Sales Locati...
- [Dimension View],[Sales Location Comp],[Sales L...
- [Dimension View],[Item],[Item],[Item Class],[It...

Data Items

- Burst Key
- CAMID

Detail Filters

- [Physical View],[Cognos Burst],[Burst List Id]i...

Burst Options

Make report available for bursting

Burst Groups

Query: NA All

Label: Item Group Id

Groups: Item Group Id

Burst Recipient

Query: Burst

Data Item: CAMID

Type: Directory entries

Master detail relationships: (Defined)

OK Cancel

Master Detail Relationships

Master: NA All

Detail: Burst

New Link

Reporting Fiscal Long Date

Report LOB Sort

Report LOB

Item Group Id

Group

Department

Class

Net Sales TY

Net Sales LY

Net Sales TY/LY % Var

Net Sales FWTD TY

Net Sales FWTD LY

Net Sales FWTD TY/LY % Var

Net Sales FMTD TY

Net Sales FMTD LY

Net Sales FMTD TY/LY % Var

Net Sales FQTD TY

Net Sales FQTD LY

Burst Key

CAMID

Parameters:

The detail query will be filtered by the master query.

OK Cancel

Burst Report Security

From: ODSVCCOG@officedepot.com [mailto:ODSVCCOG@officedepot.com]
Sent: Tuesday, March 04, 2008 6:00 AM
To: Brent-Ehrlich
Subject: Your Daily Merchandising Reports Portal (open to access links to your reports)

Office DEPOT.

Merchandising Report Portal For Brent Ehrl

New: Direct Access to Sales Knowledge Product Detail Report >>> [Click Here](#)

For Sales Knowledge security access questions, contact Michael.Hooper@officedepot.com

Daily Performance Updates	Daily "Custom" Reports	Additional Reporting & Links
DMM view- Daily Net Sales Performance Summary	Daily Gift Card Performance	Group 1: Top Item Perf. (US BSD)
DMM view- Daily Net Sales Performance Summary		Group 1: Top Item Perf. (US Retail)
Div 1: NA Retail Daily Perf.- Subclass level	Tech Recycling Daily Update	New! Sales Trend Detail Report Link
DMM view- Daily Net Sales Performance Summary	District 14: PPP Kit Performance	New! Sales Trend Detail (FY 2007) Report Link
Div. 2: NA Retail Daily Perf. (Groups, Depts.)	District 164: PPP Kit Performance	Group 31: Top Item Perf. (US BSD)
Group 1: Daily Net Sales Performance	District 164: PPP Kit Performance	Group 31: Top Item Perf. (US Retail)
DMM view- Daily Net Sales Performance Summary	D10 or Class 209,211 SKU detail	New! Sales Trend Detail Report Link
Group 31: Daily Net Sales Performance	Furn. "take-with" vs. Delivery Summary	New! Sales Trend Detail (FY 2007) Report Link
DMM view- Daily Net Sales Performance Summary		Top SKU Performance by Group (BSD)
		Top SKU Performance by Group (NA Retail)

```
http://reports.na.odcorp.net/Cognos8/cgi-bin/cognos.cgi?b_action=xts.run&m=portal/view-output.xts&ui.action=view&ui.object=/content/folder[@name='Merchandising']/folder[@name='Scheduled Ad-hoc Reports']/report[@name='SCHEDULED REPORT- JANINE MITCHELL- NA Total SKU Performance Detail Day-YTD TY Only']/reportVersion[starts-with(@name,'2008-03-04')]/output[starts-with(@name,'2008-03-04')]&ui.action=view&run.outputFormat=PDF
```

Report with data limited to the Merchants Product Groups.

Unauthorized access is prevented if the email is forwarded, because of single sign-on authentication.

Office DEPOT.

Daily Net Sales Performance Summary (Group, Departments & Classes)

Data for comp. North America (NA) locations only. All data are net of customer returns, coupon discounts, Mail-in-rebate estimate/actuals and impacts. Net sales, IMU and units are in 1,000's. BP= basis points, ASP= average selling price (Net Sales/Net Sales Units). All data are for file

Office DEPOT

Cognos 8

DPH-ERP-2008

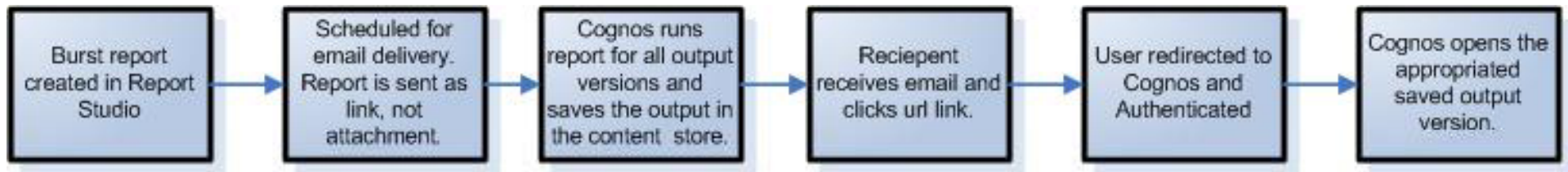
There are no report output versions available for this report.

Details A

```
Handler trace back: [the_dispatcher] com.cognos.pogo.handlers.performance.PerformanceIndicatorHandler [the_dispatcher]
com.cognos.pogo.handlers.logic.ChainHandler [service_lookup] com.cognos.pogo.handlers.engine.ServiceLookupHandler [cm]
com.cognos.pogo.handlers.logic.ChainHandler [if_queryCM] com.cognos.pogo.handlers.logic.IfHandler [auth_check] com.cognos.pogo.auth.NewAuthHandler
[queryCM] com.cognos.pogo.handlers.logic.ChainHandler [cmHandler] com.cognos.pogo.handlers.contentmanager.CHHandler
```

OK

Burst Report Security



Burst Report Security

Highlights

- A single pass is made at the DB and a report is sliced into output versions based on a recipients security access in the burst table .
- A user is able to receive multiple bursted reports in a single email by leveraging a “busted dashboard”.
- Links are sent ensuring a recipient is authenticated Cognos user. Security is identical to the user logging into Cognos Connection.
- User receives the reports based on a trigger tied to the data load completing. Ensures data is recent and received ASAP.

Business Benefits

- Extremely easy, even for the most basic of users.
- No knowledge of the Cognos Portal is required.
- Recipients are notified as soon as the reports are ready.
- Push method, without filling up inbox.

Q & A