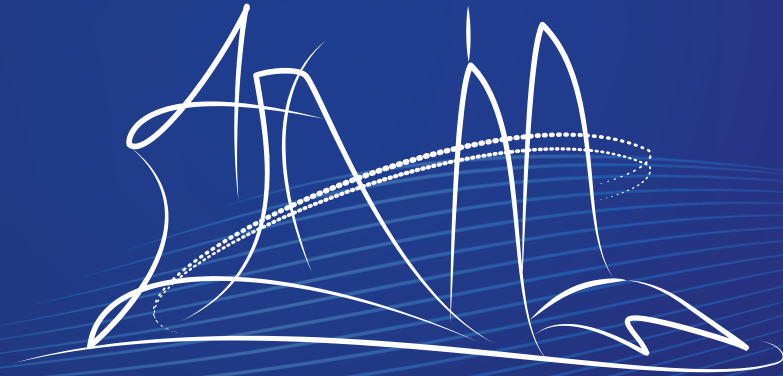


NGMN & Open Source

Sudhagar Chinnaswamy
Principal Software Engineer



“Open” Means Different Things

“Open Architectures”

Modularized software functions assembled to enable interchangeability with defined intra-module interfaces

“Open Standards”

Based on functions standardized and available via specification from one of many SDOs

“Open APIs”

Published, exposed APIs that enable applications and network functions connected to the platform to interact with each other

“Open Source”

Platform built through a robust development community in which source code is freely available to be distributed

“Open Ecosystem”

Platform environment in which vendors compete on a level playing field, with common access to tools and information

Open Standards vs. Open Source

Open Standards

- Define interfaces well
 - in human-readable documents
- Define behavior with some ambiguity
- Usually move slowly
- Leave interoperability testing to others, e.g., users, integrators
- Sometimes provide open source implementations

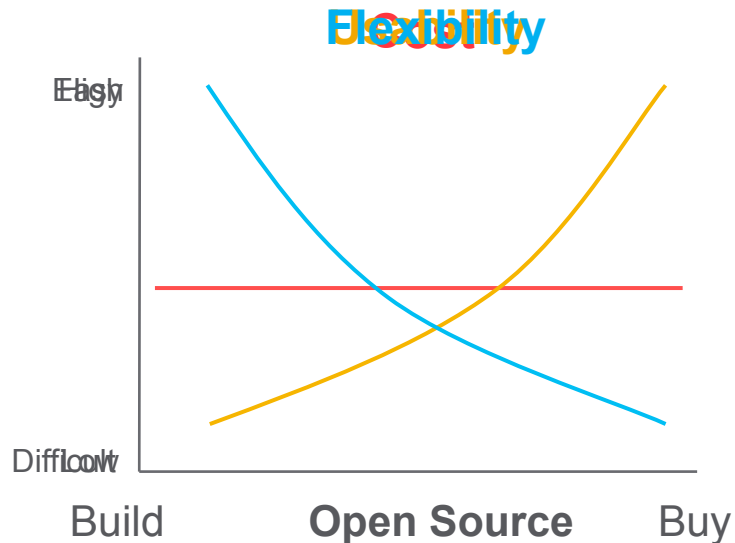
Open Source

- Define interfaces well
 - in code
- Define behavior in code so it can be tested and understood
- Move and adapt quickly
- Can do interoperability testing as part of development
- Often implement open standards

Why Open Source?

- Avoid vendor lock-in
- Have a seat at the table
- Faster Innovation
- Easier Interoperability & Integration

- You'll note I didn't say cost



The Risks of “Open”

Number of Open Source projects proliferating beyond supportability, risks becoming new “proprietary”

Open Source Lock-In the Equivalent of Vendor Lock-In

“**Openwashing**” (2009, Michelle Thorn, Mozilla): To spin a product or company as open, although it is not

“**Fauxpen**” (2009, Marsosudiro): A description of software that claims to be open source, but lacks the full freedoms required by the Open Source Definition



STORM



Open Source
MANO



OPEN
Compute Project



PROJECT
Clearwater



OVN



PLATFORM
ERATE NFV
aborative Project



Increasing risk of selecting the wrong open source project for adoption

Defining NGMN Direction on Open Source

- NGMN should recognize that the proliferation of open source projects creates opportunity and poses an innovation risk
- **PROPOSAL: NGMN should conduct a thorough analysis of open source projects***
 - **Classify / Categorize open source projects** based on relevance and impact to mobility (Metrics to be defined by working group. Example on next slide.)
 - **Explicitly** (publicly) **endorse open source projects** that meet a defined set of criteria determined through the analysis, as agreed-upon by the NGMN partners and Board
 - **Publish a NGMN White Paper in 2016 on Open Source in 5G**
 - May be in collaboration with one or more open source projects

*Note: **Brocade offers to lead work item**

Example : Defining “Open” in Open Source

- Who can contribute?
- Who does contribute?
- How are decisions made? Who can comment? Who can vote?
- What license does it use?