CLOUD F**O**UNDRY

Annual **Report** 2016

2016 **Highlights**

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- **Membership:** We reached 70 members globally in 2016.

- **Foundation Growth:** Since the Foundation was established on January 21, 2015, an average of three new members joins each month. In 2016, there was a total of 23 new members.

- **Technology:** The Cloud Foundry technical community continues to harden, secure and scale the Cloud Foundry Platform at a rapid pace. The Diego architecture achieved a scale of 250,000 application instances in a single CF cluster (sustained.)

- **Platform Certification:** The number of Cloud Foundry Certified 2016 platforms grew from 7 to 11 in 2016.

- **Developer Training and Certification:** In September, Cloud Foundry Foundation and Pivotal released open source Cloud Foundry training materials, free to students across the globe.

- **Community:** The Cloud Foundry user community grew to more than 61,796 members spanning 200 self-organized local groups.

- **Media Awareness:** There was a significant increase in business press opportunities and articles in 2016. More than 15 articles in top tier publications included Cloud Foundry. Cloud Foundry was mentioned in 183 research reports by major industry analysts. More than 50% of all stories on Cloud Foundry mentioned multi-cloud or containers. Multi-cloud and containers were two strategic topics for Cloud Foundry in 2016, so this represented significant success in driving those messages.

- **Cloud Foundry Summits:** Drawing on the success of 2015's summits in Santa Clara, Berlin and Shanghai, the Foundation strategically organized two major events in 2016 and introduced a new event strategy for the Asia-Pacific region. With the support of our members, the Foundation executed two highly successful summits in Santa Clara and Frankfurt, selling out registration and increasing attendance from 2015—by 10 percent in the U.S. and by a stunning 53 percent in Europe.

- **Cloud Foundry Days:** Rather than hold a third Summit in continental Asia, the Foundation devised Cloud Foundry Days, a series of events throughout Asia designed to cater to specific demographics. These events were largely facilitated by our members and gathered together more than 500 attendees at six events in the Asia-Pacific region.

- **Social Media & Online Growth:** Cloud Foundry garnered nearly 80,000 followers on Twitter alone in 2016, up almost 10,000 since the previous year. Social channels produced more than 250,000,000 impressions all together, driving a huge amount of engagement and visibility among influencers.

- **Research:** ClearPath Strategies continued to provide deep dive analysis on industry awareness and adoption of Cloud Foundry. ClearPath determined in its Q4 Global Perception Study that 52 percent of enterprise respondents reported using at least one Cloud Foundry member deployment.

- **Staff:** In November, Cloud Foundry veteran Abby Kearns was named Foundation Executive Director and Chip Childers was unanimously promoted by the Board to CTO.

Business **Development**

Key Lessons from 2016

- As we enter into our third year, our community, ecosystem and projects are evolving. We need to adjust our membership services and benefits to adapt to new member needs and maintain the growth velocity or the overall ecosystem.

- The new Platinum memberships provide a great opportunity to enhance the overall makeup of the Board of Directors while securing long term funding that will enable the Foundation to increase and improve our services while growing the economic opportunity for the entire ecosystem.

- The fastest way to grow our ecosystem and membership is from existing member referrals. Recruiting new Platinum members in 2017 will require assistance from our existing member companies and we believe that the average lead time for new Platinum members will be about six months.

- We executed a successful 90-day consulting project in the APJ and China regions, gained valuable insights into the different regions' needs and provided data points that helped us optimize our regional event planning. As a result, we cancelled our Shanghai Summit and moved forward with localized "Cloud Foundry Days" across the APJ and China regions.

Areas for Improvement in 2017:

- Evaluate improvements in membership benefits based on research and engagement with the existing membership.

- Implement a more effective engagement model across all of our Board Companies for growing membership, especially with the new Platinum members.

- **CF Summit Results:** Total revenue for Summits were posted at $2.2M for 2016. CF Summit Silicon Valley total revenue came in at $1.5M and CF Summit EU total revenue came in at $710,000. Combined, these events ended up being net positive. In a year with event overload in the tech industry (not to mention Open Source specifically) Cloud Foundry Summit Silicon Valley 2016 registrations increased from 1,501 to 1,609, and the CF Summit EU registrations increased from 461 to 707 (a sold out event) which was a 53% increase since 2015. The three training classes at CF Summit Silicon Valley sold out with a total of 150 attendees, as did BOSH day with 190 attendees. The three training classes at CF Summit EU sold out as well with a total of 63 attendees.

- **New member contracts:** In 2016, 23 companies joined the Foundation as members. We added five new Gold Members (Allstate, Cognizant, Ford, Google and Philips Healthcare Informatics) and 18 new Silver Members (Acetti, Armakuni, Bosch, Comcast, Dynatrace, Engineer Better, evoila GmbH, Fidelity International, Gemalto, Hazelcast, Hexad, Intel, Newt Global, Proximetry, QiO Technologies, Resilient Scale, TIBCO and Volkswagen.)

- **Platinum Expansion**: During the August 2016 Special Board Meeting, the Board of Directors approved the addition of six new Platinum memberships to be made available. The new Platinum memberships began to be promoted in September. This is a great opportunity to enable growth in the Foundation offerings by raising the level of secure funding and enhancing the Board of Directors with a blend of end user companies and providers. There are numerous companies interested, including existing Gold or Silver members who are looking to upgrade their levels of membership. We are confident that all new Platinum memberships will be sold.

- **New certified providers:** We entered 2016 with seven Cloud Foundry Certified 2016 providers having pre-certified in December 2015 (CenturyLink, HPE, Huawei, IBM, Pivotal, SAP and Swisscom). During 2016, Atos, Cisco, GE and NTT Communications also became Cloud Foundry Certified 2016, raising the total number of certified providers to 11. At the end of 2016, the Foundation announced the new Cloud Foundry Certified 2017 requirements and Huawei, Pivotal and SAP finalized their 2017 certification in December 2016.

Technology

Key Lessons from 2016

- The Cloud Foundry technical community benefits significantly from careful, but active embrace of external ecosystems and projects.

- Cloud Foundry has demonstrated that its fundamental design principles, grounded in an application-centric worldview, are attractive to other platform ecosystems. The launch of the Open Service Broker API initiative will be a net-positive outcome Cloud Foundry, and for the industry as a whole.

- Scaling a complex distributed system takes significant time and effort, and member organizations will need to continuously improve the information flow between each other as different environments hosting Cloud Foundry continue to expand.

- Cloud Foundry has the security posture needed in highly regulated and sensitive environments, and it continues to see improvements as the demands increase.

- There is a significant hunger for Cloud Foundry skills in the employment market, and a major need for relevant training to fulfill that demand.

Areas for Improvement in 2017:

- Cross-cutting concerns are still difficult to track and manage within the technical community.

- The Foundation needs to invest in the development of certification and training products directly, taking better advantage of the time volunteered by individuals within the community to advise and support the efforts.

- The Cloud Foundry technical community must continue to invest the time required to share opinions about where the platform should be headed. The contributing community continues to grow, as the user base grows even faster. A collective view of the future is critical.

Major Technical Developments

While it is impossible to highlight all of the work of the Cloud Foundry technical community, a few major developments are worth highlighting below.

Diego Runtime Reached 1.0.

On November 29th, the Diego Runtime architecture reached the 1.0 milestone, starting the End of Life (EOL) timeline for the older DEA architecture. The Diego architecture had been shipping in several certified distributions since the end of 2015, but a significant effort was put into ensuring that the architecture was able to scale to the largest known single Cloud Foundry cluster's needs during 2016. The 1.0 scale target was 250K application instances (containers).

During the transitional period, the DEA architecture has been, and continues to be, supported by the "Runtime OG" project team. As of November 29th, the DEA architecture is going through a six month countdown to EOL. More information about the EOL timing can be found in the community announcement.

Garden-runC Reached 1.0

Over the course of 2016, the Garden project team made significant progress, adopting a shared industry standard (the runC library from the Open Container Initiative) and continuing to ensure that the Cloud Foundry platform remained a highly secure multi-tenant platform at the lowest levels of the platform's architecture.

In late 2015, the Garden team announced plans to adopt runC from the Open Container Initiative, which it actively embraced in parallel to the Garden-Linux backend. On October 17, the Garden team announced that the Garden-runC backend had reached the 1.0 mark, and almost immediately deprecated the Garden-Linux backend.

Container to Container Networking and the Container Networking Interface API

The Container to Container Networking incubation project has been hard at work on a policy-based container to container communication system for within the Cloud Foundry platform. The project's primary release is called netman-release, which is a Garden-runC add-on component. On November 7th, the project team announced the initial availability of netman-release 0.6.0 for experimental purposes.

Of particular interest here is the use of the Container Networking Interface as the method of providing for pluggable networking components to implement the defined policies. As with the rest of Cloud Foundry, the team as implemented using a "batteries included, but plugable" approach to the architecture.

Open Service Broker API

Early in 2016, members of the Cloud Foundry community started initial discussions about the potential to "open up" governance of the Cloud Foundry Service Broker API. This was in response to interest expressed by representatives from Google and the Deis project (Engine Yard).

On December 1, the PMC Council approved the creation of a new PMC: Open Service Broker API, with the purpose of managing the Open Service Broker API project. The goal of the Open Service Broker API project is to serve as the stewards of the CF Service Broker API in a platform-agnostic way. More information can be found at https://www.openservicebrokerapi.org/.

BOSH CPI's

Cloud Foundry BOSH's place as the default multi-cloud deployment and management system for the Runtime layer has continued to evolve over 2016. Of particular note is the inclusion of Foundation projects from multiple cloud service providers, including Google, Microsoft, IBM Softlayer, VMware Photon Platform. Additionally, 2016 saw the OpenStack BOSH CPI move to a new "home" in Germany, with SAP taking on primary responsibility to maintain that CPI.

PMC Council, PMCs and Project Operations

The Cloud Foundry technical community has made significant improvements in the transparency and cross-member collaboration during 2016. As an example, the community's coordinated release process became fully transparent when the approval process for each cf-release candidate SHA was shifted to a public location: https://github.com/cloudfoundry/cf-final-release-election/issues.

Cross-project coordination of complex feature narratives, or "cross cutting concerns", continues to be an area of improvement for the Foundation's technical community. During the later part of 2016, the work on the Isolation Segments feature narrative has been used as a test case for efforts to improve complex change coordination.

In November, the PMC Council reorganized the Foundations' PMC structure from five PMCs to three: Runtime, BOSH, Extensions. The purpose of this reorganization was to support a more encompassing approach to inclusion of projects within the Foundation. It also resolved some ambiguity about the purpose of each PMC, helping guide the PMC members about what projects do and do not fit into each PMC and the Foundation itself.

In order to support the new Extension PMC's mission, the CFF Board of Directors was asked by the PMC Council to approve modifications to the Development Governance and Operations Policies that would allow a new PMC, during formation, to have the option of delegating all governance by contribution decisions to the projects themselves. This was approved, and immediately following that, the PMC Council approved the creation of the Extensions PMC. Dr. Michael Maximilien from IBM was selected as the Extension PMC's Lead, and he joined the PMC Council.

In mid-December, the appointment of Abby Kearns as the Foundation's Executive Director initiated a change to the PMC Council membership, with Abby replacing the outgoing Foundation executive on the council.

Technical Advisory Board

The Technical Advisory Board was formed in March of 2016, intending to give members a venue for discussing long range technical strategy questions and a vehicle to provide any suggested advice to the relevant PMCs. Initially, one on one interviews with the foundation staff were conducted for each member of the group, documenting each individual and organization's specific areas of interest and concern.

The Technical Advisory Board held two face-to-face meetings in 2016, each coinciding with a CF Summit event. The first was on May 23rd in Santa Clara, CA, and the second was on September 26th in Frankfurt, Germany. Thematic findings from each of those meetings were presented to the Foundation's Board of Directors immediately after.

In September, the Technical Advisory Board published a Strategy Note to the Foundation's Board of Directors, providing a set of observations around the current state of the BOSH platform within the ecosystem, market and community.

In October, the Technical Advisory Board continued discussions around the developer experience when working with Cloud Foundry, including ideas for a local "laptop" CF experience and methods of achieving a faster developer "flow" when working within a larger CF environment.

Security and Compliance Activities

Multiple organizations within the Cloud Foundry ecosystem have been very focused on the continued hardening of the Cloud Foundry platform, especially with respect to highly regulated and secure environments. The results of those efforts have been flowing into the upstream project teams throughout the year, both through the responsible reporting of discovered vulnerabilities and the proposal of design changes / feature additions to support an increased security posture.

The Foundation has formed a Vulnerability Management Team (contributing organizations include Pivotal, IBM and SAP), which is now actively managing inbound vulnerability reports from the community / security researchers, as well as helping to track inclusion of security patches from upstream projects that the Foundation's own projects include or distribute. The team has published its disclosure process and is publishing all new security advisories here: https://www.cloudfoundry.org/use/security/.

An audit of the Foundations' GitHub repositories is in the final stages of completion, focused on ensuring correct LICENSE and NOTICE files are in place for all projects. This included proper copyright attributions that respect prior copyright from contributing organizations, as well as copyrights for the larger work held by CloudFoundry.org Foundation, Inc. The Foundation staff will be performing an audit of our repositories on a monthly basis to identify any projects that are easily identified as being out of compliance.

In the later part of 2016, the Foundation, with legal support from the Software Freedom Law Center, has completed an analysis of the Foundation's obligations to comply with US Export laws (specifically, export regulations pertaining to encryption software). Impacted project teams have all completed the requested changes or provided the required documentation to bring us into compliance. As of January, 2017, the Foundation has notified the US Government that our software projects are collectively classified as ECCN 5D002, and are being exported under the TSU exception provided in EAR section 740.13(e). This is an annual notification process that the Foundation's staff will be performing each January. Monthly automated audits of the Foundation source code repositories will be completed to identify any new object code that requires inspection for export compliance. More information can be found here: https://www.cloudfoundry.org/foundation/exports/.

Cloud Foundry PaaS Certification

When the Cloud Foundry Certified 2016, Cloud Foundry PaaS Certification, program was launched in December of 2015, there were an initial seven certified platforms within the program: Pivotal Cloud Foundry, IBM Bluemix, HPE's Helion Cloud Foundry, SAP Hana Cloud Platform, CenturyLink's AppFog, Swisscom's Application Cloud and Huawei's FusionStage Managed Private Cloud Foundry.

During the course of 2016, four additional platforms became certified against the 2016 technical requirements, including: Atos Cloud Foundry, Cisco Containerized CF, GE Predix and NTT Communications Enterprise Cloud Foundry.

On November 2nd, the Foundation's PMC Council officially ratified the Cloud Foundry PaaS Certification 2017 technical requirements. The most significant changes from the 2016 requirements are the reduction in how old a certified distribution's version of CF can be (from 12 to 6 months) and the requirement for all certified distributions to use the Diego runtime architecture.

The Cloud Foundry PaaS Certification program continues to be a cornerstone of our shared ecosystem strategy, ensuring a consistent core platform across the market of certified offerings, while supporting the market's need for product level differentiation.

More information on the 2017 Cloud Foundry PaaS Certification program can be found here:

- 2017 Program Requirements
- Frequently Asked Questions
- CFF Certification Mark Usage Guidelines
- CFF Certification Mark License Agreement

Cloud Foundry Developer Certification and Training

In early 2016, the Foundation launched a major undertaking to define, develop and launch a Cloud Foundry Developer Certification offering. The intention of this program is to use a performance-based testing process to certify that developers have the necessary skills to be productive developing applications on top of any certified Cloud Foundry platform offering. This certification program is being developed jointly between the Cloud Foundry Foundation (including its membership & community) and the Linux Foundation. The project has been supported by a diverse group of individuals from across the Foundation's membership, collectively working as the initial content committee and question authors for the exam.

The rollout plan for the Developer Certification program will be a rolling Alpha, Beta and GA release process, allowing for early user feedback and calibration of the appropriate passing test score. At the time of this writing, the program is in the testing phase, preparing for an Alpha launch.

During the course of building the Developer Certification program it became clear that there is a significant need in the marketplace for high quality, vendor neutral (common across certified offerings) training material. The training would help introduce developers to the skills they need to be successful developing applications on top of the Cloud Foundry platform.

In September, Pivotal donated the training material used to deliver three different single day courses (all of which have been used during the pre-summit training days):

*   Cloud Foundry for Beginners: From Zero to Hero
*   Microservices on Cloud Foundry: Going Cloud Native
*   Operating a Platform: BOSH and Everything Else

Looking forward to 2017, the Foundation will be launching two training products. First, we will be using the open source training material described above as the basis for a Massive Open Online Course (MOOC) that will be delivered via the edX e-learning platform. Second, the Foundation has started a project to create a more complete, multi-day, Cloud Foundry for Developers course. This material will be offered directly from the Foundation in an online and self-paced format. Additionally, the content will be available for members to license within their own training and education programs.

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Community

Building and supporting our community continued to be a focus for us throughout 2016. We approached communities in key industries, continued to promote our brand through broader meetups, and hosted incredibly successful live events at Silicon Valley and EU Summits, as well as our new Cloud Foundry Days. As we approach 2017, we want to deepen our engagement in all of our community efforts as well as build a successful program for the Cloud Foundry Foundation Strategy Council and User Advisory Board. Our roadshow also proved to be a great way to get in front of Cloud Foundry contributors working in offices around the world, and communicate the value of shared research and development.

Key Lessons from 2016:

- The Cloud Foundry Community still has a strong base of passionate end users and members who enjoy meeting in person and virtually to solve challenges together.

- Virtual meetings can be challenging for deeper engagement and conversation.

- Meetups continue to be a great way to get the Cloud Foundry brand in front of broader audiences, as well energize a community of users around the globe.

Areas for Improvement in 2017:

- Deeper engagement in our SIGs and in person meetings with our community.
- Successful reboot of the User Advisory Board and launch of the Strategy Council.

SIGs

We offered three Industry Special Interest Groups (SIGs) in 2016—Financial Services, IoT, and Service Providers. Most of these groups meet monthly (virtually) with in-person meetings held at the Cloud Foundry Summits. The in-person meetups garnered great attendance, as well as active participation, and seems to offer the best method for pulling together users of Cloud Foundry. We are looking into how to expand that in 2017, and continuing to offer a place for Cloud Foundry users to have a place for collaboration with other organizations.

Meetups

Cloud Foundry was represented at 200 meetups with 61,796 attendees. We would like to see these numbers grow in 2017, as they offer a great way for organizations in our wider community to engage and have a deeper conversations about Cloud Foundry around the globe.

Ambassador Program

In 2016 we successfully launched our Ambassador Program. We invited active members of the Cloud Foundry community to be ambassadors at both Summits to facilitate onboarding for new people, and to make them feel welcome. At the Europe event, the ambassador group met to discuss how we could broaden the program in 2017. A monthly meeting is being established, which will be led by Brian Sequin with Stark & Wayne.

User Advisory Board and Strategy Council

In Q4 2016, the leadership team kicked off planning for the User Advisory Board and Strategy Councils, to be implemented in Q1 2017. These gatherings will continue to provide us insight into our community to ensure we continue to take advantage of the amazing community around Cloud Foundry.

Foundation "Roadshow" at Major Development Locations

In the middle of the year, the Foundation staff took to the road to visit many of the major physical locations where Cloud Foundry development teams are located. Earlier in the year, we learned that there would be a significant benefit to presenting a refresher on the Foundation itself to both Cloud Foundry committers and community members that interact with them. The talks included a discussion around how shared research and how development works, how to think about which "hat" is being worn by an individual at different times, and what it means to work towards a shared objective while allowing for commercial competition. The team physically presented in the following locations:

- Santa Monica, CA, USA
- San Francisco, CA, USA
- Denver, CO, USA
- Toronto, ON, Canada
- New York, NY, USA
- Cambridge, MA, USA
- London, UK
- Walldorf, Germany
- Sofia, Bulgaria

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Marketing & Communications

The Foundation took an integrated approach to marketing and communications in 2016. Building a relationship with the Linux Foundation PR and AR teams as well as with external agency Flak42 proved essential to the overall success of the Foundation. The team went from a nearly one-man operation to a functional body with harmonious cogs clicking together to create a systematic approach to marketing. The marketing team worked diligently to develop messaging with members around multi-cloud, containers and IoT to ensure an aligned approach and shared vision across content, events and press. As the team coalesced throughout the year, the approach to marketing calcified. By the end of 2016, the team collectively built a trove of content, media coverage and a digital presence explicitly developed to be a solid foundation for 2017.

Key Lessons from 2016:

- **Member Engagement:** Member marketing and promotion of key events, including Summits, is essential to event success. In 2017, we must ramp up member efforts and gamify their involvement to make a huge impact on our marketing execution.

- **Membership Coordination:** There needs to be tighter processes in place for coordination efforts across membership. The operations team needs to be transparent with the marketing team about proper member contacts in order to build out lists appropriately and get the right people involved.

- **Cloud Foundry Summits**:
    - The longer lead time in planning for the EU Summit proved to be extremely beneficial. However, we still need increased member support earlier in the process. We can also continue to benefit from increased lead time for the events by agreeing on an approach with the board as early as possible.
    - Member marketing and promotion is essential for success—This cannot be overstated.

- **Content Creation:** There is a need for a large pool of content from which to draw and distribute across multiple channels, including blog, case studies, social, newsletters and all member channels. Having members contribute—and contribute heavily—to this pool is critical. The Foundation staff is small and can benefit from the work, in many cases already being done, by members.

- **Marketing and Communications:** The teams have learned to work in tandem and integrate their approach. Even more coordination will yield maximum effect.

- **User demand:** There is a growing demand for information. Our email database increased by 196 percent with 1,000+ leads each month for research reports and training program.

- **Analysts:** There remains confusion in the analyst community about Cloud Foundry, containers and their relationship to each other. We need clear, concise messaging and a stance to communicate this story. This messaging must be echoed across all distributions, at a minimum.

- **End Users:** They are critical to our success. We must continue to increase the volume of public use cases on our site—both with solid business and CIO level results—and with a "developer as hero" theme. In both cases, we are heavily reliant on our distributions providing access to users.

Areas for improvement in 2017:

- **Developers:** We must build out an arsenal of developer-centric content with tailored messaging that speaks to this community, in all content and at all events.

- **Awareness:** Our goal to increase the awareness of Cloud Foundry remains vital. User case studies can drive awareness. We need members to communicate successful user stories to us so we can mine the right information. We also believe an increased usage of "Cloud Foundry" in certified distributions will help achieve our targets.

- **Member Engagement:** As always, member engagement is crucial to our success and requires growth and "stickiness." The Marketing Work Group should serve as a hub of ideas to flow among marketing teams rather than a stiff presentation. More participation is needed! We need member commitment to marketing efforts via time and resources.

- **Content:**
  - Technical marketing content is needed to fuel education and adoption of Cloud Foundry, particularly at the developer level.
  - Strategy: Align digital and content strategies to maximize online presence.
  - Members: Push members to create on-message content for the Foundation.

- **Inclusivity:** The Foundation is committed to advancing diversity of participants in the industry, especially women and people of color. Speaker registration, attendance, contributed content and featured developers must reflect a diverse community.

- **Certification Marketing:** Developer Certification & Training is our key method for unifying a worldwide developer community for Cloud Foundry. The growth of Cloud Foundry awareness at the enterprise developer level will increase economic value to the entire ecosystem. To make this happen, we need to get marketing commitments from licensees to perform a series of tasks, including PR, web page, certified tile and logo, and CF trade name.

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Press Coverage 2016

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24 Press Releases and media engagement across the Foundation and its member companies generated 12,228 **hits worldwide in 2016** (compared with 29,458 in 2015). There were more articles published in 2015 due to hype around the Foundation's launch. This dip can also be attributed to an overall decrease in member engagement in 2016. Additionally, we refined our search terms which led to an increase in the quality of what we've measured, but also a decrease in the number.

Coverage highlights follow.

- ZDNet, "Ford's master plan to enter transportation services rests on software prowess" (1/5)

- ComputerWeekly, "Bish, bash, BOSH: Pivotal says 'I believe' in CloudCredo" (1/6)

- The New Stack, "Video: Get Started on Pivotal's Cloud Foundry Stack" (1/14)

- CBR, "5 top PaaS services to help developers build the best apps" (1/18)

- PCQuest, "10 Open Source Tools for Cloud Infrastructure and Management" (1/18)

- VMblog, "Cloud Foundry Platform Sees Strong Enterprise Growth" (1/21)

- CRN, "EMC, Pivotal Launch New Program For Open-Source Development" (1/22)

- SearchCloudApplications, "Choose the right PaaS for developing cloud application" (1/25)

- InformationWeek, "Cloud Foundry Certified On 7 Public Clouds" (1/26)

- Virtual Geek, "Cloud Foundry BOSH and RackHD" (1/27)

- Channele2e, "Cloud Lessons from a Real PaaS Deployment" (1/29)

- The New Stack, "Building a Platform for Continuous Innovation with Cloud Foundry" (2/3)

- App Developer Magazine, "Pivotal Integrates Cloud Foundry With Cisco's Metapod as a Managed Private Cloud Solution" (2/17)

- The New Stack, "Allstate Speeds into the DevOps Fast Lane with Cloud Foundry Deployment" (2/18)

- ADT, "IBM Furthers Server-Side Swift Development in the Cloud" (2/22)

- ComputerWeekly, "GE lures allies for Predix industrial internet dominance" (2/24)

- eWeek, "TIBCO Joins Cloud Foundry Foundation" (2/25)

- eWeek, "IBM Steadily Building Bluemix as Critical Part of Its Cloud Strategy" (2/29)

- ComputerWorld, "NTT Com adds OpenStack, Cloud Foundry and bare metal option to global cloud service" (3/1)

- CBR, "NTT revamps Enterprise Cloud with OpenStack and Cloud Foundry" (3/2)

- Fortune, "Pssst, Amazon Cloud Is Not Really New to Banks" (3/9)

- CIO, "The White House opens its doors to open source" (3/11)

- ZDNet, "The one thing Microsoft must do—but won't—to gain open-source trust" (3/16)

- The New Stack, "THE ROLE OF PLATFORM-AS-A-SERVICE IN THE CONTAINER ERA" (3/18)

- ComputerWeekly, "TIBCO & Pivotal: return of the native (cloud app)" (3/22)

- ZDNet, "IBM opens Bluemix hub in Nice, France" (3/22)

- eWeek, "IBM Launches New Bluemix Garage, Cloud Foundry Dojo" (3/22)

- CMSWire, "IBM Expands Bluemix Garage to France" (3/23)

- CBR, "10 PaaS providers – where the cloud wars are really being fought" (3/31)

- NetworkWorld, "Most powerful Internet of Things companies" (4/1)

- ITBusinessEdge, "Is It Time to Go Cloud-Native?" (4/4)

- Business Insider, "Choosing between Amazon, Microsoft, or Google in the cloud wars is a 'Rorschach test'" (4/5)

- TechRepublic, "Why the future of a Dell-led VMware hinges on developers" (4/18)

- Data Center Knowledge, "Yahoo Japan to Run on OpenStack, Cloud Foundry" (4/20)

- InformationWeek, "VMware, Pivotal Offer Stack For Next-Gen Applications" (4/27)

- CIO, "Cloud Foundry launches fellowship program" (4/29)

- The New Stack, "A Look Into Cloud Foundry's Past, Present, and Future" (5/20)

- The New Stack, "Cloud Foundry's Security Strategy: Rotate, Repair, Repave" (5/24)

- Geekwire, "Cloud Foundry 'Dojo' opening in Seattle, hosted by HP Enterprise" (5/24)

- CIO, "Open source is a positive sum game, says Cloud Foundry CEO" (5/24)

- OStatic, "Sam Ramji: 'Open Source is a Positive Sum Game'" (5/25)

- SDTimes, "Cloud Foundry Summit highlights growth of PaaS" (5/25)

- The New Stack, "How Cloud Foundry Sparked Dell's Digital Transformation" (5/26)

- The New Stack, "Cloud Lock-in? Travelport Deployed Cloud Foundry for Some Vendor Lockout" (5/27)

- eWeek, "Steady User Growth Characterizes Cloud Foundry Ecosystem" (5/31)

- SiliconANGLE, "Containers are on fire as enterprises ramp up adoption" (6/17)

- eWeek, "Docker Container Usage Growing" (6/20)

- Channel Insider, "How Containers Are Holding Water Amid Challenges" (6/23)

- Geekwire, "Survey: Container management tops concerns among DevOps personnel" (6/25)

- The New Stack, "Parity Check: Cloud Foundry, ClusterHQ Surveys Shed Light on Container Adoption" (6/28)

- TechCrunch, "Canonical-Pivotal partnership makes Ubuntu preferred Linux distro for Cloud Foundry" (7/6)

- Forbes, "Inside Google And Microsoft's Race To Catch Amazon In The Trillion-Dollar Cloud" (7/26)

- Computerworld UK, "Linux turns 25: Containers, cloud and IoT present new opportunities and challenges" (8/25)

- TechRepublic, "How Allstate boosted developer productivity by 350% with the cloud" (8/26)

- CIO, "IoT and multi-cloud take center stage at upcoming Cloud Foundry Summit" (8/31)

- The New Stack, "Iron.io Brings Serverless Computing to the Cloud Foundry Platform" (10/11)

- The New Stack, "The Challenge of DevOps and the Danger of 'Super Chickens'" (10/19)

- ZDNet, "Pivotal Cloud Foundry available on Google Cloud Platform now" (10/19)

- InfoWorld, "6 small steps to digital transformation" (10/24)

- The New Stack, "Will Google Cloud Become Cloud Foundry's Home Base?" (10/26)

- The New Stack, "Cloud Foundry, Microservices, and the Multicloud Future" (10/26)

- ZDnet, "Cloud Companies Desperately Need Experienced Workers" (11/7)

- InformationWeek, "Will Digital Economy Create a Developer Shortage?" (11/7)

- CIO, "In The Age of Cloud Computing Outsourcing Won't Work" (11/7)

- App Developer Magazine, "The Developer Shortage is Real and it's going to Hit the Cloud Market Real Soon" (11/7)

- TechCrunch, "Cloud Foundry Foundation CEO Sam Ramji departs for Google" (11/17)

- Fortune, "Google Names Former Microsoft Exec to Help Cloud Unit" (11/17)

- SD Times, "Cloud Foundry Foundation shuffles leadership" (11/17)

- NetworkWorld, "Google partners with Intel to build machine learning cloud chips and adds a new exec" (11/17)

- Business Insider, "Google just made a very smart hire in its quest to topple Amazon in the cloud" (11/17)

- OStatic, "SUSE Buys HPE's OpenStack and Cloud Foundry Assets, Talent" (12/5)

- eWeek, "Google Joins Cloud Foundry Foundation to Open its Cloud Platform" (12/15)

- TechCrunch, "Google Joins Open Source Cloud Foundry Foundation" (12/16)

- VMblog, "Google Joins Cloud Foundry Foundation as Gold Member" (12/16)

- Programmableweb, "Cloud Foundry Foundation Announces Open Service Broker API Project" (12/15)

- VMblog, "Cloud Foundry Announces Call for Papers for Silicon Valley Summit 2017" (12/17)

- SiliconANGLE, "Google throws its weight behind open-source Cloud Foundry" (12/19)

- The New Stack, "Cloud Foundry's Vision: A Services Ecosystem that Transcends Containers" (12/21)

- Diginomica, "Cloud-First Application Platform PaaS Tools to Watch in 2017" (12/30)

CLOUD FOUNDRY
SUMMIT 2016

Cloud Foundry garnered 292 global mentions the week of Santa Clara Summit in May 2016, including more than 38 feature pieces of media coverage spanning millions of unique readers. Sam Ramji hosted a roundtable conversation with the heads of cloud at 18F, Allstate, Cisco, Corelogic and VW along with journalists from The New Stack, SD Times and Wall Street Journal. Eight reporters and nine analysts attended Santa Clara Summit.

Coverage highlights are below:

- The New Stack, "A Look Into Cloud Foundry's Past, Present, and Future" (5/20)

- Business Cloud News, "Dynatrace and Pivotal Cloud Foundry announce new partnership" (5/23)

- CIO.com, "Open source is a positive sum game, says Cloud Foundry CEO" (5/23)

- Tampa Bay Review, "Cloud Foundry Summit 2016 to start from 23rd May at Santa Clara" (5/23)

- ChannelBuzz, "API platform vendor Apigee seeing strong results from SAP partnership" (5/24)

- CloudPro, "Gemalto joins Cloud Foundry Foundation" (5/24)

- CloudWards, "New Cloud Foundry Foundation Members Announced" (5/24)

- GeekWire, "Cloud Foundry 'Dojo' opening in Seattle, hosted by HP Enterprise" (5/24)

- The New Stack, "Cloud Foundry's Security Strategy: Rotate, Repair, Repave" (5/24)
  - Syndicated to Linux.com

- Datamation, "EMC Releases UniK Software for Cloud and IoT App Deployments" (5/25)

- OStatic, "Sam Ramji: 'Open Source is a Positive Sum Game'" (5/25)

- SDTimes, "Cloud Foundry Summit highlights growth of PaaS" (5/25)

- Storage Review, "EMC Introduces Unik Open Source Tool" (5/25)

- The New Stack, "How Cloud Foundry Sparked Dell's Digital Transformation" (5/26)

- The New Stack, "Cloud Lock-in? Travelport Deployed Cloud Foundry for Some Vendor Lockout" (5/27)

- eWeek, "Steady User Growth Characterizes Cloud Foundry Ecosystem" (5/31)

- IT Business Edge, "What Can Serverless Computing Do for the Enterprise?" (6/1)

CLOUD FOUNDRY
SUMMIT EUROPE 2016

Twelve EMEA-based journalists attended Frankfurt Summit including Eric Auchard of Reuters. More than 20 unique pieces of coverage published in publications including The New Stack, ComputerworldUK, Enterprise Times and more. Nine analysts from seven major analyst firms heard from a panel of seven Cloud Foundry users (VW, SIEMENS, Allstate, Atos, Diabetizer, QIO, Kingfisher).

Coverage highlights are below:

- VMblog, "Cloud Foundry Announces Pivotal's CEO, EMC's CTO as Keynote Speakers at European Summit" (9/26)

- Enterprise Times, "Cloud Foundry Summit hits Europe" (9/26)

- Enterprise Times, "SAP announces Cloud Foundry Dojo" (9/26)

- Enterprise Times, "Cloud Foundry all about Self=" (9/27)

- Irish Tech News, "GLOBAL ORGANIZATIONS GATHER TO DISCUSS IOT AND MULTI-CLOUD STRATEGIES AT CLOUD FOUNDRY SUMMIT" (9/26)

- ComputerWelt, "Cloud Foundry Summit über IoT und Multi-Cloud-Strategien" (9/26)

- ComputerworldUK, "Allianz app deployment goes from 'days to minutes' with Pivotal Cloud Foundry PaaS and agile practices" (9/27)

- ComputerworldUK, "Volkswagen will 'halve IT operations costs' with Cloud Foundry's platform as a service cloud" (9/27)

- Heise, "Cloud Foundry Summit Europe im Zeichen von Disruption, Offenheit und Erfolgen" (9/27)

- The New Stack, "BOSH Hooks Cloud Foundry into the Google Cloud Platform, Offers Large-Scale VM Lifecycle Management" (9/27)

- The New Stack, "The Second Wave of Platforms, an Interview with Cloud Foundry's Sam Ramji" (9/28)

- PAC, "The Cloud Foundry Summit in Frankfurt—How businesses resume control of their IT with open source" (9/28)

- JAXenter, "The new face of Cloud Foundry" (9/29)

- ComputerworldUK, "An end to AWS' public cloud dominance? Cloud Foundry offers vision of multi-cloud era" (9/30)

- Diginomica, "Volkswagen drives towards multi-cloud digital transformation" (9/30)

- Cloud Computing Cologne, "Collaboration is king at Cloud Foundry Summit EU" (10/1)

- Constellation Research, "Event Report—Cloud Foundry Summit Europe—Europe & Cloud— A long path" (10/3)

- JAXenter, "CloudFoundry: Auf dem Weg in die Cloud-Avantgarde" (10/5)

- Datacenter Insider, "Cloud Foundry bei VW und der Allianz; Änderung der Cloud-Strategie und im Know-kow-Konsum" (10/6)

CLOUD F(O)UNDRY

Trade Analyst Relations

In 2016, Cloud Foundry Foundation conducted 104 analyst meetings, which included phone briefings and inquiries as well as in-person meetings. Briefings were conducted throughout the year with analysts from Forrester, Gartner, IDC, ESG, 451 Research, RedMonk, Current Analysis, Constellation Research, Ovum, CloudPulse Strategies, PAC, Quocirca and others. Cloud Foundry was mentioned in more than 180 analyst reports or blogs in 2016.

There were successful invitation-only analyst events held at both Cloud Foundry Summit North America (Santa Clara) and Cloud Foundry Summit Europe (Frankfurt). At the analyst event in Santa Clara, nine analysts attended from seven firms: Forrester, Constellation Research, RedMonk, IDC, CloudPulse Strategies, ESG and ArcInsight Partners. The customer panel at Cloud Foundry Summit Santa Clara included representatives from Comcast, CoreLogic, Express Scripts, QIO, Travelport and Kaiser Permanente. In Frankfurt, nine analysts attended the analyst event from seven firms: Gartner, Forrester, 451 Research, RedMonk, Constellation Research, PAC and CLOUD-COUNSEL, Inc. The customer panel at Cloud Foundry Summit Frankfurt included representatives from Volkswagen, Allstate, SIEMENS, QiO, Kingfisher, Atos and Diabetizer.

"In 2016, Cloud Foundry Foundation conducted 104 analyst meetings, which included phone briefings and inquiries as well as in-person meetings."

Global Cloud Foundry Events

Drawing on the success of 2015's summits in Santa Clara, Berlin and Shanghai, the Foundation strategically organized two major events in 2016 and introduced a new event strategy for the Asia-Pacific region. With the support of our members, the Foundation executed two highly successful summits in Santa Clara and Frankfurt, selling out registration and increasing attendance from 2015—by 10 percent in the U.S. and by a stunning 53 percent in Europe. Rather than hold a third Summit in continental Asia, the Foundation devised Cloud Foundry Days, a series of events throughout Asia designed to cater to specific demographics. These events were largely facilitated by our members and were highly successful. The Foundation will build upon this Summit strategy in 2017 with the Silicon Valley Summit in June and Europe in mid-Autumn. We will also be continuing our successful member-led Cloud Foundry Days events worldwide.

"With the support of our members, the Foundation executed two highly successful summits in Santa Clara and Frankfurt, selling out registration and increasing attendance from 2015—by 10 percent in the U.S. and by a stunning 53 percent in Europe."

Industry Opinion Research

Cloud Foundry continued to deepen its understanding of the industry, hot topics, and competition through a regular cadence of two Global Perception Studies (GPS). This research provided high quality data on platform and Summits to guide Cloud Foundry marketing strategy and brand identity. Our data collection has improved by introducing smarter screens to improve the quality of data with each successive GPS and remains best-in-class for the industry, both in quality and international breadth. Our data analysis has delivered the beginnings of more granular segmentation that can be more directly utilized by Cloud Foundry and members. GPS results were leveraged in conversations with analysts and journalists to drive the industry conversation around the developer skills gap and containers. According to the Q4 Global Perception Study, 52% of enterprise respondents report using at least one Cloud Foundry member deployment.

"Our data collection has improved by introducing smarter screens to improve the quality of data with each successive GPS and remains best-in-class for the industry, both in quality and international breadth."

Foundation Operations

In 2016, we continued to improve processes around our finance, HR, Board and operational initiatives. Our biggest area of growth was expanding our team—the Foundation hired four full time staff members, formally hiring Abby Kearns from our fellowship program (subsequently she was promoted to Executive Director) and promoted Chip Childers to CTO. Marissa Root took over Operations from Scott Monson in October. We worked to improve board and support staff coordination including seamless management of our meetings and improved communication. We recognize there is a large opportunity to improve our member management processes from on-boarding to engagement and that will be a key focus for the team in 2017.

Key Lessons from 2016:

- Accounts Receivable requires a proactive communications strategy, and constant effort from Business Operations and Finance teams.

- Member management was challenging - will be formalizing our member management plan to drive deeper engagement in 2017.

Areas for Improvement in 2017:

- Development of formalized member management plan including monthly updates from Abby Kearns to encourage deeper member engagement.

- Improved management of internal tools and systems to drive operational efficiencies.

- Additional planned full-time employees headcount for 2017:
  - Product Marketing
  - Community Manager

New Hires and Promotions:

* **Abby Kearns** to *Executive Director*
* **Chip Childers** to *Chief Technology Officer*
* **Caitlyn O'Connell**: *Marketing and Communications Specialist*
* **Marissa Root**: *Chief of Staff/Head of Operations*
* **Michelle McManus**: *Business Operations Manager*
* **Chris Clark**: *Technical Operations Manager*

Budget 2016

Revenue	2016 Budget	2016 Actual	2016 Variance
Membership	$5,652,500	$5,696,000	$43,500
Event Sponsorship	$2,400,720	$2,400,000	($720)
Certification	$300,000	$165,000	($135,000)
Total Revenue	**$8,353,220**	**$8,261,000**	

Expenses	2016 Budget	2016 Actual	2016 Variance
Marketing & Public Relations	$1,882,000	$1,468,000	($414,000)
Summits	$2,242,000	$2,148,000	($94,000)
Technology	$655,750	$443,000	($212,750)
Operations	$904,500	$977,000	$72,500
Compensation	$2,021,310	$2,695,000	$673,690
G&A	$529,650	$526,000	($3,650)
Holdover Deficit + General Reserve	$101,129	$0	($101,129)
Total Expenses	**$8,235,120**	**$8,257,000**	
Net Income/Loss	**$16,970**	**$4,000**	**($12,970)**