Hope Versus Reality, One Year Later

An Update on Containers

CLOUD FOUNDRY

Global Perception Study

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Research Conducted By:

CLEARPATH STRATEGIES

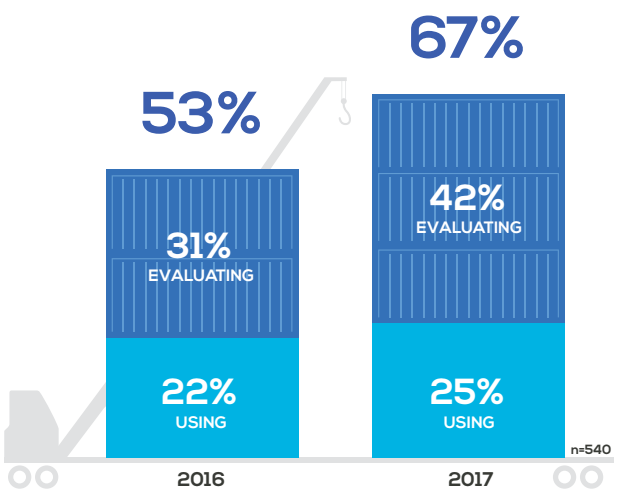
Hope Versus Reality, One Year Later

An Update on Containers

Enterprise companies continue to wade gradually into container usage. In the **2016 Container Report**, we identified avid enthusiasm for the potential of containers and their adoption—yet this excitement is constrained by the complex challenges of deploying, managing and orchestrating containers at scale.

In our follow-up one year later, we see the same steady growth in interest but actual adoption of containers has still failed to take off. Most companies' container adoption remains in the early or limited stages. In 2016, Cloud Foundry Foundation's Global Perception Study[1] (GPS Wave 3)[2] (known also as "Container Report: Hope vs. Reality") showed 22 percent of surveyed companies were using containers at some stage of deployment, with a further 31 percent evaluating containers for deployment—a total of 53 percent using or evaluating. One year later, our GPS Wave 5[3] study shows an increase of 14 points among users and evaluators for a total of 67 percent using or evaluating. (A quarter of companies report using containers with a further 42 percent evaluating.)[4]

One Year of Container Usage



Cloud Foundry Foundation, September 2017

Other research presents a more inconclusive stance on container uptake. Evans Data Corporation, in its Global Development Survey 2016, Vol. 2[5], reported 35 percent of respondents are "currently using containers for virtualization" with another 22 percent planning to within the next six months—a total of 57 percent. **In the 2017, Vol. 1, version** of their survey, they see 27 percent using containers for virtualization and another 27 percent planning to within the next six months–a total of 54 percent, and a decline of three points over the previous six months.

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1 The Global Perception Study series is a series of qualitative and quantitative deep-dive research on topics critical to cloud and developers.

2 GPS Wave 3 focused on trends in container usage in a first-of-its-kind, multi-national study about the container phenomenon.

3 GPS Wave 4 focused on the growing **Developer Skills Gap** and did not include relevant tracking questions on containers. GPS Wave 5 research seeks to understand developers and how they fit into an increasingly complex software and cloud-oriented world. The first batch of research was published as the white paper **What Developers Really Want.** This is the second group of published findings.

4 The survey included 540 respondents sourced from a leading global online panel provider. They were selected from the panel based on geographic and role-based quotas, as well as screening questions based on role in IT, decision-making role, company size, and how long they have been in IT. Selected respondents were further screened based on self-reported IT knowledge and attentiveness to survey questions. For full methodology on GPS Wave 5 research, please see here: **https://www.cloudfoundry.org/research-methodology/**

5 For more information on the Evans Data Global Development Survey, visit **https://evansdata.com/research/strategic_development_research.php#GLOBAL**.

Neither the questions nor the audience from these two studies are an apples-to-apples comparison. However, even if we take each dataset in isolation, we come to a similar conclusion—there has been no dramatic increase in broad deployment of containers by companies over the past year. We see a significant increase in interest among Cloud Foundry Foundation survey participants (Evans does not), but actual adoption and deployment has seen either marginal growth or even a significant drop, based on Evans data.

Most analysts talk about containerization as the future. **Datadog** shows a 40 percent increase in Docker adoption from 2016 to 2017. **Portworx** shows a 17-point jump in the share of companies investing in containers.

One could argue the mixed results cast doubt on these predictions.

Rather than contradicting these predictions, we believe the gradual or even glacial adoption of containers reflects more on the central challenge we pointed to in the 2016 Container Report—the challenges of container management are real, and the more you adopt them the more you realize this. This was the crux of our “Hope vs Reality” argument.

In short order, we expect an increased rate of uptake. Perhaps not an explosion—nothing in enterprise moves as quickly as anyone predicts when it comes to the adoption of the latest and greatest technologies. But as container technology becomes more mature, so do the means of overcoming the primary challenge of management and orchestration. Indeed, as enterprises have begun to adopt containers, the discussion is shifting from “why containers” to “how containers.” This “how” conversation will drive larger scale adoption as organizations move forward.

In 2016, there were few enterprise-ready solutions for managing Docker containers. Arguably, there were no good enterprise-ready options that were not a provider-managed Container Service or a PaaS. In our GPS at the time, 53 percent of companies using containers were managing their containers using either a Container Service, like AWS EC2 or GCE, or a provider-managed PaaS, like IBM Bluemix or Microsoft Azure. Only 15 percent were using self-managed container orchestration tools. Of that group, 27 percent were using CoreOS Tectonic (commercial Kubernetes distro), followed by Hashicorp Nomad, Docker Swarm and Mesos, each around 20 percent. None were using open source Kubernetes on their own.

More recently, Evans in its Cloud Development Survey in 2016[6] reported 18 percent use open source Kubernetes to orchestrate their containers, 44 percent use commercial or open source Mesos and 17 percent use Docker Swarm. This stands in contrast to other data from **Sysdig**, which points to nearly opposite results. Sysdig reports 43 percent of its users use Kubernetes, 9 percent use Mesos and seven percent use Docker Swarm. However, as the different surveys use different methodologies, we cannot say definitively one is "right" and another "wrong."

Regardless of the data, there is a growing consensus in the tech community that Kubernetes adoption is indeed on the rise, displacing both Mesos and Docker Swarm among self-managed container orchestration tools. If we look at secondary metrics, such as **Google Trends**, as any indication, interest in Kubernetes has increased by nearly 200 percent in a year, while Docker Swarm's has increased by 66 percent and Mesos by zero percent.

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6 For more information on the Evans Data Cloud Development Survey, visit **https://evansdata.com/research/strategic_development_research.php#CLOUD**. The 2017, Vol. 1, version of the report can be found here.

Overall, the data points to a trend of increasing *interest* in containers. Anecdote might lead us to believe the world already runs on containers, but the reality remains: enterprises continue to lag behind. Increasingly, though, orchestration tools are not the problem. Companies have more mature options than ever before, with a particular interest in Kubernetes.

As more companies look to Kubernetes to orchestrate their containers, it will be increasingly important for any platform to provide users the flexibility and control to deliver apps in any language and framework, and at their preferred pace. Enterprises should be able to ship whatever they want, whenever, wherever and however they want, and rest assured their applications are safe.

Identifying the need for a uniform way to instantiate, deploy and manage Kubernetes clusters, teams at Pivotal and Google collaborated on a project called Kubo—or "Kubernetes on BOSH." The project was eventually donated to the Cloud Foundry Foundation where it complements Cloud Foundry Elastic Runtime—previously referred to as simply "Cloud Foundry." Now, there is a differentiation between Elastic Runtime, the industry-leading Cloud Application Platform, and Kubo, which delivers the ability to deploy and manage Kubernetes clusters, using Cloud Foundry BOSH to deliver multi-cloud functionality.

Find out more **here**.

To learn more about containers' role in the enterprise and their relationship to the Cloud Foundry ecosystem, attend **Cloud Foundry Summit Europe** in Basel, Switzerland, on October 11 and 12, 2017. **Register here**.

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