



# Openstack - How to contribute?

OpenInfradays  
Mexico 2022

---

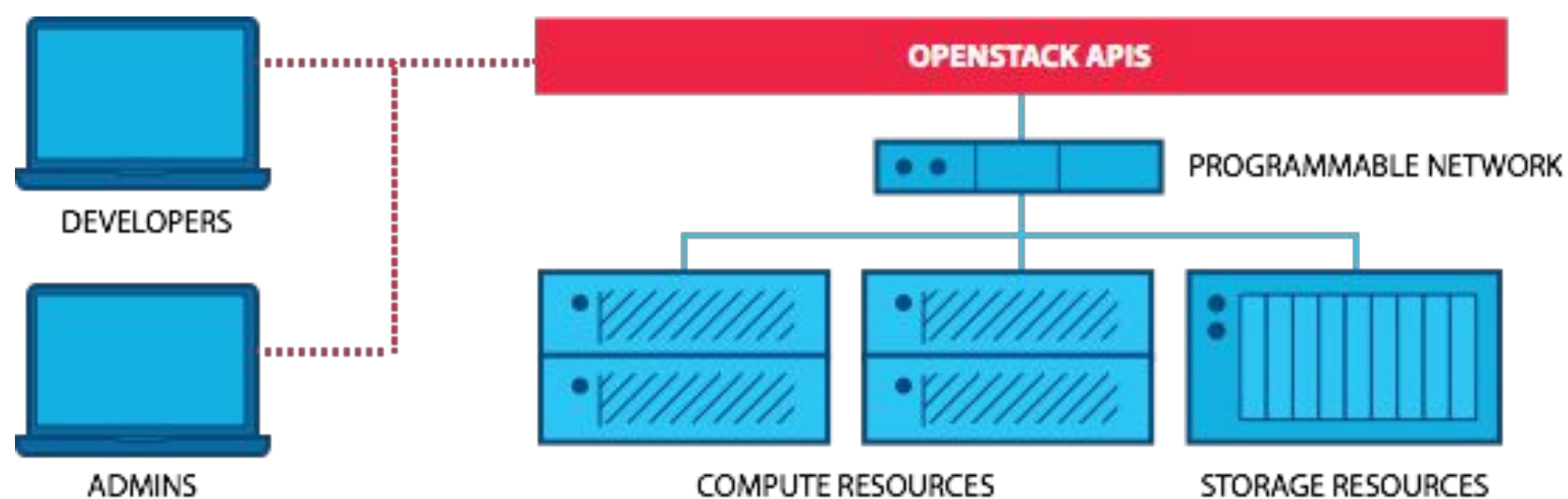
Our plan to get you from zero to core reviewer

## Agenda for today

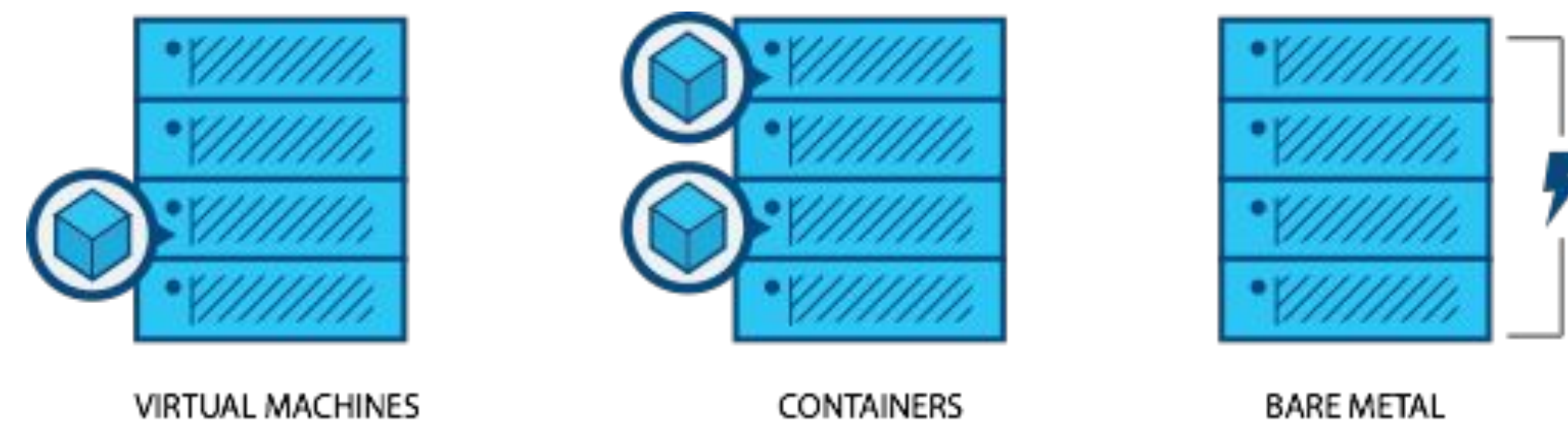
- OpenStack overview
- OpenStack communication channels
- Set up contributor accounts
- Community and Internship

WE ARE  
OPEN  
STACK

# What is OpenStack



**Programmable infrastructure** that lays a common set of APIs on top of compute, networking and storage



**One platform** for virtual machines, containers and bare metal

# OpenStack Cloud Models

THERE'S A GLOBAL SHIFT TOWARD CLOUD. THE BENEFITS: AGILITY, SCALABILITY, DECREASED HARDWARE COSTS.

**Public cloud:** shared resource, “pay-as-you-go” models are common. OpenStack public cloud is available in 60+ datacenters globally.

**Private Cloud:** dedicated to a single user. Can be hosted private cloud in a vendor’s data center or yours, or remotely managed private cloud.

**Hybrid cloud:** a mix of private cloud and public cloud orchestrated together to meet company needs

3 CLOUD MODELS



# OpenStack is open source

## HERE'S WHY THAT MATTERS

**Choice & control:** ability to choose between and switch vendors

**Ability to contribute** or directly influence the roadmap

**Widely adopted** open source APIs are the new standards

**Part of a vibrant community** to share knowledge and help each other

## OPENSTACK PRINCIPLES

1 OPEN SOURCE

2 OPEN DESIGN

3 OPEN DEVELOPMENT

4 OPEN COMMUNITY

WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# Primary business drivers

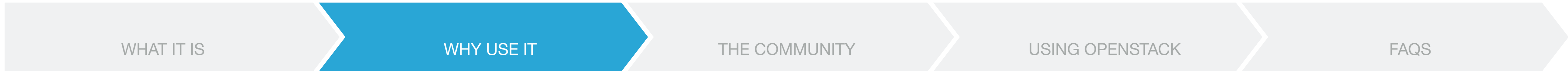
**#1 avoid vendor lock-in**

---

**#2 accelerate innovation**

---

**#3 operational efficiency**



# Which industries choose OpenStack?

## RETAIL/E-COMMERCE



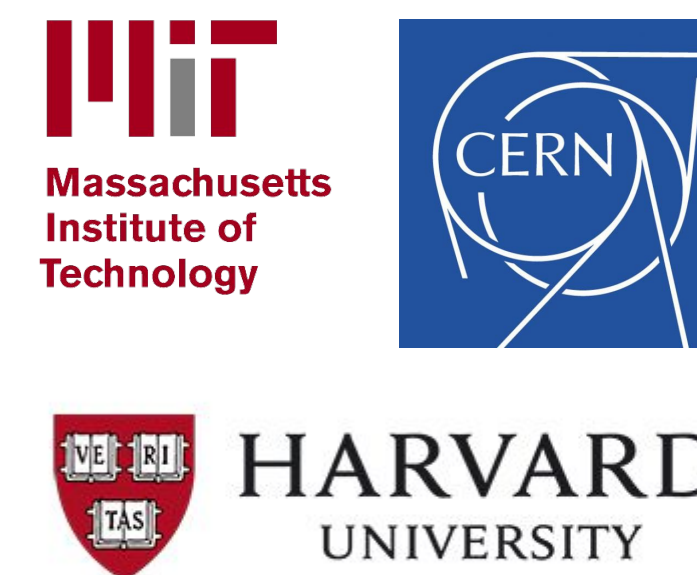
## FINANCIAL



## TELECOM



## ACADEMIC/RESEARCH



## ENERGY AND MANUFACTURING



## INSURANCE



## ENTERTAINMENT



See more at [openstack.org/user-stories](https://openstack.org/user-stories)



WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# What runs on OpenStack?

## TELECOM/NFV

**86% of telecoms** say OpenStack is important to their business; many are using OpenStack to virtualize their networks and implement edge computing to achieve agility significant cost savings.

## MULTI-CLOUD

**DigitalFilm Tree** uses interoperable OpenStack private and public clouds to process thousands of hours of raw footage into a one-hour TV show.

## HPC

**CERN** runs one of the largest OpenStack clouds to process data from the Large Hadron Collider, giving physicists the resources they need to unleash the secrets of the universe.

## E-COMMERCE

**Walmart** moved their global e-commerce platform to OpenStack, powering desktop, mobile, tablet and kiosk users.

## ENTERPRISE APPS

**Comcast** powers customer-facing and internal applications and services for both production and development environments with OpenStack.

## DEVELOPER PRODUCTIVITY

**Adobe** Digital Marketing uses OpenStack to convert their existing virtualization environment into self-service IT.

## BIG DATA

**Banco Santander** runs 1,000 compute nodes of OpenStack in data centers across the world, and uses Cloudera on OpenStack to power fraud detection.

## WEB SERVICES

**Workday** moved their on-demand software services from static, virtualized environments to a fully elastic and scalable platform based on OpenStack.

WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# History of OpenStack

2010

NASA + Rackspace develop the basis of OpenStack

2014

OpenStack Marketplace opens to showcase maturing ecosystem; "Juno" release seen as enterprise grade

2016 - April

Half the Fortune 100 run OpenStack; Certified OpenStack Administrator program launched

2017

OpenStack emerges as one platform for containers, VMs and bare metal

2012

OpenStack Foundation established

2015

OpenStack Powered interop certification launched

2016

China booms; 86% of telecoms say OpenStack important to their business

WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# About the OpenStack Foundation

Maintain infrastructure for development & communication

---

Coordinate software releases

---

Trademark and legal management

---

Host summits & development meetings

---

Promote the use of open source infrastructure projects

**[openstack.org/foundation](https://openstack.org/foundation)**

# OpenStack Foundation Sponsors

## PLATINUM MEMBERS



## GOLD MEMBERS



WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# The OpenStack Community



**81,000+**

MEMBERS



**187**

COUNTRIES



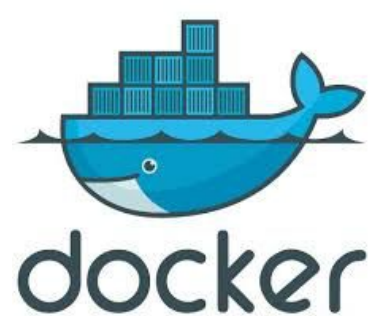
**670+**

ORGANIZATIONS

# Cross-community collaboration

OpenStack integrates with a number of other technologies, including many popular open source projects, enabling users to combine them with OpenStack.

## Containers



## PaaS



## NFV



## Provisioning



WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# OpenStack's software releases

USSURI  
May 2020

VICTORIA  
October 2020

WALLABY  
April 2021

XENA  
October 2021

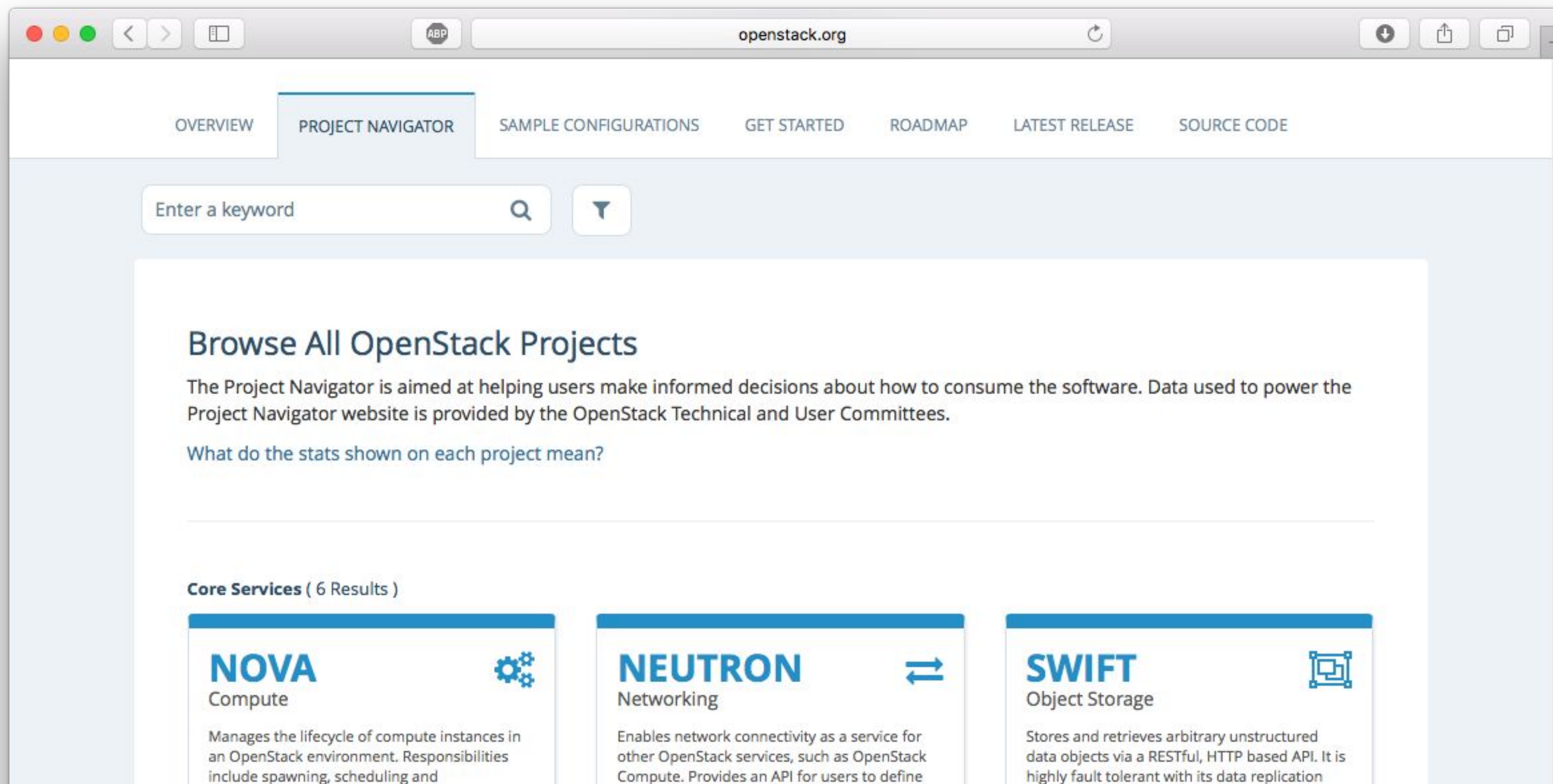
Releases happen  
every 6 months

In development

**Most clouds run one of the two most recent releases**

Learn more about the releases at [openstack.org/software](https://openstack.org/software)

# The OpenStack Framework



The screenshot shows the OpenStack Project Navigator website. The browser address bar displays "openstack.org". The navigation menu includes "OVERVIEW", "PROJECT NAVIGATOR", "SAMPLE CONFIGURATIONS", "GET STARTED", "ROADMAP", "LATEST RELEASE", and "SOURCE CODE". A search bar with the placeholder "Enter a keyword" is visible. The main content area is titled "Browse All OpenStack Projects" and contains the following text: "The Project Navigator is aimed at helping users make informed decisions about how to consume the software. Data used to power the Project Navigator website is provided by the OpenStack Technical and User Committees. What do the stats shown on each project mean?". Below this, there is a section for "Core Services ( 6 Results )" with three cards: "NOVA Compute" (with a gear icon), "NEUTRON Networking" (with a double-headed arrow icon), and "SWIFT Object Storage" (with a server rack icon). Each card includes a brief description of the service.

WHAT GETS CALLED  
OPENSTACK?

USING THE SAMPLE  
CONFIGURATIONS

CORE SERVICES &  
OPTIONAL SERVICES



WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# Gaining OpenStack skills

## Train who you have

### Training

[openstack.org/marketplace/training/](https://openstack.org/marketplace/training/)

## Certification

### Certified OpenStack Administrator

*Take by 1800+ people since April 2016*

[openstack.org/coa](https://openstack.org/coa)

WHAT IT IS

WHY USE IT

THE COMMUNITY

USING OPENSTACK

FAQS

# Next Steps

## How you can get started in OpenStack...

- 1 JOIN THE FOUNDATION: [OPENSTACK.ORG/JOIN](https://openstack.org/join)
- 2 LEARN HOW TO CONTRIBUTE: [OPENSTACK.ORG/COMMUNITY](https://openstack.org/community)
- 3 READ THIS: [DESIGNING, MIGRATING AND DEPLOYING APPLICATIONS](#)
- 4 ATTEND AN EVENT IN YOUR AREA: [OPENSTACK.ORG/EVENTS](https://openstack.org/events)
- 5 MORE RESOURCES: [OPENSTACK.ORG/SOFTWARE/START/](https://openstack.org/software/start/)

# Communication channels

---

## Chat with the community

# IRC

- Docs you can follow: <https://docs.openstack.org/contributors/common/irc.html>
- What is IRC
  - The OpenStack community uses Internet Relay Chat (IRC) as its primary chat service.
  - IRC allows you to
    - Communicate with project teams, technical committee, SIGs, and other Working Groups.
    - Participate in regular meetings with the above groups.
- Connect with us
  - <https://webchat.oftc.net/>
  - #openstack-dev (for development questions)

---

Start a discussion with the community

## Mailing lists

- Docs you can follow:  
<https://docs.openstack.org/contributors/common/communication.html#mailing-lists-ml>
- What are the mailing lists
  - Mailing lists are a way for people to communicate to a larger group than those that are on IRC. All emails on these lists are archived and available for everyone to see.
- Connect with us
  - Full list of mailing lists is available in <http://lists.openstack.org/cgi-bin/mailman/listinfo>
  - openstack-discuss is one of the lists with most traffic

# Contributor accounts

## Setup your Open Infrastructure Foundation account

Docs you can follow: <https://docs.openstack.org/contributors/common/accounts.html>

Why do we need the Open Infrastructure Foundation Account?

- Use the pair-reviews system (Gerrit)
  - Submit your contributions
  - Review other contributors code
- Vote in elections
- Run for elected positions in the OpenStack project
- Submit presentations to OpenStack conferences
- Vote on presentations at OpenStack conferences

# Setup your Open Infrastructure Foundation account

1. Go to the [openinfra.dev/join](https://openinfra.dev/join)
2. Under ‘Participate as an Individual Member’, click the **AS AN INDIVIDUAL FOUNDATION MEMBER** link.

## Participate as an Individual Member

Join over 100,000 community members from 187 countries to advance the future of open source. Everyone is welcome—the Open Infrastructure community is inclusive, diverse community, and all members agree to the Open Infrastructure Open Infrastructure [Community Code of Conduct](#).

**It’s free to participate as an individual Foundation member.**

A Foundation Member level has substantial opportunity as a member of the Open Infrastructure Foundation to impact the future direction of OIF supported projects and initiatives.

Here's how you can participate as an Open Infrastructure Foundation Individual Member:

- Have a Profile on Foundation web properties
- Vote on Foundation Board Member Elections - Required\*
- Run for office in Technical or Architectural Committees
- Run for the Open Infrastructure Foundation Board
- Participate in certain Project-Level Governance Initiatives
- Submit Proposed Summit Talks
- Vote on Proposed Summit Talks
- Participate in Community Events

PARTICIPATE **AS AN INDIVIDUAL FOUNDATION MEMBER**



## Setup your Open Infrastructure Foundation account

1. Read through the presented **individual member terms of service** and our **Community Code of Conduct**.
2. Fill in your name, e-mail address, and gender. **Use the same e-mail address at every step of the registration procedure.** This address will also be used as your login. Your gender information is available via public API.
3. Add your affiliation information and statement of interest. This will be visible only to foundation members.
4. Fill in your home address. This will be only visible to foundation members.
5. Fill in your password and check the box next to 'I'm not a robot'.
6. Submit your application.

## Setup your task tracker account

- Docs you can follow:  
<https://docs.openstack.org/contributors/common/accounts.html#setup-your-task-tracker-account>
- [Launchpad](#) is the legacy way the OpenStack community does bug tracking since we started [moving towards StoryBoard](#).
- [StoryBoard](#) is bug tracking software the OpenStack community is developing, and in the progress of migrating towards. [Some projects are already using it](#).

## Setup your task tracker account

1. Create an [Ubuntu One](#) account
2. Go to either Launchpad and StoryBoard
3. Login with the Ubuntu One account created

# Git and Gerrit

## Git and Gerrit

# Git

- Docs to follow: <https://docs.openstack.org/contributors/common/git.html>
- What is Git?
  - Git is a free and open source distributed version control system that the OpenStack community uses to manage changes to source code and documentation.
  - Git allows you to:
    - Push and test code, docs, infrastructure changes, and CI configurations
    - Push Specifications

## Git and Gerrit

# Git

- Install Git
  - [Packages available for Windows/Linux/Mac users](#)
- Configure Git
  - `git config --global user.name "Firstname Lastname"`
  - `git config --global user.email "your_email@youremail.com"`

## Gerrit

- Docs to follow: <https://docs.openstack.org/contributors/common/setup-gerrit.html>
- What is Gerrit?
  - This is the review system the OpenStack community uses.
  - Gerrit allows you to review:
    - Code, docs, infrastructure changes, and CI configurations
    - Specifications
    - Translations
    - Use cases for features

## Gerrit

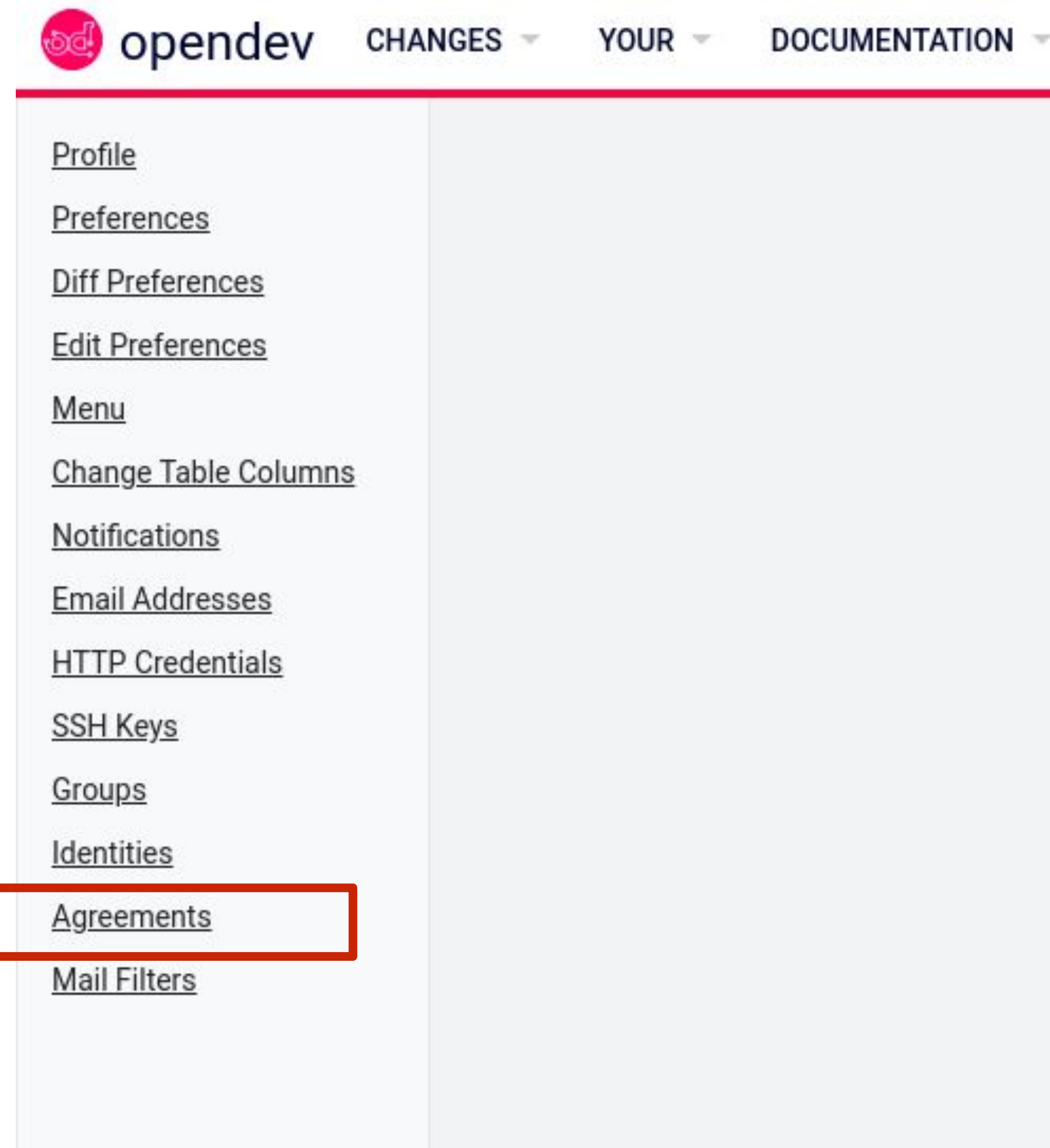
- Sign up
  - Visit [review.opendev.org](https://review.opendev.org) and click the sign in link.
  - You will be prompted to select a username. You can enter the same one you did for Launchpad, or something else.
  - **Choose and type your username carefully. Once it is set, you cannot change the username.**



## Git and Gerrit

# ICLA/CCLA

- Docs to follow:  
<https://docs.openstack.org/contributors/common/setup-gerrit.html#individual-contributor-license-agreement>
- Individual/Corporate Contributor License Agreement (ICLA/CCLA)
  - An agreement to clarify intellectual property rights granted with contributions from a person or entity. [Preview the full agreement.](#)
  - <https://review.opendev.org/settings/#Agreements>



The screenshot shows the OpenDev user interface. At the top, there is a navigation bar with the OpenDev logo, the text "opendev", and three dropdown menus: "CHANGES", "YOUR", and "DOCUMENTATION". Below the navigation bar is a sidebar menu with the following items: Profile, Preferences, Diff Preferences, Edit Preferences, Menu, Change Table Columns, Notifications, Email Addresses, HTTP Credentials, SSH Keys, Groups, Identities, Agreements (highlighted with a red box), and Mail Filters.

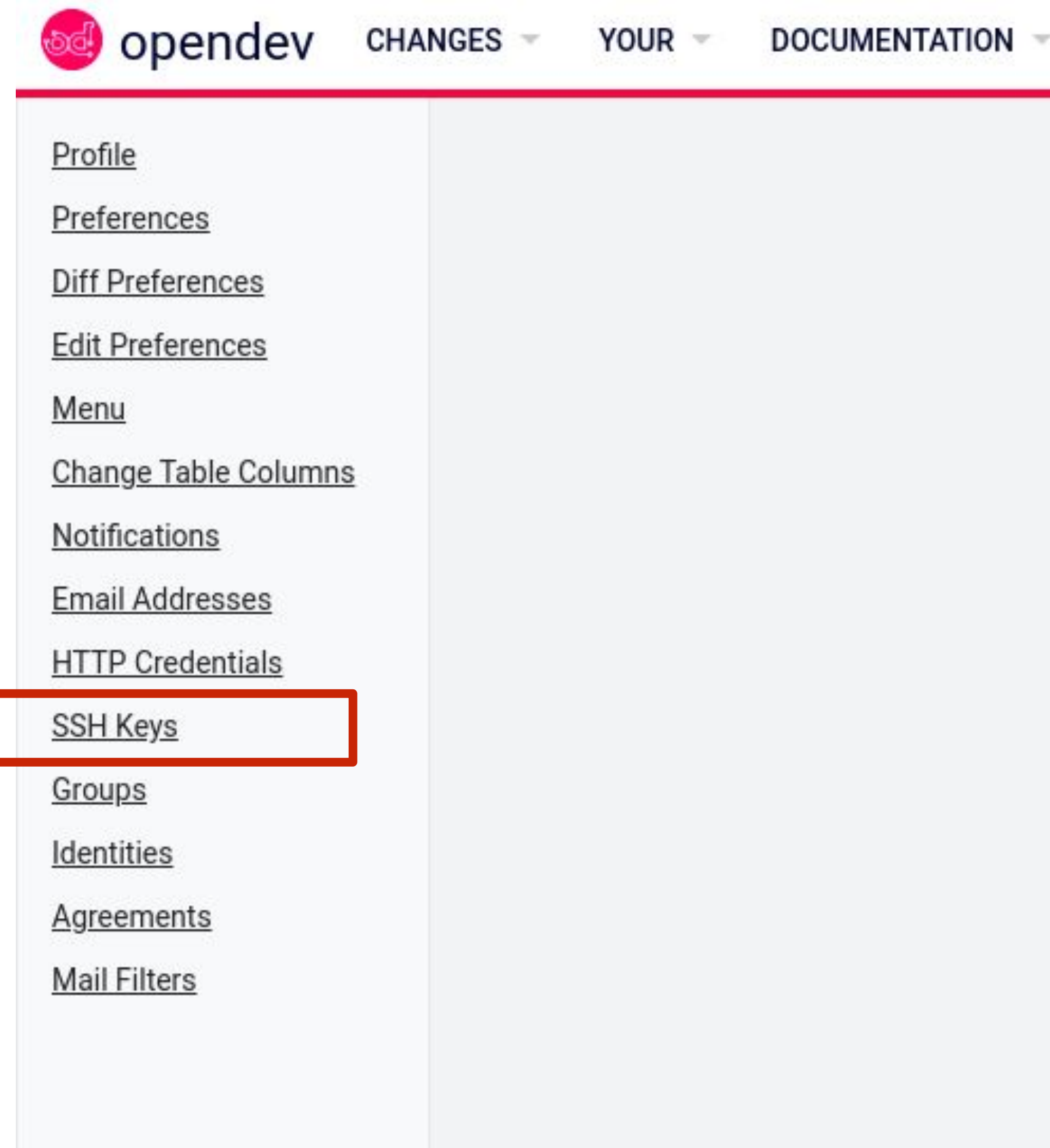
## SSH keys

- Docs to follow:  
<https://docs.openstack.org/contributors/common/setup-gerrit.html#setup-ssh-keys>
- What are the SSH keys?
  - In order to push things to Gerrit **we need to have a way to identify ourselves**. We will do this using SSH keys which allows us to have our machine we're pushing a change from to perform a challenge-response authentication with the Gerrit server.
- Setup your SSH keys
  - Install SSH
  - Generate the SSH keys
    - `ssh-keygen`

## Git and Gerrit

# SSH keys

- Import your public SSH key to Gerrit
  - Get the content of your public key
    - `cat ~/.ssh/id_rsa.pub`
  - Go to Gerrit SSH keys
    - <https://review.opendev.org/settings/#SSHKeys>
  - Click the 'Add Key' button.
  - Paste the public key into the Add SSH Public Key text box and click Add.



The screenshot shows the user settings page on the OpenDev website. The page has a header with the OpenDev logo and navigation links for 'CHANGES', 'YOUR', and 'DOCUMENTATION'. A sidebar menu on the left lists various settings options: Profile, Preferences, Diff Preferences, Edit Preferences, Menu, Change Table Columns, Notifications, Email Addresses, HTTP Credentials, SSH Keys, Groups, Identities, Agreements, and Mail Filters. The 'SSH Keys' option is highlighted with a red rectangular box.

## Git review

- Docs to follow: <https://docs.openstack.org/contributors/common/setup-gerrit.html#git-review>
- What is git review?
  - Git review is a tool maintained by the OpenStack community. It adds an additional sub-command to 'git'.
  - When you have changes in an OpenStack project repository, you can use this sub-command to have the changes posted to Gerrit so that they can be reviewed.
- Install git review
  - Install with pip or with your OS package manager

## Git and Gerrit

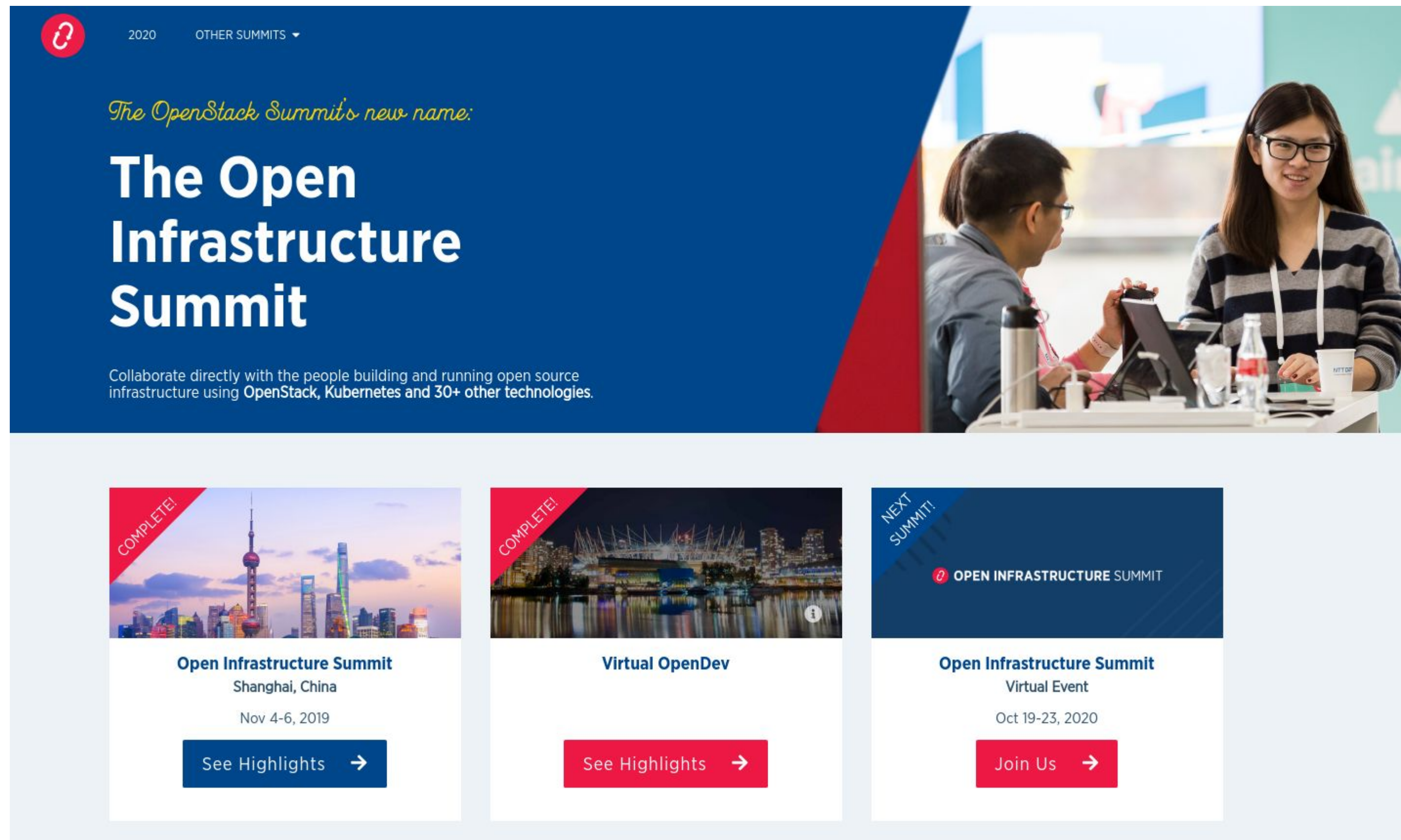
# Git review

- Configure git review
  - `git config --global gitreview.username <username>`
- Test git review
  - `git review -s`
- Instead of using git push:
  - `git review`

# Community and Internship

Fell in love with the OpenStack community?

# Join us in the OpenInfra Summit



The screenshot shows the OpenInfra Summit website. At the top left, there is a navigation menu with '2020' and 'OTHER SUMMITS'. Below the navigation, a blue banner features the text 'The OpenStack Summit's new name: The Open Infrastructure Summit' in white. Underneath, it says 'Collaborate directly with the people building and running open source infrastructure using OpenStack, Kubernetes and 30+ other technologies.' To the right of the text is a photo of two people, a man and a woman, sitting at a table with laptops and water bottles, engaged in a discussion. Below the banner are three event cards. The first card is for the 'Open Infrastructure Summit' in Shanghai, China, from Nov 4-6, 2019, with a 'COMPLETE!' banner and a 'See Highlights' button. The second card is for 'Virtual OpenDev' with a 'COMPLETE!' banner and a 'See Highlights' button. The third card is for the 'Open Infrastructure Summit' Virtual Event from Oct 19-23, 2020, with a 'NEXT SUMMIT!' banner and a 'Join Us' button.

- <https://openinfra.dev/summit/>
- Main summit includes 13 tracks
- Upstream Institute
- Customer stories, use cases, tools, open source communities discussions
- It's free!

Fell in love with the OpenStack community?

## Join us in the Projects Teams Gathering

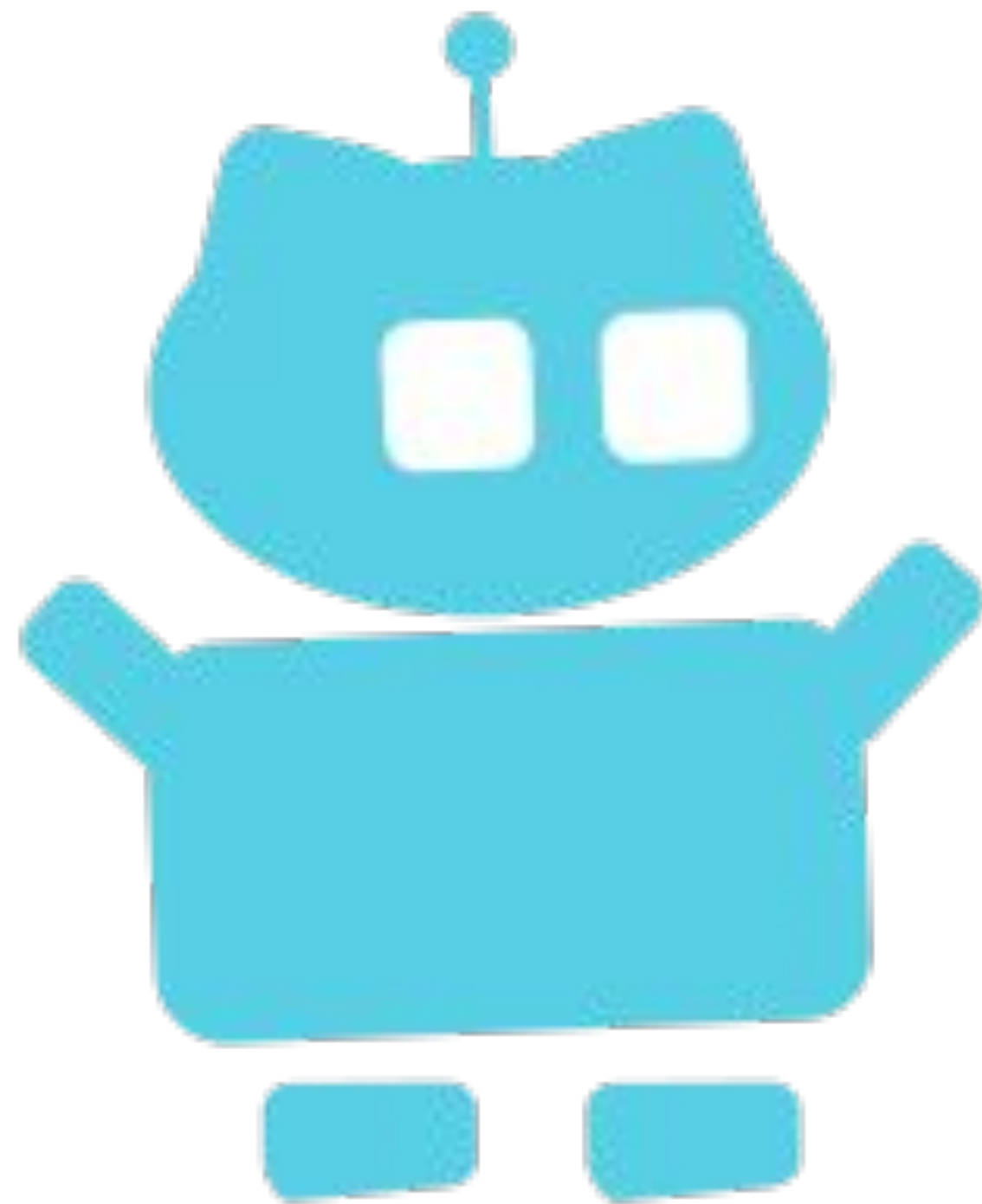


- <https://www.openstack.org/ptg/>
- See engineers in action, help crafting next release roadmap
- It's free!



Are you up for a bigger challenge?

## Join us in the next Outreachy round



- Paid internship
- Pair with a mentor to work on a task for three months
- 5 different internship tasks for the upcoming round, check out the listing and apply here

<https://www.outreachy.org/apply/project-selection/#openstack>

# Thanks!

Twitter @enriquetaso



openstack



@OpenStack



openstack



OpenStackFoundation