CURRENTS
A quarterly report on developer trends in the cloud
Introduction

Trends in the developer community move quickly. As a developer-focused company, it’s vital for us to keep up with the technologies and tools that developers and their teams are interested in so we can help them achieve their goals.

Currents is a quarterly report on developer cloud trends that we created to share our knowledge with the broader community. For the fourth edition, we surveyed nearly 5,000 respondents from around the world about themselves, the tools they use and the challenges they face.

Key Findings:

- **Containers are reaching a tipping point**, with 49 percent of developers now using them. With container technology and management tools advancing at a rapid pace over the last year, containers are becoming a go-to tool in the developer arsenal.

- **Serverless computing is in a much earlier stage of adoption**, with nearly half of developers failing to clearly understand what it is. One of the biggest challenges developers report when it comes to serverless is monitoring and debugging.

- **Opportunity for growth and development is the most important thing developers want in their jobs**, so it’s unsurprising this is the top reason they leave them. Companies that are deliberate about creating long-term paths for their developers are more likely to retain their technical workforce.

- **Bootcamp participants feel more prepared for the workforce than college graduates.** However, nearly half feel it can sometimes be a disadvantage in job interviews.

- **Likewise, employers are still warming to bootcamp graduates.** While the majority of hiring managers say they make no distinction between bootcamp vs. college graduates, 48 percent have not filled any positions with a bootcamp graduate in recent years.
For those using containers, what languages are you most frequently using?

- JavaScript: 57%
- Python: 46%
- PHP: 36%
- Go: 28%
- Java: 27%
- Ruby: 13%
- C#: 8%
- C++: 6%
- Other: 5%
- Perl: 2%
What do you think is the most beneficial aspect of containers?

- 39% They are easily scalable.
- 24% They allow me to test software more simply.
- 23% They allow me to test software much faster.
- 10% They help avoid issues related to vendor lock-in.
- 4% Other
Which container orchestration platform do you primarily use?

- Kubernetes 42%
- Docker Swarm 35%
- OpenShift by Red Hat 5%
- Apache Mesos 3%
- Marathon 2%
- Nomad by HashiCorp 2%
- CoreOS Tectonic 1%
- Other 12%

Do you use continuous integration and/or continuous delivery solutions to automate your container lifecycles?

- Continuous integration 29%
- Continuous delivery 7%
- Both 42%
- Neither 21%
While Kubernetes was most popular overall, the smallest companies (1-5 employees) use Docker Swarm more often (41 percent use Swarm vs. 31 percent that use Kubernetes).

Despite the popularity of containers, solutions to simplify container management have yet to take off. More than half (52 percent) of respondents using containers have yet to adopt an orchestration platform. However, those who have report significant time savings: 51 percent are saving at least 5 hours a week, with 15 percent reporting saving more than 10 hours.
Surprisingly, developers were completely split on their knowledge of serverless computing, with half saying they have a strong understanding of it, and the other half not. Unlike containers, serverless seems to be at a much earlier stage in the cycle, with India slightly ahead in the adoption cycle compared to other key developer markets including the U.S., U.K. and Canada.

While monitoring and debugging is the biggest challenge with serverless overall, when we segmented by age groups we saw a slightly different story: the youngest respondents (18-24 years old) said their biggest challenge was depending on a third-party provider, while the oldest respondents (55-64) identified complex migration processes.
For those who don’t yet understand serverless technologies, do you plan to do further research this year?

81% Yes
19% No
Have you deployed any applications in a serverless environment within the past year?

What serverless platform are you primarily using?

- AWS Lambda: 58%
- Google Cloud Functions: 23%
- Microsoft Azure Functions: 10%
- Apache / IBM OpenWhisk: 2%
- OpenFaaS: 2%
- Iron.io: 1%
- Other: 4%
What do you think is the most beneficial aspect of serverless computing?

- 33% It reduces costs related to server provisioning.
- 28% I can spend more time working on and improving my applications.
- 23% I can deploy software more quickly.
- 14% It decreases software complexity.
- 2% Other

What is the biggest challenge you face using serverless computing?

- 27% It is challenging to monitor and debug.
- 25% I have concerns around vendor lock-in.
- 20% I have to depend on a third-party provider.
- 16% The migration process is complex.
- 11% There is higher application latency.
- 2% Other
With graduation season upon us and many new developers entering the job market, we looked at hiring trends for engineers. Eighty-four percent of respondents self-identified as candidates/employees, with the others identified as hiring managers. Salary and growth opportunities are the top things developers look for in new jobs, closely followed by culture. Older candidates care more about the ability to work remotely, while women value growth opportunities over salary.

Most candidates leave their existing roles either due to poor management or a lack of growth opportunities.

Employees:
What are the top considerations for you when evaluating a job?

- Competitive salary: 39%
- Opportunities for internal growth and development: 39%
- Culture that fits my personality: 38%
- Ability to work remotely: 27%
- Freedom to use certain technologies: 23%
- Company’s core product: 17%
- Quality of manager or management: 11%
- Company’s digital capabilities: 7%
The position lacked opportunities for growth and development.
Leadership / management were bad.
The company used inefficient or obsolete technologies.
I was offered higher compensation elsewhere.
I wanted more freedom to work remotely.
There were too many stagnant projects.
I was offered better benefits elsewhere.

Top causes contributing to engineers leaving their jobs.
Given the ongoing interest around bootcamps as an alternative or additional approach to code education, we were curious what the current sentiment around them was. Interestingly, respondents who attended bootcamps felt far more prepared for a software engineering position than their peers graduating from traditional programs: 61 percent of bootcamp graduates vs. only 36 percent of traditional college program graduates. For women, the most popular reason they use bootcamps is it allows them to enter the coding workforce more quickly (35 percent of women agreed, vs. 26 percent of men). Men’s primary reason for going to bootcamps is because they think it will provide them with better skills and experience (29 percent men vs. only 13 percent women).

Yet, bootcamps face an uphill battle with how they’re perceived among employers: almost half of bootcamp graduates say they have sometimes been at a disadvantage because of it during interviews. Additionally, 14 percent of hiring managers said they still prefer traditional college graduates, while 48 percent admitted they have not hired any coding bootcamp graduates in recent years. Hiring managers in India appear to be more open to bootcamp graduates with the U.K. and U.S. less open.

Did you attend a traditional college program or a coding bootcamp?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
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<tr>
<td>Traditional college program</td>
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</tr>
<tr>
<td>Neither</td>
<td>33%</td>
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<tr>
<td>Both</td>
<td>9%</td>
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<tr>
<td>Coding bootcamp</td>
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</table>
During job interviews, have you ever felt like your bootcamp education has been a disadvantage to you?

What is the main reason you attended a bootcamp program rather than a traditional college program?

- A bootcamp provided better skills and experience: 28%
- It was a quicker means of entry into the coding workforce: 27%
- I felt it was too late in my career to do a college program: 21%
- I felt a degree wasn't necessary: 15%
- It was less expensive: 10%

During job interviews, have you ever felt like your bootcamp education has been a disadvantage to you?

- Never: 45%
- Sometimes: 49%
- Frequently: 6%
Do you feel like your traditional college program adequately prepared you for a high-level software engineering position?

- Yes: 61%
- No: 17%
- Unsure: 23%

Do you feel like your coding bootcamp adequately prepared you for a high-level software engineering position?

- Yes: 46%
- No: 17%
- Unsure: 23%
Hiring is always a big challenge in the tech market, and nearly half of hiring managers (44 percent) said they have problems retaining talent. More than anything else, they said having a great culture is key to keeping developers engaged and happy.

In terms of bootcamp graduates, younger hiring managers seem more open to hiring graduates from them, while older hiring managers are more likely to be neutral to negative on them. 10 percent of hiring managers aged 55-64 said they had an extremely negative viewpoint on them.

According to our respondents, a limited talent pool without relevant job/technical skills represents the biggest hiring challenge — 39 percent selected it as the No. 1 issue. This vastly overshadowed additional responses; only 18 percent selected a lack of formal software engineering education as their top challenge.

Rank the following hiring challenges (1-least challenging; 5-most challenging)

- Limited pool of candidates with relevant job/technical skills.
- Lack of formal software engineering education.
- Lack of soft skills/workplace competencies.
- Losing top candidates to competing offers.
- Salary demands too high.
Does your company struggle to retain IT talent?

Yes 44%
No 56%

If yes, what is the top reason your company struggles to retain talent?

- Competing opportunities elsewhere: 34%
- Lack of similarly minded talent: 20%
- Stagnation in projects that demotivates engineers: 19%
- Lack of growth opportunities: 17%
- Not making retention an explicit priority: 10%
If no, what do you think is the primary reason your company is able to retain talent?

- Great workplace culture: 54%
- Ample opportunities for growth: 20%
- Fast adoption and implementation of new technologies: 20%
- Competitive salaries: 7%
What's your opinion on coding bootcamps?

<table>
<thead>
<tr>
<th>Opinion</th>
<th>OVERALL</th>
<th>U.S.</th>
<th>CA</th>
<th>U.K.</th>
<th>IN</th>
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<td>17%</td>
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<td>31%</td>
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<td>3%</td>
<td>5%</td>
<td>7%</td>
<td>7%</td>
<td>2%</td>
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Has your company been able to fill positions with coding bootcamp graduates in the past few years?

- **48%** Not at all
- **23%** Yes, a few
- **22%** I don’t know
- **7%** Yes, many

Do you differentiate between candidates from coding bootcamps and traditional college degrees?

- **55%** I make no distinction; I look at all candidates equally.
- **23%** It depends on the position they’re interviewing for.
- **14%** I prefer to hire graduates of college programs.
- **8%** I prefer to hire graduates of coding bootcamps.
Demographics

Of the 4,853 survey respondents, 55 percent self-identified as developers, 13 percent as working in DevOps and 10 percent each said they were either a student or manager.

Ninety-four percent of our respondents self-identified as men, 5 percent as women, and 1 percent as non-binary/other. Seventy-six percent of respondents were under 34 years old, and 6 percent were 45 or older.
What is your age?

- 25-34: 48%
- 18-24: 28%
- 35-44: 19%
- 45-54: 5%

I identify as a...

- Man: 94%
- Woman: 5%
- Non-binary / Other: 1%