



ECLIPSE

Cloud DevTools

Strategic Research: Cloud Developer Survey Report

October 2021

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INTRODUCTION

Welcome to the first annual Cloud Developer Survey Report. This strategic research report was commissioned by the Eclipse Cloud DevTools Working Group and the Eclipse Foundation. Research was conducted by an independent analyst group with the intent of securing an accurate developer perspective on cloud native development tools with a focus on the following objectives:

- Identifying Cloud IDE and developer tool usage trends
- Determining opportunities for innovation in the cloud tool ecosystem
- Offering unique industry insights and recommendations to decision makers

This report is the result of 319 interviews conducted between April 22 - May 1, 2021, distributed across five primary roles: Developers (30%), Dev Leadership (23%), CIO/CTO (15%), IT Managers (14%), DevOps (11%), and Architects (7%). The survey was fielded in four countries: US (49%), UK (32%), France (12%), and Germany (7%).

We trust that you will find this report to be insightful and welcome your questions and feedback.

KEY FINDINGS



- 1 Developers are flexible in their use of tools, but prefer what they know.** When given a choice, developers will use their preferred tools but will not shy away from using a new, best-of-breed tool.
- 2 Open source is attractive to developers.** Developers prefer open source because it allows them 1) to customize their tools; 2) to plug into their existing environments; 3) experiment with something unfamiliar.
- 3 Developers need to do more "non-developer" things...but can't afford the time.** Developer productivity demands greater and additional API integration (especially into IDEs) of the ever-growing tools developers are required to use
- 4 Open source is a driver of innovation.** As more is asked of developers and technology continues to be the source of growth for companies, developers are being pushed to learn and do more. A lot of this learning and innovation is happening in the OSS community.
- 5 AI/ML and Edge are the next frontiers.** There is increased use of AI/ML, and much of this is happening at the edge by front-end developers. These highly skilled developers are interested in technologies that tend to be more advanced and cutting edge.

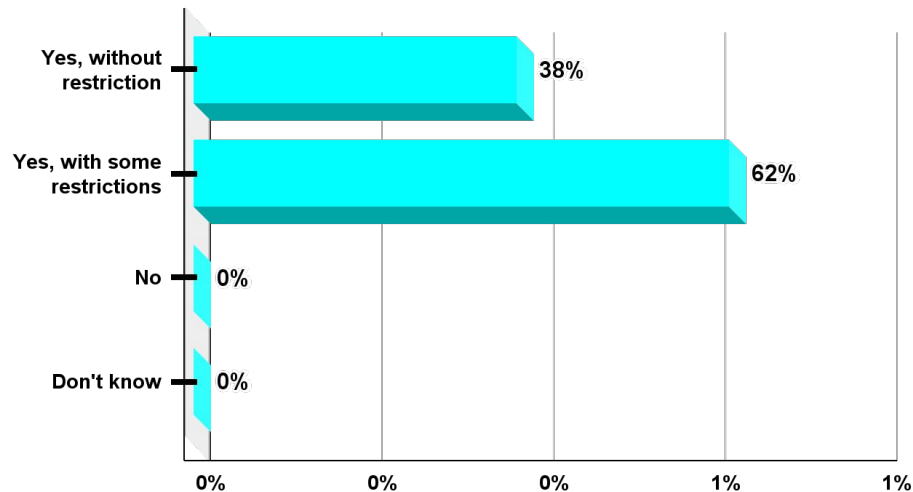
OPEN SOURCE AND CLOUD ENVIRONMENTS

- 100% of participant organizations allow developers to use open source technologies. 62% place at least some restrictions on usage
- A majority of participants leverage multiple options for their IT infrastructure, with 84% using a public cloud

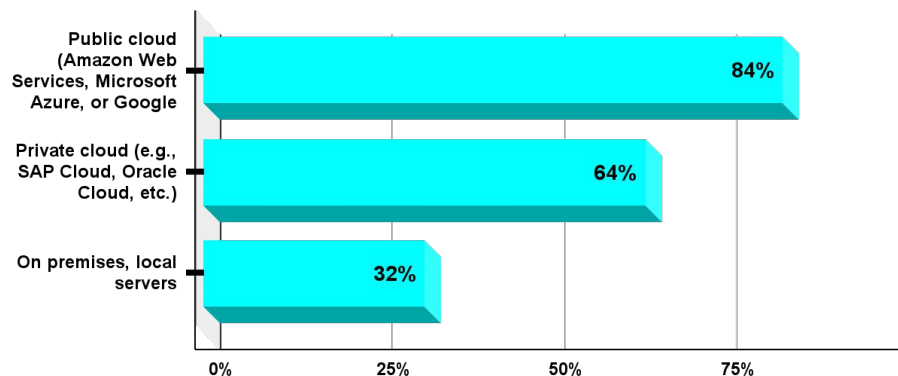
(Top) Q. Does your company allow teams to use open source technologies for software development?

(Bottom) Q. Please select all options that describe your organization's IT infrastructure. (Select all that apply.)

Open source use
OSSUSE



IT infrastructure environment
INFRA



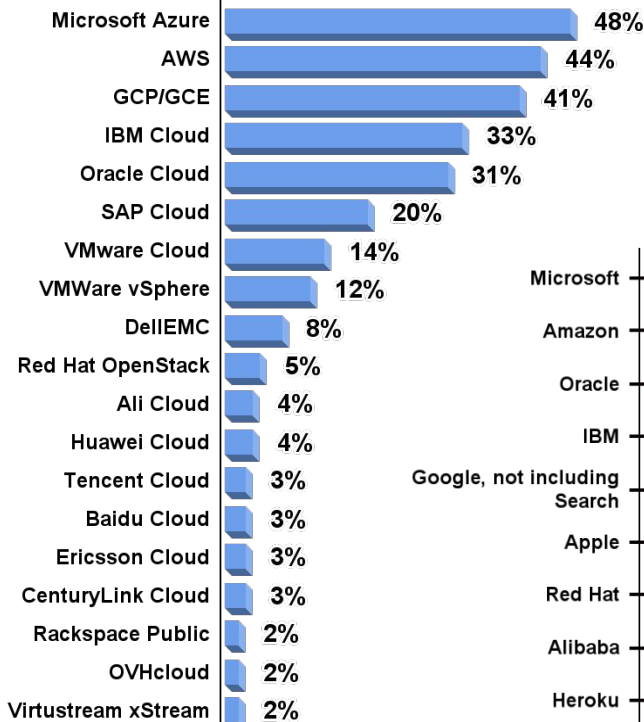
IT INFRASTRUCTURE & TOOLS

- IT infrastructure use for application development is dominated by the Big 3 hyperscalers
- Developers use tools or APIs from Microsoft, Amazon, Oracle, IBM and Google

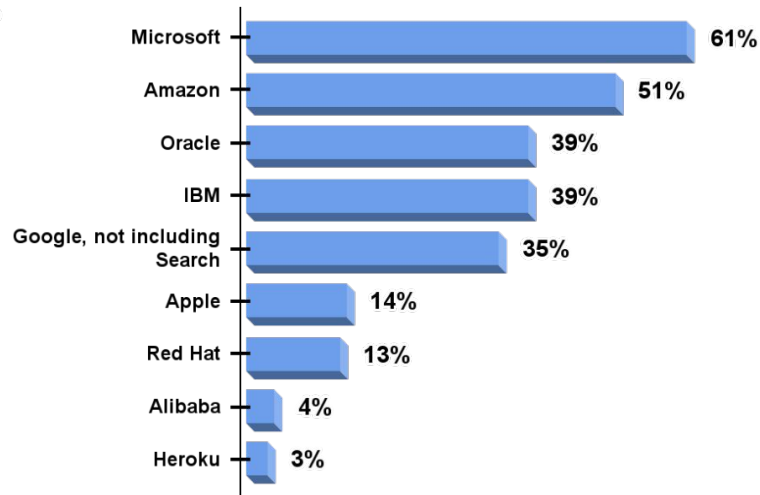
(Left) Q. Which of the following providers, if any, does your company use for IT infrastructure and application development? (Select all that apply.)

(Right) Q. From which of the following companies do you use tools or APIs in developing cloud-based applications? (Select all that apply.)

IT INFRASTRUCTURE



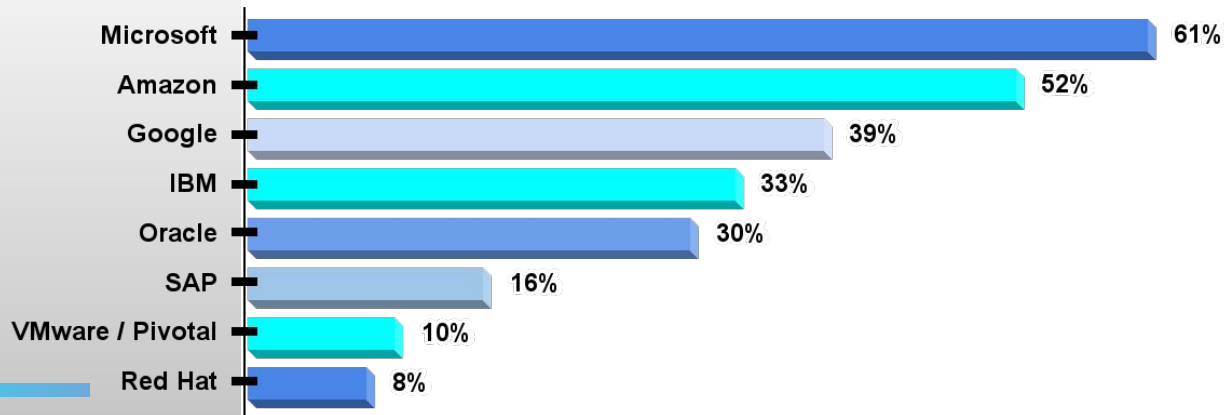
DEVELOPER ECOSYSTEM



MOST COMPANIES WORK WITH MULTIPLE PROVIDERS FOR CLOUD-SPECIFIC DEVELOPMENT AND HOSTING

A majority of organizations have existing relationships for cloud-specific development and/or hosting with one or more cloud providers. Microsoft leads the way (61%), followed by Amazon (52%) and Google (39%).

CLOUD PROVIDER RELATIONSHIPS

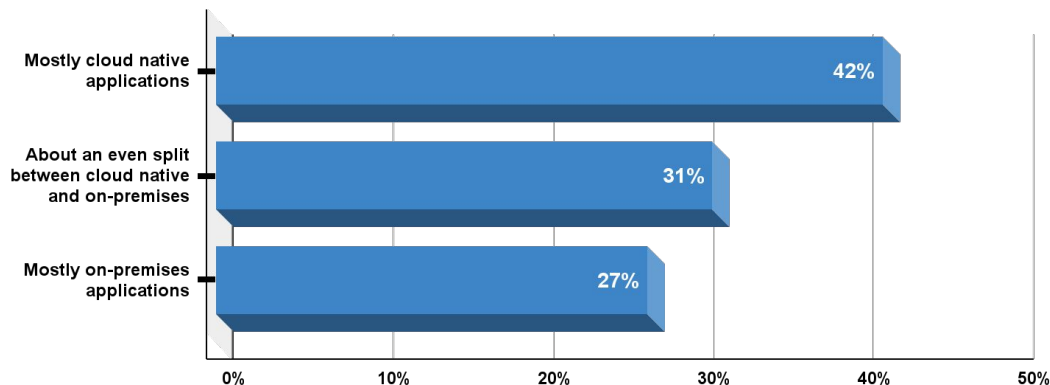


Q. With which of the following companies, if any, does your company have an existing vendor relationship for cloud-specific development and/or hosting? (Select all that apply.)

CLOUD NATIVE APPLICATIONS ARE BECOMING MORE CRITICAL

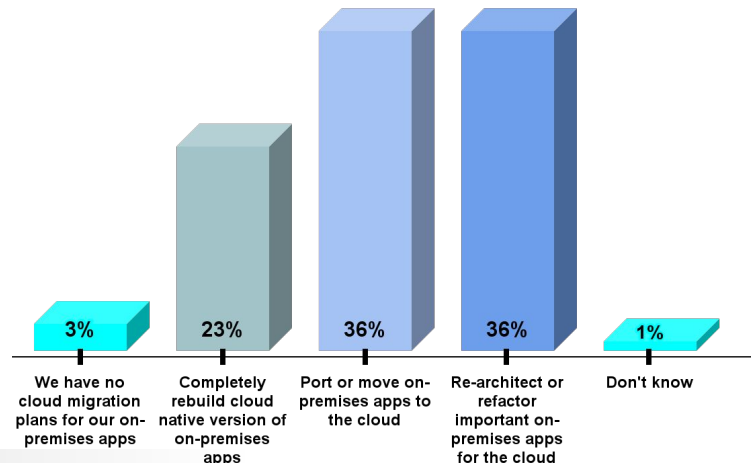
- The move to cloud is in full swing, with 42% reporting their company's most important applications are now cloud native
- Only 3% of participants say their company has no cloud migration plans for important on-premise applications
- Where do tools fit into the equation?

MOST IMPORTANT APPLICATIONS



(Left-side) Q. How would you describe your company's most important applications?

PLANS FOR ON-PREMISE APPLICATIONS

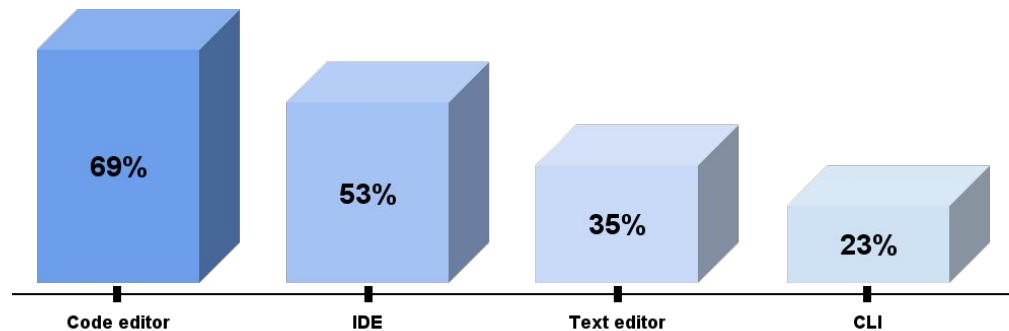


(Right-side) Q. How would you describe your company's plans for important on-premises applications going forward?

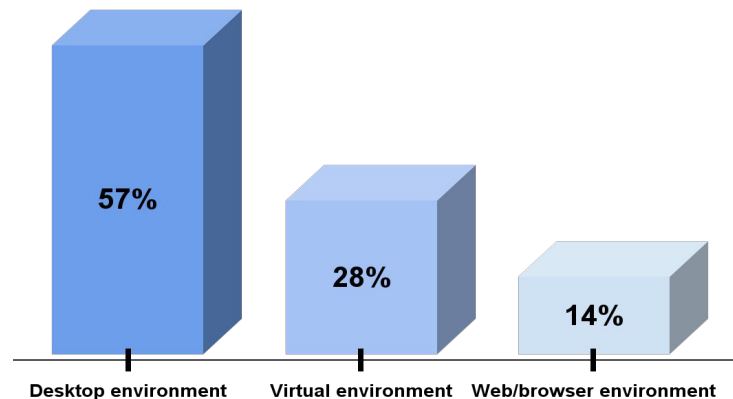
LOCAL IDE ENVIRONMENTS REMAIN POPULAR

- 57% of developers are still using desktop IDE environments
- There is a large developer community that can be migrated to cloud tools/platforms and the products built on them

DEV ENVIRONMENTS



IDE LOCATION

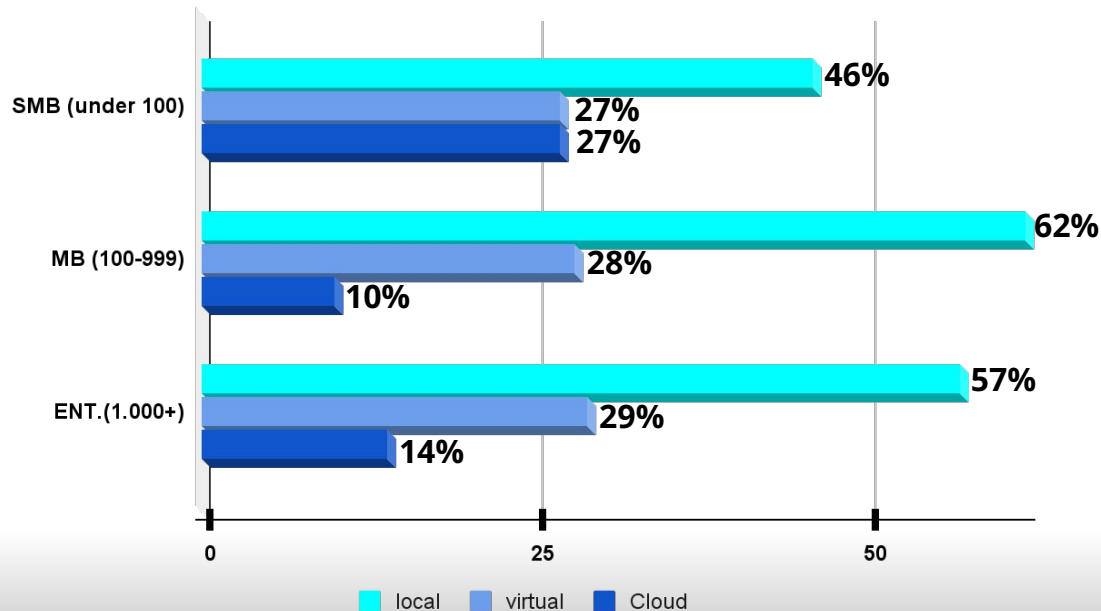


(Left-side) Q. Which of the following development environments do you use? (Select all that apply)

(Right-side) Q. Where are you using your IDE?

SMB DEVELOPERS ARE TWICE AS LIKELY TO ALREADY BE WORKING IN THE CLOUD

- 27% of SMB developers are using cloud tools, compared to just 14% of those working for a larger enterprise.
- Regardless of organization size, a high percentage of developers continue to use locally hosted tools. In this category, medium sized businesses (100-999 employees) lead the way at 62%



Q. Approximately how many employees are in your company or organization? (Your best guess is fine.)

Q. Where are you using your IDE?

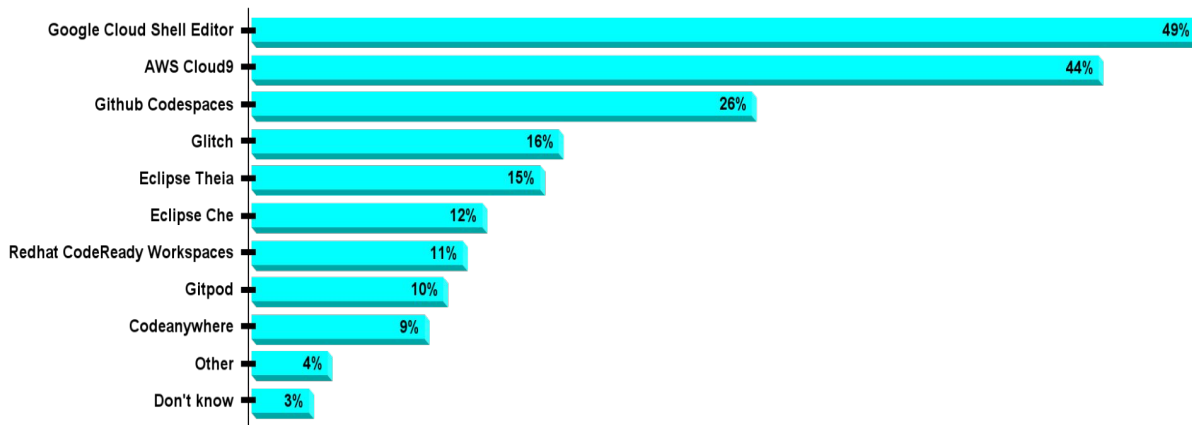
IDE USAGE

- Google Cloud Shell Editor (49%) AWS Cloud9 (44%), and Github Codespaces (26%) lead the way in cloud IDE usage.
- Eclipse projects are making a significant market impact: Google Cloud Shell Editor (Theia) and Redhat CodeReady Workspaces (Che) are based on Eclipse projects. On their own, both Theia and Che have a solid showing at 15% and 12% usage respectively.
- Nearly 1/3 of developers use the Eclipse IDE, ranking 3rd behind Notepad++ (46%) and Visual Studio (40%)

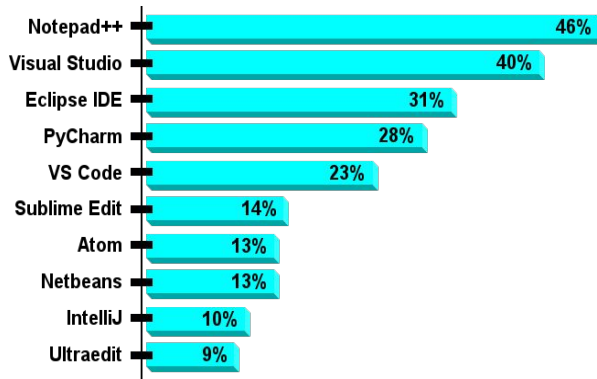
(Top)) Q. Which of the following cloud development environments do you use? (Select all that apply.)

(Bottom) Q. Which of the following non-cloud development environments do you use? (Select all that apply.)

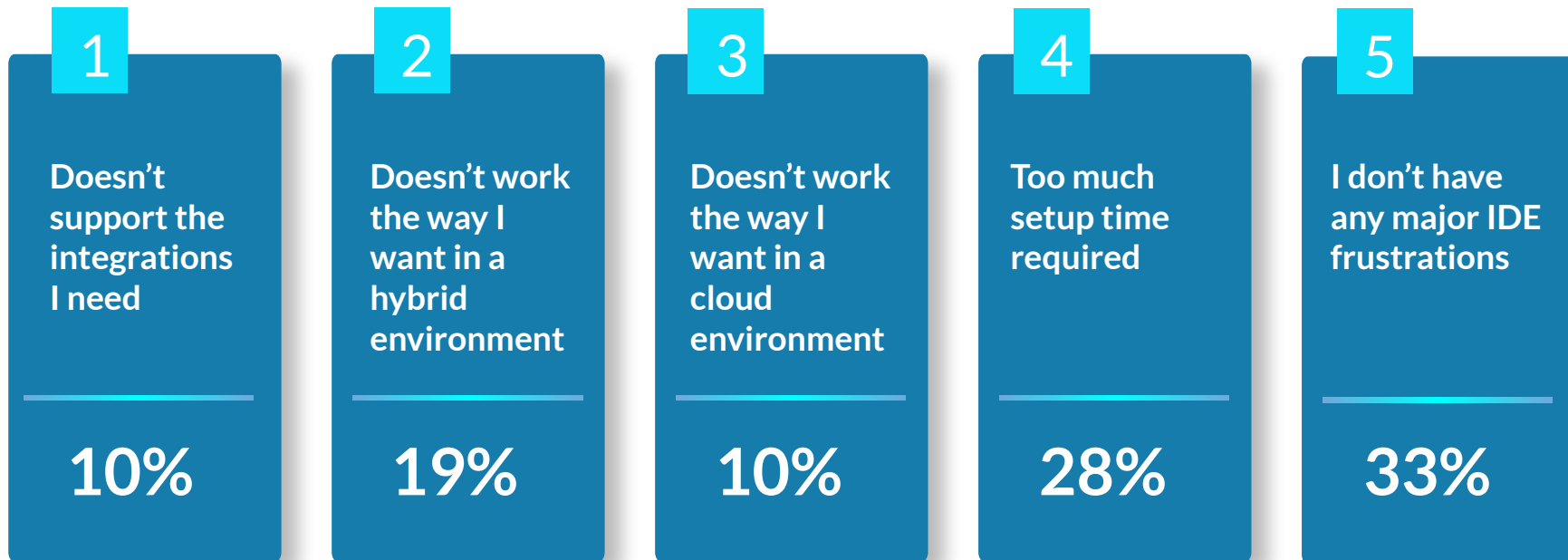
CLOUD IDE



DESKTOP IDE



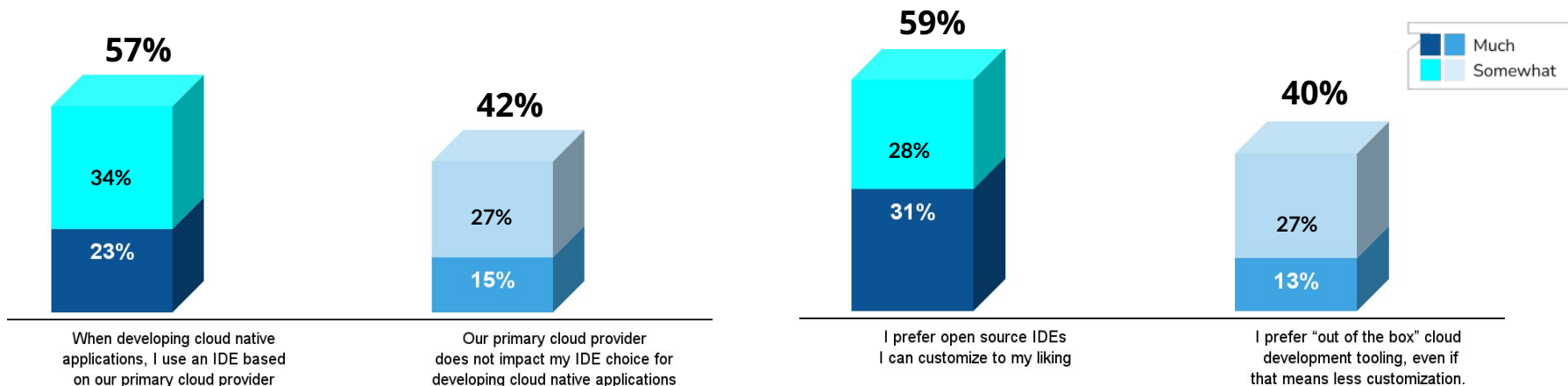
67% OF DEVELOPERS HAVE SOME FRUSTRATIONS WITH THEIR IDE



Q. Thinking specifically about your IDE, what are your biggest pain points or frustrations about your current IDE?

WHILE CLOUD PROVIDERS INFLUENCE IDE DECISIONS, DEVELOPERS PREFER OPEN SOURCE

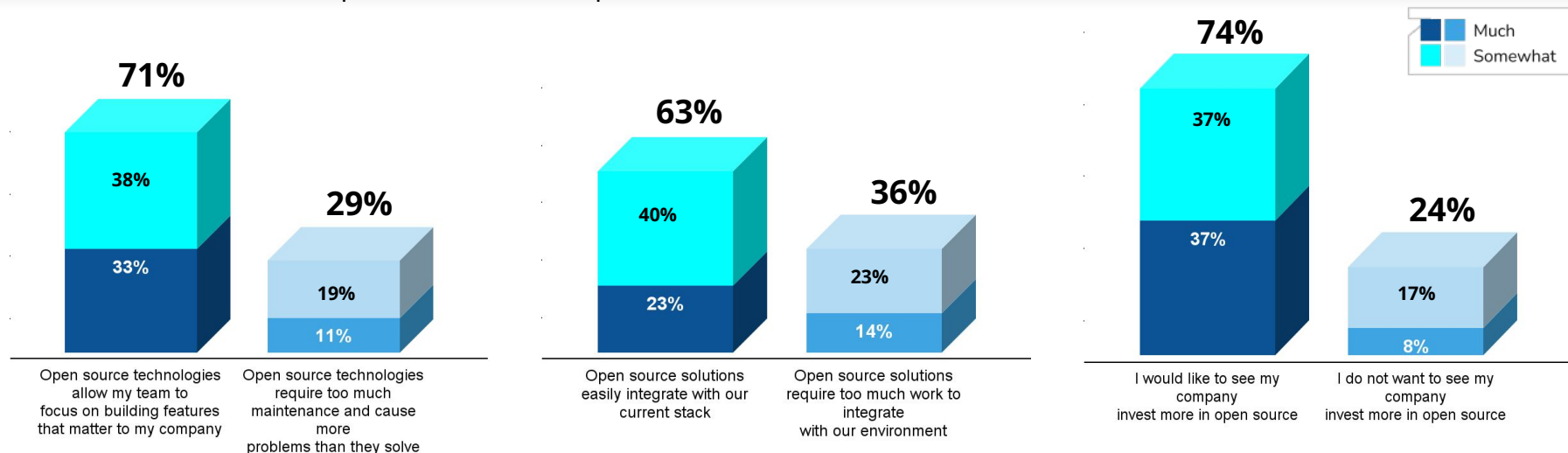
When given a choice, developers will often choose the IDE based on their primary cloud provider. However, there is an even stronger preference for open source options that allow them to customize.



Q. Which of the following statements most closely matches your point of view?

DEVELOPERS FIND SIGNIFICANT VALUE IN OPEN SOURCE

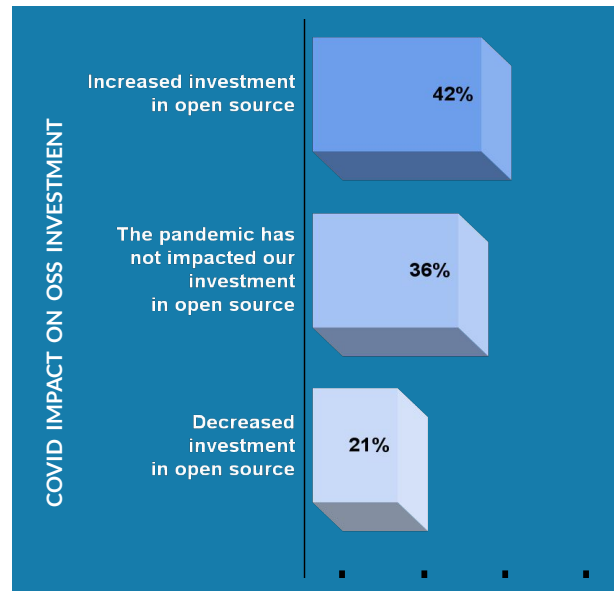
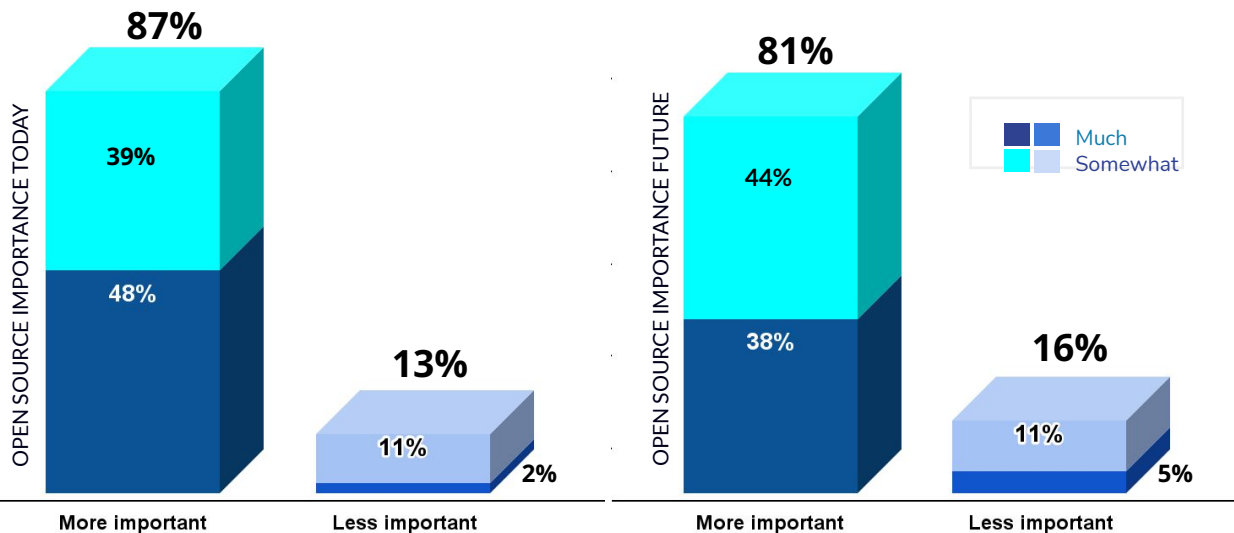
Developers generally agree that open source offers more flexibility while also working with their current data stack. 74% of developers would like to see their companies invest more in open source.



Q. Which of the following statements most closely matches your point of view?

OPEN SOURCE INVESTMENT HAS INCREASED WITH COVID-19

COVID-19 has driven more companies to invest in open source, and this trend is expected to continue, with 87% stating that open source is important to their strategy and 81% confirming that this will continue to be the case.



(Left-side) Q. How important is open source technology to your company's success today?

(Middle-center) Q. In the next few years, do you think open source technology will become more or less important to your company's success?

(Right-side) Q. How has COVID-19 impacted your company's investment in open source technologies?

DEVELOPERS ARE SPLIT BETWEEN DESKTOP AND WEB/VIRTUAL ENVIRONMENTS

- At 51%, developers slightly prefer CLI desktop environments over web/virtual
- For Code Editor usage, web-based and virtual environments hold a slight edge at 52% vs desktop usage at 48%

(Top) Q. Where are you using your code editor?

(Bottom) Q. Where are you using your CLI?

CODE EDITORS

Web/browser environment

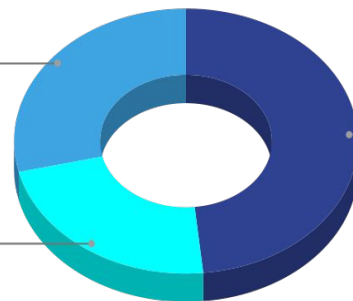
28.8%

Virtual

22.8%

Desktop

48.4%



CLIs

Web/browser environment

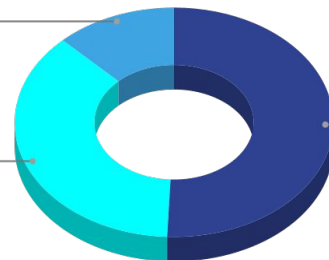
12.3%

Virtual

37.0%

Desktop

50.7%



DEVELOPERS WILL USE TOOLS THAT ARE BEST FOR THE JOB AT HAND; SPLIT ON WHETHER TOOLS WILL CHANGE AS THEY MOVE TO CLOUD

While developers have a preference for the familiar, 61% say they will use the tool that works for the job at hand. A slight majority also believe that even with applications moving to the cloud, their tools for app development won't change. However, an almost equal number of respondents see their tools changing drastically, which points to innovation taking place, most likely through the use of open source.

61%

I will use whatever development environment is best-fit for the task at hand.

51%

The tools I use for application development will mostly stay the same, regardless of where our applications are hosted.

48%

The tools I use for application development will change dramatically as we move more to cloud.

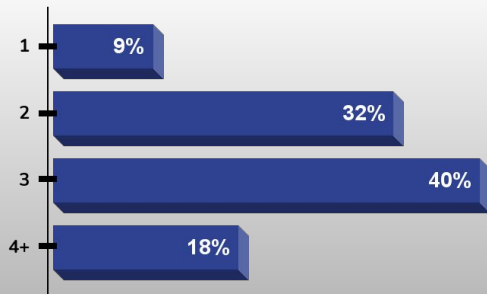
39%

I prefer the development environment I am familiar with, even if it isn't always a perfect fit.

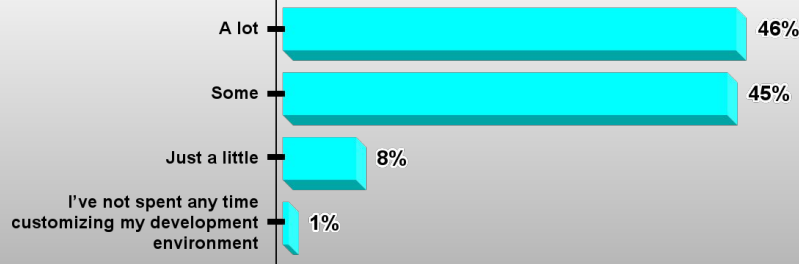
Q. Which of the following statements most closely matches your point of view?

DEVELOPER TRENDS AND PREFERENCES

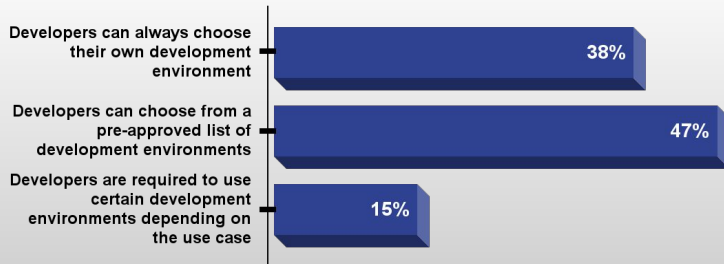
NUMBER OF DEVELOPMENT TOOLS USING



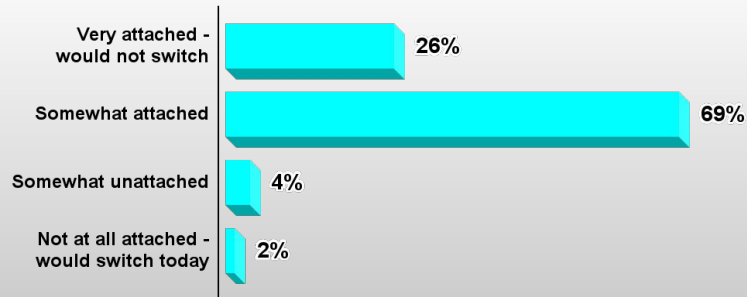
TIME CUSTOMIZING



DEVELOPMENT ENVIRONMENT CHOICE



ATTACHMENT TO DEV ENVIRONMENTS



(Top left) Q. How many different development tools do you use on a regular basis?

(Bottom left) Q. How much control do developers at your company have over the type of development environment they use?

(Top right) Q. Approximately how much time and effort would you say you've invested in customizing your development tools?

(Bottom right) Q. How attached would you say you are to your development environment?

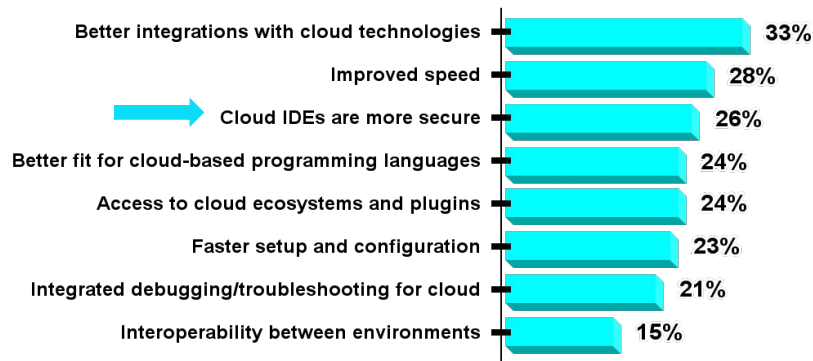
MOTIVATORS AND BLOCKERS FOR NEW IDE ADOPTION

- Developers are motivated to switch to a cloud IDE or tool when there is tight integration with cloud technologies, a performance boost, and a high degree of security.
- Cost of training and onboarding is the number one concern about moving development environments from the desktop to the cloud
- Security is seen as both a motivator and a blocker, with nearly equal number of participants having differing views on whether a desktop or cloud environment is more secure

(Top) Q. What are the 2 best reasons to adopt a cloud IDE or cloud development tool?

(Bottom) Q. What are the 2 biggest blockers to adopting a cloud IDE or cloud development tool?

MOTIVATORS



BLOCKERS

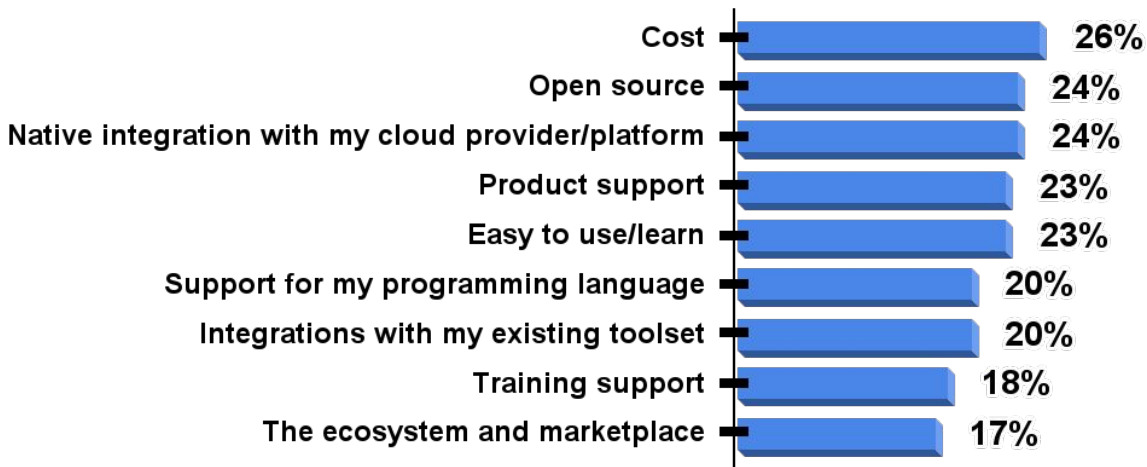


NEW CLOUD TOOL ADOPTION CONSIDERATIONS

When adopting a new cloud-based tool, survey participants identify Cost (26%), Open Source (24%) and Native integration with their cloud platforms (24%) as top considerations.

Q. Imagine your job required you to adopt a new cloud development tool. Which TWO of the following are the MOST important considerations in selecting cloud development tools?

PRIMARY CONSIDERATIONS

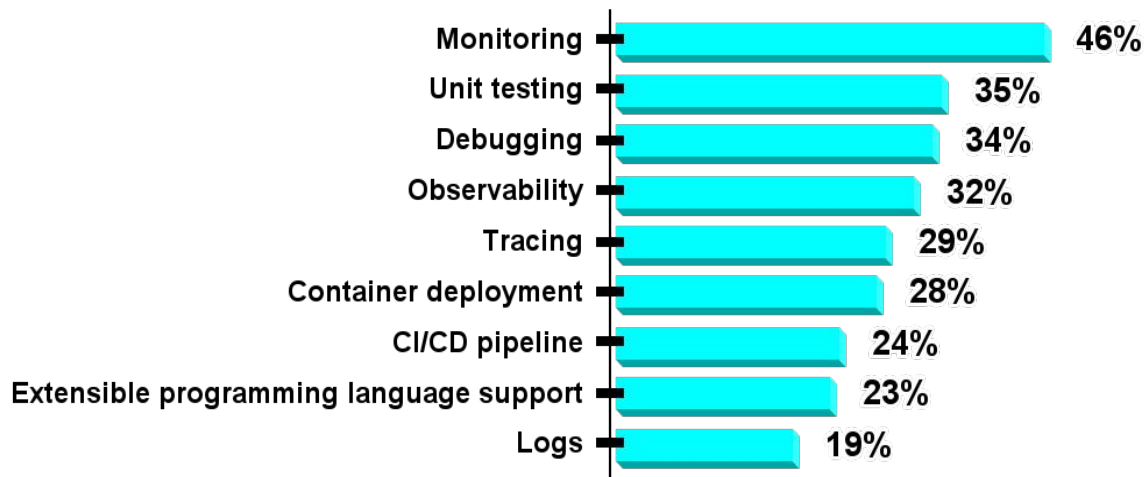


CLOUD TOOL INTEGRATION PRIORITIES

- 46% of participants indicate that Monitoring is the most important integration priority for cloud developers
- Unit Testing (35%), Debugging (34%) and Observability (32%) are among the other important integration priorities
- In general, the survey results indicate a strong desire for a more tightly integrated cloud environment

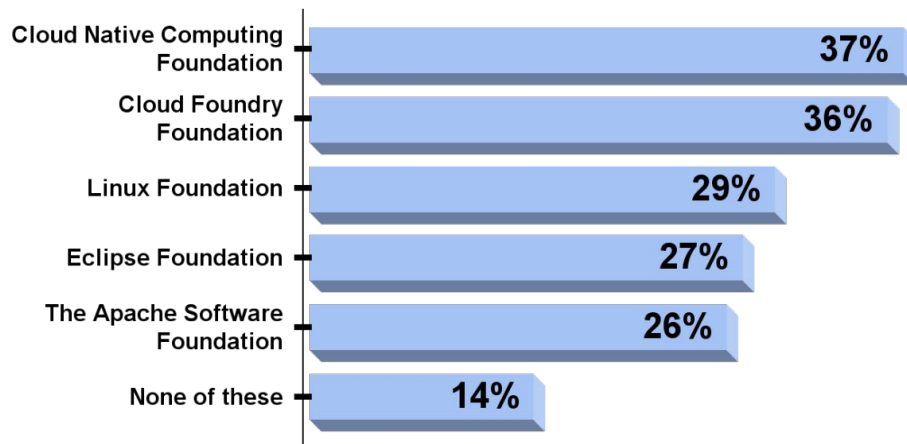
Q. Which of the following integrations are a priority for your cloud development tools to support? (Select all that apply).

INTEGRATION PRIORITIES

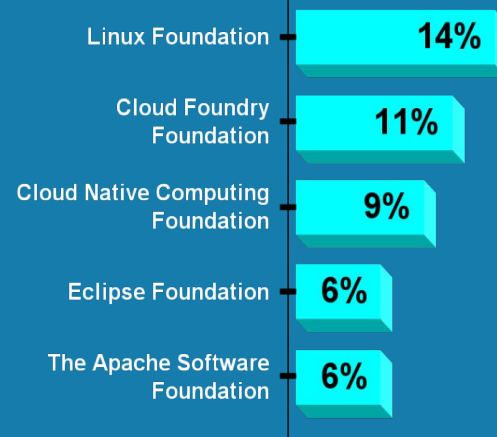


ALTHOUGH DEVELOPERS FOLLOW OPEN SOURCE FOUNDATIONS, ACTUAL MEMBERSHIP IS RELATIVELY LOW

FOUNDATIONS FOLLOWED



FOUNDATION MEMBERSHIP

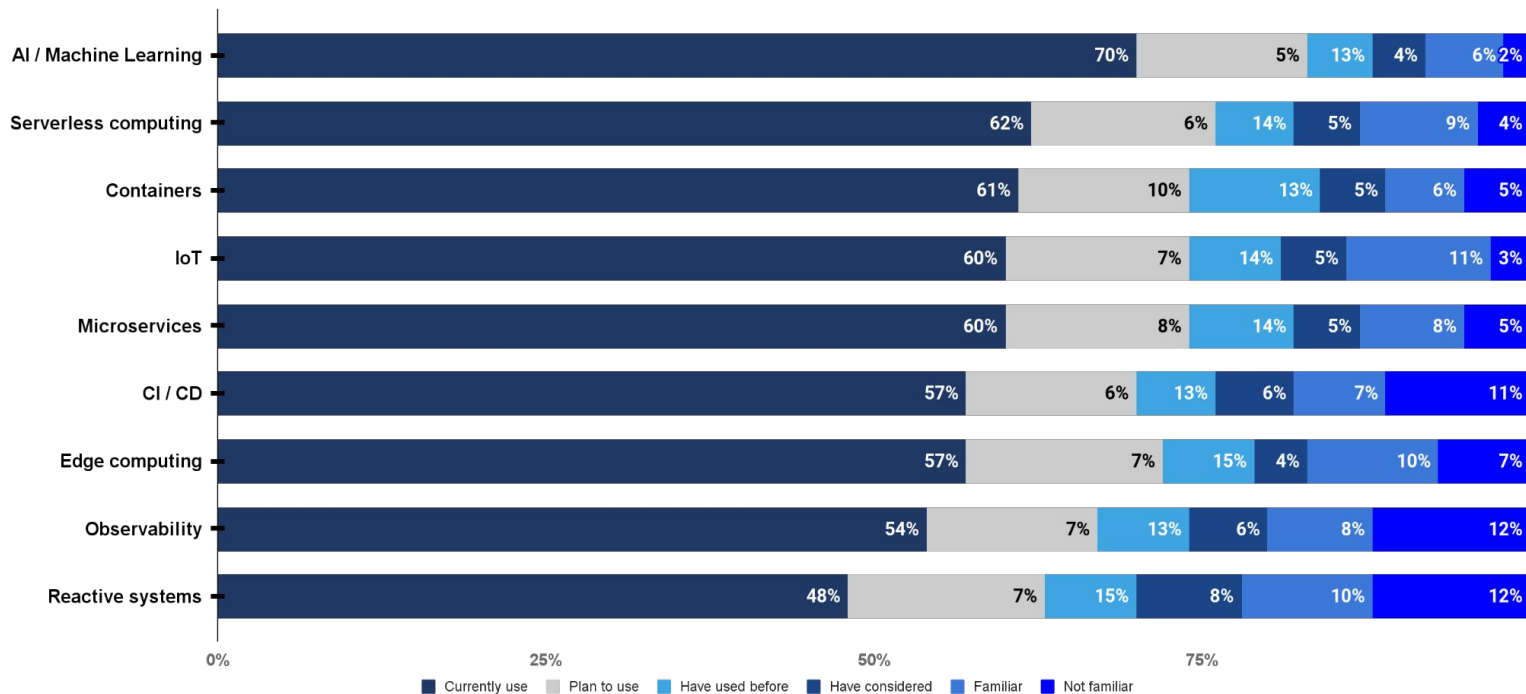


(Left-side) Q. Which of the following foundations, if any, do you follow, whether on the news and social media, or by attending meetups and conferences? (Select all that apply.)

(Right-side) Q. Which of the following foundations, if any, is your organization a member of?

DEVS REPORT HIGH ADOPTION OF CLOUD NATIVE TECHNOLOGIES

Developers are more quick to get interested in, experiment with, and adopt cloud native technologies than their IT leadership counterparts. Adoption starts from the bottom up.

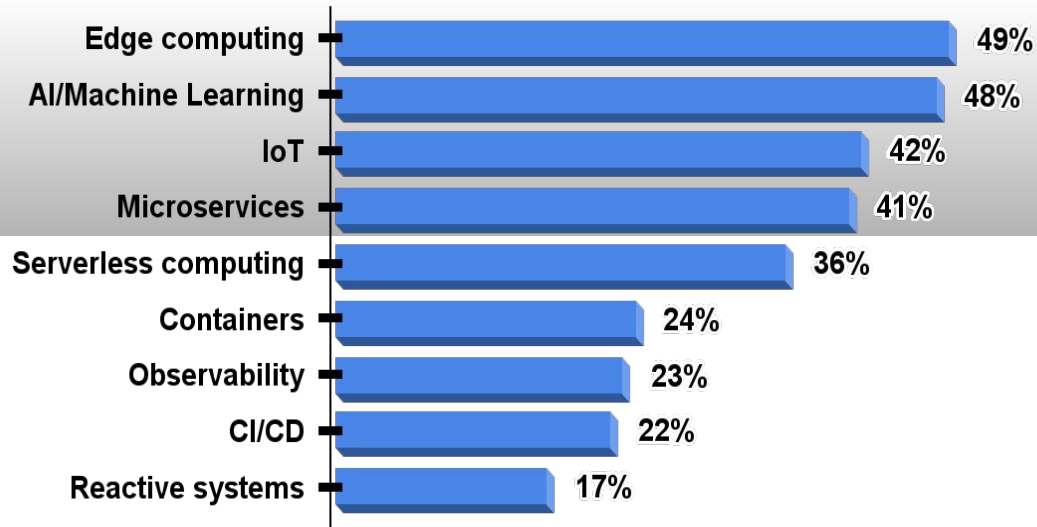


Q. Please indicate whether or not you use, have used, or plan to use this technology.

DEVELOPERS HAVE STRONG INTEREST IN EDGE AND AI

Developers are generally excited about and experimenting with new technologies. Edge computing (49%) and AI/ML (48%) top this list.

FUTURE EXPOSURE ENTHUSIASM



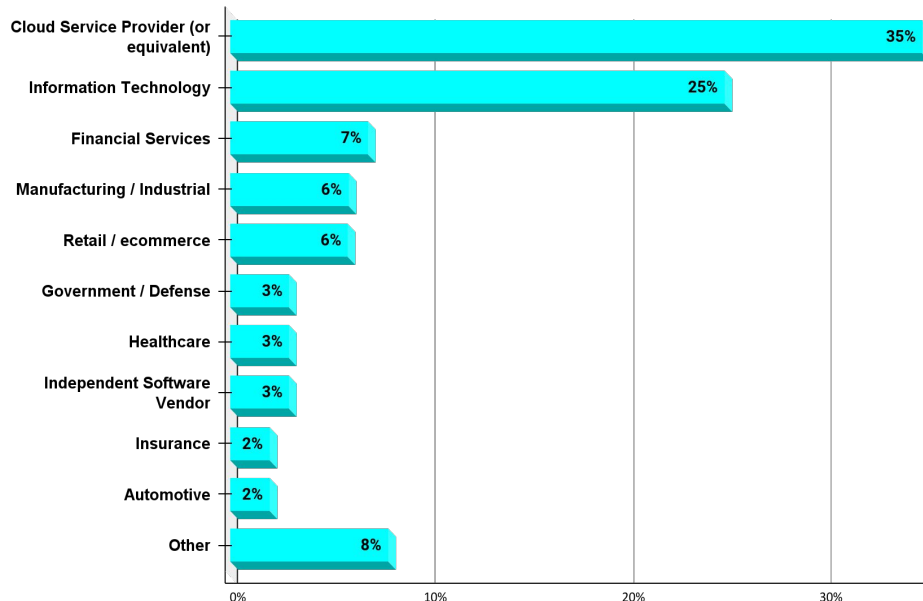
Q. For the same list of technologies please select all solutions you are excited to gain more exposure to in the next 6-12 months. (Select all that apply.)

ANALYST RECOMMENDATIONS



- 1 Companies will increasingly provide their developers with as much flexibility in tool selection as possible.** Developers prefer to continue working with their favorite tools and IDEs but will adopt best-of-breed products and tools as necessary. Developer productivity is directly correlated with the allowed flexibility.
- 2 Companies should increasingly adopt a pro-open source policy.** Organizations should also offer developers use of open source, which will increase the likelihood of attracting and retaining highly skilled staff. While developers are most comfortable using the IDEs they're familiar with, they are primarily looking to use what's best for the job at hand.
- 3 Open source is becoming both an innovation engine and a hiring engine.** Developers want tools that will plug into the environment they want to use. Talented developers will gravitate toward companies that allow them to work with tools that enable flexibility and innovation. Many of these are open source.
- 4 Developers performing non-developer tasks will lead to IDE consolidation.** More and more front end developers are working on more and more advanced developer and non-developer (especially data) tasks, including AI/ML and traditional ops tasks. As successful technologies build out API plug-ins, they will focus on the most-heavily-used tools, at the expense of others.

METHODOLOGY



319 interviews of Cloud Developers, MoE*
+/- 5.5% April 22 - May 1, 2021

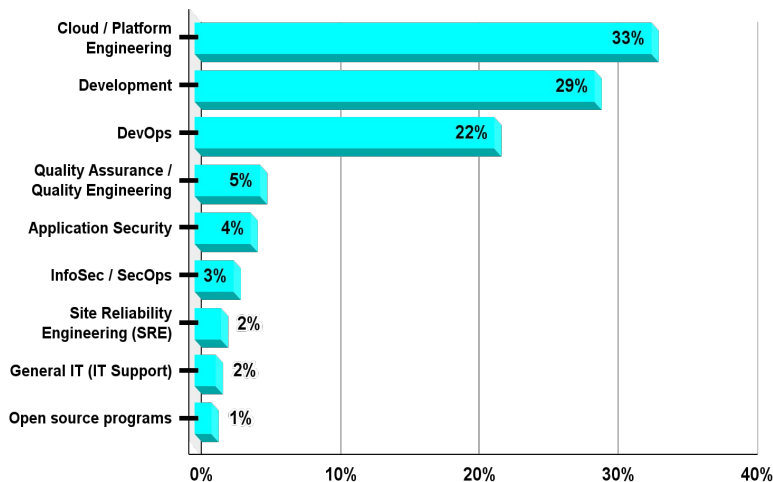
- Fielded in 4 countries: US (49%), UK (32%), France (12%), and Germany (7%)
- Distributed across 5 major roles: Developer (30%), Dev Leadership (23%), CIO/CTO (15%), IT Manager (14%), DevOps (11%), Architect (7%)

* Margin of sampling error cannot technically be calculated for online panel populations where the relationship between sample and universe is unknown. However, these are the margins of sampling error for equivalent representative samples for reference.

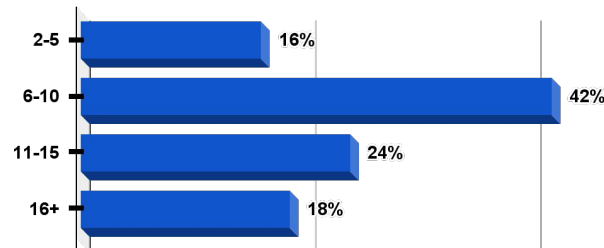
DEMOGRAPHICS

33% of participants are part of a cloud/platform engineering team, followed by development (29%) and DevOps (22%). 42% have 6-10 years of experience and a majority (81%) work in small to medium sized enterprises.

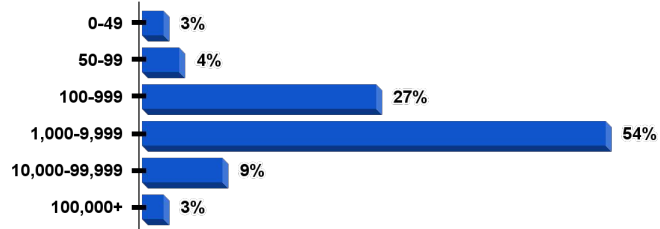
TEAM



YEARS OF EXPERIENCE



COMPANY SIZE



Left-side) Q. Which of the following best describes your team?

(Top right) Q. And how many years have you been working in or with the tech field?

(Bottom right) Q. Approximately how many employees are in your company or organization? (Your best guess is fine.)

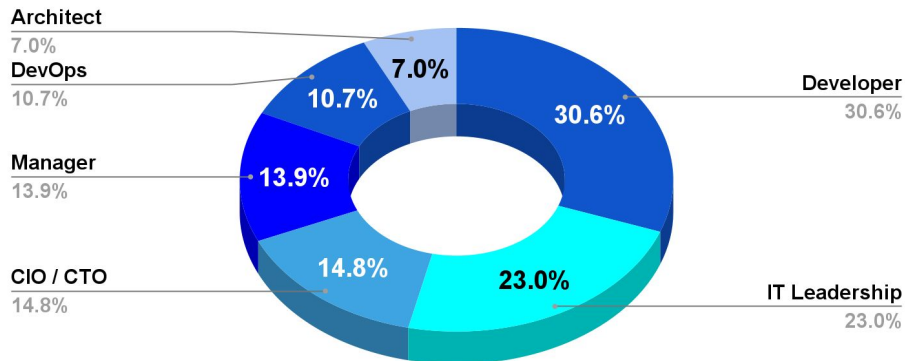
PARTICIPANT ROLES

- Developers make up more than 30% of participants.
- More than 50% of participants are currently in a leadership role
- All participants have prior experience as developers, DevOps and/or architects

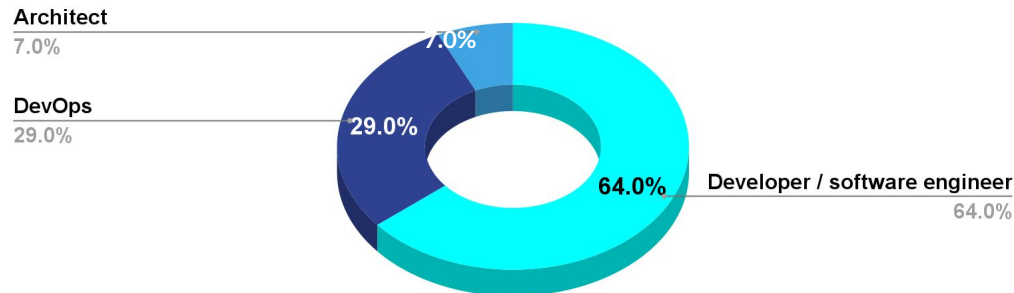
(Top) Q. Which ONE of the following is your primary responsibility? Even if you perform multiple roles, select the ONE you consider your primary responsibility.

(Bottom) Q. Prior to your current position, which of the following positions did you mostly hold?

CURRENT ROLE



PREVIOUS ROLE





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Thank You!