

Customer 360° View Using Oracle Big Data Spatial & Graph

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Graph Databases



Oracle Labs
PGX



Amazon Neptune

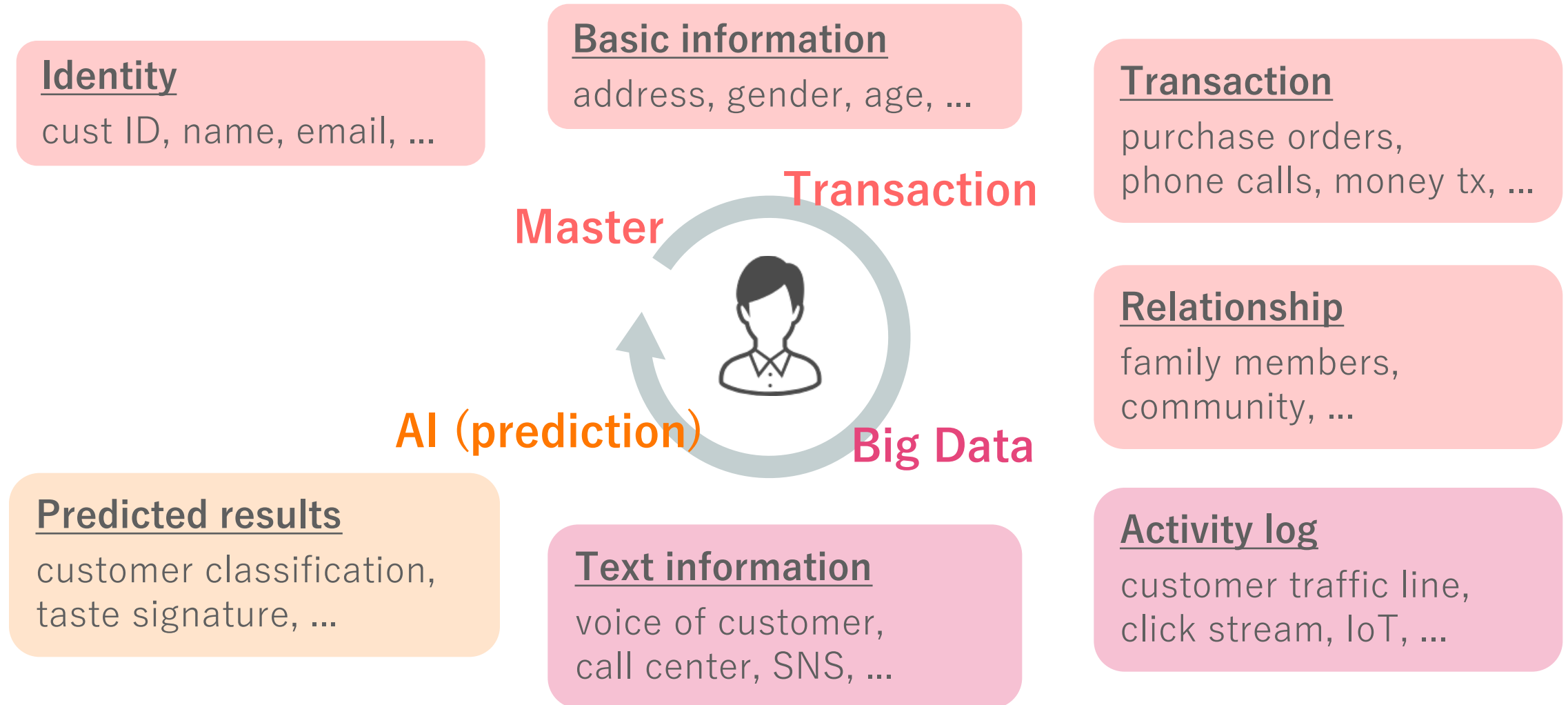
Azure Cosmos

SAP HANA Graph

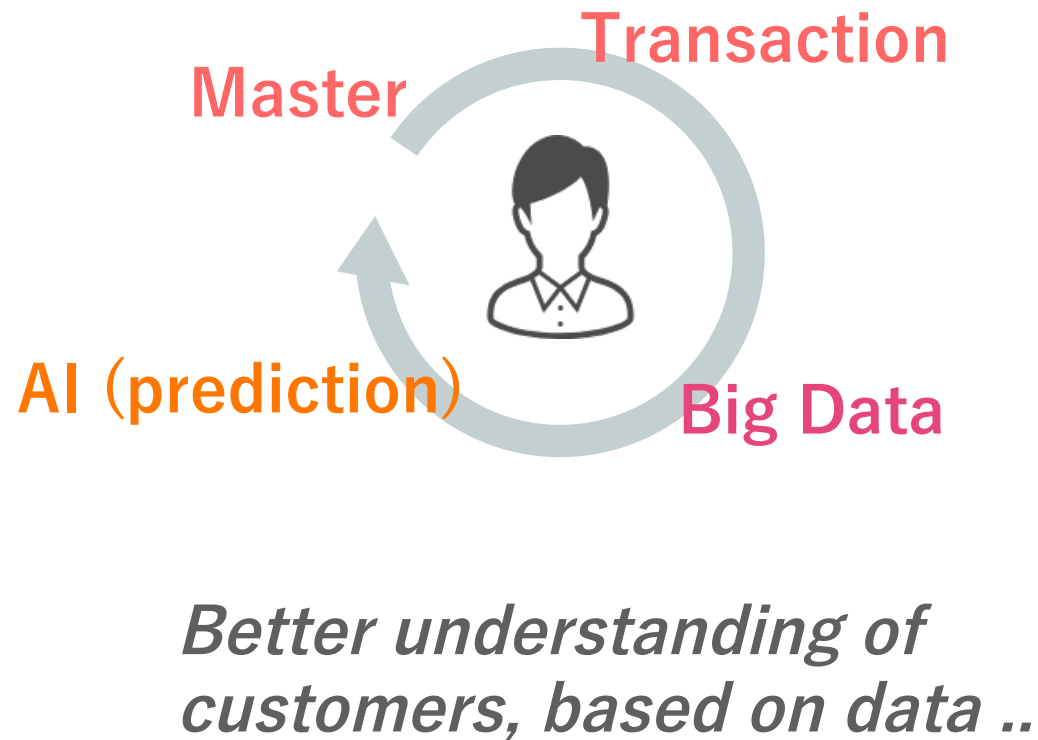
...

Background & Challenges

Customer 360° View – collects all information



Customer 360° View – Profits



Personalised Services

recommendation,
demand predictions,
new user experiences

!

innovation

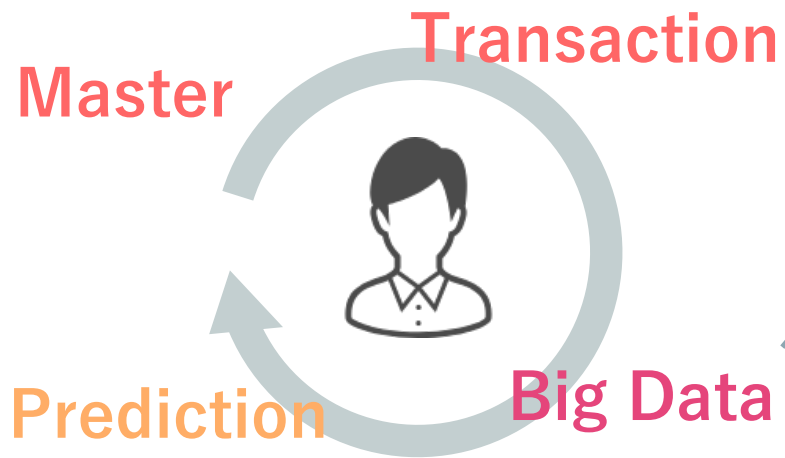
Investment Planning

optimise ROI of product
development, service
delivery, marketing, ...

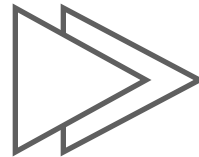
\$

cost reduction

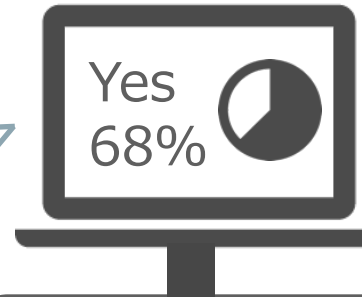
Customer 360° View



Data Collection



Dashboard



**Data
Science**

fx

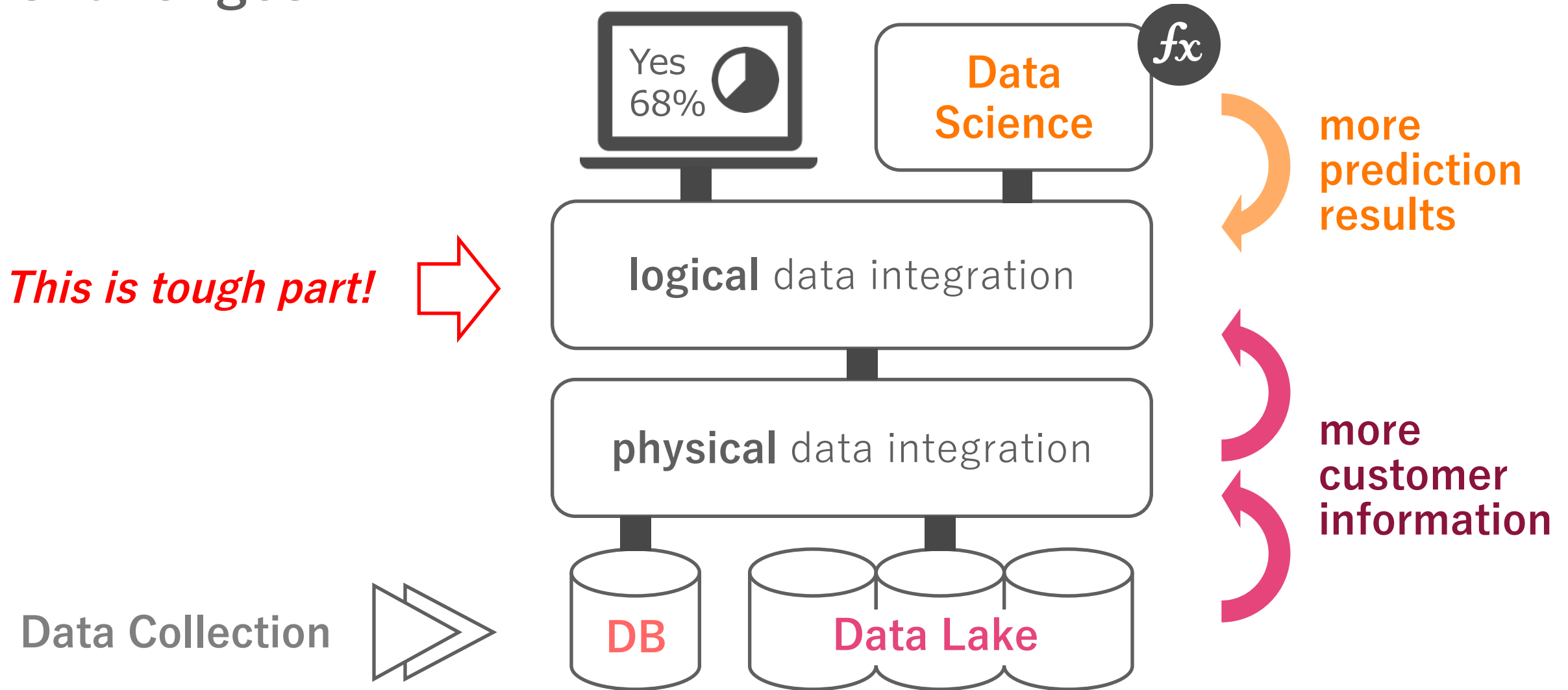
logical data integration

physical data integration

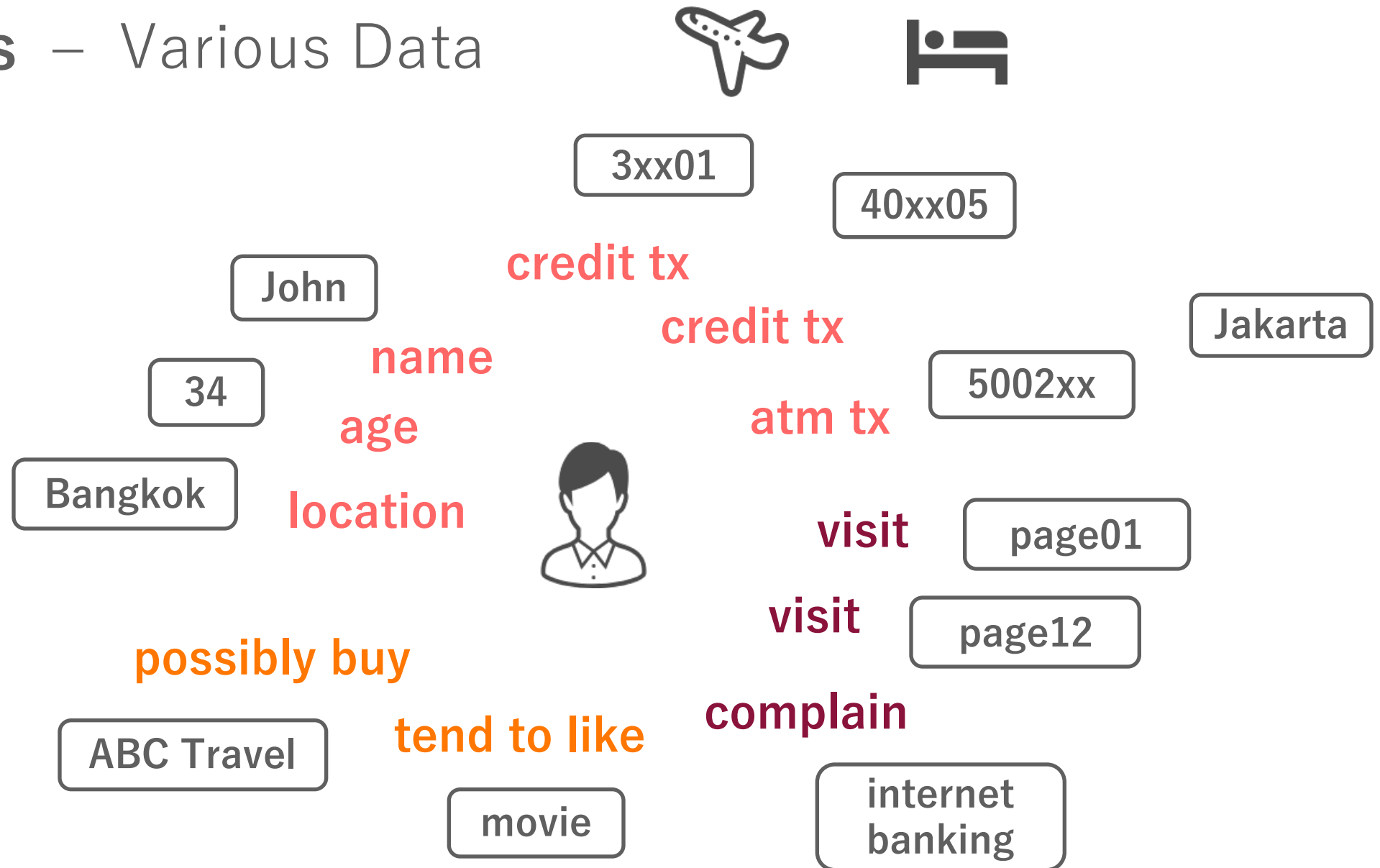
DB

Data Lake

Challenges



Challenges – Various Data

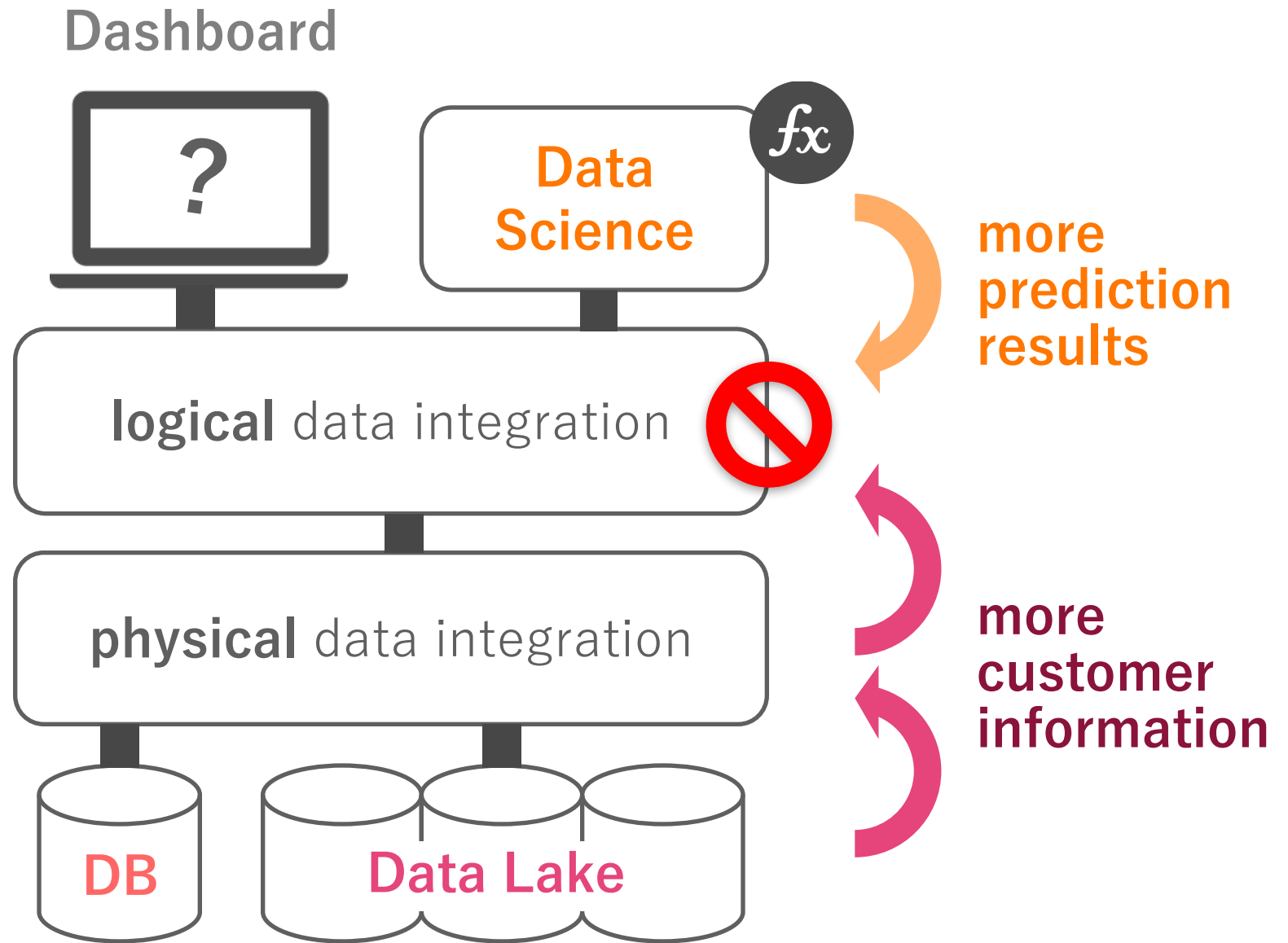
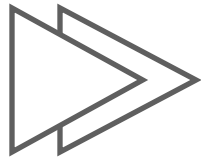


Challenges



*You don't even know
the information exists..*

Data Collection

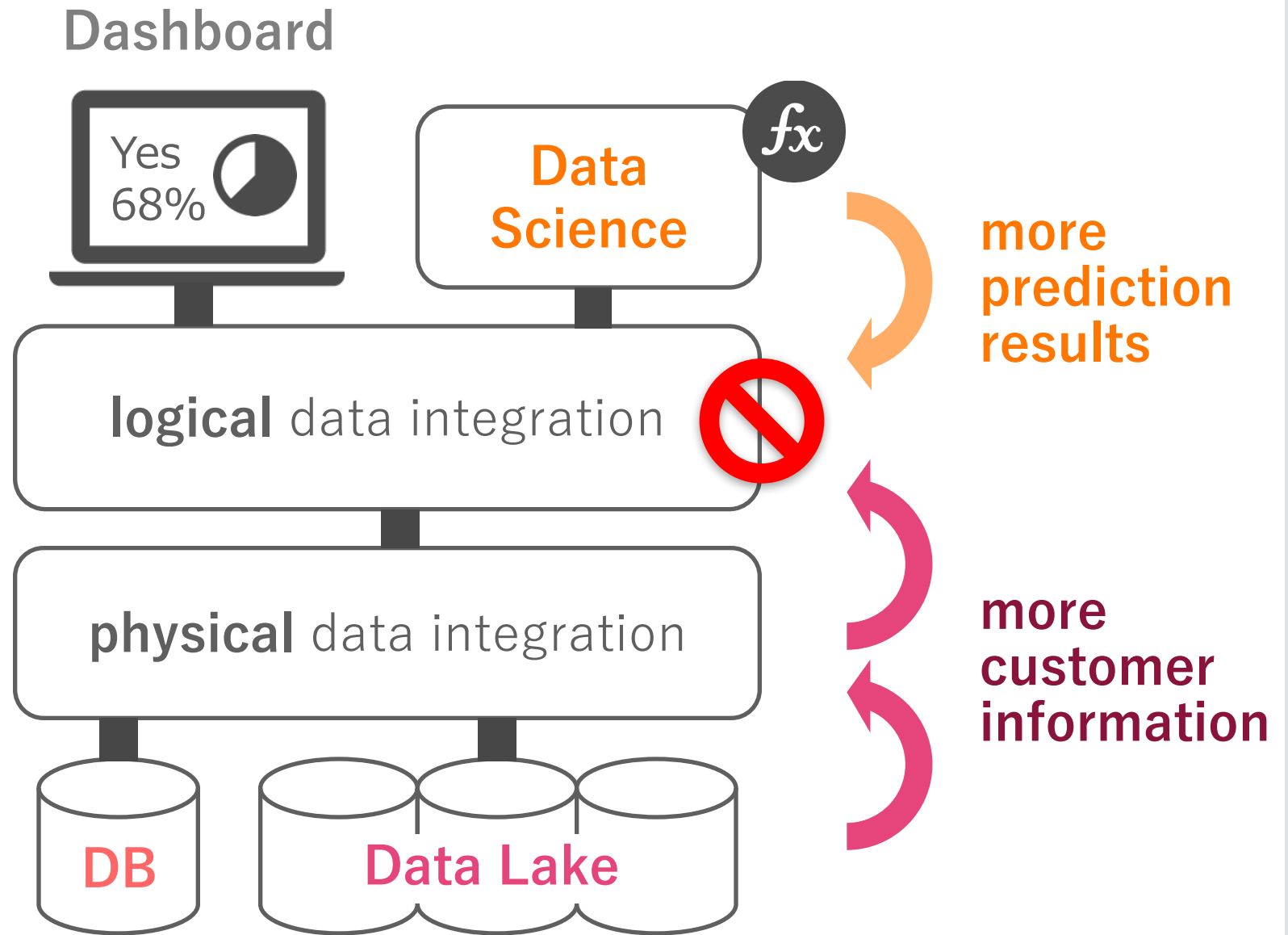
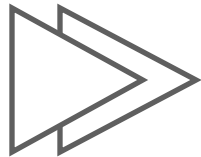


Solutions

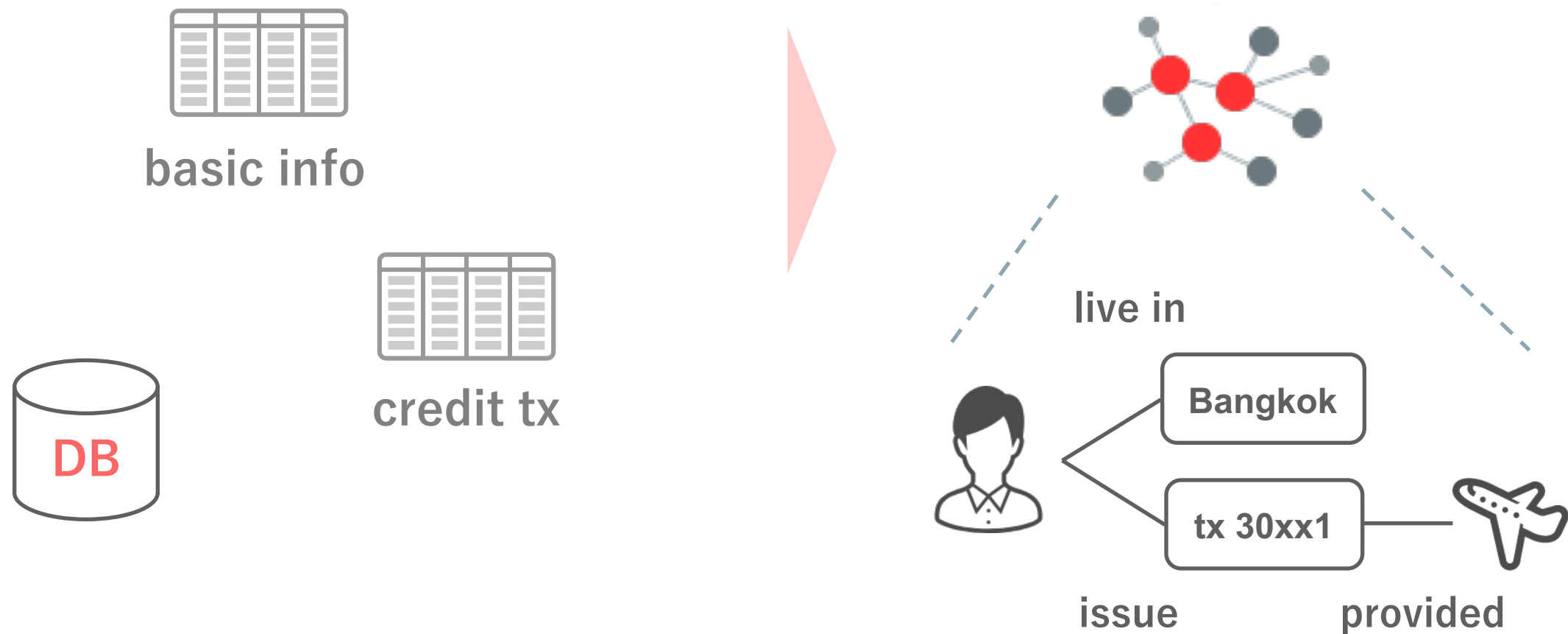
Solution



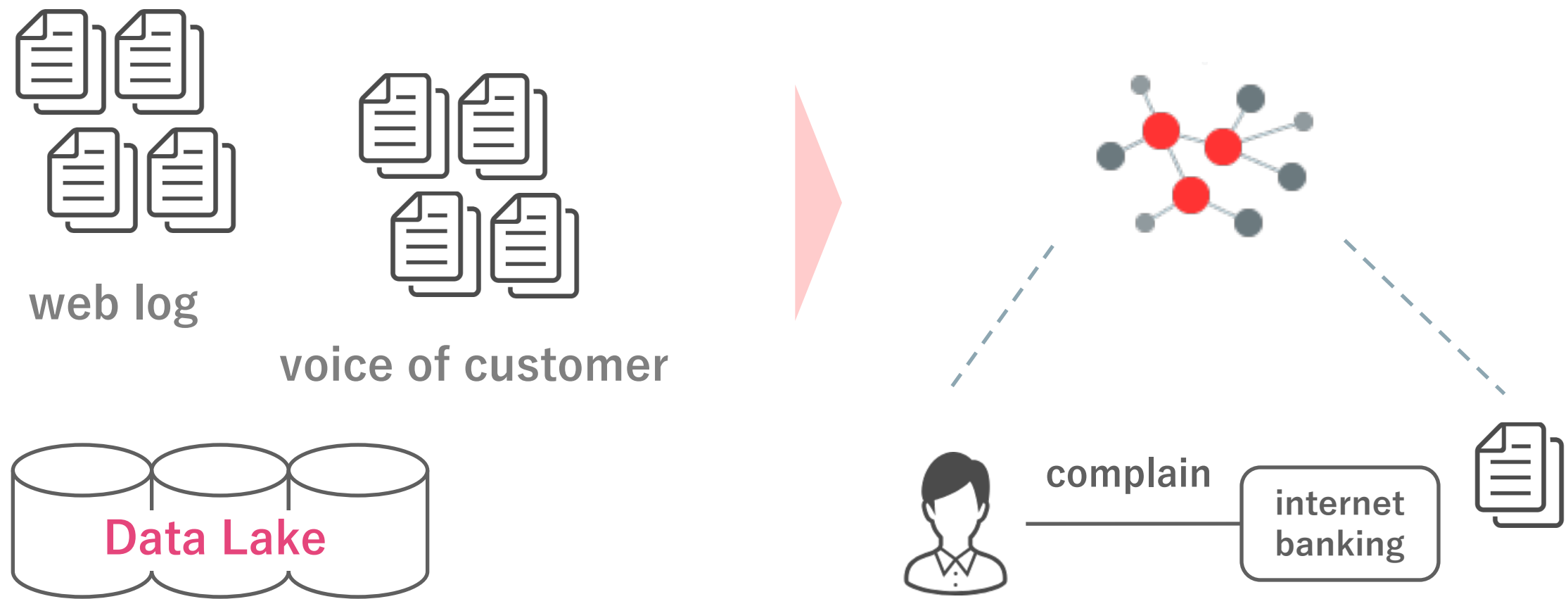
Data Collection



Demo – Database to Graph



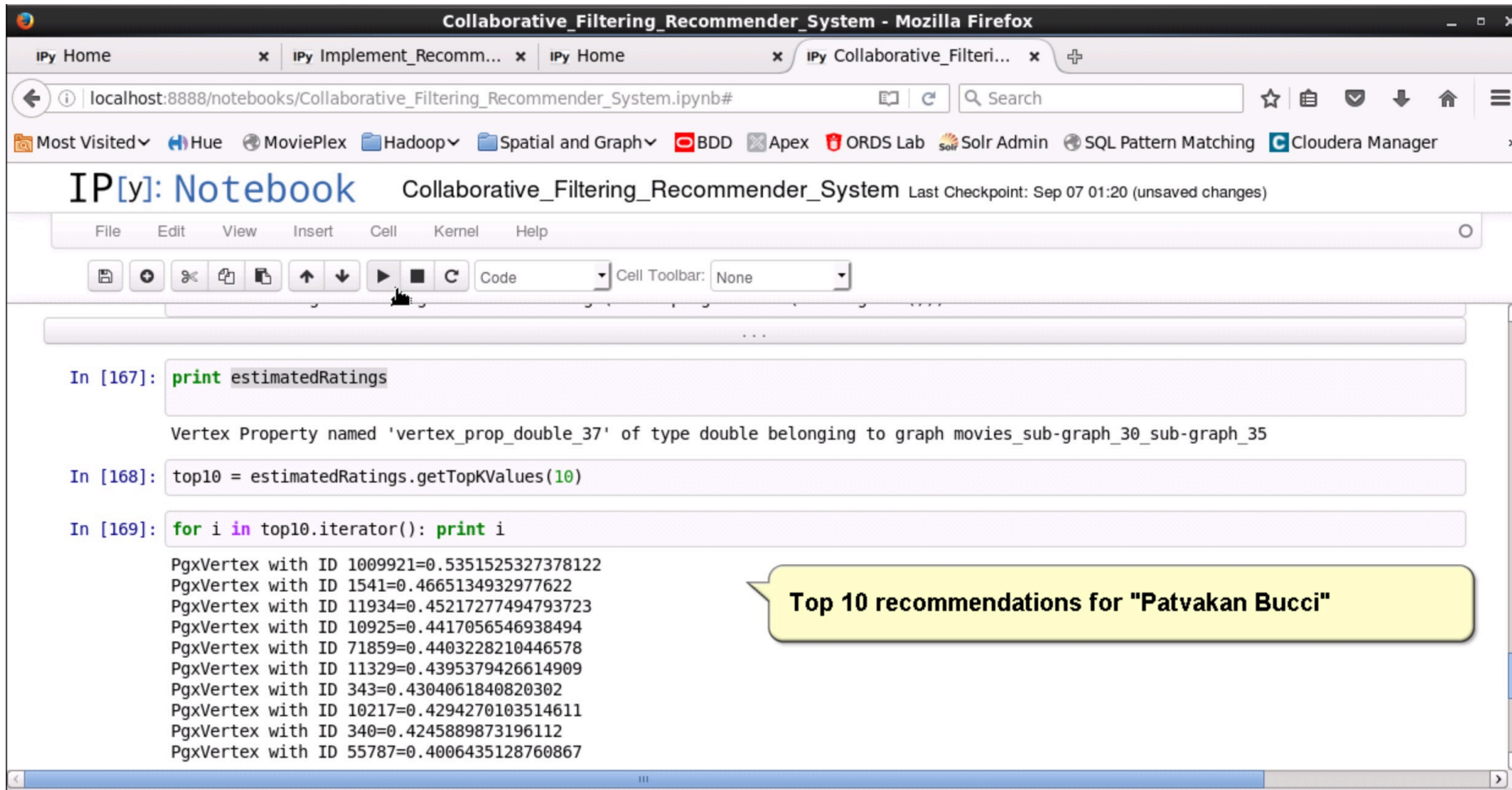
Demo – Data Lake to Graph



Demo – Data Science to Graph



Demo – Data Science to Graph



Collaborative_Filtering_Recommender_System - Mozilla Firefox

localhost:8888/notebooks/Collaborative_Filtering_Recommender_System.ipynb#

Most Visited Hue MoviePlex Hadoop Spatial and Graph BDD Apex ORDS Lab Solr Admin SQL Pattern Matching Cloudera Manager

IP[y]: Notebook Collaborative_Filtering_Recommender_System Last Checkpoint: Sep 07 01:20 (unsaved changes)

File Edit View Insert Cell Kernel Help

In [167]: `print estimatedRatings`

Vertex Property named 'vertex_prop_double_37' of type double belonging to graph movies_sub-graph_30_sub-graph_35

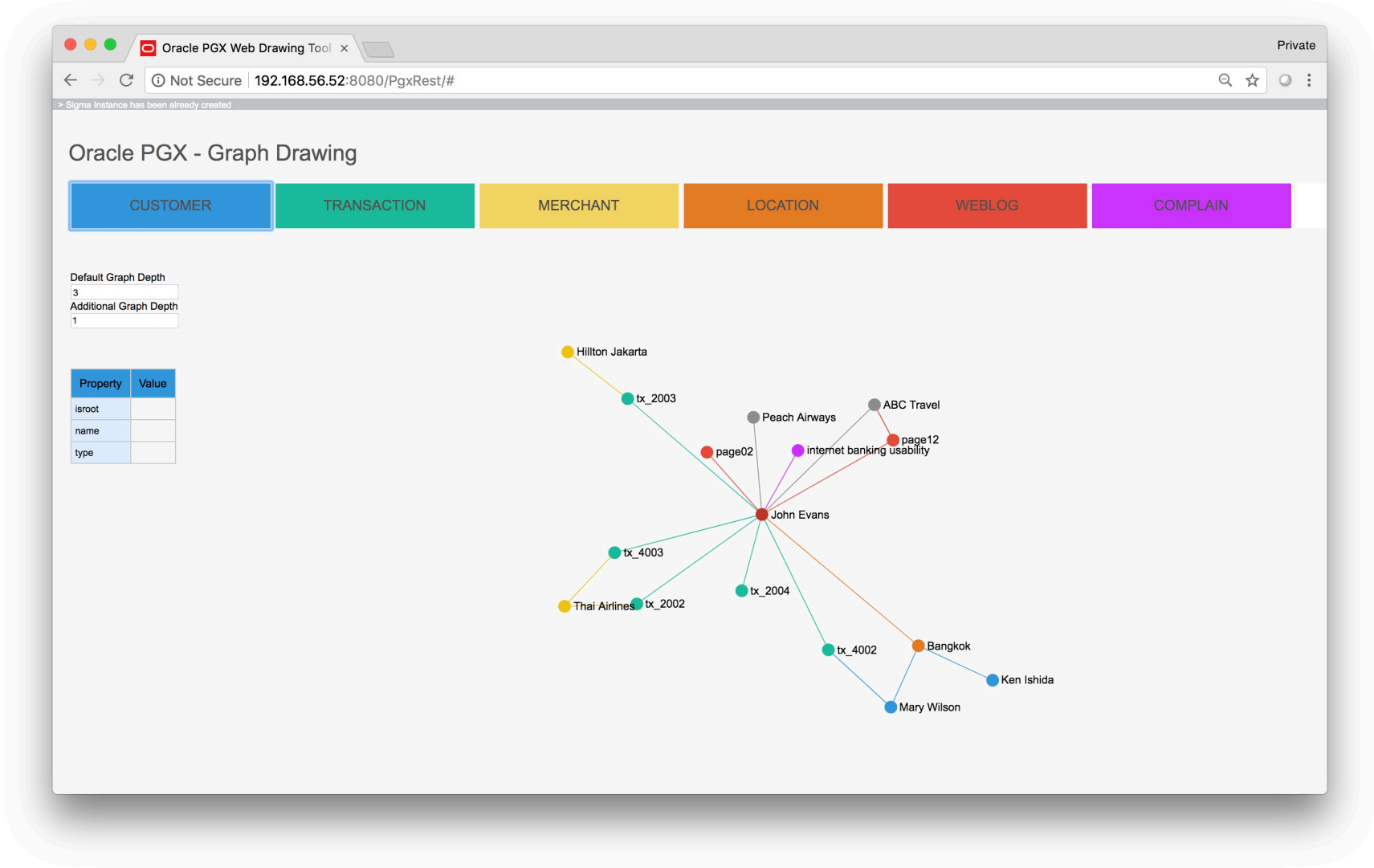
In [168]: `top10 = estimatedRatings.getTopKValues(10)`

In [169]: `for i in top10.iterator(): print i`

PgxVertex with ID 1009921=0.5351525327378122
PgxVertex with ID 1541=0.4665134932977622
PgxVertex with ID 11934=0.45217277494793723
PgxVertex with ID 10925=0.4417056546938494
PgxVertex with ID 71859=0.4403228210446578
PgxVertex with ID 11329=0.4395379426614909
PgxVertex with ID 343=0.4304061840820302
PgxVertex with ID 10217=0.4294270103514611
PgxVertex with ID 340=0.4245889873196112
PgxVertex with ID 55787=0.4006435128760867

Top 10 recommendations for "Patvakan Bucci"

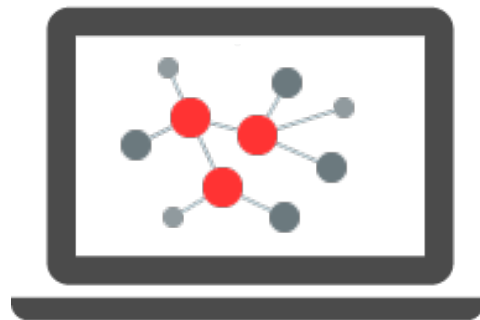
Demo – Graph Representation Example



Customer 360° – Dashboard



insight



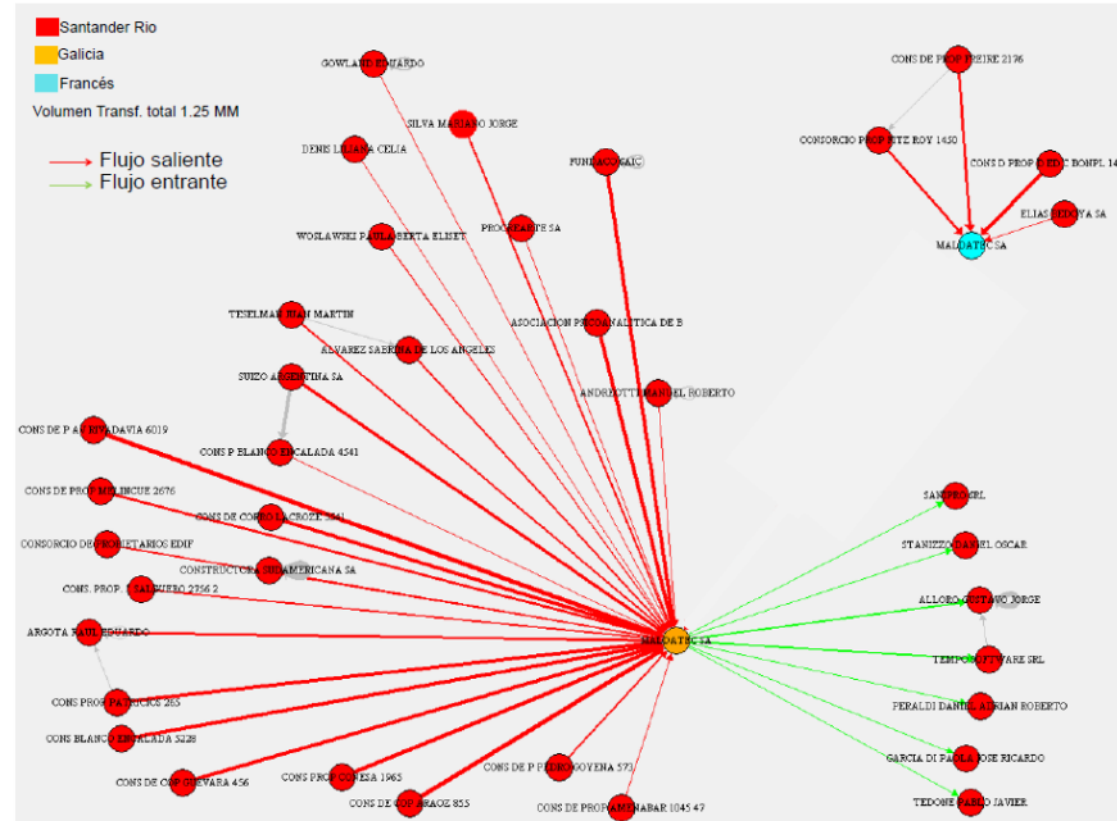
operation



Use Cases

Use Case – Banco Santander Rio

Use Case – Money Flow into prospective customer



Santander Río

Use Case – Galicia Bank

Debit Entity: **Citibank**

Debit Entity Name: **YPF Gas Sociedad Anónima**

RESUMEN TRANSACCIONES

70 52,766,574.36

#Trx Monto Total Pesos

CITIBANK N.A.

Entidad Débito con Mayor Presencia

BANCO DE GALICIA Y...

Entidad Crédito con Mayor Presencia

YPF GAS SOCIEDAD A...

Empresa Débito con Mayor Presencia

YPF GAS SOCIEDAD A...

Empresa Credito con Mayor Presencia

TAG CLOUD

CTAS. PROPIAS

PROVEEDORES

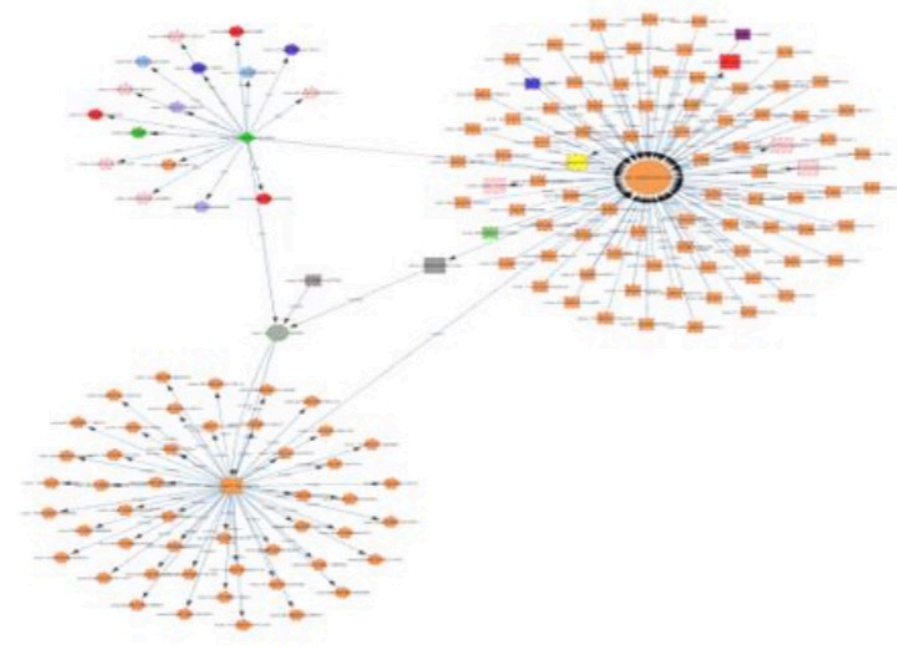
tipo_operacion_desc: PROVEEDORES
Number of records: 69.0
Click to refine

Explore

tipo_operacion_desc

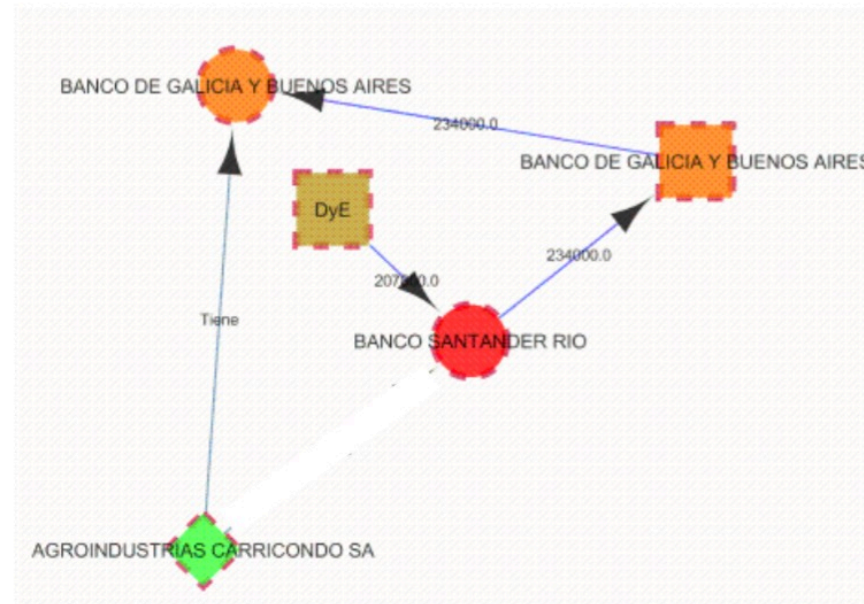
by

Number of records



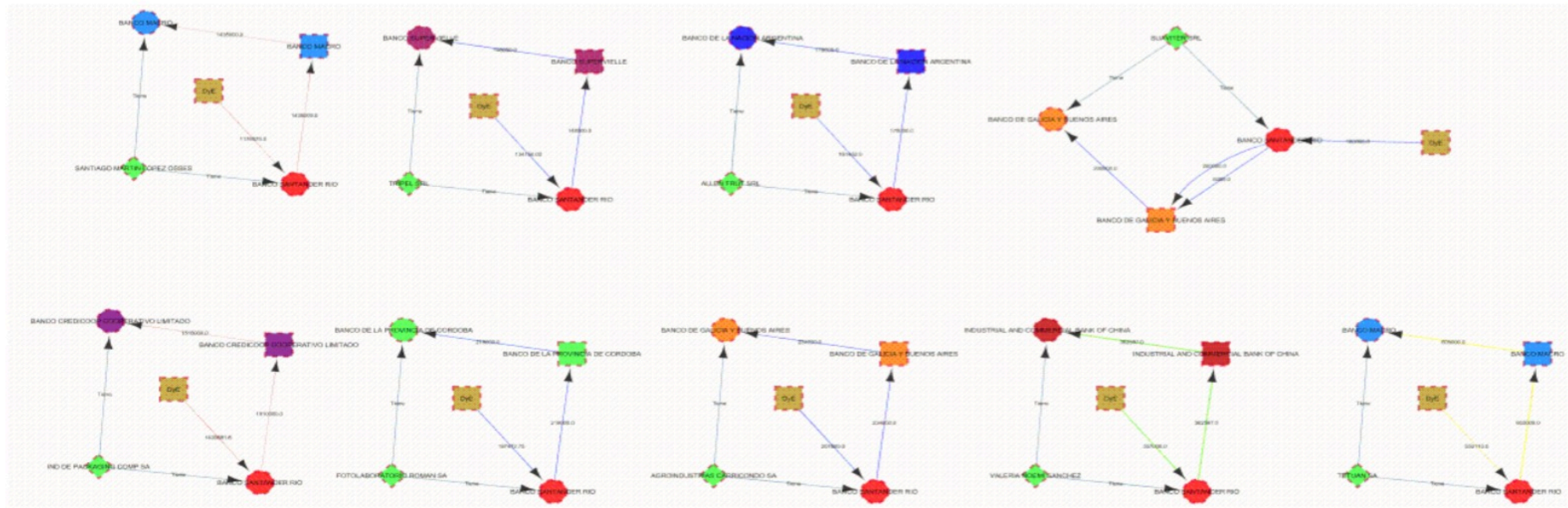
Use Case – Fraud Detection

```
(agrupador1 WITH tipo_nodo = 'AGRUPADOR' AND banco_destino = 'DyE')-[e2 WITH tipo_arco = 'AGRUPADOR - CUIT - ENTIDAD' and tipo_operacion = 'Deposito']->(cuenta1)-[e3 WITH tipo_arco = 'CUIT - ENTIDAD - AGRUPADOR']->(agrupador2 WITH tipo_nodo = 'AGRUPADOR' AND entidad_destino != '0072')-[e4 WITH tipo_arco = 'AGRUPADOR - CUIT - ENTIDAD']->(cuenta2 with tipo_nodo = 'CUIT - ENTIDAD' AND codigo_entidad != '0072')<-[e5 with tipo_arco = 'CUIT - CUIT - ENTIDAD']-(cuit)
```

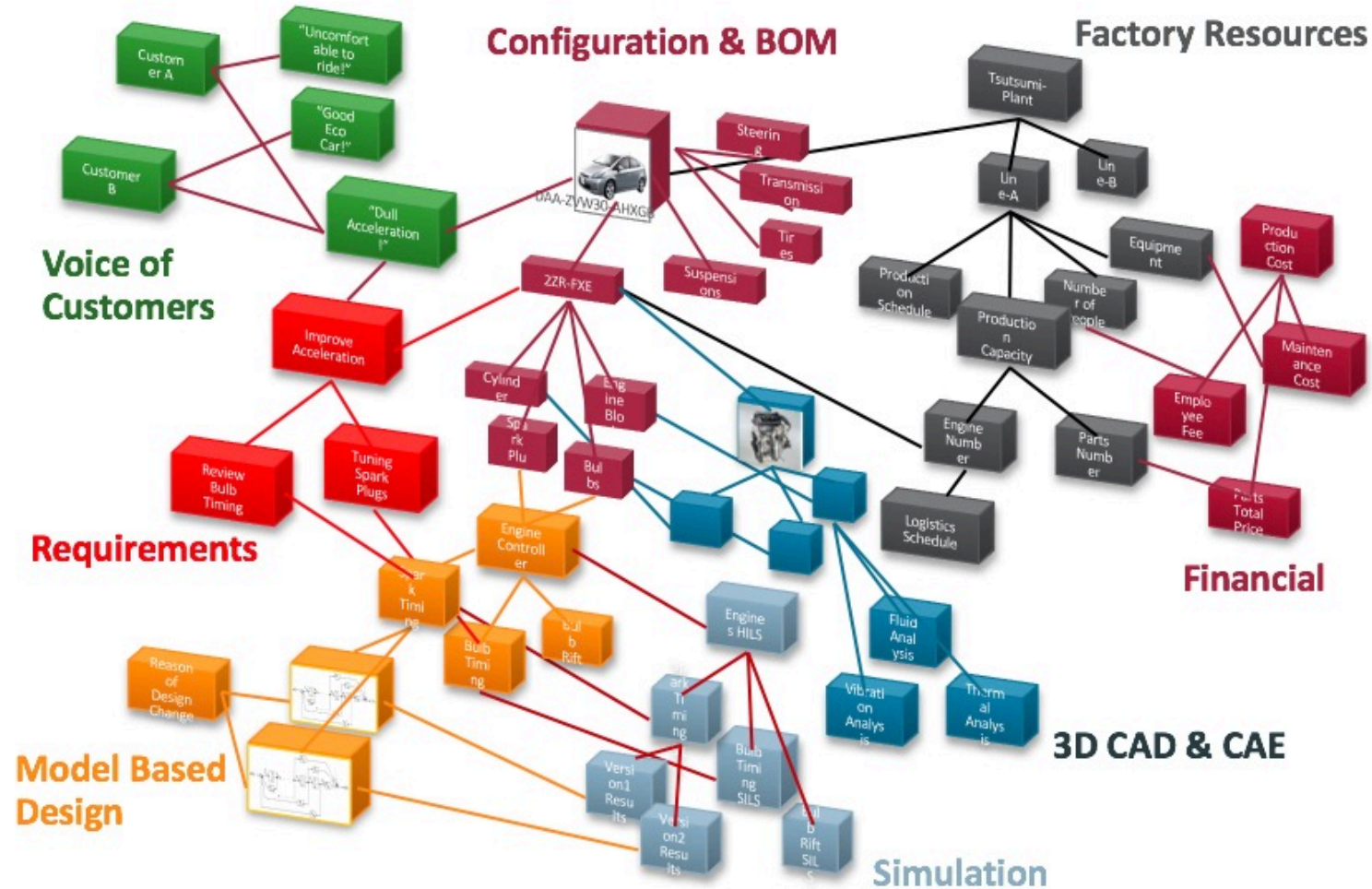


Use Case – Fraud Detection

```
SELECT cuit, e1, cuenta1, agrupador1, e2, e3, agrupador2, e4, cuenta2, e5
WHERE (cuit WITH tipo_nodo = 'CUIT' AND segmento = 'Pymes')->(e1 WITH tipo_arco = 'CUIT - CUIT - ENTIDAD')->(cuenta1 WITH tipo_nodo = 'CUIT - ENTIDAD' AND
codigo_entidad = '0072'),
(agrupador1 WITH tipo_nodo = 'AGRUPADOR' AND banco_destino = 'DyE')->(e2 WITH tipo_arco = 'AGRUPADOR - CUIT - ENTIDAD' and tipo_operacion = 'Deposito')->(cuenta1)-
[e3 WITH tipo_arco = 'CUIT - ENTIDAD - AGRUPADOR']->(agrupador2 WITH tipo_nodo = 'AGRUPADOR' AND entidad_destino != '0072')->(e4 WITH tipo_arco = 'AGRUPADOR - CUIT
- ENTIDAD')->(cuenta2 with tipo_nodo = 'CUIT - ENTIDAD' AND codigo_entidad != '0072')<-[e5 with tipo_arco = 'CUIT - CUIT - ENTIDAD']-(cuit),
(agrupador1.imp_recibido_ars) >= 0.8 * (e4.imp_emitido_ars),
(agrupador1.imp_recibido_ars) < (e4.imp_emitido_ars),
(agrupador1.imp_recibido_ars) >= 0.8 * (cuenta1.imp_recibido_ars)
ORDER BY agrupador1.imp_recibido_ars DESC limit 10
```



Use Case – Automotive



Summary

- Customer 360 View is getting **more information**
 - > Activity Log, Text information, Predicted results, ...
- **Need to link information** otherwise you can't use it!
 - > **Graph** is a new method to connect information
- Graph shows you **all available information** to help create **insights**
 - > Dashboard can be build on the connected data
- New applications using **graph query and algorithms**
 - > Fraud detection, link-based clustering, recommendation

Integrated Cloud

Applications & Platform Services