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Product Implementation Training (PIT)

IBM FileNet Content Manager 5.2.1

Reporting Features



Introduction

- Course Overview
 - Reporting Features Overview
 - Reporting Enablement Extensions add-on
 - CSV File Generation
 - Custom Search Functions
 - Cognos Business Intelligence (BI) Integration
- Target Audience
 - Customer Support and Field Technical Resources
- Suggested Prerequisites
 - Familiarity with Content Platform Engine
- Version Release Date - November 2014

Course Roadmap

- ➔ Reporting Features Overview
 - Reporting Enablement Extensions add-on
 - Demo reporting add-on
 - Demo CSV file generation
 - Custom Search Functions
 - Demo custom search functions
 - Cognos BI Integration
 - Best Practices
 - Documentation

Reporting Features Overview

- Background search sweep
 - Support for search aggregations (MAX/MIN/SUM/COUNT)
 - Generate fact table data
- Reporting Enablement Extensions add-on
 - Defines new background search and result classes
 - Generate sample reports
 - New subscription and event handler
 - Generate CSV file from result tables
- Support for custom search functions
 - Generate dimension table data (for use with Cognos BI)
- ACCE Enhancements
 - New wizards for creating and running background searches

Reporting Features Overview

- Content Platform Engine supports the following for creating reports
 - Automatic creation of CSV files from background searches which can be processed in any spreadsheet software
 - Using Cognos BI to process and generate reports from Content Platform Engine background search fact and dimension tables
 - Using other tools and products to access the result tables generated by a background search

Course Roadmap

Reporting Features Overview

- ➔ Reporting Enablement Extensions add-on
 - Demo reporting add-on
 - Demo CSV file generation

Custom Search Functions

- Demo custom search functions

Cognos BI Integration

Best Practices

Documentation

Reporting Enablement Extensions add-on

- Defines classes and properties for generating *sample* reports
 - Customers can then create their own reports similarly
 - New document class created, for checked-in CSV file
 - New properties, search function definitions added
- Sample reports include document usage by...
 - Scope (user, class, storage)
 - Age (month, year)
- Reports are generated from result tables created by a background search
 - Reports can be generated as comma-separated values (CSV) files
 - CSV file is checked-in upon search completion
 - Background searches can also create dimension tables, for use with Cognos BI

Reporting Enablement Extensions add-on

Installed sample reports

- By Scope

Document Usage By User

```
SELECT Creator AS CmRptUser,  
        COUNT(Id) AS CmRptObjectCount,  
        SUM(ContentSize) AS CmRptContentSize,  
        MIN(DateCreated) as CmRptDateFirstCreated,  
        MAX(DateCreated) as CmRptDateLastCreated  
FROM Document  
GROUP BY CmRptUser
```


Reporting Enablement Extensions add-on

Installed sample reports

- By Scope

Document Usage By Class

```
SELECT CmRpt::Name (ClassDescription) as CmRptClass,  
       COUNT(Id) AS CmRptObjectCount,  
       SUM(ContentSize) AS CmRptContentSize,  
       MIN(DateCreated) as CmRptDateFirstCreated,  
       MAX(DateCreated) as CmRptDateLastCreated,  
       MAX(DateLastModified) as CmRptDateLastModified  
FROM Document  
GROUP BY CmRptClass
```

Reporting Enablement Extensions add-on

Installed sample reports

- By Scope

Document Usage by Storage Area

```
SELECT CmRpt::Name (StorageArea) as CmRptStorageArea,  
       COUNT(Id) AS CmRptObjectCount,  
       SUM(ContentSize) AS CmRptContentSize,  
       MIN(DateCreated) as CmRptDateFirstCreated,  
       MAX(DateCreated) as CmRptDateLastCreated  
FROM Document  
GROUP BY CmRptStorageArea
```

Reporting Enablement Extensions add-on

Installed sample reports

- By Scope

Document Usage by User, by Class

```
SELECT Creator AS CmRptUser,  
       CmRpt::Name (ClassDescription) as CmRptClass,  
       COUNT(Id) AS CmRptObjectCount,  
       SUM(ContentSize) AS CmRptContentSize,  
       MIN(DateCreated) as CmRptDateFirstCreated,  
       MAX(DateCreated) as CmRptDateLastCreated,  
       MAX(DateLastModified) as CmRptDateLastModified  
FROM Document  
GROUP BY CmRptUser, CmRptClass
```

Reporting Enablement Extensions add-on

Installed sample reports

- By Age

Document Usage by Month

```
SELECT CmRpt::FormatDate (DateCreated, 'MM/yyyy')  
      as CmRptDate,  
      COUNT(Id) AS CmRptObjectCount,  
      SUM(ContentSize) AS CmRptContentSize  
FROM Document  
GROUP BY CmRptDate
```

Reporting Enablement Extensions add-on

Installed sample reports

- By Age

Document Usage by Year

```
SELECT CmRpt::FormatDate (DateCreated, 'yyyy')  
      as CmRptDate,  
      COUNT(Id) AS CmRptObjectCount,  
      SUM(ContentSize) AS CmRptContentSize  
FROM Document  
GROUP BY CmRptDate
```

Reporting Enablement Extensions add-on

Installed sample reports

- By scope + generation of a dimension table

Document Usage by User Record

```
SELECT CmRpt::UserRecord (Creator) as CmRptUserRecord,  
       COUNT(Id) AS CmRptObjectCount,  
       SUM(ContentSize) AS CmRptContentSize,  
       MIN(DateCreated) as CmRptDateFirstCreated,  
       MAX(DateCreated) as CmRptDateLastCreated  
FROM Document  
GROUP BY CmRptUserRecord
```

Course Roadmap

Reporting Features Overview

Reporting Enablement Extensions add-on



- * Demo reporting add-on

- * Demo CSV file generation

Custom Search Functions

- Demo custom search functions

Cognos BI Integration

Best Practices

Documentation

Course Roadmap

Reporting Features Overview

Reporting Enablement Extensions add-on

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➔ Custom Search Functions

- Demo custom search functions

Cognos BI Integration

Best Practices

Documentation

Custom Search Functions

- Custom search function:
 - A user-defined function that can be included in a SELECT clause
 - Can use in a background search
 - Can use in an interactive (adhoc) search
 - Created by defining a search function definition and a handler
 - Evaluated once for each search result row
 - Requires one or more input parameters
 - Outputs a return value
- Syntax:

`Namespace::FunctionName(prop1, prop2, 'abc', 45 ...)`

- Example:

```
SELECT CmRpt::FormatDate (DateCreated, 'MM/yyyy')  
FROM Document
```

Course Roadmap

Reporting Features Overview

Reporting Enablement Extensions add-on

- Demo reporting add-on
- Demo CSV file generation

Custom Search Functions

→ * Demo custom search functions

Cognos BI Integration

Best Practices

Documentation

Course Roadmap

Reporting Features Overview

Reporting Enablement Extensions add-on

- Demo reporting add-on
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Custom Search Functions

- Demo custom search functions

➔ Cognos BI Integration

Best Practices

Documentation

Cognos Integration

Topics

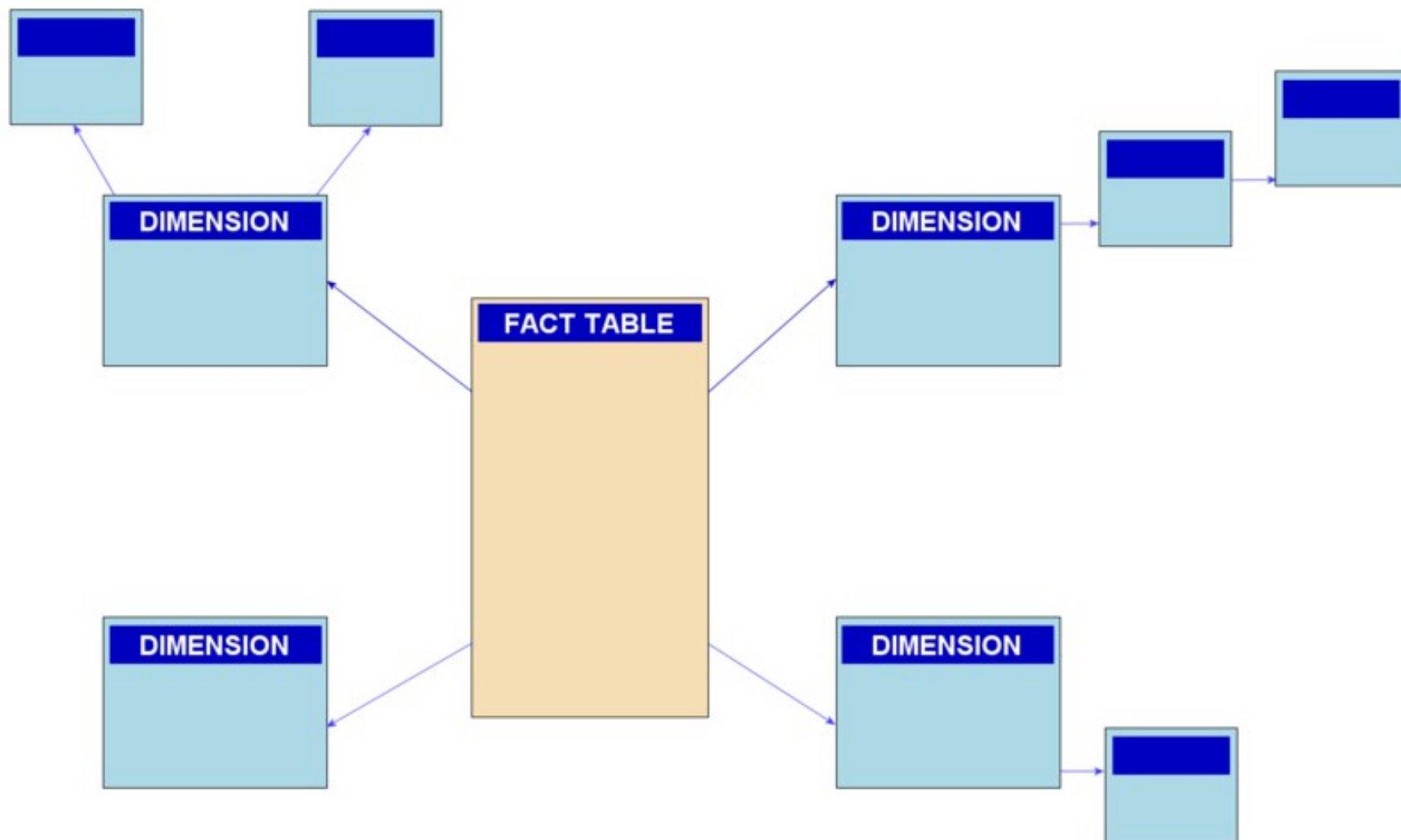
- OLAP Background
- Cognos Overview
- Cognos BI – Products
- Cognos BI – Installation, Configuration
- Cognos BI – Cube Products
- Cognos BI – Dynamic Cubes
- Cognos BI – Reporting Tools
- Cognos BI – Reporting Example

Cognos Integration

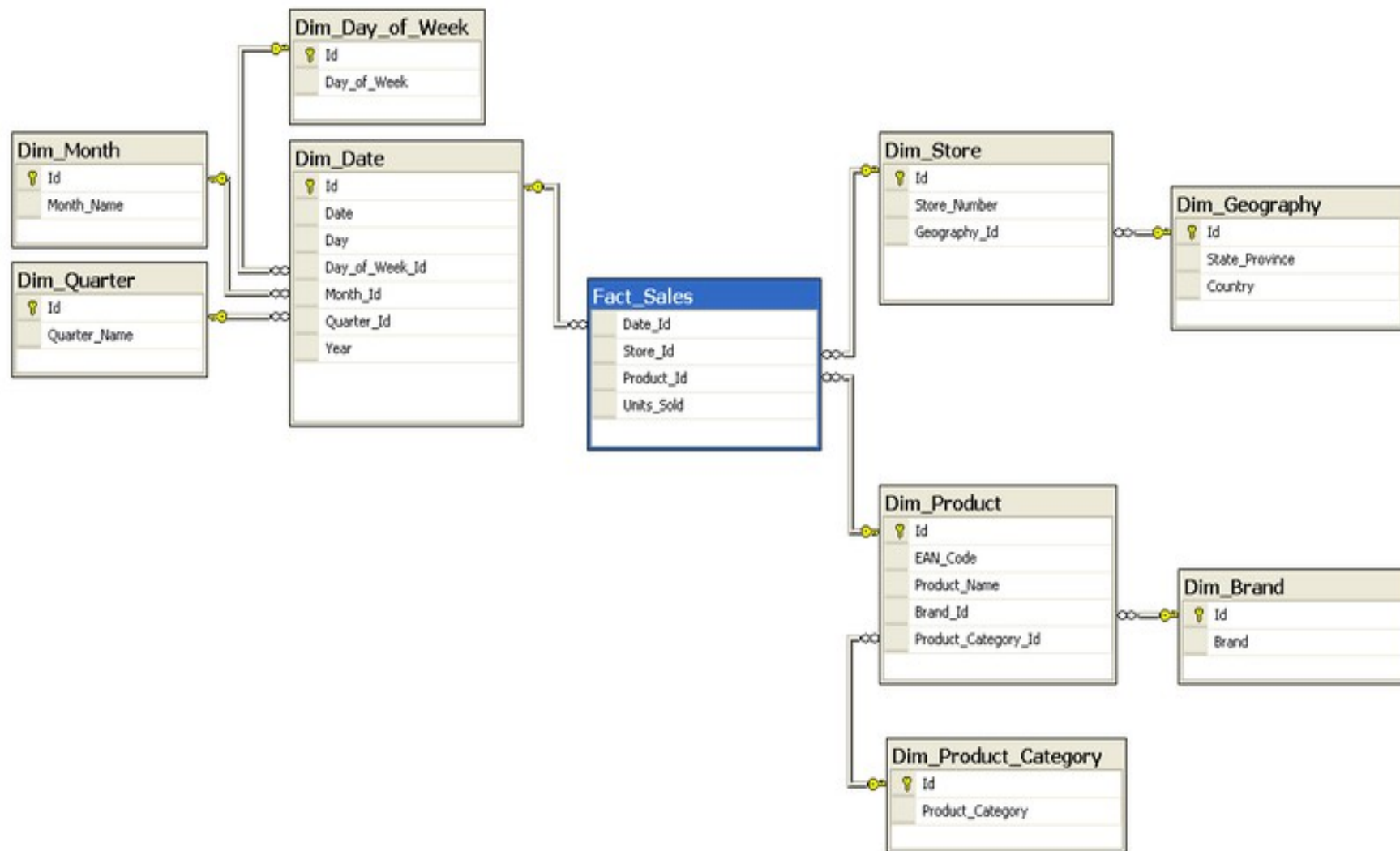
Online Analytical Processing (OLAP)

- Part of “Business Intelligence”
- Applications
 - Financial, Sales, Marketing, Forecasting, Budgeting, Management
- Core is the OLAP Cube
 - Generalization of a 3-D spreadsheet
- Each cell of the cube holds a measure (sales, profits, etc)
 - Measures are derived from a fact table
- Summarize data along dimensions (time, region, etc)
 - Dimensions are derived from dimension tables
- OLAP data can be stored
 - In a relational database in a star or snowflake schema
 - In a special OLAP structure

Cognos Integration



Cognos Integration



Cognos Integration

Online Analytical Processing (OLAP) (cont'd)

- OLAP tools analyze multidimensional data (measures by dimensions) interactively from multiple perspectives:
 - Consolidation (roll-up)
 - Drill-down
 - Slicing and dicing

References:

- http://en.wikipedia.org/wiki/OLAP_cube
- Introduction to Dimensions:
<http://technet.microsoft.com/en-us/library/ms175439.aspx>
- Dimension Tables:
<http://technet.microsoft.com/en-us/library/aa905979%28v=sql.80%29.aspx>

Cognos Integration

Cognos Product Overview

- Business intelligence, performance management, strategy, analytics
 - Cognos Insight – Individual
 - Cognos Express – Department
 - Cognos Enterprise – Enterprise
 - Can be TM1, Business Intelligence, or both
- Cognos Business Intelligence
 - Web-based business intelligence solution
 - Integrated reporting, analysis, scorecarding, and event mgmt.
 - Includes Cognos BI Server and Cognos BI Modeling
- References
 - <http://www-01.ibm.com/software/analytics/cognos/business-intelligence-product-comparison.html>

Cognos Integration

Cognos Product Overview (cont'd)

Key capabilities	Cognos Insight	Cognos Express	Cognos Enterprise
Dashboards	X	X	X
Analysis	X	X	X
What-if scenario modeling	X	X	X
Planning and budgeting	X	X	X
Production reports		X	X
Microsoft Office integration		X	X
Support for Apple iPad		X	X
Support for other mobile devices			X
Enterprise-wide collaboration			X
Software Development Kit			X

Cognos Integration

Cognos Product Overview (cont'd)

- Report Studio: Report authoring tool for the web
- Query Studio: Adhoc report authoring tool
- Analysis Studio: Explore cube data to answer business questions
- Metric Studio: Monitor, analyze, report on performance indicators
- Metric Designer: Define, load, maintain metrics
- Event Studio: Action based agents to notify decision makers of events
- Framework Manager: Semantic metadata layer tool which creates models or packages
- Powerplay: Data analysis, exploration and a Windows-based client to view, explore, format, and distribute reports
- TM1: Real-time reporting for multidimensional data, uses 64-bit, in-memory OLAP server

Cognos Integration

Cognos BI – Installation and Configuration

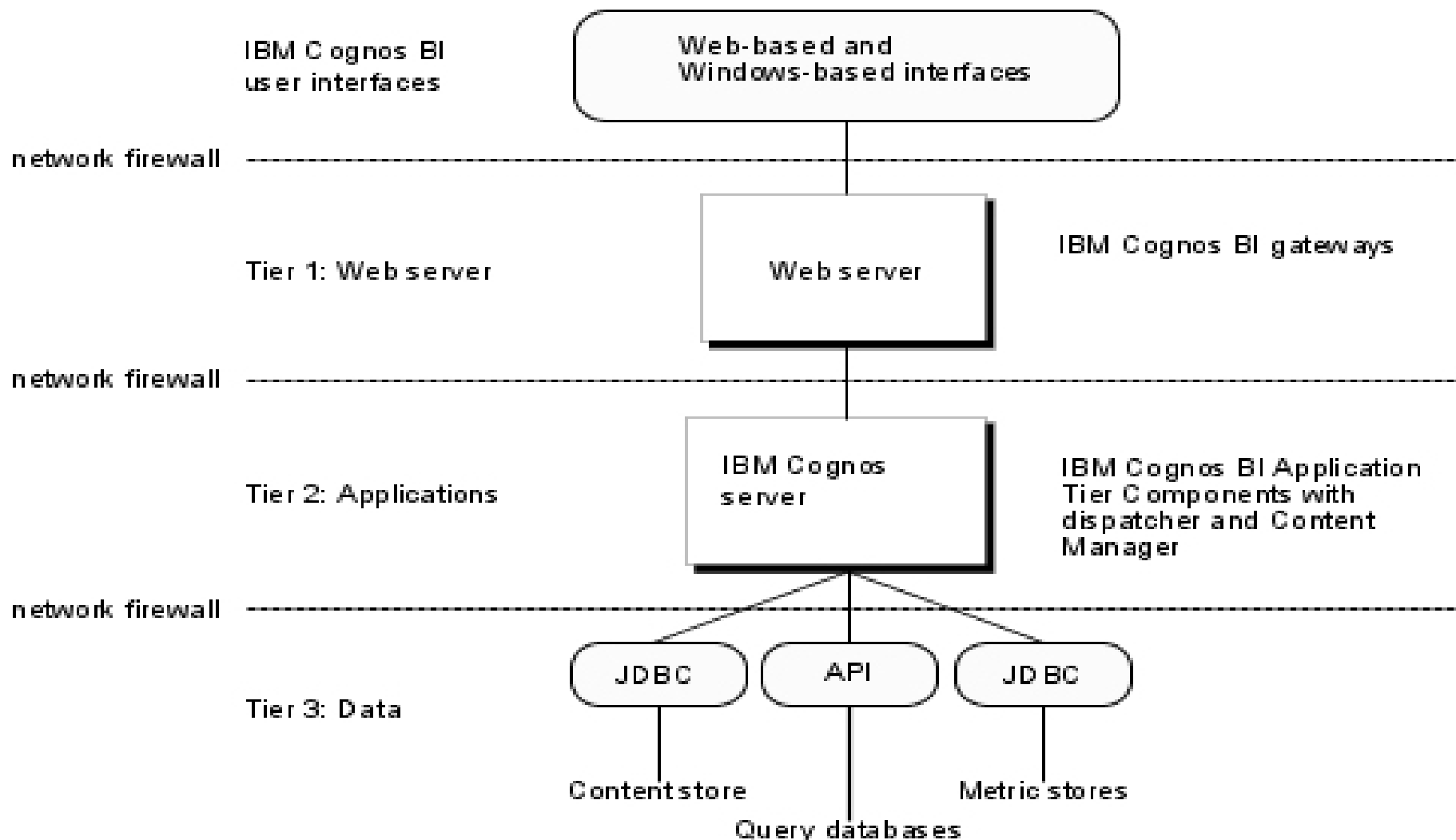
- Download location
 - Xtreme Leverage <http://w3-103.ibm.com/software/xl/download/ticket.do>
 - Product: IBM Cognos Business Intelligence 10.2.1
 - Assembly: IBM Cognos Business Intelligence Advanced 10.2.1
Microsoft Windows Multilingual eAssembly (CRN0NML)
- Installation Products
 - IBM Cognos Business Intelligence Quick Start Guide 10.2.1
 - IBM Cognos Business Intelligence Server 64-bit 10.2.1
 - IBM Cognos Dynamic Query Analyzer 10.2.1
 - IBM Cognos Cube Designer 10.2.1
- Main Docs
 - <http://pic.dhe.ibm.com/infocenter/cbi/v10r2m1/index.jsp>

Cognos Integration

Cognos BI – Installation and Configuration (cont'd)

- Server Components
 - Gateway
 - Runs in Web Server
 - Forwards requests to Cognos BI Servers
 - Application Tier Components
 - One or more IBM Cognos BI servers
 - Servers run reports, analyses, and queries
 - Content Manager
 - Runs as a Cognos BI service
 - Manages security, configuration data, models, metrics, report specifications, report output, scheduling
 - Data stored in Content Store

Cognos Integration



Cognos Integration

Cognos BI – Installation and Configuration (cont'd)

- Database Components
 - Content store
 - Relational database
 - Contains report specifications, published models, packages, connection information for data sources
 - Data Sources
 - Relational databases
 - Dimensional or OLAP cubes
 - Files or other physical data stores
 - Data source connections
 - Used to access data sources

Cognos Integration

Cognos BI – Installation and Configuration (cont'd)

- Single Computer Install
 - Proof of concept where the user load is small
- Installing and Configuring Product Components
 - Install server components
 - Configure Content Store
 - Start Cognos Services
 - Configure Web Server
 - Test the system
 - Content Manager: http://host_name:9300/p2pd/servlet
 - Dispatcher: http://host_name:9300/p2pd/servlet/dispatch
 - Portal: http://host_name/ibmcognos/cgi-bin/cognos.cgi
 - Aka “Cognos Connection”

Cognos Integration

Cognos BI – Cube Products

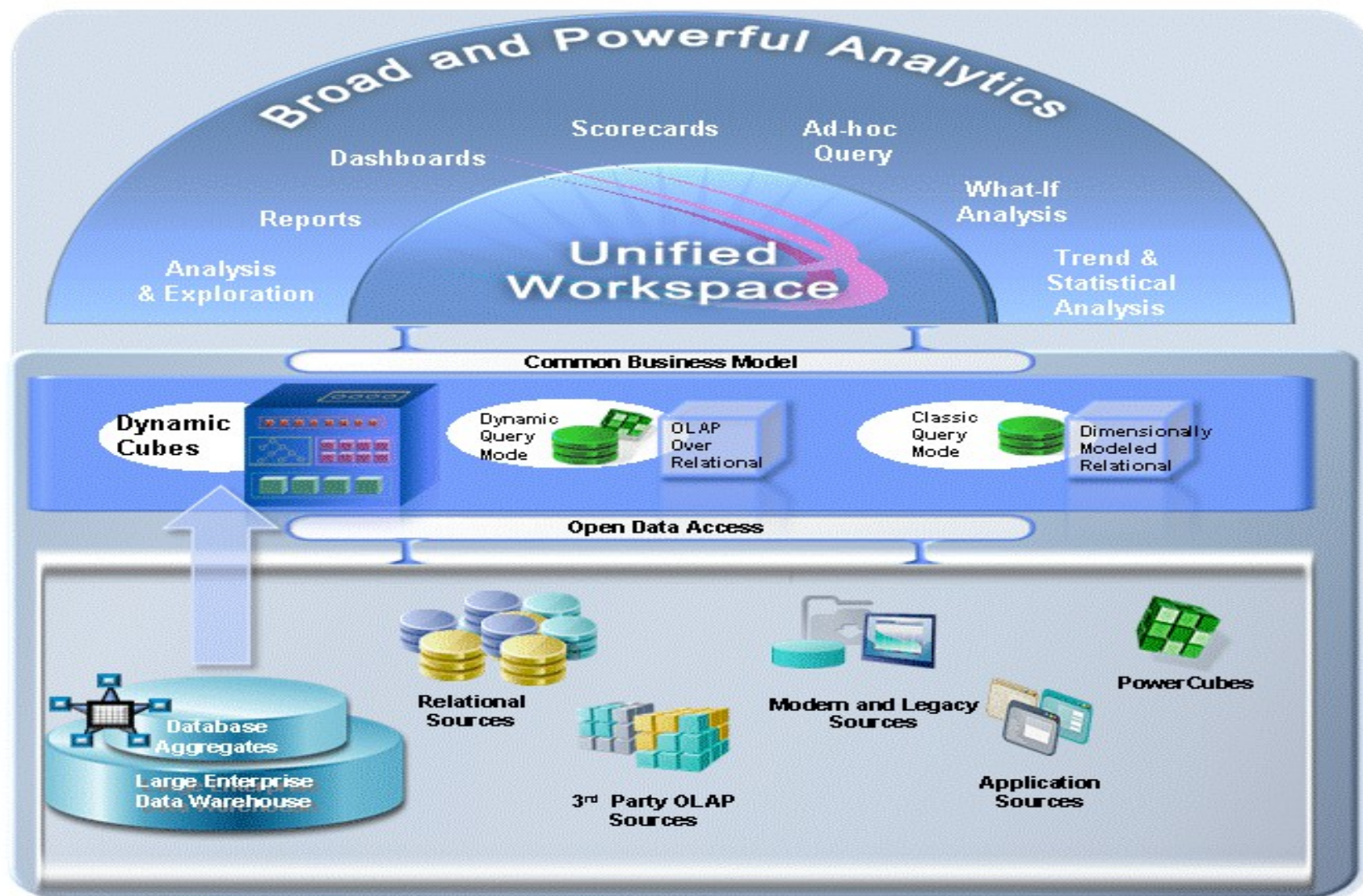
- TM1
 - In-memory cube, loaded from data directory
 - For medium sized data volumes
 - Supports write-back, not normally needed
 - Used more in “planning” or “what if” applications
- PowerCubes (being deprecated)
 - Physical pre-aggregated (multi-dimensional) cube
 - Available when a star or snowflake schema is not possible
- OLAP over Relational (aka Dimensionally Modeled)
 - OLAP-style queries, roll-ups\drill-downs use aggregation SQL
 - Presents general summary data
 - Use-case: Less than 25 Million row fact table

Cognos Integration

Cognos BI – Cube Products (cont'd)

- Dynamic Cubes
 - Recommended by a Cognos Architect
 - Best with 25 Million or more rows in fact table
 - Adds a relational OLAP component
 - Must use star or snowflake schema
 - In-memory and in-database aggregates (Use Aggregate Advisor)
 - Analytics over billions of rows of fact data and millions of members in a dimension, use lots of memory
 - Must create the dynamic cube as a data source and use dynamic query mode
 - Dynamic Cubes User Guide
 - http://pic.dhe.ibm.com/infocenter/cbi/v10r2m1/nav/5_7

Cognos Integration



Cognos Integration

Cognos BI – Dynamic Cubes

- Dynamic Query Guide
 - http://pic.dhe.ibm.com/infocenter/cbi/v10r2m1/nav/5_3
- Dynamic Query Mode
 - Advanced query capabilities, caching
 - Use Dynamic Query Analyzer
 - Enable JDBC support on data source connection
- Sizing
 - <http://www.ibm.com/developerworks/library/ba-pp-performance-cognos10-p>
- Architecture
 - http://www.ibm.com/developerworks/data/library/cognos/infrastructure/cognos_spec

Cognos Integration

Cognos BI – Dynamic Cubes (cont'd)

- Dynamic Cubes User Guide
 - http://pic.dhe.ibm.com/infocenter/cbi/v10r2m1/nav/5_7
- Cognos Cube Designer (install)
 - Use to model dimensional metadata and dynamic cubes
 - Prerequisites
 - Star or snowflake schema data available
 - Create Data Source Connection to data in Cognos BI
- Procedure
 - Import Metadata
 - Model Cube
 - Publish Cube
 - Start Cube

Cognos Integration

Cognos BI – Reporting Tools

- Query Studio
 - Create simple reports and queries
- Report Studio
 - Professional reporting tool
 - Greater flexibility in calculating and formatting results
 - Create charts, maps, lists, etc, using any data source
- IBM Cognos Workspace and Workspace Advanced
 - Report consumption tools integrate Cognos content and external data sources, and Report authoring
- Cognos Connection
 - Web portal for Cognos BI
 - Store and access reports, administer, schedule and distribute

Cognos Integration

Cognos BI – Reporting Tools (cont'd)

- Framework Manager
 - Data modeling tool
- Analysis Studio
 - Analysis tool
 - Explore, analyze, and compare dimensional data
- Metric Studio
 - Create scorecard applications and monitor metrics
- Event Studio

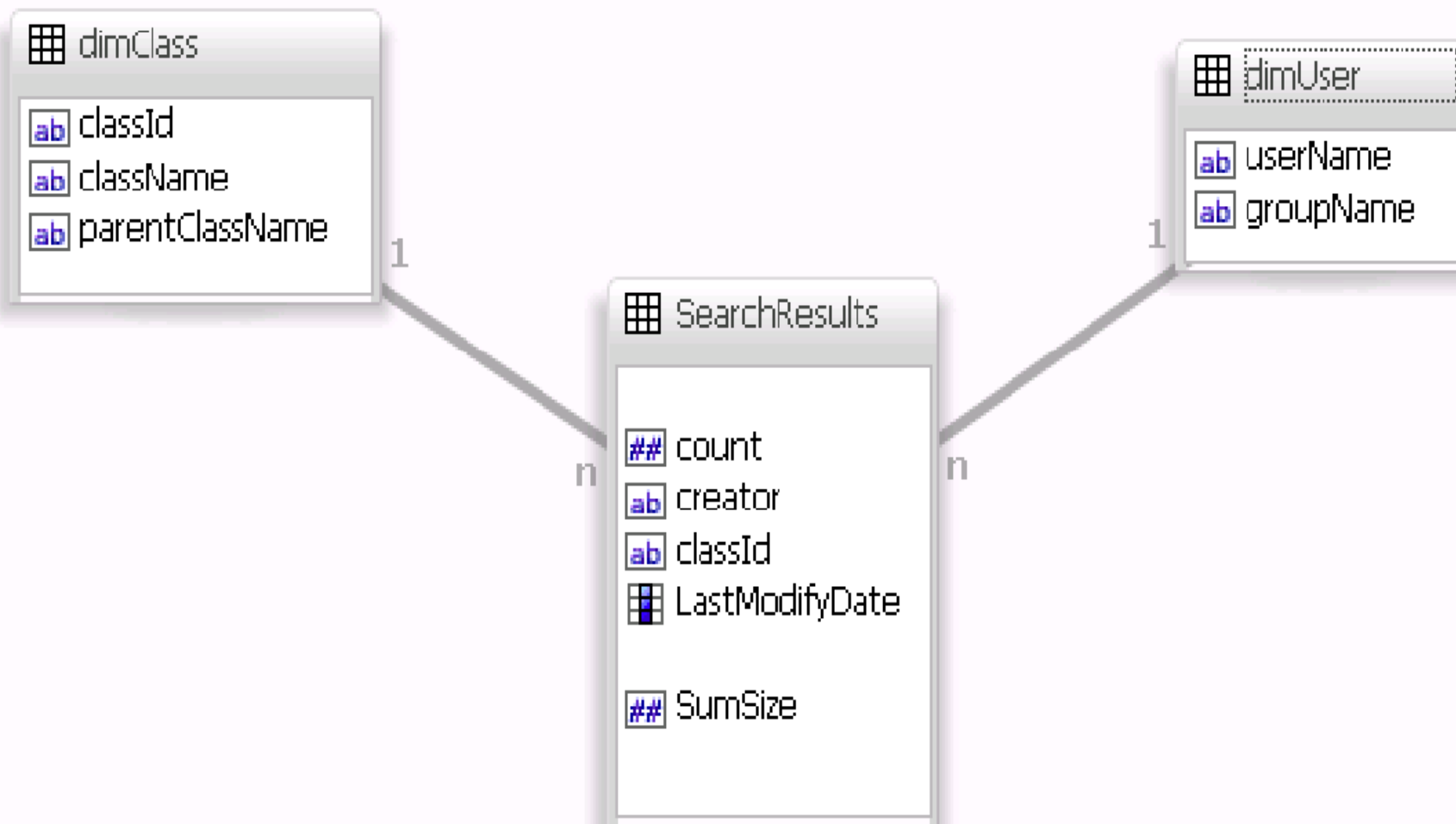
Cognos Integration

Cognos BI – Reporting Example

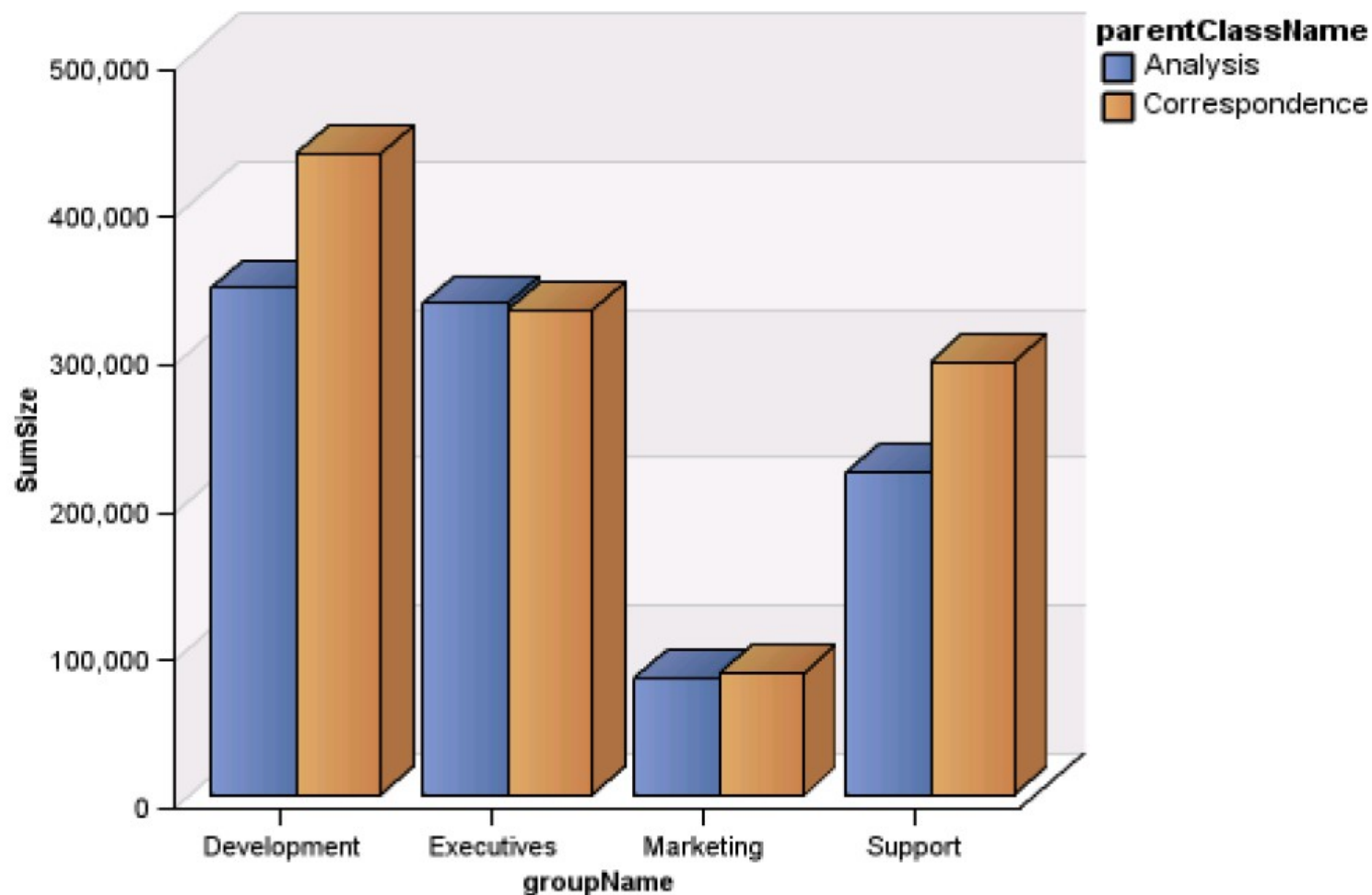
- Background Search Framework
 - Background search generates fact table data
 - Custom search function generates dimension table data
 - Example search expression:

```
SELECT CmRpt::UserRecord (Creator) as CmRptUserRecord,  
       CmRptNew::NameRecord (ClassDescription) as CmRptClassRecord,  
       COUNT(Id) AS CmRptObjectCount,  
       SUM(ContentSize) AS CmRptContentSize,  
       MAX(DateLastModified) as CmRptDateLastModified  
FROM Document  
GROUP BY CmRptUserRecord, CmRptClassRecord
```

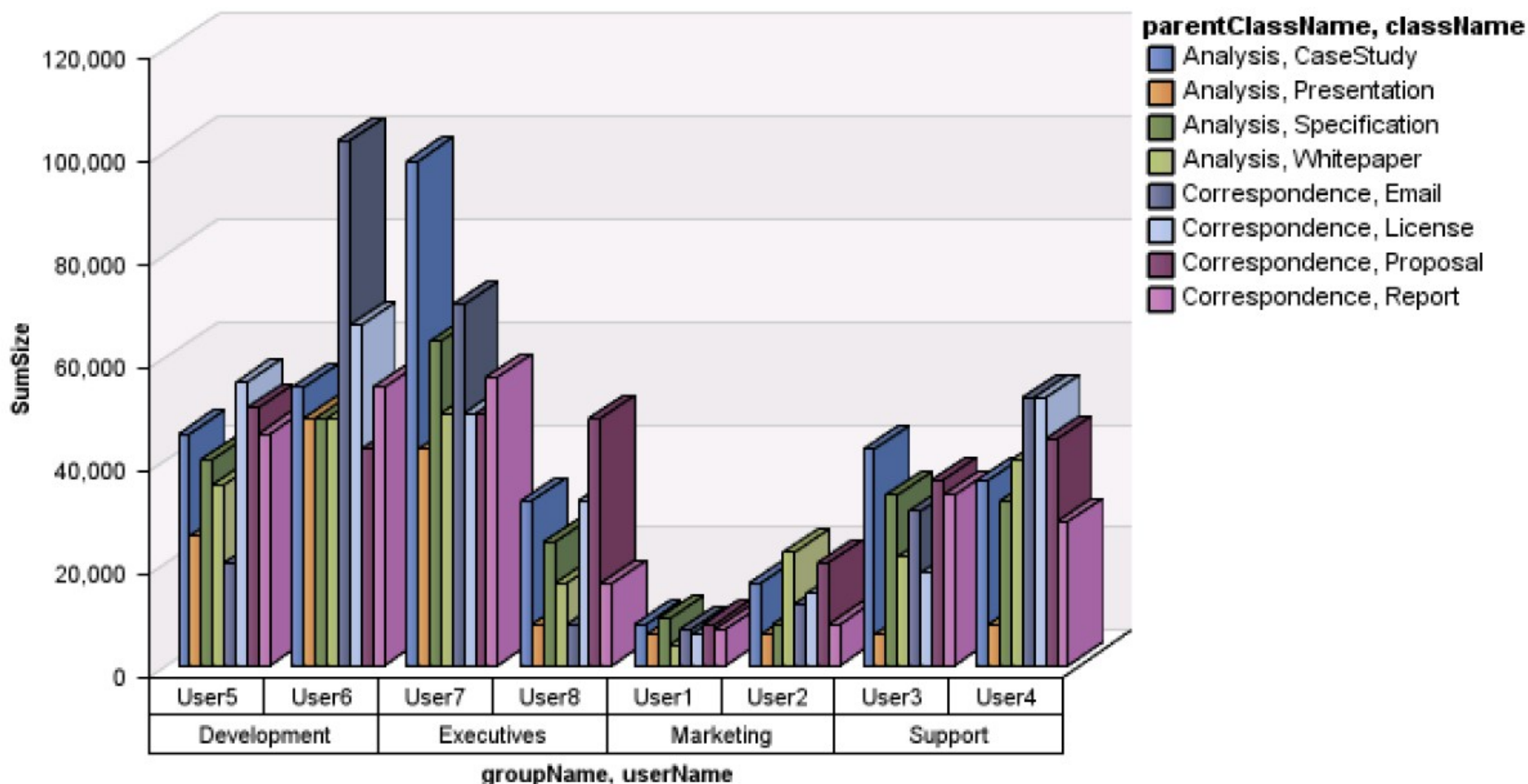

Cognos Integration



Cognos Integration

Size Usage

Cognos Integration

Total Document Size

Course Roadmap

Reporting Features Overview

Reporting Enablement Extensions add-on

- Demo reporting add-on
- Demo CSV file generation

Custom Search Functions

- Demo custom search functions

Cognos BI Integration

➔ Best Practices

Documentation

Best Practices

- Background Searches
 - Technical document - “*Performance tuning Content Platform Engine background searches*”
<http://www.ibm.com/support/docview.wss?uid=swg27043132>
- Custom Search Functions
 - Test new custom search functions on a search returning few rows
 - Enable Search, Database and Handler tracing to diagnose issues
- Cognos Integration
 - Technical document - “*Integrating IBM Cognos Business Intelligence with Content Platform Engine 5.2.1 background searches*”
<http://www.ibm.com/support/docview.wss?uid=swg27043625>

Documentation

Reporting Enablement Extensions add-on

Administration – Add-on reference help

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc
- Subtopics:
 - Property Templates
 - Search Results CSV Document Class
 - User Record Class
 - Reporting Base Class and Subclasses
 - Custom Subclasses Added to Abstract Search Result
 - Event Actions and Subscriptions
 - Search Function Definitions

Documentation

Custom Search Functions

How to create custom search functions via ACCE

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc

Custom search function query syntax

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/qu

Developer's guide – Concepts

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/qu

Documentation

Custom Search Functions (cont'd)

Developer's guide – Working with custom search functions (subtopics have code snippets)

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/cus

API reference help

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.java.doc/c
- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.java.doc/c

Documentation

Background Search

Administration – Finding objects with background search queries

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc

Administration – Generating background search results

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc

Administration – Opening a background search sweep

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc

Background search query syntax

- http://www.ibm.com/support/knowledgecenter/api/content/SSNW2F_5.2.1/com.ibm.p8.ce.dev

Documentation

Background Search (cont'd)

Developer's guide – Concepts

- http://www.ibm.com/support/knowledgecenter/api/content/SSNW2F_5.2.1/com.ibm.p8.ce.de

API reference help

- http://www.ibm.com/support/knowledgecenter/api/content/SSNW2F_5.2.1/com.ibm.p8.ce.de
- http://www.ibm.com/support/knowledgecenter/api/content/SSNW2F_5.2.1/com.ibm.p8.ce.de

Background search Dashboard counters

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysmgr.admin.do

Documentation

Additional Resources

Technical Document: *Performance Tuning Content Platform Engine 5.2.1 background searches*

- <http://www.ibm.com/support/docview.wss?uid=swg27043132>

Tuning IBM FileNet P8 queries

- http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.performance.doc/
- <http://www.ibm.com/support/docview.wss?uid=swg21502886>

Technical Document: *Integrating IBM Cognos Business Intelligence with Content Platform Engine 5.2.1 background searches*

- <http://www.ibm.com/support/docview.wss?uid=swg27043625>

Contacts

- Background Search Framework
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- Reporting add-on and Query processing
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- Quality Assurance
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