




# Scaling Analytics for the Thousands

**Kajohnsak Thiawsawang**  
Senior Business Intelligence Manager  
Agoda

# agoda

**Agoda** is one of the world's largest online hotel and  accommodation booking platforms. Founded in 2005 and now part of Booking Holdings, Agoda offers travelers a fast, easy way to book hundreds of thousands of properties in almost every country on earth.

# But in fact, **agoda** sells on just 5 web pages !

Today's deals ...

AgodaVIP★

## WELCOME BACK, MAIAKE!

Great destinations, value deals, and the best prices are waiting for you.

All Rooms

Nagano

24 Oct 2019  
Thursday

2 adults  
1 room

Search: Tokyo (1,243 choices)

24 Oct 2019 (Thursday) - 26 Oct 2019 (Saturday)

Filter: Popular, Price, Star rating, Location

1,650 travellers have redeemed a free night using AgodaCash since yesterday

Show prices after AgodaCash balance applied: \$3,239

Show properties with free breakfast

People who search for Tokyo also considered staying in these cities:

- Osaka: 10,290 choices
- Fukuoka: 1,152 choices
- Nagoya: 407 choices

Recommended for you:

**Best seller** APA Hotel Keisei Ueno-Ekimae  
Ueno, Tokyo - View on map  
Exceptional location | City center  
Breakfast | Free cancellation | Pay at the hotel | Price includes Free cancellation  
Recommended by 92% of guests  
Popular! Booked 26 times since yesterday  
Get \$265 AgodaCash for your next trip  
Total price per night: \$5,291 (44% OFF TODAY)  
FREE CANCELLATION

Hotel Sardonx Ueno

24 Oct 2019 (Thursday) - 26 Oct 2019 (Saturday)

2 adults, 1 room

See all 10,290 properties in Tokyo

Hotel Sardonx Ueno ★★

from \$3,691 (47% DISCOUNT)

What Couple/pair travelers are saying:  
Exceptional location. Very convenient  
very close to jr and metro, also easily to find food  
good location, next to the market  
Great location. The Skyliner

Guest reviews: 8.6 Excellent (10 / 8640 reviews)

Property highlights: Things you'll love: 200 meters to public transportation

Hotel Sardonx Ueno

2017 - 2018

Exceptional location | City center  
Breakfast | Free cancellation | Pay at the hotel | Price includes Free cancellation  
Recommended by 92% of guests  
Popular! Booked 57 times since yesterday  
Get \$591 AgodaCash for your next trip  
Coupon code VIP\_SPECIAL applied - \$170 off!  
Total price per night: \$6,292  
\$3,691 (41% OFF TODAY)  
FREE CANCELLATION

agoda

Customer information | Payment information | Booking is confirmed!

Sign in to use your AgodaCash!

Great choice of property - with an average guest rating of 8.6

Choose your payment option

Pay later (selected)  
RISK FREE! Pay nothing until October 21, 2019  
Free cancellation before 23:59 hrs. on October 22, 2019 (property local time)

AgodaVIP★ Your bookings have earned you Agoda VIP status

Let us know who you are

Full name: \_\_\_\_\_  
Email: \_\_\_\_\_  
Double-check for typos

agoda

Thank you. Your booking is now complete!

- ✓ Your Booking ID: 30203204665
- ✓ Your booking confirmation will be emailed to maiake.tanungkunanj@agoda.com
- ✓ Please present this confirmation at check-in.

Earn money to pay for your travel

Join Agoda Homes, the commission-free hosting platform, property can earn money for your lifestyle. Get started today.

Learn more about hosting

Hotel Sardonx Ueno

6-6-7 Ueno Taito-ku, Ueno, Tokyo, Japan 110-0005

Exceptional location - What's nearby?

Selling out fast! 2 similar properties are already sold out! Book your room before they're all gone.

41% DISCOUNT

24 Oct 2019 - 26 Oct 2019 (2 nights)

1 x Standard Double Non-Smoking For 2 People  
1 room, 2 adults  
Max 2 adults

RISK FREE cancellation before 23:59 hrs. on October 22, 2019 (property local time)

Pay nothing until October 21, 2019

Only 6 rooms left at this price!



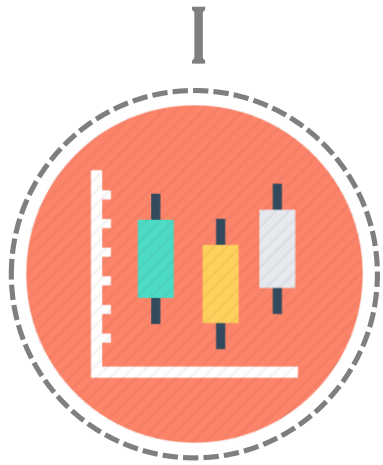
Limitless possibilities to provide the  
**best prices** to the customers



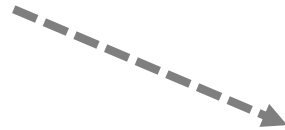
*5 pages + others areas*

**Let the data do the telling**  
(data driven)

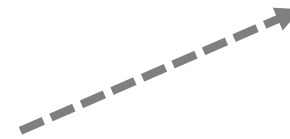
# Agenda



Data Driven Culture  
in Agoda

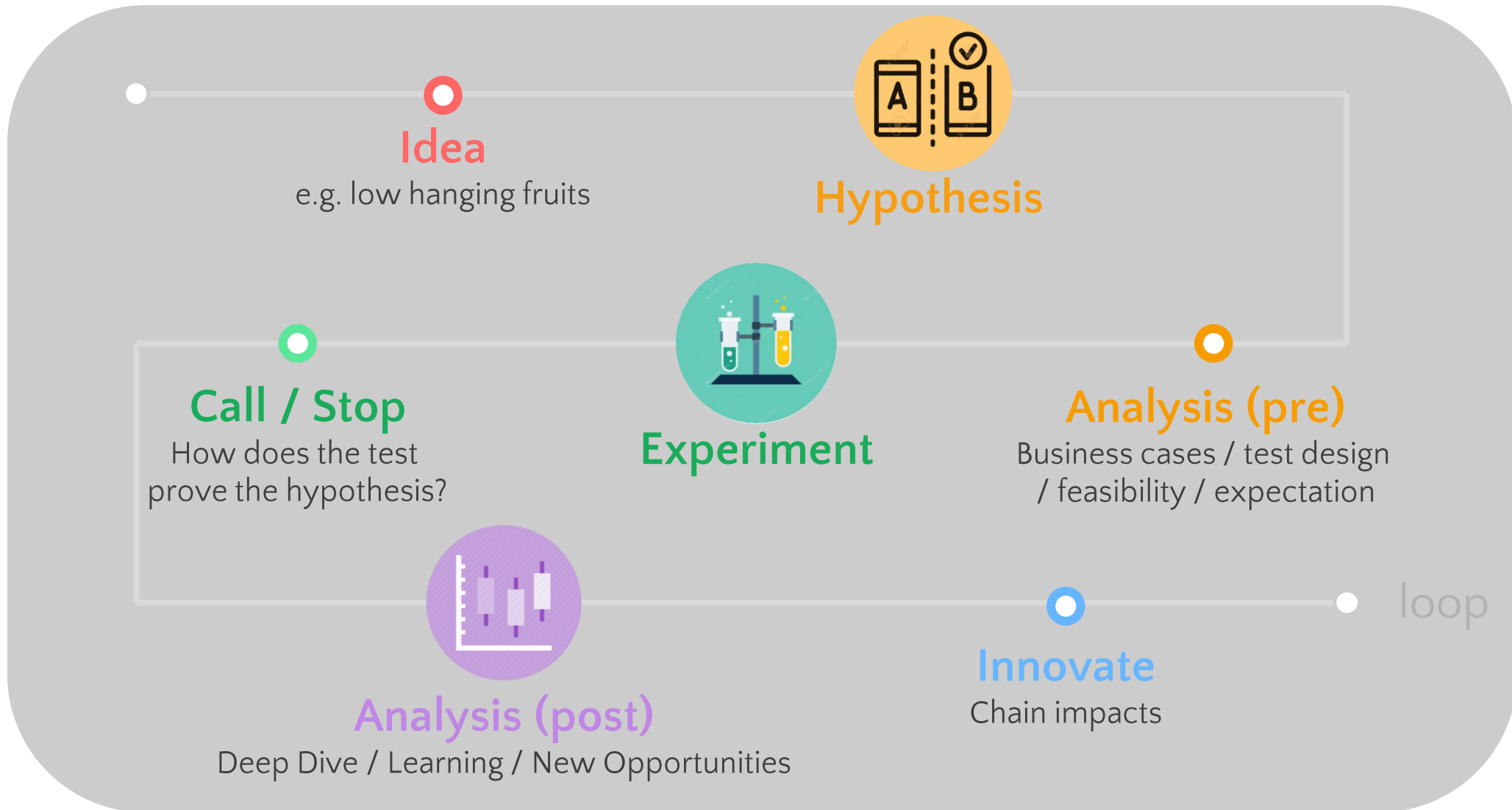


Evolution of Data  
Architecture  
towards Self-service BI



Drive to  
Success & Scales

# Data driven through “experimentation”



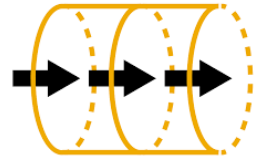
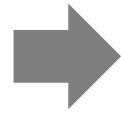
# Evolution of Data Architecture

**Gen1**  
-10 years

BI



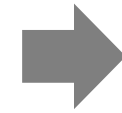
SQL Server



ETL  
(SSIS)



Data Warehouse  
(SQL Server)



SSAS

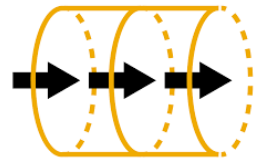


SSRS  
Excel

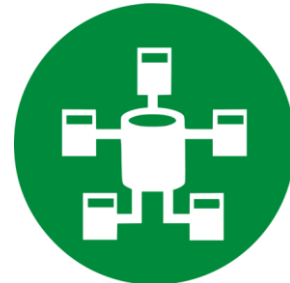
**Gen2**  
-7 years



SQL Server



ETL  
(SSIS)



VERTICA



SSAS

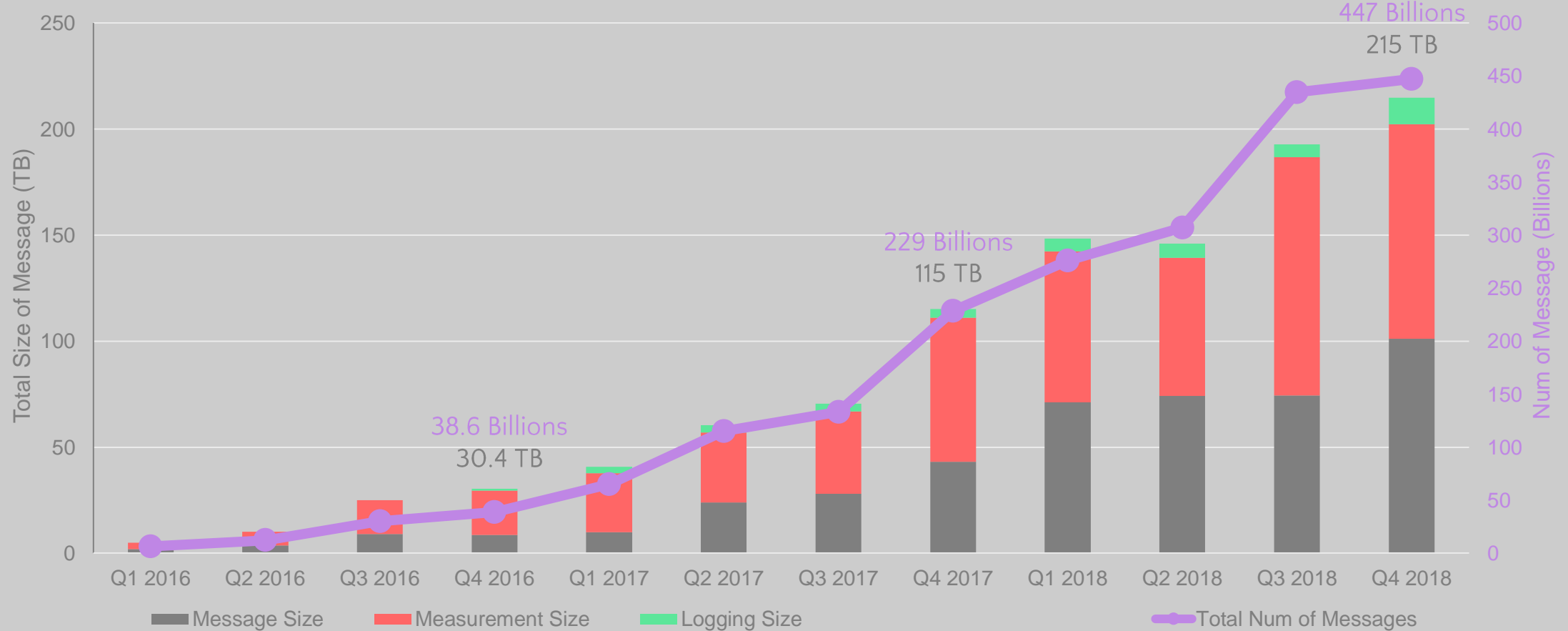


SSRS  
Excel

Users  
consume

# By 2019, Agoda Messaging size has YoY growth of +87% and number of messages of +95%

Daily Average of "Messaging Size" and "Number of Messages"





# Issues from the fast growing scale

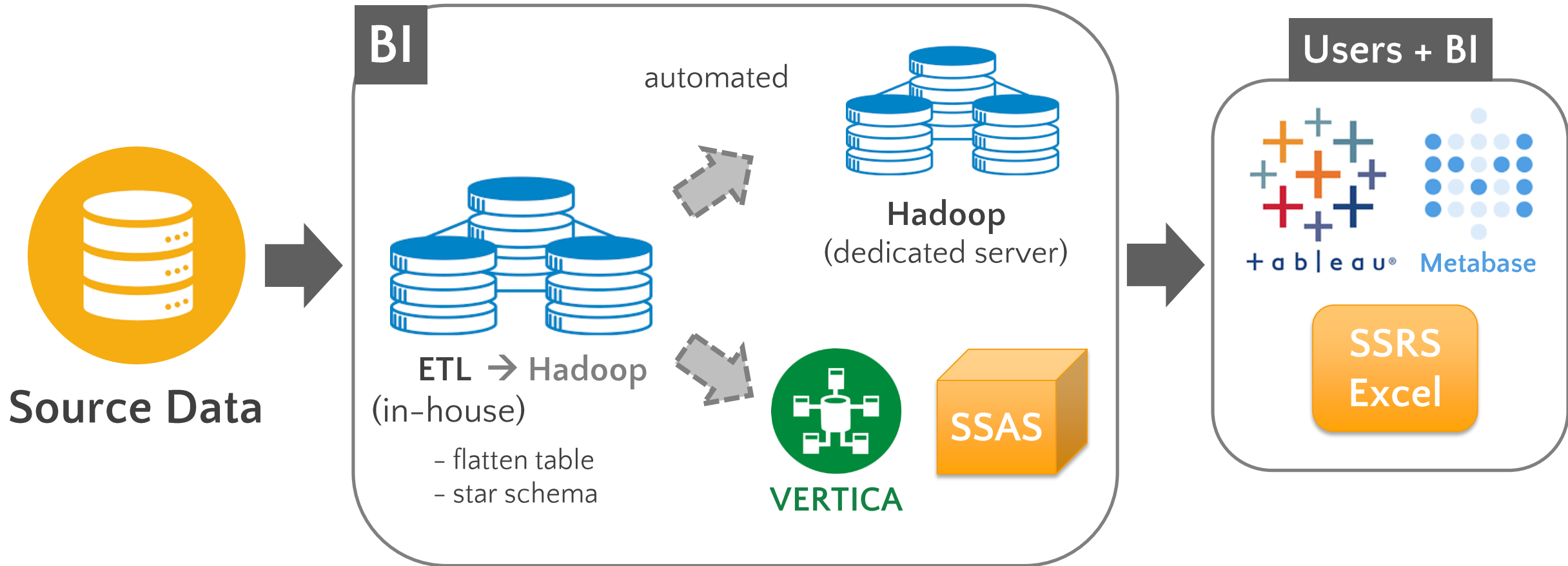
1. **Time-to-Market** increased to 1 month+
2. **Performance Issues** almost every day
3. **Processing Delayed** more frequently => uptime dropped

Reform the data architecture and pipeline

# Evolution of Data Architecture

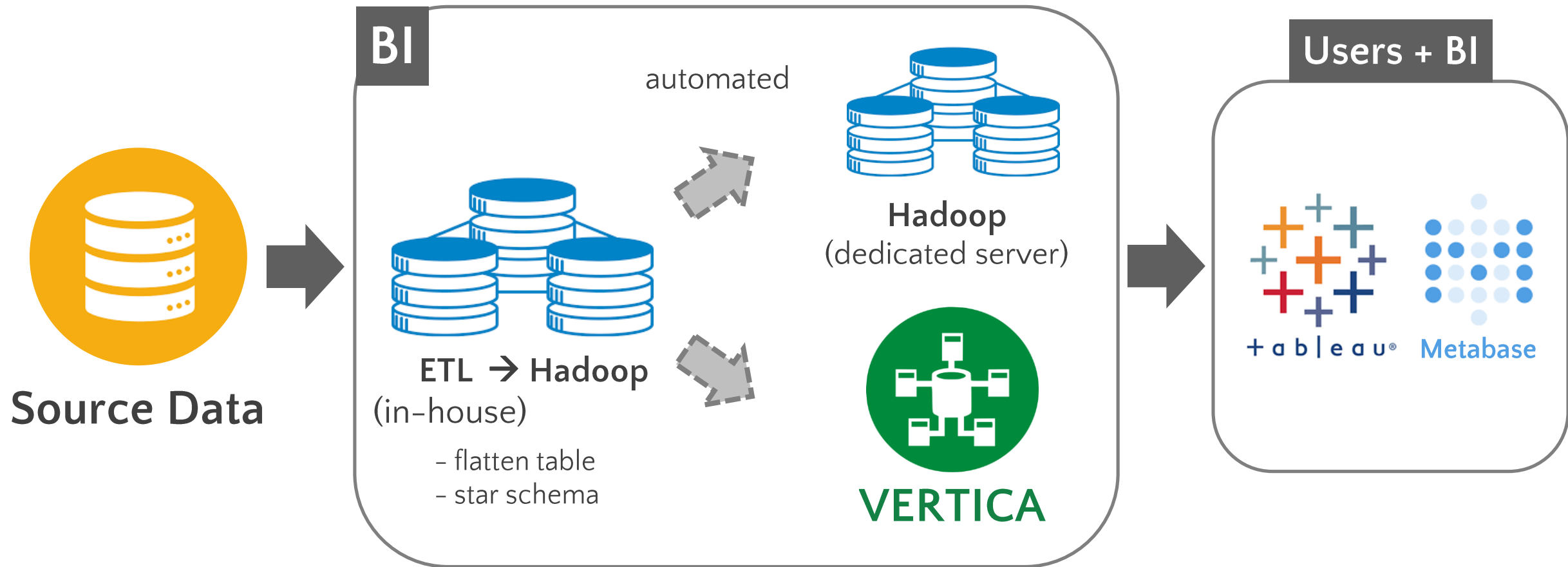
## Gen3

-2 years to now



# Evolution of Data Architecture

Next..



# DataMarket – data on your palm



- Weekly Average of 30 users
- opening ~50 reports
- still growing



- Vertica / Hadoop
- Tableau / Metabase / Grafana
- Recently used reports

**bi\_dw.dim\_hotel\_static** Hadoop Users: 67 Views: 2736

Dim hotel static has only one record per hotel as it keep the current value and update every two hour. Contain hotel tha...

**hotel\_id (bigint)**  
id of the hotel

**hotel\_name (string)**  
name of the hotel

**area\_id (bigint)**  
id of district or zone of the city

**Most Popular Reports**

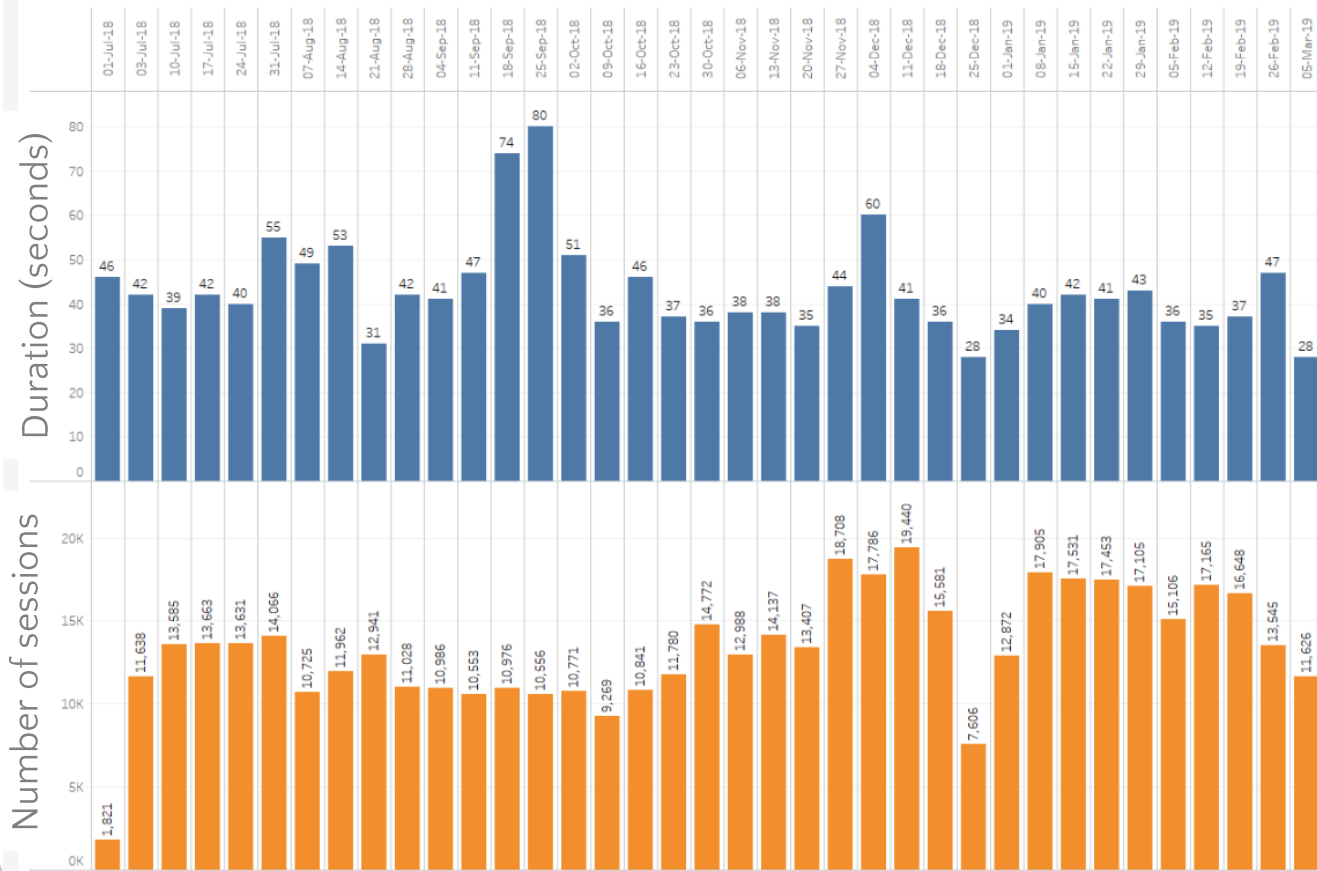
- Hotel List by DMCs**  
Users: 31 Views: 57
- RLS Total hotels Live (with rooms) & h...**  
Users: 26 Views: 698
- Hotel Mapping Status**  
Users: 26 Views: 270
- Roomnights with PA (downlift & dispat...**  
Daily roomnights with Downlift + Dispatched status  
Users: 25 Views: 341  
Report Owner: Lennart Van Partner Services  
Click to send email

[See More](#)

# Tableau Performance Monitoring

Tune bad performance dashboards and keep the server at its best

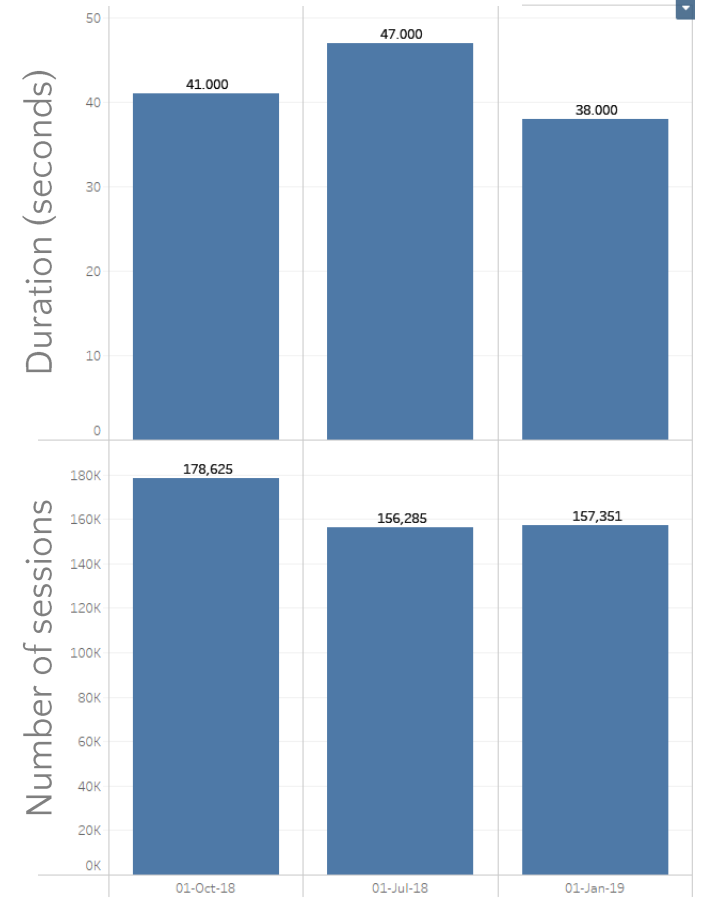
90 Percentile Performance



User Name

Inmek, Taweesak (Agoda)	11,947
Khazieva, Daria (Agoda)	9,529
Laisuwan, Sorrawit (Agoda)	8,058
Thatan, Wutcharin (Agoda)	5,110
Chiu, Frankie (Agoda)	4,851
Petroziello, Matthew	4,292
Santichalanan, Pawinee (Agoda)	3,889
Nakata, Aya (Agoda)	3,525
Messari, Sara (Agoda)	3,371
Nguyen, James (Agoda)	3,353
Francisco, Ann (Agoda)	3,343
Rizal, Rachmadizal (Agoda)	2,881
Pattanavorameth, Phakin (Agoda)	2,873
Csobaji, Marton (Agoda)	2,865
Owens, Jeff (Agoda)	2,816
Root, Jacob	2,813
Cheursawathee, Ramkhana (Agoda)	2,685
Sapanand, Satida (Agoda)	2,608
Violyta, Leevy (Agoda)	2,550
Ruthner, Karin	2,428
Kiatjaroonsiri, Kasem (Agoda)	2,423
Suebjaklap, Nattaya (Agoda)	2,308
Palmer, Jennifer (Agoda)	2,289
Suppongtevasakul, Panu (Agoda)	2,277
Strautman, Andrew	2,251
Sparks, Phillip	2,248
Lu, Clive (Agoda)	2,228
Lazaro, Pat (Agoda)	2,211
Tsoi, Chayanit (Agoda)	2,188
Saxena, Subhanshu (Agoda)	2,183
O'Brien, Dan	2,121
Johannes, Hadi	2,085
Marjaya, Suta (Agoda)	2,084
Beer, Jason	2,074
Ko, Jamie (Agoda)	2,063
Meng, Sharon (Agoda)	2,055
Tolles, Russell	2,006
Kelaidis, Nico (Agoda)	1,973
Chadha, DharamSingh (Agoda)	1,950
Smithinunt, Supinda (Agoda)	1,849
Ma, Stephanie (Agoda)	1,831
Howley, Joseph (Agoda)	1,829

90 Percentile Performance





# Tableau Performance Monitoring

## Contact the owner to call for immediate action

### Bad performance dashboard?

✓ Email to suggest the tuning solution

### Failed tableau extraction?

✓ Immediately send alert email to the owner

Siriwan, Penpitcha (Agoda) | bi-performance; Chaivong, Mallika (Agoda); BI-infra-dba; Zaidi, Hadar (Agoda); Thiamsawang, Kajohnsak (Agoda) -

**BI-Performance-Tuning : Tableau - Market Manager KPI Dashboard**

Retention Policy: \_tag 6 months global delete (6 months)

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**BI Performance Tuning Request Form**

Severity	High																						
Engine	Tableau																						
Environment / Database	-																						
Owner	Chaivong, Mallika (Agoda) <Mallika.Chaivong@agoda.com>																						
Login Name																							
Object	MarketManagerKPIENGAGEDASHBOARD																						
Performance Summary	It is currently taking 40s + since about 4 weeks ago and it needs to tune the dashboard.																						
	<table border="1"> <caption>90 Percentile Performance Data</caption> <thead> <tr> <th>Week</th> <th>Duration (s)</th> </tr> </thead> <tbody> <tr><td>1</td><td>23.00</td></tr> <tr><td>2</td><td>36.00</td></tr> <tr><td>3</td><td>24.00</td></tr> <tr><td>4</td><td>25.00</td></tr> <tr><td>5</td><td>29.00</td></tr> <tr><td>6</td><td>37.00</td></tr> <tr><td>7</td><td>45.00</td></tr> <tr><td>8</td><td>41.00</td></tr> <tr><td>9</td><td>52.70</td></tr> <tr><td>10</td><td>40.00</td></tr> </tbody> </table>	Week	Duration (s)	1	23.00	2	36.00	3	24.00	4	25.00	5	29.00	6	37.00	7	45.00	8	41.00	9	52.70	10	40.00
Week	Duration (s)																						
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5	29.00																						
6	37.00																						
7	45.00																						
8	41.00																						
9	52.70																						
10	40.00																						
Recommendations	This dashboard is use an extract data source so we will focus on tune Tableau performance its self. Because of there are many sheets combined in 1 dashboard so it takes long time to render the view. To use parameter to dynamic dimension in 1 sheets instead of have same graph in many sheets, use parameter to control dimension value.																						

No-reply | Thiamsawang, Kajohnsak (Agoda); BI-Infra -

**BookingMonitor V3 dashboard extraction failed**

Retention Policy: \_tag 6 months global delete (6 months) Expires: 9/10/2019

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**Action Items**

**Hello Thiamsawang, Kajohnsak**

Please check your dashboard <https://agoda-dashboard.agoda.local/#/workbooks/2683>

The extraction was failed because error below:

"com.tableausoftware.nativeapi.exceptions.DataSourceException: [Microsoft][SQL Server Native Client 11.0][SQL Server]SHUTDOWN is in progress. [Microsoft][SQL Server Native Client 11.0][SQL Server]Login failed for user 'password'."

You can check your extraction task time line here:

<https://agoda-dashboard.agoda.local/#/views/tabbedadminviews/BackgroundTasksforExtracts?Extract=BookingMonitor%20V3>

If you get "suspended: skipped" error, it because the extract has failed more than 5 times. You need to manually run extract schedule and see if your extraction still fails or not.

If you have any questions please reach out at Slack channel #tableau .

**This is an automatic alert, if your dashboard has already fixed please ignore this email.**

Thank you,

BI-INFRA

Extraction failed at 11-Mar-19 10:18

Project Name	Extract	Owner Name	Title	Failure message
Agoda	BookingMonitor V3	kthiamsawang	BookingMonitor V3	com.tableausoftware.nativeapi.exceptions.DataSourceException: [Microsoft][SQL Server Native Client 11.0][SQL Server]SHUTDOWN is in progress. [Microsoft][SQL Server Native Client 11.0][SQL Server]Login failed for user 'bi_report_user'. Only administrators may connect with this user name.

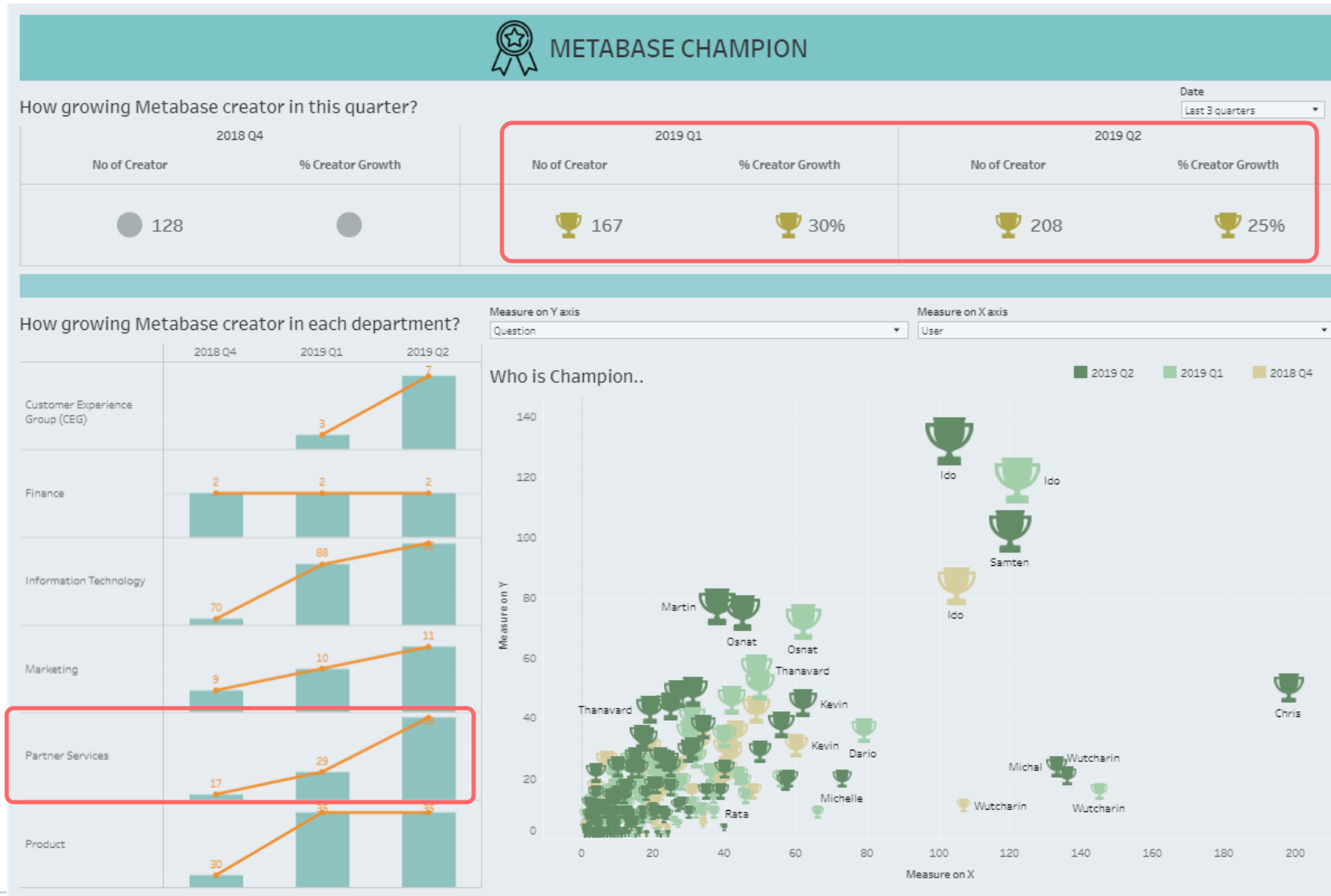
# Tableau #creators is still growing in 2019 Q2 (21%)

Tableau is excellent for a hybrid Business-IT department like Marketing



# Metabase is now super famous among business users (205 users)

Especially in business department like PS (BD), many users requesting for more training



# Key Takeaways towards self-service BI

1. Reliable , fresh and correct
2. Ease of access to data, easy to use
3. Good performance

# Thank You

