

Cloud Foundry Application Runtime User Survey

A snapshot of Cloud Foundry Application Runtime users' deployments and productivity

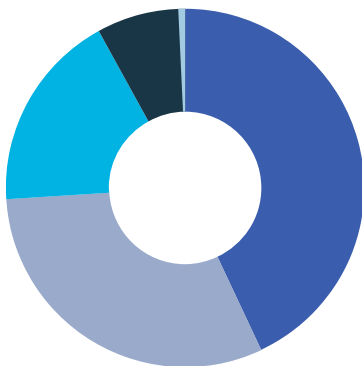
CLOUD  FOUNDRY

October 2017

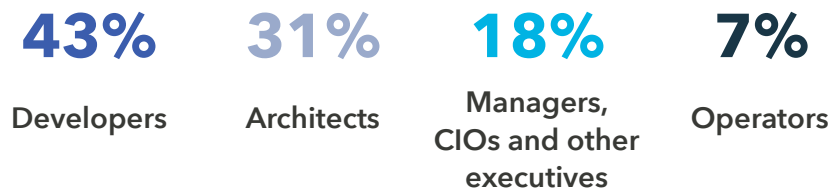
Introduction

Cloud Foundry Application Runtime is a mature and growing cloud application platform used by large enterprises to develop and deploy cloud-native applications, saving them significant amounts of time and resources. Enterprises benefit from the consistency of Cloud Foundry Application Runtime across a variety of distributions of the platform, thanks to a certified provider program.

Cloud Foundry Application Runtime is a developer platform, first and foremost—and respondents to the survey reflect this. A plurality (43 percent) of Cloud Foundry Application Runtime users identify as developers or “devops.” The next largest share is architects (31 percent), followed by managers, CIOs and other executives (18 percent), and finally operators (seven percent).



Cloud Foundry Application Runtime Users



The Cloud Foundry User Survey is the first in a series of semi-annual surveys conducted and produced by **ClearPath Strategies**, a strategic consulting and research firm for the world’s leaders and progressive forces. For more details on Methodology, see page 13.

Key findings from the survey include:

- 1 FREEDOM AND FLEXIBILITY:** Cloud Foundry Application Runtime is a developer-centric platform, with 43 percent of survey user respondents identifying as a developer or having a devops role. It is also closely associated with container usage, with half of Cloud Foundry users currently using containers, such as Docker or rkt, with another 35 percent evaluating or deploying containers.
- 2 VELOCITY AND PRODUCTIVITY:** Application development cycles go from weeks or months to hours and days. The percentage of user respondents who require over three months per app drops from 51 percent to 18 percent after deploying Cloud Foundry Application Runtime, while the percentage of user respondents who require less than a week climbs from 16 percent to 46 percent once Cloud Foundry Application Runtime was deployed.
- 3 MATURITY AND PROLIFERATION:** Interest in Cloud Foundry Application Runtime continues to grow, even as existing deployments broaden within companies. Nearly half (45 percent) of Cloud Foundry Application Runtime users have only started with the platform this year; more than half (51 percent) have more than 10 developers on Cloud Foundry Application Runtime, including 28 percent with more than 50 developers on Cloud Foundry Application Runtime.
- 4 ECONOMY:** Enterprise users (\$1+ billion in annual revenue) report saving millions of dollars on average per application development cycle.
- 5 DIVERSITY:** Cloud Foundry Application Runtime is deployed broadly across industries, including IT (47 percent) and financial services (19 percent).
- 6 SCALABILITY:** Nearly half (49 percent) of Cloud Foundry Application Runtime users are large enterprises (\$1+ billion annual revenue).
- 7 UNIVERSALITY:** Cloud Foundry Application Runtime is used globally, with just over half its users in North America (53 percent).

KEY FINDING: **FREEDOM AND FLEXIBILITY**

Cloud Foundry Application Runtime is a developer-centric platform. For developers, it frees them up to do more of what they want to do—code. For businesses, the benefit is more than just “happier developers.” The impact of Cloud Foundry is felt where it matters most—the bottom line. The shorter the time to market, the more immediate the benefits.

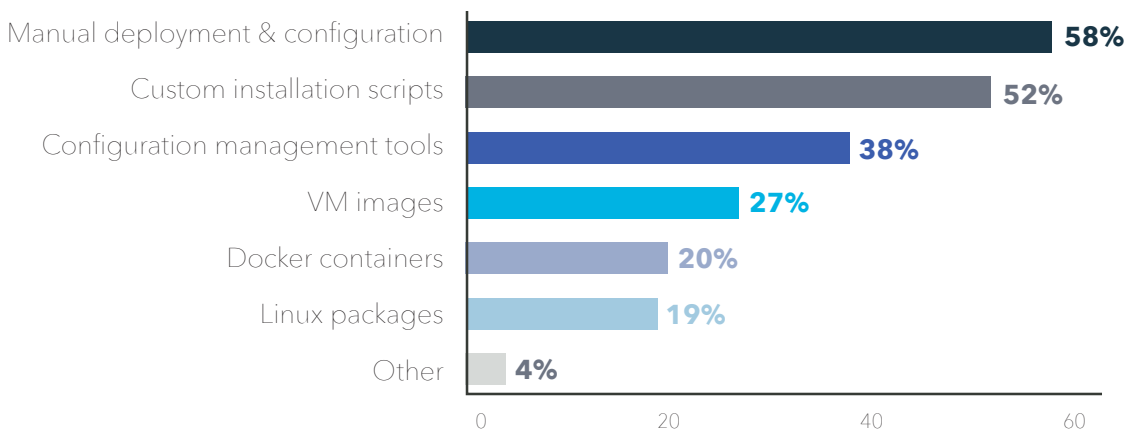
Nearly 3X increase in developer productivity

KEY FINDING: VELOCITY AND PRODUCTIVITY

Businesses running Cloud Foundry Application Runtime report significant savings—in both time and money—as a direct result of building and deploying their applications on Cloud Foundry.

Companies and organizations using Cloud Foundry Application Runtime enjoy significantly faster application development cycles for their cloud-native applications. Prior to using Cloud Foundry Application Runtime, typical users deployed and configured cloud applications manually (58 percent), or used custom install scripts (52 percent) or configuration management tools (38 percent), according to the survey.

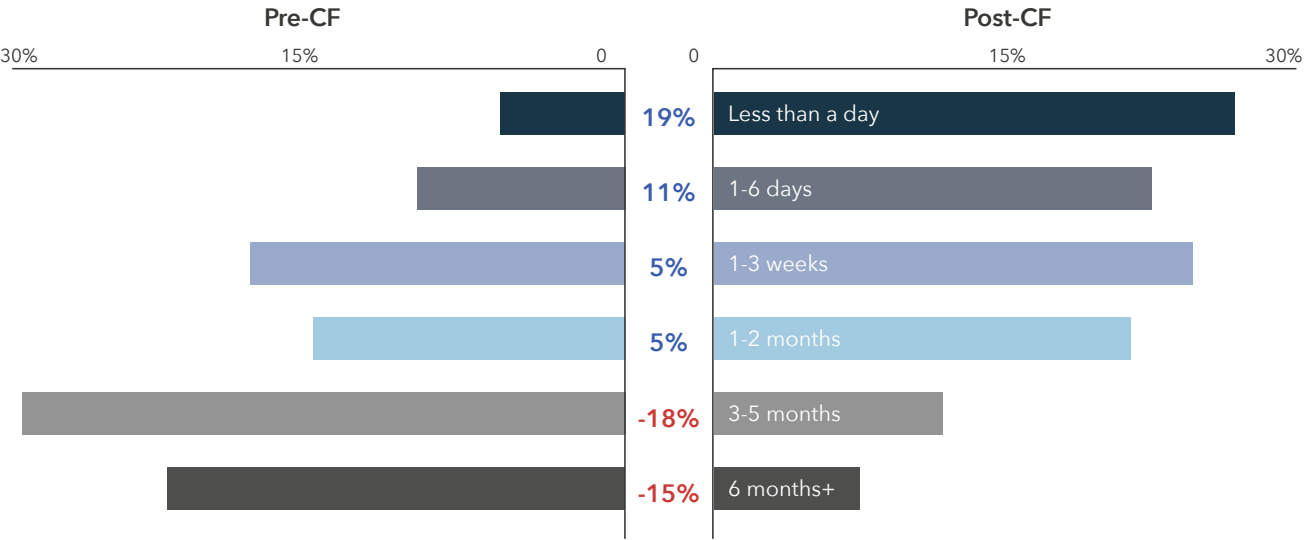
Pre-Cloud Foundry Deployment Methods



Under these workflows, a majority of respondents (51 percent) required more than three months to deploy a cloud application. Only 16 percent say it took them less than one week without Cloud Foundry Application Runtime, including only six percent that could deploy a cloud application in less than one day.

After moving those applications to Cloud Foundry Application Runtime, however, those times dropped dramatically. Now, 46 percent of respondents report cloud app development cycles of under a week, including 25 percent who report it takes less than one day (increases of 30 and 19 points, respectively). Using Cloud Foundry Application Runtime, only 18 percent of respondents report application development cycles over three months (a decrease of 33 percentage points from 51 percent).

Pre- and Post-Cloud Foundry App Development Cycle

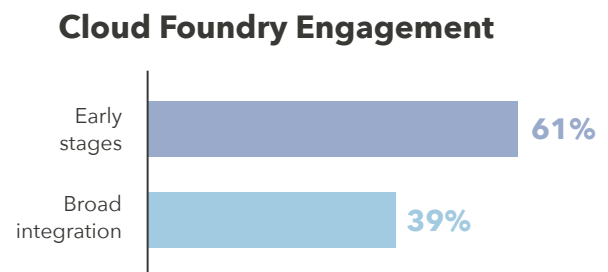
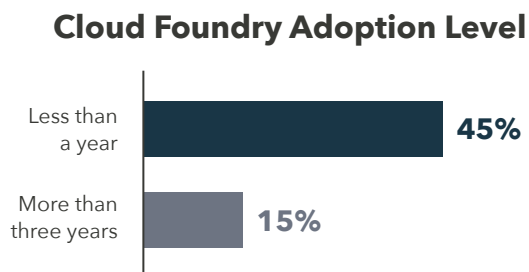


Cloud Foundry Application Runtime is maturing and gaining momentum

Cloud Foundry Application Runtime is a mature technology at nearly three years since the founding of Cloud Foundry Foundation as the open source home for the platform. Although its history goes back even further, as it was originally incubated at VMware in 2010 and then spun out as part of the launch of Pivotal in 2013. In 2015, the Cloud Foundry Foundation was founded. Global enterprises rely on Cloud Foundry Application Runtime every day to develop, deploy and manage their cloud-native applications. As more companies wade deeper into cloud, they look to Cloud Foundry Application Runtime and similar technologies to help them navigate the waters.

KEY FINDING: MATURITY AND PROLIFERATION

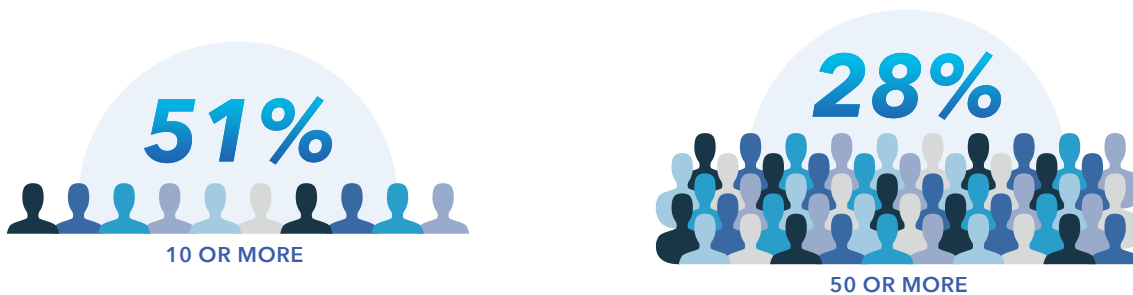
This may explain why Cloud Foundry Application Runtime continues to see uptake from new enterprises and Small and Medium Enterprises (commonly referred to as the mid-market or SMEs). Nearly half (45 percent) of all Cloud Foundry Application Runtime users have been using the platform for less than a year, compared to 15 percent who have used it for more than three years.



Unsurprisingly, the depth and breadth of Cloud Foundry engagement falls along similar lines. A plurality of Cloud Foundry Application Runtime users (61 percent) describe their deployments as somewhere in the early stages—trial, PoC, evaluation, or a partial integration into specific business units. Meanwhile, 39 percent have deployed Cloud Foundry Application Runtime more broadly across their company, from total integration in specific business groups to company-wide deployment.

As companies increasingly leverage Cloud Foundry Application Runtime, they dedicate more of their developers to developing and deploying cloud-native applications on Cloud Foundry. Currently, 51 percent of Cloud Foundry Application Runtime users have more than 10 developers using Cloud Foundry Application Runtime, including 28 percent who have more than 50 developers on Cloud Foundry Application Runtime. Many companies report massive developer engagement. Comcast, for example has more than 1500 developers using Cloud Foundry Application Runtime daily. Home Depot reports more than 2500 developers.

Developers Using Cloud Foundry Application Runtime



We are also seeing developers at these companies increasingly “live” in Cloud Foundry Application Runtime. Across all Cloud Foundry users, they report spending an average of 38 percent of their days with Cloud Foundry Application Runtime-related tasks. Moreover, 36 percent of Cloud Foundry Application Runtime users report spending at least half of their time on Cloud Foundry Application Runtime-related tasks, with 16 percent spending three-quarters of their time or more on Cloud Foundry Application Runtime.

Developers increasingly live in Cloud Foundry Application Runtime. In fact, Comcast has seen between 50 percent and 75 percent improvement in productivity. That frees up developers to spend more time innovating new features and products.

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Interest in Cloud Foundry's Developer Certification Program

62%
INTERESTED

42%
VERY INTERESTED

The large developer footprint of Cloud Foundry Application Runtime—especially within the enterprise—and the clear benefits of deployment at scale embed a strong interest in Developer Certification among respondents. A majority (62 percent) of users are interested in Cloud Foundry's Developer Certification Program, including 42 percent who are very interested.

KEY FINDING: **ECONOMY**

By saving massive amounts of developer time, Cloud Foundry Application Runtime users also see return of financial resources as well. Enterprises that use Cloud Foundry Application Runtime self-report savings in the millions per application development cycle, with some self-reporting in the tens of millions. Savings generally tends to scale, both with deployment and size of company. For example, larger enterprises (\$50+ billion revenue) report savings approaching \$20 million in aggregate based on savings per development cycle, to-date.

*Creating Value:
Cloud Foundry Application Runtime
saves business money and time.*

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Savings after deploying Cloud Foundry Application Runtime is not limited to large enterprises, however. SMEs also report enjoying savings as a result of their Cloud Foundry Application Runtime deployments. On average, SME Cloud Foundry Application Runtime users (<\$1B) claim savings of a quarter million dollars per app dev cycle.

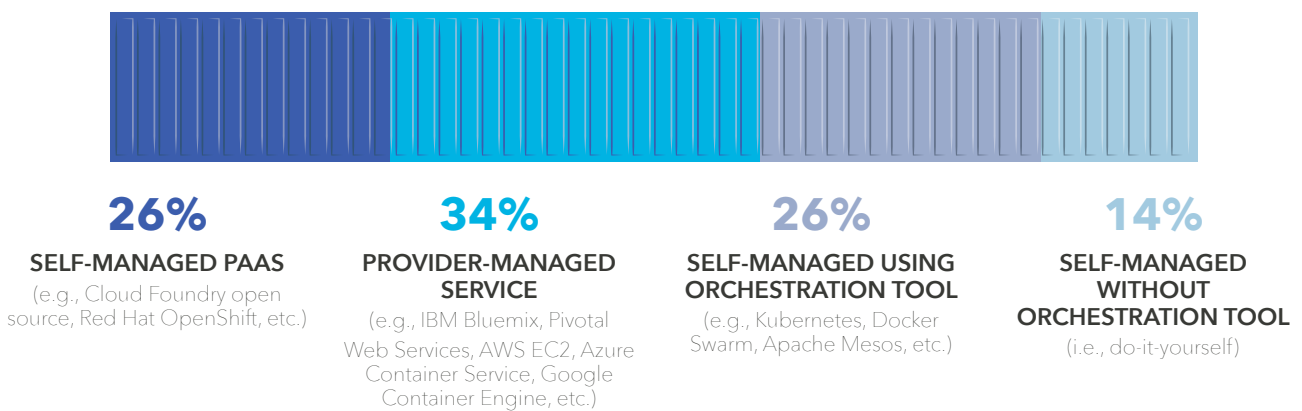
Containers and Cloud Foundry Application Runtime

The flexibility of Cloud Foundry Application Runtime extends to orchestration and management of Kubernetes. With the recent launch of Cloud Foundry Container Runtime, the Kubernetes-based container management project, Cloud Foundry Application Runtime continues to go hand-in-hand with containers. Half of Cloud Foundry Application Runtime users are currently using containers, such as Docker or rkt, with another 35 percent evaluating or deploying containers.



Most Cloud Foundry Application Runtime users are using containers by virtue of managing their applications within a PaaS, either self- or provider-managed (59 percent). However, around a quarter of users (26 percent) manage them with tools such as Kubernetes or Mesos, and 15 percent manage them entirely DIY with in-house tools.

How Cloud Foundry Application Runtime Users Manage Containers



The release of Cloud Foundry Container Runtime has generated significant interest among Cloud Foundry Application Runtime users. Nearly three-quarters (71 percent) of Cloud Foundry Application Runtime users currently using or evaluating containers are interested in adding container orchestration and management to their Cloud Foundry Application Runtime environment.

Nearly three-quarters of Cloud Foundry Application Runtime users who currently use or are evaluating containers are interested in adding container orchestration and management to their Cloud Foundry Application Runtime environment.

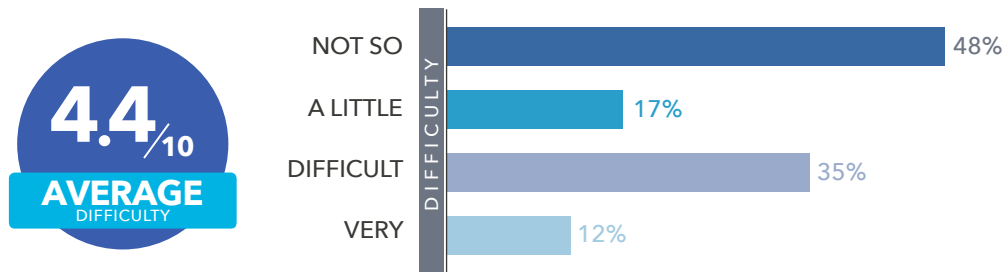
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A recent study published by the Foundation found that enterprise companies continue to wade gradually into container usage. For a more complete overview of findings about containers in the enterprise, read the **2017 Container Report**.

Challenges of Cloud Foundry

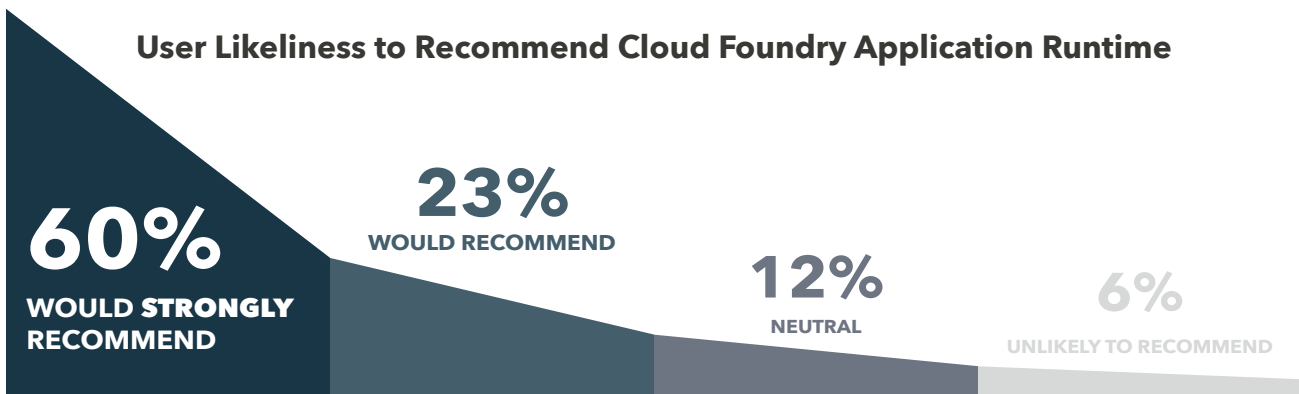
A challenge to achieving the operational benefits of Cloud Foundry Application Runtime usage continues to be the initial ramp-up time for the technology. As we have heard in previous qualitative research, users in this survey report back on the difficulty getting started with Cloud Foundry Application Runtime. While the technology has made improvements in ease of adoption over the past few years, user respondents report there is still the need for increased simplicity in ramp-up.

Difficulty Getting Started with Cloud Foundry Application Runtime



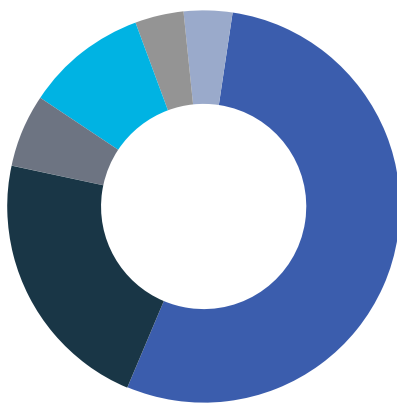
Nevertheless, most users feel the time it takes to ramp up is worth it, as the direct benefits above indicate. An overwhelming majority of users (83 percent) would recommend Cloud Foundry Application Runtime to a colleague, including 60 percent who would do so strongly. Around one in 10 is more neutral toward Cloud Foundry Application Runtime, with only six percent unlikely to recommend Cloud Foundry Application Runtime.

User Likelihood to Recommend Cloud Foundry Application Runtime

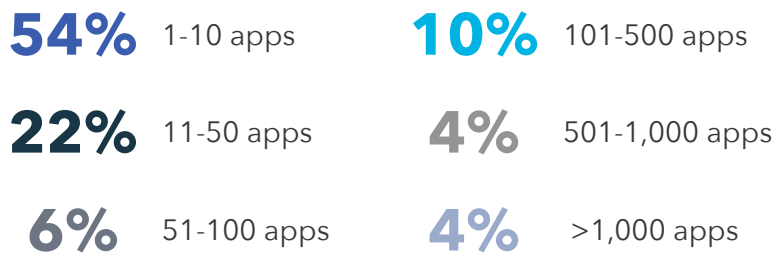


Making the most of Cloud Foundry Application Runtime

Cloud Foundry Application Runtime's primary function for users is to develop, deploy and manage their cloud-native applications. Among all users, an average of 30 percent of their cloud-native applications run on Cloud Foundry Application Runtime. As more companies roll out Cloud Foundry Application Runtime more broadly, the footprint continues to grow. Currently, 46 percent of users have more than 10 apps deployed on Cloud Foundry Application Runtime, including 18 percent with over 100 (and eight percent with over 500).

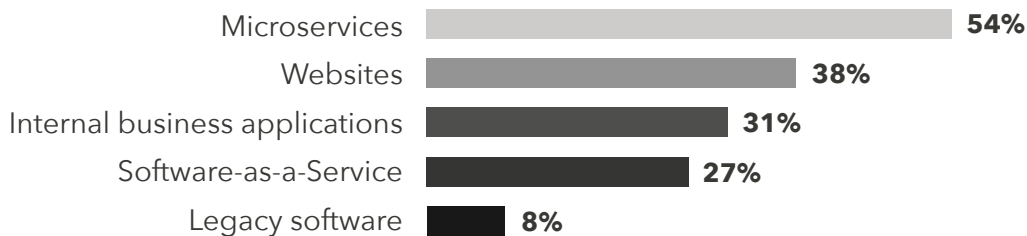


Number of Apps Deployed By Users on Cloud Foundry Application Runtime



Companies and organizations use Cloud Foundry Application Runtime to run a variety of applications. The primary use is for microservices (54 percent), followed by websites (38 percent), internal business applications (31 percent), Software-as-a-Service (SaaS) (27 percent) and legacy software (eight percent).

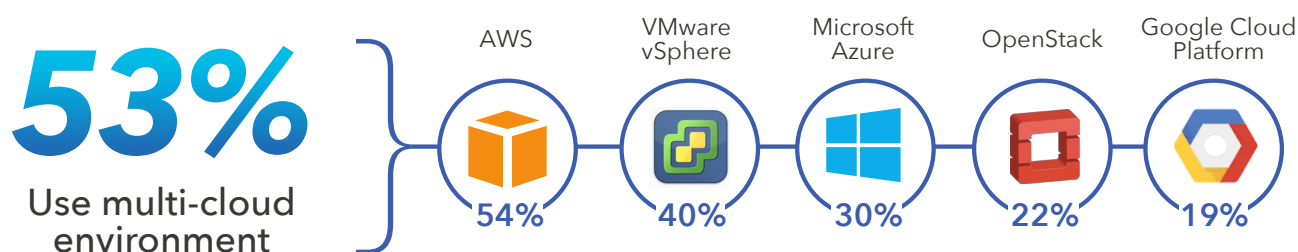
Use of Cloud Foundry Application Runtime



Users also enjoy the flexibility Cloud Foundry Application Runtime provides as the industry-standard cloud application platform. Whether companies come to Cloud Foundry early or late in their cloud journey, the ability to run Cloud Foundry Application Runtime across multiple clouds is critical to most users—60 percent say this is very important, and another 30 percent describe it as somewhat important.

The reality supports this enthusiasm. More than half (53 percent) of Cloud Foundry Application Runtime users run Cloud Foundry Application Runtime in a multi-cloud environment. Amazon leads the pack with 54 percent of Cloud Foundry Application Runtime users running AWS, followed by 40 percent on VMware’s vSphere, 30 percent on Microsoft’s Azure, 22 percent on OpenStack and 19 percent on Google Cloud Platform. A further 17 percent run on a variety of provider-managed PaaS, including Bluemix.

Cloud Foundry Application Runtime in Multi-Cloud



Demographics and Methodology

The Cloud Foundry User Survey is the first in a series of semi-annual surveys conducted and produced by **ClearPath Strategies**, a strategic consulting and research firm for the world’s leaders and progressive forces. User respondents were invited to take the survey from a variety of sources, including Cloud Foundry Foundation emails, social media and direct member communications. A total of 735 user respondents completed the survey from 8/1/17-8/21/17.

Who Uses Cloud Foundry?

Cloud Foundry Application Runtime is a developer platform, first and foremost. The user respondents to the survey reflect this. A plurality (43 percent) of user respondents identify as developers or “devops.” The next largest share is architects (31 percent), followed by managers, CIOs and other executives (18 percent), and finally operators (seven percent).

Industry

KEY FINDING: DIVERSITY

Cloud Foundry Application Runtime users span a variety of industries, including heavy concentrations in IT (hardware, software, services, etc.) and financial services, as well as heavy industry (automotive, primary goods, electronics, minerals, etc.), telecommunications and government.

User Industries

IT (hardware, software, services, etc.)	47%
Financial Services (banking, investment funds, insurance, real estate, etc.)	19%
Heavy industry (chemicals, primary goods, refining, electronics & automobile manufacturing, etc.)	5%
Telecommunications / ISP / web hosting	4%
Government (national, state, municipal)	4%
Healthcare and pharmaceuticals	4%
Non-financial services (consulting, legal, accounting, logistics, hospitality, data)	4%
Transportation and logistics	3%
Wholesale and retail	2%
Education	2%
Entertainment	1%
Light industry (consumer goods manufacturing, etc.)	1%
Infrastructure and construction	1%
Aerospace and defense	1%
Non-profit	<1%
Utilities (electric, water, sewer)	<1%
Primary goods (oil and gas, mining, agriculture, etc)	<1%

Company Size

KEY FINDING: **SCALABILITY**

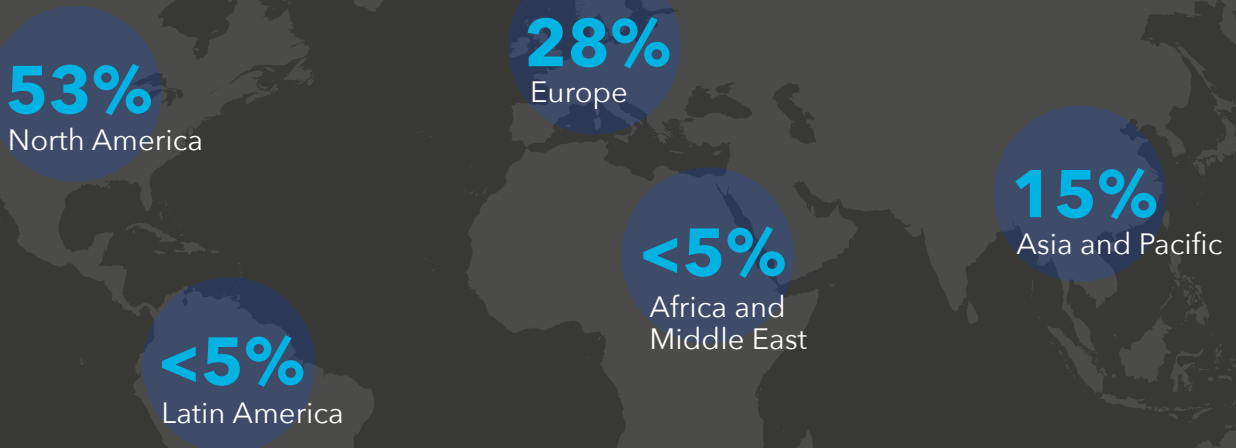
Nearly half (49 percent) of all Cloud Foundry Application Runtime users are large enterprises (\$1B+ revenue). A further 12 percent of Cloud Foundry Application Runtime users come from smaller enterprises (\$100M-\$1B). The remaining 39 percent are from small and medium businesses (<\$100M).



Geography

KEY FINDING: **UNIVERSALITY**

Cloud Foundry Application Runtime users span the globe, though they are most heavily concentrated in North America, Europe and Asia. Nearly half (49 percent) of all Cloud Foundry Application Runtime users are based in the US, comprising most of the 53 percent of North American users. A further 28 percent are based in Europe, principally Germany (seven percent), the UK (six percent) and Switzerland (four percent). Asia represents another 15 percent of Cloud Foundry users, with Africa, the Middle East and Latin America rounding it out with five percent combined.



Additional Notes on Methodology

In total, 735 user respondents completed the survey online. User respondents were invited to participate via Cloud Foundry Foundation emails, newsletters, Twitter, website and Slack channel, as well as direct invitation from certified platform providers and other members. Of the total respondents, 522 can be identified as “users.” Though companies who distribute commercial versions of Cloud Foundry could also be considered “users,” we exclude them from the analysis of this survey. Numbers may not add to 100 percent due to rounding, or for multi-response questions. Also, percentages in certain questions are calculated after excluding respondents who chose to leave the question blank or refused to give a response. The Cloud Foundry User Survey outreach was delivered and the research instrument was drafted in English across all geographies.

