

Joint ITU - AICTO Workshop on “Interoperability of IPTV in the Arab region”

(Dubai, UAE, 20 – 21 September 2011)

ITU-T MAFR Series (H.760) and Ginga-NCL (H.761)

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ITU-T H.760 Series

Multimedia Application
Frameworks (MAFR)

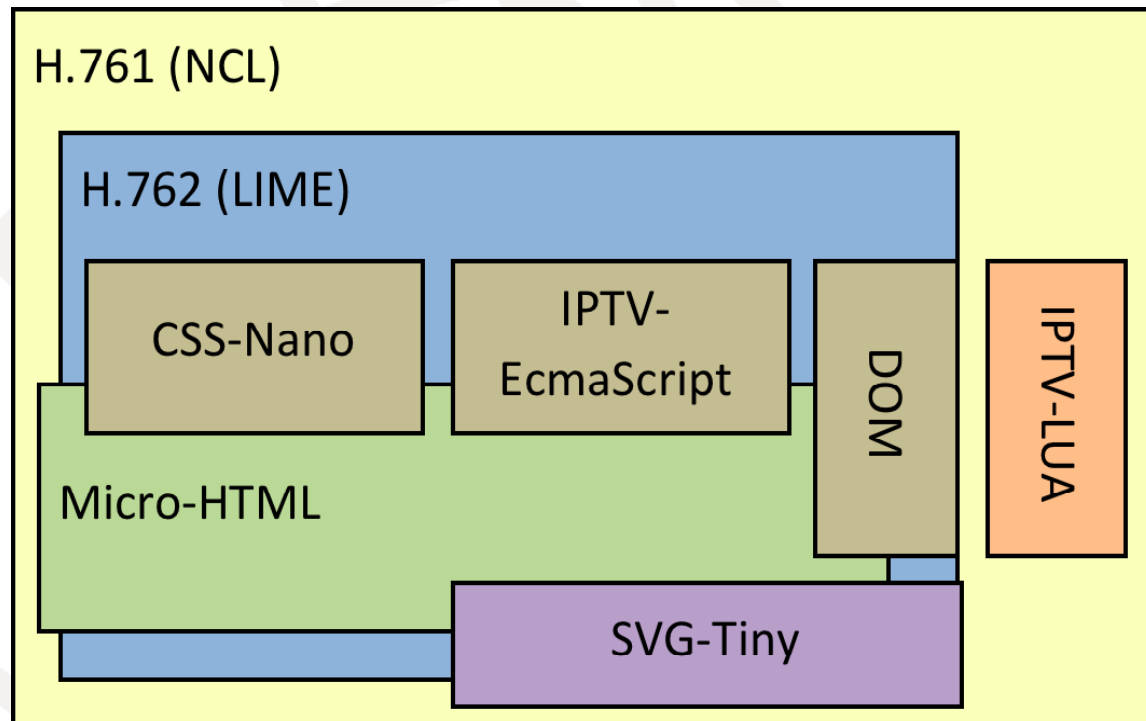
IPTV Multimedia Applications

- **Resident**
 - Applications installed by the manufacturer. EPG UI.
- **Installable applications**
 - Applications that can be installed by the user.
 - Runs locally, may access remote data. Widgets.
- **Not installable, pulled applications**
 - Online-available applications.
 - Request comes from terminal. Portals.
- **Not installable, pushed applications**
 - Available applications sent to the terminal with no request.
 - Broadcast applications. Content-related.

MAFR Series

- H.761 – Nested Context Language & Ginga-NCL
- H.762 – LIME Lightweight Multimedia Environment
- H.763.1 – CSS Cascaded Stylesheets
- MAFR.6 – EcmaScript
- MAFR.10 – SVG Scalable Vector Graphics
- MAFR.14 – Lua scripting language

Common MAFR Suite





ITU-T H.761

**Nested Context Language
(NCL) and Ginga-NCL**

Requirements Synchronization



Requirements Synchronization



Requirements


Interactivity




Requirements

Interactivity











Relene el formulario para comprar
Botas de Fútbol do Jolo - R\$ 350,00.

Tarjeta de crédito:

Validez:

Dirección:

[Orden de compra](#)



Requirements Content Adaptation



Requirements Content Adaptation



Requirements

Single Device



Requirements

Single Device, Live content



Requirements

Multiple Devices



Requirements

Multiple Devices

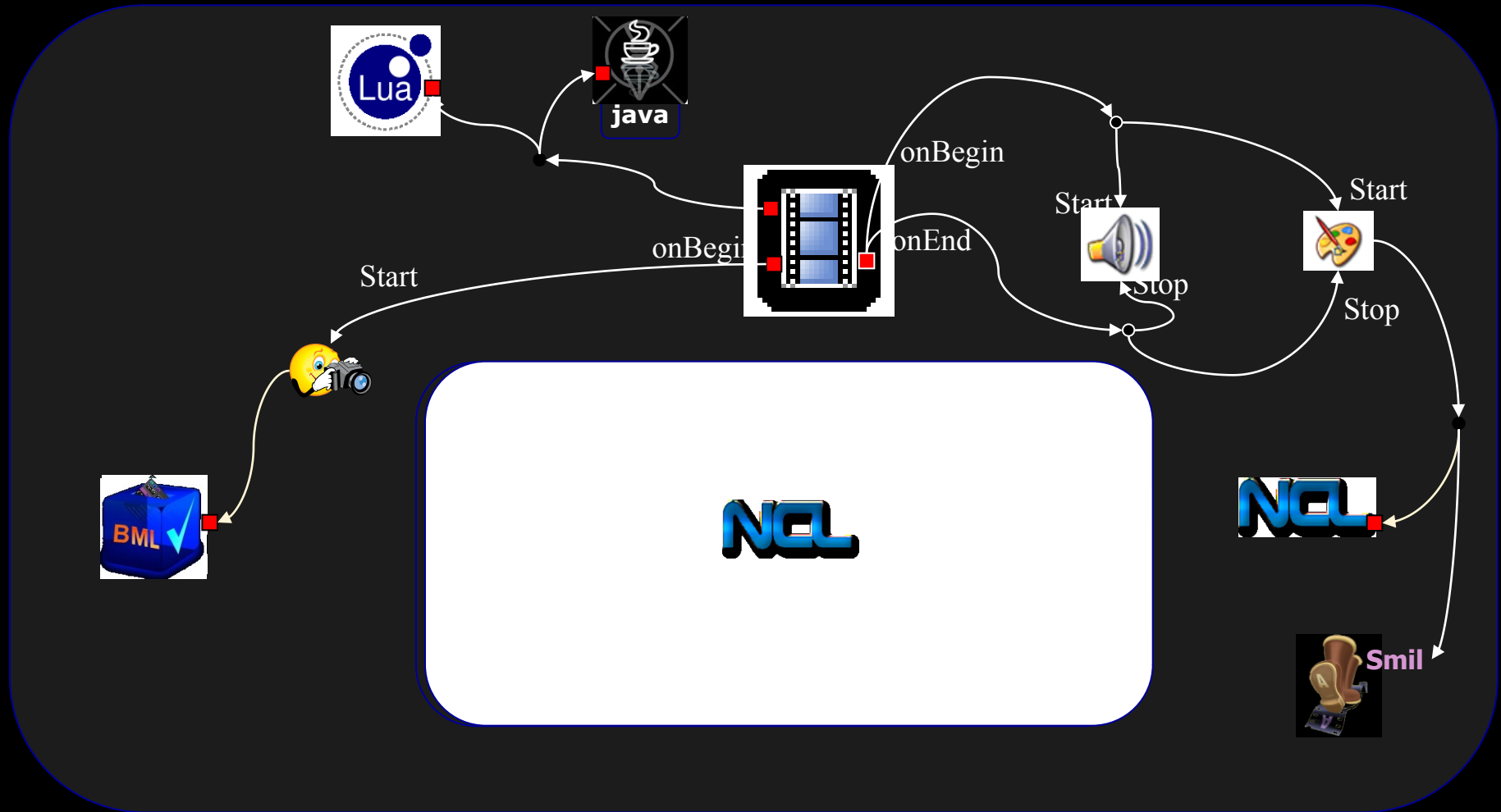


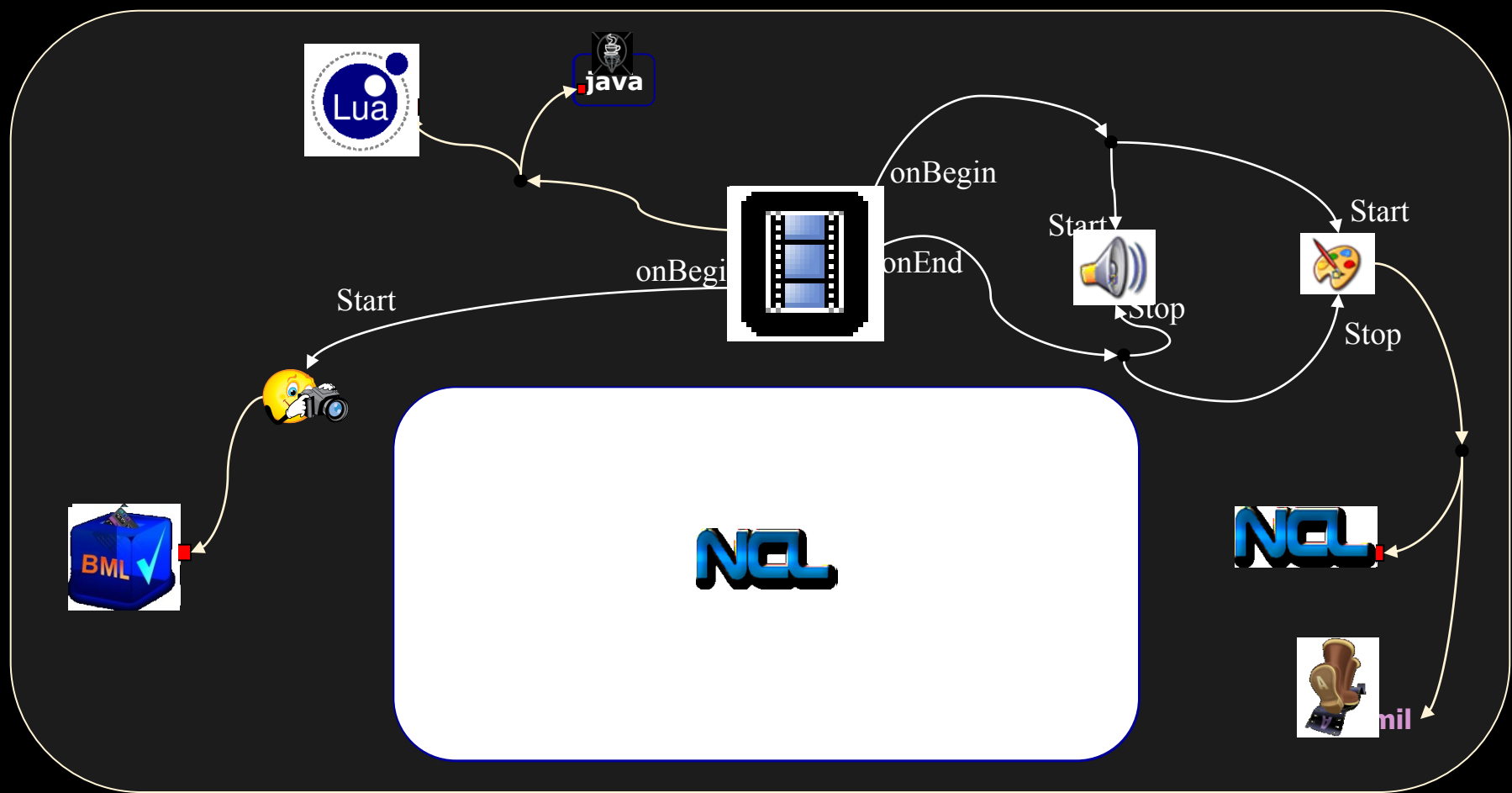
Requirements

Multiple Devices

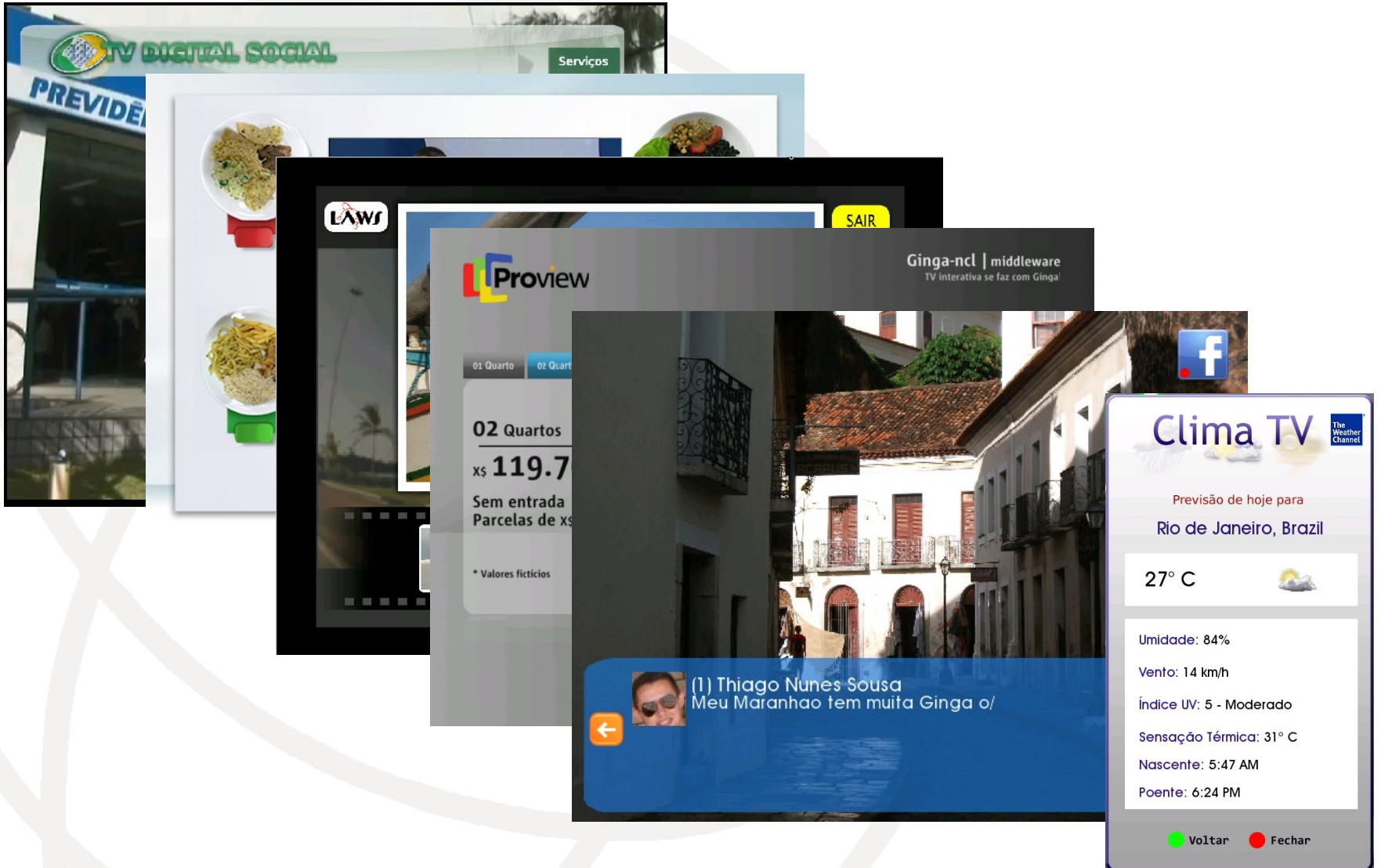


What is NCL





Screenshots



Screenshots



ITU-T H.761 market

- Adopted for FTA and/or IPTV by:
 - Brazil, Argentina, Peru, Chile, Uruguay, Paraguay, Bolivia, Ecuador, Costa Rica
- Vendors
 - Brazil, Argentina, Japan, China, Israel
- TV Sets, Mobile Phones, Set-top Boxes
 - Sony, Philips, LG, Toshiba, Nokia...

ITU-T H.761 Communities

■ Open-source Reference Implementation



The screenshot shows the Ginga-NCL website. At the top is the 'ginga NCL' logo. Below it is a navigation bar with links: Home, About Ginga, Documents, and Tools. A paragraph describes Ginga-NCL as a subsystem for presenting NCL documents, developed at PUC-Rio. Below this is a section 'you may also visit...' with logos for NCL, Clube NCL, and Ginga. Another section 'e as Comunidades Ginga...' displays logos for Ginga communities in Brazil, Argentina, Peru, Ecuador, Chile, and Bolivia. At the bottom is a language selector with 'English' and 'Português'.

ginga NCL

Home About Ginga Documents Tools

Ginga-NCL is the Ginga subsystem in charge of the presentation of NCL documents and was developed at PUC-Rio (Pontifical Catholic University of Rio de Janeiro). It defines a presentation environment for declarative applications written in NCL. NCL is an XML application language that provides support for specifying spatio-temporal synchronization among media objects, media content and presentation alternatives, exhibition on multiple devices, and live producing of interactive non-linear programs

you may also visit..

NCL NESTED CONTEXT LANGUAGE Clube NCL ginga

e as Comunidades Ginga...

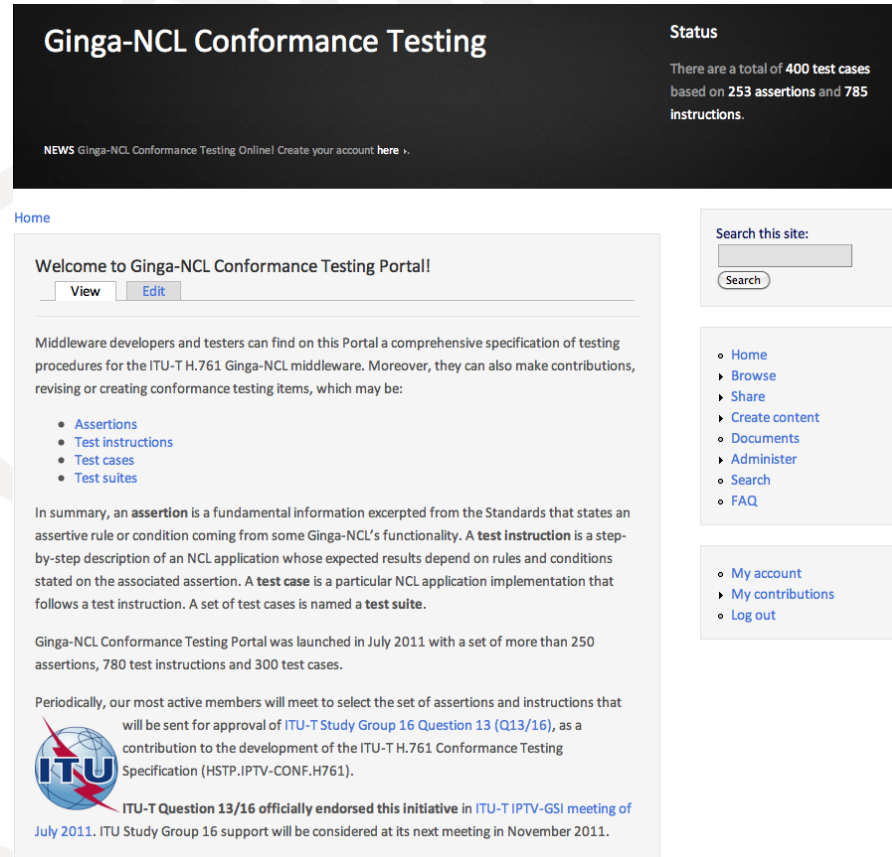
ginga Brasil ginga Argentina ginga Peru ginga Ecuador ginga Chile ginga Bolívia

• English
• Português

➡ <http://www.gingancncl.org.br>

ITU-T H.761 Communities

■ Collaborative Test Suite



The screenshot shows the 'Ginga-NCL Conformance Testing' portal. The header is dark with the title in white. A 'Status' box on the right indicates 400 test cases, 253 assertions, and 785 instructions. Below the header, a 'Home' link is present. The main content area welcomes users and provides a 'View' and 'Edit' button. It describes the portal's purpose for middleware developers and testers. A list of links includes Assertions, Test instructions, Test cases, and Test suites. A summary paragraph explains the terms 'assertion', 'test instruction', 'test case', and 'test suite'. It also mentions the portal's launch in July 2011 and its periodic updates. At the bottom, there is an ITU logo and a statement about ITU-T Question 13/16 endorsing the initiative.

Ginga-NCL Conformance Testing

Status
There are a total of **400 test cases** based on **253 assertions** and **785 instructions**.

NEWS Ginga-NCL Conformance Testing Online! Create your account [here](#).

[Home](#)

Welcome to Ginga-NCL Conformance Testing Portal!

[View](#) [Edit](#)


Middleware developers and testers can find on this Portal a comprehensive specification of testing procedures for the ITU-T H.761 Ginga-NCL middleware. Moreover, they can also make contributions, revising or creating conformance testing items, which may be:

- [Assertions](#)
- [Test instructions](#)
- [Test cases](#)
- [Test suites](#)

In summary, an **assertion** is a fundamental information excerpted from the Standards that states an assertive rule or condition coming from some Ginga-NCL's functionality. A **test instruction** is a step-by-step description of an NCL application whose expected results depend on rules and conditions stated on the associated assertion. A **test case** is a particular NCL application implementation that follows a test instruction. A set of test cases is named a **test suite**.

Ginga-NCL Conformance Testing Portal was launched in July 2011 with a set of more than 250 assertions, 780 test instructions and 300 test cases.

Periodically, our most active members will meet to select the set of assertions and instructions that will be sent for approval of [ITU-T Study Group 16 Question 13 \(Q13/16\)](#), as a contribution to the development of the ITU-T H.761 Conformance Testing Specification (HSTP.IPTV-CONF.H761).

 ITU-T Question 13/16 officially endorsed this initiative in ITU-T IPTV-GSI meeting of July 2011. ITU Study Group 16 support will be considered at its next meeting in November 2011.

Search this site:

[Search](#)

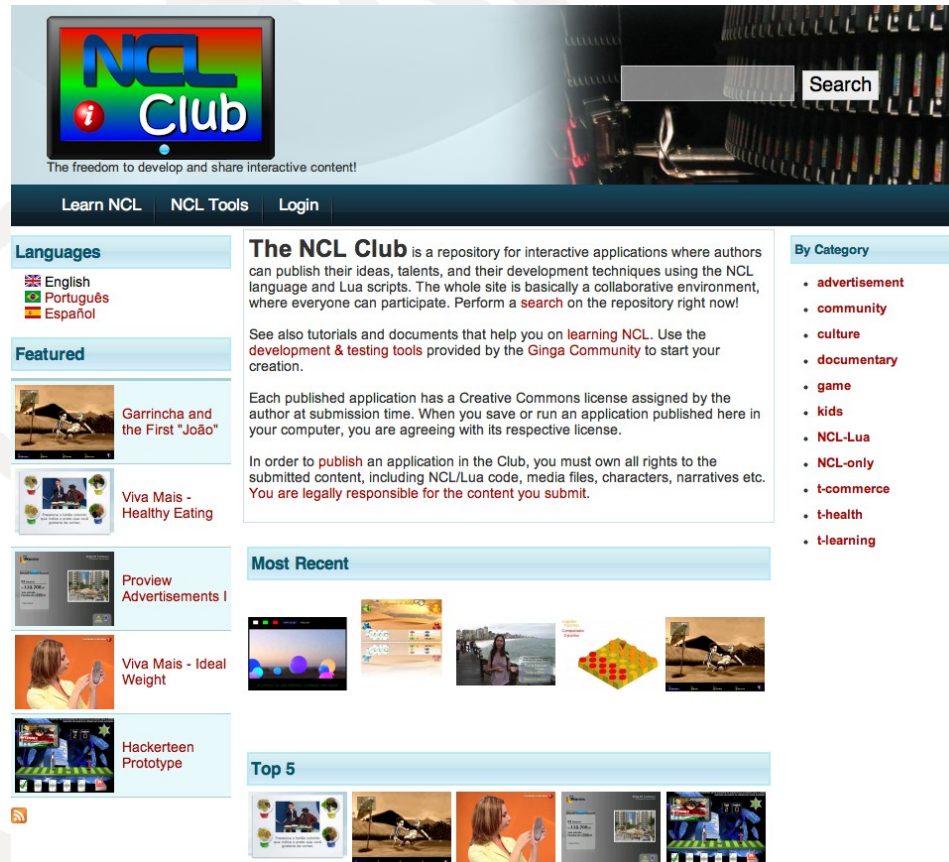
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- [My account](#)
- [My contributions](#)
- [Log out](#)

➡ <http://testsuite.gingancl.org.br>

ITU-T H.761 Communities

■ Application Repository



➡ <http://club.ncl.org.br>



IPTV
Application
Challenge

Thank you

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