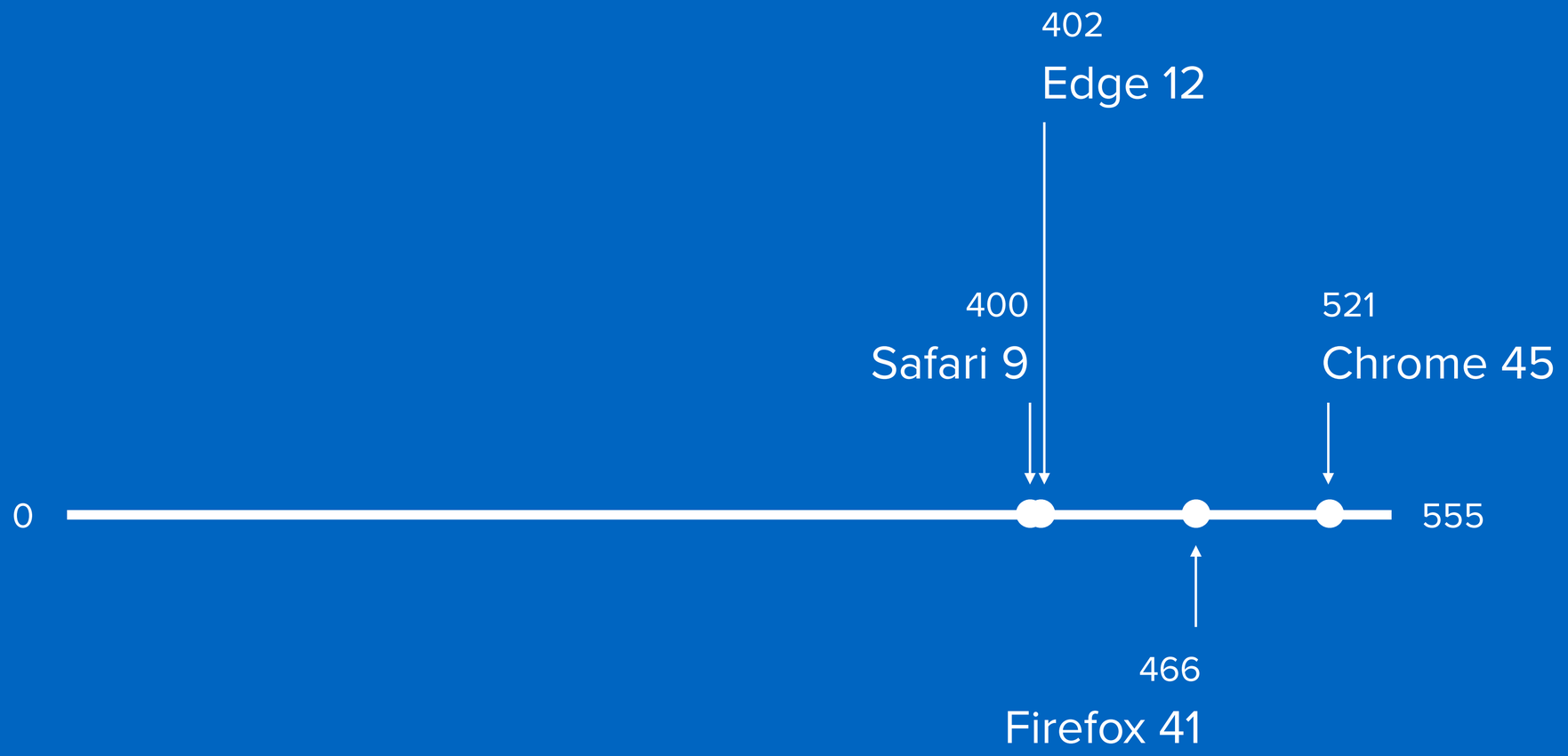
weird browsers

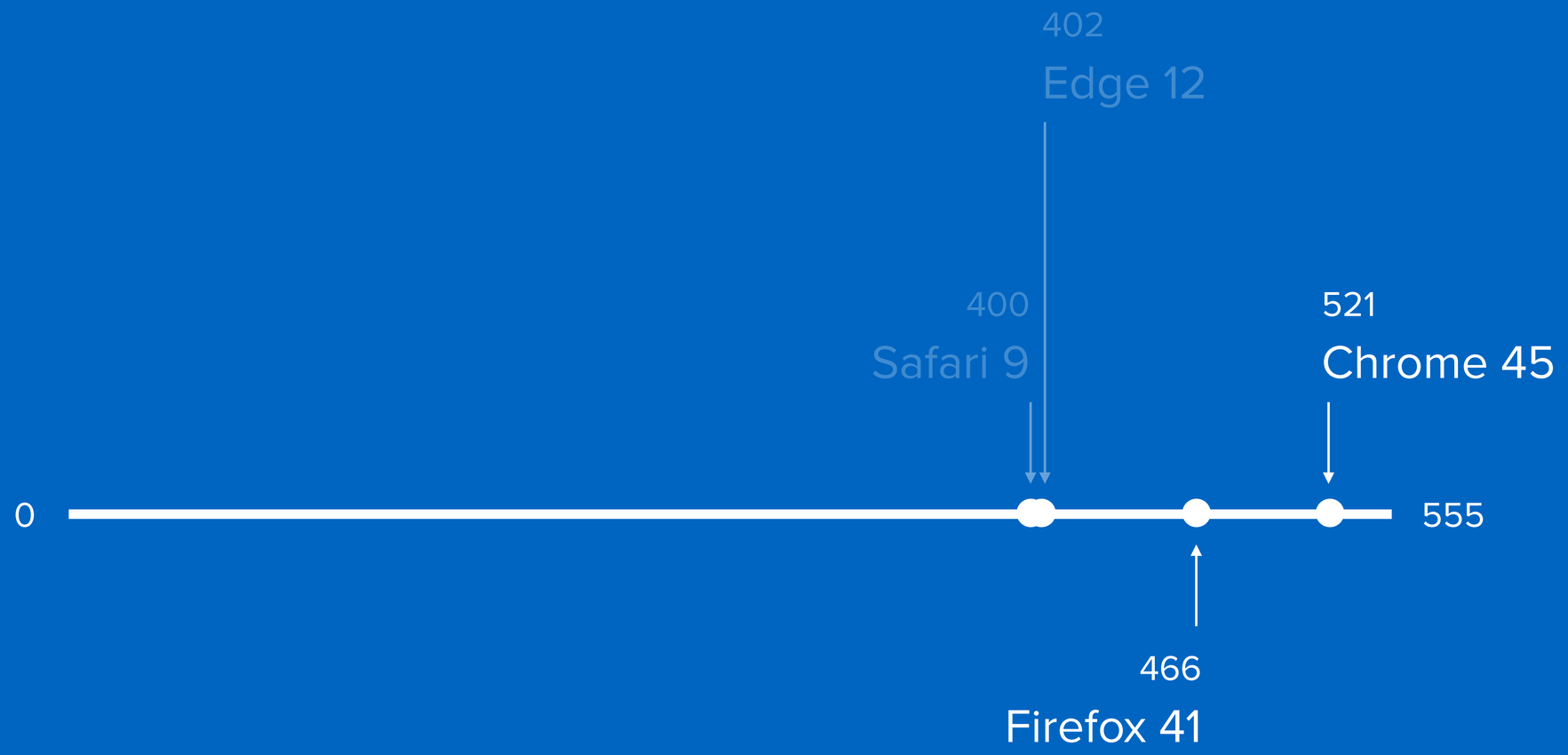
code.talks 2015 — september 30th 2015


this slide is
inspirational as
fuck

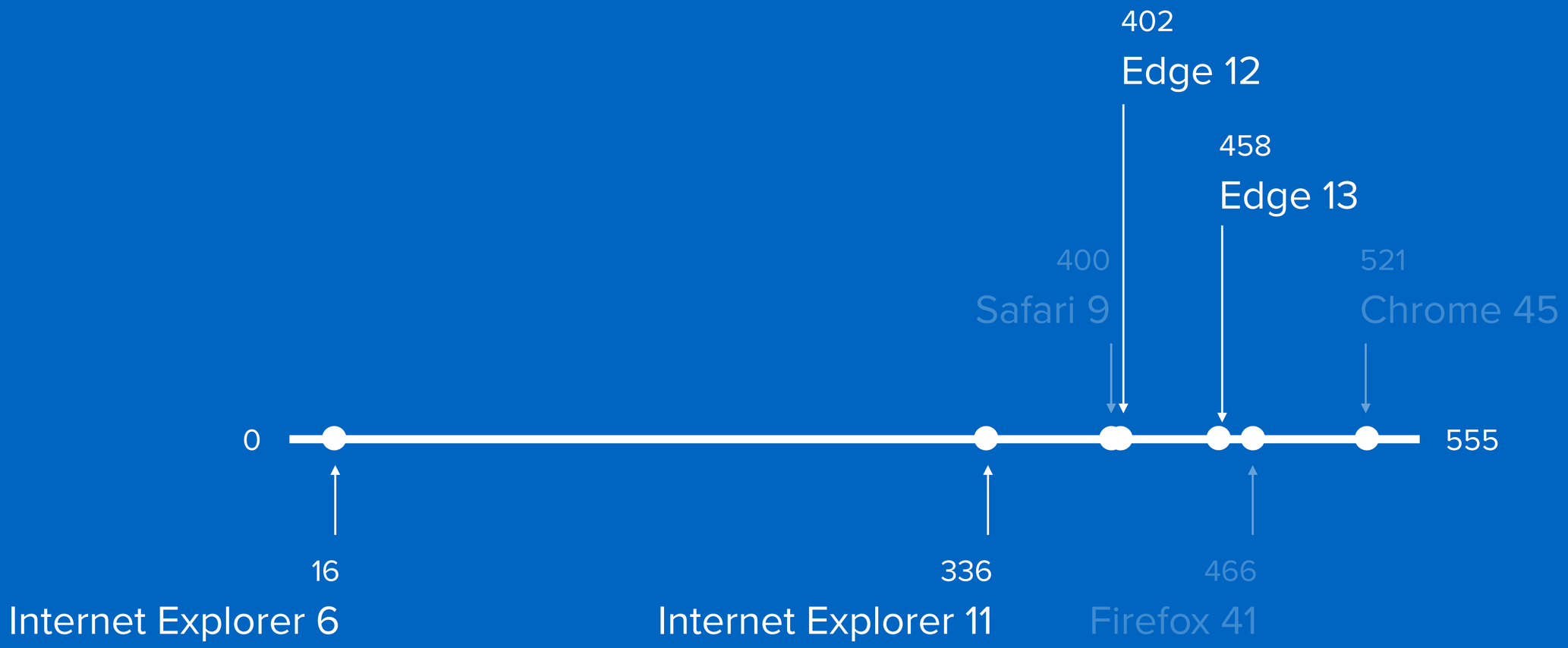

HTML
5
TEST



desktop browsers results on html5test.com



desktop browsers results on html5test.com



desktop browsers results on html5test.com

weird browsers

code.talks 2015 — september 30th 2015

browsers and devices that do not adhere to current expectations

```
if ('ontouchstart' in window) {
  element.addEventListener(‘touchstart’, function(e) {
    ...
  });
}
else {
  element.addEventListener(‘click’, function(e) {
    ...
  });
}
```


acer

weird browsers

weird browsers?

game consoles

portable game consoles

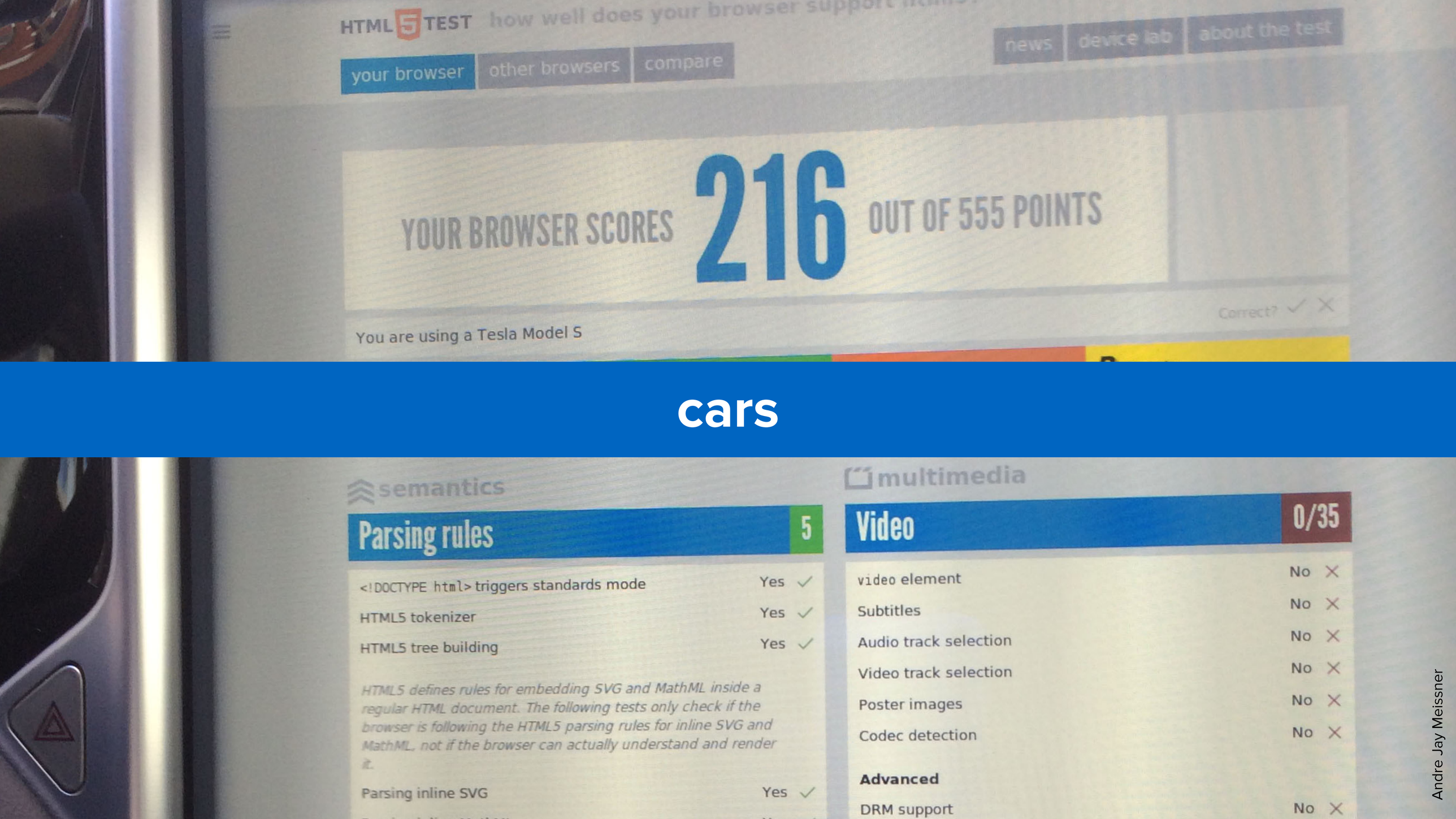

smart tvs


HTML5test - How
http://html5test.com/
HTML 5 TEST
how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
SCORES
280
OUT OF 555 POINTS

e-readers

smartwatches

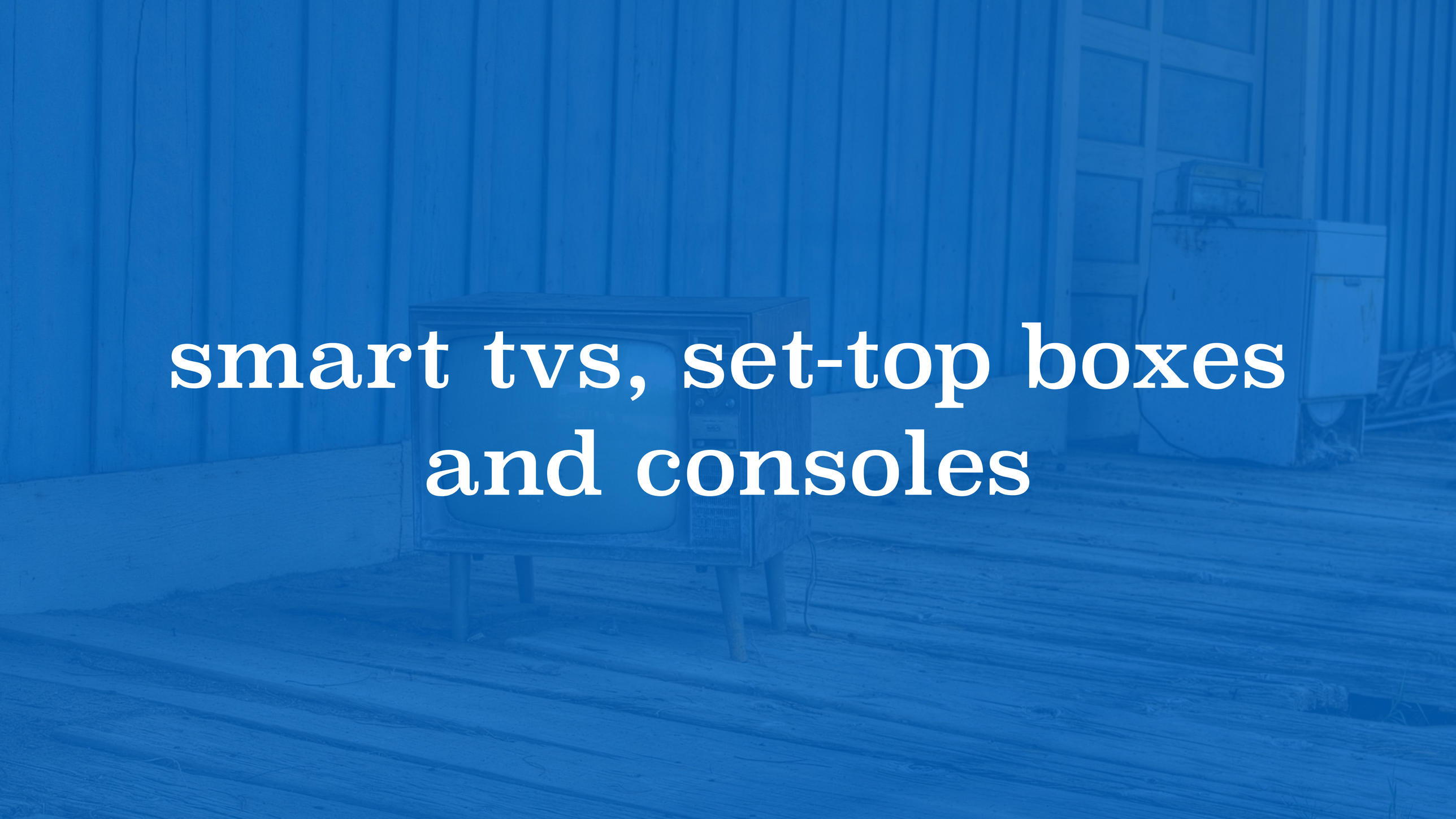
photo cameras



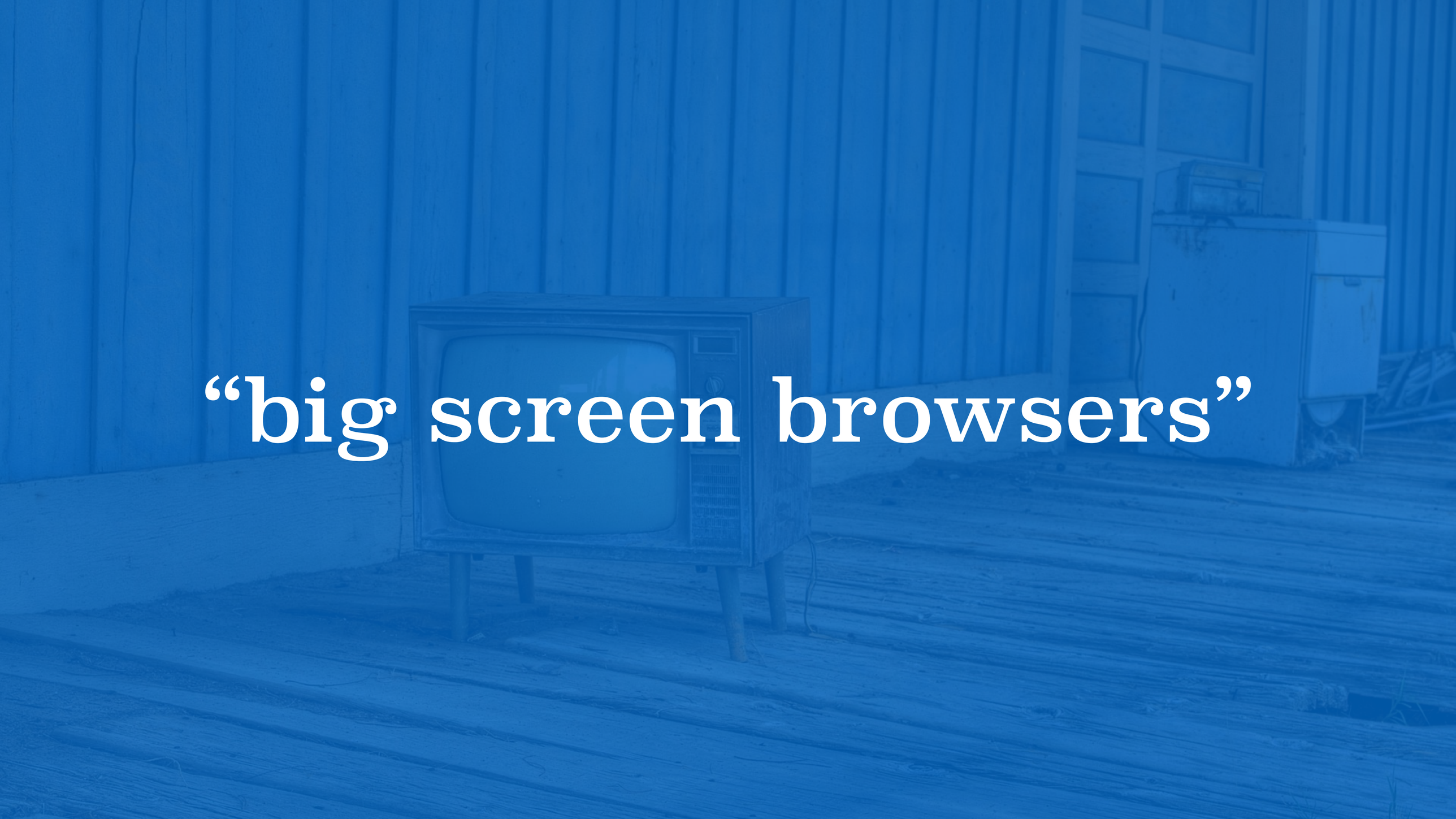
Andre Jay Meissner

comparable with mobile before
the iphone and android

everybody is trying to figure it out



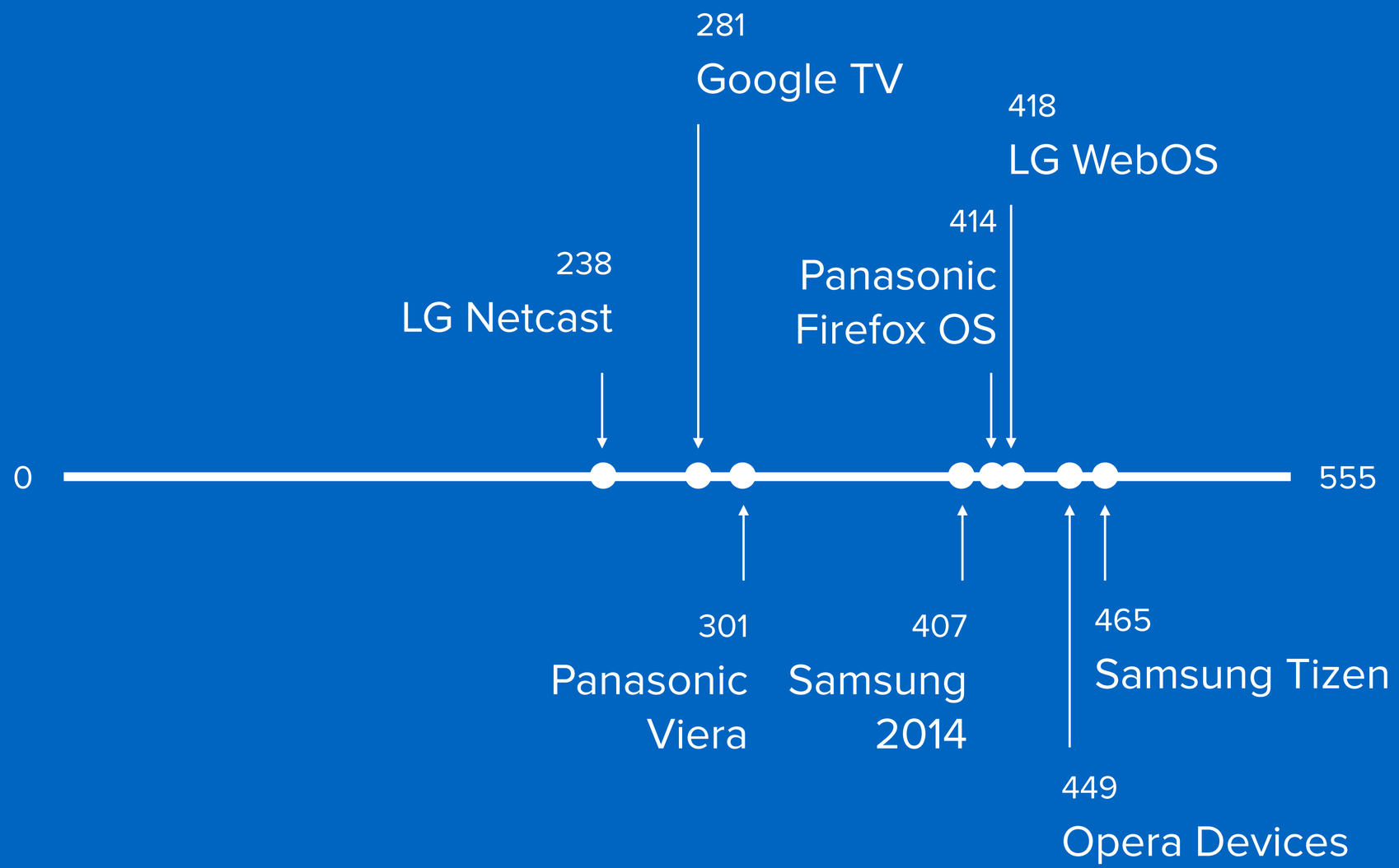
smart tvs, set-top boxes and consoles


“big screen browsers”

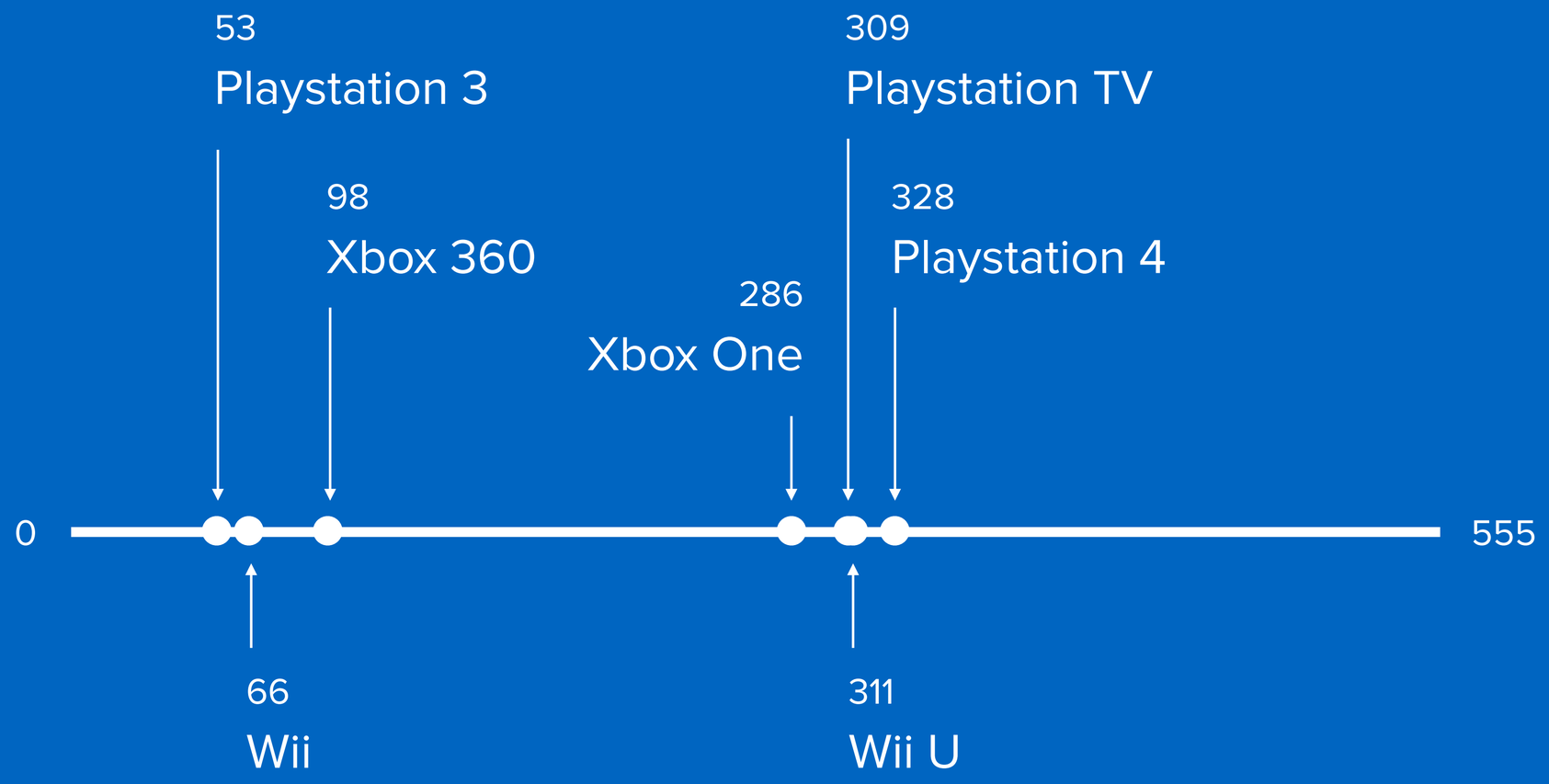

World Heritage 4K
PREMIUM EDITION
*3,840 x 2,160 Pixels
Another World 2
Do 30 Jan 2014 23:00
RETURN Stop
Herhalen: Alle clip
Sony KD65X8505BBAEP
€2799.-
€2499,-
Klant bij KPN?
Dan kan u goedkoper!
3499.-
Samsung UHDTV
3699.-
Nu bijwerken
TV-software bijwerken...
Uw tv schakelt zichzelf na de update automatisch uit en weer aan.
Annuleren
33 %

television browsers are pretty good

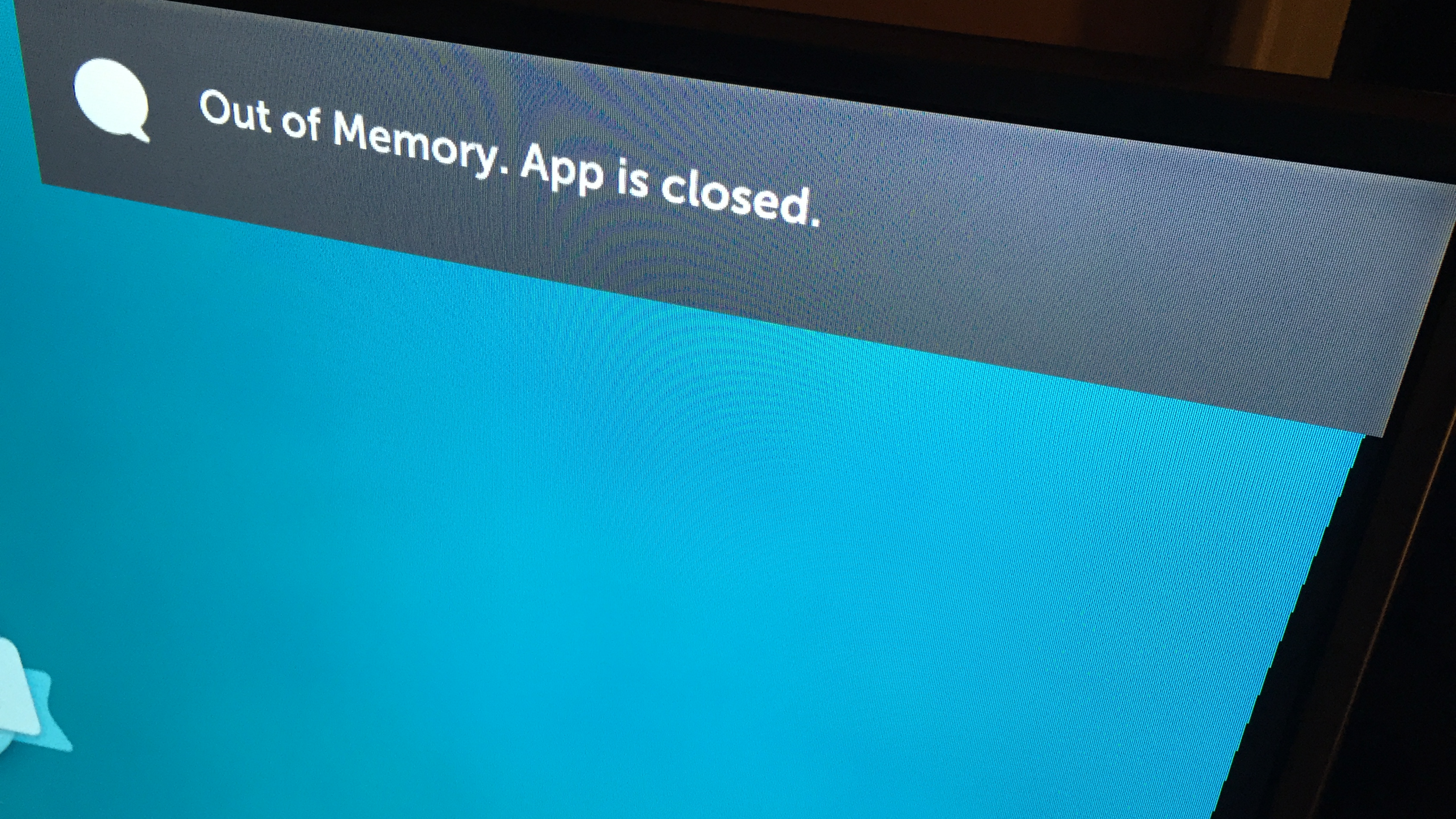
the last generation of television sets use operating systems that originate from mobile



smart tv results on html5test.com



console results on html5test.com


Out of Memory. App is closed.

1

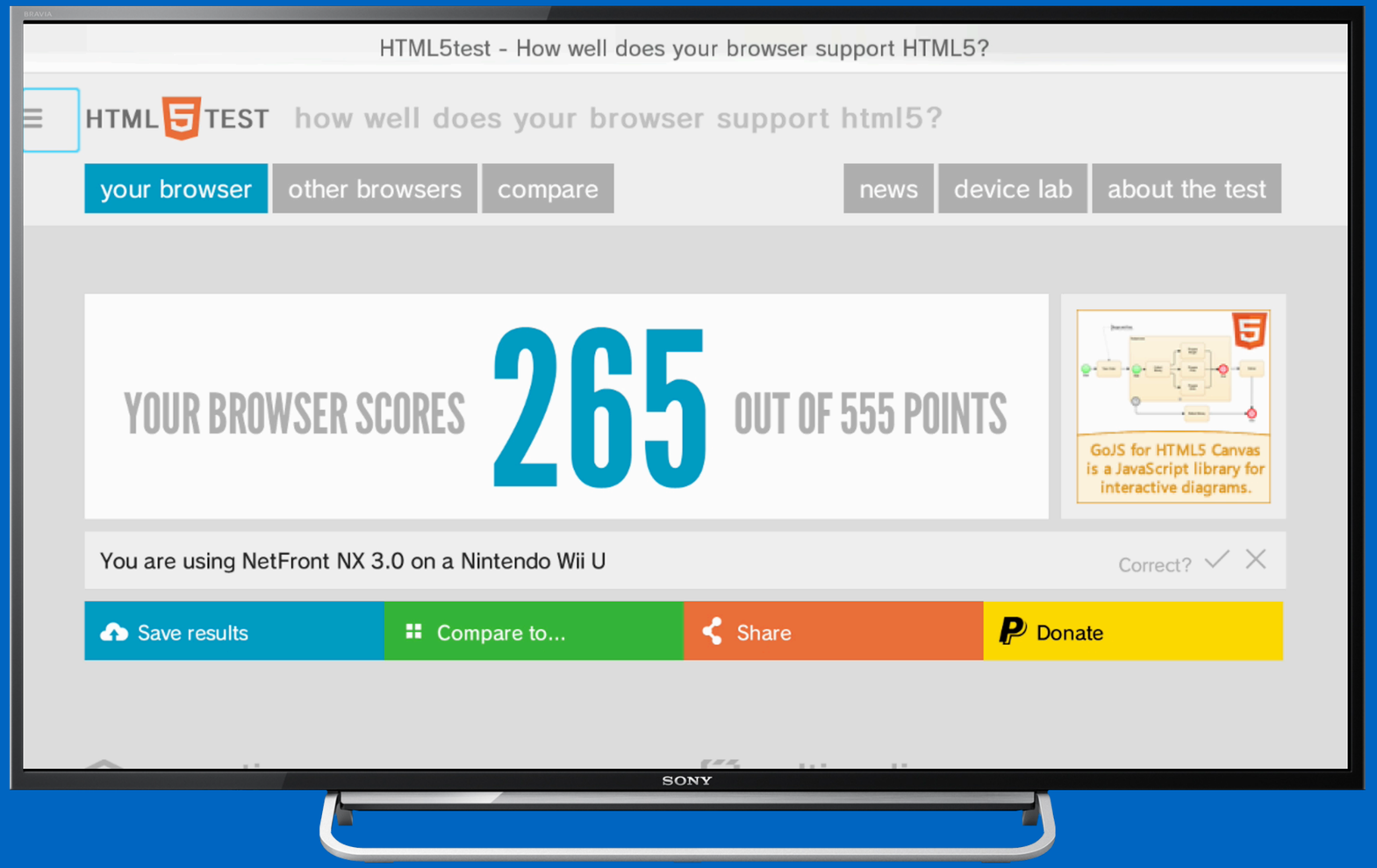
control

the biggest challenge of
of television browsers

navigation
(without mouse or touchscreen)


POP UP/
MENU
TOP MENU
OPTIONS
RETURN
HOME
NETFLIX
AUDIO
DISPLAY
SUBTITLE
SONY
BD

d-pad



navigation with the d-pad

but it can be worse:
moving the cursor with the arrow keys

alternatives

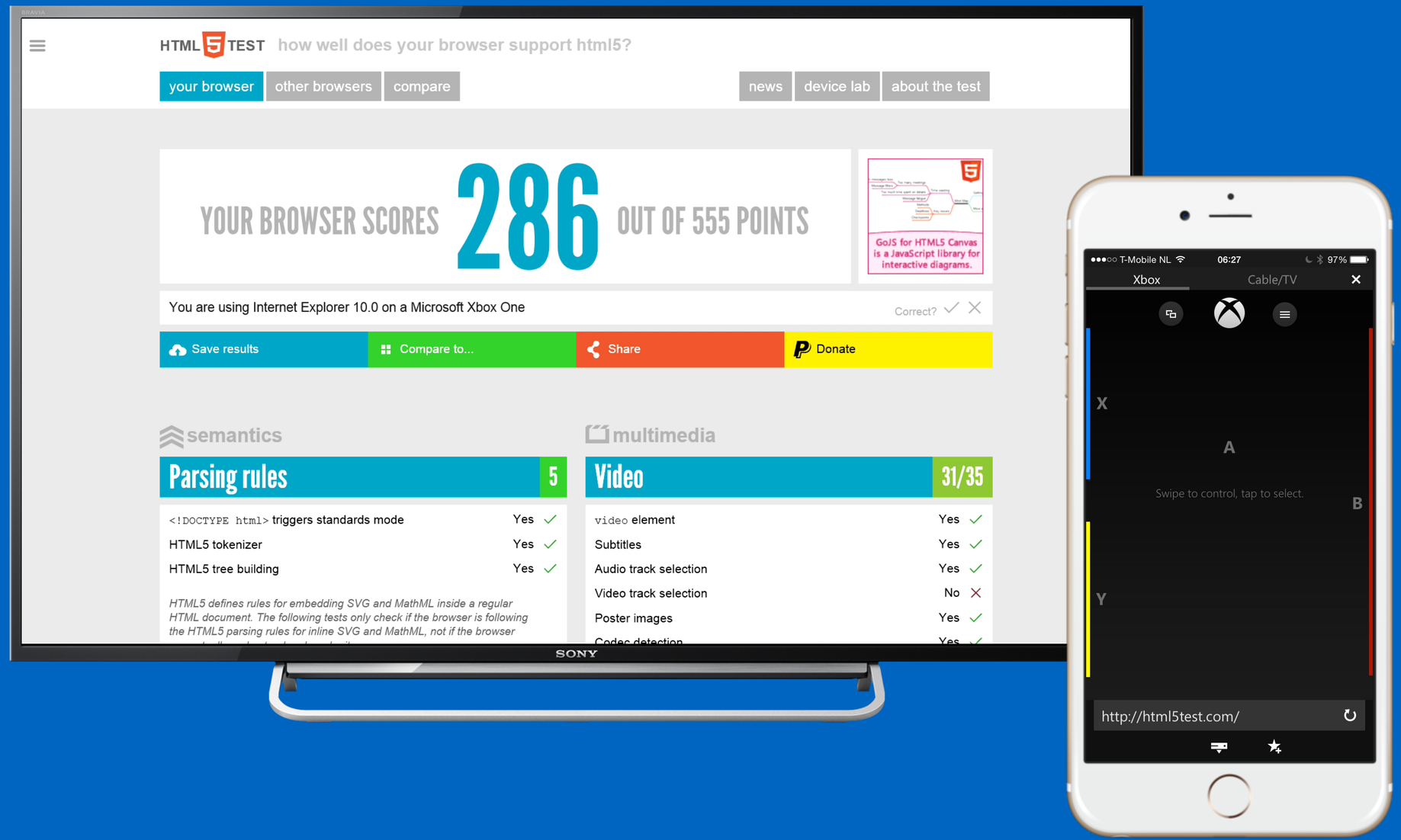
analog controllers

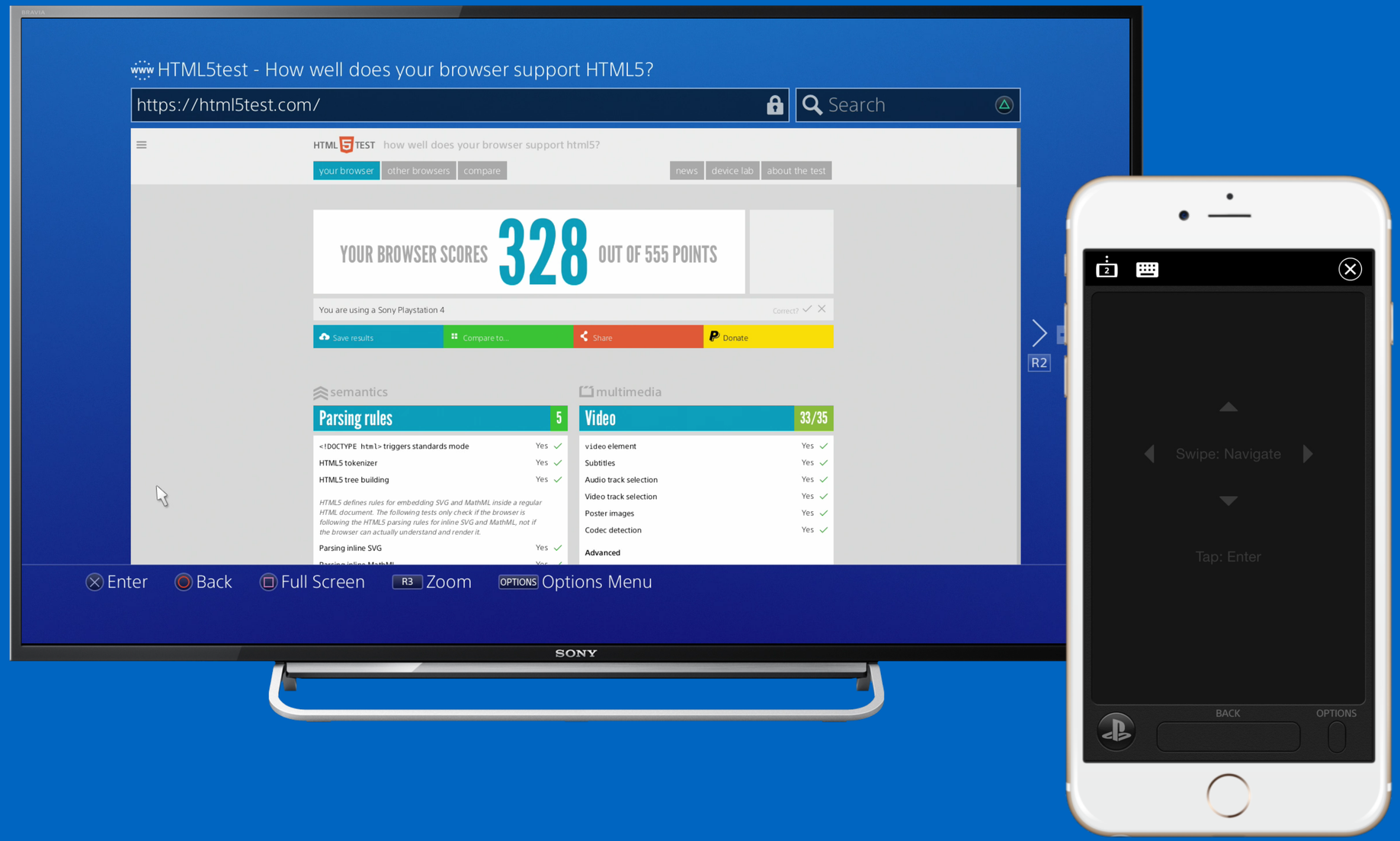
remotes with trackpad

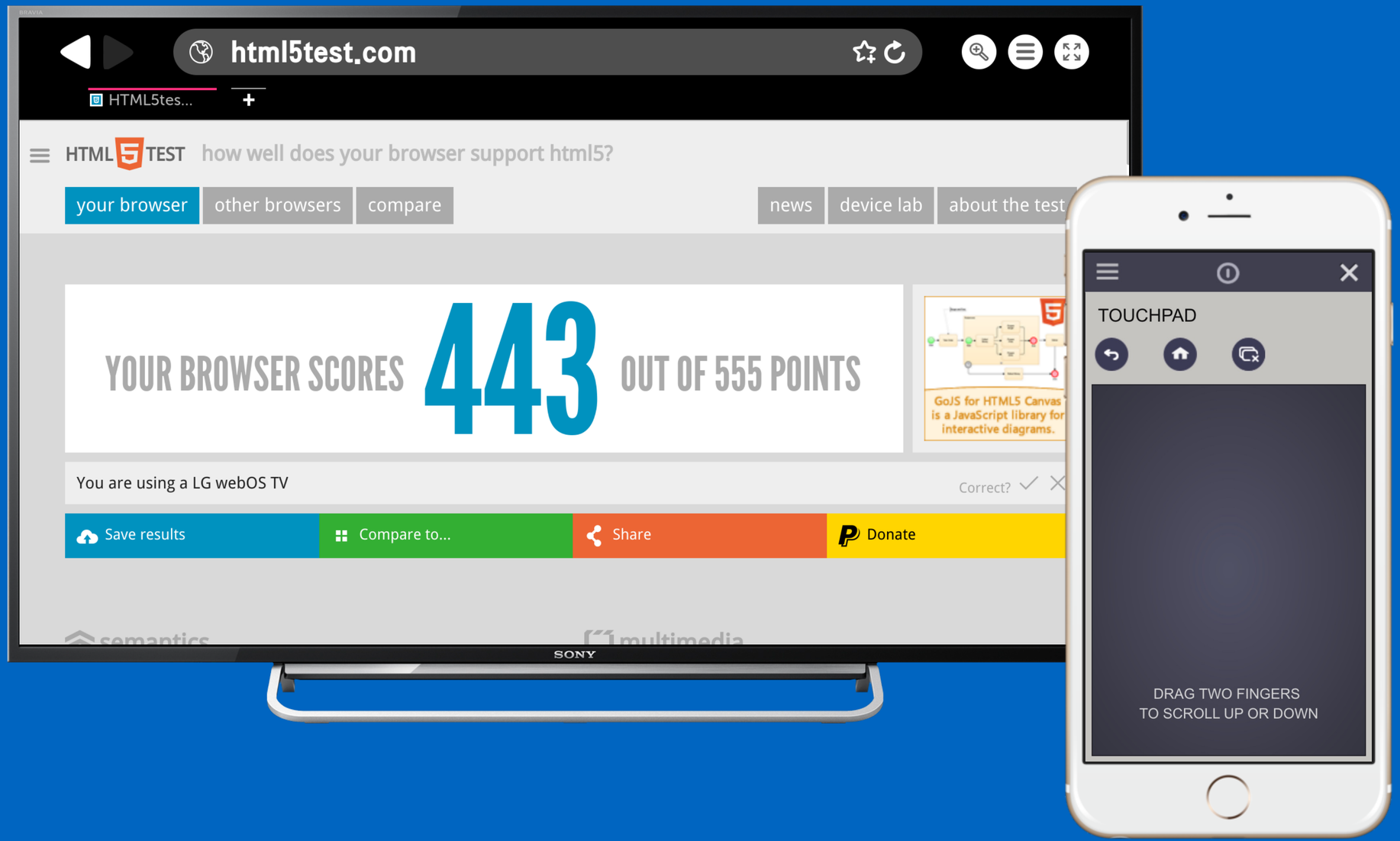
remotes with airmouse

second screen

many manufacturers also create apps for controlling the smart tv, console or set-top box


HTML5 TEST how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
YOUR BROWSER SCORES 286 OUT OF 555 POINTS
GoJS for HTML5 Canvas is a JavaScript library for interactive diagrams.
You are using Internet Explorer 10.0 on a Microsoft Xbox One
Correct?
Save results
Compare to...
Share
Donate
semantics
Parsing rules 5
<!DOCTYPE html> triggers standards mode Yes
HTML5 tokenizer Yes
HTML5 tree building Yes
HTML5 defines rules for embedding SVG and MathML inside a regular HTML document. The following tests only check if the browser is following the HTML5 parsing rules for inline SVG and MathML, not if the browser
multimedia
Video 31/35
video element Yes
Subtitles Yes
Audio track selection Yes
Video track selection No
Poster images Yes
Codec detection Yes
SONY
T-Mobile NL
06:27
97%
Xbox
Cable/TV
X
A
B
Y
Swipe to control, tap to select.
http://html5test.com/

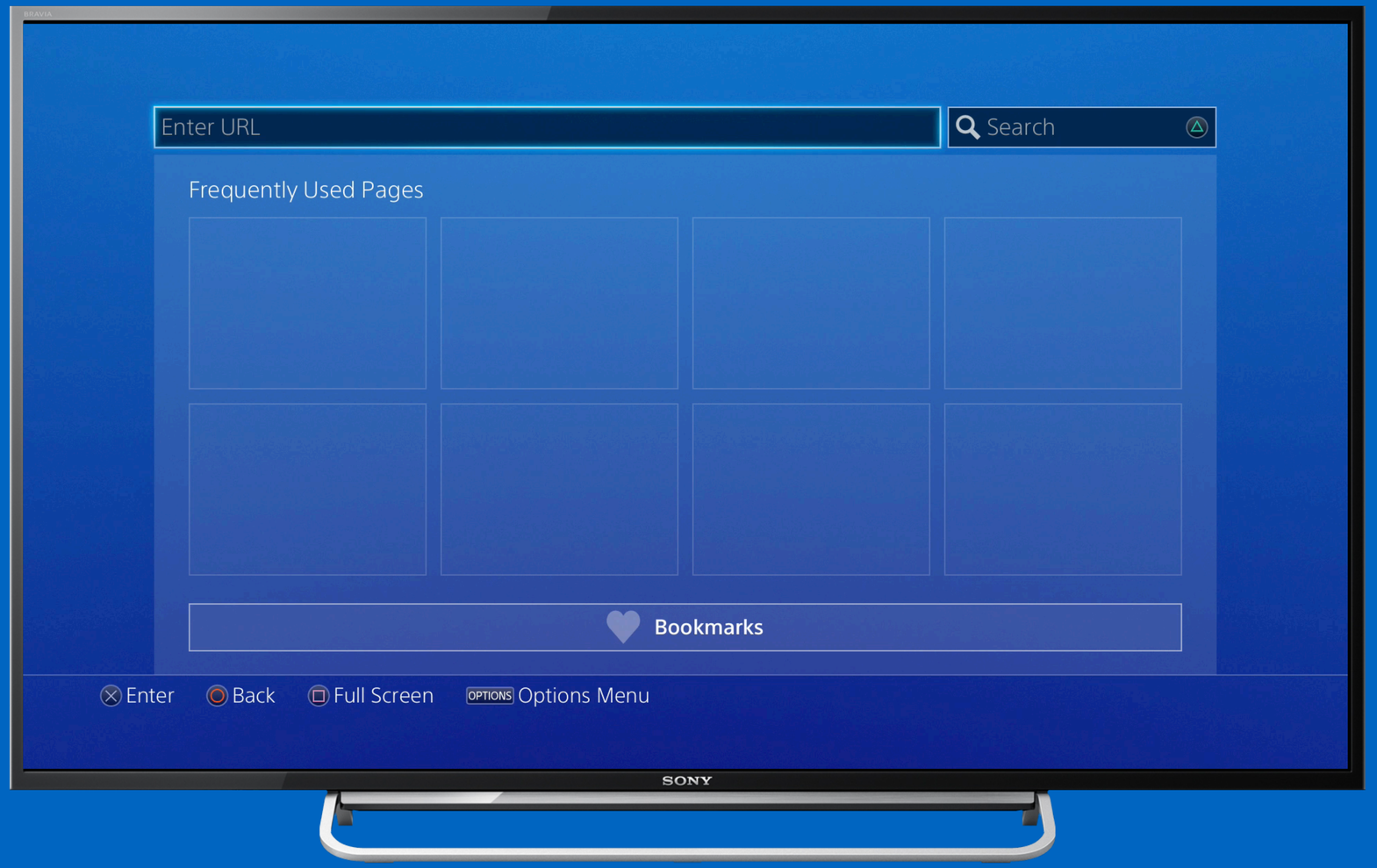

HTML5test - How well does your browser support HTML5?
https://html5test.com/
Search
HTML5 TEST how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
YOUR BROWSER SCORES 328 OUT OF 555 POINTS
You are using a Sony Playstation 4
Correct?
Save results
Compare to...
Share
Donate
semantics
Parsing rules 5
<!DOCTYPE html> triggers standards mode Yes
HTML5 tokenizer Yes
HTML5 tree building Yes
HTML5 defines rules for embedding SVG and MathML inside a regular HTML document. The following tests only check if the browser is following the HTML5 parsing rules for inline SVG and MathML, not if the browser can actually understand and render it.
Parsing inline SVG Yes
multimedia
Video 33/35
video element Yes
Subtitles Yes
Audio track selection Yes
Video track selection Yes
Poster images Yes
Codec detection Yes
Advanced
R2
Enter
Back
Full Screen
R3 Zoom
OPTIONS Options Menu
SONY
Swipe: Navigate
Tap: Enter
BACK
OPTIONS


html5test.com
HTML5tes...
HTML 5 TEST how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
YOUR BROWSER SCORES 443 OUT OF 555 POINTS
GoJS for HTML5 Canvas is a JavaScript library for interactive diagrams.
You are using a LG webOS TV
Correct?
Save results
Compare to...
Share
Donate
SONY
TOUCHPAD
DRAG TWO FINGERS
TO SCROLL UP OR DOWN

text input
(without keyboard)


POP UP/
MENU
TOP MENU
OPTIONS
RETURN
HOME
NETFLIX
AUDIO
DISPLAY
SUBTITLE
SONY
BD

d-pads



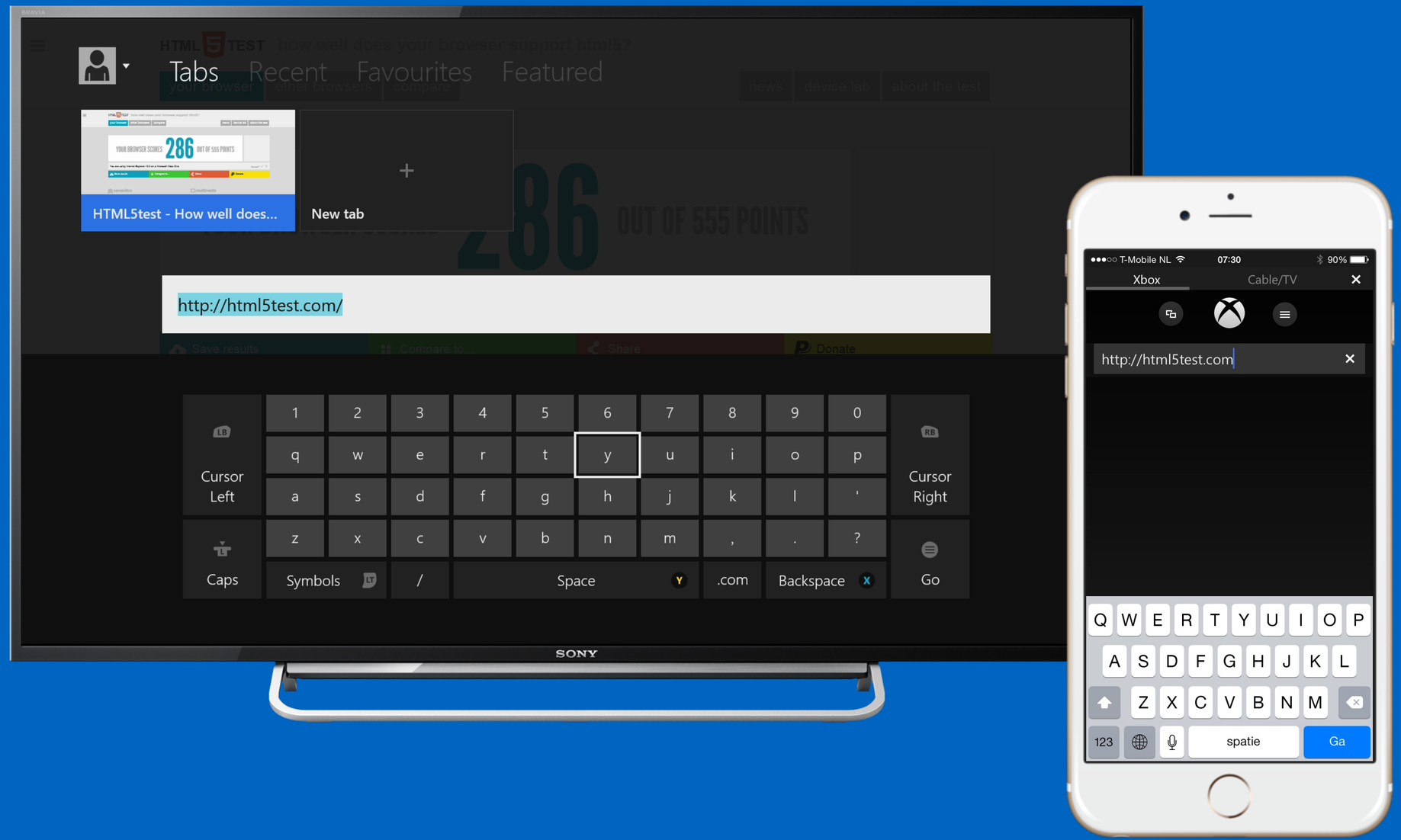
text input with the d-pad

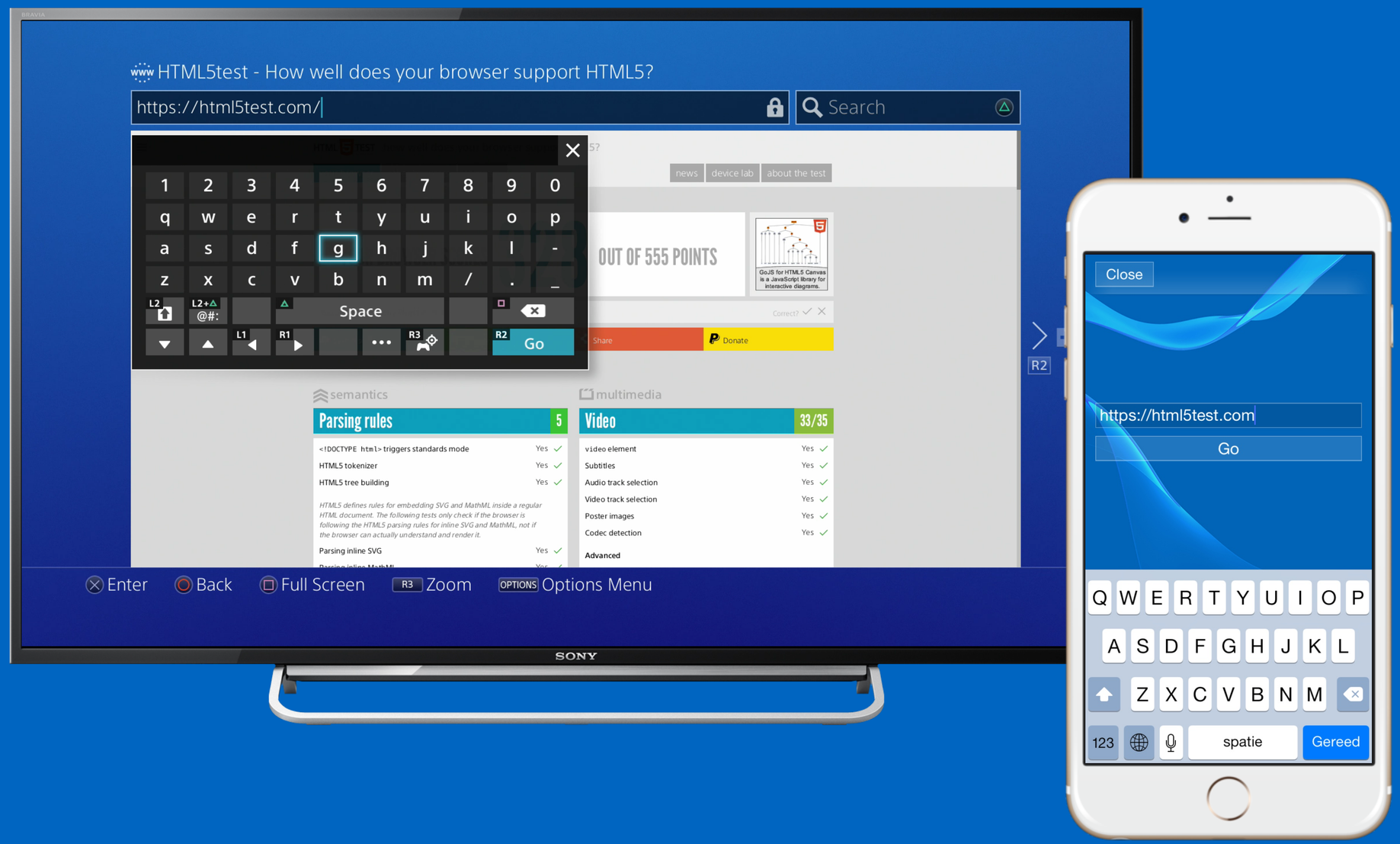
alternatives

remotes with keyboards

wireless keyboards

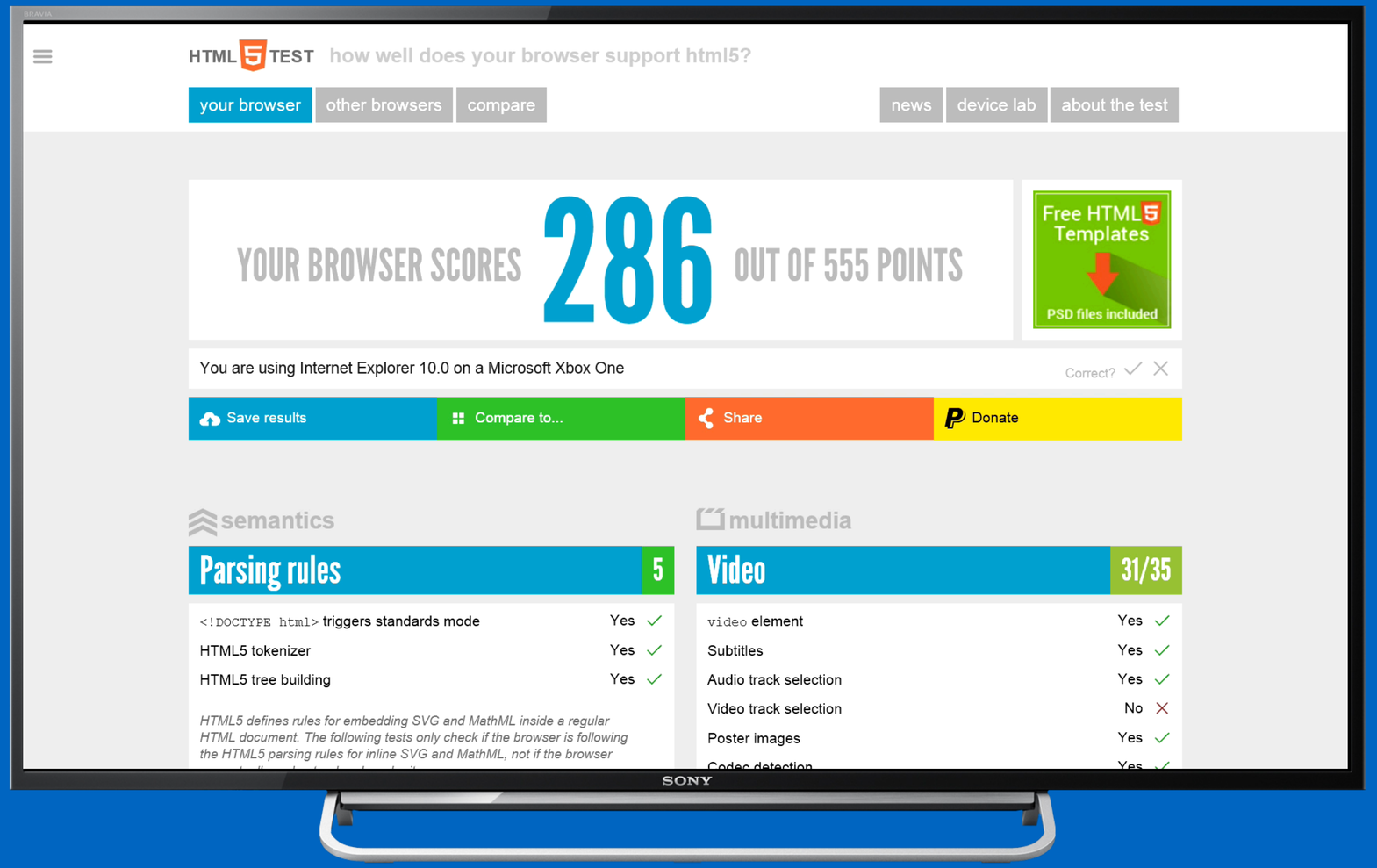
and apps


Tabs
Recent
Favourites
Featured
HTML5test - How well does...
New tab
http://html5test.com/
Cursor Left
Cursor Right
Caps
Symbols
Space
.com
Backspace
Go
SONY
T-Mobile NL
07:30
90%
Xbox
Cable/TV
http://html5test.com
spatie
Ga


HTML5test - How well does your browser support HTML5?
https://html5test.com/
Search
news
device lab
about the test
OUT OF 555 POINTS
GoJS for HTML5 Canvas is a JavaScript library for interactive diagrams.
Share
Donate
semantics
Parsing rules
5
<!DOCTYPE html> triggers standards mode
HTML5 tokenizer
HTML5 tree building
HTML5 defines rules for embedding SVG and MathML inside a regular HTML document. The following tests only check if the browser is following the HTML5 parsing rules for inline SVG and MathML, not if the browser can actually understand and render it.
Parsing inline SVG
multimedia
Video
33/35
video element
Subtitles
Audio track selection
Video track selection
Poster images
Codec detection
Advanced
Enter
Back
Full Screen
R3 Zoom
OPTIONS Options Menu
SONY
Close
https://html5test.com
Go
spatie
Gereed

gesture control

(throw your hands up in the air,
and wave ’em like you just don’t care)



navigation with gesture control

can we control these input methods directly from javascript?

the d-pad

maybe

1 keyboard events

```
window.addEventListener("keypress", function(e) {
    e.preventDefault(); // no navigation
    ...
});
```

the gamepad

maybe

1 the gamepad api

```
var gamepads = navigator.getGamepads();
for (var i = 0; i < gamepads.length; i++) {
  ...
}
```

2 wii u api

```
window.setInterval(function() {
    var state = window.wiiu.gamepad.update();
    ...
}, 100);
```

the webcam

no*

gestures

no*

2

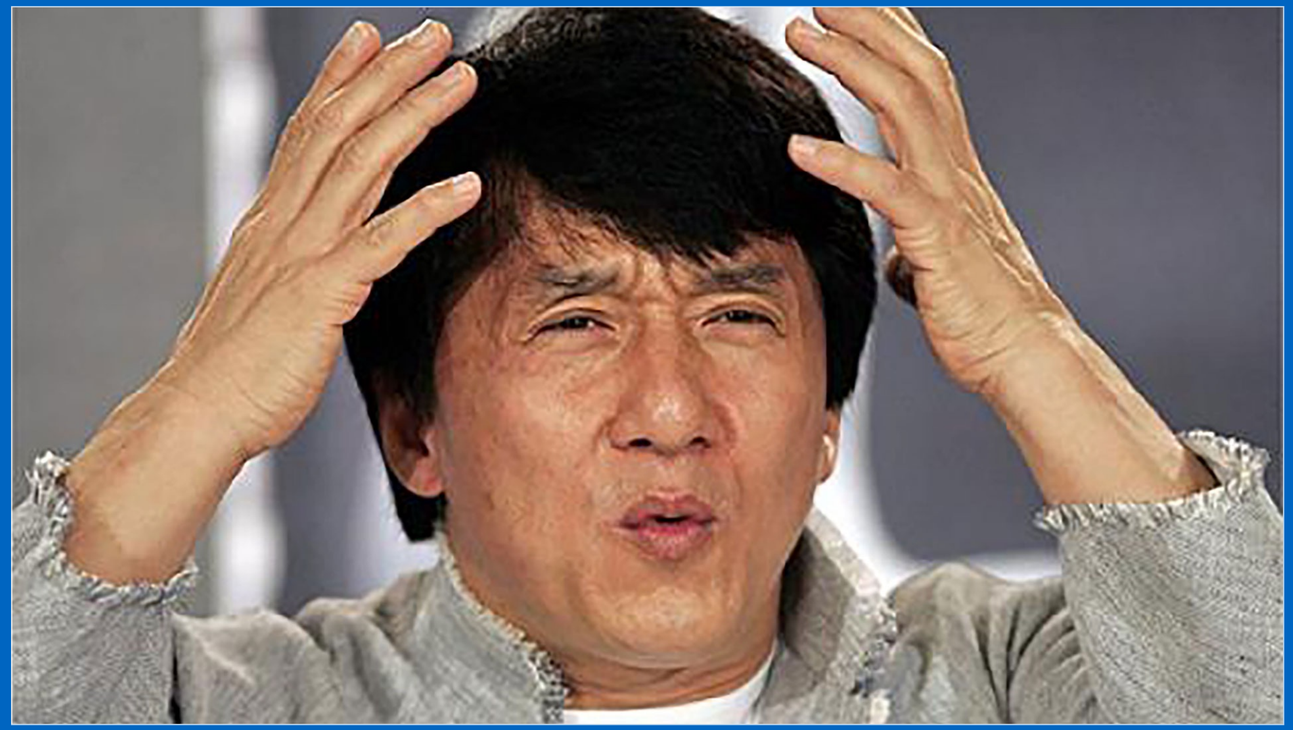
the difference between a television and a monitor

overscan

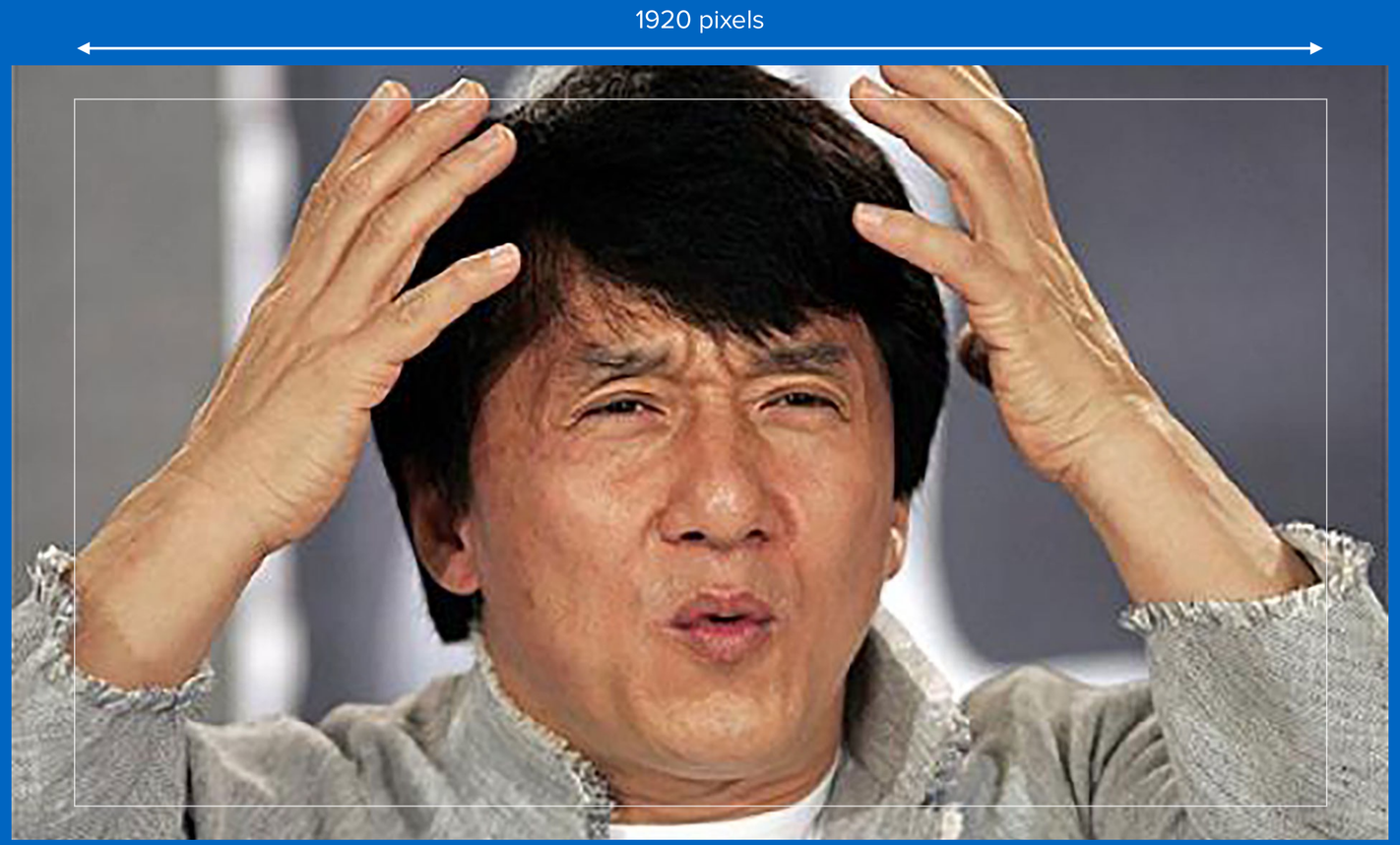
(let’s make it a bit more complicated)

due to historical reasons televisions will not show the borders of the image

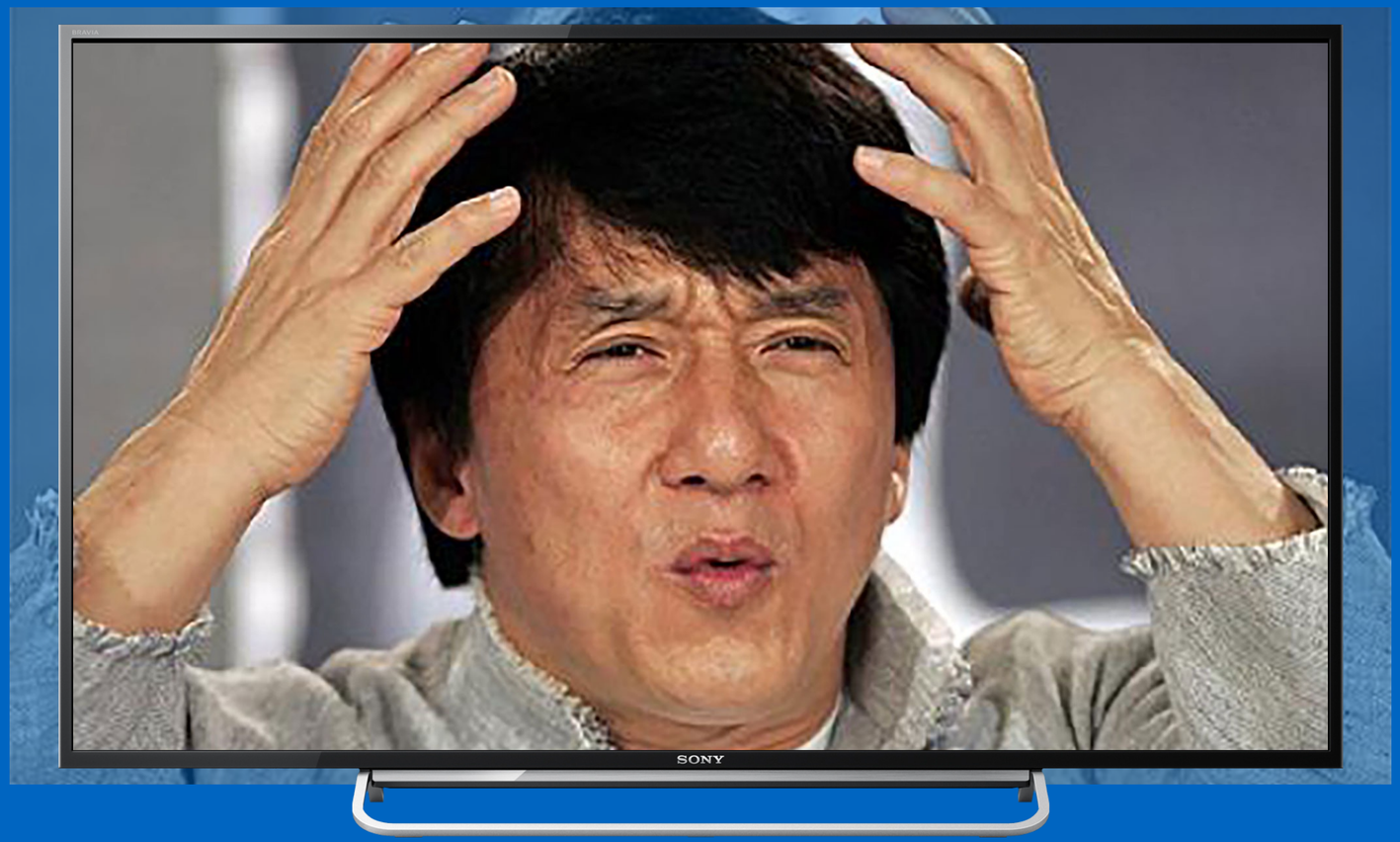
1920 pixels



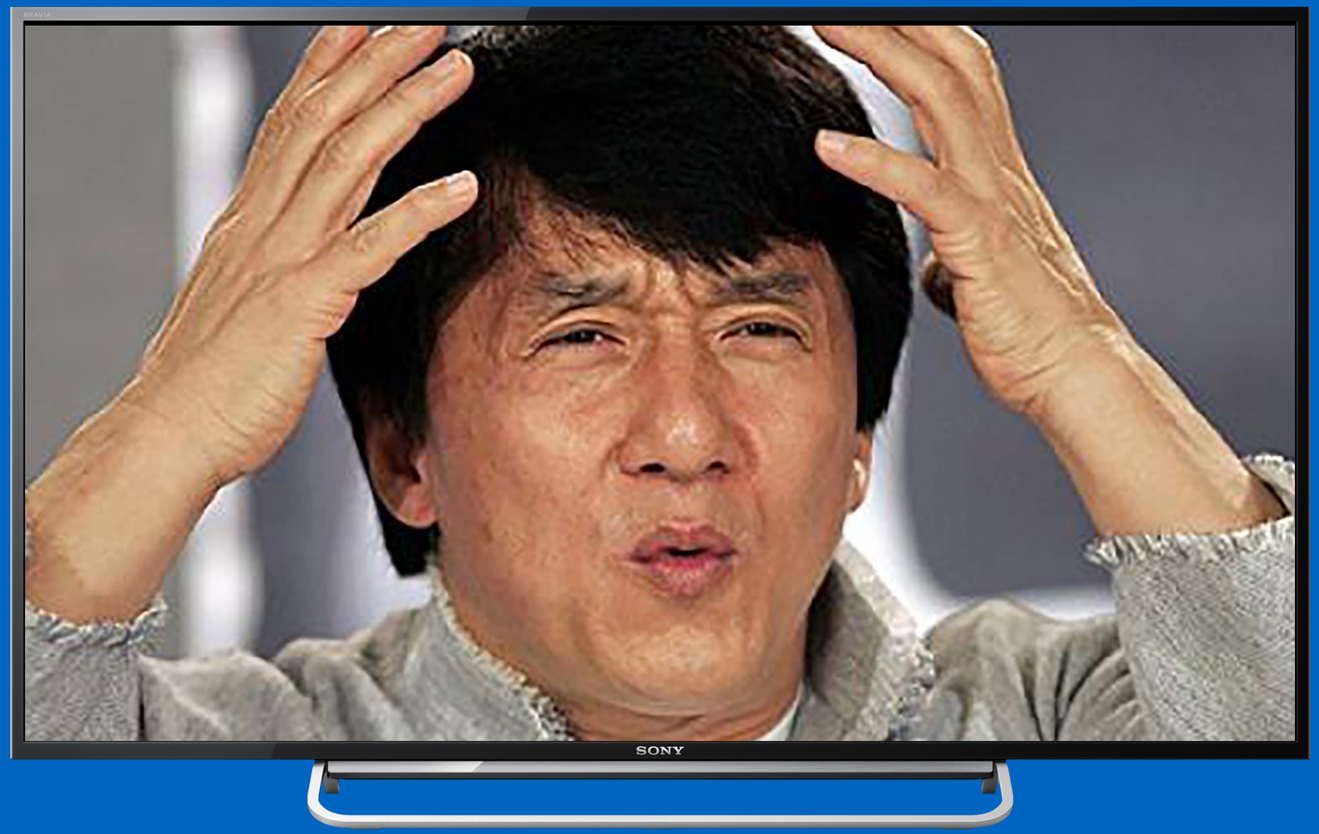
the television enlarges all images from the hdmi input by 5%



the television enlarges all images from the hdmi input by 5%

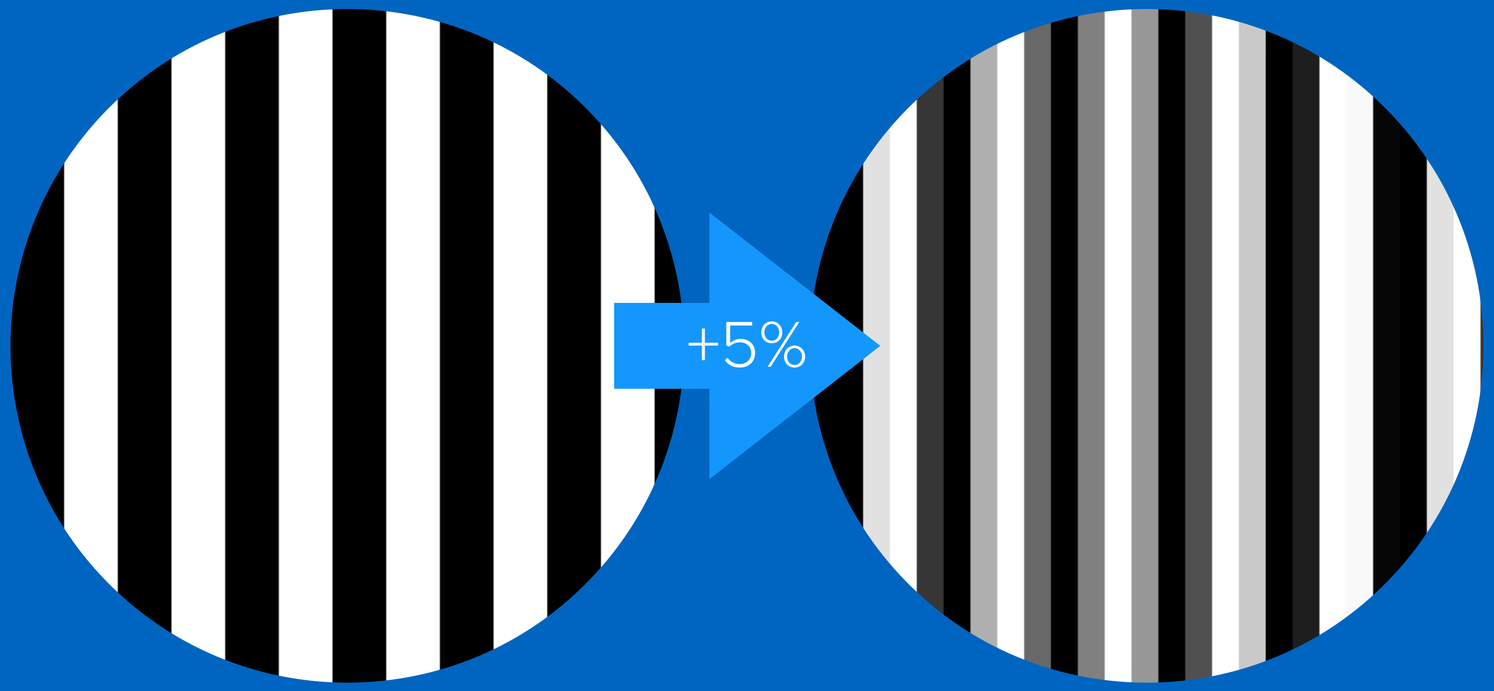


the image is then cropped to
1920 by 1080 pixels



the image is then cropped to
1920 by 1080 pixels

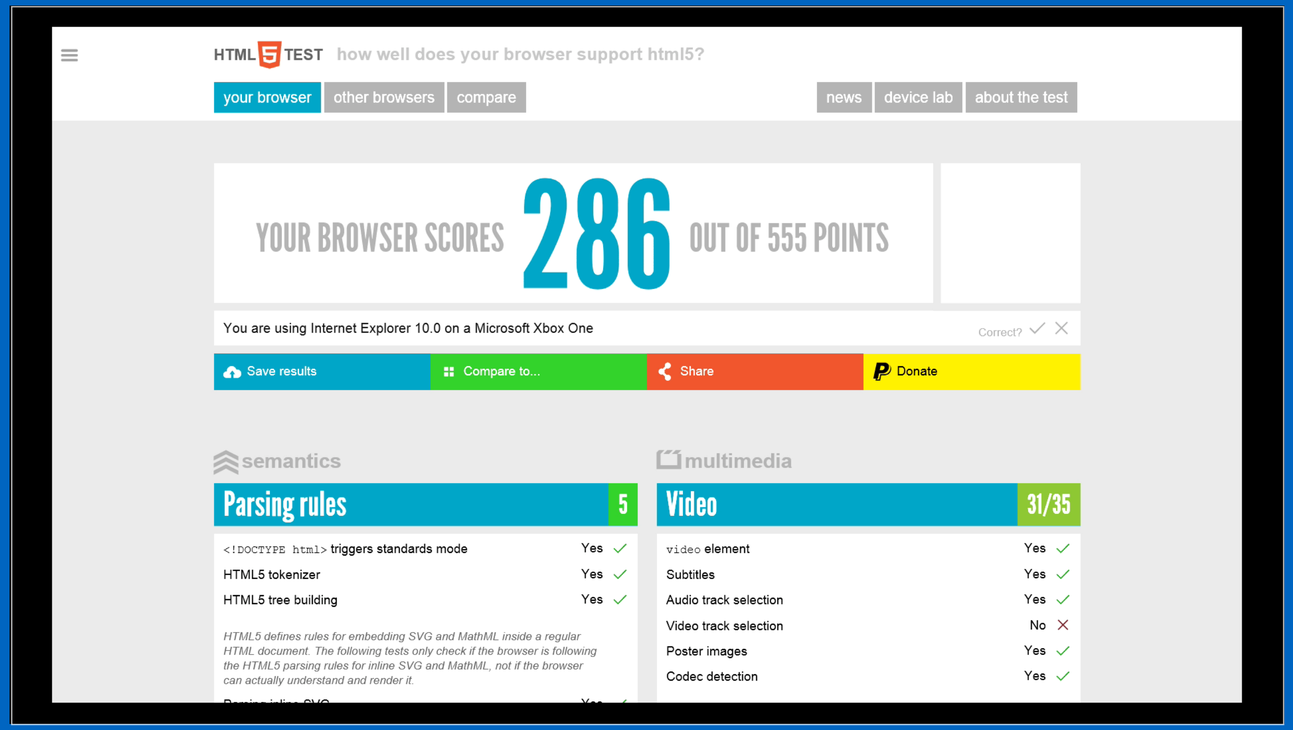
overscan causes blurry output



solution 1

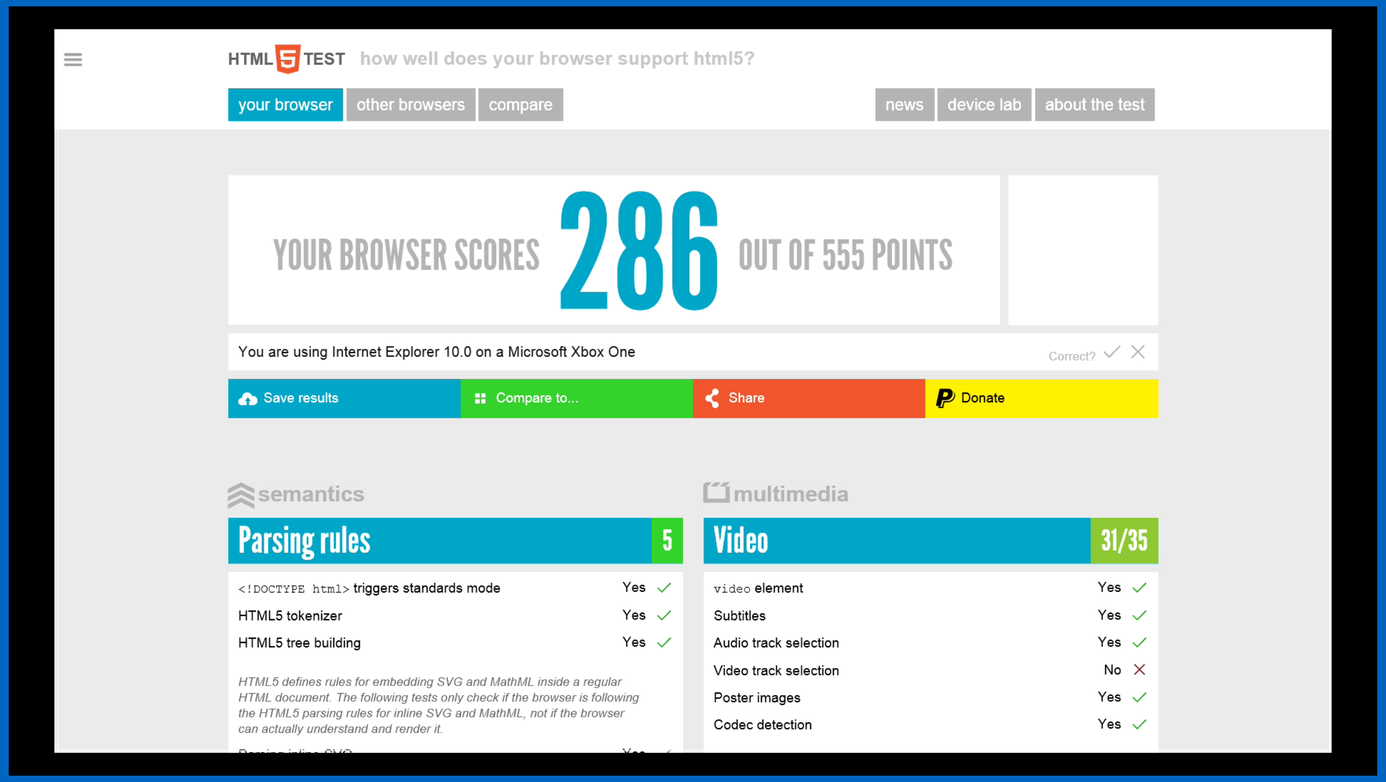
overscan correction

1920 pixels

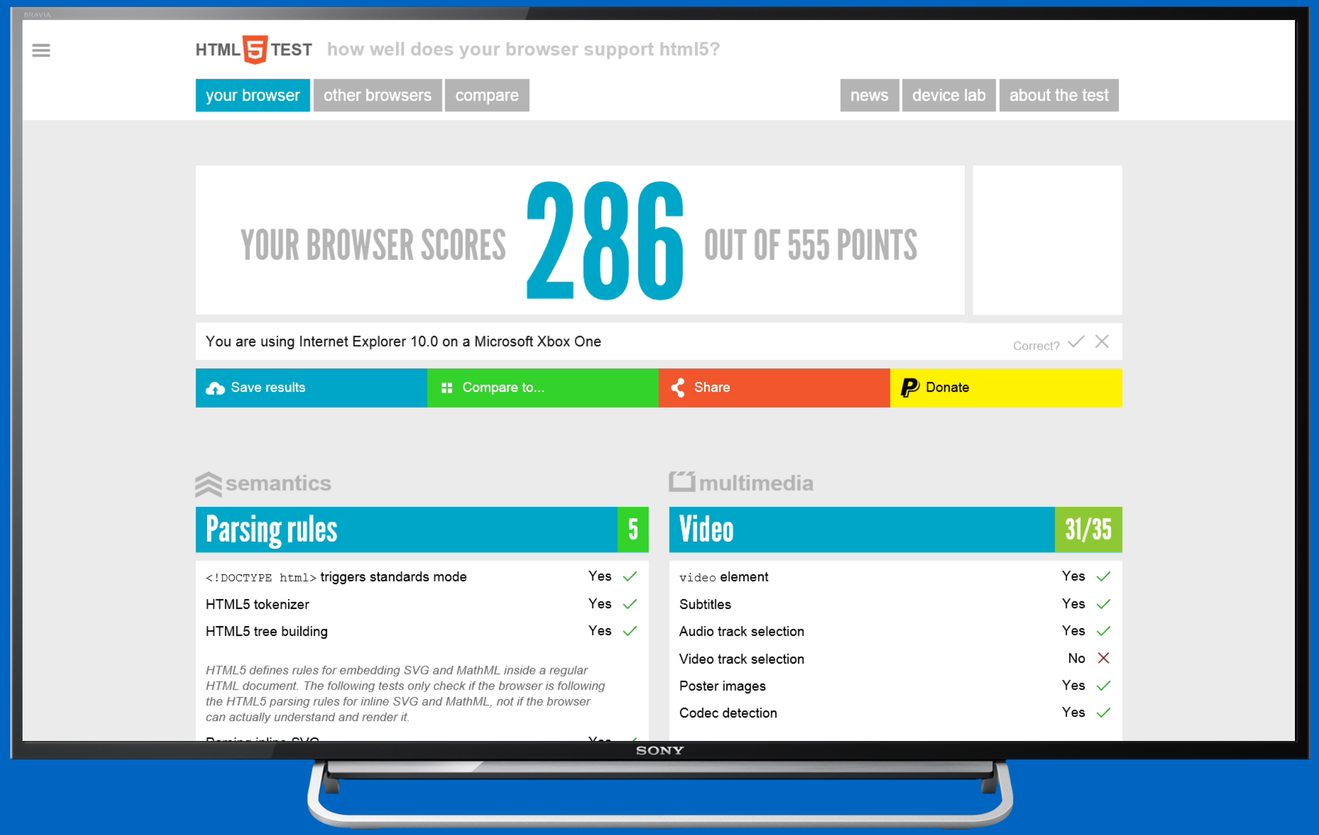


the browser does not use the edges of the image

1920 pixels



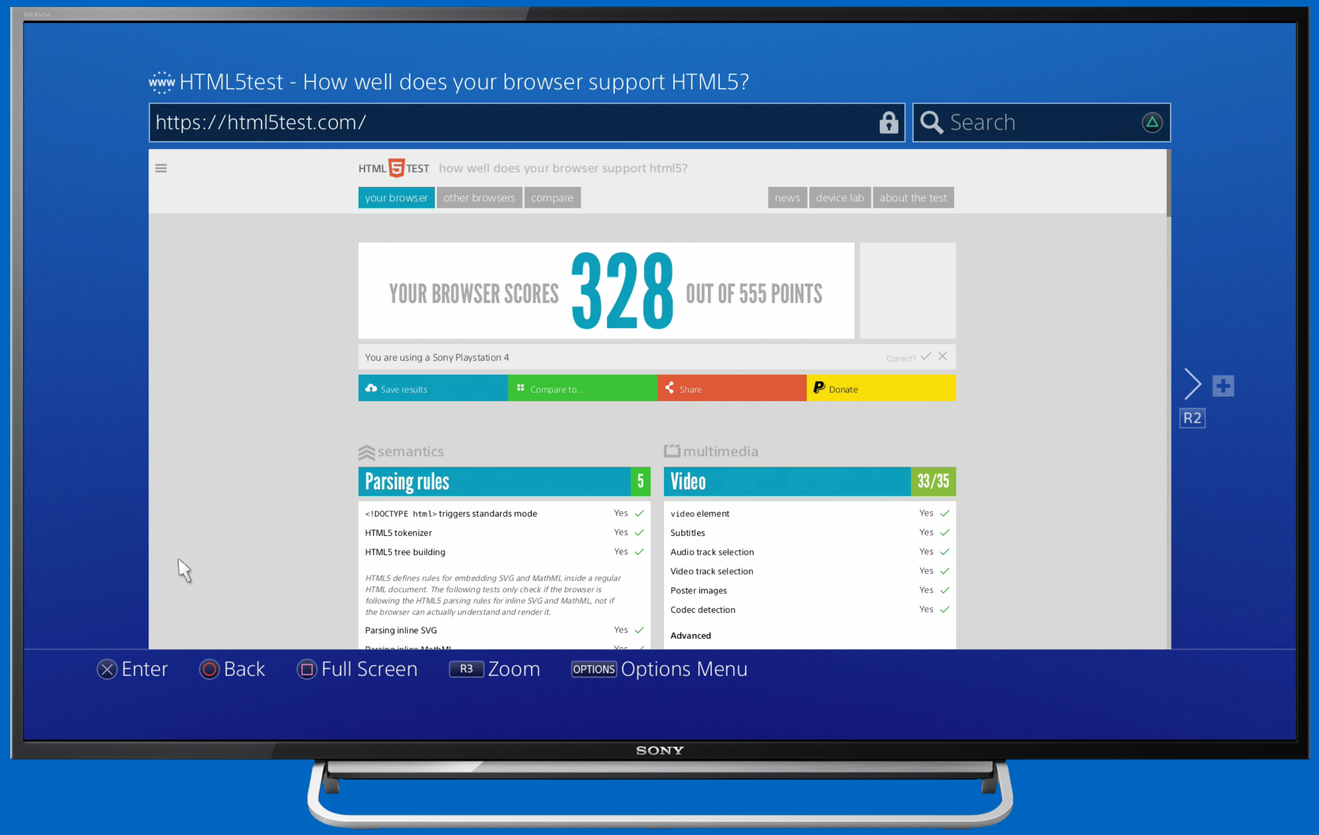
the television will enlarge the image by 5%



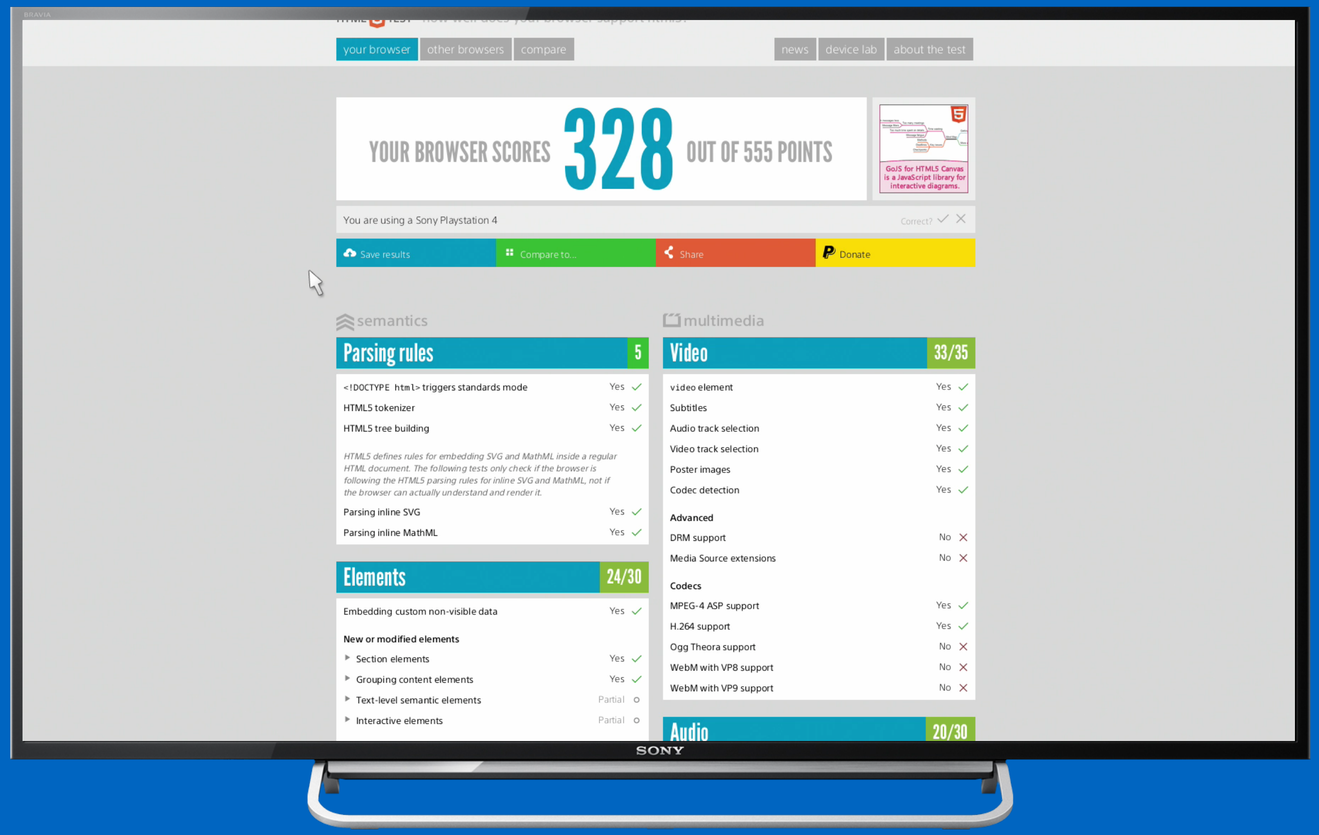
and the content is now fully visible, the unused border is cropped out of the final image

but not every television set enlarges the image by exactly 5%, this can vary between manufacturers and models

configure the correct overscan correction in the system preferences



the playstation 4 will always show the browser without overscan correction in full screen mode



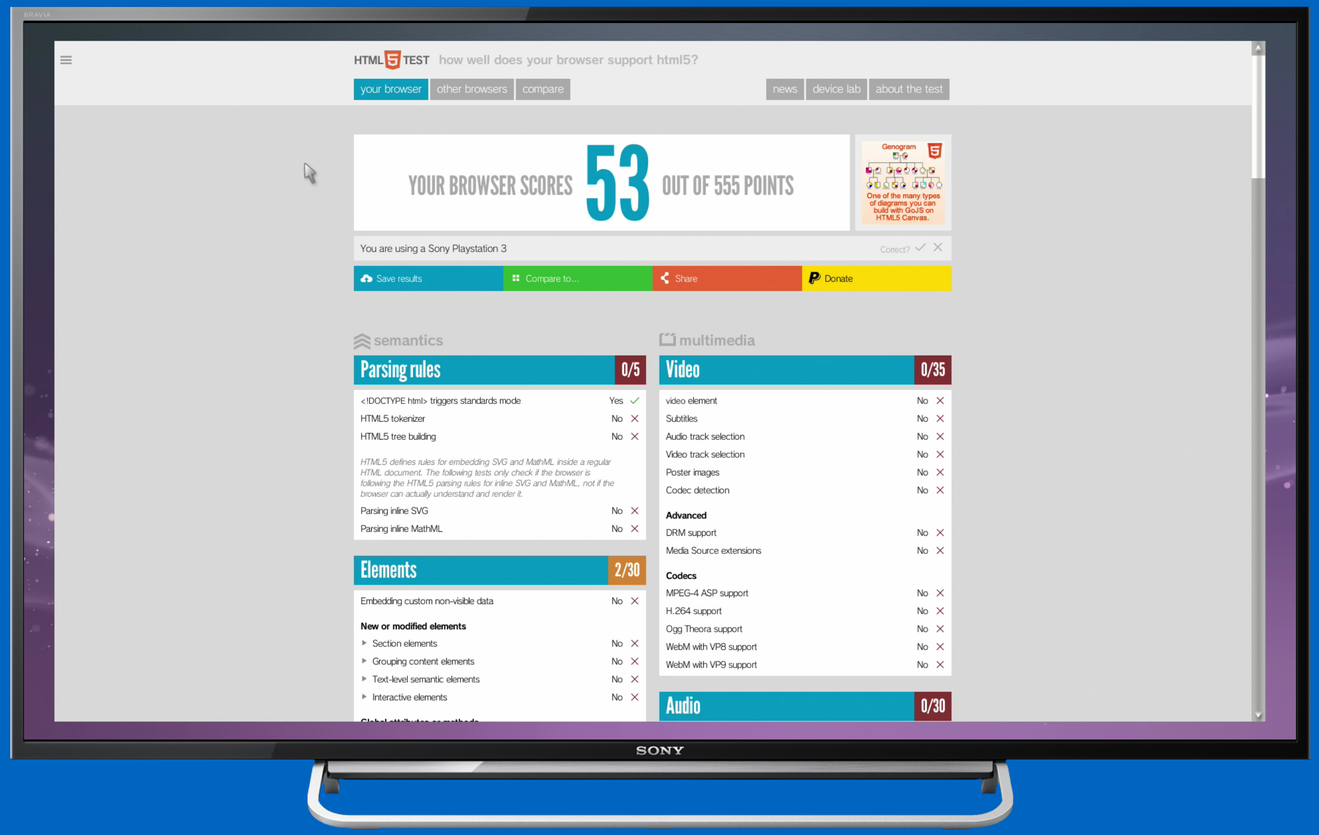
the playstation 4 will always show the browser without overscan correction in full screen mode

solution 2

no overscan

it is possible to disable overscan
on many television sets

‘screen fit’, ‘pixel perfect’ or ‘just scan’



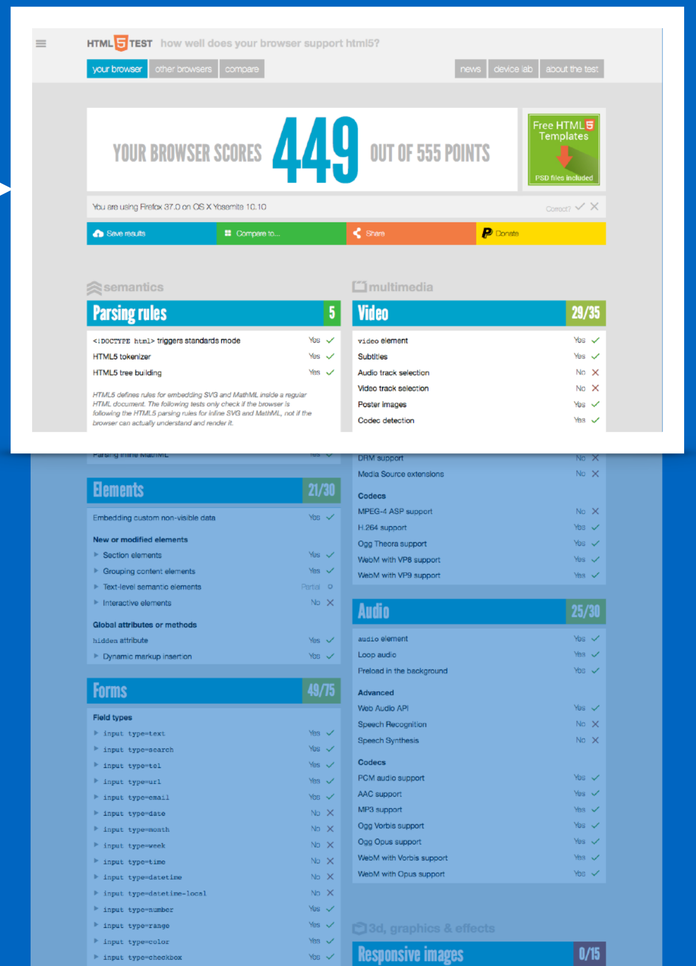
the playstation 3 always shows the browser with overscan correction

the viewport
(i really need some aspirine!)

the visual viewport

the visual viewport determines which part of the website will be visible

measured in device pixels



the visual viewport

the visual viewport determines which part of the website will be visible

measured in device pixels

the visual viewport

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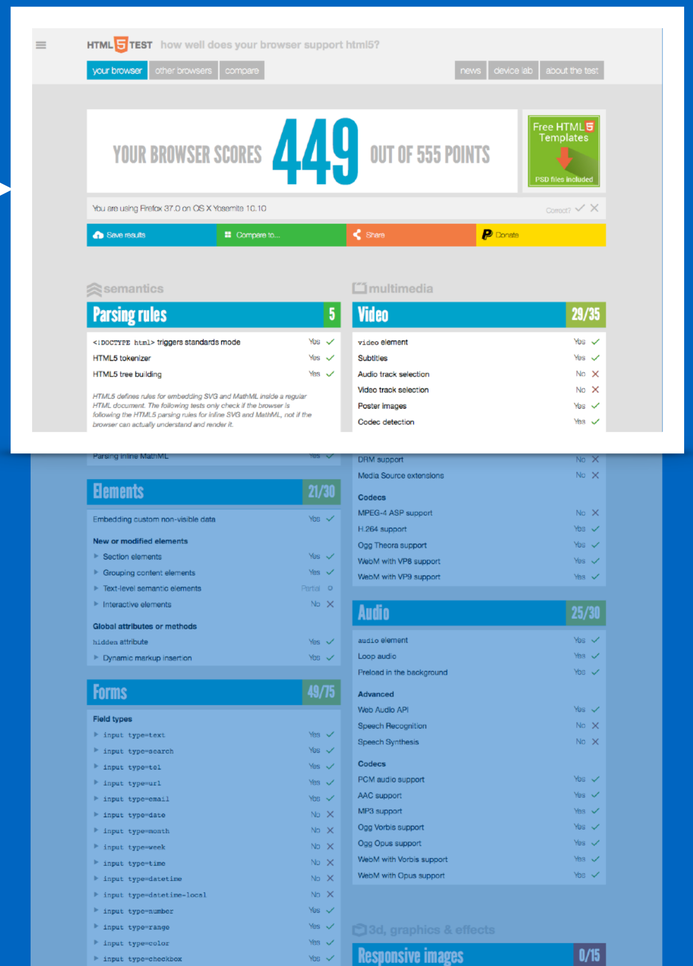
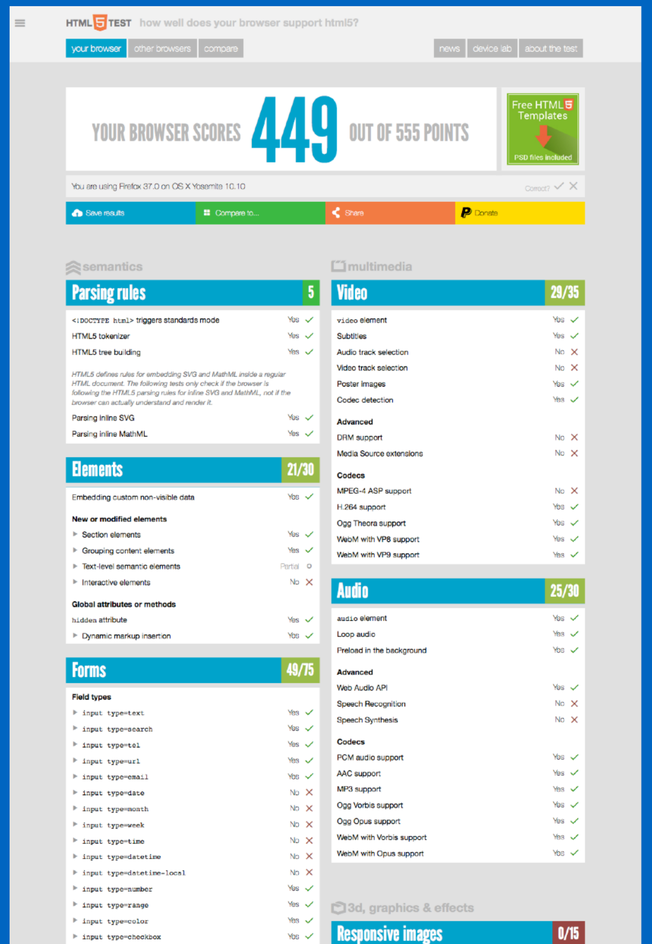
measured in device pixels

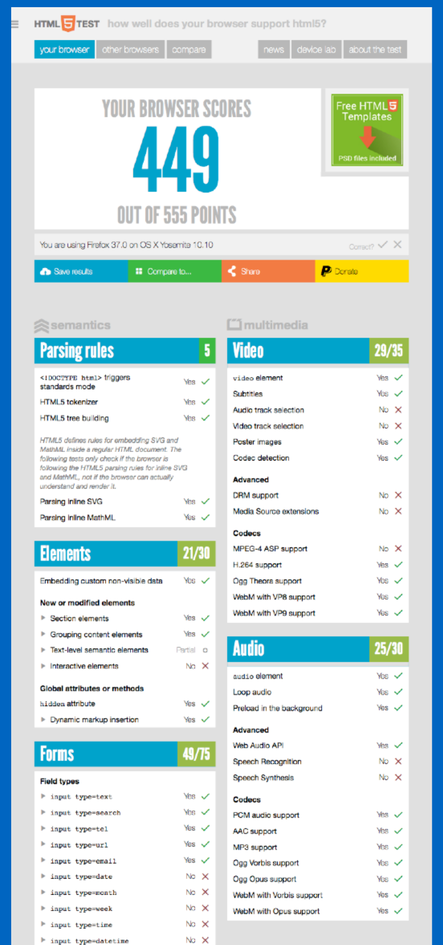


the layout viewport



the layout viewport determines the width in css pixels on which the site will be rendered

the layout viewport



the layout viewport determines the width in css pixels on which the site will be rendered

the layout viewport

the layout viewport determines the width in css pixels on which the site will be rendered

the default layout viewport is different on every smart tv, console or set-top box

between 800 and 1920 css pixels

it is possible to change the width of the layout viewport with the ‘meta viewport’ tag

$$\frac{\text{physical device pixels}}{\text{device scale factor}}$$

```
<meta name="viewport" content=“width=device-width">
<meta name="viewport" content="width=1024">
```

complication:

meta viewport is not supported

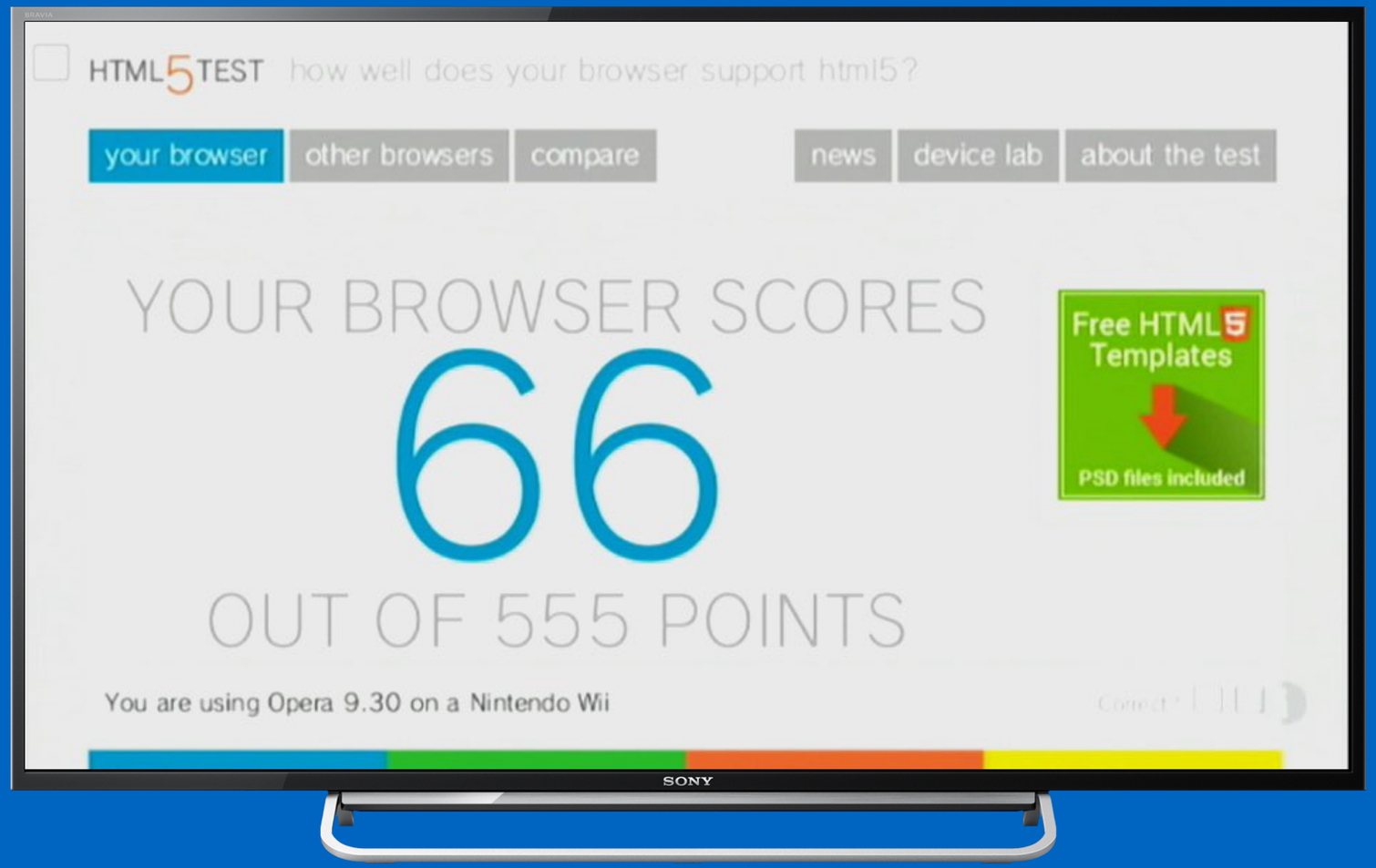
it is not possible to get the same layout viewport width in all of the different browsers

complication:

device pixel ratio is not supported

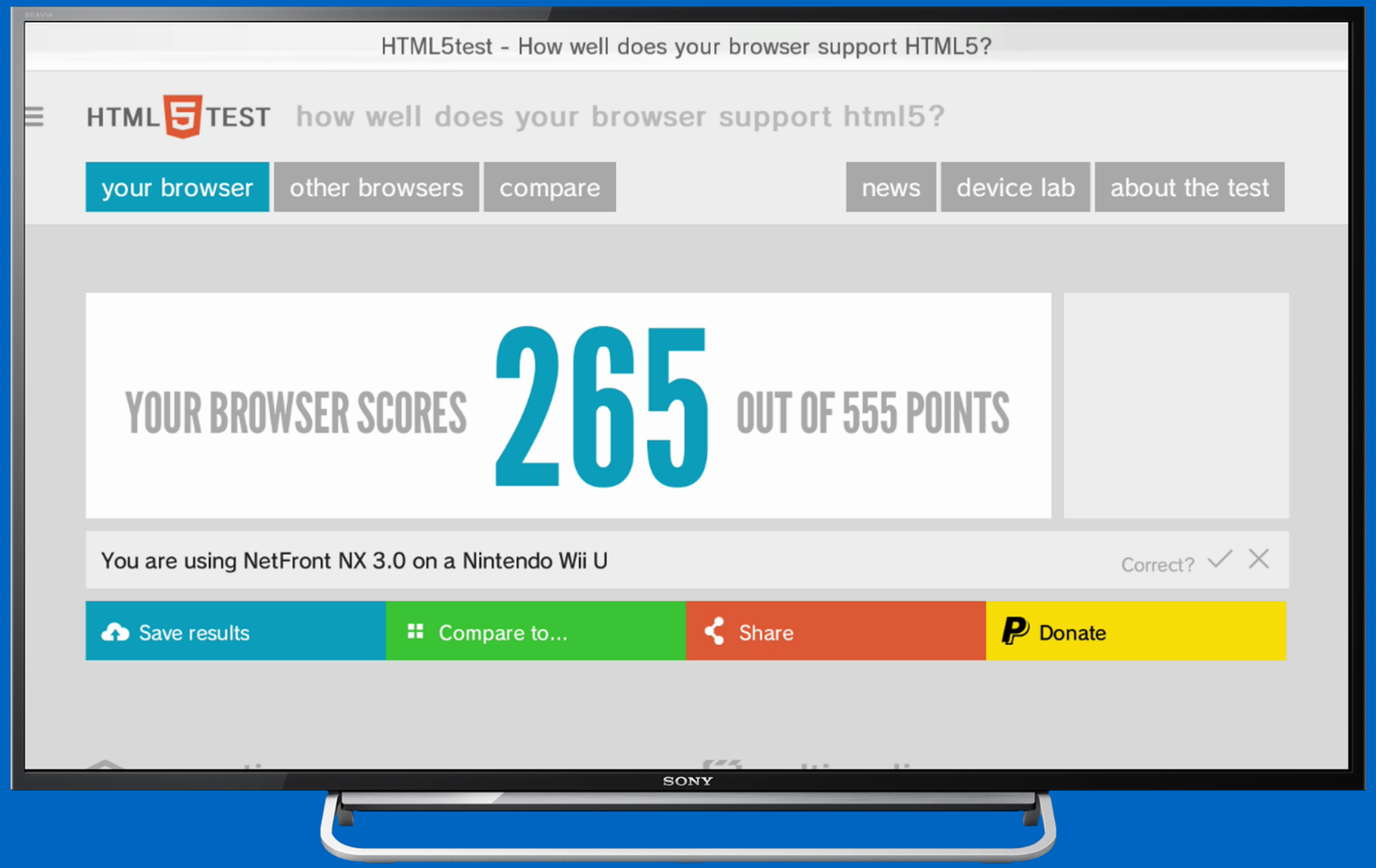
there is no proper way to show images with the same resolution as the physical screen

800 pixels



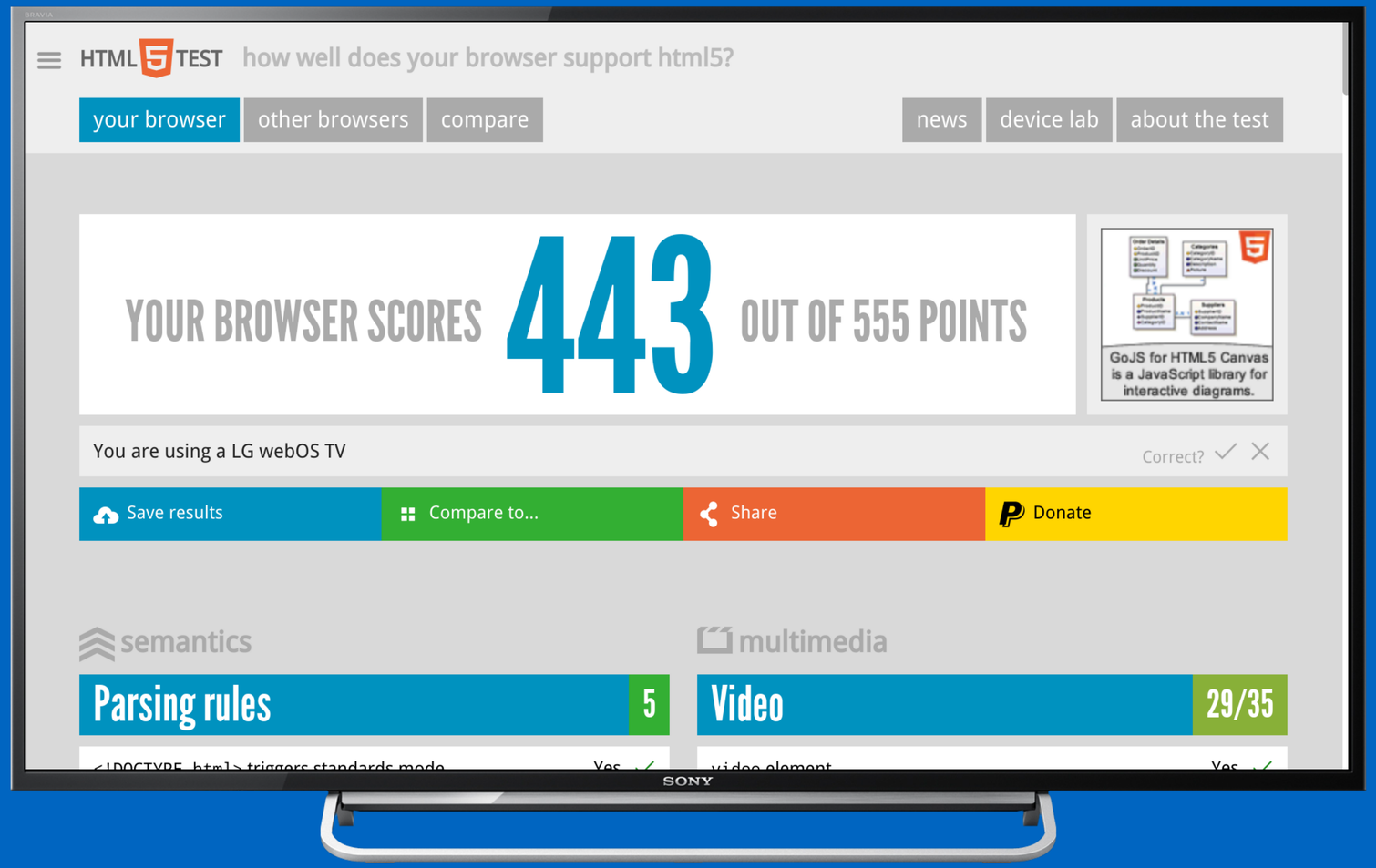
nintendo wii

980 pixels



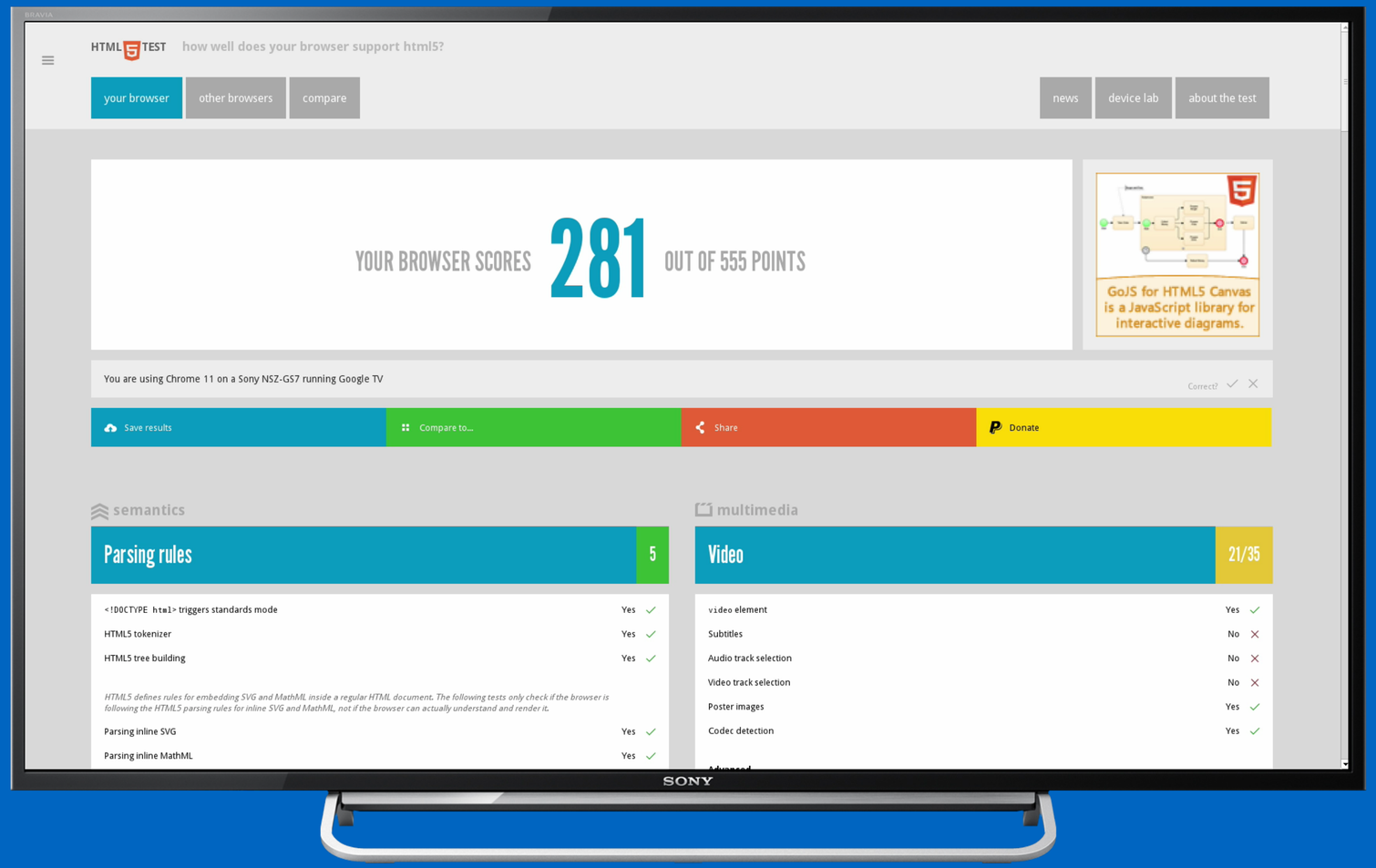
nintendo wii u

960 pixels



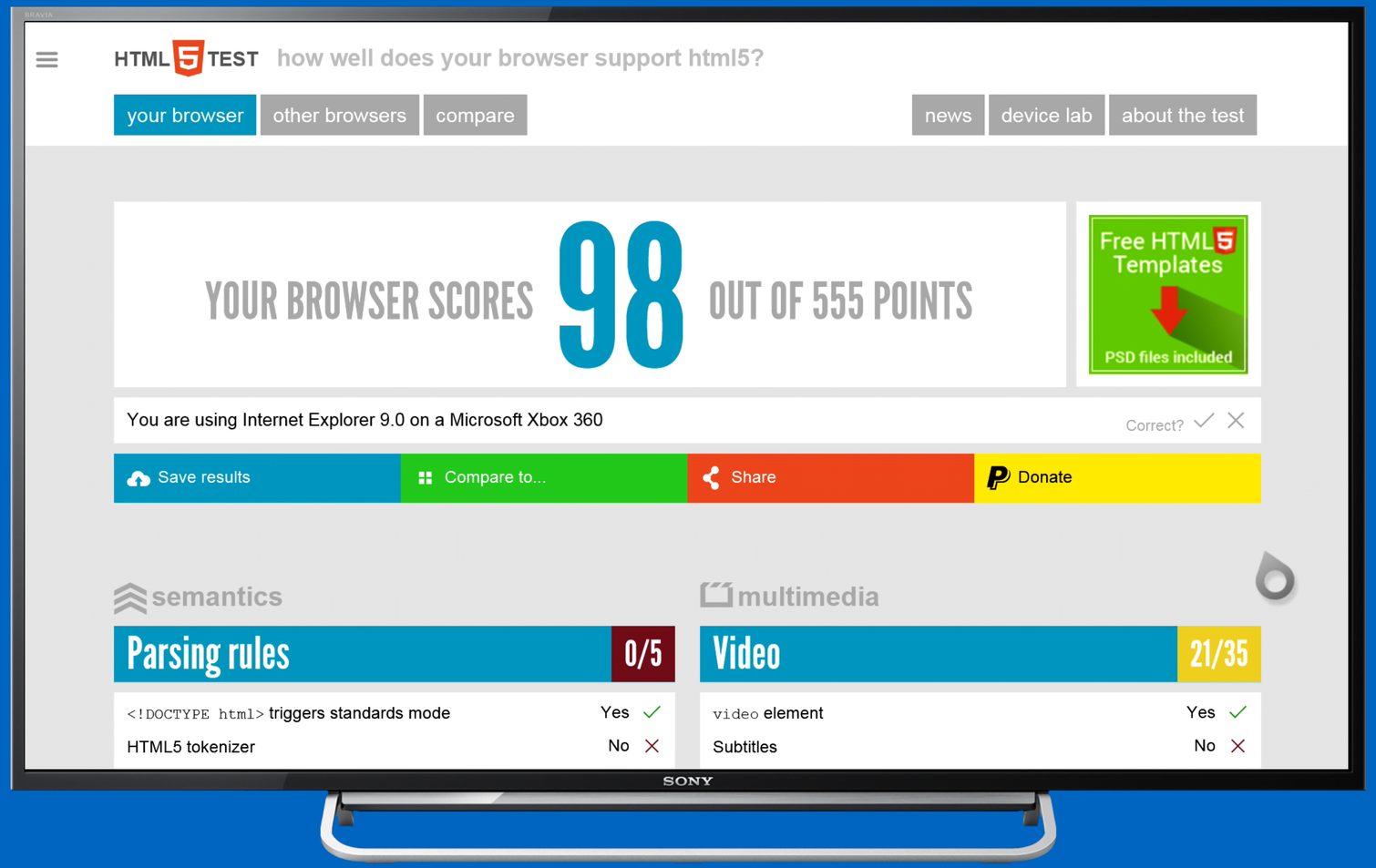
lg webos

1024 pixels



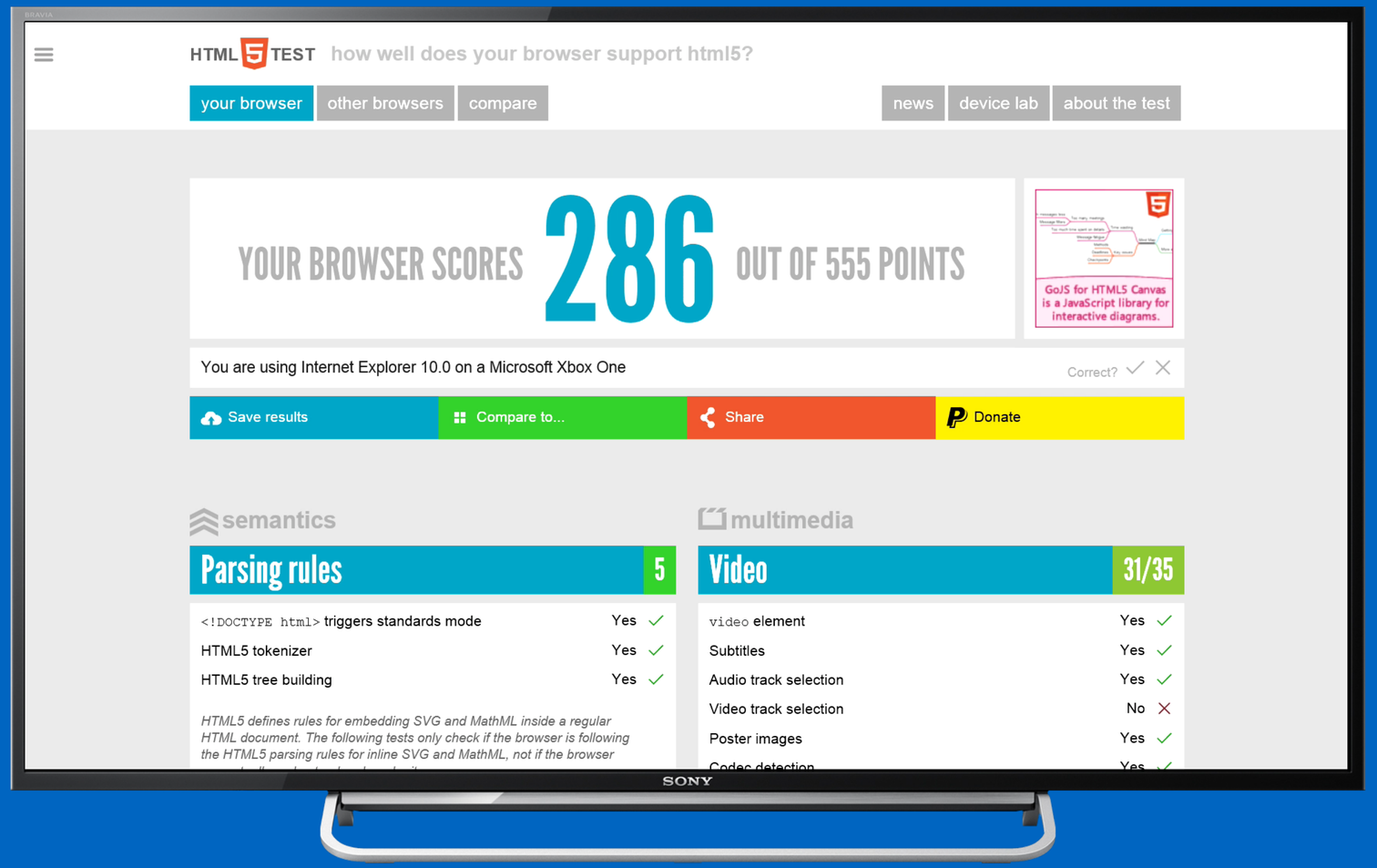
google tv

1041 of 1050 pixels



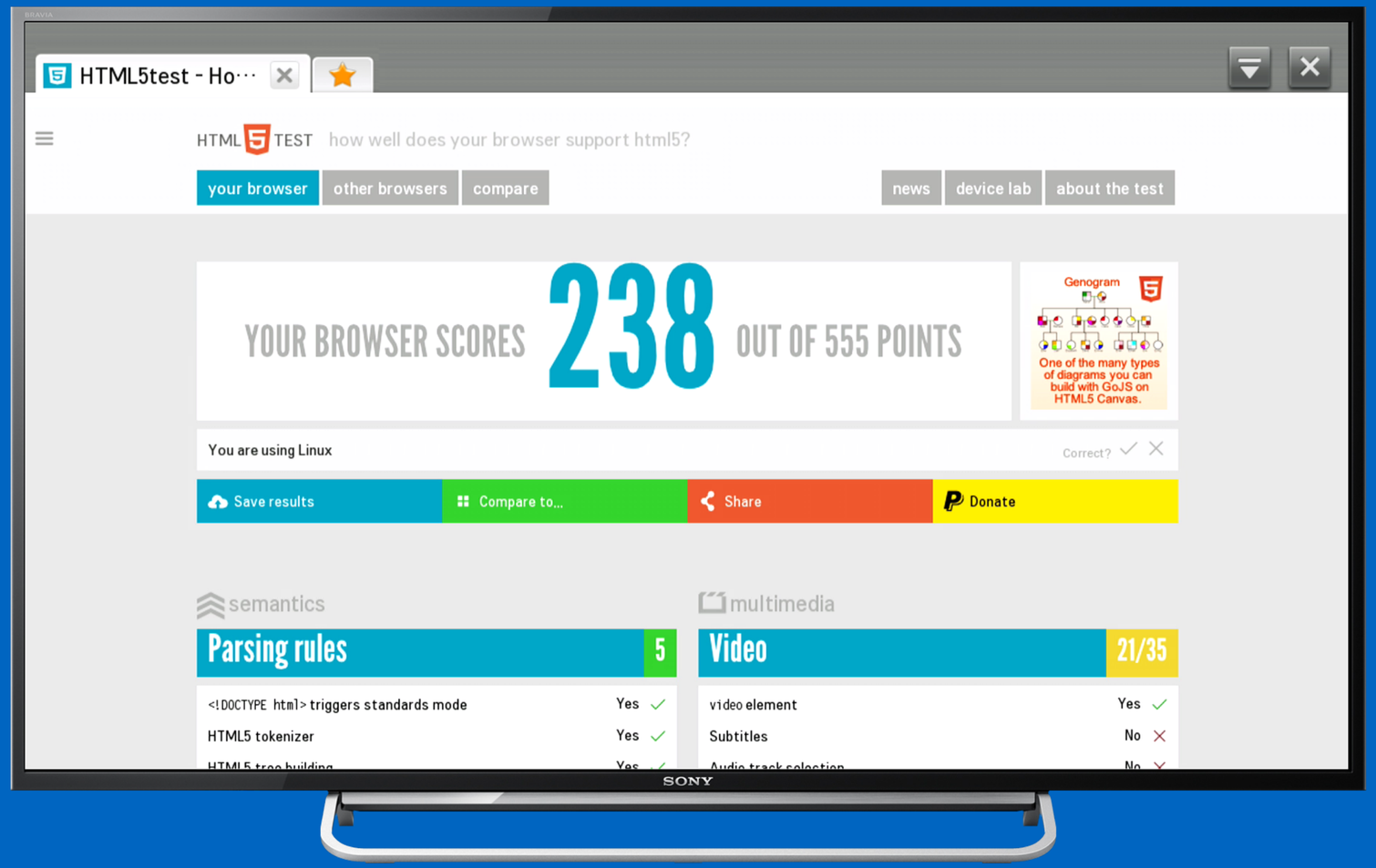
microsoft xbox 360

1200 of 1236 pixels



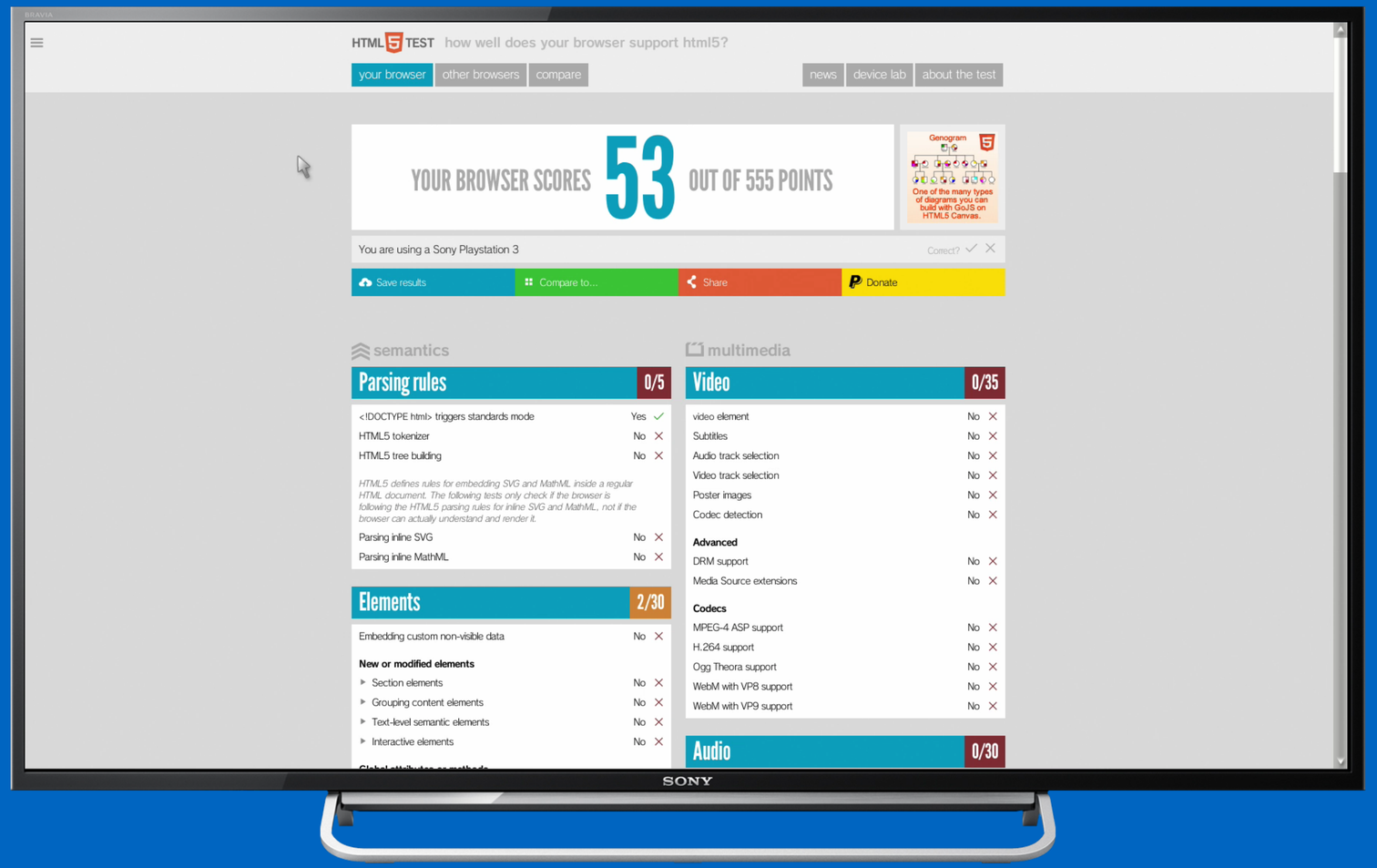
microsoft xbox one

1226 pixels



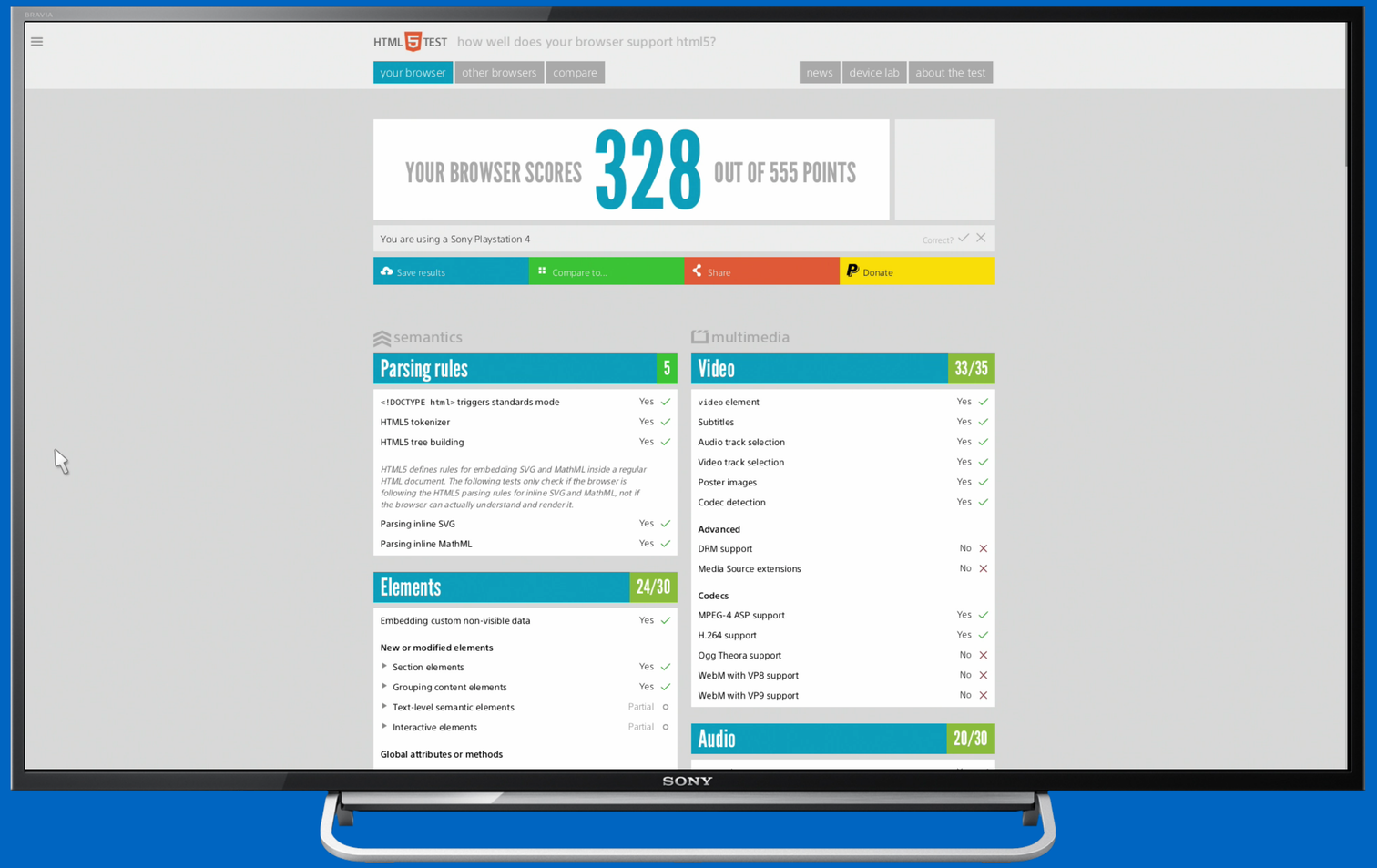
lg netcast

1824 pixels



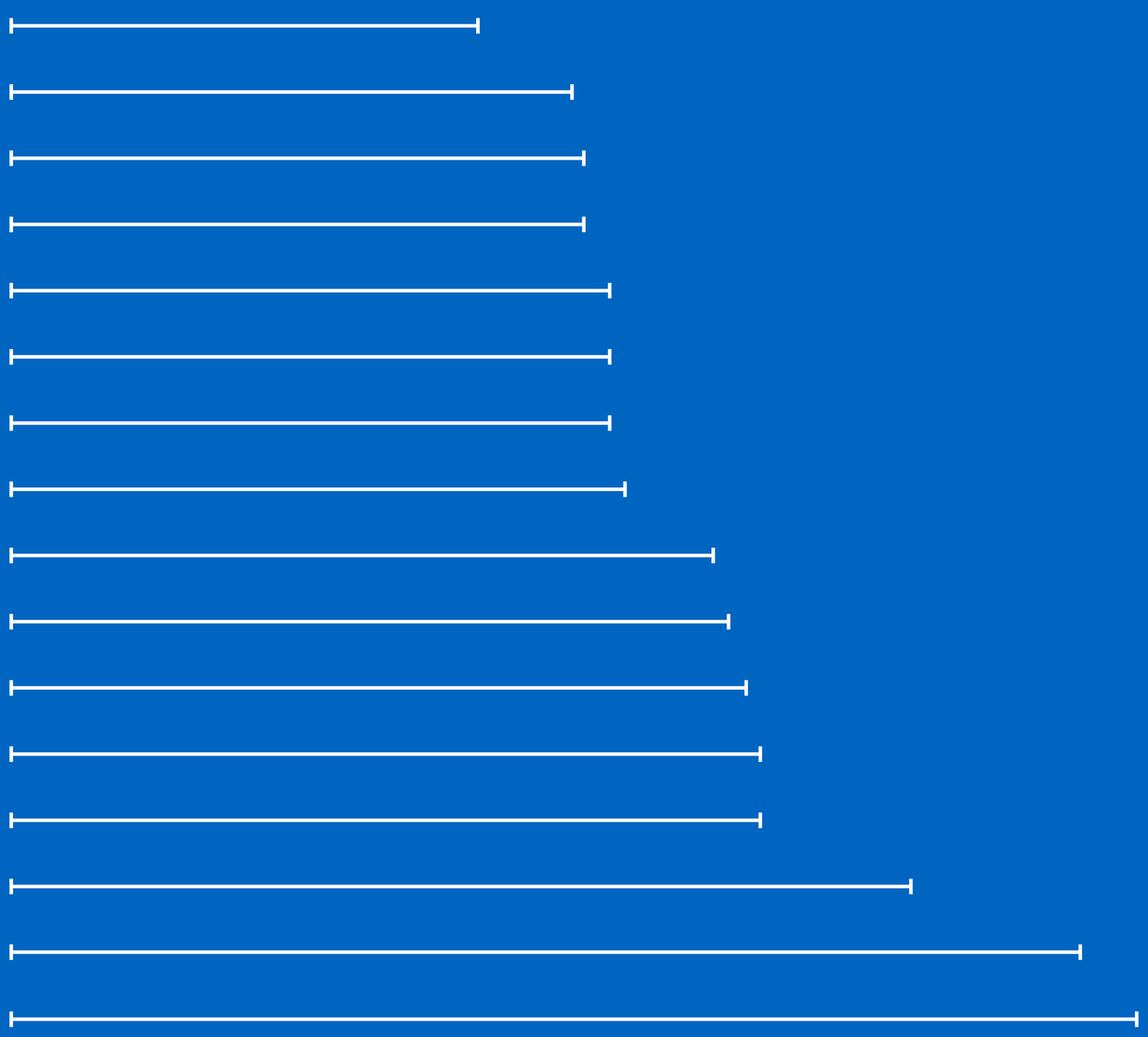
sony playstation 3

1920 pixels



sony playstation 4

Nintendo Wii	800
LG WebOS	960
Nintendo Wii U	980
Philips 2014 series	980
Google TV	1024
Playstation TV	1024
Samsung Tizen	1024
Xbox 360	1051
Xbox One	1200
LG Netcast	1226
Panasonic Viera	1256
Opera Devices	1280
Samsung 2014 series	1280
Panasonic Firefox OS	1536
Playstation 3	1824
Playstation 4	1920



device pixels != device pixels

(of course not)

sometimes devices pixels are not
physical devices pixels, but virtual device pixels

the browser renders in a lower resolution
which is upscaled to the resolution of the display

3

distance to the screen

“Make fonts and graphics on the site larger to account for viewing distance. People sit proportionally farther from a TV than from a computer monitor of the same size.”

– Internet Explorer for Xbox One Developer Guide

https://msdn.microsoft.com/en-us/library/dn532261(v=vs.85).aspx

fluid design++

the size of the contents is determined by the width of the viewport

1 use percentages for positioning

```
.left { width: 60%; }
.right { left: 60%; width: 40%; }
```

2 base the fontsize on the viewport

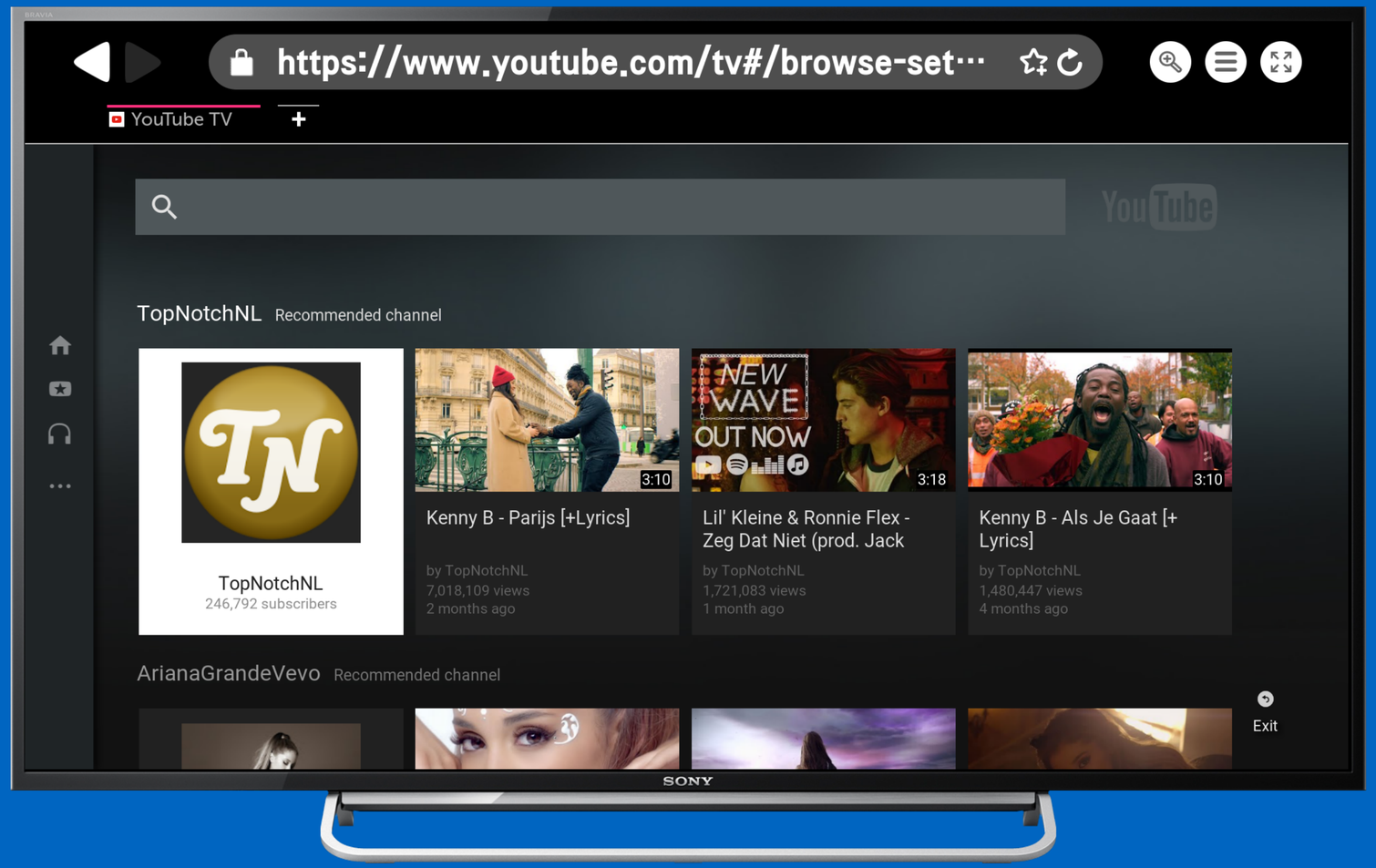
```
document.body.style.fontSize =
  ((window.innerWidth / 1920) * 300) + '%';
```

3 **or maybe use viewport units** – with polyfill

```
body { font-size: 3vw; }
.left { width: 60vw; height: 100vh; }
.right { width: 40vw; height: 100vh; }
```

4 use a safe margin around the contents

```
body {
    padding: 5%;
}
```



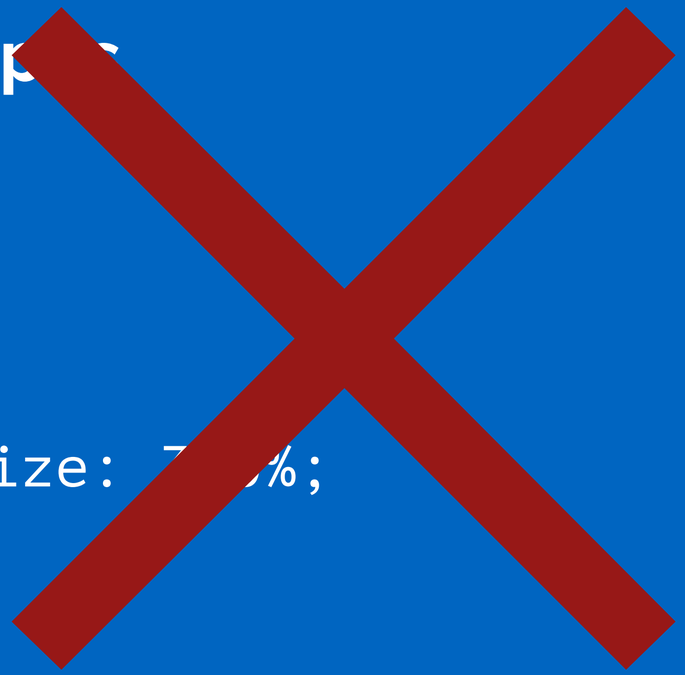
youtube tv website

identifying smart tv's

(css for televisions)

1 css media types

```
@media tv {
    body {
        font-size: 7[illegible]%;
    }
}
```



1 css media types

all television browsers use the
css media type ‘screen’

2 screen size

```
if (screen.width ==  && screen.height == 1080) {
    document.body.cla    e += " television";
}
```

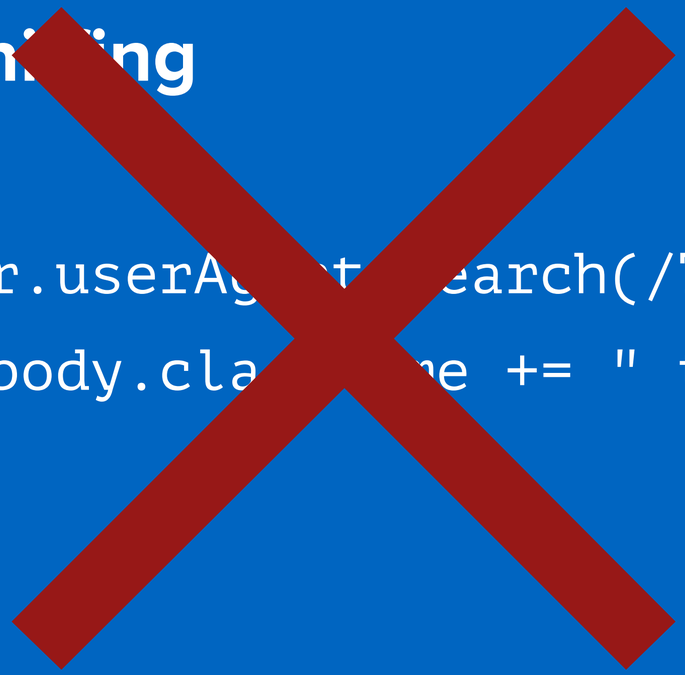
2

screen size

monitors and phones often use hd resolutions, television browsers often use other resolutions

3 useragent sniffing

```
if (navigator.userAgent.search(/TV/i) >= 0) {
    document.body.className += " television";
}
```



3 useragent sniffing

not all smart tv’s are recognisable

```
Mozilla/5.0 (X11; Linux; ko-KR)
AppleWebKit/534.26+ (KHTML, like Gecko)
Version/5.0 Safari/534.26+
```

4 couch mode

the only reliable way to optimise a website
for television is to make two different websites...

or give the user the ability to switch on
couch mode

4

be careful with feature detection

“Basically every feature that talks to the operating system or hardware, is suspect.”

– Me

http://blog.html5test.com/2015/08/the-problems-with-feature-detection/

```
if (!!navigator.geolocation) {
  navigator.geolocation.getCurrentPosition(
    success, failure
  );
}
else {
  // alternative
}
```

```
if (!!navigator.geolocation) {
  navigator.geolocation.getCurrentPosition(
    success, failure
  );
}
```

1. failure is called with a “permission denied” error code

2. no callback at all to success or failure

```
if (!!navigator.geolocation) {
  navigator.geolocation.getCurrentPosition(
    success, failure
  );
}
```

3 **success is called with longitude = 0 and latitude = 0**

4 **success is called with the coordinates of Mountain View, USA**

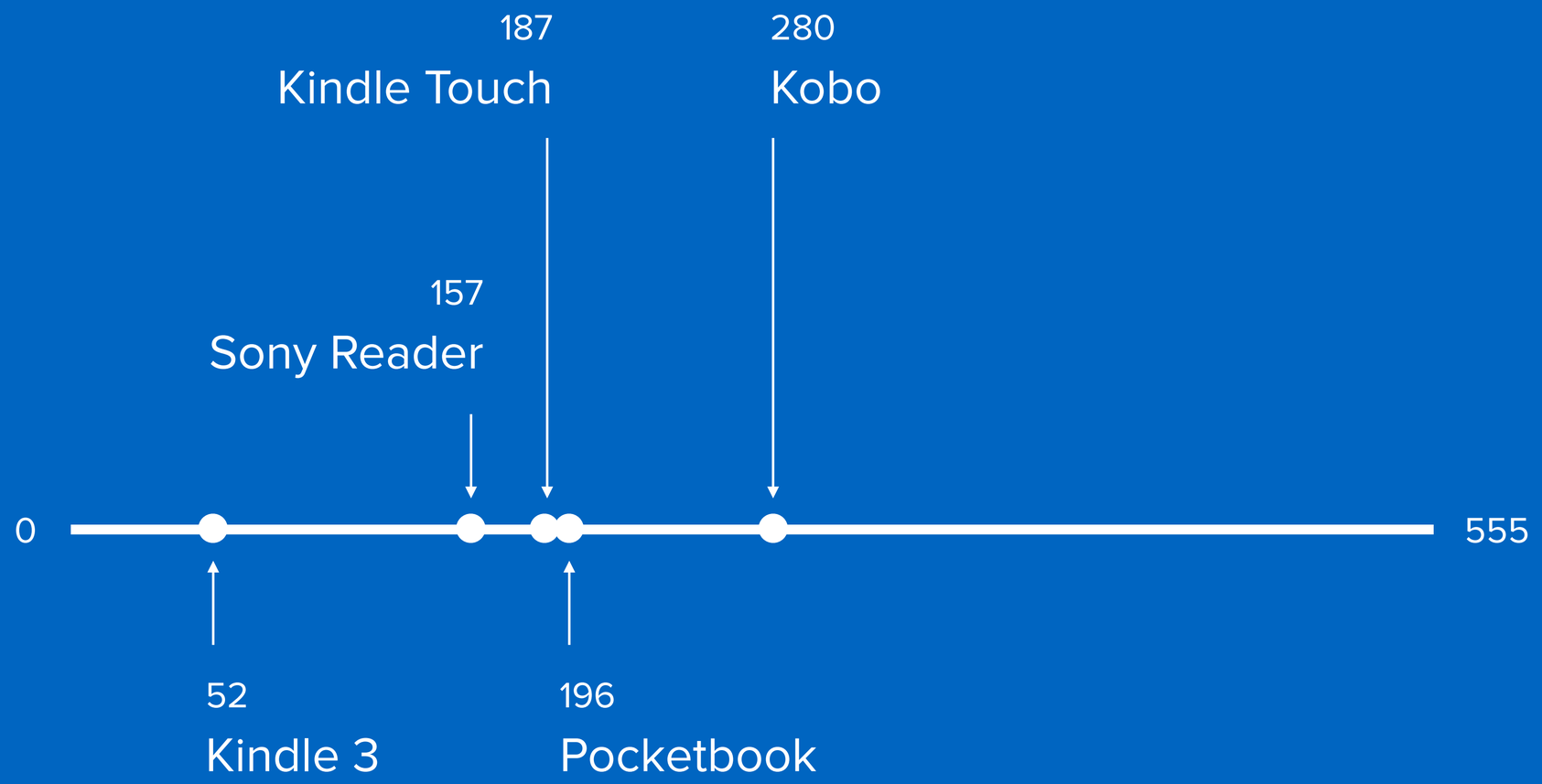
is there a future for web apps on the big screen?


MENU

the new apple tv does not ship
with a browser by default

android tv does not ship
with a browser by default

e-readers

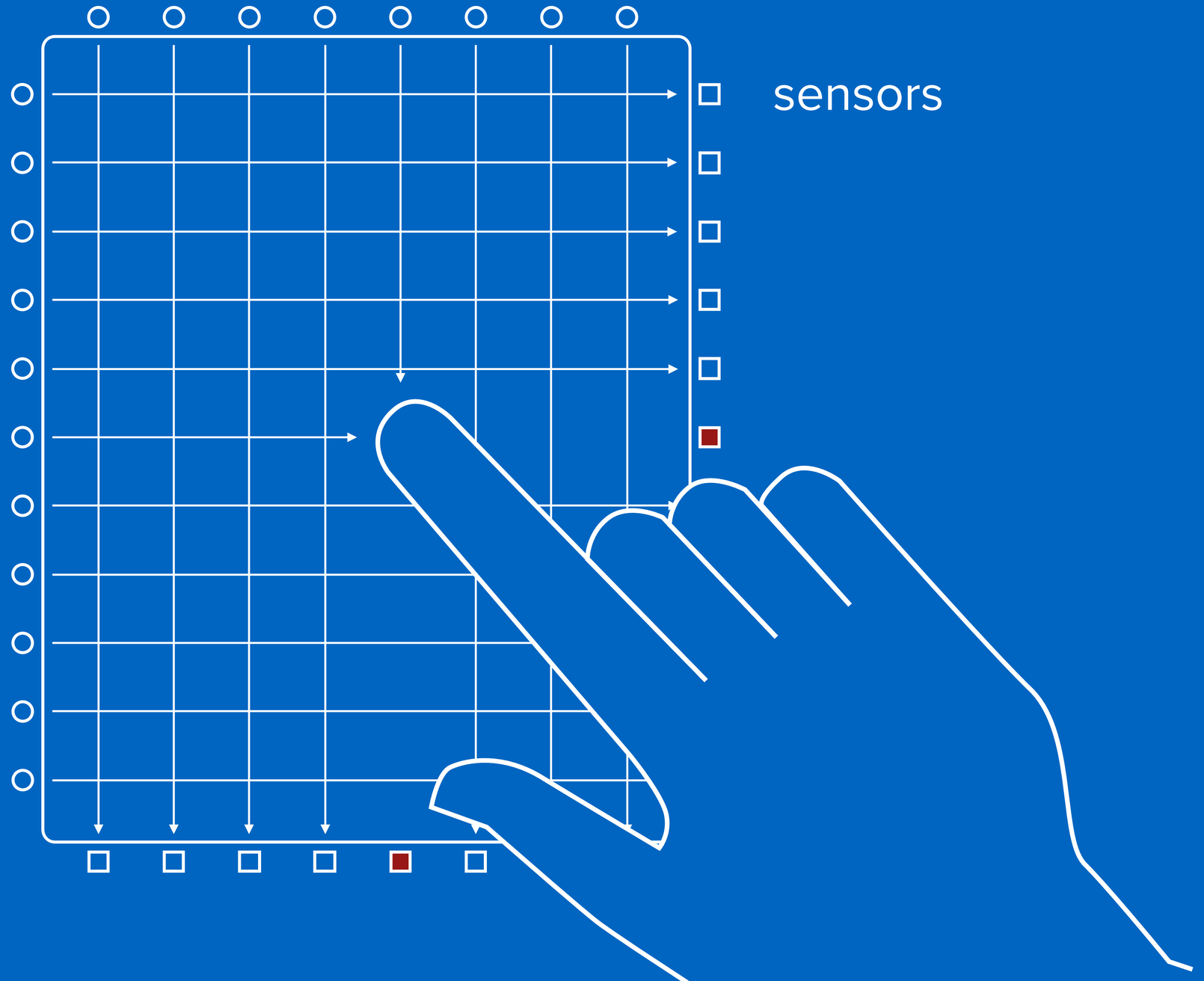


e-reader results on html5test.com

infrared touch screen

led’s

sensors

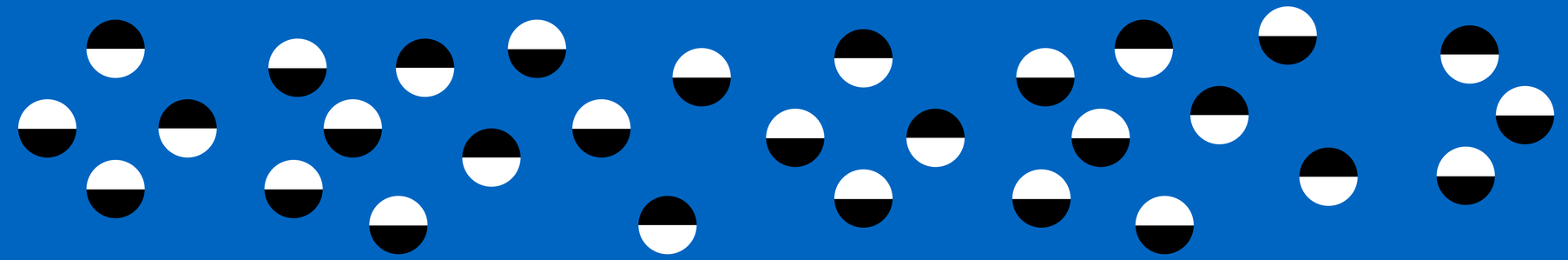


	mouse events		touch events
	down/up	move	
amazon kindle touch	yes		
pocketbook basic touch	yes		
kobo glow	yes	yes	
sony reader	yes	yes	1 finger

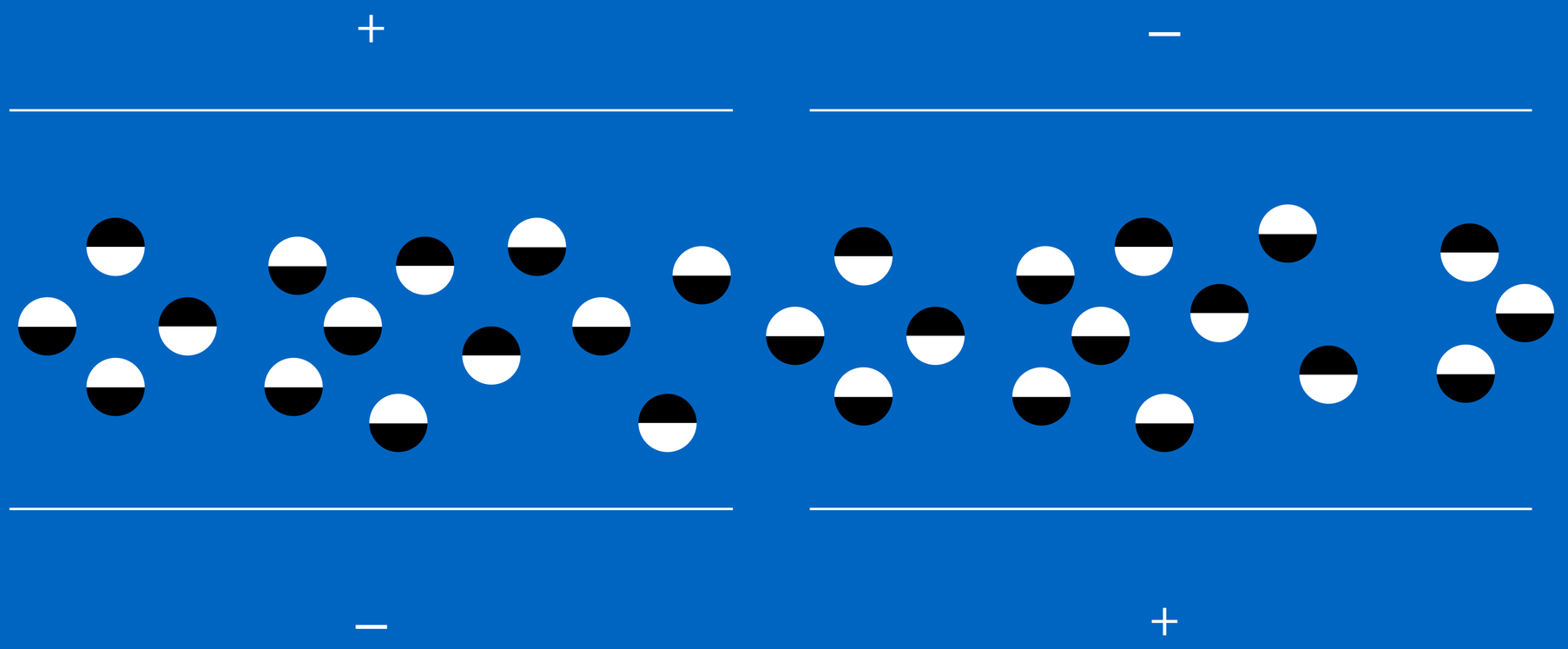
e-ink screens

(slow, slower, slowest)

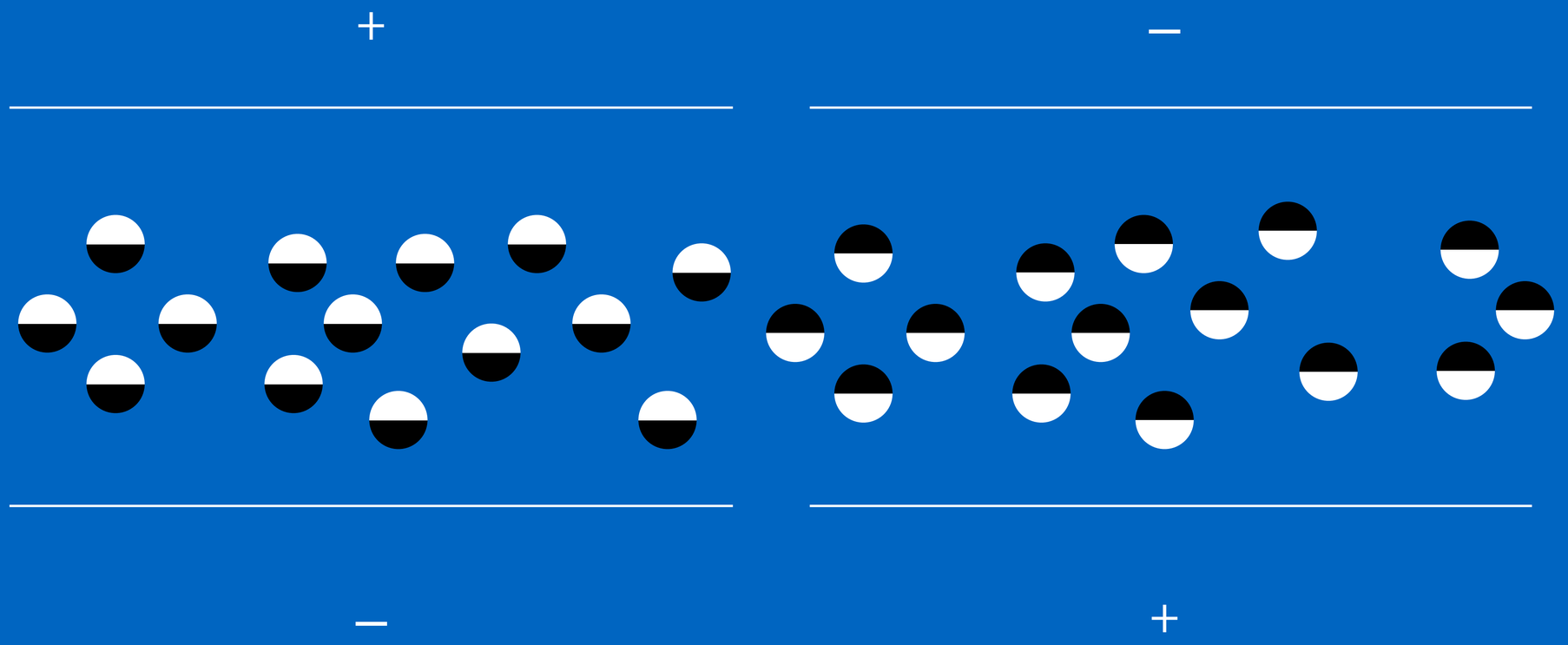
microscopic electrostatic charged balls



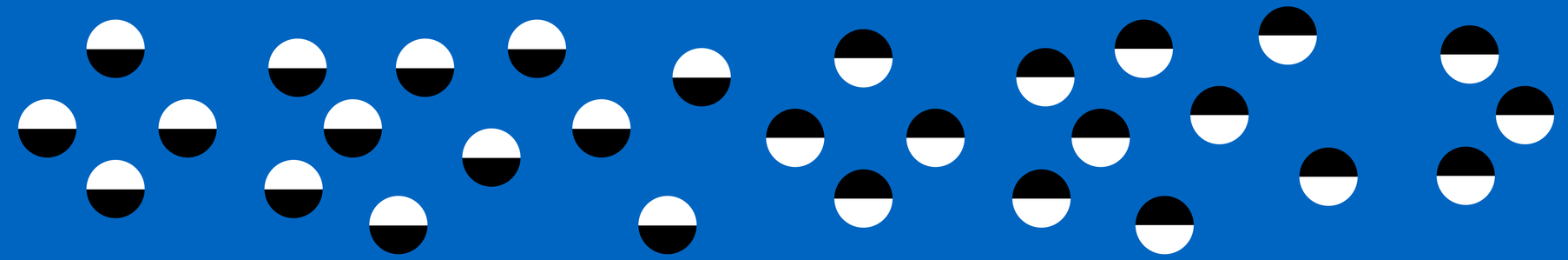
microscopic electrostatic charged balls



microscopic electrostatic charged balls



microscopic electrostatic charged balls

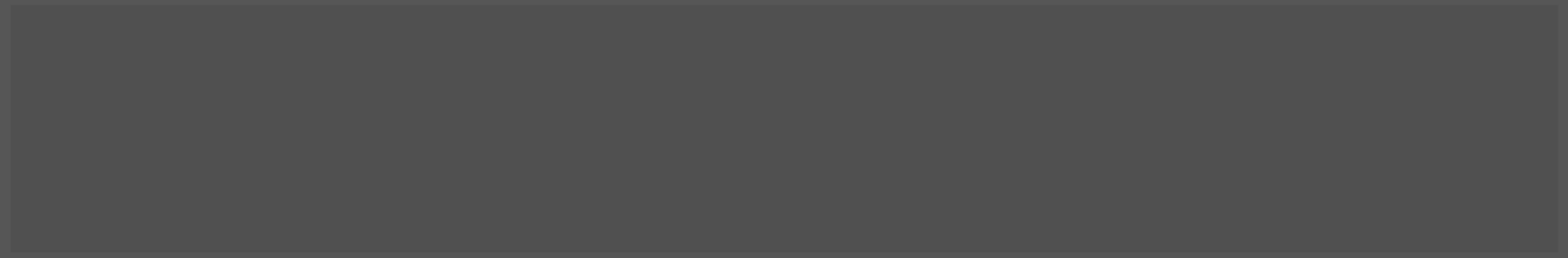



HTML5test - How well do...
http://html5test.com/
HTML 5 TEST
how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
YOUR BROWSER SCORES
280
OUT OF 555 POINTS
kobo

maybe css animations and transitions weren’t such a great idea after all

two completely different colors can look exactly the same in black and white

two completely different colors can look exactly the same in black and white

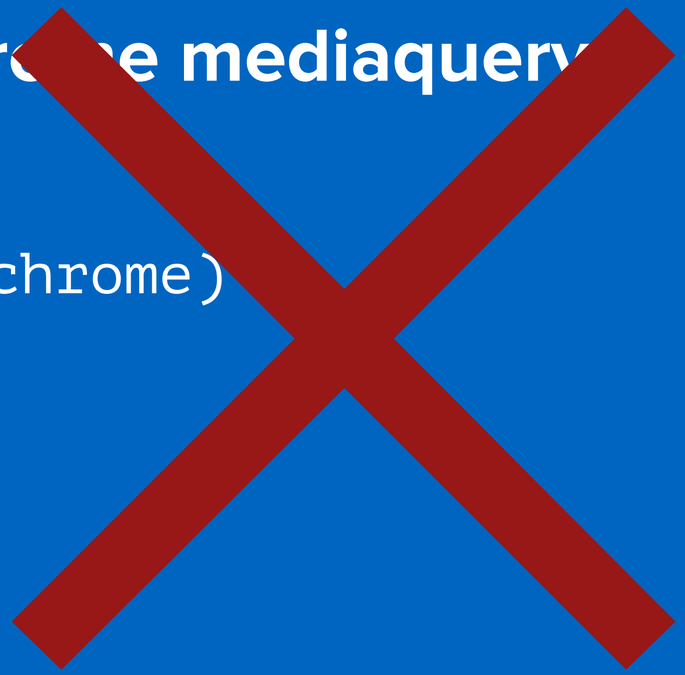


identifying e-readers

(css for e-ink screens)

1 css monochrome mediaquery

```
@media (monochrome)
   ...
}
```



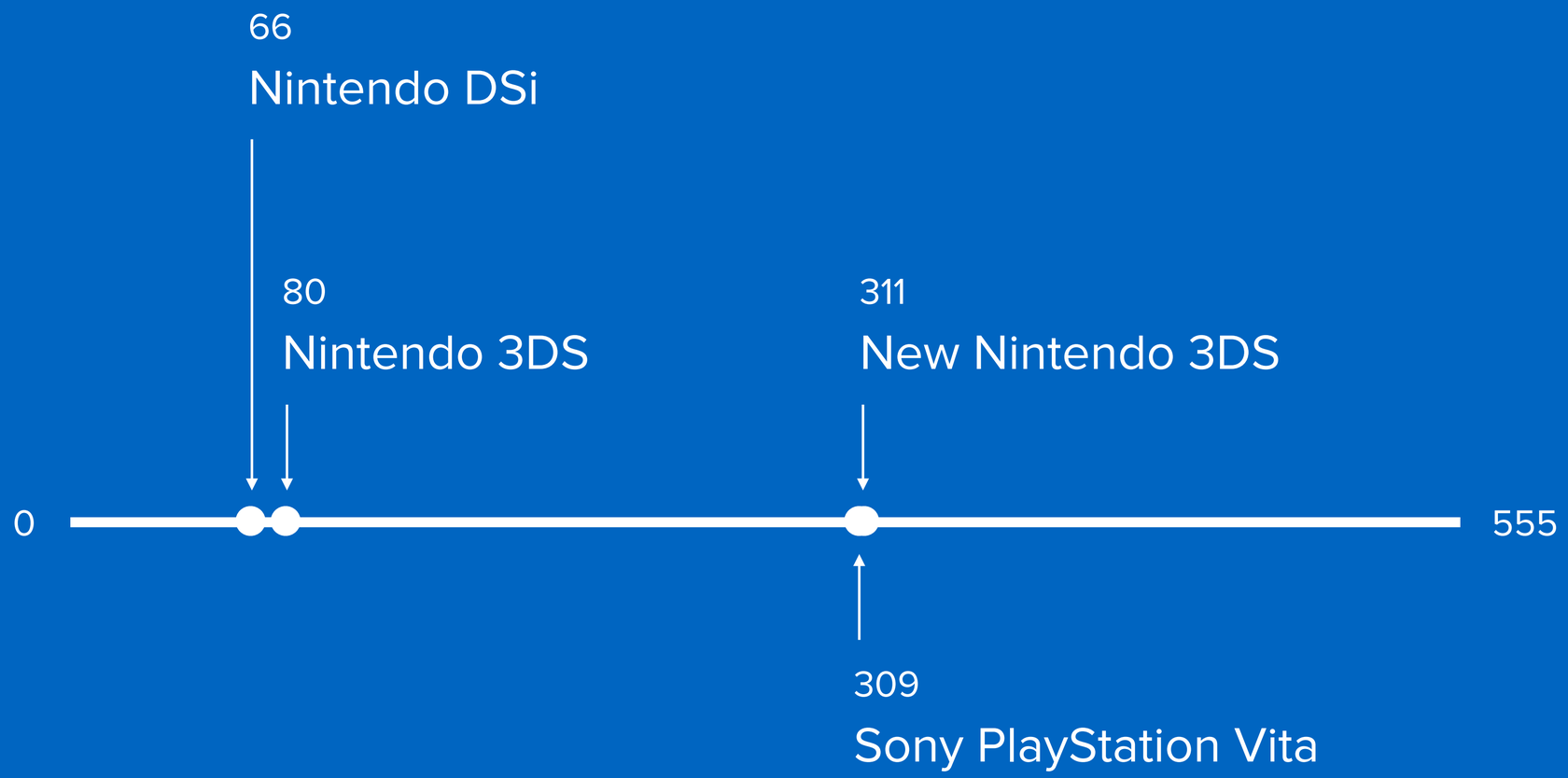
1 css monochrome mediaquery

all tested e-readers act like
they have a color screen

2 useragent sniffing

there is no universal marker in the useragent string, but we can recognise individual manufacturers and models

portable consoles



portable console results html5test.com


22/05 (Fri)
Internet
HTML 5 TEST
how well does your browser support html5?
your browser
other browsers
compare
news
device lab
about the test
3D
OFF
VOL.
OFF
X
A
Y
B
START
SELECT
MIC
YOUR BROWSER SCORES
311

two screens
(surprisingly normal)

a dual visual viewport

(the bottom one is the primary visual viewport)

3d screen, but only
2d is supported in
the browser

resistive
touch screen

a dual visual viewport

(the bottom one is the primary visual viewport)

3d screen, but only
2d is supported in
the browser

resistive
touch screen

a dual visual viewport

(the bottom one is the primary visual viewport)

3d screen, but only
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a dual visual viewport

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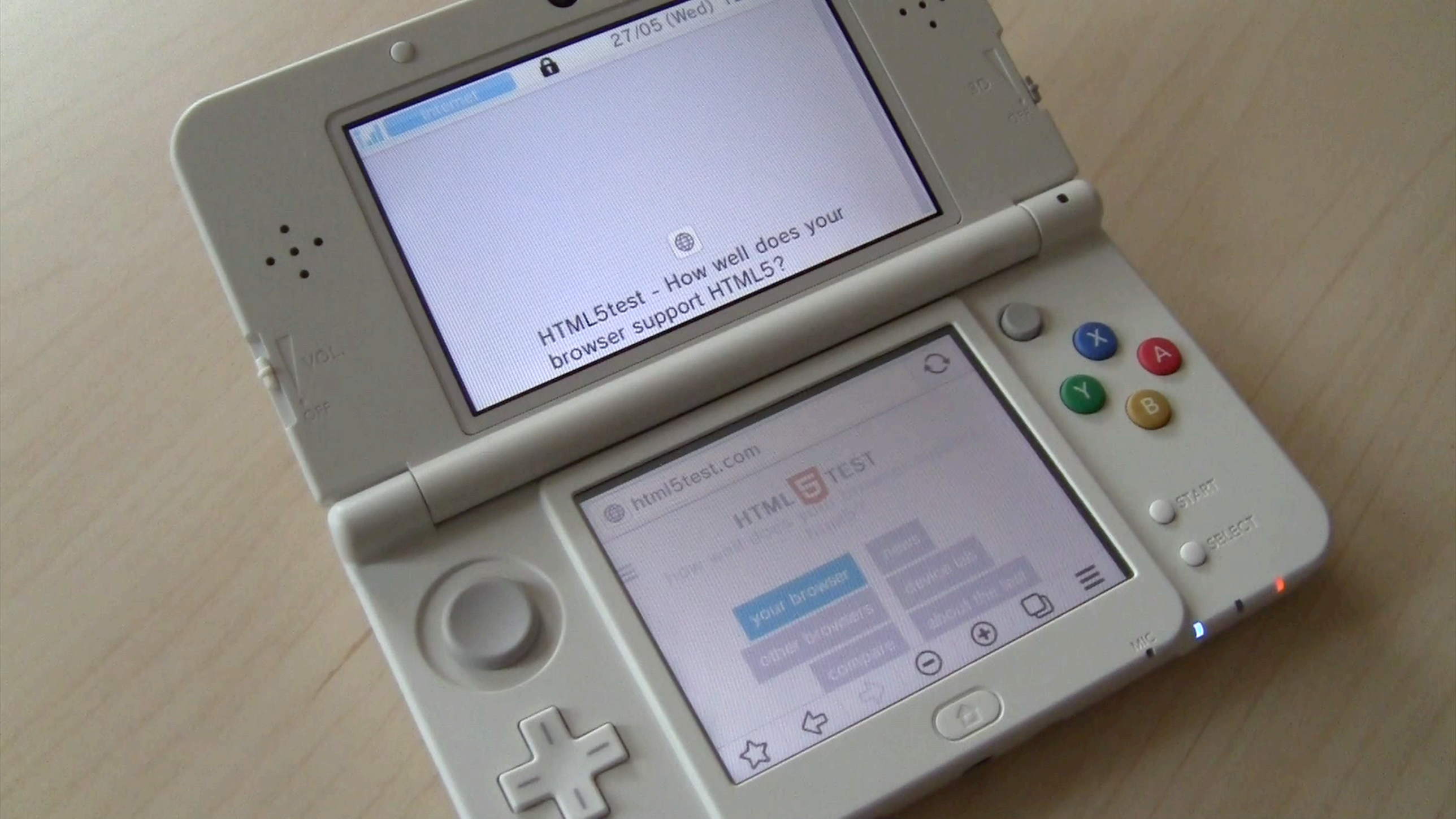
2d is supported in
the browser

resistive
touch screen


27/05 (Wed)
HTML5test - How well does your browser support HTML5?
html5test.com
HTML 5 TEST
your browser
VOL
OFF
3D
X
A
Y
B
START
SELECT
MIC

weird browsers!


“We cannot predict future behavior
from a current experience that sucks”
– Jason Grigsby
http://blog.cloudfour.com/on-the-device-context-continuum/

thank you

niels leenheer
@html5test