

REPORT REPRINT

Pivotal raises big funding round, updates flagship PaaS with user experience focus

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Cloud Foundry PaaS provider Pivotal has been hard at work attempting to pick up speed in the enterprise market, including series C funding of more than \$250m, three acquisitions, new partnerships and a major product update, all in an effort to increase the usability and breadth of its flagship commercial product and expand its global reach.

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Cloud Foundry PaaS provider Pivotal has raised a significant series C funding round of \$253m from some interesting investors, including Pivotal Cloud Foundry customer Ford Motor and partner Microsoft. Previous Pivotal investors GE, EMC and VMware also participated in the round.

Pivotal has also enhanced its software and broadened its partnerships as it attempts to maintain velocity in the enterprise market. When its reins were handed back to an original co-founder of Pivotal Labs in August 2015, it was understood that some definitive changes were coming to the EMC/VMware spinoff. Within the past six months, three acquisitions were made, two new partnerships were announced and one major product update was rolled out – all in an effort to increase the usability of the company's flagship commercial product, Pivotal Cloud Foundry 1.7, which also features integrated metrics and monitoring, new route services for developers and operational enhancements.

THE 451 TAKE

Consistent with the ongoing convergence of IaaS and PaaS we've observed among both providers and end users, collaboration with IaaS vendors is key for Pivotal's continued growth as a major Cloud Foundry backer and PaaS provider. Its focus on net-new, cloud-native applications may mean Pivotal benefits from dramatic changes in enterprise strategy and spending. However, this may also limit business with enterprises also interested in modernization and migration of existing applications, although Pivotal can and does support re-platforming existing applications for customers. With its impressive open source community of developers and end users as well as its focus on big-data technologies such as Hadoop, Pivotal Cloud Foundry is in step with the demands of enterprise PaaS customers. While EMC's impending acquisition by Dell may create some uncertainty on the direction and future of Pivotal, Dell recently reiterated that Pivotal will continue operating as an independent company and any impact should be minimal.

CONTEXT

Pivotal's CEO, Paul Maritz, moved to the role of executive chairman in August 2015 and passed the CEO torch to Rob Mee, a co-founder of the original Pivotal Labs, who has been with the company since its start in 1989. The company then appeared to be shifting away from a focus on IPO and fixing its sights on continuing product development and innovation. It has taken its customers' needs for converged PaaS and IaaS seriously and has recently partnered with Cisco to begin its move toward early integration with private cloud vendors.

Pivotal Cloud Foundry has been Pivotal's primary growth driver since its commercial release in 2015 and continues to pull in large enterprise bookings with growing momentum in the finance, insurance, automotive and retail industries. The convergence of PaaS and IaaS and related partnerships could also mean a boost for the overall PaaS market, with our recent estimates already showing a slight increase from last year. As of March 2016, our 451 Market Monitor service estimates the total enterprise PaaS market at \$3.1bn for 2015, \$4.0bn for 2016, \$4.9bn for 2017 and \$5.9bn for 2018.

PRODUCTS

Pivotal's latest commercial product release comes in the form of Pivotal Cloud Foundry (PCF) 1.7, which includes updates to the overall experience of the platform for both development and operations teams, as well as a continued effort on enhancing security throughout the platform.

On the developer end, PCF 1.7 includes integrated metrics and monitoring to better understand the overall health and performance of an application. The user interface is clear and concise, and provides an easy-to-digest live stream of contextual information. Developers may go back as far as 24 hours prior to understand the sequence of events that led to increased latency or any other application performance issue. PCF monitoring can be implemented without the use of an embedded agent and provides container and HTTP metrics, including HTTP requests and errors; average response latency; CPU, memory and disk space; and application events such as start, stop, scale, update and crash.

Route services were also added to the developer experience, allowing application traffic to be redirected to a separate request path in order to use third-party logging, authentication or rate-limiting systems outside of the PCF universe. API management vendor and Pivotal partner Apigee is one of the first to take advantage of this new feature and now provides its own customers the ability to manage their APIs directly routed through PCF 1.7. Pivotal reports quite a bit of customer overlap with management software vendors and developed this capability with a more harmonious ecosystem in mind. One final v1.7 addition for PCF developers is the availability of an easier onboarding process using its Developer Quickstart: a full-featured PCF installation that runs in a single VM on a laptop for easy access to Elastic Runtime and data services such as Redis, RabbitMQ and MySQL.

The operator experience also saw a bit of an upgrade with the 1.7 release. Pivotal is now distributing commercially supported releases of its BOSH release management toolchain. Operators now have the ability to install certain software on all VMs at the discretion of the BOSH director, including antivirus, monitoring agents and security agents. Pivotal also reports some customers that prefer greater operational flexibility for Cloud Foundry are using BOSH directly rather than OpsManager. BOSH tooling and its usability have also been a priority for Pivotal with the company supporting agents that can be added to BOSH-managed VMs, for example. PCF 1.7 also supports multi-cloud Availability Zones (AZ), which it defines as operator-assigned, functionally independent segments of network infrastructure for vSphere, AWS and OpenStack, allowing users to set up a high-availability configuration across distributed infrastructure. Apps Manager White Labeling has also been made available for operators providing a branded experience to customers already using services on PCF. With White Labeling, operators are able to customize the Apps Manager UI with their organization's assets.

Pivotal also enhanced its platform's security through the addition of enterprise IDP for multiple accounts and SSO role-based security. IT operators are now able to log into their own accounts to manage and back select user accounts without affecting other system users. CF apps also now support authorization via role- and attribute-based access via the OAuth authentication protocol.

As SpringBoot downloads per month continue to increase (over three million per month in March), Pivotal turns to its large-scale capabilities to help customers continuously deliver powerful enterprise applications by using composable microservices. The combination of Spring Boot, Spring Cloud and PCF comprise the Pivotal Cloud Native stack and many customers, including Allstate, Ford Motor, Comcast and DISH Network, have already turned to SpringBoot to develop applications with modern user interfaces and increased segmentation for overall performance health.

PARTNERS AND ACQUISITIONS

Pivotal's role in commercializing the software, along with its added support for BOSH release automation and deployment services as well as VM automation, makes it all the more appealing to IaaS vendors in search of potential partnerships. In February 2015, Pivotal closed a solutions partner and global reseller agreement with Cisco to deliver Pivotal Cloud Foundry in conjunction with Cisco's IaaS offering, Metapod. Metapod customers now have access to Pivotal's cloud native developer platform along with 24/7 customer support from both companies.

Pivotal also recently announced a strategic partnership with Volkswagen Group IT in Berlin in an effort to develop a new ecosystem with an improved user experience for the automotive company's developers and partners. Volkswagen has chosen to work with Pivotal and leverage its expertise in cloud native applications to move its own business into the world of mobility and connected vehicles, as many other car manufacturers have already done. Pivotal's focus on agile development appears to be what's driving its success among the previously mentioned consumer-facing industries that are beginning to understand the increasing importance of user experience and the falling away of brand loyalty among customers. As companies aim to appeal to the masses, PCF's ability to rapidly build and scale cloud native applications may help bring it new business and partnerships from a number of industries and regions.

Pivotal made three important acquisitions in just two months' time between December 2015 and February 2016 in an effort to expand its global reach and incorporate some familiar talent and values into the mix. The type of companies that Pivotal acquired demonstrate our belief that PaaS usability within the enterprise is still in its early days and may be where vendors will focus over the next year or so. Pivotal's round of acquisitions began in December 2015 with CloudCredo, a UK-based development, deployment and services provider for Cloud Foundry software, with which it has had a long-running relationship. The two companies have worked together to support enterprise customers for quite some time, proving that tangible deployment and management of Cloud Foundry – or any PaaS in an enterprise environment – still requires a bit of hand-holding. The acquisition of CloudCredo cements the relationship between product and services and allows Pivotal to continue building relationships with its customers. Just a few weeks after CloudCredo came the acquisition of Colorado-based user experience design agency, Slice of Lime, in an effort to increase the usability of Pivotal's commercial product.

Pivotal's most recent acquisition also marks its expansion into the APAC region, with the purchase of Neo Innovation: a small, independent agile development company based in San Francisco and New York with offices in Singapore. Neo's own values were initially established by Ian McFarland, Neo's founder and former Pivotal VP of technology, with Pivotal Labs' own values in mind: lean startup and UX. The inevitable integration of the two companies made sense with Pivotal regaining one of its own in the process.

CUSTOMERS

While Pivotal Labs' early success was among startups, PCF was designed for organizations needing to increase velocity and change their application delivery process, which appeals to large enterprises. About 90% of Pivotal's revenue comes from enterprise customers today. The company reports that its number of paying customers is in the hundreds, with average deal sizes in the high six-figure range. It also says most of its customers are using PCF on top of VMware's IaaS offering. AWS is currently in second place among PCF deployments with Azure as a close third that is gaining momentum among the Fortune 100.

Cloud Foundry, the open source PaaS software upon which Pivotal's commercial product is built, makes it easy to deploy applications across many different cloud environments without requiring rewritten code for each cloud or additional change in deployment pipelines. This is an important capability for customers in need of multi-cloud support and for those wary of vendor lock-in. Pivotal reports that customers such as Comcast and Ford have turned to its services for this flexibility. According to Pivotal, Ford uses a blend of private and public clouds (vSphere and Azure) in production while Comcast uses a blend of vSphere, OpenStack and AWS to manage workloads. For both customers, Pivotal touts the ability to provide a uniform experience across different cloud environments.

COMPETITION

Pivotal's main competition comes from other PaaS providers, primarily the private enterprise PaaS players. This includes Red Hat's OpenShift, which in 2015 added native Kubernetes container management support and is aligned with Red Hat's other cloud, development and IT operations software, including its CloudForms cloud management and OpenStack IaaS software. Another enterprise PaaS contender is Apprenda, which has broadened its language support beyond its core .Net roots and is integrating its PaaS with Kubernetes. Other PaaS rivals include other Cloud Foundry-based PaaS vendors, such as IBM Bluemix, and additional competitors including Engine Yard, Jelastic, Progress Software and Salesforce.

Given the prominence and significance of containers in PaaS, Pivotal Cloud Foundry must also compete against other container projects and vendors such as CoreOS, Docker, Joyent, Kubernetes and Mesosphere. Pivotal finds its differentiation via support and integration lower in the stack: container orchestration, cloud orchestration and BOSH Cloud Provider Interfaces (CPIs) for a number of IaaS vendors including VMware, OpenStack, Azure, AWS and Google. Nevertheless, Amazon and Google are part of the convergence of IaaS and PaaS and with their growing focus on enterprise customers, also represent competition for Pivotal.

SWOT ANALYSIS

STRENGTHS

Cloud Foundry is reliable in its operational capabilities across different cloud environments, providing incentive for enterprises that require flexibility and ease of deployment. As the most visible commercial backer of the open source Cloud Foundry PaaS, Pivotal benefits from the vital community behind the software.

WEAKNESSES

Pivotal has been less aggressive than some rivals in supporting and integrating open source container software such as Docker and container management and orchestration software such as Kubernetes.

OPPORTUNITIES

Its focus on primarily net-new, cloud-native applications could help Pivotal to be a part of dramatic changes in strategy and spending among large enterprise customers.

THREATS

While containers and their management are mostly complementary to PaaS, the competitive threat from containers and related software will grow over time as they mature and gain use among more enterprises.