



Contributions to ITU-T IPTV Standardization

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IPTV Focus Group

- 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



ITU-T Q13/16 and IPTV-GSI

- 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”

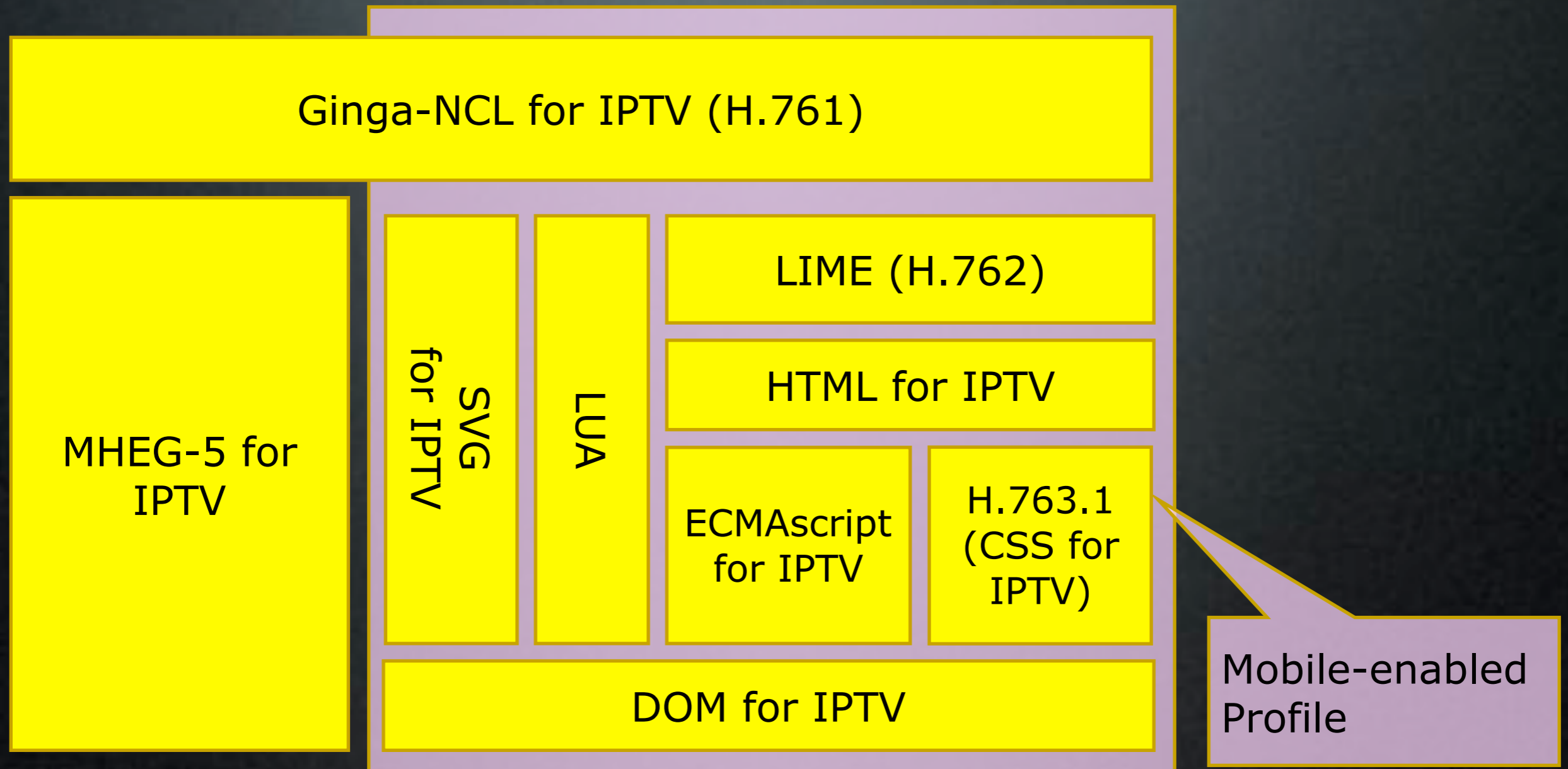


Contributions on IPTV

- 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



H.761 - NCL & Ginga-NCL (for IPTV Services)

- 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



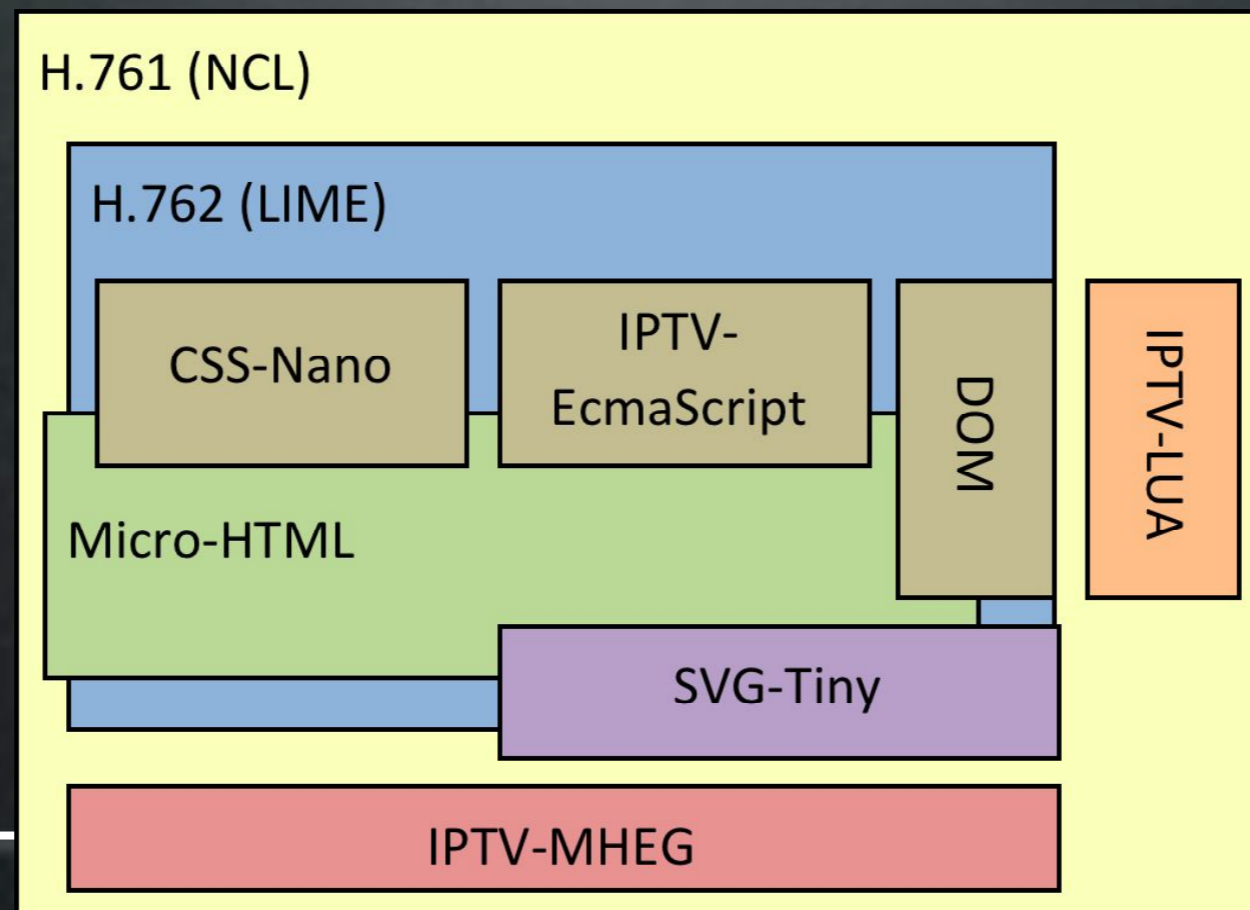
H.IPTV-MAFR.14 - Lua for IPTV Services

- 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



HSTP.CONF-H761 - H.761 Testing Specification

- Conformance testing specifications
- ITU-T H.761 conformance testing specification
 - Assertion-oriented

descriptor05		
Reference	ITU-T H.761 - 7.2.6	Presentation of a media node associated to a <descriptor> element that has the attribute <i>freeze</i> present.
Prescription level	Mandatory	
Validation type	Positive	
Target	Element <descriptor>, attribute <i>freeze</i> .	
Instructions	Create a document containing a <descriptor> element with its <i>freeze</i> attribute value set to "true". The media node associated to that descriptor must be normally presented with its last frame frozen at the end of presentation.	

- 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

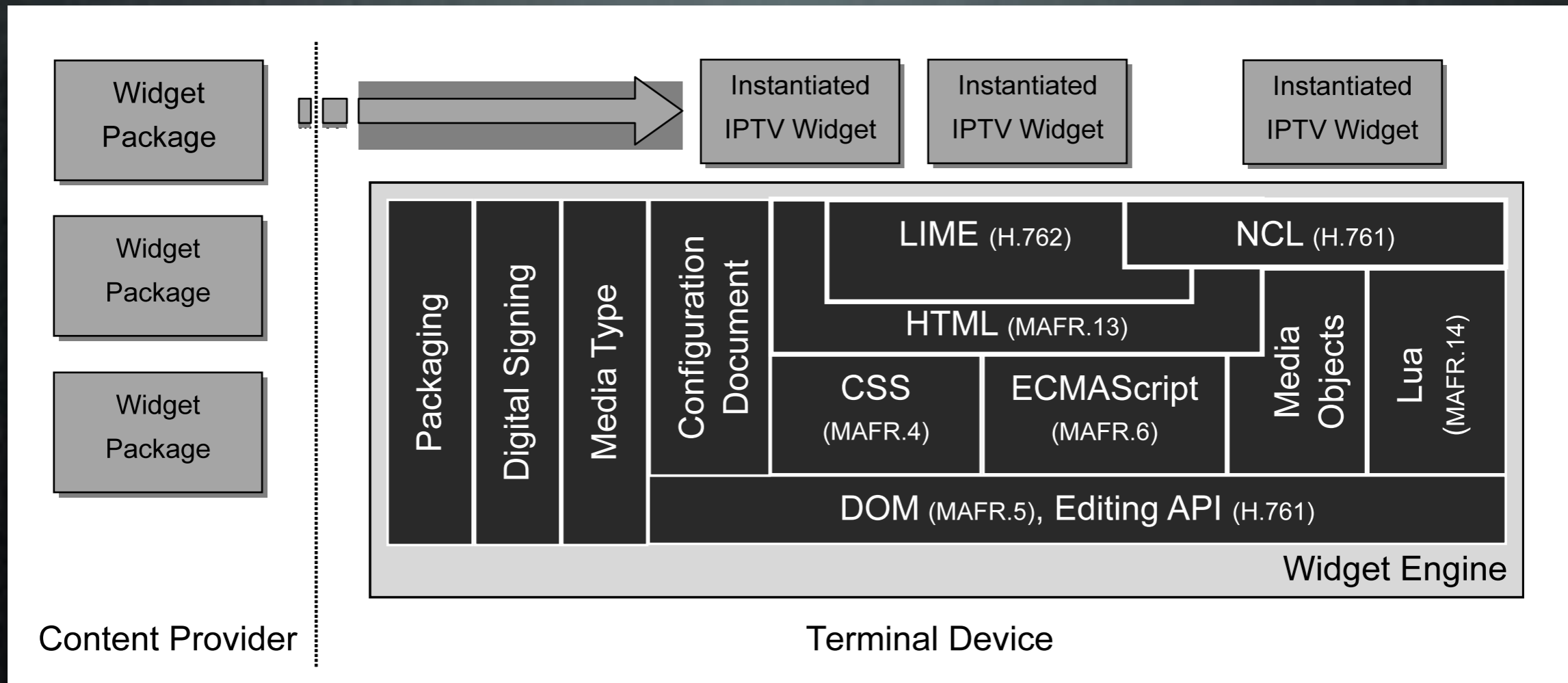
ITU-T Interop Events



LIME



H.IPTV-Widgets



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

