

An illustration of two stylized human figures. The figure on the left is wearing a blue cap and a grey long-sleeved shirt. The figure on the right is wearing a grey long-sleeved shirt and light blue pants. Both are holding blue rectangular objects, likely representing mobile devices. The background consists of light blue and white wavy shapes.

W3C MiniApp Ecosystem

WEB TECHNOLOGIES FOR APPLICATIONS

Paris, 13 June 2023

Martin Alvarez (@espinr)

WHAT IS A MINIAPP?

New light app paradigm

Frictionless apps

Popular in Asia

Gaining traction worldwide

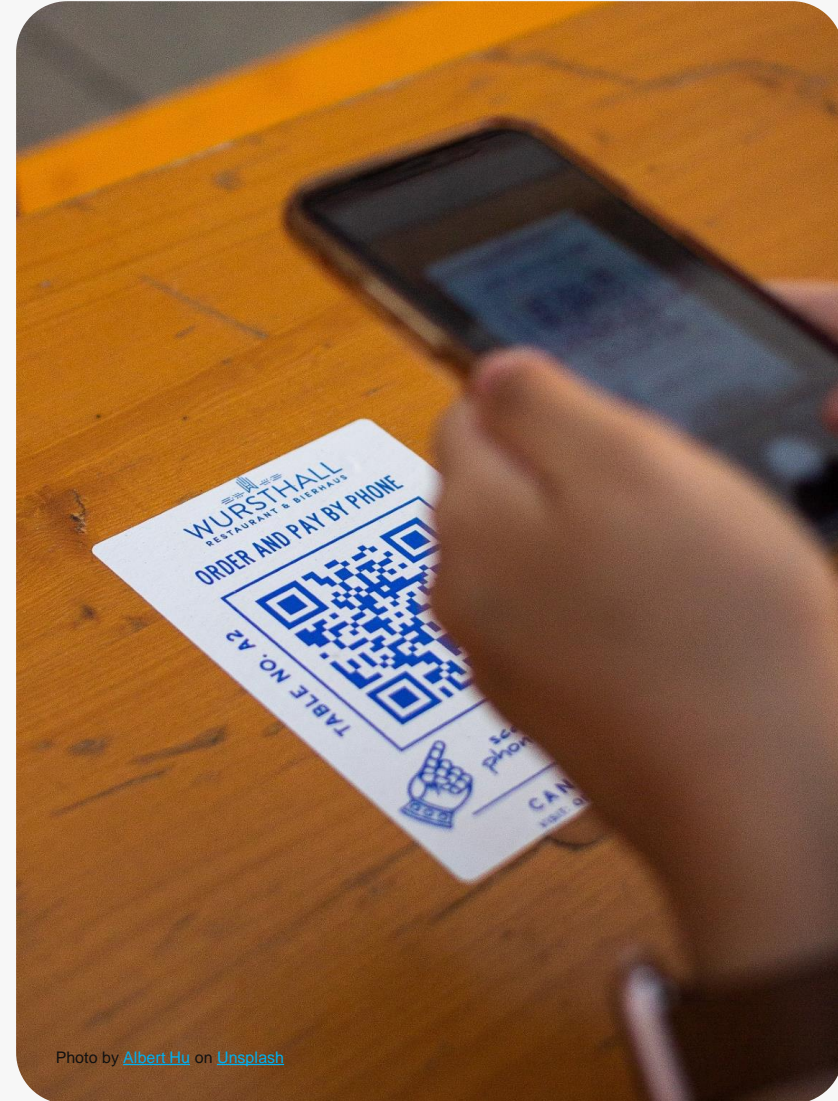


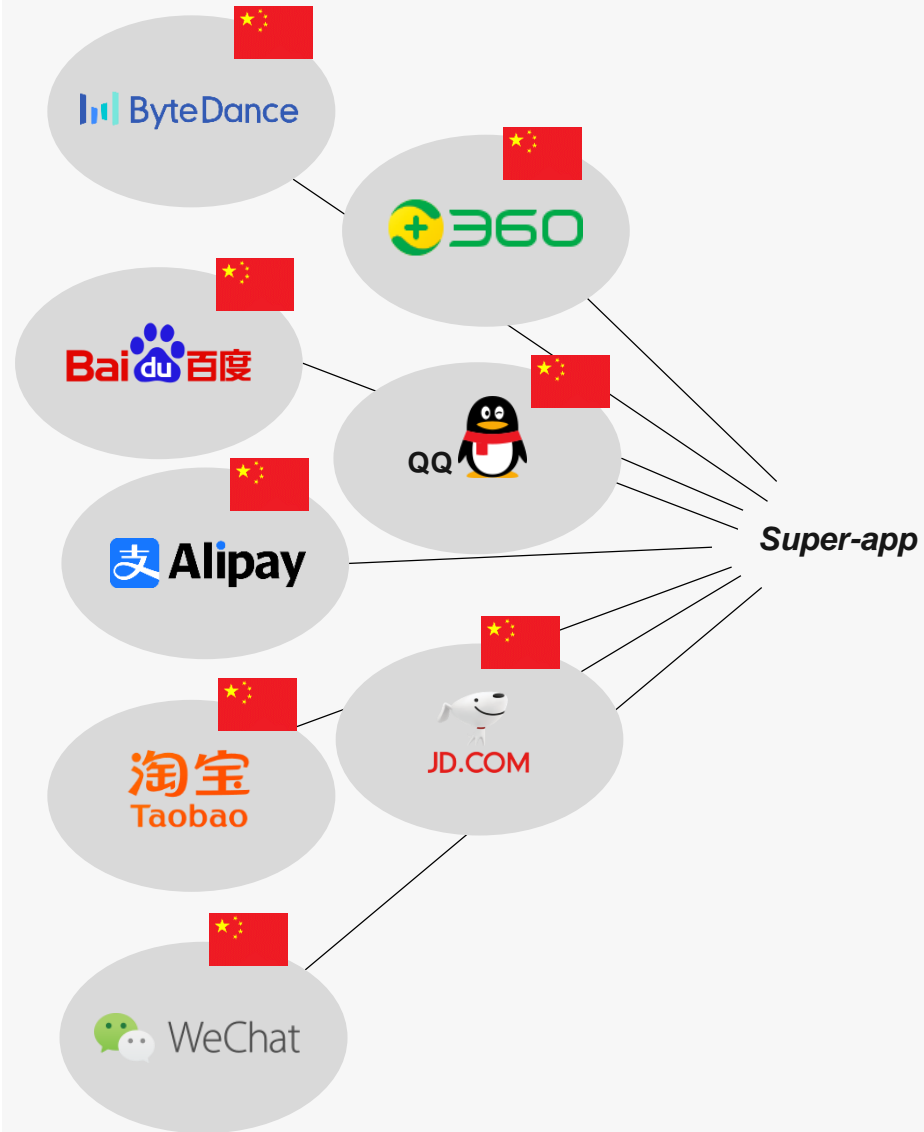
Photo by [Albert Hu](#) on [Unsplash](#)

NON-INSTALLATION APPS

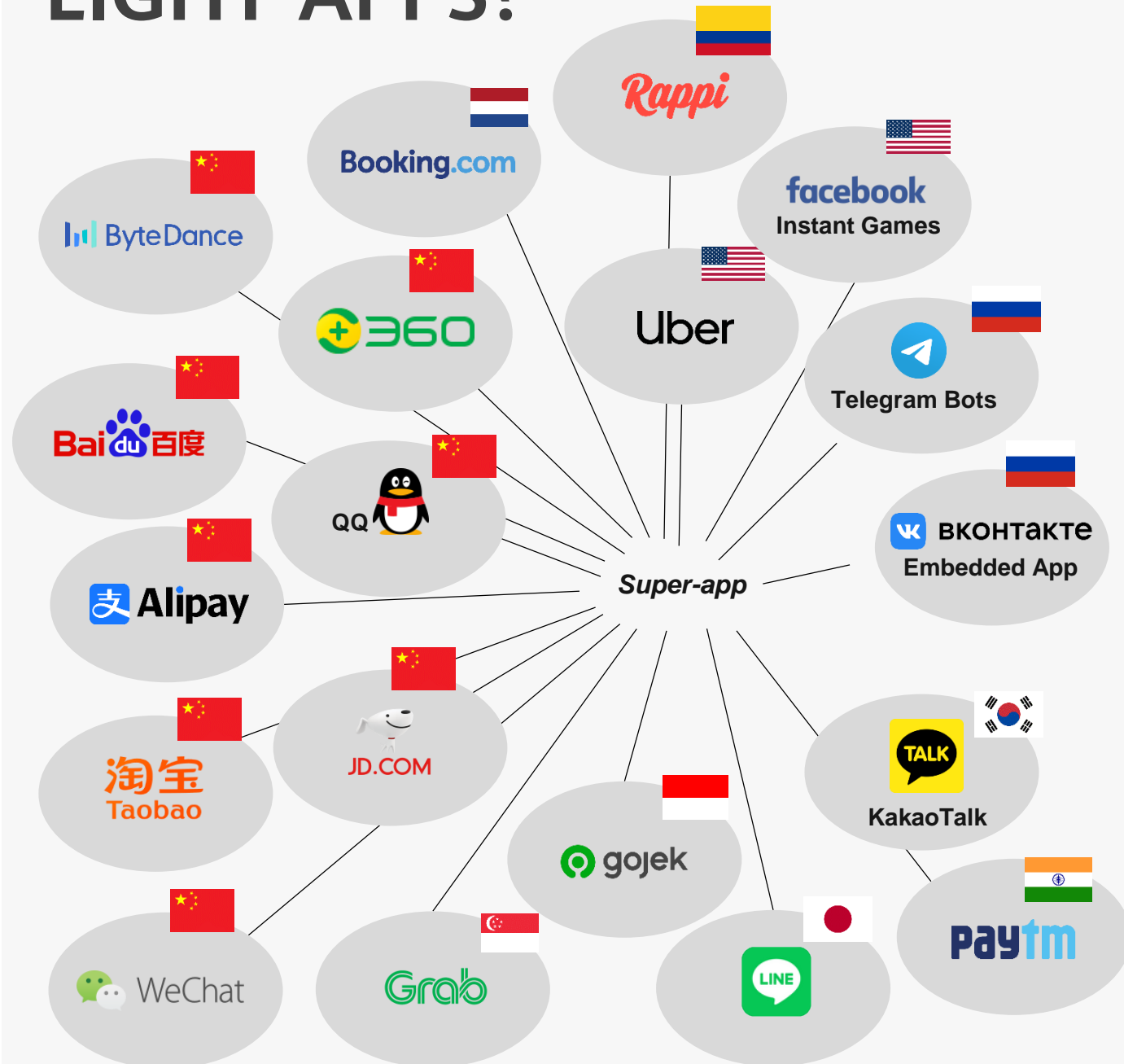
Direct Interaction
Minimum Friction



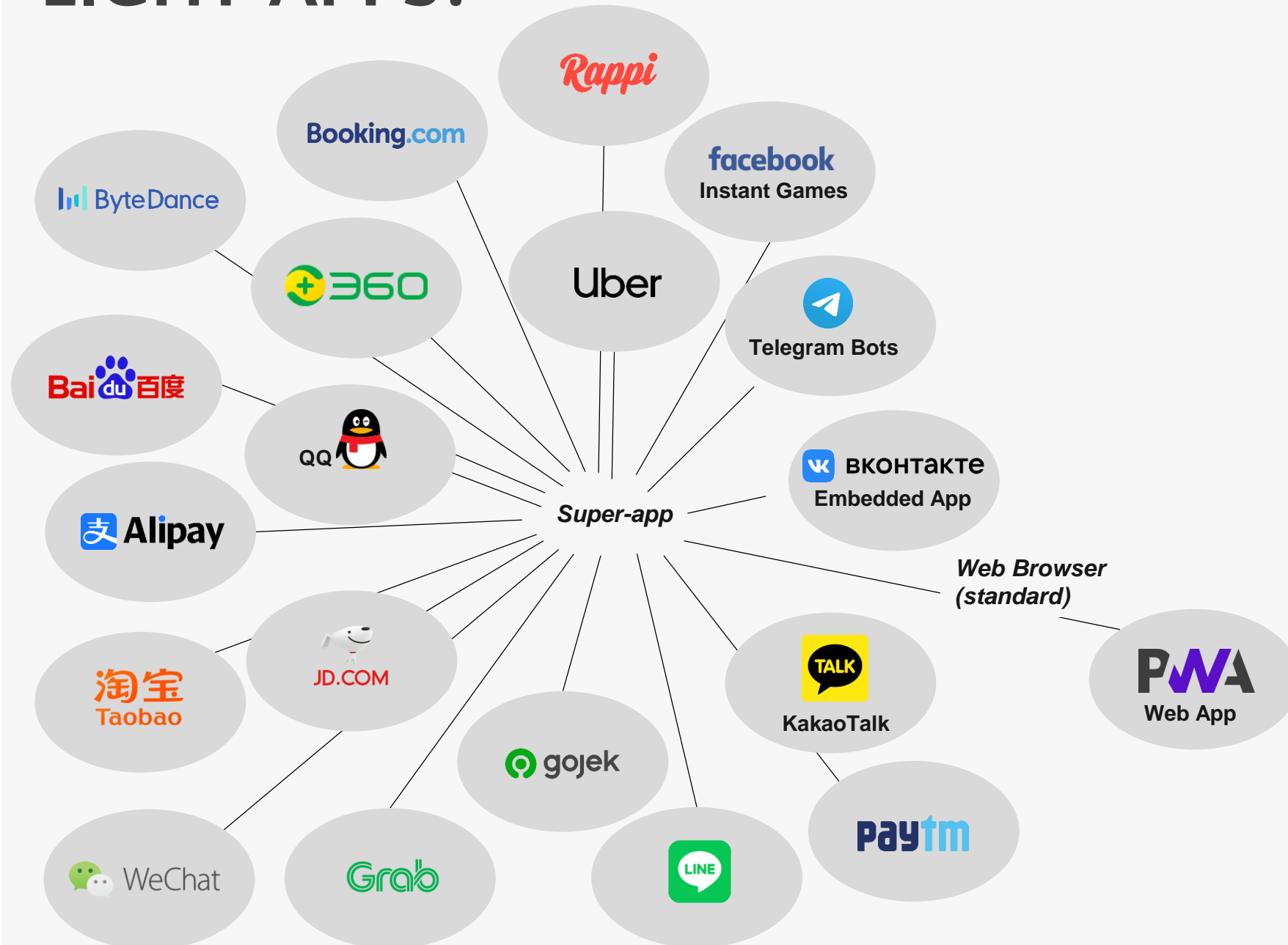
LIGHT APPS?



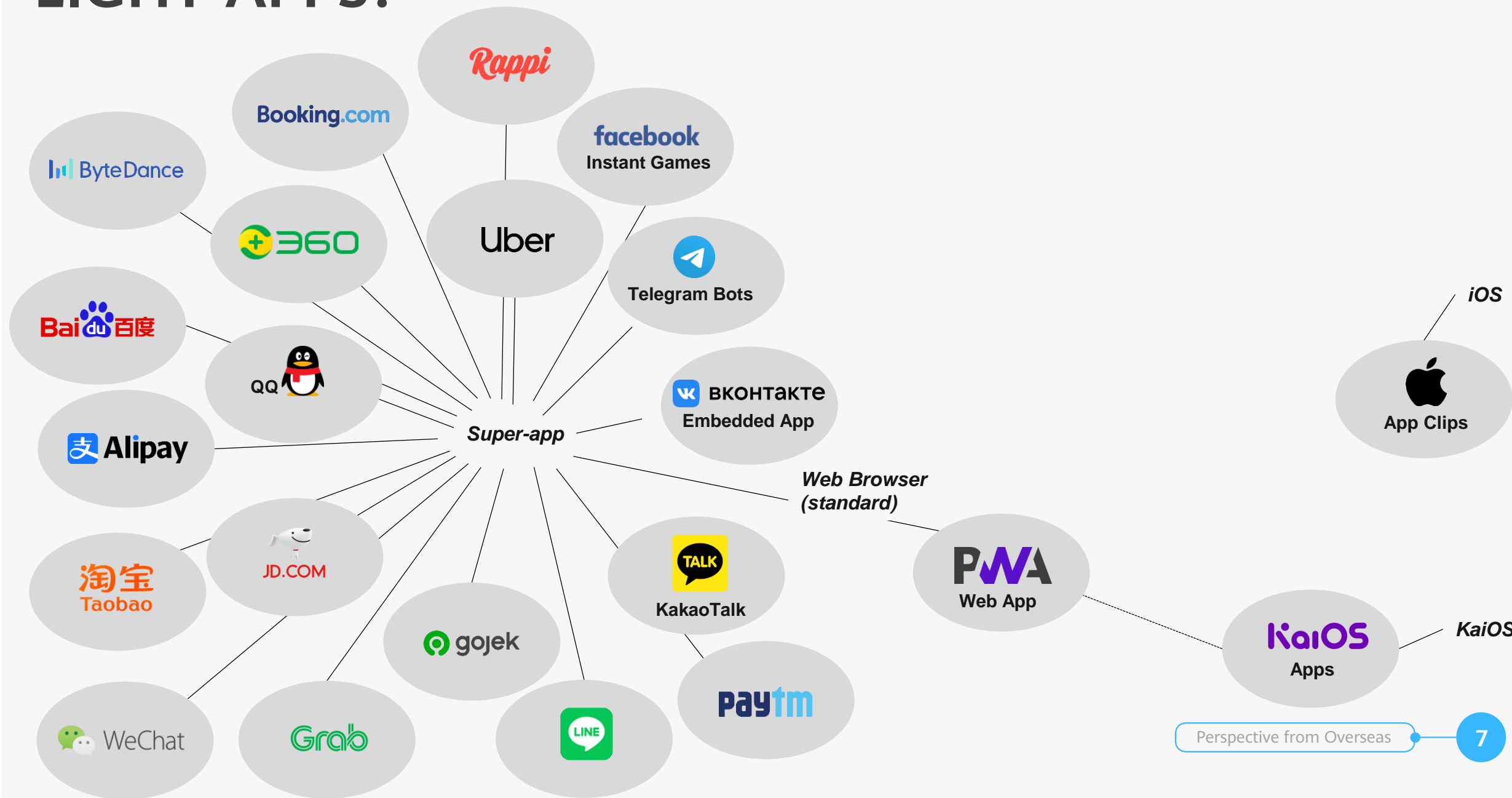
LIGHT APPS?



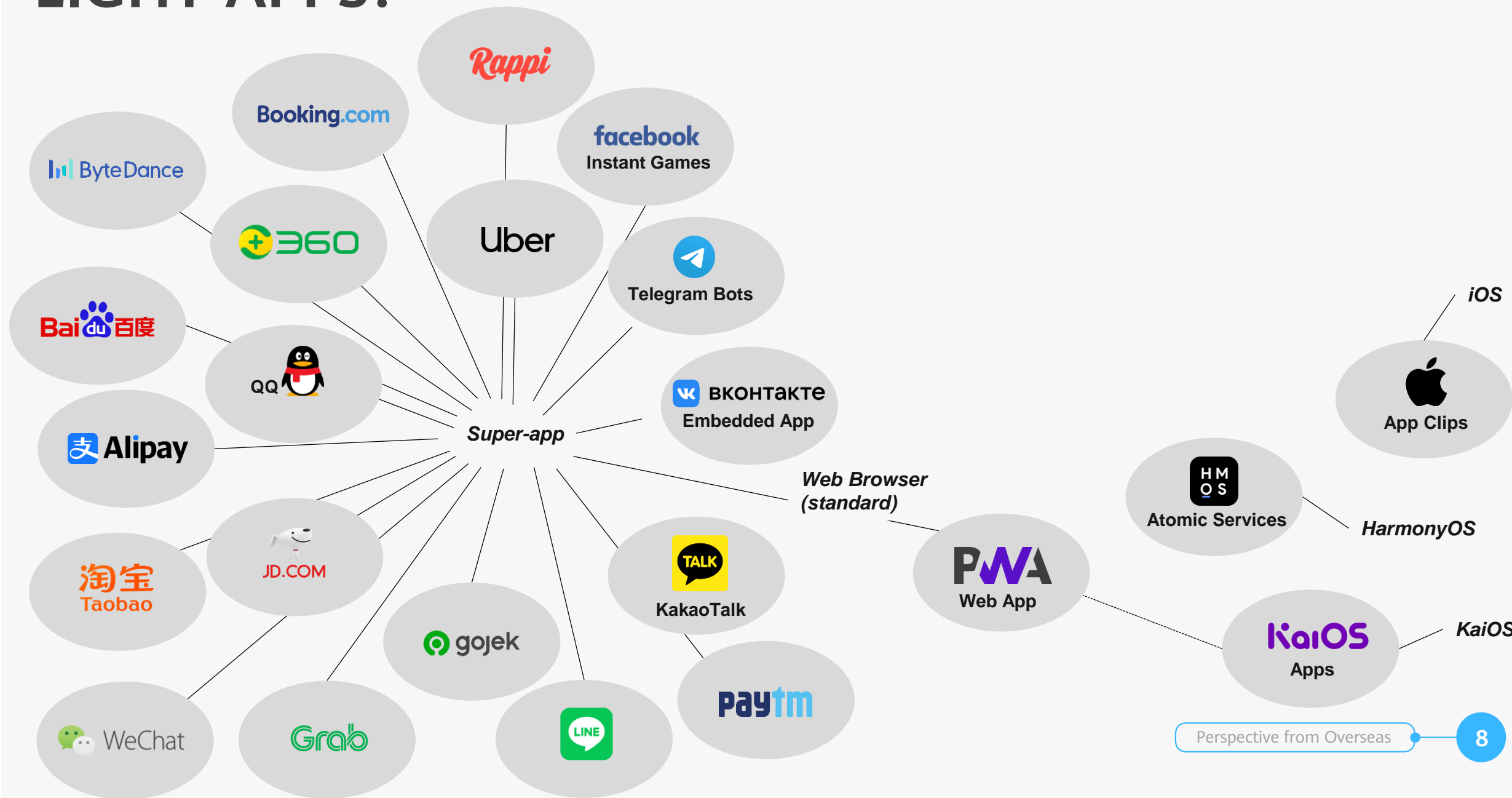
LIGHT APPS?



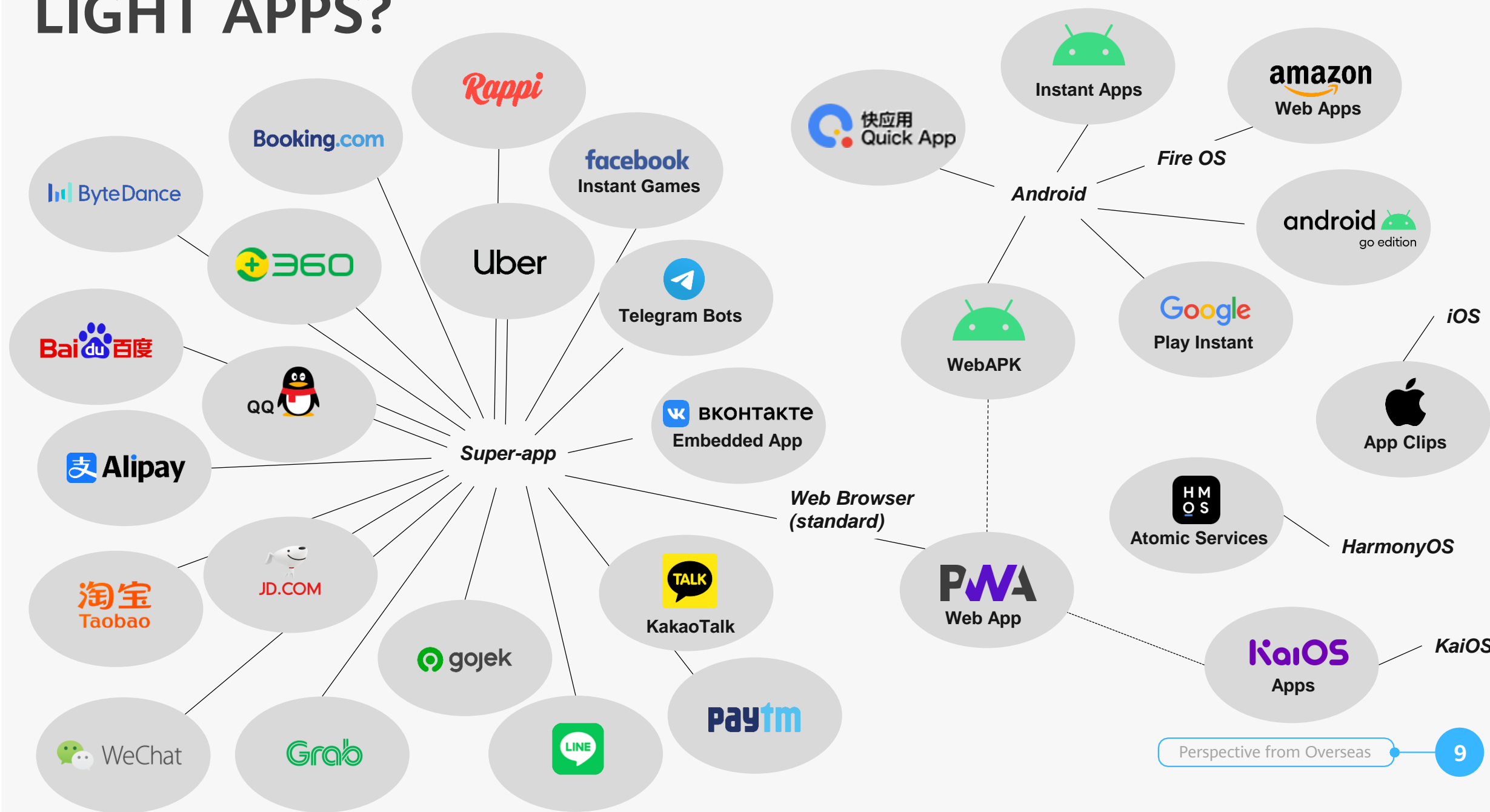
LIGHT APPS?



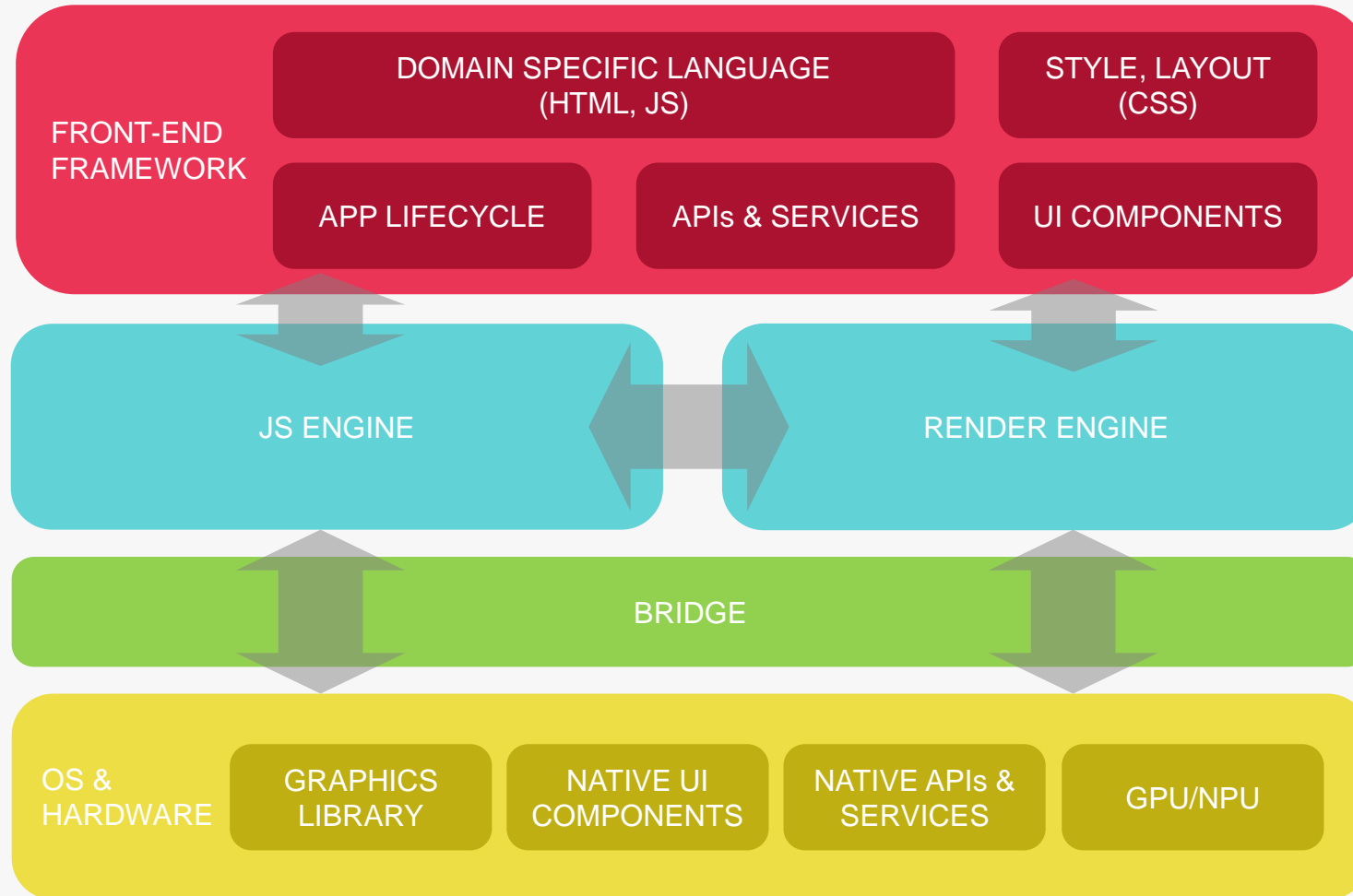
LIGHT APPS?



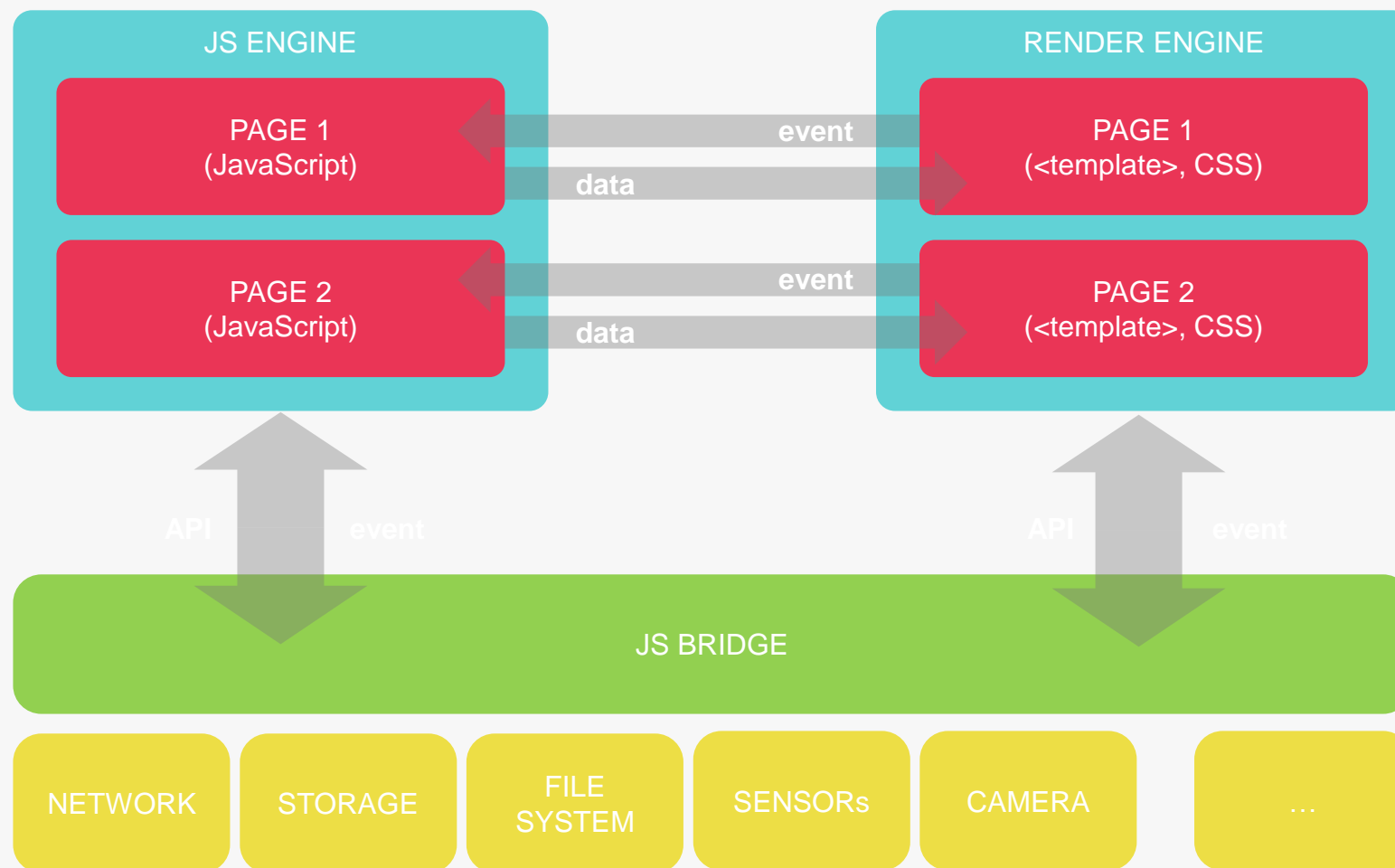
LIGHT APPS?



(MVVM) ARCHITECTURE



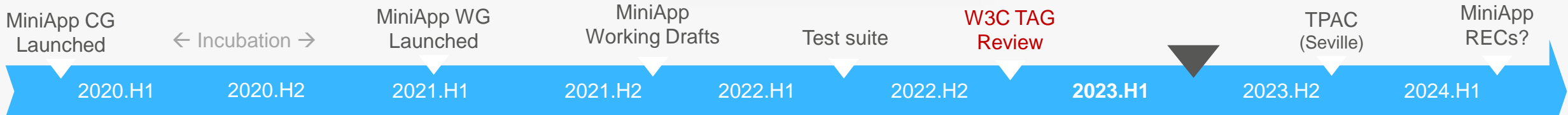
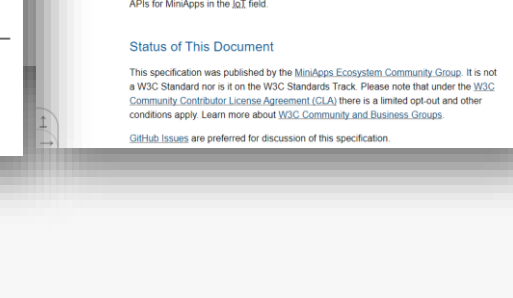
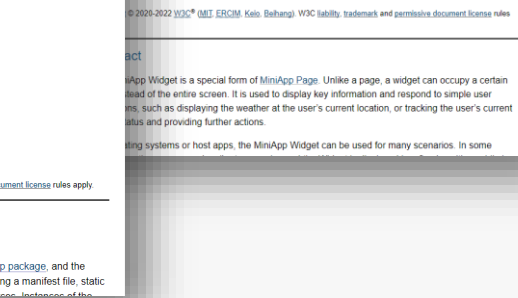
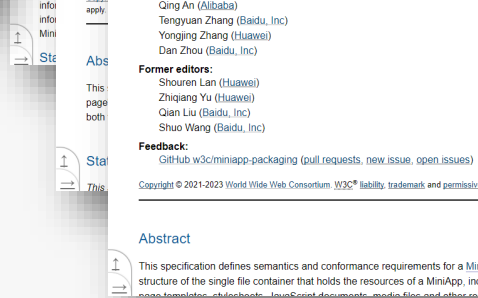
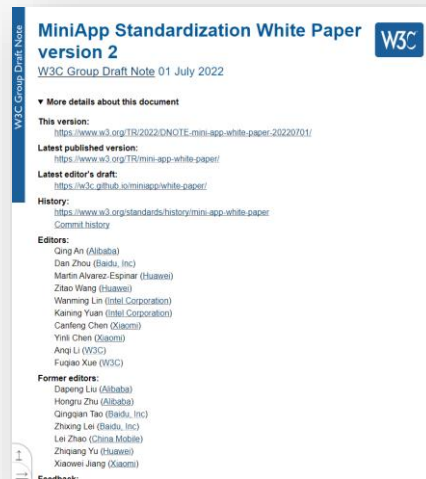
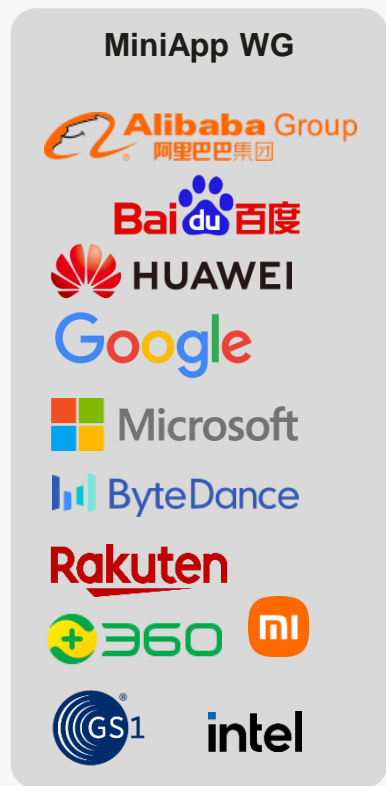
RUNTIME ENVIRONMENT



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

MINIAPPS @ W3C



MINIAPP MANIFEST

To describe a MiniApp

Based on Web App Manifest

Information for user agents (super-app, OS) and publishers (icons, descriptions, versions...)

Runtime configuration (themes, colors, orientation...)

- Spec: <https://www.w3.org/TR/miniapp-manifest/>
- Repo: <https://github.com/w3c/miniapp-manifest>
- Status: **WD**

W3C Working Draft

MiniApp Manifest

W3C Working Draft 28 February 2023



▼ More details about this document

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Feedback:
[GitHub w3c/miniapp-manifest](#) (pull requests, new issue, open issues)

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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 of a MiniApp, like identification, human-readable description, versioning data, and styling information. The MiniApp manifest also configures the routing of the pages and widgets that are part of a MiniApp.

↑
→ **Status of This Document**

MINIAPP MANIFEST (NEXT): i18n

Internationalization (currently, MiniApps apply text localization techniques during the compilation stage)

- > We need to distribute texts in different languages and localize color schemes, icons, and images (good for *marketplaces*).
- > Alignment with **Web App Manifest**

```
{
  "name": "Good dog",
  "description": "An app for dogs",
  "icons": [],
  "screenshots": [],
  "lang": "en",
  "translations": {
    "fr": {
      "name": "Bon chien",
      "description": "Une application pour chiens",
      "icons": [],
      "screenshots": []
    }
  }
}
```

WICG Proposal:

<https://github.com/WICG/manifest-incubations/blob/gh-pages/translations-explainer.md>

MINIAPP MANIFEST (NEXT): Content Secure Policy

Guarantee security in MiniApps (currently the standard CSP directives enable restrict the origin of resources through HTTP headers like *default-src*, *connect-src*, *img-src*, *script-src*, or *font-src*)

- > The MiniApp are cached by the system and user agents do not always have access to HTTP headers.
- > We need to guarantee security and avoid content and scripts from non-trusted origins.

```
{
  "name": "My App",
  ...
  "content-security-policy" :
  {
    "default-src":
    [
      "trusted1.example.org",
      "trusted2.example.org"
    ],
  }
}
```

Proposal:

<https://github.com/w3c/miniapp-manifest/issues/42>

MINIAPP PACKAGING

Logical and physical structure of a MiniApp

Pages, components, styles,...

Packaging system, files, directories...

Digital signatures (developers, publishers...)

- Spec: <https://www.w3.org/TR/miniapp-packaging/>
- Repo: <https://github.com/w3c/miniapp-packaging>
- Status: **WD**

W3C Working Draft

MiniApp Packaging

W3C Working Draft 20 February 2023



▼ More details about this document

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[GitHub w3c/miniapp-packaging \(pull requests, new issue, open issues\)](#)

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Abstract

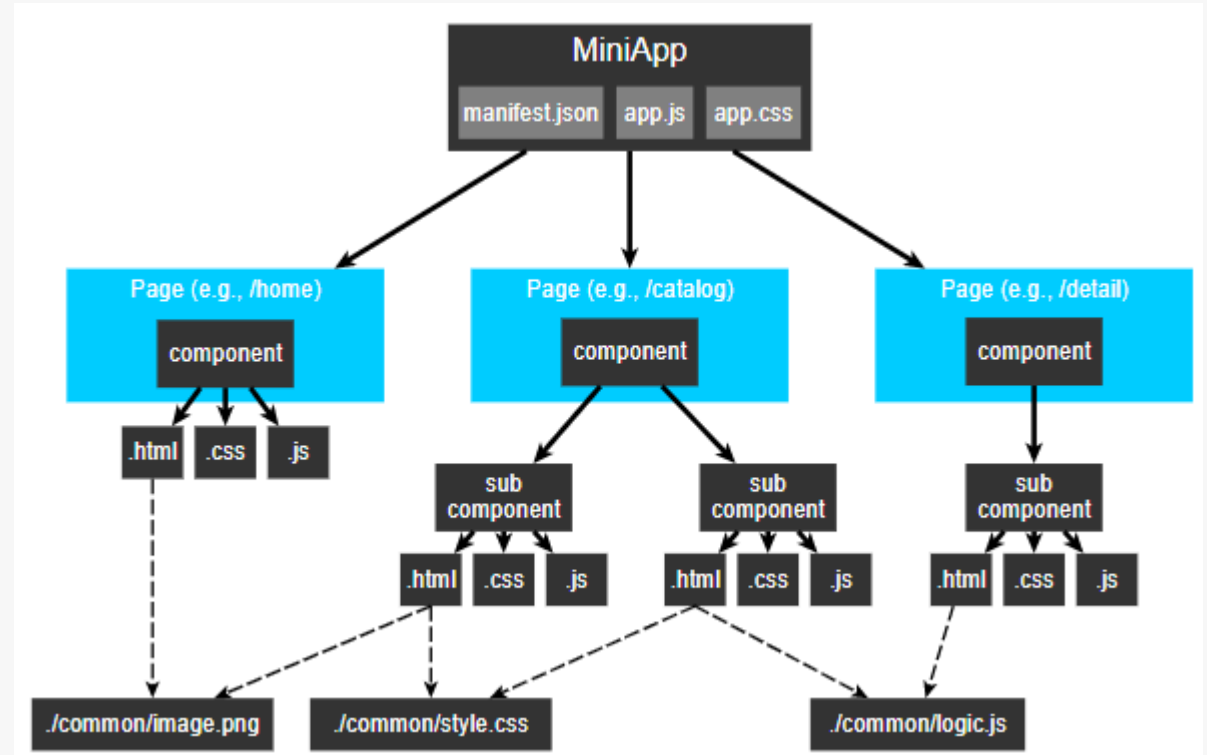
This specification defines semantics and conformance requirements for a [MiniApp package](#), and the structure of the single file container that holds the resources of a MiniApp, including a manifest file, static page templates, stylesheets, JavaScript documents, media files, and other resources. Instances of the

PACKAGING: TYPES OF RESOURCES

Components:

- > **HTML** → based on templates
- > **JS** → standard ECMAScript
- > **CSS** → CSS profiles
- > Resources for i18n

Based on **Web Components**



PACKAGING: FILE SYSTEM

manifest.json

app.js, app.css

pages/

common/

l18n/

```
/
|__manifest.json
|__app.js
|__app.css
|__pages/
|    |__page1.js
|    |__page1.html
|    |__page1.css
|__common/
|    |__componentA.js
|    |__componentA.html
|    |__componentA.css
|    |__example.png
|__l18n/
|    |__zh-Hans.json
|    |__en-US.json
```

MINIAPP LIFECYCLE

Specific events for MiniApps

Interface for the MiniApp object and its pages

MiniApp lifecycle :

> launched, shown, hidden, error...

Page lifecycle:


> loaded, ready, shown, hidden, unloaded

- Spec: <https://www.w3.org/TR/miniapp-lifecycle/>
- Repo: <https://github.com/w3c/miniapp-lifecycle>
- Status: **WD**

W3C Working Draft

MiniApp Lifecycle

W3C Working Draft 24 November 2022



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Abstract

This specification defines the MiniApp lifecycle events and the process to manage MiniApp and each page's lifecycle. Implementing this specification enables the user agent to manage the lifecycle events of both the global application lifecycle and the page lifecycle.

↑

→

Status of This Document

This section describes the status of this document at the time of its publication. A list of current W3C

W3C MiniApp Ecosystem

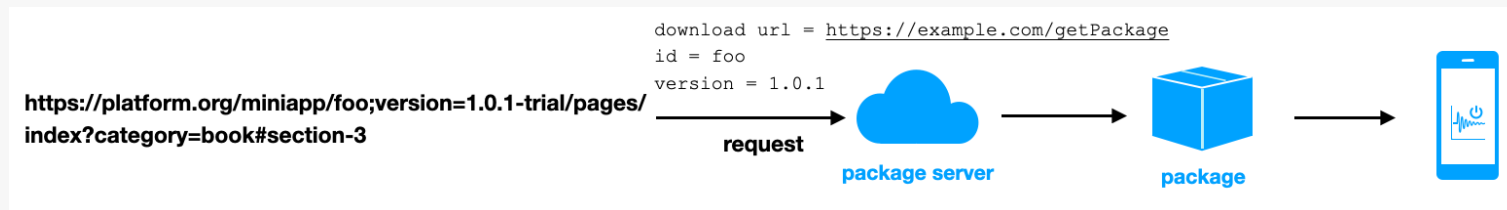
20

MINIAPP ADDRESSING

URIs for MiniApps

`platform://miniapp/foo;version=1.0.1/pages/index?k=v#bar`

`https://platform.org/miniapp/foo;version=1.0.1/pages/index?k=v#bar`



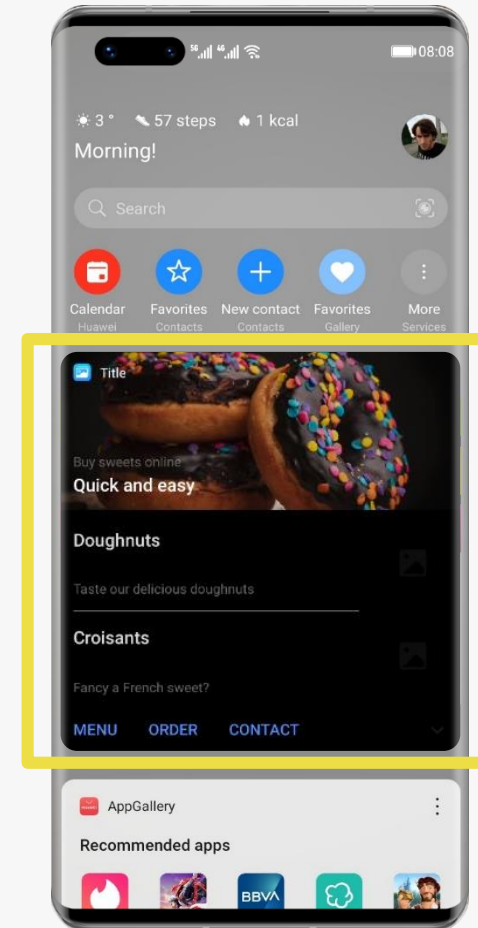
- Spec: <https://www.w3.org/TR/miniapp-addressing/>
- Repo: <https://github.com/w3c/miniapp-addressing>
- Status: WG Draft Note

REQUIREMENTS FOR MINIAPP WIDGETS

MiniApp special pages

Placed in a specific area in a device

- Spec: <https://www.w3.org/TR/miniapp-widget-req/>
- Repo: <https://github.com/w3c/miniapp-widget>
- Status: WG Note



MINIAPP IN IoT



MiniApps In IoT scenarios



- Spec: <https://www.w3.org/TR/miniapp-iot/>
- Repo: <https://github.com/w3c/miniapp-iot>
- Status: Draft Community Group Report

EXAMPLE

(Quick App sample code)

HTML Templates*

Reusable components

Data flow from the script

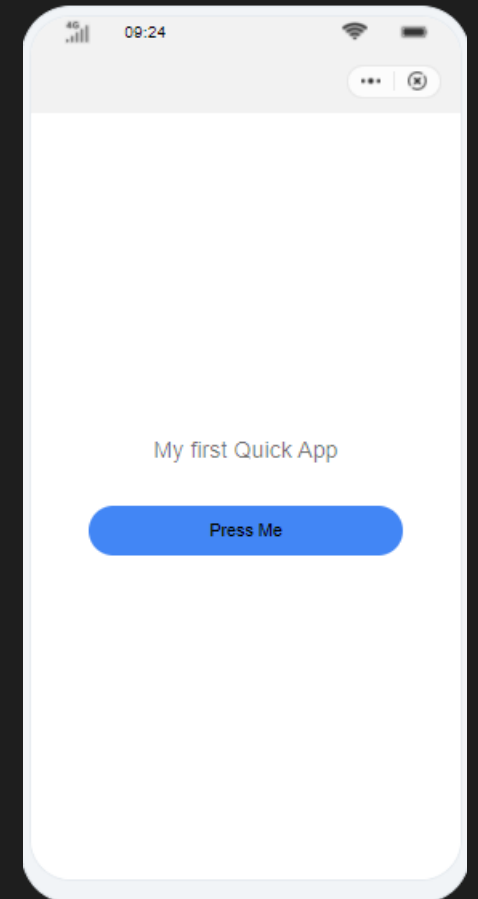
Event management

CSS profile

```
<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>
```



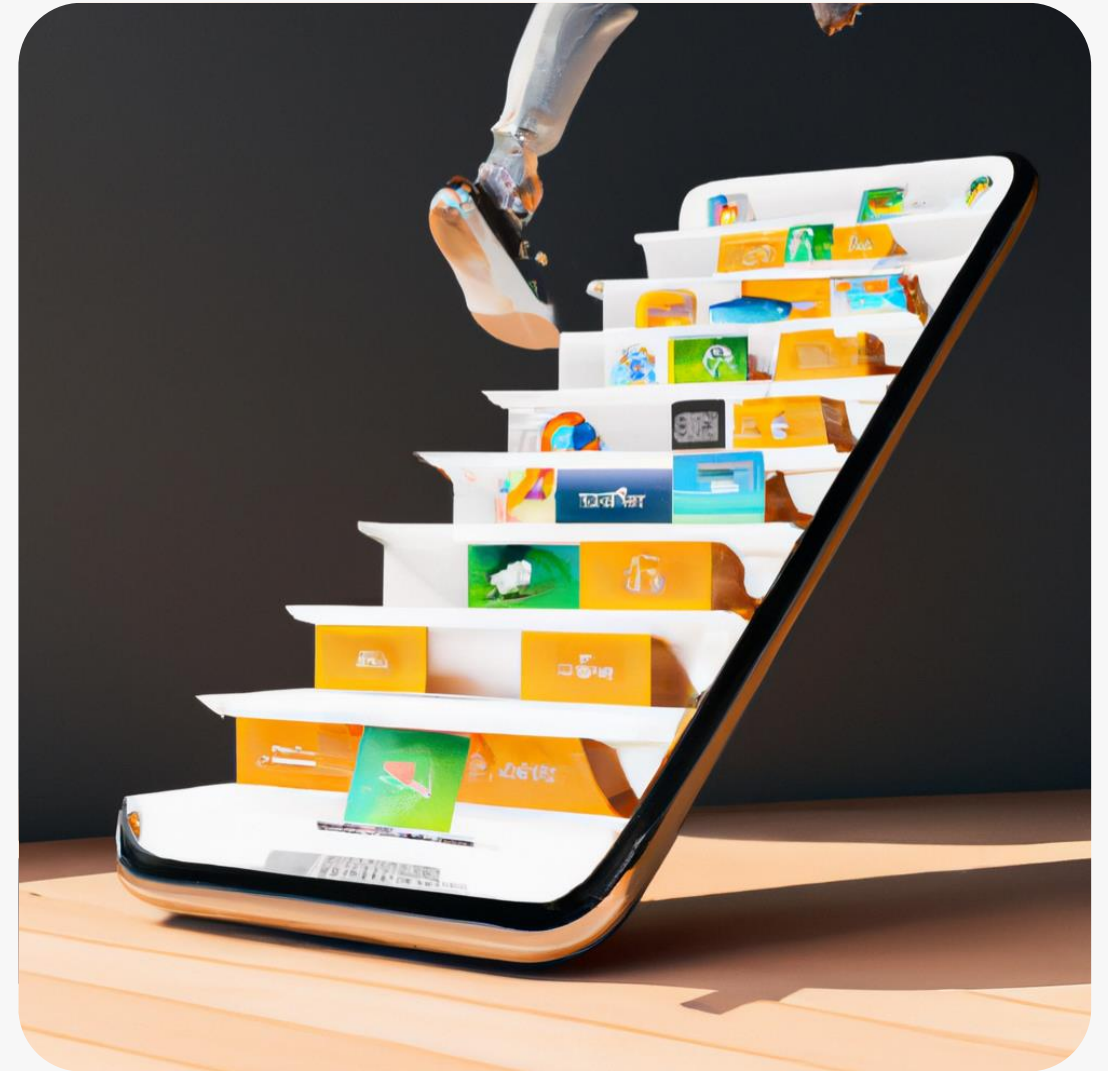
NEXT STEPS

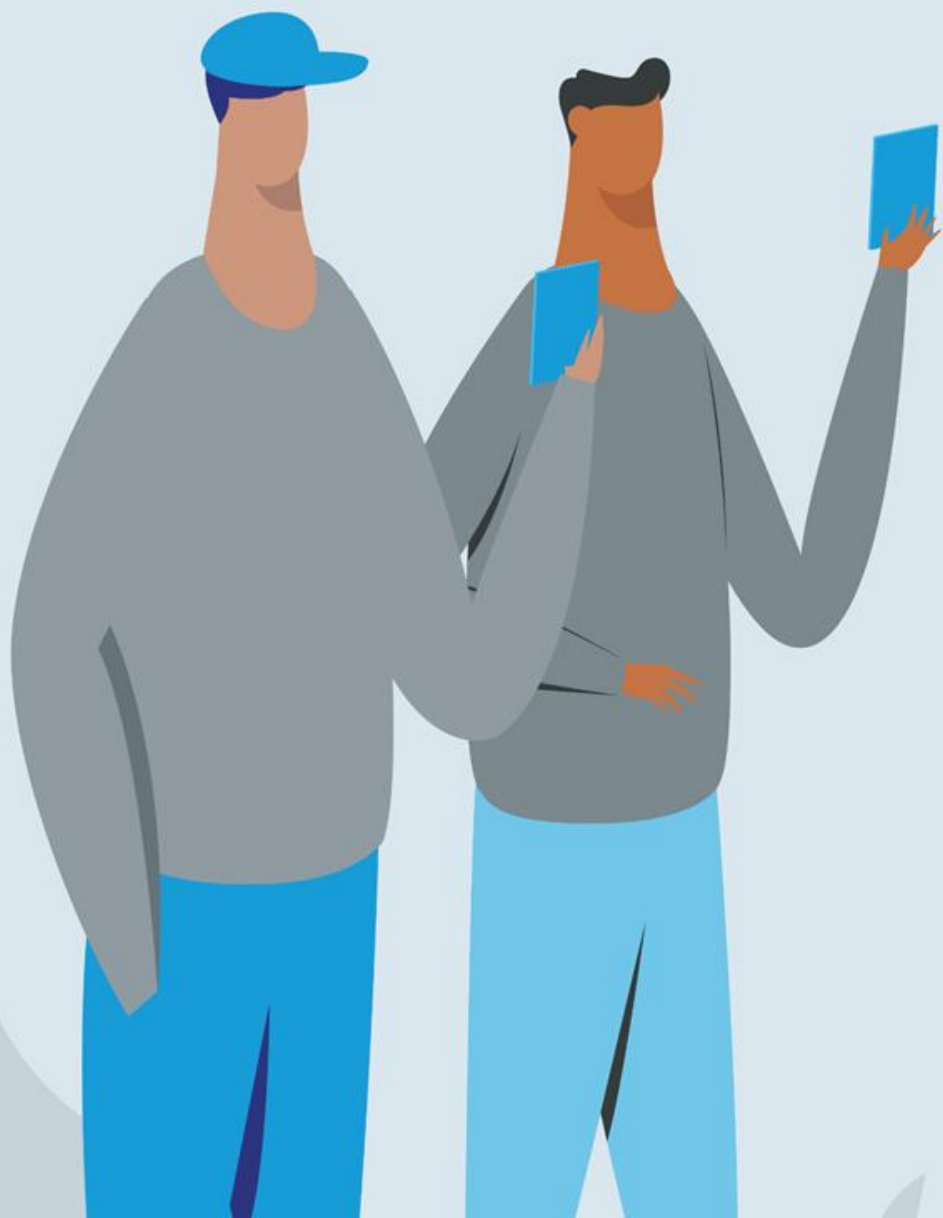
Alignment with the rest of W3C groups

Complete test suite

Validate specification with real implementations

New requirements: Components, APIs, IoT...





Thanks!

QUESTIONS?

Martin Alvarez (@espinr)

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W3C STANDARDS

Process and specification stages

