ATLASSIAN 2016 REPORT—

SOFTWARE DEVELOPMENT TRENDS AND BENCHMARKS

What's Driving Development Today?

Containers or virtual machines? Git or Mercurial? Agile or Waterfall?

The tech industry has always moved fast, but software development is going through more changes than ever—and that's before we even talk about the cloud. Businesses are having to meet their customers wherever they are—on the web and on smartphones, within messaging apps and on Twitter. And the constant feedback loop with end users means coders are being asked to make tweaks and changes to software continuously—sometimes to live applications.

Here at Atlassian, we love to keep a close watch on the new trends as they emerge. What best practices are driving change at successful companies? Which tools and techniques are allowing developers to move at the speed of business? Staying ahead of the competition means staying on top of what's new.

Fortunately, we're well positioned to see what's taking hold in software development through our customer base and our wide network of partners. We recently gathered data from 17,000 software professionals—as well as from 1,300 of our own customers—to identify the tools and techniques that are gaining traction in development shops across all industries.
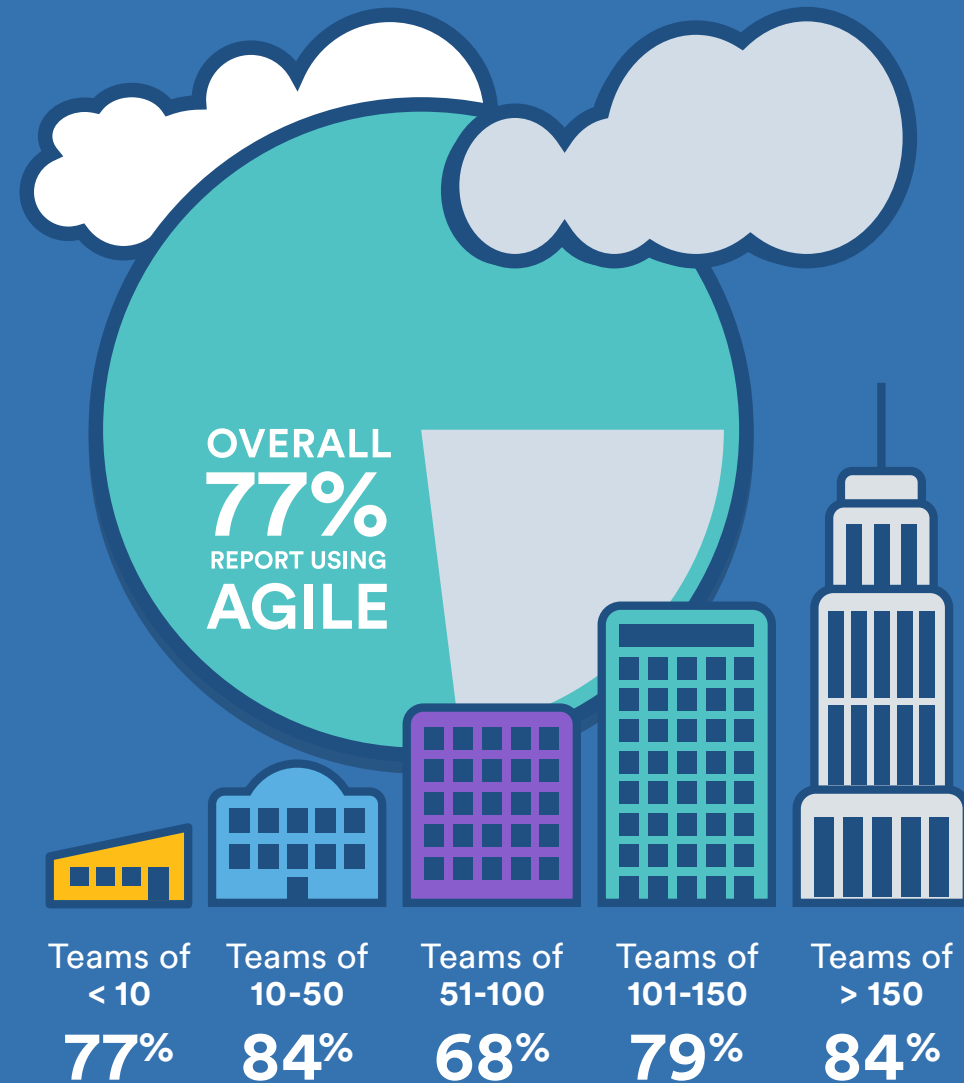
We asked people about their use of agile development techniques, version control systems like Git, and emerging practices like continuous integration and delivery. Some of the results were expected, like the widespread use of agile; others were more surprising, such as the rapid pace at which containers have been adopted in larger development groups.

Small teams of developers are still the backbone of the software industry— almost a third of the companies who responded had development teams of fewer than 10 people. Those small teams can move more quickly and get code into production faster. But as the data we collected showed, larger development teams are adopting certain key technologies, like containers, at a faster pace than their smaller peers.

Another trend we were pleased to see is that Atlassian's customers have been faster to adopt these newer methods compared to the developer population as a whole. Our customers care about staying ahead.

The future of software development is in the hands of highly empowered teams. Whether you're just getting started or working in a team of 100, we hope you'll find these insights as compelling as we do.

Agile is Big – And the Teams Using It are Getting Bigger

OVERALL 77% REPORT USING AGILE

Teams of < 10	Teams of 10-50	Teams of 51-100	Teams of 101-150	Teams of > 150
77%	**84%**	**68%**	**79%**	**84%**

Agile development, which focuses on building software through collaborative, iterative improvement, is now in widespread use. More than three-quarters of the companies reported using agile techniques to manage tasks, track deliverables and ship products. But while agile was initially intended for use by smaller teams, we found that larger groups were using this method the most—84 percent of teams with 150 or more developers said they practice agile techniques. We also saw broad adoption of agile among our own customer base, with 80 percent of Atlassian users on board.
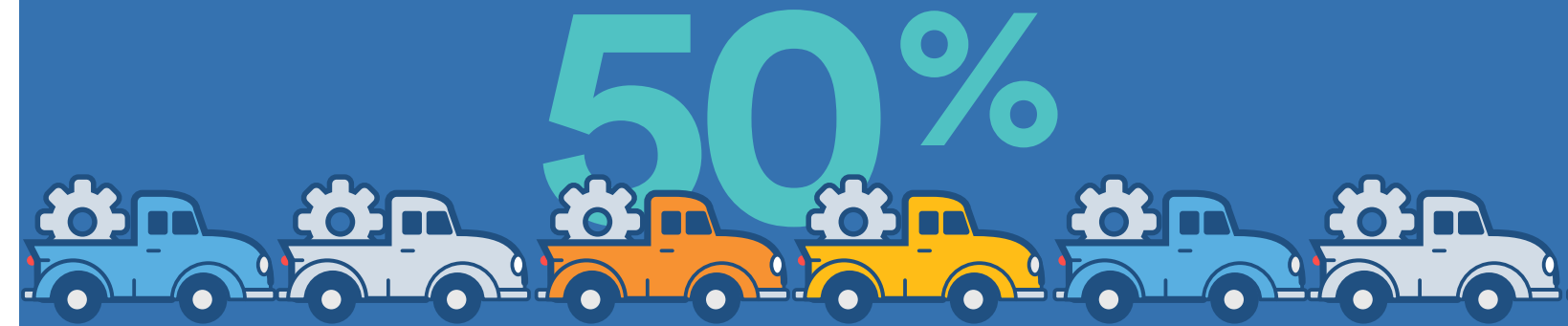
The widespread use of agile shows this development method is no longer controversial; it's now widely accepted by companies large and small.
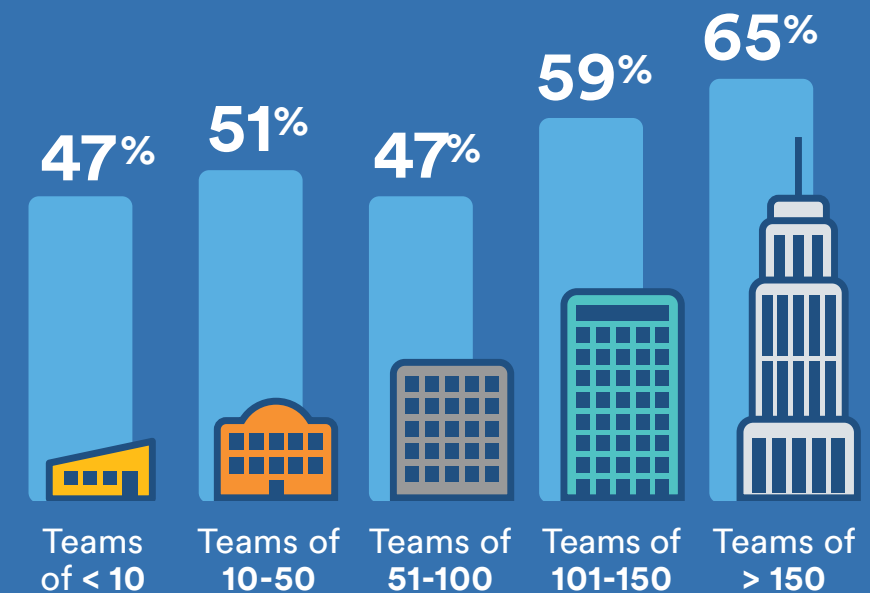
Continuous Integration/ Continuous Delivery

Continuous Integration and Continuous Delivery help engineers build, test and release software in short, frequent cycles, ensuring that code can be reliably released at any time. It speeds the development process and allows teams to react more nimbly if goals or release targets change. Unlike with agile use, developers we surveyed were divided on CI/CD, with only half of respondents saying they use this technique. CI/CD was most prevalent among larger groups—teams of 150 or more—where the adoption rate was 65 percent.

As with agile, CI/CD use was more widespread among Atlassian customers than in the developer population as a whole, with almost two-thirds of our users saying they employ continuous development.
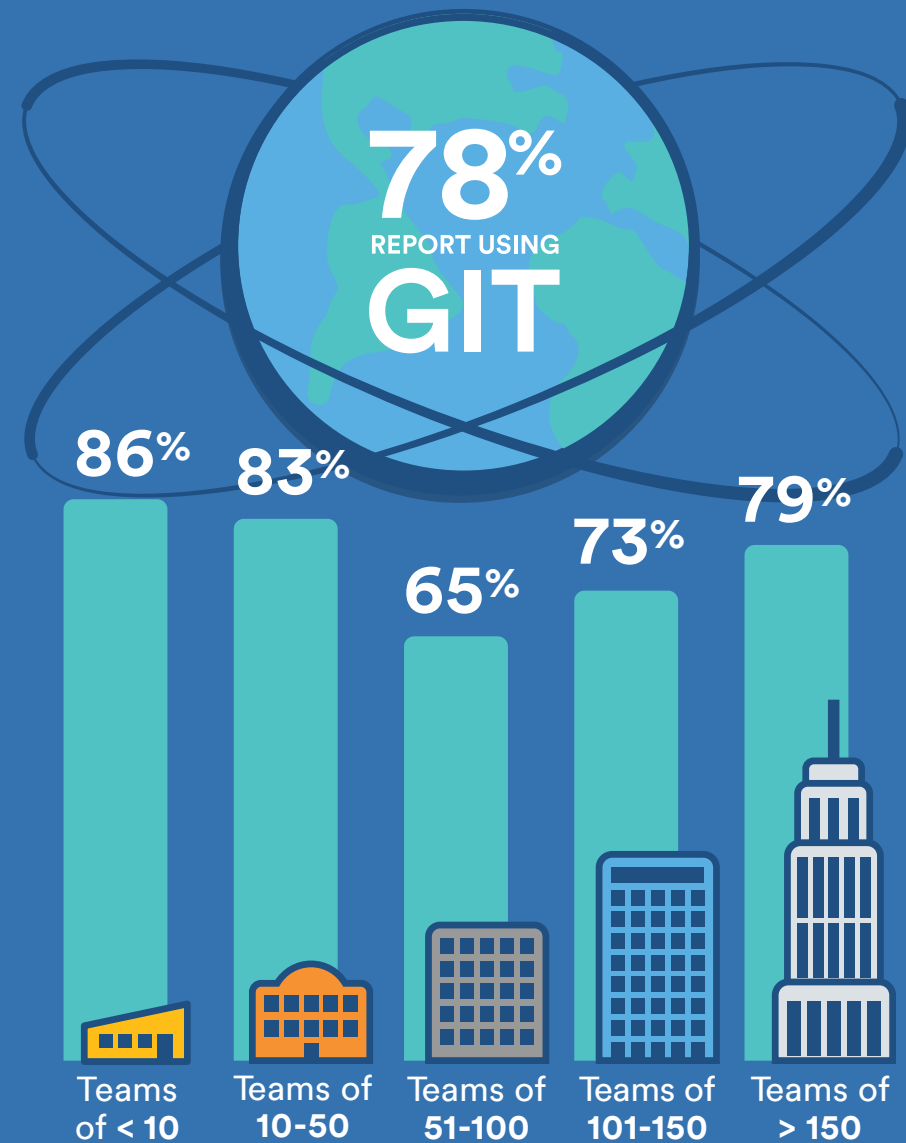
By industry, CI/CD is most widely used by software vendors and financial services firms, though adoption is fairly even across the board.

50%

said they employ Continuous Integration/Continuous Delivery

47%	51%	47%	59%	65%
Teams of < 10	Teams of 10-50	Teams of 51-100	Teams of 101-150	Teams of > 150

Git Rules the World

78% REPORT USING **GIT**

86% Teams of < 10
83% Teams of 10-50
65% Teams of 51-100
73% Teams of 101-150
79% Teams of > 150

Distributed version control systems (DVCS) allow team members to review each other's code, work from any location, and easily branch and merge their work. Further, with each developer working in a local repo, their changes—and, more importantly, their missteps—are isolated. Although a number of these systems exist, Git is the most widely used and takes the pain out of collaborating on code.

Git adoption was a major feature in our findings. More than three-quarters of respondents reported using Git, with the highest rate (86 percent) in smaller teams of 10 or fewer.

By industry, Git was most popular among media companies (82 percent), closely followed by software vendors and professional service companies. Utility companies had the lowest adoption rate, at 69 percent.

Atlassian customers led the general population in the use of distributed version control systems like Git, with 85 percent saying they were adopters.
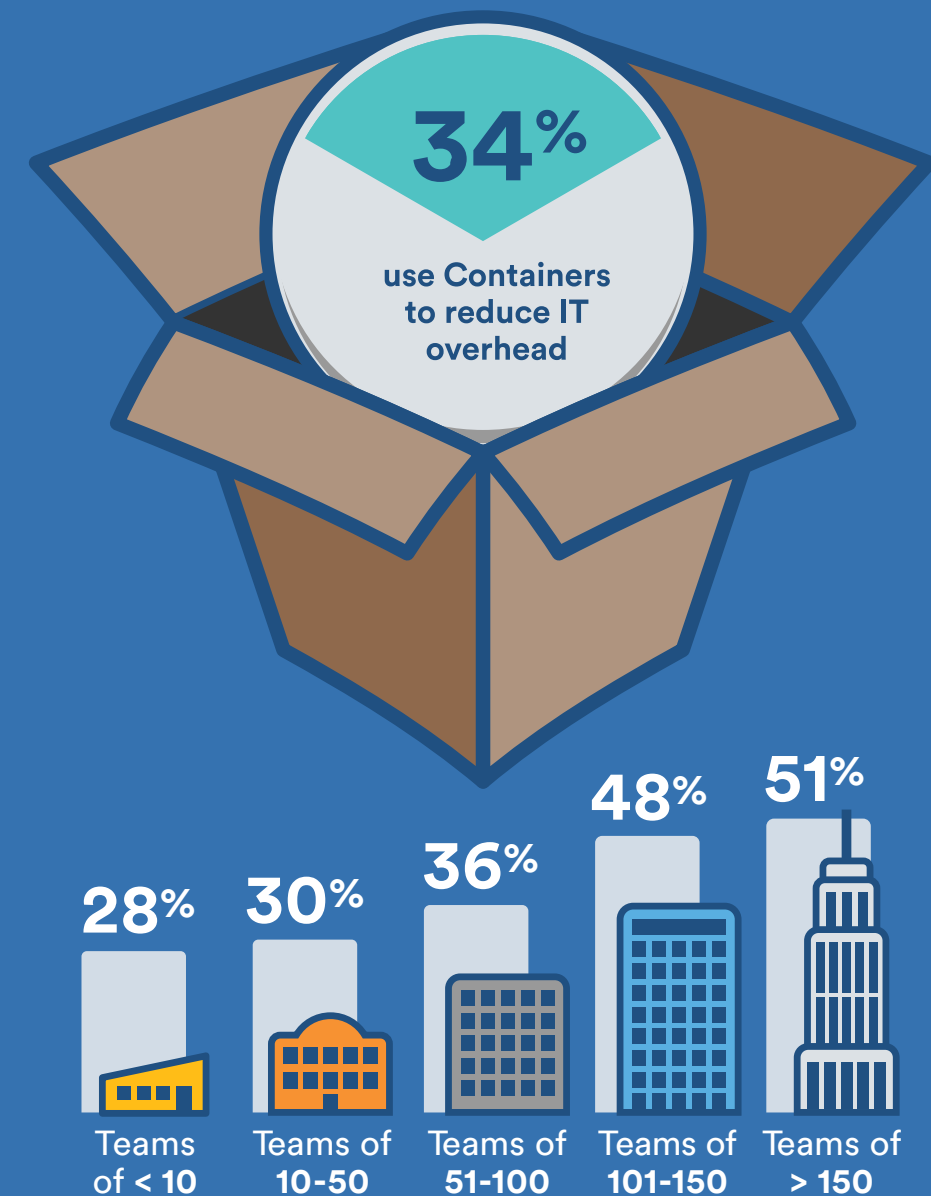
Containers are Breaking Out

Top 5 Industries by Container Adoption:

1 **Media**
2 **Software**
3 **Telecom**
4 **Government**
5 **Retail**

Containers are among the newest trends in software development, allowing engineers to move programs more easily between different computing environments. Despite being relatively new, just over a third of companies responding said they were already using them.

There was a strong correlation between team size and container use. Teams with 10 developers or fewer reported using containers the least, with just 28 percent adoption. Teams with up to 50 developers reported a slightly higher rate, at 30 percent, but among teams of 150 or more, half were using containers.

Within industries, media companies were out front with 39 percent container adoption. Atlassian customers were again ahead of the curve, with 56 percent saying they used the technology. As more developers look for ways to deploy applications faster, we expect container usage to spike.

34%
use Containers to reduce IT overhead

28% Teams of < 10

30% Teams of 10-50

36% Teams of 51-100

48% Teams of 101-150

51% Teams of > 150

Code Review is On the Rise

58%

Are doing some form of Code Review

Top 10 Industries by Code Review Adoption:

1. **Financial Services**
2. **Insurance**
3. **Retail**
4. **Software**
5. **Telecom**
6. **Healthcare**
7. **Media**
8. **Transportation & Logistics**
9. **Utilities**
10. **Professional Services**

Developers love speed, but for many organizations code quality is most paramount. Also called peer review, code review is critical for teams looking to optimize their code by drawing on each other's expertise. Not to mention, it can also eliminate the need for meetings by allowing teams to collaborate more seamlessly around the codebase. More than half the companies responding—58 percent—were doing some form of code review. Larger teams led the way, with 76 percent adoption. Among groups of 10 developers or fewer, just half were reviewing each other's code.

By industry, financial services firms were employing code review the most, at 63 percent. With banks under intense pressure to improve security, it's not surprising to see them employ this extra step to build rock solid applications.

Agile + CI/CD + Git = A Perfect Blend?

Many companies use a combination of the techniques we explored, and we were particularly interested to see how many were using a trifecta of agile development, CI / CD and a distributed version control system like Git.

Close to half, or 44 percent of respondents, were using all three practices—while 11 percent were using none at all. Perhaps not surprisingly, software vendors led the pack in adopting all three trends, at 46 percent. They were followed by telecom companies at 43 percent and financial services firms at 42 percent. Our own customers reported above average adoption rates, with nearly half saying they use all three techniques. What do all these companies have in common? Teams using all three are able to ship changes faster and with greater confidence.

AGILE

GIT

CI/CD

44% use all three

None — 11%
Only Git — 8%
Agile and Git — 23%
All Three — 44%
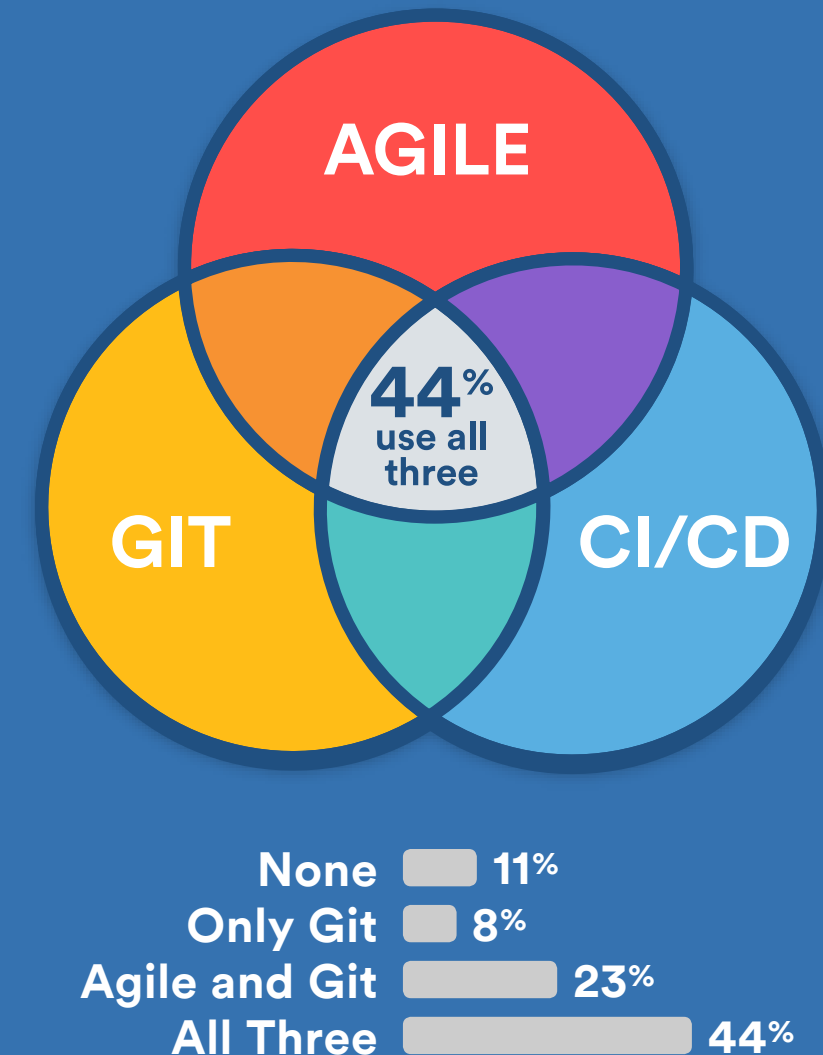
Conclusion

Development practices continue to evolve: Container use is widespread, and techniques like code review and continuous development are taking hold. Git, which Linus Torvalds first created a decade ago specifically for Linux, has now spread to many thousands of other projects.

Whether you're on a big team or a small one, keeping pace with the latest trends is essential to staying competitive. Our customers have told us that smaller teams are faster than larger ones at getting code into production: 37 percent said they can push out lines of code in under four hours, compared to just 17 percent for large development groups.

And yet, as our data has shown here, larger teams have been faster to jump on new trends like containers. If you're on a small team, be sure to look out for new tools and techniques that can raise your game even higher.

More changes in software development certainly lie ahead. Developers still spend far too much of their time building pipelines, managing APIs and maintaining integrations between disparate toolsets—time that could be better spent writing great code. Automation and the emerging field of machine learning could provide relief here, and we're eager to see how development platforms evolve in the future.

We're dedicated to supporting teams that outperform the rest and drive growth for their business. Our products—such as **JIRA Software, Bitbucket, Confluence, Bamboo** and **HipChat**—are designed with collaboration and complexity management in mind.

For more information about products that can help your team raise its game even higher, visit atlassian.com/software

To see how you compare to peers in your industry, take a look at our comparison tool: atlassian.com/software-trends

METHODOLOGY

Atlassian collected the data online between March 28 and September 22, 2016. The 17,519 respondents spanned the general population of people working in software development-related fields from industries including financial services, software, government, healthcare and professional services. Any references to usage among Atlassian customers comes from a separate collection of online feedback from 1,300 customers, conducted in November and December of 2015.

Atlassian unleashes the potential in every team. Our products help teams collaborate, build software and serve their customers better. Teams at more than 54,000 large and small organizations—including BMW, Citigroup, eBay, Coca-Cola and NASA—use Atlassian's tracking, collaboration, communication, service management and development products to work smarter and deliver quality results on time.

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