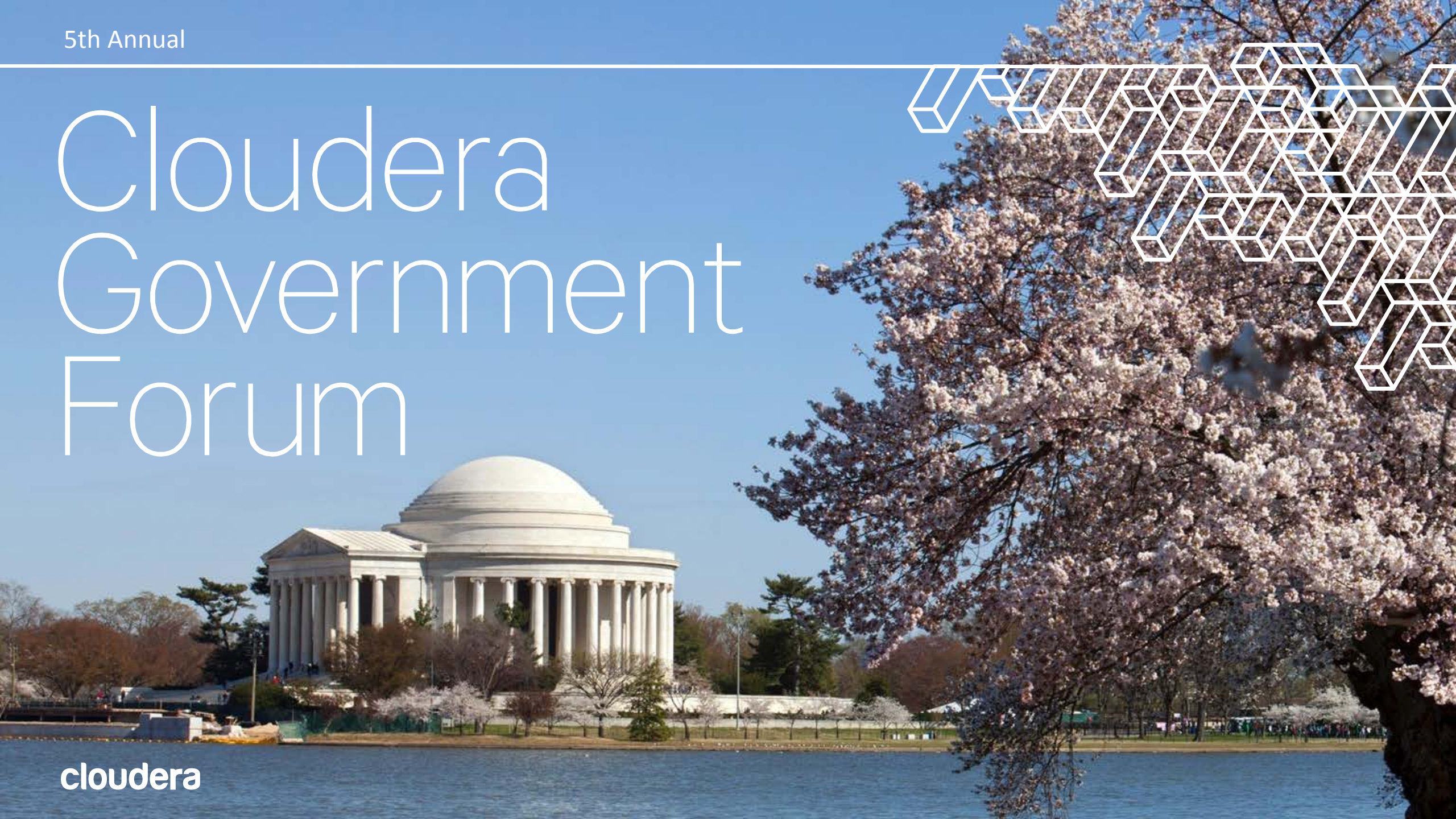


5th Annual

Cloudera Government Forum



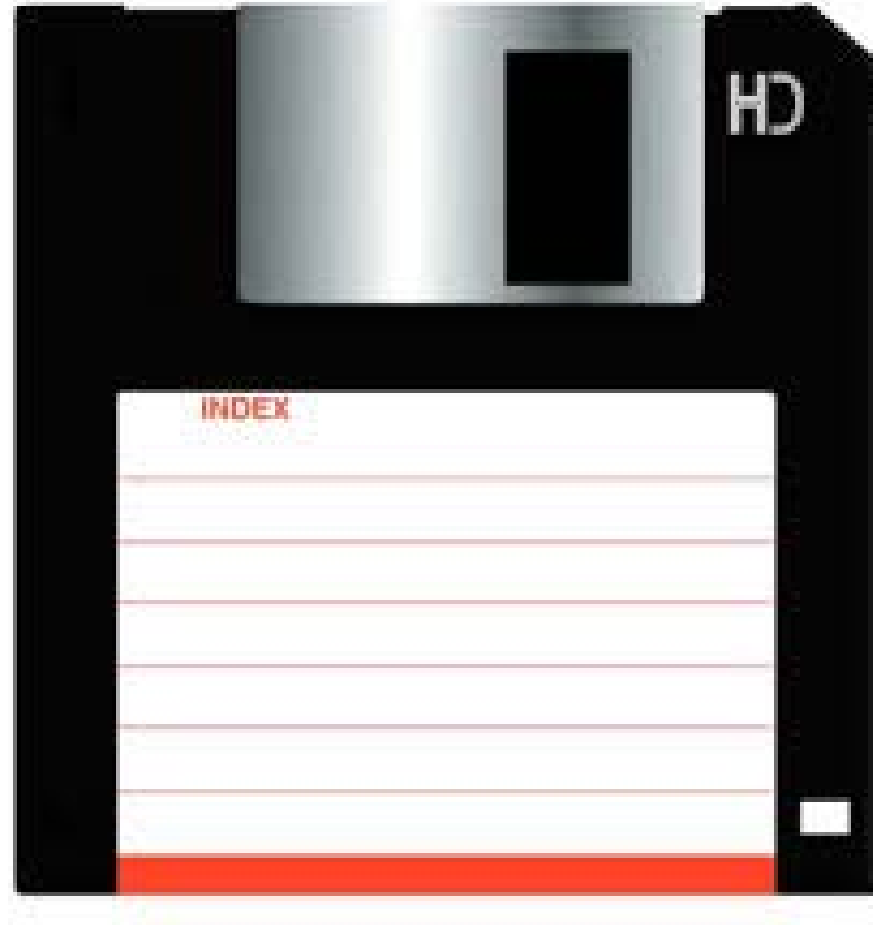
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Relying on Data for Strategic Decision-Making Financial Services Experience

Chris Moore, Senior Solutions Engineer, Trifacta

Steven Totman, Director of Field Technology, Financial Services Industry Lead

What is this?



The Impact of Data on Businesses

Drivers of Change

Financial Services, Insurance, Healthcare, Retail...



Proliferation of Data

Unstructured and structured data growing at a rate of 30-100% annually¹



Digital Disruption and Shift Towards Omni-Channel

Approx. 6.7BN mobile phone users, 2.7BN Internet and 1.7BN social media users²



Escalating Fraud Costs and Increasing Cyber Attacks

4.9 BN connected things. Cyber attacks up by 23%. Cost per attack ranges between \$12.7 to \$61 million⁴



Regulations and High Cost of Non-Compliance

Banks paid \$64 BN in data breaches and regulatory non-compliance penalties and fees in 2014

Data is Transforming Business

DRIVE CUSTOMER INSIGHTS



IMPROVE PRODUCTS & SERVICES EFFICIENCY



LOWER BUSINESS RISKS



Data Management Challenges Across Verticals

Fragmented Systems
and Data Silos -
Sampling & forced
data purging the norm

Limited Access to
Right Data at the
Right Time

Structured only -
Unstructured data
cost prohibitive

Unable to Tap New
Sources or Match
Internal/External
Sources Simultaneously

Disparate View of
Customer journeys,
Markets and Risks

Poor Data
Governance &
Security

Proven Value with Cloudera Enterprise

Information is the Primary Resource of Financial Services

Mapping and Consolidation Are the Tip of the Iceberg for Big Data

Retail Banking

- Bank Transactions
- Customer Data
- ATM Activity
- Online Activity
- Mobile Activity
- Demographic / Census Data
- Marketing / CRM
- Social / Sentiment

Credit Cards & Payments

- Card Transactions
- Customer Data
- Online Activity
- Demographic / Census Data
- Marketing / CRM
- Integration with Retailers / Loyalty
- Social / Sentiment

Investment Banking

- Trade / Tick Data
- Customer Data
- Web Logs
- Research / Publications
- Market Data
- Communications / Documentation

Insurance

- Claims / Policy Data
- Customer Data
- Demographic / Census Data
- Weather Data
- Vehicle Telemetry
- Video / Surveillance
- Sensors
- Internet of Things

Services & SROs

- Trade Data
- Communications / Documentation
- Market Data
- Research / Publications
- Surveys

Compliance

Cost Savings

Customer
Insight

Competitive
Advantage

Information is the Primary Resource of Financial Services

Security Enables Strategy to Unlock New Value from More Data

Competitive Advantage

Customer Insight

Cost Savings

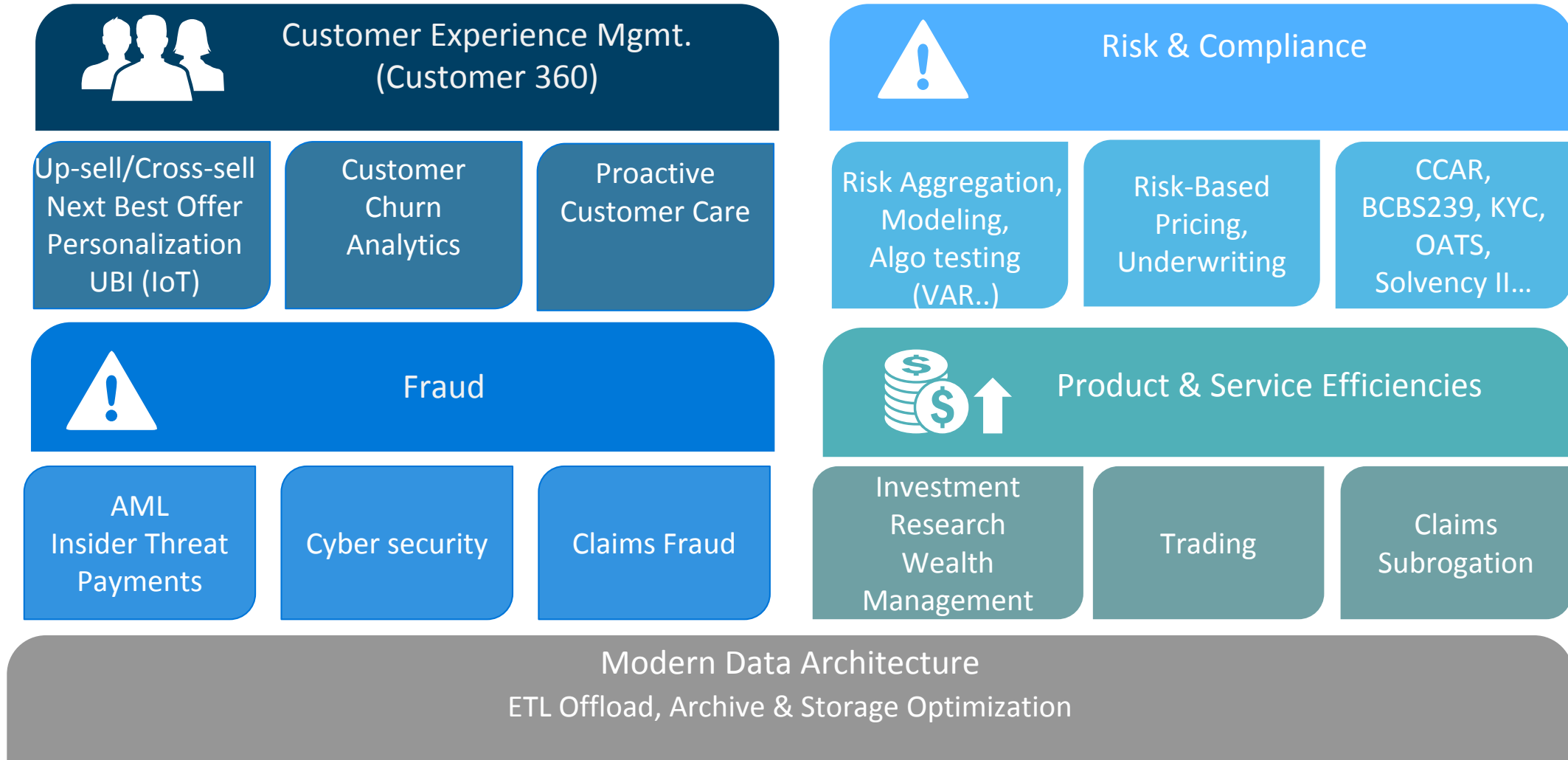
Compliance

An **Enterprise Data Hub** transforms data apps from a **cost center** into a **profit center** and enables immediate rather than staged delivery

Compliance is mandatory for any data strategy

Putting Big-Data to Work

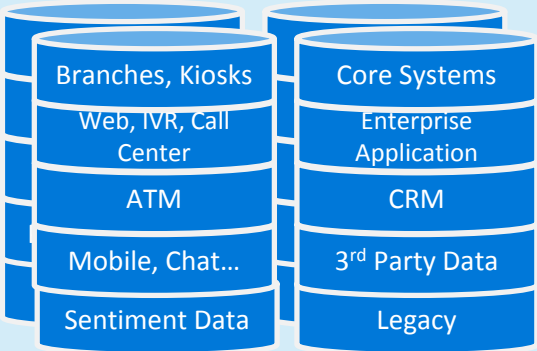
Key Use Cases for Cloudera Enterprise Built on Hadoop: Financial Services & Insurance



Customer 360

Key Challenges for Businesses in Driving a Customer 360

DATA SILOS



- Multiple Data Silos
- Overlapping and conflicting info
- Issue compounded with multiple business units

DATA VOLUMES



- For banks, billions of transactions and millions of journeys to connect/per day
- For telcos, approx. 1-6 Billion Call Detail Records (CDRs)/per day

NEW DATA SOURCES



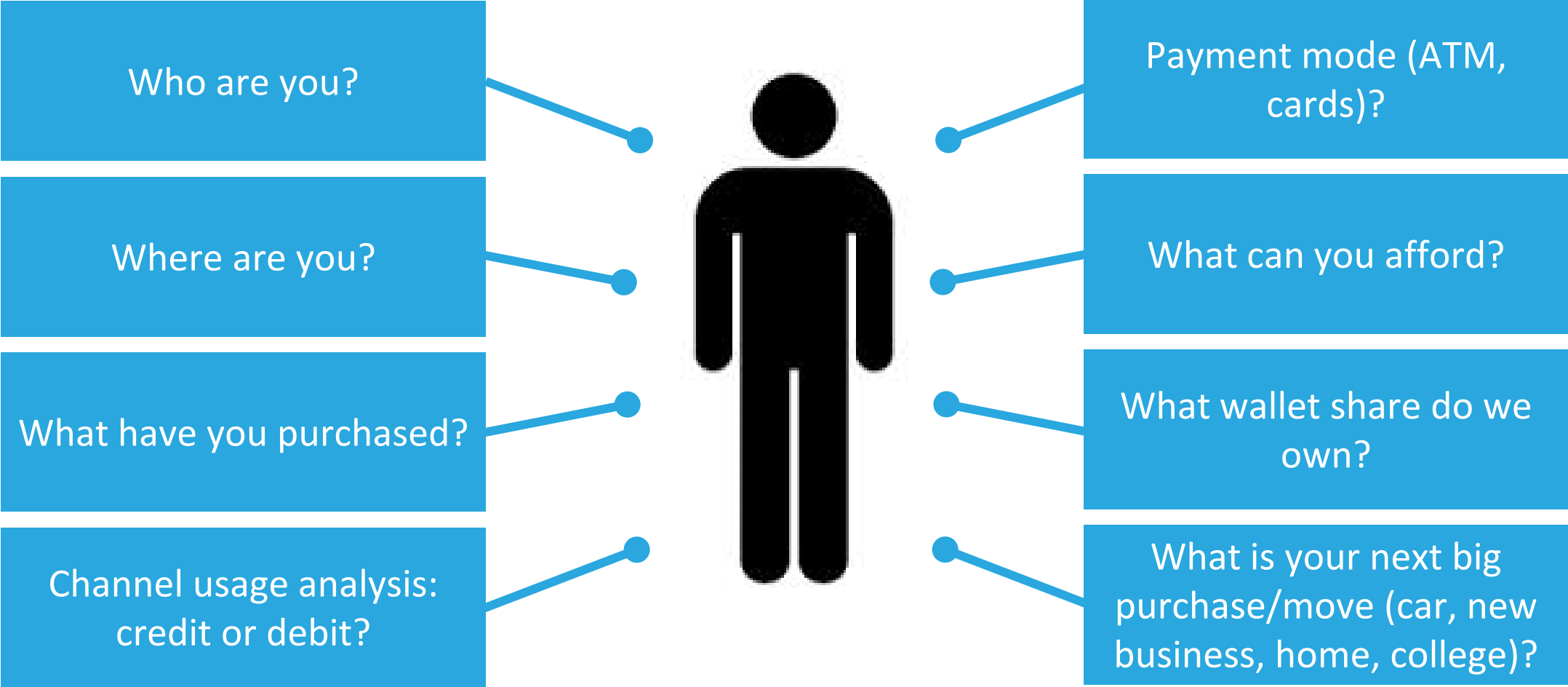
- Semi/ Un-Structured Data Sources
- Streaming/ Real-time data
- Critical for building a True 360 view

COSTS OF DATA PROCESSING & ANALYTICS



- Cost prohibitive. **\$30,000 and \$100,000 (USD) per TB** – Cost of storing data in relational database systems per year
- Unable to correlate data from structured and unstructured sources for 360 insights

Example: Retail Banking Customer 360° Profile





DRIVE CUSTOMER
INSIGHTS

RETAIL BANK

- » CUSTOMER 360
- » CRM, MARKETING PROGRAMS
- » FRAUD
- » RISK & COMPLIANCE



Increase Customer Retention, Loyalty and Acquisition Rates

Challenge:

- Fragmented systems and disparate view of customers

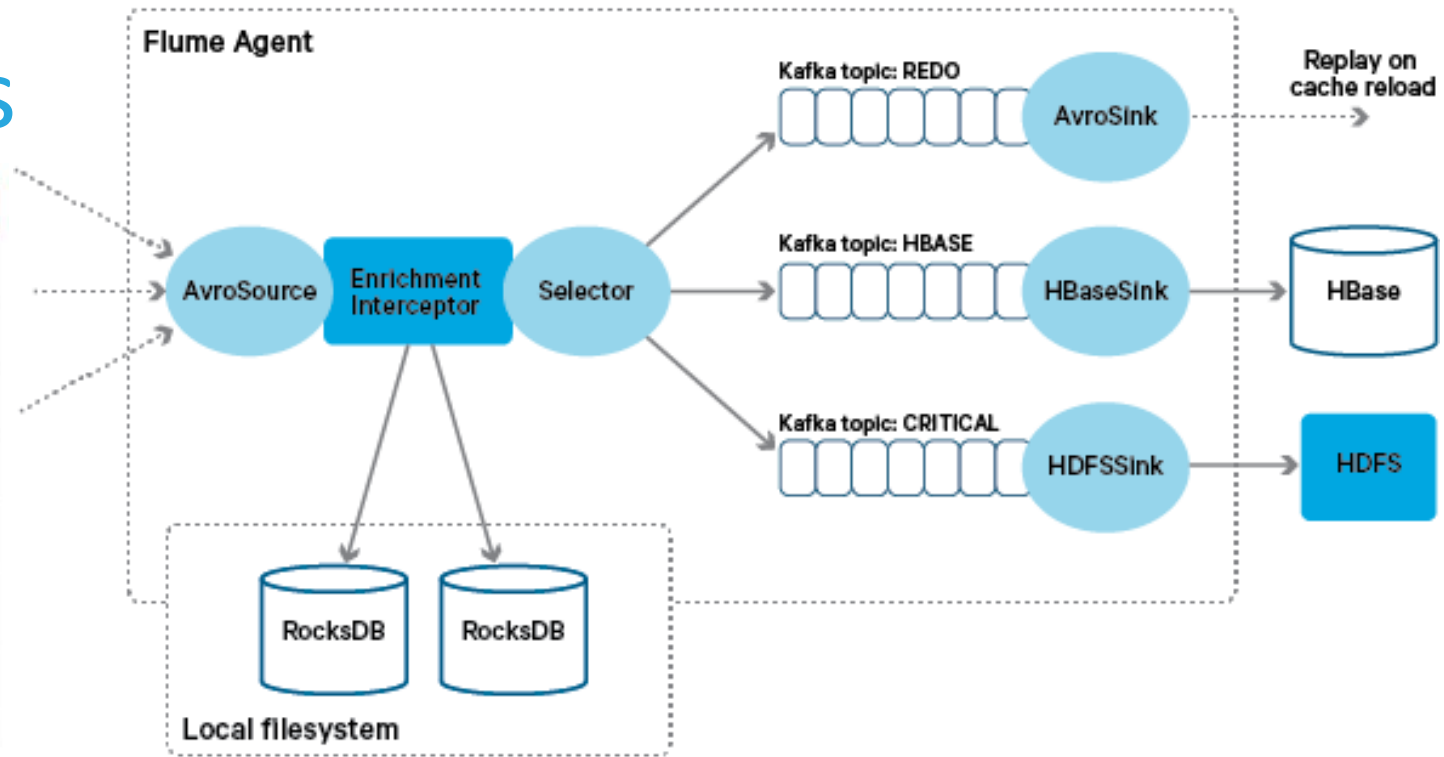
Solution:

- Serve trend information back to customers via Santander's "Spendlytics" application
- Capture, transform and enrich data in near-real time

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Santander - Spendlytics



- Near real-time (NRT) transactional analytics system on Cloudera. The objective is to capture, transform, enrich, count, and store a transaction within a few seconds of a card purchase taking place.
- The system receives the bank's retail customer card transactions and calculates the associated trend information aggregated by account holder and over a number of dimensions and taxonomies.
- This information is then served securely to Santander's "Spendlytics" app (see below) to enable customers to analyze their latest spending patterns.

Risk & Compliance

Risk & Compliance Challenges & Requirements

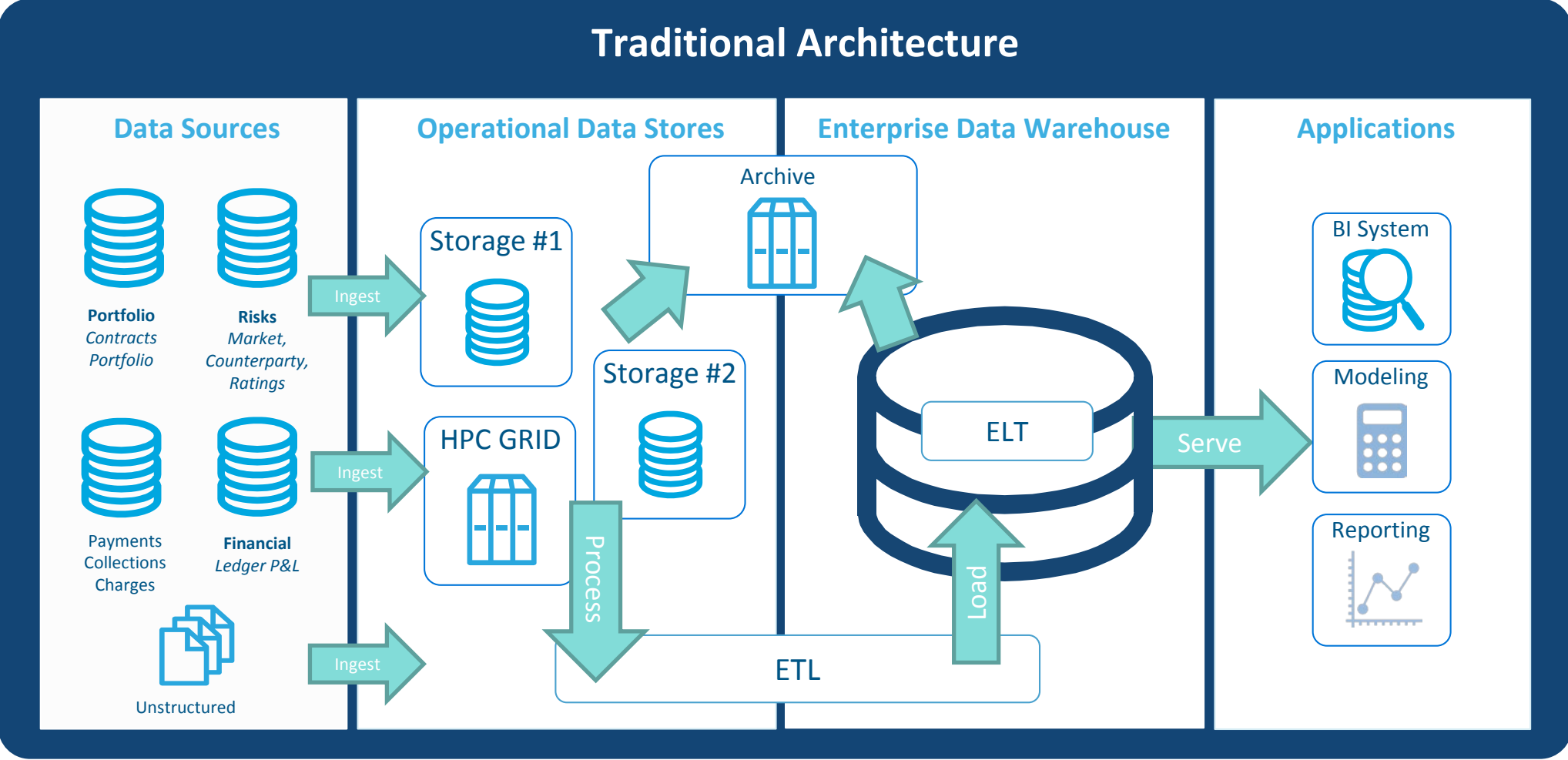
CHALLENGES

- Accuracy & Integrity: siloed data, meta data and governance. Collecting & maintaining data definitions and transformations across thousands of systems a cumbersome and costly process
- Archive: pressure on performance & costs when retaining complete historical risk data
- Audit & Security: difficult to obtain visibility into how data is being accessed and when changes occur. Sensitive data spread across systems
- Access & Performance: rapid collection and analysis of risk data and timely reporting to all appropriate recipients puts strain on batch and reporting processes

REQUIREMENTS

- CCAR: greater scrutiny on banks to improve data integrity, reconciliation, risk identification and controls
- BCBS239: an enterprise-wide approach to managing risk with more stringent requirements for risk data aggregation, accuracy, timeliness, reporting & governance
- KYC: stricter guidelines to aggregate, monitor, analyze and report on customer/ entity identification, transactions, behavior and holdings globally

Challenges With Risk & Compliance Architectures





LOWER BUSINESS
RISKS



Builds Holistic Picture of US Market By Looking at Up to 50BN Events/Day

Challenge:

- Overseeing transactions from more than 4,100 firms (incl. exchanges, brokers-dealers and trade reporting facilities)
- Difficult and costly to aggregate and analyze increasing volume of data from numerous sources incl. orders, quotes and trades

Solution:

- Built market event graph database using EDH
- Using EDH on-premise and in the cloud
- Monitoring and analyzing transactions to detect fraud, insider trading, short sale, best execution
- Savings of **\$10-20M** annually

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Fraud

Legacy Defense Approach vs. Hadoop Machine Learning

The Legacy Defense Approach



- Batch File Ingestion
 - Discover Threats Too Late



- Rules Based
 - Don't Discover Zero-Day Attack Methods
 - False Positive Overload



- Data Silos
 - No Crime 360 Signals



- Flat world Forensics
 - Discover Incident not Crime Rings



- High Cost Proprietary Architecture
 - Limited Data due to cost constraints

The Hadoop Machine Learning Approach



- Real-Time Packet Ingestion
 - Discover in **Seconds** vs. Hours or Days



- Real-Time Anomaly Detection
 - Discover **250% to 350%** More Fraud
 - **20 to 30** Times Less False Positives



- Enterprise Data Hub
 - Discover **Crime 360** Signals



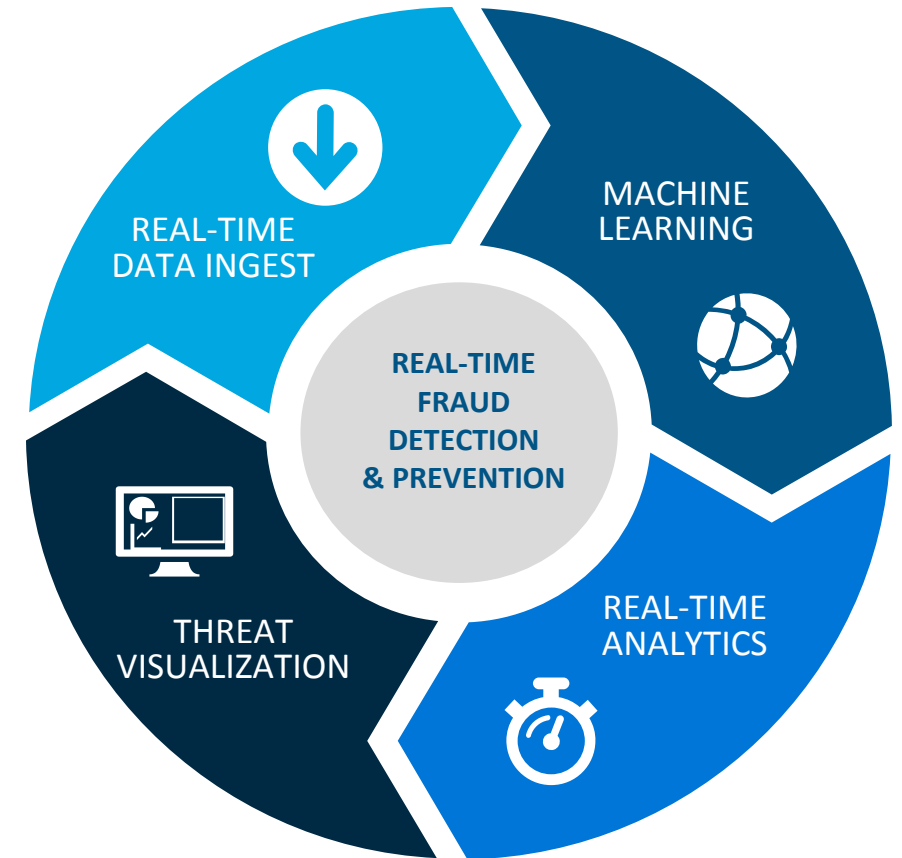
- Graph based Visual Analytics
 - Discover **Crime Rings**



- Native Hadoop Architecture
 - **Unlimited** Data Storage & Analytics

Real-Time Fraud Detection & Prevention with Cloudera

- Apply Machine Learning Techniques
- Run Natively on Hadoop
- Enable Real-Time Fraud Analytics
- Integrate Threat Visualization Tools
- Reduce False Positives



Vendor Integration

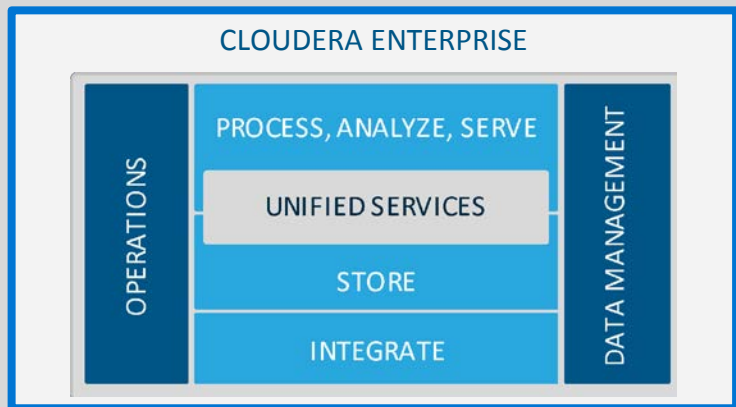
Applications



Operational Tools



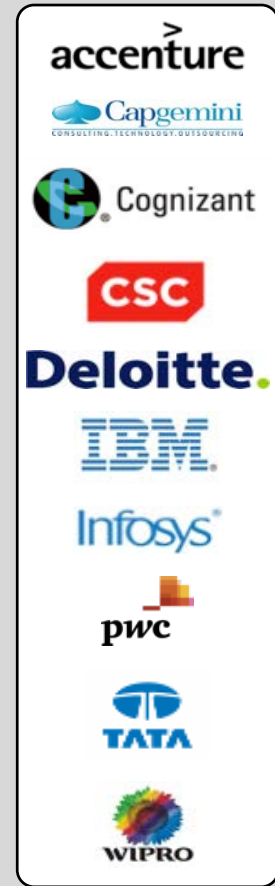
Data Systems



Infrastructure



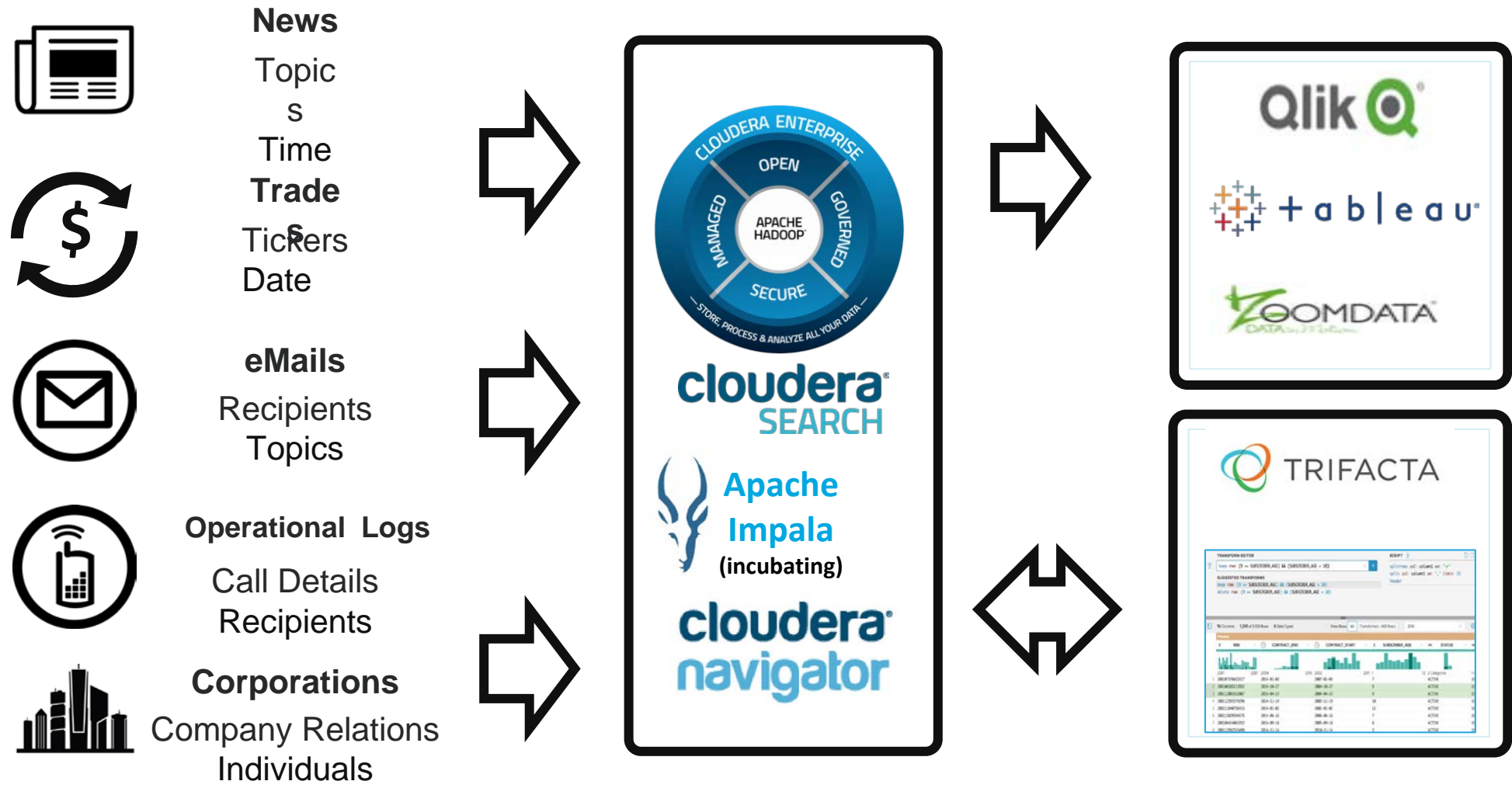
System Integration





Demonstration

Insider Fraud Detection & Investigation



Cloudera Customers Include

Over 100 banks, financial services and insurance companies

19 of the top 30 global systemically important banks (G-SIBs)

4 of the top 5 asset management firms

2 of the top 3 multi-national payment processing firms

3 of the top 5 Fortune 500 insurance companies (p&c and life)

Getting Started is Easy

①

Download Trifacta for a
test drive



②

Signup for Training



③

Contact us or Trifacta
to Start a POC





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Thank you