



WebXR, if $X = 5G$

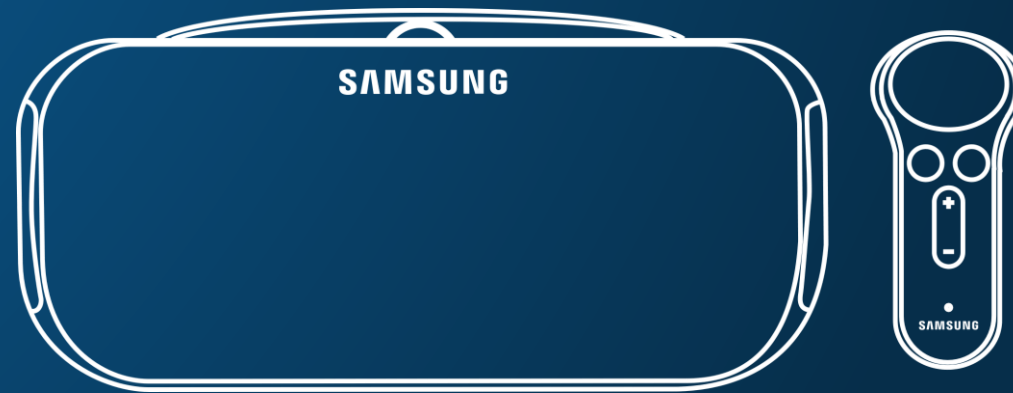
Diego González-Zúñiga, PhD

Web Developer Advocate

 @diekus

Agenda

- Samsung and the Web
- Web / XR
- WebXR
 - Benefits
- 5G?
- Use Cases

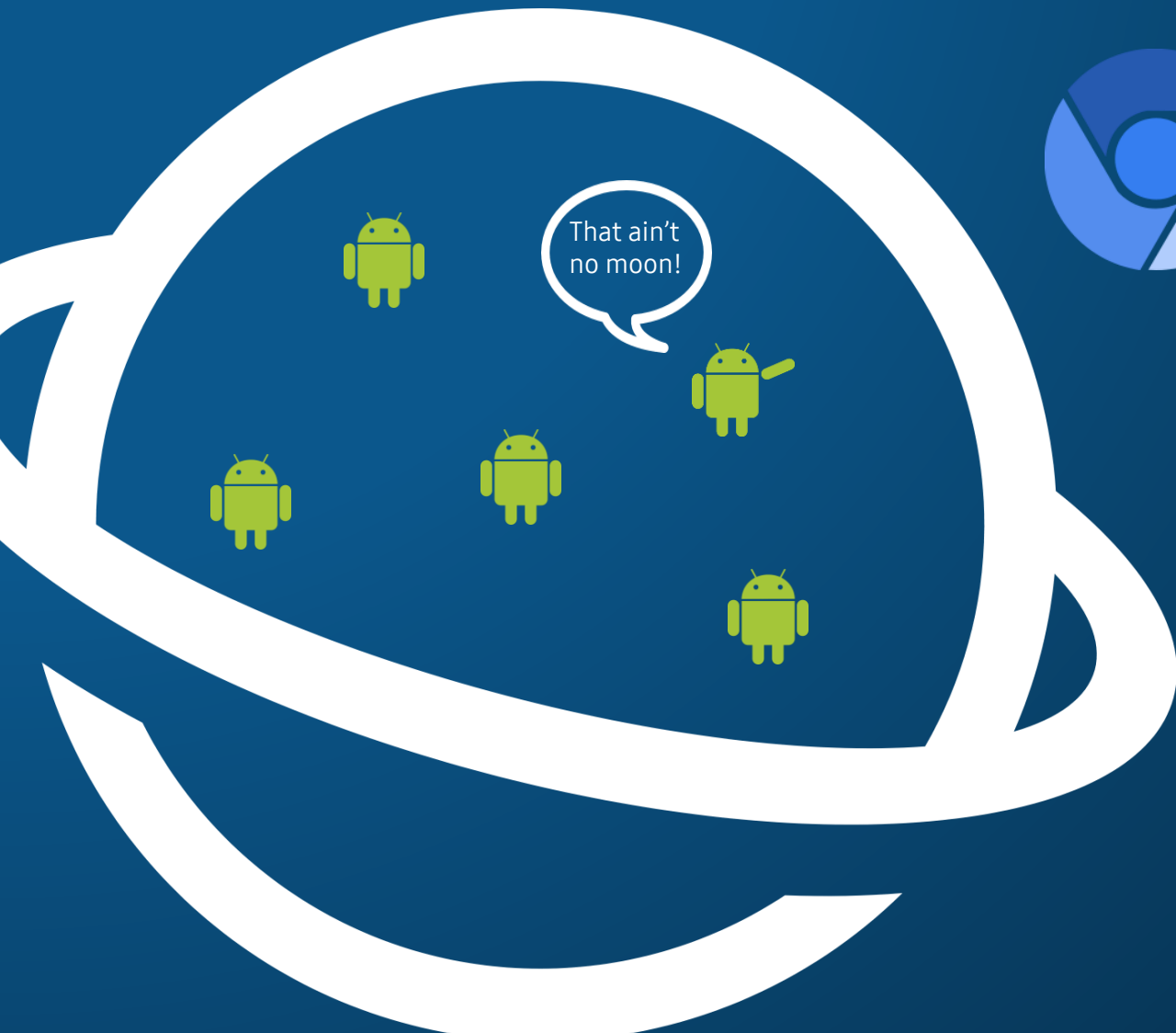


SAMSUNG





SAMSUNG
Internet



SAMSUNG
Internet

Chromium based

Android browser

Version 7.2 launched

A stylized graphic on the left side of the slide. It features a dark blue background. A large, white, curved shape, resembling a stylized cloud or a path, frames a green, semi-circular area. Inside this green area, there are six small, green, triangular trees with brown trunks, arranged in a scattered pattern.

Evergreen browser



Progressive Web Apps
Web Speech API
Web Bluetooth
Web Payments
Gamepad API
Physical Web
CSS Grid
WebXR API

...



New Web Features

Samsung in the Web

Browser from
Samsung



Built
with open source
Chromium Engine



Samsung is the 2nd largest open
source contributor to
Chromium



Samsung
specific UX
and features



Samsung's Leadership in the Web



New Web
Features



Web Standards



Cross browser
Initiatives



Open Source
Contributions

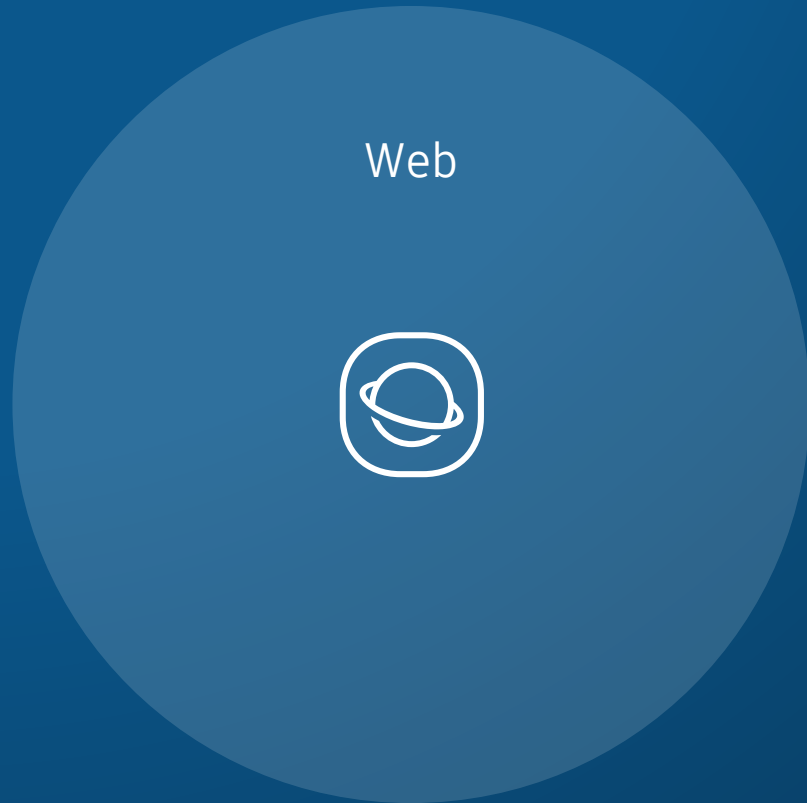


Multi Device
Support





Expectations from the Web



Linkability

User Choice

Shared Context

Accessible

Privacy-Friendly

Cross-Platform

Asks for your permission

Open



Expectations from VR



Immersive

Position Tracking

Orientation Tracking

360° content

Low latency

Different Input
methods

Spatial sound

VR



pre-approved
closed environment

wait several minutes
download 100s of MBs
experience you discard
after 1 use

better
open
cross-device
There's surely a *different* way of doing this
frictionless
faster
progressive



WebXR



WebXR



This specification describes support for accessing virtual reality (VR) and augmented reality (AR) devices, including sensors and head-mounted displays, on the Web



browser support



	 Samsung Internet	 Firefox	 Chromium	 Chrome	 Oculus Browser	 Edge	 Servo
		  	  	  	 		  
SAMSUNG Gear VR	✓				✓		✓
 Google Cardboard	✓		✓	✓			
 Daydream			✓	✓			
 oculus		✓	✓	✓			
 VIVE		✓	✓				✓
 Windows Mixed Reality						✓	

* ✓ Compatible with WebVR
source: webvr.rocks

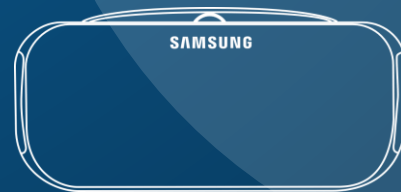
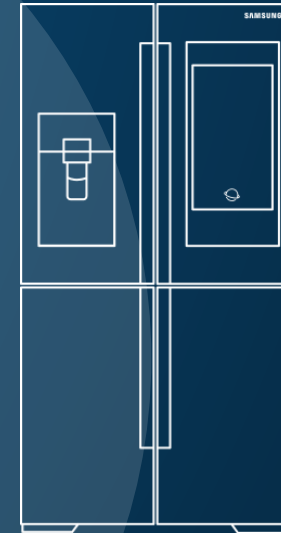
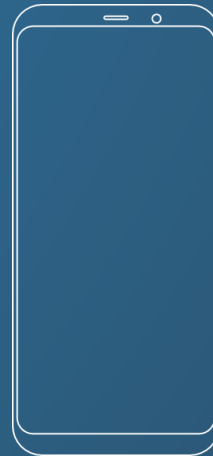
hardware support

- Magic Window
- 3 DoF (orientation)
- 6 DoF (orientation + position)
- Controllers
- WebSpeech API*



Connectivity towards devices

Multi Device Experience



Connectivity towards devices

Multi Device Experience

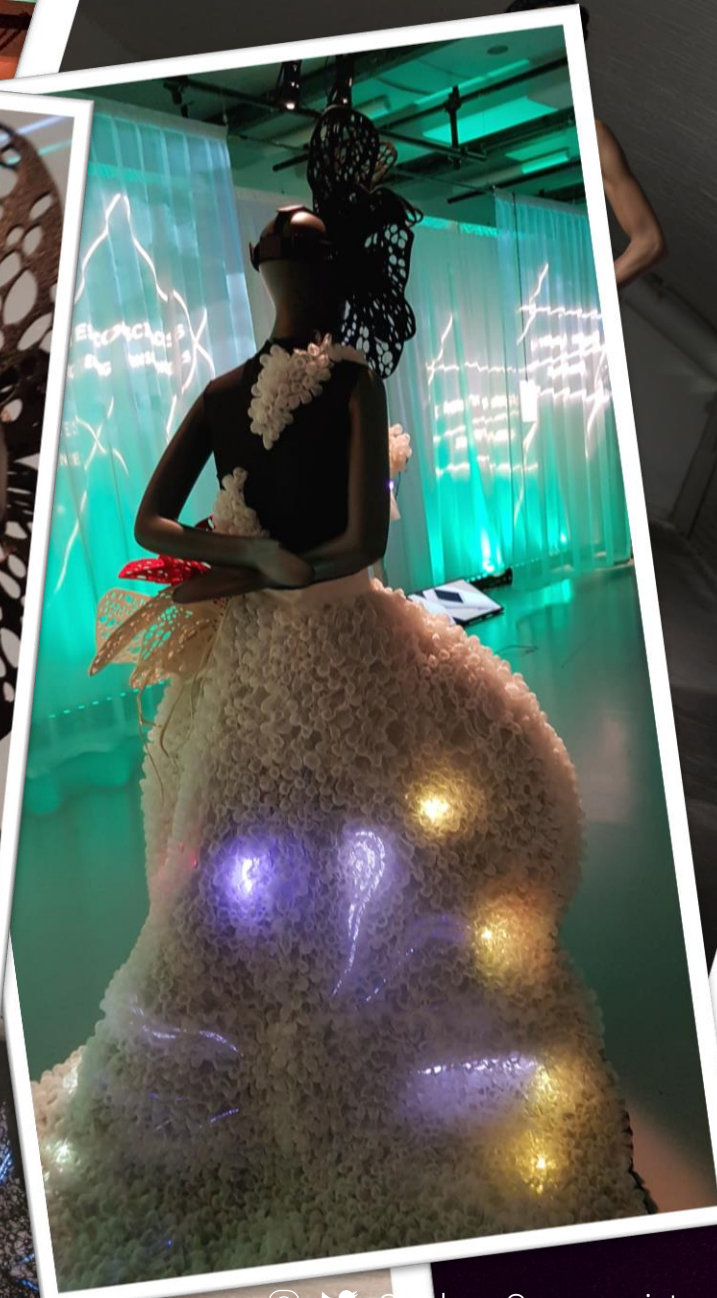
IoT will be very important in the near future



... and why does this matter?

discoverability reach ubiquitous/immediate social new creators





discoverability

reach

ubiquitous/immediate

social

new creators



Physical Web



QR Codes

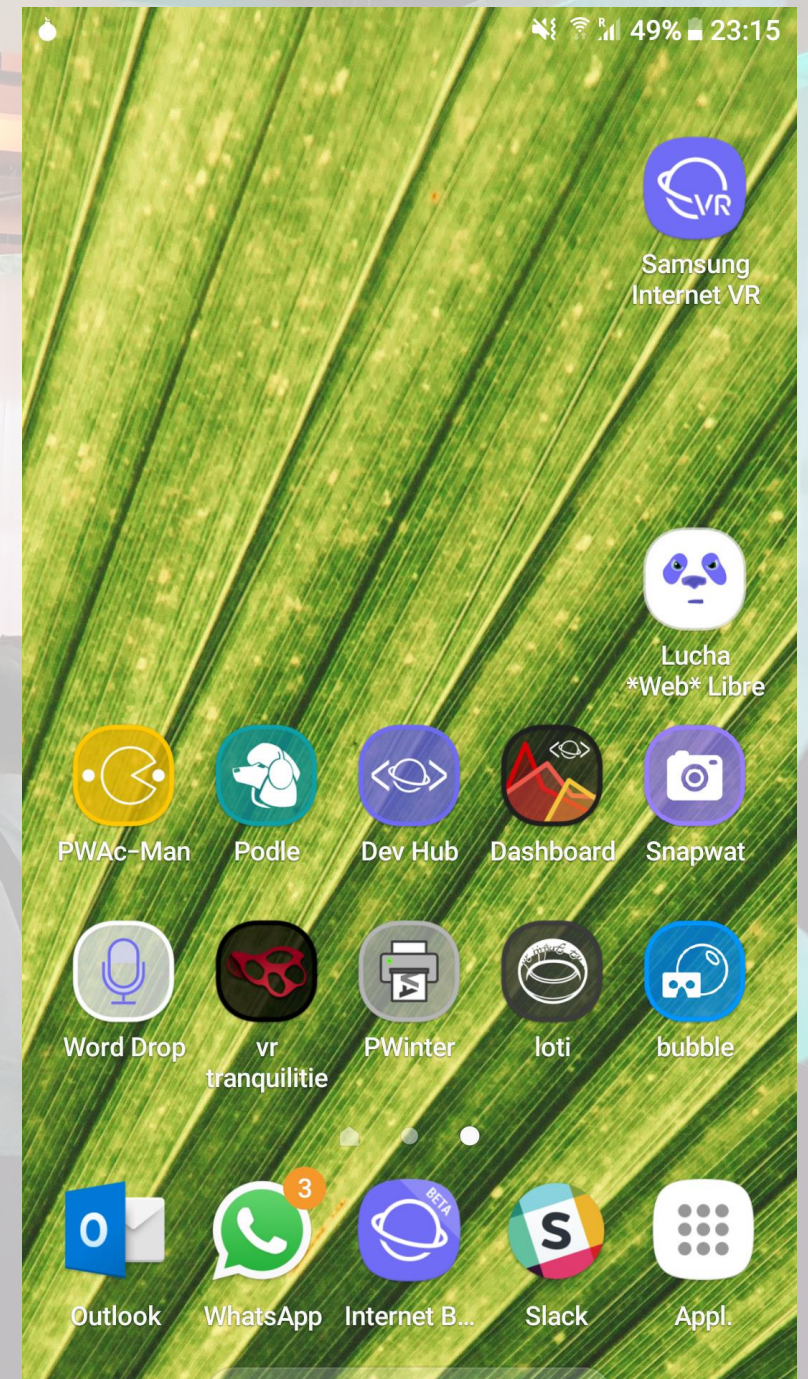


Progressive Web Apps



Progressive Web Apps

- Icon on homescreen
- Independent of network and connectivity.
- Frictionless experiences by design.
- Preload Assets (Audio, Video)
- Automatic ingestion into app stores



discoverability

reach

ubiquitous/immediate

social

new creators



Widest delivery network in existence
Biggest software platform in the world

discoverability

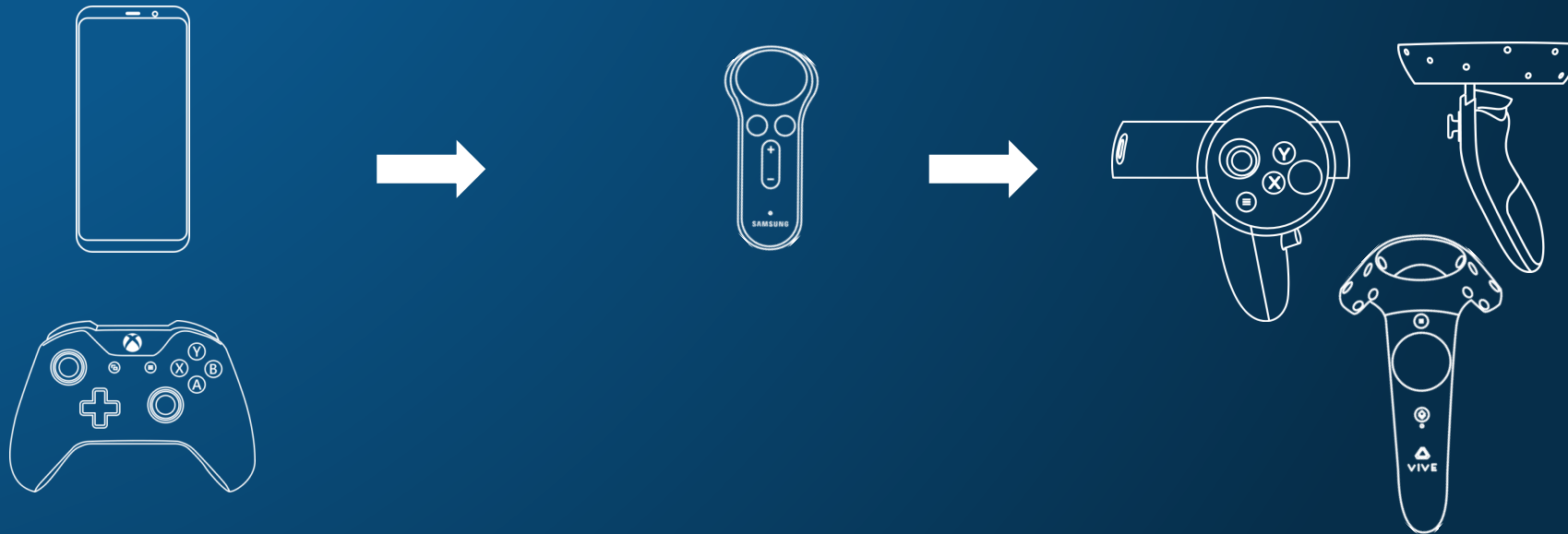
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ubiquitous/immediate

social

new creators

Progressive enhancement



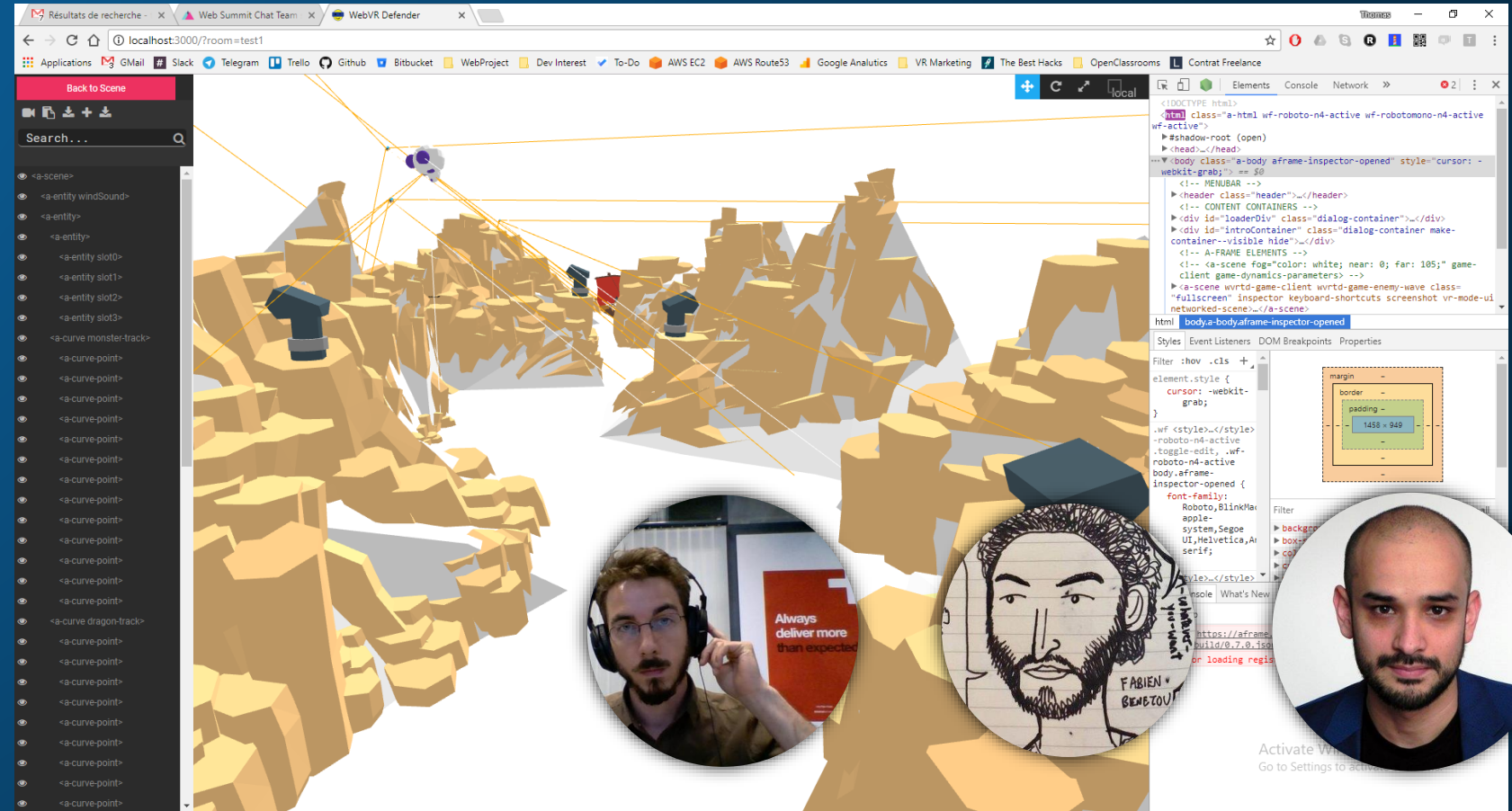
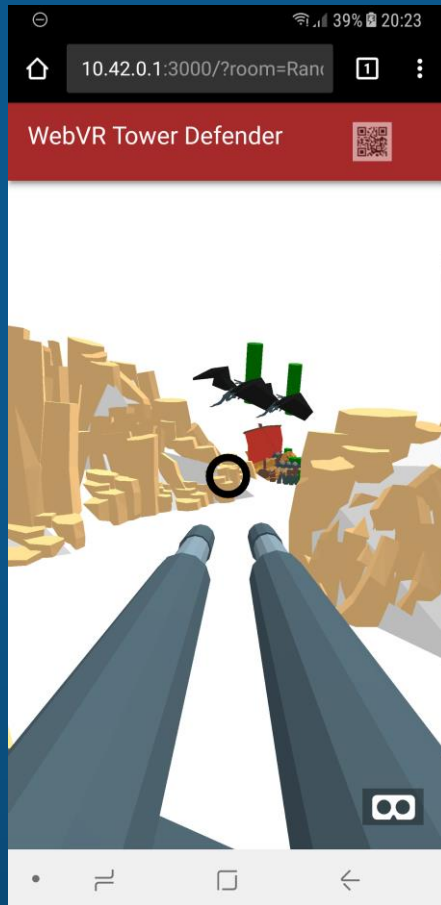
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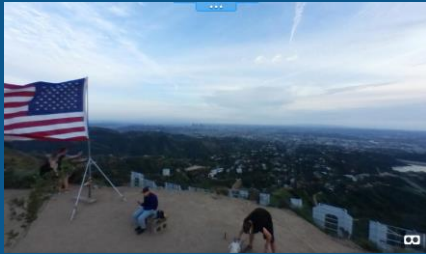
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bit.ly/hollywood-bubble



bit.ly/penca-beach

bit.ly/gardens-Singapore



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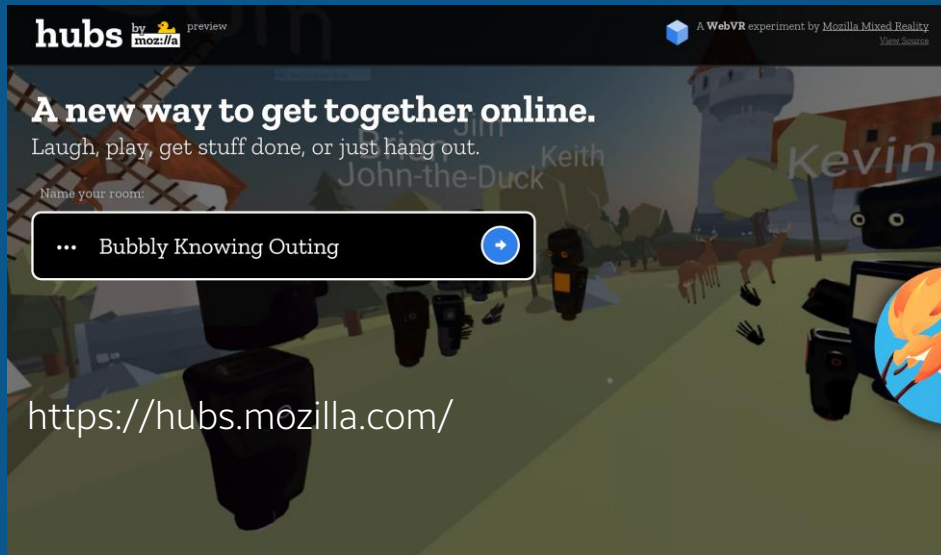
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reach

ubiquitous/immediate

social

new creators



<https://hubs.mozilla.com/>



@mozillareality

Networked
A-Frame



<https://hungry-pandas.glitch.me>



@diekus



@uveavanto



@poshaughnessy

PEERJS 



WebRTC

discoverability

reach

ubiquitous/immediate

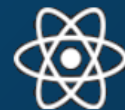
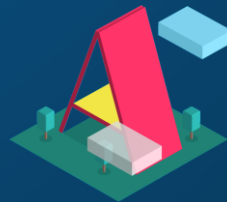
social

new creators



Accessible platform for creatives, developers and makers

three.js



React VR



Vizor



discoverability

reach

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social

new creators

<https://samsunginter.net/ava>

Ava, by Achavanich Beaker Burial
and Samsung Internet



discoverability

reach

ubiquitous/immediate

social

new creators

“it’s so full of niceness”

Explorathon, September 2017
Museum of Scotland



Web + VR = ❤️

- Democratize VR
- Help commoditization of VR
- Can use a flexible tech stack
- Enable innovative experiences

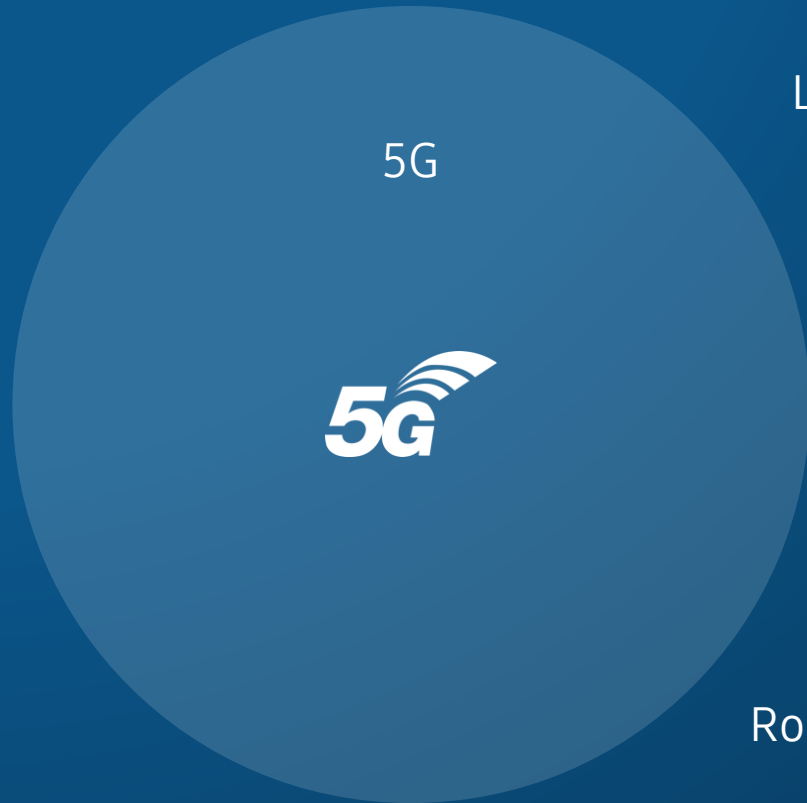
discoverability ubiquitous/immediate
reach social new creators







Expectations from 5G



Low latency

?

10x faster speed than 4G

?

1000x more traffic than 4G

?

Robust mobile networks

Connectivity towards devices

Multi Device Experience

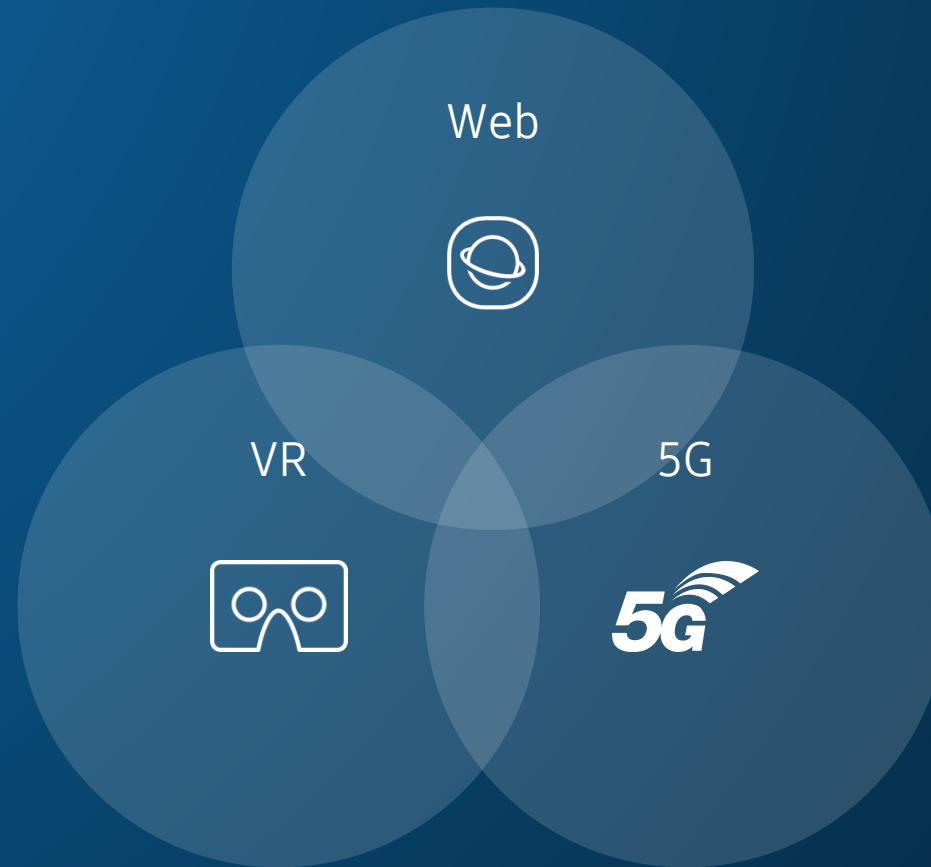
IoT will be very important in the near future

- Connected cars
- Automated homes
- Wearables
- Appliances
- Smart cities
- Mobile XR devices
- ...



lighter, tetherless headsets

What can this mean for Web + XR + 5G





discoverability



PWA



reach



ubiquitous/immediate



social



new creators



fashion

archaeology

oncology

curators

teachers

...

What can this mean for Web + XR + 5G

- Low latency is game changing
 - “Transmit touch” –Mischa Dohler
 - Transmit engineering, musical, football, medical skills.
 - Democratize labor, same way internet has democratized knowledge.
 - Telemedicine, Virtual training environments, ...
- Machine to Machine communication
 - Productivity and services
- Assets that use big assets on the go?
 - Better textures and assets in general
 - Streaming of high res 360 degree content, including UHD live media
- Social experiences

Use cases



74% Travel and Adventure



67% Movies & Recorded Videos



67% Live Events (non sport)



66% Home Design



64% Classes



61% Gaming



59% Meetings



56% Shopping



56% Live Sports

source : Greenlight VR Consumer Adoption Report 2016, among 1300 people



@diekus @samsunginternet



eat. sleep. VRowse. repeat