ENTER THE FAST LANE

WITH AN AI-DRIVEN INTELLIGENT STREAMING PLATFORM

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CHAPTER 1

Digital Transformation in the Fast Lane

As the world marches inexorably toward complete digitalization of all aspects of business, the economy, and everyday life, businesses face a choice. They can view the upcoming transformation to all-digital, all-the-time as a threat that creates massive volumes of data and overloads decision makers. Doing more of the same, but quicker, is a sure path to irrelevance.

Organizations require a new way to address these challenges.

Companies can regard digitalization as an opportunity for change – developing new business models, engagement practices, and economics that take advantage of unprecedented insights at just the right time. By taking this approach, organizations can use data-driven competitive knowledge to intelligently disrupt their industry.

What Is Intelligent Disruption?

Disruption is typically an unwelcome disturbance that interrupts events or processes. When fueled by data and used to make better decisions, however, disruption can be intelligent. Using data and the right tools to manage it, innovators can catalyze the intelligent disruption of their market – benefitting customers, employees, and stakeholders.

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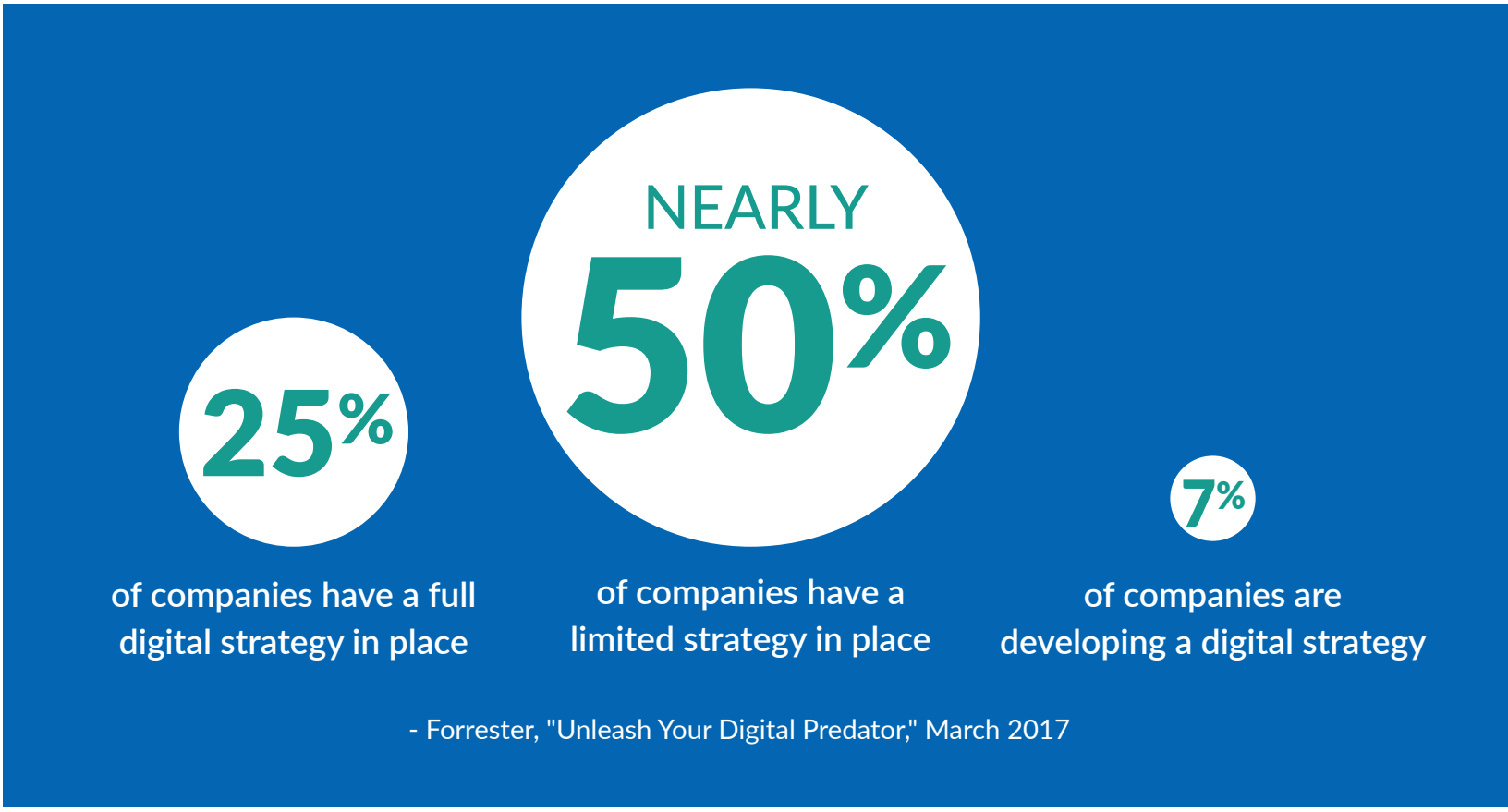
With data as the critical currency of digital transformation, businesses need to move into the fast lane – where data streams just when it is needed, allowing companies to respond to change more quickly than the competition. To enable this shift, enterprises must evolve their data management infrastructure into an intelligent streaming platform that can:

- **Sense,** realizing what is happening in and around the enterprise
- **Reason,** understanding the importance of what is sensed and making timely decisions
- **Act,** taking steps to respond when appropriate, in a reliable, standardized way

Intelligent streaming helps people make better decisions or recommendations. Machines can automatically respond in ways that optimize processes and business outcomes. And enterprises can evolve from human to machine-enabled decisions instantly, with the help of data scientists and engineers.

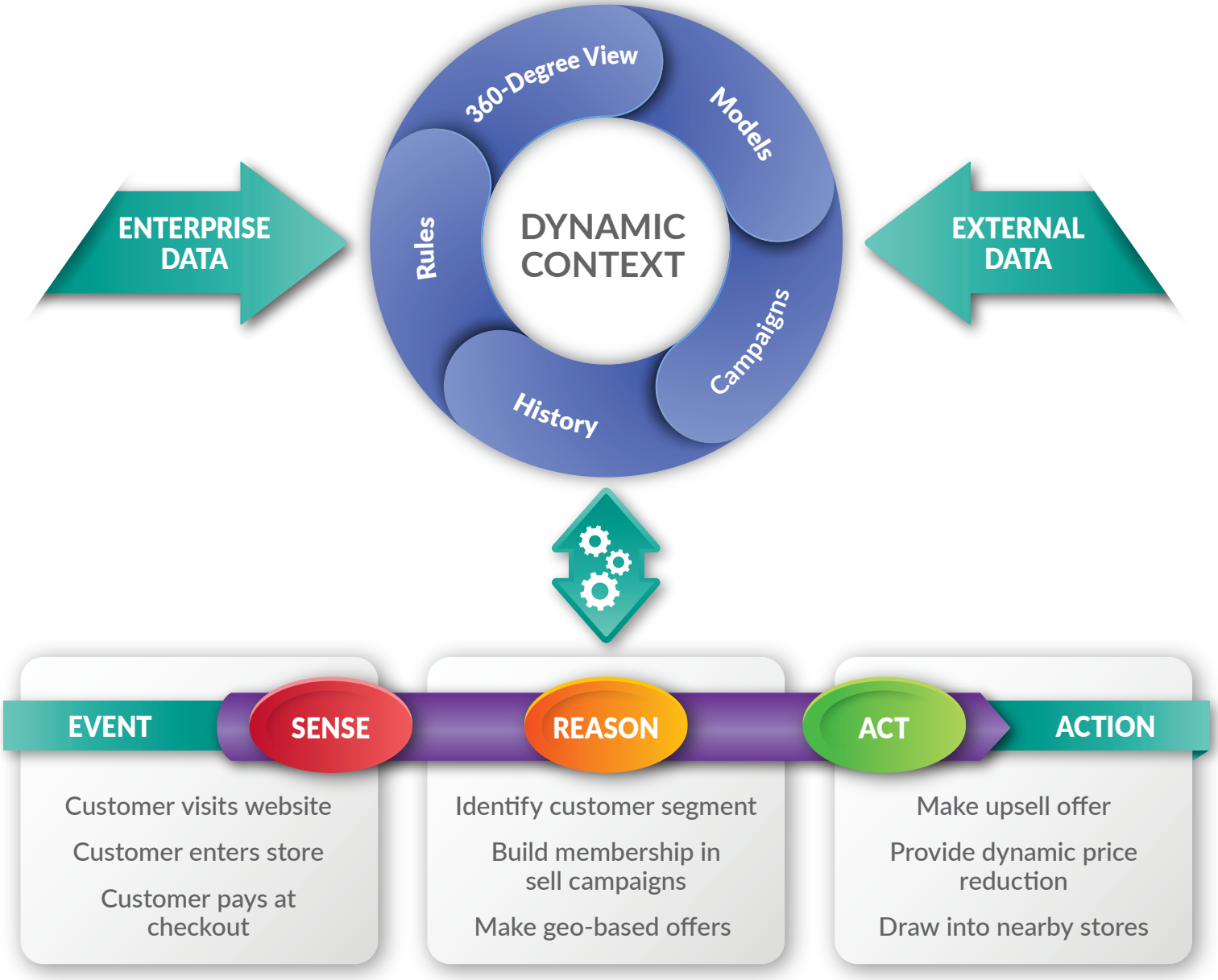


CHAPTER 2

Essential Features for Intelligent Streaming

When choosing an intelligent streaming platform, look for the capabilities required to sense, reason, and act – all within the context of dynamically changing information, business rules, and analytic models (see Figure 1).

Figure 1. Event-Centric Data Processing for a Commercial Real Estate Company



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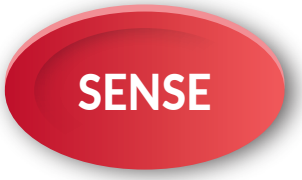

In traditional IT environments, all data resided in rigid systems such as databases that required a priori definitions of data structures. The data typically came from well-defined, slow-changing data sources. Today's data comes in different shapes and protocols and originates from various and dynamic sources. Businesses need to capture all types of data as it happens – from consumers' social media about product interactions or analytics monitoring shop floor equipment – and translate it into understandable business information.

Look for an intelligent streaming platform that:

- ✔ Captures and transports data from various sources, reliably and flexibly
- ✔ Supports a high-performance, low-latency messaging backbone that handles huge volumes of data at low latency and high variability
- ✔ Deploys capture and transport mechanisms to the right place in the network, even out to the edge
- ✔ Monitors data flows to ensure they are healthy and resilient

Data at the Right Time

Intelligent streaming helps businesses get information at just the right moment. Using multi-latency support, data streams can be processed at the speed required by the business. For example, high-speed stock trades are completed in milliseconds, point-of-sale credit card fraud is detected in seconds, and customer service interactions process in minutes. Maintenance predictions and service scheduling occur in hours. Supply chain optimization and financial reporting is executed within days.

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To help find the signal within the noise created by large volumes of low-latency data, choose an intelligent streaming platform that:

- ✔ Directs the output of that evaluation to the right targeted system or person
- ✔ Applies reasoning at the network edge before the data gets to the data center
- ✔ Evaluates the meaning of the data quickly, using pre-built and online machine learning models

> "In the digital age, you must rethink how you design customer experiences, operate your customer touchpoints, build your products, organize your teams, run your business, invest in technology, and measure your results. Digital business demands wholesale and lasting transformation to all parts of your business."
>
> - Forrester, "Digitize Your Business Strategy," January 2017

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After sensing and evaluating data, it's time to take action. For example, the platform can provide recommendations that help service reps handle specific situations. It might email an alert that instructs a field worker to take action. Or it could trigger a workflow, such as sending a replacement product to a customer.

Choose a platform that:

- ✔ Collects the output of the reasoning tasks and implements the desired action, reliably and automatically if necessary
- ✔ Orchestrates real-time data flows and provides representational state transfer (RESTful) application programming interfaces

"Executives, managers, and frontline personnel fear that decisions based on old and incomplete data or formulated using slow, outmoded, and limited reporting functionality will be bad decisions. A deficient information supply chain hinders quick responses to shifting situations and increases exposure to financial and regulatory risk—putting a business at a competitive disadvantage."

- David Stodder, TDWI, "Accelerating the Path to Value with Business Intelligence and Analytics," 2017

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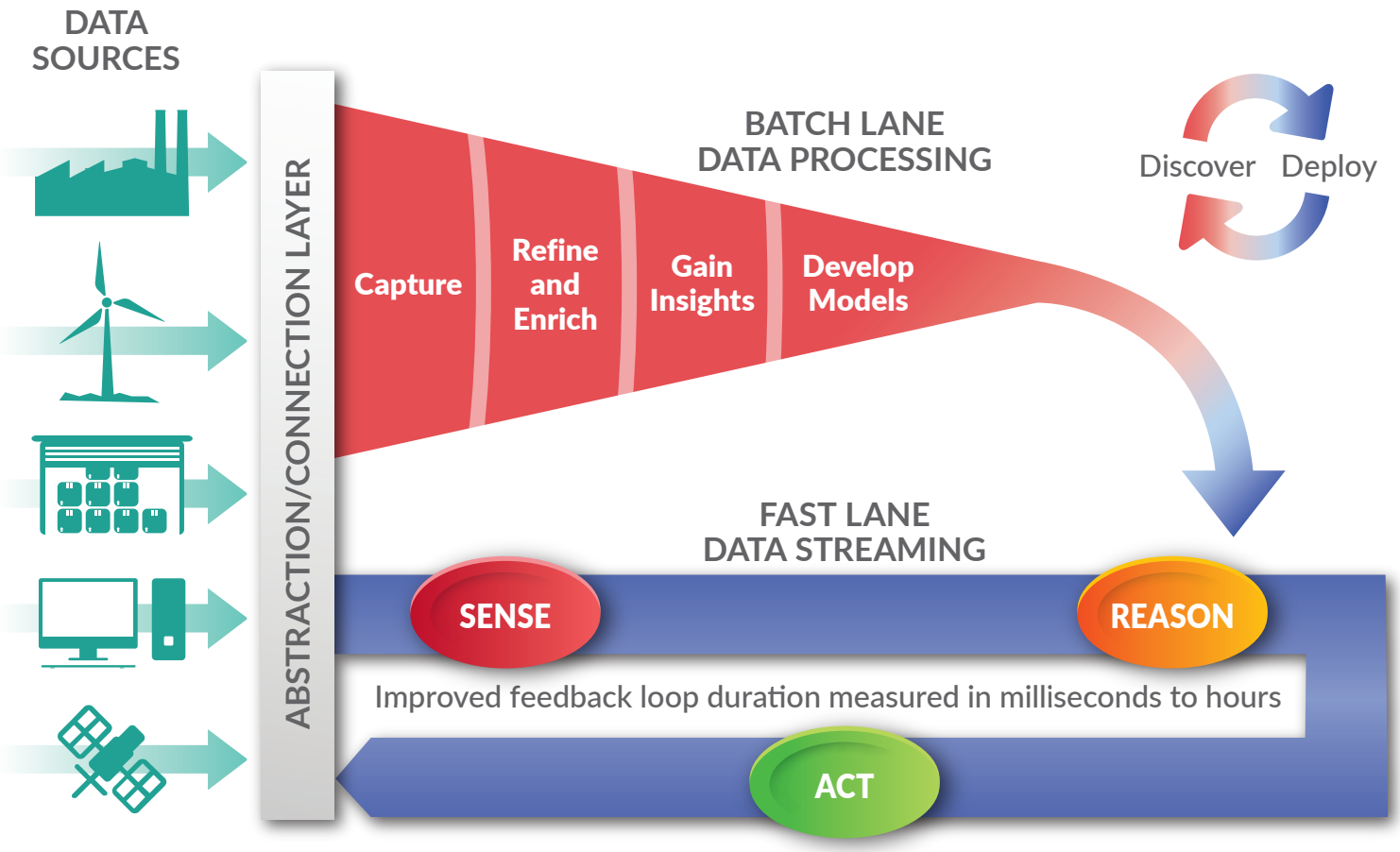
Fast Lane and Batch Lane Data Processing

Before provisioning a real-time data stream into production, data scientists or analysts must collect, integrate, and analyze the data used to build predictive models. Although data is typically collected in real-time and batch, it is processed in batch, where data latencies are higher than those of production streams. Predictive models provide the basis for provisioning real-time streams into production and the context to sense, reason, and act in a timely and relevant fashion at multiple latencies (see Figure 2).

Figure 2. Processing Data Intelligence at the Right Speed

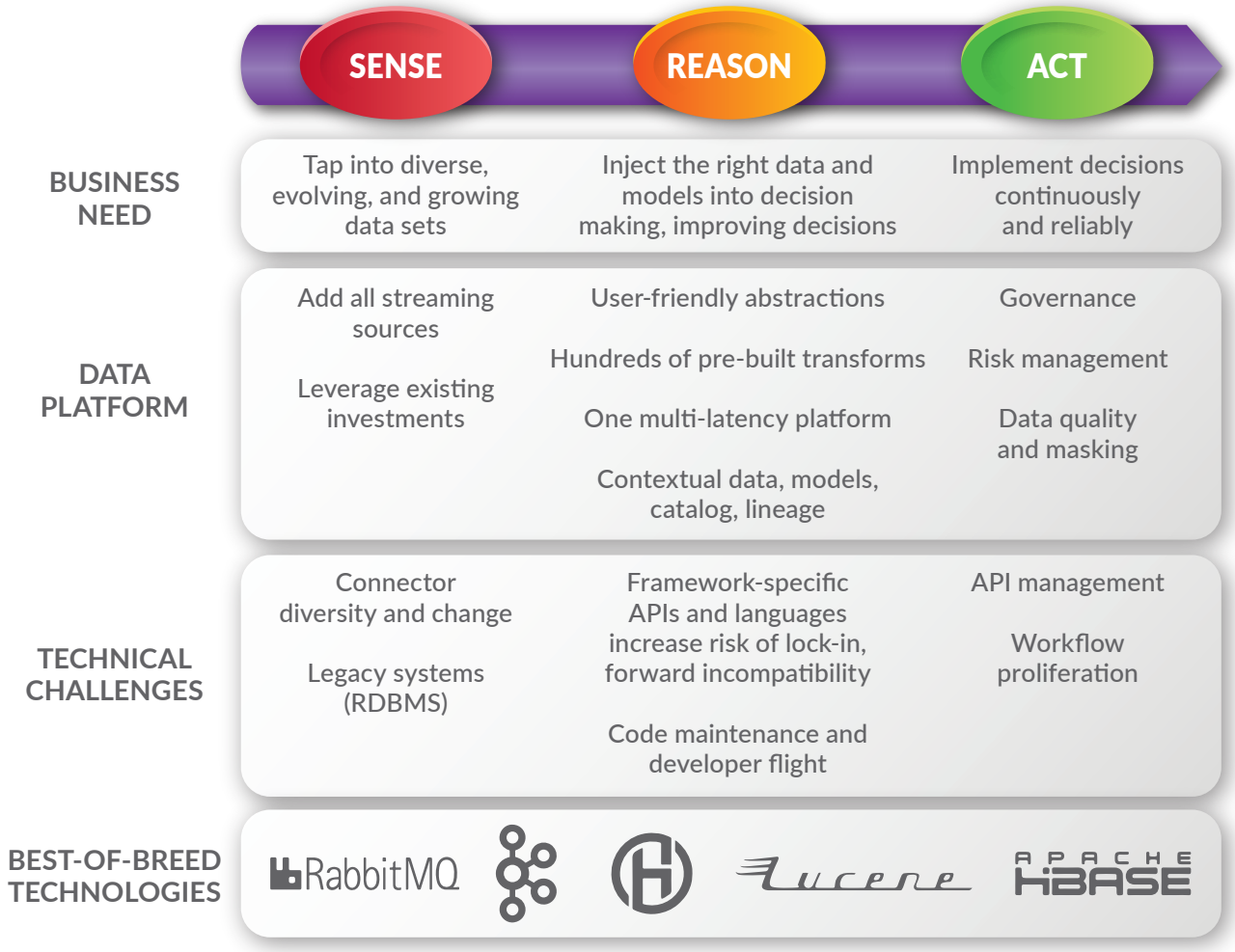


AI-Driven Intelligent Streaming Platform

Choose an intelligent streaming platform that supports the end-to-end sense-reason-act process with multi-latency streaming (see Figure 3). Look for artificial intelligence (AI) features that can automate processes and guide behavior. Key features include the following:

- Vendor-neutral technology that integrates with all streaming sources and existing technologies
- Tools for data abstraction, transformation, and multi-latency processing
- Support for governance, risk management, and data quality and masking efforts
- Data propagation, including capture and transport as well as real-time event processing, API management, and application integration
- Integration with leading open source technologies used to collect, integrate, and analyze data

Figure 3. An AI-Driven Multi-Latency Streaming Platform Focused on Business Outcomes



CHAPTER 3

Case Study: Delivering a Personalized Customer Experience in Human Time

After decades of business growth and successful acquisitions, a large conglomerate in Asia found itself at a crossroads. The enterprise had expanded over decades from real estate to commercial shopping malls, e-commerce subsidiaries, and grocery stores (both online and brick-and-mortar).

Yet none of its multiple subsidiaries shared operations or information. Each subsidiary maintained separate customer lists, marketing data and campaigns, and business intelligence. The enterprise had no way to connect its customer touch points across all segments of the business or all subsidiaries.

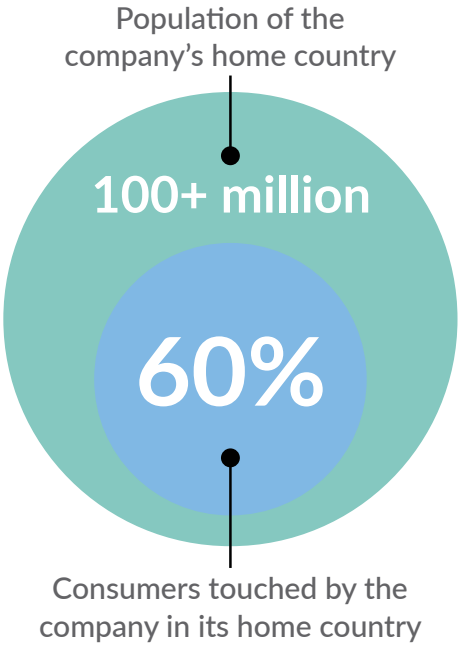
Executives believed the increased digitalization of customers' lives and the digital transformation of the company offered a unique opportunity. By creating personalized experiences for each customer across every touch point, the enterprise could better understand customers, improving service, providing more opportunities to up-sell and cross-sell, and increasing customer satisfaction.

Gaining Value From Huge Data Volumes

To achieve these goals, the company needed to analyze massive volumes of data created by multiple sources, such as:

- Web site clickstreams
- Point-of-sale transactions
- Customer service transactions
- Devices at properties, including Wi-Fi routers and building sensors

What's more, executives wanted to be able to act on the results of this analysis in "human time" – receiving insight while a customer was still shopping in the store or making a payment, for example, instead of waiting hours or days for traditional business intelligence.



Enabling Intelligent Streaming

To solve this massive data challenge, the company turned to Informatica. Company experts and Informatica developed and implemented a solution architecture in the following three phases:

1. Standardize all customer data. Using the Informatica Master Data Management solution, the company created a single record for each customer and one repository of all dimensions associated with a customer.

2. Build a data lake on Hadoop. With the Informatica Intelligent Data Platform powered by CLAIRE, the company created a massive data store for big data processing, streaming analytics, data cataloging, and data prep. The data lake stores, catalogs, and integrates all payment, marketing, purchase, and Internet of Things (IoT) data. Data engineers, data scientists, analysts, customer service teams, and marketing groups can securely discover and access this data without help from IT.

3. Establish a fast lane for data streaming. Informatica solutions now capture IoT data, web site clickstreams, logs, and other information. They also apply streaming analytic rules, models, and enrichment to customer interaction and event data.

Understanding CLAIRE

CLAIRE is an AI-driven engine that provides enterprise unified metadata intelligence to accelerate productivity across the Informatica Enterprise Cloud Data Management product portfolio. Using machine learning and other AI techniques, CLAIRE leverages the industry-leading metadata capabilities of the Informatica Intelligent Data Platform to accelerate and automate core data management and governance processes.

Embracing digitalization and leveraging the power of data is helping the company realize significant benefits. By providing a responsive, personalized customer experience, the intelligent data streaming solution are helping the organization increase revenue while improving customer satisfaction.

LEARN MORE

http://www.informatica.com/products/big-data/intelligent-streaming.html

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