

# Network Operators and Open Source Software Study

## Project Overview

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This document is one subsection of the Network Operators and Open Source Software project report. Full report available from <https://possie.techark.org/>

# Network Operators and Open Source Software

Go to any network operator group meeting, and you'll be met by a pre-meeting hackathon, encouraging participants to engage in open source software (OSS) development of some description. The sense is that OSS is important to network operators. There's also an accepted truth that network operators are not as engaged with OSS as they might, or ought to, be.

In 2019, a project was established to explore this apparent contradiction. One set of goals of the project was to better understand who is using, contributing to, and supporting OSS, and why. Another set was to better understand who is *not* doing some or all of the above. What are the sources of friction that can be addressed to improve engagement with OSS? What are the things that are immediate attractors, or outright buzzkills?

The project started with a hypothesis that some organized efforts at collaborative development of OSS could lead to useful things for network operators. That basic hypothesis left a lot of scope for the kinds of problems that might be solved through such OSS development (tooling? Reference implementations? Etc), and what "collaborative" might mean. It also didn't square up well with the fact that network operators seem reluctant in contributing to open source development projects. Was that from a lack of interest in OSS tools? Or something else?

The purpose of this project was to carry out two pieces of critical research as groundwork for creating a viable "platform for open source software for Internet evolution" (POSSIE). The two critical pieces of research are:

1. A pilot open source project, developed collaboratively, to demonstrate interest in such activities and governance methods
2. An industry survey to raise awareness in the project and capture objective measures of interest in different possible models for scoping POSSIE's work, and ensuring any resulting software was useful in industry.

## Pilot project

As a first step in developing the governance framework for POSSIE, a pilot project was proposed. The specific proposed project was to work with network operators to develop a router configuration validator tool for the Internet Society’s “Mutually Agreed Norms for Routing Security” (MANRS) initiative. Specific project steps are outlined in the project report, and largely cover managing the processes of developing the OSS problem statement, finding participants, and facilitating development and review, through open and transparent processes.

As the report indicates, the project saw some lumpy progress forward, but it fell apart because the people with the focus and interest to do the work didn’t have the cycles. In looking to find new project drivers, it became a battle of choice of favourite tools. While a broad range of network operator participants would show up for calls to talk about the project and requirements, they didn’t have cycles, or necessarily the skills, to do the actual OSS work. This is backed up by the survey results.

## Industry survey

This project undertook a survey of network operators to gather information about:

- Scoping – is the primary interest in reference implementations for new and existing open standards? Horizontal implementation of networking suites to facilitate new development (e.g., IoT, white box routing)? Opportunistic development of specific network management and monitoring tools?
- Role – should the platform provide more than a basic development environment, in terms of additional awareness-raising efforts, incubation of projects and/or network code developers?
- Support and uptake – what are the primary factors in ensuring uptake of the resulting software? (E.g., involvement in development, having paid support plans available, etc).

The survey took the form of two questionnaires: one offered for individual contributors to OSS, and the other for decision makers within companies that do (or do not) use, contribute, or support OSS.

The survey project saw much more response than even hoped for — 48 total

responses in the 6 weeks the survey ran. As outlined in the report, the responses provide some clarity on the contradicting views about network operators and OSS — *e.g.*, the biggest impediments are lack of cycles and/or skills; clarity on what both individual contributors and decision makers actually want from OSS.

Overall, project results suggest the following for any OSS project to be successful in attracting network operators to use and contribute to it:

- Projects need to have an open governance structure
- They must be supported with good documentation
- Continued support (freshness of development) is important
- It's not reasonable to require coding resources uniquely from network operators
- In order to see engagement from network operators, the OSS project should address an operational problem faced by the operators.

These are all points that could be addressed in any eventual “Platform for Open Source Software for Internet Evolution”.

*Full report available at <https://possie.techark.org>*

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