



**SENTURUS**

# **Uncomplicating complex data aggregations in Tableau**

Leveraging table and level of detail calculations

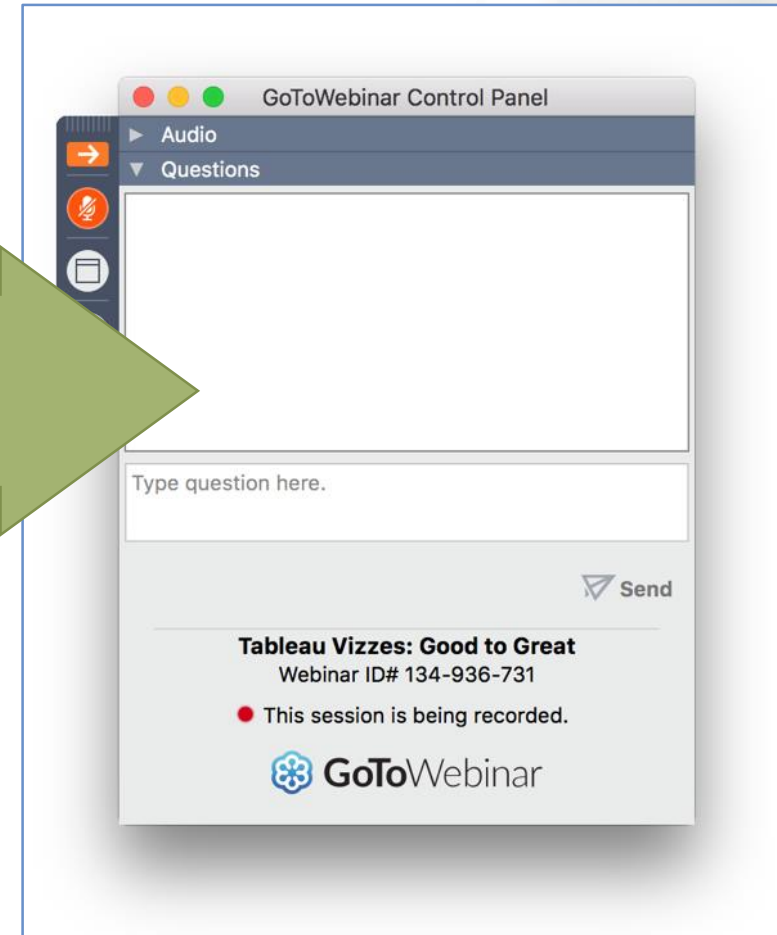


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BUSINESS  
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**IBM COGNOS REPORTING TOOLS: FEATURE SET COMPARISON**  
Visual Reference Guide



FEATURES



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



FEATURES



# Agenda

Introductions

Complex aggregations

Senturus overview

Additional resources

Q&A





# Complex Aggregations

- What is aggregation?
- Default aggregation
- Level of Detail calculations
- Table calculations
- Demos



# Introductions



**September Clementin**

Consultant and Trainer  
Senturus, Inc.



**Michael Weinbauer**

Director of Training and Content  
Senturus, Inc.

# Poll

Which Tableau complex aggregations do you regularly use?  
(select all that apply)

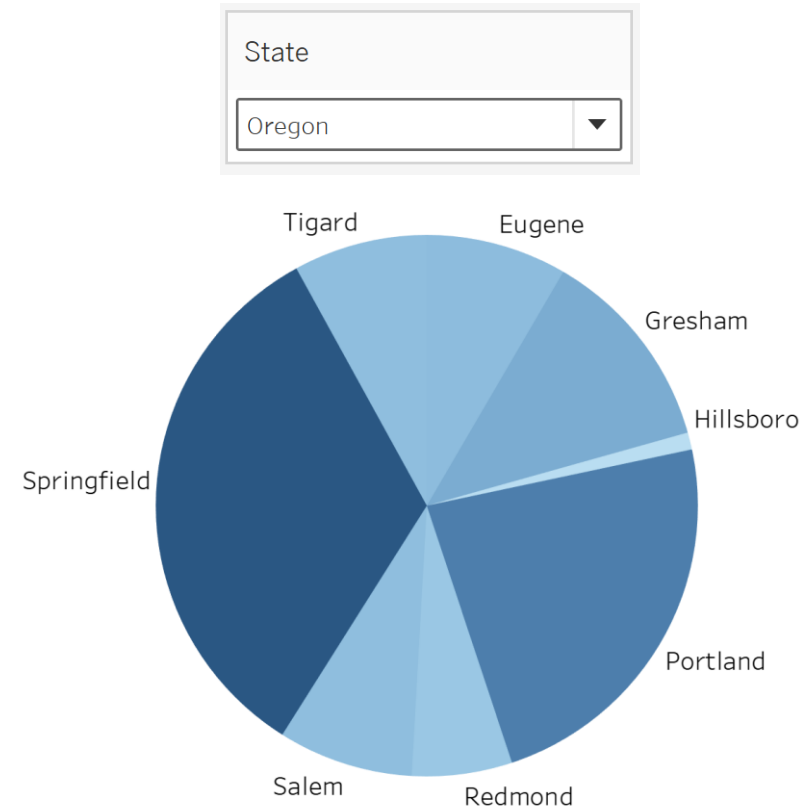
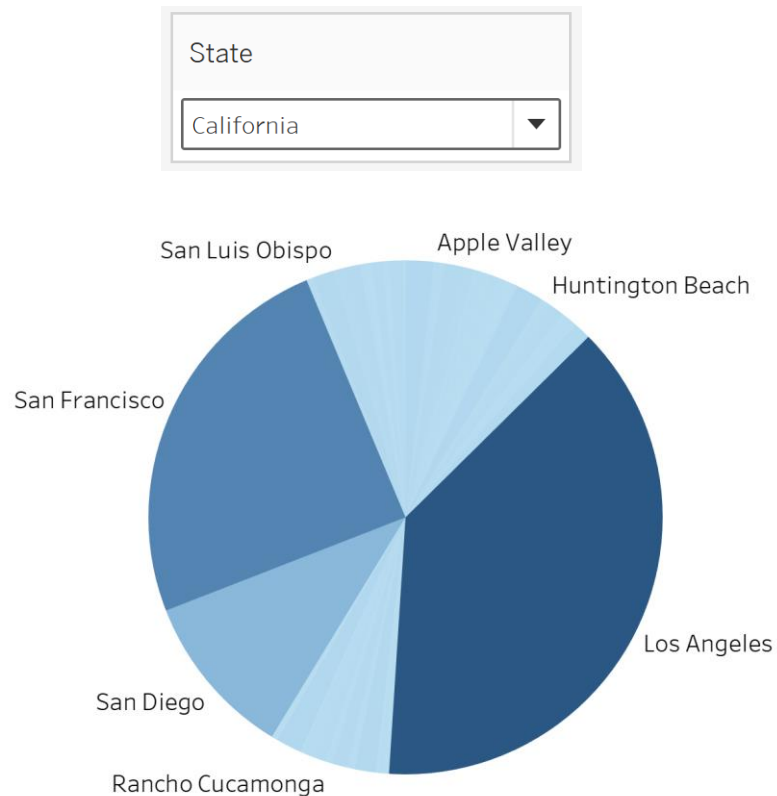
- Table calcs
- LOD
- RegEx
- Insane nested if-then-else statements
- I do it in the SQL

# Tableau complex aggregations



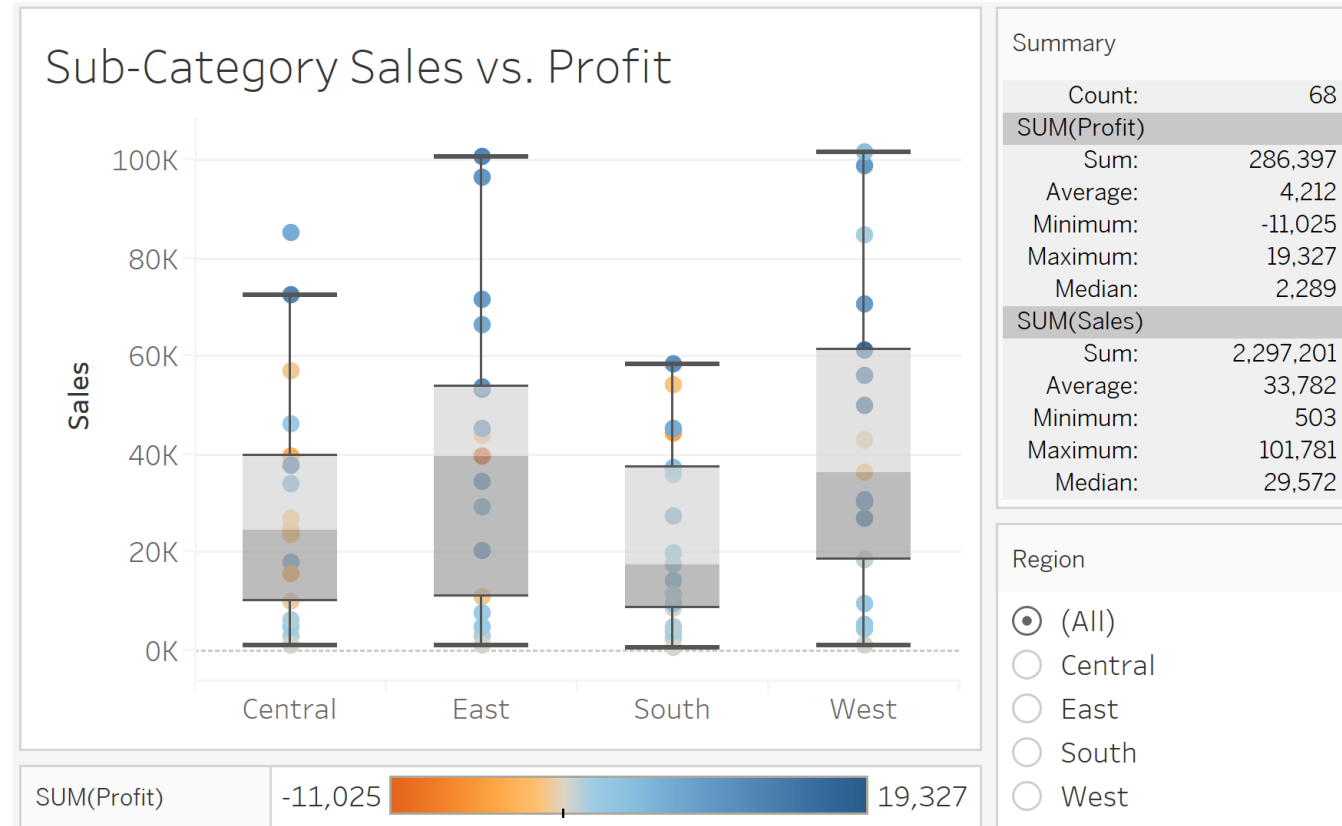
# Aggregation

Aggregation is the process of combining data into groups.



# Types of aggregation

- Count
- Sum
- Average
- Median
- Minimum
- Maximum
- Percentile
- Standard deviation



# Default aggregation

Aggregation occurs by default at the lowest level of detail present in a table for individual transactions.

Sales aggregated at the Order ID level

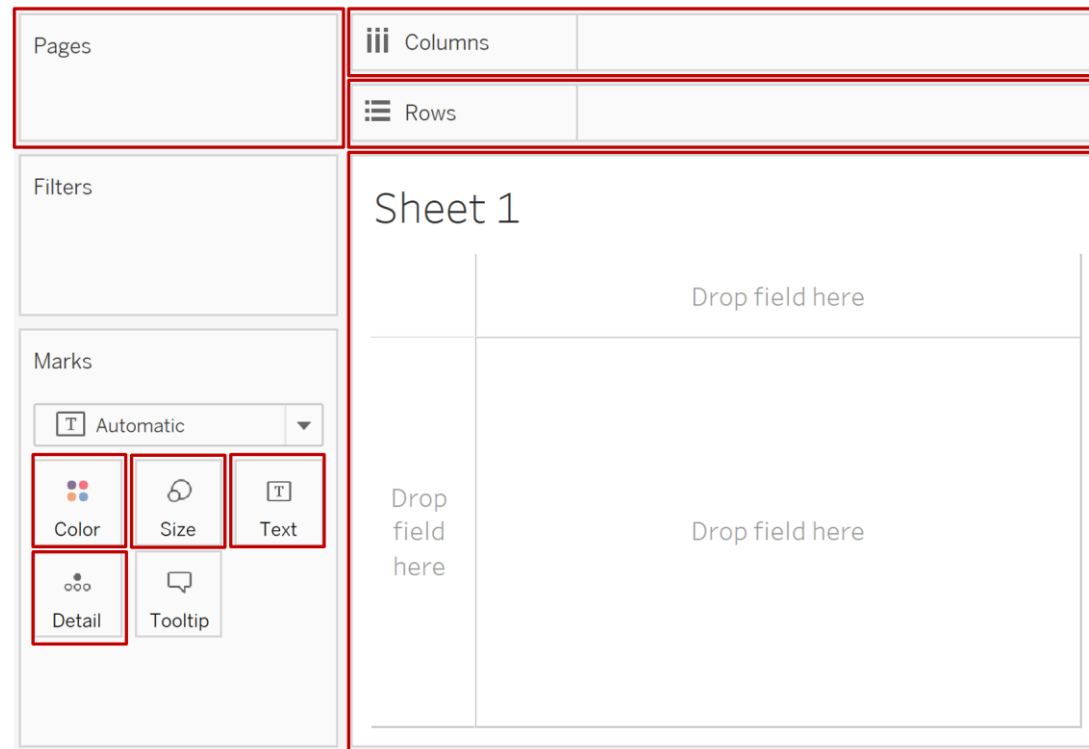
State	Order ID	Sales	Count
District of Columbia	CA-2016-124450	2,670	3
	CA-2017-140564	34	1
	CA-2017-157266	83	4
	US-2018-158512	78	2
Grand Total		2,865	10

Sales aggregated at the Row ID level

State	Order ID	Row ID	Sales	Count
District of Columbia	CA-2016-124450	1021	23	1
		1022	1,268	1
		1023	1,380	1
	CA-2017-140564	4597	34	1
	CA-2017-157266	1639	19	1
		1640	10	1
		1641	13	1
		1642	41	1
	US-2018-158512	1846	40	1
		1847	38	1
	Grand Total		2,865	10

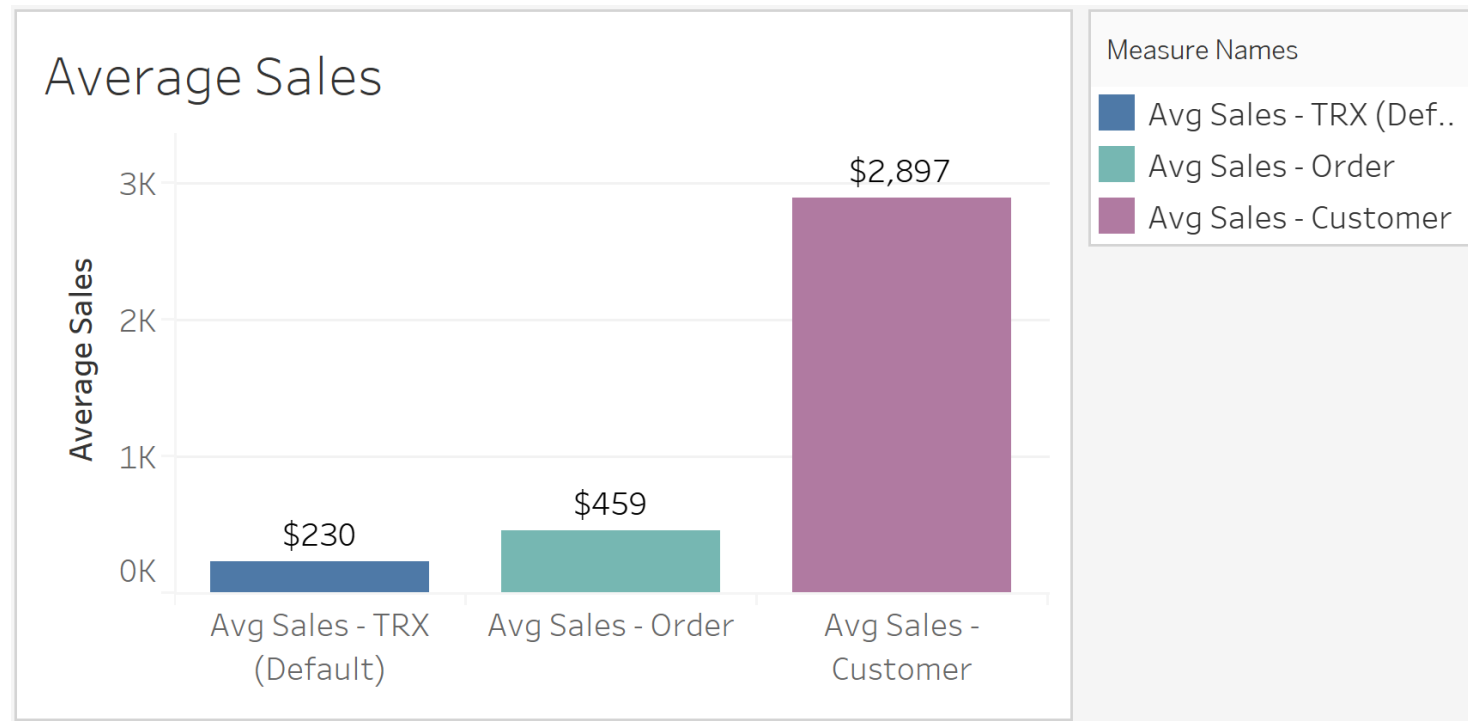
# Default aggregation

Measures are aggregated based on the dimensions that are present in the table (columns, rows, pages, and Marks card).



# Level of Detail calculations

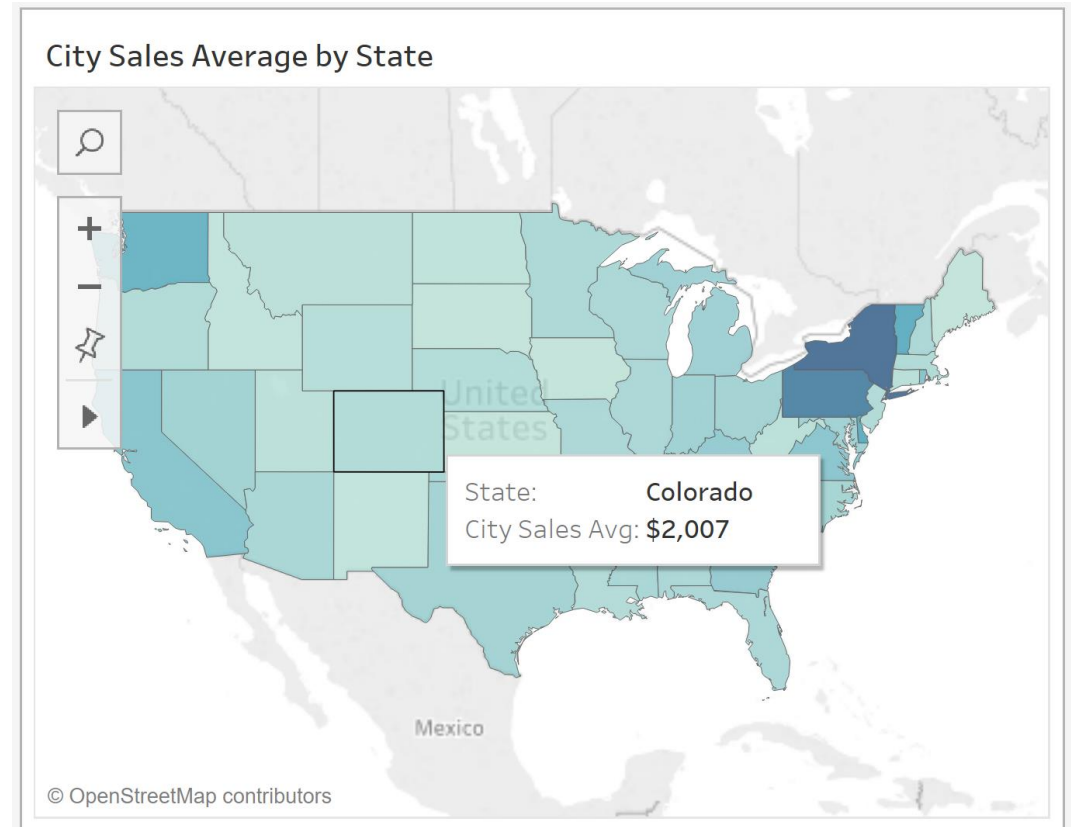
Level of Detail (LOD) calculations create the ability to override default aggregation.





# Level of Detail calculations

- LOD calculations use the following three keywords:
  - INCLUDE
    - `AVG ( { INCLUDE [City] : SUM([Sales]) } )`
  - EXCLUDE
    - `AVG ( { EXCLUDE [City] : SUM([Sales]) } )`
  - FIXED
    - `AVG ( { FIXED [City] : SUM([Sales]) } )`



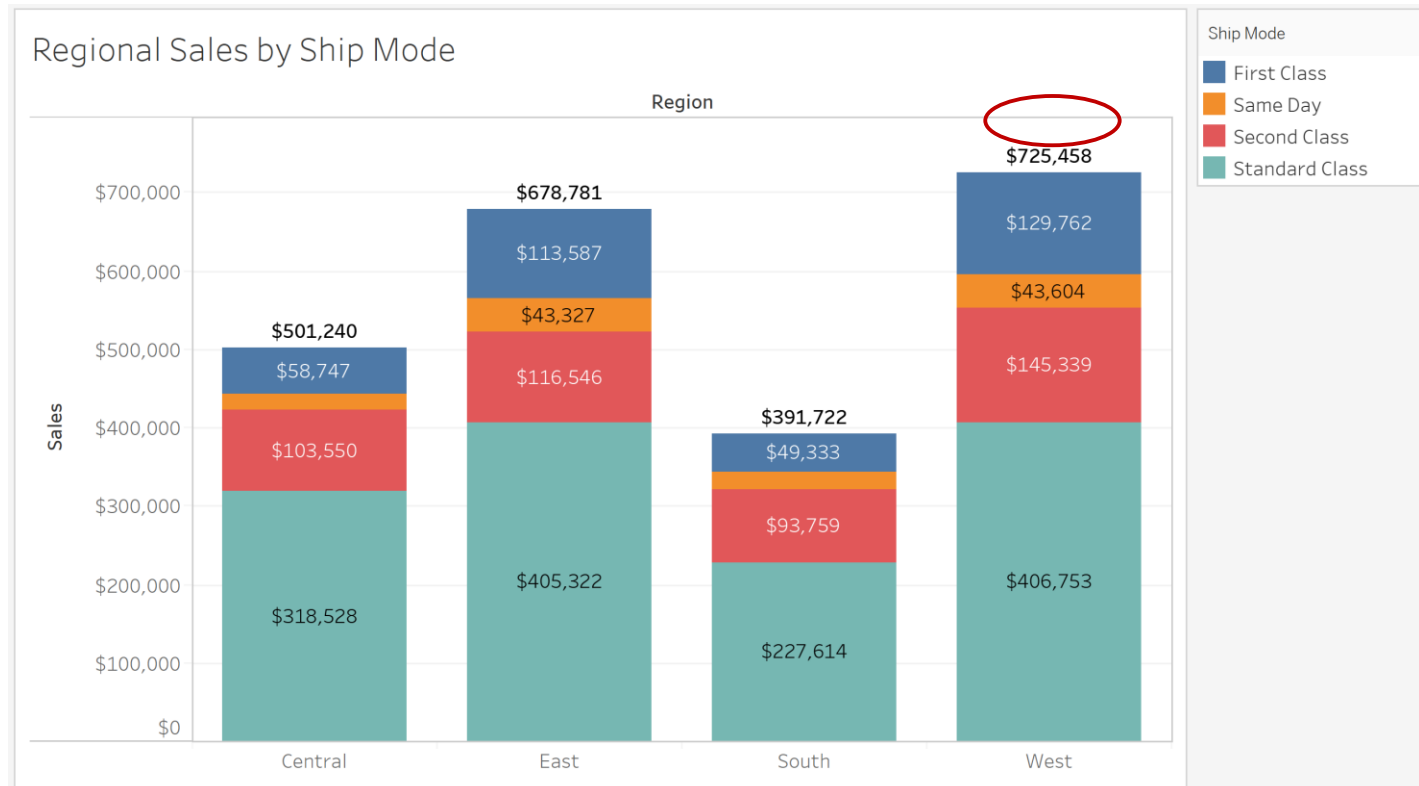
# Level of Detail calculations

INCLUDE expressions are often used to aggregate data at a level less granular than the transaction level.



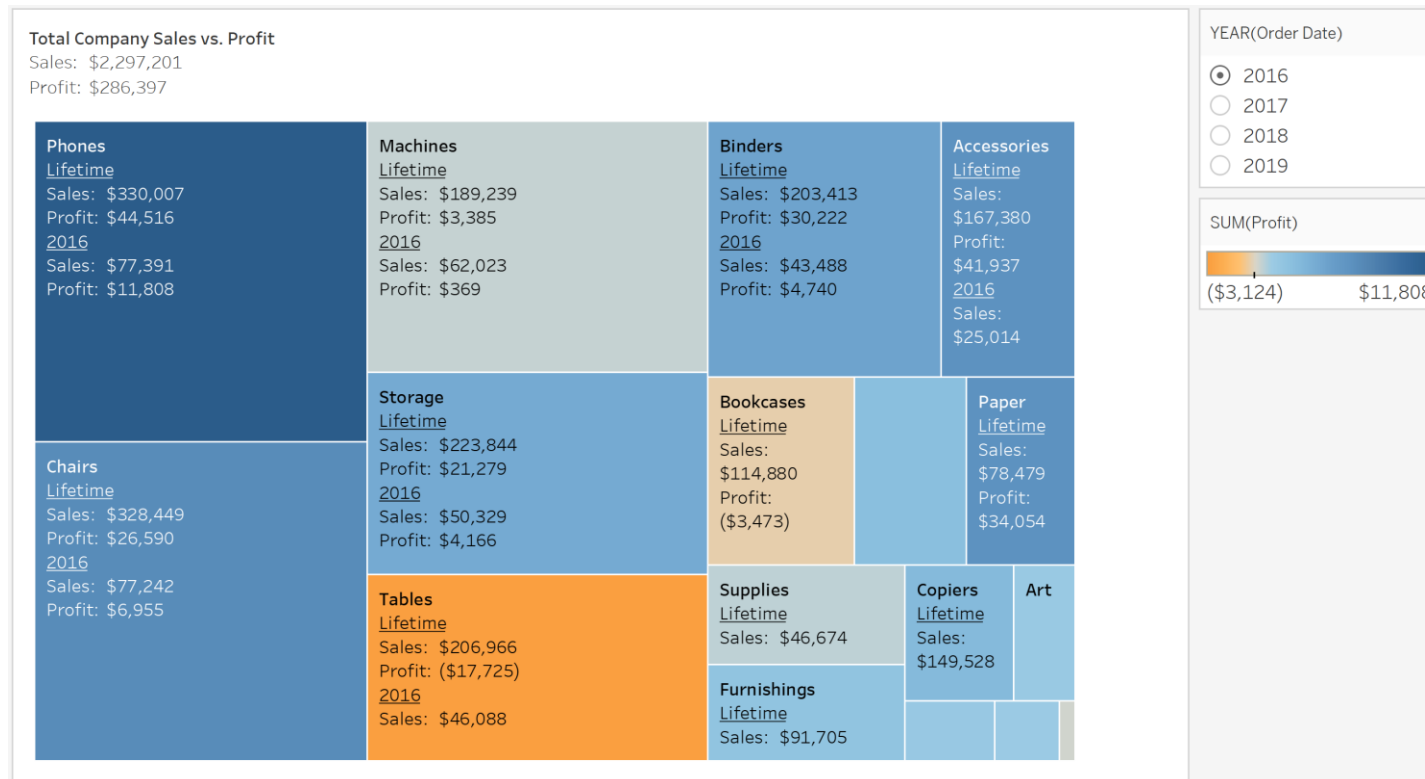
# Level of Detail calculations

- EXCLUDE expressions are often used to omit dimensions in the view when aggregating data.



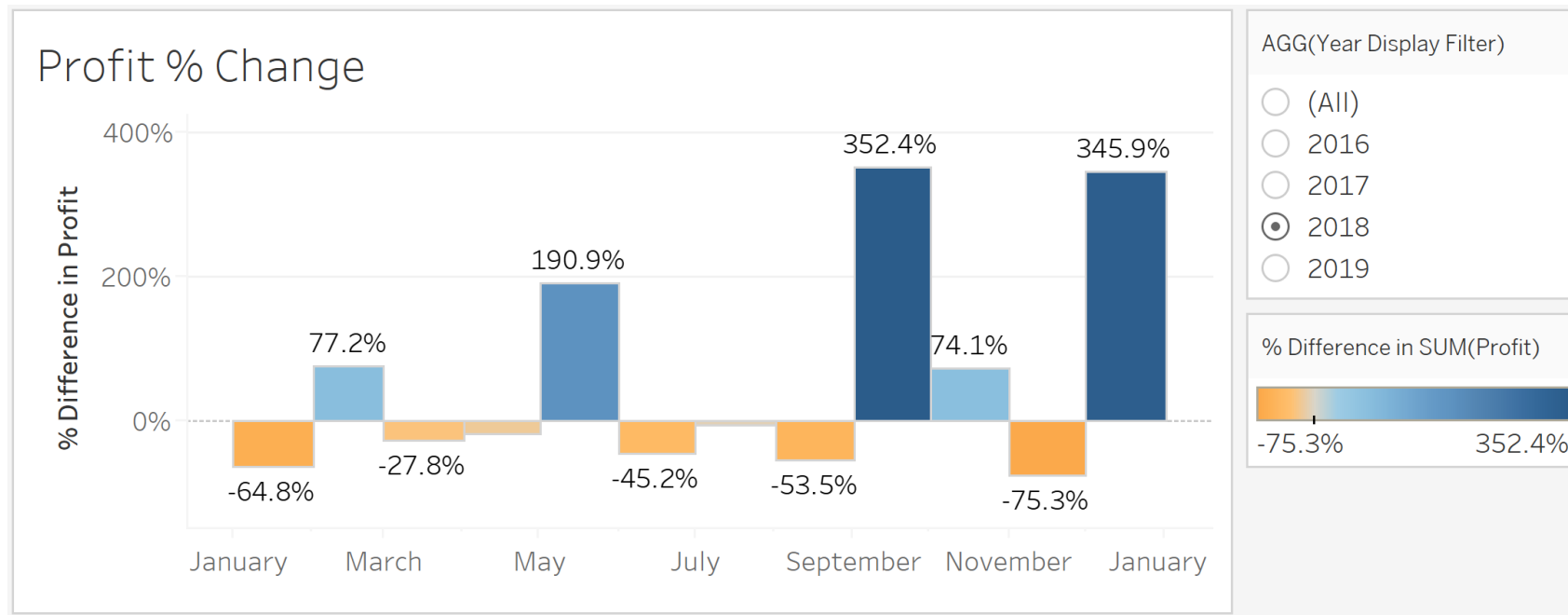
# Level of Detail calculations

FIXED expressions explicitly define the dimensions to be used when aggregating data.



# Table calculations

Table calculations are computed locally after aggregated results are returned.

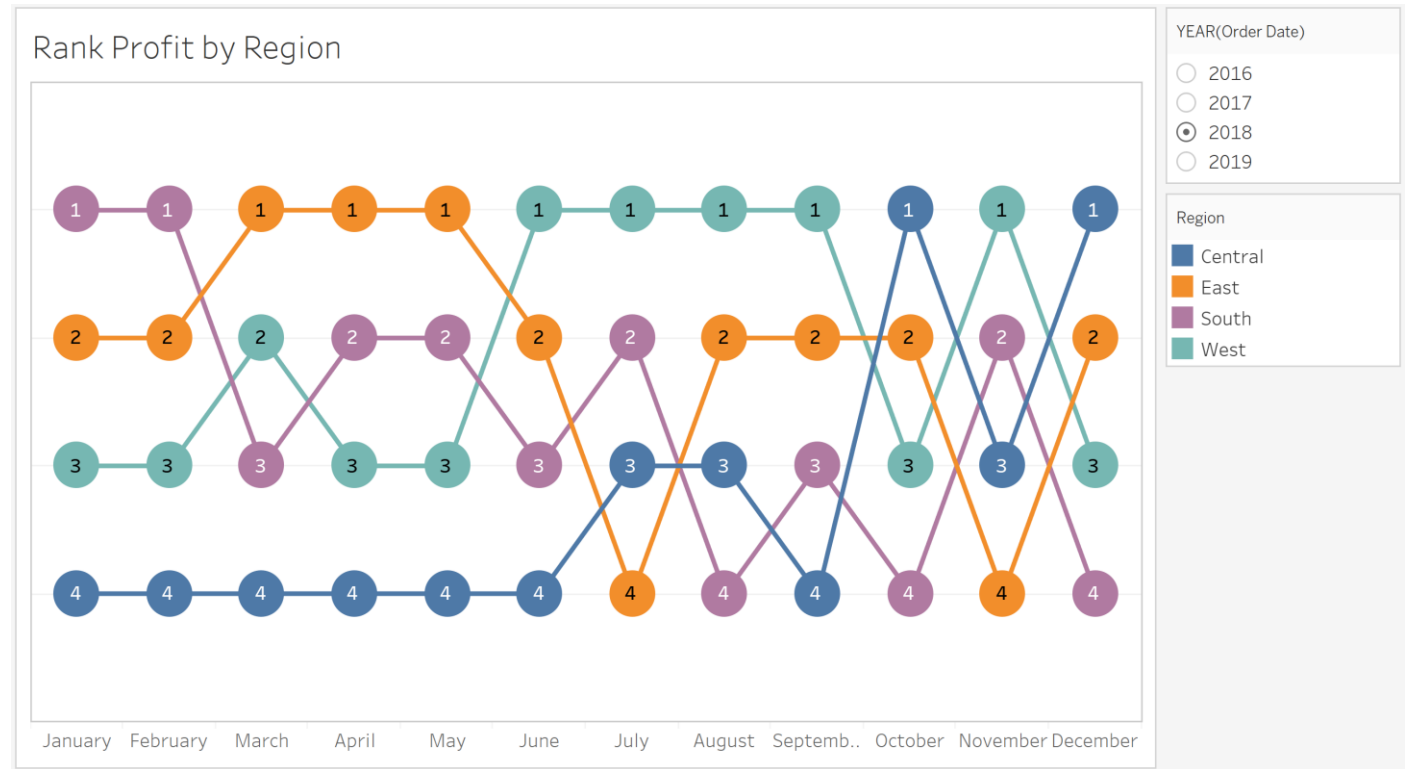




# Table calculations

Table calculations allow for second pass aggregation

- Rank
- Running Total
- Percent of Total
- Percent Difference
- Moving Average
- Compound Growth
- Percentile



# Table calculations

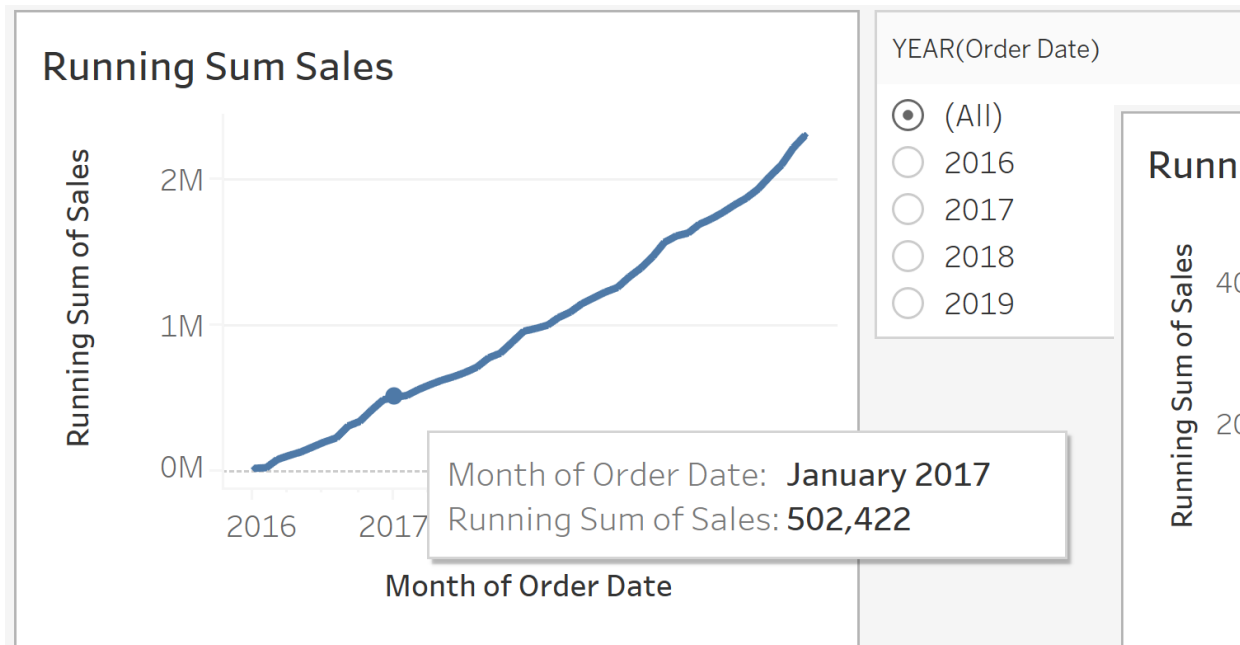
Table calculations can return values based on row position.

- Index
- First
- Last
- Lookup
- Previous Value

Quarter of Order Date	Index	First	Last	Sales	Lookup Prior	Previous Value
2017 Q1	1	0	7	93,237		93,237
2017 Q2	2	-1	6	136,082	93,237	93,237
2017 Q3	3	-2	5	143,787	136,082	93,237
2017 Q4	4	-3	4	236,099	143,787	93,237
2018 Q1	5	-4	3	123,145	236,099	93,237
2018 Q2	6	-5	2	133,764	123,145	93,237
2018 Q3	7	-6	1	196,252	133,764	93,237
2018 Q4	8	-7	0	280,054	196,252	93,237

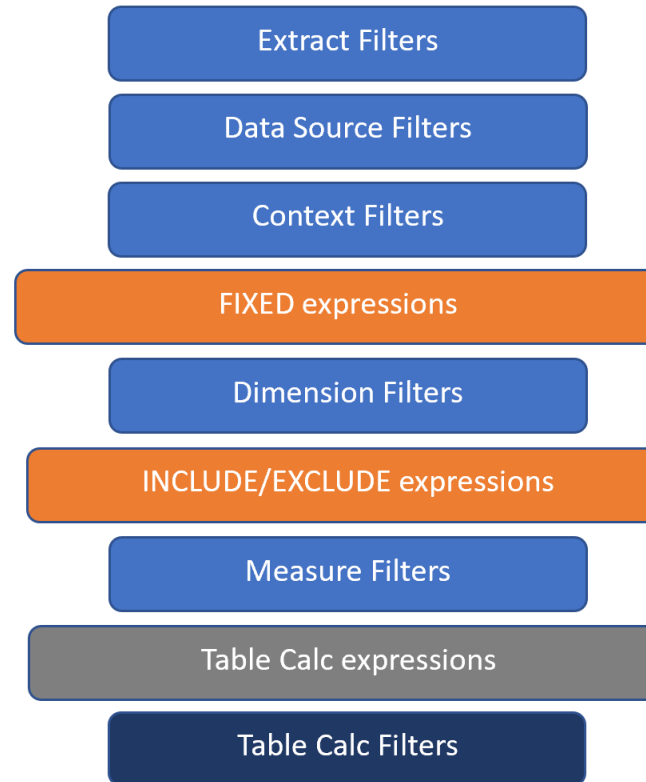
# Table calculation filters

Table calculations can be leveraged to filter a view without filtering underlying data.



# Order of operations

Table calculation filters occur after all other filters and expressions.



# New Tableau class

- **Tableau Complex Aggregations**
- Instructor-led, online training
- Deep dive master class
- Explore 25+ advanced real-world applications
- May 7
- <https://senturus.com/training/course-schedule/complex-aggregations/>



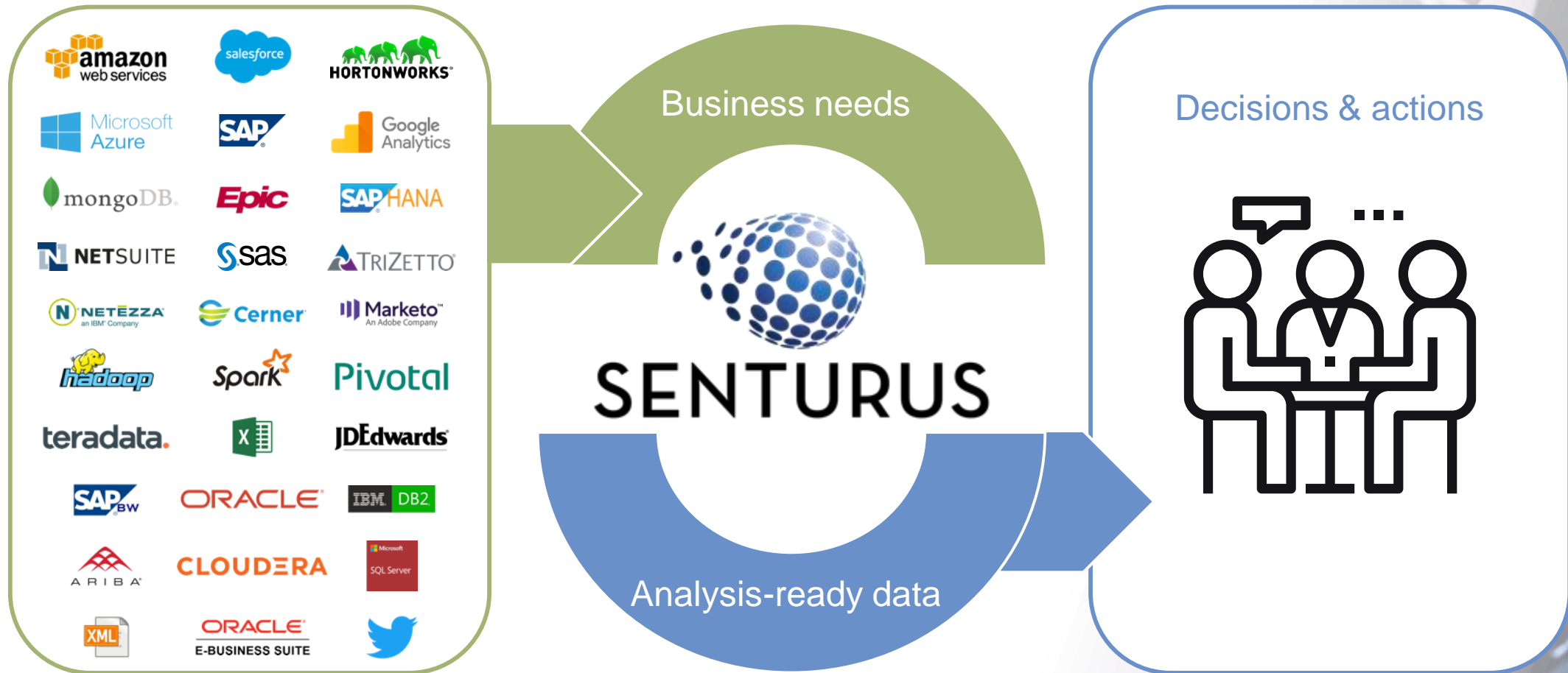


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# Full spectrum of BI services

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on the Senturus website:

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# Upcoming events

## **What's New in Cognos 11.1.6**

Live Q&A with IBM offering manager

Thursday, Apr. 16, 2020, 11am PT/2pm ET

## **Tableau Prep: A Visualization's BFF**

Overview of self-service data prep for Tableau

Thursday, Apr. 23, 2020, 11am PT/2pm ET

# Complete BI training offerings



**Power BI**



Tailored group sessions



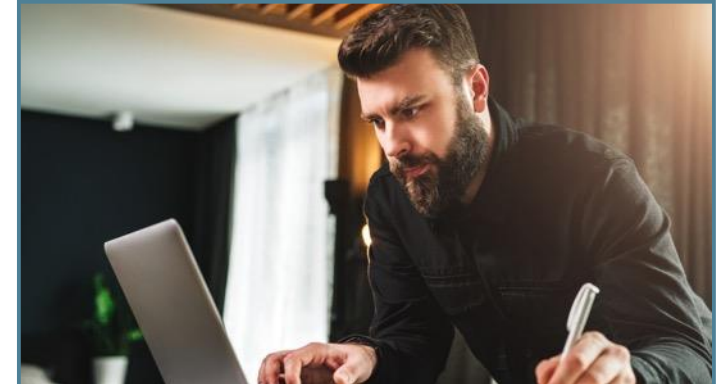
Mentoring



Instructor-led online courses



Self-paced learning



# Additional resources from Senturus

## Unbiased product reviews



## Technical tips



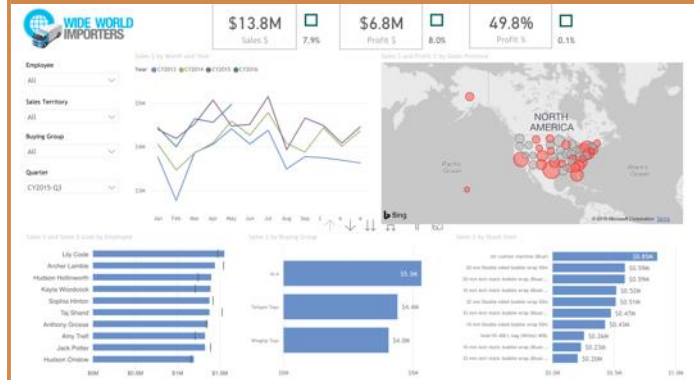
## Insider viewpoints



## More on this subject



## Product demos



## Upcoming events



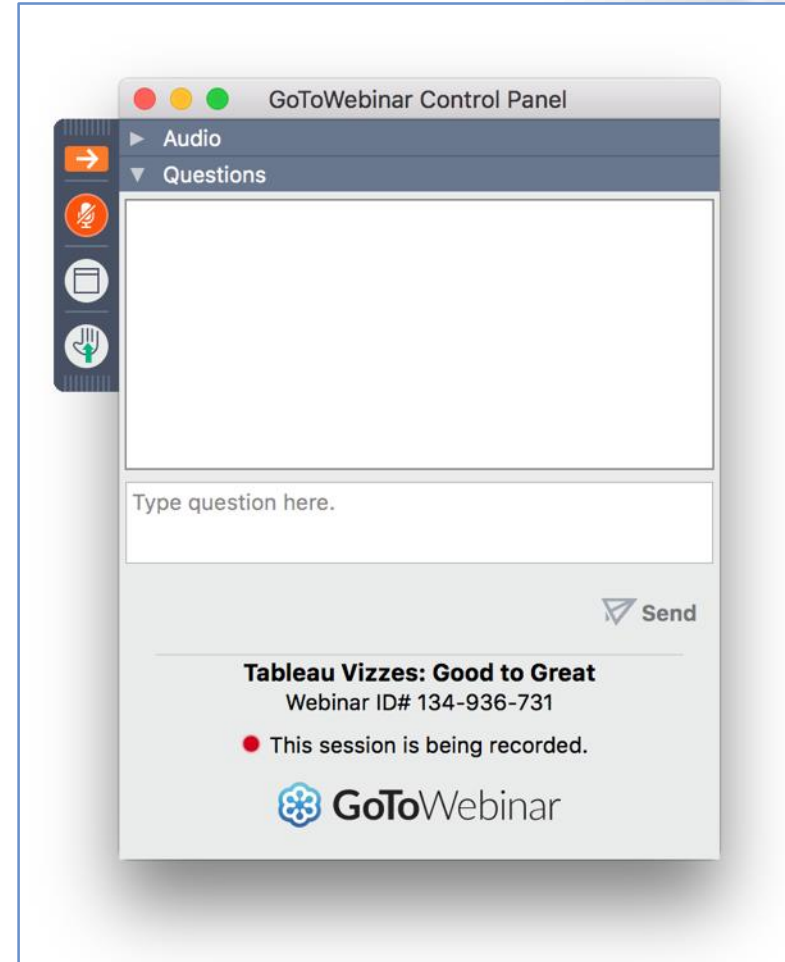


# Q & A

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



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