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Good Data Models Lead to Great BI

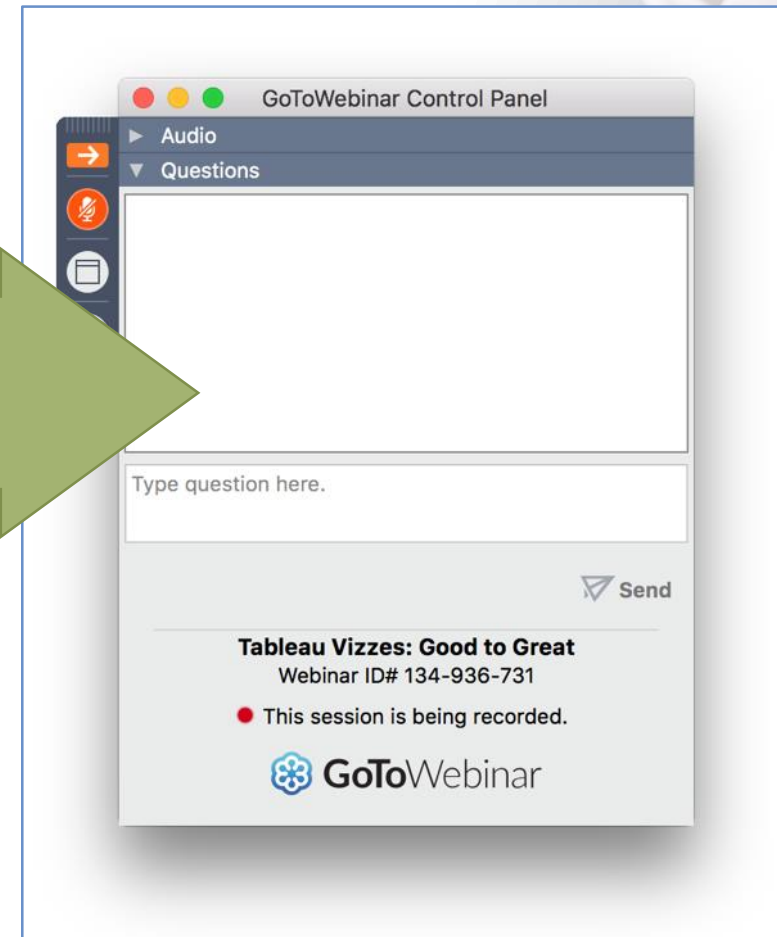


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- Data & Cloud Architecture
- Data Prep & Modeling
- Deployments & Performance Optimization
- IBM Analytics & Cognos
- Microsoft Azure & Power BI
- Security, governance & administration
- Snowflake
- Tableau




Webinar
6 Ways to Publish & Share Tableau Dashboards
How-to demo and discussion of pros, cons and considerations




Webinar
How to Successfully Implement Self-Service Analytics
Agile, governed self-service BI with a focus on Cognos analytics




Webinar
Creating a Power BI Report Your Boss Can Navigate
How to design a user-friendly nav experience



Webinar
Power BI Report Builder & Paginated Reports
Creating pixel-perfect reports for printing and PDF



Webinar
Using Python with Power BI
Learn the basics, including the software and plotting libraries



Webinar
Streamline Cognos Migrations and Consolidations
Automatically decode Cognos content and reduce migration time by 90%

Agenda

Introductions

Is data modeling still relevant

Why is data modeling important

What is a data model

Demos

Senturus overview and additional resources

Q&A



Introductions



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Is Data Modeling Still Relevant

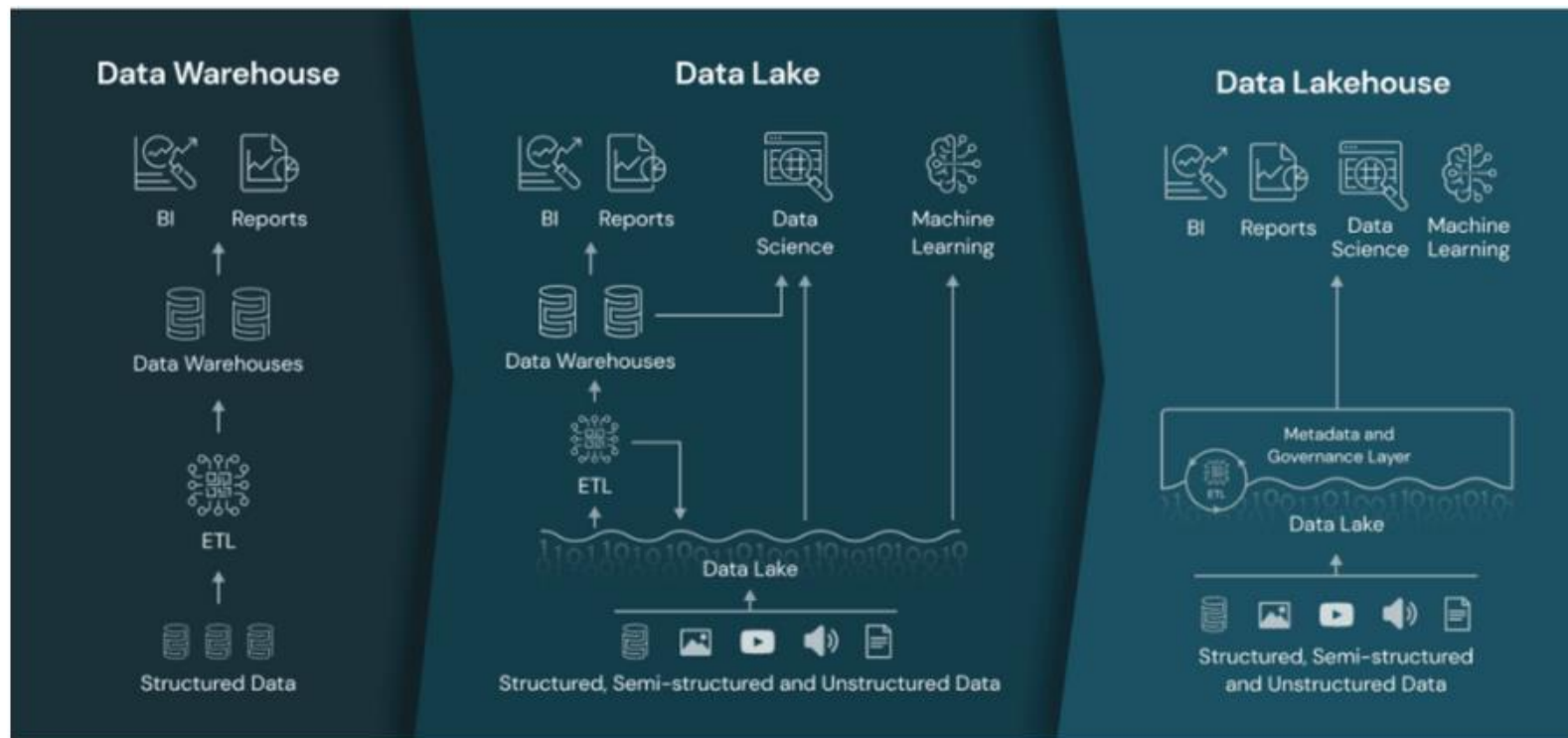


New tech replaced modeling, right?

- Big data, in-memory, data lakes
- How they work/the initial promise
 - Fast - Just need to land it and report off it. No model needed
- But, then why all this talk about a Data Lakehouse?
 - Data Lake strategies are changing due to new technologies that allow files to perform Inserts, Updates, Deletes

New tech replaced modeling, right?

- Data Lakehouse incorporates the dimensional model into the Data Lake



Old and new converge

- Big Data Processing and Querying
 - Heading towards Dimensional Model
 - Data Lakehouse
- Data Warehousing and Querying
 - Heading towards Big Data Processes
 - Cloud based Massively Parallel Processing (MPP) Data Warehousing



Why Is Data Modeling Important



Dimensional Modeling – Why?

- Ease of Use / Easy to understand
- Highly performant
- Tracking History
- Ready for ad-hoc analysis
- 3rd Party Tools
- Does not interfere with the Application performance (source system)
- Cost – upfront cost, yes – but over time reusability and scalability reduce the amount of time an analyst spends on query and report development

Without a dimensional model

- Historical changes – SCD1, SCD2,... SCD6
 - By formatting dimensions and fact tables the user doesn't need to know about the programming. Just drag and drop.
- Shared Dimensions – have many fact tables (orders, sales, inventory) all point to the same dimensions (product, customer, date) allows for integrated reporting across business processes
- Date dimension – allows for integration of many date intelligence columns

What Is a Data Model

Data model vs data warehouse

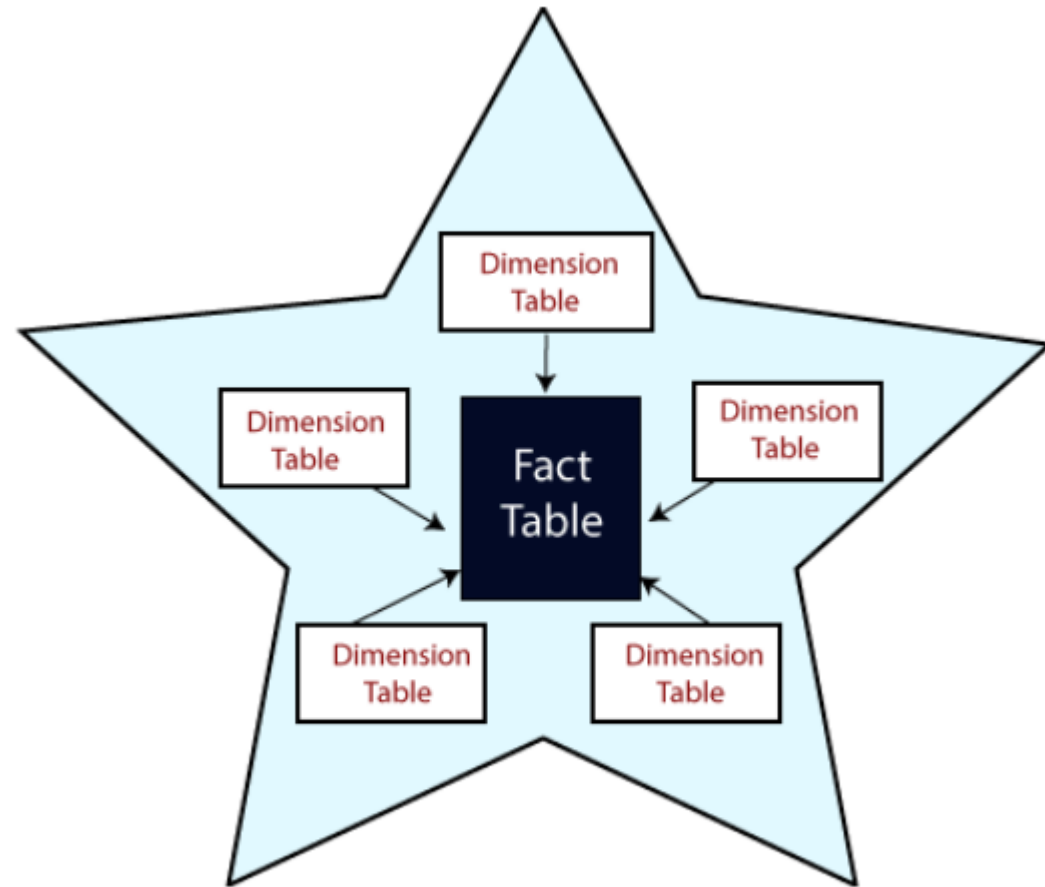
- A Dimensional Model is a type of Data Model
- A Data Warehouse has processes that will load a Dimensional Model in the form of tables in a database

What a data warehouse is not!

- A duplicate of the source system
 - Operational Data Store (ODS)
- A place to store tables built to service one report
- A data lake

Inmon vs Kimball – Data Warehouse Methodologies

- Quick Overview
- Data Vault?
- For comparison, google Inmon vs Kimball
- For our demonstration we're presenting the Kimball Method Star Schema approach



Star Schema

Kimball Methodology

- Dimensions are the nouns of the organization
 - Customer, Product, Employee, etc.
- Attributes are fields in the Dimension that describe the noun
 - First Name -> Employee Dimension
 - Color -> Product Dimension

Kimball Methodology

- Fact Tables are the events (business process)
 - Sales Orders, Purchase Orders, Inventory, Hiring/Attrition
- Measures are the Key Performance Indicators for an organization's success
 - Ex: Sales, Cost, Qty_On_Hand, Headcount

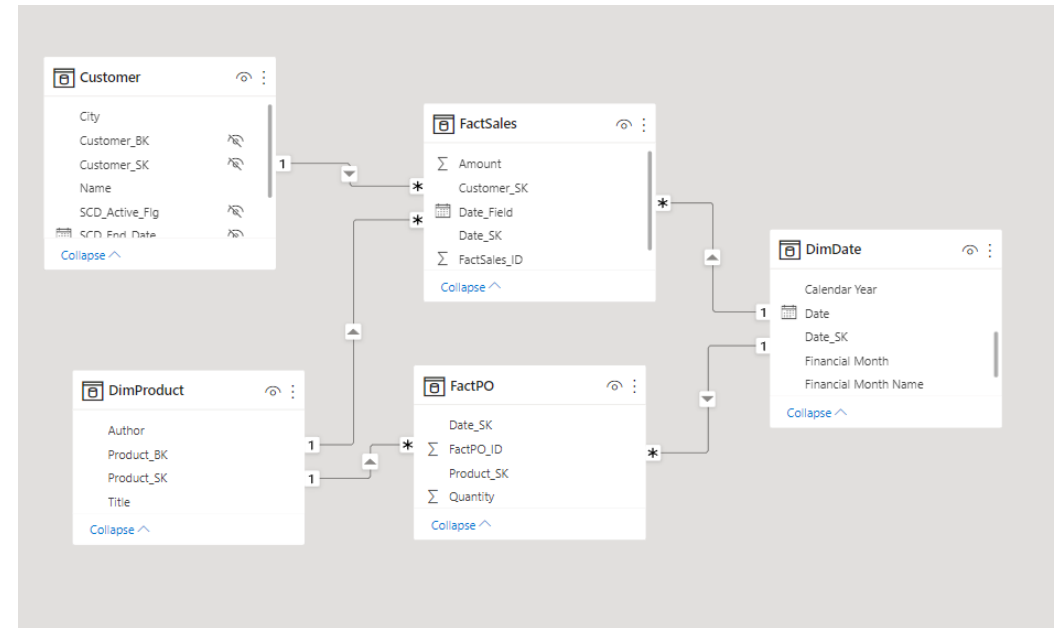
Dimensional Model

- Many Fact Tables with Shared Dimensions
- Bus Matrix

	A	B	C	D	E	F	I	J	K	L	M	N	O	P	Q
		<i>Date</i>	<i>Item</i>	<i>Customer</i>	<i>Vendor</i>	<i>Geography</i>	<i>Facility</i>	<i>Distributor</i>	<i>Retailer</i>	<i>Sales Order</i>	<i>Invoice</i>	<i>Account</i>	<i>General Ledger</i>	<i>Bill Of Materials</i>	<i>Budget Forecast</i>
1	Business Process														
2	Sales Order	X	X	X		X		X	X	X	X				X
3	Invoice	X	X	X		X				X	X				X
4	Inventory	X	X				X								
5	Item Cost		X												
6	Budget	X	X												X
7	Forecast	X	X												X
8	General Ledger	X	X	X	X	X		X	X	X	X	X	X	X	
9	Bill of Materials	X	X		X	X	X							X	

Dimensional Model

- Allows reporting across different business processes
- Analytics tools with relationships in the model allow for quick drag and drop, filter and slice functionality



Tracking History

- Track historical changes within the dimensions
- Different types of Slowly Changing Dimensions (SCD)
- SCD1 and SCD2 are the most common and typically referred to as Type 1 and Type 2

Demos

Shared Dimensions

SCD 2 (Type II) Dimensions



Dimensional Model

- Date Dimension
- “Wide” date dimension
- Calendar and Fiscal Calendars
- Workdays / Holidays
- Relative Date columns

Demos

Date Dimensions

Dimensional Modeling

- Snapshot Fact Tables
 - Snapshot and Accumulating Snapshot
- Semi-additive measures
- Many to Many Relationships
 - Factless Fact Tables / Bridge Tables

Senturus helps fuel great BI

We can help with

- Business Requirements & Data Modeling
- Cloud and Data Architecture
- Modernizations & Migrations
- Data Governance & Admin
- Reports & Visualizations

Additional resources

Unbiased product reviews



Technical tips



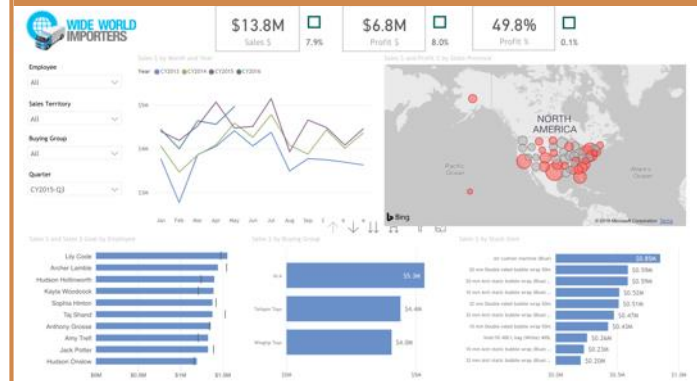
Insider viewpoints



More on this subject



Product demos



Upcoming events



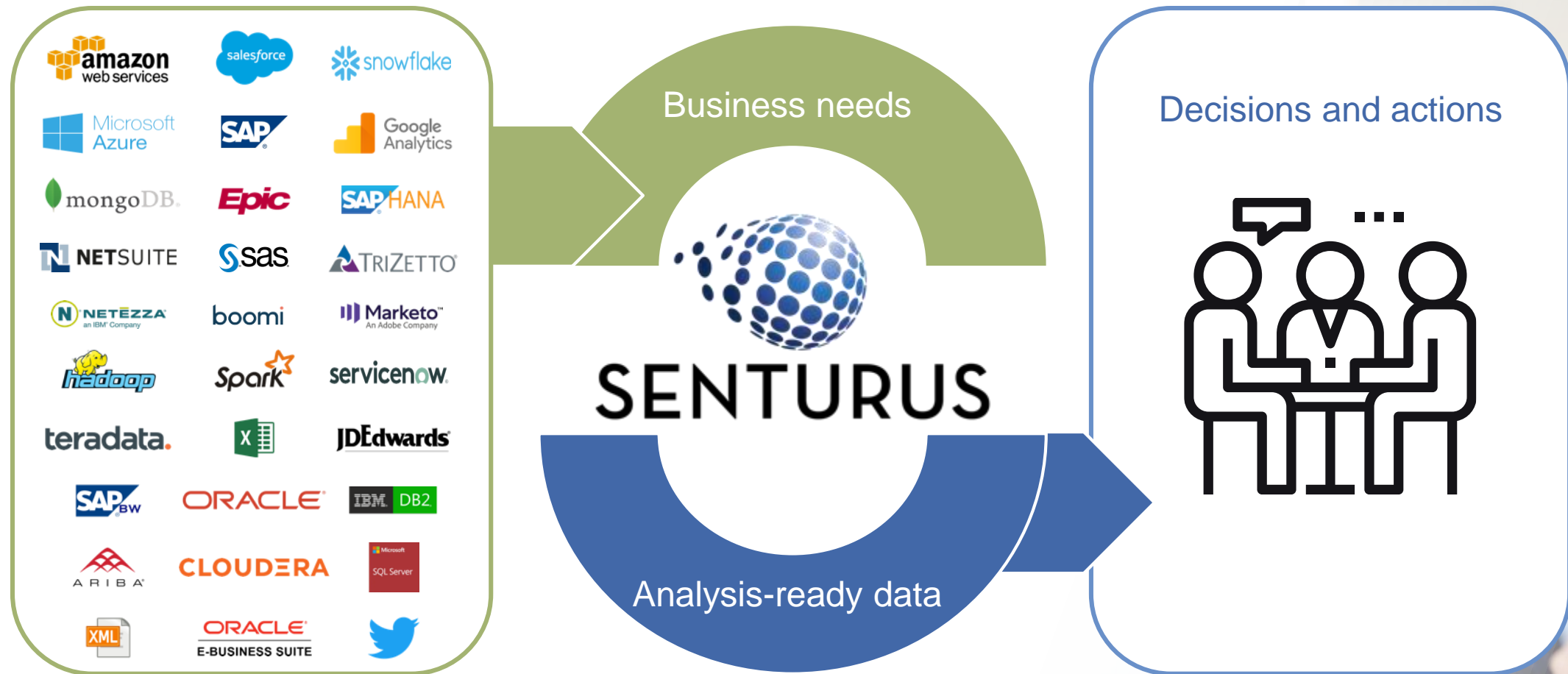
Upcoming event

Power Pair: Cognos with Power BI or Tableau

Thursday, July 14, 2022, 11am PT/2pm ET

<https://senturus.com/events/power-pair-cognos-with-power-bi-or-tableau/>

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3000+ projects





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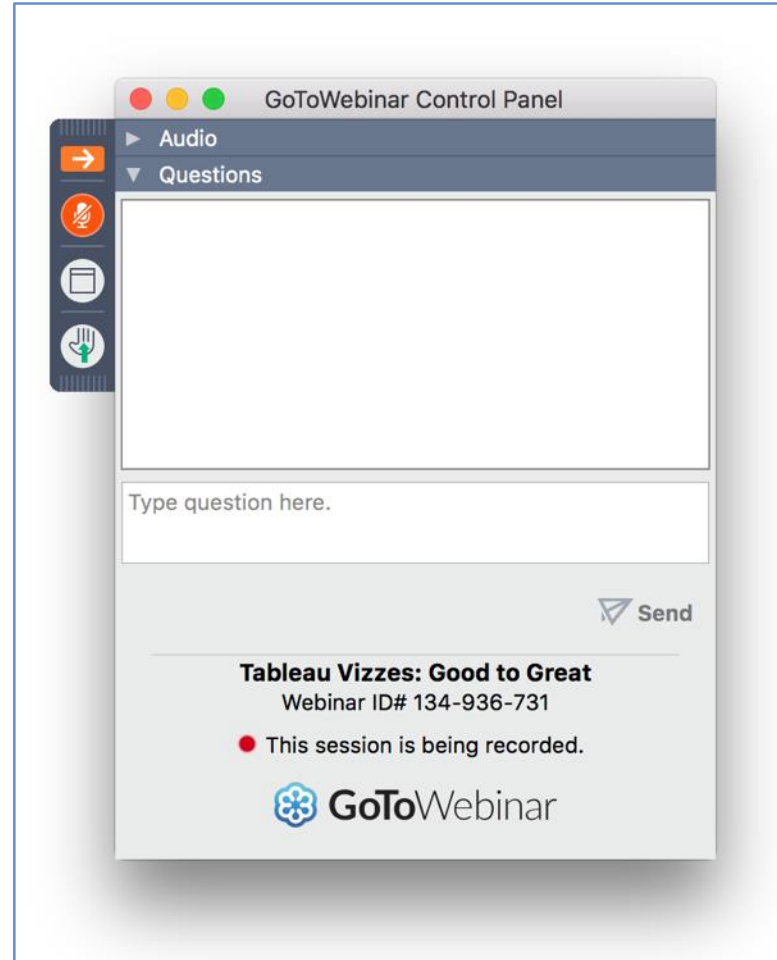
Send your resume to: jobs@senturus.com

Q & A

If your question or issue is broader than what we are able to answer today, contact us at:

info@senturus.com

and we will set up a free consultation.



Thank You



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