MiniApps UI (User Integration)

Martin Alvarez @espinr
Front Stage – 18 April 2022

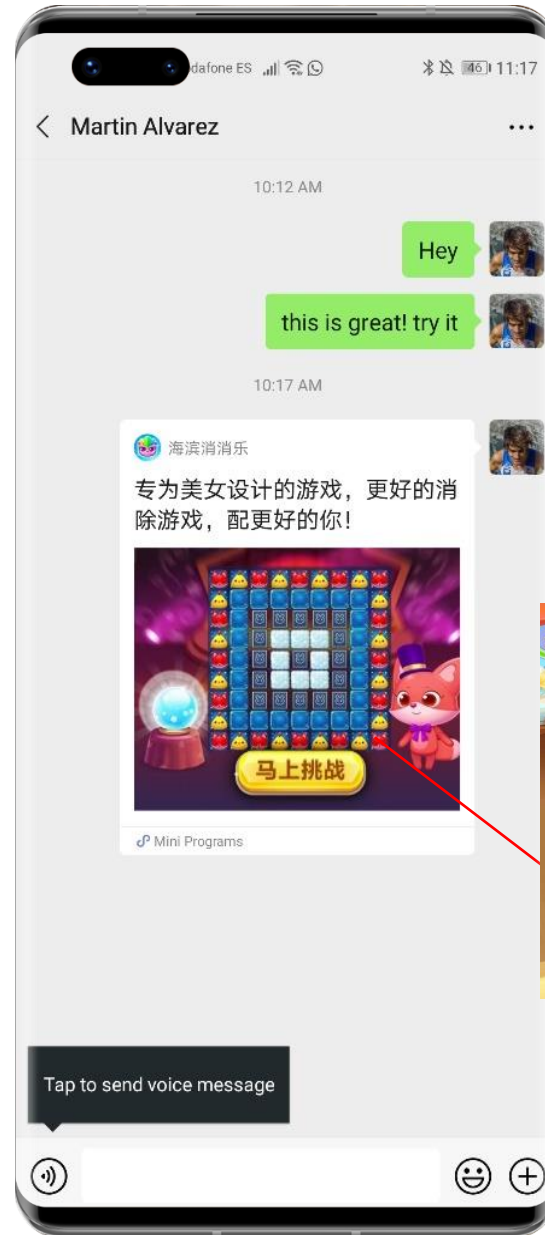# NO INSTALLATION APPS
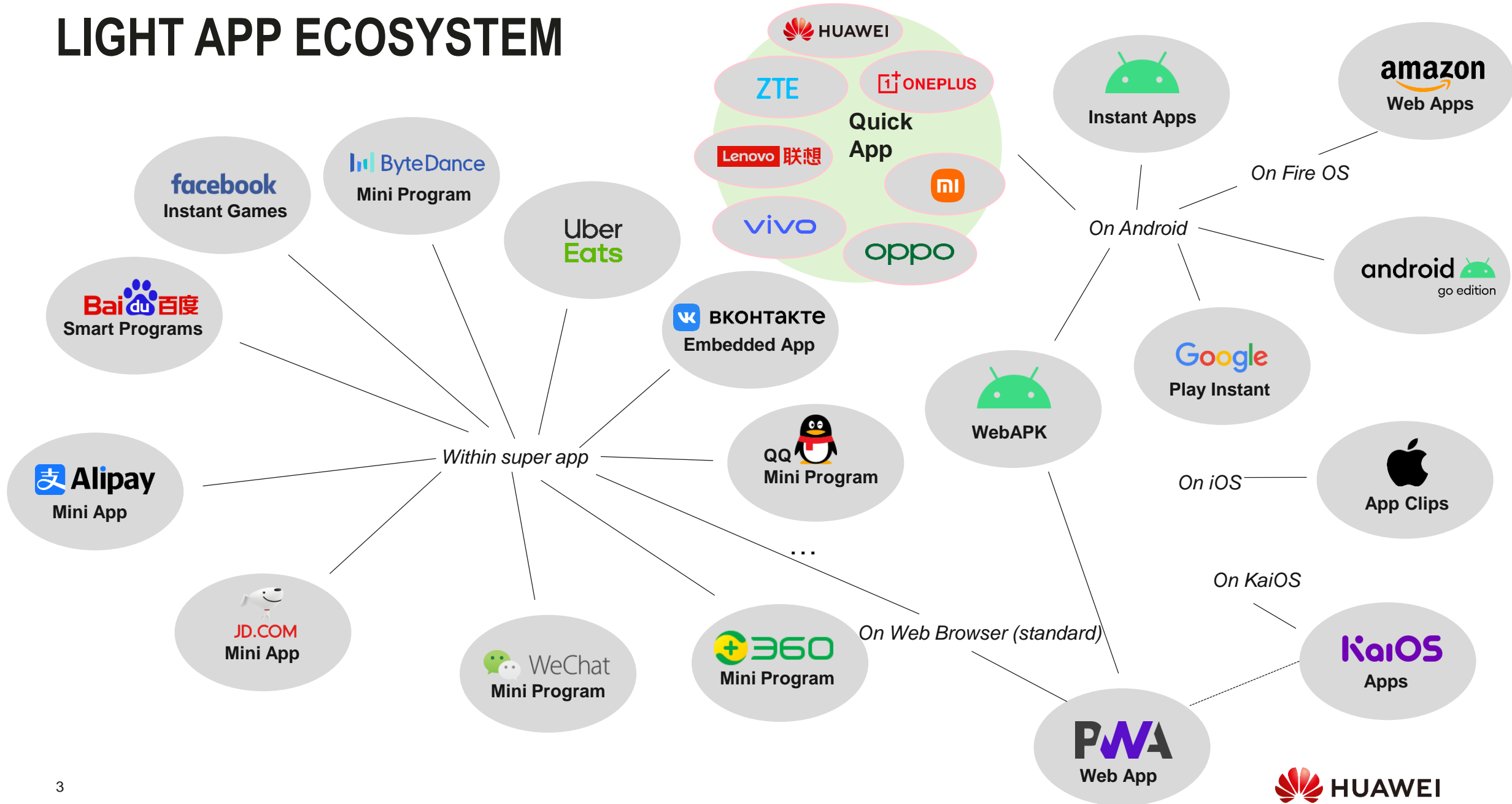
Direct user interaction

Frictionless apps

LIGHT APP ECOSYSTEM

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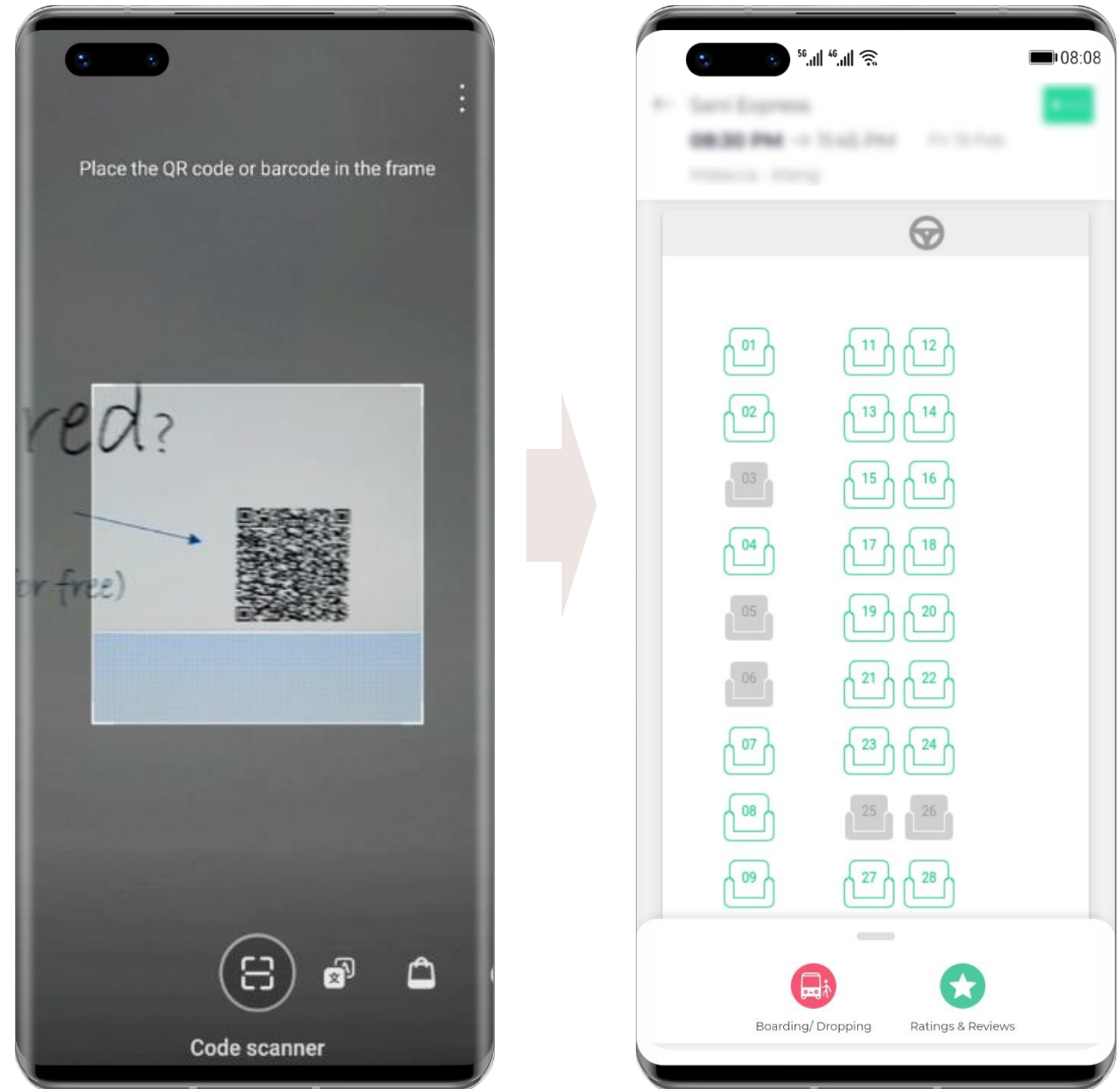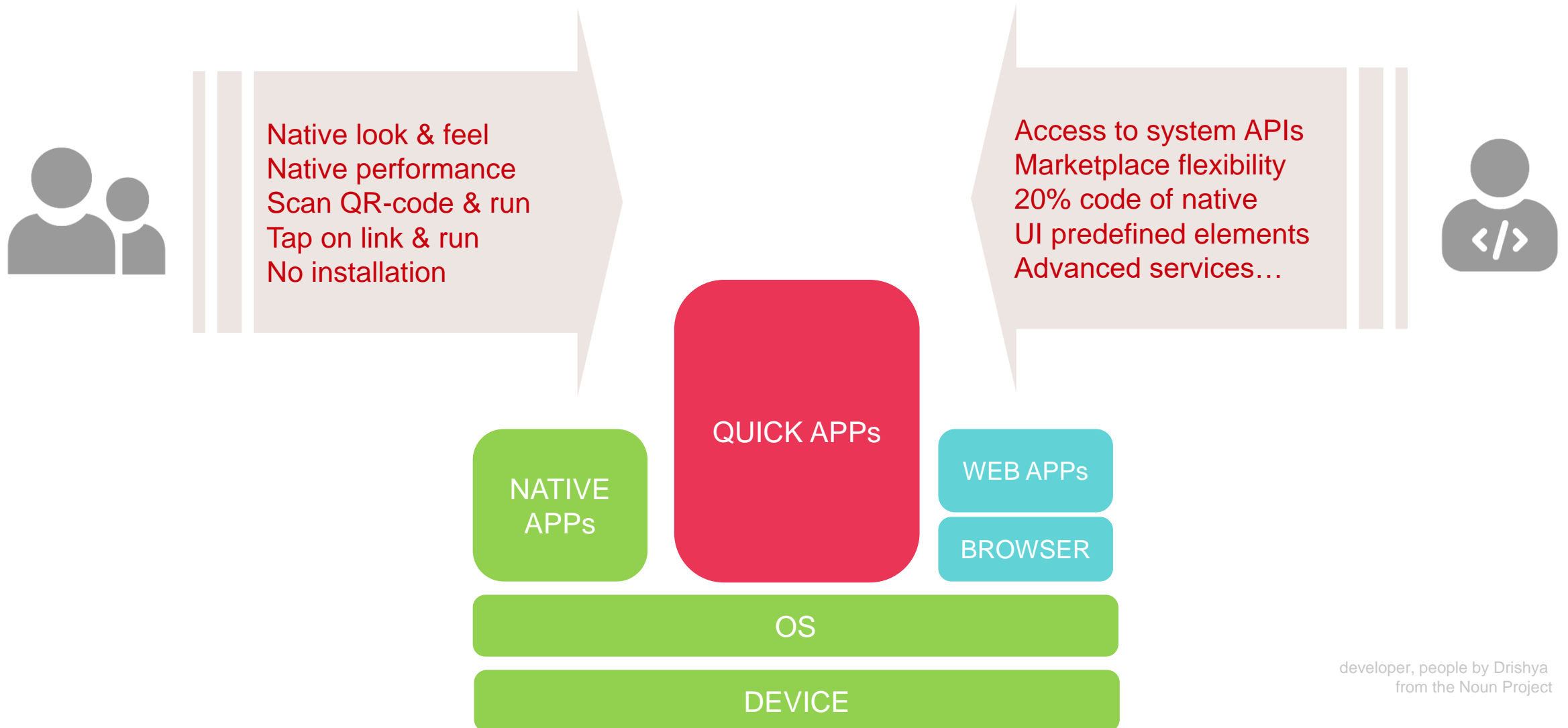# QUICK APP

An MVVM framework based on *Vue.js* *to develop* *native-like* *applications that* *do not require installation*

HUAWEI

QUICK APP MAIN FEATURES

Native look & feel
Native performance
Scan QR-code & run
Tap on link & run
No installation

Access to system APIs
Marketplace flexibility
20% code of native
UI predefined elements
Advanced services…
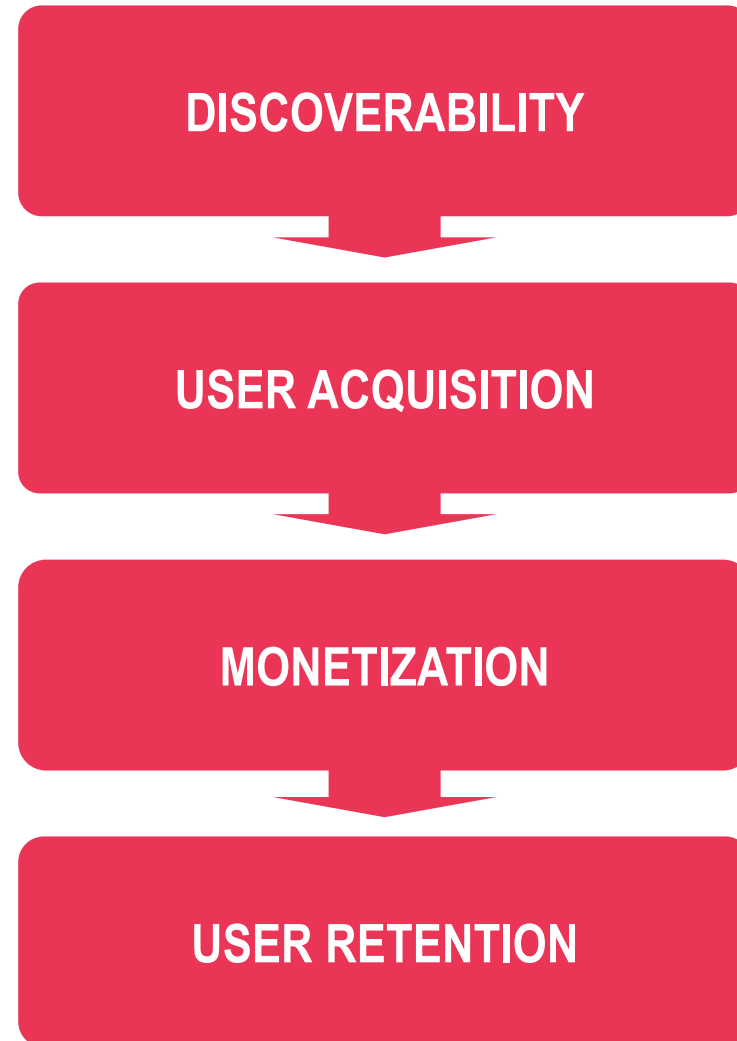
QUICK APPs

NATIVE APPs

WEB APPs

BROWSER

OS

DEVICE

developer, people by Drishya
from the Noun Project

HUAWEI

PRODUCT'S LIFECYCLE SUPPORT

DISCOVERABILITY

USER ACQUISITION

MONETIZATION

USER RETENTION

HUAWEI

DISCOVERABILITY
USER ACQUISITION
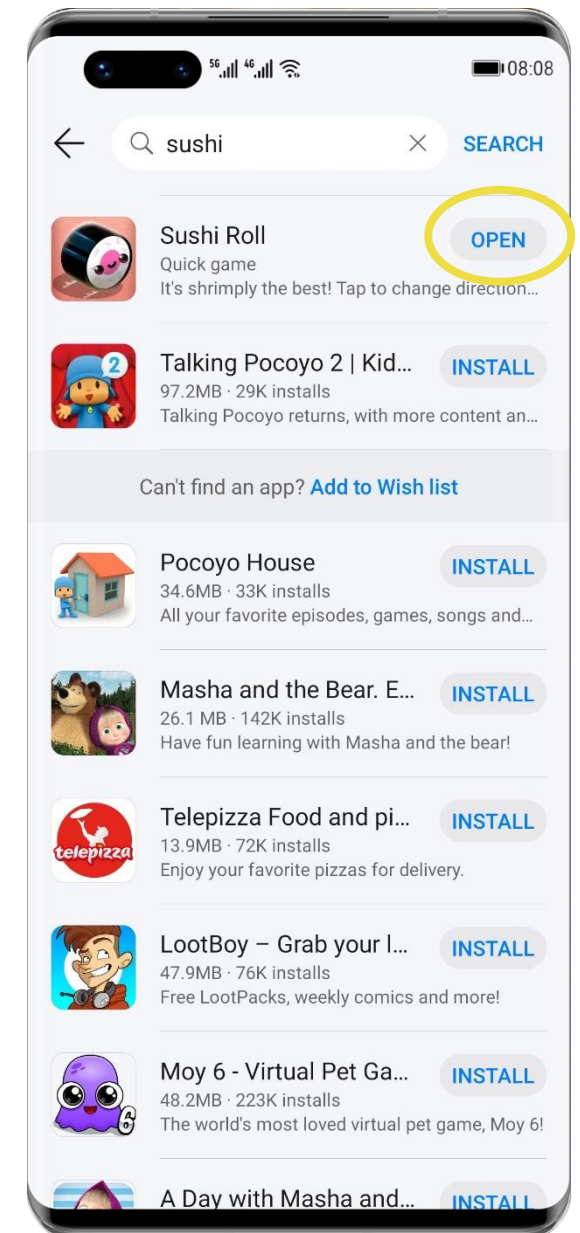## MONETIZATION
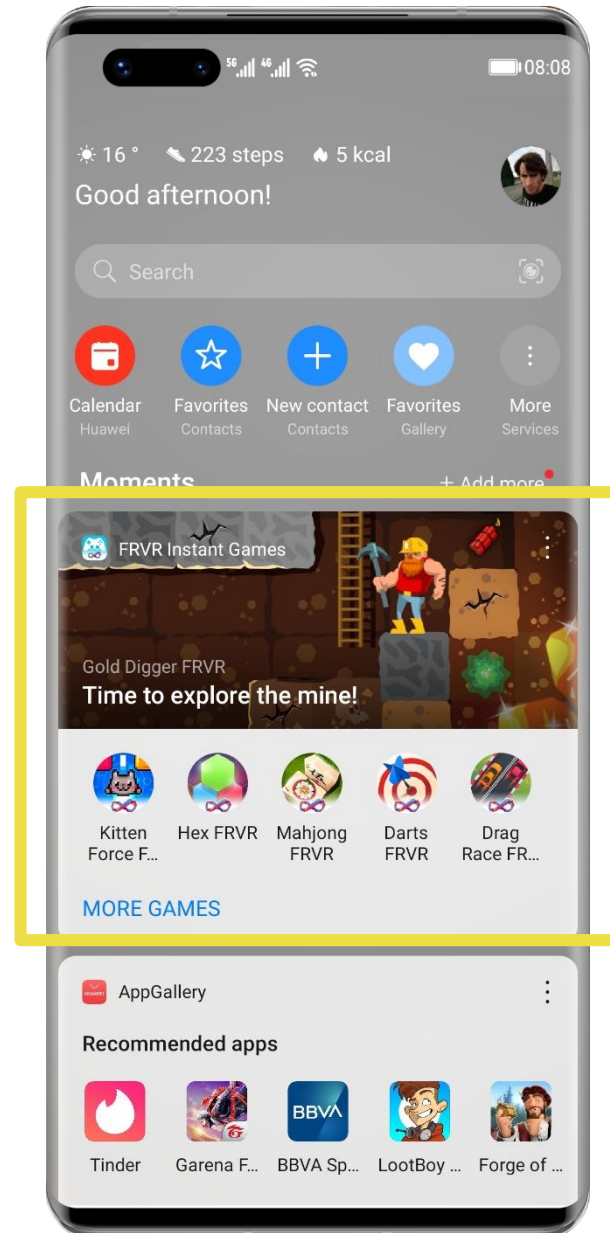## USER RETENTION

Widgets on dashboard

Global search results

Web sites (URL links)

Links from other apps

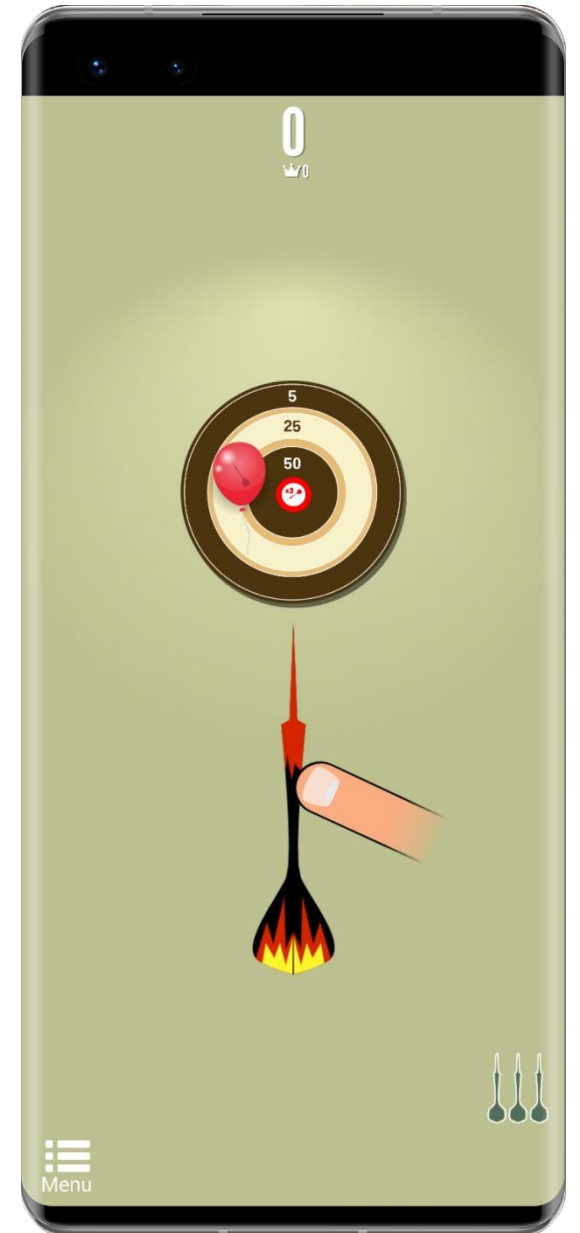*Listed in app marketplaces*

DISCOVERABILITY
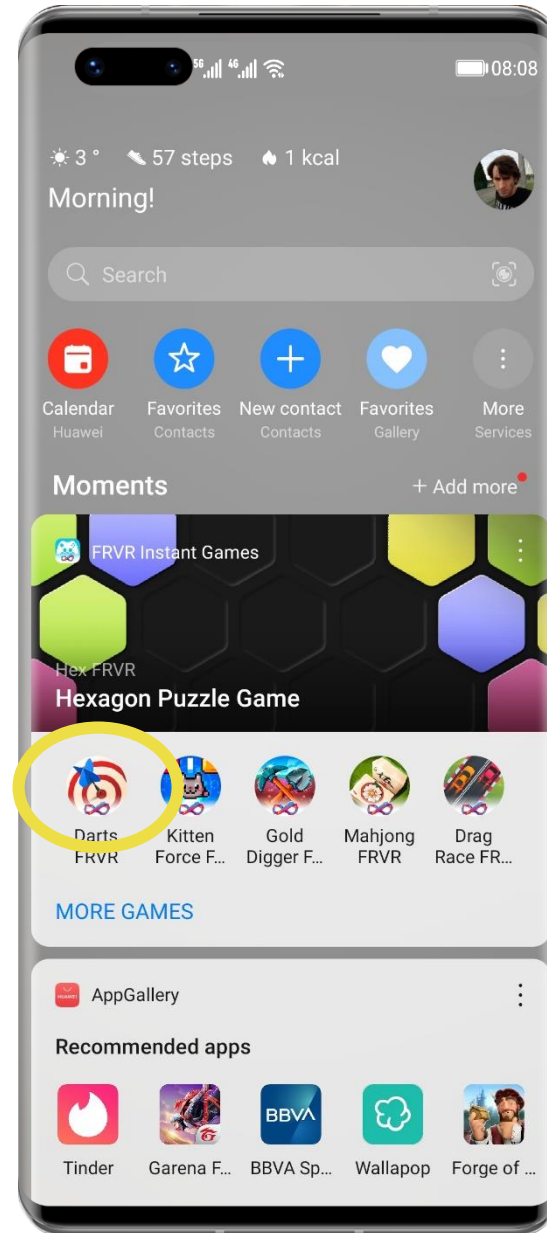# USER ACQUISITION
MONETIZATION
USER RETENTION

Huge discoverability

Instant access

Minimum friction

User identification

DISCOVERABILITY
USER ACQUISITION
MONETIZATION
USER RETENTION

In-app payments

In-app ads

Rewarded ad videos
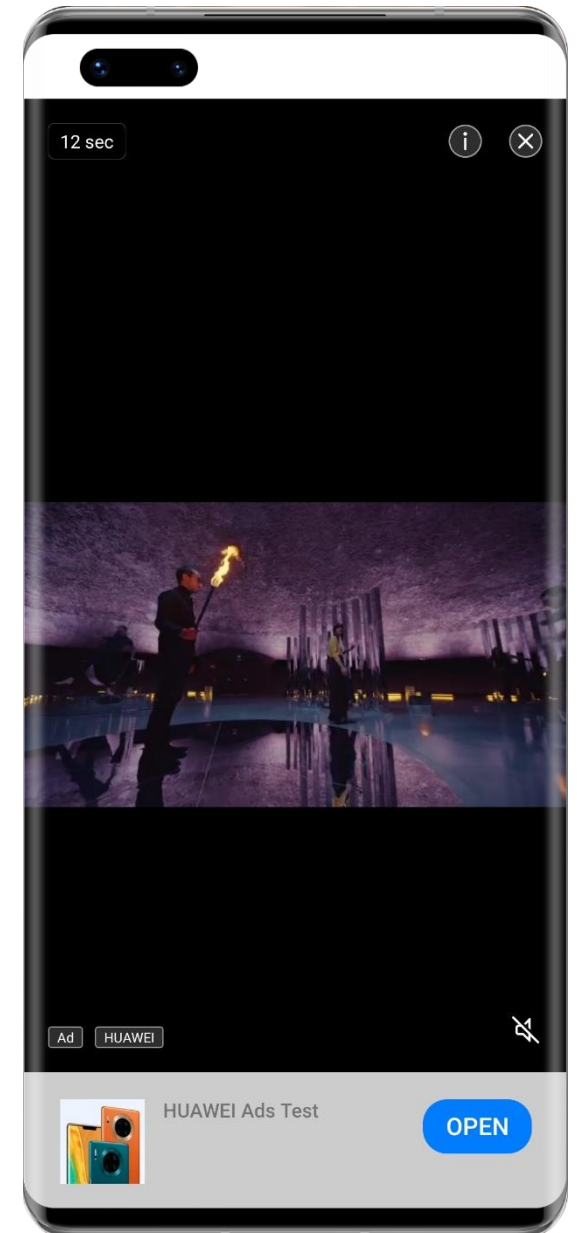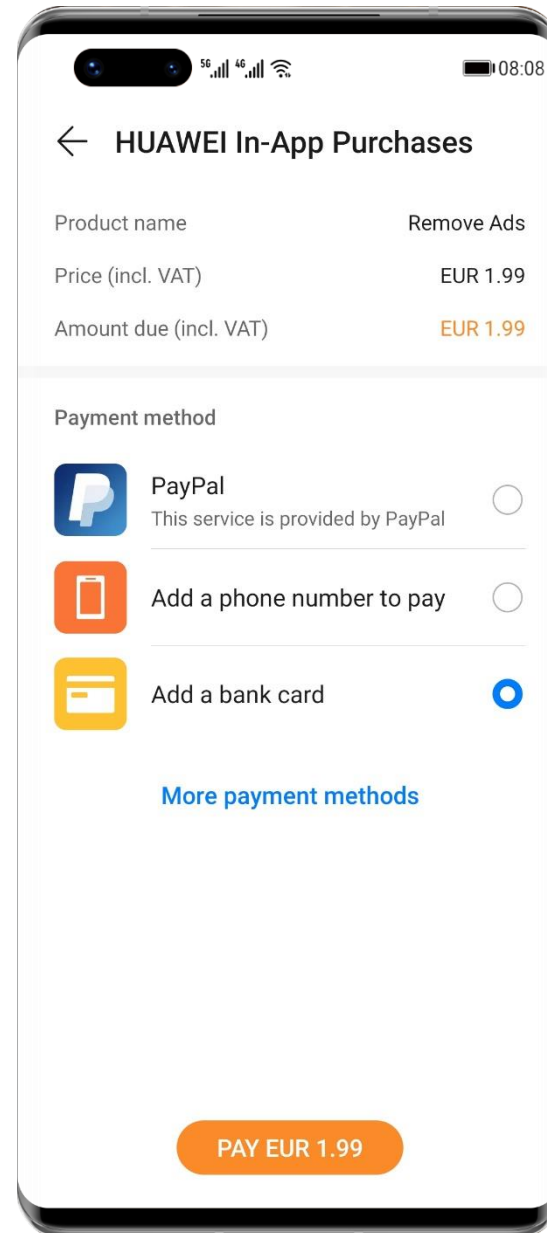
DISCOVERABILITY
USER ACQUISITION
MONETIZATION
USER RETENTION

Tap to open

Save shortcut in home screen

Remember status

HUAWEI
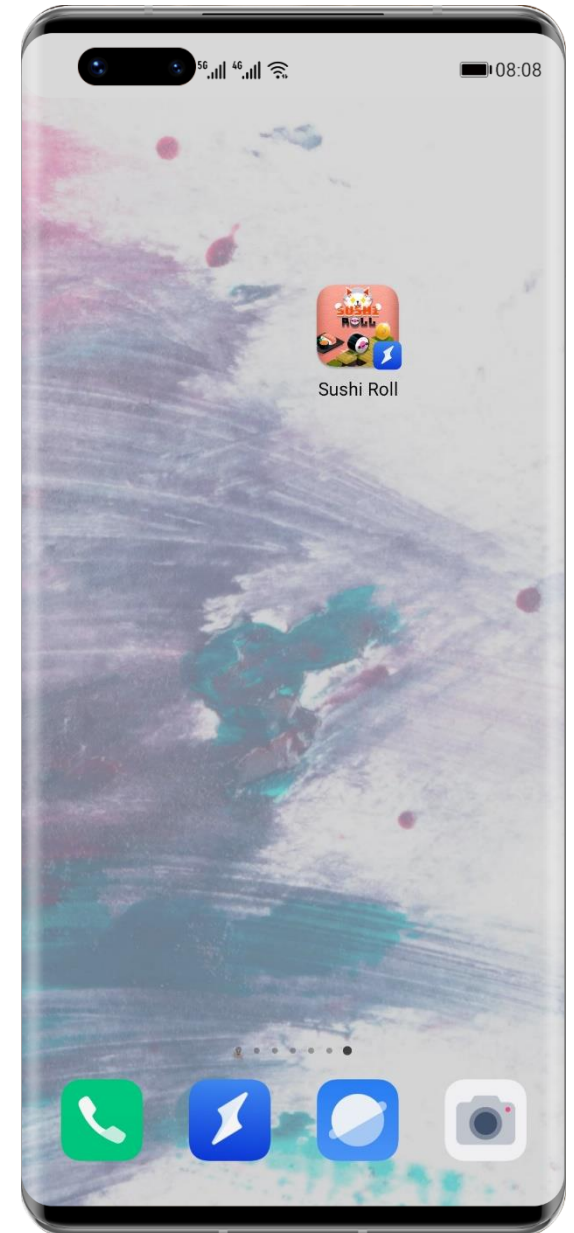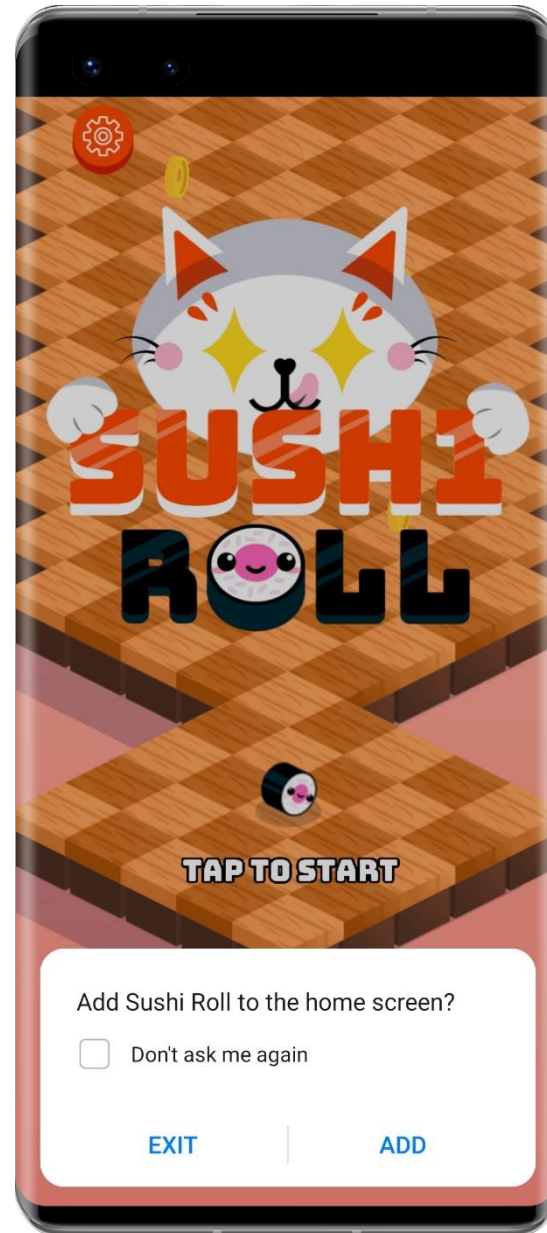
DISCOVERABILITY
USER ACQUISITION
MONETIZATION
USER RETENTION

Push notifications

Banners in other apps

HUAWEI
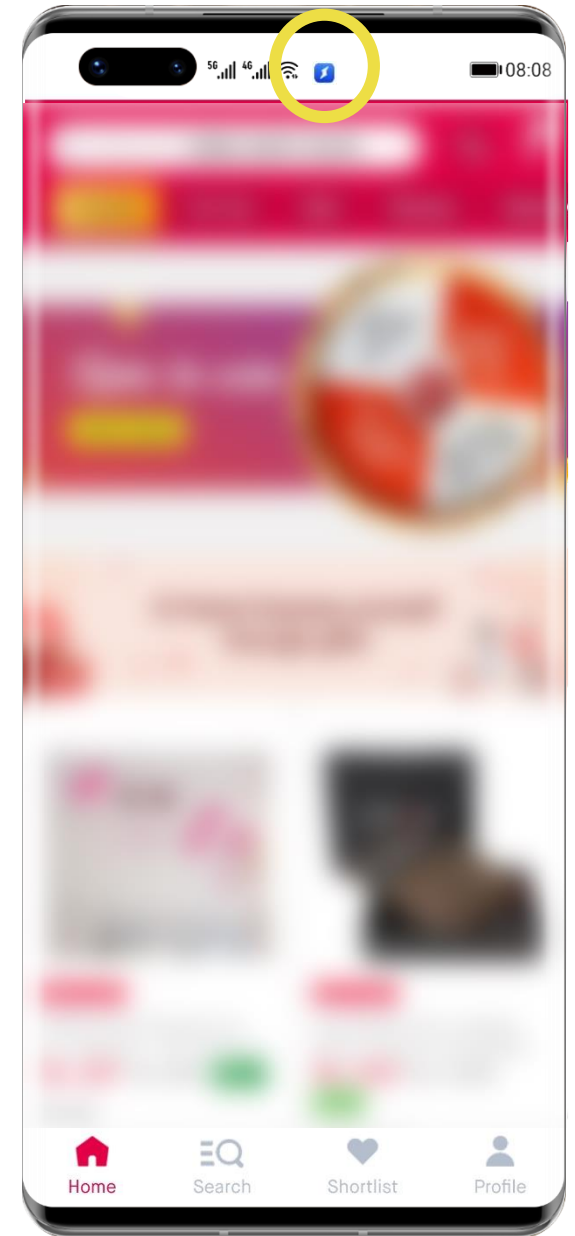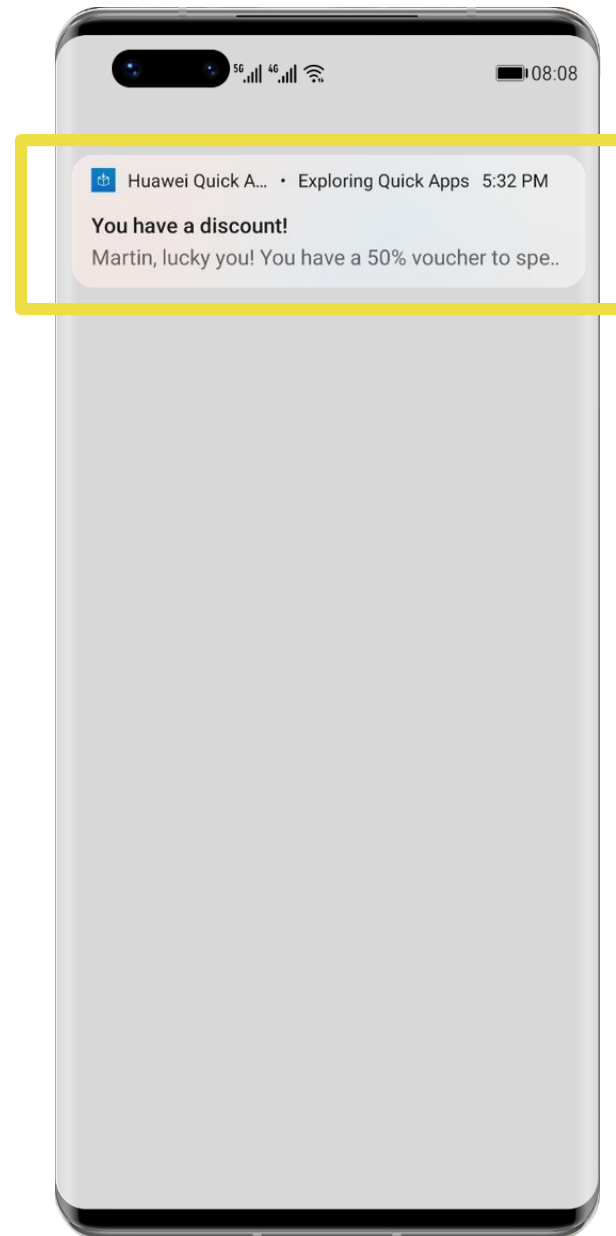
ALSO ON YOUR HOME SCREEN

Display as Widgets

Direct user interaction
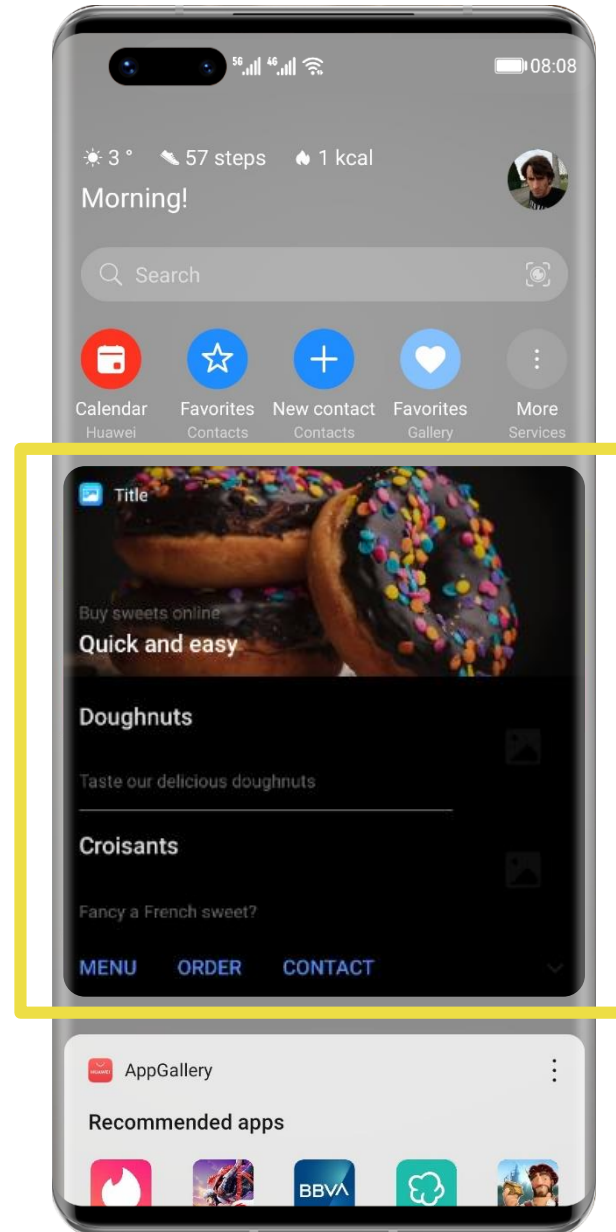
THE FRAMEWORK

MVVM FRAMEWORK

Vue.js-like

Declarative rendering

Reactive HTML* templates

Reusable UI components

One-way data flow

Event binding

CSS (+ LESS + Saas)

```html
<template>
  <div class="main-page">
    <text class="title">{{title}}</text>
    <input class="btn" type="button" value="Press Me" onclick="changeText" />
  </div>
</template>


<script>
export default {
  private: {
    title: 'My first Quick App'
  },
  changeText () {
    this.title = 'hello world'
  }
}
</script>

<style>
  .main-page {
    flex-direction: column;
    justify-content: center;
    align-items: center;
  }
  .btn {
    width: 550px;
    height: 86px;
    margin-top: 75px;
    border-radius: 43px;
    background-color: #4286f5;
    font-size: 30px;
    color: #000000;
  }
</style>
```
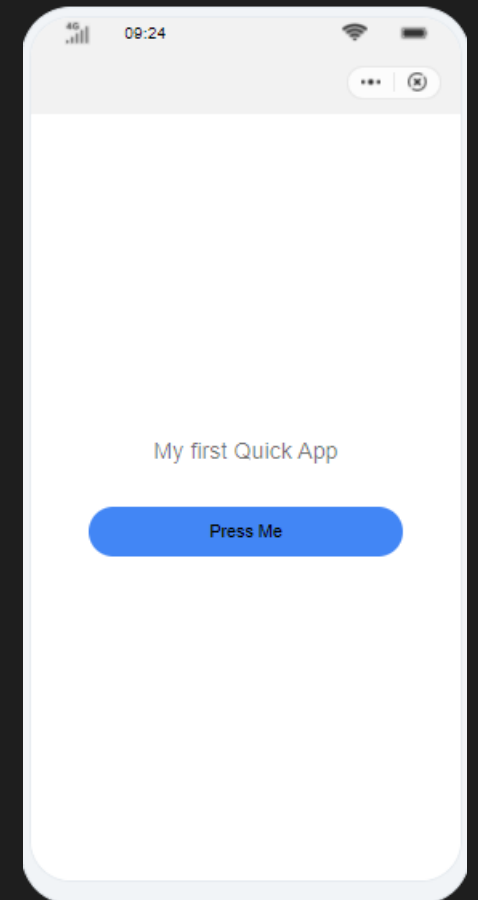
ARCHITECTURE
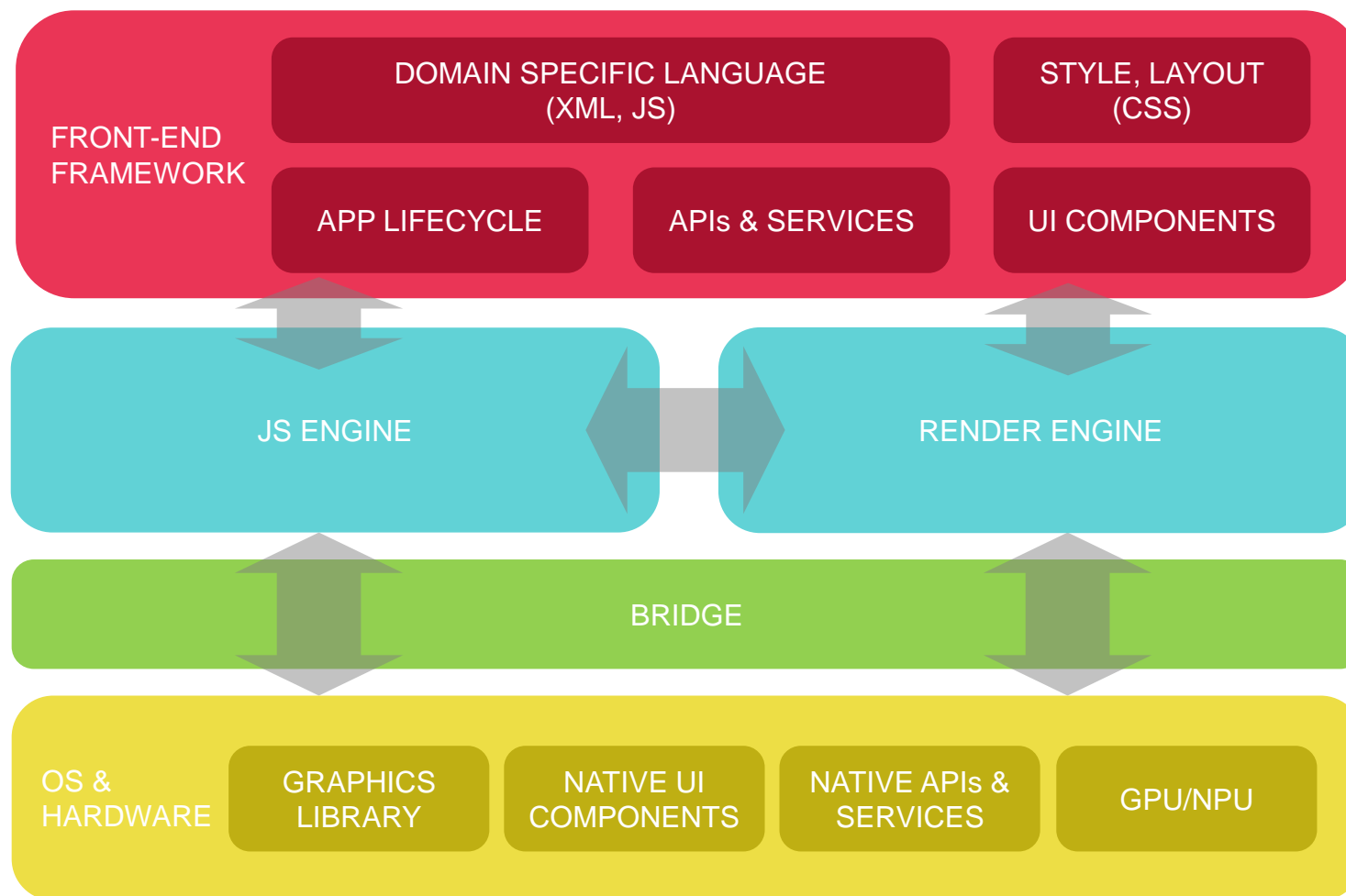
QUICK APP BUILT-IN UI COMPONENTS

BASIC COMPONENTS		CONTAINERS		FORMS		VIDEO
						CAMERA
A	WEB	DRAWER	RICHTEXT	INPUT	LABEL	CANVAS
PROGRESS	RATING	LIST	STACK	OPTION	PICKER	SLIDE VIEW
SPAN	TEXT	POPUP	SWIPER	SELECT	SLIDER	MAP
MARQUEE	IMAGE	REFRESH	TABS	SWITCH	TEXTAREA	CUSTOM MARKER

https://quick-app-initiative.ow2.io/developers/components/

HUAWEI
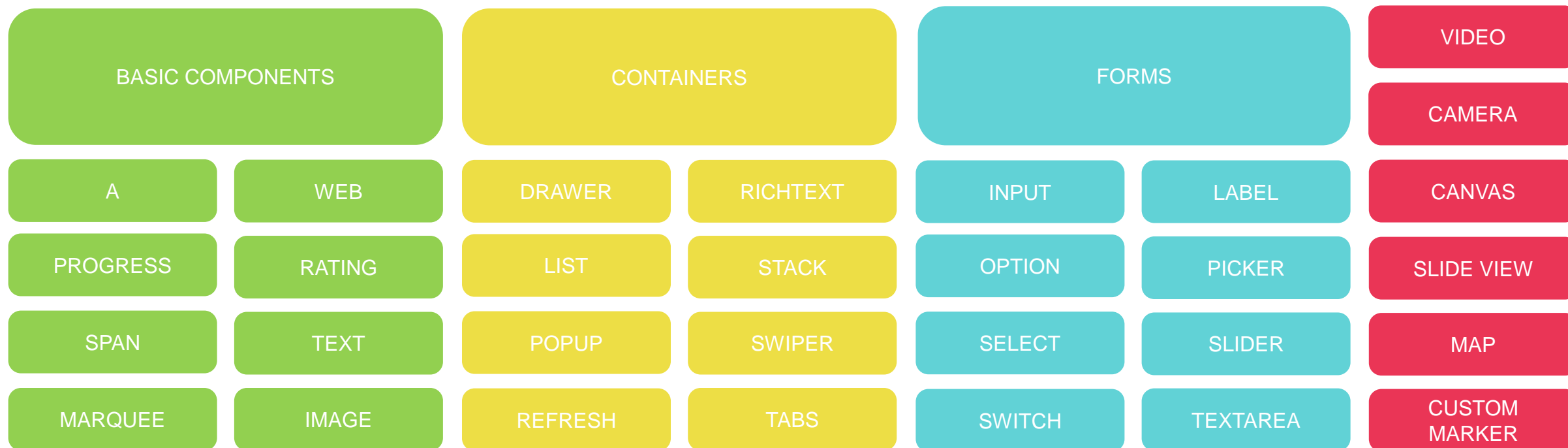
HELLO WORLD!

```
// File Hello/hello.ux

<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="title">Hello Quick Apps!</text>
  </div>
</template>

<style lang="sass">
  .container {
    flex-direction: column;
    justify-content: center;
    align-items: center;
  }
  .title {
    font-size: 60px;
  }
</style>

<script>
  module.exports = {
    data: {},
    onInit() {
      this.$page.setTitleBar({
        text: 'My Quick App',
        textColor: '#ffffff',
        backgroundColor: '#85D5FB',
        backgroundOpacity: 0.8,
        menu: true
      });
    }
  }
</script>
```

manifest.json

Hello Quick Apps!
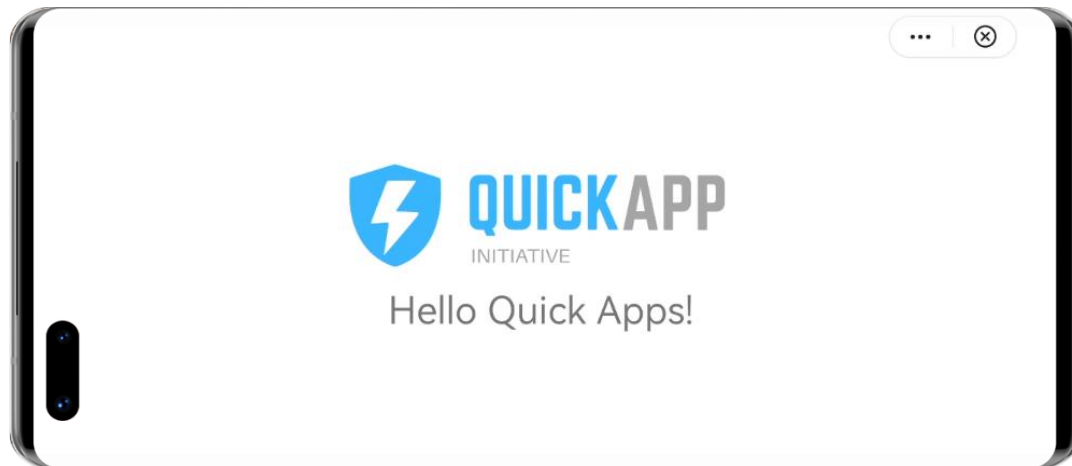
```json
{
  "package": "es.espinr.xtremejs",
  "name": "Hello XtremeJS",
  "versionName": "1.0.0",
  "versionCode": 1,
  "icon": "/Common/js_logo.jpg",
  "minPlatformVersion": 1060,
  "features": [
    {
      "name": "system.geolocation"
    }
  ],
  "permissionDesc": [
    {
      "name": "ACCESS_FINE_LOCATION",
      "desc": "I'll use your position for…"
    }
  ],
  "router": {
    "entry": "Hello",
    "pages": {
      "Hello": {
        "component": "hello.ux"
      }
    }
  },
  "display": {
    "fullScreen": true,
    "titleBar": false,
    "orientation": "landscape",
  }
}
```

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UI COMPONENTS


```
// File Hello/hello.ux

<template>
  <div class="container">
    <swiper interval="{{intervalTime}}" duration="{{animationTime}}" autoplay="true">
      <div class="swiper-item1"><image src="/Common/qai.png"></image></div>
      <div class="swiper-item2"><image src="/Common/qai.png"></image></div>
      <div class="swiper-item3"><image src="/Common/qai.png"></image></div>
    </swiper>
  </div>
</template>

<style lang="sass">
  swiper {
    height:250px;
    image {
      width: 100%;
    }
    .swiper-item1 {
      background-color:#ECFA8B;
    }
    .swiper-item2 {
      background-color:#A1E8AB;
    }
    .swiper-item3 {
      background-color:#C3F68A;
    }
  }
</style>
```
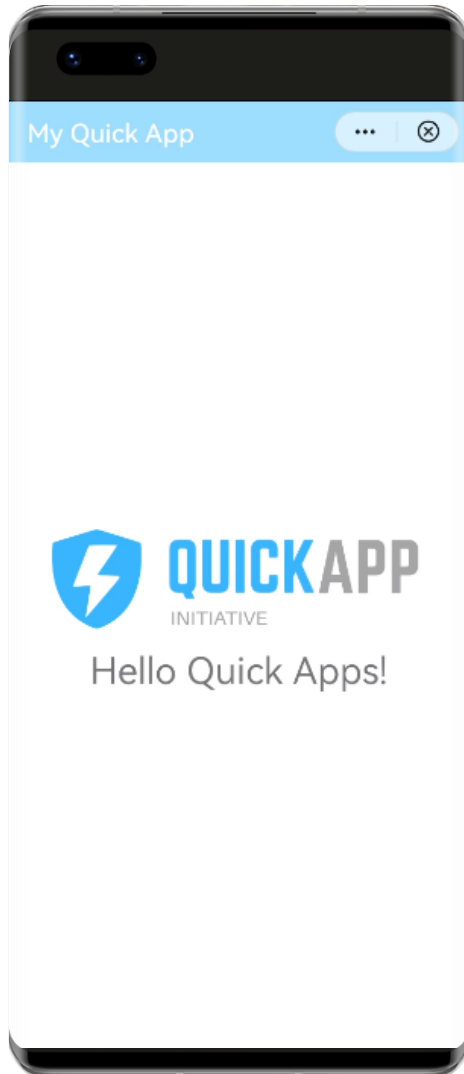
UI COMPONENTS

```
// File Hello/hello.ux

<template>
  <div class="container">
    <image src="/Common/xtremejs_logo.jpg"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating rating="2"></rating>
  </div>
</template>

<style lang="sass">
  rating {
    star-background: url(/Common/img/star_none.png);
    star-foreground: url(/Common/img/star_full.png);
    star-secondary: url(/Common/img/star_half.png);
    height: 100px;
  }
</style>

<script>
  module.exports = {
    data: {},
    onInit() {
      // Init this component
    }
  }
</script>
```

My Quick App

Rate this talk: ★★☆☆☆
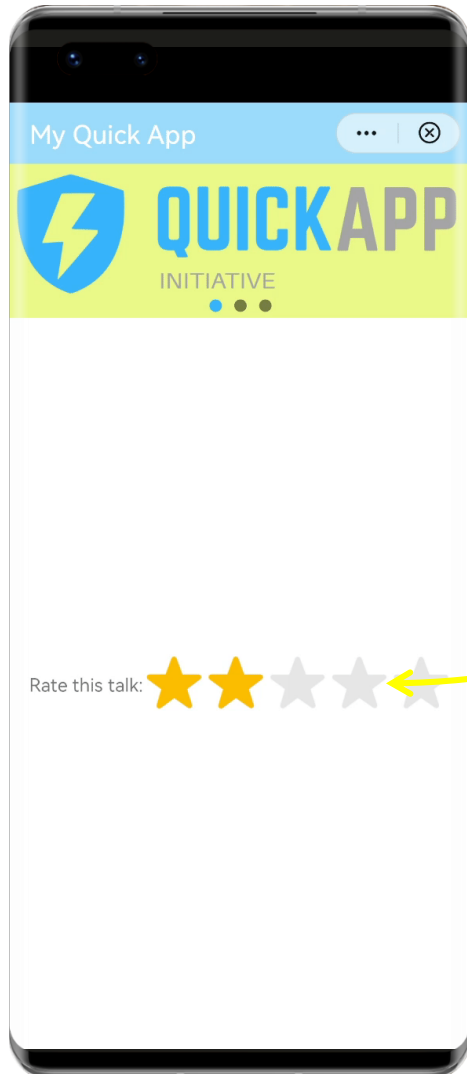
20

UI COMPONENTS


```
// File Hello/hello.ux

<template>
  <div class="container">
    <image src="/Common/xtremejs_logo.jpg"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating class="js" rating="2" onchange="onChange"></rating>
  </div>
</template>

<style lang="sass">
  rating {
    star-background: url(/Common/img/star_none.png);
    star-foreground: url(/Common/img/star_full.png);
    star-secondary: url(/Common/img/star_half.png);
    height: 100px;
  }
  .js {
    /* Js File by AomAm from NounProject.com */
    star-background: url(/Common/img/js_star_none.png);
    star-foreground: url(/Common/img/js_star_full.png);
    star-secondary: url(/Common/img/js_star_half.png);
  }
</style>

<script>
  module.exports = {
    data: {},
    onInit() {
      // Init this component
    }
  }
</script>
```
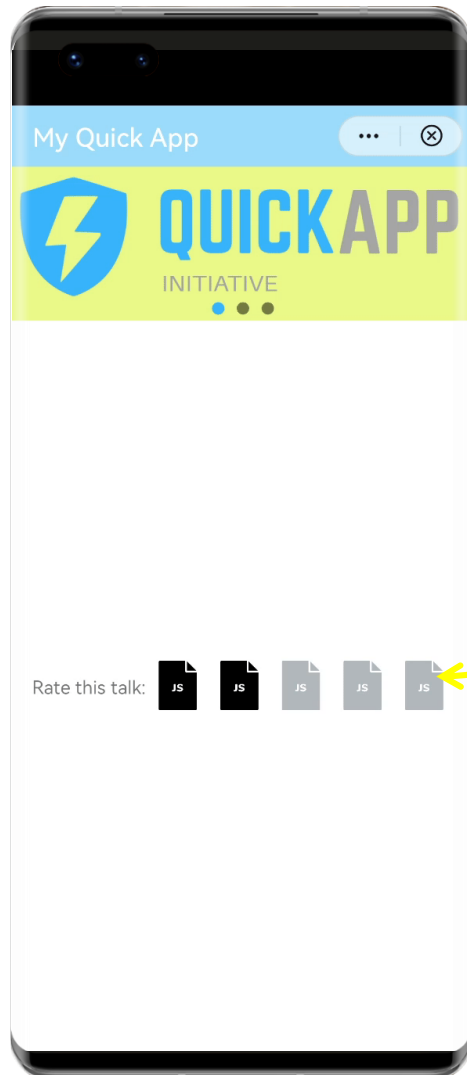
REACTIVITY


```
<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="subtitle">Rate this talk</text>
    <rating rating="2" onchange="onChange"></rating>
    <text>value: {{myValue}}</text>
  </div>
</template>

<style lang="sass">
  /* Some styles here*/
</style>

<script>
  module.exports = {
    data: {
      displayImage: mapImages['0'],
      myValue: 0,
    },
    onChange(e) {
      // Store the current rating in the local variable
      this.myValue = e.rating
    },
  }
</script>
```

MORE INTERACTION


```html
<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating rating="2" onchange="onChange"></rating>
    <div class="display-value">
      <image src="{{displayImage}}"></image>
    </div>
  </div>
</template>

<style lang="sass">/* Some styles here*/</style>

<script>
const mapImages = {
  '0': '/Common/img/rating-stars-00.png',
  '0.5': '/Common/img/rating-stars-05.png',
  /* More lines with a map of { values – image } */
  '5': '/Common/img/rating-stars-50.png',
}
module.exports = {
  data: {
    displayImage: mapImages['0'],
    myValue: 0,
  },
  onChange(e) {
    this.myValue = e.rating
    this.updateDisplayImage()
  },
  // Update the image at the bottom of the page
  updateDisplayImage(){
    this.displayImage = mapImages[this.myValue.toString()]
  }
}
</script>
```
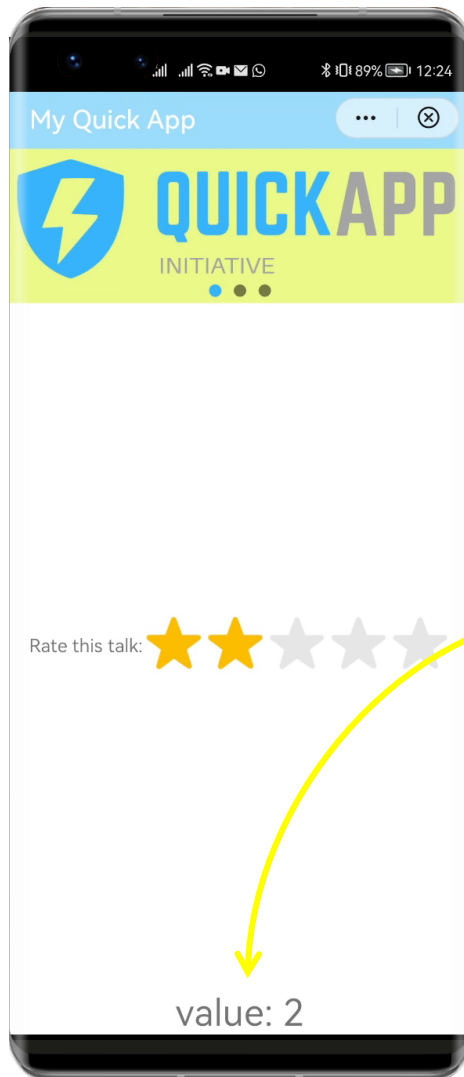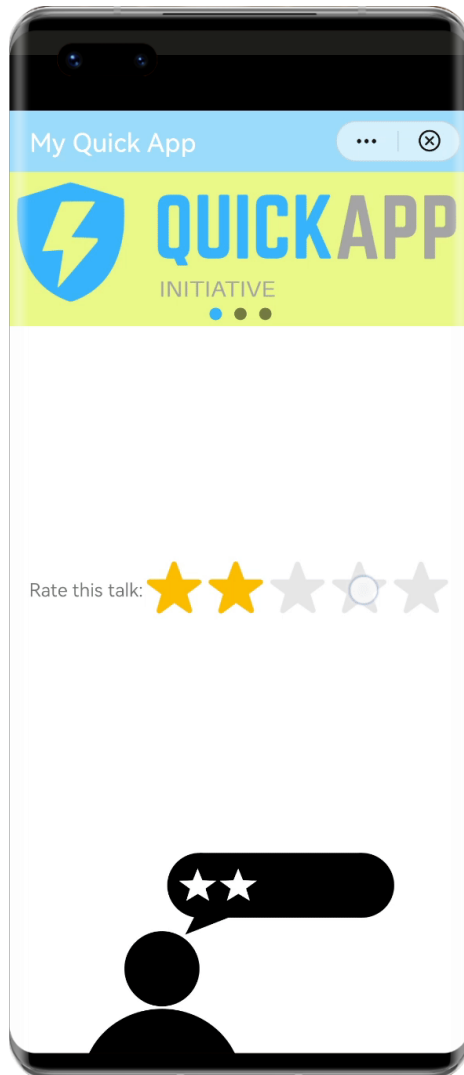
RUNTIME FRAMEWORK

JS ENGINE

PAGE 1
(JavaScript)

PAGE 2
(JavaScript)

RENDER ENGINE

PAGE 1
(<template>, CSS)

PAGE 2
(<template>, CSS)

event
data
event
data

JS BRIDGE

NETWORK · STORAGE · FILE SYSTEM · SENSORs · CAMERA · …

XtremeJS 2021

HUAWEI

APIs & SERVICES

SYSTEM & NETWORK		INPUT - OUTPUT		DEVICE FEATURES		VENDOR SERVICES
RUN IN BACKGROUND	CRYPTOGRAPHY	QR CODE	QUICK APPS SHARING	NETWORK STATUS	DEVICE AUDIO VOLUME	(AI) TEXT TRANSLATION
SHORTCUT (INSTALLATION)	ZIP MANAGEMENT	AUDIO RECORDINGS	CLIPBOARD	BATTERY	DEVICE ALARMS	(AI) SPEECH RECOGNITION
SYSTEM CONFIGURATION	STORAGE	CANVAS	EXTERNAL SHARING	BRIGHTNESS	CONTACTS	PAYMENTS
PACKAGE MANAGEMENT	FILE SYSTEM	ANIMATIONS	PUSH NOTIFICATIONS	GEOLOCATION	CALENDAR	AUTH.
APP INFO	WEB SOCKETS	IMAGES	WEB VIEW	SENSORS	SMS	STATISTICS
ROUTING	FETCH	AUDIO	DIALOGS	VIBRATOR	WIFI	ADS
DEVICE INFO	UPLOAD DOWNLOAD	VIDEO	IN-APP NOTIFICATIONS	DAILY STEPS	BLUETOOTH	USER ACCOUNT

https://quick-app-initiative.ow2.io/developers/services/

HUAWEI

USE DEVICE'S APIs


```
<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating rating="2" onchange="onchangeRating"></rating>
    <div class="share">
      <label>Just switch it on to share </label>
      <switch onchange="onchangeSwitch"></switch>
    </div>
    <div class="display-value">
      <image src="{{displayImage}}"></image>
    </div>
  </div>
</template>

<style lang="sass">
  /* Some styles here*/
  .share {
    switch {
      track-color: #ECFA8B;
      thumb-color: #85D5FB;
    }
  }
</style>

<script>
  module.exports = {
    data: {
      displayImage: mapImages['0'],
      myValue: 0,
    },
    onchangeSwitch(e) {
      // if enabled, share the results of the review
    },
  }
</script>
```
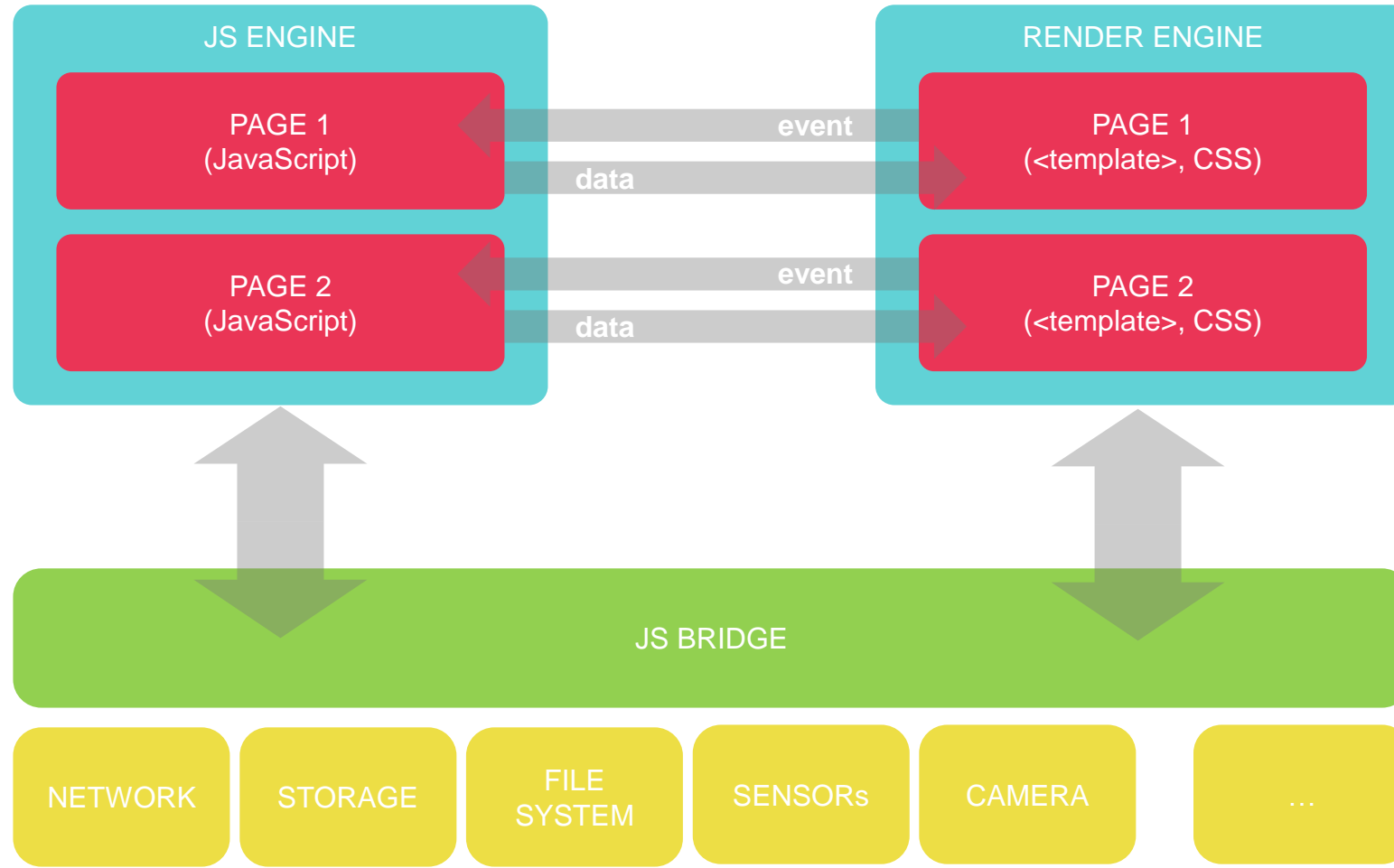
26

IMPORT THE MODULE


```
<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating rating="2" onchange="onchangeRating"></rating>
    <div class="share">
      <label>Just switch it on to share </label>
      <switch onchange="onchangeSwitch"></switch>
    </div>
    <div class="display-value">
      <image src="{{displayImage}}"></image>
    </div>
  </div>
</template>

<style lang="sass">/* Some styles here*/</style>

<script>
import share from '@system.share'

module.exports = {
  data: {
    displayImage: mapImages['0'],
    myValue: 0,
  },
  onchangeSwitch(e) {
    // if enabled, share the results of the review
    if (e.checked) {
      share.share({
        type: "text/plain",
        data: `Hey!, I'm attending a ${this.myValue}-stars event. Check it out!`,
        success(data) { /* Do whatever you want */ },
        fail(data, code) { /* Do whatever you want */ },
        complete() { /* Do whatever you want */ }
      });
    }
```
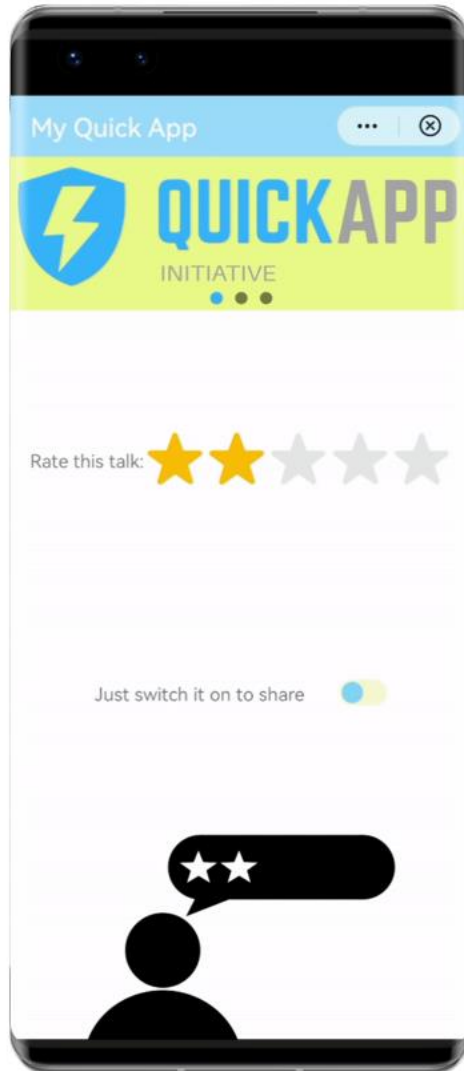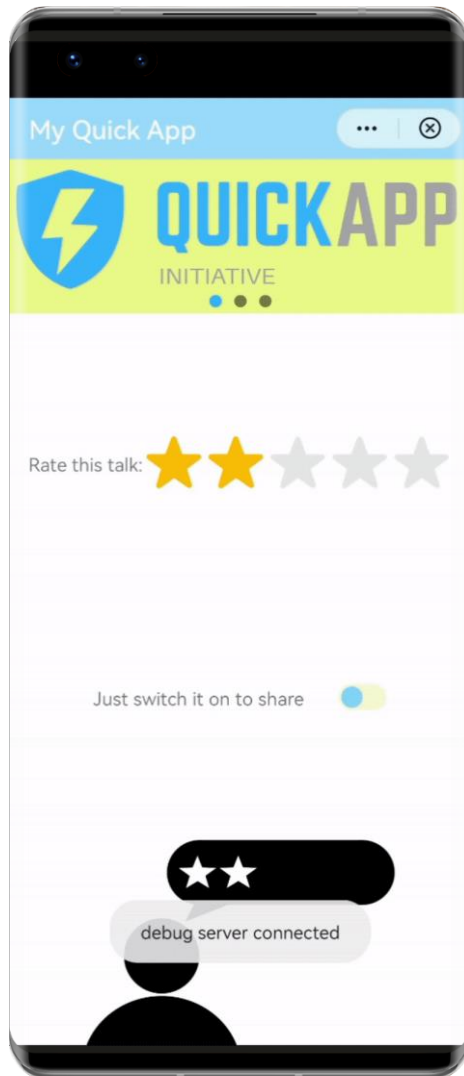
JUST USE IT


```html
<template>
  <div class="container">
    <image src="/Common/qai.png"></image>
    <text class="subtitle">Rate this talk:</text>
    <rating rating="2" onchange="onchangeRating"></rating>
    <div class="share">
      <label>Just switch it on to share </label>
      <switch onchange="onchangeSwitch"></switch>
    </div>
    <div class="display-value">
      <image src="{{displayImage}}"></image>
    </div>
  </div>
</template>

<script>
  import share from '@system.share'

  module.exports = {
    data: {
      displayImage: mapImages['0'],
      myValue: 0,
    },
    onchangeSwitch(e) {
      // if enabled, share the results of the review
      if (e.checked) {
        share.share({
          type: "text/plain",
          data: `Hey!, I'm attending a ${this.myValue}-stars event. Check it out!`,
          success(data) { /* Do whatever you want */ },
          fail(data, code) { /* Do whatever you want */ },
        });
      }
    }
  }
</script>
```
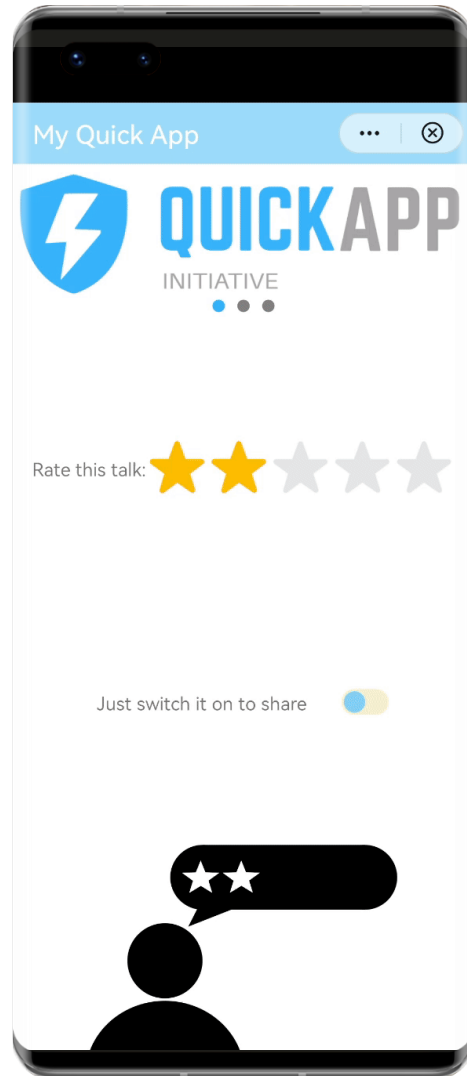
ALSO INSTALLATION

APIs & SERVICES

SYSTEM & NETWORK		INPUT - OUTPUT		DEVICE FEATURES		VENDOR SERVICES
RUN IN BACKGROUND	CRYPTOGRAPHY	QR CODE	QUICK APPS SHARING	NETWORK STATUS	DEVICE AUDIO VOLUME	(AI) TEXT TRANSLATION
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PACKAGE MANAGEMENT	FILE SYSTEM	ANIMATIONS	PUSH NOTIFICATIONS	GEOLOCATION	CALENDAR	AUTH.
APP INFO	WEB SOCKETS	IMAGES	WEB VIEW	SENSORS	SMS	STATISTICS
ROUTING	FETCH	AUDIO	DIALOGS	VIBRATOR	WIFI	ADS
DEVICE INFO	UPLOAD DOWNLOAD	VIDEO	IN-APP NOTIFICATIONS	DAILY STEPS	BLUETOOTH	USER ACCOUNT

https://quick-app-initiative.ow2.io/developers/services/

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STANDARDIZING MINIAPPs

LIGHT APP ECOSYSTEM
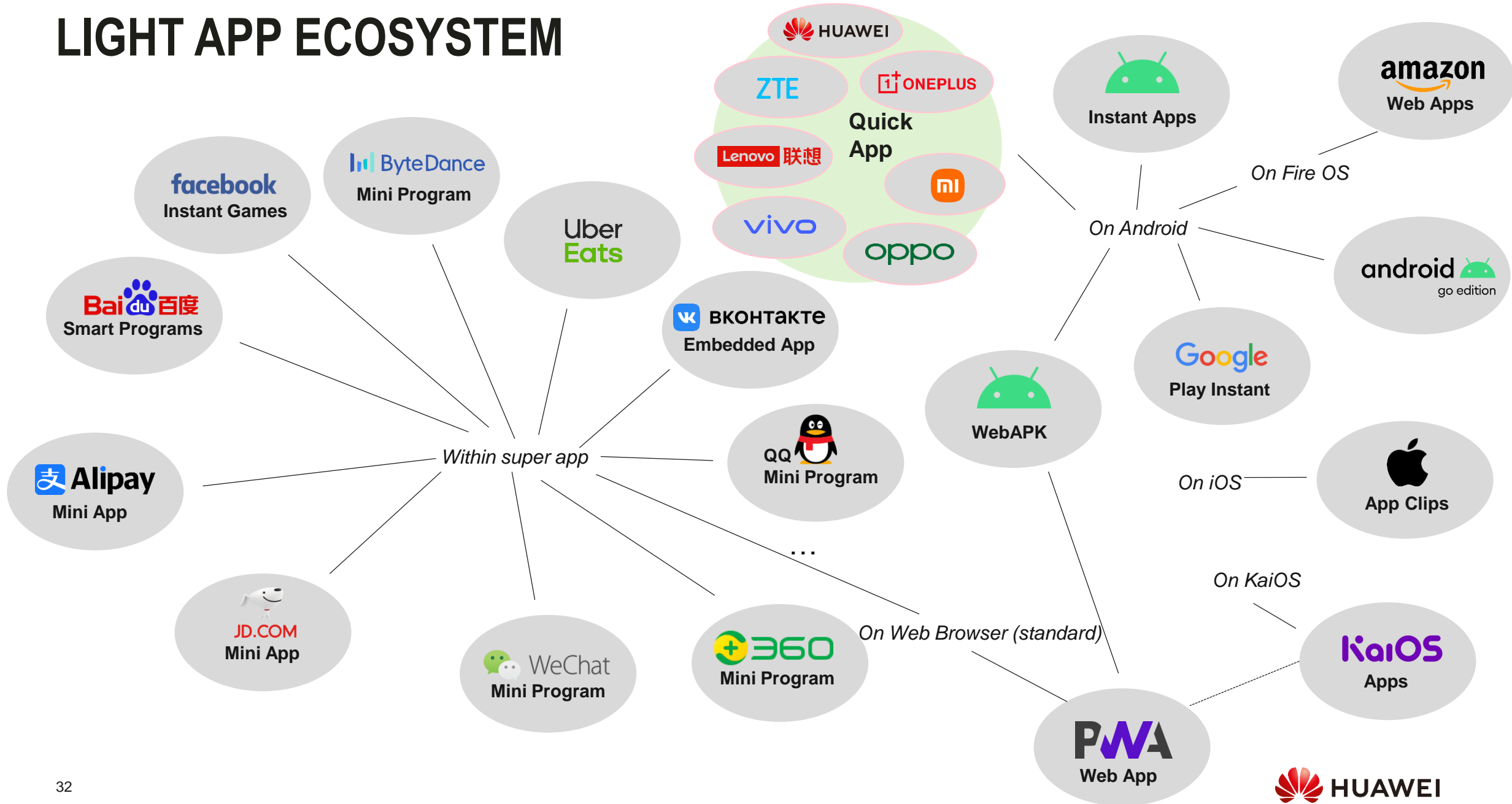
W3C MINIAPPs

MiniApp Working Group

Standardization of MiniApp

100+ participants (only W3C Members)

Leading organizations:

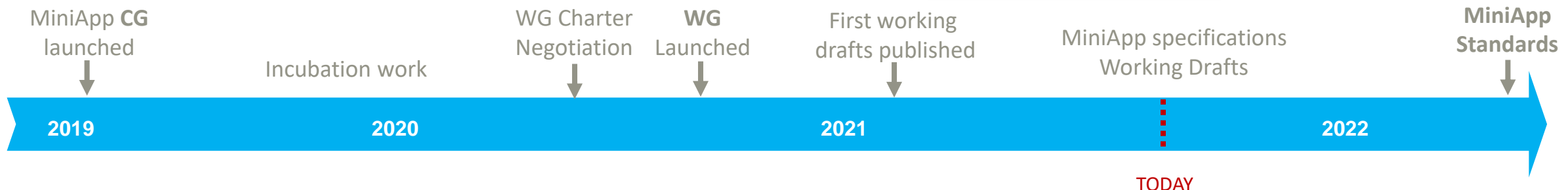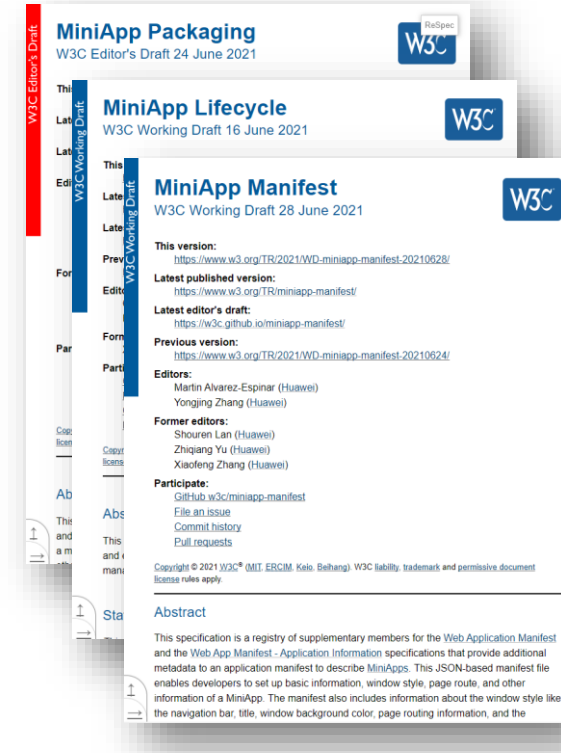Other organizations:

MiniApp Packaging
W3C Editor's Draft 24 June 2021

MiniApp Lifecycle
W3C Working Draft 16 June 2021

MiniApp Manifest
W3C Working Draft 28 June 2021

This version:
https://www.w3.org/TR/2021/WD-miniapp-manifest-20210628/
Latest published version:
https://www.w3.org/TR/miniapp-manifest/
Latest editor's draft:
https://w3c.github.io/miniapp-manifest/
Previous version:
https://www.w3.org/TR/2021/WD-miniapp-manifest-20210624/
Editors:
Martin Alvarez-Espinar (Huawei)
Yongjing Zhang (Huawei)
Former editors:
Shouren Lan (Huawei)
Zhiqiang Yu (Huawei)
Xiaofeng Zhang (Huawei)
Participate:
GitHub w3c/miniapp-manifest
File an issue
Commit history
Pull requests

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Abstract

This specification is a registry of supplementary members for the Web Application Manifest and the Web App Manifest - Application Information specifications that provide additional metadata to an application manifest to describe MiniApps. This JSON-based manifest file enables developers to set up basic information, window style, page route, and other information of a MiniApp. The manifest also includes information about the window style like the navigation bar, title, window background color, page routing information, and the

MiniApp **CG** launched		WG Charter Negotiation	**WG** Launched	First working drafts published	MiniApp specifications Working Drafts		**MiniApp Standards**
	Incubation work						
2019	**2020**			**2021**		**2022**	

TODAY

HUAWEI

MINIAPP PACKAGING

Main difference with PWAs

Resources within a container

Digital signatures
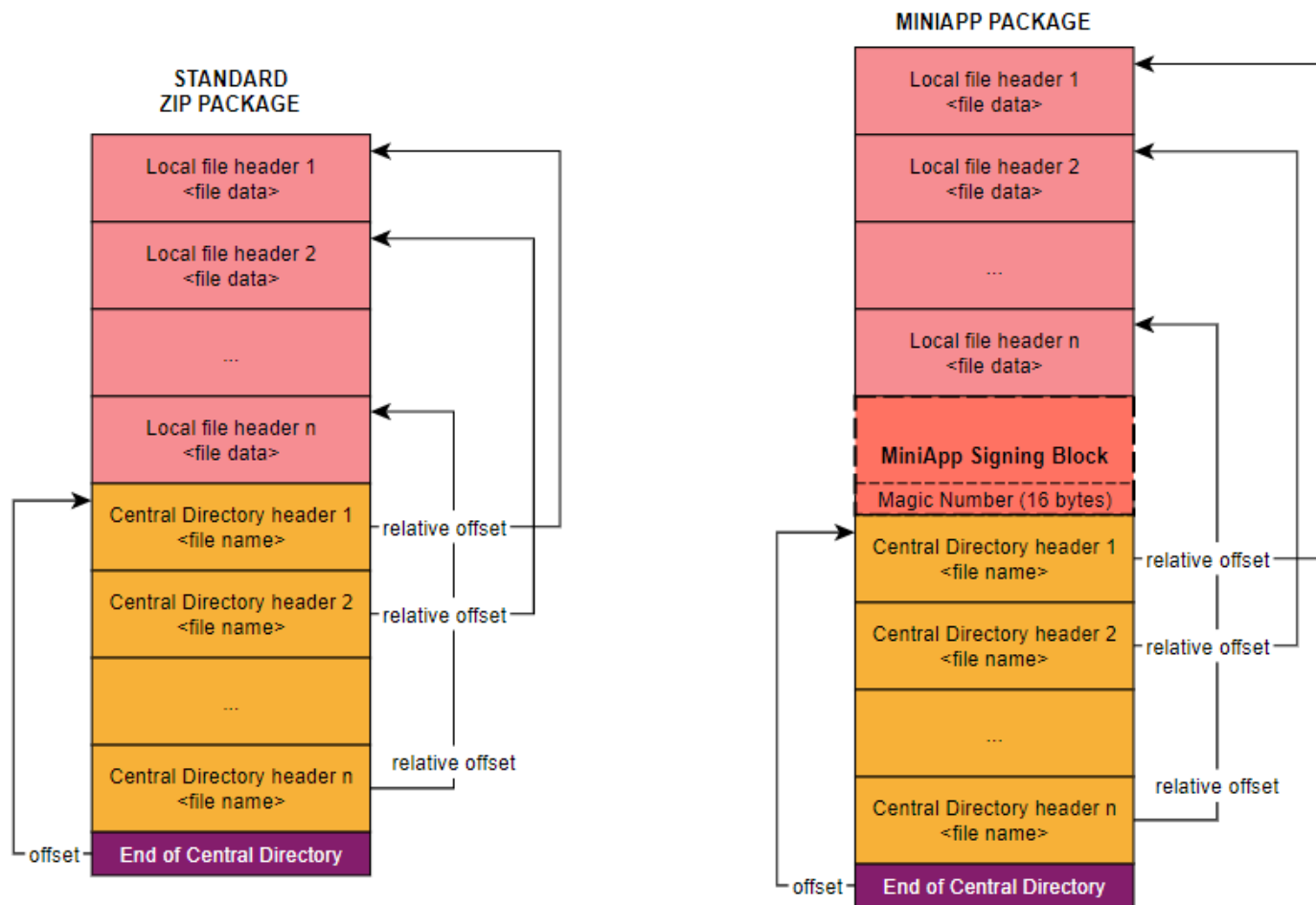
HUAWEI

STILL SOME CHALLENGES...

Open source community **hosted by OW2**

Vendor-neutral

Collaborative task forces

Join us now! →

https://quick-app-initiative.ow2.io

Thank you.

@espinr
martin.alvarez.espinar@huawei.com

W3C MiniApps: https://www.w3.org/2021/miniapps/
Code at: https://github.com/espinr/quick-app-samples

More info:

https://quick-app-initiative.ow2.io

Thank you.

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