

Web 开发的现在、过去和未来

The Present, Past, and Future of Web Development

dexterityy @ Strikingly

Agenda

1. (现在) 和 2000 个 App 共同生活是什么感受
2. (过去) Web 开发的黑历史
3. (未来) 三个新时代带来趋势的大幅加速
4. (现在) Web 走到了哪里
5. (未来) 新分工和『现代 web 开发』

介绍我自己



dexteryy / 杨扬

- Strikingly 的 JS 工程师
- 11 年前是 TRPG 游戏网站站长、美漫汉化组创始人和 web 设计师
- 此后一直是 JS hacker 和 web app 开发者（开发 + 设计 + 产品 + 运营）
- 之前先后在土豆、豆瓣、Flipboard 开发 JS 基础设施和创新产品
- 努力推动 JS 技术和 web 技术的演进：



2010.9

THE NEW WAY TO WATCH TV p.138

THE COOLEST GADGET PROTOTYPES OF ALL TIME! p.128

THE MOST TOXIC TOWN IN AMERICA p.152

WIRED

The
Web is
dead.

WHAT
HAPPENED

BY CHRIS ANDERSON

AND
WHY

BY MICHAEL HOLFF

</www> | Sep 2010

Mobile Web

Mobile App

vs



和 2000 个 app 共同生活是什么感受



和 2000 个 app 共同生活是什么感受



如何降低认知负荷 (Cognitive load) ?

怎样快速找到所需的 App?

林奈分类学

Carolus Linnaeus and Modern Taxonomy

Domains
Kingdom
Phylum
Class
Order
Family
Genus
Species

- Plantae
- Fungi
- Animalia
- Protista
- ~~Monera~~
- ~~Eubacteria~~
- ~~Archaea~~



taxa = group
general
taxon = taxon

App 分类学

个人



生活



消费



财富



效率/创造1



App 分类学

个人

生活

消费

财富

效率/创造1

时间管理、日程事件、
环境监测

健康、健身、医疗

物联网

物联网

交通出行

旅行

旅行攻略指南

场所、活动、影院、展览

同城、住宅

饮食、到家

商城、海淘、二手、
品牌、家居、车

导购

数码、新应用、新产
品、用户社区

财经资讯

股权投资、基金投资、
债券投资

支付、信贷、消费、
银行、保险、电信

个人数据、个人知识库、
生产力、记录、编辑、
图表、写作、翻译

创建

设计、创意、拍摄

连接

广义
浏览器

启动
查找

工具

个人



生活



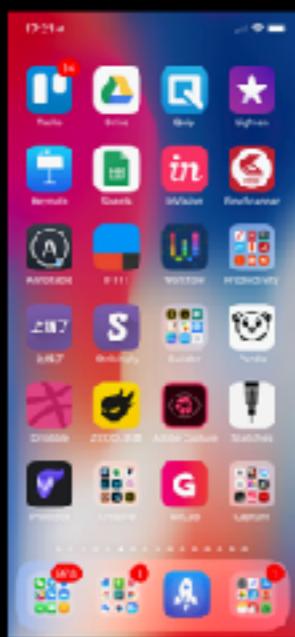
消费



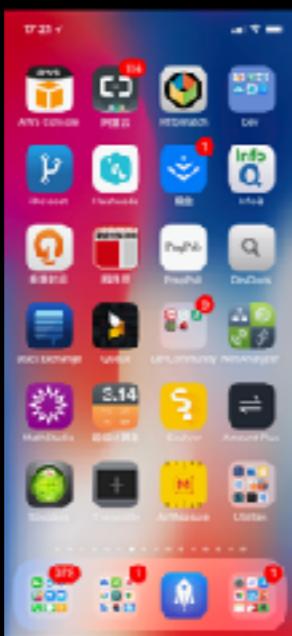
财富



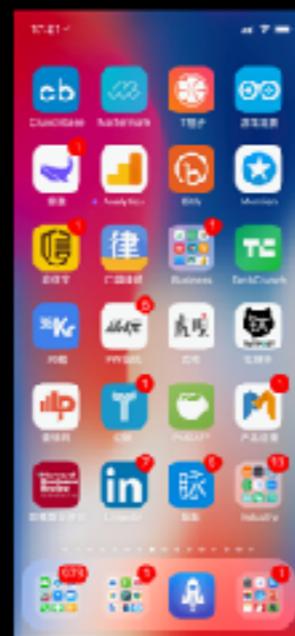
效率/创造1



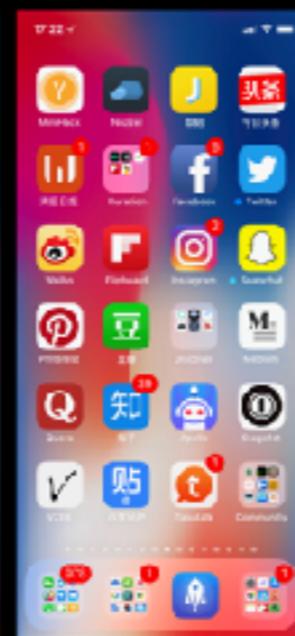
效率/创造2



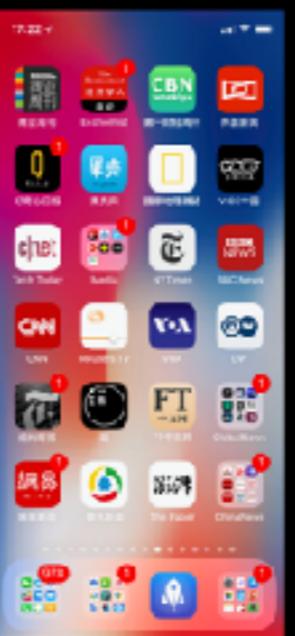
创业



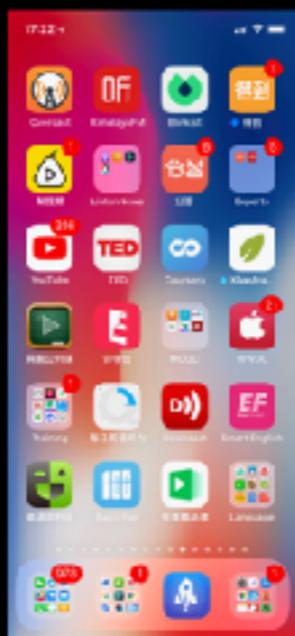
信息



媒体



学习



资料



视听娱乐



互动娱乐



游戏1



游戏2



个人



生活



消费



财富



效率/创造1



效率/创造2



创业



信息



媒体



学习



资料



视听娱乐



互动娱乐

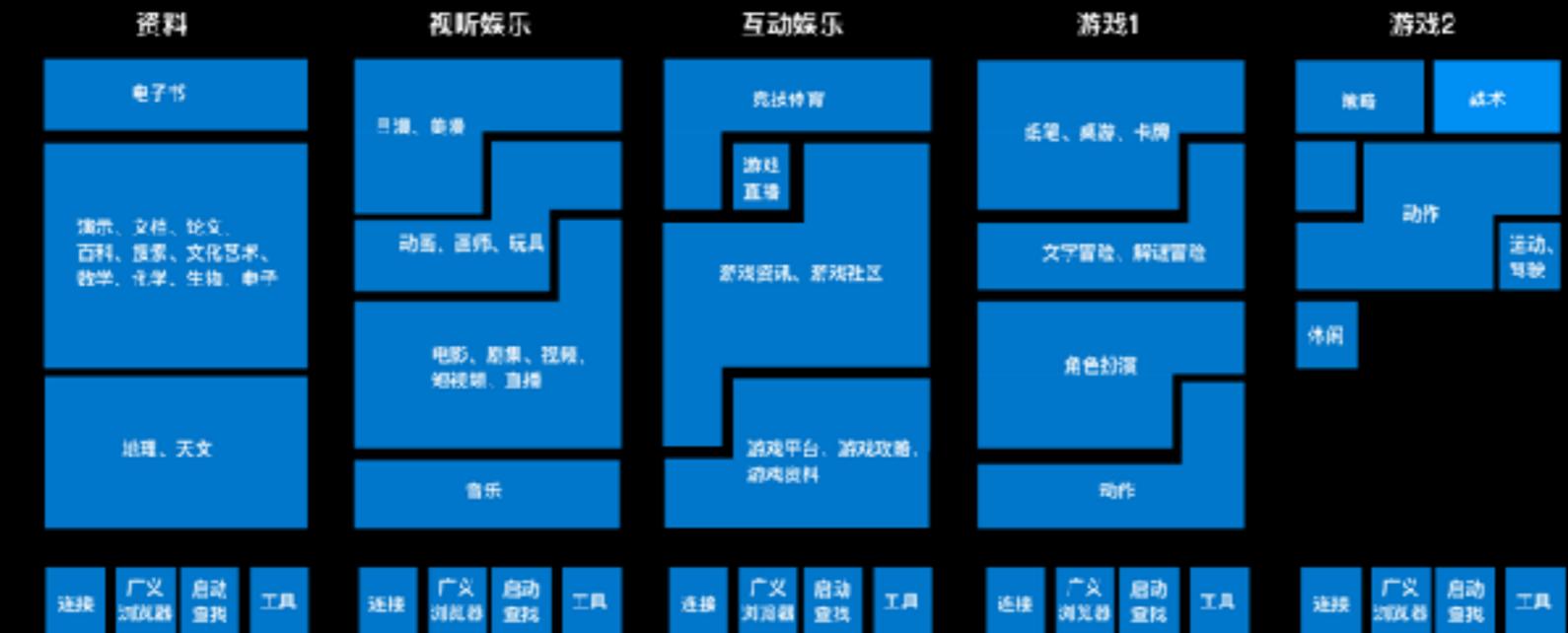
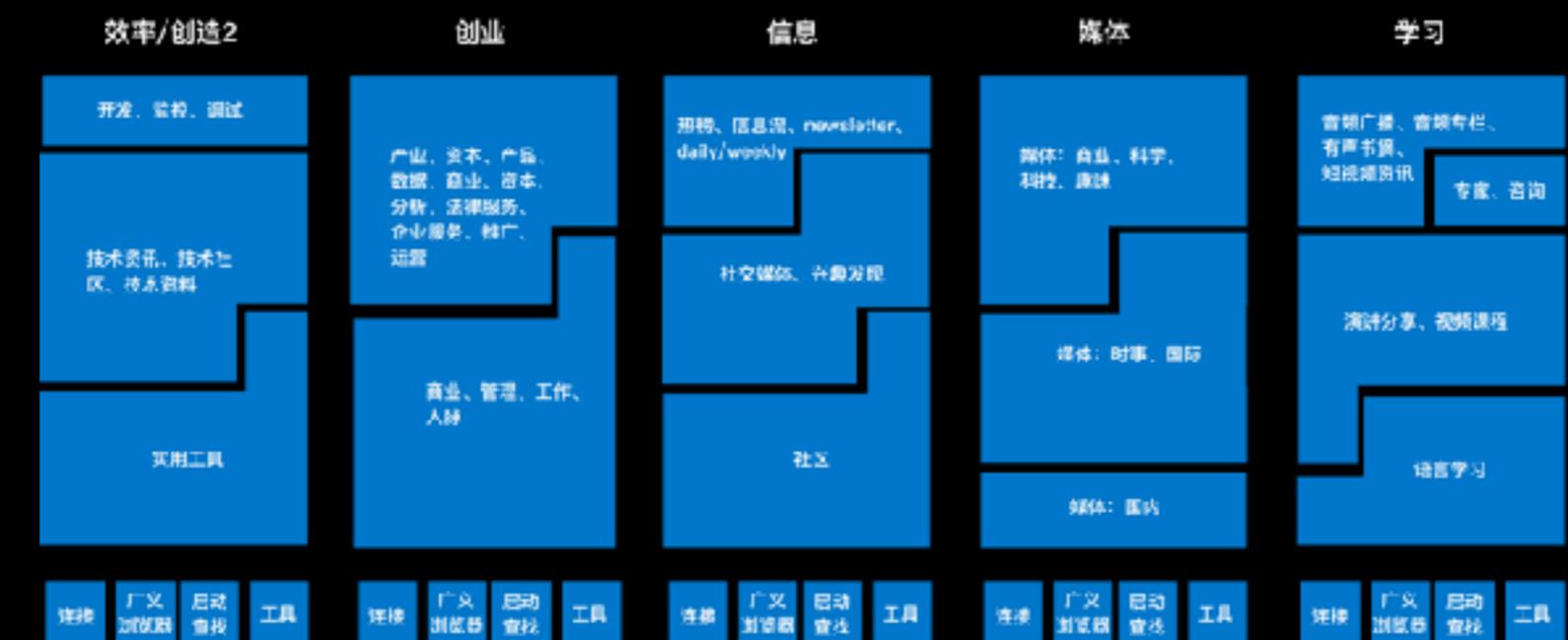
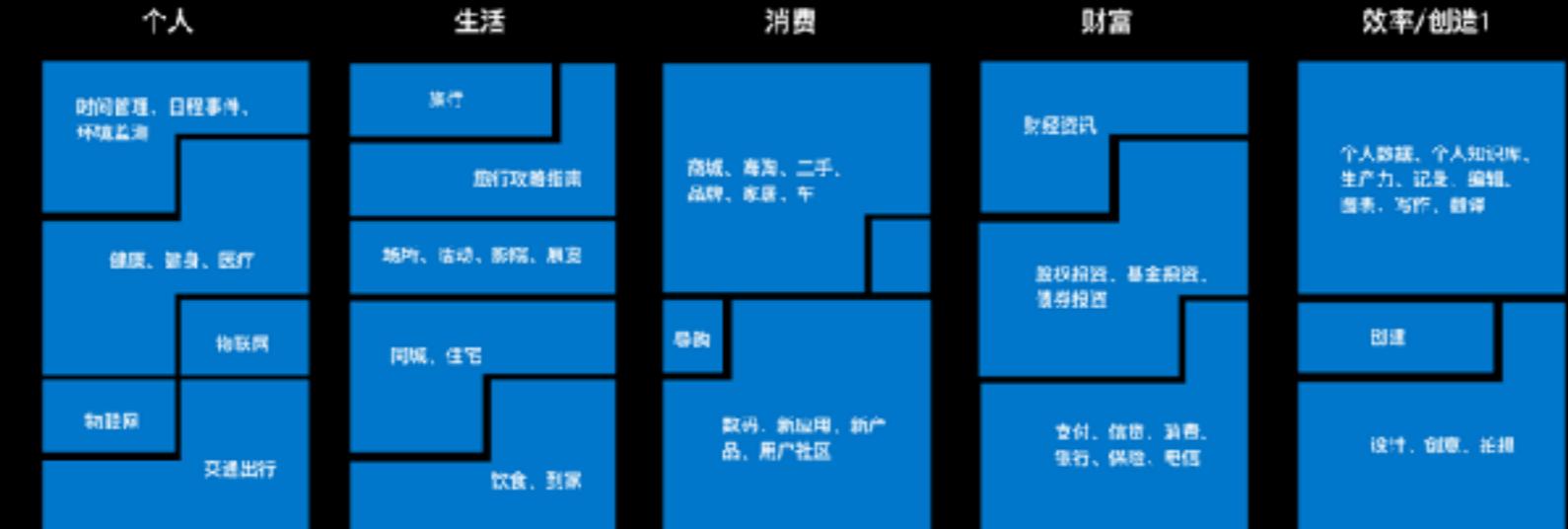


游戏1

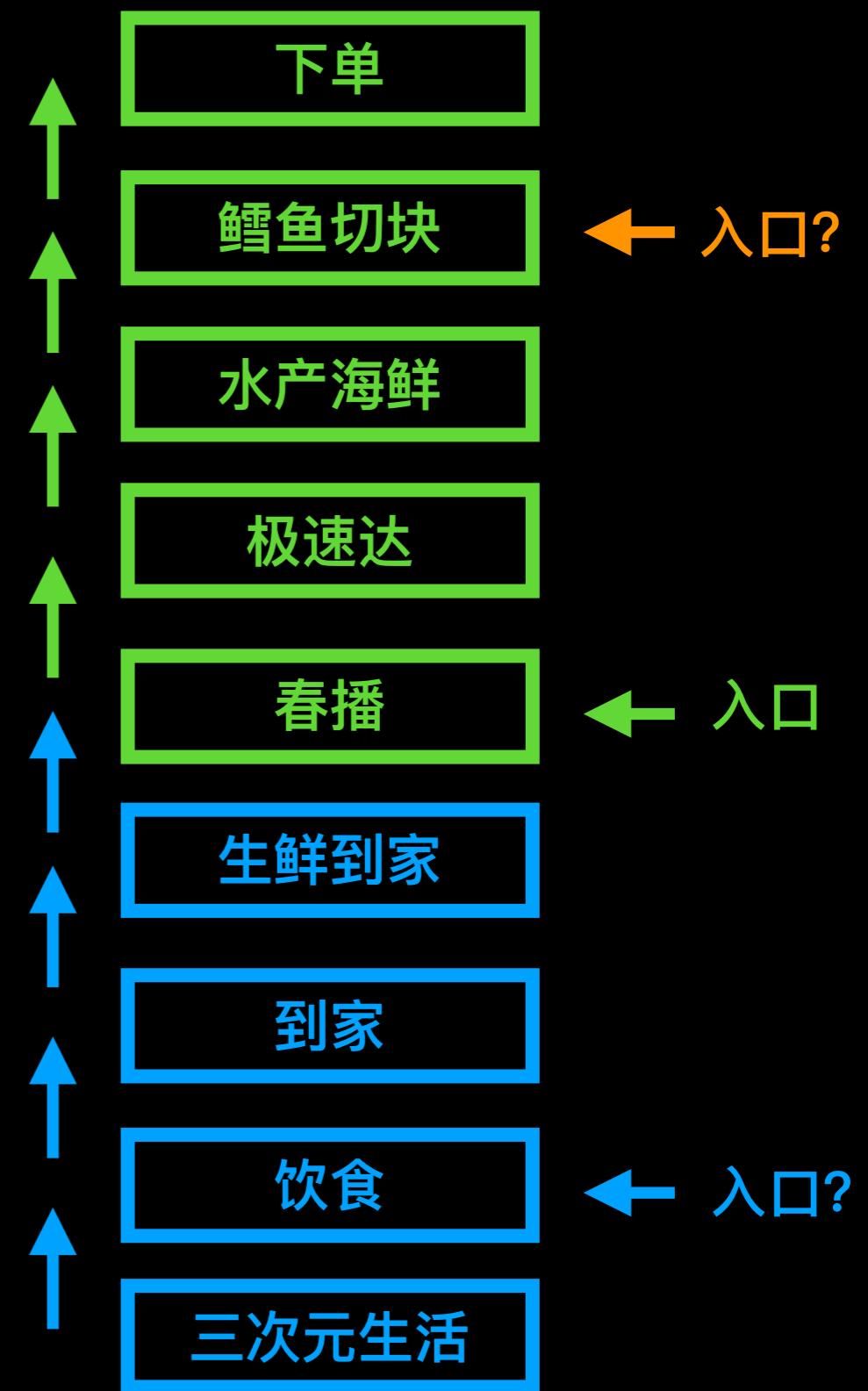
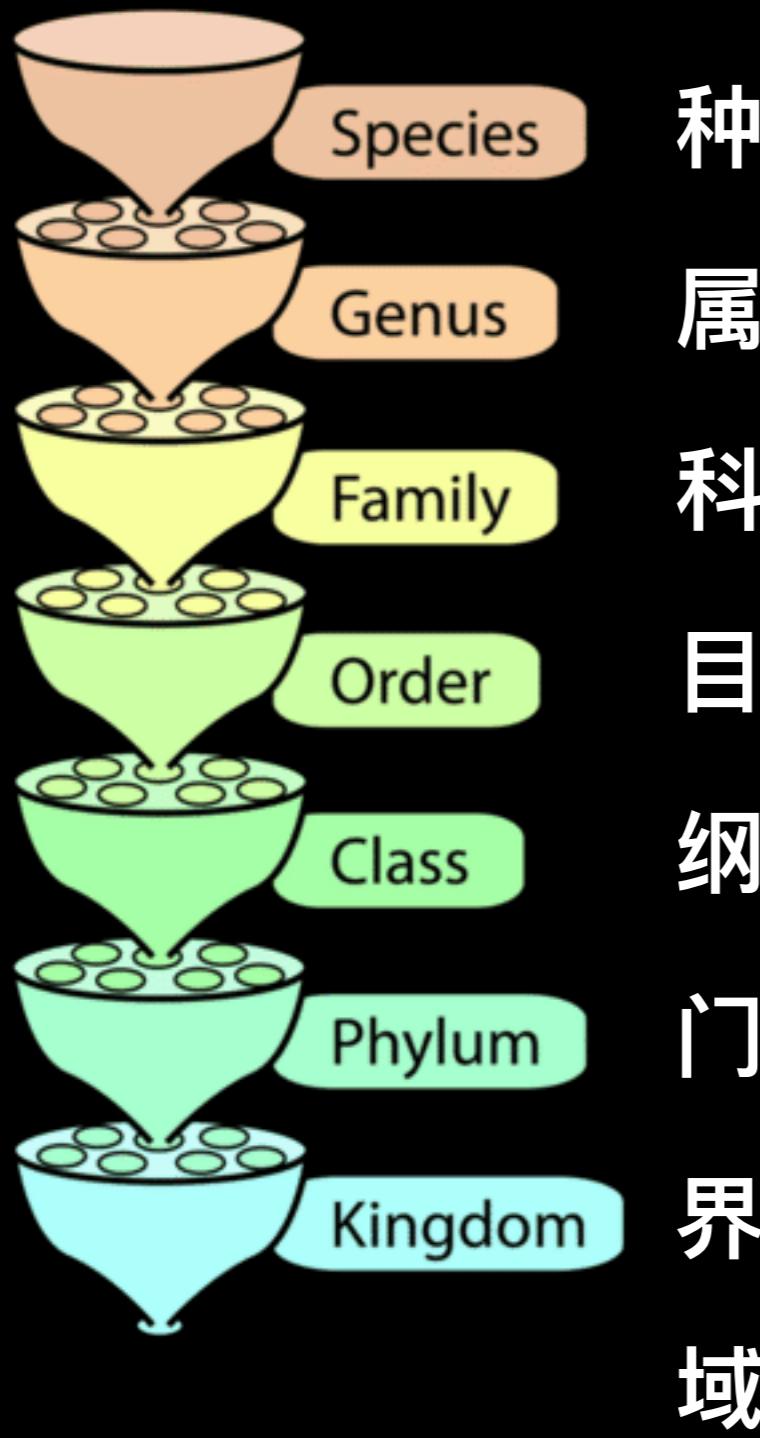


游戏2

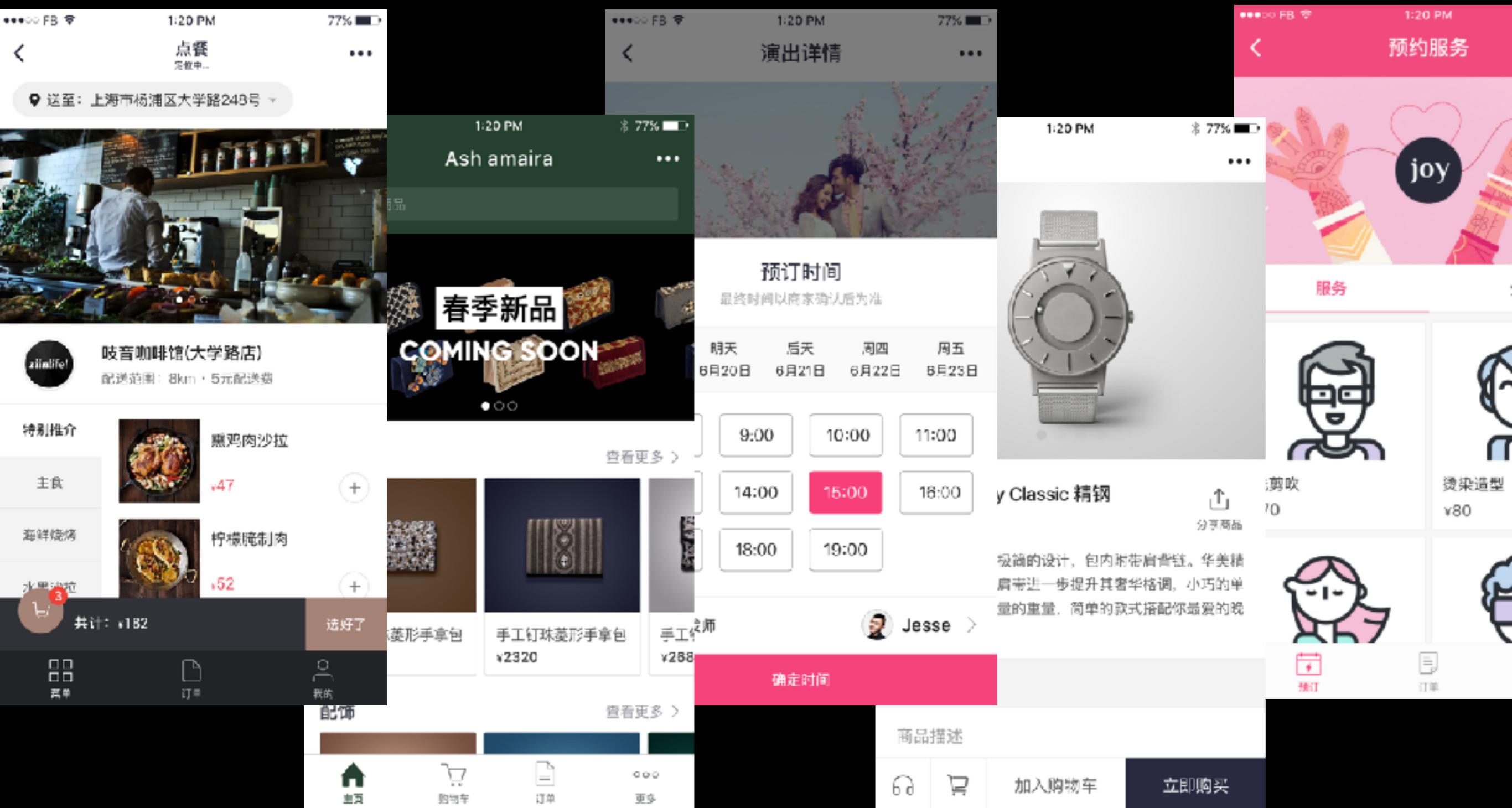




App 的入口和形态



App 的入口和形态



理想的首屏和平台



历史的重演和发展

The screenshot shows the classic Yahoo! homepage with its signature red logo. At the top, there are four circular icons: a baby, a graduation cap, a newspaper, and a person. Below the logo, there are two links: "New" and "Cool". To the right of the logo are "Today's News" and "More Yahoos". A banner advertisement for "DIGITAL CAMERAS" from "Panasonic" offers them starting at "\$99" with a "ONSALE" badge. On the left, a link reads "College Hoops M-W pick the winners". On the right, there is a link to "Yahoo! Mail" and "free email address". Below the banner is a search bar with a "Search" button and an "options" link. The main content area features a section titled "Yahoo! Pager" with the subtext "check for friends online and send instant messages". Below this are various navigation links: Yellow Pages, People Search, Maps, Classifieds, Personals, Chat, Email, Shopping, My Yahoo!, News, Sports, Weather, Stock Quotes, and more... The page is filled with a grid of category links, each preceded by a bullet point. The categories include Arts and Humanities, Business and Economy, Computers and Internet, Education, Entertainment, Government, Health, News and Media, Recreation and Sports, Reference, Regional, Science, Social Science, and Society and Culture.

[College Hoops M-W pick the winners](#)

DIGITAL CAMERAS **Panasonic** STARTING AT **\$99** **ONSALE**

[Today's News](#) [More Yahoos](#)

[Search](#) [options](#)

Yahoo! Pager - check for friends online and send instant messages

[Yellow Pages](#) [People Search](#) [Maps](#) [Classifieds](#) [Personals](#) [Chat](#) [Email](#)
[Shopping](#) [My Yahoo!](#) [News](#) [Sports](#) [Weather](#) [Stock Quotes](#) [more...](#)

- [**Arts and Humanities**](#) Architecture, Photography, Literature...
- [**Business and Economy** \[Xtra!\]](#) Companies, Finance, Employment...
- [**Computers and Internet** \[Xtra!\]](#) Internet, www, Software, Multimedia...
- [**Education**](#) Universities, K-12, College Entrance...
- [**Entertainment** \[Xtra!\]](#) Cool Links, Movies, Music, Humor...
- [**Government**](#) Military, Politics [Xtra!], Law, Taxes...
- [**Health** \[Xtra!\]](#) Medicine, Drugs, Diseases, Fitness...
- [**News and Media** \[Xtra!\]](#) Current Events, Magazines, TV, Newspapers...
- [**Recreation and Sports** \[Xtra!\]](#) Sports, Games, Travel, Autos, Outdoors...
- [**Reference**](#) Libraries, Dictionaries, Phone Numbers...
- [**Regional**](#) Countries, Regions, U.S. States...
- [**Science**](#) CS, Biology, Astronomy, Engineering...
- [**Social Science**](#) Anthropology, Sociology, Economics...
- [**Society and Culture**](#) People, Environment, Religion...

历史的重演和发展

Google™ [Web](#) [Images](#) [Groups](#) [News](#) [Froogle](#) [Desktop](#) [more »](#)

[Search](#) [Advanced Search](#) [Preferences](#)

Web Results 1 - 10 of about 2,180,000 for [empire state building](#). (0.23 seconds)

[3 results stored on your computer](#) - [Hide](#) - [About](#)

 [NYPL, Photography Collect.](#) - Empire State Building - 1:21pm
[Architecture of New York..](#) - 1970. Empire State Building - 1:15pm

[Empire State Building](#) : Official Internet Site
Official site for facts, history, business directory, and a kids section with a printable coloring book.
www.esbnyc.com/ - 2k - Oct 12, 2004 - [Cached](#) - [Similar pages](#)

[Empire State Building](#): Official Internet Site
... ESB Lighting Schedule, ESB Lighting Schedule The beautiful lights that grace the top of The Empire State building are energy efficient as well as awe inspiring. ...
www.esbnyc.com/index2.cfm?noflash=1 - 40k - Oct 12, 2004 - [Cached](#) - [Similar pages](#)
[[More results from www.esbnyc.com](#)]

[The Empire State Building](#) - a NYCTourist.com PhotoTour
... Avenue and 34 th Street stands New York City's most famous fixture - starring in over 90 movies, a star of gigantic proportions - The Empire State Building. ...
www.nyctourist.com/empire1.htm - 24k - Oct 12, 2004 - [Cached](#) - [Similar pages](#)

[NYPL, Photography Collection, Hine: Empire State Building](#)
... Lewis Wickes Hine: The Construction of the Empire State Building, 1930-1931. ...
www.nypl.org/research/chss/spe/art/photo/hinex/empire/empire.html - 17k - Oct 12, 2004 - [Cached](#) - [Similar pages](#)

Sponsored Links
[Empire State Building](#)
Infomation on the Empire State Building other great places
www.thisisthelife.com

[See your message here...](#)

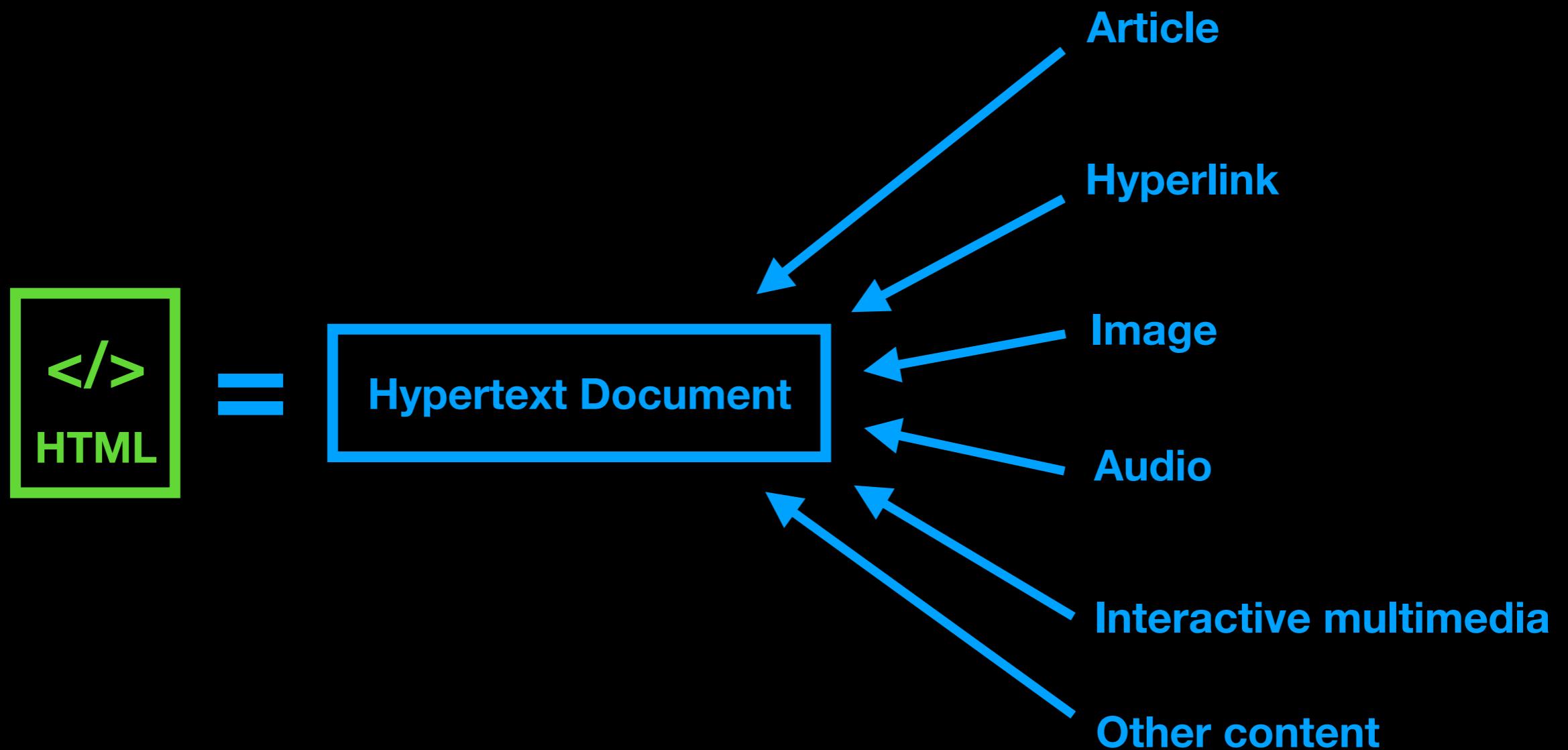
Web 开发者做好准备了吗?
Web 开发会如何发展?

要理解 Web 开发的现在和未来，
同样需要理解它的过去

Web 开发的黑历史

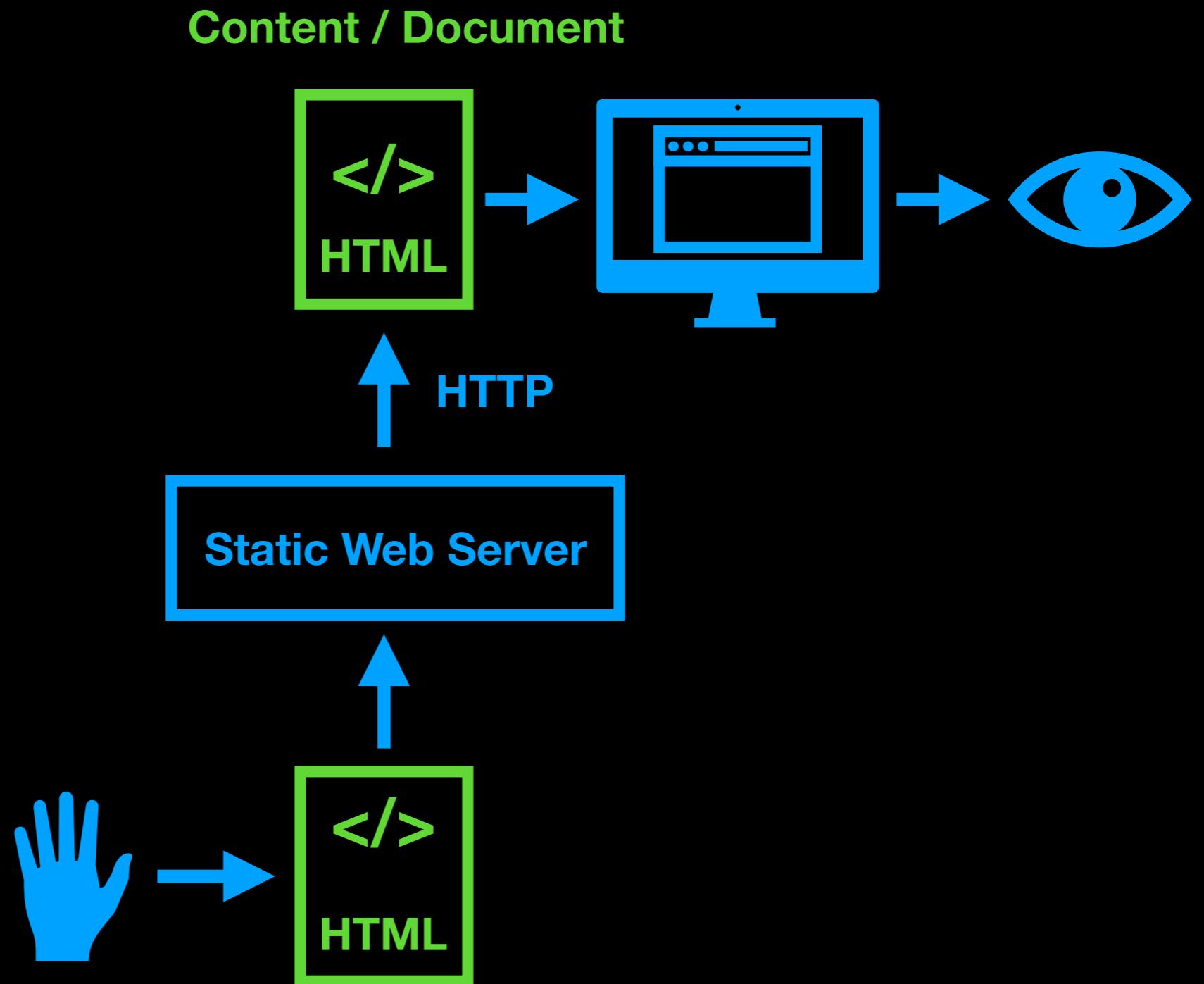
1. 『后端』从何而来
2. 『前端』从何而来
3. 『全栈』从何而来

『后端』从何而来：早期 web 开发 = 内容开发



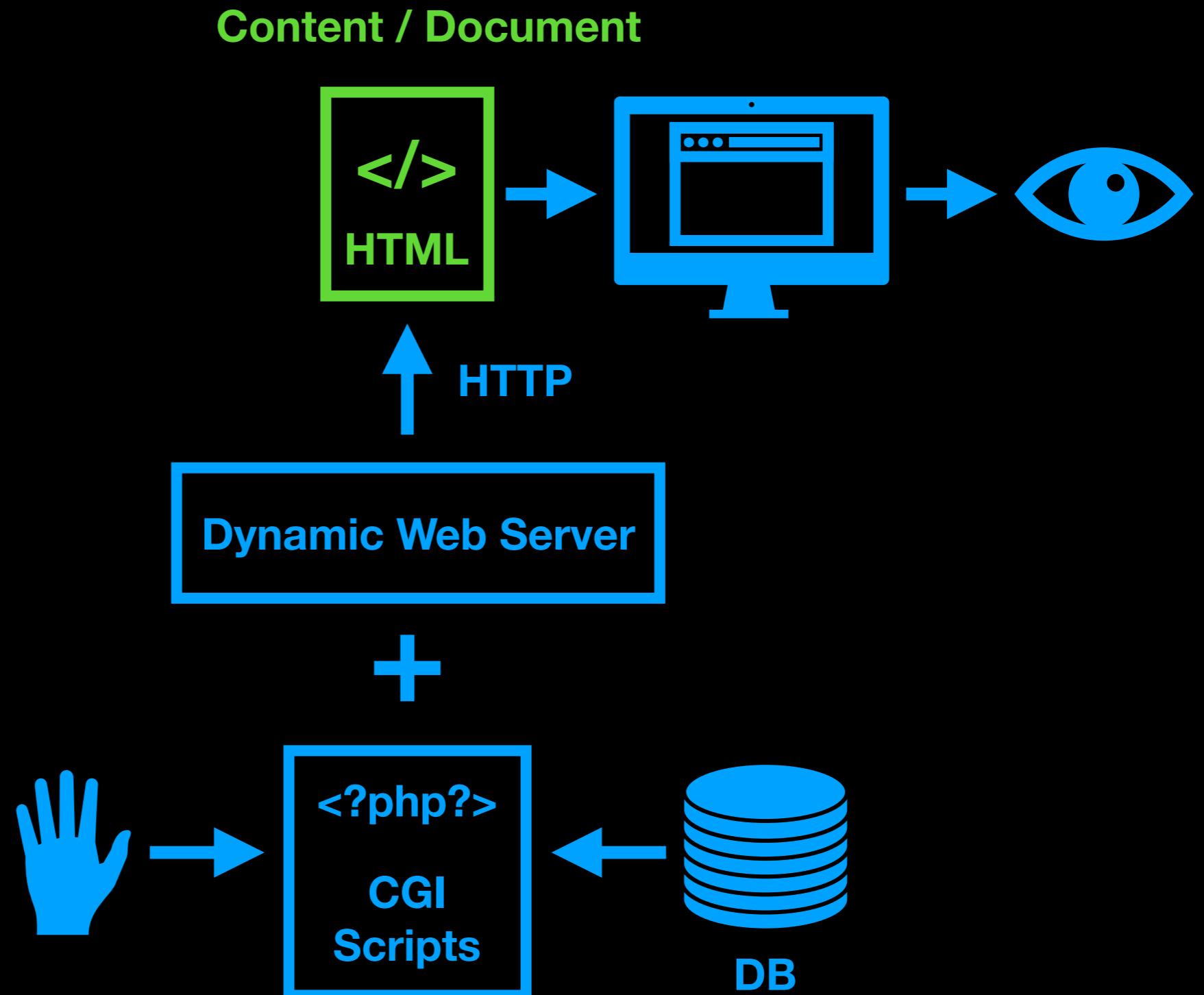
『后端』从何而来：早期 web 开发 = 内容开发

- 内容的手工编写



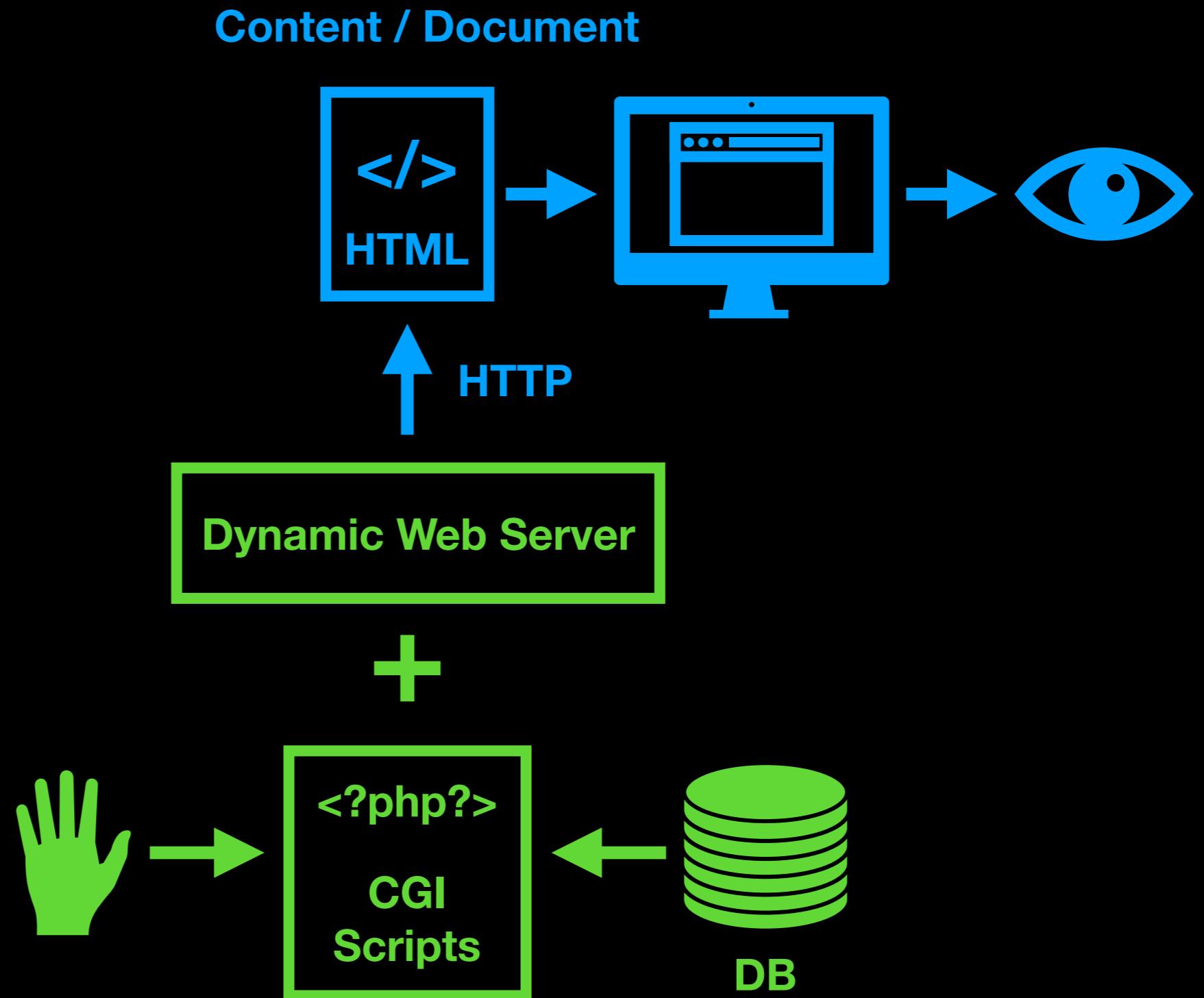
『后端』从何而来：早期 web 开发 = 内容开发

- 内容的手工编写
- 内容的动态生成



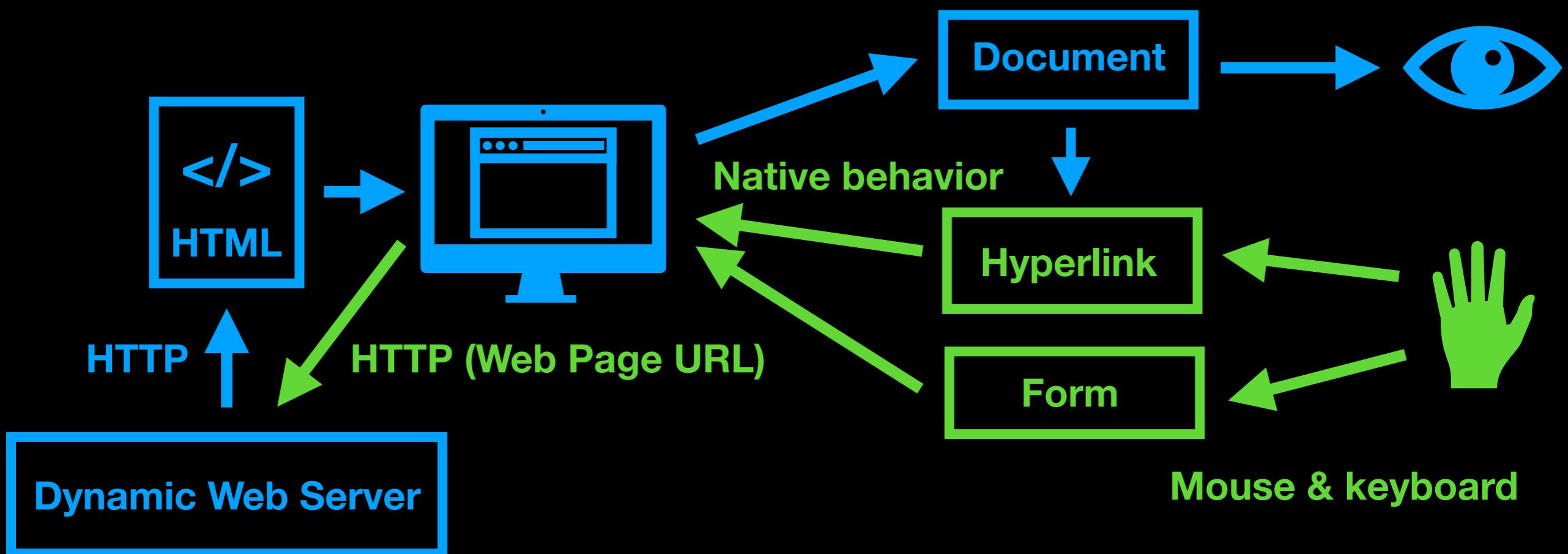
『后端』从何而来：早期 web 开发 = 内容开发

- 内容的手工编写
- 内容的动态生成
- 只有『后端』



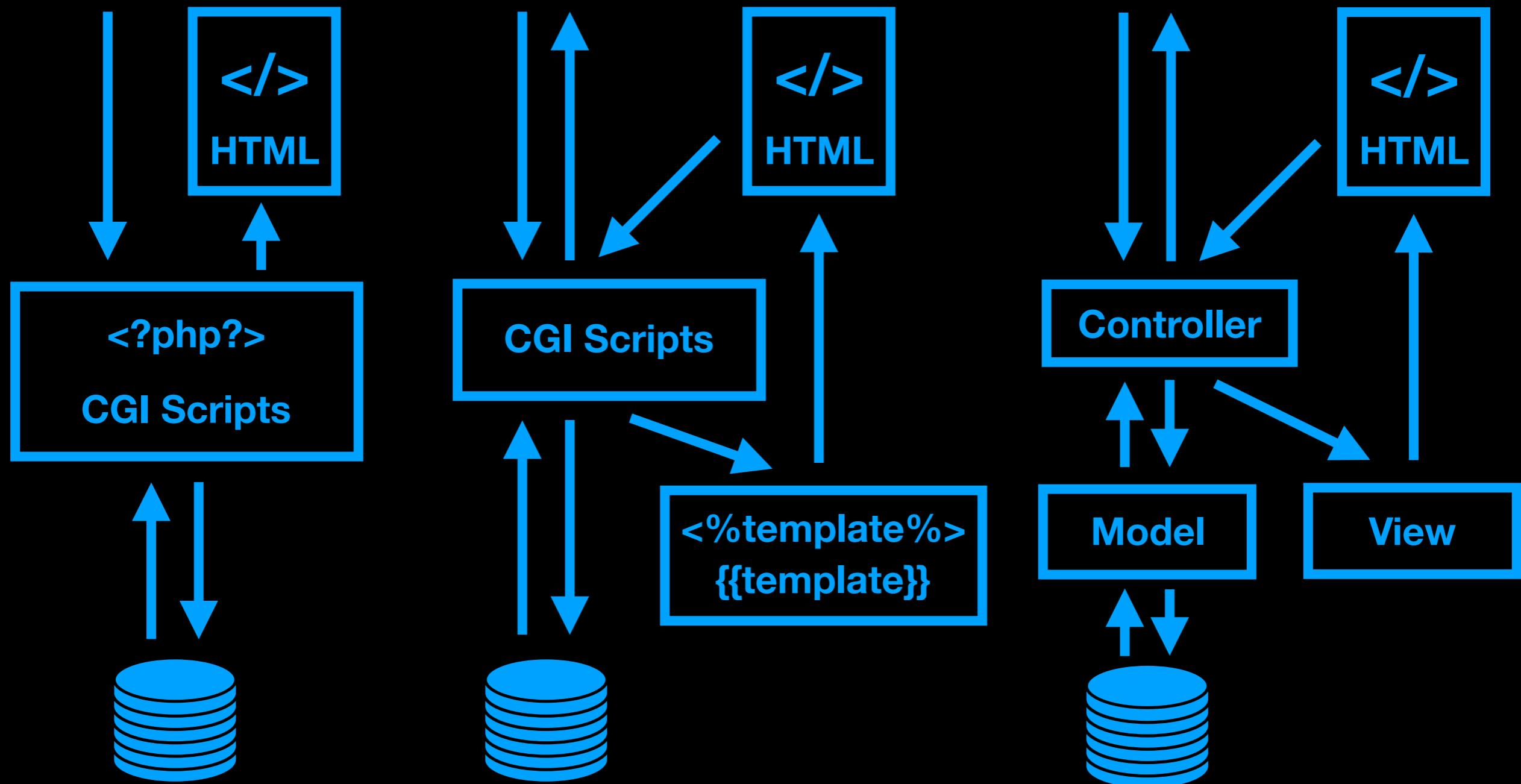
『前端』从何而来：传统 web 应用开发

早期 web 应用 = 内容 + 页面级交互



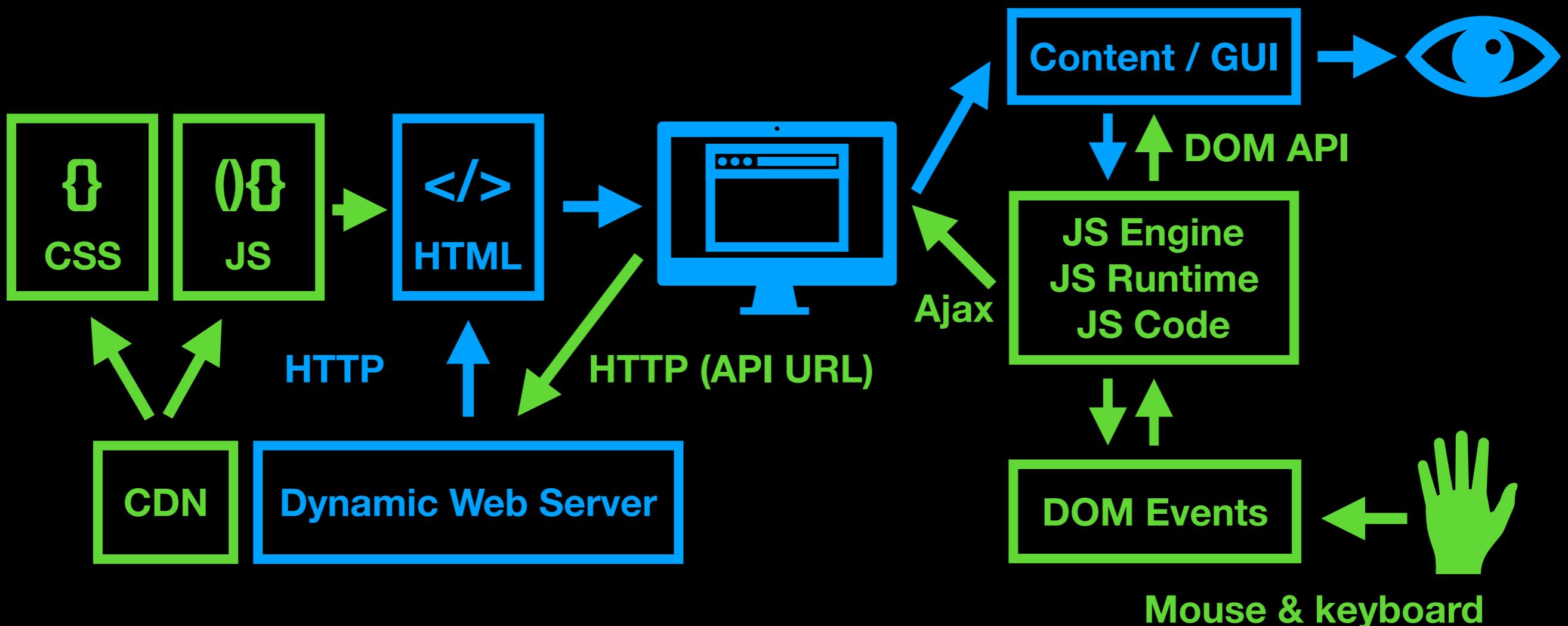
『前端』从何而来：传统 web 应用开发

CGI -> PHP -> 纯模板语言 -> 服务器端 MVC



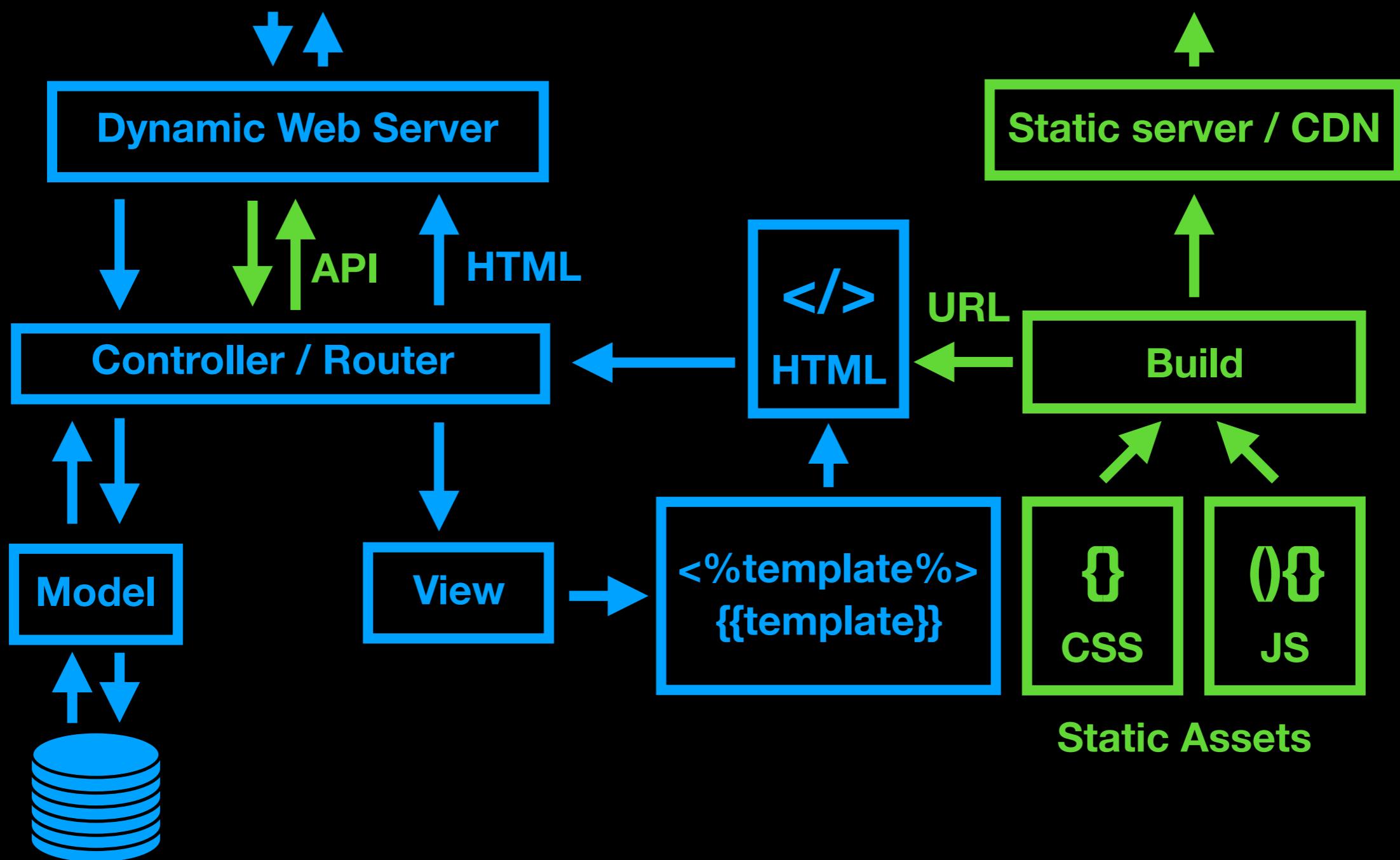
『前端』从何而来：传统 web 应用开发

富 web 应用 = 内容/GUI +
API 级交互 (Ajax) + 『DHTML』交互 (DOM API)



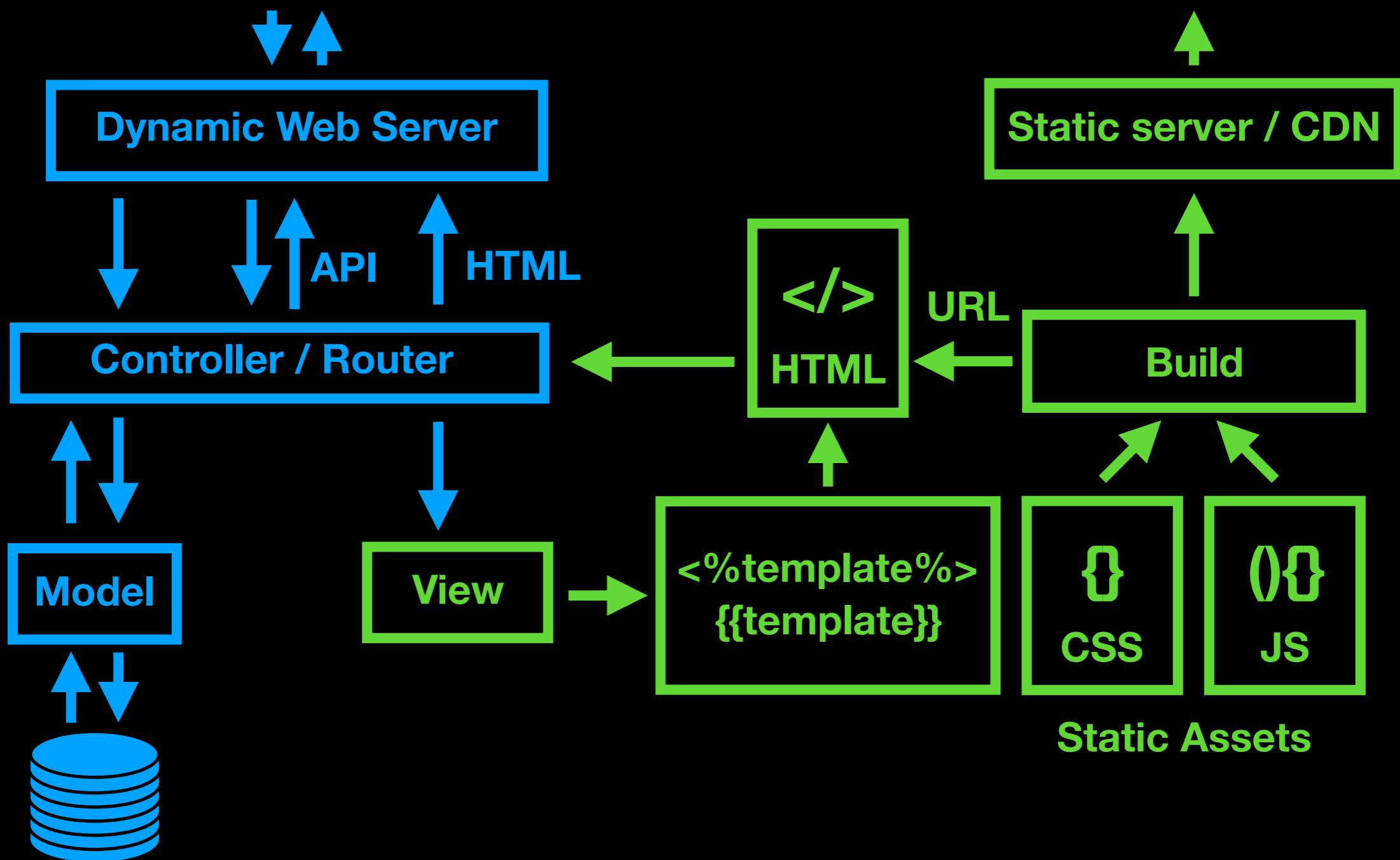
『前端』从何而来：传统 web 应用开发

服务器端 web 框架



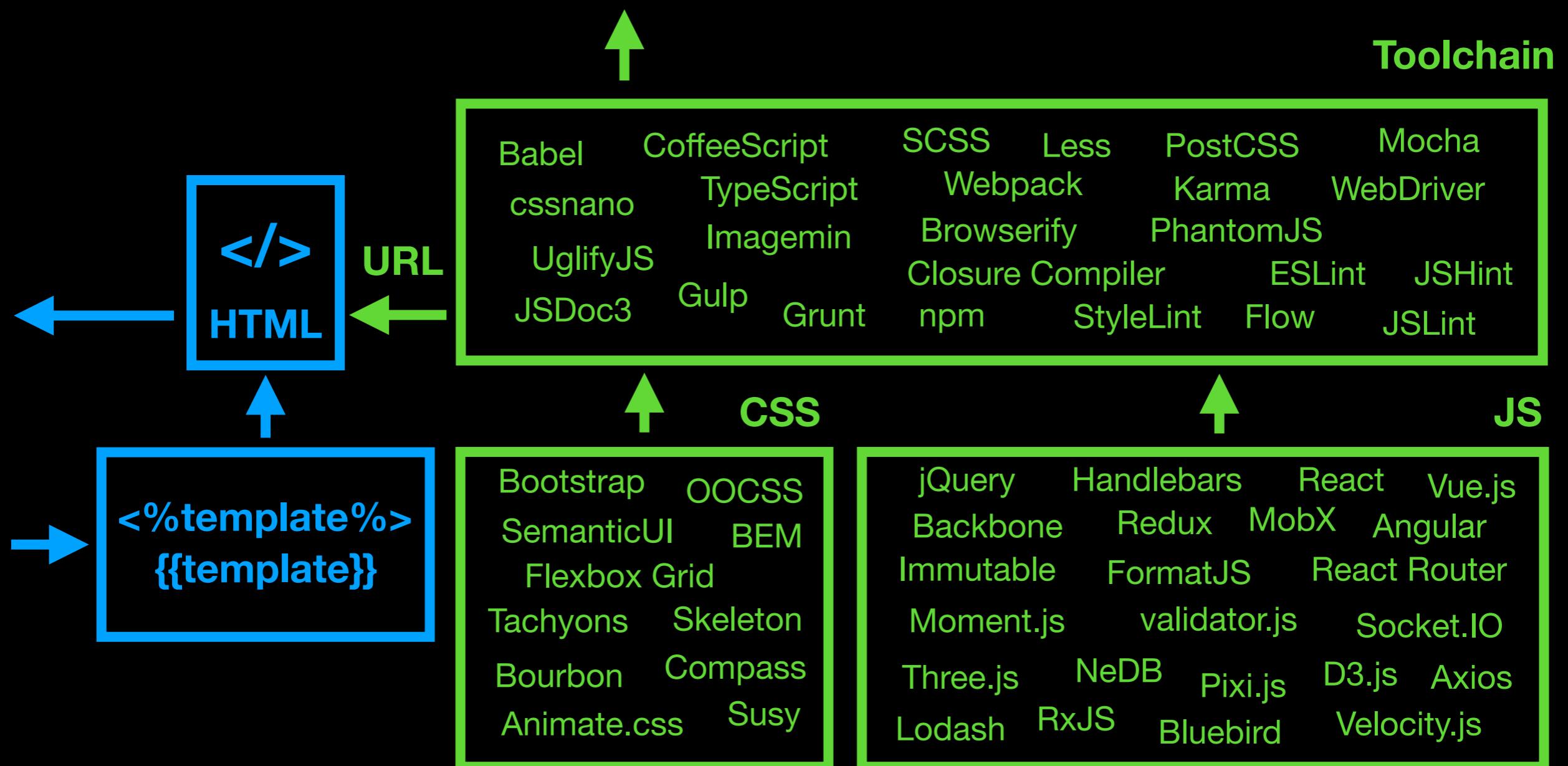
『前端』从何而来：传统 web 应用开发

『前端』 = 服务器端 web 框架中的视图层



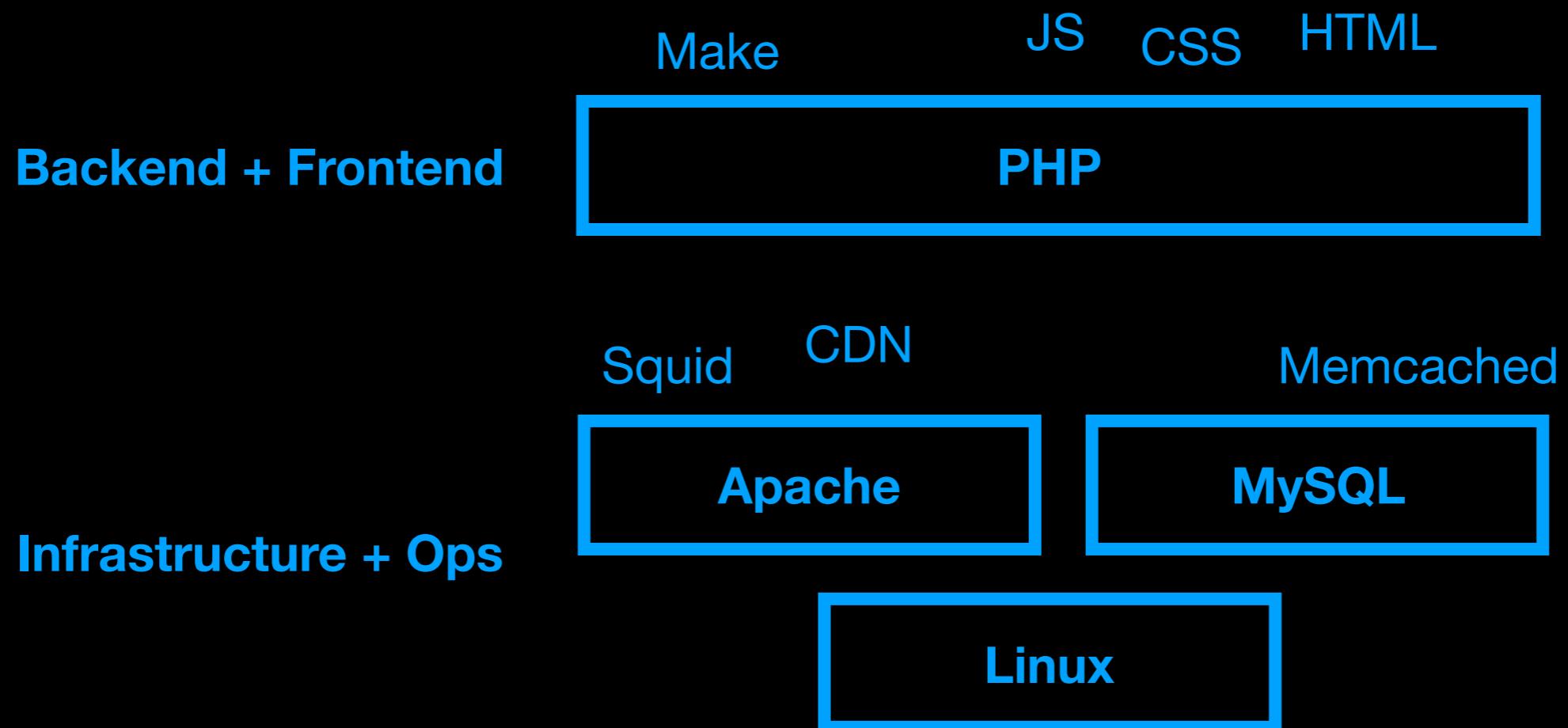
『前端』从何而来：传统 web 应用开发

用户需求和业务逻辑从服务器端向浏览器端转移，
『前端』层越来越厚、与 web 框架的其他部分越来越割裂



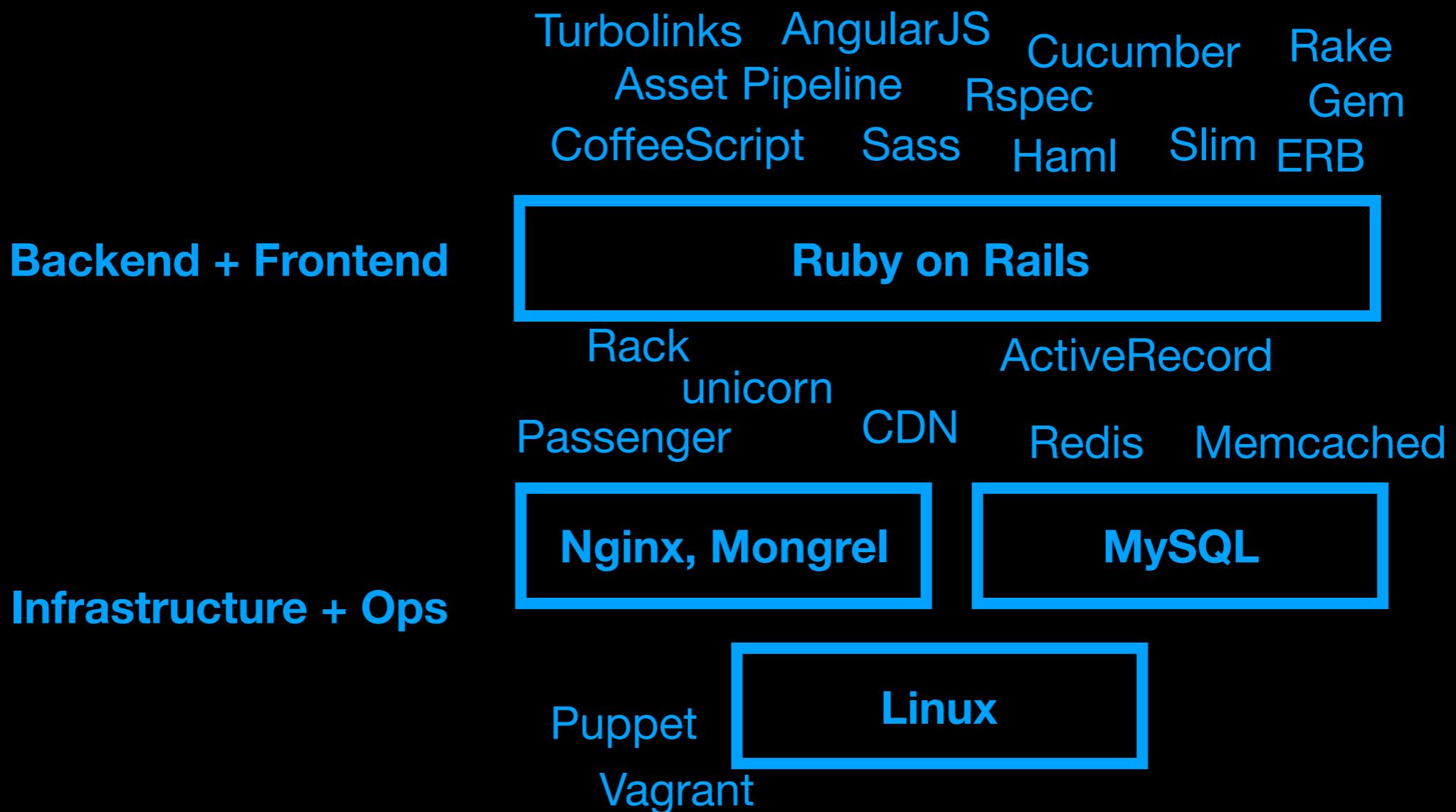
『全栈』从何而来：LAMP 和 RoR

LAMP 时代的 PHP 全能战士

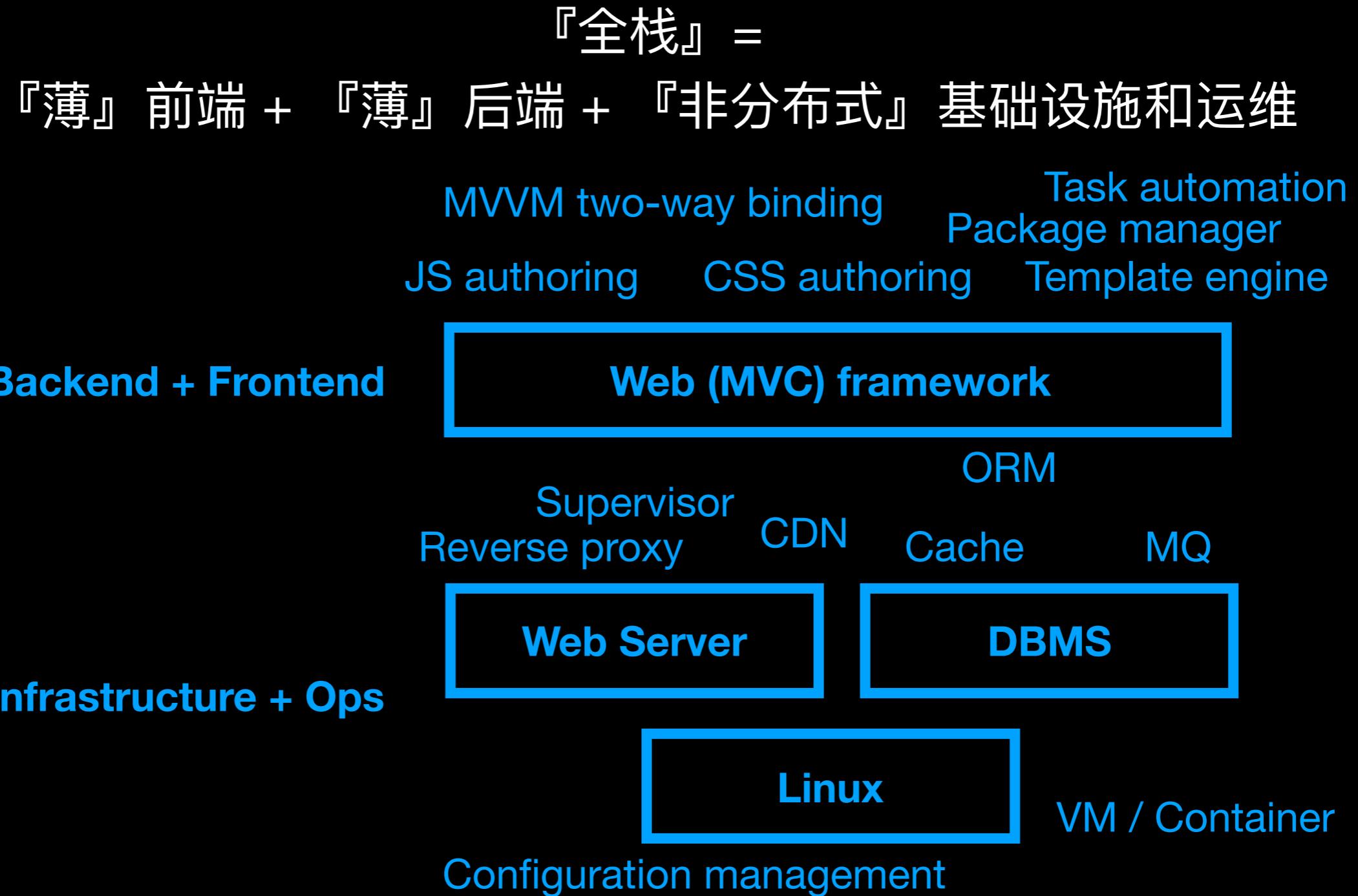


『全栈』从何而来：LAMP 和 RoR

RoR 时代的 Ruby 全栈工程师

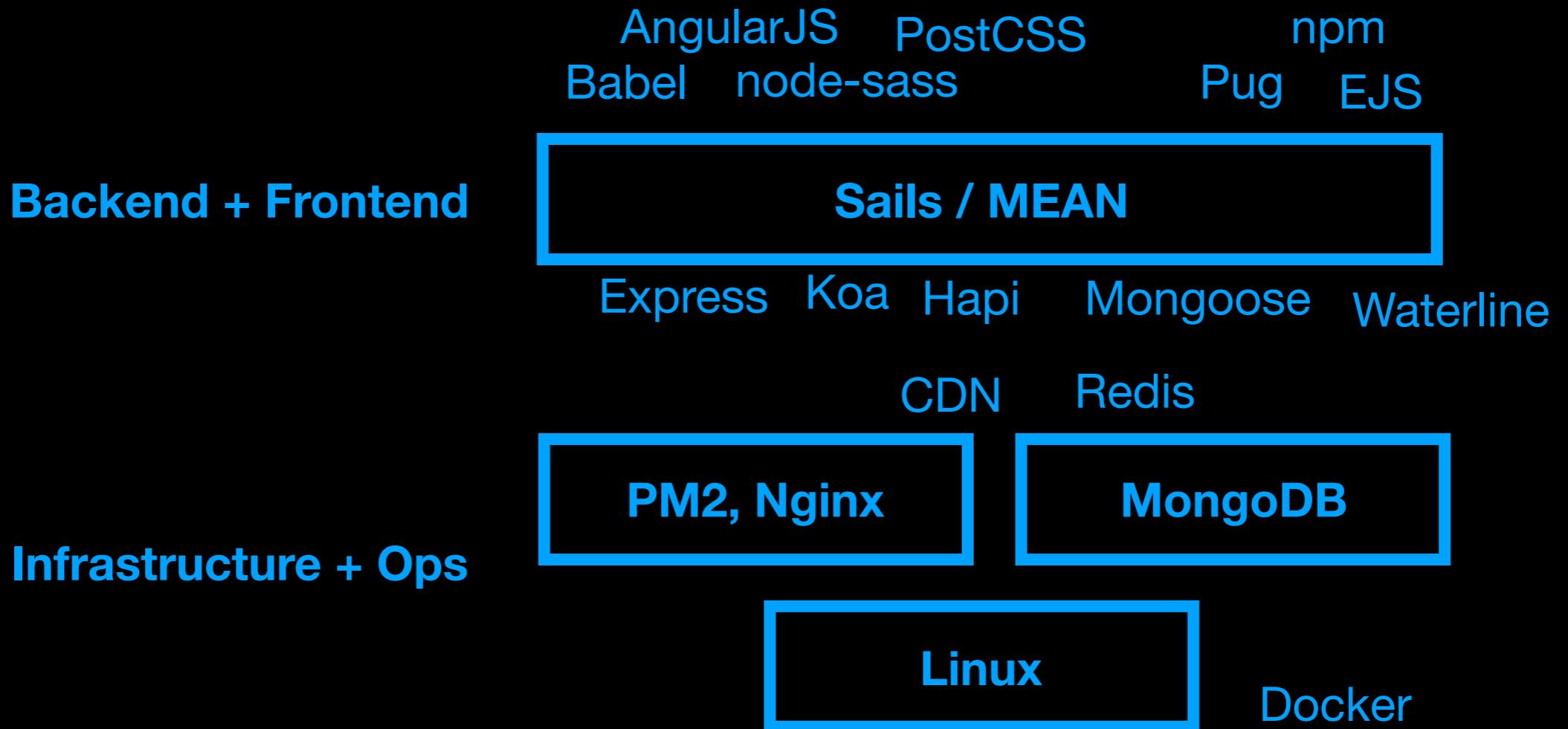


『全栈』 从何而来：LAMP 和 RoR



『全栈』从何而来：LAMP 和 RoR

Node.js web (MVC) framework 仍然是这种『全栈』



Web 开发的黑历史

1. 『后端』 从何而来：早期 web 开发 = 内容开发
2. 『前端』 从何而来：传统 web 应用开发
3. 『全栈』 从何而来：LAMP 和 RoR
4. 去往何处？

三个新时代带来趋势的大幅加速

1. 移动时代：
2. AI 时代：
3. XXX 时代的前夜：

移动时代：从内容到服务

传统互联网

- 使用场景固定且局限
- 『内容』为主
- 『服务』局限于特定领域



E-commerce SNS Blog
Email IM Forum
Download

移动时代：从内容到服务

传统互联网

- 使用场景固定且局限
- 『内容』为主
- 『服务』局限于特定领域

移动互联网

- 使用场景触达每个角落
- 更多事物被连接到云端
- 海量『服务』

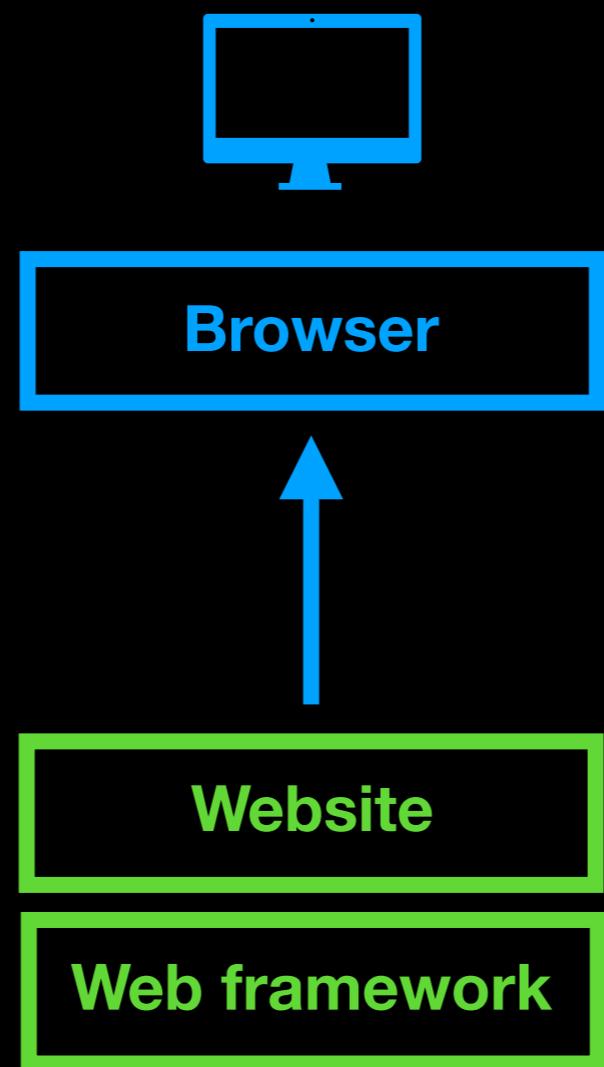
Delivery	Mobike	Sharing	Photo sharing	Short video		
Booking tickets	E-commerce	Siri	Newsfeed	Map LBS	Weather	
Booking hotels	Email	IM	SNS	Medium	Transit	Travel
Live streaming	Slack	Chatbot	Forum	E-book	Health	IOT Local
Music	Podcast	MOOC	Training	Payment	Fitness	Wearable
				SaaS	FinTech	Crowdsourcing

移动时代：从内容到服务

- 客户端需求复杂化，大量应用流行，对用户体验的期望提高
- 客户端渲染成为『刚需』
- 客户端程序不得不具备完整的生命周期、分层架构和技术栈

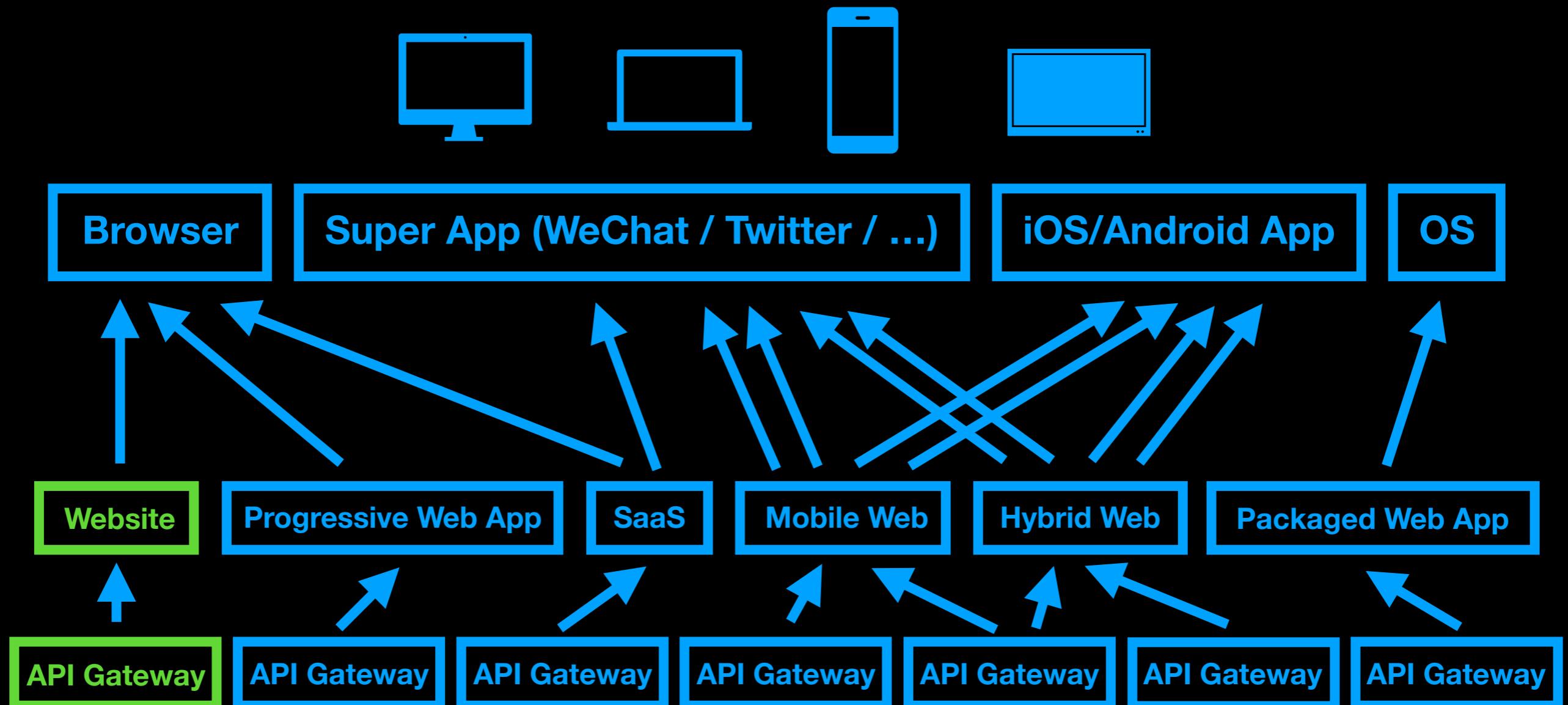
移动时代：从单站到多端

- 多设备：网站不再是唯一客户端
- 多平台（超级 app 平台化）：单一网站的解体



移动时代：从单站到多端

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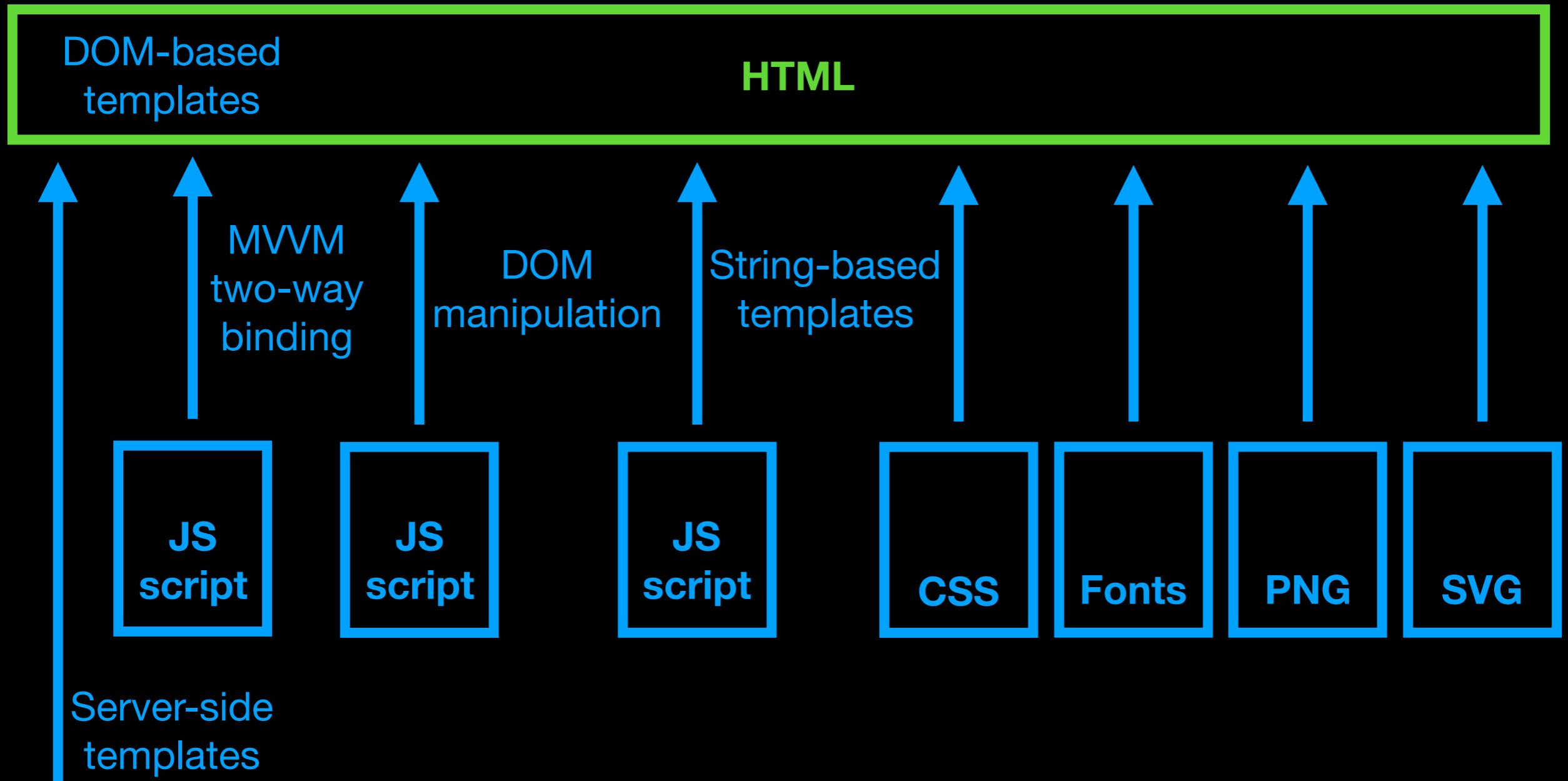


移动时代：从单站到多端

- Client Agnostic: 服务器端只输出 API, 剥离视图/『前端』
- web 客户端变成独立开发和部署的程序/项目, 不再是服务器端 web 程序/项目中的『前端』层
- 每个客户端都倾向于拥有专门为己量身打造、可被自己掌控的 API Gateway

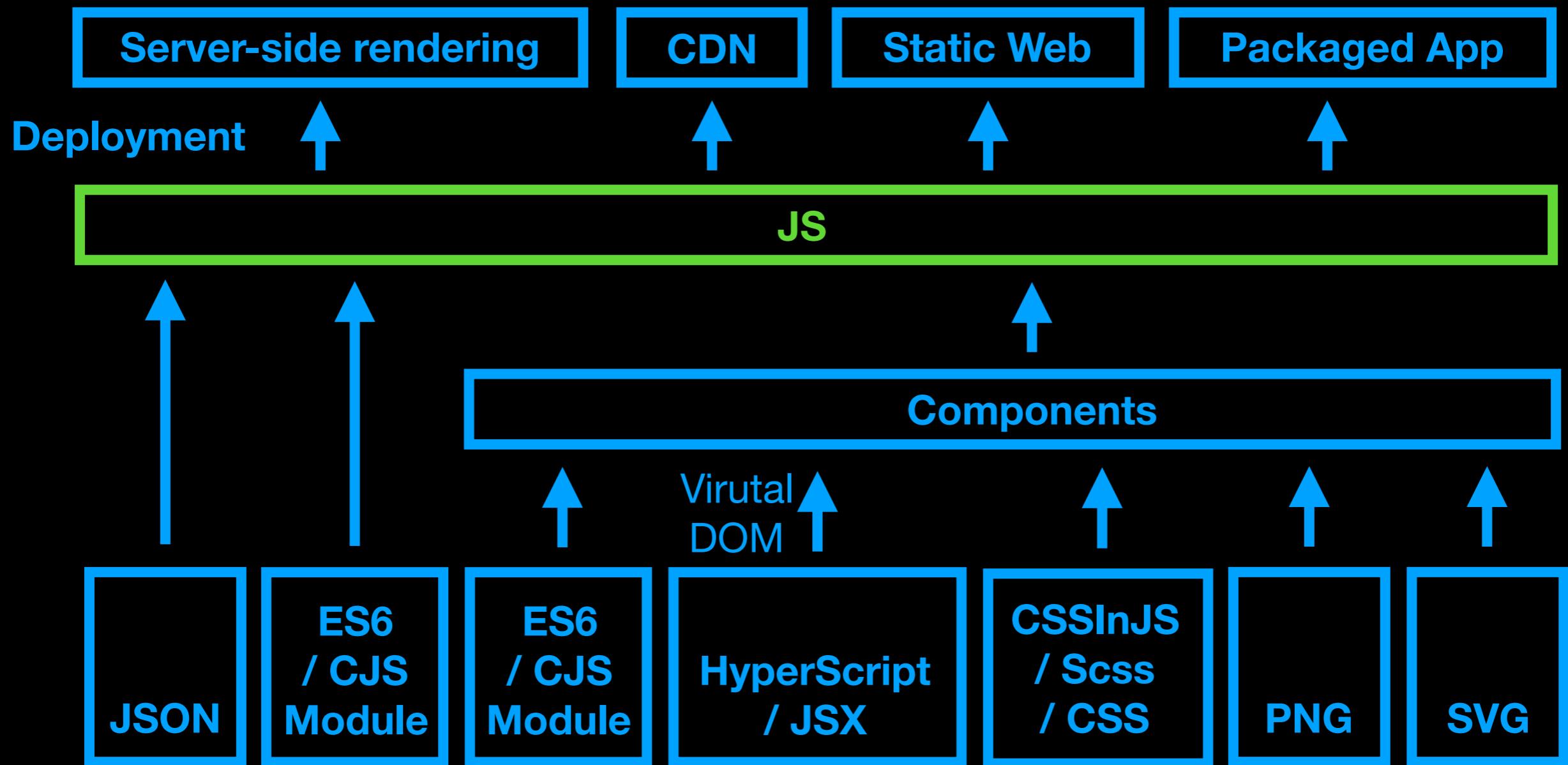
从 HTML 到 JS

传统 web 开发：以 HTML 为中心



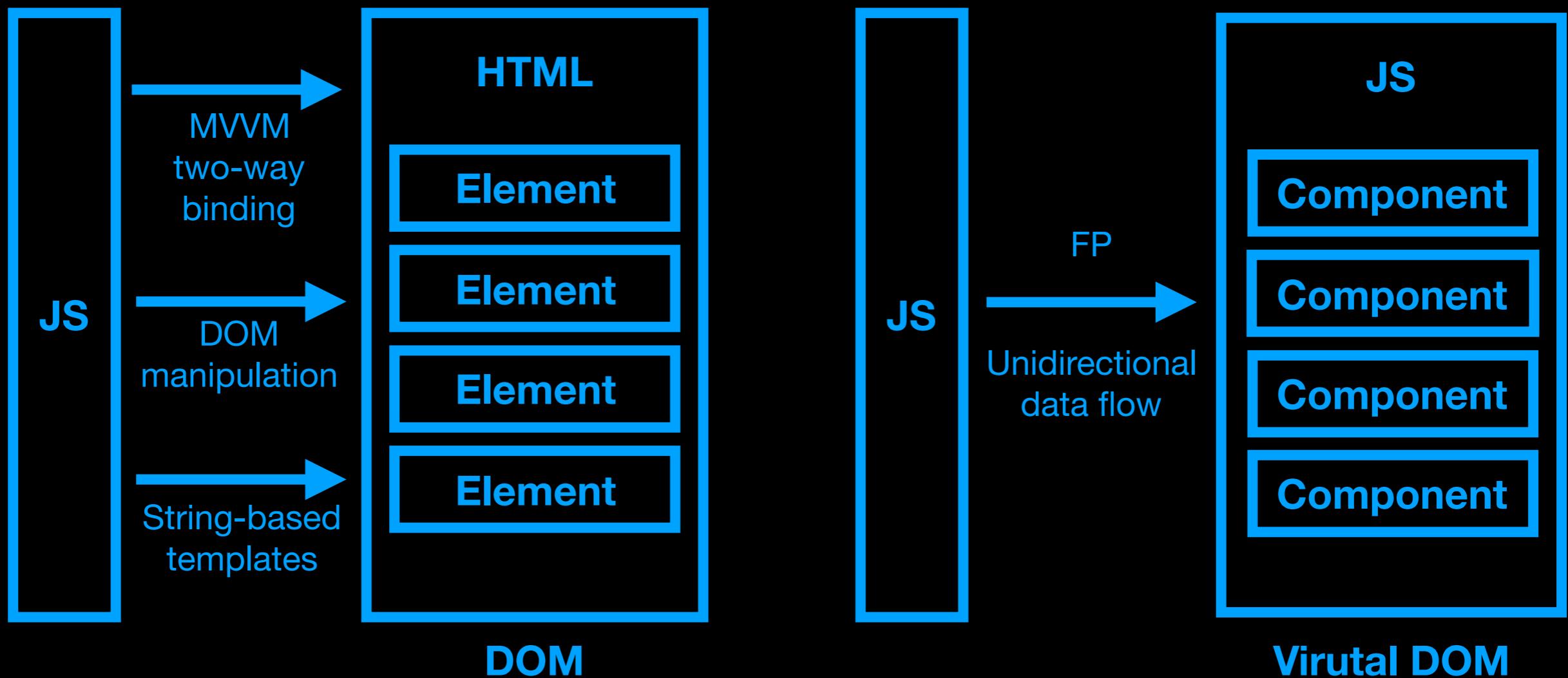
从 HTML 到 JS

(以 React 为代表的) 现代 web 开发：以 JS 为中心



从 HTML 到 JS

面向文档元素 -> 面向组件

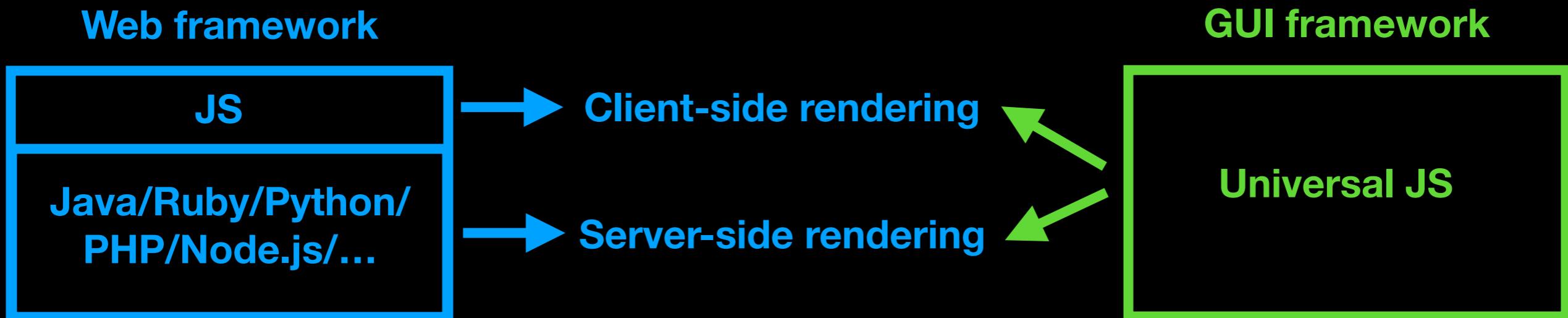


移动时代：资源限制

- 网络环境多变：精简网络请求，Offline First
- 设备资源有限（电池、内存...）

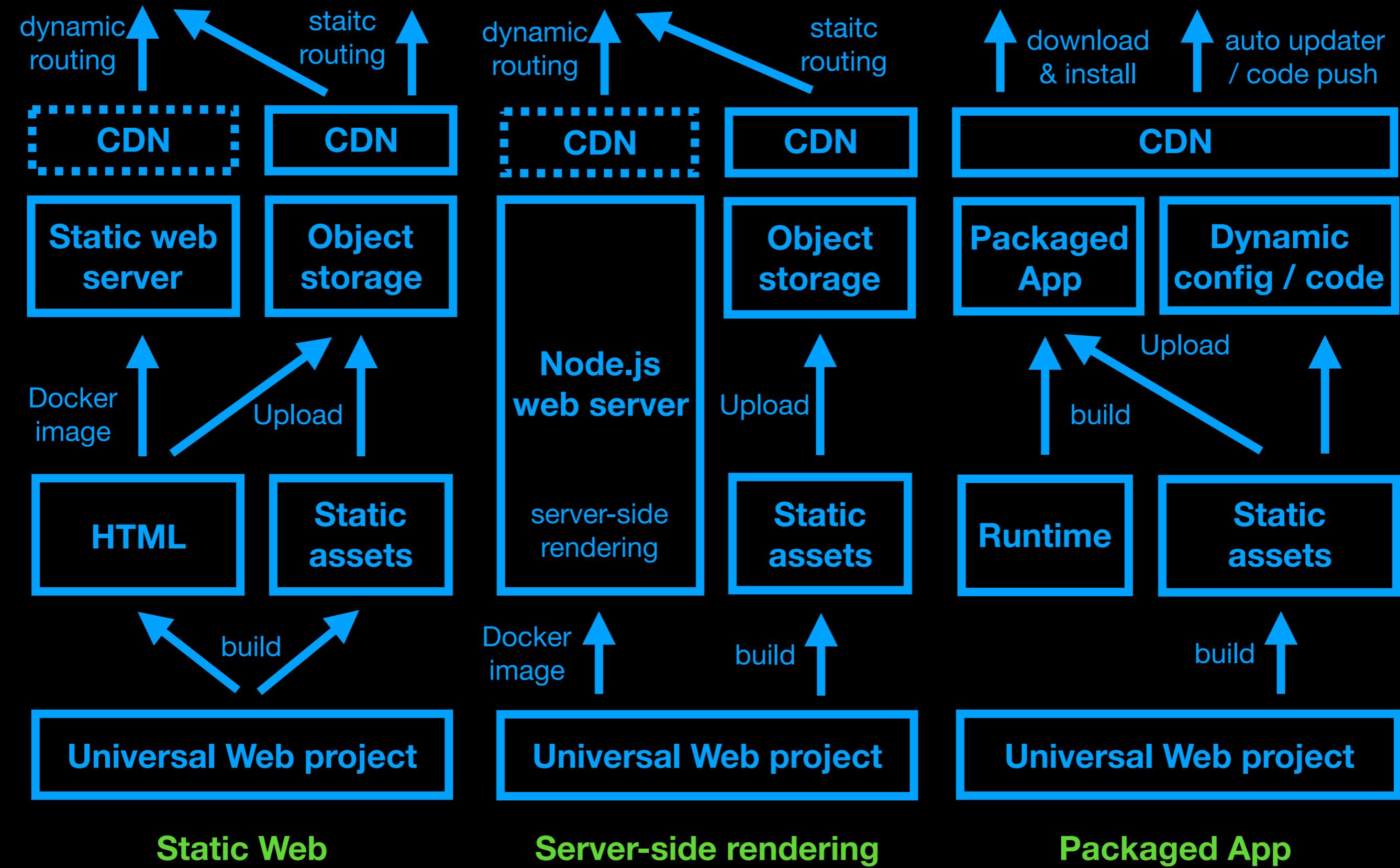
移动时代：资源限制

- 网络环境多变：精简网络请求，Offline First
- 设备资源有限（电池、内存...）
- 服务器端渲染成为『刚需』
- Isomorphic/Universal JS：服务器端渲染是 web 客户端的组成部分，是应用的一种部署方式，而不是『后端』



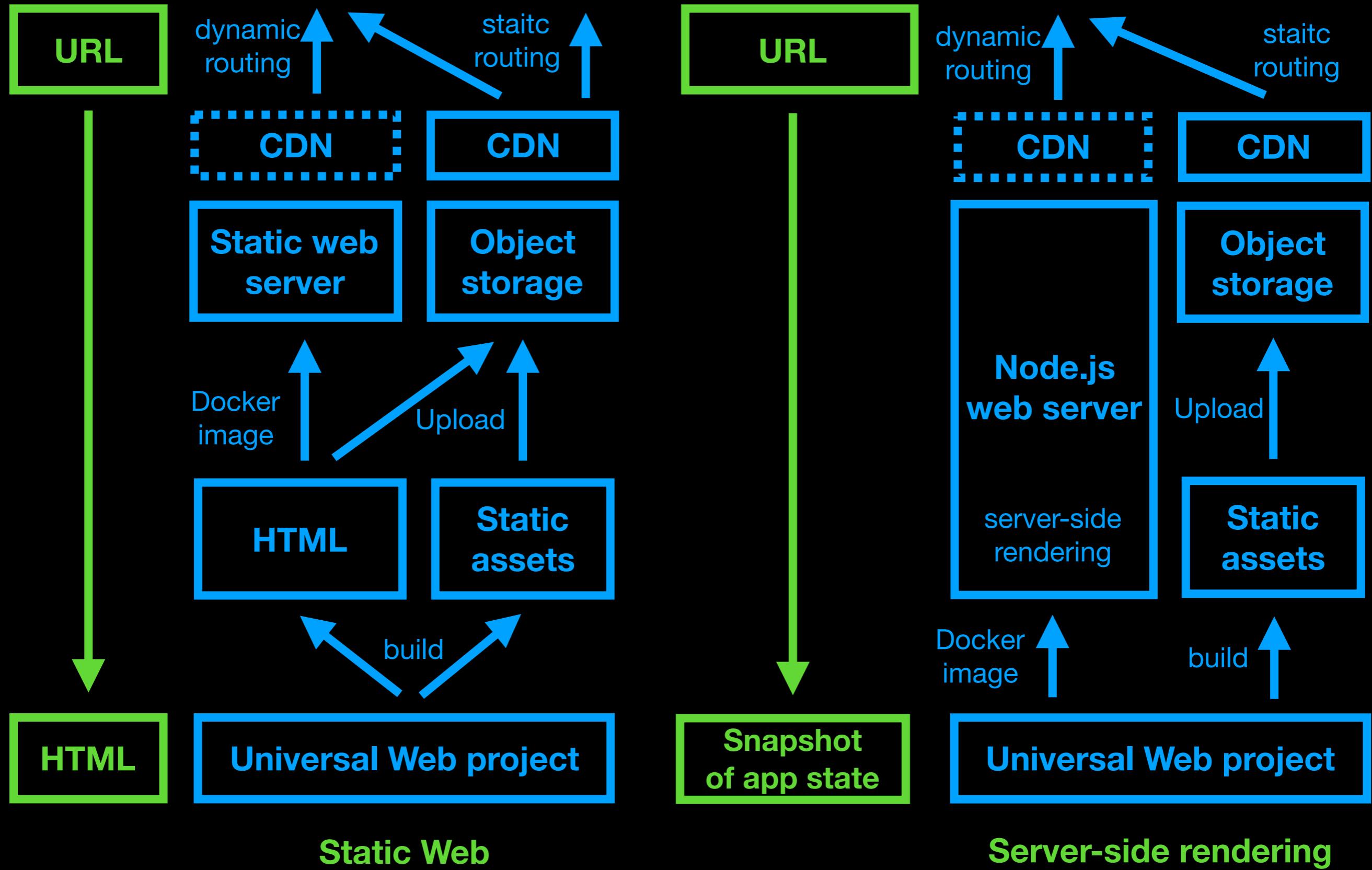
三种部署模式

#workflow



三种部署模式

#workflow

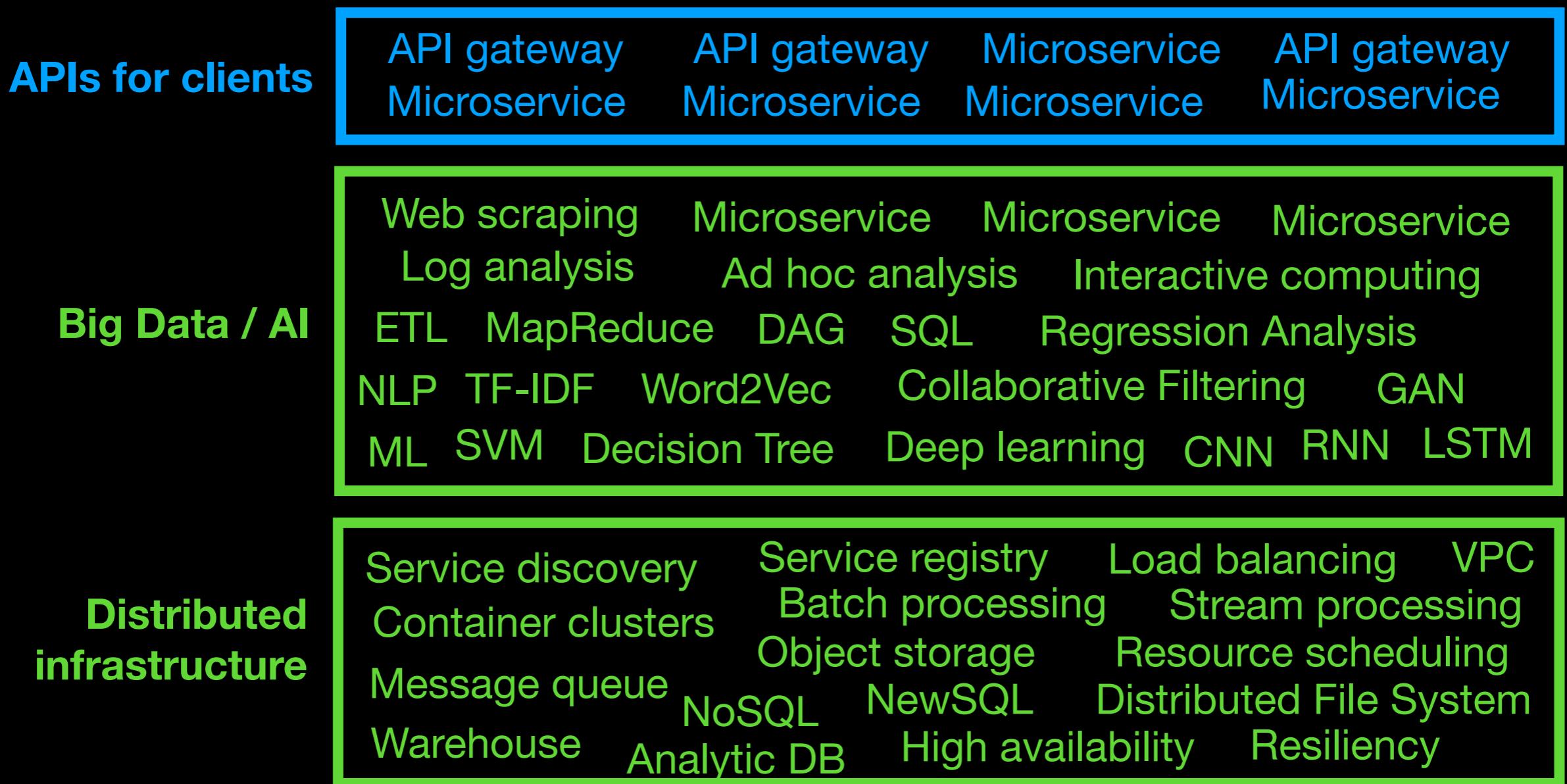


AI 时代：从主机到云、从增删改查到大数据

- 分布式计算，分布式存储
- 服务器端需求的复杂化，微服务流行

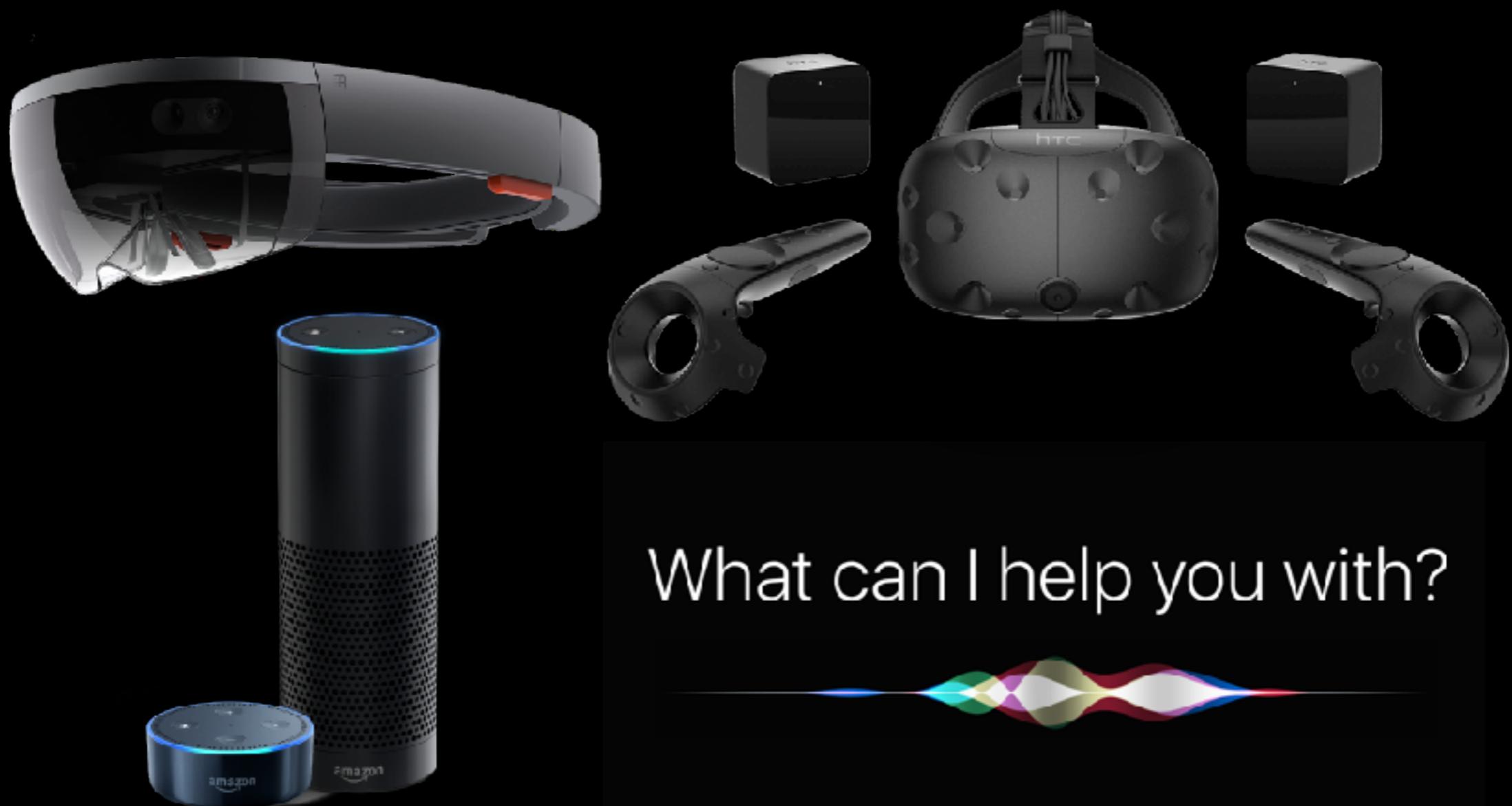
AI 时代：从主机到云、从增删查改到大数据

- 单一『后端』开始变厚、解体、分层
- 面向数据和分布式架构的『层』远远厚过面向应用『层』



XXX 时代的前夜：新人机界面

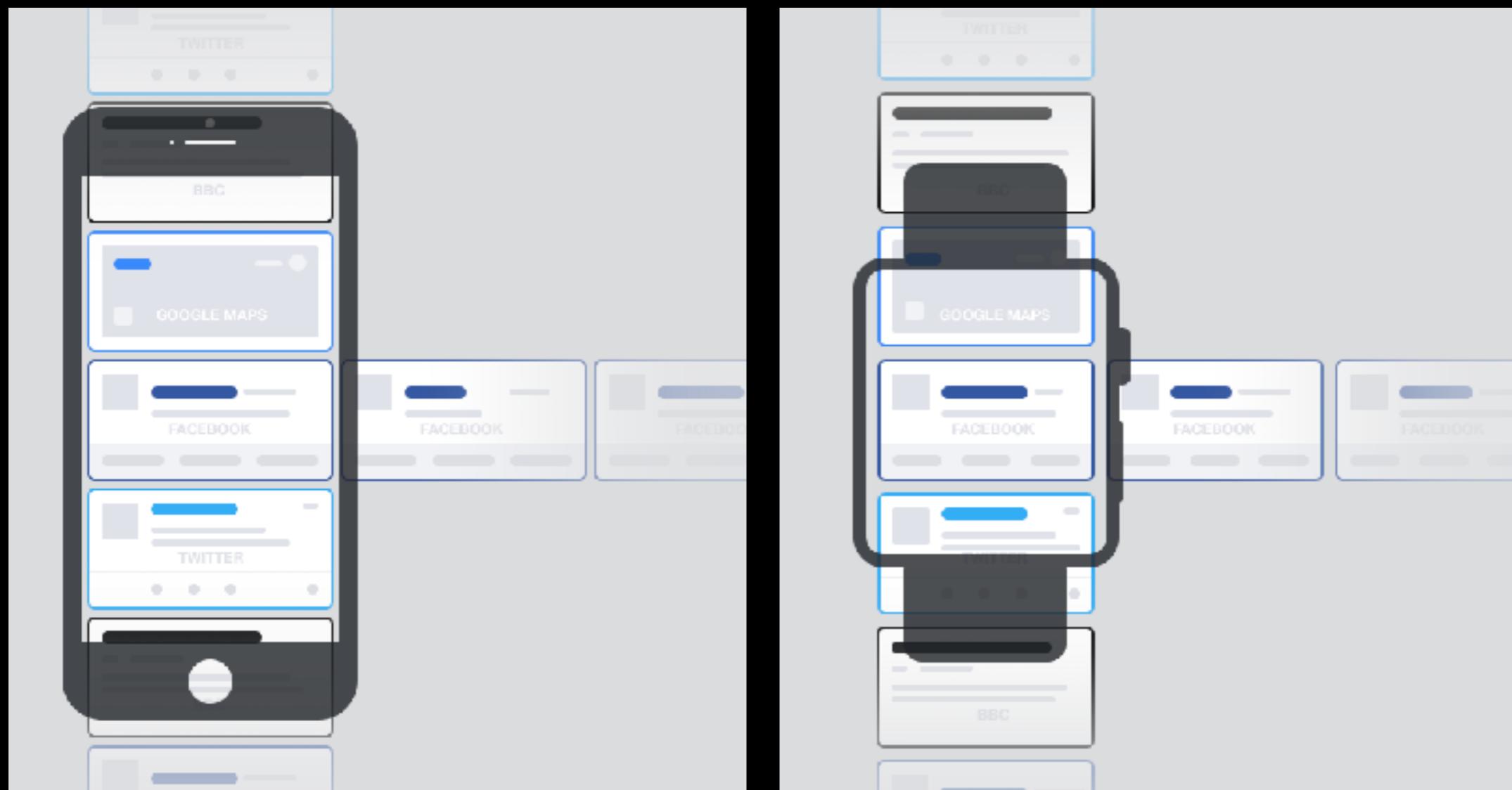
超越触屏： Voice UI、 AR/MR、 VR



What can I help you with?

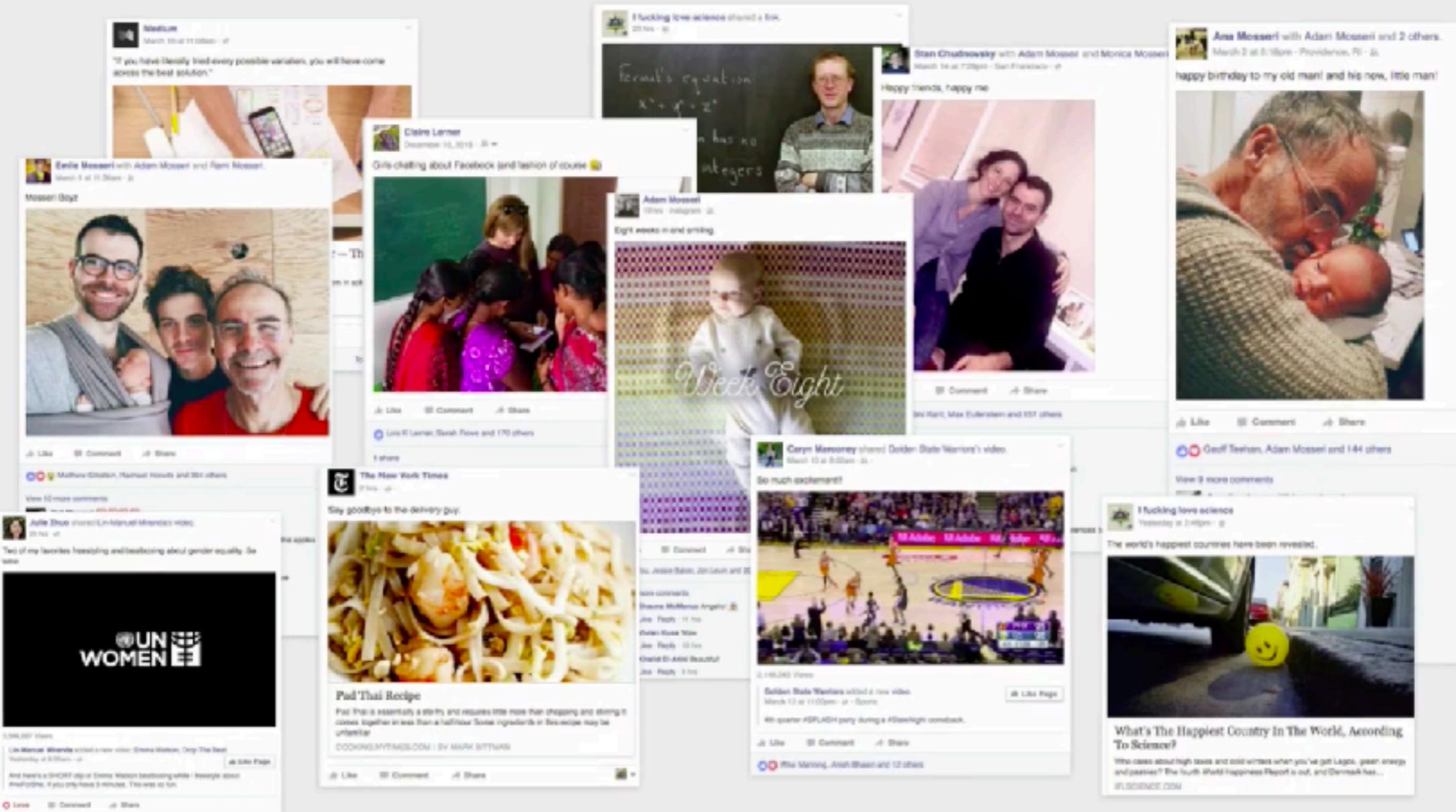
XXX 时代的前夜：新人机界面

万能人机界面：信息流、卡片



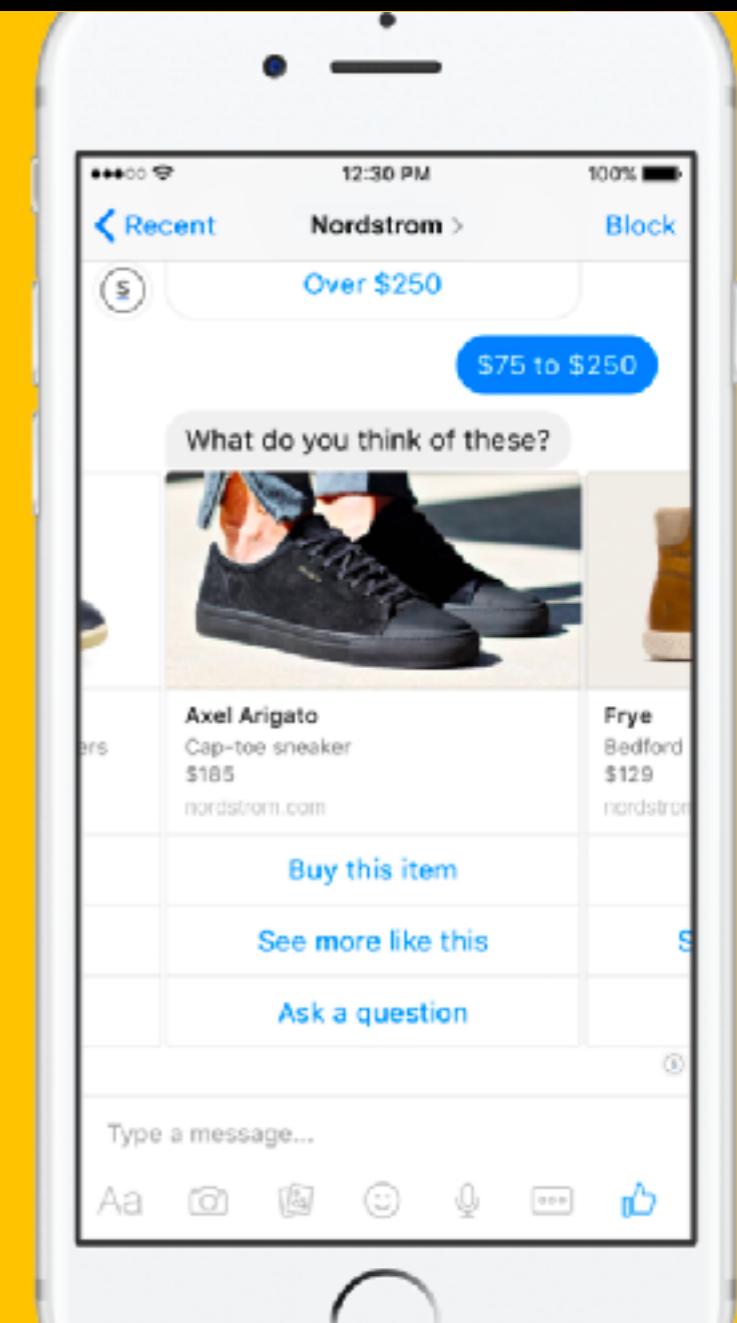
XXX 时代的前夜：新人机界面

万能人机界面：信息流、卡片



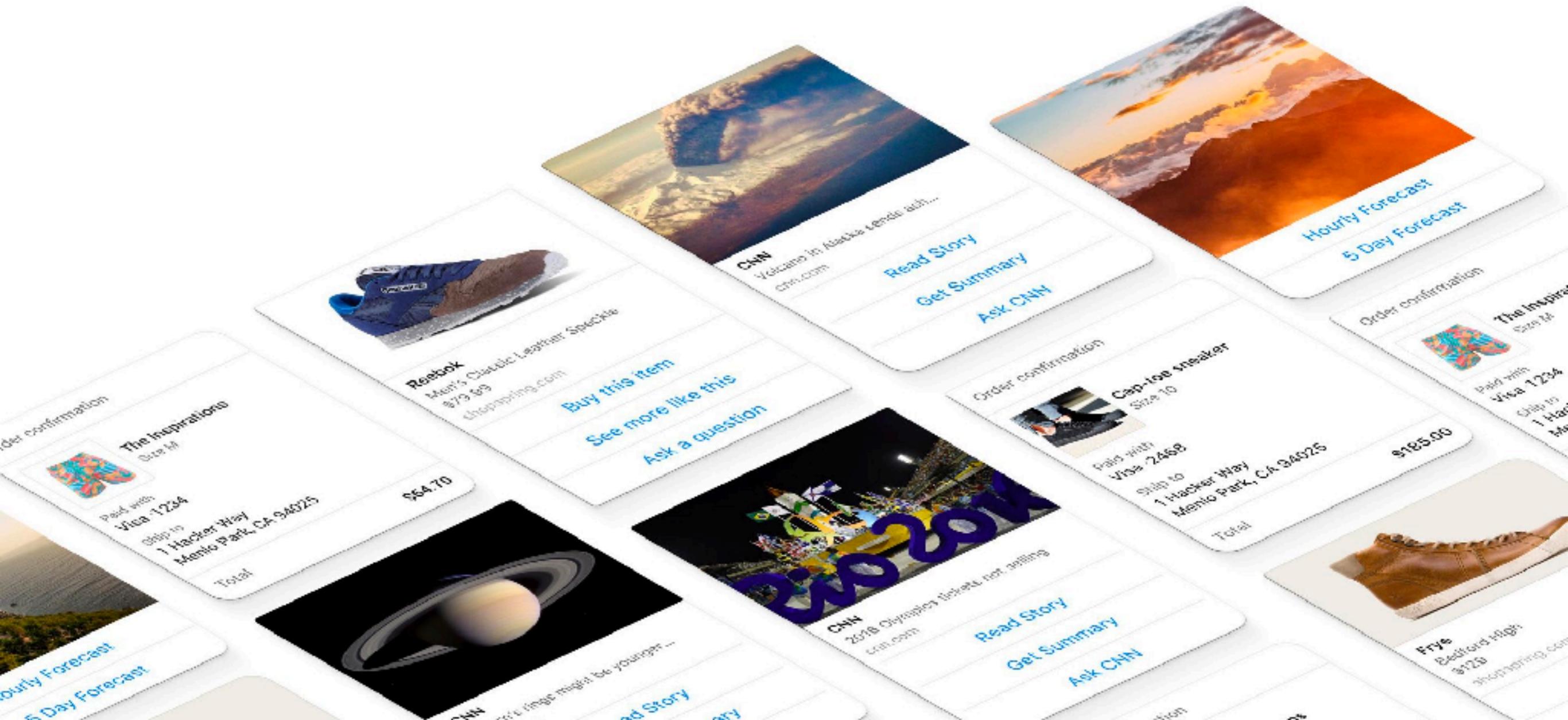
XXX 时代的前夜：新人机界面

万能人机界面：信息流、卡片



XXX 时代的前夜：新人机界面

万能人机界面：信息流、卡片



XXX 时代的前夜：新人机界面

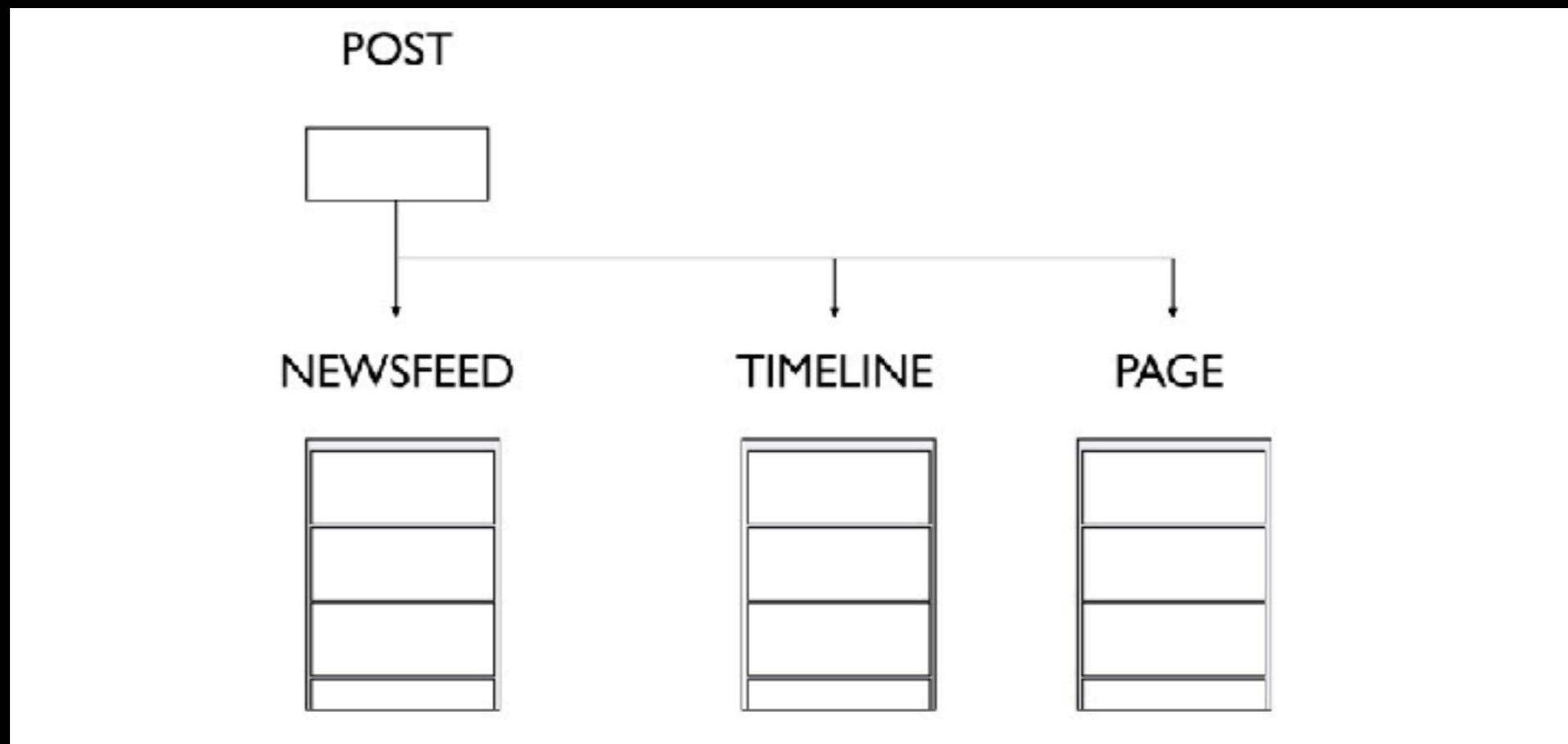
万能人机界面：信息流、卡片



XXX 时代的前夜：从单一应用到离散系统

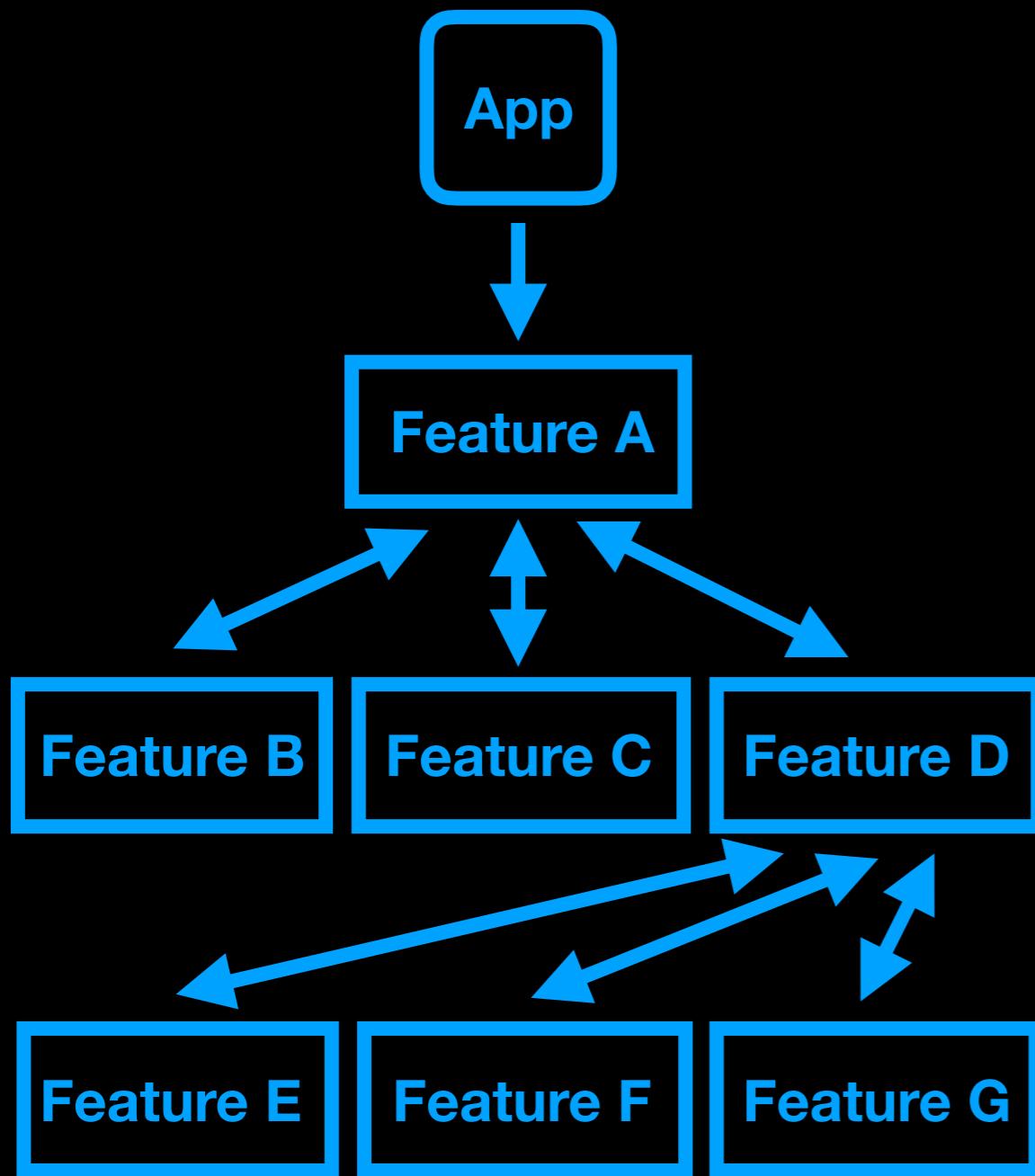
“Facebook is not a blue and white website. It’s a system of connected things which exist independently and in aggregated views.”

– Paul Adams (*Creating systems not destinations*)



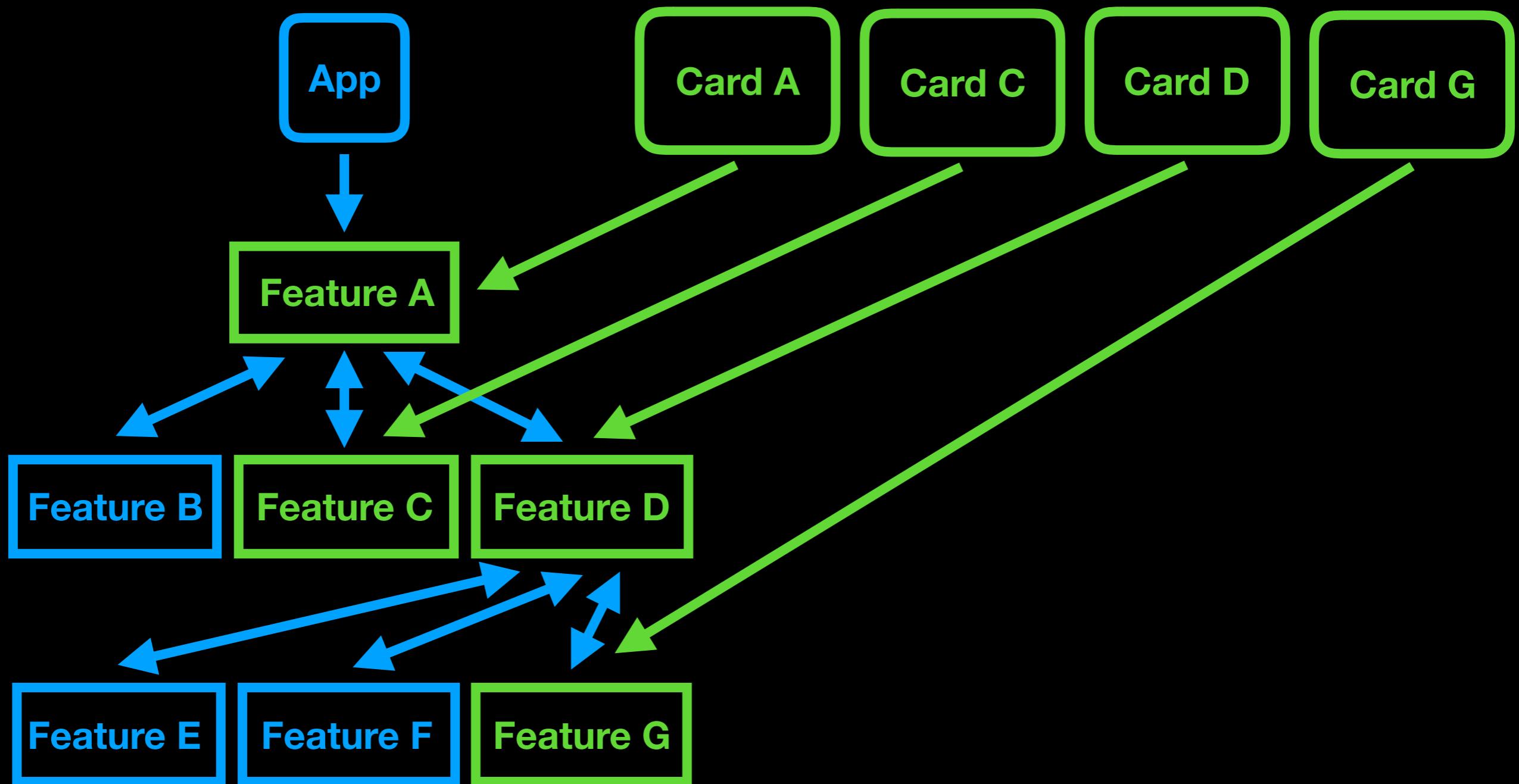
XXX 时代的前夜：从单一应用到离散系统

单一应用解体，入口扁平化



XXX 时代的前夜：从单一应用到离散系统

单一应用解体，入口扁平化

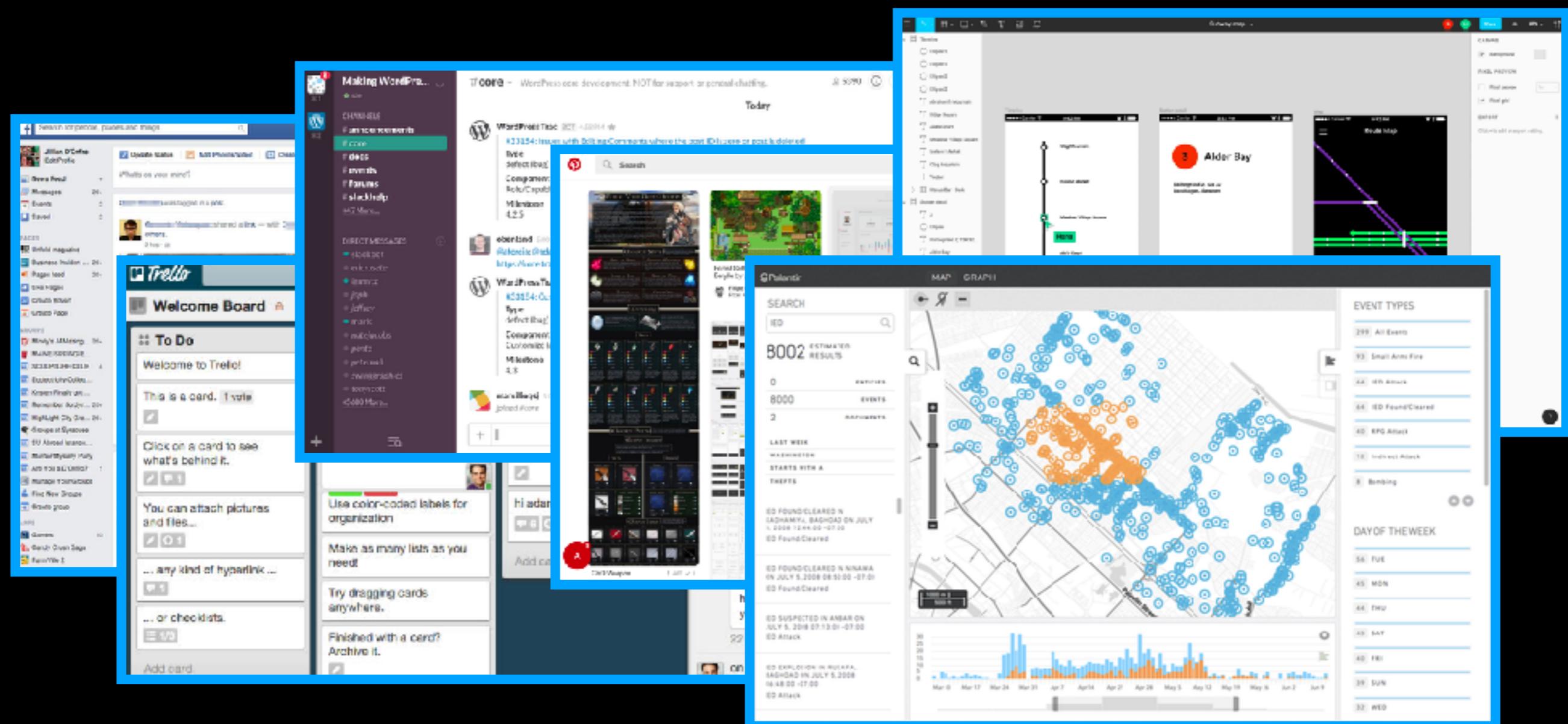


三个新时代带来趋势的大幅加速

1. 移动时代：从内容到服务、从单站到多端、资源限制
2. AI 时代：从主机到云、从增删查改到大数据
3. XXX 时代的前夜：新人机界面、从单一应用到离散系统

Web 走到了哪里

Web Apps



JS 开发者的庞大数量和多样新

- 开发者基数庞大，来自各种技术背景，从事各种行业面对各种需求
- 每年增长 100%，明年超过 Java，任何时候都有 50% 社区成员今年才开始写 JS

Background

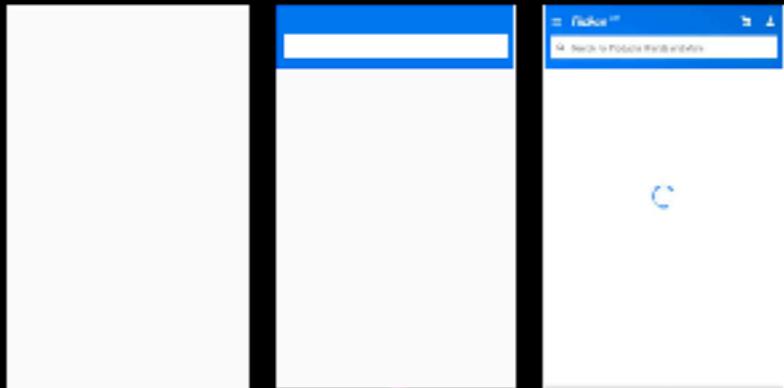
Web designer
Ruby developer
PHP developer
Flash/AS3 developer
C++ developer
JVM developer
Microsoft developer

Requirements

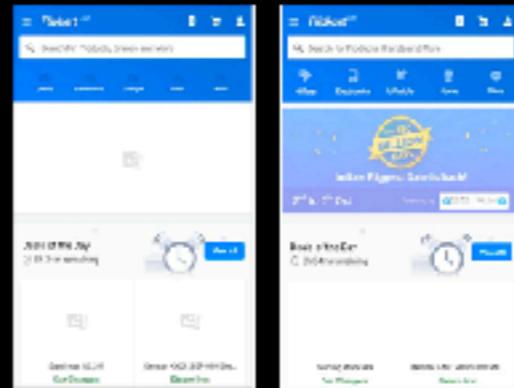
SaaS developer
Realtime web app developer
Mobile web developer
Hybrid app developer
Creative developer
Data visualization developer
Network developer
CLI developer

PWA 和小程序们

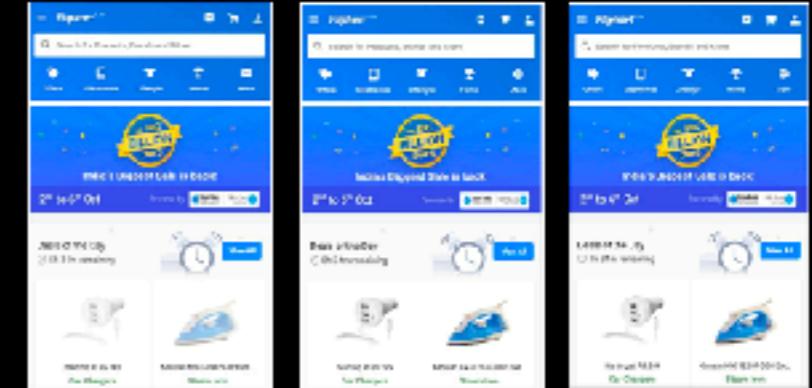
is it happening?



is it useful?



is it usable?



Navigation begins

Time to first byte

First Paint

The first non-blank paint on screen

First Contentful Paint

Navigation has successfully started

First Meaningful Paint

Page's primary content is visible

Visually ready

Page looks nearly done

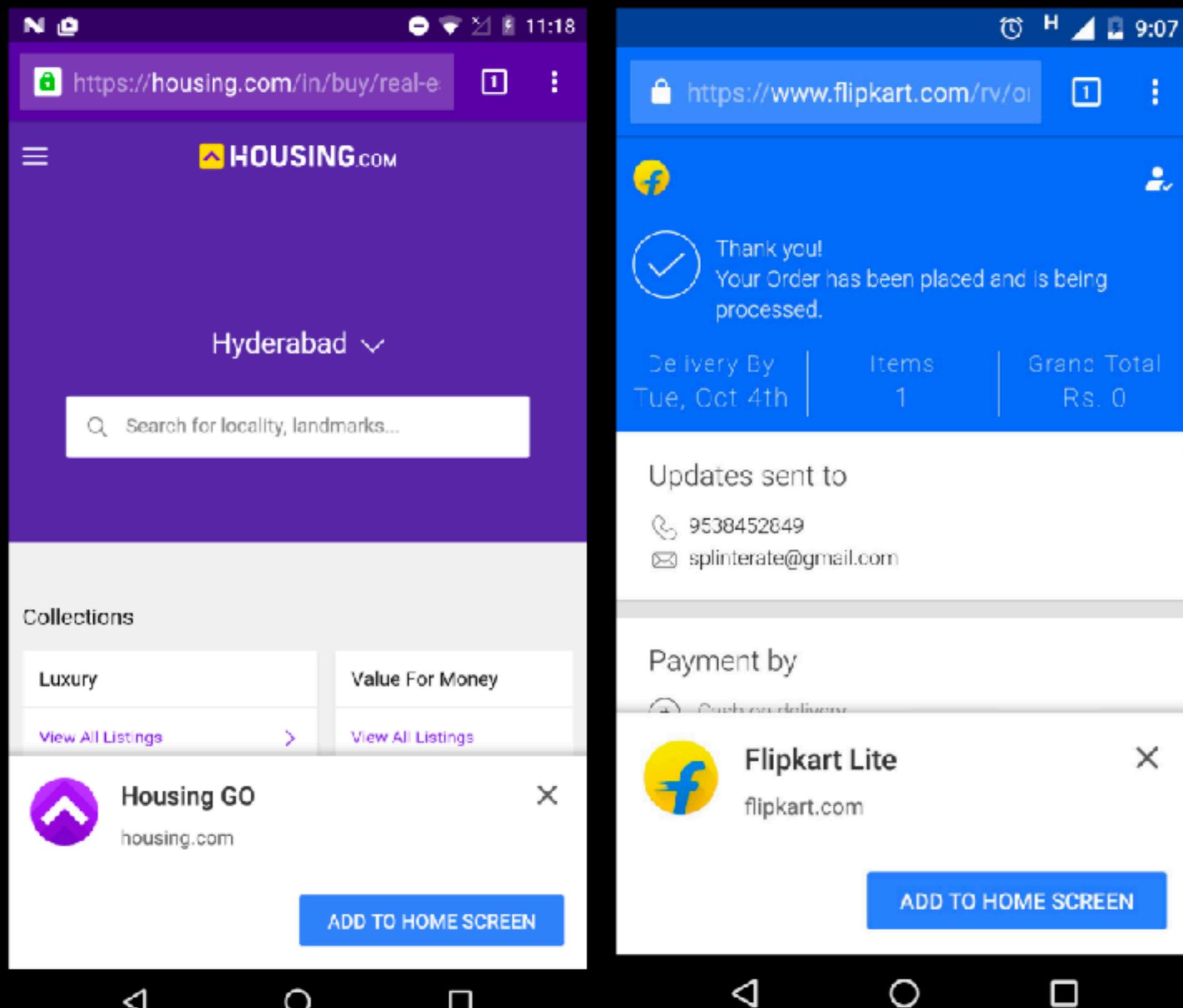
Time to Interactive

Visually usable and engagable

Fully Loaded

End of load lifecycle

PWA 和小程序们



PWA 和小程序们



WebKit

Open Source Web Browser Engine

1 feature

Service Workers

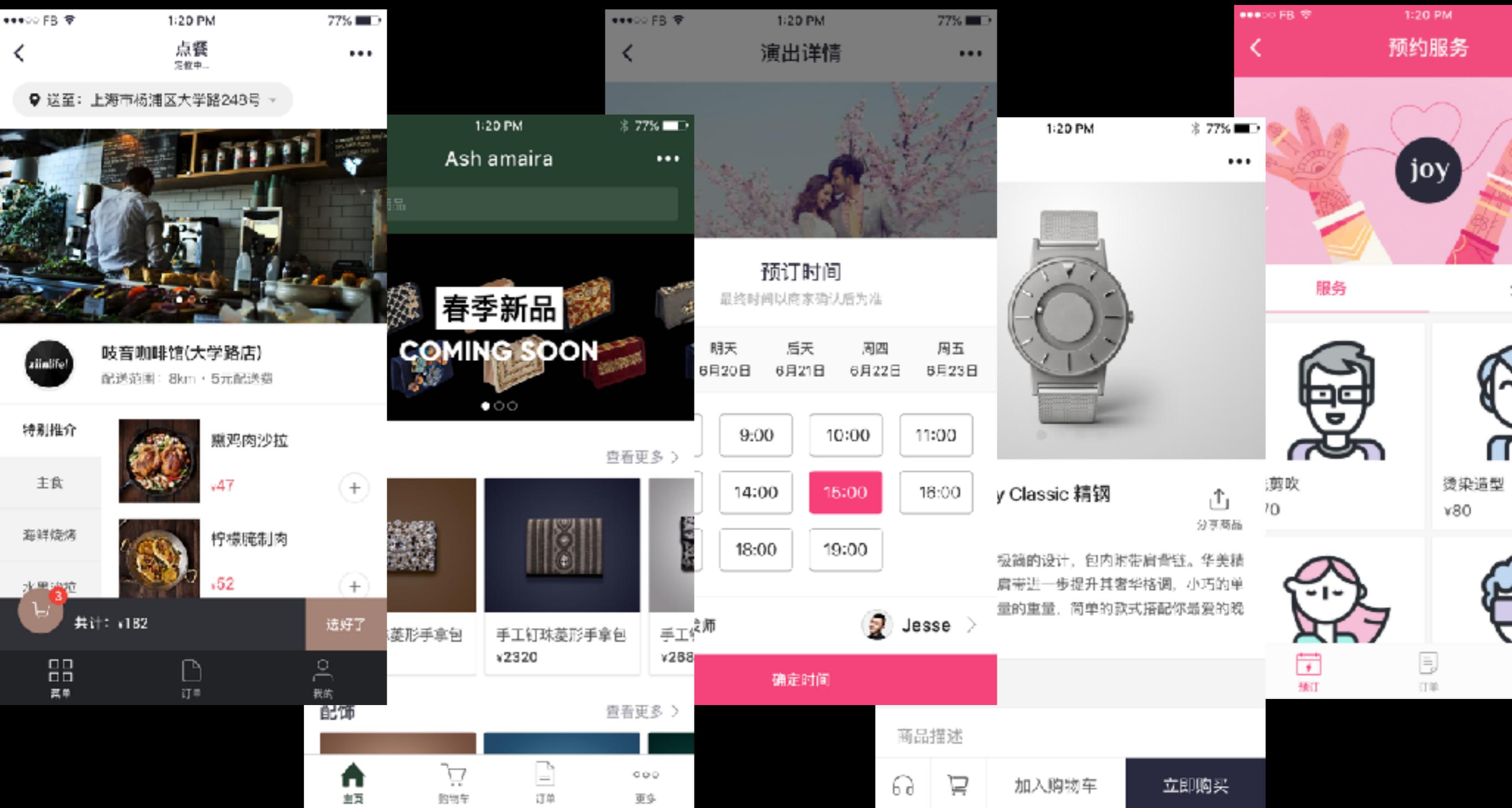
A method for browsers to run JavaScript in the background to handle network requests and manage cached responses. Service Workers offers a replacement for Application Cache.

In Development

Reference [w3c.github.io...](https://w3c.github.io)

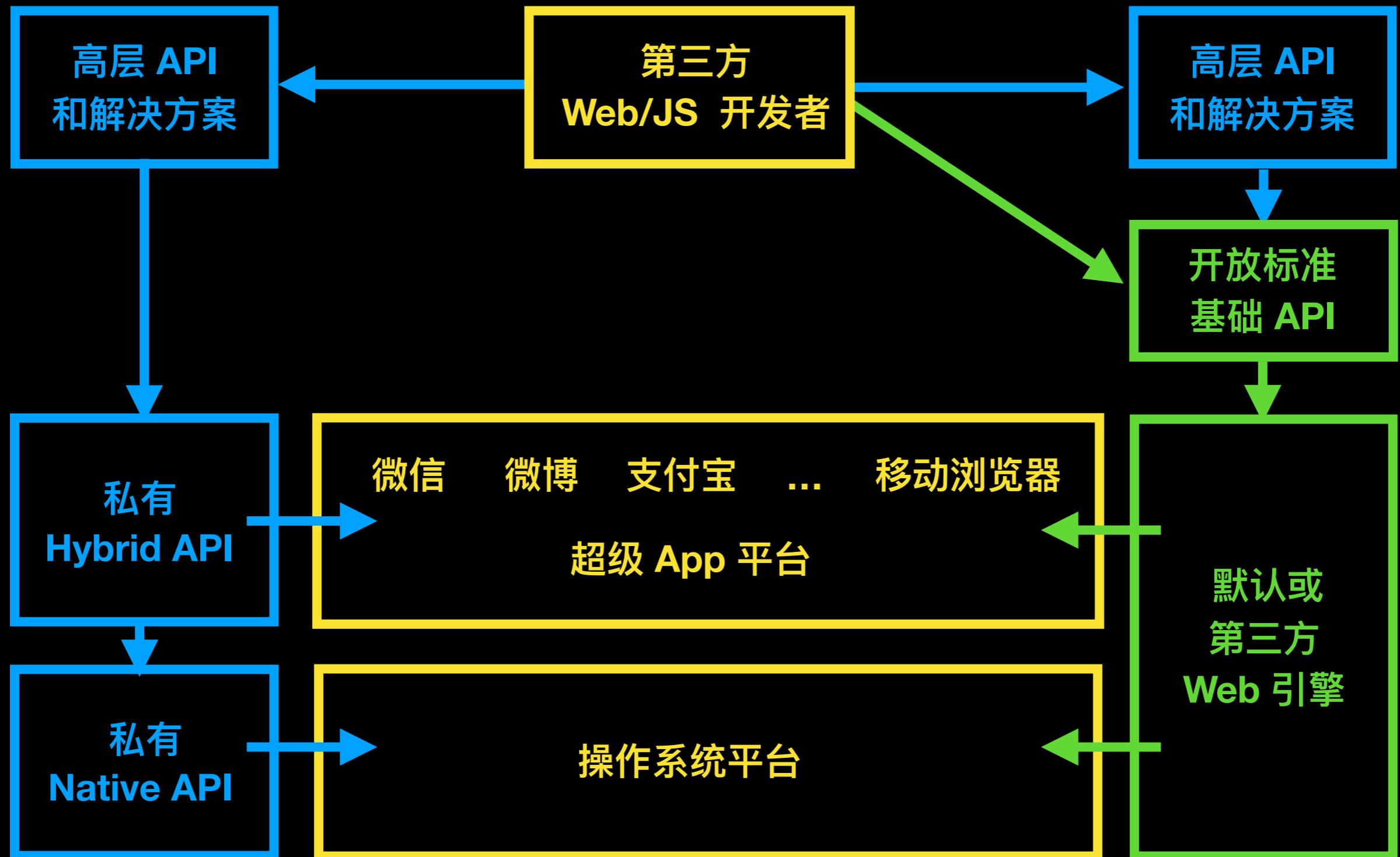
Contact @bradeeoh - Brady Eidson

PWA 和小程序们

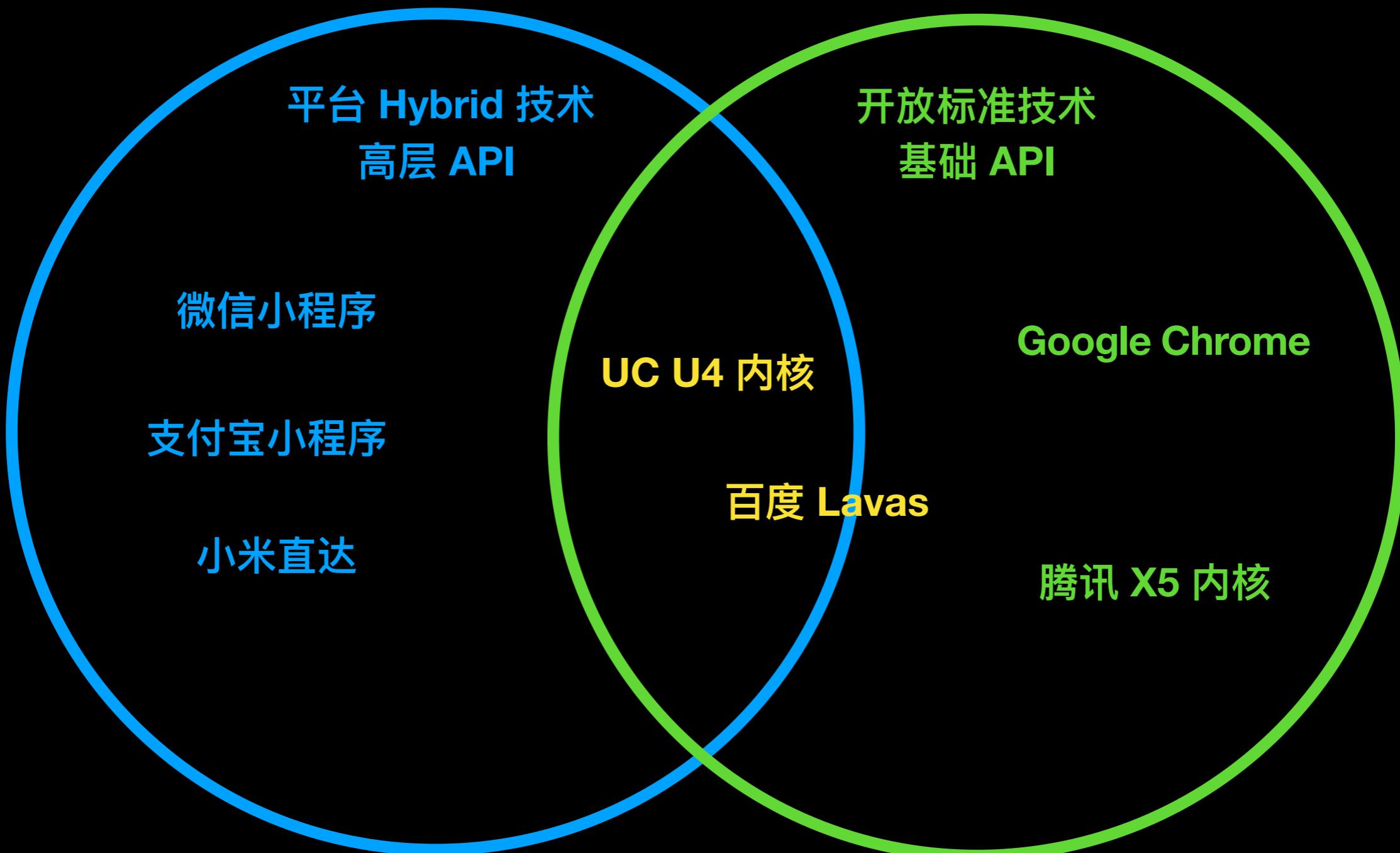


<https://www.sxl.cn/xiaochengxu>

PWA 和小程序们

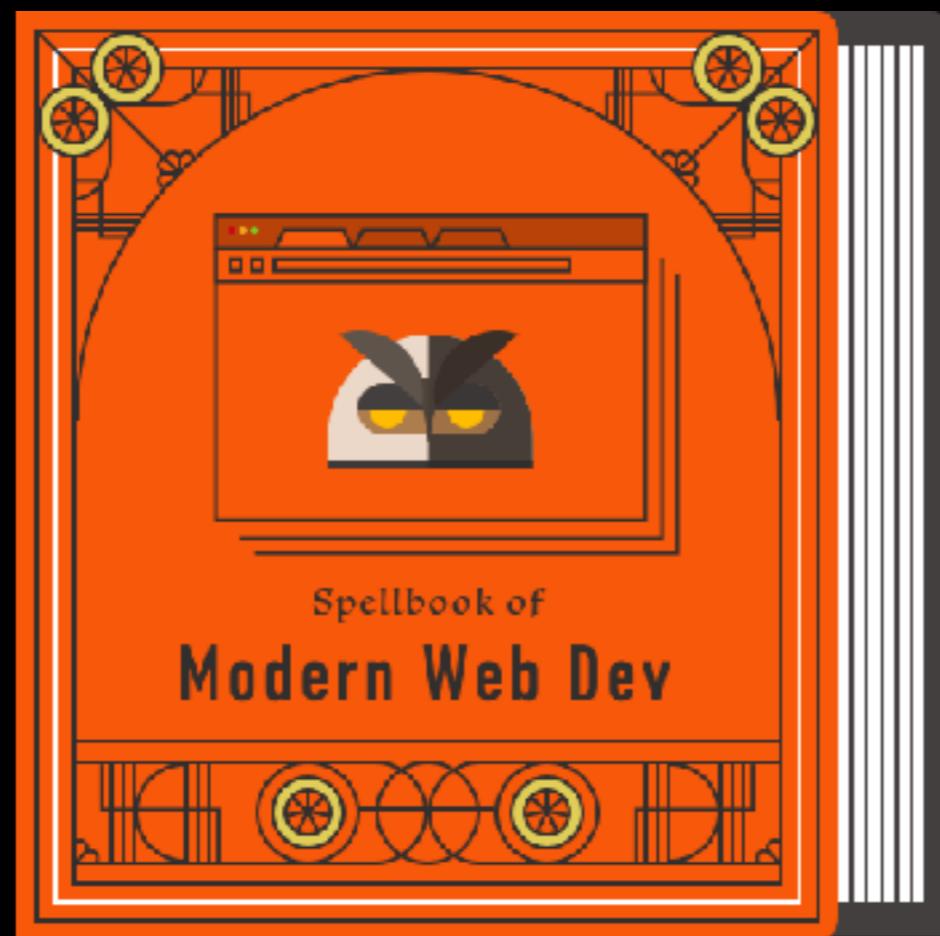


PWA 和小程序们



Spellbook of Modern Web Dev

现代 web 开发者的魔法书



<https://github.com/dexteryy/spellbook-of-modern-webdev>

Trending in open source

See what the GitHub community is most excited about this month.

Repositories

Developers

Trending: this month

All languages

Unknown lang

C/C++

HTML

JavaScript

Objective-C

Python

Ruby

Vim script

Other: Lang

ProTip! Look
updated rep
search

- 9000+ Stars in Github

- Github Trending:

- 第一天： (全语言类) 日榜第一
- 第二天： (全语言类) 周榜第二
- 第三天： (全语言类) 月榜第六
- 一周后： (全语言类) 周榜第一月榜第二

[sdmg15 / Best-websites-a-programmer-should-visit](#)

★ Star

Some useful websites for programmers.

★ 15,277 ⚡ 1,252 Built by



★ 15,342 stars this month

[dexterityy / spellbook-of-modern-webdev](#)

★ Star

A Big Picture, Thesaurus, and Taxonomy of Modern JavaScript Web Development

★ 8,284 ⚡ 370 Built by



★ 8,266 stars this month

[kallashahirwar / cheatsheets-ai](#)

★ Star

Essential Cheat Sheets for deep learning and machine learning researchers

★ 5,829 ⚡ 869 Built by



★ 5,828 stars this month

[colebemis / feather](#)

★ Star

Simply beautiful open source icons

● HTML ★ 8,171 ⚡ 156 Built by



★ 8,096 stars this month

[ory / editor](#)

★ Star

Next-gen, highly customizable content editor for the browser - based on React and Redux. WYSIWYG on steroids.

● JavaScript ★ 5,411 ⚡ 179 Built by



★ 5,288 stars this month

[tensorflow / tensorflow](#)

★ Star

Computation using data flow graphs for scalable machine learning

● C++ ★ 81,389 ⚡ 29,532 Built by



★ 3,728 stars this month

[leandromoreira / digital_video_introduction](#)

★ Star

A hands-on introduction to video technology: image, video, codec (av1, vp9, h265) and more (ffmpeg encoding).

● Jupyter Notebook ★ 4,673 ⚡ 250 Built by



★ 4,326 stars this month

[grab / front-end-guide](#)

★ Star

Study guide and introduction to the modern front end stack.

推荐：

- JS 之父 (Brendan Eich)
- 德国际一峰 (Dr. Axel Rauschmayer)

 [BrendanEich](#) Retweeted

 **Binni Shah** @binitamshah · 10h
spellbook-of-modern-webdev: A Big Picture, Thesaurus, Taxonomy of Modern JavaScript Web Development : github.com/dexteryy/spell... cc @BrendanEich


dexter.Yy
dexteryy/spellbook-of-modern-webdev
spellbook-of-modern-webdev - A Big Picture, Thesaurus, and Taxonomy of Modern JavaScript Web Development
[github.com](https://github.com/dexteryy/spellbook-of-modern-webdev)

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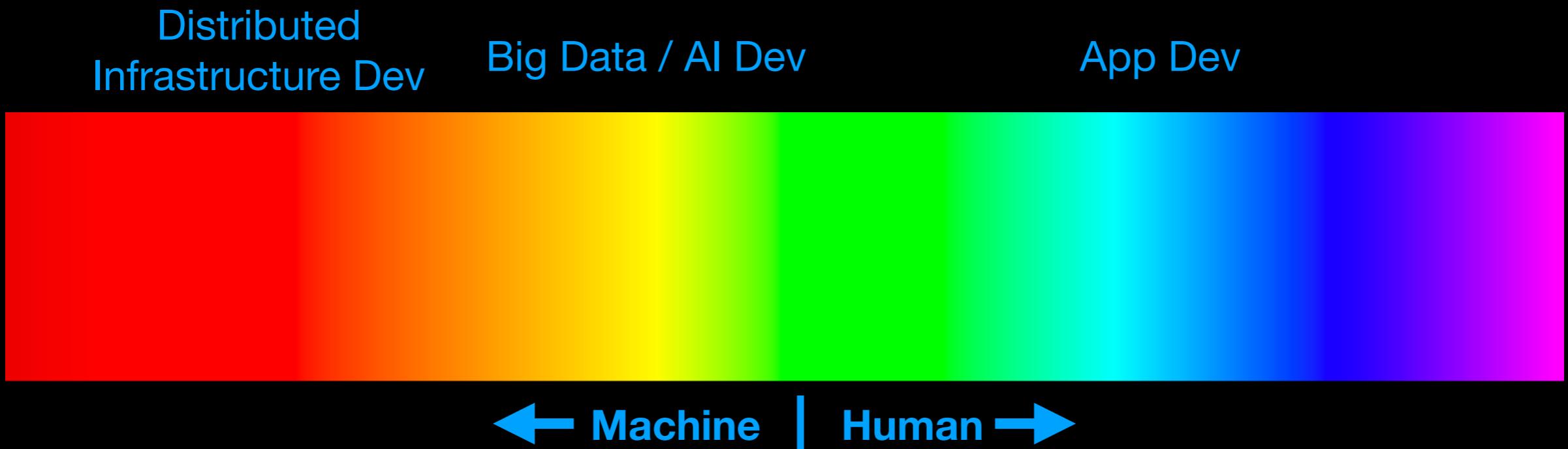
 **Axel Rauschmayer** @rauschma · Jun 15
Spellbook of modern web dev: big picture, thesaurus and taxonomy @dexteryy


dexter.Yy
dexteryy/spellbook-of-modern-webdev
spellbook-of-modern-webdev - A Big Picture, Thesaurus, and Taxonomy of Modern JavaScript Web Development
[github.com](https://github.com/dexteryy/spellbook-of-modern-webdev)

1 20 16

新分工和『现代 web 开发』

- 面向人类：应用开发者
- 面向数据：大数据/AI开发者
- 面向机器：分布式基础设施开发者（向公有云企业集中）



新分工和『现代 web 开发』

- 应用开发者：现代 web 开发技术（Universal JS、Open Web 平台、原生扩展）、原生平台开发技术
- 大数据/AI开发者：Python、JVM
- 分布式基础设施开发者：Go、JVM

偷懒版

新分工和『现代 web 开发』

『现代 web 开发』的特征

- 以客户端为主体：服务器端部分很薄，大量成熟业务逻辑、数据能力、运维能力和基础设施被 API 化、云服务化（由第三方服务商和团队内的专业开发者提供）
- 不只有客户端：服务器端渲染 + API Gateway + 部分面向应用的微服务
- 不只有浏览器：超级 app 平台、各种基于 Web Runtime / JS Runtime 的 Hybrid 技术
- JS everywhere

新分工和『现代 web 开发』

『现代 web 开发』的方向

- 主流软件开发技术：日臻完善的工具链、工程环境和生态系统
- More APIs, More Power：HTML5 API（交互、访问、离线、HTTP/TCP/UDP、图像、显卡、...）、Node.js（底层网络、操作系统、...）、Hybrid API（系统深度集成）
- 新形态 web 应用：传统 web 和传统应用软件的融合

strikingly 上线了
SXL.CN

We Are Hiring!

jobs@sxl.cn



Thanks



dexter.yy@gmail.com

[dexteryy @ Github](#)

[dexteryy @ Twitter](#)

[dexteryy @ 微博](#)