



Lost in the Cloud?

Top Challenges CIOs Face Amidst Their Complex Enterprise Cloud Ecosystems

The 2018 Global CIO Report

Based on a global survey of **800 CIOs**,
this report takes a closer look at the challenges
organizations face in overcoming the
complexity of enterprise cloud ecosystems.



Intro

Based on a global survey of 800 CIOs, this report examines the challenges organizations face when working within complex enterprise cloud ecosystems. Technology is at the heart of every organization today. Now more than ever, organizations need to move fast, be agile, and go digital in order to compete and differentiate. Hybrid multi-cloud, microservices and containers, DevOps, user experience demands and the need for scale and enterprise grade solutions all contribute to the increasingly difficult task businesses face when trying to monitor and manage performance.

Findings Summary

01.

Pressure mounts to adopt new technologies rapidly.

02.

New technologies continue to add complexity.

03.

Too much time spent on resolving digital performance problems.

Findings Summary

04.

Even solutions
are problematic.

05.

Too much money
spent on resolving
digital performance
problems.

06.

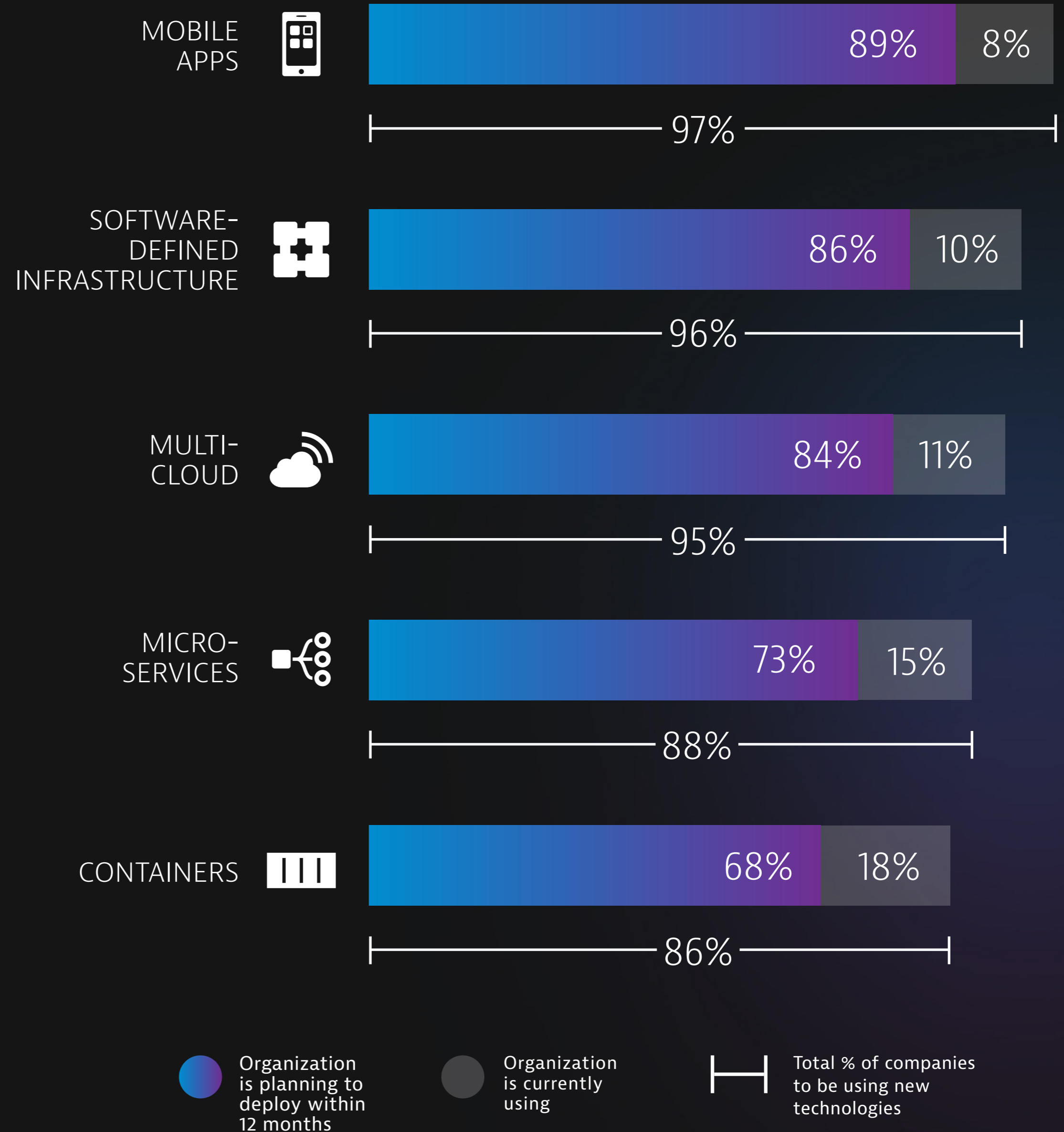
AI believed to be
needed to manage
complexity.

Challenge One

Pressure is mounting to adopt new technologies rapidly

Today's organizations face huge pressure to keep up with the always-on, always-connected digital economy. Consumer demand for instant access to digital services and their expectations for constant improvement and greater convenience have forced organizations into an endless cycle of innovation.

Global enterprises are adopting new technologies at a rapid rate, as they strive for the agility and cost-efficiency they need to stay ahead.

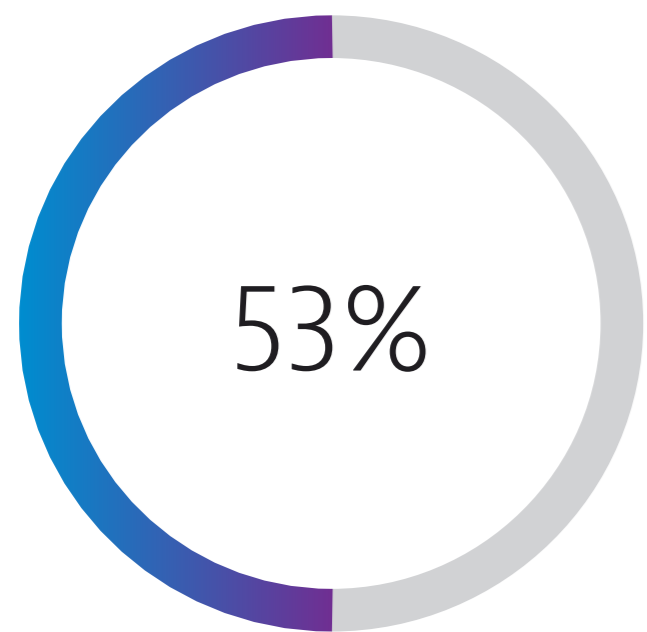


76%

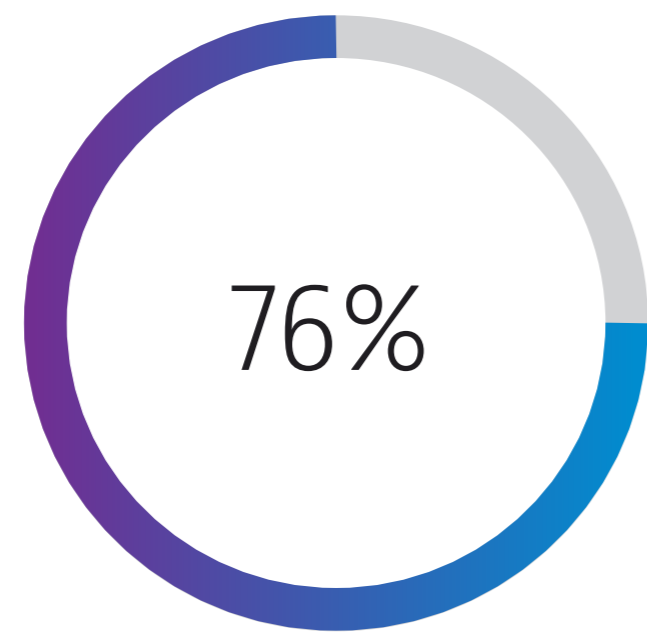
of CIOs are worried that IT complexity will make it impossible to manage performance effectively.



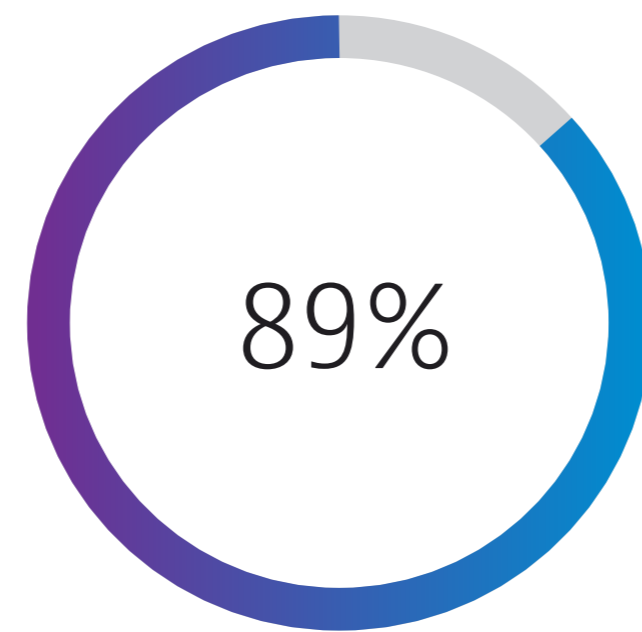
Challenge Two



of organizations will deploy new, major technology in the next year.



of CIOs are worried that IT complexity will make it impossible to manage performance effectively.

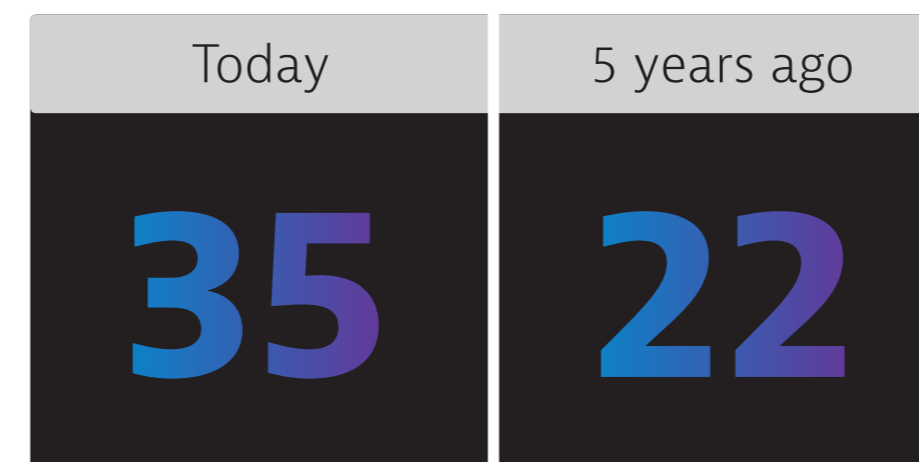


of CIOs say the challenges of keeping a CMDB up to date in real time is making service management more difficult.

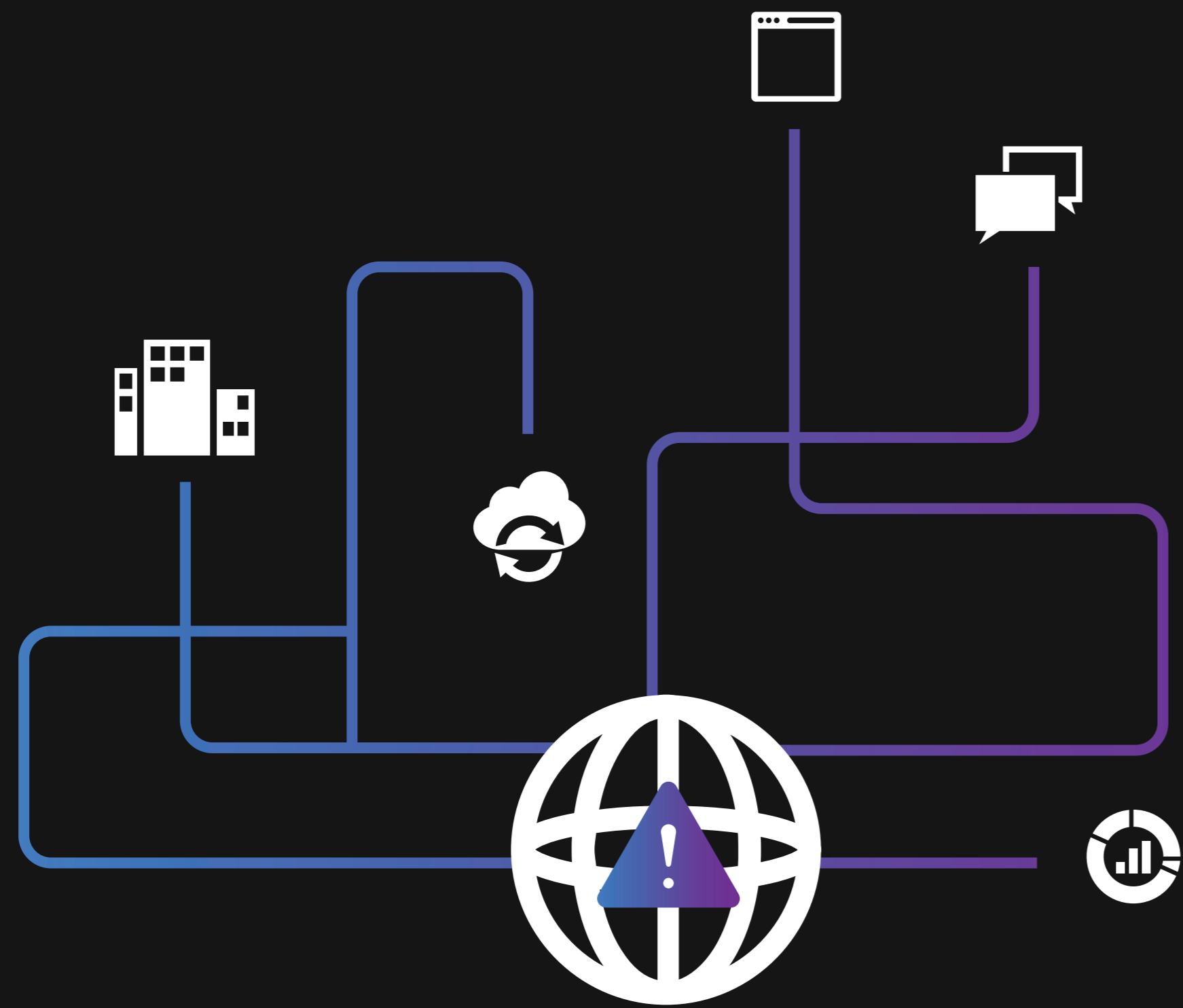
New technologies continue to add complexity

New technologies and cloud architectures only add layers of complexity to an already convoluted digital ecosystem, even with the agility benefits of microservices, containers, and software-defined infrastructure.

A single cloud-native application can consist of thousands of microservices and billions of interdependencies. that link it to other applications and digital services, as the number of technology systems or components needed for a single web transaction is trending upwards at an alarming rate.



Estimated number of technology systems or components needed for a single transaction.



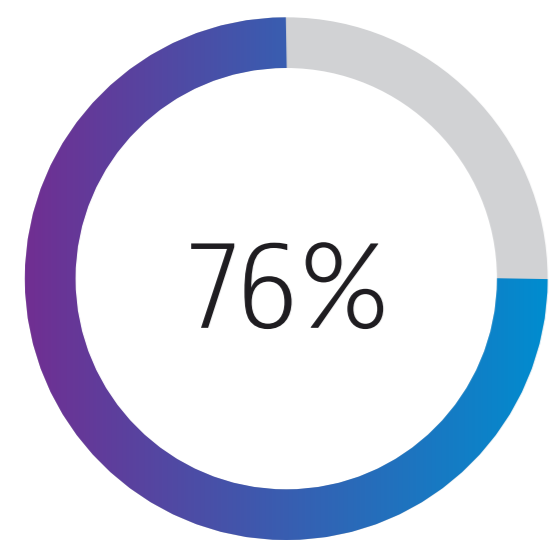
76% of CIOs say confidently managing user experience is nearly impossible, due to the sheer number of factors impacting mobile performance.

Challenge Three

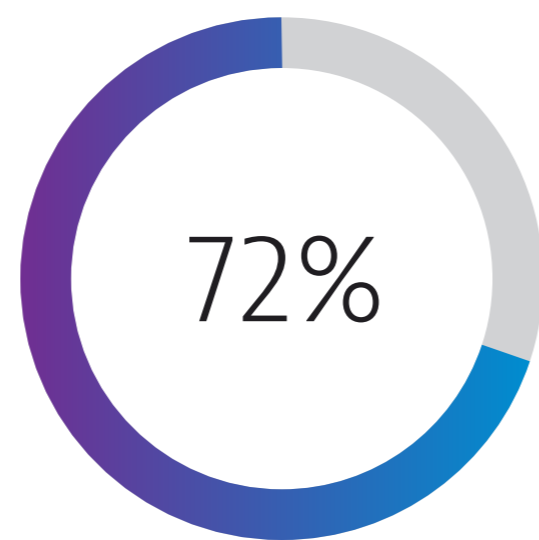
Too much time spent on resolving digital performance problems

Maintaining end-to-end visibility into the cloud's impact on user experience is both vital and very difficult. Each major provider, whether AWS, Azure, or Cloud Foundry, comes with its own monitoring system, which means IT teams are forced to spend countless man hours instrumenting monitoring processes on every new cloud they throw into the mix.

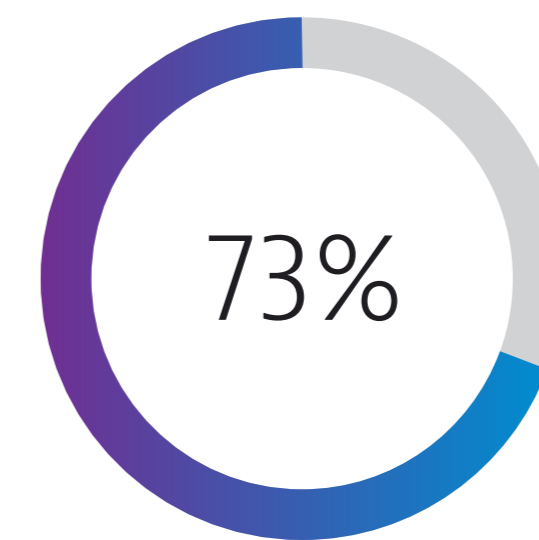
Meanwhile, the performance of mobile applications can be negatively impacted by the user's network quality, operating system, signal strength, or handset type. All of which are factors that IT cannot control, but must monitor and analyze to ensure an optimized user experience.



76% of CIOs say multi-cloud deployments make monitoring user experience difficult.



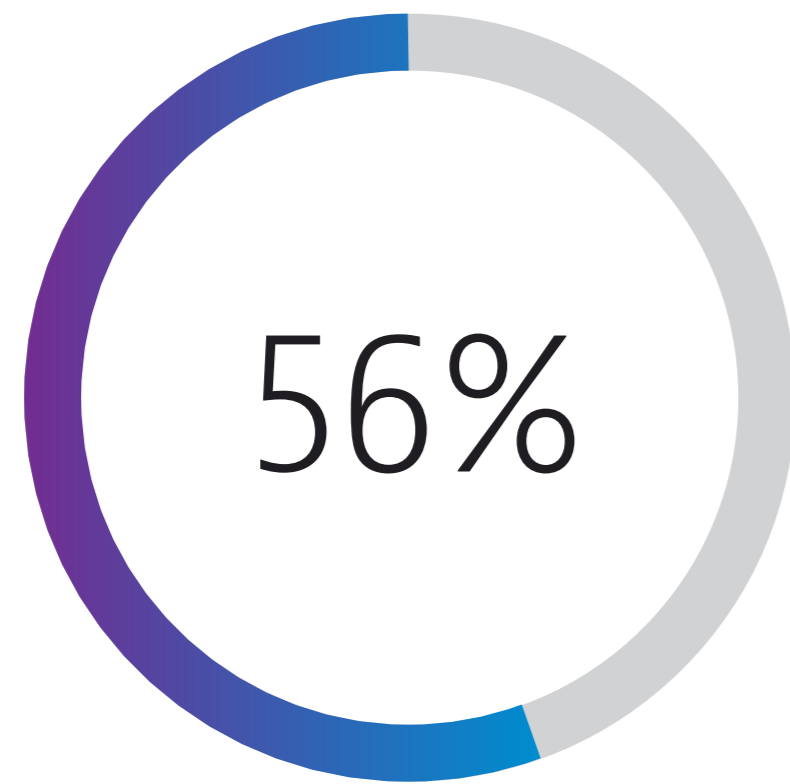
72% of CIOs are frustrated that IT teams must spend time setting up monitoring for different providers.



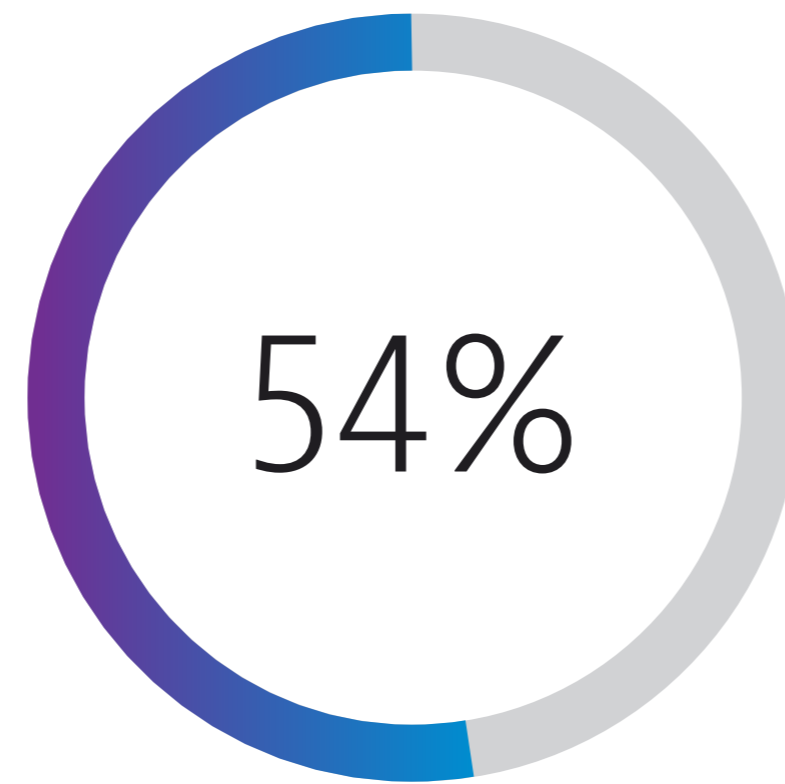
73% of CIOs say confidently managing user experience is nearly impossible, due to outside factors.

On average, resolving digital performance problems costs an organization **\$2.5 million** annually

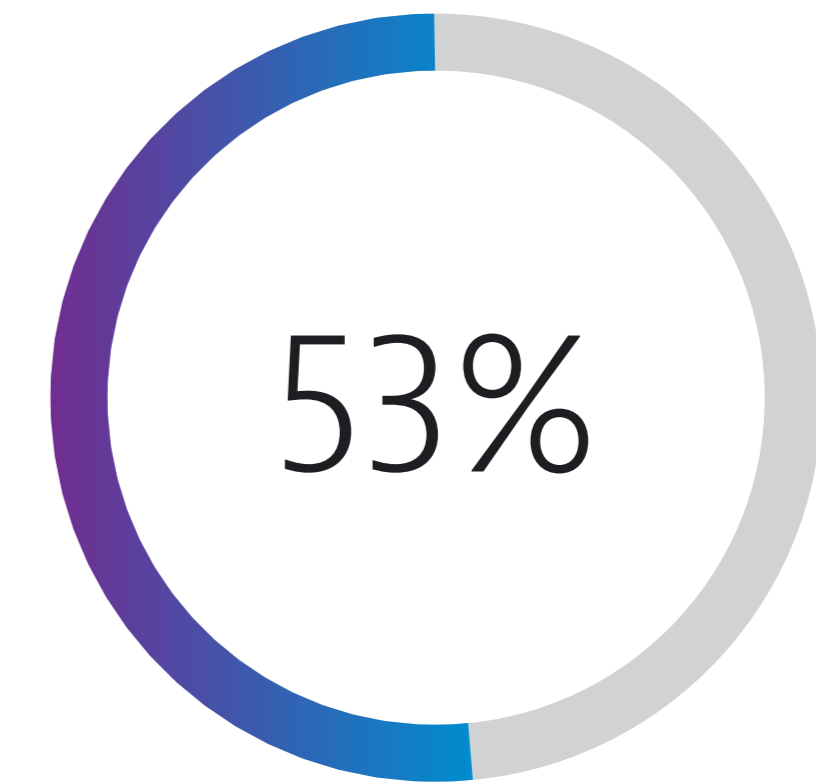
Top challenges of managing microservice performance in containerized environments



maintaining and configuring performance monitoring



identifying service dependencies and interactions



limited visibility into the microservice layer

Challenge Four

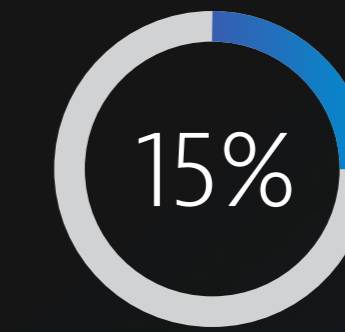
Even solutions are problematic

Organizations are transforming their legacy applications into microservices and containerized infrastructure, maximizing their benefits while bringing a phenomenal level of complexity into the mix.

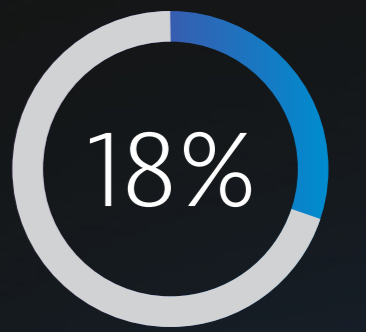
The 'black box' nature of containers obscures visibility into the performance of microservices within the system, creating an impossible job for those tasked with managing the user experience.

Businesses planning to deploy in the next twelve months

Microservices



Containers



72%

of CIOs say monitoring microservices in realtime is almost impossible.



84%

of CIOs say identifying impacts of container resource consumption on performance is difficult.

Traditional solutions are problematic

56%

maintaining and configuring performance monitoring

54%

identifying service dependencies and interactions

53%

limited visibility into the micro-service layer

Challenge Five

29%

of IT teams' work time is spent dealing with digital performance problems.

Resolving digital performance problems costs an organization, on average an annual

\$2.5 million*

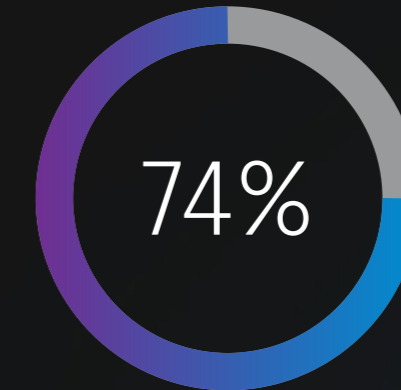
*Based on the average organizational spend on IT salaries and the percentage of time spent by IT teams collectively dealing with digital performance problems.

Too much money spent on resolving digital performance problems

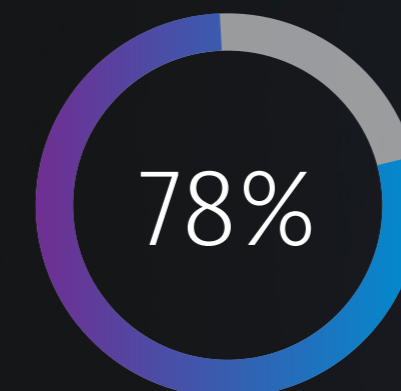
Complexity poses problems across enterprises, so it's no surprise that IT teams are suddenly being called upon to explain dips in sales or to prepare compliance teams for new regulatory requirements.

As a result, these teams are spending more and more time fighting fires and scrambling for answers across a sea of departments, creating a major drain on the innovation needed to stay one step ahead of the competition.

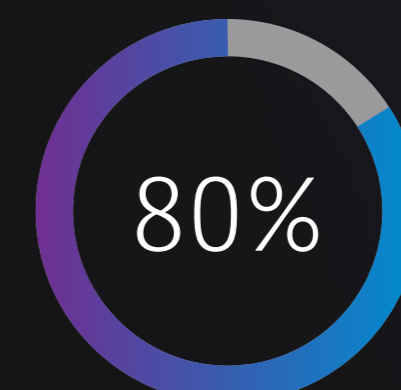
According to CIOs...



say IT is under too much pressure to keep up with unrealistic demands from the business and end users



feel it's harder to find time and resources to answer the range of questions the business asks, while delivering on everything else that is expected of IT



agree that it is difficult to successfully map the impact of digital performance on business.

The Solution

AI believed to be needed in 2018 to manage complexity

The fact is humans can no longer handle the data being generated by their own systems. Nor can they map an evolving and adapting environment that exists solely in the cloud. So, what's the answer?

Advances in artificial intelligence (AI) capabilities are being deployed as a lifeline for organizations looking to master the complexity of their IT environments, delivering teams the ability to instantly analyze and understand the billions of interdependencies existing between cloud applications and the multi-cloud infrastructure that underpins them.

Within the next year, the majority of CIOs will deploy solutions that allow their teams to automate the resolution of performance problems before users are even impacted, optimizing user experience and evening the odds by tackling a next-generation problem with a next-generation solution.

81%

of CIOs feel AI will be critical to mastering increasing IT complexity.

83%

of CIOs either have or will deploy AI in the next 12 months.

How can Dynatrace help?

Dynatrace provides software intelligence to simplify enterprise cloud complexity and accelerate digital transformation. With our deterministic AI, and full-stack data analysis, our all-in-one platform provides answers, not just data, about the performance of applications, the underlying infrastructure and the experience of all users.

That's why many of the world's enterprises, including 72 of the fortune 100, trust Dynatrace to automate operations, release better software faster, and deliver unrivaled digital experiences. To find out more about Dynatrace and enterprise cloud complexity [click here](#).

"With Dynatrace not only are we monitoring our entire cloud stack, we're also using the AI to help us get faster answers despite a complex cloud environment."

— Doctify

Results by Country: Challenge One

GLOBAL

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	89%	8%
Software-defined infrastructure	86%	10%
Multi-cloud	84%	11%
Microservices	73%	15%
Containers	68%	18%

FRANCE

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	88%	8%
Software-defined infrastructure	83%	11%
Multi-cloud	86%	5%
Microservices	73%	17%
Containers	66%	17%

U.S.

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	89%	9%
Software-defined infrastructure	92%	6%
Multi-cloud	88%	8%
Microservices	72%	17%
Containers	69%	17%

GERMANY

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	90%	7%
Software-defined infrastructure	81%	13%
Multi-cloud	84%	10%
Microservices	76%	17%
Containers	69%	20%

UK

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	85%	10%
Software-defined infrastructure	78%	15%
Multi-cloud	81%	13%
Microservices	60%	14%
Containers	56%	18%

CHINA

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	93%	7%
Software-defined infrastructure	89%	7%
Multi-cloud	84%	14%
Microservices	80%	16%
Containers	75%	19%

Results by Country: Challenge One

AUSTRALIA

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	92%	0%
Software-defined infrastructure	86%	4%
Multi-cloud	78%	18%
Microservices	68%	12%
Containers	58%	18%

BRAZIL

Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	92%	8%
Software-defined infrastructure	94%	6%
Multi-cloud	88%	12%
Microservices	92%	8%
Containers	82%	14%

SINGAPORE

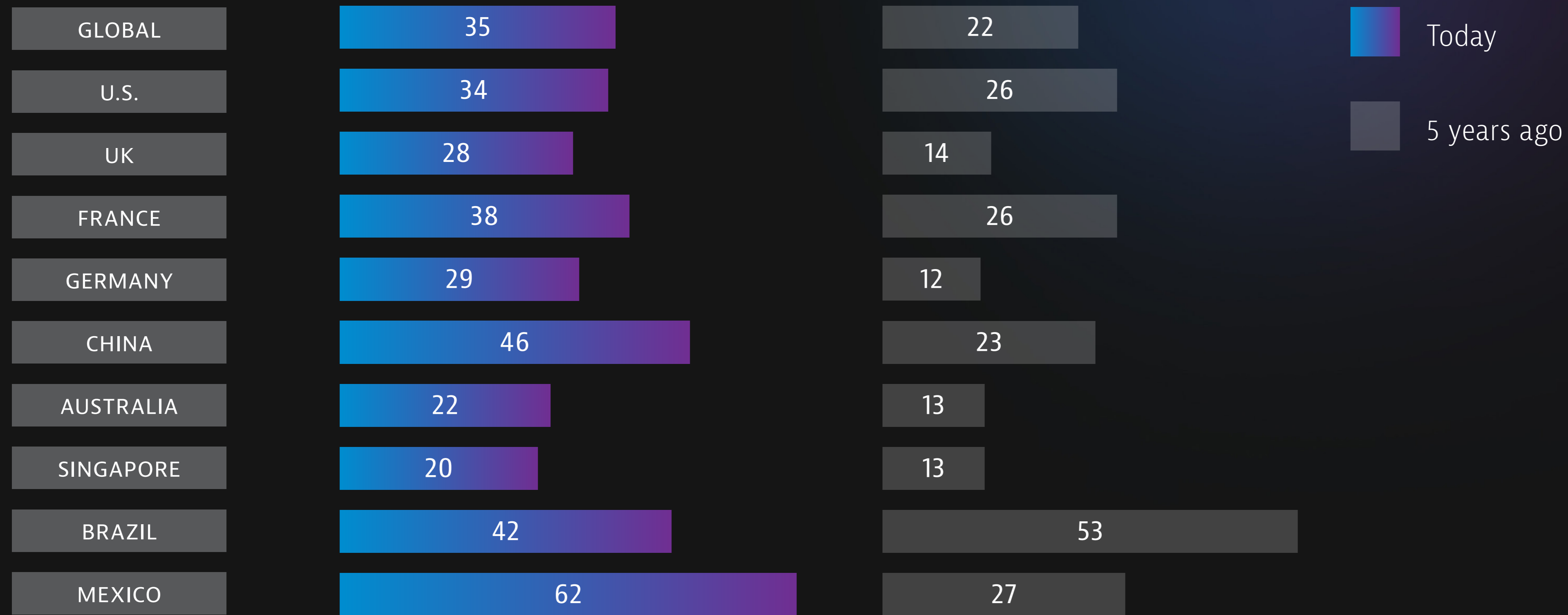
Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	96%	2%
Software-defined infrastructure	74%	20%
Multi-cloud	74%	24%
Microservices	76%	14%
Containers	68%	20%

MEXICO

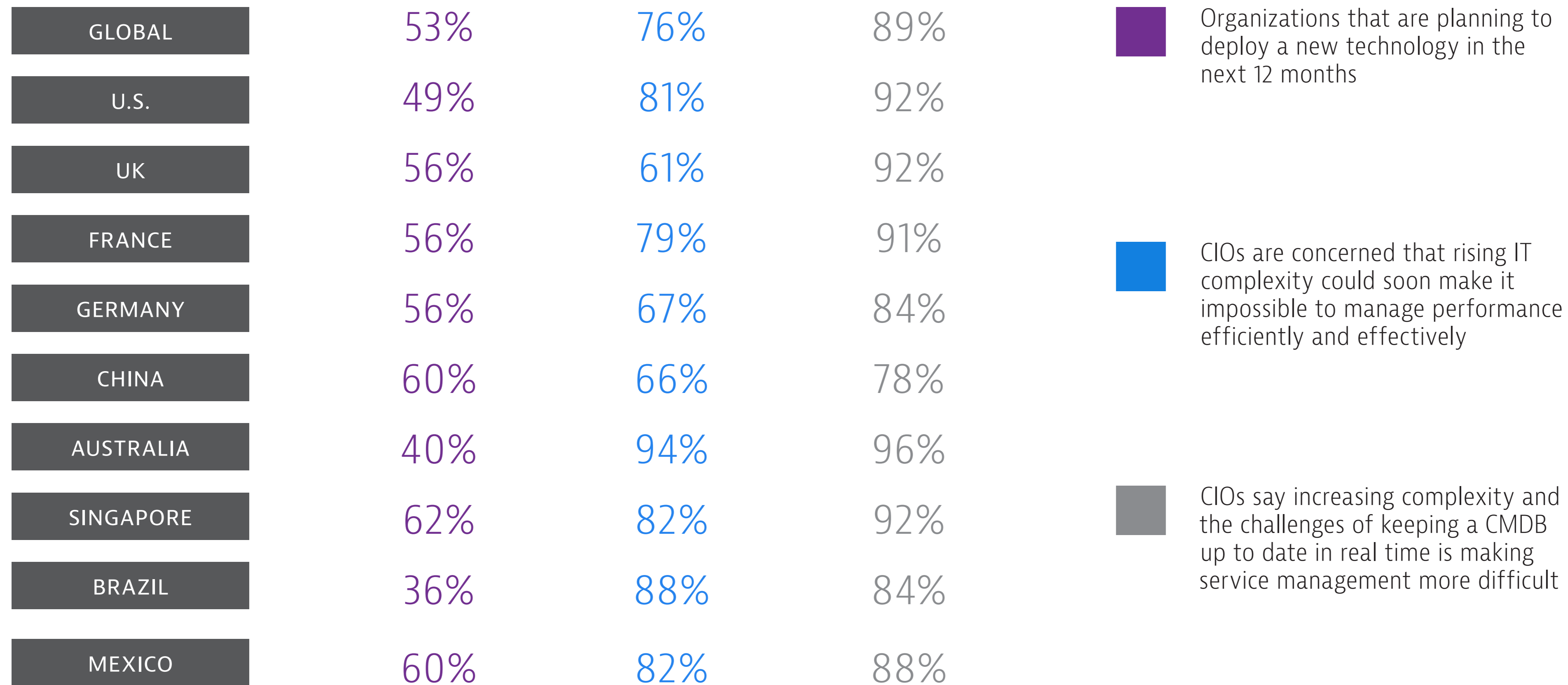
Technology	Organization is currently using	Organization is planning to deploy within 12 months
Mobile Apps	80%	16%
Software-defined infrastructure	84%	14%
Multi-cloud	82%	12%
Microservices	70%	16%
Containers	70%	16%

Results by Country: Challenge Two

Average estimated number of different technology systems or components that a single transaction on a web or mobile application touches now versus five years ago.



Results by Country: Challenge Two



Results by Country: Challenge Three

GLOBAL	76%	72%	73%
U.S.	78%	83%	74%
UK	74%	69%	73%
FRANCE	79%	73%	72%
GERMANY	70%	64%	67%
CHINA	68%	58%	65%
AUSTRALIA	86%	86%	84%
SINGAPORE	92%	84%	84%
BRAZIL	68%	74%	76%
MEXICO	68%	56%	78%

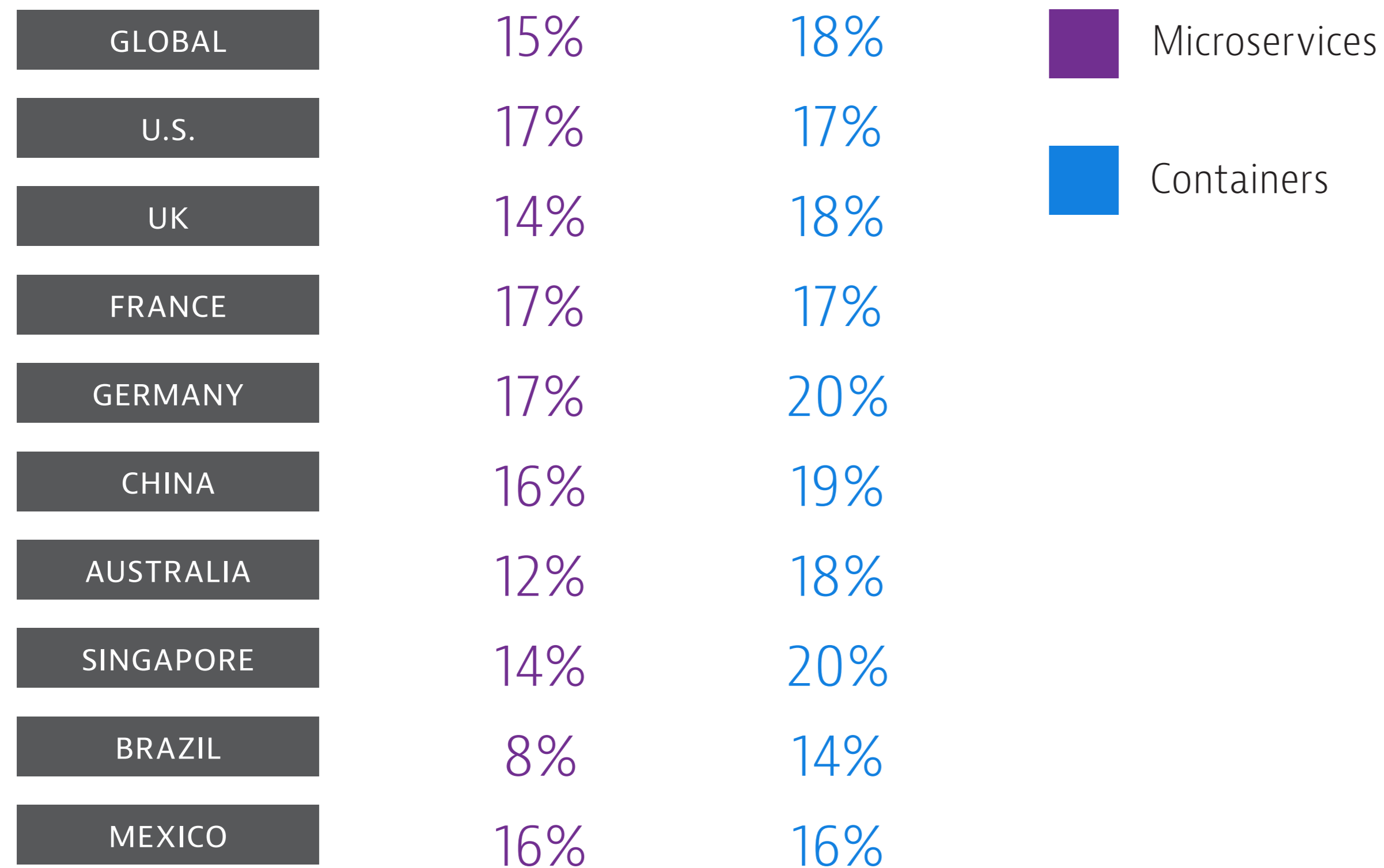
CIOs find that multi-cloud deployments (and the need to instrument monitoring for each provider/service) make it especially difficult and time-consuming to monitor and understand the impact that cloud services have on the user-experience

CIOs find it a frustration that IT teams have to spend so much time setting-up monitoring for different cloud environments/providers when deploying new services

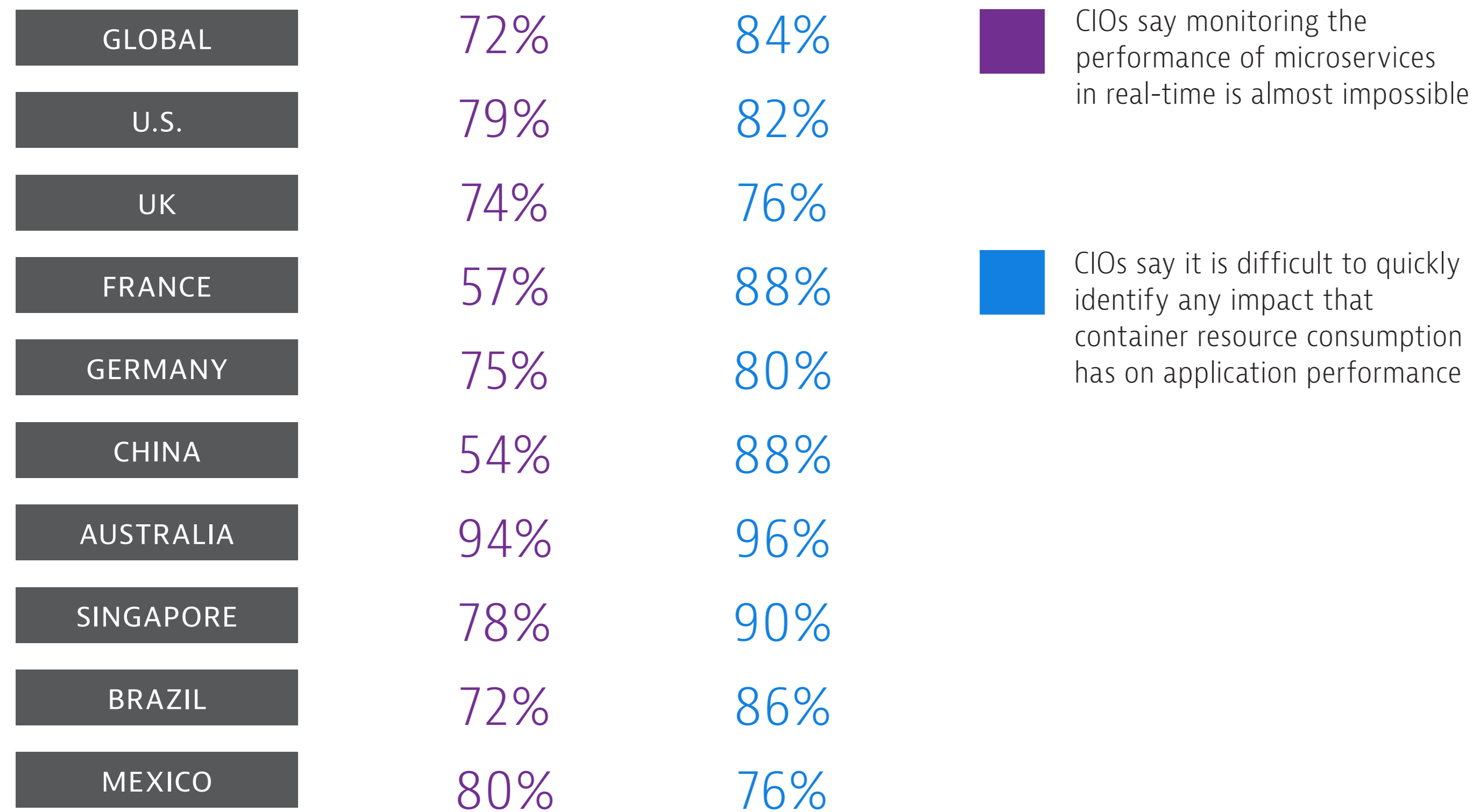
CIOs say that the sheer number of factors impacting mobile performance outside of their control makes it nearly impossible to manage the user-experience with confidence

Results by Country: Challenge Four

Business planning to deploy microservices and/or containers in the next 12 months

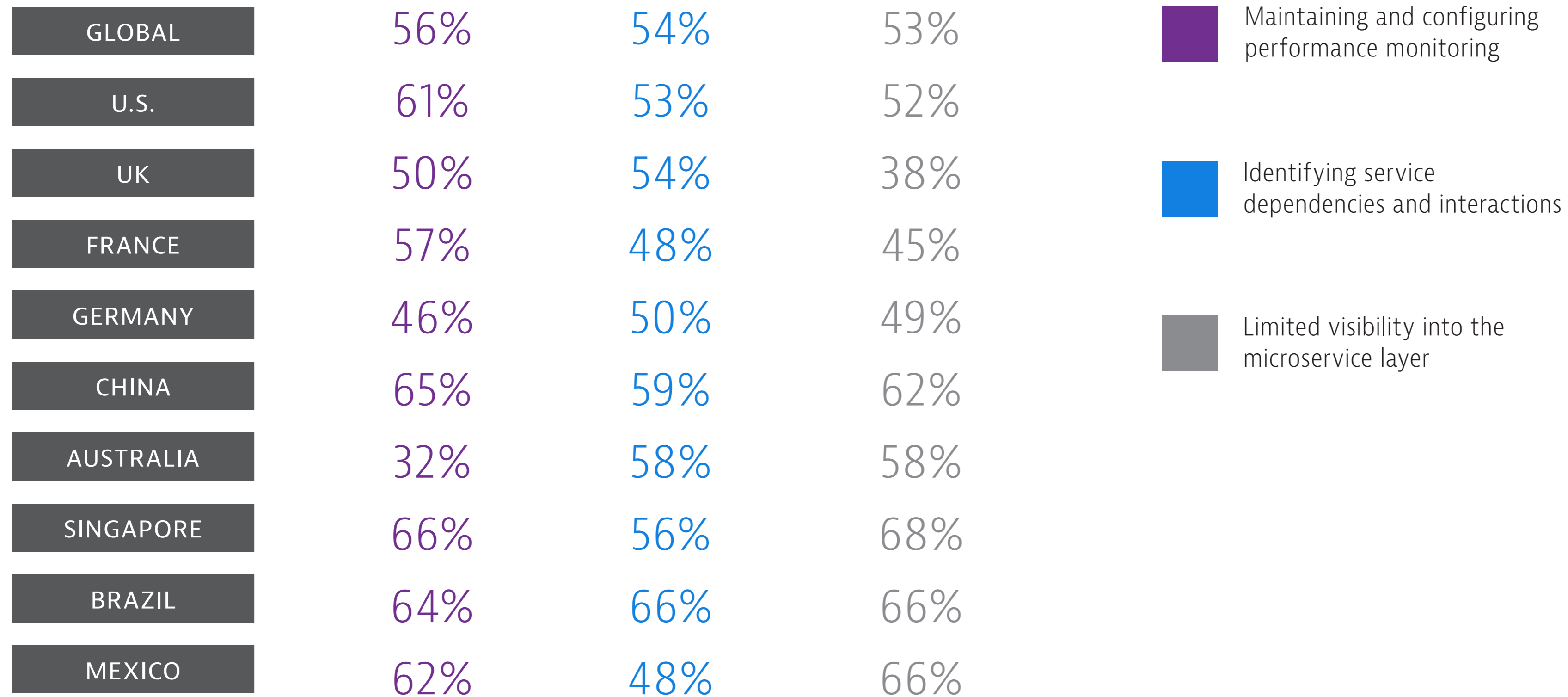


Results by Country: Challenge Four




Results by Country: Challenge Four


Top three challenges of managing the performance of microservices in containerized environments.



Results by Country: Challenge Five

Country	Challenge 1	Challenge 2	Challenge 3	Challenge 4
GLOBAL	74%	78%	80%	80%
U.S.	75%	83%	85%	85%
UK	70%	77%	79%	79%
FRANCE	72%	77%	81%	81%
GERMANY	64%	73%	76%	76%
CHINA	74%	76%	70%	70%
AUSTRALIA	94%	88%	92%	92%
SINGAPORE	78%	88%	90%	90%
BRAZIL	80%	74%	74%	74%
MEXICO	72%	62%	74%	74%

 CIOs say IT is under too much pressure to keep up with unrealistic demands from the business and end users

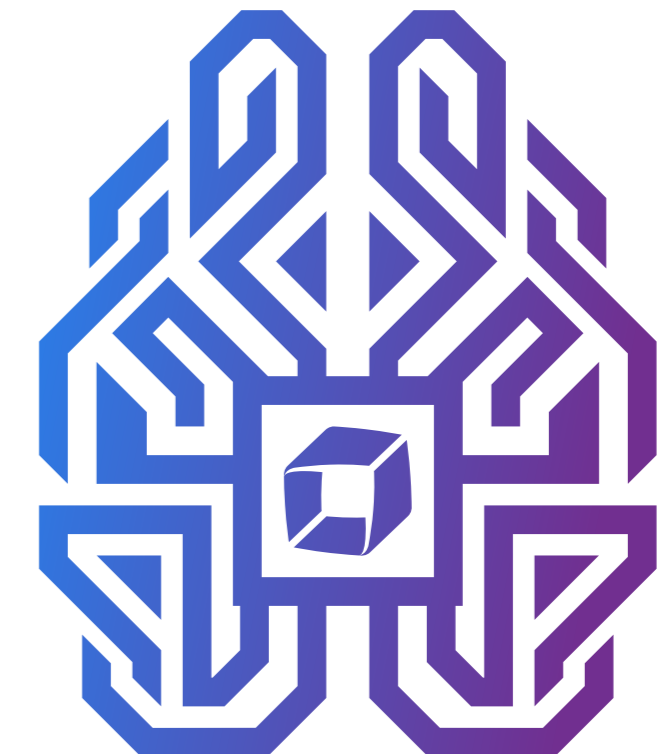
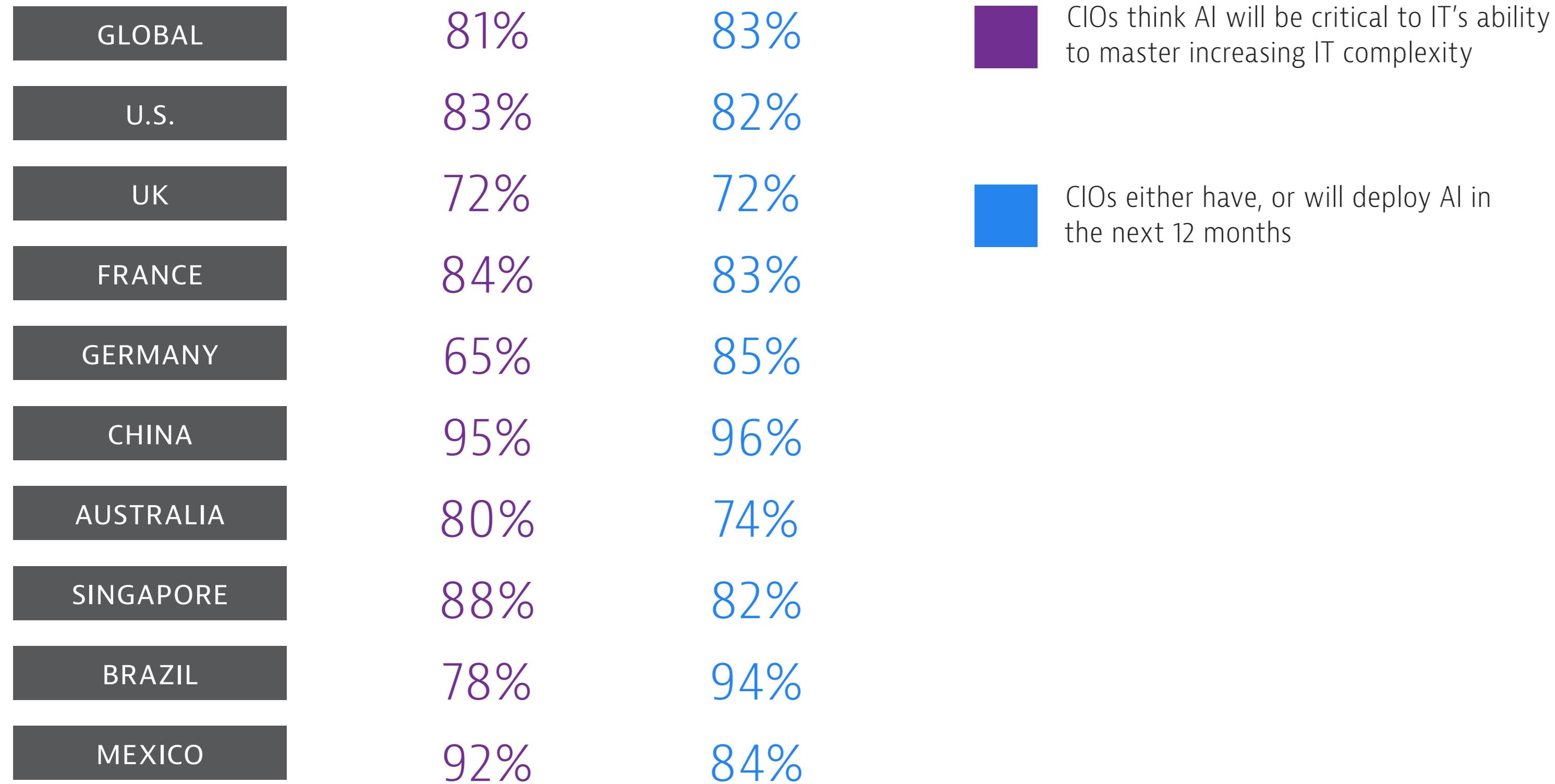
 CIOs say it is getting harder to find time and resources to answer the range of questions the business asks, whilst delivering on everything else that is expected of IT

 CIOs agree that it is difficult to map the technical metrics of digital performance to the impact they have on the business

Results by Country: Challenge Five

GLOBAL	29%	\$2.52	Average % of their time that IT teams spend dealing with digital performance problems
U.S.	31%	\$2.45	
UK	25%	\$5.22	
FRANCE	28%	\$1.94	Average cost to organizations of resolving digital performance problems (million)
GERMANY	28%	\$2.08	
CHINA	32%	\$1.62	
AUSTRALIA	33%	\$2.36	
SINGAPORE	30%	\$2.54	
BRAZIL	29%	\$2.13	
MEXICO	24%	\$0.92	

Results by Country: Challenge Six



Methodology

This report is based on a global survey of 800 CIOs in large enterprises with over 1,000 employees, conducted by Vanson Bourne and commissioned by Dynatrace. The sample included 200 respondents in the U.S., 100 in the UK, France, Germany and China, and 50 in Australia, Singapore, Brazil and Mexico respectively.

Learn more at dynatrace.com.

