Most Actively Modified Modules of OpenStack Nova Project

Aime Nishimwe[a,b]

[a]University of Nebraska-Lincoln, 1400 R St, Lincoln, NE,USA

1. INTRODUCTION

The main page the OpenStack Nova project describes the project as the hub for cloud computing fabric controller. It serves to build various tools such as Hyper-V, PowerVM, and VMware, which can easily be integrated and configured for cross-platform compatibility. These tools allow self-service access to computer resources such as virtual machines, physical machines, and containers. For more information, visit OpenStack Guide. In this report, we investigate the most active modules of the OpenStack Nova project by looking at the most number of commits per module. The churn rate, defined as the sum of added and removed lines per commit, was also calculated.

2. RESULTS AND DISCUSSION

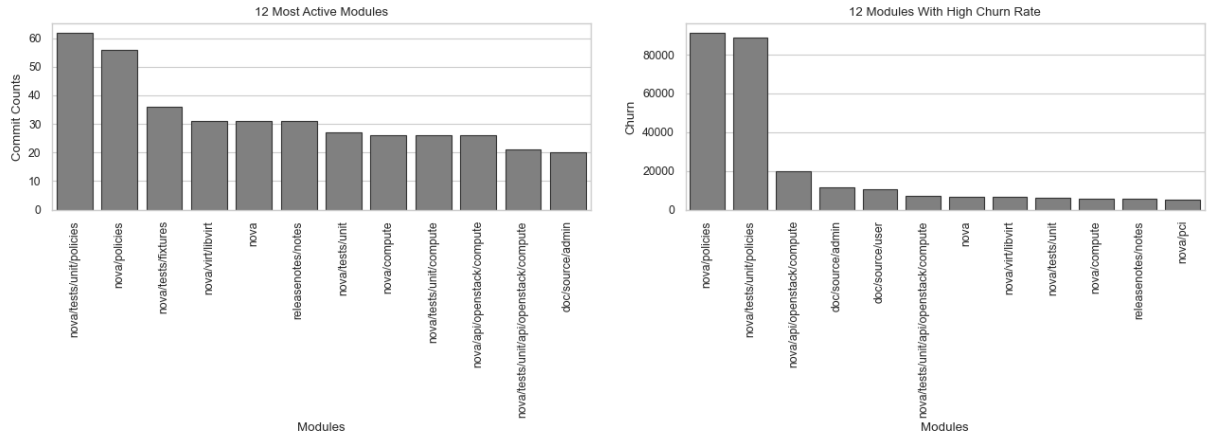

Figure 1. The left figure summarizes the number of commits per module among the top 12 most active modules for the last six months (2021-09-18 to 2022-03-18). The right figure summarizes the churn rate per module for the last six months.

Figure 1 indicates that modules concerned about project policies are the most active modules. By the number of commits and churn rate, these policy modules seem to be the most active ones with over 50 commits and over 80000 churn rate in the past six months. This must be true due to the fact that the OpenStack Nova project is an open-source project built on top of and serve proprietary and open-source software. Therefore, more activities are expected in the policy modules as the authors try to accommodate for various changes in dependencies. Other outstanding active modules include unit testing modules as well as compute modules. The compute modules contain source codes for the OpenStack Computer API, through which multiple services are provided such as scalable, on-demand,service-service asccess to computer resources – Virtual Machines, containers, and others.[1] The compute module is the core the OpenStack Nova project, and therefore among the top most active modules. It is not surprising to see unit testing modules among the top most active modules, which is an indication of proper software engineering practices.

3. CONCLUSION

The nature of open-source software dictates a constant changes in policies to maintain the usefulness of the project, and therefore policy modules tend to be among the top most active module. Following policy modules are unit testing modules and software core modules. In the case of OpenStack Nova Project, the core was the RESTful HTTP service called OpenStack Compute API, which meant that compute modules were among the top 12 most active modules by the number of commits and churn rate.

REFERENCES

[1] OpenStack, "Compute api — compute api guide 2.1.0 documentation,"