

# HAPPILY MARRIED OR WARRING FACTIONS? OPEN SOURCE AND STANDARDS DEVELOPMENT

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“ *In the communications industry, no one model of how to create standards prevails. Some groups are more formal than others, some include implementation as well as specification development, and some are defacto standards efforts driven by open source coding.* ”

Michael S. Richmond, Retired from Intel  
Former Executive Director of the Open Connectivity Foundation

“ *In essence, industry standards facilitate global and domestic understandings of what is acceptable, while fostering appropriate levels of competitiveness.* ”

HG.org, legal reference website

“ *Coopetition – collaborating to create greater value than that which would result without it ... while leaving room for differentiation.* ”

I just made that up

# Standards bodies increasingly interested in open source



W3C – spec only official after code exists

So why does one need specs ... just look at the code!

Initial focus for OSS is often in tools (WiFi Alliance)

Telecom SDOs\* highly interested but cautious (3G/4G/5G...)

The power of money...

\* Other names and brands may be claimed as the property of others.

\* SDO = Standards Development Organization

# Why the increased attraction?

**Inter-connected systems with many interface points + Moore's law**

**High demand for middleware that's hard to monetize ... spec or OSS project?**

**Rise of software in accelerating innovation**

- Software-defined infrastructure (SDI)
- Network function virtualization (NFV)
- Software-defined radios, antennas
- Lower cost reprogrammable memory, FPGAs
- Agile, CI/CD, ...

**Rise of Google, Amazon, Facebook, Baidu, Yandex, ... global super powers**

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**OPEN SOURCE  
VS  
STANDARDS**

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OR

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**OPEN SOURCE  
  
STANDARDS?**

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# Lots in common, just a different approach...

## STANDARDS / SPECS

Focuses on the What

Specs enable certification tests which drive interoperability

A standard typically has many implementations

Assertion of IP by getting it into the spec

Industrial efficiency – volume economics, commoditization, etc.

## OPEN SOURCE

Focus on the How (this is work!)

API compliance ensures things work together

Some open source projects have a single implementation, others more

Assertion of an implementation by making the code available for others to distribute

Accelerated development of commercial solutions and a community of maintainers

# Example 1: The cool kids have been doing this for years

The screenshot shows a web browser displaying the 'Payment Request API' page, which is a W3C Editor's Draft. The page is titled 'Payment Request API' and is dated 'W3C Editor's Draft 09 February 2017'. The page features a 'TABLE OF CONTENTS' on the left side, listing 13 sections: 1. Introduction (Goals, Out of scope), 2. Definitions, 3. PaymentRequest Interface (Constructor, show(), abort(), canTakePayment(), shippingAddress attribute, shippingOption attribute, Internal Slots), 4. PaymentMethodData dictionary, 5. PaymentCurrencyAmount dictionary, 6. PaymentDetails dictionary, 7. PaymentDetailsModifier dictionary, 8. PaymentShippingType enum, 9. PaymentOptions dictionary, 10. PaymentItem dictionary, 11. PaymentAddress interface, 12. PaymentShippingOption dictionary, and 13. PaymentComplete enum. The main content area includes a 'W3C' logo, a 'This version:' link, a 'Latest published version:' link, a 'Latest editor's draft:' link, a list of 'Editors:' (Adrian Bateman, Zach Koch, Roy McElmurry), and a 'Version control:' link to the GitHub Repository. The page also includes an 'Abstract' section and a 'Status of This Document' section.

The spec itself is an open source project in github.

To change the spec, make a pull request.

Typically, two working implementations are required for spec approval\*

Is this the future of standards development?

\* Workgroups have flexibility as to whether implementations are open source or binaries / APIs. They also have flexibility as to whether implementations are required for spec approval.

## Example 2: Match made in heaven? or still room for spats?

### Specification body



Nothing can be mandatory in an [OCF spec](#) unless an open source reference implementation is available

IP policy: RANDZ  
(Reasonable and non-discriminatory w zero royalty)

OCF owns certification (mark, tools, program)

### Open Source Project



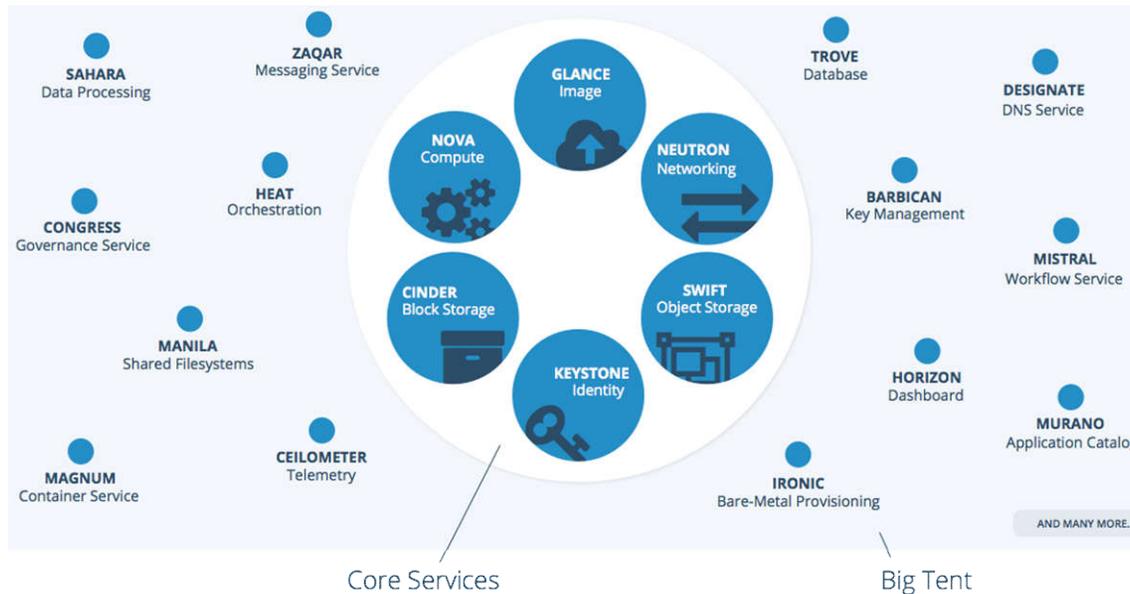
Sponsored by OCF and hosted by Linux Foundation

IP policy: Apache 2.0  
(Provides patent protection from code contributor.)

OCF membership not required to be part of the open source project

Source of tension - spec or code first?

# OpenStack\*: “Collective Implementation”



Standard, high volume compute makes it about the software.

Compatibility manifested at the API level

Lack of API specs / guidance a source of growing pains

Lots of middleware

“ I'm not sure if it's an example of what to do or what not to do, but the project hasn't died because of it.”  
Dean Troyer, OpenStack Client PTL

\* Other names and brands may be claimed as the property of others.

# What do we need to think about as these hookups continue?

Intel recommends that developing SDO\* OSS\* IPR policies include:

- 1) an express reference to and acknowledgement of the OSI Open Source Software principles;
- 2) a requirement that OSS projects only use an OSI-certified license, and that this OSI-certified license is the only license required; and
- 3) clearly articulated expectations for participation in OSS projects.

## Key Points

- Intel is OSI-license agnostic – they all have their virtues.
- Consistency & transparency is key: Don't call it open source software if it isn't.
- OSS projects may not be well-suited for all SDOs or software projects
  - Make sure SDO objectives for your software project align with OSS principles

\* BKM = Best Known Methods; OSS = Open Source Software; SDO = Standards Development Organization

# Summary

There isn't a single best approach. We should build our knowledge of best practices, pitfalls and considerations.

What should your company be thinking about re: pre-nuptial agreements for the marriage of standards and open source?

# Let's keep talking!

**Wednesday, February 15 2:00pm**

[Open Source & Standards: Working Together - Charles Eckel, Cisco](#)

**Wednesday, February 15 2:40pm**

[Using Open Source and Open Standards in the Platform Game: War Stories and Lessons Learned - Patrick Chanezon, Docker](#)

**Wednesday, February 15 3:20pm**

[Does Open Source Need SDOs? - Doug Davis, IBM](#)

**Wednesday, February 15 4:10pm**

[Panel Discussion: How Open Source is Reshaping Standardization](#)

# BACKUP

# Happily married or warring factions? Open source and standards development.

## Abstract:

Having been involved in development of standards in the IEEE, global spectrum policy in the ITU-R and numerous open source projects and their respective advocacy groups, I find the evolving practices of how companies collaborate to advance new technology fascinating. This talk will share observations of how the process for development and adoption of new specifications, standards and code is evolving as well as touching upon how the protection and assertion of intellectual property is impacted.

## **Open Source Leadership Summit**

Tuesday, Feb 14th, 2017

# Is one approach better than the other?

Many companies can more easily agree on the “what” – the spec -- vs. the “how” – the code implementation

Standards are better for products (e.g., hardware, silicon, etc.) with a long life cycle (sprinkle in 4G exp)

Open source (and its associated culture) is not favorable to asserting and enforcing essential IP

Software is able to be agile, standards, not so much

Open source allows the industry to scale more quickly

In open source, the developer or architect is “king” and that’s good



STANDARD



OPEN SOURCE



# Principles of Open Standards (W3C)

## Cooperation

Full cooperation between standards organizations, whereby each respects the autonomy, integrity, needs, and intellectual property rules of the others.

## Reference to Principles

Reference to the five fundamental principles of standards development:

**Equity and fairness.** Decisions are made with equity and fairness among participants. No one party dominates standards development. Standards processes are transparent and opportunities exist to make informed decisions. Processes for periodic standards review and updating are well defined.

**Global consensus.** Processes allow for all views to be considered and addressed, such that agreement can be found across a range of interests.

**Transparency.** Standards organizations provide advance public notice of proposed standards development activities, the scope of work to be undertaken, and conditions for participation. Easily accessible records of decisions and the materials used in reaching those decisions are provided. Public comment periods are provided before final standards approval and adoption.

**Non-discrimination.** Standards activities are not exclusively dominated by any particular person, company or interest group.

**Openness.** Standards processes are open to all interested and informed parties.

## 3. Collective Empowerment

Commitment by affirming standards organizations and their participants to collective empowerment by striving for standards that:

- are chosen and defined based on technical merit, as judged by the contributed expertise of each participant;
- provide global interoperability, scalability, stability, and resiliency;
- enable global competition;
- serve as building blocks for further innovation; and
- contribute to the creation of global communities, benefiting humanity.

## 4. Availability

Standards specifications are made accessible to all for implementation and deployment. Affirming standards organizations have defined procedures to develop specifications that can be implemented universally. Given market diversity, fair terms may vary from royalty-free to fair, reasonable, and non-discriminatory terms (FRAND).

## 5. Voluntary Adoption

Standards are voluntarily adopted and success is determined by the market.

# Getting Essential IP into Standards

Tactics for gaining essential IP via standards control:

- aggressive development of technical contributions to standards bodies containing company IP;
- industry alliances to support contributions;
- large human footprint at standards body meetings;
- securing official seats (chair, editor, etc.) in working groups;
- securing seats in higher level approval committees.

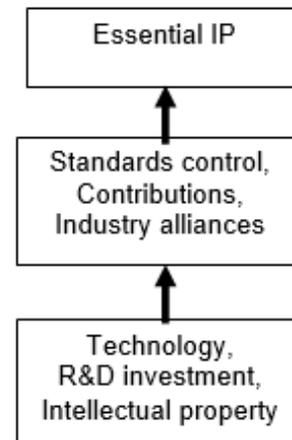


Figure 12: Relationship between IPR and standards control