



**SENTURUS**

# **How to Setup Row-Level Security in Power BI**

Demo & discussion of static and dynamic security implementation

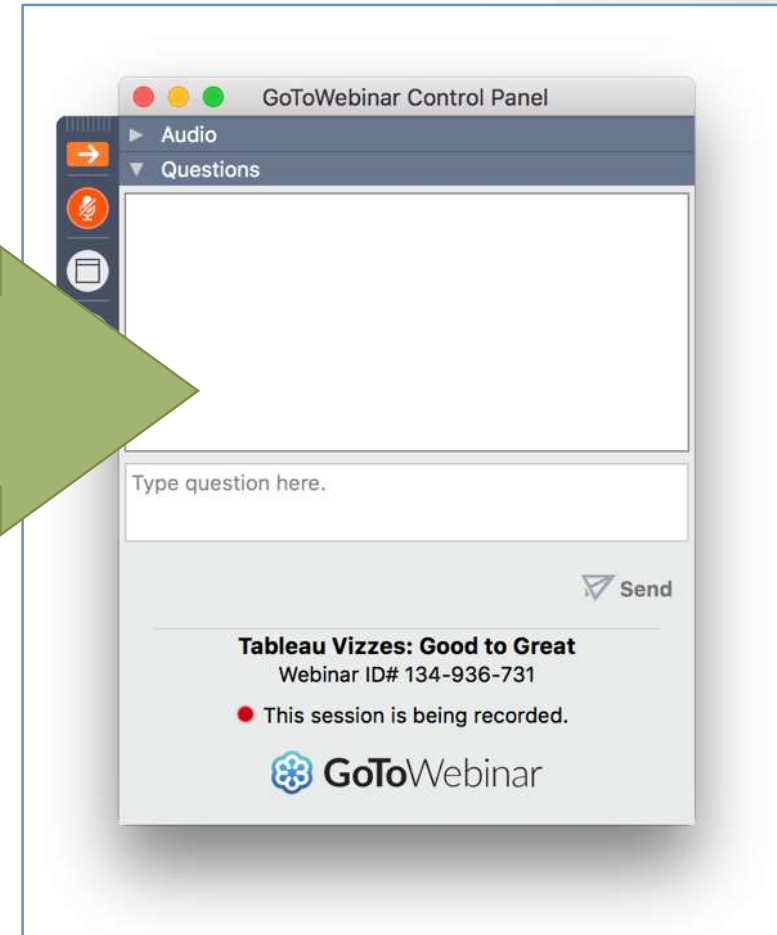


# GoToWebinar control panel

Click arrow to restore full control panel



Submit questions in this section



# To obtain this presentation

Visit the Resource Library  
on the Senturus website  
to download this presentation  
and explore other assets:

[senturus.com/resources](https://senturus.com/resources)

## RESOURCE LIBRARY

Welcome to our extensive, free library of past webinars, demos, whitepapers, presentations and helpful hints. Use the topic boxes to the right to filter through and easily locate content. We are constantly adding new materials, so please check back often to see our latest content. Enjoy!

SEARCH RESOURCES

GO

SORT BY

Popularity

Date

Title

Type



RESOURCE TITLE

TYPE

GO

**SHEDDING LIGHT ON CLOUD BI OPTIONS**  
Amazon. IBM Cognos Cloud. Microsoft Power BI Service. Tableau Online.  
Azure.



BUSINESS  
STRATEGY



**IBM COGNOS REPORTING TOOLS: FEATURE SET COMPARISON**  
Visual Reference Guide



FEATURES



**A COMPARISON OF POWER BI, TABLEAU & COGNOS**  
Differentiators Demo'd



FEATURES



# Agenda

Introductions

Row-level security (RLS) in the context of overall Power BI security

Demos: static and dynamic RLS

Additional security considerations

Senturus overview

Additional resources

Q&A



# Introductions



**Stephen Wullschleger**

Vice President  
Senturus, Inc.



**Michael Weinbauer**

Director  
Senturus, Inc.

# Power BI security introduction

- Power BI is an online SaaS offering built on Azure
  - Web front end cluster
  - Back-end cluster
- Premium offers dedicated, provisioned and partitioned instance
- Azure Active Directory for account authentication and management
  - User accounts
  - Security groups
  - Distribution lists

# Data storage and movement

- A Power BI **dataset** is a collection of data that you *import* or *connect* to, it can be **at rest** or **in process**
- With **DirectQuery**, source data is not stored in Power BI

	Import	DirectQuery	Live Connect
Schema	X	X	
Row data	X		
Visuals data caching	X	X	X

X = presence of Power BI data when using the associated query type

# User authentication to data sources

- With each data source, users connect based on their login, they access the data with those credentials
- When sharing, access is based on whether the source supports RLS
  - Non-RLS data sources
    - Original credentials supplied during connection are applied to access or display the data
  - RLS capable data sources
    - Datasets using Import and DirectQuery
    - On-premises data gateway can enforce RLS on some sources



# What is role-level security?

A security mechanism that filters the records from a table based on the authorization context of the current user that is logged in.



All Records in table

UserName	Territory	Sales
<a href="#">Mike@senturus.com</a>	USA	9,000
<a href="#">John@senturus.com</a>	USA	8,500
<a href="#">kay@senturus.com</a>	Canada	8,000
<a href="#">Mike@senturus.com</a>	Mexico	7,500
<a href="#">John@senturus.com</a>	Brazil	7,000

Mike's login

UserName	Territory	Sales
<a href="#">Mike@senturus.com</a>	USA	9,000
<a href="#">Mike@senturus.com</a>	Mexico	7,500

John's login

UserName	Territory	Sales
<a href="#">John@senturus.com</a>	USA	8,500
<a href="#">John@senturus.com</a>	Brazil	7,000

Kay's login

UserName	Territory	Sales
<a href="#">kay@senturus.com</a>	Canada	8,000

# Roles

- Filters limit what data is shown in a visualization
- A special type of **Role Filter** is built into Power BI to use for row-level security
  - A **Role** is typically a job function or geographic location
- Sometimes people play more than one role, they can be assigned to multiple roles
  - Example: A project manager might need access to sales and engineering data, so they're assigned to both roles

# Static role filters

- **Static Role Filters** are based on dimension(s) of the data in the dataset and are a hardcoded value
- Examples:
  - Location, Job Title, Department
- Static Role Filter examples:
  - **Location** - Users in the USA Role should only see rows of data where Country is set to USA
  - **Department** - People in the HR Role can see payroll data but others cannot
- Static Role Filters are defined in the Power BI report
- Users are assigned to Roles in Power BI service at the dataset level

# Demo: Static role filter

# Dynamic role filters

- Often, user and role assignments are already maintained in another system and you won't want to duplicate that assignment in Power BI service
- We can pull that assignment data into our dataset along with the rest of the data
- **Dynamic Role Filters** are based on relating the Power BI service user to data source user data to enforce row-level security
- We need some new DAX functions to help us out...

# DAX user functions

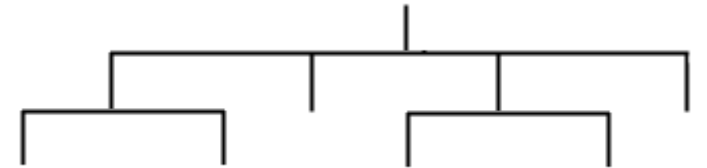
- USERNAME()
  - The username from Power BI in the format *domain\username*
- USERPRINCIPALNAME()
  - The username from Power BI in the format [username@domain.com](#)
- Your source data will need the user names in one of these two formats to mesh correctly with Power BI



# Demo: Dynamic role filter

# Hierarchical role filters

- Sometimes you need to implement RLS in a conditional way, some users are restricted in one way, other users are restricted in another way
- Hierarchical data is an example of when you might need to use this technique
- Typical hierarchies are management levels or geographic
- To solve this, we will filter on the hierarchy table and apply conditional filters
- To implement this, we need two more DAX functions...



# Demo: Hierarchical role filter

# Limitations

- Does not answer the question “Who can see which reports?”
  - That is permissions and sharing related
- RLS only limits data access in published reports being viewed by users in Power BI service
  - Only applies to viewer member
- Users with access to dataset can download and access without restrictions
- Maintenance

# RLS within overall security framework

- Which users need access to what information?
- What is overall data governance approach?
- What combination of import, DirectQuery and live connection?
- Where to implement security?
- How to maintain access lists?

# Additional resources

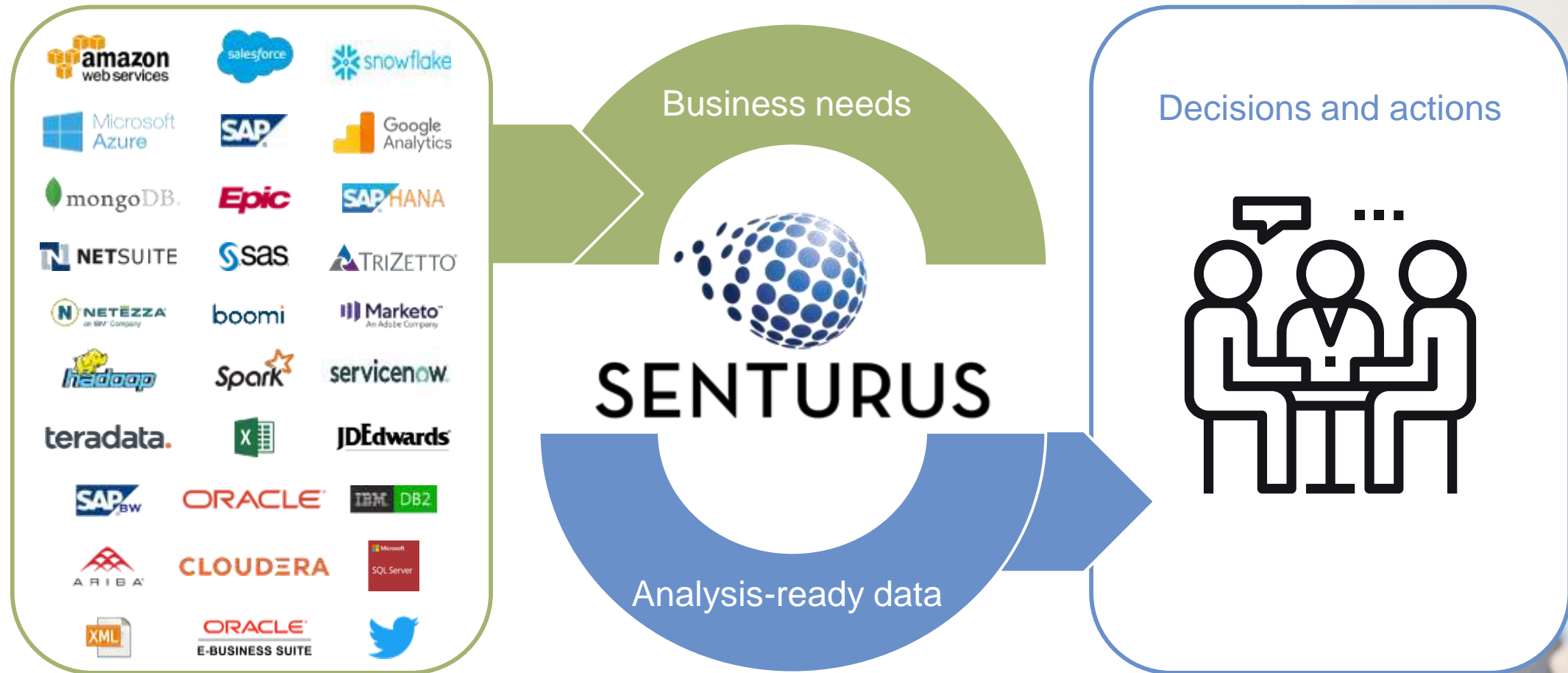
- Upcoming Power BI training  
<https://senturus.com/training/course-schedule-2/>
- Website articles
  - Comparing Tools in the Microsoft BI Suite  
<https://senturus.com/blog/reference-guide-comparing-tools-in-the-microsoft-bi-suite/>
  - Power BI Four Ways to Connect to and Prep Data  
<https://senturus.com/blog/power-bi-four-ways-to-connect-to-and-prep-data/>
  - How to Share Power BI Datasets, Dataflows and Certified Datasets  
<https://senturus.com/resources/how-to-share-power-bi-datasets-dataflows-and-certified-datasets/>
  - Preparing to deploy Power BI Premium  
<https://senturus.com/resources/preparing-to-deploy-power-bi-premium/>
- Mentoring sessions  
<https://senturus.com/bi-mentoring/>



# The authority in Business Intelligence

Exclusively focused on BI,  
Senturus is unrivaled in its  
expertise across the BI stack.

# Bridging the data and decisioning gap



# Full spectrum BI services

Dashboards, reporting and visualizations

Data preparation and modern data warehousing

Hybrid BI environments (migrations, security, etc.)

Software to enable bimodal BI and platform migrations

BI support retainer (expertise on demand)

Training and mentoring

# A long, strong history of success

19+ years

1300+ clients

2500+ projects





# Expand your knowledge

Find more resources  
on the Senturus website:

[senturus.com/senturus-resources](https://senturus.com/senturus-resources)



# Upcoming events

## **Cognos Framework Manager vs. Data Modules**

Comprehensive comparison plus key feature gaps

Thursday, Jun 25, 2020, 11am PT/2pm ET





# Complete BI training



**Power BI**



Tailored group sessions



Mentoring



Instructor-led online courses



Self-paced learning



# Additional resources

## Unbiased product reviews



## Technical tips



## Insider viewpoints



## More on this subject



## Product demos



## Upcoming events

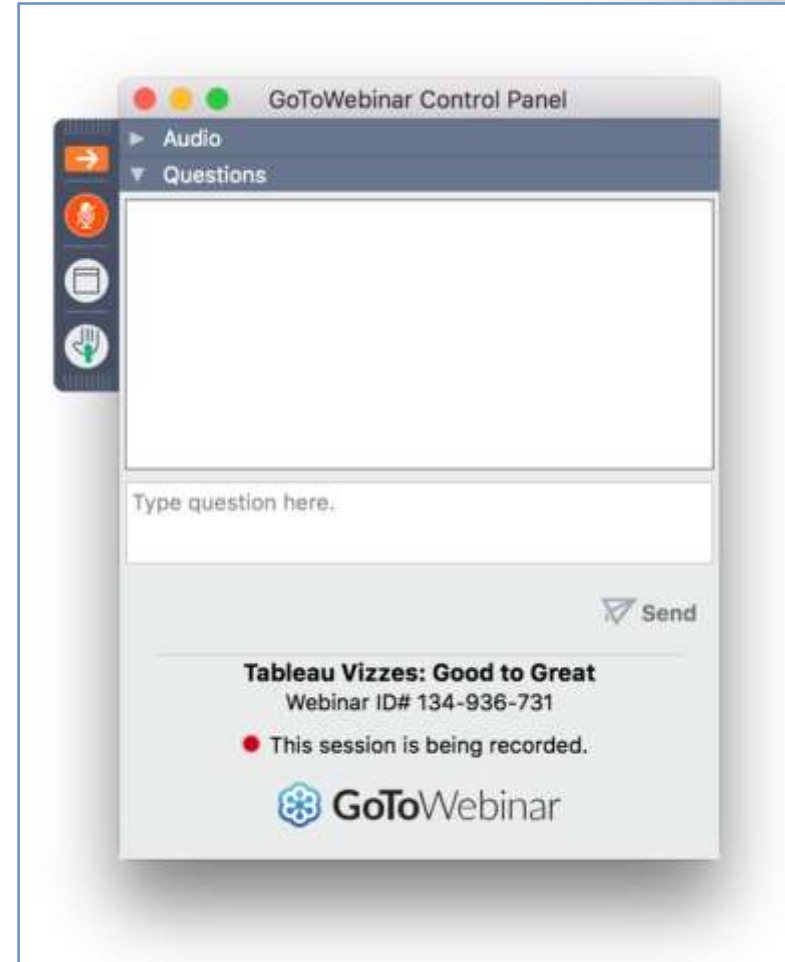


# Q & A

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

[info@senturus.com](mailto:info@senturus.com)

and we will set up a free consultation.



# Thank You



## SENTURUS

---

[www.senturus.com](http://www.senturus.com)

888 601 6010

[info@senturus.com](mailto:info@senturus.com)

© 2020 by Senturus, Inc. This presentation may not be reused or distributed without the written consent of Senturus, Inc.