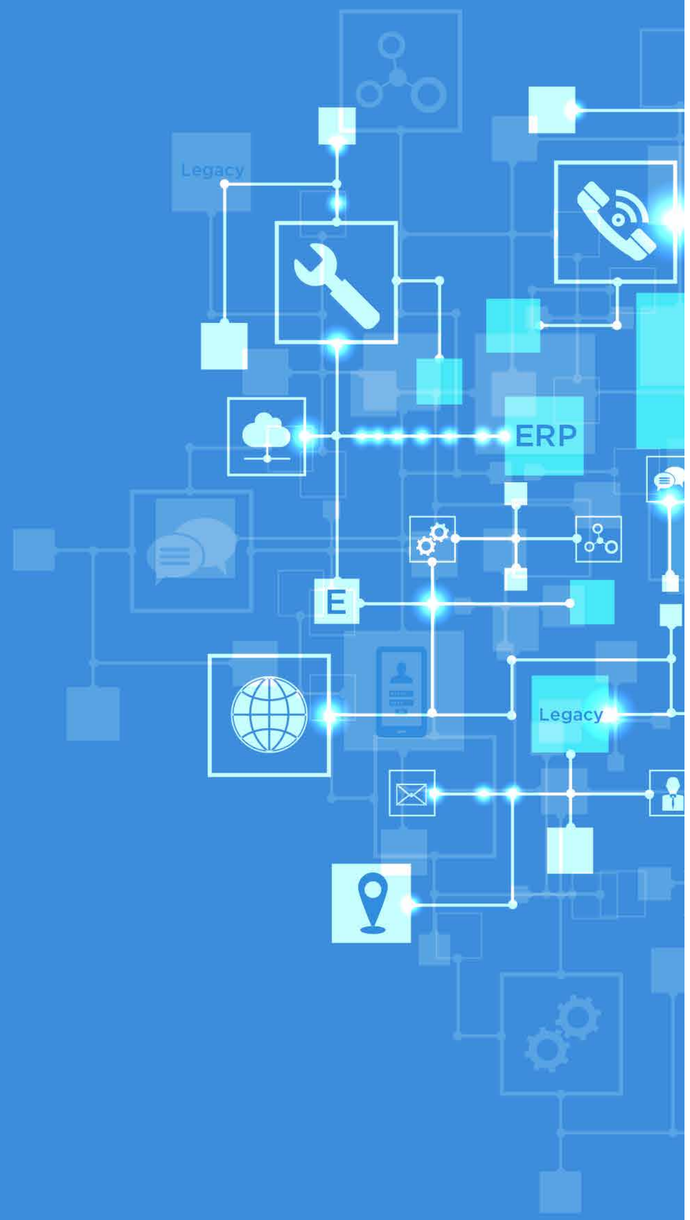
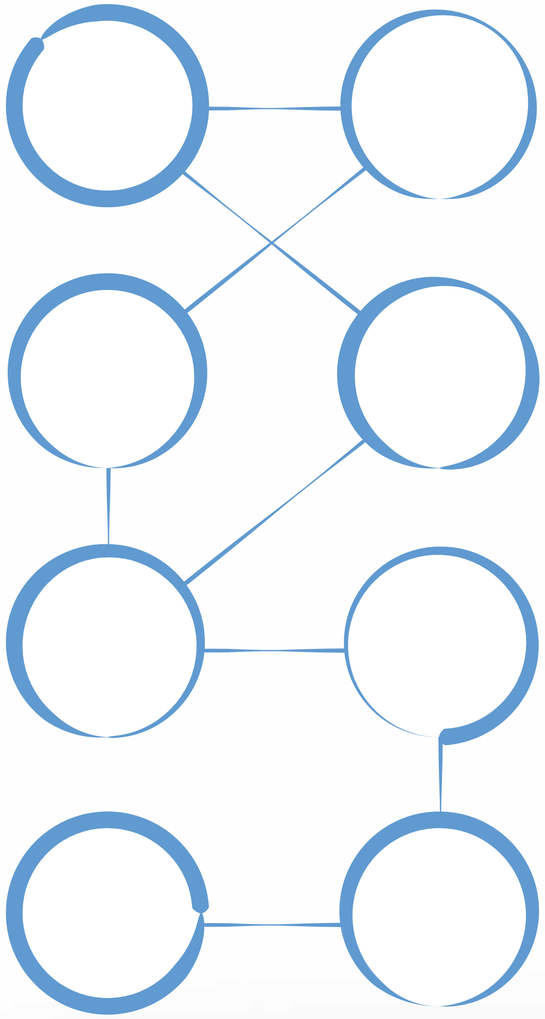


Solving Your Big Data Problems with *Fast Data* (Better Decisions and Instant Action)

Does your company's integration strategy support your mobility, big data, and loyalty projects today—and are you prepared for what's coming?

Are you collecting the right data and finding what's important? Can you act fast enough to take advantage of what you find and gain a competitive advantage?

If you don't like your answers to these questions, this ebook can tell you what the problem is and how to fix it. It explains how the TIBCO Fast Data architecture, which goes beyond the enterprise service bus (ESB), delivers the Two-Second Advantage,® the right information—*and the right decision*—at the right place and time.



The average CIO dedicates 75 percent of their IT spend on maintaining operations, leaving only 25 percent for more strategic, opportunity-generating business initiatives. As budgets inevitably tighten, cuts always come from this 25 percent. Good companies lose their competitive edge.

The problem starts with IT architecture.

In the 20th century, point-to-point architectures ruled.

To get data from system to system, they were connected individually with specific interfaces. It made for a complicated mess of connections. As new systems were added, the connections became slower and more complex.

For business, point-to-point designs prevent:

- High speed sharing or modification
- Accurate visibility into business processes
- Fast action

For IT, point-to-point cannot address today's integration needs:

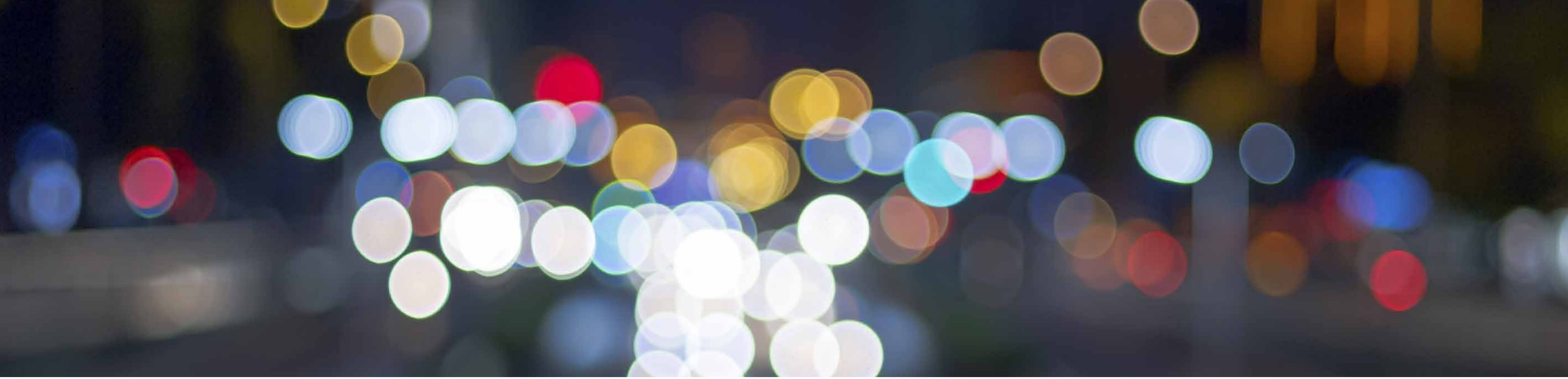
- Legacy and custom applications
- ERPs
- Cloud-hosted CRM and HR solutions

It's also costly to maintain.

For example....

Why maintaining point-to-point is so costly:

- The interface for each combination of applications is unique, can't be reused, and forces new development for any new interface.
- The combination of technologies and their required service levels cause latency for data integration, which impacts business processes and team efficiency.
- The combination of technologies prevents an end-to-end view of processes and hinders quality control for services.
- A broad set of skills is needed, increasing staff and detracting from strategic development.
- Some services that are crucial to your business are entrusted to partners, requiring processes that span organizational boundaries, a synchronicity that will be very costly to achieve.



YOU—business users and IT—can solve these problems and others by focusing on:

- Improving the availability of information with contextual, event-based data
- Enabling fast decisions and actions

The alternative to point-to-point is an enterprise services bus (ESB) that is the basis for a service-oriented architecture (SOA). An integration platform implemented on a bus architecture solves virtually any integration problem. Since each application and technology only requires one connection to the bus to expose or consume information, the number of interfaces is drastically reduced.

An ESB uses a publish-and-subscribe model.

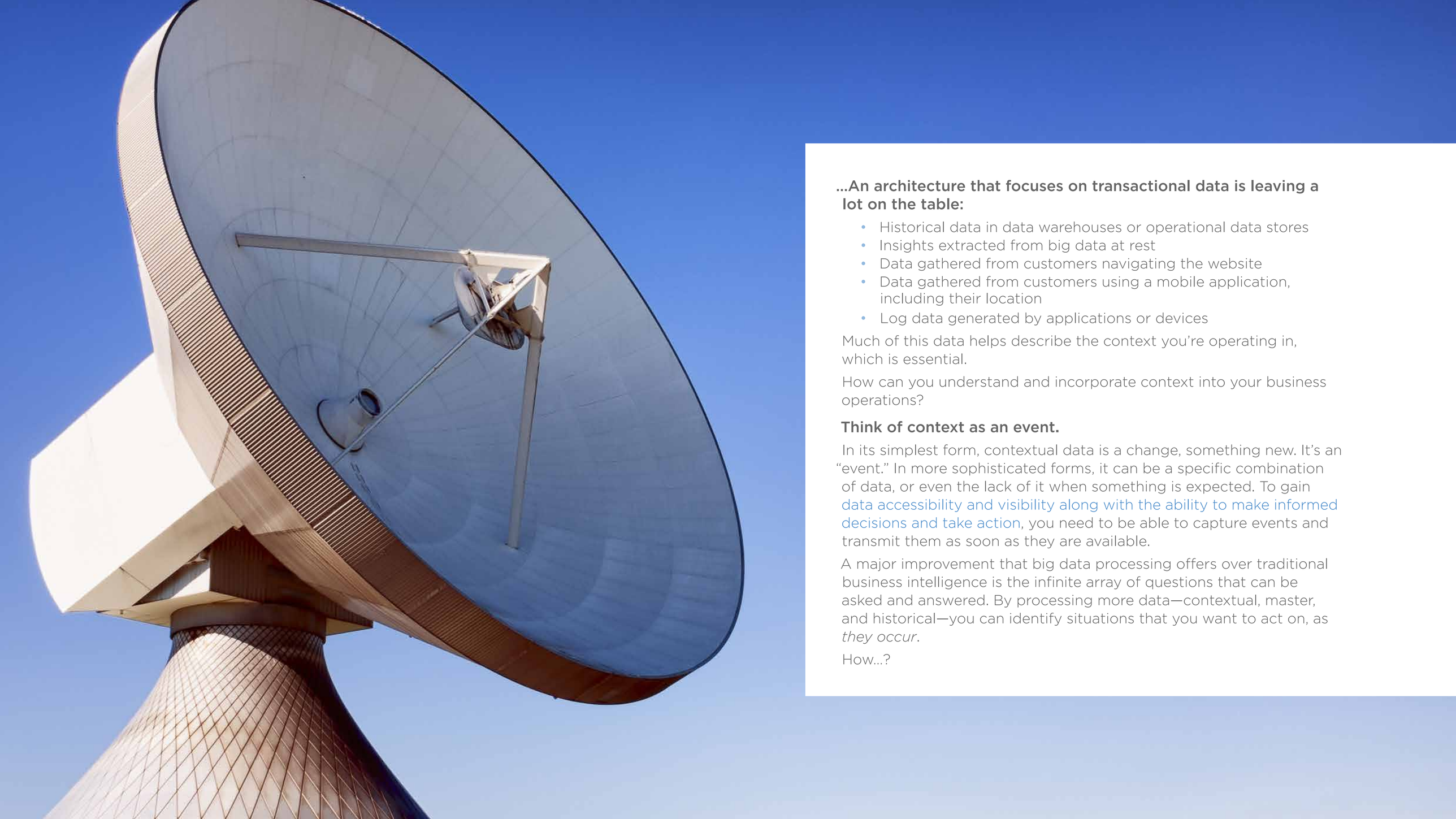
Information is pushed into the bus and made accessible to the people and systems who need it—creating a one-to-many vs. one-to-one information exchange.

This means less complexity, less maintenance, and more resources for improvements that can help you compete. A bus is also the first step towards solving other big data problems like:

- Improving visibility and information accessibility
- Accelerating decision-making
- Enabling fast action

But, while many companies use an ESB, most still don't take advantage of the "E," *Enterprise*. They integrate applications, but not all data, which prevents them from getting the full picture of what's happening, making the right decision, and acting quickly.

The ESB provides value even when it's only integrating applications, but unless it extends to all your data, it's not doing everything it can do. Furthermore, it won't solve your big data problems because…



...An architecture that focuses on transactional data is leaving a lot on the table:

- Historical data in data warehouses or operational data stores
- Insights extracted from big data at rest
- Data gathered from customers navigating the website
- Data gathered from customers using a mobile application, including their location
- Log data generated by applications or devices

Much of this data helps describe the context you're operating in, which is essential.

How can you understand and incorporate context into your business operations?

Think of context as an event.

In its simplest form, contextual data is a change, something new. It's an "event." In more sophisticated forms, it can be a specific combination of data, or even the lack of it when something is expected. To gain data accessibility and visibility along with the ability to make informed decisions and take action, you need to be able to capture events and transmit them as soon as they are available.

A major improvement that big data processing offers over traditional business intelligence is the infinite array of questions that can be asked and answered. By processing more data—contextual, master, and historical—you can identify situations that you want to act on, as *they occur*.

How...?

Evolve from ESB to Fast Data

Our event-driven integration platform goes beyond the ESB, taking all of the information flowing in it and moving it into an event server (an in-memory data grid). The event server handles more than just transactional data. It lets you include all your information. It uses inexpensive memory on servers of all sizes for a distributed architecture that ensures elasticity and low latency.

Within the event server, we add analytics that help you identify the patterns you want to spot, event processing to spot those patterns (and context) in real time, and business process management to turn your insights into action.

Now all of your data—millions and millions of events and log files—can be correlated in real time, with your business rules driving the action.

This is Fast Data.

With Fast Data, you can solve business problems that were once unfathomable.

Here's an example....

Example: Fraud detection using Fast Data

Kevin is out with his family on their weekly pizza night. Before going to the restaurant, he uses his ATM card at a local gas station. Five minutes later he makes a withdrawal at the bank. These are separate events received by different servers within his bank being published into the event server.

Three hours later in Asia, a transaction is made against his bank account. With the old, disjointed architecture, these events would appear as separate and unrelated. But when you treat them as events, correlated in real time, they indicate an attempt at fraud.

With the event server using pre-existing rules, a pattern is identified, action taken, and fraud prevented.

Data quality is crucial

Events only provide a bit of data about a specific business object, like the present location of a customer. They don't give you enough information to engage them. You need the ability to access and use *validated information* about your customers, products, or other business objects at any time.

If you don't achieve data validation, it will lead to unnecessary costs (such as sending multiple communications to the same person) and a less than optimal customer experience.

The challenge is that data about business objects is scattered across applications and can change at any time via various channels. Master data management (MDM) solves this problem and complements the event-driven integration platform.

How master data management (MDM) helps

MDM helps you define the data types that will be shared and used in all contexts:

- Attributes that describe customers and other business objects
- Rules and processes that govern updates to these records

Because it's part of the same architecture as the event-driven integration platform, it:

- Captures any change in data.
- Publishes an event as soon as validated data is available, keeping data in sync with context and ensuring applications are using the right data.
- Exposes the right master data on demand using the event server to keep up with volume and velocity.

MDM is key to keeping TCO low and ensuring fast access to hundreds of millions of records you can trust.

MDM software is like a spell checker for the Fast Data platform.

It can make your data so accurate that it becomes valuable to your partners or customers, giving you the opportunity to monetize it via an open API.

Being event-driven is better for business

Today's market and technological landscape generates an increasing number of events:

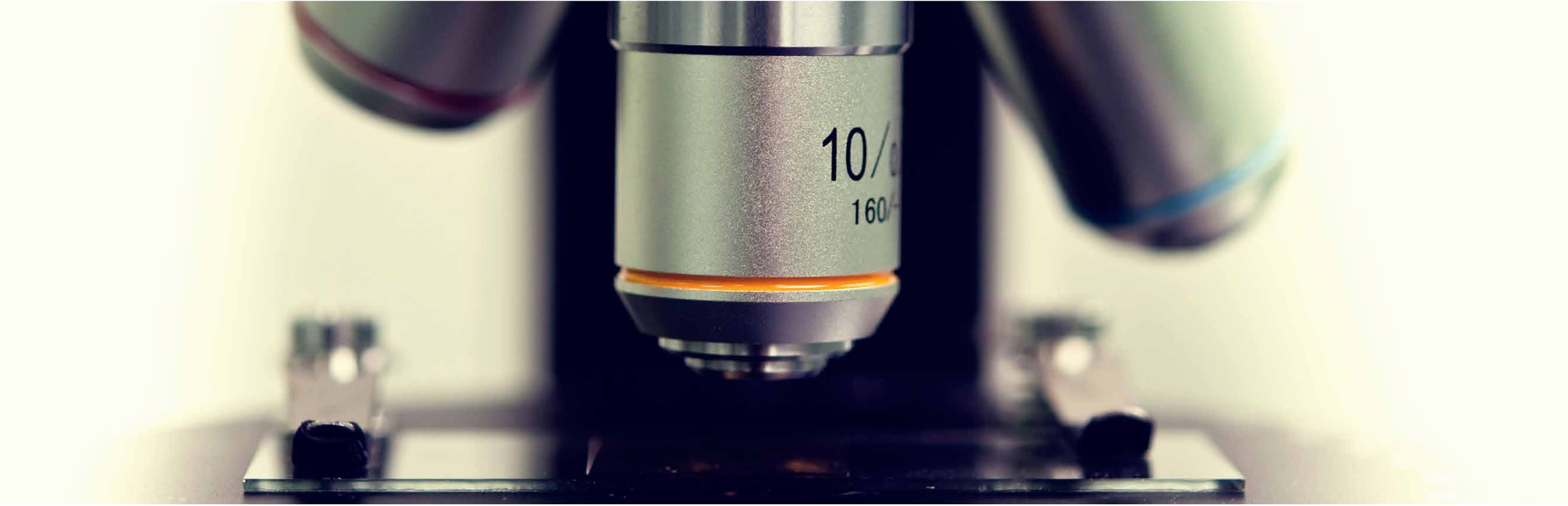
- Mobile applications can capture events, such as user location.
- Social networks provide user-generated events, as well as millions of events about topics of interest, such as products and brands.

An event-driven integration platform provides access to all data representing context, supplying the opportunity for better, more immediate understanding of customers, opportunities, and threats. *It creates the ability to make informed decisions on the fly.*

Being event-driven also improves IT system performance

An event-driven approach publishes events as soon as the change is captured.

- Any application interested in an event can subscribe to it and react immediately, instead of polling for information or waiting for a batch delivery.
- The number of applications that consume the same event does not impact the speed at which the event is processed, allowing the architecture to scale efficiently.
- Applications can easily subscribe to events through configuration without impacting the platform. They are constantly enriched with new data.



Now, about big data (data at rest)

Big data technologies like Hadoop and statistical engines aggregate large quantities of data for analysis and modeling. You can drill into metrics to understand what is driving the results.

And the fresher the data, the better the results. This is where event-driven integration works so well, by making all of your data available for processing, it improves the quality of the results.

Yet volume and variety will not solve big data's biggest flaw. Its promise is to provide insight. You need to develop this insight, and *turn it into action.*

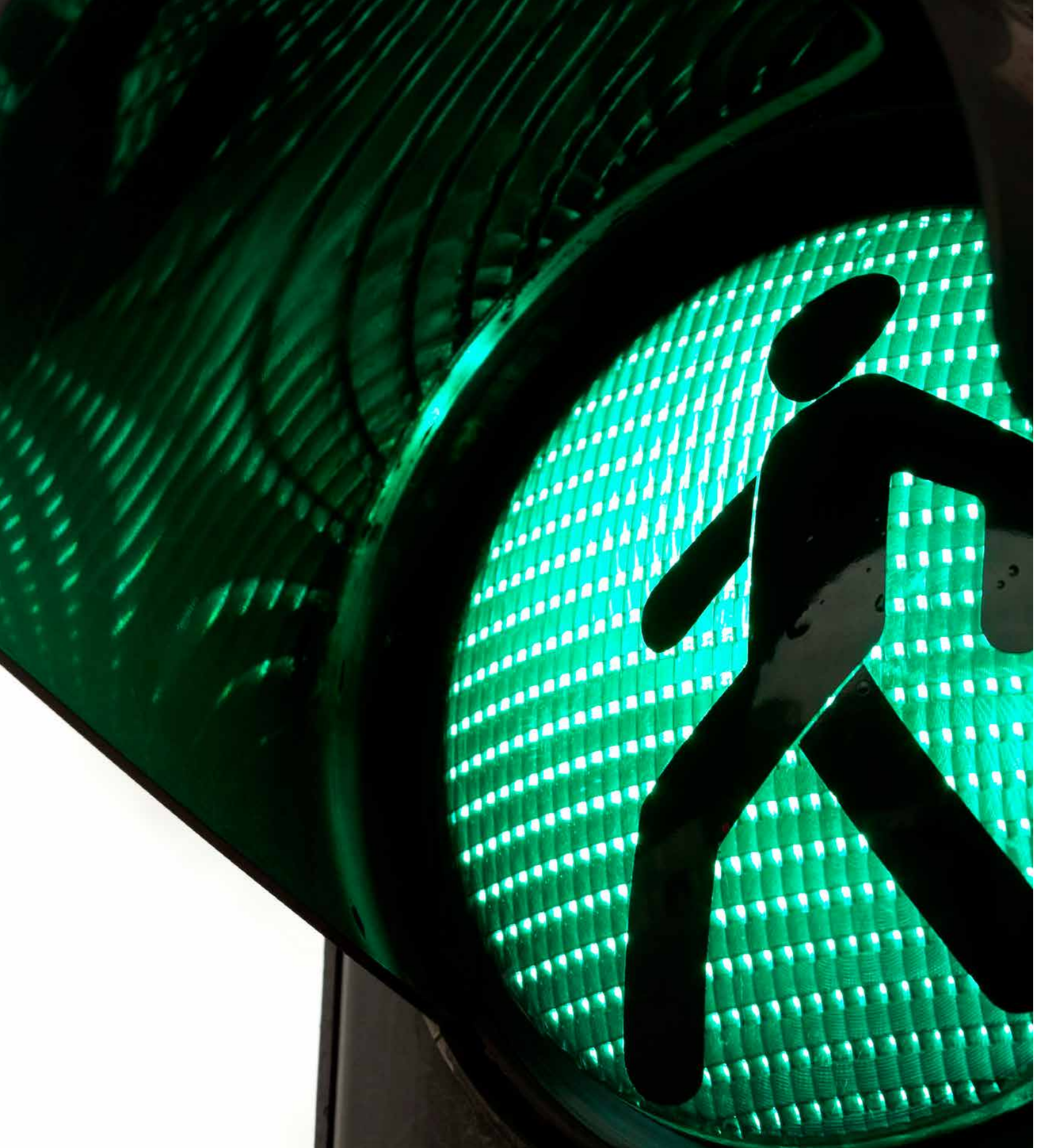
Without action, at some later point, you'll only be able to see that you could have prevented a problem or seized an opportunity.

Insight and action need context

Big data produces information based on the past, based on an aggregation of historic, not present, context.

Knowing what led a customer to buy or the symptoms leading to machine failure is interesting, but would be of far greater value if it could be applied before the fact—to encourage a purchase or avoid the need for repair.

Event-driven integration builds this contextual understanding by correlating freshly updated business objects with master data, like this…



Building context

The simple, potentially very technical event that entered the architecture (a server log) now has much more significance because it can be related to the transaction that generated it, as well as to the customer that initiated the transaction.

That's how the system prevented fraud on Kevin's account.

That's how you will be able to take advantage of social and mobile information and cloud applications.

By correlating multiple events as they occur, you can identify business scenarios that need attention and action.

The combination of event-driven integration, in-memory data grids (the event server), and a real-time analytics solution provides visibility.

Now, what about decision-making and action-taking?

Decision-making and action-taking

First, analyze.

With a wide variety of events, contextual data, master data, historical data, and our unparalleled streaming analytics, you can identify the situations and patterns you want to look for and act on.

Start event processing.

Event processing technology combines correlation with event-driven rules management. It scales to ensure minimum latency for identifying events, or the lack of expected events, and for triggering actions. Business rules make the decision and trigger the best action.

Take action.

Triggered by event processing, intelligent business processes can be fully automated or partially automated with employee involvement. Smaller logic segments linked by decision points make the whole process more flexible.

Learn.

As the Fast Data platform runs, you are also analyzing the effects of your actions. You can quickly adjust to get better results and continually improve. The system helps accelerate this learning process and your ability to predict and respond.

And when employees need to respond—make decisions or take action—they have full visibility on the context to help them.

Example: The event-enabled enterprise business process

Based on the context, employees interacting with customers can change the execution path of the process, or even better, see the next best action.

Rachel realizes she wants to buy a second item and calls customer service. Steve answers, and instead of insisting she place another order, he updates the current one, which automatically kicks off updates to provisioning, delivery, and billing sub-processes.

Updating or augmenting capabilities can be accomplished just by updating business rules.

Big Data

The volume and variety of information you collect.

Fast Data

The processing of big data at real-time velocity, enabling instant awareness and action.

As the foundation for Fast Data, event-driven integration future proofs your integration platform and lets you use your integration budget for innovation rather than maintenance.

By understanding your business context and acting on it, you can truly make a difference: have real-time conversations with your customers, encourage loyalty, and increase revenue.

Answers to your big data problems

Does your company's integration strategy support your mobility, big data, and loyalty projects today—and are you prepared for what's coming?

> *With the ability to capture any amount of information in real time, understand context, and take action when it matters (Fast Data), you can turn mobile, social, and loyalty, and whatever comes next into BIG advantages.*

Watch the TIBCO event-enabled enterprise video
(04:41 min)

Does the data you collect help you find what's important? Can you act fast enough to take advantage of what you find and gain competitive advantage?

> *You can with TIBCO. You can leverage Fast Data to develop insight, and act in the moment to make an impact. It all starts with event-enabled, future-proof integration.*

Learn about ActiveMatrix BusinessWorks™ 6