2022
Global State of IT Automation Report

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01. Executive Summary

Security and risk mitigation.

Resource and budget allocation.

Legacy infrastructure management.

Business and IT alignment.

There is no shortage of issues facing today's IT teams. In fact, there are so many business-critical challenges today that leaders are finding it difficult to prioritize which to tackle first, let alone how much to invest in each.

Looking at these challenges, trends, and drivers through the lens of IT automation offers a uniquely comprehensive perspective. Its role in centrally orchestrating an exceedingly complex list of specialty applications within IT and throughout the business — on-prem and in the cloud — unites the goals of IT with those of the rest of the company. In this inaugural report, Stonebranch and IEEE partnered to survey IT professionals to understand:

- The IT automation and orchestration outlook across the globe.
- How organizations are successfully orchestrating workloads across on-prem, cloud, multi-cloud, and containerized environments.
- Best practices in data pipeline orchestration and data toolchain integration.
- Benchmarks for IT organizations' performance and efficiency.

But digital transformation isn't an overnight event. Most organizations will go through years of change. In the coming years, the most effective IT teams will be known for the innovation they create — instead of the infrastructure they manage.

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02. Top 10 Take-Aways

1. Automation adoption is growing.
88% of enterprises plan to grow their investment in automation in 2022. In general, companies are looking at a cross-section of automation technologies. Specifically, IT automation has become increasingly important.

2. Automation growth is driven by cloud adoption.
Traditionally relegated to on-premises data centers, most enterprises (69%) have discovered that they'll need to automate cloud applications and platforms, as well as containers – to control cost, reduce complexity, and improve reliability.

3. Hybrid IT environments take the lead.
Nearly half (46%) of all mid-size and large enterprise organizations are operating in hybrid IT environments, comprised of on-premises, private cloud, public cloud, and containerized microservices.

4. Automation has evolved into orchestration.
Siloed automation programs work when targeting on-premises servers, mainframes, and applications. However, the cloud (both public and private) added a whole new layer of complexity, requiring organizations to think through how they orchestrate automated workflows that span between both on-premises and cloud environments.

5. Multi-cloud environments are the norm.
92% of enterprises use more than two public cloud service providers in day-to-day operations, creating a need to avoid the limitations of vendor-locked in native cloud schedulers. In fact, 91% automate data transfers between multiple public cloud providers.

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6. Service orchestration and automation platforms (SOAP) have grown in popularity.
As an evolution from traditional workload automation tools, Gartner coined the SOAP category in 2020. After just two years, 43% of enterprises report that they will invest in SOAP by the end of 2022. As a category, SOAPs represent a platform that provides a unified administration console and orchestration engine to manage complex hybrid IT environments.

7. Self-service automation creates citizen automators.
93% of responders shared that their organization has a centralized IT automation team. However, they are not just automating central IT processes. 84% cite that business users (HR, marketing, sales, finance, etc.), data teams, and developers have been empowered as citizen automators, us-ing a variety of tools that can be connected to centrally run and controlled automation portals.

8. Data pipeline orchestration relies heavily on cloud.
90% of respondents report having more than half of their data tools in the cloud. Of course, the flip side is that 73% of respondents still rely on data management tools that reside on-premises. The net is that most enterprises need a platform to bridge the automation gaps between environments.

9. Integration is key.
Source data and the data tools to manage data pipelines routinely change. 78% of respondents reported that they change data sources at least quarterly, if not more often. This translates to a requirement for automation and orchestration platforms to easily integrate and connect to an ever-changing variety of analytics tools, source systems, and storage technologies.

10. Everyone feels responsible for cloud operations.
91% of respondents cite responsibility for at least some cloud operations, even though only 9% identified CloudOps as their full-time role. The question becomes, how to empower end-users with cloud access, while maintaining a reasonable level of centralized control.

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03. IT Automation

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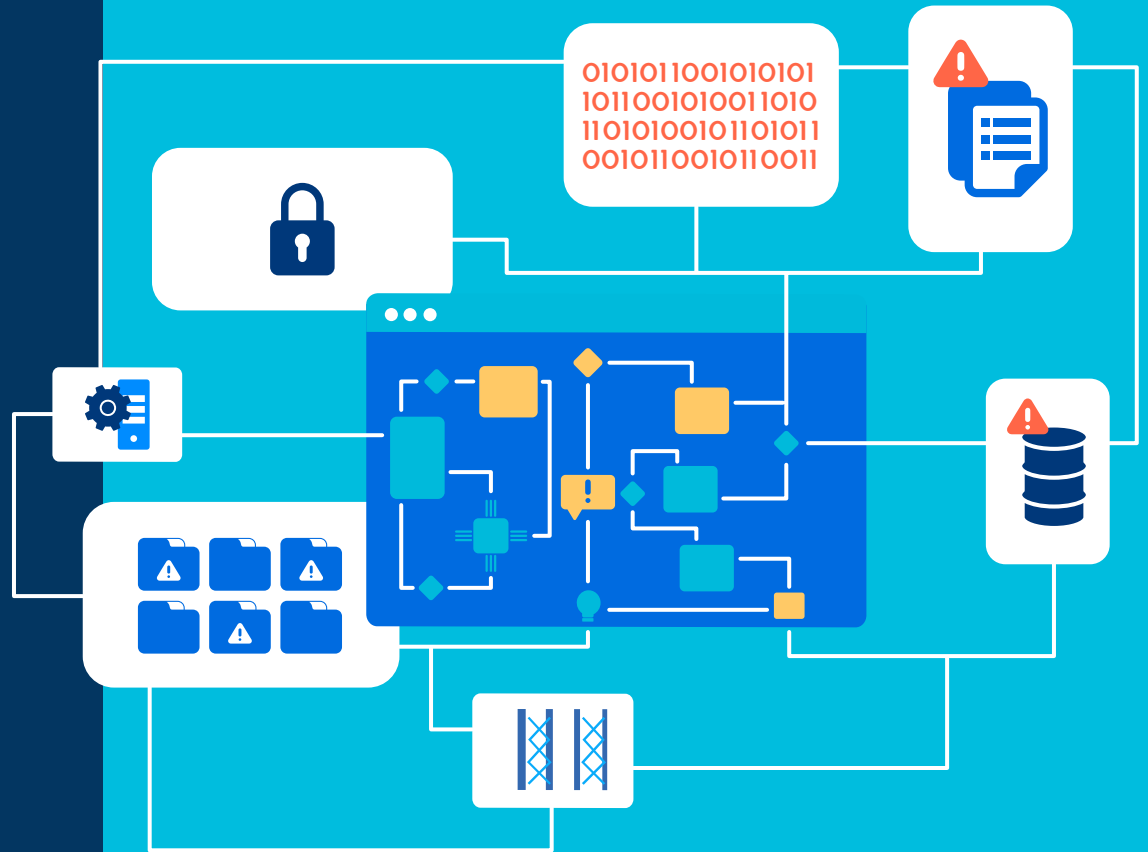
Automation programs will grow in 2022

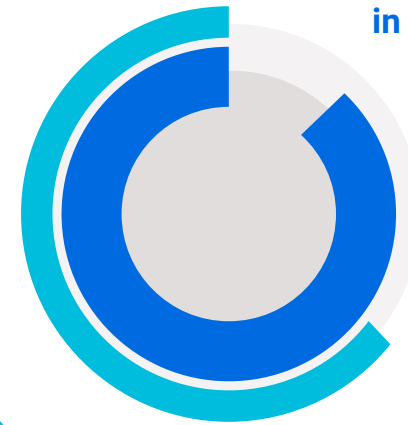**88% of respondents plan to grow their automation program over the next 12 months.**
The majority of automation initiatives have department- or enterprise-level key performance indicators (KPIs) to track adoption and usage.

Planned Growth and Adoption of Automation Technologies in 2022

88%
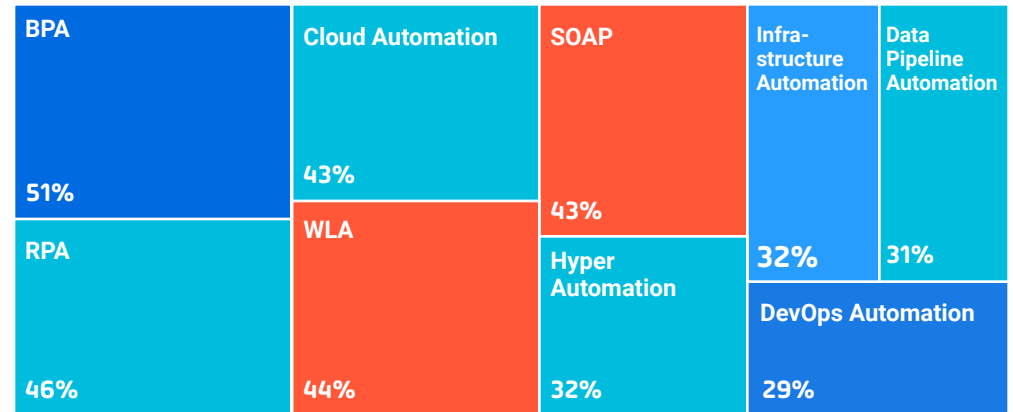**Plan to grow their use of automation in the next year**

63%
Of automation growth is planned at the department or enterprise level

IT Automation

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IT automation is an important focus area

While 51% plan to invest in business process automation (BPA), the next four categories aren't far behind. Robotic process automation (RPA), workload automation (WLA), cloud automation, and service orchestration and automation platforms (SOAPs) are all IT automation solutions.

SOAP is the newest automation category (coined by Gartner in 2020), yet it's already among the leading automation solutions worldwide.

Top Technology Investment Priorities in 2022

BPA 51%	**Cloud Automation** 43%	**SOAP** 43%	**Infra-structure Automation** 32%	**Data Pipeline Automation** 31%
RPA 46%	**WLA** 44%	**Hyper Automation** 32%	**DevOps Automation** 29%	

Respondents had the option to choose their top three priorities.

SOAPs are an evolution from WLA, that add cloud, DevOps, infrastructure, and data pipeline automation capabilities.

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IT Automation

Hybrid IT environments have become the norm

With the cloud growing so fast, hybrid IT has become the most popular operating strategy worldwide. This poses new challenges for IT teams trying to coordinate IT processes across private and public cloud, multi-cloud, and on-premises environments.

Why is IT automation back on the agenda? In 2019, Gartner identified WLA as a mature product and removed it from the Gartner Infrastructure and Operations (I&O) Hype Cycle report. In 2021, Gartner added the SOAP category to the I&O Hype Cycle to distinguish between legacy on-premises focused scheduling tools and modern orchestration solutions designed for hybrid IT environments. Today, the IT automation and orchestration capabilities provided by SOAPs (and even traditional WLA) are in high demand.

Current IT Environment

31%
On-prem only

46%
Hybrid IT
(on-prem and cloud)

23%
Cloud only

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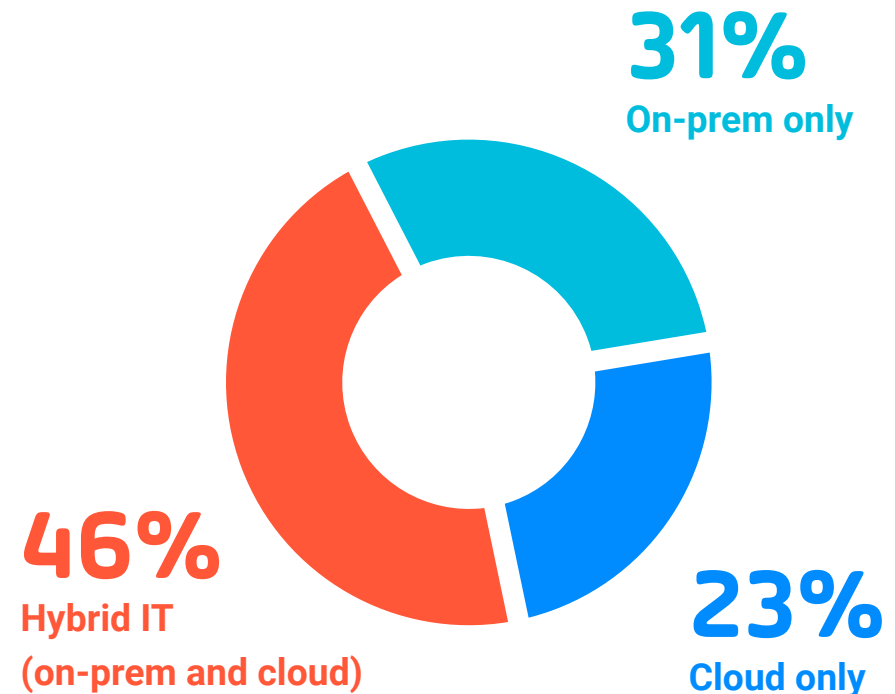
IT Automation

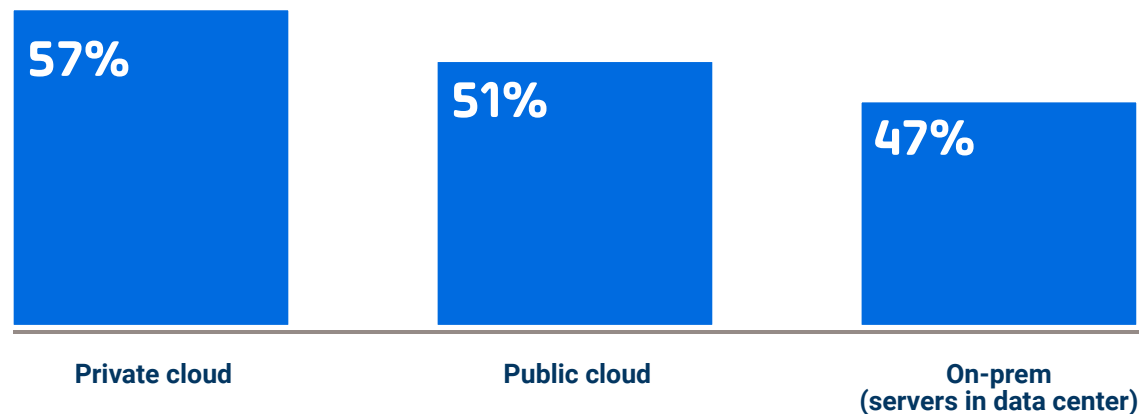# 04. Cloud Orchestration

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Orchestration is critical for successful hybrid IT environments

The need for orchestration of automated IT processes across multiple environments is clear.

10 years ago, automation was almost exclusively done in on-premises data centers, inclusive of mainframes and servers. Today, automation in private and public cloud environments surpasses traditional on-premises infrastructure and applications.

IT Processes/Environments Automated by WLA/SOAP

57% Private cloud

51% Public cloud

47% On-prem (servers in data center)

Respondents had the option to choose multiple processes/environments.

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Cloud Orchestration

Orchestration is critical for successful hybrid IT environments

Of those who aren't putting automated IT processes in the cloud, the top reason is… they can't. Lack of integration between automation platforms and cloud tools is the leading cause of not placing jobs in the cloud. In fact, enterprises with this challenge are twice as likely to avoid using cloud than those who have cost management concerns.

Top Reasons Not to Place Jobs in the Public Cloud

Reason	Percentage
Lack of integration	62%
Security concerns	58%
No experience with cloud	54%
Difficulty transferring data	54%
Performance concerns	41%
Cost management	33%

Respondents had the option to choose multiple reasons.

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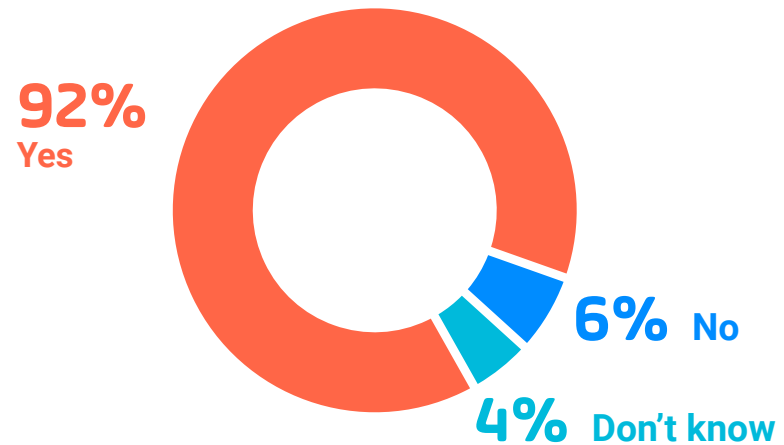Cloud Orchestration

Cloud automation serves multiple purposes

92% of respondents are using public and private cloud resources to run scheduled jobs.

Permanent production jobs are used almost two times that of low-priority jobs, indicating that enterprises are comfortable running long-standing workloads in the cloud.
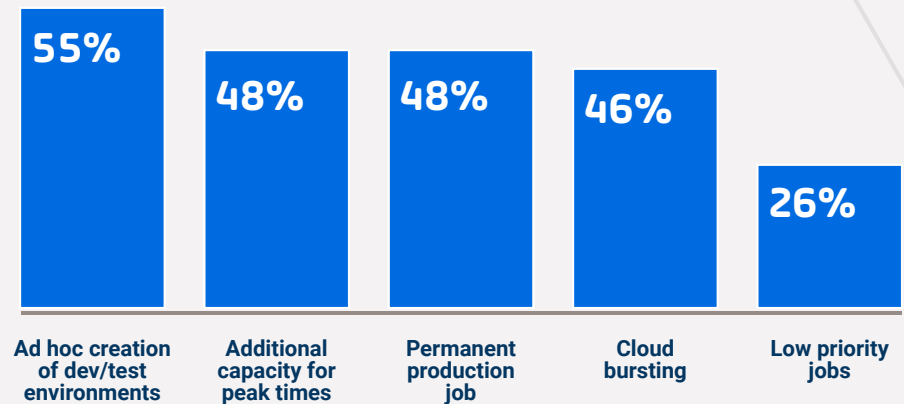
Yet, the cloud is also heavily used for more transient workloads, such as additional capacity and ad-hoc creation of development and test environments.

Ultimately, most organizations use cloud resources to solve for a combination of reasons, not any one specific capability, hence a relatively even spread across the responses.

Do You Use Private and/or Public Cloud Resources to Run Scheduled Jobs?

92% Yes

6% No

4% Don't know

How Are You Using Private and/or Public Cloud Resources to Run Scheduled Jobs?

55%	48%	48%	46%	26%
Ad hoc creation of dev/test environments	Additional capacity for peak times	Permanent production job	Cloud bursting	Low priority jobs

Respondents had the option to choose multiple reasons.

Cloud Orchestration

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Multi-cloud environments are ubiquitous

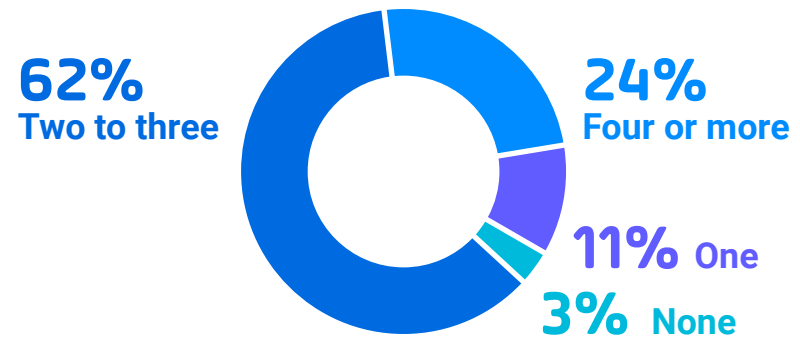**95% of respondents use multiple public clouds.**
Private clouds follow a similar trend: 86% are using multiple private clouds.

2-3 cloud providers (in both public cloud and private cloud) is the sweet spot — representing over 60% of responses in both categories. Also, the results are consistent across all business sizes.

Number of Public Cloud Providers Used

65%
Two to three

30%
Four or more

4% One

1% None
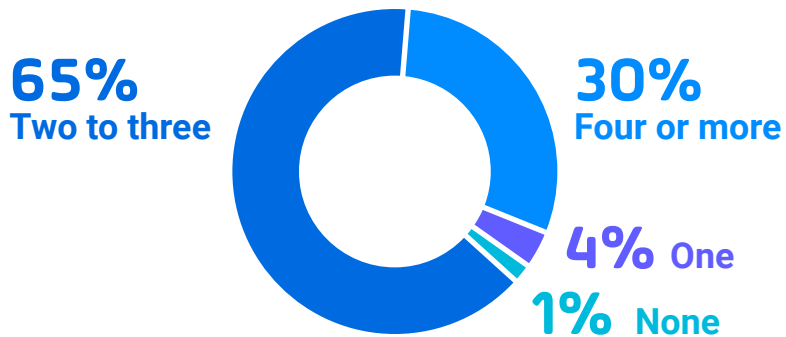
Number of Private Cloud Providers Used

62%
Two to three

24%
Four or more

11% One

3% None

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Cloud Orchestration

Cloud responsibilities extend beyond CloudOps teams

Most people within an IT team have some responsibility for cloud operations.

91% of respondents have responsibility for at least some cloud operations, even though only 9% identified CloudOps as their full-time role.

Interestingly, 88% also indicate that their organization has a centralized CloudOps team. This indicates democratization of at least some cloud responsibility.
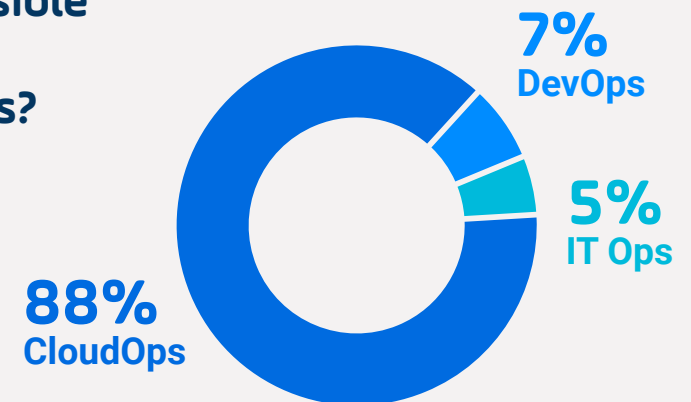
In fact, Gartner* predicts:

"Through 2025, 75% of an organization's architecture will be democratized across the organization, with little or no central control."

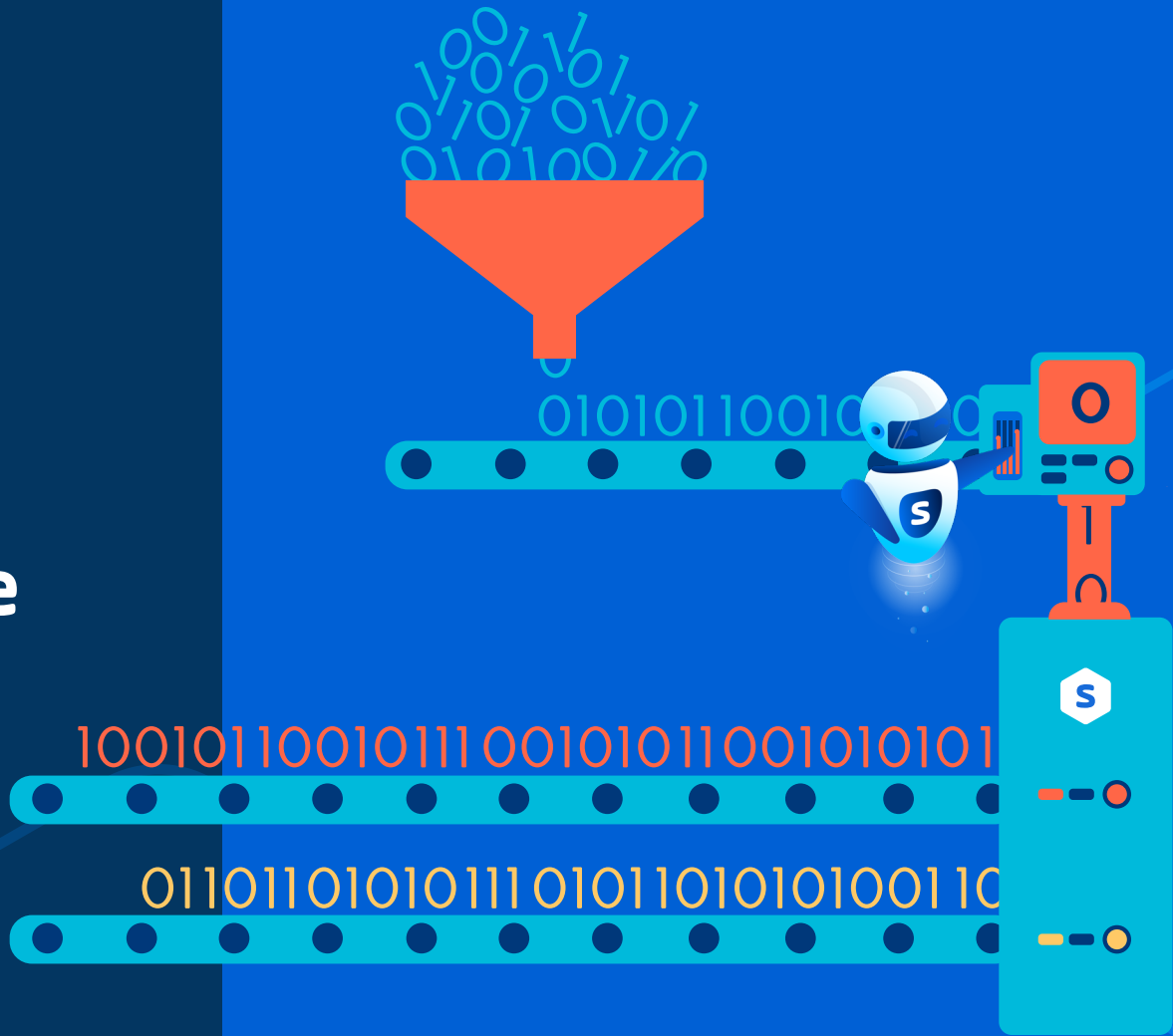## Are You or Your Team Responsible for ANY Cloud Operations?

91% Yes   **9%** No
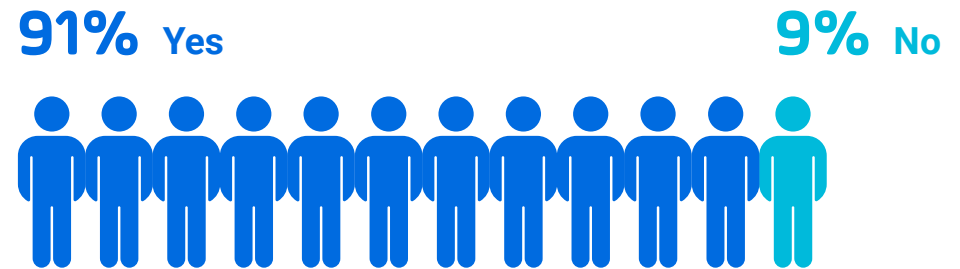
Which Team is Responsible for Cloud Operations?

7% DevOps

5% IT Ops

88% CloudOps

Cloud Orchestration

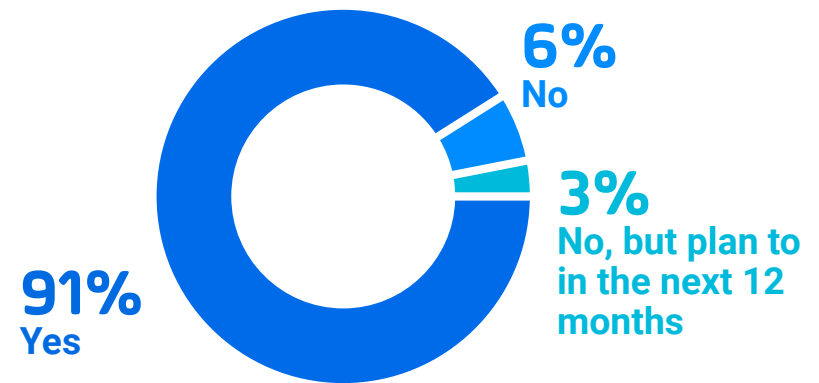S stonebranch

05. Data Pipeline Orchestration

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Data pipelines are transformed with the adoption of cloud

90% of respondents report having more than half (or all) their data tools in the cloud. Of course, the flip side of this coin is that 73% of respondents still rely on data management tools that reside on-premises. The net is that most enterprises take a hybrid approach.
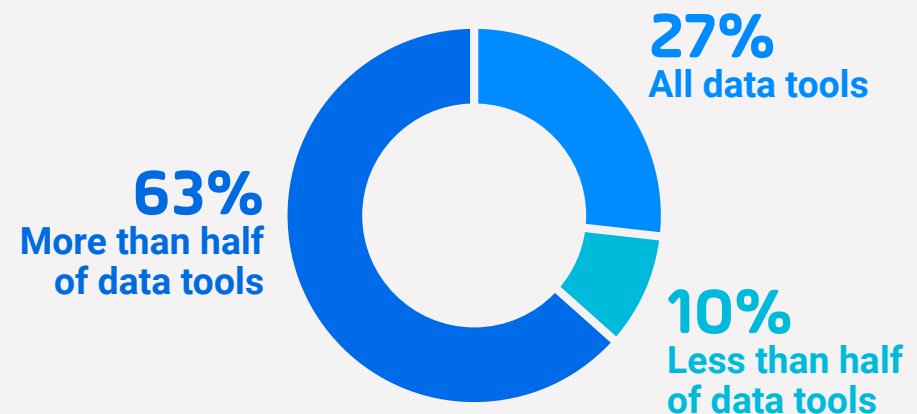
91% automate data transfers between multiple public cloud providers. Another 3% plan to in the coming 12 months.

IT Ops teams are the most likely to automate these multi-cloud data transfers. Additionally, most of the people managing cloud operations are also involved in data operations.

Do You Automate the Transfer of Data Between Multiple Public Cloud Providers (Multi-Cloud)?

6%
No

3%
No, but plan to in the next 12 months

91%
Yes

What Percentage of Your Data Tools are in the Cloud?

27%
All data tools

63%
More than half of data tools

10%
Less than half of data tools

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Data Pipeline Orchestration

Data automation strategies are evolving

The three most popular ways to automate data pipelines are enterprise-grade scheduling/orchestration solutions, custom scripts/integrations, and open-source tools.

Automation strategies by region: Enterprise solutions are the leading method in North America and APAC, while open-source tools lead in EMEA and South America. The reality is everyone uses everything. However, the numbers for each category are so similar that it's clear even those respondents who use an enterprise automation solution still need to supplement with other methods.

As It Relates to Orchestrating Data Pipelines, Which Solution(s) Do You Use to Automate Jobs/Tasks Within Data Tools?

54%	50%	44%	43%
Custom scripts & integrations	Enterprise-grade scheduler	Open-source tools	Data tool built-in scheduler
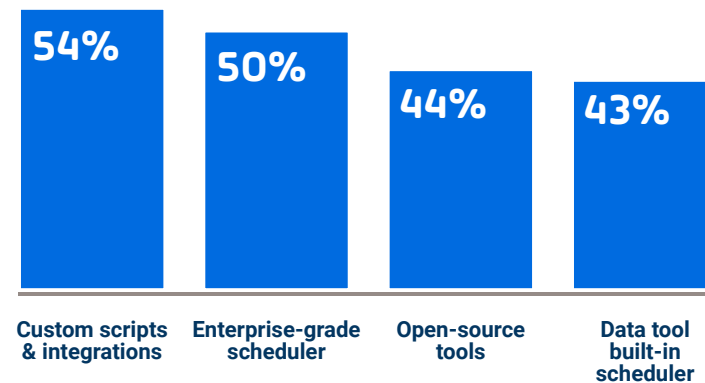
Respondents had the option to choose multiple solutions.
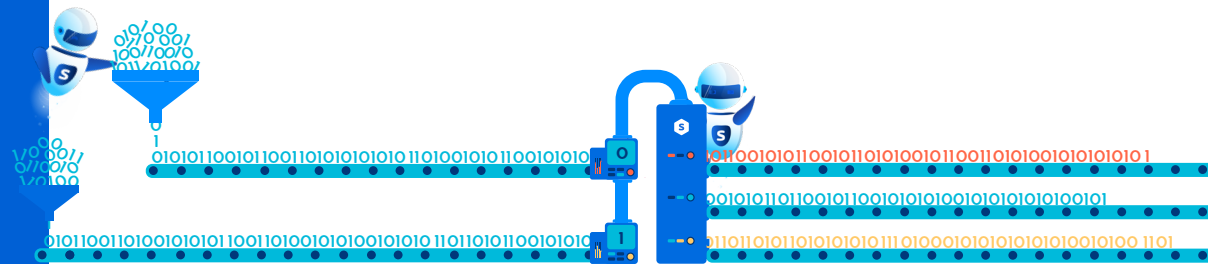
"The current approach of daisy-chaining data tools together with custom scripts and point integrations is likely due to the inability of many traditional enterprise schedulers to reach cloud-based applications. In the coming years, we expect people to migrate to a modern orchestration platform that can easily connect the data pipelines between the on-prem and cloud systems that are prevalent in today's hybrid IT environments."

— Peter Baljet, Stonebranch CTO

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Data Pipeline Orchestration
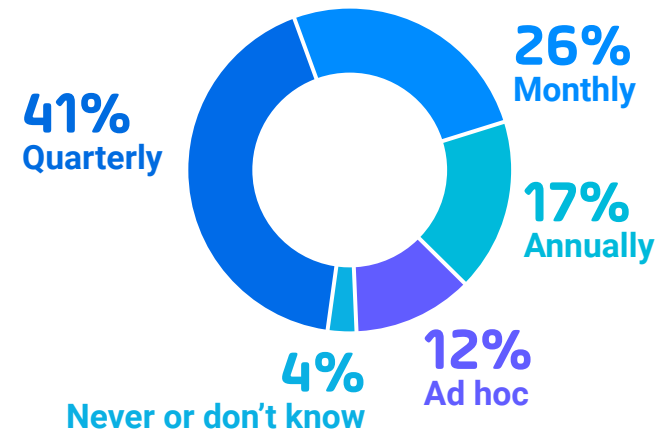
Source data is constantly changing

41% of respondents note that they add and remove data-pipeline sources on a quarterly basis.

Data pipeline source updates by organization size: Large enterprises (5000+ employees) lean more towards monthly and ad hoc updates, while quarterly updates are especially popular for mid-size businesses (1000–5000 employees).
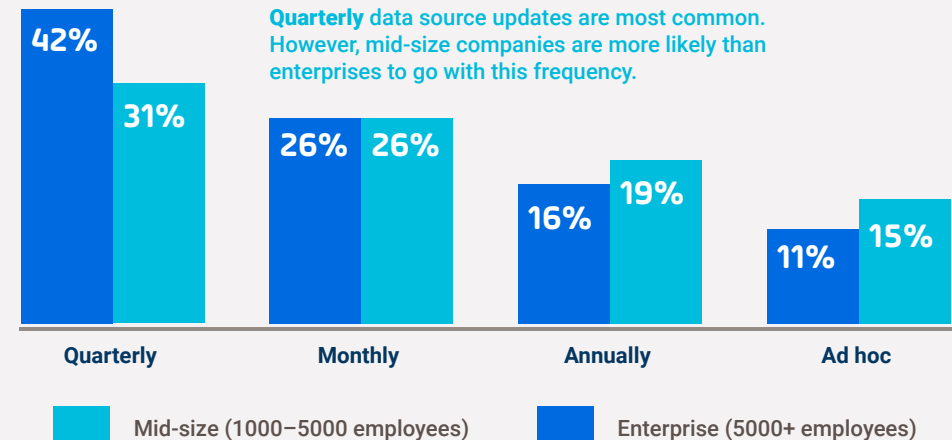
As a result, the ease by which an enterprise can connect their automation and orchestration platform with the constantly changing third-party data sources or applications has become a critical aspect of new vendor/platform selection.

How Often Do You Add or Remove Data Sources or Data Tools Along Your Average Data Pipeline?

Total

41% Quarterly

26% Monthly

17% Annually

12% Ad hoc

4% Never or don't know

By Organization Size

Quarterly data source updates are most common. However, mid-size companies are more likely than enterprises to go with this frequency.

	Mid-size	Enterprise
Quarterly	42%	31%
Monthly	26%	26%
Annually	16%	19%
Ad hoc	11%	15%

Mid-size (1000–5000 employees)

Enterprise (5000+ employees)
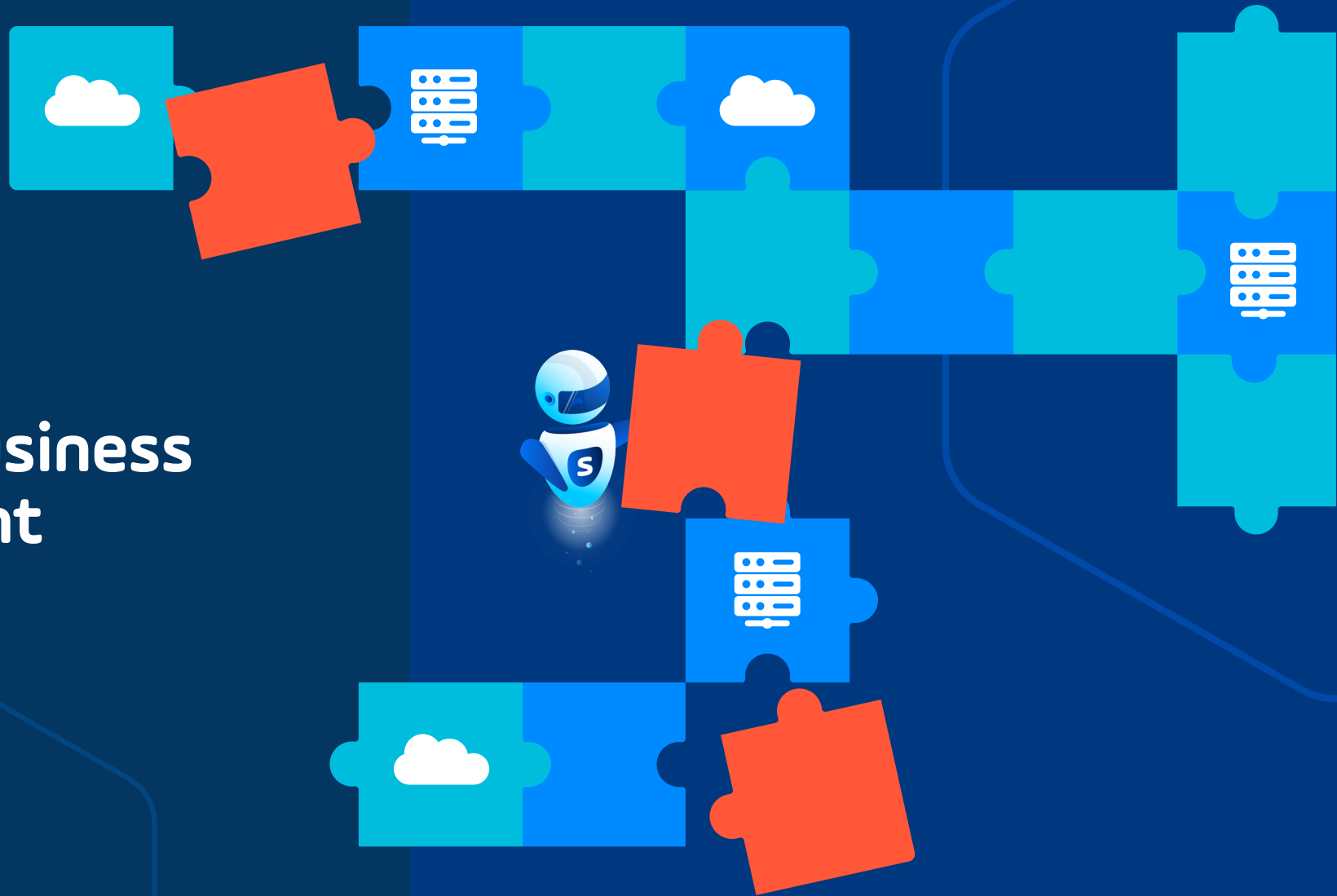
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Data Pipeline Orchestration

06. IT/Business Alignment

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Federated operating models are becoming more popular

IT teams can no longer run everything centrally. There's a distinct trend toward a federated operating model.

While 36% of IT Ops teams have evolved to a federated model, 93% recorded that they continue to use a centralized IT automation team.

Of those who have a centralized IT automation team, approximately three-quarters have more than 25 people on that team.
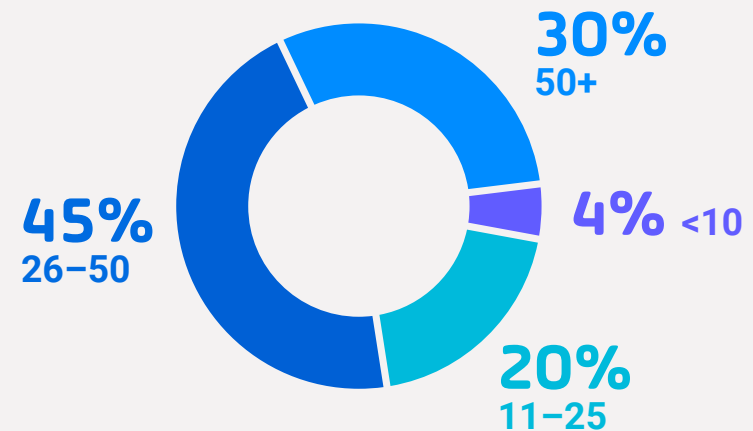
What's a federated model?

Under a federated model, a smaller centralized IT team manages IT resources and tools, and coordinates with automation centers of excellence throughout the business.

IT Operational Models

64%
Centralized IT

36%
Federated (centers of excellence)

Size of Centralized IT Automation Team

30%
50+

4% **<10**

45%
26–50

20%
11–25

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IT/Business Alignment

Federated centers of excellence still require central IT leadership

It seems counter-intuitive, but as the centralized automation teams get larger, the broader federated IT model has higher adoption rates. This is consistent across both large enterprise and mid-sized organizations.
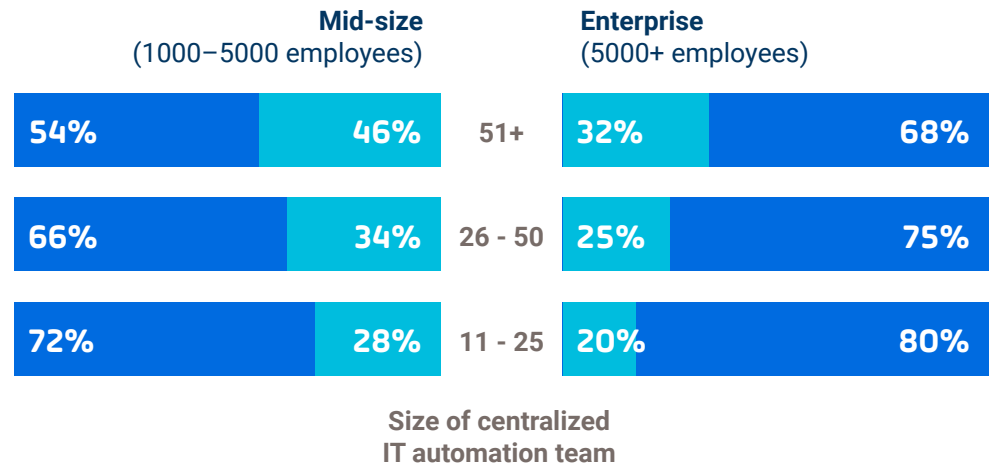
However, when compared to large enterprises, mid-sized organizations have a higher propensity to leverage a federated IT model as the centralized team grows.

Why do both the centralized IT automation team and federated IT model grow together?
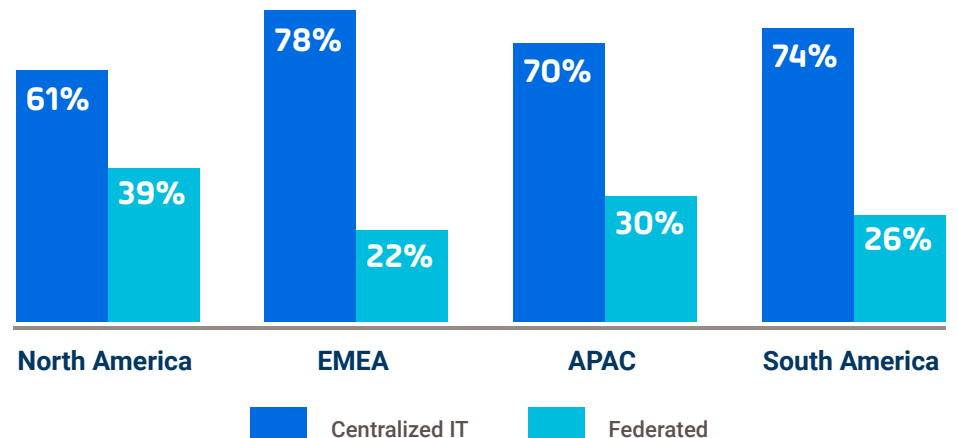
Larger central teams enable democratized IT. In essence, they become a force multiplier to facilitate more automation across the company than they could do on their own.

Though the federated model isn't the most popular approach yet, North America is leading the transition to that model.

Adoption of Federated Model by Organization and Team Size

	Mid-size (1000–5000 employees)		Size of centralized IT automation team	Enterprise (5000+ employees)	
	54%	46%	51+	32%	68%
	66%	34%	26 - 50	25%	75%
	72%	28%	11 - 25	20%	80%

Adoption of Federated Model by Geography

	North America	EMEA	APAC	South America
Centralized IT	61%	78%	70%	74%
Federated	39%	22%	30%	26%

Legend: ■ Centralized IT   ■ Federated

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IT/Business Alignment

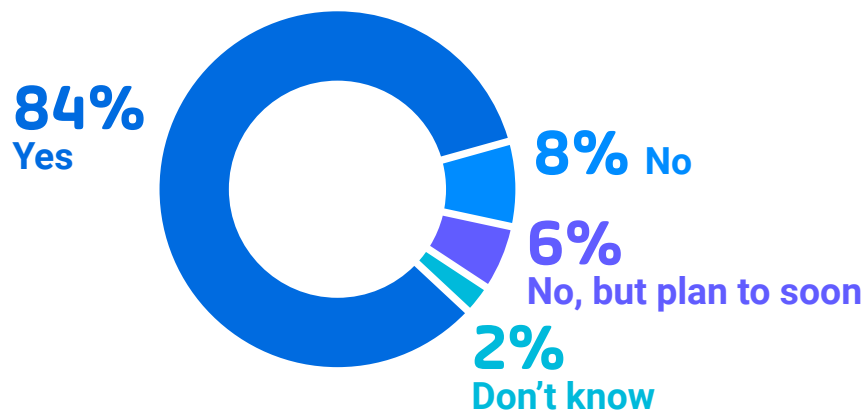# Self-service portals democratize automation

Automation is everywhere.

84% of IT teams offer a self-service automation portal to users across the business. Half of these businesses empower more than 100 citizen automators, employees who are using a variety of tools that can be connected to centrally run and controlled automation portals.
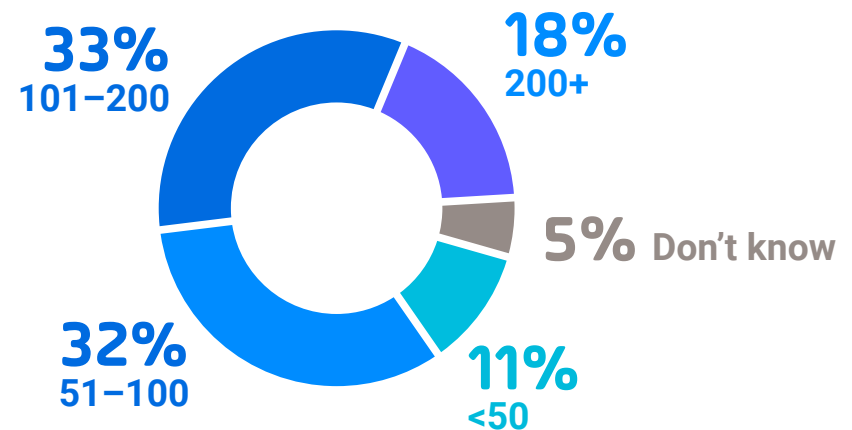
"When applications and platforms are orchestrated through a SOAP, they turn end-users into Citizen Automators who can trigger, review, and audit workflows via the tools they use every day, including ServiceNow, Microsoft Teams, and Slack. Not only does this approach boost technology team productivity, but it also reduces cross-functional team friction while enhancing customer satisfaction."

-Peter Baljet, Stonebranch CTO

Do You Offer a Self-Service Automation Portal for Business Users, Developers, Data Teams, or Others?

84% Yes

8% No

6% No, but plan to soon

2% Don't know

How Many End-Users Across the Business Have Access to Your Automation Platform?

33% 101–200

18% 200+

5% Don't know

11% <50

32% 51–100

23
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IT/Business Alignment

Self-service automation empowers citizen automators

Which Functional Areas/Roles Currently Use Self-Service Automation Portals?

IT Ops	Business teams	Data teams	Development teams	All of the above
47%	25%	18%	10%	1%
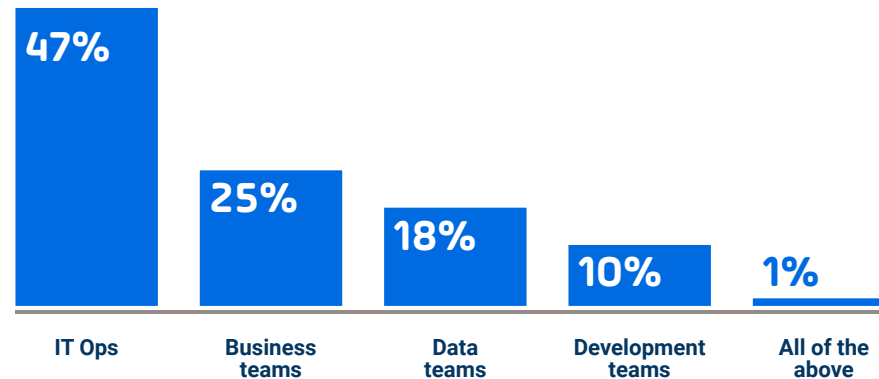
It's no surprise that people within IT operations are the power-users of automation portals.

However, looking beyond IT Ops, **business automators are the most dominant portal users.** Business teams are comprised of marketing, sales, HR, and other lines of business (LOB). A shift in budget from IT to LOB has been happening for a long time now. By example, LOBs have purchasing power for CRM, marketing automation, and human capital management solutions, which require an enormous amount of automation.

"Infrastructure and operations leaders must use platforms for service orchestration and automation to deliver customer-focused agility as part of their cloud, big data and DevOps initiatives."

— Gartner*

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IT/Business Alignment

Self-service automation empowers citizen automators

Win-win: Business users tend to lean towards centrally managed self-service portals, which allow them to increase productivity by running automated tasks and workflows. This, in turn, reduces manual efforts for IT teams while simultaneously providing visibility and oversight of enterprise-wide automation.

Data teams and development teams: Unlike business teams, development teams and data teams tend to be more technically savvy. As such, they have a propensity to look to open-source or native cloud-based schedulers instead of tapping into the automation platform made available by central IT operations. In addition, they may need to automate tools that central IT's automation platform can't integrate with.

According to Gartner, the trend of circumventing centralized IT automation is being replaced by service orchestration and automation platform programs.

"There's an increasing market trend where DataOps and DevOps toolchains are being supported by central IT automation teams. They're using meta-orchestration platforms, like SOAP, to connect to existing data and development tools, then offering automation as a service to perform the same tasks that data and development teams are running via ad hoc scripts, job schedulers, cloud schedulers, and open-source tools."

— Peter Baljet, Stonebranch CTO

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IT/Business Alignment

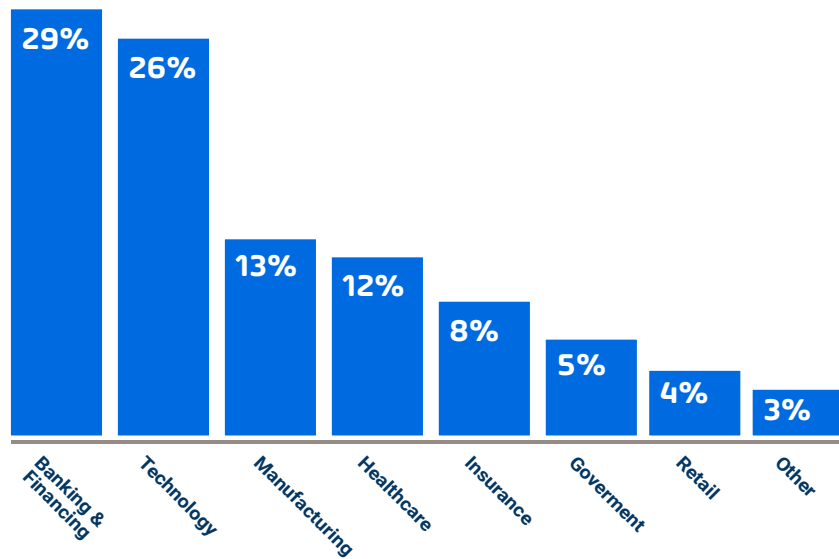# 07. About the Research

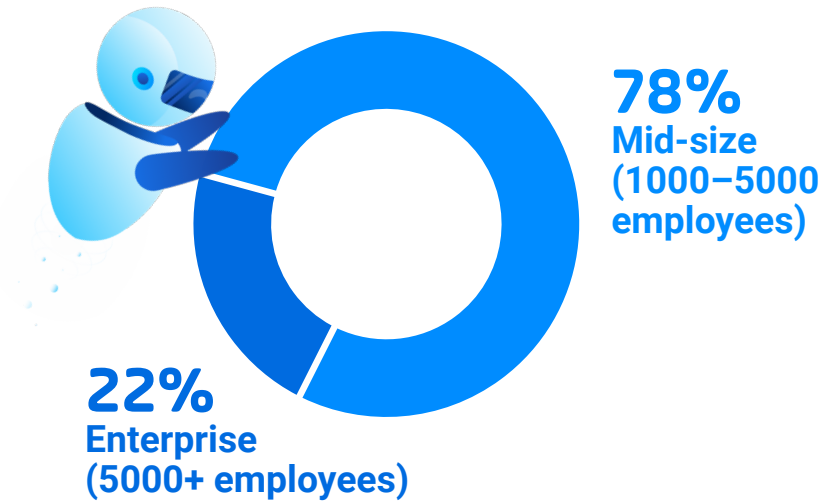stonebranch

Demographics and methodology

The data in this report comes from a global online survey conducted in January and February 2022. The survey generated 366 responses from IT professionals (primarily team leads, managers, and directors) who are involved in IT automation. Respondents reported responsibility for IT Ops, DataOps, CloudOps, PlatformOps, IT Service Management, and Application Development in enterprises with more than 1000 employees. The industries of technology, banking and finance, insurance, healthcare, manufacturing, retail, and government are all represented, as are locations across the Americas, Europe, and Asia. Response authenticity has been validated via follow-up email to the respondent.

Demographics and methodology
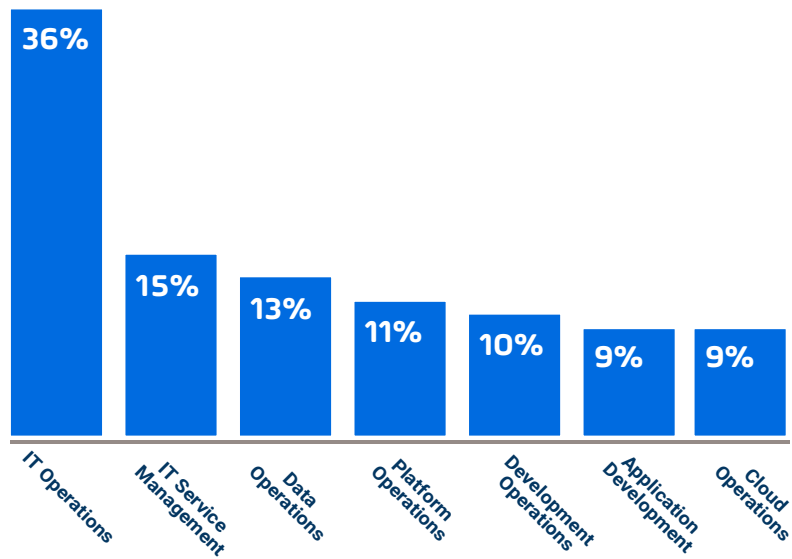
Respondents by Industry

Industry	Percentage
Banking & Financing	29%
Technology	26%
Manufacturing	13%
Healthcare	12%
Insurance	8%
Goverment	5%
Retail	4%
Other	3%

Participant Company Size

78%
Mid-size (1000–5000 employees)

22%
Enterprise (5000+ employees)

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Demographics and Methodology

Respondents by Job Function

- IT Operations: 36%
- IT Service Management: 15%
- Data Operations: 13%
- Platform Operations: 11%
- Development Operations: 10%
- Application Development: 9%
- Cloud Operations: 9%

Respondents by Seniority

- C-Level: 29%
- Vice President: 26%
- Manager / Director: 13%
- Team Lead: 12%
- Individual Contributor: 8%
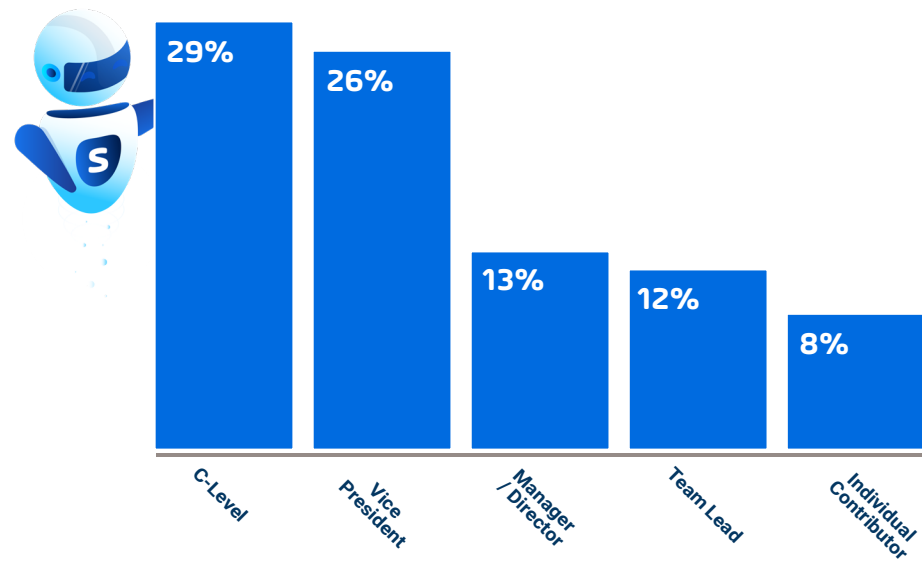
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About Stonebranch and IEEE

Stonebranch builds IT orchestration and automation solutions that transform business IT environments from simple IT task automation into sophisticated, real-time business service automation. No matter the degree of automation, the Stonebranch platform is simple, modern, and secure. Using the Stonebranch Universal Automation Platform, enterprises can seamlessly orchestrate workloads and data across technology ecosystems and silos. Headquartered in Atlanta, Georgia, with points of contact and support throughout the Americas, Europe, and Asia, Stonebranch serves some of the world's largest financial, manufacturing, healthcare, travel, transportation, energy, and technology institutions.

IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. Through its highly cited publications, conferences, technology standards, and professional and educational activities, IEEE is the trusted voice in a wide variety of areas ranging from aerospace systems, computers, and telecommunications to biomedical engineering, electric power, and consumer electronics.

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