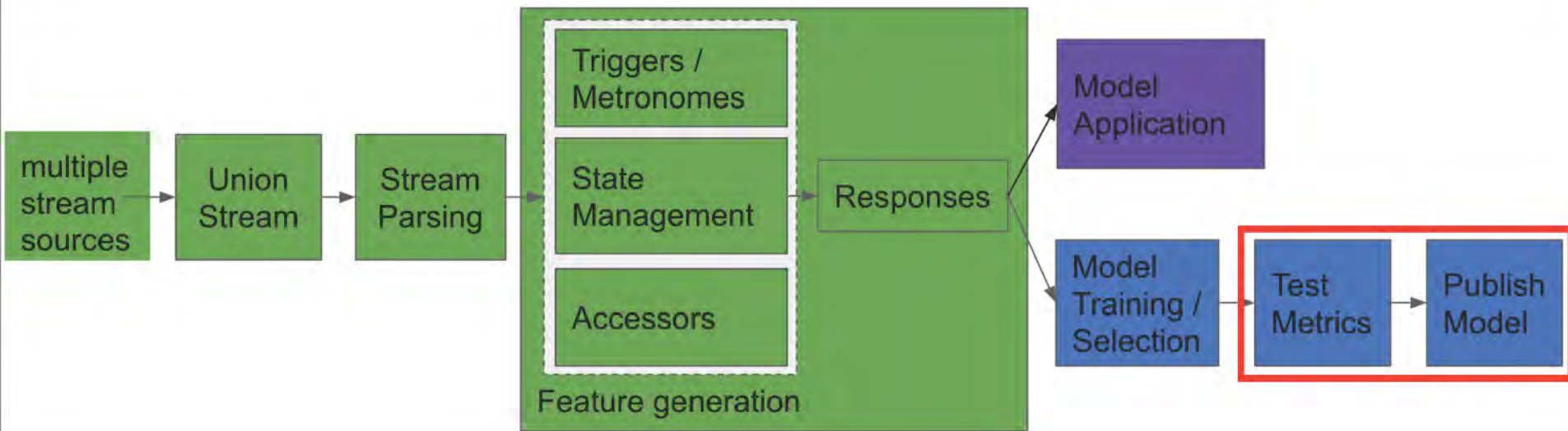
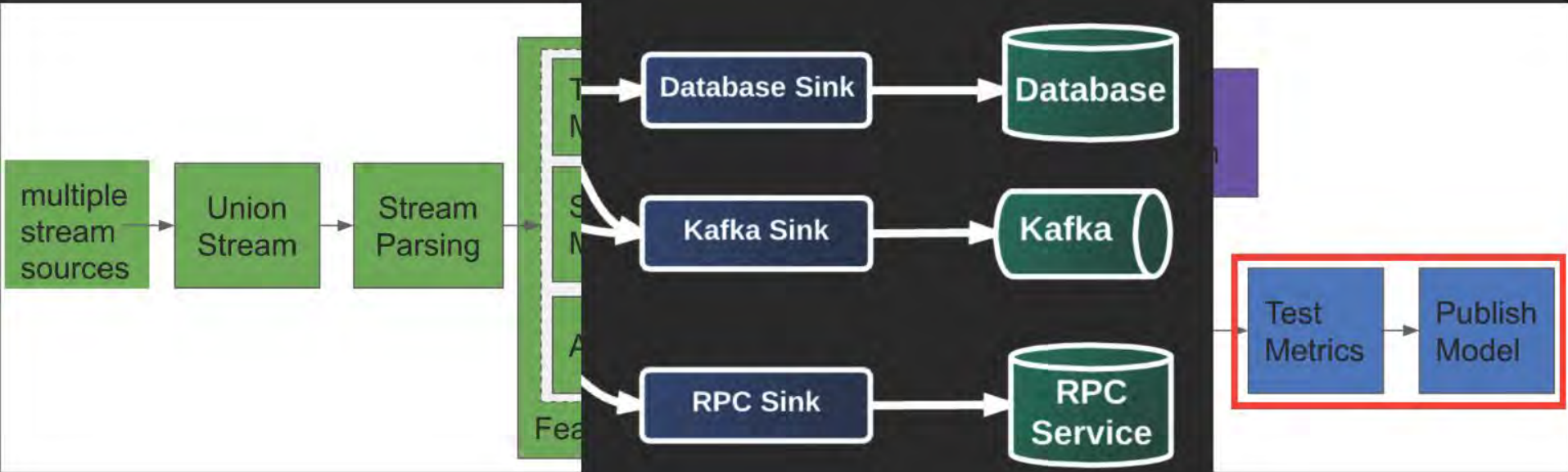


Forecasting as an example



Forecasting as an example



Lessons Learned

- Make sure you have robust infrastructure support
- Scaling up, namely single-node optimization matters
- Ensure exactly-once by proper data modeling
- Use external state store to avoid too much snapshotting
- Standardize monitoring and data validation

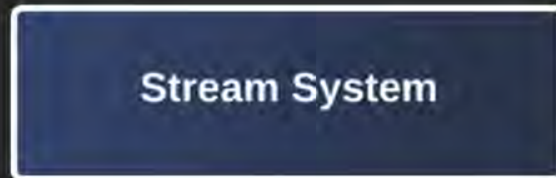
Lessons Learned

- Make sure you have robust infrastructure support

Stream System

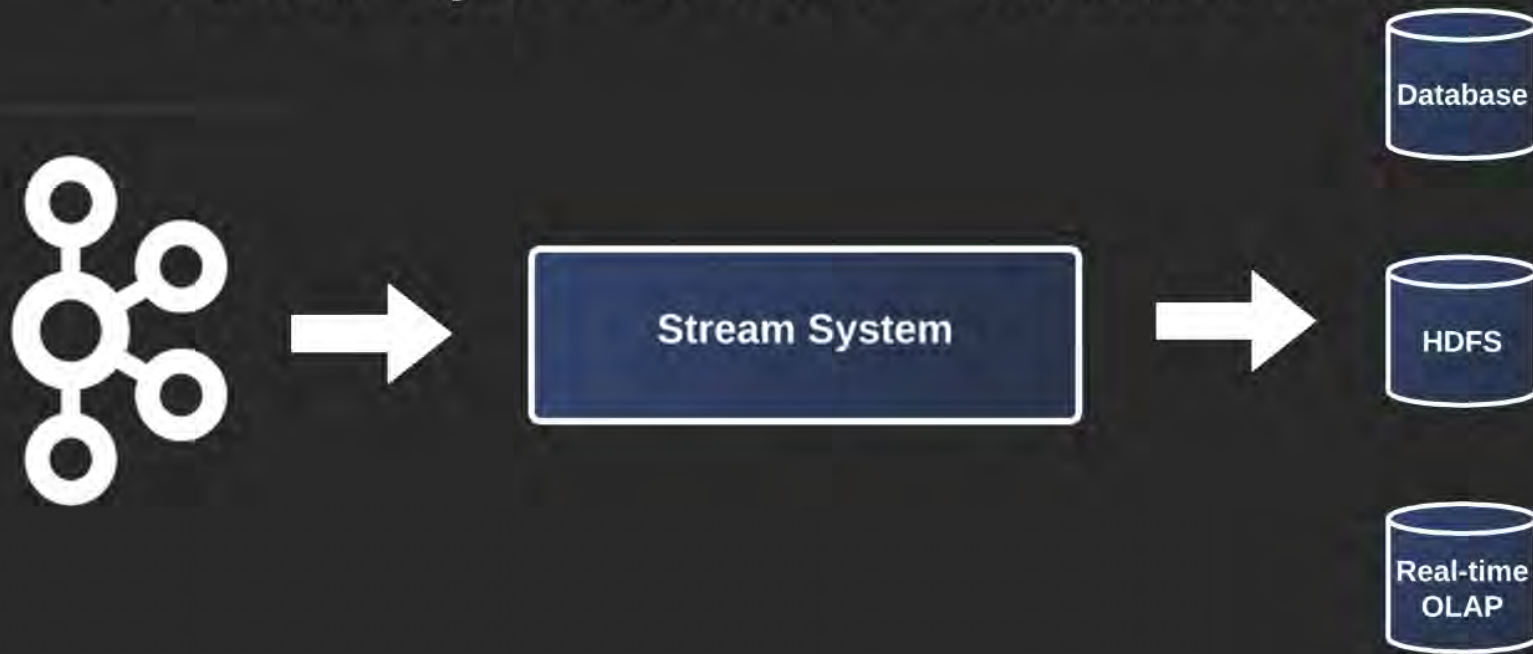
Lessons Learned

- Make sure you have robust infrastructure support



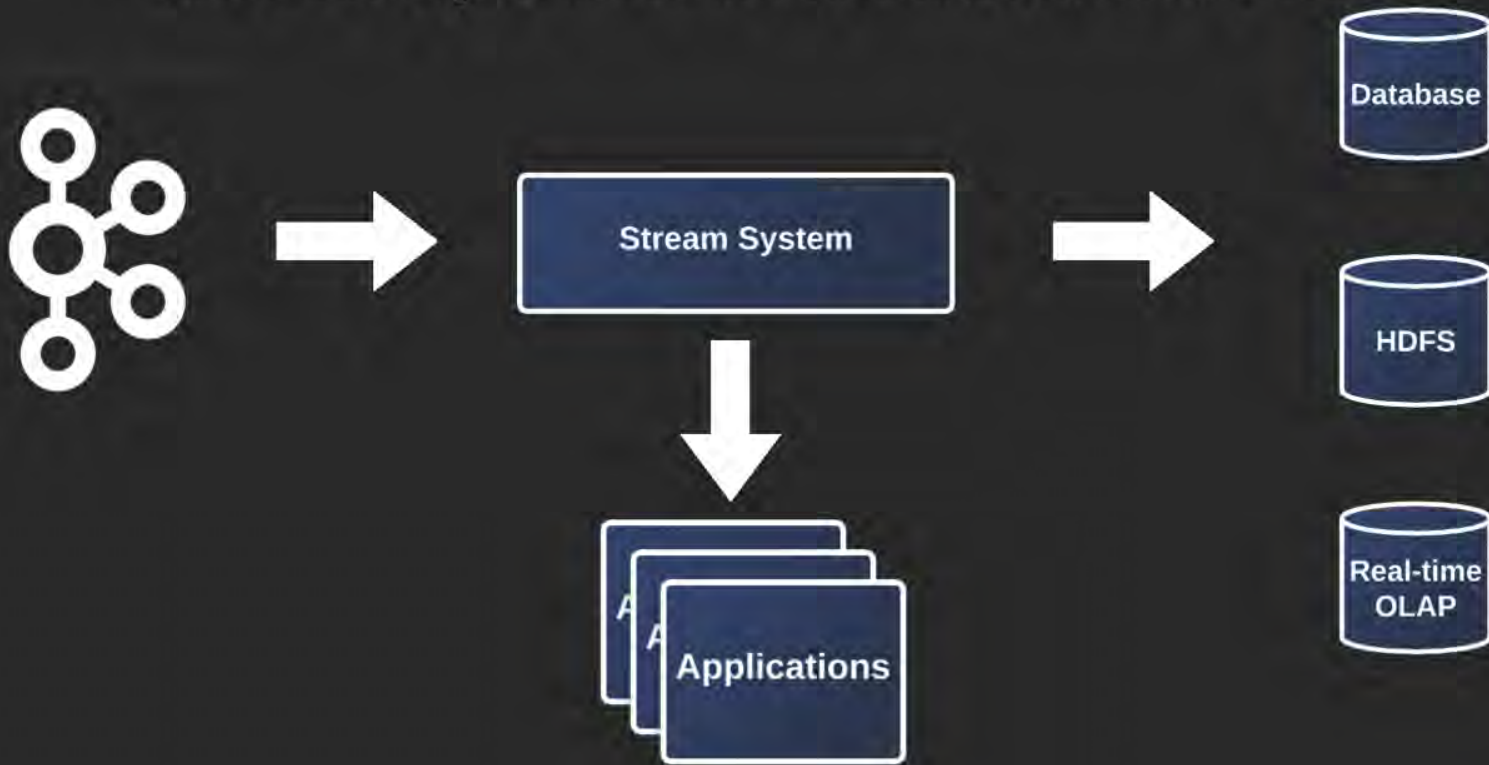
Lessons Learned

- Make sure you have robust infrastructure support



Lessons Learned

- Make sure you have robust infrastructure support



Lessons Learned

- Make sure you have robust infrastructure support
- Scaling up, namely single-node optimization matters

Lessons Learned

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- Ensure exactly-once by proper data modeling

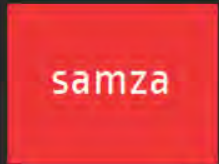
Lessons Learned

- Make sure you have robust infrastructure support
- Scaling up, namely single-node optimization matters
- Ensure exactly-once by proper data modeling
- Use external state store to avoid too much snapshotting
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Lessons Learned

- Make sure you have robust infrastructure support
- Scaling up, namely single-node optimization matters
- Ensure exactly-once by proper data modeling
- Standardize monitoring and data validation

Choose a Stream Processing Platform



Thank You

2017 Software Architecture Summit

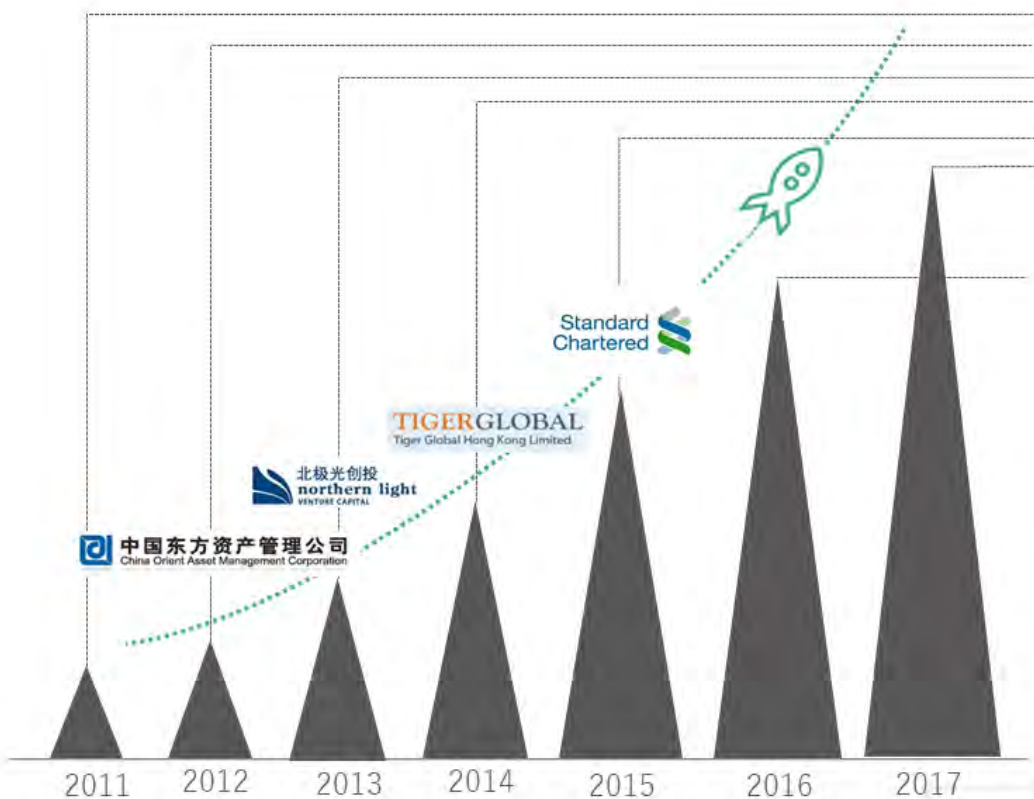
点融金融科技大数据架构

单忆南

高级数据总监



Dianrong History

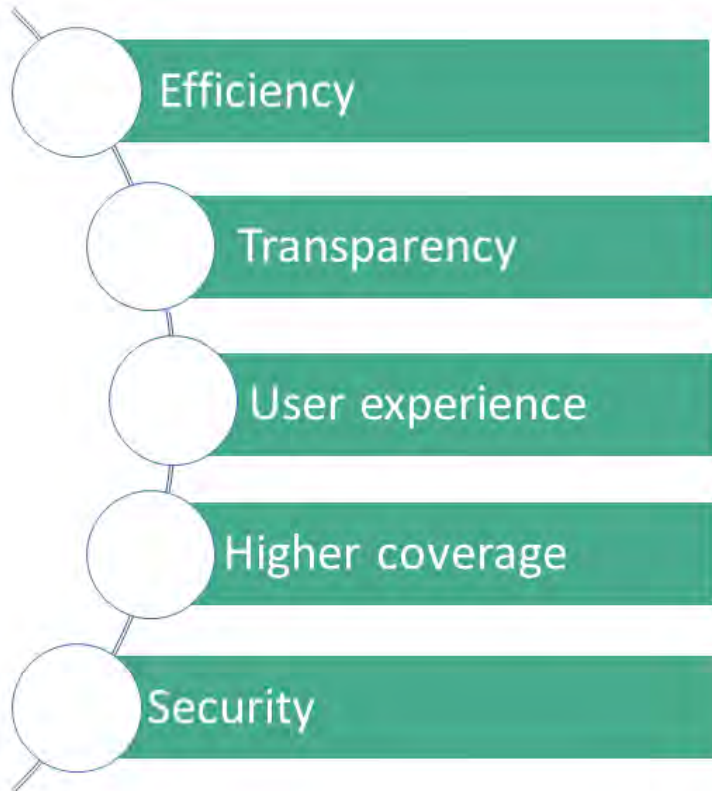


- Founded in Shanghai, China with technology platform from **Lending Club**
- We are **Six** years old
- VC investment from **Standard Northern Light Venture Capital, Tiger Global, Standard Chartered Private Equity, China Internet Fintech Fund, Bohai Financial, and Max Giant**
- Over **2,600** employees and **28** offices across China
- Launched China's First **Block chain platform** with Foxconn
- As of end of **Sep 2017**, total lender volume reached **37 billion RMB**, accumulated interest for lenders exceeded **1.4 billion RMB**.

Contents

- **Fintech Overview**
- Loan business
- Lender management
- Intelligent business management
- Big data solution architecture overview

Fintech Overview



A Range of Technology Strengths

- Payments: Digital wallets, peer-to-peer payments
- Investment: Peer-to-peer lending
- Insurance: Risk management
- Intelligent Advisory: Robo-advisor
- Retail Banking and Supply Chain Finance
- Financing: Crowdfunding, micro-loans and credit facilities
- Block Chain: Bitcoin

Contents

- Fintech Overview
- **Loan business**
- Lender management
- Intelligent business management
- Big data solution architecture overview

Big Data Applications

➤ Loan Business

- Fraud Detection
- Credit worthiness
- Intelligent collection
- Risk based pricing

➤ Customer Management

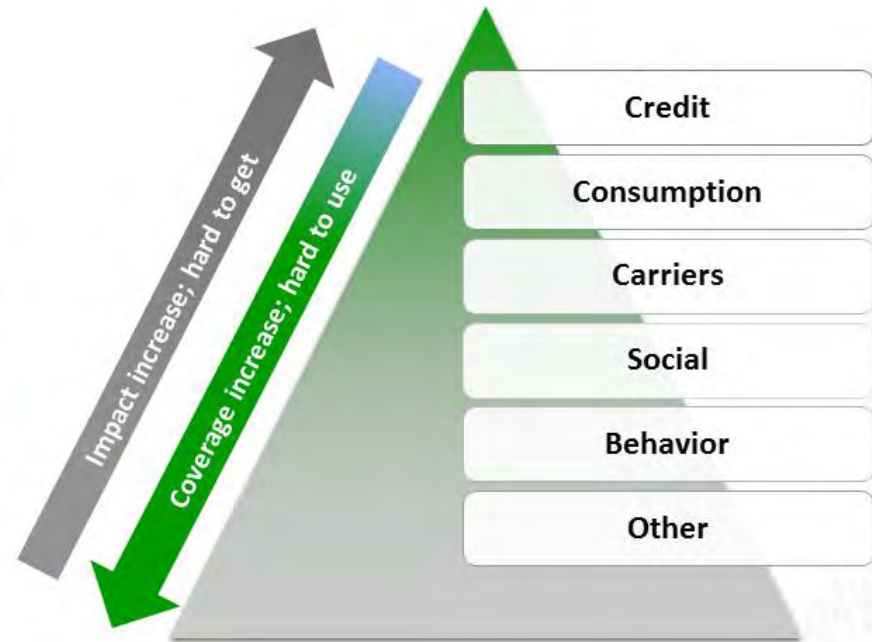
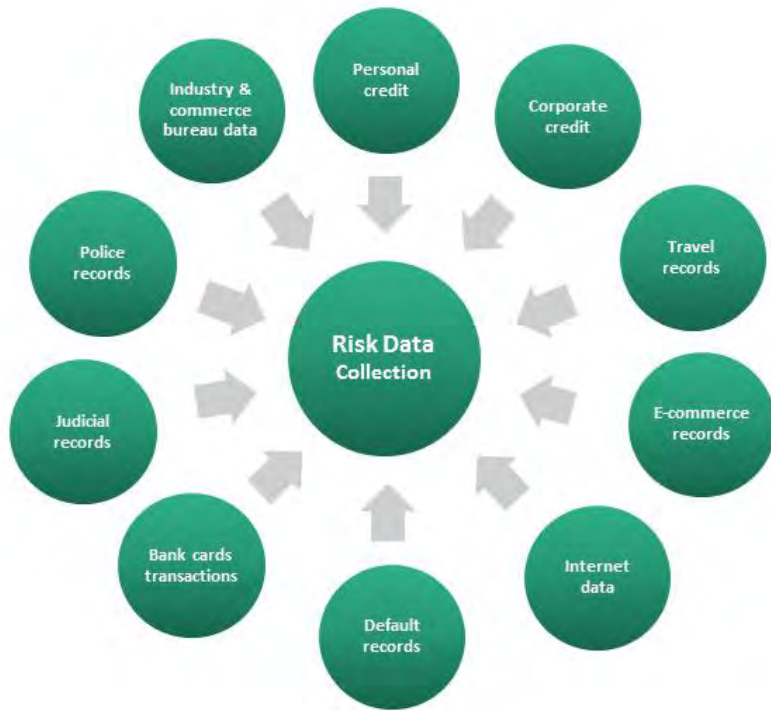
- User profile
- Behavior analysis
- Behavior prediction
- Call center operation
- User segmentation
- Anti Econnoisseur

➤ Business Management

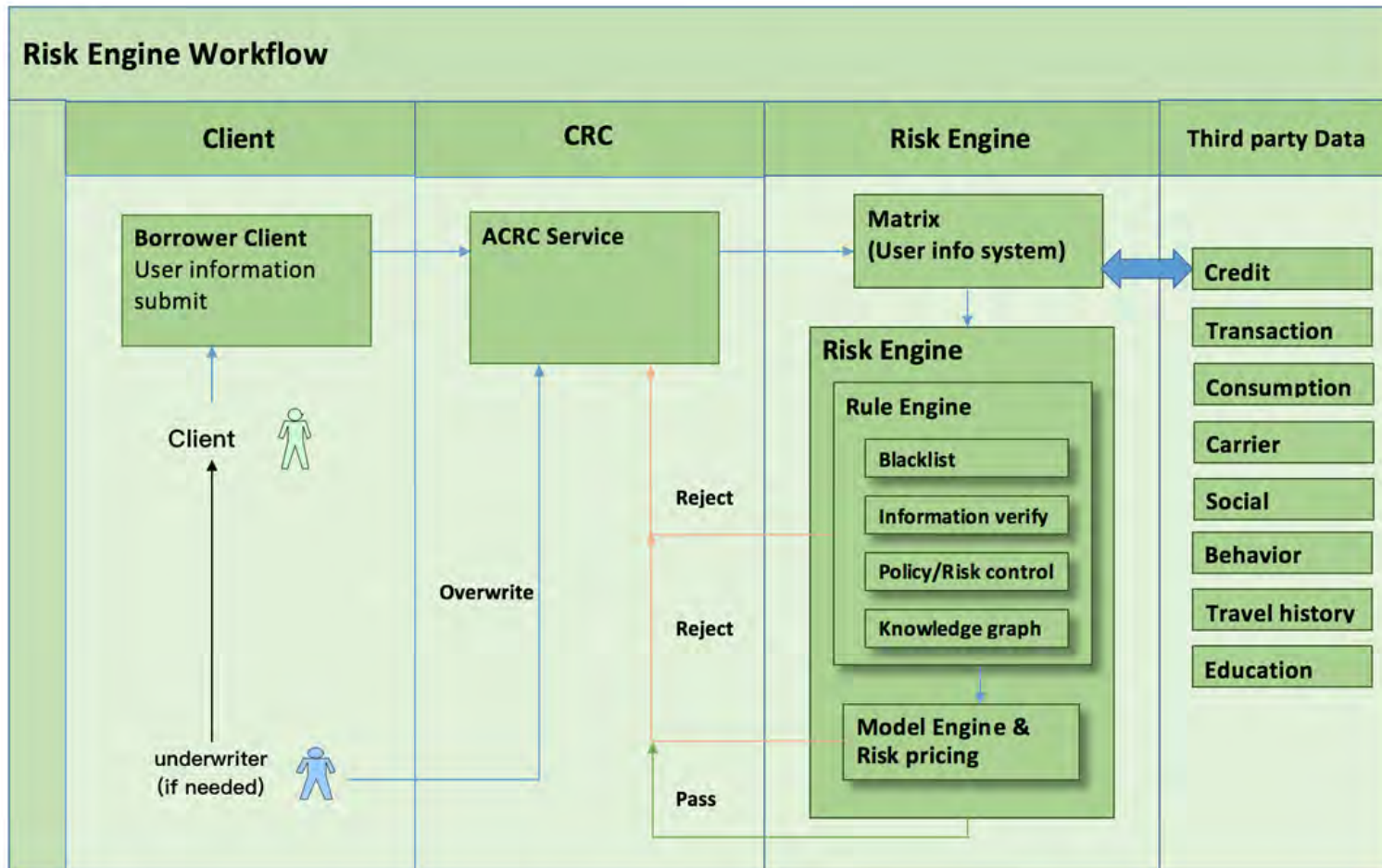
- Risk management
- Portfolio management

Data requirement	Engineering	Algorithm
Borrower Profile Social network data PBOC Loan status	Third party data integration Extensible/flexible Near real time processing Support ML model	LR scorecard GBDT scorecard
Sessions, Views and Actions Lender profile	Behavior data extracting and cleaning Large scale data mining real time calculation/searching	Clustering Categorizing
Business data Business relations	OLAP Dashboard Large scale data simulation	Statistic model Monte Carlo

Loan Business – Data Collection



Loan Business- Online Risk Engine Workflow



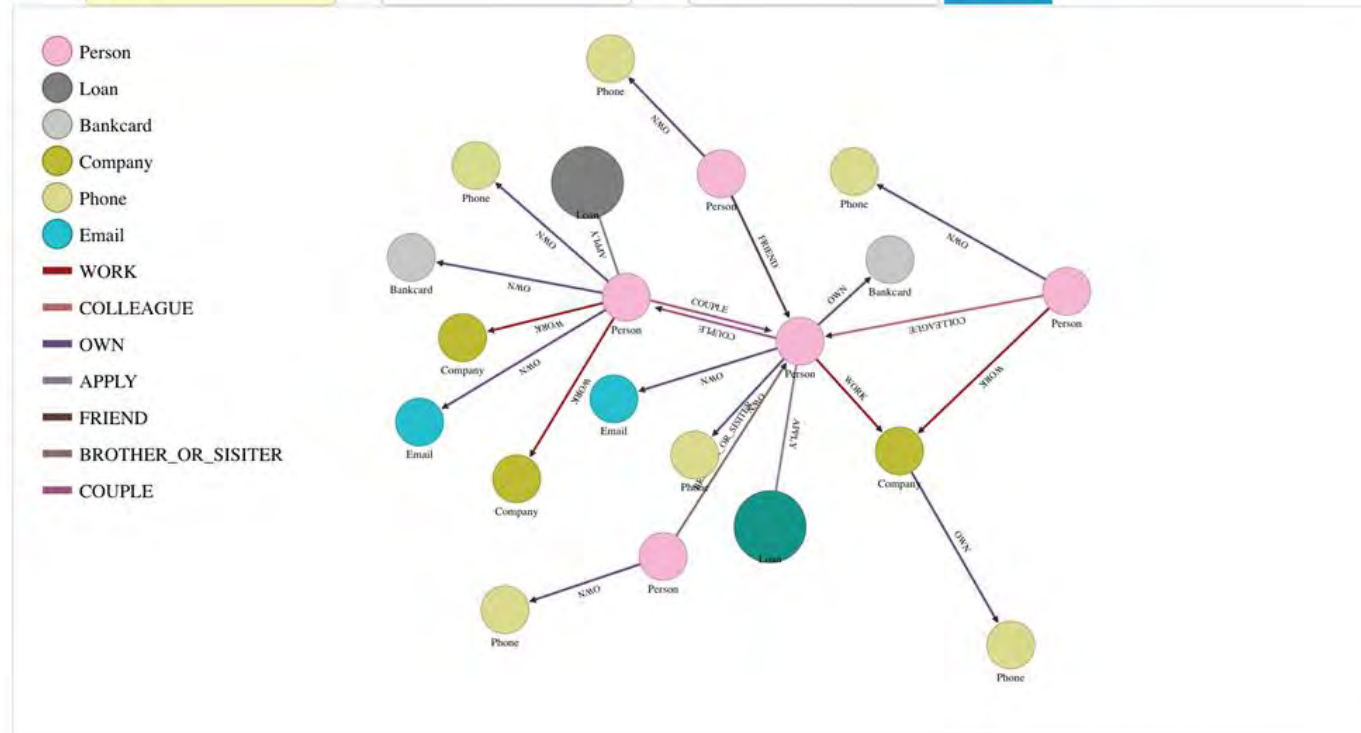
Loan Business – Knowledge graph

Loan ID 280229

Hop 5

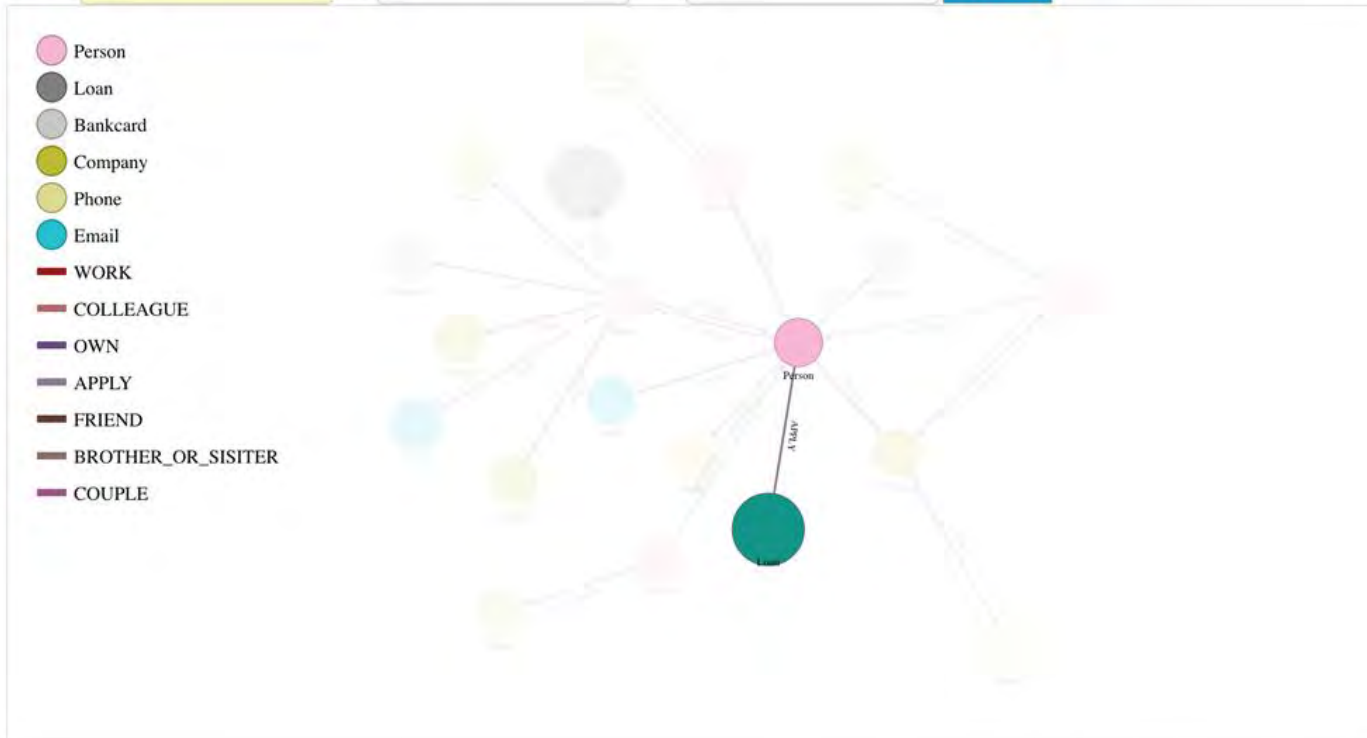
Limit 20

QUERY



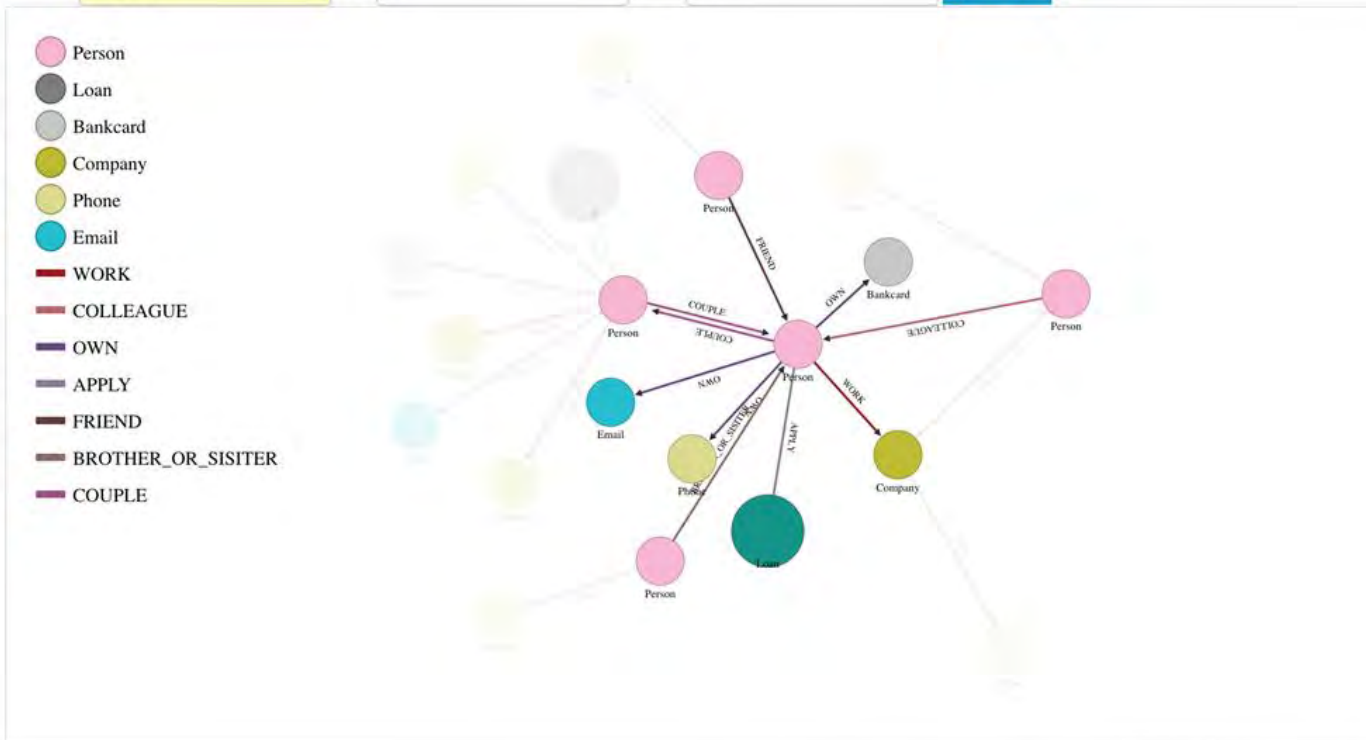
Loan Business – Knowledge graph

Loan ID 280229 Hop 5 Limit 20 QUERY



Loan Business – Knowledge graph

Loan ID Hop Limit

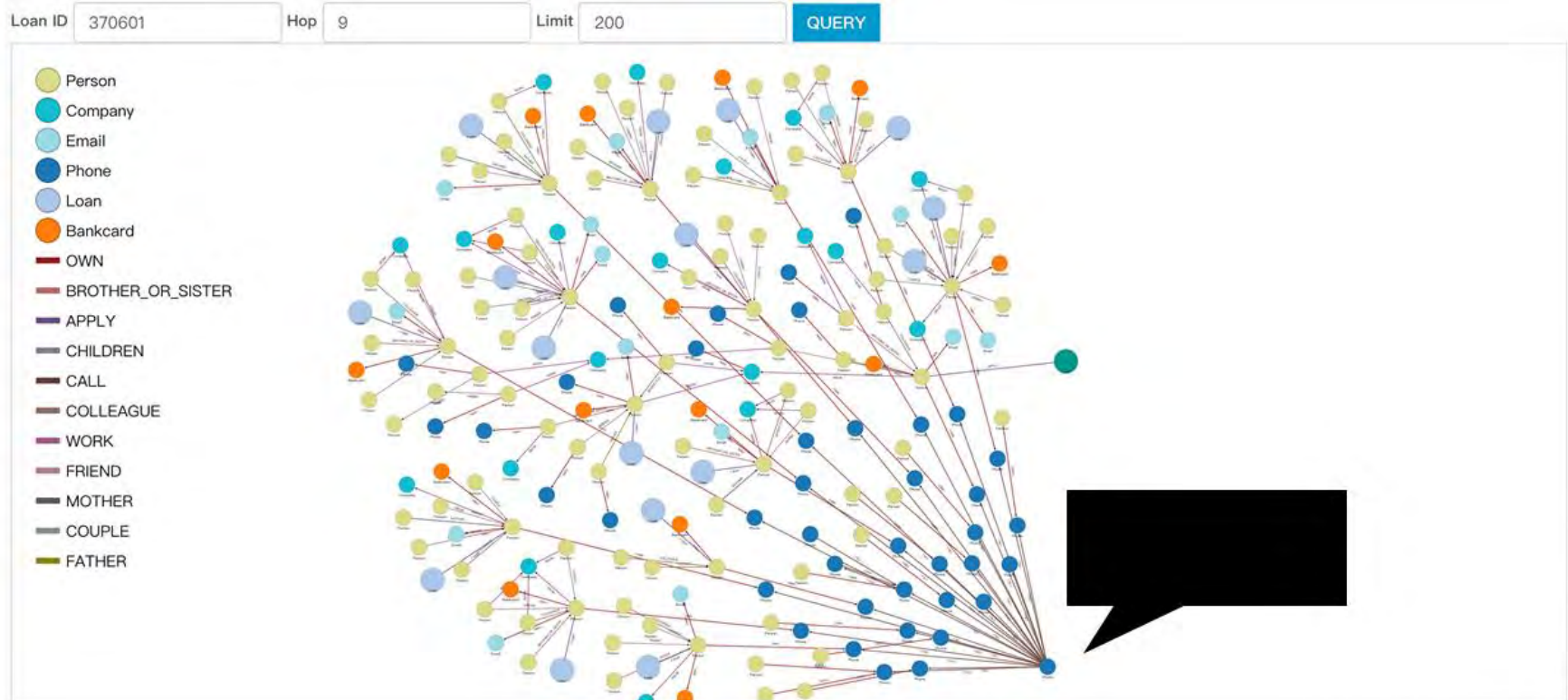


Loan Business – Knowledge graph

Loan ID Hop Limit



Loan Business – Knowledge graph

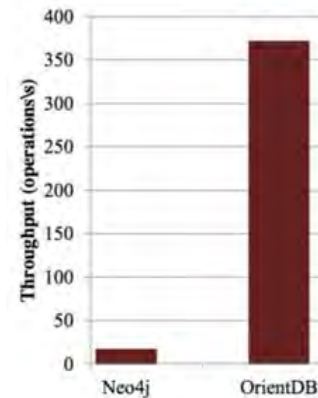


Loan Business – Knowledge graph

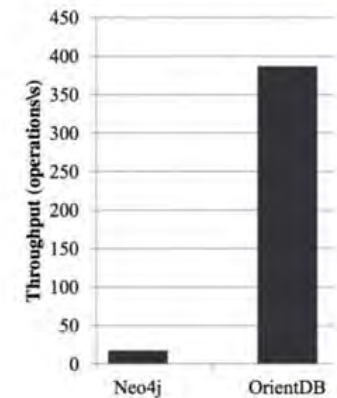
Features & Capabilities	OrientDB Community	Neo4j Community
Graph Database	✓	✓
ACID	✓	✓
TinkerPop Compliance	✓	✓
Java Hooks	✓	✓
Sharding	✓	
Multi-Master replication	✓	
SQL*	✓	
...

Other options: Titan, GraphDB

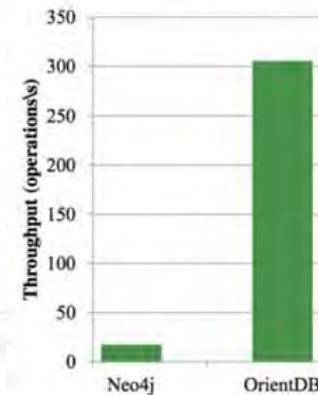
update heavy



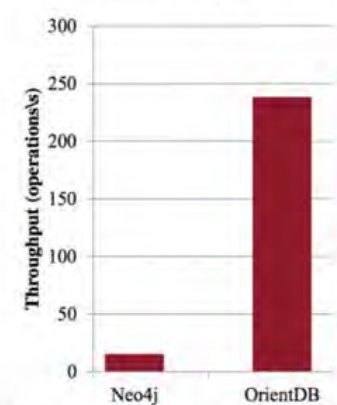
read mostly



read latest



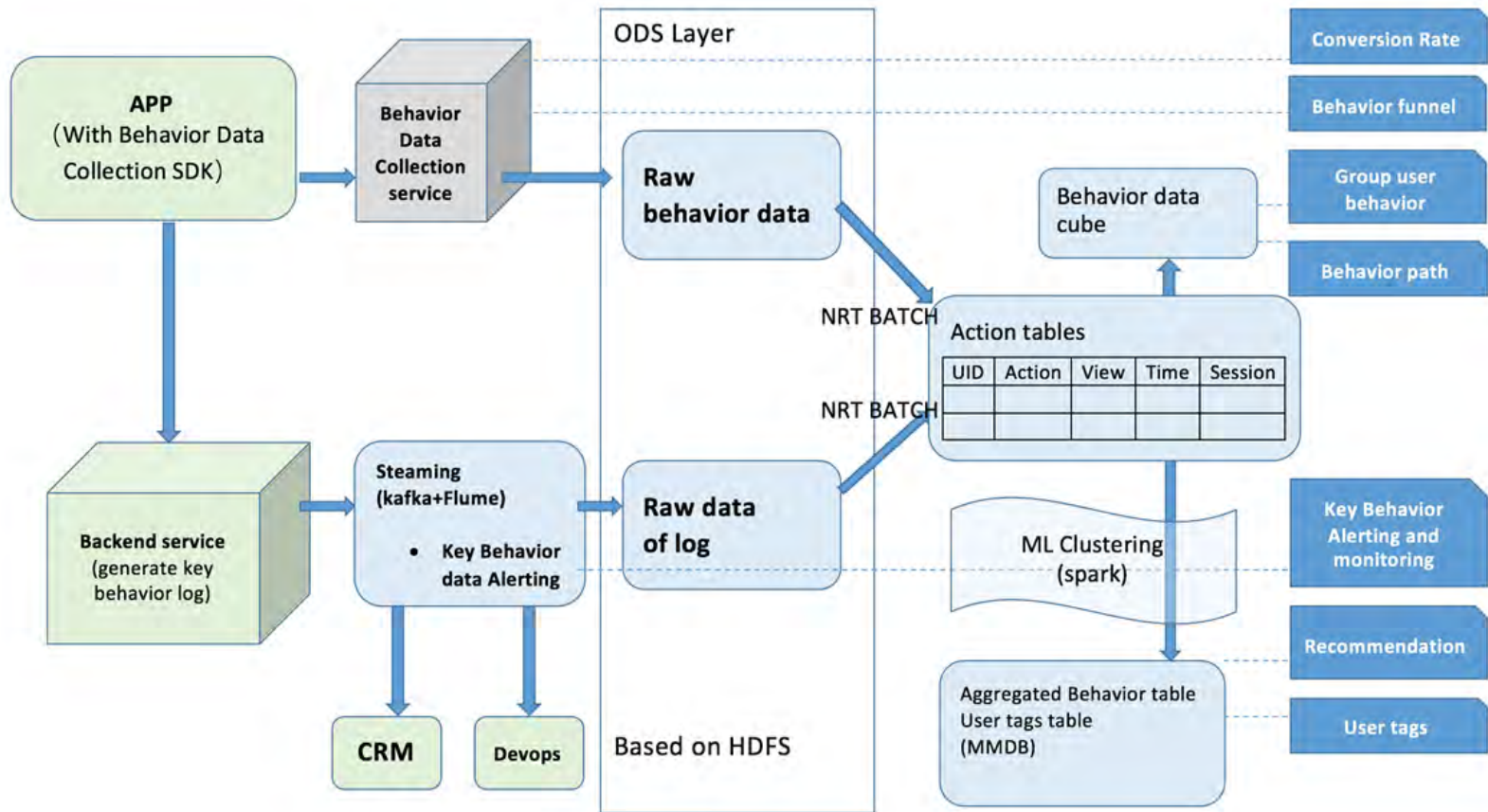
short range



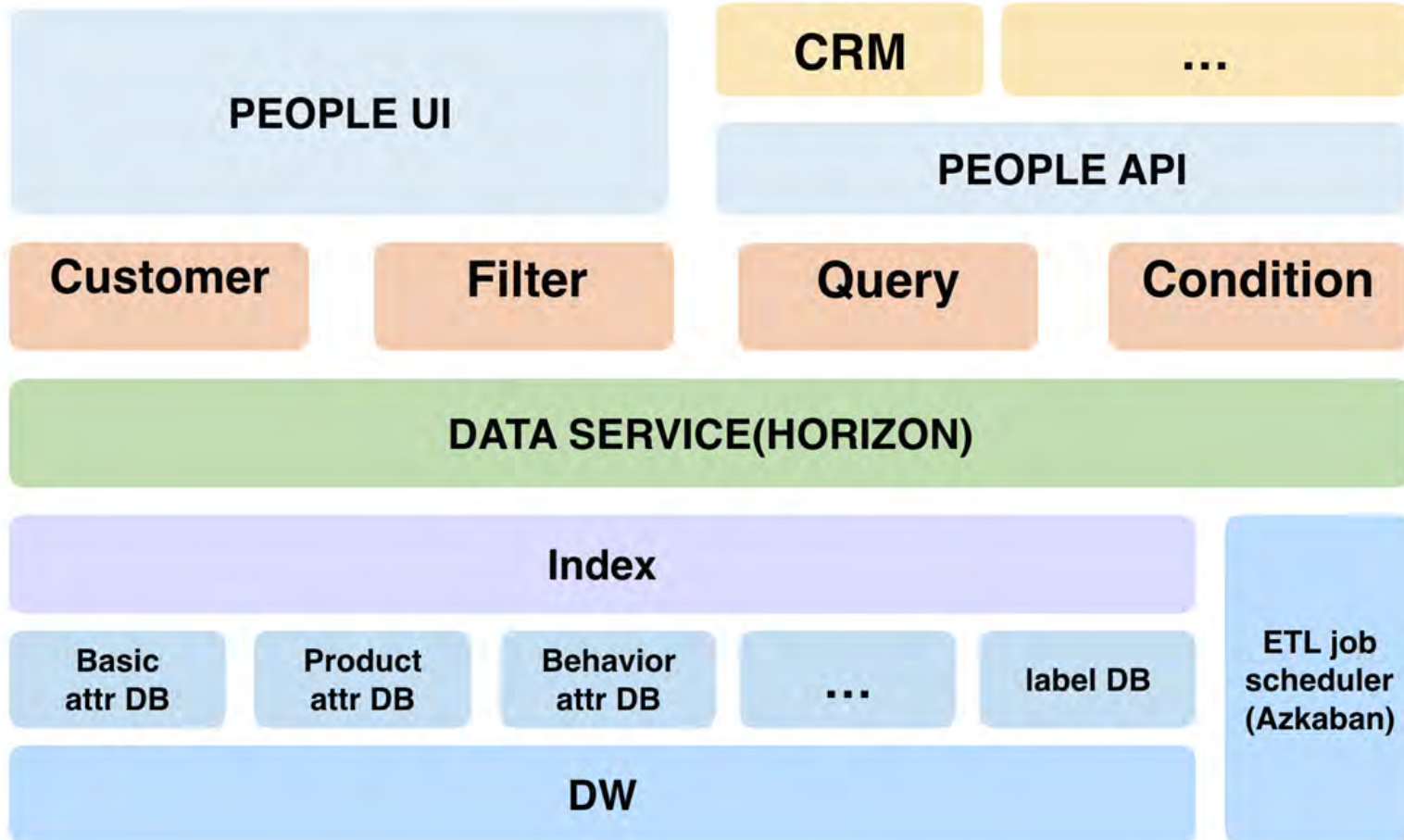
Contents

- Fintech Overview
- Loan business
- **Lender management**
- Intelligent business management
- Big data solution architecture overview

Customer Management – Behavior Data



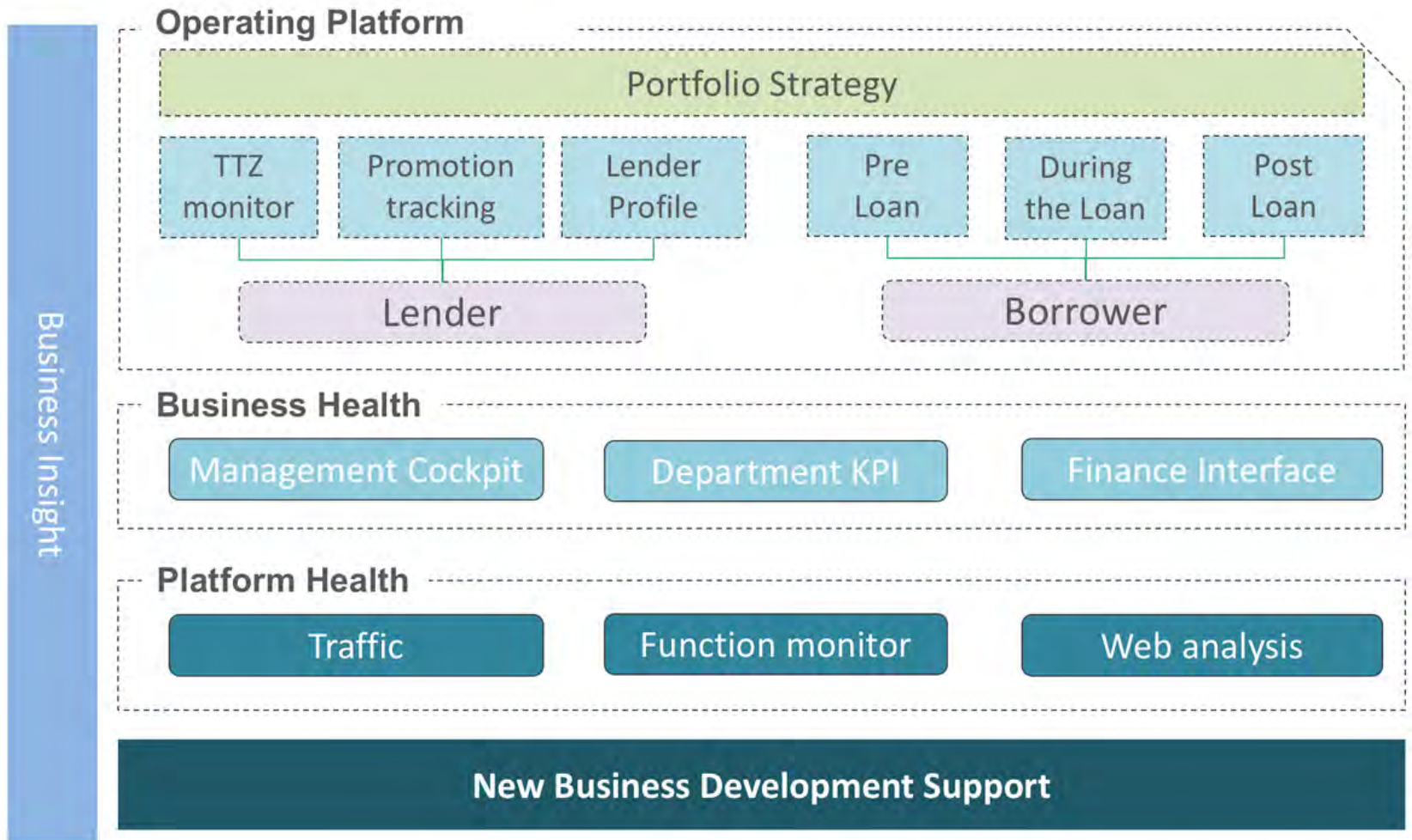
Customer Management – Profile Data



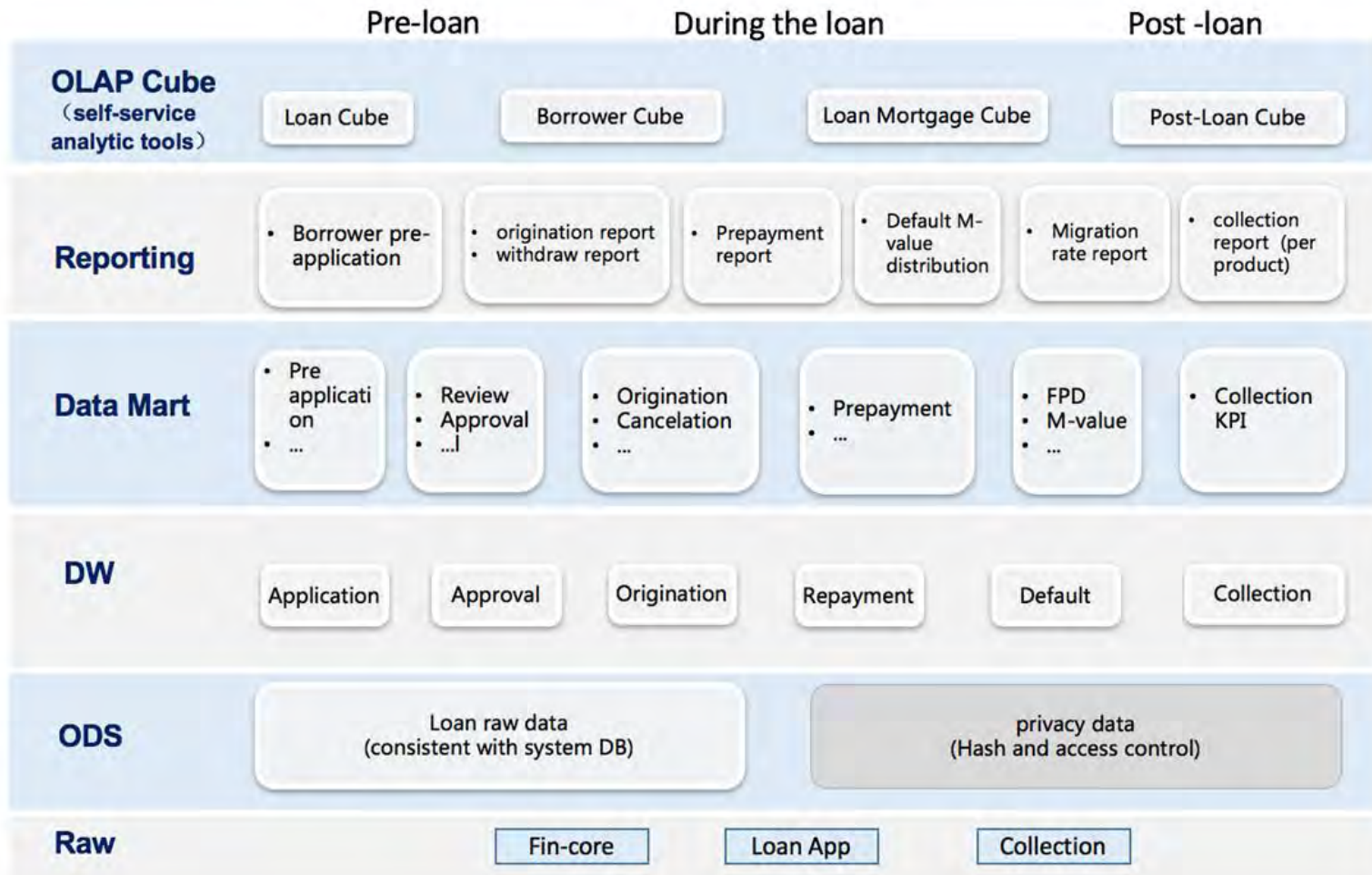
Contents

- Fintech Overview
- Loan business
- Lender management
- **Intelligent business management**
- Big data solution architecture overview

Intelligent business management



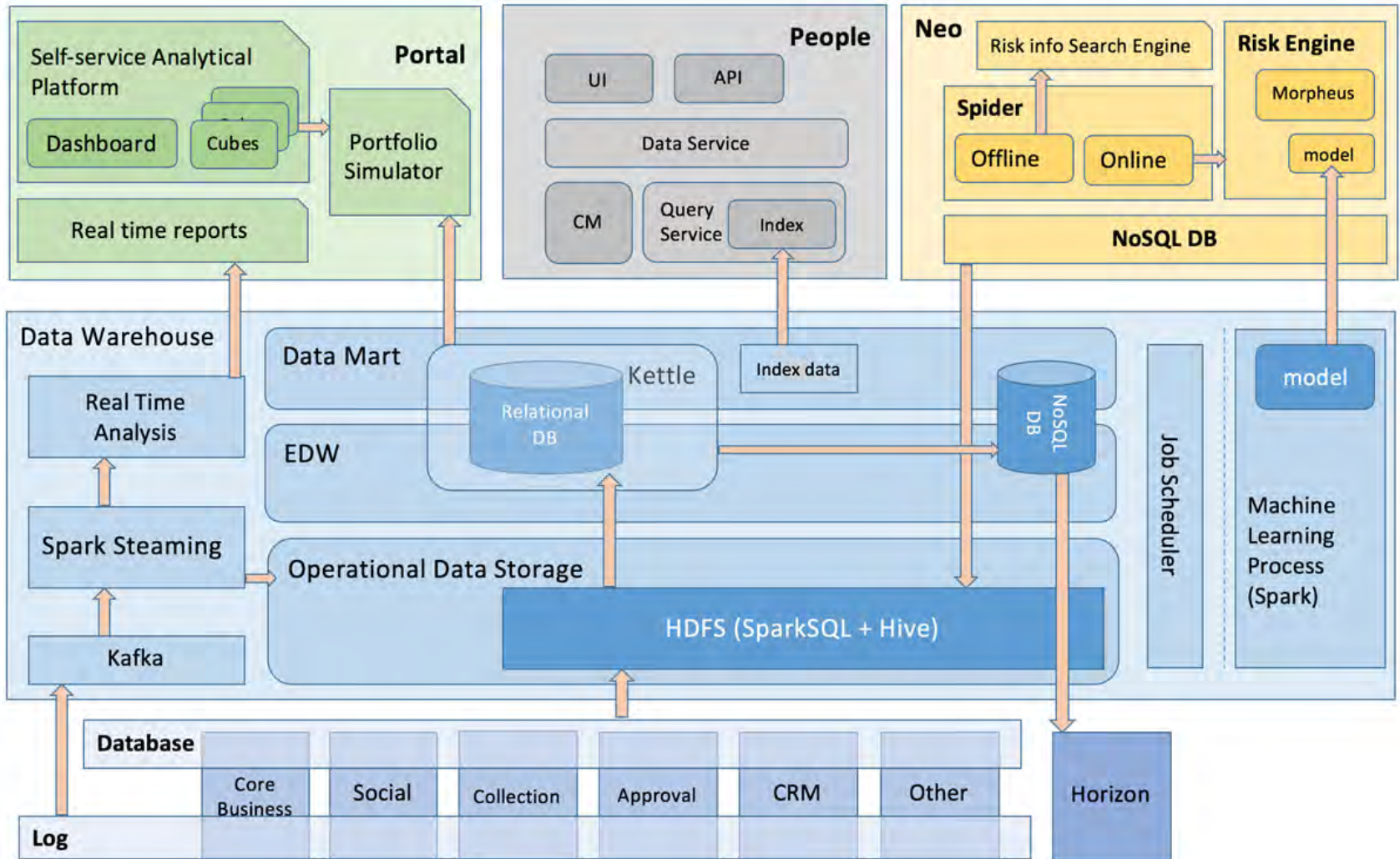
Intelligent business management



Contents

- Fintech Overview
- Loan business
- Lender management
- Intelligent business management
- **Big data solution architecture overview**

Architecture Overview



Thanks!

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微服务实践与反思

黄亮

ThoughtWorks



| 演讲大纲

- 实践微服务，你够个儿吗？
- 微服务实践全景图
- 微服务之演化式架构师
- 微服务之建模
- 微服务之集成
- 重构到微服务
- 微服务技术框架

2017 Software Architecture Summit

持续集成证书测试



| 实践微服务，你够个儿吗？

You must be
this tall to use
microservices



| 微服务架构

微服务架构是一种**架构模式**，它提倡将单一应用程序划分成**一组小的服务**，服务之间互相协调、互相配合，为用户提供最终价值。每个服务运行在其**独立的进程**中，服务与服务间采用**轻量级的通信机制**互相沟通（通常是基于HTTP协议的RESTful API）。每个服务都**围绕着具体业务**进行构建，并且能够被**独立的部署**到生产环境、类生产环境等。另外，应当尽量**避免统一的、集中式的服务管理机制**，对具体的一个服务而言，应根据业务上下文，选择合适的语言、工具对其进行构建。



领域驱动
设计

持续交付

按需
虚拟化

基础设施
自动化

小型自治
团队

大规模
集群系统

| 微服务与SOA

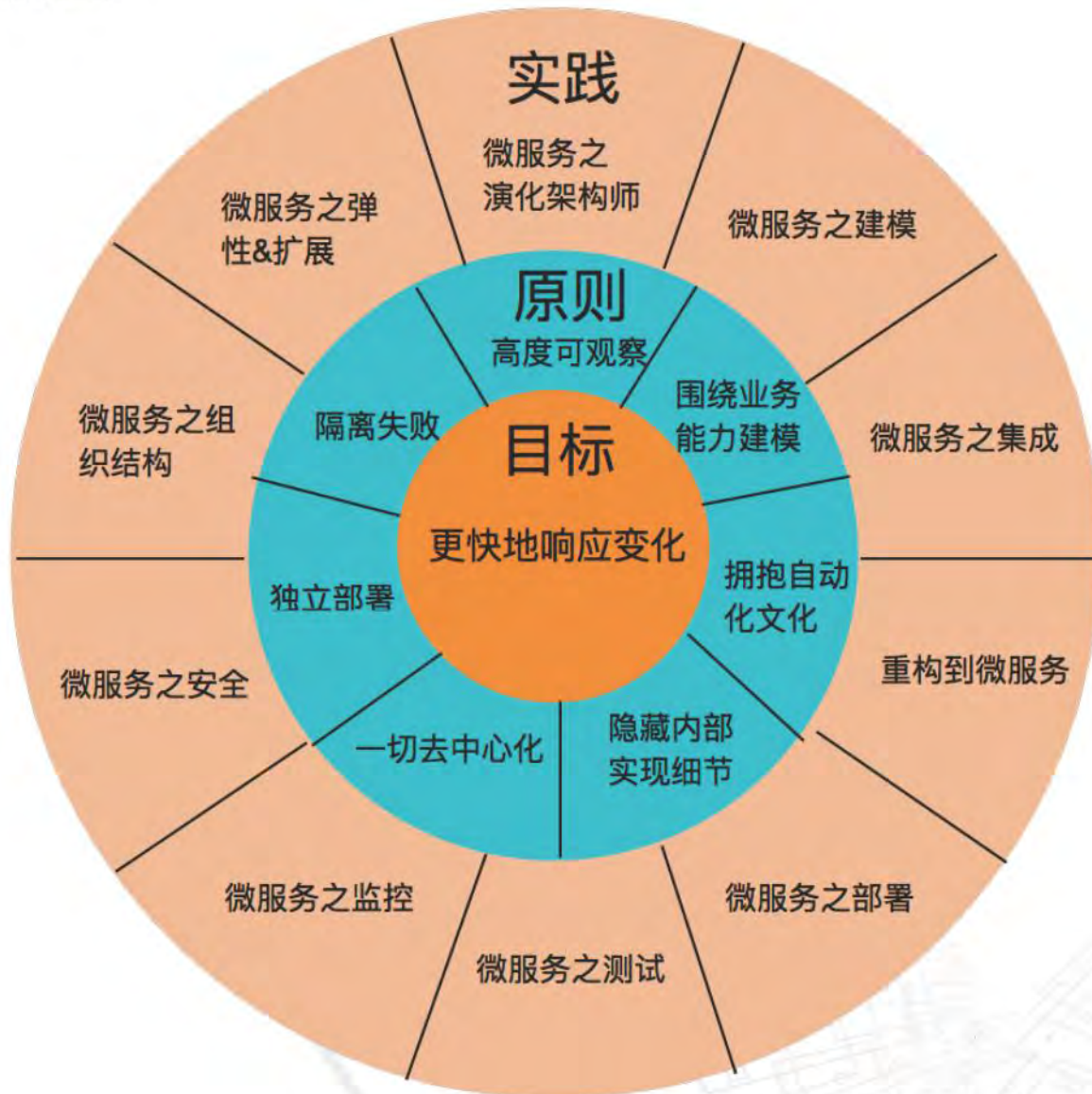
Based on
SOA principles

- Separation of concerns
- Encapsulation
- Loose coupling

Added
microservices
constraints

- Independent
- Single responsibility
- Owns its data

微服务全景图



| 微服务之演化式架构师

