

Session 2: Open Source Perspective – Is open source one of the building blocks of 5G?

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Open source ecosystem-based innovation delivers technology commons - Abstract

OW2 is a global non-profit organization founded in 2007. Our mission is to foster the development of a portfolio of open source infrastructure software. Our technical scope includes middleware, enterprise application platforms, cloud computing, big data, IoT, privacy and security and we recently announced an initiative on accessibility. We host some 100 projects, and we have 40 institutional members and 2200 individual members.

It is from this perspective that I'd like to share with you four observations.

1) There are at least three open source models.

People often think of open source in abstraction as if it was a black box and the result of some witch craft. It is useful to understand that open source is not monolithic and that today's open source, the result of 30 years of evolution, is a combination of at least three models:

- Developer model: urban educated IT professional motivated by ethical values and technical challenge contributing to community projects (historical examples: the GNU project, the Apache web server). This model fuels the “romantic” vision of open source.
- Enterprise model: company using leveraging the open source business model and using it to penetrate market segment (often already dominated by proprietary vendors, examples: SugarCRM, SpagoBI, Talend). This model fuels the vision of an opportunistic open source that destroys value.
- Ecosystem model: group of companies using open source as a vehicle for collaborative innovation (examples: OpenStack, OpenDaylight, OPNFV). This model is mostly ignored and yet it represents the most advanced and professional use of open source.

2) The open source experience is determined by software.

The open source model is enabled by the internet and the characteristics of software and the software industry. Software is agile (even volatile), software innovation are quick to find their way to the market, entry cost is low and exit costs are limited, mistakes have limited consequences and pivoting is possible. Think of innovations that came out of garages (or university dorms) and picked up gradually fueled by venture capital money; think of eBay, Facebook, Google. More recently, think of containers and microservices, think of blockchain. In my understanding, cycles are longer in telecommunications and both entry and exit costs are high.

3) Standardization in telecommunication and software

The software industry has always been heavily influenced by de facto standards imposed by dominant vendors (examples: the Microsoft document formats, Amazon dominates standardization in the cloud computing space). In software, de jure standards seem to happen ex-post, precisely because the time it takes to define a standard is longer than the time it takes for a de facto standard to take over a market.

The software industry is a jungle compared to the telecommunication industry which is highly structured and has strong professional organization and SDOs that work on de jure standards that happen ex-ante. However the software-defined everything trend is hitting the telecommunication world. Both equipment vendors and network operators must adapt to the software rationale and this includes the way standards are defined. Mindsets need to adapt to the possibility of ex-post standards or at least to the need to *fast-track* de jure standards.

4) Open source creates technology commons

Code is only a fraction of the software value chain. To become an actual product, code must be complemented by documentation, and provision for evolution, training, technical, financial and legal support. Of the three open source models introduced above, only the entrepreneur model actually provides a product. The developer and the ecosystem models are not concerned by delivering products. They create *technology commons* i.e. technology and components that are destined to be used directly by users and integrators that have the necessary competence or integrated into commercial offerings. In the open source world, we call these commercial offerings *distributions*. It is with the distributions that commercial vendors make money. Examples: the RedHat, Suse, etc. distributions of Linux, the HPE, Huawei, etc. distributions of OpenStack, the HortonWorks and Cloudera distributions of Hadoop.

Open source is mature and professional. It is relevant, and I'd like to say unavoidable, in the context of 5G innovations that will bear many characteristics inherited from the software industry.