

Onboarding Codebook.

Training Materials

Workflow

overview of contribution workflow

1. OVERVIEW1 "Get to know the technical tools Understand the OpenStack contribution workflow and social norms Know where to find information, where and how to get help if needed"

Rely on documentation

1. TASK7 OB1 observed that participants were busy throughout, reading documents and practicing the commands

make first contribution

1. TESTIMONY2 "mentor ... push me to do things like submit and then give my first commit. "

Executing test cases

1. TASK1 M11 instructed participants to :run different test cases in each project that they cloned.: "If you need help, mentors are seated on your tables, they will assist you in running the test cases."
2. TASK7 M10 In this Exercise run the test suite with the tox framework. OB1 observe that participants divided their task into three groups, One group ran one test suit and the group shared their knowledge and explain how all the test cases fit together.

issues tracker/ bug fix workflow

1. TASK1 get your hand dirty by filing, fixing, and triaging bugs
2. TASK2 The aim of this exercise is to enable participants to practice how to create, report, assign and fix, review a bug, knowing a bug life cycle is important in contributing to OpenStack.
3. TASK2 M8 told participants that: "Now, go and post comments on a bug(s) or add some ideas on a blueprint's whiteboard that was created by someone in your group. For example, You can ask a question about the issue or proposed feature. You can confirm the issue and update its status to triage."
4. TASK2 This exercise is similar to the previous lab; exercise 3 on Launchpad (individual bug tracker), but now, on Storyboard (cross-project bug tracker).
5. TASK1 M11 instructed participants to "create a board with at least two worklists (one manual and one automatic) for organizing stories you are going to create in the next exercise. For the automatic worklist, give at least two criteria for the items that will go into the worklist. These criteria can be matching a project-group, story tag, etc." <https://storybook-dev.openstack.org/#!/dashboard/>
6. TASK2 M12 an expert in the ecosystem and PTL of the Storyboard project answered: " Originally, OpenStack used Launchpad as the issue tracker, Launchpad was developed and managed by Canonical to track bugs or blueprint. Moreover, Launchpad is limited in terms of scope. It was tied down to a project, it was not designed to support an ecosystem scope i.e a cross-project setting. However, Storyboard was engineered to support the coordination of cross-project work in an ecosystem setting, in which each project is different in the process of reporting bugs and planning new features, for example, a story could be to invent some new feature A, and tasks would be changed in project X, change in project Y, and change in project Z. Those changes need to merge in order to complete feature A. ... Is that clear enough?" [Yes!]

7. TASK2 Participants will appreciate the difference between Launchpad (individual project level) and Storyboard (ecosystem level), and how cross-project bugs are handled, which was a nightmare on Launchpad.
8. TASK2 M12 gives a brief explanation on Storyboard “In Storyboard, a story is a bug report or proposed feature. Stories are then further split into tasks, which affect a given project and branch.
9. TASK2 M10 instruct participants “create three stories for your worklists
10. TASK2 Thus, contributors can track their work efficiently across several interrelated projects, which was impossible with Launchpad. For categorization or prioritization, stories and tasks can be gathered in ordered worklists. Teams, projects, or sponsors may create a board with manual or automatic lanes to provide a clear overview of the activity of interest.”

Code quality activities

1. OVERVIEW2 Code Quality — Coding Guidelines, Syntax checks and Testing.
2. OVERVIEW2 M1 gave a brief explanation on hacking style and listed some advantages "Hacking style guide was enforced by reviewers manually, but the process has been automated. Therefore, hacking makes code written by many different authors easier to read by making the style more uniform. (example: unix vs windows newlines)
3. OVERVIEW2 M1 gave a brief explanation on hacking style and listed some advantages "Hacking style guide was enforced by reviewers manually, but the process has been automated. Therefore, hacking makes code written by many different authors easier to read by making the style more uniform. (example: unix vs windows newlines)
4. OVERVIEW2 M3: gave several use-cases to show how contributors can improve the quality of code by following the Coding Guidelines suggested by OpenStack.
5. OVERVIEW2 (M3) : "to ensure high quality code, OpenStack recommends some syntax checks Frameworks such as: (eslint-config-openstack, Hacking, bashate, etc.), and enforces the OpenStack Coding standard. Experience shows that when contributors write code that respect the Coding Guidelines proposed by OpenStack,reviewers spent less effort and smaller amount of time to understand the code, this also, reduces the iterations. Therefore, we encourage you to use the best practices when writing code, commenting on codes, commit messages and testing."
6. OVERVIEW2 M9: "One of the beauties of ESLint is that, despite there being one standardized set of rules created for OpenStack, ESLint permits the overriding of these rules on a per-project basis to ensure that no project is hindered by a generalised decision

Efforts required to make a contribution

1. TASK2 P27 created an elaborated blueprint that aims at provisioning NAS services to facilitate file storage.The description of the blueprint was two paragraphs long, which was not easy to understand. No external link was referenced to this blueprint. OB1 asked to share their experience on this exercise. P27 “It was a straightforward exercise, I wrote my blueprint for the Cinder project because Cinder is responsible for block storage at OpenStack and that is what interests me most, at least for now, :but the task required writing skills that I have not really developed. I am still struggling with my writing skills.: So, it took me a long time to write the summary of the blueprint”
2. TASK2 Mentors rejected all the blueprints and then after round(s) of reviews, all were finally approved.
3. TASK2 M3 Don’t be afraid to make mistakes, try your best to write clear and concise sentences to explain what you are trying to achieve.
4. TASK2 Also, once reviewers notice you are making efforts even when you make mistakes they will reach out to help you out perfect your skills.

Code review workflow (process/tool)

1. TASK4 M10 explain to participants that Gerrit is the review system that the OpenStack community uses. Gerrit allows contributors to Get reviews on contributors changes proposed to OpenStack repositories Request reviews from specific community members Make quick changes to your patches in the WebUI
2. TASK4 M7 instructed participants “Review three patches in the sandbox environment: <https://docs.openstack.org/contributors/code-and-documentation/sandbox-house-rules.html> Try to find things to make comments on even if they are just asking a question and not pointing out an issue, don’t just +1 three different patches.” Invite at least two mentors to review your work.
3. TASK7 Participants are asked to go on the Gerrit system of OpenStack and practice with a code that has been submitted ready for review. Mentors are not required to provide assistance in this task. Until the end if a group didn’t do it right, mentors can then provide guidance
4. OVERVIEW2 The smaller the amount of code changed, the easier it is to review & identify potential flaws. If a change is found to be flawed later, it may be necessary to revert the broken commit. This is much easier to do if there are not other unrelated code changes entangled with the original commit.
5. TASK1 Community members with a +2 power will also review your patch. “Make sure you reply to the reviewer’s comments on time and make requested changes then push back a new patchset. In some cases, you will have to handle merge conflicts.”M11 told participants that after pushing their changes upstream a CI/CD job will spin “Zull CI will review your patch.” Community members with a +2 power will also review your patch.
6. TASK4 M10 added that “A patch chain is easy to handle if you keep in mind a few recommendations: Always have a local branch for these changes to ensure that you don’t mix it together with changes related to another feature or bug fix. Always handle a chain as one block of changes by rebasing the whole chain and keep it up to date when you modify a patch to fix review comments or add changes to it.”
7. TASK4 M11 added that “You need as many ‘^’ as the number of the patch you want to edit first from the top of the chain. Alternatively, you may wish to use git-restack, which figures out the appropriate git rebase command for you.”
8. TASK4 M9 explained to participants that this section will guide them on how to create patches that people will want to review. Moreover, it will enable you to know how to structure a patch that makes it easier to maintain throughout the review process, and how to structure a patch that is easier for community members to review.
9. TASK7 M1 Find an open review, which is less complex and download the patch. Remove the code changes and run the tests Check whether the tests failed or not Explain what it means if they didn’t Comments on open review
10. TASK2 M8 said “ write down your question on a group member’s comment,
11. TASK4 “The tag can be applied to patches proposed for the same repository as well. In that case, the changes are separate enough to be kept independent which means that if you need to fix changes from review comments you can do it on a per patch basis. It is also true for rebasing each patch.”
12. TASK2 All the mentors are now writing their reviews online, communicating their comments to the participants directly on the IRC channel and everyone could see and learn from the mistakes/strength of others.

Communication channel

1. OVERVIEW2 Join the IRC channel of the class and participate during the training
2. TASK2 Also, OB1 noticed that participants were asking questions on the IRC channel and other

participants from different groups/tables were sharing their answers to the channel.

3. TASK2 Once you finish your task don't forget to indicate on the IRC channel and the *mentor* will verify your blueprint...
4. OVERVIEW2 Use IRC for answering questions or the training etherpad if an exercise requires more space

New contributors building persona

1. TASK4 M5 Asked participants to build their persona on their chosen project or cross-project. Review other's code, help fix the documentation, answer other's questions or help direct them to those who can. Let a mentor know you are interested in participating in the project Explain why you are interested and what are your strengths ask how you can help the projec

CI/CD workflow

1. TASK6 The aim of this activity is to enable participants to get accustomed to the CI/CD system at OpenStack, OpenStack uses Zuul CI/CD.
2. TASK6 M4 Let's take a look on how to track jobs submitted to Zull to see their status go to this link: <https://zuul.openstack.org/> OB1 observed that as M4 explain in detail how the graphical interface of Zull works, showing the different functionalities, participants we carefully following and some were taking pictures of the screen and some videos to capture the moment of interest.
3. TASK6 M6 told participants that "after understanding the Zuul job status and how gating works, we will now move to 'Elastic Recheck' that enables contributors to (i) Enhance the automatic testing, which OpenStack community encourages and enforced on every patchset that is submitted to Gerrit. (ii) Report recurring bugs so that you don't need to manually 'recheck' . "
4. TASK6 M6 explained in detail over slides and video what Elastic Recheck is and how it works: "Elastic-recheck is a tool used to track failures in test jobs. Elastic-recheck is built on top of an ELK (Elastic Search, Logstash, Kibana) stack where we use Logstash to store all logs from CI jobs in an ElasticSearch cluster ... "
5. TASK7 M1 Find an open review, which is less complex and download the patch. Remove the code changes and run the tests Check whether the tests failed or not Explain what it means if they didn't Comments on open review
6. TASK6 M7 answered that "Not really upfront because the system has been configured already by the infra team, but it's good to know what each stage is doing to be an expert. This also comes with time. I know that, It took me over 4 years to have a good mastery of how everything fits perfectly together and I still learn everyday. So, ..."
7. TASK6 P2 said that they have noticed that the jobs on Zuul are running real time and changes every time, so the values they are reporting may change when the mentors want to verify their responses. M10 recommended P2 observation and explain that that is the reason why the last point is asking them to discuss their findings with their respective groups.
8. TASK1 M11 told participants that after pushing their changes upstream a CI/CD job will spin "Zull CI will review your patch." Community members with a +2 power will also review your patch. "Make sure you reply to the reviewer's comments on time and make requested changes then push back a new patchset. In some cases, you will have to handle merge conflicts."M11 told participants that after pushing their changes upstream a CI/CD job will spin "Zull CI will review your patch." Community members with a +2 power will also review your patch. "Make sure you reply to the reviewer's comments on time and make requested changes then push back a new patchset. In some cases, you will have to handle merge conflicts."

make first accepted contribution in ecosystem release

1. TASK4 M5 instructed participants that "Following is a list of the :commands that you need to know for your first contribution.:"

version control (git) activities

1. TASK2 The aim of this section is to equip participants with the required skills using Git to contribute to OpenStack as a contributor.
2. TASK2 M9 instructed participants: “Open the Setup and Learn GIT section of the Contributor Guide, read the material, ask questions to the mentor, and get ready to go through the exercises.” OB1 Participants are busy reading the study guilds on Git
3. TASK4 P3 rightly stated. To create your development branch (substitute branch\name for a name of your choice). It's better to create a new branch for each patch than working from master: git checkout -b <branch_name> To check the files that have been updated in your branch: git status To check the differences between your branch and the repository: git diff
4. TASK2 M9 “Commit messages are the first things a reviewer sees and are used as descriptions in the git log.
5. TASK2 Summary Line The summary line briefly describes the patch content
6. TASK2 Body The body contains the explanation of the issue being solved and why it should be fixed
7. TASK2 Tags are references used to link the change to other tools.

Importance of splitting commits.

1. OVERVIEW2 We will demonstrate the benefits in splitting up changes into a sequence of
2. OVERVIEW2 M7 divided the topic of commits in two sub topics (A/B), and gave the advantages in splitting commits. The structured set/split of the code changes "If a code change can be split into a sequence of patches/commits, then it should be split."

Mentors assigned activities

1. TASK2 M4 Now, the following exercises will help you practice each line at a time until you get a complete well-structured commit message. Remember that the mentors are here to assist you.
2. TASK2 M4 “write a summary line for each bug, blueprint, and story you created during our task tracking exercises. Share them on our IRC channel.”
3. TASK6 M8 Instructed participants to spin up DevStack in the local environment, and understand OpenStack cloud services to do the code challenge.
4. TASK6 M8 instructed participants that “Go to: <http://localhost/> and access the horizon portal Follow the step-by-step instructions in your material guide documentation and issue all the commands.”

feature design workflow

1. TASK1 Filing a blueprint/spec, Implementing a blueprint/spec.”
2. TASK2 The aim of this exercise is to enable participants to practice how to create and register new features commonly known as a blueprint. Blueprints are artifacts that enable the growth of the ecosystem in terms of functionalities.
3. TASK2 M2 Blueprints are used to track the implementation of significant features in OpenStack. Keeping their status current is critical to the success of the release and the project as a whole.
4. TASK2 M2 “Read and follow the online instructions on the blueprint
5. TASK2 Register a blueprint in Launchpad to their project page at [launchpad.net/\\$PROJECT](http://launchpad.net/$PROJECT) and clicking "Register a blueprint" Enter blueprint Name, Title and Describe the feature summarily in

the blueprint itself Participants: Link to another document (using the specification link) if you have more Set assignee <<participant >> Mentors: Approve/Reject the blueprint and provide feedback/comments.

6. TASK2 and register new features commonly known as a blueprint. Blueprints are artifacts that enable the growth of the ecosystem in terms of functionalities.
7. TASK2 OB1 moves to table/group 5 and observe how six participants P25, P26, ... P30 are creating and registering their blueprint.

new contributors building persona

1. TASK1 M5 then asked participants to join the project irc-channel(s) and make an attempt to direct people who are asking questions there to the right resources/documentation. "Make sure your mentor knows your interests in participating in the project. Explain why you are interested and what are your strengths, then ask how you can help the project."

Workculture and personal preference

1. TASK2 I used SPE editor on my Ubuntu machine to write the code and then P35 used the command line with git to commit the changes to the sandbox repository. After that, we navigate the interface of Launchpad to understand how it works, then, I assigned it to P35.
2. TASK4 M10 "Make sure you configure your Gerrit account: open the Setting Up Your Gerrit Account section of the Contributor Guide. Read the material and ask questions to the mentors, then get ready to go through the exercises."
3. TESTIMONY4 I like to talk with mentees early to determine what works best for them. Putting someone in an extremely uncomfortable situation that might not align with the way they like to work will almost never result in a successful outcome.
4. TESTIMONY4 For interest in mentees, I highly suggest taking an active approach to finding mentors and coaching in the workplace. Meaningful mentoring arrangements aren't always part of workplace culture.
5. TESTIMONY4 Any advice for getting a mentorship program going at a company that doesn't currently have one? that is it's very difficult because it's very much in the culture of the organization that we're part of so it's kind of hard for me to put myself in those shoes and give advice I think the best way to approach it though ultimately is you know pitching it is in the terms of the business it is a solid investment
6. TESTIMONY4 M7 really captured it. It's the culture of the place that helps drive the behavior you want you can sort of sell it to leadership as it's an investment and it's it brings you business value and it helps retain talent because it keeps people happy and it increases skills that are hard to find in the marketplace and those are all great

Demonstration by examples

1. TASK6 M6 walk participants through a serie of video explanations to show classification in rechecks.
2. TASK6 All the participants watch and follow the video explanation and discuss how they will determine bugs in recheck.
3. TASK2 M4 shows a slide with each line and a detailed description
4. TASK2 M1 called the attention of participants and told them that "I will show a live demo on how to use a storyboard, the different tabs and widgets that you will use in this exercise, and how storyboard works in general."
5. TASK6 OB1 To demonstrate, M1 walk through all the steps and explain to the participants what happens at each stage.

Best practices

attend regular meetings

1. TESTIMONY2 there are a lot of important conversations that happen around a project from weekly meetings to attending summits a lot goes on around the project that you can easily miss if you don't know it's happening,

select project based on strengths and weaknesses

1. TASK1 M5 : Know who you are, your strength, weakness, and domain of interest. Based on that, select a project that reflects those interests “Get familiar with the codebase and programming paradigm of your selected project.”
2. TASK1 P3: “I chose Keystone based on what the mentors presented yesterday about the core OpenStack projects, and what I have searched so far, ‘Keystone service provides API client authentication ...’ At school, I work with projects that implement identity authentication as services to web-based applications. So, I am most comfortable with this way of writing coding and thinking.”

feature design best practices

1. TASK2 they expected you to write specifications and that is the best practice that we encourage.

Demonstration best practices

1. OVERVIEW2 Next, the mentors, showed couple of bad samples of commits that reviewers rejected because the commits violated the code style, which OpenStack enforces. Besides, M9 told participants to avoid such bad practices, which will certainly increase the efforts that they put in to make changes and also increase the time to

Rely on documentation

1. OVERVIEW1 Also, “We strongly recommend the constant consultation of the online documentation as we ourselves are constantly referencing them throughout this training event. Read, read and Read your documentations!”
2. TASK1 "P3 : Now, I am searching the keystone documentation to see which functionality I am familiar with within the most recent release of OpenStack"
3. TASK1 "Next, I am searching the keystone documentation again"
4. TASK2 "M2 “Read and follow the online instructions on the blueprint"
5. TASK7 "P5 “The documentations were well structured and elaborative”

Quality assurance best practices

1. OVERVIEW2 Code Quality — Coding Guidelines, Syntax checks and Testing.

commit message best practices

1. OVERVIEW2 highlight some key points when writing a good commit message
2. OVERVIEW2 Do not assume the reviewer understands what the original problem was. Do not assume the reviewer has access to external web services/site; The commit message should be totally self-contained, to maintain that benefit. Do not assume the code is self-evident/self-documenting.
3. TASK2 M9 “Commit messages are the first things a reviewer

version control (git) activities

1. TASK2 Git best practices, we recommend the following structure in Commit Messages M9
“Commit messages are the first things a reviewer sees and are used as descriptions in the git log ...”

Code review best practices

1. TASK1 M5 told participants to be consistent within and be on top of the reviewer’s comments.
2. TASK2 M6 gave general feedback to participants on how to catch reviewers’ attention with a good summarized text that explain your code change and posted some good and bad samples on the IRC channel.
3. TASK4 M10 remember that “Longer patches require more time to review; wherever you can, keep the length reasonable. And where you can’t, you can help the reviewers by adding code comments and writing a detailed commit message to describe the changes you introduced in your patch.”

Align to the community modus operandi

1. TASK1 Moreover, urge participants to be patient during the review period and be communicative and collaborative “Remember this is an open-source world! Things happen on the community schedule, not yours.”

Vision/objectives

OUI purpose

1. OVERVIEW1 M1 "The OpenStack Upstream Institute was designed by the OpenStack foundation to share knowledge about the different ways to contribute to OpenStack. The program was built with the principle of open collaboration in mind"
2. OVERVIEW1 M2 "OUI is about to help new contributors to join the OpenStack community by providing on-site training for newcomers and place for trainers and mentors to work together."
3. OVERVIEW1 M1 "We have seen some PTLs coming back to :OUI training for some kings of reality checks:"
4. TASK2 observed that the mentors prepared the “material” to reflect the recent changes in the ecosystem codebase. All the projects involved were up to date. Moreover, participants on average could read and follow the instructions with little help from mentors, even though some sections were challenging, which we will detail later.
5. OVERVIEW2 Onboarding at OpenStack is an intensive program designed for newly graduated student in mind who are motivated and about to startn their carrier in open source ecosystem such as OpenStack but lack the technical know-how. We give them materials and hands-on training that equipes them to master the tools, which they will use in making contributions to the codebase add new features, fix-bugs, write documentation and participate in working groups to OpenStack as they join a community of thousands of developers from hundreds of companies worldwide.

Diversify and inclusive community

1. TESTIMONY1 By expanding that diversity we’re able to expand ultimately the diversity of opinions for the open infrastructure project as a whole with the goal of as soon as we start at least, in my opinion, is we grow the diverse opinions that we have it should hopefully start to attract additional individual contributors as our solutions expand to cover more use cases.
2. OVERVIEW1 share knowledge about the different ways to contribute to OpenStack.
3. OVERVIEW1 The Mentors took their turn and presented the different projects working together to

form the complex ecosystem

4. OVERVIEW2 Likes: P48 : “I like the hands-on section most and, of course, the sticker prizes!” P1 : “I admired the explanations of different projects and how they form an ecosystem”

Gender diversity

1. OVERVIEW1 (P1, P2, ..., P72), 17 females, 23 neutrals, and 32 males seated on 12 tables forming 12

Technical Diversity

1. OVERVIEW1 These mentors constitute project team leads (PTLs) of different OpenStack projects and cross-project teams and other resources within the OpenStack Ecosystem.
2. OVERVIEW2 Be prepared with the "deep dives" exercise, usually, participants have very different levels of knowledge and skillset.
3. TESTIMONY4 Concerning upstream mentoring, differences and technical proficiency should be taken into account when mentoring in the workplace my approach to addressing
4. TESTIMONY3 Also, as a mentor, I've noticed it's easy to overlook the differences and the technical proficiencies between myself and someone I'm working to mentor.
5. OVERVIEW1 The Mentors took their turn and presented the different projects working together to form the complex ecosystem. Also, each mentor states how many project(s) that they are involved with and explain how the projects fit together under one umbrella called OpenStack. Moreover, M1 The ecosystem lead at OpenStack gave use cases to participants explaining how individual project goals differ from cross-project goals, also, the cross-projects common objectives build a community into an ecosystem.

Corporate diversity

1. OVERVIEW2 join a community of thousands of developers from hundreds of companies worldwide.
2. TESTIMONY4 Any advice for getting a mentorship program going at a company that doesn't currently have one? that is it's very difficult because it's very much in the culture of the organization
3. TESTIMONY4 I think it's a lot easier to set up in an open-source community trying to think of the right way to answer this in terms of the company perspective in a large company that has many moving parts and many layers of reporting as a fortune 10 company like AT&T does it could be pretty difficult because you can have you know informal mentoring programs set up at the organization level but you know of course it ties back to what I was saying earlier whereas time constraints get busy if the workforce or the headcount on your team starts to reduce

grow expertise within community

1. OVERVIEW2 For example, 13 participants reported that they have no local events at all near their locality whereas 59 have one or more events reported. Also, all 72 participants reported that they will be willing to attend any event that is organized near their location.
2. OVERVIEW2 Promote ideas for next steps after training is done; mentoring, Project Onboarding and other related conference sessions
3. TESTIMONY4 M1 Lookup OpenStack(or OpenInfra) Days event close to where you live that you would be interested in attending. If there are no events planned, is there a meetup group? Share your response on the IRC channel. OB1 The response in the IRC had a lot of mixed opinions depending on where each participant is located and if their locality is hosting local events or meetup groups.

4. TESTIMONY4 M2 instructed participants “Look up the location and dates of the next summit/Forum” OB1 All participants got the answer correctly from the OpenStack event page ... The general atmosphere of events happening was positive among participants and some participants registered for upcoming events near their local community.

self motivation overcomes barriers/frustrations

1. OVERVIEW2 M1 and M2: "Remain engage with the rest of the class even if you are not presenting."

Project vs ecosystem

1. TASK1 told participants that “each project within OpenStack has its own purpose and culture.” M5 asked all participants to clone any of the OpenStack projects that they are familiar with.
2. TASK2 This exercise is similar to the previous lab; exercise 3 on Launchpad (individual bug tracker), but now, on Storyboard (cross-project bug tracker).
3. TASK6 Zull provides OpenStack projects and cross-projects a means of defining test jobs
4. TASK6 M4 said “Zuul is a CI/CD tool developed and maintained by the Infrastructure team at OpenStack. Zull provides OpenStack projects and cross-projects a means of defining test jobs, which runs on each proposed commit. These tests must pass before any patch can merge. Therefore, once a contributor pushes a patch to Gerrit, Zuul will automatically trigger jobs to verify the patch functions properly.”
5. OVERVIEW1 "Understand the OpenStack release cycle to the level of being able to synchronize and integrate it with your product's roadmap"
6. TASK2 The aim of this exercise is to enable participants to be familiar with a cross-project task tracker for bugs and features, and to automate tasks.
7. OVERVIEW1 M1 added that: “If we remember the early days of the internet, it was the LAMP (Linux, Apache, MySQL, PHP) stack that enabled the rapid growth of the Web. In this era of cloud computing, OpenStack is the ‘LAMP stack’ of the cloud. The same way the Linux kernel is different from Apache server, and MySQL DB, and PHP, so too is how the different projects within the OpenStack ecosystem differ from one another. Yes, all use Python but that is it.”

Vast expertise needed for OpenStack projects

1. TESTIMONY1 "Upstream mentoring also helps us grow the expertise the community needs ultimately the technical expertise required to work with the technologies that make up the projects under the open infrastructure umbrella it can be pretty vast that technical expertise"
2. TESTIMONY1 "projects especially such as OpenStack helm and Kola kubernetes and some of the others that I've worked within the past also require a working understanding of technologies that extend beyond just you know OpenStack."

Organization of Training even

Agenda

activities that groom new contributors to be productive

1. OVERVIEW1 "Furthermore, M1 and M2 presented an overview and objectives of the OpenStack Upstream Institute (OUI) Program."
2. OVERVIEW1 "Day one is typically designed to give a solid foundation of OpenStack and how to set up an individual working station. Moreover, the mentors also presented how bugs are reported

to the community"

3. OVERVIEW1 "Be able to identify and start a task (bug fix, feature design and implementation, Working Group activity and so forth) Work-flow and Tools for Participation"
4. TASK2 M2 stated that "the decisions to reject or to approve your blueprint were taken based on learning purpose only and not on the technical relevance. We wanted everyone to get familiar with the process involved rather than paying attention to the actual specifications."
5. TASK2 M8 told participants that: "Now, go and post comments on a bug(s) or add some ideas on a blueprint's whiteboard that was created by someone in your group. For example, You can ask a question about the issue or proposed feature. You can confirm the issue and update its status to triage."
6. TASK2 M4 instructed participants: "write the body of a commit message to expand on the summary lines you just wrote. Feel free to make up details to make the context more realistic, then share them on IRC."
7. TASK6 Each topic in this agenda for Day-02 follows a series of hands-on exercises that the mentors ask participants to do, with an exception of the hackathon that exposes the participants to critical thinking and self-developed skills.*
8. TASK7 OB1 some participants were experimenting with the CLI meanwhile others were using the GUI to interact with VMs and services.
9. TASK7 DevStack exercise: M9 instructed participants to "Start DevStack in a VM on your laptop or public cloud. Make sure that the services are running. Choose a service and issue an API call or use its client to verify functionality"
10. TASK7 LOG message exercise M4 "Add a few extra LOG.debug() lines to one of the methods of the API call you chose in the previous exercise. Restart the corresponding service in your DevStack environment and find the new message in the logs. Find out what parameters were passed to that method by using the LOG messages"
11. TASK1 M5 : Explore and identify at least three functionalities in your selected project. In case you need help, the mentors assigned to your table are willing to help.
12. TASK1 P3 : Now, I am searching the keystone documentation to see which functionality I am familiar with within the most recent release of OpenStack. I have Identified the first, functionality: A function that creates an OpenStack user with federated identity. Now, I am reading what the code does, ... it takes four-parameter and returns a dictionary containing the user reference.
13. TASK1 M5 Asked participants to go through the documentation of their project and see if they can spot and fix any typo etc. M5 Then ask participants to look at code that other developers have written to be familiar with the style and comments used. "
14. TASK1 M5 also emphasizes that one way to understand and grow in a project is to use the common forum/channel that developers used to ask/answer questions
15. TASK4 M8 added that participants should consider applying all the skills they learned earlier and use them in this activity OB1 observed that participants were submitting their changes this time with complete and correctly formatted commit messages.
16. TESTIMONY2 So, contributing to an upstream project is so much more than just being added to a new team, there are now people all over the world that you have to deal with. It's a lot like having another person act as a mentor is like having an interpreter.

Q/A session

1. OVERVIEW2 M1/2 "Pause to ask students if they have questions on the material throughout your presentation"
2. TASK2 P23 asked a question to a mentor assigned to table T4, however, M8 decided to share the

question among all the mentors and the main coordinator M1 asked that the question be repeated for the benefit of all participants. P23 “Why is OpenStack using multiple task tracking systems? What are the main differences and drawbacks?”

3. TASK7 They were also asking questions to the mentors on the IRC channel. Some example questions are: P6 “Can I deploy DevStack to the cloud? Since it pulls all OpenStack services” M7 answered that based on the documentation, it is stated that DevStack is only used for testing services and in development, but can’t be used for production because once you shutdown DevStack, it destroys all the VMs.
4. TASK7 M41 Asked that “Should all the services of OpenStack be up and running to use DevStack?” M3 answered “No, you can run only the services that you want to test, or experiment with.”
5. TASK7 P46 Asked the mentors “what level of logging should we use?” M11 responded that “Good questions, you can use DEBUG and INFO and observe how both work, beside you can modify the code and try with other levels. It's up to you, but the default will be INFO.
6. TASK4 M8 What does ICLA stand for? What is it? Write your answer on the IRC channel P55 responded first and said: “ICLA stands for ‘Individual Contributor License Agreement’ this is a formal agreement, which protects intellectual property rights granted with contributions from a person or entity.”
7. OVERVIEW2 OB1 asked M1 and M2 "Can you summarize what the onboarding training is all about, and what values it brings to the OpenStack ecosystem? How has the training material evolved overtime?"
8. OVERVIEW2 Ask the students questions to make sure they are engaged and understand the material
9. OVERVIEW2 Furthermore, M7 explain these two commits, which provide support for configuring the KVM guest timers. The introduction of the new APIs for creating libvirt XML configuration have been clearly separated from the change to the KVM guest creation policy, which uses the new APIs.

Mentors introduction

1. OVERVIEW1 "Each mentor takes their rounds and introduced themselves, their area of expertise, how many projects they are affiliated to and how long they have been contributing to the OpenStack ecosystem.

Experts opinion on community norms

1. TASK2 But, they should just follow the right procedure and respect the norms, which were presented to them on Day-01. All participants registered their blueprint on launchpad following this template on the sandbox repo:
2. TASK2 This activity of writing standard bug’s comments is of critical importance in the OpenStack ecosystem and is highly encouraged.
3. TASK2 Moreover, M1 said “We applied strick measures here to make sure to get this right and respect the standard because one major area in OpenStack that makes code review difficult is the commit message. Make sure you work with mentors to get this right and we move on to the next activity.”
4. TASK4 M8 asked participants that: “how do you initialize your local repo with git review? Write your response on the IRC channel” P3 responded “ git review -s”, and M2 rewarded P3 with a sticker M1 added Git review is a tool maintained by the OpenStack community. It adds an additional sub-command to ‘git’ such as git review.
5. TASK4 M9 gave some recommendations concerning patch size: “Reviewing large patches is very inconvenient and time-consuming therefore we always suggest breaking down your changes into

smaller blocks. While there is no magic number, try to keep the size of your changes as small as possible, but under a few hundreds of lines changed total. Patches that test heavy with little code change require as much effort as code-heavy changes.”

6. TASK4 M5 asked participants that “What command do you use to modify a patch within a chain?” M10 added that “A patch chain is
7. TASK4 P31 answer the question that M5 asked that “o modify a patch within a chain you will need to use interactive rebase” git rebase -i HEAD^
8. TASK6 P63 asked the mentors that “should we master how these technologies work before running jobs on Zuul?”
9. OVERVIEW2 M7 stated that: "Based on many years of practical experiences doing code development, bug troubleshooting and code review across OpenStack projects and other communities such as Linux kernel, CoreUtils, GNULIB, etc., we suggest a fairly common practice, which is motivated by OpenStack strong desire to improve the quality of it's projects' Git histories."
10. OVERVIEW2 Example of a good commit message shown to participants

overview of contribution workflow

1. TASK1 M5 and M11 presented a general overview of the contribution process, without going into much detail, which is reserved for later exercises.
2. TASK1 M5 Gives the general contribution workflow, which consists of picking a task (this could be a bug, trivial fix, documentation, implementation), creating a new branch in your local repository, making the desired code change, adding and running test cases, last, create your commit and push the changes back upstream for review. However, M5 told participants that “we will go into this later on in more detail so hold off on answering detailed questions for now.”
3. TASK6 Hackathon (Dive deep code challenge)

mentor-assigned activities

1. TASK2 Open the Task Tracking section of the Contributor Guide Read the material here [<https://docs.openstack.org/contributors/common/task-tracking.html>] Ask the mentors questions
2. TASK6 M4 instructed participants to “Open the CheckingStatusinZuulsection the Contributor Guide Open the Using Elastic Recheck section of the Contributor Guide. Read Material, ask questions to the mentors. Get Ready To Go Through The Exercises.”
3. TASK6 M5 opened the Zuul status page and instructed participants to “Look at the Zulu status page Find Information That Can Be Retrieved Foreach patch in a pipeline What happens if you click on a patch under test How Many Gate And Check Jobs Are Running Pick your favorite project and report how many jobs has running in IRC What Is The Significance Of The Dots, lines and colors Discuss Your Findings With Your Group”
4. TASK6 M6 instructed participants to “find how Checks are categorized and discuss with your table how you would Determine that you have encountered one of these bugs?” OB1 to further simplified the task, M6 walk participants through a serie of video explanations to show classification in rechecks.
5. TASK6 Moreover, on the fourth point, M9 highlights that all participants should mention the project that the pick alongside the number of jobs that are running.

Working Environment and configuration to facilitate contributions

1. OVERVIEW1 "Mentors ensure that the :working environment of each participant is properly set up as required by the instructions that were sent out one month prior to the onboarding event. This working environment constitutes: a laptop that supports virtual environments such as Virtual-box

with Ubuntu image pre-installed, a copy of OpenStack development environment aka Devstack on Sandbox, issue trackers (both launchpad and storyboard), code review environment (Gerrit), git."

2. OVERVIEW1 M1 said "Make sure the following are install and running ... Run the test script in the Devstack folder to make sure your local environment is properly configured and up to date"
3. TASK4 After you've completed the Setup and Learn GIT section, the following command configures the repository to know about Gerrit and installs the Change-Id commit hook. You only need to do this once per repository you cloned:

Environment/Supports

Working Environment and configuration to facilitate contributions

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mentor project affiliation

1. OVERVIEW1 "... how many projects they are affiliated to and how long they have been contributing to the OpenStack ecosystem"
2. OVERVIEW1 "Also, each mentor states how many project(s) that they are involved with"
3. OVERVIEW1 "These mentors constitute project team leads (PTLs)"

Gender Diversity

1. OVERVIEW1 Participants (P1, P2, ..., P72), 17 females, 23 neutrals, and 32 males seated on 12 tables forming 12 groups

Format

Communication channel

1. OVERVIEW1 Moreover, M2 emphasized on IRC and the mailing list as the main communication Medium.
2. TASK6 OB1 observed that all the participants were flooding the IRC channel with responses
3. TASK7 OB1 observed that participants were practicing without the help of mentors fewer than three questions were asked by participants on the IRC channel and within the individual groups.

competing for reward

1. OVERVIEW2 Give out swag and make sessions competitive

2. TASK2 the first person will get a reward.”
3. TASK2 mentors gave P13 a sticker.
4. OVERVIEW2 Mentor M2 motivated participants that in each series of exercises, the first person to finish and notify the mentors on IRC or on their table will receive a prize. There were varieties of prizes for everyone such as swangs, Lego, stickers, tickets for free summit outing events, etc.
5. TASK2 All the 21 participants who respected the body text limit got a +1 and the others -1, and the first participant to post their text was rewarded with a sticker.
6. TASK4 M1 gave a Swang to P55
7. TASK4 M3 Reviewed the response and gave P12 a sticker
8. TASK4 OB1 both responses from participants we recommended by mentors and they were rewarded with stickers.
9. TASK7 Finally, after doing through all the groups submission, group two was declared the winner and all group members were awarded a ticket for a banquet with swangas each.
10. TASK2 those that we accepted got a (+1) and a reviewer’s comment to encourage the effort.” In the second round, those that got a -1 had the change to implement the reviewers’ comments and improve their text summarily. Thus, 53/54 got a +1 except one participant (P39) who still got another -1. This time, mentor M6 approached P39 and asked if they need some help summarizing their text to give meaning to the changes made? P39 affirms needing help and both M6 and P39 worked together to write and acceptable summarized text.

Challenging activities

1. TASK1 M5 told participants that “we will go into this later on in more detail so hold off on answering detailed questions for now.”
2. TASK2 You will use this blueprint later when we practice writing commit messages and pushing patches to the sandbox repo so make it interesting! <https://blueprints.launchpad.net/openstack-dev-sandbox>
3. OVERVIEW2 M3, Made changes to the Sahara project, a cross-projects repository, and explained the changes to participants, then asked participants to write a complete commit message following the best practices, to describe the changes that were made on the Sahara project. M3: cross"each one of you should discuss with a mentor before submitting the message to the IRC and etherpad doc."
4. TASK7 M5 Mentors in each group will break the tested code of one test case and in your group, you are allowed to find the modification that they did by running the test and analyzing the test output OB1 In each group the mentor of that group broke the code that participants tested above and asked the participants to identify and break in the code, after running the test case. Different groups apply different test cases and methods of analyzing the test output. However, all the 12 groups were able to identify the broken code. Hackathon:
5. TASK4 The use of voting was also appropriate +/- 1. Overall, all participants submitted their works and got different feedback from mentors.

participants working independently

1. TASK2 "OB1 observed that these six participants were mostly working independently on this task."
2. TASK2 "but each member created their task independently ... Each member of group 66 then implemented this design individually ... "
3. TASK7 " participants were practicing without the help of mentors fewer than three questions were

asked by participants on the IRC channel and within the individual groups"

4. TASK2 Members of this group were collaborating and exchanging ideas among themselves, but each member created their task independently.
5. TASK2 OB1 observed that :these six participants were mostly working independently: on this task.

participants share experience from exercises

1. TASK2 "P27 "It was a straightforward exercise, I wrote my blueprint for the Cinder project because Cinder is responsible for block storage at OpenStack and that is what interests me most, at least for now, but the task required writing skills that I have not really developed. I am still struggling with my writing skills. So, it took me a long time to write the summary of the blueprint"
2. TASK2 "P70 said: "I realize that reviewing the work that my teammates have done makes me see contributing to a project differently... P67 said: "In my experience, I noticed that I can easily find something wrong on what someone has done rather than seeing something wrong on my code or what I have done..."
3. TASK3 "P54 said, "The exciting thing in this task as I see it is sharing what we learn from the mentors, as we use those skills to give feedback to our peers and also learning from them."
4. TASK3 "P60 "I am fascinated with the comment of my teammate P59, based on the other peer review exercise we did earlier and now, I see that the mentors' feedback has some influence in what he wrote, because the feedback is almost identical to the feedback that the mentor M10 gave us."
5. TASK4 "P19 said "I would have chosen to review a code that someone else wrote, but, I have the feeling that I am not yet ready. What if I get it wrong and the person is more experienced than myself? What if the code is more complex than I perceived? ..., I will prefer to go with documentation or better still helping someone who has a question on directing them to the right resource."
6. TASK4 "P41 "Maybe I am wrong but working on documentation seems difficult for me because I don't think my language skills are good enough. I can unintentionally make more typos than fixing them :) I will prefer more coding ..."
7. TASK6 "P51 said "I think I am now getting more confidence with my understanding on this Zuul ands recheck, especially when M6 explain a few minutes ago, that was a great explanation!"
8. TASK6 "P29 on his part said: "I think the load of materials has been too overwhelming but the mentors are making it looks too easy for me to follow the concepts."

Onboarding adapts to diverse learning methods

1. TASK7 OB1 observed that all 12 groups used different functionalities and projects. Moreover, Some groups spent time reading and understanding the commit messages before they started doing the exercise for example, Groups 2, 4, 5, 9,11, 12, whereas the other groups only focused on the sections of the code that was modified.

participant and mentor seating (configuration)

1. TASK2 OB1 noticed that P33 and P35 seated on table/group 10,
2. OVERVIEW2 These 12 tables formed 12 groups in such a way that table T1 was named group 1, ..., and T12 was named group 12.
3. OVERVIEW2 Choose a table and sit with the students to help If there aren't enough mentors or every table has one already, float around the room checking in on people, especially during exercises When possible, sit at a table and build connections (networking) with participants.

4. OVERVIEW2 Each table was arranged to accommodate up to six participants with two more reserve seats for mentors, making a total of eight people per table maximum capacity for all 12 tables arranged in the hall. These 12 tables formed 12 groups in such a way that table T1 was named group 1, ..., and T12 was named group 12.

5. TASK2 OB1 moves to group 11/T11, and observe participants P61 - P66

Timed activity

1. TASK2 OB1 also monitors the IRC channel to record the first person to finish the task and how long it takes. Moreover, the participants were not required to write a concrete blueprint comparable to those that have been implemented.
2. TASK2 OB1 noticed that the first participant to create and register a blueprint is participant P13 and it took 19 min to do so, mentors gave P13 a sticker. Meanwhile, the last participant finished in 27 min.
3. TASK2 the first part of this exercise between 10 - 15 min, however, the second part, which required participants to automate a worklist, participants spent on average 23 mins to complete the task. The first participants to finish this exercise was P58 in group 10.
4. TASK7 Participants were required to use all the materials that they have learned so far to solve this problem within a 25 min.

Mentors/Mentee feedback

1. TASK2 Mentors were commenting on participants post. Those that were not written properly on the first try (54/72) got a (-1) and feedback from a mentor stating why it's not good, whereas those that we accepted got a (+1) and a reviewer's comment to encourage the effort.
2. TASK6 mentors were given feedback immediately to each response as they came in
**
3. TASK7 In the end, 10 groups submitted their solutions and got feedback from the mentors, except two groups (1 and 6) that were not able to submit a complete solution on time. Moreover, group 2 was the first to submit their solution.
**

active participation

1. TASK6 M6 walk participants through a serie of video explanations to show classification in rechecks.
2. TASK6 All the participants watch and follow the video explanation and discuss how they will determine bugs in recheck.

Advantages of Onboarding

To Ecosystem/Project

diverse contributions

1. TESTIMONY1 "growing the number of individual contributors helps drive these projects forward through more diverse reviews, contributions, and viewpoints. By expanding that diversity we're able to expand ultimately the diversity of opinions for the open infrastructure project as a whole"

grow expertise within community

1. TESTIMONY1 Upstream mentoring also helps us grow the expertise the community needs ultimately the technical expertise required to work with the technologies that make up the projects under the open infrastructure umbrella it can be pretty vast that technical expertise

mentoring helps achieve long and short term goals

1. TESTIMONY1 To successfully drive these projects forwards toward their medium and long term goals
2. TESTIMONY3 Growing talent through mentoring is a medium to long term investment.

attract contributors

1. TESTIMONY1 "in my opinion, if we grow the diverse opinions that we have it should hopefully start to :attract additional individual contributors as our solutions: expand to cover more use cases."

Ecosystem vs. projects-team specifics

1. OVERVIEW1 "These mentors constitute project team leads (PTLs) of different OpenStack projects and cross-project teams and other resources within the OpenStack Ecosystem."

experts diverse knowledge build an inclusive ecosystem

1. TESTIMONY3 Also, as a mentor, I've noticed it's easy to overlook the differences and the technical proficiencies between myself and someone I'm working to mentor. It wasn't uncommon for me in the past to take the years of experience I have for granted and just assume everyone at least knew half or more of what I do.
2. TESTIMONY3 I'd like to ask each new individual contributor who reaches out to me asking about their interest and experience provides me an entry point for digging deeper into what experience a potential mentee has.
3. TASK2 . So, read code experts have written and learned from their mistakes, how the review process helped their patches to get better and accepted.
4. TASK7 Also, mentors were actually demonstrating how things work by example. Making it easy for participants to follow and understand the operations.

onboarding adapts to diverse learning methods

1. TASK2 Each member of group 66 then implemented this design individually. For example, P62 defines criteria for all his stories to be automated, meanwhile P61 and P64 defined exactly one to be automated. P63, P65, and P66 defined two criteria for automation. However, the way group members named their stories and tasks were distinct.
2. TASK6 P29 on his part said: "I think the load of materials has been too overwhelming but the mentors are making it looks too easy for me to follow the concepts.:"
3. TASK7 OB1 observe that participants that are more familiar with GUI used interfaces app to make API calls, whereas, CLI users call it from the terminal.

Self motivation and commitment overcomes barriers/frustrations

1. TESTIMONY3 I found that being proactive about that and managing those expectations has worked the best for having successful mentor-mentee relationships.

onboarding nurturing new contributors to grow in the ecosystem with confident

1. TESTIMONY3 I didn't think I was someone who was capable of contributing to something bigger, but having a mentor I began to figure out almost everyone felt that same way. The difference was

putting in the effort to put me out there and learn something new. Without that push, I probably wouldn't have left my little bubble and would have thought I was not capable of anything else

communication facilitate collaboration and productivity

1. TASK2 Mentors collaborated with the 51 participants and get the body text to match the limit of 72.

Mentors/Mentee feedback

1. TESTIMONY4 Finally, feedback is critical to determine the effectiveness of a mentoring arrangement.
2. TASK2 You might have noticed that the feedback that mentors provided were actually the writing approach they expected you to write specifications
3. TASK7 Likes: P48 : "I like the hands-on section most and, of course, the sticker prizes!" P1 : "I admired the explanations of different projects and how they form an ecosystem" P15 The testimony on mentoring was great! I love it. P6 "The CI/CD and testing sections was my favorite, I didn't do something like that at school" P5 "The documentations were well structured and elaborative" P31 "Mentors were great inspirations and knows their stuffs well" P40 "We need more exercises like the hackathon, besides the mentors were great!" P62 "" Dislikes: P13 "Remove the events sections complete waste of time, my opinion though" P4 "There are lots of account to create, this can be very confusing" P2 "Lots of things to master in a short period of time"
4. TASK2 Don't forget that reviewers will take a look at your work and give you feedback. This is one way of learning the way things are done at your project level.
5. OVERVIEW2 Use every opportunity you have to give us feedback. It's important for the community

knowledge sharing (mentor-mentee)

1. TASK2 Participants used the feedback from mentors and added a tag to their commit messages and reference links as required. In this exercise, all the participants did as expected and they were able to learn the peer-review process.

onboarding organization community vs Company?

1. TESTIMONY4 I think setting it up external to the workplace so in this sense the community – OUI, mostly because the benefit that I have working in the organization that I do the majority of us are working upstream and various projects anyway whether it's OpenStack-helm airship or something else so it's a lot easier to handle it that way and that way we can help mentor our co-workers but also mentor other individual contributors who might want to be involved with that effort as well and then you know since are the people on our team are working upstream anyway we were able to pull that value downstream as it were and take advantage of that.

grow expertise within community

1. OVERVIEW2 Discuss your solutions with mentors and explain to them how you derived the solutions.
2. TASK4 M6 How do you handle dependent changes in the same or multiple repositories? P12 posted the answer on IRC: "When you have changes in multiple project repositories you can mark dependent patches with the 'Depends-On' tag."

promotes networking within ecosystem

1. TESTIMONY3 "the biggest benefit of mentoring is the connections I have now made that I can go to"

2. OVERVIEW1 "When possible, sit at a table and build connections (networking) with participants"
3. OVERVIEW2 "participate in working groups to OpenStack as they join a community of thousands of developers from hundreds of companies worldwide"

Mentee-mentee collaboration towards productivity

1. TASK2 P54 said, "The exciting thing in this task as I see it is sharing what we learn from the mentors, as we use those skills to give feedback to our peers and also learning from them."
2. TASK2 P60 "I am fascinated with the comment of my teammate P59, based on the other peer review exercise we did earlier and now, I see that the mentors' feedback has some influence in what he wrote, because the feedback is almost identical to the feedback that the mentor M10 gave us."
3. TASK7 the aim of this section is to introduce participants on collaboration, how to work in a team project using divide and conquer technique
4. TASK7 OB1 observe that participants divided their task into three groups, One group ran one test suit and the group shared their knowledge and explain how all the test cases fit together.

mentoring helps achieve long and short term goals

1. TASK1 OB1 noticed that "*P5* is having difficulties locating which test case to run, and asked the mentor assigned to their table for help." M3 asked P5 "What is the problem, and how can I be of help?" P5 "I ran the commands exactly as M11 instructed but having an error message." M3 "Let's re-run the command, and read the error message together."

socio-technical interactions

1. TASK1 M11 encourage participants to "get engaged in a project of interest and join the IRC channel, make sure you follow and participate in project-related mail threads in the mailing list. Also, attend regular meetings,

activities that groom new contributors to be productive

1. TASK2 Mentor M10 asked the participants to "create and submit a bug to our sandbox repository. This should include at least one tag when creating your bug. Once it has been created, assign it to yourself." OB1 asked P40 to think aloud and explain each step as they proceed if possible. P40 First, I am using my favorite editor vim to create a python file. I will call it exercise1.py Next, I am writing a function that reads the prints of all OpenStack summits and their locations in the past [... goes silent for a while...] Now, I am injecting a bug to my code with the tag Bug101. This bug is assigning the wrong locations to each summit. I am done with the code. I am adding it to my stage area, ... Now, pushing it to the sandbox repo ... done! Now, I am signing in to launchpad ... I am reporting the bug now and assigning it to myself ... the bug is now assigned to me.
2. TASK2 M10 instruct participants "create three stories for your worklists. At least one of them should meet the criteria that enable it to appear in your automatic worklist. Each story must have a task that is named differently than the story name. You will use these later when we practice writing commit messages and pushing patches to the sandbox repo so make them interesting!"
3. TASK2 OB1 asked P46 to think aloud while performing the task. P46 "I am writing the body to have all the essential elements [...], I have 120 characters I am now worrying about reducing the number of characters to 72 [... thinking ...] let me play with words a bit to see what I get here [...] The best I can do is 98 characters.
4. OVERVIEW2 M4 Thought participants techniques how to debug their source code and how debugging applies to Projects.
5. OVERVIEW2 All the participants were engaged in the activity and after the mentors have gone over their reviews, the participants posted their review on the etherpad doc.

To Individual

align project selection with personal interests

1. TESTIMONY1 Speaking from experience finding projects and work that align with personal or work interest improve involves difficult if you have little to no experience with what the community has to offer

communication facilitate collaboration and productivity

1. TESTIMONY3 this is why it's really important to speak up and communicate if my mentor doesn't know I'm struggling with an issue he can't help me so making sure I say something when it happens or even if I figured it out later but say this was an issue for me I figured it out that sort of communication is very vital and then there happens only occasionally.

growth of contributor technical skills

1. TESTIMONY1 help our individual contributors grow the technical skills required
2. TASK2 The aim of this exercise is to enable participants to practice and develop the skill of writing and reviewing standard bug's comments (+/- 1 when necessary) on Storyboard.
3. TESTIMONY3 Mentoring also helps senior engineers grow their leadership and delegation skills which may help them grow into leadership engineering or even management roles in the future.
4. TESTIMONY2 "mentor ... push me to do things like submit and then give my first commit. "

Self motivation and commitment overcomes barriers/frustrations

1. TESTIMONY4 Successful mentoring relies on active commitment from both parties and I've always been enthusiastic and willing to help anyone who's approached me directly about mentoring because it shows me they take initiative and not only succeeding in their day to day job but they want to actively manage their expectations for their long-term career goals,

low entry barrier

1. TESTIMONY1 so active mentoring also helps lower the barrier to entry for individuals looking to contribute to open infrastructure projects.

mentor past onboarding experience

1. TESTIMONY1 Speaking from experience finding projects
2. TESTIMONY1 and once again my personal experience has been that once I felt included and comfortable with the Kola project team, in particular, my engagement and contributions accelerated rapidly from that point.
3. TESTIMONY3 So, I'll talk a little bit about my experience when it comes to mentoring upstream after reflecting on :my experience with previously you know the OpenStack community: and now the open infrastructure community over the past four years the experiences I've had during that time was the primary driver for wanting to encourage you on your own personal journey.

Mentors/Mentee feedback

1. TESTIMONY4 Personally much like software or software development, I prefer to fail fast and regular and get rapid regular feedback from the individuals that I have these relationships in the workplace so I can course-correct and find ways to augment that relationship
2. TESTIMONY4 I never thought I'd be standing up here talking about how I can help other people succeed in the workplace and how good of a feeling that is I fully expected to be in a cubicle

3. TASK2 (54/72) got a (-1) and feedback from a mentor stating why it's not good, whereas

mentors-mentees collaborating towards productivity

1. TESTIMONY4 One other way to achieve success has been to request a recurring one-on-one with anyone you're mentoring. That could be at whatever frequency they desire.
2. TASK2 OB1 moved to table/group 8 while monitoring the IRC channel and observing how participants were asking questions to mentors and communicating among themselves in their groups.

mentees-mentees collaborating towards productivity

1. TASK2 Then, share the commit message with someone sitting next to you. Give them feedback on their commit messages."

onboarding nurturing new contributors to grow in the ecosystem with confident

1. TESTIMONY2 So, as a new developer fresh out of college coming into any new team can be very intimidating.
2. TESTIMONY2 "Now, magnify that and add people you don't interact with face to face and you have what it's like to enter a community of OpenStack or any open source project. It's very intimidating you don't know who to turn to or what questions to even ask."
3. TASK6 P51 said "I think I am now getting more confidence with my understanding on this Zuul ands recheck, especially when M6 explain a few minutes ago, that was a great explanation!"

Impostor Syndrome effects

1. TESTIMONY3 So, the maturation of those technical skills may also help alleviate impostor syndrome as most of us are likely familiar with.
2. TESTIMONY4 I was able to do those setting goals like that have been incredibly helpful and have definitely in terms of impostor syndrome.

make first accepted contribution in ecosystem release.

1. TESTIMONY4 my progress and stay focused. For example, say I want to submit this many patches upstream and oh I did that and I want to contribute to this or that project at the next release cycle

mentoring helps achieve long and short term goals

1. TESTIMONY4 Personally, I always kept a curated list of the goals that I wanted to reach. So, for example, starting to get involved with different OpenStack projects and services you know I got involved with OUI and that helped me to get the right sets of projects as I started trying to dive into OpenStack so it was pretty daunting but playing out those granular goals that made sense in a sequential effort I guess really helped.
2. TESTIMONY2 you don't think that you have any reason to be involved because obviously you know nothing so what could you contribute :but it's really important to be a part of that conversation. Having a mentor to push you: to do that is very helpful.
3. TESTIMONY2 having a mentor helped me be active in meetings push me to do things like submit and then give my first commit.

important to feel included and comfortable in project

1. TESTIMONY2 A mentor provides a way to get involved and helps remove so much of the anxiety

that often comes with doing so.

mentors assist participants

1. TESTIMONY2 it changes the entire experience of from a scary one to one that definitely seems manageable

Transfer Skill sets

1. Bringing a mentee along for the ride when triaging and fixing critical issues in the workplace not only :helps them learn the processes required for doing so but also serves as a sanity check for yourself: it's a good feeling seeing your mentee catch on as well.

mentees-mentees collaborating towards productivity

1. TASK2 P33 and P35 seated on table/group 10, were exchanging ideas constantly throughout this exercise 1, therefore, OB1 moved to table 10 and asked both P33 and P35 how they found the exercise and if they could walk him through the steps that they took in doing the exercise
2. TASK2 participants within each group were sharing information to help solve their problems and also using the IRC common channel to share their ideas or ask questions from other participants outside their group/table. For example, P44 asked a question to P40 how to assign the bug on launchpad, and P40 showed P44 the steps to accomplish that task. Moreover, similar kinds of collaboration were happening across the different groups/tables among participants.
3. TASK2 OB1 Noticed that all 12 group participants were paired 2-by-2 to work on this exercise. In some groups for example group 1, P1 post a comment on P2 bug and P2 post a comment on P1 and the rest in the group. On the other hand, in other groups such as group 7, P37 post comment on P38, P38 post comment on P39, ... P41-42, and P42 post a comment on P37, etc and on the blueprint, they reversed the order.
4. TASK2 On the one hand, they design a worklist, and this worklist defines the state of these three stories to either be manual or automated. Then, they divide the stories into two groups; automatic and manual. Moreover, they assigned tasks for each story.
5. TASK2 OB1 moves to group 12/T12 and observes how group members P67 P72 were collaborating among themselves. M3 told participants that “share your board with your group and assign yourself to two tasks on other people’s stories. Comment on one story.”

grow expertise within community

1. TASK2 P67 said: “In my experience, I noticed that I can easily find something wrong on what someone has done rather than seeing something wrong on my code or what I have done. The review process stands out as most exciting for me because my critical mindset was more activated than just focusing on my own work, I try to see things through the lens of what someone has done to make sense out of it, that is exciting.”
2. TASK1 M5 Then ask participants to look at code that other developers have written to be familiar with the style and comments used. “ mentors are available to help if you don’t understand what a code you are reading is doing.
3. TESTIMONY1 In addition to helping find work that aligns with an active mentor and can help ensure new contributors are visible to the larger project teams and community

Build a network within your project team

1. TASK1 “Pay attention to who is an ‘expert’ in your project domain, don’t forget to post and ask questions in the channel or send direct messages. Remember that If people know you, you have a better chance at your code getting attention.”

Q/A session

1. TESTIMONY2 "It provides someone you can ask questions"
2. TESTIMONY3 "people on my project ... are actually rooting for my success and happy to help what I have questions"
3. TESTIMONY3 " now I'm able to actually go to other people when I have questions if **M7** is busy and I'm happy to get reviews where people point things out that I can improve"

promotes networking within ecosystem

1. TESTIMONY3 "the biggest benefit of mentoring is the connections I have now made that I can go to"
2. OVERVIEW1 "When possible, sit at a table and build connections (networking) with participants"
3. OVERVIEW2 "participate in working groups to OpenStack as they join a community of thousands of developers from hundreds of companies worldwide"
4. OVERVIEW2 "During mentoring, OUI participants are strongly encouraged (**required**) to join at least one project team. Once signed up to join a project team, they are assigned mentors to follow them up."
5. OVERVIEW2 "Project Onboarding gives participants a chance to meet some of the project team and get to know the project. Participants will learn about the project itself, the code structure/ overall architecture, etc, and places where contribution is needed. Participants will also get to know some of the core contributors and other established community members. Ideally, participants will know/ have completed the OUI basics."

To Company

Mentoring brings value to stakeholders and ROI

1. TESTIMONY1 "Ultimately, in my opinion, I feel that mentoring individual contributors upstream :adds value both to the open infrastructure community and the individual projects that make up this diverse infrastructure ecosystem: we've come to love and sometimes love to hate"
2. TESTIMONY3 Mentoring in the workplace goes just beyond helping with delivering day-to-day duties. Active workplace mentoring ultimately helps both mentees and mentors alike to achieve their personal career goals.
3. TESTIMONY3 Mentoring is also a sound business investment. Teams and enterprises cannot afford to lose their top engineering talent as the needs of the business evolve, especially in industries where disruptive technologies result in an extremely competitive pool of talent
4. TESTIMONY3 However, the return of that investment can be very high. Investment in mentoring is key to staying competitive and keeping employees happy so in the long run yes mentoring can be an investment on behalf of you know the company but it pays out dividends later on.
5. TESTIMONY4 "it is a solid investment because this was mentioned I mean the time you're putting forth and mentoring people and making sure they're not just able to contribute but they understand that they don't have to be rockstars to add value that really helps get over the hurdles where someone might feel they're inadequate or don't possess the skills or can develop those skills."

mentor past onboarding experience

1. TESTIMONY3 So, learning the issue, seeing someone else make the same mistake and going away I know that that's a sign of progress and something I should be happy with not internalizing.
2. TESTIMONY3 Now, I can sympathize with my coworkers and peers because I remember how I felt when I first started and I was this bear in this picture just sitting around thinking you know I don't have a mentor here

3. TESTIMONY4 Now though I make it a point to actively help both junior members of staff and our organization and also my peers who are working to understand the technologies we rely on for what our business.

mentee-mentee collaborating towards productivity

1. TESTIMONY4 now though I make it a point to actively help both junior members of staff and our organization and also my peers who are working to understand the technologies we rely on for what our business is trying to achieve.
2. TASK2 The aim of this exercise is to enable participants to learn how to collaborate and exchange knowledge, and to practice how the review process is coordinated in a team.

mentoring helps achieve long and short term goals

1. TESTIMONY3 Active workplace mentoring helps mentees attain mature technical skills required to grow in their workplace, mentoring helps manage immature skill sets required to grow into a senior engineering role in the future. So, the maturation of those technical skills may also help alleviate impostor syndrome as most of us are likely familiar with.
2. TESTIMONY4 relationship with my mentee to make it successful because ultimately if in the long run if they're successful everyone in our organization successful
3. TESTIMONY4 My company does have a formal mentoring program. I do a lot of mentoring for people on my team and one of the elements that we have is that we set up formal goals that are related to the mentoring that change each quarter to align with what we're doing that quarter. Setting formal goals as part of a mentoring program is extremely important

Challenges of Onboarding

To Ecosystem/project

Different participants background

1. TASK2 P70 said: "I realize that reviewing the work that my teammates have done makes me see contributing to a project differently. For example, I was limited to my own ways of thinking but now I realize that when I read a teammate's logic and get lost, I know exactly where I don't understand and I ask questions for clarification. Also, I have learned something new that I did not know. "
2. OVERVIEW2 Be prepared with the "deep dives" exercise, usually, participants have very different levels of knowledge and skillset.
3. TASK2 M1 called the attention of participants and told them that "I will show a live demo on how to use a storyboard, the different tabs and widgets that you will use in this exercise, and how storyboard works in general."
4. TASK2 P33 said "this was my first time working with git. At school, I did mostly theoretical computer science and mathematics, I know the logic and algorithm behind most code but have not been exposed to real situations. So it was relatively hard to work along, but P35 seems to have a better experience with the git version control system. However, P33 affirms that the concept of what the exercise demands is not that complex to understand, except the technical knowhow to get it done." P35 added that " I used git a lot at college in nearly all my software engineering courses and projects, therefore, I find this exercise pretty straightforward.
5. TASK7 P34 said: "I have always been more comfortable with commandline doing stuff. For example, at schools, I usually do most of my work with the terminal mode, such as Weka, Java, Python, and many more, it's more of a culture to me." Meanwhile, P70 said: "I am more of a visual person and when learning something new for the first time, I like to see the interface and how it

behaves , that is just me.”

Self motivation and commitment overcomes barriers/frustrations

1. TESTIMONY3 I've also found successful mentoring requires active commitment both from the mentor and mentee. It's very easy to say yeah sure I'd love to help you understand all this cool stuff. It's not really that hard but it can be difficult to deliver on that promise.
2. TESTIMONY3 Commitment has to be two-way traffic for mentoring to succeed.

Impostor Syndrome effects

1. TESTIMONY2 So, as a new developer fresh out of college coming into any new team can be very intimidating. Everyone around the kind of knows so much more than you and you feel that you're an imposter with so much to learn there's just no way you can learn everything that they know and you're under the impression that that knowledge is somehow inherent to them and they just get it and you're just never will.
2. TASK4 OB1 observed that this exercise was challenging to participants even though they were excited about the challenge. For example, P19 said “I would have chosen to review a code that someone else wrote, but, I have the feeling that I am not yet ready
3. TASK4 What if I get it wrong and the person is more experienced than myself? What if the code is more complex than I perceived? ..., I will prefer to go with documentation or better still helping someone who has a question on directing them to the right resource.”
4. TASK4 P41 “Maybe I am wrong but working on documentation seems difficult for me because I don't think my language skills are good enough. I can unintentionally make more typos than fixing them :) I will prefer more coding ...”

investment of time

1. TESTIMONY3 The biggest one is time constraints, most of us mentors have day jobs, families and hobbies that may not include hacking away at the keyboard, because of that finding time for active mentoring can be a challenge. I found that carving out time for that act of mentoring though has worked the best for me as I'm historically terrible at saying time isn't an issue so I'll just do this mentoring thing live. But, if you want to be a successful mentor though or a mentee even, my advice is simple as with testing and production don't do it.

Key to a successful mentoring program

1. TESTIMONY4 To the question of how does one set up a mentoring program successfully? As a former manager, myself and my management colleagues tried to do that exactly the same thing several different ways and tried to you know combinations of like forcing down you're assigned to this person to having people sign up through you know sign-up sheet and anyway I don't think we ever really succeeded in finding something that didn't feel forced and artificial and if anyone has had more success with that I'd be really interested in hearing it but I actually work for the same place as these guys and I think

successful mentoring requires commitment

1. TESTIMONY3 "I've also found successful mentoring requires active commitment both from the mentor and mentee".
2. TESTIMONY3 "a commitment to active mentoring requires more than a handful of quick IRC or Google hangout Chats"
3. TESTIMONY3 "Commitment has to be two-way traffic for mentoring to succeed."
4. TESTIMONY4 "Successful mentoring relies on active commitment from both parties"

To Individuals

Self motivation and commitment overcomes barriers/frustrations

1. TESTIMONY1 what interest and excites you I asked this question because I found that there's if there's no interest or excitement for the work you're looking to do it often leads to frustration when you start running into problems in difficult situations and you just walk away from the project entirely.
2. TESTIMONY3 commitment to active mentoring requires more than a handful of quick IRC or Google hangout Chats when our time constraints increase and we start wishing we had 25 hours on a given day to get everything done that we need to.

possibility of insufficient mentors

1. TESTIMONY4 some experience of mine with mentoring in the workplace. My experience at XYZ company. When I started there I didn't have a mentor to really turn to work on the community team that I mentioned where my work was focused solely on upstream projects that I found interesting and thought might bring value back to the company.

difficulty aligning project with personal interests

1. TESTIMONY4 I found that personal interests and the technology that we work within our day to day jobs make work feel less like work, which is a good thing.
2. TESTIMONY4 Also, differences and work preferences can be a challenge. Different people like to work in different ways. I've had successful mentoring arrangements that involve pairing frequently with someone until they felt more confident and comfortable in their abilities.
3. TESTIMONY4 Not just for the mentee but for the mentor as well the differences and challenges mentioned above will ultimately affect whether you can expect success in a mentoring relationship.

new contributors learning style influences mentoring outcome

1. TESTIMONY4 I've had situations where delegating tasks and activities to a and a more hands-off approach resulted in success where paring had previously failed.

Investment of time

1. TESTIMONY4 if you allow people the time you don't make them feel like they are you know taking time away from their actual job but make them understand that it is an encouraging part of their job I think that helps sort of foster that and then if they when they do it if you tell them they did a good job and you know if you're in a management position you're able to reward that kind of behavior that sort of starts that cycle going.
2. TESTIMONY1 it only makes sense to invest our time

language barriers

1. OVERVIEW2 Talk slowly when you are presenting - English may not be their first language

onboarding adapts to diverse learning methods

1. TESTIMONY3 M7 "People learn in different ways at different speeds"

successful mentoring requires commitment

1. TESTIMONY3 " I've also found successful mentoring requires active commitment both from the

mentor and mentee".

2. TESTIMONY3 "a commitment to active mentoring requires more than a handful of quick IRC or Google hangout Chats"
3. TESTIMONY3 "Commitment has to be two-way traffic for mentoring to succeed."
4. TESTIMONY4 "Successful mentoring relies on active commitment from both parties"

To Company

investment of time

1. TESTIMONY4 "But, have some slightly different context of course time constraints: similar to upstream can affect our ability to mentor our peers in the workplace *I feel the time constraints in the workplace can be more restrictive as the time required to be successful* often competes with the time required to make the critical needs of the business during the 40 hours a week"
2. TESTIMONY4 what I was saying earlier whereas time constraints get busy if the workforce or the headcount on your team starts to reduce a bit due to the needs of the business usually one of the first things that go is okay well I need you to devote all this time to picking up some of the extra work and focusing on delivering the software we need to deliver and operate the infrastructure we need to operate in this mentoring thing you know we can revisit this later

Working Environment and configuration to facilitate contributions

1. TESTIMONY4 Concerning upstream mentoring, differences and technical proficiency should be taken into account when mentoring in the workplace my approach to addressing this in the workplace is the same as it is with upstream individual contributors: I like to find out what interest and excite someone I'm meant to mentor and find ways to tie that back to the work they're doing if it's not exactly a perfect fit.
2. TESTIMONY4 but also as FP1 mentioned, working in this industry where sometimes technology can be extremely disruptive and it's very hard to find the right people for the job it for the business it makes it hard to transition to things that add value from a business sense if you're not able to grow the skills in the workplace to handle that if you're not able to find them externally

Onboarding organization community vs Company?

1. TESTIMONY4 As a follow-up question, do you think it's easier to set up those programs within a given company versus within a given community like is it easier to get management approval for example if you set it up within the same organization how do you think it relates between community to even and company driven mentorships? If you want my personal opinion, I think it's a lot easier to set up in an open-source community trying to think of the right way to answer this in terms of the company perspective in a large company that has many moving parts and many layers of reporting