THE STATE OF

Data in Motion

REPORT

2022

CONFLUENT

HARNESSING THE POWER OF

Data in Motion

A TECTONIC SHIFT is disrupting the business landscape, as companies accelerate their efforts to win in a digital-first world. Data has emerged as one of the most important assets needed for businesses' next evolution. To transform, companies must connect streams of data from all applications, systems, and parts of the business to form a real-time central nervous system.

Modernizing data infrastructure with real-time data streams — what we call, "data in motion" — enables continuous processing of data for better workflows, more automation, and ultimately, superior experiences for customers. For this reason, organizations are beginning to realize that setting their data in motion is key to their next chapter of success.

For Confluent's inaugural State of Data in Motion Report, we teamed up with Lawless Research to survey 1,950 IT and engineering leaders from the US, UK, Germany, France, Australia, and Singapore.

These leaders shared firsthand how they imagine and experience the benefits of data in motion, the roadblocks they face with widespread adoption, and the role they believe real-time data streaming will ultimately play in their success. Taken together, their insights offer a compelling roadmap for how data in motion can underpin the businesses that excel, now and into the future.

ERICA SCHULTZ
PRESIDENT OF FIELD OPERATIONS, CONFLUENT

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Executive Summary

WHETHER IT'S A retailer knowing an item is in stock and ready to deliver as soon as a customer clicks "buy," or an IT team building and deploying a crucial application within weeks rather than months, data in motion can be a deciding factor in whether an organization survives (and thrives) in today's world.

Real-time data streams — continuous flows of information delivered as they're collected — are critical to running successful businesses. Managing this torrent of information can influence everything from how employees get their work done, to how brands engage customers and get them their goods.

Yet, given the explosion in the number and variety of data sources — from production line sensors and IOT devices, to mobile e-commerce and digital banking — this potentially powerful force is difficult for many organizations to harness fully.

And, as businesses often choose to adopt hybrid architectures that feature both cloud and on-premises environments, it is increasingly important that data is able to flow seamlessly (and instantly) between locations to ensure speedy insights. Not all organizations are ready for the transformation, though. While centralized, cloud-based data in motion is quickly becoming achievable, many companies are scrambling to keep up. But others are leading the charge — and outperforming the competition.

Key Findings

1

Data in motion boosts customer engagement and the bottom line

A majority of IT and engineering leaders have access to real-time data streams and are realizing the value of this information in creating rich experiences for their customers and finding paths to growth. **56% of IT leaders with widespread access to real-time data streams report revenue growth higher, or much higher, than their competitors.**

2

Real-time data streaming is essential, but challenging

Many businesses lack the architecture to integrate and take advantage of information that flows from so many disparate sources — data that ideally would be within easy reach of any user. **60% say difficulties integrating multiple data sources is the top hurdle to accessing more real-time data.**

3

Success in the cloud demands real-time data streaming

Most organizations are moving their historically on-premises data to the cloud — often, more than one cloud — making the data even more difficult to access, synchronize, and govern. **68% of IT leaders say real-time data synchronization between data environments is very, or extremely, critical to achieving their 2022 revenue goals.**

01

Data in motion boosts customer engagement and the bottom line

"

REAL-TIME DATA streams are becoming core to how we serve customers and run our business. With quality data in motion, we can manage customer engagement, ensure vaccine and testing accessibility for patients, and enable a differentiated online retail proposition. An organization-wide IT modernization effort has led to an increasingly seamless omnichannel experience wherever customers choose to interact with us, across our pharmacies, retail stores, or online and mobile properties."

YAËL GOMEZ

VICE PRESIDENT, GLOBAL IT,
INTEGRATION AND INTELLIGENT AUTOMATION,
WALGREENS BOOTS ALLIANCE

A Competitive Edge

While the great majority of leaders we surveyed have access to some degree of real-time data streams (97%), those with widespread access (66%) are at a major advantage. More than half of this group (56%) reported revenue growth higher, and even much higher, than their competitors. A larger segment (63%) saw an annual revenue growth of 10% or more between 2020 and year-end 2021, despite the global pandemic.

The value of putting data in motion is clear in a wide variety of applications. Retail organizations can deliver higher levels of customer engagement across all channels. Financial services companies can ensure regulatory compliance and proactively mitigate cyber risk while delivering superior customer experiences. Manufacturers can better manage inventory with sensor data that tracks goods from production line to market. And organizations of all kinds can achieve more efficient, economical, data-driven operations.

Between 2020 and 2021, did your organization report an annual revenue growth of 10% or more?

63%

Yes,
from companies with widespread access to real-time data streams

44%

Yes,
from companies with some access to real-time data streams

Keeping Customers Happy

3 in 4 organizations say they would lose customers without access to the insights they glean from real-time data streams today, with retailers being the most likely to suffer. Even more — 8 in 10 — say that real-time data streams are very, or extremely, important when it comes to building rich customer experiences.

Consumers today expect interactions to be personalized and available in the most convenient channel, and they don't have patience for old-fashioned, slow-motion transactions. With so many companies tapping into real-time data streams, those that hesitate to make the transition are at a distinct disadvantage with customers — who may not even be conscious of what motivates their brand preferences.

Is your organization likely to lose customers to competitors without insights provided by real-time data streams?

76% Yes

24% No
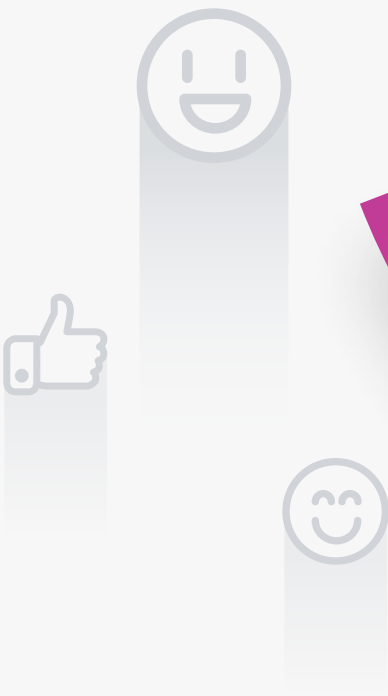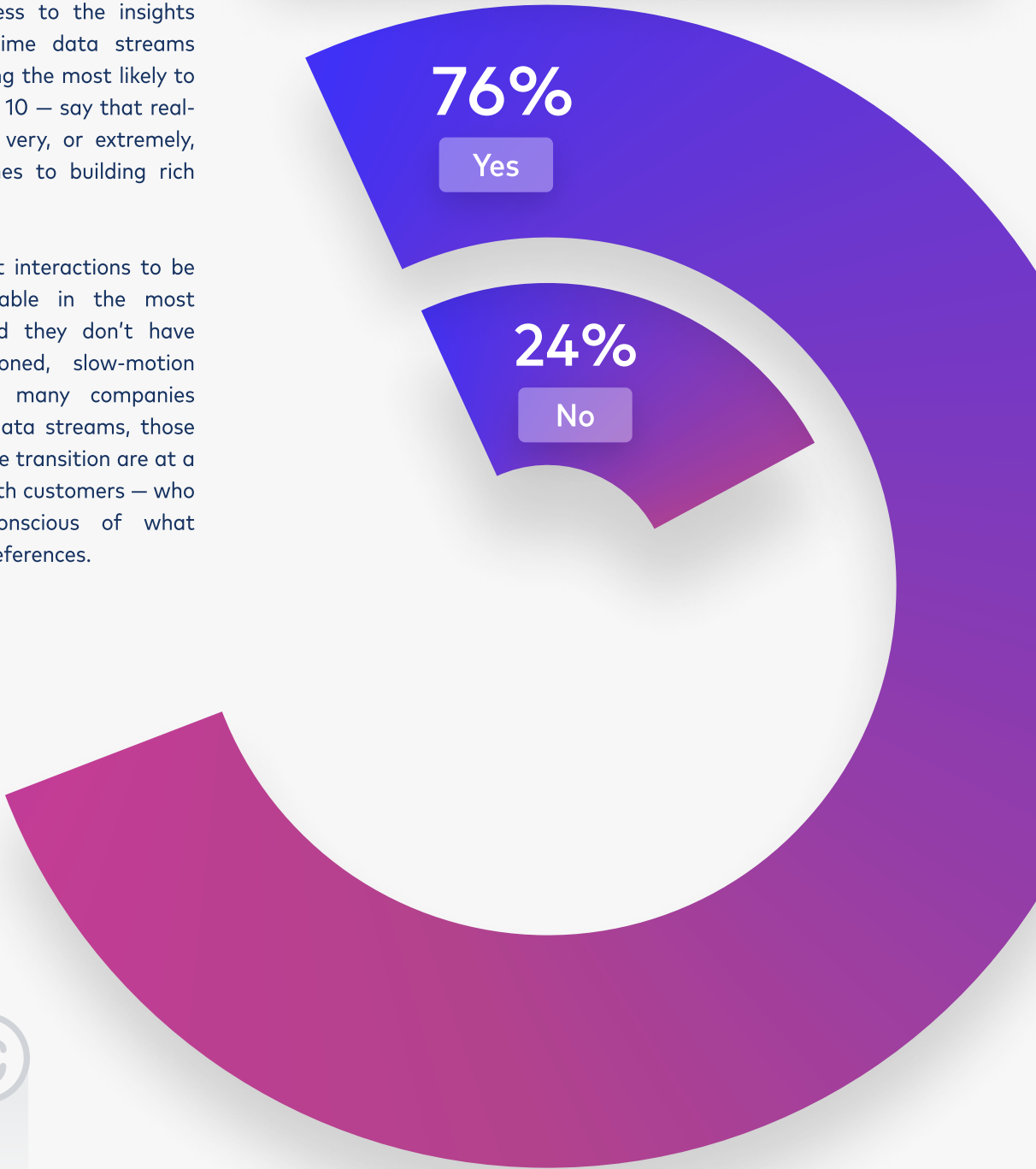
What benefits has your organization experienced from using real-time data streaming?

A More Efficient, Responsive Business

More than 8 in 10 leaders say real-time data streams are critical to responsive business processes for employees. And they say improved efficiency is the number-one benefit, with 52% of leaders selecting it as a top result.

Other key benefits include the ability to create higher customer engagement (48%) and a faster reaction time to changing circumstances (47%) — especially important these days when major shifts can happen overnight. Even commonplace issues like sudden equipment malfunctions and changing consumer tastes can rapidly affect supply and demand.

Real-time data streaming makes an organization inherently more agile, with the ability to connect and use data in new ways. It also enables more powerful customer experiences across devices, platforms, and channels, helping to deliver more accurate customer insights, higher customer retention, and, ultimately, more revenue — the real driver of any technology decision.

52% Improved operational efficiency

48% Higher customer engagement

47% Faster reaction time

46% More accurate customer insights

46% Higher customer retention

43% Faster strategic decisions

38% Immediate insights

36% Increased revenue

34% Cost savings

30% Faster time to market

29% Reduced risk

02

Real-time data streaming is essential, but challenging

"

CUSTOMER BEHAVIORS HAVE changed drastically over the past few years. Now, retailers must be ready for shopping peaks to happen at any time. Modernizing applications to run in the cloud is a necessity, and making sure real-time data flows throughout all environments is essential. The ability to scale and build applications quickly will determine who wins in today's digital-first economy."

HEATHER MICKMAN

CHIEF INFORMATION OFFICER,
GAP INC.

Serving Customers Wherever They Are

We asked IT leaders where they see data integration as most essential to their company. The top answer (64%) was "customer interactions from web and mobile," with product usage data (61%) and data from IoT devices (58%) close behind.

Customers now insist on personalized, on-demand experiences that are grounded in data in motion — like buying groceries online. This type of offering requires delivery services to keep precise, up-to-the-minute track of inventory, prices, and promotions across

thousands of retailers, and to coordinate teams of in-store shoppers to ensure that items reach customer doorsteps on time. The next-generation applications that make this possible require data integration across disparate sources, and companies that don't offer them can't compete.

Indeed, 60% of IT leaders say difficulties integrating multiple data sources are the biggest hurdle to accessing more real-time data — nearly twice as many respondents as those who cited a lack of budget.

Which of the following are serious hurdles to preventing more widespread access to real-time data in your organization?

60%
Difficulties integrating multiple data sources

49%
Incompatibility of real-time applications

39%
Lack of relevant skills

32%
Lack of budget
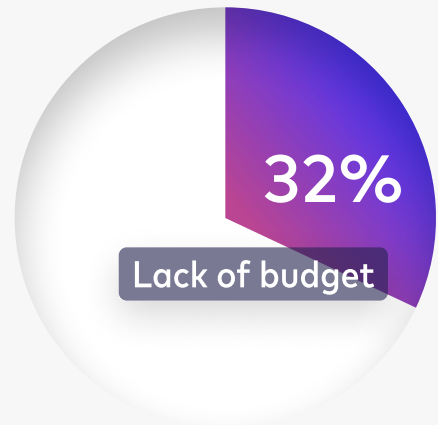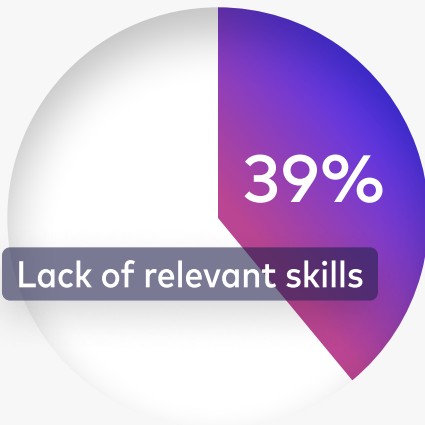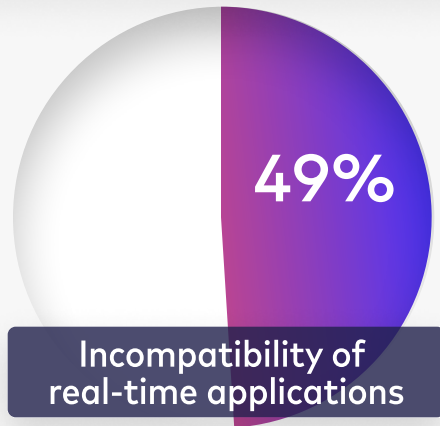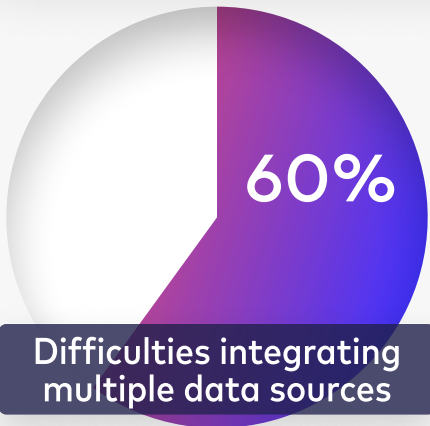
How easy or difficult is the timely integration of real-time data from different applications across your organization for mission-critical processes and applications?

	500-999 employees	1,000-4,999 employees	5,000-9,999 employees	10,000-24,999 employees	25,000+ employees
Easy	70%	62%	58%	46%	39%
Difficult	30%	38%	42%	54%	61%

Easy
Difficult

Data, Data Everywhere, Yet Not a Drop to Drink

Most companies today are awash in data. Yet, it's not just the volume that's challenging, but how to make instantaneous sense of it and put it to work in real time. 76% of IT leaders say the timely integration of real-time data from different applications is very, or extremely, important for mission-critical processes within their organization. But nearly half (40%) report difficulty integrating data in a timely way — a task that gives companies with 25,000 or more employees the hardest time.

Building Trust, Accelerating Innovation

Data governance tools manage the availability, integrity, and security of data used across an organization. Only 27% of the companies we surveyed currently have such tools in place, although the majority of the rest say they have plans to adopt them within the next few years.

Having trust and confidence in your data streams is essential for putting those streams to effective use, and to enable teams to innovate autonomously and uncover critical insights.

Indeed, 63% of respondents who don't yet take advantage of governance tools say that this shortcoming has hindered their integration initiatives. In fact, 2 out of 3 organizations (68%) say it's challenging to even find the data they need to build real-time applications.

Has the lack of data governance tools for real-time data streams impeded your organization's data integration initiatives?

68%
Yes

32%
No
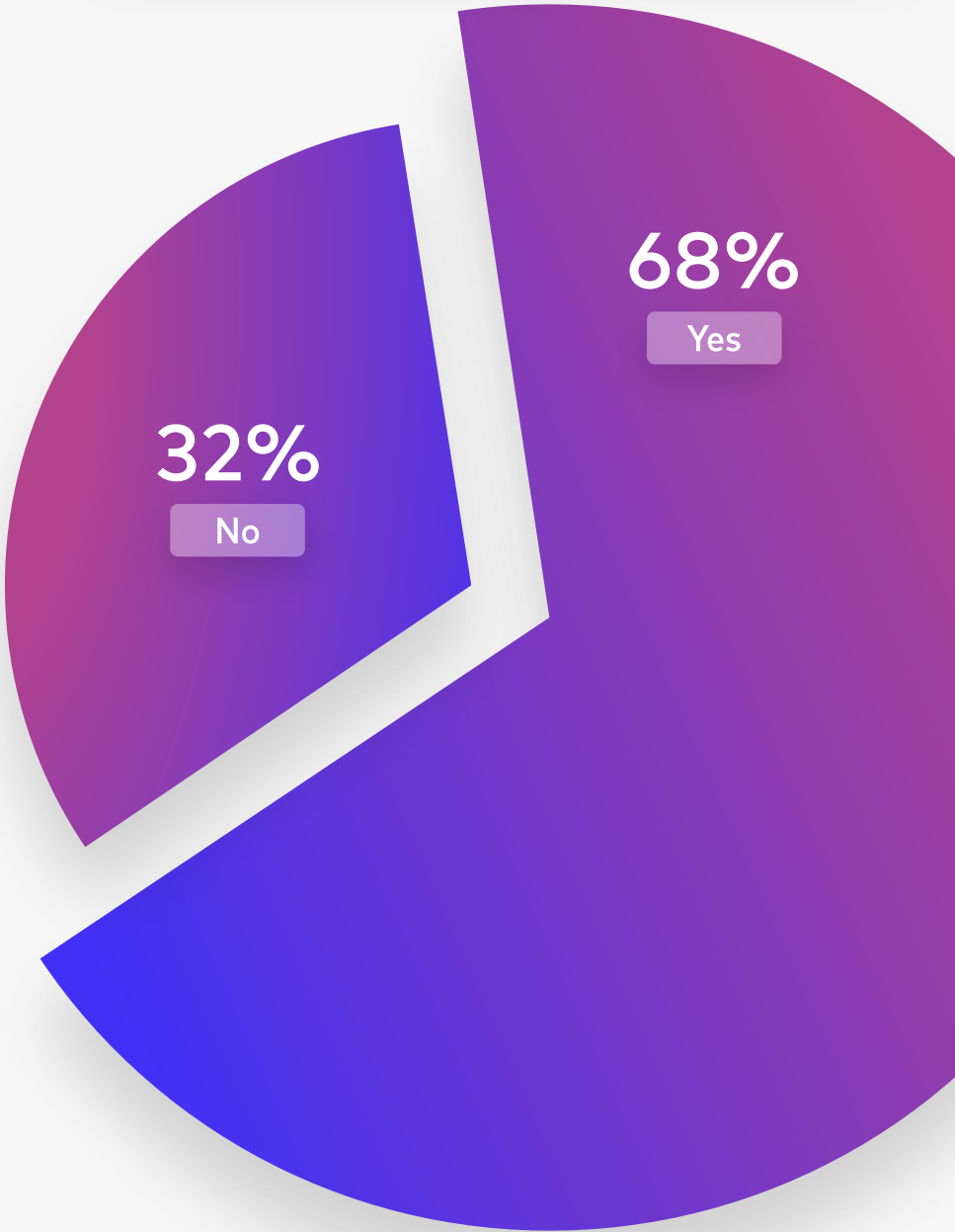
03

Success in the cloud demands real-time data streaming

" **MCKESSON IS A** global leader in healthcare, and we're dedicated to improving care and improving lives. Our diverse business spans on-premises, multiple public clouds, and multiple locations. So, having a data mesh architecture is foundational in ensuring accurate, secure, and easy to access data products across the business. Real-time data streams are the foundation of innovation efforts across our applications and analytics for healthcare distribution, retail pharmacy, community oncology, and healthcare technologies."

KEN GRAVENOR

SENIOR DIRECTOR,
TECHNOLOGY MODERNIZATION,
MCKESSON

2%
Not at All Critical

27%
Extremely Critical

7%
Slightly Critical

How critical is real-time synchronization between on-premises data centers and private or public cloud environments to achieving your organization's 2022 revenue goals?

22%
Somewhat Critical

41%
Very Critical
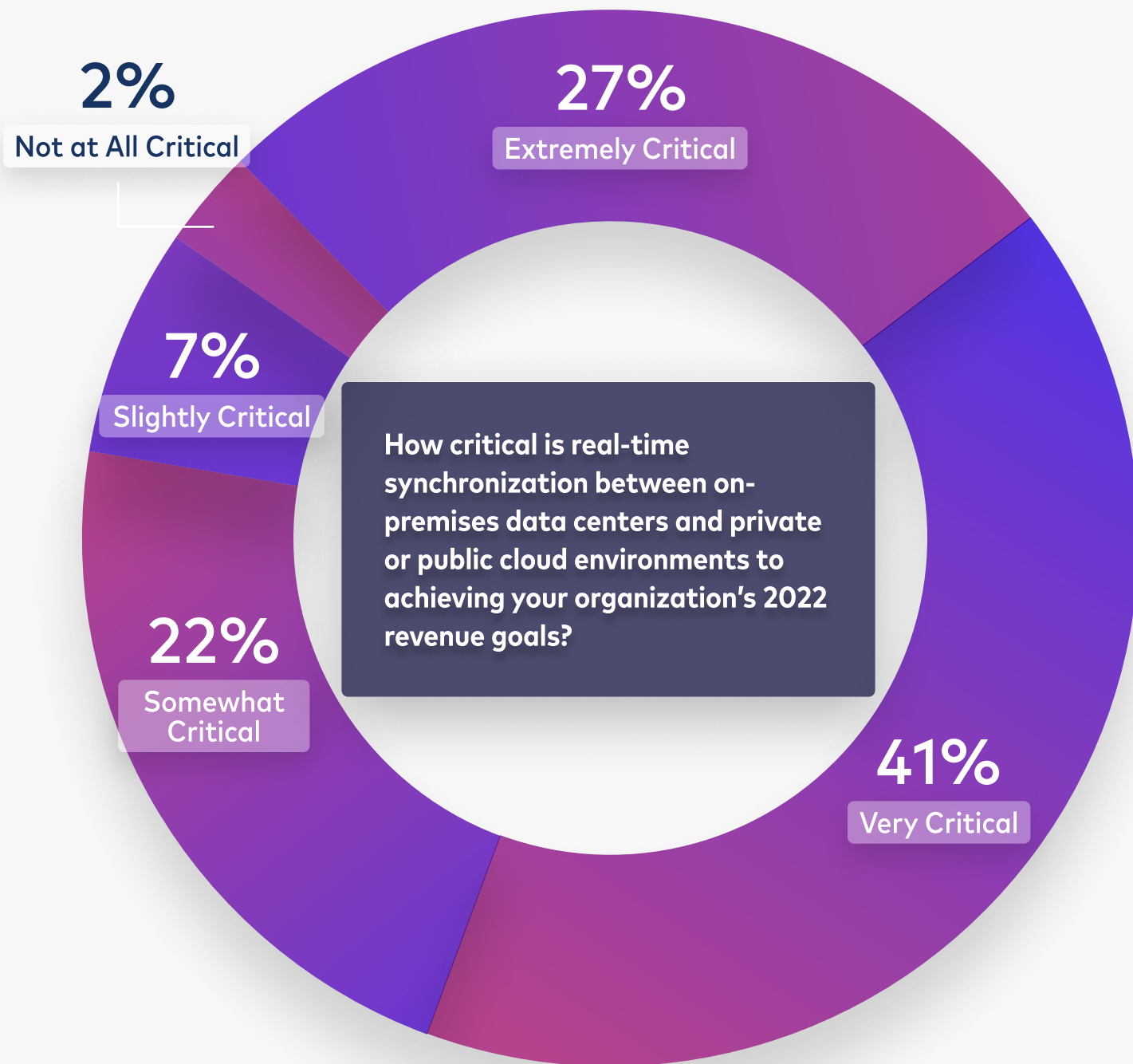
Catching Up to the Cloud

The cloud is at the center of business today. But only 39% of respondents say they're "completely prepared" to operate in a hybrid cloud environment, where some of their data is in the cloud and some still on premises. As data lives in more places, it gets more difficult to track it down, keep it safe, and make sure it's synchronized with the rest of the data in the business.

True data in motion means having real-time synchronization between multiple data environments, and 68% of IT leaders say this type of functionality is critical to achieving 2022 revenue goals.
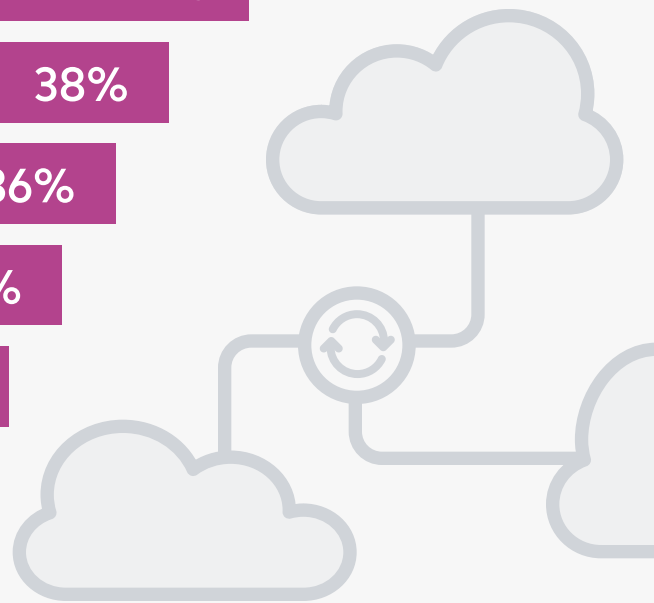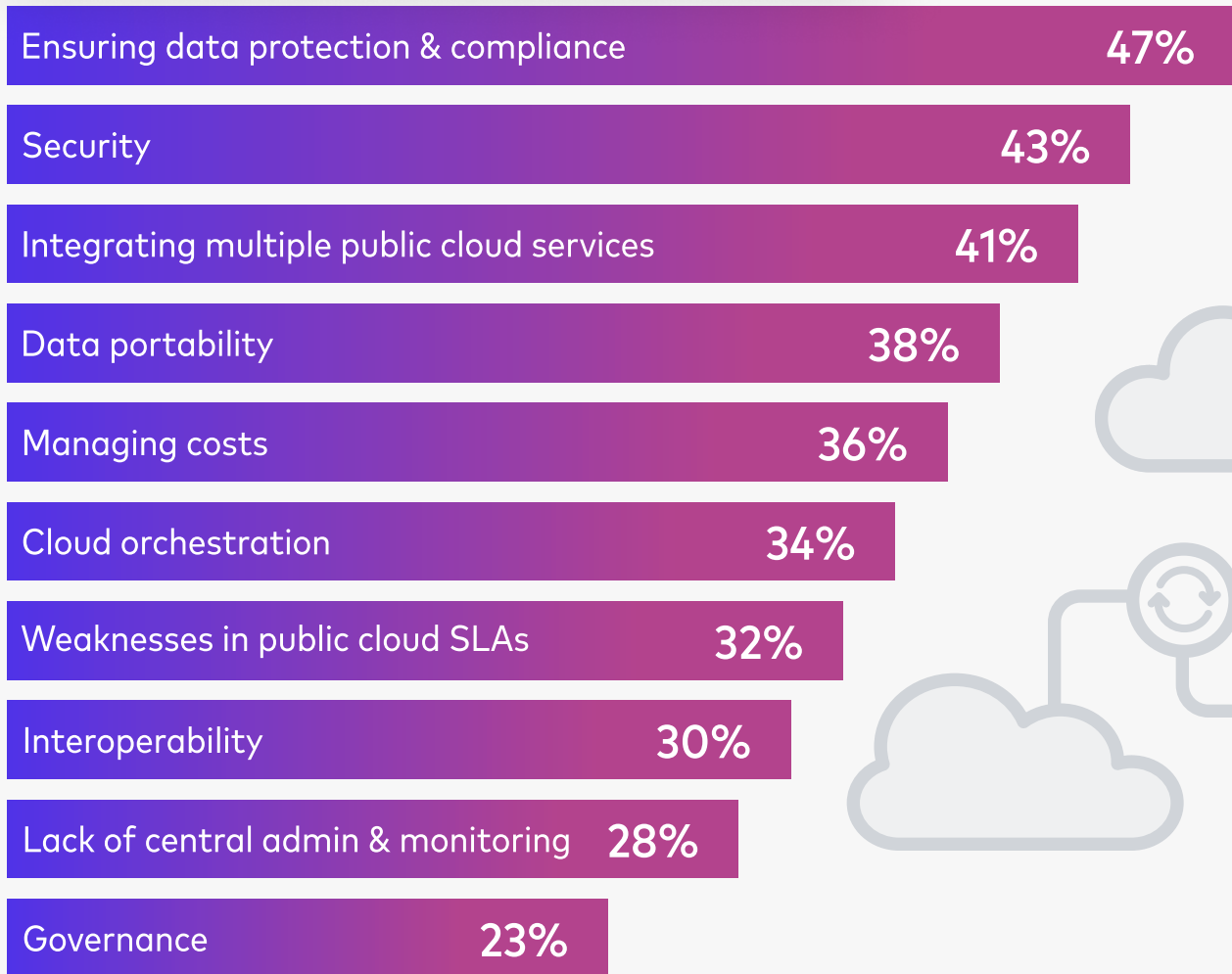
Synching Data Among Multiple Clouds

Organizations that have already moved to public clouds use an average of 2.9 of them to take advantage of best-of-breed solutions for their needs and avoid locking in with a single vendor. But, while the multi-cloud approach is common, 32% of IT leaders struggle to synchronize data between storage environments effectively.

The struggle is further complicated by worries over security and regulatory compliance, with 47% of respondents saying their challenge is ensuring data protection and compliance with complex regulations like HIPAA, and 43% citing security.

What challenges did your organization encounter when implementing multicloud architecture?

Challenge	%
Ensuring data protection & compliance	47%
Security	43%
Integrating multiple public cloud services	41%
Data portability	38%
Managing costs	36%
Cloud orchestration	34%
Weaknesses in public cloud SLAs	32%
Interoperability	30%
Lack of central admin & monitoring	28%
Governance	23%

What are the top reasons your organization is reluctant to move information from on-premises to cloud environments?

69%
Security Concerns

36%	30%	26%
Cost & ROI	Downtime & Data Availability	Network Capacity

24%	23%	22%
Applications that Need Real-Time Visibility	Cloud Migrations are Painful	Lack of Cloud Expertise

22%	22%	15%
Lack of Reliability	Extra Vendors to Deal with	Internet Connection Issues
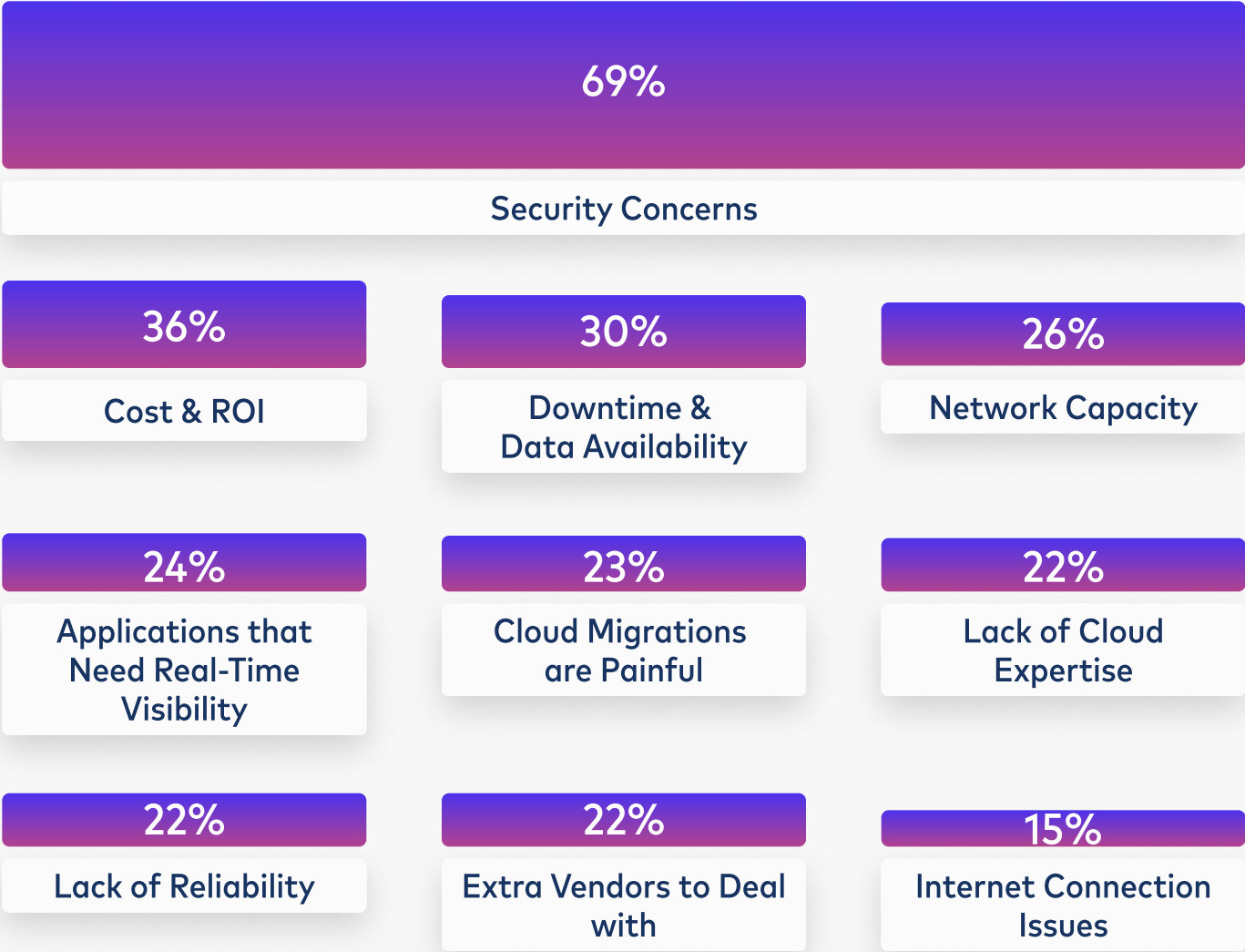
Security Matters

Given that companies using a hybrid cloud architecture struggle with ensuring data security and compliance, it's not entirely surprising that the organizations still storing data on premises are reluctant to move to the cloud for these reasons.

69% report security concerns like ensuring data protection, losing control of data security, and/or threats of being hacked as their top reasons for hesitating to move to the cloud. Cost and ROI is the second-most common reason (36%).
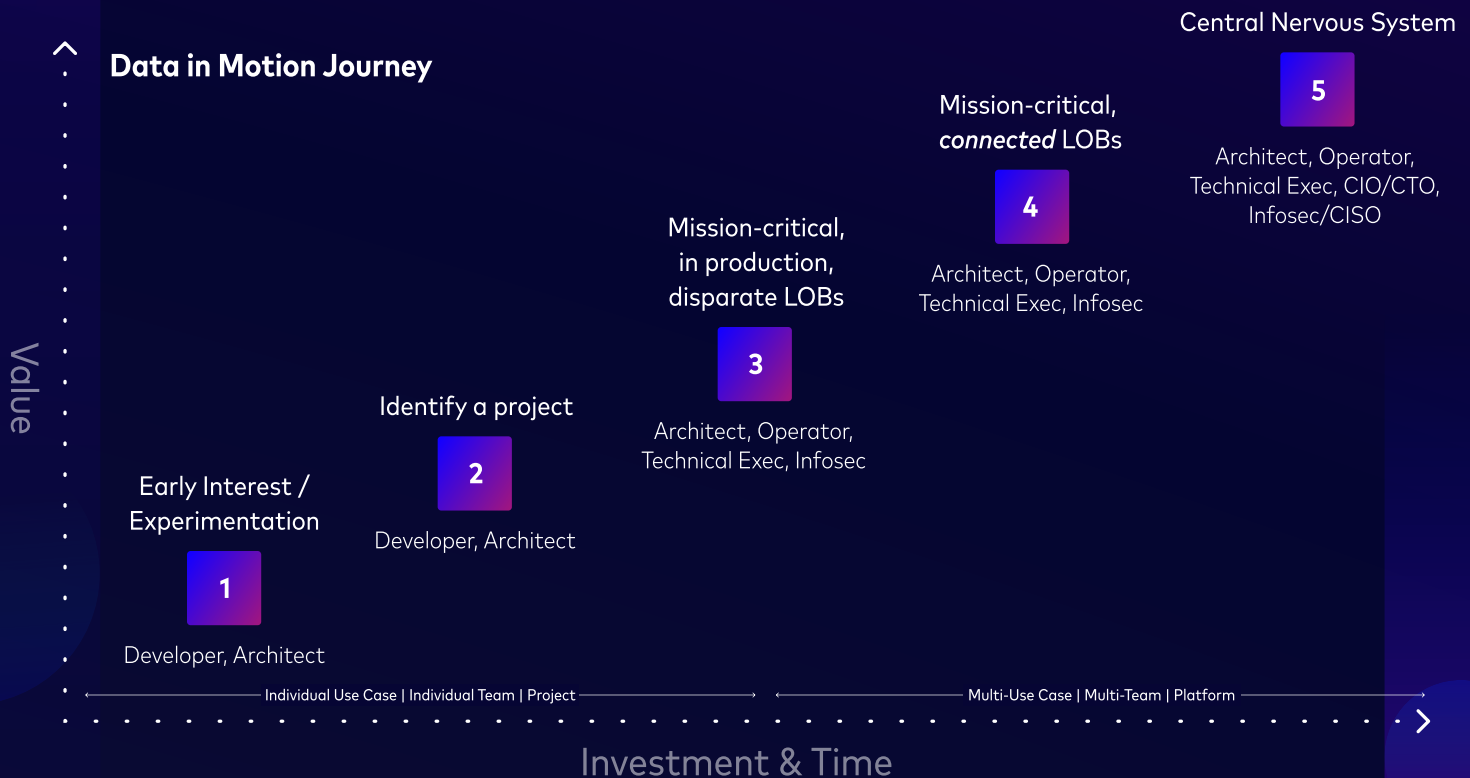
Data in Motion

ACROSS VIRTUALLY EVERY industry, companies are shifting to a digital-first paradigm in which real-time interactions are completely reinventing everyday customer experiences, and businesses are striving to become more agile with connected real-time operations.

The most successful companies of the near future will be the ones that operate on an architecture that harnesses the power of all their data and sets it in motion to drive real-time business decisions. For most companies though, this transition will not happen overnight.

Creating a real-time central nervous system that ties together disparate environments, applications, and systems into a coherent whole will present unique challenges. And, ensuring the end result is built to react and respond intelligently in real-time is a journey made up of discrete steps.

Data in Motion Journey

Central Nervous System

5

Architect, Operator, Technical Exec, CIO/CTO, Infosec/CISO

Mission-critical, *connected* LOBs

4

Architect, Operator, Technical Exec, Infosec

Mission-critical, in production, disparate LOBs

3

Architect, Operator, Technical Exec, Infosec

Identify a project

2

Developer, Architect

Early Interest / Experimentation

1

Developer, Architect

Value

Individual Use Case | Individual Team | Project ——————— Multi-Use Case | Multi-Team | Platform

Investment & Time

Typically, the journey begins with small increments, with an initial phase of one or two projects that lead to success, and then expand to other applications.

This results in a natural network effect for broader buy-in and adoption across the enterprise.

Data in Motion

Confluent delivers a fully managed, cloud-native data streaming platform, providing all the tools needed to bring together real-time streams of data and set them in motion across the whole business.

By enabling applications and systems to act on data instantly, 24/7, Confluent empowers enterprises to embrace a business model that's powered by data in motion.

Learn more by reading the ebook
"Set Your Data in Motion with Confluent and Apache Kafka®"

Explore
"5 Event Streaming Use Cases That Transform Business"

Survey Demographics

Here is a breakdown of the 1,950 IT and engineering leaders that Lawless Research surveyed — including geography, job category, size of enterprise and type of business.

Country of Origin	
Australia	15%
France	15%
Germany	15%
Singapore	8%
United Kingdom (UK)	21%
United States (USA)	26%

Job Level	
Manager	25%
Senior Manager	18%
Director	19%
Senior Director	12%
VP or General Manager	11%
Executive or C-Level	15%

Number of Full-Time Employees	
500 - 999	25%
1,000 - 4,999	41%
5,000 - 9,999	17%
10,000 - 24,999	9%
25,000 +	9%

Organization's Primary Industry

Financial Services	17%	Energy	2%
Manufacturing	13%	Education	2%
Retail	11%	Wholesale	2%
Technology (Software/Hardware)	10%	Automotive	2%
Professional/Technical Services	9%	Business/Admin/Support Services	2%
Healthcare or Life Sciences	7%	Travel / Hospitatlity	1%
Telecommunications	5%	Entertainment	1%
Transportation and Logistics	5%	Media/Communications	1%
Construction	3%	Real Estate	1%
Government/Public Sector	3%	Other	1%
eCommerce	3%		

Level of involvement with the following strategies in their organization

	Very involved	Somewhat involved	Slightly involved	Uninvolved
Customer Experience Strategy	52%	33%	10%	4%
Business Operations Strategy	51%	33%	11%	5%
Product Differentiation Strategy	49%	33%	12%	6%