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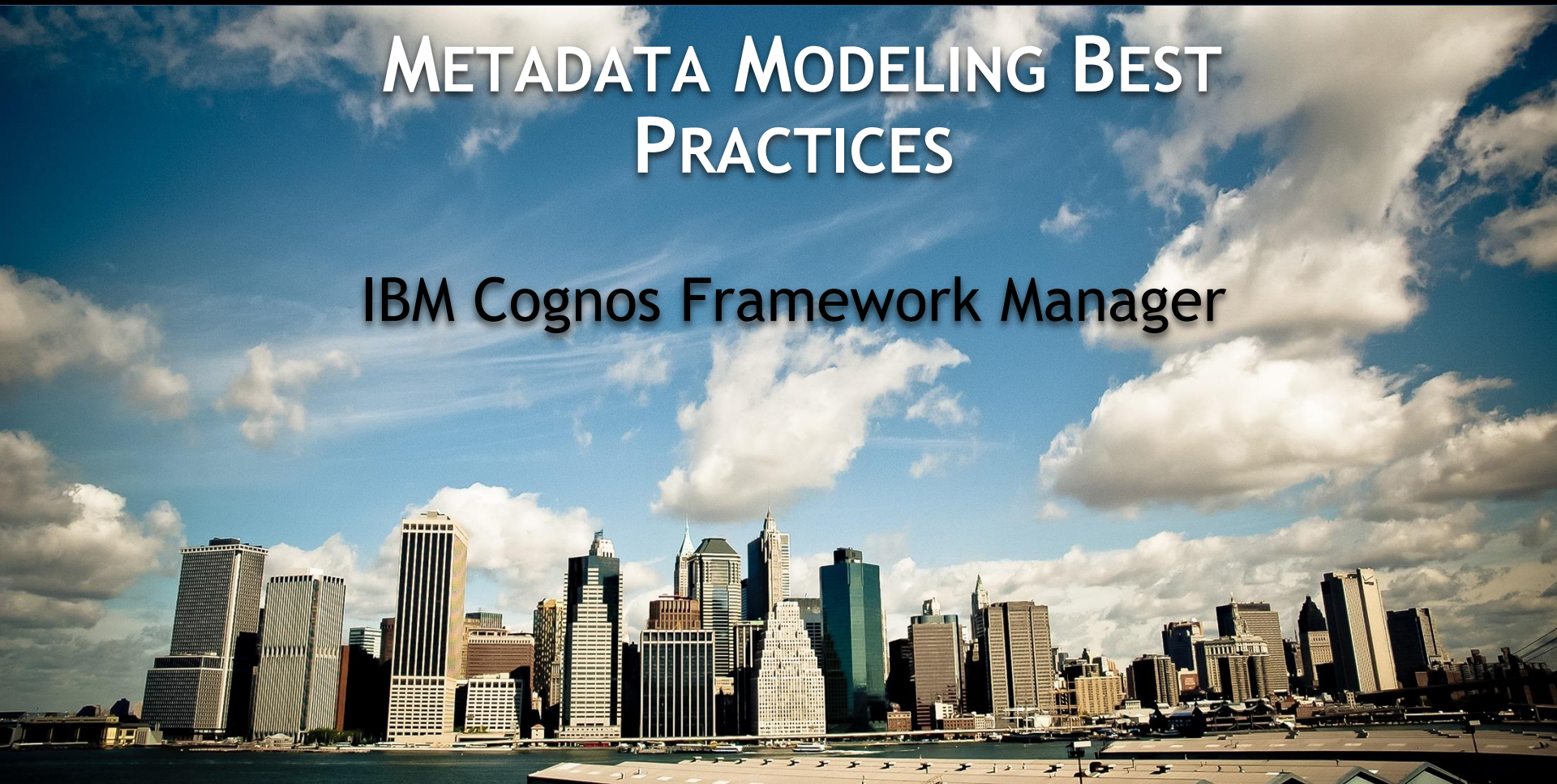
Metadata Modeling Best Practices

IBM Cognos Framework Manager



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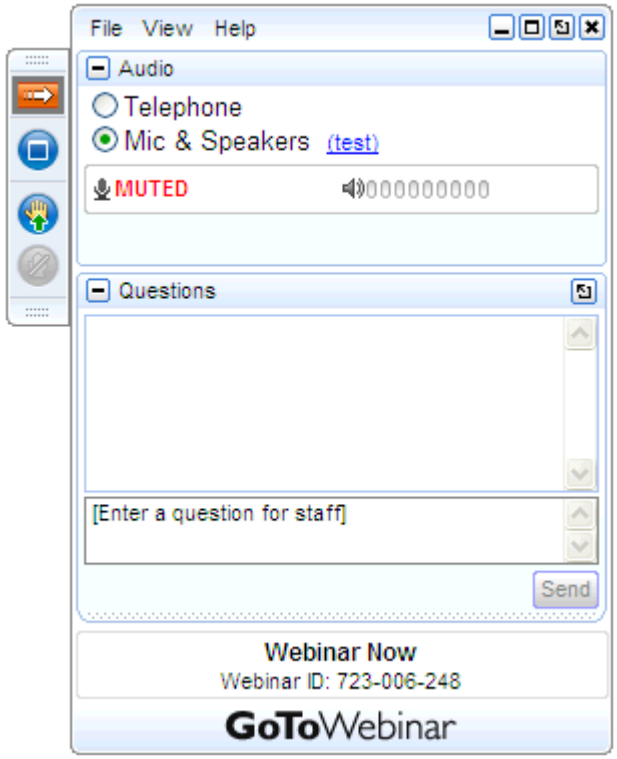

Submit questions here

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AGENDA

- Welcome and Introduction
- Framework Manager Demonstrations:
  - Multi-tiered Design
    - What are the Import, Design, and Presentation Layers?
  - Row-level Security
    - Use Session Parameters from your Authentication Provider
    - Use Query Macros
  - Understand OLAP Over Relational and the Value of Dynamic Query Mode
- More Resources
- Q&A

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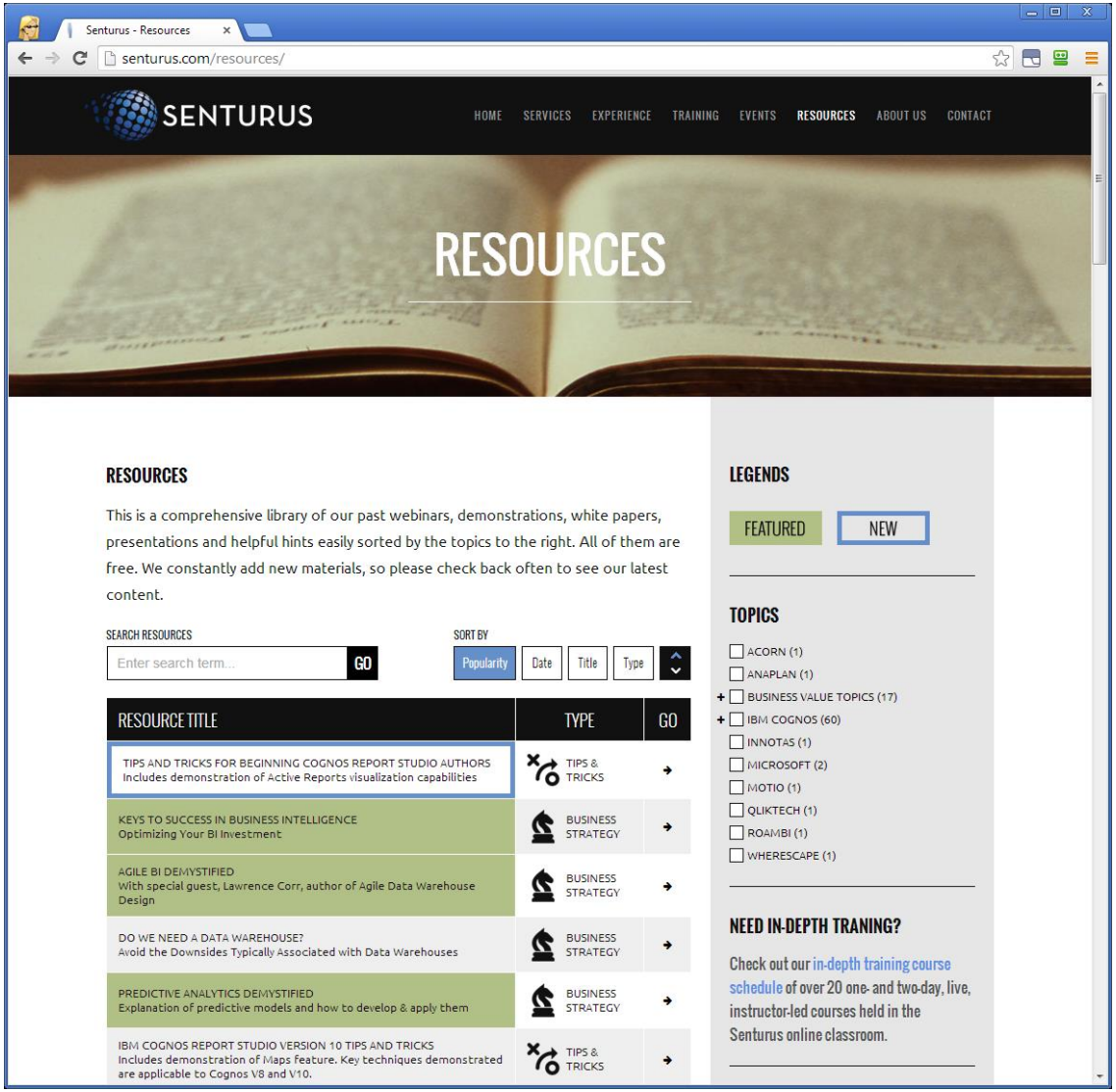
PRESENTATION SLIDE DECK ON WWW.SENTURUS.COM



Introduction: Today's Presenters

Greg Herrera

President & Co-Founder

Senturus

Albert Valdez

Vice President – Learning Solutions

Senturus

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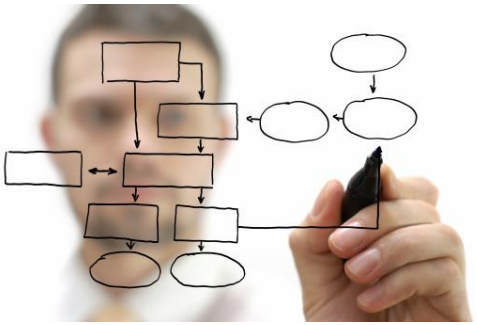
SENTURUS INTRODUCTION

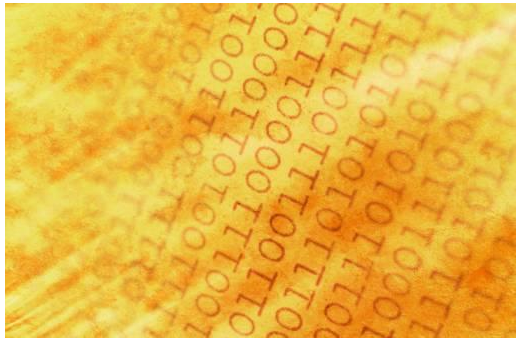
WHO WE ARE

SENTURUS: BUSINESS ANALYTICS CONSULTANTS

Creating Clarity from Chaos



Business Intelligence



Enterprise Planning

Predictive Analytics

Our Team:

Business depth combined with technical expertise.
Former CFOs, CIOs, Controllers, Directors, BI Managers

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750+ Clients, 1500+ Projects, 13+ Years

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Demonstration Context

- All demonstrations are based on the standard IBM Cognos 10.2.1 Great Outdoors Sample package
- Demonstrations are valid for ALL supported versions of IBM Cognos Business Intelligence
- These exercises are part of what we teach in our classroom, specifically from our Metadata Modeling Best Practices with Framework Manager course

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Best Practices for Project Design

Advantages of Multi-Tiered Metadata

Metadata Modeling Best Practices

- **Use a multi-tiered design**
- Establish query item properties and relationships early on (in the first tier)
- Plan your design with consideration to how the IBM Cognos query engine generates SQL
- Define Model Query Subjects as either a “true” Dimension or a “true” Fact
- **Relate Facts to one another through one or more Conformed Dimensions**
- Review and carefully define Determinants
- Define Package and Object-level Security
- Create a user-friendly Presentation
- Use Dimensional Modeling techniques where appropriate

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Metadata Modeling Best Practices

- Multi-tiered design
  - Use Namespaces and Folders to organize your Query Subjects
  - Start with an Import View
  - There should be at least 2 tiers, however
  - A Three-tiered design offers some advantages

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Advantages of the three-tiered Design

- Import Layer:
  - All database objects are represented here exactly as they appear in the physical data, making references between this metadata and the database simple and obvious
  - All base relationships should be defined in this layer
- Design Layer:
  - Establish the “dimensional design” that will guide the query engine toward more predictable results
  - Use Model Query Subjects, Merging, Aliasing, and other techniques to enforce desired query behaviors
- Business Layer
  - Create value-added features such as embedded and stand-alone Calculations and Filters
  - Implement user-accepted naming and presentation conventions

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Advantages of the three-tiered Design

- Why?
  - Use **meta**data to your advantage!
    - Query logic is controlled by our design, not restricted by the physical limitations of the database
  - Referential metadata creates a “buffer” between the physical model and that which is used by our authors
    - Changes to our Database layer in order to address changes in the physical data can be made without impacting existing reports, or the end-users’ view of the model
  - Simplify the modeling process by isolating certain tasks within their respective layer

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Best Practices for Project Design

Advantages of Multi-Tiered Metadata Demonstration

Row-Level Security

Using Session Parameters and Query Macros

PARAMETERIZED SQL

- Typical application of this technique is to create dynamic filtering based on user attributes
- We can use a Parameter Map and Query Macros in combination with unique user account attributes to enforce these rules in the metadata
- Session Parameters:
  - Attributes unique to each user's session
  - Derived from your Authentication Provider

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PARAMETERIZED SQL

- Parameter Map:
  - We can use three types of Parameter Maps
    1. Manually key in the values in the project
    2. Import from an external text file (.txt, .csv)
    3. Reference a query subject (db table)
- Query Macros:
  - #$UserLookup{$account.personalInfo.userName}#
  - Several functions available allowing us to create dynamic expressions

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Row-Level Security

Session Parameters and Query Macros Demonstration

OLAP in Framework Manager

Setting up for Success

OLAP in Framework Manager

- In the Cognos version 8 release, we were introduced to Dimensionally Modeled Relational (DMR) capabilities
- What happened?
  - Run-time OLAP presents significant query response challenges in large data environments
  - Guess what? We ALL live in large data environments!
- What's changed?
  - There is a shift in the architecture strategy, adding more query processing capacity on the application tier
  - Dynamic Query Mode presents a new approach to query processing

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OLAP in Framework Manager

- Dynamic Query Mode
  - Next-generation, Java-based query mode
  - Query optimizations to address query complexity, data volumes and timeliness expectations with improved query execution techniques
  - Significant improvement for complex OLAP queries through intelligent combination of local and remote processing and better MDX generation
  - Security-aware caching
  - New data Interfaces leveraging 64 bit processing
    - Take advantage of increased capacity of 64-bit in-memory processing
  - Ease of maintenance with query visualization

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OLAP in Framework Manager

- Why are OLAP sources important?
  - True MDX-style analytics and reporting provide tremendous benefits to end-users
    - Drill-up/Drill-down functionality is built-in to the data source, encouraging simple, intuitive data investigation
    - Access to MDX functions and gestures in reporting tools allows for more dynamic reports, dashboards, and analyses
  - Data Exploration and Data Discovery are the next level of analytics (move beyond reporting!)

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OLAP in Action

OLAP vs. Relational for Self-Service Authors - Demonstration

OLAP in Framework Manager

- What needs to be done to enable DQM?
  - Cognos 10.x? – you own it
  - The Query Service spawns its own java process, consumes resources whether you use it or not
- Data Sources
  - Must configure the JDBC Connection and copy the requisite driver to the Cognos library
- Framework Manager
  - DQM can be switched on at the Project or the individual Package level
- System Administration
  - Configure Query Service resources, optimize application tier components to maximize throughput

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OLAP in Framework Manager

- JDBC Drivers – what to do?
  - Go here: http://www.ibm.com/developerworks/data/library/cognos/infrastructure/cognos_specific/page529.html
  - Basically, you download and copy the requisite JDBC driver to both the ..\v5dataserver\lib and the ..\p2pd\web-inf\lib directories
    - Make sure you only have ONE version of the driver in the library!
  - Specific instructions for each database type are detailed in the above document

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OLAP in Framework Manager

Configure Data Source Connections and JDBC Drivers

Upcoming Events

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CREATING USER-FRIENDLY COGNOS ACTIVE REPORTS

ADVANCED REPORTING TECHNIQUES

July 10, 2104 - 10 AM PT/ 1 PM ET/17:00 GMT - 90 minutes

DETAILS

CHOOSING THE RIGHT REPORTING TOOL FOR THE JOB

COGNOS WORKSPACE VS TRADITIONAL STUDIOS VS ACTIVE REPORTS

July 24, 2104 - 10 AM PT/ 1 PM ET/17:00 GMT - 90 minutes

DETAILS

Pre-Announcement:

August 7th IBM Cognos Dynamic Cubes Webinar

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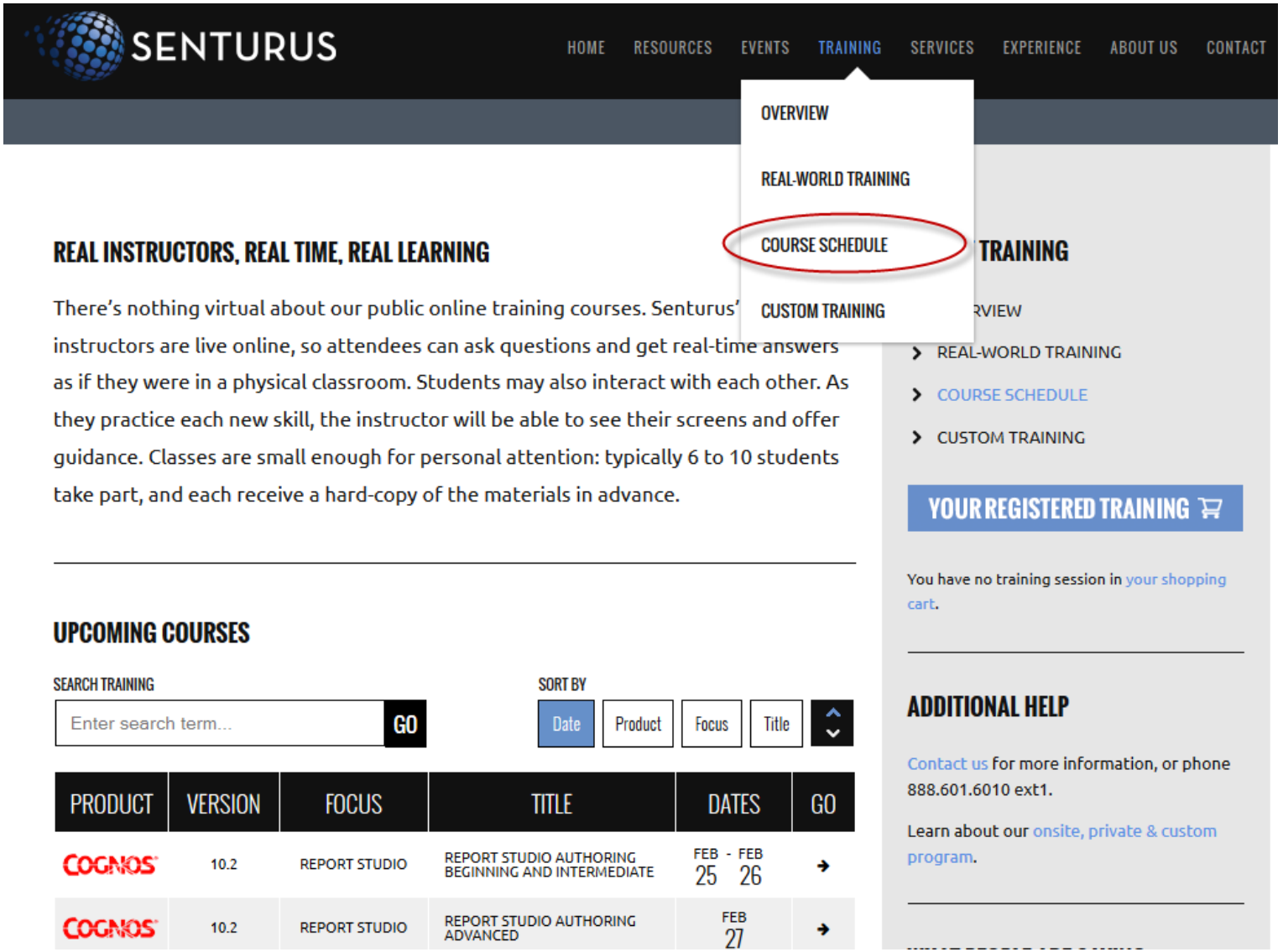
COGNOS TRAINING OPTIONS



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Upcoming Instructor-Led Online Cognos Classes

- Framework Manager Metadata Modeling Best Practices
- Report Studio Authoring: Beginning-Intermediate, Advanced and Expert
- Report Studio Dimensional Authoring: Fundamentals and Advanced
- System Administration
- Active Reports Authoring
- Workspace Advanced-Relational Authoring and Dashboarding
- Workspace Advanced-OLAP Data Exploration

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Special Offer: $100 off Training

Framework Manager Metadata Modeling Best Practices

June 23-25 or August 25-27

Coupon code: **frameworkmanager100**

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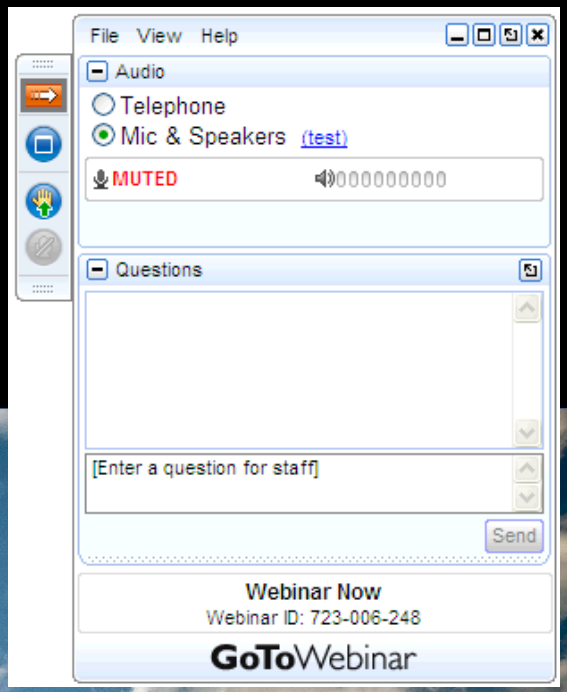
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Q & A

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