

App based TV – Evolution of the Brazilian Digital Television

Ms. Li-Chang Shuen, Brazil

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Application-based TV: what's new?



Next generation Brazilian Terrestrial Television: application-oriented television broadcasting, personalized TV experiences, targeted advertising and programming, content recommendation, seamless OTA/OTT switching, immersive content provisioning, enhanced accessibility, sensory effects rendering, novel interaction modalities, enhanced emergency alerting capabilities, among other envisioned use cases.

Application-based TV: what's new?



Technological and cultural shift in television consumption patterns:

- ✓ A paradigm shift, where the entry point for TV content consumption shifts from a broadcaster's channel selection to the selection of a broadcaster's application.
- ✓ It conceals the traditional concept of TV channels.
- ✓ Apps can control all audiovisual content, from multiple sources.
- ✓ Content delivery methods become completely transparent to viewers, facilitating seamless integration with broadband content and services.
- ✓ Viewer profiles as an inherent feature, data accessible with viewer's consent.
- ✓ Crucial aspect for delivering personalized and engaging TV experiences.

Application-based TV: what's new?

Central discussion: Transparency and the active user/viewer profile to influence the television consumption experience

Transparency:

- ✓ The app-oriented TV paradigm makes the transmission technology transparent by integrating broadcast and broadband, allowing the viewer to choose the transmission source.
- ✓ App-oriented TV also can choose the digital signal generation that offers the best quality in their consumption context (either the **current** or the **next** Brazilian Terrestrial TV Digital **generation**).

Profile, consumption and data protection:

- ✓ Viewer profiles as an inherent feature, data accessible with viewer's consent.
- ✓ Viewer profile allowing customization of content programming and audiovisual consumption on broadcast television.
- ✓ Crucial aspect for delivering personalized and engaging TV experiences.

Application-based TV: what's new?

General requirements

- ✓ **Working document** towards a preliminary draft new Report **ITU-R BT.[APPBASEDTV] - Application-oriented television broadcasting** can be found in Annex 2.1 in the WP6B Chairman report March 2024 (**Doc. R23-WP6B-C-0032**)

Application-based TV: what about the concerns?



The numerous advantages may bring several concerns:

Any risk of compromising some of the existing fair, convenient, and well-established broadcasting experiences?

- ✓ **Economic concerns:** Dominant broadcaster's ecosystem inhibiting the discovery/access of other broadcasters.
- ✓ **Political concerns:** Smaller broadcasters and public stations. Is it possible to safeguard equity without compromising the viewer experience?
- ✓ **Privacy concerns:** How to handle viewer's privacy in a broadcasting scenario?

Application-based TV: Viewer's journey



Design and Prototyping of the Viewer's Journey

Objectives:

- ✓ Visually realize what is expected for application-oriented TV
- ✓ Evaluate the app-oriented TV experience through focus group assessments
- ✓ Identify potential friction points between smart TV and app-oriented TV
- ✓ Identify latent or emerging requirements. Examples:
 - New metadata, evolution of the Electronic Programming Guide (EPG)
 - Privacy by design approach

Not an objective:

- ✗ Standardize UIs
- ✗ Deal with device functions out of a broadcasting service scope

Application-based TV: UI design samples



The following slides contain UI design samples (wireframe) for an envisioned app-oriented viewer's journey, from the moment the viewer first turns on their device

In some UIs, content rating symbols follow the Brazilian advisory rating system:

- L: suitable to all ages (Livre)
- 10: Not recommended for minors under 10
- 12: Not recommended for minors under 12
- 14: Not recommended for minors under 14
- 16: Not recommended for minors under 16
- 18: Not recommended for minors under 18



Choose your preferred language

Language

English

Português (Brasil)

官话 (Mandarin)

हिन्दी (Hindi)

Español



Audiodescription

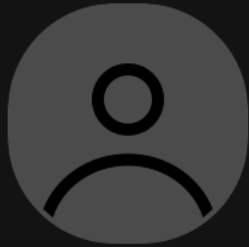


Sign Language

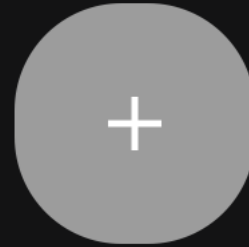


Next

Create your Over-the-air Viewer Profile



Continue
without a
profile



Create your
profile

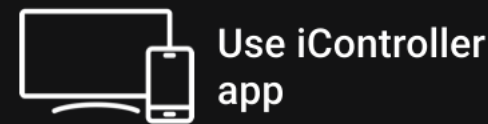


Audiodescription



Sign Language

Creating your TV Viewer Profile



Profile name (mandatory)

☐ This is a group profile (e.g.: family, guests...)

Birthdate (mm/dd/yyyy) (optional)

☒ L ☐ 10 ☐ 12 ☐ 14 ☐ 16 ☐ 18

☐ This is a child profile

Gender: ☐ F ☐ M ☐ NB

Selected language: English



Choose your avatar



Audiodescription



Sign language



Closed captions



Dialog Enhancement

In compliance with the General Data Protection Regulation (GDPR), each broadcaster will ask your permission if they wish to use your profile data or collect other personal data



Create another



Next

Configuring your TV...

Searching for Over-the-air TV apps for your region...




Audiodescription

Configuring your TV...

Searching for Over-the-air TV apps for your region...

1 Broadcast TV app found

Broadcaster 1



...

Identified region:

Country: Brazil

City: São Paulo



Configuring your TV...

Searching for Over-the-air TV apps for your region...

2 Broadcast TV apps found

Broadcaster 1



Broadcaster 2





Identified region:

Country: Brazil **City:** São Paulo



Configuring your TV...


Searching for Over-the-air TV apps for your region...

3 Broadcast TV apps found


Broadcaster 1



Broadcaster 2



Broadcaster 3



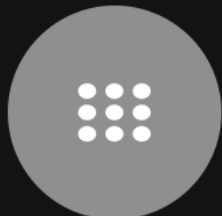
...

Identified region:

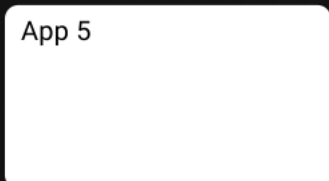
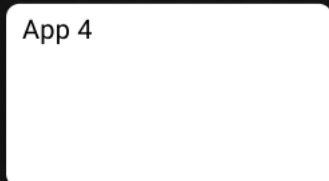
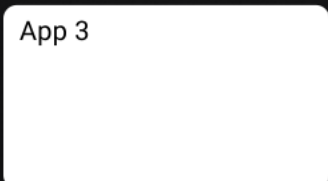
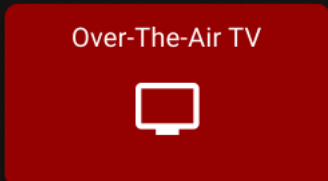
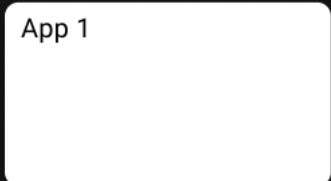
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City: São Paulo

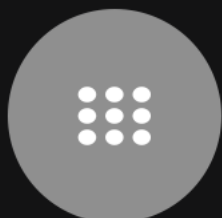
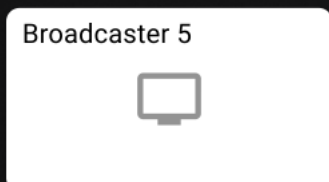
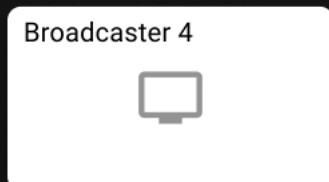
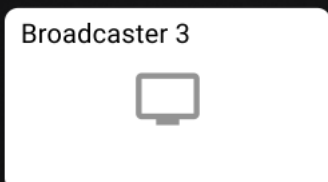
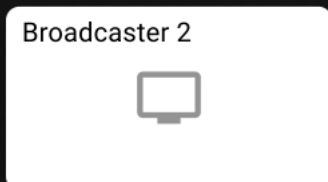
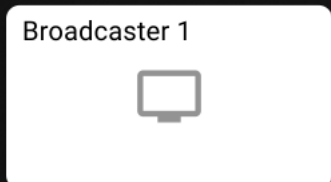




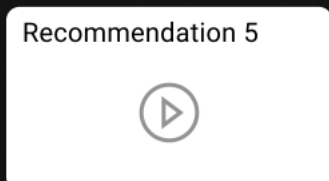
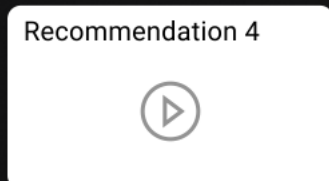
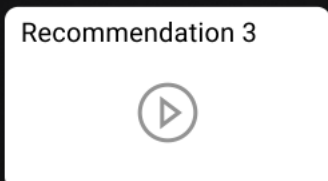
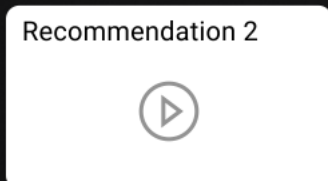
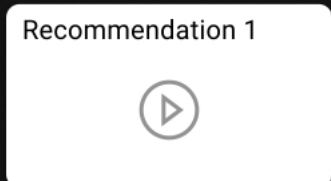
All Apps



Over-The-Air TV



App 1



Smart TV
Configuration

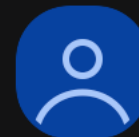
Your Over-the-air TV Apps

The order of the applications below is used for zapping and guides. You can customize it by selecting any application (pressing the OK button for 3 sec) and moving it.

Search Over-the-air TV



Profile
Name 1



Broadcaster 1



Broadcaster 2



Broadcaster 3



Broadcaster 4



Broadcaster 5



Broadcaster 6



Broadcaster 7



Broadcaster 8



Broadcaster 9



Broadcaster 10



Broadcaster 11



Broadcaster 12



Broadcaster 13



Broadcaster 14



Broadcaster 15



Broadcaster 16



Broadcaster 17



Broadcaster 18



Broadcaster 19

Broadcaster 20

Broadcaster 21

Broadcaster 22

Broadcaster 23

Broadcaster 24

In compliance with the General Data Protection Regulation (GDPR), each broadcaster will ask your permission if they wish to use your profile data or collect other personal data



Exit
Over-the-air TV



Rescan for
Over-the-air TV apps

Over-the-air TV
Programming Guide



Your Data
Privacy settings





Broadcaster 1

Broadcaster's slogan

Profile
Name 1



Full screen
in 3s

ON AIR

"Current Program"
14:00 - 16:10

First lines of summary for the current program of
Broadcaster 1.....

Genre B

16

Broadcaster 1 applications need to collect information about your profile and your consumption habits in order to provide you with a personalised experience. Read their [Privacy Policy](#).

Accept all

Manage settings



Broadcaster 1

Broadcaster's slogan

Profile
Name 1



Full screen
in 3s

ON AIR

"Current Program"
14:00 - 16:10

First lines of summary for the current program of
Broadcaster 1.....

Genre B

16



Back to your
Over-the-air TV Apps



Add
to Favorites

Broadcaster 1
TV Content Guide



Over-the-air TV
Programming Guide





Broadcaster 1
Broadcaster's slogan



Full screen

Profile
Name 1



hh:mm - hh:mm

Current Program

Information about the
current program, occupying
the space the broadcaster
prefers in their own app



Recommendation 1



Recommendation 2



Recommendation 3



Recommendation 4



Recommendation 5



Recommendation 6



Recommendation 7



Recommendation 8



Recommendation 9



Recommendation 10



Over-the-air TV Programming Guide

Profile
Name 1


	Previous	Now	Next
Broadcaster 1	<div><div>14</div><div>13:00 - 14:00</div><div>Broadcaster 1 Previous Program</div><div>☆</div></div>	<div><div>16</div><div>ON AIR</div><div>Broadcaster 1 Current Program</div><div>☆</div></div>	<div><div>18</div><div>16:10 - 17:20</div><div>Broadcaster 1 Next Program</div><div>★ ⬇</div></div>
Broadcaster 2	<div><div>12</div><div>12:30 - 14:10</div><div>Broadcaster 2 Previous Program</div><div>Season x, Episode y - Episode title</div><div>First lines of summary about the previous Broadcaster 2 program.....</div><div>☆ ⬇</div><div>Watch now!</div></div>	<div><div>L</div><div>ON AIR</div><div>Broadcaster 2 Current Program</div><div>LIVE</div><div>First summary lines about the current Broadcaster 2 program.....</div><div>☆</div><div>Watch from start</div></div>	<div><div>10</div><div>16:30 - 17:00</div><div>Broadcaster 2 Next Program</div><div>First summary lines about the next Broadcaster 2 program.....</div><div>☆</div><div>Watch now!</div></div>
Broadcaster 3	<div><div>14</div><div>12:00 - 13:40</div><div>Broadcaster 3 Previous Program</div><div>★</div><div>Available soon</div></div>	<div><div>12</div><div>ON AIR</div><div>Broadcaster 3 Current Program</div><div>LIVE</div><div>☆ ⬇</div></div>	<div><div>14</div><div>15:40 - 16:40</div><div>Broadcaster 3 Next Program</div><div>★</div><div>LIVE</div></div>
Broadcaster 4	<div><div>12</div><div>12:40 - 13:30</div><div>Broadcaster 4 Previous Program</div><div>☆ ⬇</div><div>Watch now!</div></div>	<div><div>14</div><div>ON AIR</div><div>Broadcaster 4 Current Program</div><div>☆</div><div>Watch from start</div></div>	<div><div>L</div><div>16:00 - 17:50</div><div>Broadcaster 4 Next Program</div><div>☆ ⬇</div><div>Watch now!</div></div>

Back to your
Over-the-air TV Apps


Over-the-air TV
Content Guide

Over-the-air TV Content Guide

Profile
Name 1




Broadcaster 1	Genre A	Genre D	Genre C	Genre C	Genre B	Genre A	Genre B	Genre C	Genre D	Genre A	Genre D	More content Broadcaster 1
Broadcaster 2	Genre C	Genre B	Genre A	Genre B	Genre C	Genre D	Genre A	Genre A	Genre D	Genre C	Genre B	More content Broadcaster 2
Broadcaster 3	Genre C	Genre D	Genre A	Genre A	Genre D	Genre C	Genre B	Genre D	Genre A	Genre D	Genre C	More content Broadcaster 3
Broadcaster 4	Genre B	Genre B	Genre D	Genre A	Genre D	Genre C	Genre C	Genre D	Genre A	Genre B	Genre B	More content Broadcaster 4



Back to Over-the-air TV
Programming Guide

Content List
by Genre



Application-based TV: what about the public?



The prototype development process for the new viewer's journey includes **qualitative** evaluations with focus groups and **quantitative** assessments through public opinion research.

- ✓ The focus group consists of **8 viewer's profiles** engaging in discussions with the R&D team regarding each new enhancement to the proposed journey.
- ✓ The public opinion research aimed to introduce the concept of app-oriented TV and its key screen examples to a **broad, probabilistic sample audience, who would have their first exposure to the proposed innovation**. The results can be accessed here: <https://tinyurl.com/TVDI30ENGL>

Application-based TV: what about the channels?



Free-to-air App Based TV



BACK

City
All

Age group
All

Education
All

Gender
All

Family income
All

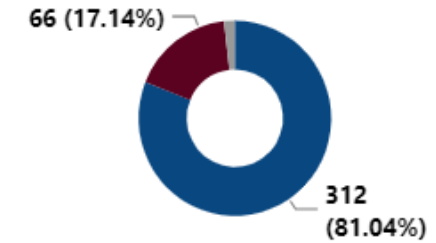
TV type
All

Number of Smart TV
All

TV Connected
All

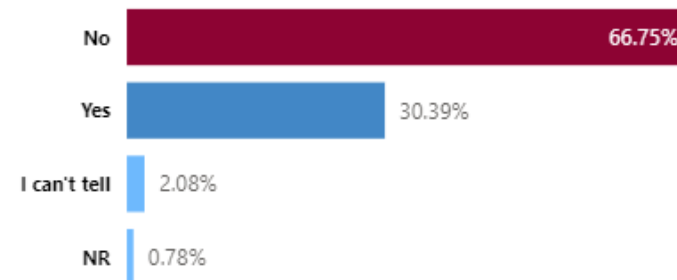


Connected TV



● Yes
● No
● NR

Misses the channel numbers



Identifies the channels solely by the icon



Free-to-air TV Catalog screen suggestion



Thank you!
li.chang@ufma.br