Mini Program

Quick App

Smart App

Mobile

Mini App Standardisation

Web

OS

Native App

PC

RECENT PROGRESS

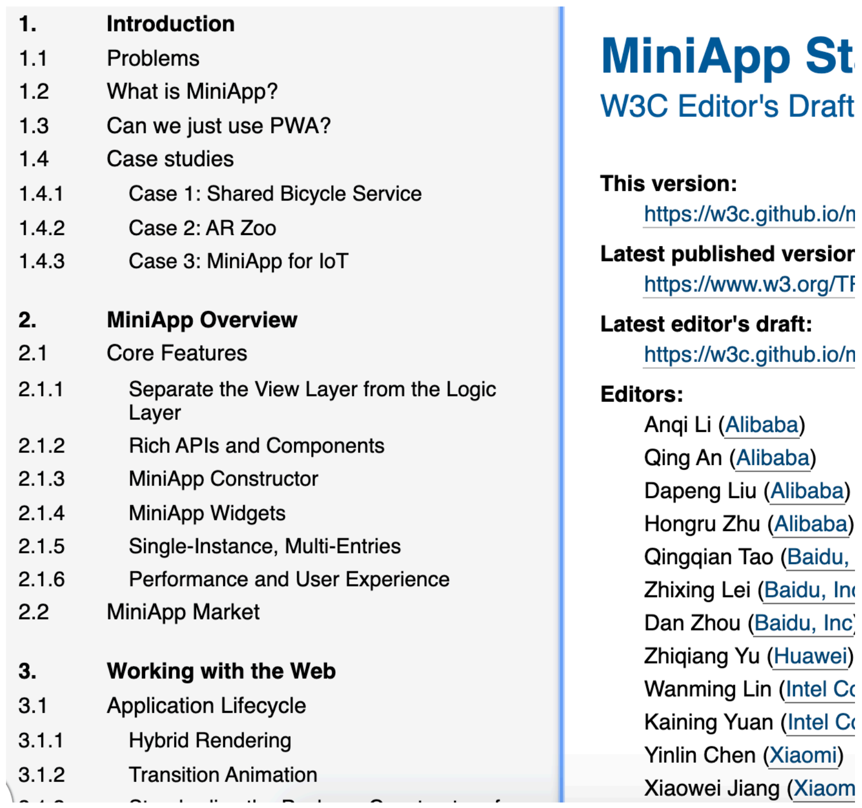
Mini App Standardisation White Paper published by Chinese Web IG!

-> https://www.w3.org/TR/mini-app-white-paper/

Contributors: Alibaba, Baidu, Xiaomi, Huawei, Intel, China Mobile,360, Uni-App, W3C Beihang…

Goal of the White Paper:

- To define Mini App and the relevant terminology;
- To introduce the core technologies of Mini App;
- To figure out what should be standardised;
- To propose the next steps in W3C.



MiniApp St

W3C Editor's Draft

This version:
https://w3c.github.io/n

Latest published versior
https://www.w3.org/TI

Latest editor's draft:
https://w3c.github.io/n

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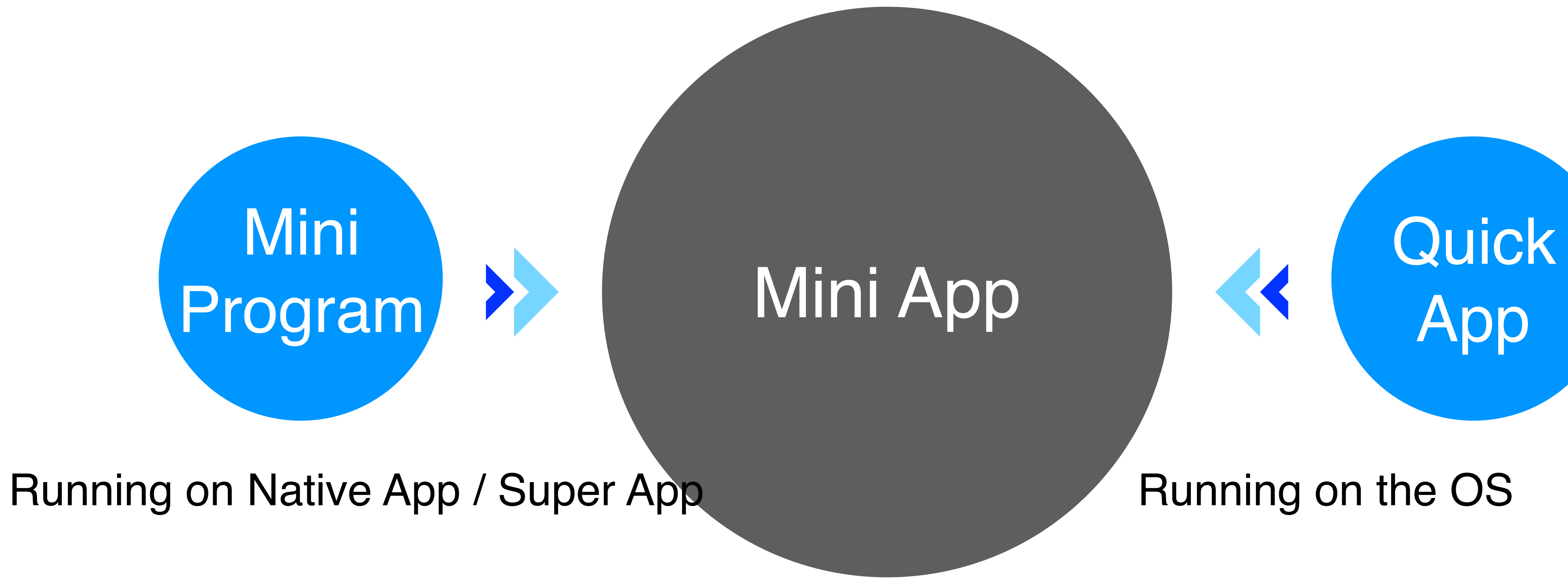
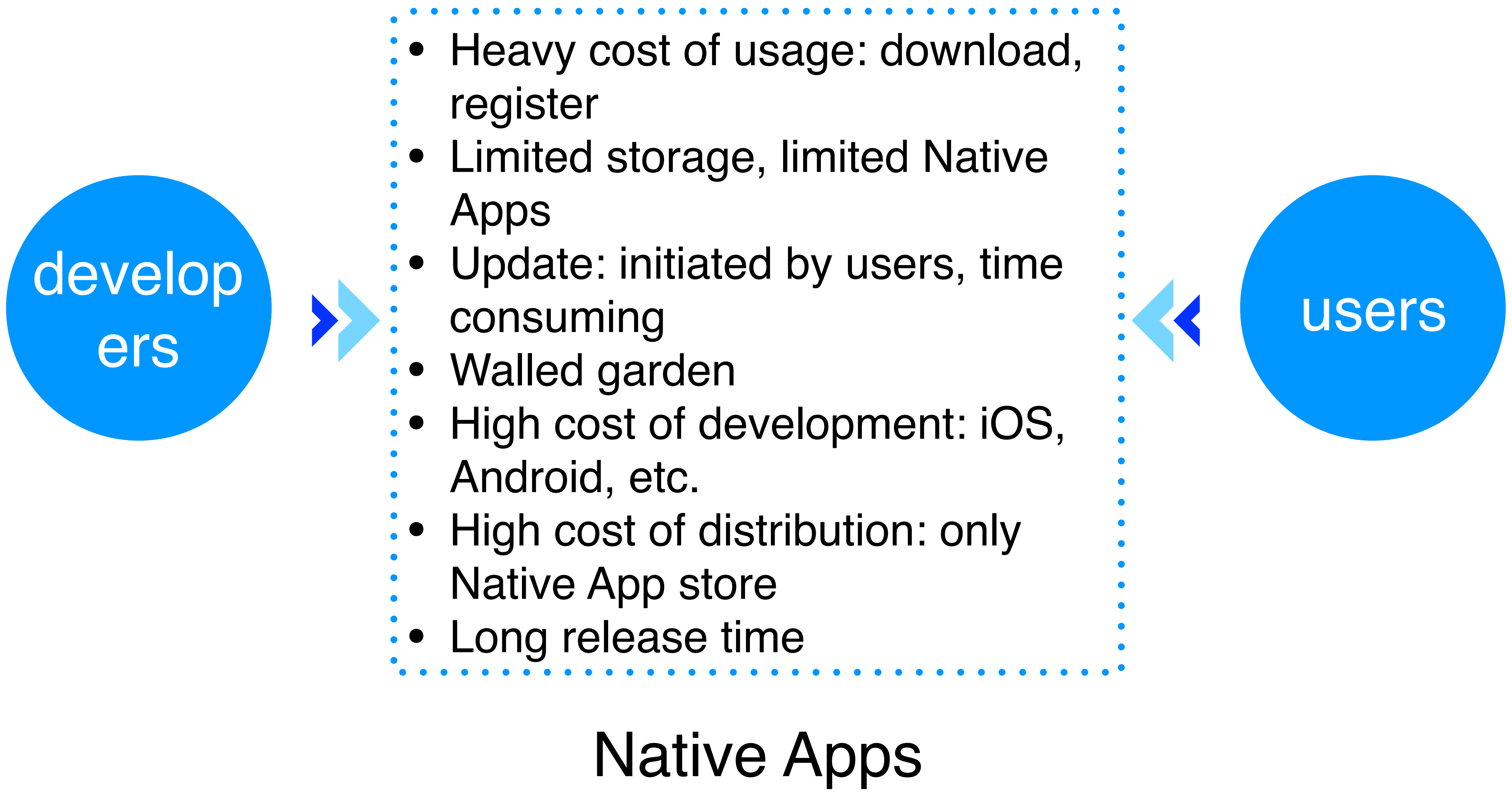
Mini App is everywhere



Mini App is efficient to bridge Native App and the Web:

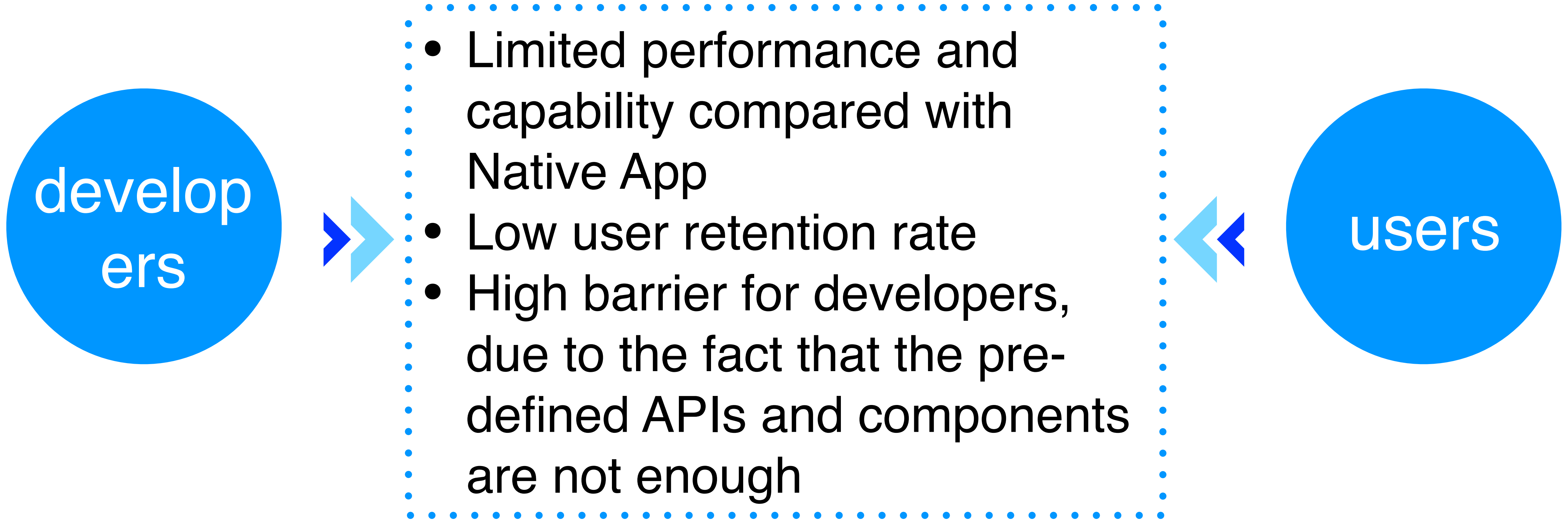
- Any Native App(including browsers) can be a runtime of Mini App.
- Any Native App can run a Mini App by install a SDK.

Mini App helps to solve problems like...



- Heavy cost of usage: download, register
- Limited storage, limited Native Apps
- Update: initiated by users, time consuming
- Walled garden
- High cost of development: iOS, Android, etc.
- High cost of distribution: only Native App store
- Long release time

Mini App helps to solve problems like...



- Limited performance and capability compared with Native App
- Low user retention rate
- High barrier for developers, due to the fact that the pre-defined APIs and components are not enough

the Web

What is Mini App?

MiniApp is a new format of mobile application, a hybrid solution which **relies on Web technologies** but also integrates with capabilities of Native Apps.

MiniApps got popular from their usage on a few super-apps, as it was born with a few characters that help to **fill the gap of the Web and the Native**.

- It's **free of installation**.
- **Multiple webviews** to improve performance.
- It provides a few mechanisms to get **access to OS capabilities** or data through the Native.
- The content is usually more **trustworthy** because the app needs to be **validated by the platform**.
- A miniapp can be distributed to multiple MiniApp platforms (the Web, a Native App, even the OS). These platforms also provide entry to the miniapp to ensure it can be easily discovered by the users.

CASE STUDY 1

Sharing Bicycle Service: Seamless Usage

1. User chooses the miniapp on a super-app that he/she already logined;
2. User scans the QR-code label attached on a shared bicycle within the superapp;
3. The super-app will automatically navigate to the shared bicycle miniapp and unlocks the bicycle instantly;
4. Upon arrival, user locks the bike on the miniapp;
5. Transaction completes, a message of the payment detail is sent to the user.

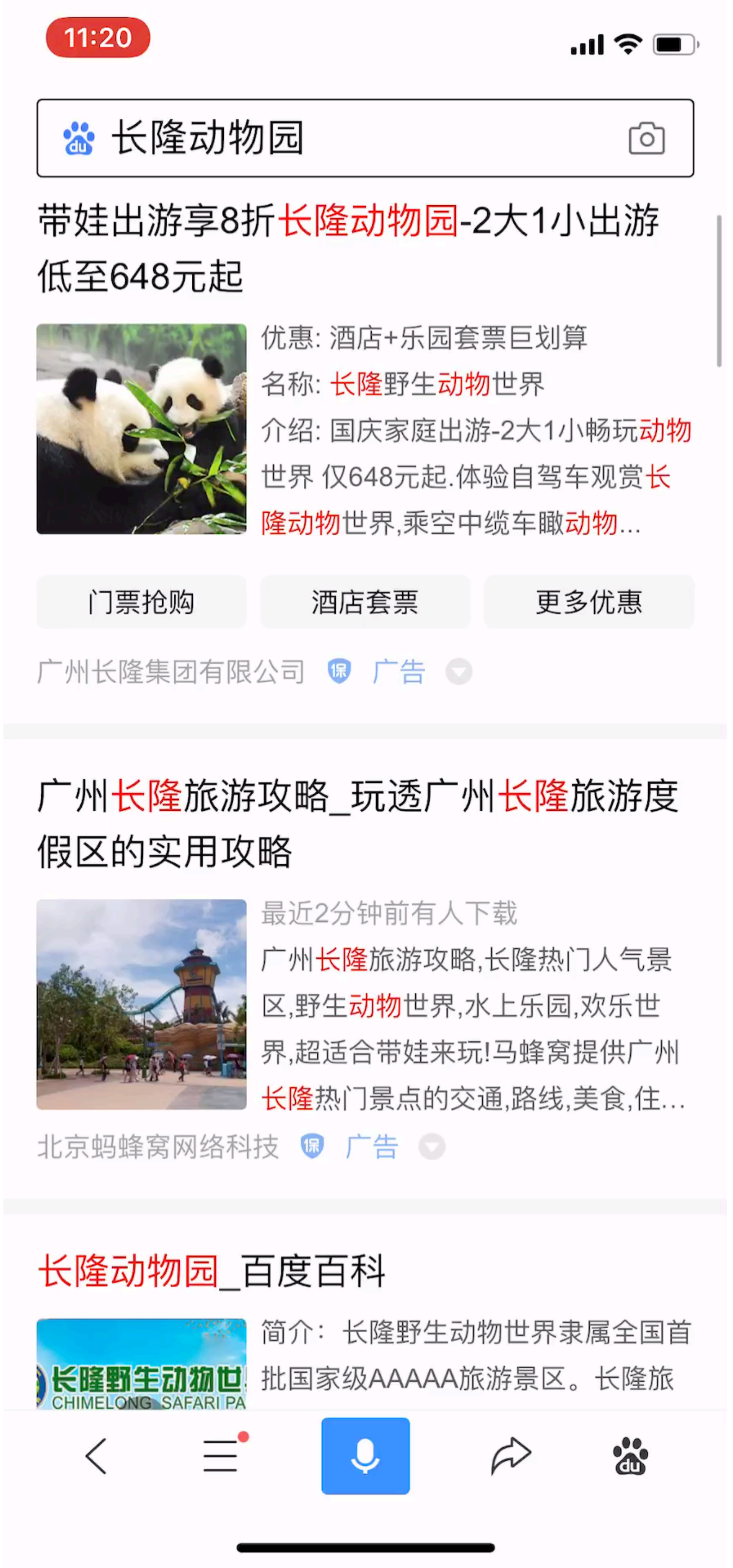
	Web	**Native**	**Mini App**
Download/ Install	No	Yes	No
Verified/ Trusted	No	Yes	Yes
Login/ Register	Yes	Yes	User permission
Payment	Send a payment request	Register a credit card or navigate to another App	Complete within the hosted Native App

CASE STUDY 2

AR Zoo(from **Dev prospective**): easier and faster **to adopt complex advanced feature**.

Developers can easily finish a AR Zoo by adding a few **components or APIs** that provide access to the native capabilities or advance features, f.ex., Image Recognition, AR 3D Animal models rendering, a speech API to for speech synthesis, AR navigation provided by the map SDK.

MiniApps can be discovered by the search engines, by the MiniApp store in the hosted-app or by QR-code.



11:20

长隆动物园

带娃出游享8折长隆动物园-2大1小出游低至648元起

优惠: 酒店+乐园套票巨划算
名称: 长隆野生动物世界
介绍: 国庆家庭出游-2大1小畅玩动物世界 仅648元起.体验自驾车观赏长隆动物世界,乘空中缆车瞰动物...

广州长隆集团有限公司 广告

广州长隆旅游攻略_玩透广州长隆旅游度假区的实用攻略

最近2分钟前有人下载
广州长隆旅游攻略,长隆热门人气景区,野生动物世界,水上乐园,欢乐世界,超适合带娃来玩!马蜂窝提供广州长隆热门景点的交通,路线,美食,住...

北京蚂蜂窝网络科技 广告

长隆动物园_百度百科

简介: 长隆野生动物世界隶属全国首批国家级AAAAA旅游景区。长隆旅

CASE STUDY 2

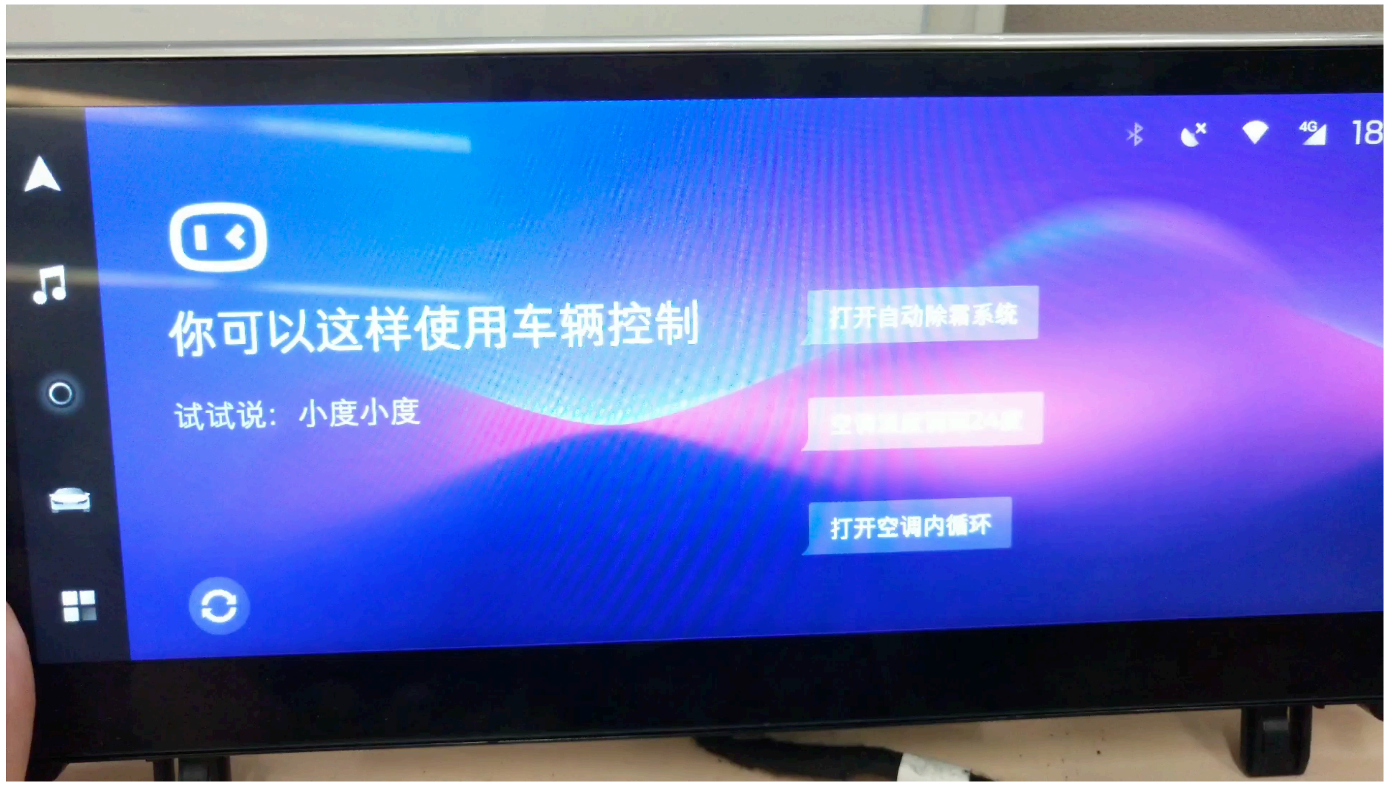
	Web	**Native**	**Mini App**
Discoverability	Search Engine	App Store	Multiple Host-App Scenarios, Search, Mini app store, QR
Verified/Trusted	Still exploring	By Native App stores	By host App platforms
Deploy/Reload	load/reload the webpage	installed / reinstalled	load/reload as it's using a JS engine
Programming Language	Web programming language	new/multi languages: iOS and Android at least	Web programming language
High-level APIs/ Components (AR, Image Recognition, etc.)	Very basic	Complex for web developers	Simple high level APIs and components

CASE STUDY 3

Mini App on IoT

- some MiniApps can be converted to adapt the **vehicle screen and system**;
- MiniApp vendors have built a few MiniApp platforms specially design for the vehicle system;
- this brings millions of Web developers to the **Automotive application ecosystem**.

User scenarios of Automotive MiniApps includes gas filling, car washing, Electronic Toll Collection, insurance, restaurant reservation, or entertainment.

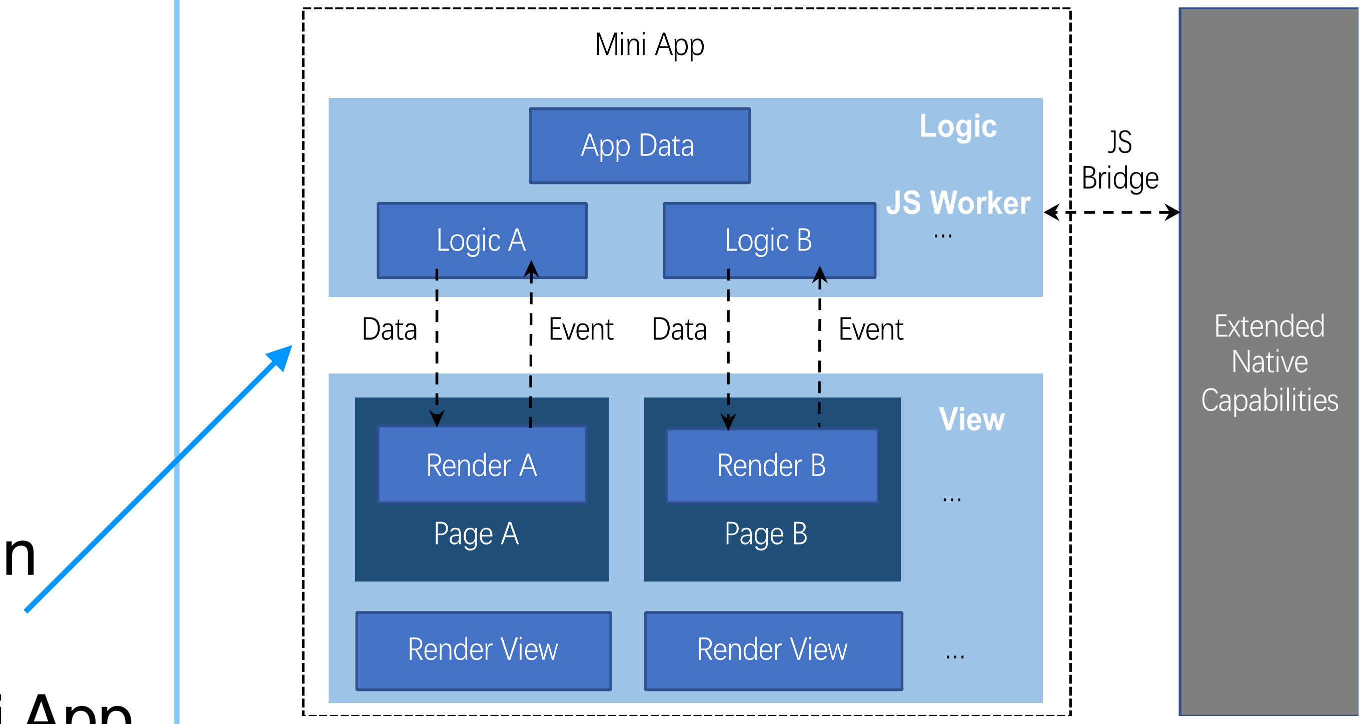


CORE FEATURES

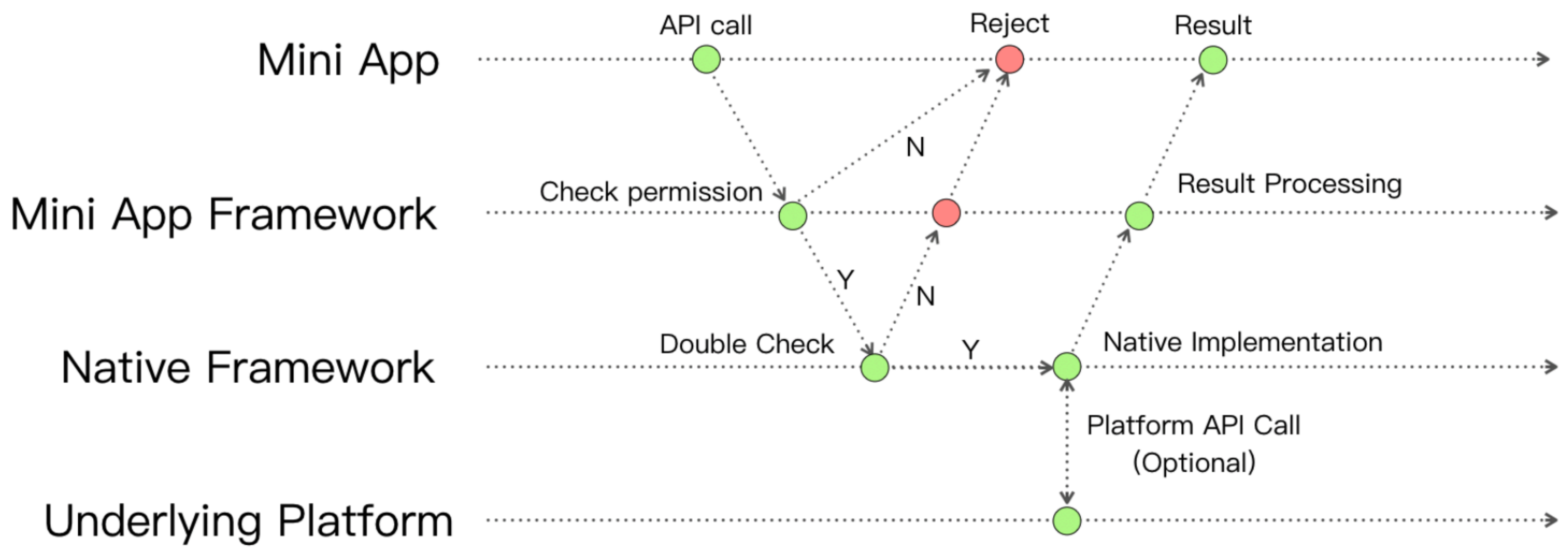
Separation of View and Logic

Multiple Render View + JS Worker + Native Capabilities

- Convenient data sharing and interaction among multiple Mini App pages
- Same context within a life circle of Mini App
- Prevent JS execution impacts or slows down the page rendering



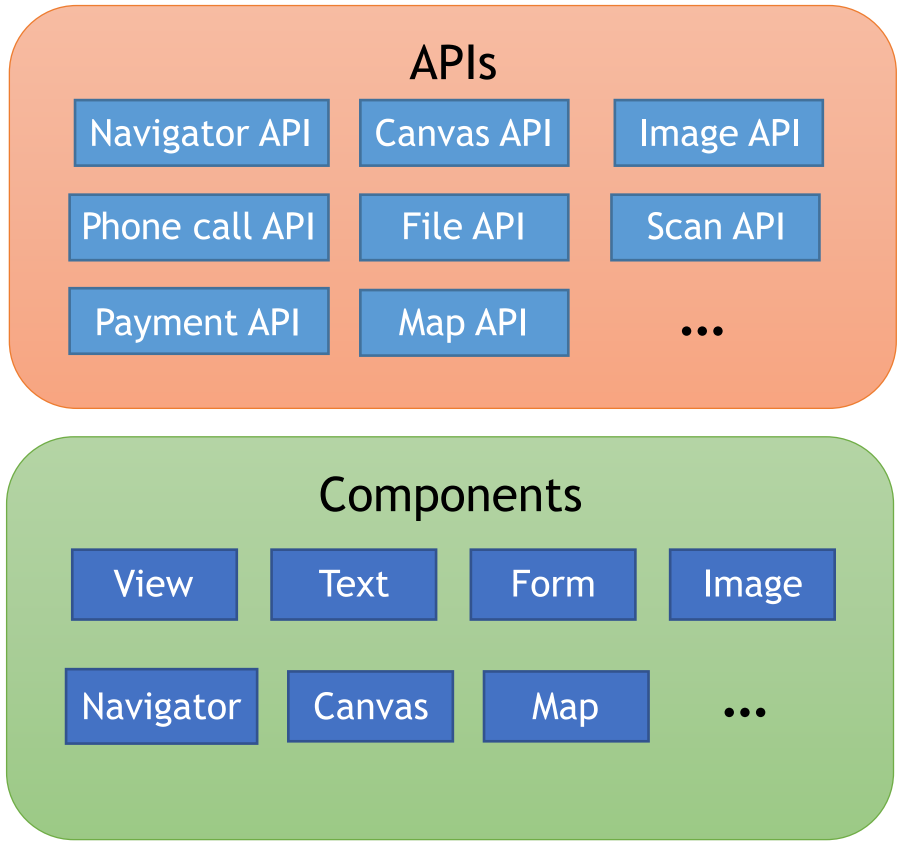
CORE FEATURES



Data Flow of Mini App when an API is called

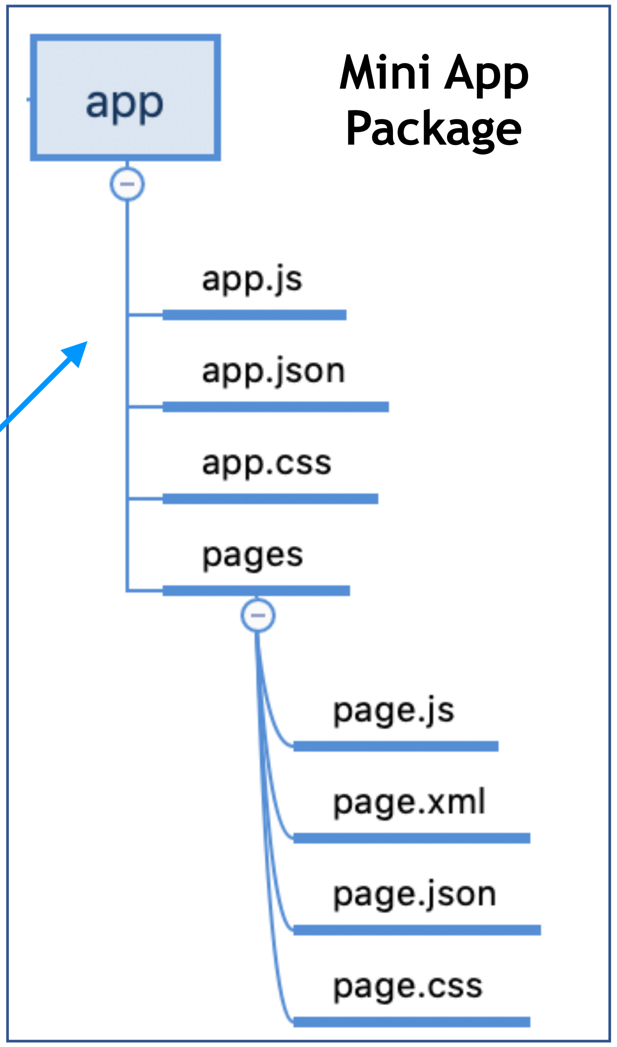
CORE FEATURES

Rich APIs and Components



Mini App Package Constructor

- One Set of app files
- Multiple sets of page files

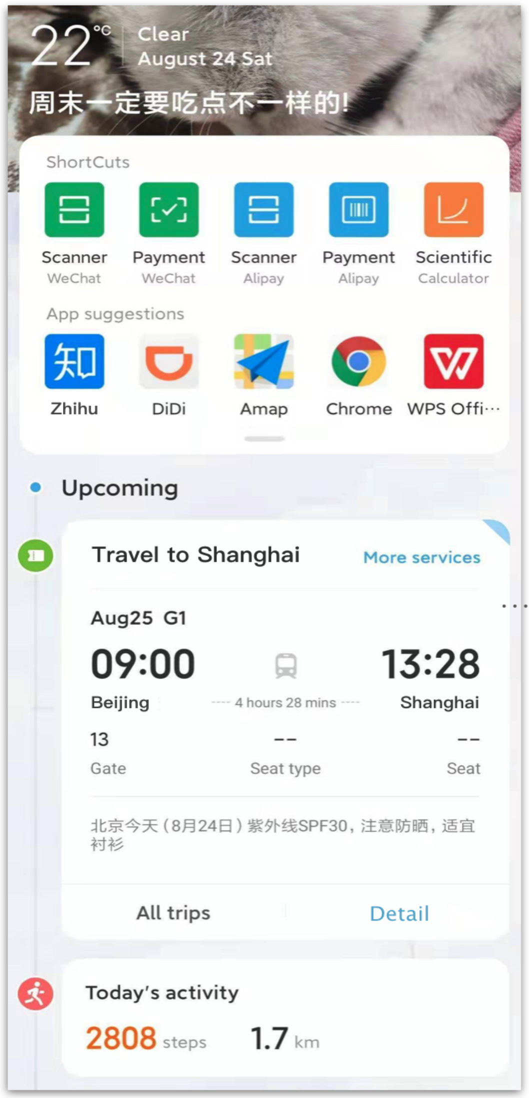


CORE FEATURES

Mini App Widgets

- Mini App can be displayed as information fragment — a Mini App widget
- E.g., the Mini App widget shows the train's latest status. User can click on this widget and jump to Mini App page for more detailed information.

Smart Assistant



22°C Clear
August 24 Sat
周末一定要吃点不一样的!

ShortCuts

Scanner WeChat · Payment WeChat · Scanner Alipay · Payment Alipay · Scientific Calculator

App suggestions

Zhihu · DiDi · Amap · Chrome · WPS Offi…

Upcoming

Travel to Shanghai — More services

Aug25 G1

09:00 Beijing — 4 hours 28 mins — 13:28 Shanghai

13 Gate · -- Seat type · -- Seat

北京今天（8月24日）紫外线SPF30，注意防晒，适宜衬衫

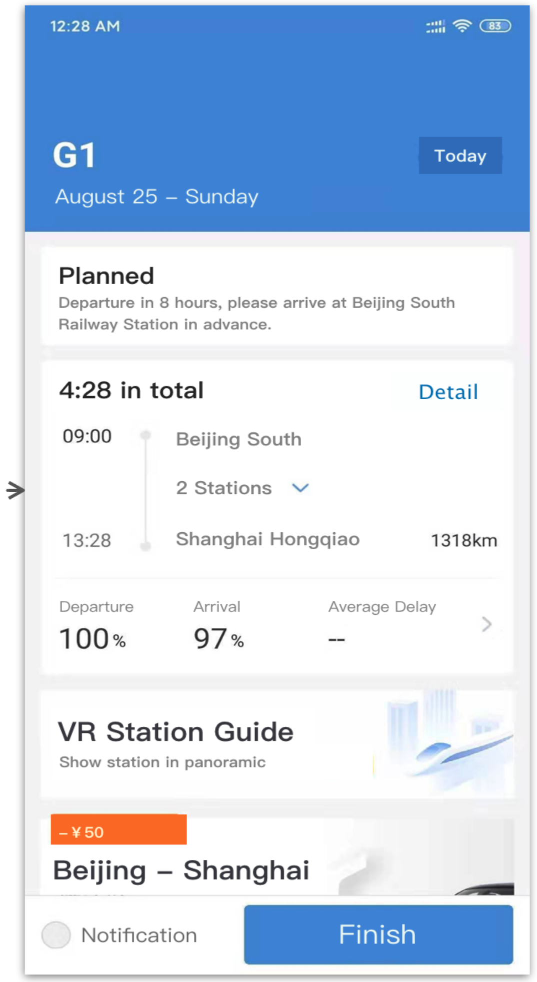
All trips · Detail

Today's activity

2808 steps · 1.7 km

Open mini app

CHSR manager Mini App



12:28 AM

G1 — Today
August 25 – Sunday

Planned
Departure in 8 hours, please arrive at Beijing South Railway Station in advance.

4:28 in total — Detail

09:00 Beijing South
2 Stations
13:28 Shanghai Hongqiao 1318km

Departure 100% · Arrival 97% · Average Delay --

VR Station Guide
Show station in panoramic

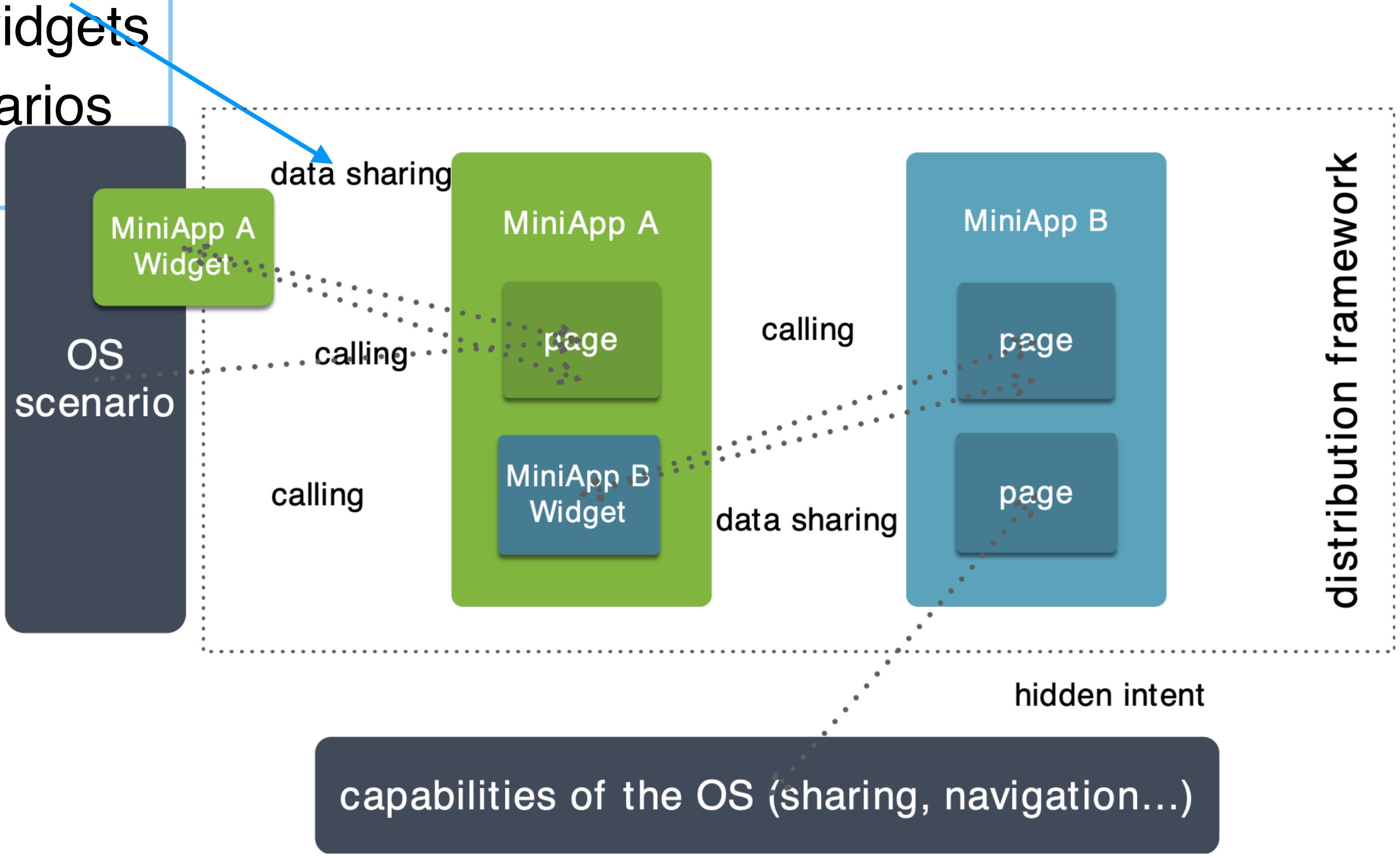
– ¥ 50
Beijing – Shanghai

Notification · Finish

CORE FEATURES

Mini App Widgets

- standardizing calling (mini apps)
- atomized combination widgets
- data sharing cross scenarios



SECURITY AND PRIVACY

Mini App utilises HTTPs to support secure connection.
Mini Apps within same host environment are independent with each other

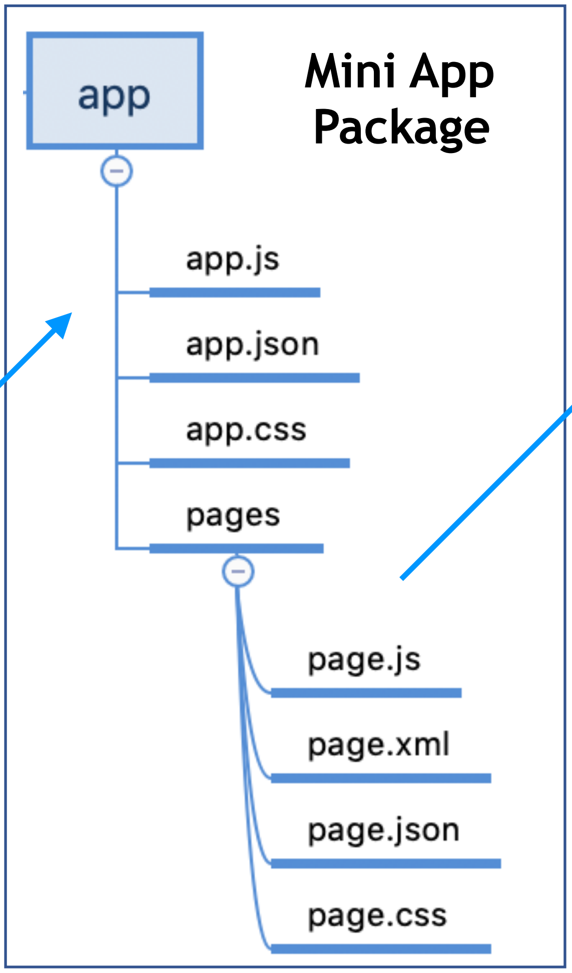
S&P consideration	Function
default(no extra action needed)	Page sharing, clipboard, vibration, compass, motion sensors, map, screen brightness, screen capture, battery
permission on first-time usage	Geolocation, camera(qr code), network status, Bluetooth, NFC
permission on every usage	Contacts, file-apis, add to home screen, photo picker, phone call
Validate with token	Push
Callback/messaging	Password-free Payment
request password	Page sharing, clipboard, vibration, compass, motion sensors, map, Payment

THINGS WE WANT TO STANDARDISE

Mini App Package Constructor

a packaged (compressed) collection of files

- Download once
- Load data instead of load page



Goal: a standardised way to describe Mini App package

- Define package's structure/ contents
- Specify how to create the package
- Specify how to parse the package

THINGS WE WANT TO STANDARDISE

URI Scheme

Goal: a standardised URI scheme to access Mini App or Mini App page is needed

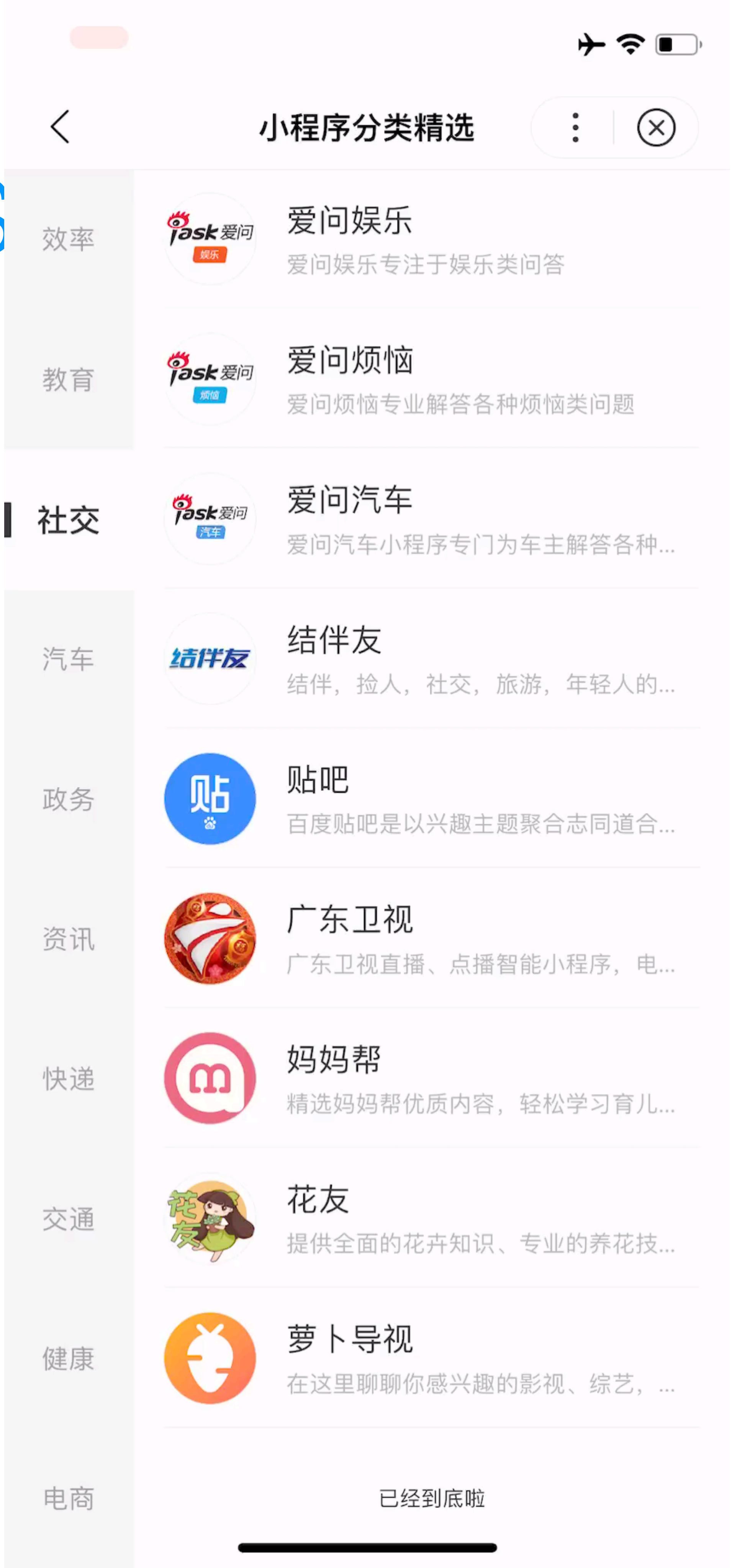
- Navigate between Mini Apps
- Identification of page inside Mini App
- Define an access protocol, Mini App URI, Mini App page URI

THINGS WE WANT TO S

Transition Animation during Mini App page switching

Goal: To make Mini App smoother

Define:
- page transition type(Replace current page or stack on top)
- Animation(type & duration) between pages (if any)



爱问娱乐
爱问娱乐专注于娱乐类问答

爱问烦恼
爱问烦恼专业解答各种烦恼类问题

爱问汽车
爱问汽车小程序专门为车主解答各种...

结伴友
结伴，捡人，社交，旅游，年轻人的...

贴吧
百度贴吧是以兴趣主题聚合志同道合...

广东卫视
广东卫视直播、点播智能小程序，电...

妈妈帮
精选妈妈帮优质内容，轻松学习育儿...

花友
提供全面的花卉知识、专业的养花技...

萝卜导视
在这里聊聊你感兴趣的影视、综艺，...

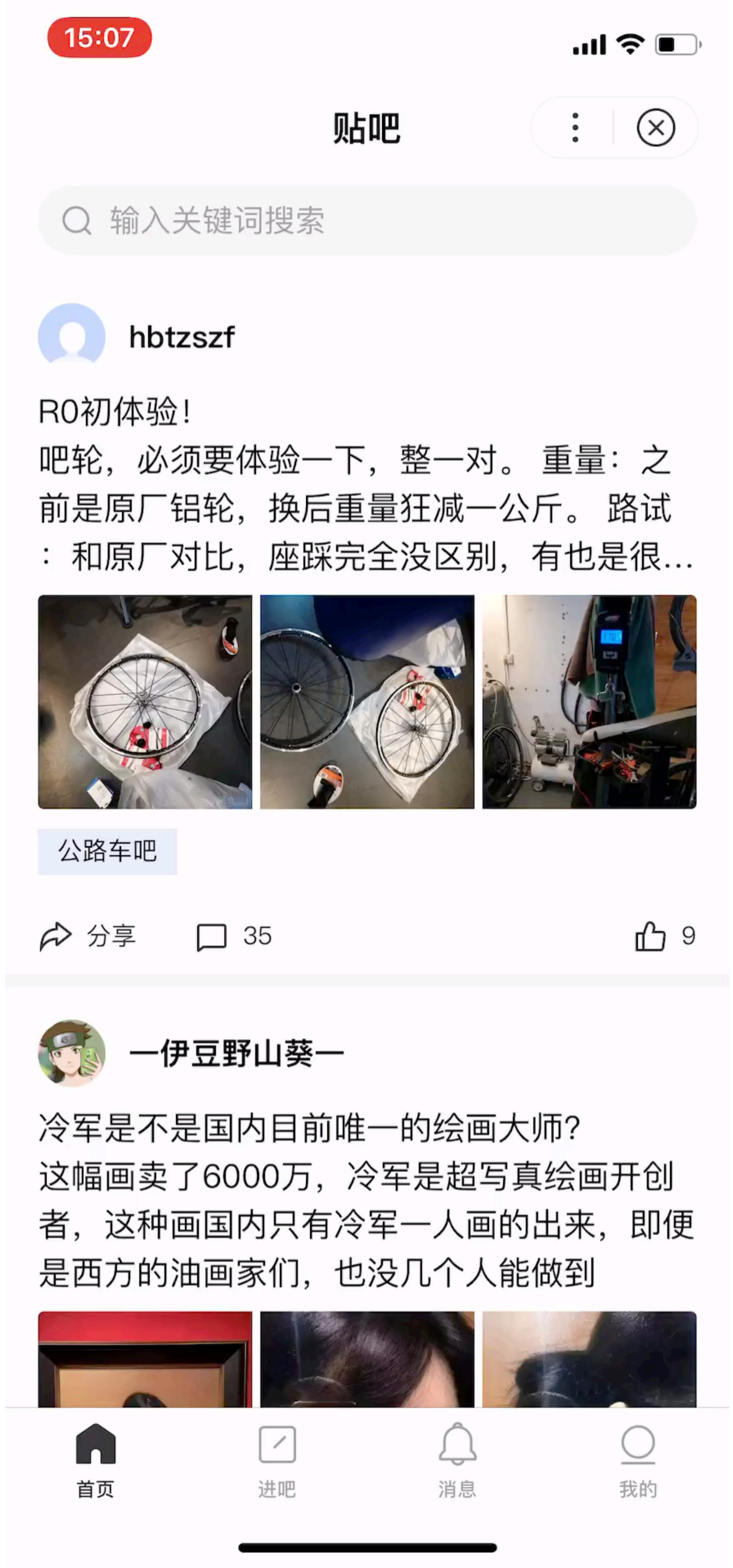
已经到底啦

THINGS WE WANT T E

Pull down refresh

Goal: Refresh page state by gesture

Define: Pull-down-refresh component


15:07

贴吧

输入关键词搜索

hbtzszf

R0初体验!
吧轮，必须要体验一下，整一对。 重量：之前是原厂铝轮，换后重量狂减一公斤。 路试：和原厂对比，座踩完全没区别，有也是很...

公路车吧

分享 35 9

一伊豆野山葵一

冷军是不是国内目前唯一的绘画大师?
这幅画卖了6000万，冷军是超写真绘画开创者，这种画国内只有冷军一人画的出来，即便是西方的油画家们，也没几个人能做到

首页 进吧 消息 我的

THINGS WE WANT TO STANDARDISE

Lifecycle Events in Mini App

Goal: Broadcasting Mini App states change for developer (e.g., update remote data)

Define: Life cycle events: App show/hide, page show/hide

THINGS WE WANT TO STANDARDISE

Scrollview component

Goal: Give developer a high level component to handle scroll scenario. Develop can achieve more accurate scroll events

Define:

- scrollview component
- properties/event such as bindscrolltoupper/lower

THINGS WE WANT TO STANDARDISE

Mini App Widgets

Goal: Interact before entering Mini App. Widgets are implemented by Mini App

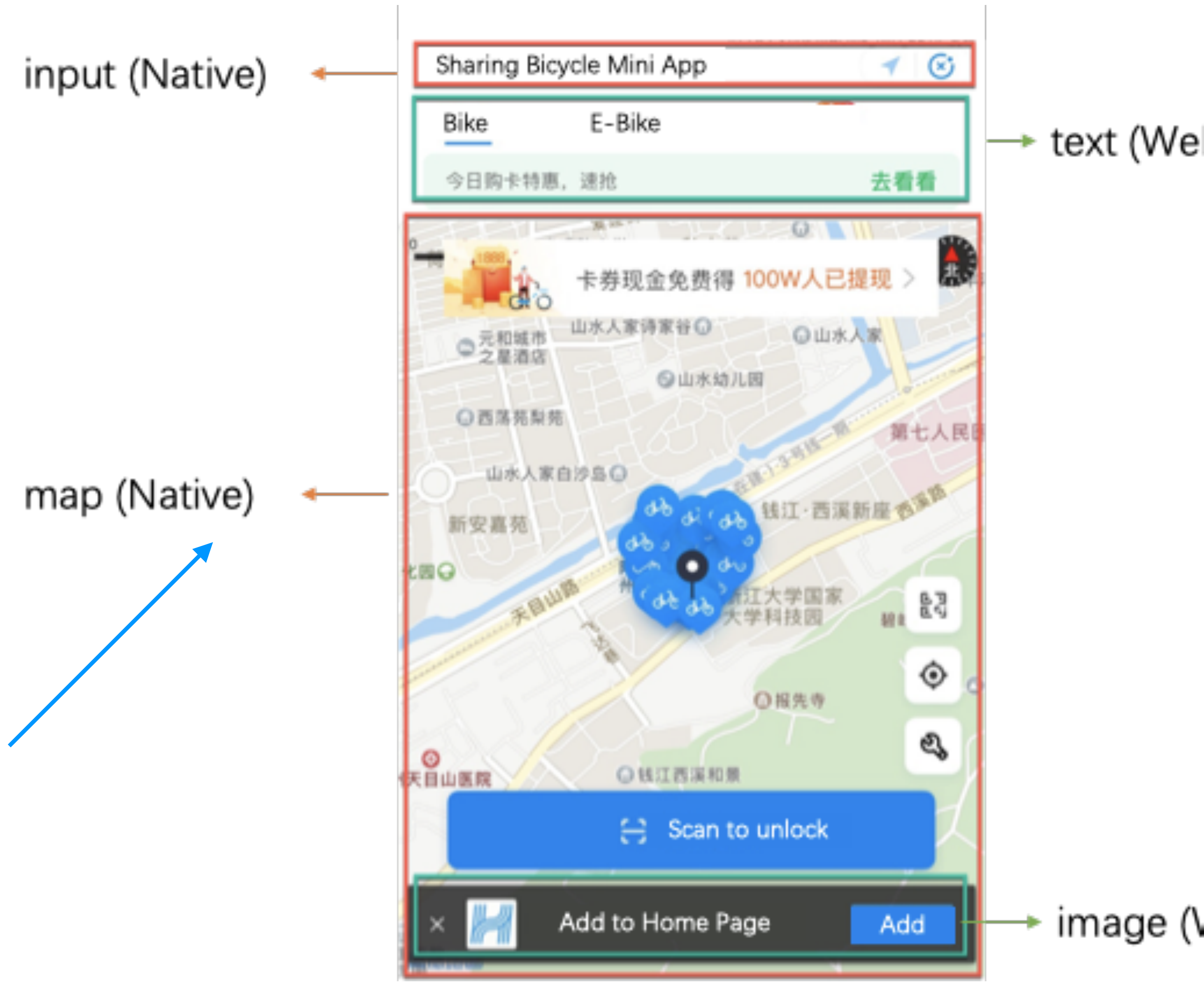
Define:

- Display widgets within a host environment
- Access local or remote data
- Abilities to interact with user

THINGS WE WANT TO STANDARDISE

Native Rendering Component

Goal: Mini App needs a standardised API or component to integrate native rendering result into Web rendering result



THINGS WE WANT TO STANDARDISE

Other ideas

- Face Tracking
- Hand Gesture Tracking
- 3D Model Element
- Low level AR APIs based on ARCore and ARKit

NEXT STEP IN W3C

Explore innovation of user agent and enrich the Web

- Set up a specific group
  - Coordinate Mini App related standardisation in W3C as well as to collaborate with other related W3C groups
  - Develop Mini App specs stack
    - Package constructor
    - Mini App URI scheme
    - Transition Animation
    - Native Rendering Component
    - Pull down refresh
    - …
- Horizontal review (security, privacy, i18n and a11y)

Mini Program

Quick App

Smart App

Mobile

Thank You!

Web

OS

Native App

PC

APPENDIX: MINI APP AND PWA

		Mini App	PWA
Difference	**Target**	Leverage Web technologies in non-browser environment	Enhance Web App so that they could have performance and user
	Host environment	Non-browser: Native App, OS, etc.	Browser
	Solution	Hybrid: Web + Native + OS	Web
	Trust	Handled by host App platform, so some APIs that are not supported by	Limited, still exploring
Commona lity	**Some standard requirements**	Such as native integration, access to native capabilitie s and better UX	