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Intellectual property licensing tensions in incorporating open source into formal standard setting context – The case of Apache v.2 in the ETSI as a start

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Outline

- 1. Introduction
- 2. SSO and OSS
- 3. Perceived Tensions
- 4. Apache v.2 and the ETSI

1. Introduction – background

- Standard Setting Organizations (SSOs) explore the role of open source software (OSS)in standardization for future technologies, e.g. 5G, IoTs, cloud computing
  - ITU (2016, 2017); ANSI (2016); ETSI (2016)

- Intellectual property Rights (IPRs) in the interplay is not clear
  - Compatibility issues between FRAND licenses and open source licenses (OSLs) (Kesan, 2011; Mitchell QC & Mason, 2011; EC, 2014; Lundell, Gamalielsson & Katz, 2016, etc.)
  - Other uncertain issues regarding copyright and patent right (ETSI, 2005 & 2015; Lundell & Gamalielsson, 2017)

1. Introduction – Research question

- Whether the current IPRs framework of formal SSOs is adequate to embrace OSS ?
  - Formal SSOs perspective, ITU, IEEE, ETSI
  - Nine popular OSLs identified by OSI, including: GPL, Apache v.2, MIT…
- Two major scenarios
  - Open source implementation based on existing standards
  - An SSO hosts an open source project in standardization process

2. SSO and OSS - Libraries and Bazaars?

- Krechmer（2002）
- Standards are vetted   Open source is a

2. SSO and OSS - different ways of dealing with IP

- **SSO:**
- *Copyright:*
a. Copyright of specifications maintained by the SSO;
b. Embedded software is subject to software guidelines: ITU, ETSI

Stability over distribution

- **OSS:**
- *Copyright:*
a. Developers give away a bundle of exclusive rights under an OSL.
b. RF copyright license subject to terms and conditions

Freedom to distribute is at the core

2. SSO and OSS - different ways of dealing with IP

- **SSO:**

- *patent:*

a. Owned by patent owner (members);

b. Implementers need to seek a license;

c. License terms subject to FRAND (ITU, IEEE and ETSI), normally royalty bearing

- **OSS:**

- *patent*

a. Some have patent grant clause (6 of 9).

b. RF patent license subject to terms and conditions

3. Perceived tensions

	Implementation (A)	Standardization activities (B)		
		Direct use of code (i)	Essential copyright (ii)	Patent built on code (iii)
SSO	FRAND	Ownership of specifications	FRAND, compare with SPEs (ETSI)	FRAND on SEPs*
		Distribution: Software guidelines (ITU, ETSI); Not specified (IEEE)	Not specified (ITU, IEEE)	
OSS	*NA*	Contributors own the copyright	Contributors own the copyright	RF Patent clause (GPL v.3, ...)
		Free distribution subject to OSLs	Free distribution subject to OSLs	*NA* (MIT…)
Gaps	Incompatible with Strong copyleft	Incompatible	Lack of clarity	Lack of clarity

3. Perceived tensions (A)

- Implementing SSOs standards in OSS

- Previous research on patent issue: GPL family is not compatible with FRAND (Mitchell & Mason, 2010; Kesan, 2012) However, it is not the patent licensing in an OSLs (e.g. clause 3 in Apache v.2) makes it compatible, but the "strong copyleft" feature

- Copyleft: a general method for making a program (or other work) free (in the sense of freedom, not "zero price"), and requiring all modified and extended versions of the program to be free as well."

- E.g. OpenBTS, OpenBSC, Open IMS Core (ETSI, 2015)

3. Perceived tensions (B)

- Usage of OSS in developing SSOs standards (i)

    – _Direct use of running code_
    a. Copyright ownership: who claim the copyright
    b. Distribution rules: software guidelines (ITU & ETSI) v. freedom to distribute (OSLs)
    c. Lack of specific rules: IEEE, should OSLs prevail?

3. Perceived tensions (B)

- Usage of OSS in developing SSOs standards (ii)

  – _Code becomes essential_

  a. Lack of specific rules:

  b. FRAND commitment cover essential copyright? Or OSLs prevail?

  " …patents and copyrights are sufficiently different that using the same language do address both types of IPRs provides a less than ideal result…" (Bekkers & Updegrove, 2012)

3. Perceived tensions (B)

- Usage of OSS in developing SSOs standards (iii)

    – _Functions derived from open source code_

    a. RF or FRAND?

    b. Different from OSS implementation

    Since the standard is connected with a hosting open source projects

3. Perceived tensions

|	Implementation (A)	Standardization activities (B)		
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Gaps	Incompatible with Strong copyleft	Incompatible copyright policy	Lack of clarity	Lack of clarity

4. Apache v.2 and the ETSI

- In April 2016, the ETSI launched an open source project "OSM" under the Apache v.2 license, which is aligned with ETSI (NFV).

- ETSI IPR rules:
  - Article 6: FRAND
  - Article 9: software guidelines

- Apache v.2:
  - No "copyleft"
  - Patent retaliation

4. Apache v.2 and the ETSI

- ETSI issued OSM Terms of Reference (ToR):
  - Defining the application scope of ETSI IPR rules and Apache v.2
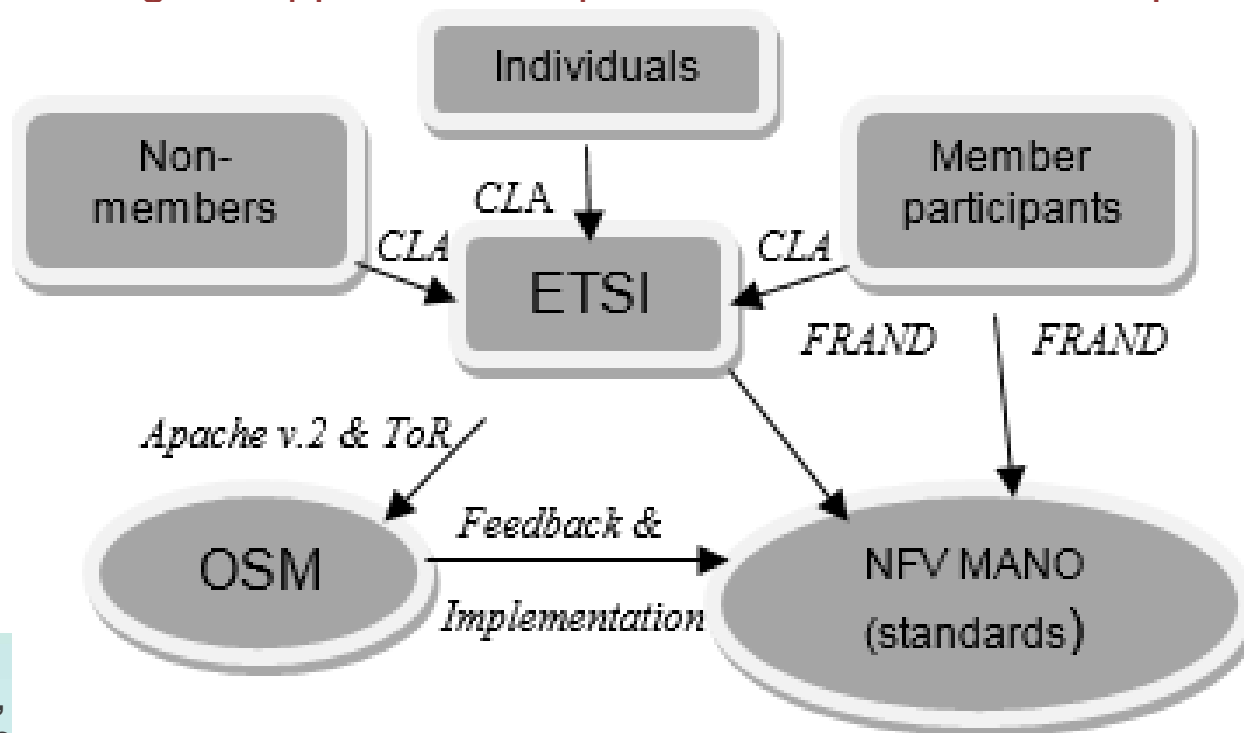
4. Apache v.2 and the ETSI

- Limited to implementation
  - "…[n]either the CR's nor the OSG OSM Reports will contain code for direct inclusion into an ISG NFV Group Specification". (ToR)
  - FRAND applies to SEPs, Apache v.2 applies to OSM
  - No tension

- Potential standardization actitivies
  - "provide practical and essential feedback to …three specifications." (ToR) – compare with RDFa and Drupal
  - No direct use of code, but functions may derive from OSM – scenario B(iii)
  - - Patent retaliation clause poses risks (32 out of 800 members participated)

Findings and discussions

- Gaps exist in the current IPRs framework of ITU, ETSI and IEEE, that poses uncertainties in utilizing OSS

- Software guidelines need to be updated in accordance with the goals of a specific SSO of to what extent it would like to embrace OSS

- ETSI OSM sets a good example practice, by issuing additional documents to limit the usage of OSS, however:

  - Risks still exist for patent holder members that impede their full participation
  - While on the other hand, open source developers may not be fully encouraged

- Future work for formal SSOs to explore, may be learn from OASIS, W3C and IETF…

Thank you

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