Contributions to ITU-T IPTV Standardization

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IPTV FG, 2006-2007

- Mission was to coordinate and promote the development of global IPTV standards
- To take into account the existing work of the ITU study groups and other SDOs

FUCAPI researchers attended some FG meetings

- They were then invited to present a Brazilian technology called Ginga, which was being standardized by ABNT by that time

UFPB (Federal University of Paraiba) attended the last FG meeting and presented Ginga to the group
Since 2008, the discussion on IPTV standardization has been carried out by some ITU-T Study Groups.

SG16 “Multimedia coding, systems and applications” develops most IPTV recommendations.

IPTV Global Standards Initiative (GSI) starts to promote a single location for information on and coordination of the development of IPTV standards

Coordinated by Anatel, FUCAPI and PUC-Rio develop the first contributions to Multimedia Application Frameworks in 2008.

Question 13 Study Group 16 “Multimedia application platforms and end systems for IPTV”
Contributions on IPTV

- Brazilian research centers and companies have been invited by Anatel to participate on discussions on ICT matters
- Contributions to ITU-T work items are encouraged
- Periodic meetings coordinate actions on IPTV trend topics
- Interested organizations prepare their IPTV contributions and send to Anatel for analysis and possible submission to IPTV-GSI or SG16 meetings
ITU-T H.760 Series - MAFR

Ginga-NCL for IPTV (H.761)

MHEG-5 for IPTV

SVG for IPTV

LUA

LIME (H.762)

HTML for IPTV

ECMAscript for IPTV

H.763.1 (CSS for IPTV)

DOM for IPTV

Mobile-enabled Profile
ITU-T H.761 is an adaptation of Ginga-NCL - ISDB - adopted in most of South America - Argentina, Peru, Chile, Venezuela, Ecuador... Second version consented this year.

Based on XML, declarative paradigm, focused on spatiotemporal synchronization among media objects

Scripting by Lua (script language)

Often used as a glue language for other multimedia frameworks, such as HTML, LIME, SVG.

Good integration with Video streaming

Can be used for mobile as well as fixed

Open-source, GPL, strong Community support in Latin America.
Lightweight scripting language

Usually used in conjunction with a host language to support application extensibility

Used in computer games

Part of Ginga-NCL specification

MAFR.14 keeps the NCL-agnostic part of NCLua as defined in H.761

Includes LuaTV

To be Consented this year
HSTP.IPTV-HRM.1 - Harmonization of MAFR technologies

- To compare and harmonize Multimedia Application Frameworks
- To define a minimal yet powerful common suite that can be embedded in fixed as well as mobile IPTV terminal devices
Conformance testing specifications

ITU-T H.761 conformance testing specification

- Assertion-oriented

- More than 600 assertions already accepted

- Test suite will be an electronic attachment - GPL

- Web-service to contribute with, configure and create NCL test suites
ITU-T Interop Events
Other documents & contributions

Documents:

- **HSTP.IPTV-HRM.2 - “Harmonization of MAFR series with multiple content sources”**
  Aimed at the description of use cases in which different sources of content can be coordinated by an MAFR application.

- **HSTP.IPTV-HRM.3 - “Harmonized security mechanisms for the MAFR series”**
  Protection of MAFR content itself and data that an MAFR application handles
Other documents & contributions

Documents

- HSTP.IPTV-MEH - “Multimedia Application Framework (MAFR) for e-health services”
  - How MAFR technologies can be used to implement e-health content? Which and how requirements are covered?

Other contributions:

- H.770 - “Mechanisms for service discovery and selection for IPTV services”
  - Proposal to add a mechanism to support TR-069 for service discovery.
Conclusions

- Brazilian research institutes are now used to transfer technologies to the industry
- Anatel coordination has been fundamental to the success of Brazilian contributions to ITU-T
- Discussions around Brazilian contributions are not only resulting in ITU-T recommendations but also improving the quality of our technologies
- Brazil has many potential contributors that should join this initiative