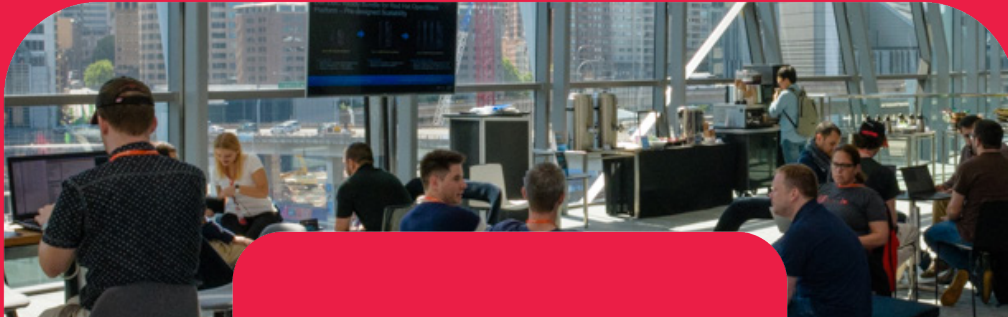


# 2017 ANNUAL REPORT



# Contents

<b>2017 Board of Directors</b> .....	<b>3</b>	<b>Committee Reports</b> .....	<b>21</b>
Platinum Directors	3	Technical Committee	21
Gold Directors	3	User Committee	22
Individual Directors	3	<i>The OpenStack User Survey</i>	23
<b>Chairman's Note</b> .....	<b>4</b>	<i>Case Studies highlight OpenStack adoption's industry and geographical diversity</i>	23
<b>OSF Staff Update</b> .....	<b>5</b>	<b>Working Groups and SIGs</b> .....	<b>25</b>
<b>Platinum and Gold Members</b> .....	<b>7</b>	Interop Working Group & OpenStack Powered Program	25
Platinum Members	7	Roadmap Team	26
Gold Members	8	Diversity Working Group	26
<b>New Sponsors</b> .....	<b>11</b>	Enterprise Working Group	26
<b>Community Highlights</b> .....	<b>12</b>	Public Cloud Working Group	27
Community Statistics	12	Financial Services Team	28
Outreachy Mentorship Program	12	Special Interest Groups (SIGs)	28
Travel Support Program	12	<i>Meta SIG</i>	29
Women of OpenStack	13	<i>API SIG</i>	29
Global User Group Celebrations	14	<i>FEMDC SIG</i>	29
Contributor Support	14	<i>Scientific SIG</i>	29
<i>Contributor portal</i>	14	<i>Self-healing SIG</i>	30
<i>Upstream Institute</i>	15	<b>Other</b> .....	<b>31</b>
<i>First Contact SIG</i>	15	Navigating OpenStack	31
<b>Summit Highlights</b> .....	<b>16</b>	OpenStack Days	32
Boston Registration Metrics	16	Hackathons	32
Sydney Registration Metrics	16	Certified OpenStack Administrator	33
OpenDev: Edge Computing	17	Press & Analyst Highlights	33
Kata Containers Project	18	<i>Superuser Magazine</i>	33
OpenLab	18	<i>Public Relations</i>	33
PTGs/Forums	19	<i>Analyst Relations</i>	34
Passport Program	20		

Find the digital version of this report online at <https://www.openstack.org/foundation>

# 2017 Board of Directors

## Platinum Directors

Alan Clark, SUSE (Chair)  
Anni Lai, Huawei  
Brad Topol, IBM  
Brian Stein, Rackspace  
Christopher Price, Ericsson AB  
Gnanavelkandan Kathirvel, AT&T  
Imad Sousou, Intel  
Mark McLoughlin, Red Hat

## Gold Directors

Johan Christenson, City  
Network Hosting AB  
Boris Renski, Mirantis  
Joseph Wang, inwinSTACK  
Junwei Liu, China Mobile  
Kenji Kaneshige, Fujitsu  
Lew Tucker, Cisco (Vice Chair)  
Robert Esker, NetApp  
Jessica Field/Tristan Goode, Aptira  
(each served partial year)

## Individual Directors

Allison Randal, HPE  
ChangBo Guo, EasyStack  
Egle Sigler, Rackspace  
Kavit Munshi, Aptira  
Russell Bryant, Red Hat  
Shane Wang, Intel  
Steve Dake, Cisco  
Tim Bell, CERN

---

***Contributions benefit the entire community.*** The OpenStack Foundation encourages contributions of all types, including community support activities such as local meetup group organization. Users and ecosystem members share their contributions here with the value they bring to everyone.

---



# Chairman's Note

*When asked to highlight some of the significant OpenStack leadership achievements for 2017, two things quickly come to mind: a great collaborative relationship amongst the community leadership, and the many innovative experiences our members bring to OpenStack.*

Over the past years, the OpenStack Board, Technical Committee, User Committee and Foundation staff have frequently met to identify and discuss community topics and issues. However, early in 2017, a significant change occurred. We hosted a full two-day face-to-face workshop where we examined many questions, even the very definition of OpenStack. Asking such fundamental questions drove us to the heart of OpenStack, enabling us to see the values we have and the challenges we face. And to see those challenges through the varied eyes and experiences of our Individual Contributors, Directors, Corporate Members, Users and Staff. Such discussion not only helped everyone involved to understand each other's views, insights and needs, it also developed a basis that we were able to collaboratively build upon throughout 2017. That basis quickly developed into five strategic work areas: building effective communication about OpenStack, building collaboration around impactful unanswered requirements, continuing to build relationships with adjacent open

source communities, an effort to simplify existing projects, and a focus on community health. This work is now bearing fruit with more results to come in 2018.

The second area we wish to highlight is sometimes referred to as digital transformation. We've heard much about this idea through news articles and social media over the past few years, but it has mostly seemed conceptual and forward-looking. However, this year we truly have witnessed the advent of real, OpenStack-enabled innovation and creativity through the member-contributed use cases and innovative applications, including what our most recent members are bringing to the world. These success stories and use cases not only demonstrate what is possible, but what is yet possible. They also demonstrate how the collaborative nature of open source is globally transforming the way businesses do business. One of our biggest strengths from 2017 has been the participation of OpenStack users.

For us, these two highlights prove that we have an amazing, thriving

community through which we have reached the real world stage where OpenStack has become business critical and world changing. That's exciting to see and to contribute to. We eagerly await to see what 2018 will bring.

We look forward to serving you in 2018 and congratulate you on a successful 2017.

## ALAN CLARK

OpenStack Board Chair

## LEW TUCKER

OpenStack Board Vice-Chair



# OSF Staff Update

*2017 was a dynamic and productive year for OpenStack open infrastructure. We welcomed new users in 2017, including Gap Inc, Sprint, China UnionPay, China Railway, Tencent, GE Healthcare, US Army Cyber School, Insurance Australia Group, and Commonwealth Bank to name a few. Read about many of these and more in [user stories](#).*

We updated the upstream development lifecycle and events, improved the perception of private clouds in the marketplace and supported new use cases through stronger cooperation with adjacent technologies. While executing on those, we changed the way we communicate about OpenStack, removed barriers to adoption and simplified operations and improved community health.

To evolve our development model, we added a new upstream-focused event called the Project Teams Gathering (PTG), and held the first two in Atlanta and Denver. We also introduced the concept of the Forum to our Summits, creating a dedicated space for users and developers to collaborate and think strategically about the direction of the software. We again had two OpenStack Summits in Boston and Sydney and two on-time releases, Ocata and Pike. On the usage front, we saw a 95% year-over-year growth in deployments measured by our user survey.

OpenStack continues to be one of the most global open source projects ever, with members in over 175 countries. China, in particular, was a fast-growing region in 2017. We supported 17 OpenStack Day events in 2017, and I was fortunate to be able to travel to many of them, meeting with local users and companies. In all, we reached over 20,000 people with our 2017 events.

To improve communication around what OpenStack is and what services OpenStack cloud software delivers, we revamped the [Project Navigator](#) on [openstack.org](#), and introduced an [OpenStack map](#) that helps

put the various OpenStack components into context by who uses them.

We undertook an effort to better explain the value proposition for private clouds, in the context of the “multi-cloud” movement. We heard from multiple users at the Boston Summit who helped explain when, where, and why a workload belongs on public or private cloud, and continued to spread their stories through campaigns and other events throughout the year. We put a spotlight on hosted private clouds (also known as “private cloud as a service”), which offer the management ease of public cloud and the security and single tenant benefits of private cloud to many enterprises today. This work included launching a new category in the [OpenStack marketplace](#).

We also worked to counter the myth that OpenStack is only for private cloud, by expanding and highlighting the number of public clouds in the marketplace and launching the “Passport” program to give users a fast path to try out OpenStack Powered public clouds at no cost.

On the adjacent technology front, we hosted projects and members from many open source communities at our events this year, including providing free space at the OpenStack Summits, highlighting technologies such as Kubernetes, Spinnaker, CockroachDB and others during keynotes, and also participating in numerous other industry events. To improve the end user experience, we’ve begun the work to integrate Kubernetes into the OpenStack gate and vice versa.

**175**  
COUNTRIES



**95%**  
YEAR-OVER-YEAR  
GROWTH



**17**  
OPENSTACK DAY  
EVENTS

Looking ahead, I see big challenges and opportunities for open infrastructure and OpenStack. The biggest challenges will come from the increasing complexity caused by an explosion of open source tools at every layer. We have the unique opportunity to lead the effort to squash this complexity by working closely together across projects and communities to integrate these systems and testing all of the components together. The new OpenLab, a cross-community open source testing effort, is a tremendous step forward.

If we tackle these problems, massive opportunities await beyond OpenStack's historical use case of providing data center cloud infrastructure. There are rapidly emerging areas including edge computing, container infrastructure, and CI/CD systems that all require agile, programmable infrastructure. We are evolving to meet the needs of these new use cases, with a strong focus on integration across the open infrastructure landscape. To accelerate this strategy, we have begun hosting non-OpenStack projects where it makes sense, starting with a our first pilot project in the container infrastructure area called Kata Containers.

We ran our first OpenDev event, this year focused on edge computing. OpenDev events are designed to facilitate collaboration among various open source projects, technology leaders and user implementers at a technical level with productive, working group discussions. Each event will tackle a specific problem area we would like to see better addressed by open source technology.

Users tell us they are both excited and frightened by the explosion of open source options today. The integration challenge in open source is by definition bigger than any one project, but it also transcends companies and foundations, so we must all be more committed than ever to putting users at the center and collaborating.

Thank you to our global collaborators who worked hard in 2017 to strengthen our community and build powerful infrastructure technology in the open!

**JONATHAN BRYCE**  
Executive Director

# Platinum and Gold Members

*Thank you to the Platinum and Gold Members of the OpenStack Foundation, who help direct the community, contribute to the software platform and fund important activities to ensure sustainable growth.*

## Platinum Members



**AT&T:** "AT&T continues to invest in OpenStack, attaining a top 10 contributions ranking in Queens and effectively involved in the community initiatives such as edge computing. We initiated and are collaborating on the OpenStack-Helm project to deliver a distribution agnostic containerized OpenStack implementation and lifecycle management platform. Also, we continue to actively participate with our peers in the Large Contributing OpenStack Operator (LCOO) working group."

**KANDAN KATHRIVEL**



**HUAWEI:** "We have dedicated resources to help mature the OpenStack software and grow the global community and ecosystem via regularly sponsoring Summits, PTGs; organizing OpenStack days, bug smash, local meetup events; significantly contributing to OpenLab, Kata Containers, and projects to help integrate OpenStack with container and NFV technologies."

**ANNI LAI**



**RACKSPACE:** "Since co-founding OpenStack with NASA, Rackspace has continued to support the community through significant project and code contributions, serving as board members, PTLs and user committee members and by expanding the OpenStack market by pioneering the OpenStack as a service consumption model and delivering the industry's first pay as you go private cloud."

**CHRISTIAN FOSTER**



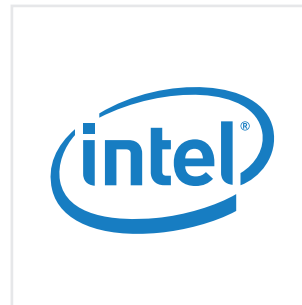
**RED HAT:** “We continue to collaborate in our community of users, operators, and contributors; together developing enhancements across OpenStack which enable the secure, production-ready automated cloud platform that our hundreds of customers depend on for their business-critical needs. This year we were particularly excited to deliver containerized services, composable infrastructure, automated in-place upgrades, simplified data-plane performance tuning, enhanced security, and integration with technologies from communities such as Kubernetes, Ceph, and Ansible.”

**MARK MCLOUGHLIN**



**SUSE:** “SUSE continues to engage and contribute to the OpenStack community in many important ways. From helping improve the stability of OpenStack through code contributions, to providing support and leadership with SUSE employees participating as core reviewers, PTLs and board members. SUSE also provides a unique glimpse of the OpenStack market, by conducting our annual global cloud research report which provides a broad global market view of OpenStack adoption and future plans. This research complements the OpenStack User Survey and together they provide the community with compelling data on the impact and success of OpenStack.”

**TERRI SCHLOSSER FOR ALAN CLARK**



## Gold Members



**CITY NETWORK:** “We organise OpenStack Days Nordic, participate in other OSDs and dedicate a significant amount of time and effort to grow the community. Our CEO is a member of the Foundation board and our staff dedicates a great deal of time to the OpenStack Public Cloud Working Group and hands-on training.”

**OSGUR BAL**



**DELL EMC:** “From 2012 through present day, Dell runs and funds OpenStack meetup meetings in Austin and Boston. We also contribute three dedicated people to running distributed CI for the Ironi, Cinder, Manila and Neutron projects; as well as a half-time person focused on QA and Interop/Refstack to help improve OpenStack quality and stability for everyone.”

**ARKADY KANEVSKY**



**EASystack:** “From the community side, EasyStack makes leading contributions in important projects like Heat, Sahara, Oslo, Ceilometer, and more, and sponsored eight Summits. From the user point of view, we push OpenStack evolution by deploying it in 200+ large enterprise customers. In the November 2017 OpenStack User Survey, EasyStack was one of the top 10 vendors powering the participants’ OpenStack clouds.”

**ROBERT WEN**



**NEC:** “We have continuously contributed to OpenStack community and jointly working with customers. We have started collaborating with KDDI about the Watcher project to implement scheduled migrations of VM and Volume.”

**TAKASHI TORII**



**TENCENT:** “We sponsored the OpenStack Sydney Summit, OpenStack Days China, made a WeChat H5 to promote the Sydney Summit, and were actively involved in the Summit to share our OpenStack-based success stories. We are committed to promoting OpenStack through the constant landing of our private cloud project that uses OpenStack as the underlying infrastructure.”

**XIABING YAO**



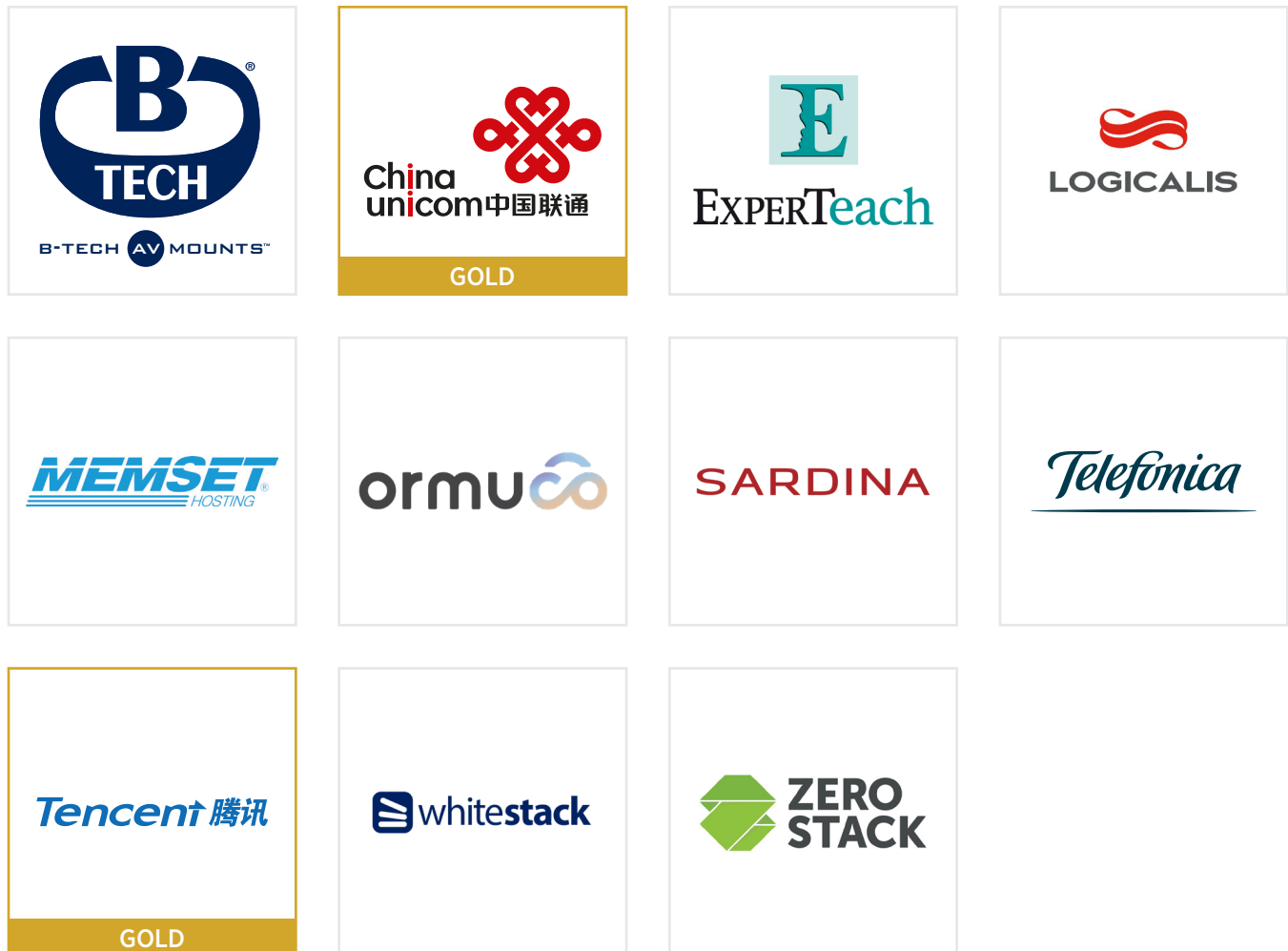
**ZTE** “We have made contributions in 30+ OpenStack projects and lead two of them with 10+ full-time contributors. We sponsored Sydney Summit, and are active in supporting and promoting new projects such as Kata Containers. We keep our commercial cloud product TECS highly correlated with OpenStack and have done 280+ commercial/trial projects worldwide by the end of 2017, which helps promote OpenStack in global NFVI market.”

**LI, XIANG**



# New Sponsors

*Thank you to our newest corporate sponsors for supporting the OpenStack Foundation. Organizations who contributed new sponsorship funding in 2017 include:*



# Community Highlights

## Community Statistics

**Registered Community Members:** ..... 84,385

**Supporting Organizations** ..... 672

**Countries Represented:** ..... 179

### Top 10 Countries by Membership:

- |                   |               |
|-------------------|---------------|
| 1. United States  | 6. Brazil     |
| 2. India          | 7. Japan      |
| 3. China          | 8. France     |
| 4. United Kingdom | 9. Germany    |
| 5. Canada         | 10. Australia |

**Global User Groups:** ..... 127

Newly-formed User Groups are mentored by an Ambassador, and meet basic criteria to ensure they are sustainable, high quality and friendly for everyone. When new groups are ready, they become official. New groups represent 9% growth over 2016.

- **New Official Groups:** Finland, London, Los Angeles, San Diego, Canada - Montreal, Canada - Toronto
- **New User Groups formed:** Phoenix, Uganda - Kampala, Canada - Ontario, Canada - Edmonton, New Jersey, Australia - Perth, Bangladesh, Belarus - Minsk, Chile - Santiago, France - Rhones Alpes, Mexico City

**Global Ambassadors:** ..... 14

- **New Ambassadors:** Lisa Marie Namphy, John Studarus, Shilla Saebi, Stacy Véronneau, Ilya Alekseyev

## Outreachy Mentorship Program

*by Victoria Martinez de la Cruz*

Outreachy helps people from underrepresented groups get involved by matching interns with established mentors working in open source communities. In 2017, a total of \$39,500 from the Foundation, Intel and Red Hat was contributed to the program, funding six OpenStack interns who completed the program successfully. Interns from the UK, Brazil, India, and Poland worked on Swift, Keystone, Sahara and Zun. We thank all volunteer mentors for helping Outreachy interns get involved with OpenStack!

## Travel Support Program

*by Ashlee Ferguson*

The OpenStack Foundation helps key contributors who are unable to secure sponsorship to attend the Summit by subsidizing or covering the costs for travel and accommodations. With the advent of the Project Teams Gatherings in 2017, the Foundation expanded the Travel Support Program to help community members attend these events as well. Verizon also helped with travel funding this year.





- **Atlanta PTG:** 24 people (1 woman and 23 men) from 13 countries; USD \$50,000 invested.
- **Boston Summit:** 40 people (14 women and 26 men) from 18 countries; USD \$100,000 invested.
- **Denver PTG:** 20 people (5 women and 15 men) from 12 countries; USD \$50,000 invested.
- **Sydney Summit:** 30 people (9 women and 21 men) from 14 countries; USD \$75,000 invested.

## Women of OpenStack

*by Erin Disney, Kendall Nelson, Anne Bertucio*

The Women of OpenStack again hosted well-attended working lunch and speed mentoring events at both Summits. In Boston, where women accounted for 12% of attendees, the working lunch featured a panel and discussions on how to empower and support

diversity in the OpenStack community. While in Sydney, conversations were more small-group focused and discussed a variety of topics from “what do you hope to get out of the Women of OpenStack” to “how do I start contributing to OpenStack?” In Sydney, 13% of attendees were women. It is clear the efforts of the Women of OpenStack is making a difference.

In Boston and at prior Summits, speed mentoring opportunities were either career and technical. In Sydney, community mentoring was added. In all, 35 mentees were matched to mentors in Boston and 13 mentors welcomed 20 mentees in Sydney.

In addition to leadership changes, the Women of OpenStack meetings switched from conference calls to IRC online meetings to help remove barriers to communication for those whose first language isn't English. IRC also offers women all over the world the ability to follow the meetings' progress.

**275K**  
INVESTED IN  
TRAVEL SUPPORT

**13%**  
OF ATTENDEES WERE  
WOMEN

**55**  
SPEED MENTORING  
OPPORTUNITIES



## Global User Group Celebrations

by Ashlee Ferguson

July 2017 marked the seventh anniversary of the OpenStack software. Thirty-five user groups in 19 countries celebrated this anniversary, leveraging a \$17,500 investment from the Foundation.

## Contributor Support

The OpenStack Foundation encourages contributions, technical and otherwise, from users, members and sponsors. Contributor support is provided in various ways, including Advanced User Contributor (AUC) designation, which offers election participation for User Committee members, as well as Summit

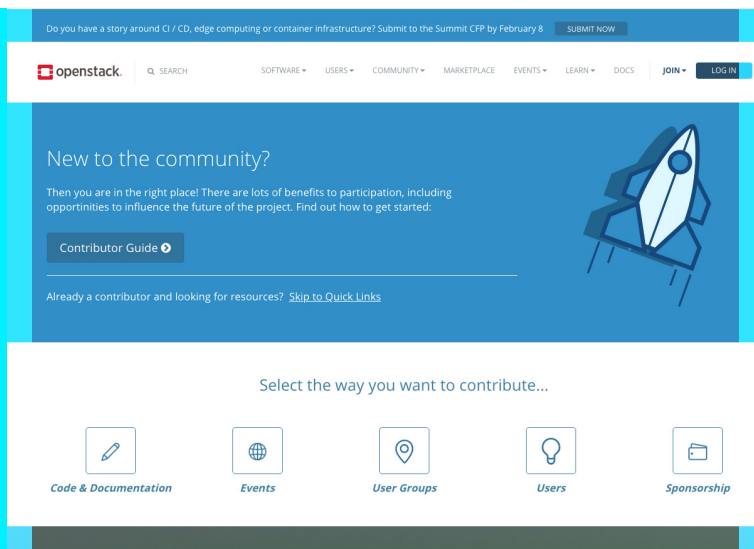
recognition. Examples of 2017 non-code contributions that benefit the entire community, provided by the users and ecosystem themselves, are shown throughout this report.

The Foundation designed a new contributor portal for all contributors at any level, a revamped and renamed Upstream Institute for those who would like to become contributors, and the newly formed First Contact Special Interest Group, whose members will help guide potential new contributors through the time they are comfortable. All potential and current contributions are most welcome in the OpenStack community!

## Contributor portal

by Mike Perez

The OpenStack Contributor Portal (<https://www.openstack.org/community>) is a new landing page for





both new and existing contributors to find resources by bringing onboarding documentation to one place. New contributors will notice the Contributor Guide, which is a set of documentation for getting started, including using tools such as IRC, git, and Gerrit for all OpenStack project teams. Exploring further in the Contributor Portal, contributors are presented with specific contribution types and their correlating team. Each team can have specific onboarding documentation with the practices and tools used. Existing contributors will find resources to helpful reference links like community-wide goals, project tags, and more. Information on contributing to the Contributor Portal and Guide is found at <https://docs.openstack.org/contributors/contributing>.

## Upstream Institute

*by Kendall Nelson*

Upstream Institute reached more people than ever before in 2017. It was hosted in five countries and at two new types of events in addition to the usual Summits.

One-and-a-half-day training was held before both the Boston and Sydney Summits. The curriculum evolved to a more hands-on and interactive format to keep students engaged. More mentors, 33 in all, allowed more focused discussions and topics tailored to the students' interests.

To expand the location and audience reach, the training was also held at the OPNFV Summit and two OpenStack Days. The format of the course was altered to fit the style of the events: one day at OpenStack Days Nordics and "office hours" format at the OPNFV Summit and

OpenStack Days London. Office hours format allowed tailoring to the modules students were most interested in and extended question and answer time. These now-proven formats will allow additional reach in 2018 and beyond.

## First Contact SIG

*Kendall Nelson, Chair*

Shortly before the Sydney Summit, there were several mailing list threads on helping new people coming into the community get started and become effective contributors. These threads became the impetus for the First Contact Special Interest Group (SIG).

During the Sydney Forum and in subsequent conversations, the early team discussed resources available to help get new contributors up to speed, started a list of people willing to look out for them, and formed a general idea for how to handle newcomers to the community.

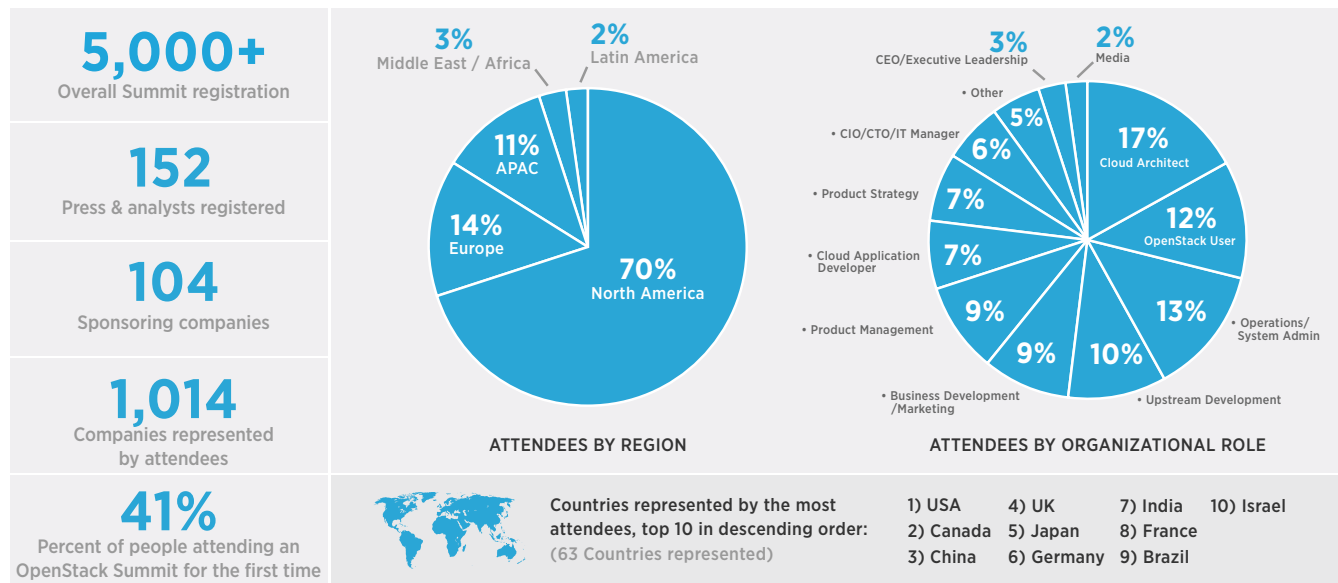
Subsequently, the new SIG was formed with the mission: To provide a place and group of people for new contributors to come for information and advice. New contributors are the future of OpenStack and the surrounding community. It's important to make sure they feel welcome and give them the tools to succeed.

The SIG currently has eight members spread across six time zones to be able to support new contributors no matter where they are based. Project liaisons are being identified to mentor new contributors and get them established in the specific project team. Eight different projects have liaisons to date, toward the goal of a liaison for every official OpenStack project.

# Summit Highlights

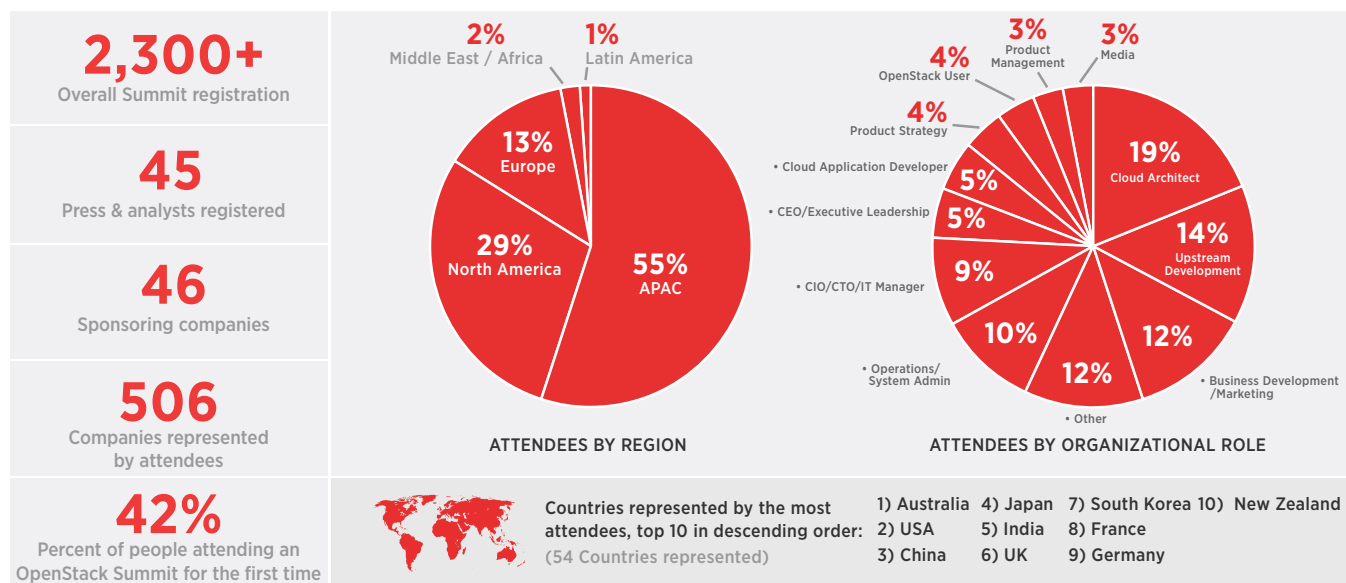
## BOSTON REGISTRATION METRICS

MAY 2017



## SYDNEY REGISTRATION METRICS

MAY 2017





## OpenDev: Edge Computing

by Claire Massey

In 2017 OpenStack Foundation hosted OpenDev, a new annual event that focuses on preparing the landscape for future technologies. The 2017 gathering, held in San Francisco, zeroed in on edge computing. Today, almost every company in every industry sector needs near-instant data to be successful. Edge computing pushes applications, data and computing power services away from centralized points to the logical extremes of a network. It enables companies to put the right data in the right place at the right time, enabling near-instantaneous analysis and action.

Edge computing represents a huge opportunity for composable open infrastructure. OpenDev was designed to facilitate collaboration at a technical level with productive, working group discussions about how to assemble and integrate the components needed to meet edge requirements. The discussions were technical and specific—it was not meant to be a vision or thought leadership event, but instead a practical step forward in improving the state of edge computing across open technology.

OpenDev 2017 brought together approximately 200 practitioners along with the brightest minds in the industry to collaborate around use cases, reference architectures and gap analysis. The event featured real-world edge use case demos from Verizon (which also demoed their cloud-in-a-box edge device at the Boston Summit), AT&T and eBay, in addition to updates from industry pioneers, including [cutting “edge” researchers](#)

from Carnegie Mellon University. The event was structured to have an impact on future development and integration efforts, achieved by collaboratively produced deliverables to share back with the industry and open source communities.

To ensure a broader view, there was an emphasis on demonstrating a diverse, industry-wide landscape by discussing use cases from “cloud in a box” that can be applicable in financial, retail or industrial environments, through universal Customer Premises Equipment (uCPE) to satellite enabled communication (SATCOM).

Overall, the working event was designed in a way to create focused, intimate and productive sharing of information. Takeaways from OpenDev, including the working session notes, gap analysis and other information, can be found at [opendevconf.com](http://opendevconf.com). Additionally, edge presentation videos, mailing list and weekly meeting information are available at [openstack.org/edge](http://openstack.org/edge). Operators from 10 organizations including

**VERIZON:** “For Verizon, being part of the community is essential for us in our deployment of a global OpenStack environment in support of the company’s Software Defined Networking strategy. The OpenStack community response to our interest in developing the Edge Computing use case has been fantastic. We are looking forward to more engagement in the coming years.”

**BETH COHEN**



Verizon, Walmart Labs, Ericsson, AT&T and Red Hat collaborated to deliver an edge white paper on February 14. It will provide preliminary background and the main characteristics to define a base ground and further explore the common factors and characteristics of edge computing use cases.

## Kata Containers Project

*by Claire Massey*

In 2017, the OpenStack Foundation leadership announced a plan to incubate new strategic focus areas and pilot projects that align with the goal for OpenStack to become the home of open infrastructure. In addition to the existing datacenter cloud infrastructure area, the Foundation's new strategic focus areas include container infrastructure, edge computing infrastructure and CI/CD infrastructure.

In December, the OpenStack Foundation launched its first new open source project in the container infrastructure area. The pilot project, Kata Containers, is a novel implementation of a lightweight virtual machine that seamlessly integrates within the container ecosystem. Kata Containers are as light and fast as containers and integrate with container management layers, while also delivering the security advantages of VMs.

Kata Containers is a merger of two existing open source projects: Intel Clear Containers and Hyper runV. The new project brings together the best of both technologies

with a common vision of retooling virtualization to fit container-native applications. The Kata Containers project will initially comprise six components, including the Agent, Runtime, Proxy, Shim, Kernel and packaging of QEMU 2.9. It is designed to be architecture agnostic, run on multiple hypervisors and be compatible with the OCI specification for Docker containers and CRI for Kubernetes.

In addition to contributions from Intel and Hyper, the following companies supported the project at launch: 99cloud, AWScloud, Canonical, China Mobile, City Network, CoreOS, Dell/EMC, EasyStack, Fiberhome, Google, Huawei, JD.com, Mirantis, NetApp, Red Hat, SUSE, Tencent, Ucloud, UnitedStack and ZTE.

The code is hosted on Github under the Apache 2 license and the project is managed by the OpenStack Foundation. Learn about the project, how to contribute and support the community at [katacontainers.io](https://katacontainers.io).

## OpenLab

*by Melvin Hillsman*

At the OpenStack Summit in Sydney, OpenLab was announced—a community-led program to test and improve support for the most popular Software Development Kits (SDKs), platforms like Kubernetes, Terraform, Cloud Foundry and more, on OpenStack. The goal is to improve the integration, usability, reliability and resiliency of tools and applications for hybrid and multi-cloud environments.



Huawei and Intel are both contributing full-time contributor resources and infrastructure to the project at its launch, and Open Telekom Cloud and VEXXHOST are providing OpenStack Powered public



Source projects, integrating more OpenStack SDKs, and seeking to establish solid relationships amongst different Open Source communities.

## PTGs/Forums

*by Thierry Carrez*

Over the past year, a new format for discussing and working on the future of OpenStack was rolled out, replacing “Ops Summit” and “Design Summit” events held at OpenStack Summits. The all-Summit events-within-events resulted in a busy week where developers were trying to get work done, and artificial barriers between ops and devs with separate events. In order to get everyone to talk together on the same footing, while freeing developers to engage with the rest of the community, the development team now has its own event, the Projects Team Gathering (PTG). The Ops and Design Summits were merged into a single cross-community discussion event during the Summits called the Forum. Release cycles were adjusted to have the PTG work sessions at the start of the cycle and Summits further away from releases, giving time for users and integrators to work with a new release before talking about it at Summits.

The first PTG was held in Atlanta in February and the second one in Denver in September. They were very successful in establishing a calm, productive environment for OpenStack project team members to discuss the details of the upcoming development cycle and kickstart the work. The first Forum took place in Boston in May and the second in Sydney in November.

**VEXXHOST:** “We’ve added Kubernetes using Magnum on Pike by working with the Magnum team. We’ve participated in the Interop challenge during the Boston summit and have contributed in hosting OpenStack Canada day. Our co-founder Mohammed Naser, PTL for Puppet OpenStack, has given talks at Montreal, Ottawa and Toronto OpenStack meetups.”

**HIND NASER**

cloud infrastructure for testing. OpenLab is in the formative stages and looking for additional contributors, infrastructure, and feedback.

In 2017, OpenLab fully integrated with gophercloud (OpenStack SDK for Go) and Terraform (an OpenStack provider) to provide developers with a stable environment, consistent job definition via Ansible playbooks, and a path to additional integration with other Open Source projects that use the same approach and tooling to their CI/CD; whether through OpenLab or another project.

In 2018, OpenLab will continue its work by increasing the infrastructure footprint, onboarding additional Open



They successfully brought together people with more of an operational background together with upstream developers. In 2018, the event structure will continue to evolve to better facilitate current and forward-looking development.

## Passport Program

*by Chris Hoge and Tobias Rydberg*

The OpenStack Public Cloud Passport Program was launched at the Summit in Sydney in November. The Passport Program is an initiative from the Public Cloud Working Group to provide a unified way for users to access free trial accounts from OpenStack public cloud providers around the world, which allows them to experience the freedom, performance and interoperability of open source infrastructure.

At the release, the program offered access to 10 public cloud providers in 20 countries, with a total of more than 60 availability zones spread across the globe. Collectively this represents the broadest, geographically diverse public cloud footprint available--and gives new OpenStack users an opportunity to use a free OpenStack cloud matched to their locality and geographical needs.

In early 2018, the Public Cloud working group plans to grow membership in the Passport Program, expanding the participating clouds and locality footprint in the runup to the OpenStack Summit in Vancouver. There is also active interest in expanding the program with community research clouds that only are available for universities or scientists. To make it easier for the end

users to find available public clouds that meet their specific needs, an even more fine-grained filtering of public clouds and their offerings have been added to the roadmap for next release.

# Committee Reports

## Technical Committee

*Thierry Carrez, Chair*

2017 was a transitional year for the OpenStack open source project as a critical mass of components are now mature and adoption is on the rise. Over the past year, 2,344 developers wrote, reviewed and approved 65823 changes to official OpenStack projects.

**OVH:** “We work in many areas in the community, from technical contributions with patches, reviews and feedbacks, to marketing actions like participating in events or promoting OpenStack. We’re also one of the initial participants in the OpenStack Passport program. In practice, we also provide resources to the community for the CI/CD and for the OpenStack Academy workshops in Barcelona, Boston, and Sydney.”

**JEAN-DANIEL BONNETOT**

We published two releases in 2017, Ocata and Pike, and successfully drove three cross-project release goals to completion: removing local copies of Oslo code, deploying control plane API endpoints via WSGL, and Python 3.5 support.

We added six new project teams in 2017: Blazar (Resource reservation service), Cyborg (Accelerator Life Cycle Management), Masakari (Instances High Availability Service), OpenStackSDK (multi-cloud Python SDK for end users), OpenStack-Helm (Helm charts to deploy OpenStack) and LOCI (lightweight container images for OpenStack deployment). During the same period, we retired four project teams: Fuel, App Catalog, UX and Packaging-Deb.

The OpenStack Technical Committee (TC) itself started the 2017 year by writing and publishing a vision, painting a picture of a desirable future for the TC and by extension for the OpenStack community. Work is still in progress in implementing that vision (which goes through the year 2019), but significant progress was made in key areas.

One such area is growing new leaders. The Technical Committee leads by example, and significantly renewed its membership through two election rounds. The TC welcomed Chris Dent, Colleen Murphy, Julia Kreger, Paul Belanger and Sean McGinnis to the group, while thanking Matt Treinish, Mike Perez, Monty Taylor, Sean Dague and Steve Martinelli for their past service.

Another area in the vision is about including a wider community into OpenStack development by fostering

**2,344**

DEVELOPERS APPROVED

**65,823**

CHANGES

**2**

RELEASES

OCATA & PIKE

**6**

NEW PROJECT

TEAMS



better geographical and gender diversity and turning our users into contributors. The Technical Committee took active steps in 2017 in that direction. To be more inclusive of people living in other geographies, weekly meetings were eliminated in favor of more asynchronous discussions and TC “office hours” held at various times during the week. We engaged with the User Committee to reduce the barriers between operators and developers of the OpenStack software, creating new workgroups called SIGs (Special Interest Groups) around communities of practice and shared interests rather than ‘dev’ and ‘ops’ labels.

2017 brought significant progress around engaging with other communities, another component of the vision. The TC shared their experience and learning from others, and made OpenStack components more reusable and reused other communities’ components where it made sense. etcd was adopted as an OpenStack base service to encourage all projects to take advantage of it for coordination. We actively engaged with other communities, in particular the Kubernetes community, to trade community stories and experiences.

Beyond the vision, the TC built and published a list called the “help most needed” list, detailing where our community can use more support. The list currently encourages investing in documentation owners, infrastructure sysadmins, cross-project goal champions, and contributors to the Designate and Glance teams.

## User Committee

*Melvin Hillsman, Edgar Magana, Saverio Proto, Shamail Tahir, Matt VanWinkle, Committee Members*

The User Committee (UC) held elections for the first time in February 2017, with all Active User Contributors (AUC) able to vote. Two new members were elected for one-year terms. This marks a major milestone for the User Committee as it empowers the community to select its own representation. The goal is to hold elections annually with two members elected in one cycle and three in another in order to ensure continuity.

The User Committee provides guidelines for community-led working groups, each of whom represents different audiences and interests, by setting base criteria, evaluating new group requests (primarily to alleviate overlaps), and providing a mailing list for communications. On the back end, the UC represent the needs of the groups to the Forum.

The User Committee participated in the creation of the Forum schedule for the OpenStack Summit events in Boston and Sydney. The Forums represent the intersection of topics that require collaboration between all members of our community whether they are developers, ecosystem members, or users. The User Committee strongly believes that the Forum events create important dialogue in the community and will continue to support this event in the future.

**95%**  
INCREASE IN  
DEPLOYMENTS

**33%**  
SURVEY RESPONDENTS  
FROM ASIA

**28%**  
SURVEY RESPONDENTS  
FROM UNITED STATES

The User Committee plans to increase local user group and upstream community collaboration, continue to amplify the voice of our users, and surface cross-project collaboration opportunities in line with the open infrastructure model for the OpenStack Foundation in 2018.

In 2017, the OpenStack User Survey saw a 95% increase in deployments compared to 2016, highlighting the diversity of OpenStack adoption among non-IT industries, including financial services, telecom / NFV, retail, research and government / defense. 48% of OpenStack survey respondents also indicated that users of their OpenStack deployment interact with another cloud, demonstrating the multi-cloud trend highlighted by recent case studies from Workday, GE Healthcare and Adobe Marketing Cloud.

In July 2017, the OpenStack User Survey was available in English and translated into six additional languages—traditional and simplified Chinese, French, German, Indonesian, Japanese and Korean. This feature is a factor that led to Asia accounting for 33% of overall survey respondents in 2017, compared to 23% in 2016. The increase was heavily influenced by participation in China, which accounted for 17% of overall respondents, second to the United States at 28%.

**NTT:** “We’ve been actively contributing to the community from both dev and ops perspective. We have 20+ developers including two PTLs and four core reviewers constantly contributing to the code. We’ve attended most of the Ops Meetups to share our experiences and will be hosting the 2018’s first Ops Meetup in Tokyo.”

**SHINTARO MIZUNO**

## The OpenStack User Survey

The twice-yearly User Survey is developed in collaboration with the User Committee, the User Survey Analysis team and an independent data scientist. The Foundation is responsible for overall execution. The survey is always available; two snapshots are taken each year prior to the Summits. A comprehensive (60-page) [report](#) was published in April, as well as a new online [dashboard](#) allowing ad-hoc survey analysis. An [abbreviated report](#) was published in October that leveraged the dashboard.

## Case Studies highlight OpenStack adoption’s industry and geographical diversity

In 2017, more than 60 case studies were published, demonstrating how users are adopting OpenStack, organizational impact, OpenStack workloads and feedback to the developer community.

Consistent with the findings from the OpenStack User Survey, case studies highlighted a broad range of industries as well as geographical diversity—Gap Inc., China UnionPay, Insurance Australia Group (IAG), China Railway Corporation, Commonwealth Bank, Tencent



(which powers the Chinese social platform WeChat), American Airlines, Workday, the United States Army Cyber School, GE Healthcare, and Yahoo! To increase the discoverability of this content, industry and location filters were added to [openstack.org/users](https://openstack.org/users).

**CHINA RAILWAY:** “In 2017, China Railway Information Technology Center (CRITC) actively participated in the OpenStack community. We feel our strongest contribution is sharing our experience on how to implement 10,000 virtual machines through 800 servers in a single region, which fully demonstrates the capabilities of OpenStack. We spoke twice at the Boston Summit, gave three presentations at OpenStack Days China (one co-delivered with Intel), held four sessions at Sydney Summit, and have written several white papers. We have contributed 770 patch sets, 6417 lines of code, and submitted 72 bugs together with our partner T2Cloud. We were selected as a top four finalist for the Sydney Superuser awards; read the details of our environment in the [nomination](#). We are honored to have received this quote from Jonathan Bryce, Executive Director, OpenStack Foundation: ‘These case studies are amazing!’

**MINGXING GAO**

# Working Groups and SIGs

The extended OpenStack community organizes working groups and new special interest groups around topics of interest. The Foundation supports them on [openstack.org](https://openstack.org) and at times, with publishing resources. These are their accomplishments for 2017.

## Interop Working Group & OpenStack Powered Program

*Egle Sigler, Co-Chair; Mark Voelker, Co-Chair;  
Chris Hoge, Secretary*

In 2017, the Interop Working Group continued to deliver board-approved interoperability guidelines for the OpenStack Powered trademark program. The two guidelines, 2017.01 and 2017.09, were mostly iterative updates, adding availability zones, advanced volume capabilities, and additional identity management capabilities. Since the launch of the OpenStack Powered Program in 2015, the Interop Working Group has grown from a modest set of capabilities to a full set of core capabilities expected to be available across all OpenStack products. Moving forward, the group has started working on expanding the interoperability and trademark programs by introducing “Add-ons”—guidelines for capabilities that add to the APIs of an

existing OpenStack Powered Cloud, and “Verticals”—guidelines for the clouds that provide use case-specific capabilities.

### 2017 ACCOMPLISHMENTS:

- Released two guidelines.
- Updated guideline schema to allow for Powered Program expansion.
- Proposed two new add-on programs for advisory status:
  - DNS (Designate)
  - Orchestration (Heat)
- 46 active and up-to-date OpenStack Powered products in the Marketplace:
  - 24 Distributions
  - 15 Hosted or Managed Private Clouds
  - 7 Public Clouds

### 2018 PRIORITIES:

- Approval of add-on programs in February with official launch in 1H 2018.
  - First add-on programs will be DNS (Designate) and Orchestration (Heat).

2

GUIDELINES  
RELEASED

2

PROPOSED ADD-ON  
PROGRAMS

46

ACTIVE  
PRODUCTS IN THE  
MARKETPLACE



- Further relationships with PTLs, developers and QA; work closely with RefStack team at Dublin PTG.
- Continued development and pilot vertical program covering the NFV use case with OPNFV.
- Begin to require sub-unit data from test results to strengthen conformance guarantees and aid vendors in test setup debugging.
- Work with the Technical Committee on formulating project testing requirements for program expansion.
- Explore potential standalone vertical programs to cover commonly used cloud APIs, such as block storage and networking.

## Roadmap Team

*Anne Bertucio, Team lead*

The Roadmap Team produced two community-generated roadmaps in 2017: Pike and Queens. The Pike roadmap followed the model from the Newton and Ocata roadmaps: the Product Working Group sent a survey to PTLs asking them to rank their release priorities from seven predetermined categories. The results were presented at the Boston Summit and can be viewed [here](#).

Feedback from developers and roadmap users indicated the need for more flexibility to provide the depth of information required for decision-making.

The [Queens roadmap](#) is a transitional one while the Roadmap Team re-evaluates what information should

be communicated and how it should be collected. The Queens roadmap showcased 10 significant features. For the Rocky release and beyond, the Roadmap Team will create a more in-depth document that helps people who are evaluating OpenStack, and shares critical information with end users and ecosystem product managers. The stakeholder surveys began in early January 2018.

## Diversity Working Group

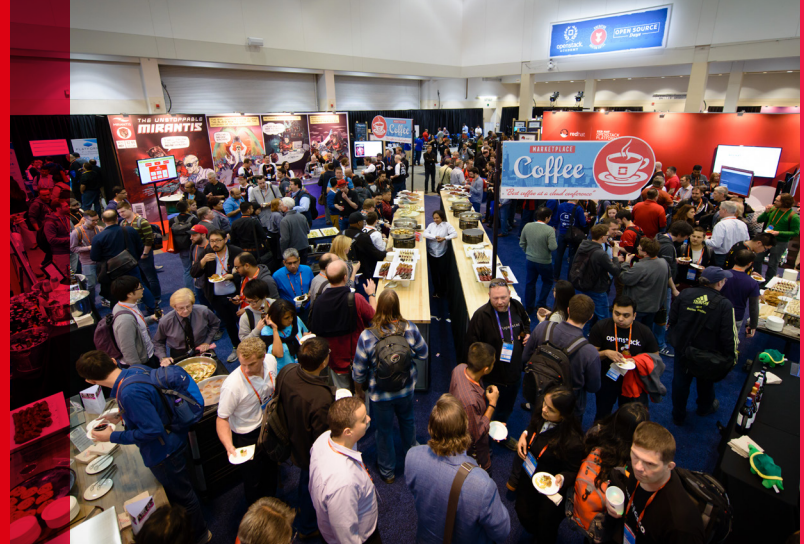
*Amy Marrich, Chair*

With renewed interest within the community, the group held a well-attended kick-off meeting in early December. The group is working on a new diversity survey with the plan to present the data at the Vancouver Summit in May. In addition, the group is working with the CHAOSS (Community Health Analytics Open Source Software) initiative to have the collected data implemented and utilized there as well. CHAOSS is a Linux Foundation project to define metrics that analyze the health of participating open source projects.

## Enterprise Working Group

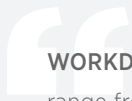
*Yih Leong Sun, PhD, Chair*

Since the inception over three years ago, the Enterprise WG has enjoyed strong participation from a broad range of community members including OpenStack software vendors, service providers, system integrators, operators and users.



In 2017, the team published its third book: *Designing, Migrating and Deploying Applications: A Guide to Cloud Applications on OpenStack*. This book provides recommendations, guidance, best practices and migration patterns on how to move applications into an OpenStack private cloud. The team also published the eCommerce workload reference architecture and an in-depth case study with Workday.

Workload Reference Architecture work is continuing in the form of a SIG. The reference architecture sample code ([big data](#), [web applications](#), [e-Commerce](#), and containers coming soon) will be maintained at GitHub (<https://github.com/openstack/workload-ref-archs>). All community members are welcome to contribute to the repository.



**WORKDAY:** “Workday’s contributions to OpenStack range from coding and code reviews to governance. Many contributions have been focused on fulfilling security requirements for enterprises. Workday engineers speak regularly at the bi-annual OpenStack Summits, sharing their experiences with other users and collaborating on requirements with OpenStack developers. We expand on how contributing to OpenStack helps drive our company’s innovation, growth, and revenue in this [opensource.com article](#).”

**EDGAR MAGANA**

Over the past three years, the team was successful in helping enterprises adopt OpenStack, as measured by the large number of enterprise successes and positive analyst feedback. Since the original goals have been achieved, the group has been discontinued in favor of more specific work. Thanks go to all contributors and organizations!

Group members will continue to contribute to the community, such as with the Financial Services team and new Special Interest Groups (SIGs). The EWG’s

## Public Cloud Working Group

*Tobias Rydberg, Howard Huang, Co-chairs*

In late 2016, representatives from public cloud providers underpinning their business on OpenStack recognized the value of collaborating and presenting requirements as a group, since the use cases of public and private cloud are quite different. The working group was made official in approximately May 2017.

Members represent public clouds from New Zealand “down under” to Sweden in northern Europe. The group meets on IRC and in person at Summits to define new goals and focus areas for the upcoming cycle.

The first meetings were held in 2017 at OpenStack Days London and the Nordics. The group developed the OpenStack Public Cloud Feature Wishlist—focusing on features, improvements or bugs the group feels are important to address. The Public Cloud Passport Program was the focus of the latter half of the year. This exciting program was launched at the Sydney Summit. The participating public cloud providers teamed up to offer free trials to users around the world, allowing prospective users to experience OpenStack infrastructure, risk free.



In 2018, the OpenStack Public Cloud Feature Wishlist and Public Cloud Passport Program will expand to the next level! With the huge interest for both initiatives, and for OpenStack public cloud in general, the working group is very excited to continue the mission.

## Financial Services Team

*by Lijun Zu and Yih Leong Sun, PhD*

OpenStack has been deployed by many financial institutions as the underlying cloud infrastructure. Experience shows that there are needs in the areas of security, networking, regulation compliance, etc., to be addressed in order to promote OpenStack as a defacto cloud framework for the industry. With this vision in mind, China UnionPay, Bank of China and Industrial Bank established the Financial Services Team. The team was officially inaugurated at the OpenStack Summit in Sydney in November. The scope of the Financial Services Team includes: (1) identify OpenStack use cases for the finance industry; (2) promote financial cloud reference architectures; (3) perform gap analysis and collaborate on requirements with the upstream developer community; and (4) share success stories and best practices.

In 2018, the team will focus on gap analysis of OpenStack components such as Neutron and ironic in the financial context. The team also plans to organize a joint research project to address the requirements of a multi-site, cross data-center financial cloud environment. The team will participate and contribute in various open source conferences to share findings and deliverables. Financial services institutions, research

and ecosystem members are welcome to join! For more information or to get involved, please visit [https://wiki.openstack.org/wiki/Financial\\_Team](https://wiki.openstack.org/wiki/Financial_Team).

## Special Interest Groups (SIGs)

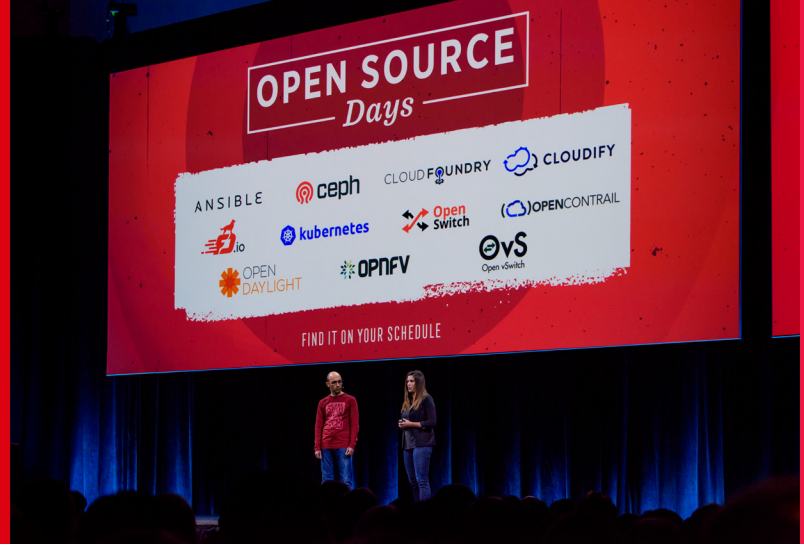
*by Melvin Hillsman, Thierry Carrez*

The OpenStack SIGs are a form of working group in OpenStack that is an emanation of the community as a whole and is not directly tied to a specific governance body.

**UNIONPAY:** “In 2012, UnionPay became the first OpenStack financial cloud operating in China, reaching over 500 million users across 162 countries and regions in 2017. The company presented their experiences at OpenStack Days, the Ops Midcycle, and the Sydney Summit and contributes to the developers’ forums. In 2017, we collaborated with other organizations and launched the Financial Services team to address gaps and challenges of deploying a Financial Cloud.”

**LINJU ZU**

SIGs are a good match for an activity that centers around a topic or practice that spans the community (developers, operators, end users, etc.), by forming a guild of people with a shared interest. SIG members communicate through the new openstack-sigs mailing list. SIGs began forming in 2H 2017. Some were previously working groups; others are new.



## Meta SIG

*Melvin Hillsman, Thierry Carrez, Co-chairs*

The Meta SIG is tasked with discussing, encouraging, promoting and helping OpenStack SIGs themselves, with an end goal of breaking barriers between users and developers of OpenStack. In 2017, this SIG created and deployed the SIG concept and encouraged SIG establishment. For more information and links to all current SIGs, please visit <https://governance.openstack.org/sigs/>.

## API SIG

*Chris Dent, Co-chair*

This SIG is the home for discussion on all issues related to the development and use of APIs in the OpenStack ecosystem. The group formed a significant new relationship with the developers of SDKs in the broader cloud world. On the API guideline front, two documents were published (amongst many other minor improvements): a revision of the [Ensuring API Interoperability](#) document and a formal explanation of [Consuming \[the\] Service Catalog](#).

## FEMDC SIG

*Adrien Lebre, Paul-Andre Raymond, Co-chairs*

Created in 2016, the goal of the Fog/Edge/Massively Distributed Clouds SIG (formerly Massively Distributed WG) is to guide the OpenStack community to best address fog/edge computing use cases—defined as the supervision and use of a large number of remote mini/micro/nano data centers through a collaborative

OpenStack system. The FEMDC SIG advances the topic through debate and investigation of requirements for various implementation options.

2017 has been a transformative year for the FEMDC, from a forward-looking group supported by academic members into one of the key focus areas within the OpenStack landscape. The Foundation helped bring edge computing to the strategic forefront beginning at the Boston Summit, then with the edge-focused OpenDev event in San Francisco, and more recently, edge working sessions, where several people have been advancing concrete actions, providing new inputs and enabling OpenStack to move forward on these topics. A white paper will be published in early 2018. For more information on edge computing and to join the SIG, visit [www.openstack.org/edge](http://www.openstack.org/edge).

## Scientific SIG

*Stig Telfer, Blair Bethwaite, Martial Michel, Co-chairs*

The Scientific SIG advocates research computing use cases while sharing best practices in using OpenStack and the multi-cloud among its members. The group meets on IRC and in-person during the Summits, where members present some of the work they have performed since the last Summit, understand the research topics and help inform other SIG and Working Groups of gaps in capability or knowledge for research computing use cases. The group performs outreach activities among the wider scientific computing community, organizing community sessions at international conferences and regional events.



During the year, the working group chairs presented on applications of OpenStack in scientific computing at several regional conferences (e.g., HPCAC Switzerland, HPCAC Perth, OpenStack Day London, OpenStack Day Melbourne, eResearch NZ), and successfully ran the second OpenStack in HPC BoF at Supercomputing 2017. An updated edition of the SIG's book, "[The Crossroads of Cloud and HPC: OpenStack for Scientific Research](#)", was published (with the assistance of the OpenStack Foundation) and distributed during the Sydney Summit and Supercomputing 2017.

## **Self-healing SIG**

*Adam Spiers, Eric Kao, Co-chairs*

The Self-healing SIG was formed in November 2017, to coordinate the use and development of OpenStack projects which can be combined to manage OpenStack infrastructure in a policy-driven fashion, reacting to failures and other events by automatic healing services.

On the development side, the SIG aims to help strengthen and grow the links between projects. Other goals include collecting feedback from operators to inform the direction of future development, and helping to improve documentation and other relevant resources around self-healing, in order to raise awareness of existing functionality and enable more OpenStack clouds to benefit from it.

# Other

## Navigating OpenStack

by Thierry Carrez

OpenStack, as a framework of open infrastructure components, has always been difficult to represent and navigate. The [Project Navigator](#), launched in 2016, helped by clearly showing each component role as well as its degree of maturity. In March 2017, a leadership workshop set the strategic goal of better communication about OpenStack.

The priority was determined to be a map of the various OpenStack components that one may opt to install, categorized based on the roles of who actually uses them.

The resulting opinionated map was introduced at the Sydney Summit (see current version at <https://www.openstack.org/openstack-map>). It shows first-order deliverables, separated in a number of buckets. The central “openstack” bucket shows the user-facing service components that infrastructure providers may choose to deploy. The right-side “openstack-operations” bucket shows additional services that operators of

OpenStack infrastructure may consider to facilitate maintenance of their infrastructure. The bottom “openstack-lifecyclemanagement” bucket contains community tools and packaging recipes operators can use to deploy OpenStack components. The top-left “openstack-user” bucket shows SDKs and libraries that end users of cloud services can install to interact with an OpenStack cloud. The bottom-left “openstack-adjacentenablers” are pieces that can be deployed to leverage OpenStack services within other open infrastructure technologies.

OpenStack provides the proven infrastructure components that higher-level technologies and solutions rely on, such as Kubernetes and NFV. When looking to compose open infrastructure, users can opt to implement only the services required. Based on the map, the [software](#) section of the website was updated to highlight the composability of OpenStack services with the new categories and project-specific mascots. The OpenStack map will be refreshed as the landscape of OpenStack components evolves in the future, and the Project Navigator updated accordingly.





## OpenStack Days

by Denise Ridolfo

OpenStack Days assembles hundreds of IT executives, cloud operators and technology providers to discuss cloud computing and to learn about OpenStack. These regional events are organized and hosted by the local OpenStack community over one or two days and typically include keynotes, breakout sessions, upstream training and even workshops. This type of local event provides opportunities to hear directly from prominent

OpenStack leaders and users, to network with local OpenStack supporters, and to get plugged into the local OpenStack community. In 2017, the OpenStack community organized 17 OpenStack Day events reaching over 9,800 people interested in OpenStack around the world.

## Hackathons

by Denise Ridolfo

OpenStack Hackathons bring together hundreds of technologists in a supportive learning environment to practice their skills with the latest cloud tools. The value of a hackathon is multifold:

- Help app developers build knowledge and skill for cloud-native applications.
- Develop new relationships and discover new talent in local communities.
- Practice collaboration and working as a team across various roles.
- Understand the value of open source and how to participate in the open source community.

For team members of all roles—application development, devops, UX, sysadmin, or network engineering—hackathons are a great way to rapidly learn in a fun and competitive environment.

In 2017, the Rio de Janeiro community hosted its first OpenStack Hackathon. This hackathon was focused on building smart cities from cloud applications, which

“

**PADDY POWER BETFAIR:** “We’ve presented at several sessions at the 2017 Open Summits and OpenStack Days UK. We have also spoken at the Romania meetup, the London DevOps conference and other industry events, where we advocate OpenStack on a regular basis. Paddy Power Betfair developers and operators contribute to Triple O; Manila; Shade; and with the Infrastructure team, Zuul CI for testing. In the future, we plan to contribute Ansible modules such that they can be used by the community to carry out any Manila file service project operation. We wrote a [white paper](#) about our i2 (second generation infrastructure) private cloud to share our reference architecture with other companies. We have also shared the challenges we have had with the community in [blogs](#).”

**STEVEN ARMSTRONG**



connect people and the environment to improve overall societal wellness such as public health, education for children, safety, accessibility and mobility. The very successful Rio de Janeiro Hackathon had a total of 14 teams, 67 hackers, 11 volunteers, 20 mentors, eight judges, 40 visitors and an overall attendance of 160 people including a keynote Rio de Janeiro SMDEI—Municipal Secretary of Development, Employment and Innovation. For more information, including the winning team and their platform for the visually impaired, read this [Superuser article](#). The four-person team won funding for their trip to the OpenStack Summit in Vancouver in May 2018! Stay tuned for more hackathons in 2018.

## Certified OpenStack Administrator

*By Anne Bertucio*

In 2017, the COA program focused on growing the number of test takers and increasing the exam's global availability. Responding to user feedback from 2016, the COA team made significant changes to the exam's user interface and question readability, particularly thinking of test takers with lower English proficiency. Docs were made more discoverable, exam resources were consolidated in one place, and all questions were reformatted to reduce narration and crisply display the necessary tasks.

In 2017, 1,328 exams were administered to 960 individuals (all test takers are given one retake opportunity). This brings the program's totals to 2,050

tests administered to 1,523 unique individuals with an overall passing rate of 69% for its 20-month run. The passing rate increased in 2017; this could be attributed to: (1) increased activity from training partners; (2) increased understanding of how to prepare for the exam; (3) the above changes to UI and question readability; and (4) increased geographic availability, including access in China, a market that was eagerly awaiting the exam.

For 2018, the COA program will continue to focus on growing the number of yearly test takers by, in part, finding new outlets and venues where OpenStack administrators gather.

## Press & Analyst Highlights

*by Robert Cathey, Jennifer Fowler*

### Superuser Magazine

The Foundation continued to support the popular [Superuser](#) publication, covering the open infrastructure ecosystem and case studies. Readership grew over 25% to reach nearly 200,000 unique visitors in 2017. Editors and contributors are members of the [OpenStack Foundation](#), the OpenStack and adjacent open source communities, and professional journalists.

### Public Relations

Public relations efforts in 2017 focused on supporting the Foundation's core messages:



## OpenStack is the ideal infrastructure platform for a multi-cloud world:

- One platform for bare metal, VMs and containers.
- Flexible and composable infrastructure for many use cases, ranging from software development to 5G networks and from high performance computing to edge computing.
- Interoperability across multiple OpenStack environments.
- 2nd generation private clouds, including remotely managed private clouds (Private Cloud-as-a-Service).
- Public cloud growth.

## OpenStack is experiencing a surge in adoption and deployment:

- Used by organizations large and small.
- Supported by a global community.
- A wide range of enterprise use cases.
- Considered essential for NFV and edge computing.

## The OpenStack Foundation is focused on integration among diverse open infrastructure technologies, encouraging collaboration and partnership.

- Open Source Days
- OpenDev event
- Launch of Kata Containers project

Public relations efforts are led by a distributed team of professionals in the U.S., Europe and APAC. This team engaged analysts and journalists worldwide in dialogue, proactively delivering Foundation news

and contributed content as well as responding to requests for information and interviews. Key initiatives surrounded the Ocata and Pike releases, the Boston and Sydney Summits, the addition of Platinum and Gold board members, and the release of significant research findings, including those of the biannual [OpenStack User Survey](#), a commissioned [telecom research report by Heavy Reading](#), and surveys conducted by Cloudify, SDxCentral and SUSE. The team also provided media and analyst relations support for several events beyond the OpenStack Summits, such as Mobile World Congress, OW2Con, and OpenStack Day gatherings held in Australia, China, France, Germany, Korea, Taiwan, The Netherlands and the UK.

A Meltwater analysis shows that OpenStack news coverage in 2017 was more than 90% positive or neutral and was distributed globally (4% Europe, 66% Americas, 30% APAC, by volume), earning more than 100,000 total placements. News highlights are available at [openstack.org/news](https://openstack.org/news).

## Analyst Relations

Analyst coverage of OpenStack in 2017 was widespread and predominantly positive, as illustrated by the following excerpts:

- “We think the progress the Foundation has achieved in seven years is remarkable .... The fact is that existential threats have been largely removed.... Indeed, the Foundation is now sold out of gold sponsorships, and there are mature OpenStack deployments.” — 451 Research, “The future of the OpenStack Foundation: The clue is in the stack,” 451 Research, Nov 2017



- “OpenStack has strategic relevance: German and international companies rely on OpenStack for their migration to a flexible and dynamic infrastructure.” — Crisp Research, “OpenStack: The journey continues—multi and hybrid cloud become more user friendly,” Oct 2017
- “The new emphasis on OpenStack use cases is a welcome development with positive implications for the platform’s future adoption. Specifically, it should help to provide enterprise IT decision makers with more tangible illustrations of how OpenStack can support their business objectives. Inevitably other OpenStack technology use cases will follow suit including for example, those dedicated to machine learning and artificial intelligence.” — Current Analysis, “OpenStack’s future depends on further simplification and better integration with external technologies,” Current Analysis, Dec 2017.
- “96 percent of those who already deploying an NFV strategy find OpenStack essential or important.” — Heavy Reading, “What telecom operators really think about OpenStack,” Nov 2017

- IDC: “OpenStack continues to garner momentum in the infrastructure hardware and software markets as enterprises and service providers prefer it over commercial alternatives for building public and private clouds.” — IDC, “OpenStack infrastructure ecosystem: adoption patterns, use cases and market outlook, part 3—market size and forecast,” Doc # US43091917, Sep 2017

For more information about analyst coverage of OpenStack, visit [openstack.org/analysts](https://openstack.org/analysts).

Find the digital version of this report online at <https://www.openstack.org/foundation>