



Use of source code in ITU standards - An overview -

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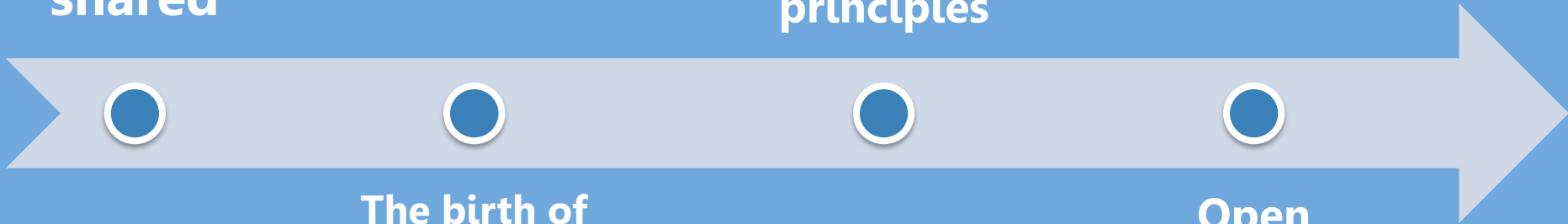
Timeline

**Source
code
shared**

**GNU's not Unix:
a question of
principles**

**The birth of
proprietary code
... and the
reaction**
(late 1970s – mid 1980s)

**Open
Source:
being
pragmatic**



Algorithms described in prose

- ❑ Implement proprietary (closed) code / hardware and describe (prose) for exact operation with pseudo-code
- ❑ Verification with test files ("test vectors") with near 100% code coverage



In ITU standards – the case of codecs

Algorithm development: support tools (1990)

- ❑ Unified to facilitate development
- ❑ Transition from hardware models to software models
- ❑ Common support tools, portable across many diverse systems
- ❑ Shareable with feedback to the community; not for implementation

...and it was good: use of shared code to describe complex algorithms

- ❑ No more "code to prose" translation; simple sets of test vectors
- ❑ Faster innovation: more sophisticated algorithms with better performance



A map

Other type of license

Speech/audio codecs post 1996:

G.711.0

G.711.1

G.718

G.719

G.722.1

G.722.2

G.723.1

G.729

G.729.1

(ITU Software Copyright Guidelines: free use to support testing and implementation)

Voice performance estimation: P.861 and P.862

Also: many non-ITU speech codecs

Open source license

Internal: (closed group)

Video codec "Test Model" &

H.264.2, H.265.2 for conformance testing ("BSD")

External:

H.761 (NC/GPL2), H.762 (LSK/BSD)

H.264 (x264/GPL2), T.81 (IJG)

G.191 – Software Tool Library (GPL1)

Reference

Normative

OpenITU

An open source platform and project

Started: September 2017

Experience will assess how governance should be updated

G.191 STL
diminishing
community in
ITU-T

- **Open to the community at large in GitHub:**
[OpenITU/STL](#)

Simple initial
governance

- **Open source code evolution based on contributions and adoption based on merits**
 - Regression testing for backward compatibility
 - Meet documented library functional philosophy and tool requirements
- **When sufficient set of new features are adopted, issue a new release**
- **Release is brought to ITU-T SG12 for approval under ITU's conventional process**



Remarks



Significant experience in ITU with the normative use of code

- Development by closed groups (groups of companies)
- Free uses defined (reference for implementation; basis for testing)

Open source licenses used in certain projects

- Development under ITU or ITU/ISO/IEC membership rules: "closed groups"

One experiment with open source project – OpenITU/STL

- Low risk project – allow people to be open minded
- Simple governance as starting point: no change to expected processes within each communities

