



O'REILLY®

Velocity

CONFERENCE

BUILD RESILIENT SYSTEMS AT SCALE

搜索极速浏览框架探索与实践

陶清乾

velocityconf.com

#velocityconf

陶清乾



title

百度网页搜索部 — 资深研发工程师

2016

百度搜索生态体验优化

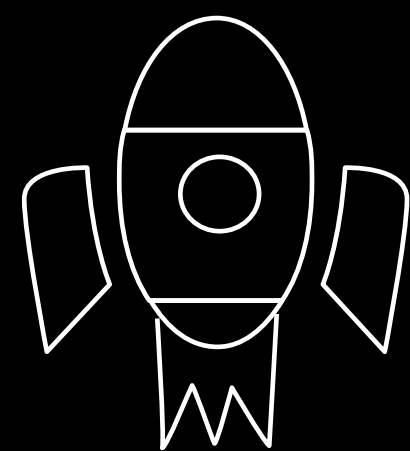
2015

百度搜索全站HTTPS

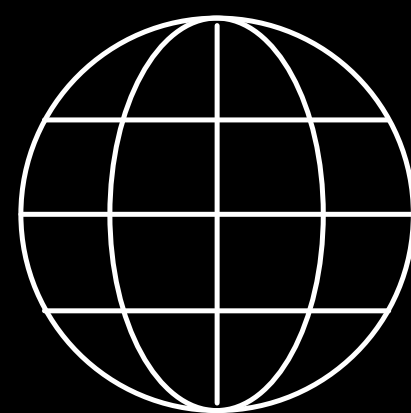
2014

百度搜索Web前端性能优化

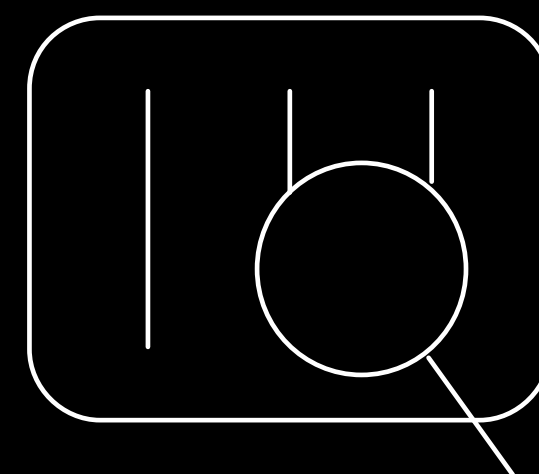
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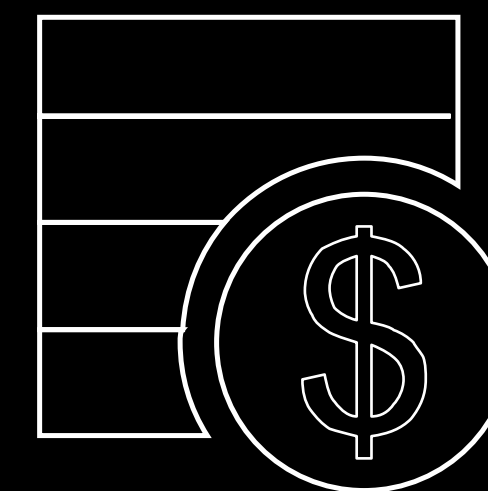
速度之于搜索



搜索全流程
速度现状

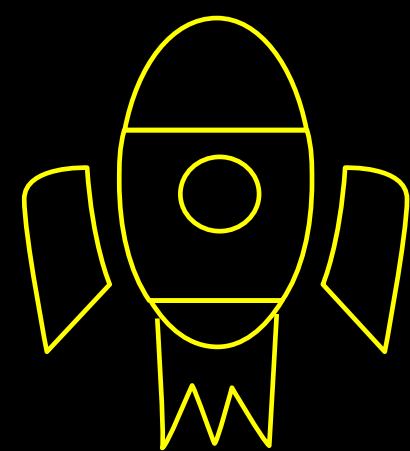


搜索极速浏览框架
探索与实现

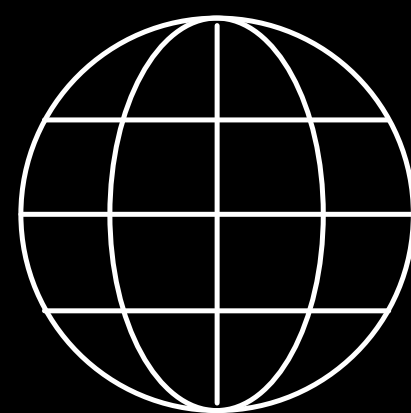


应用现状与收益

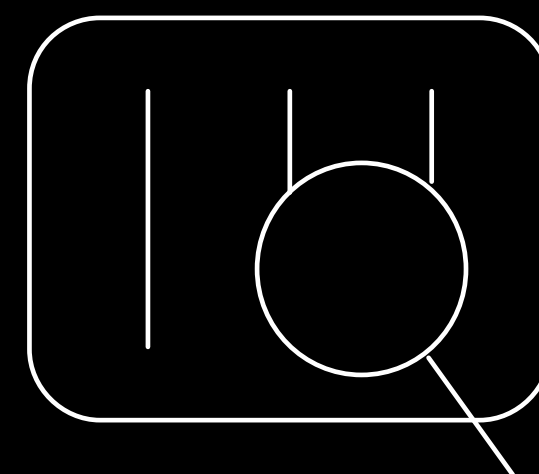
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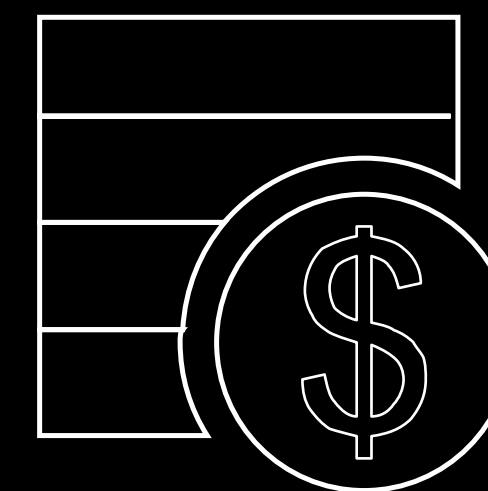
速度之于搜索



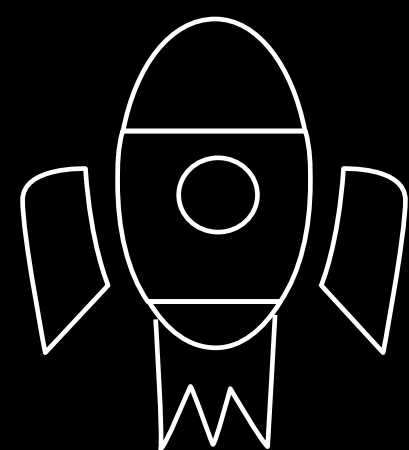
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



应用现状与收益

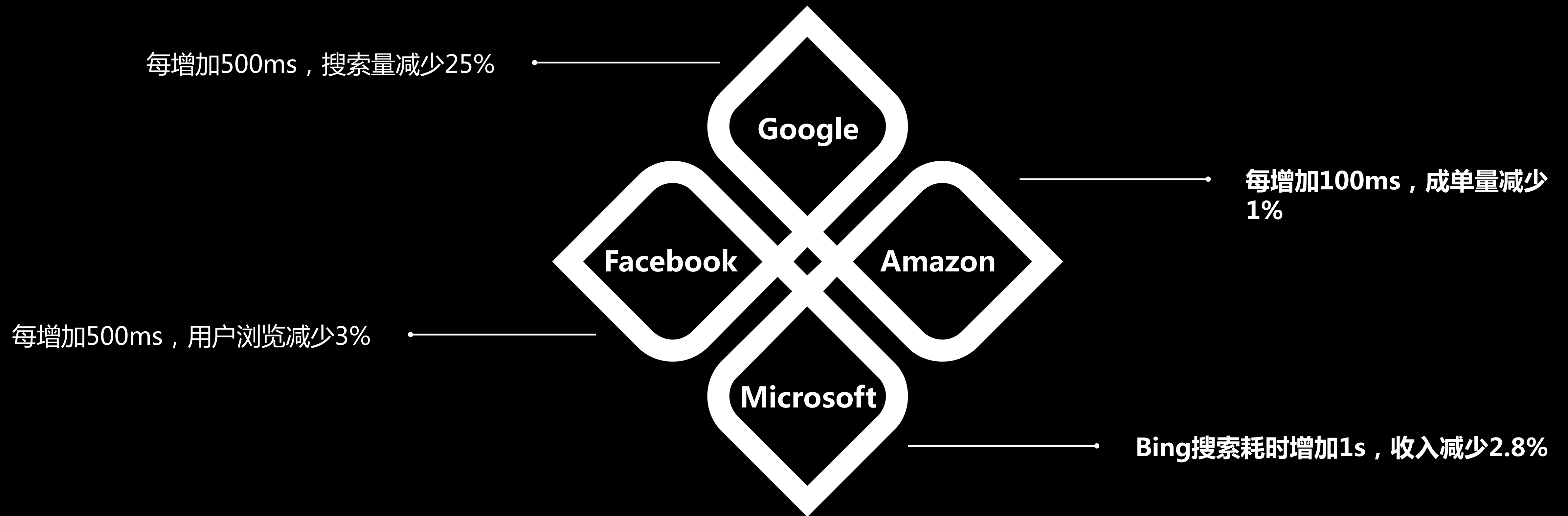


速度之于搜索

◆ 业界对速度的认知

◆ 速度对搜索的意义

业界知名公司对速度的认知



其他一些数据

Still not convinced? Check out the following research:



Facebook pages that are 500ms slower result in a 3% drop-off in traffic, 1000ms is 6% drop-off



If Amazon increased page load time by +100ms they lose 1% of sales



If Google increased page load time +500ms they get 25% fewer searches.



Reduced page load times from 7 seconds to 2 seconds and saw a 7% - 12% increase in conversion rate.
Increased page views by 25% by decreasing their load time by 5 seconds.



If Yahoo increased page load times by +400ms they see a 5 – 9% drop in full-page traffic



If Firefox reduced load times by 2.2 seconds they would see an increase in download conversions by 15.4%



A 1 second delay in Bing results in a 2.8% drop in revenue, 2 seconds is 4.3%

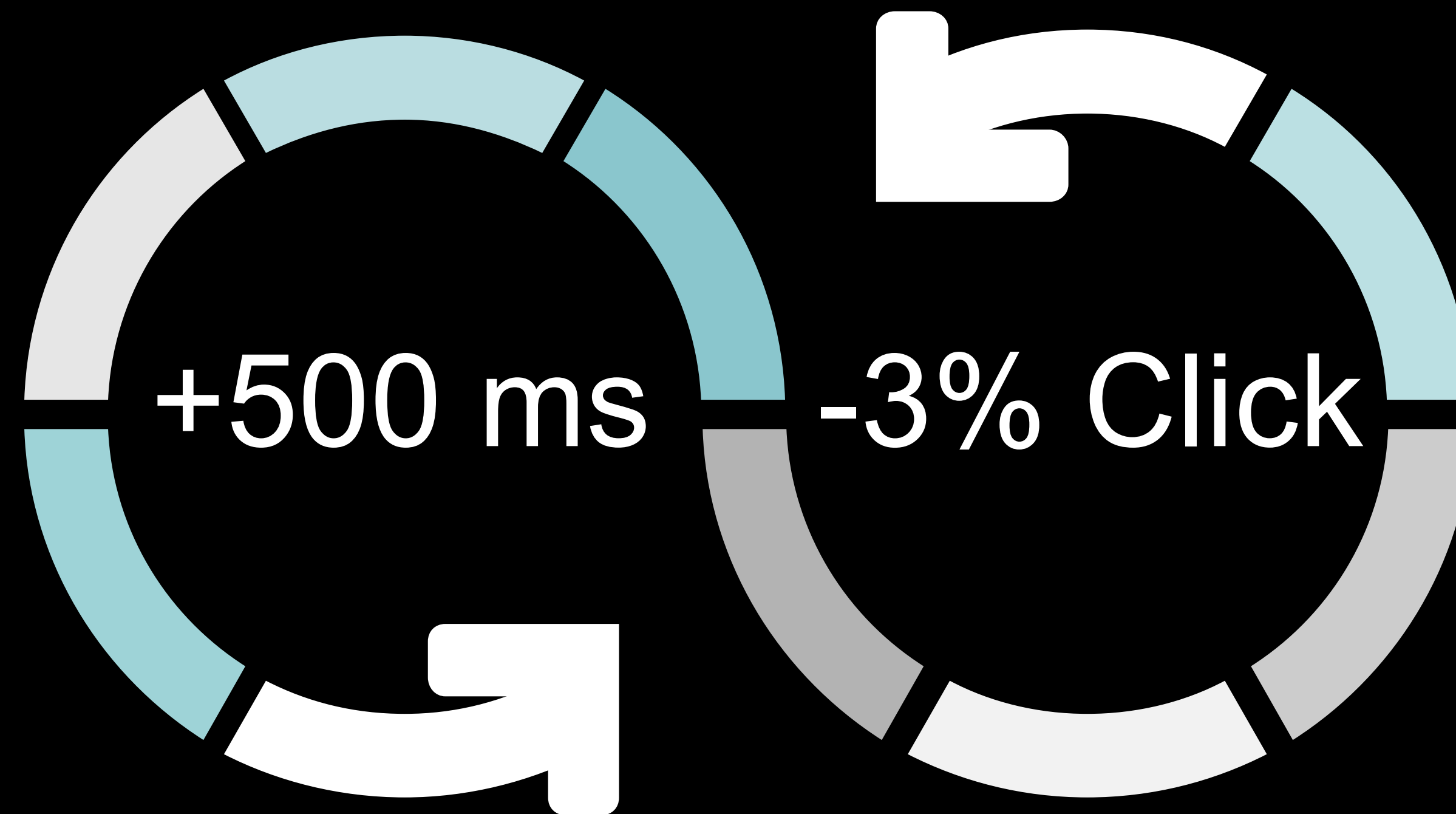


Netflix saw a 43% drop in outbound traffic after enabling compression



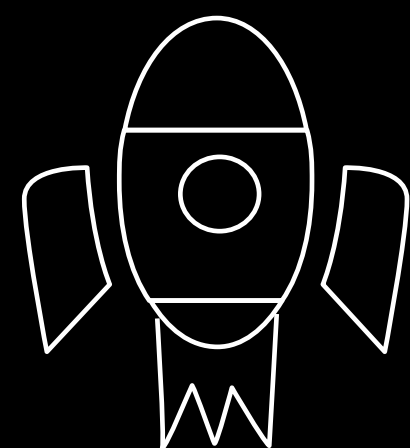
Hotmail discovered that a 6 sec delay in time to load caused a 40 Million drop in ad impressions per month, which equates to a \$6 Million drop in ad revenues per year

速度对百度搜索的意义

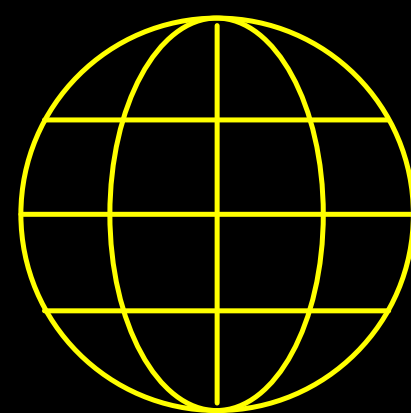


速度与用户体验息息相关！

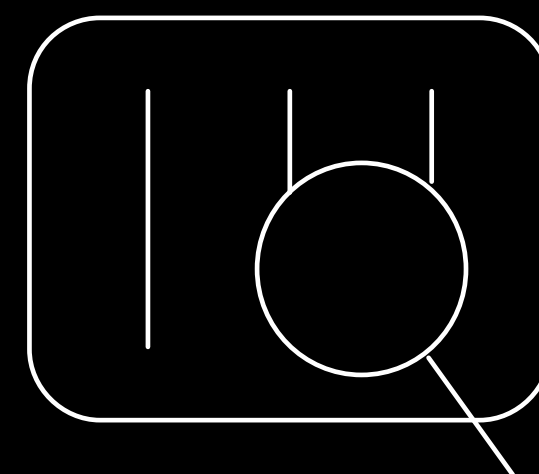
目录



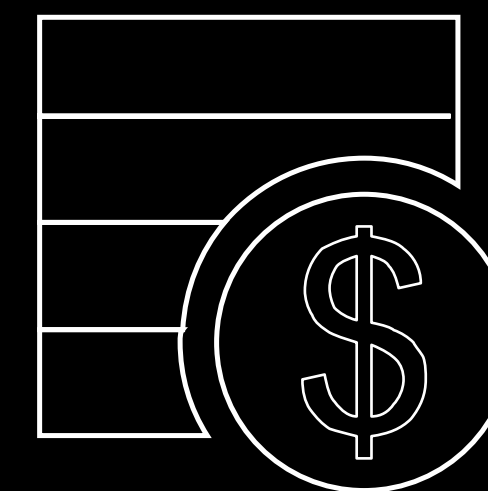
速度之于搜索



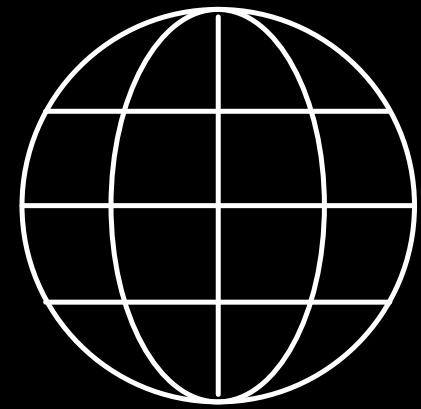
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



应用现状与收益

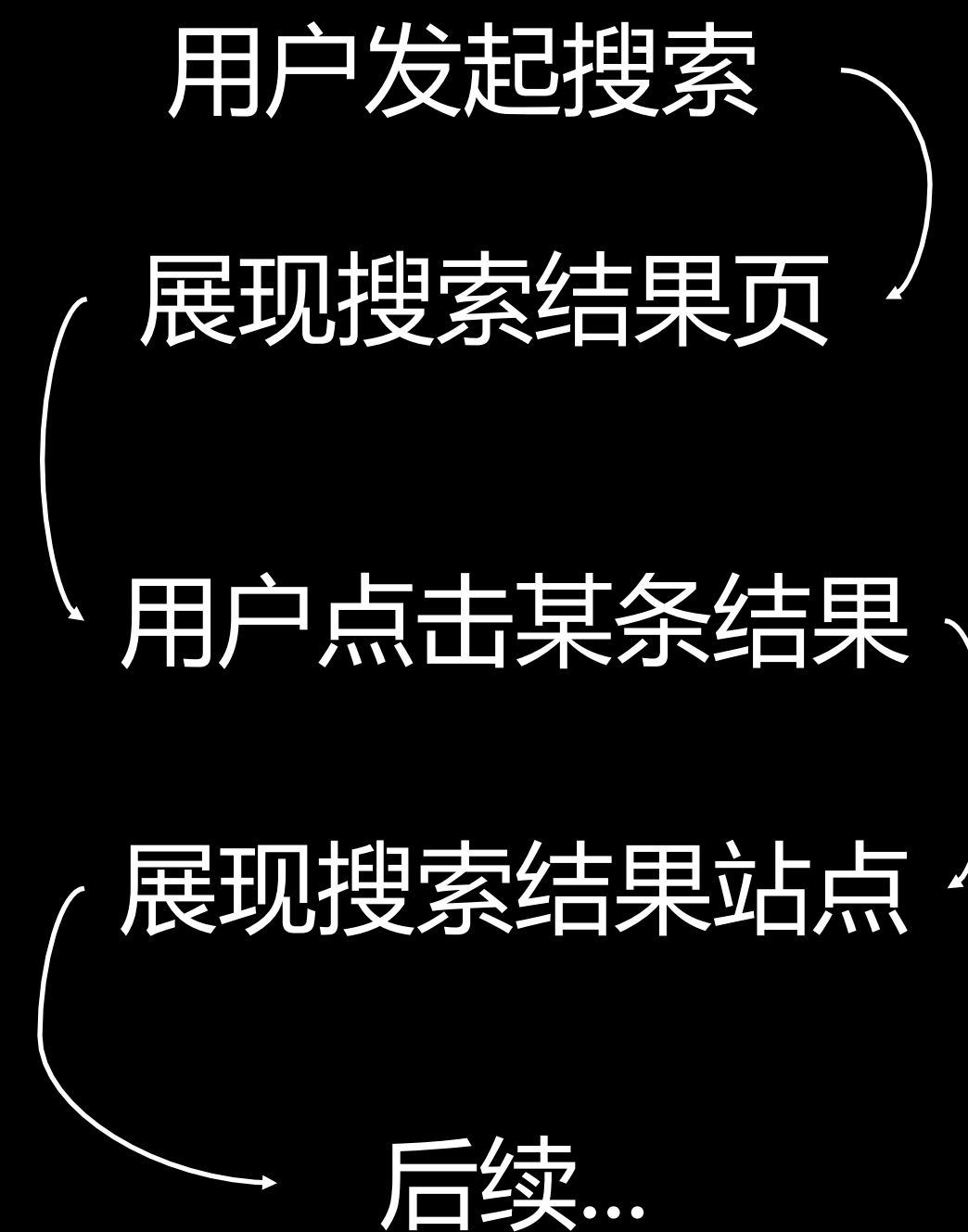


搜索全流程
速度现状

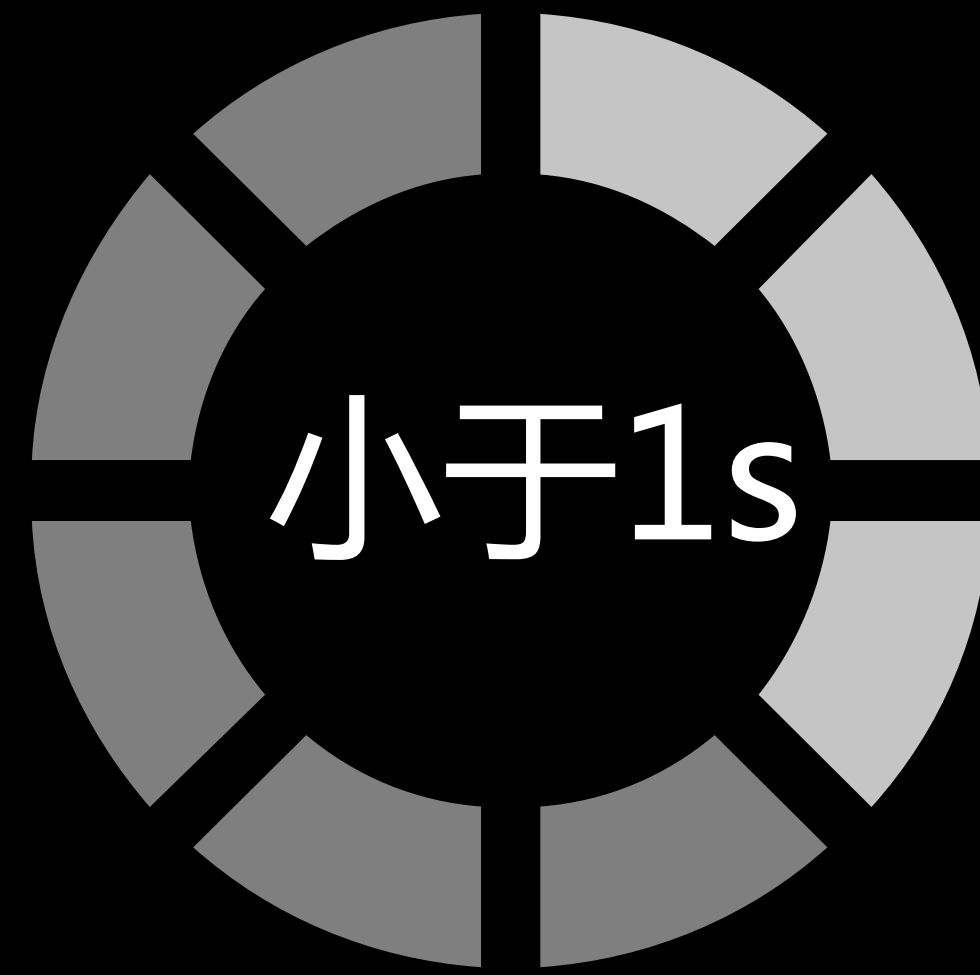
◆ 搜索速度现状

◆ 搜索结果站点速度现状

搜索全流程

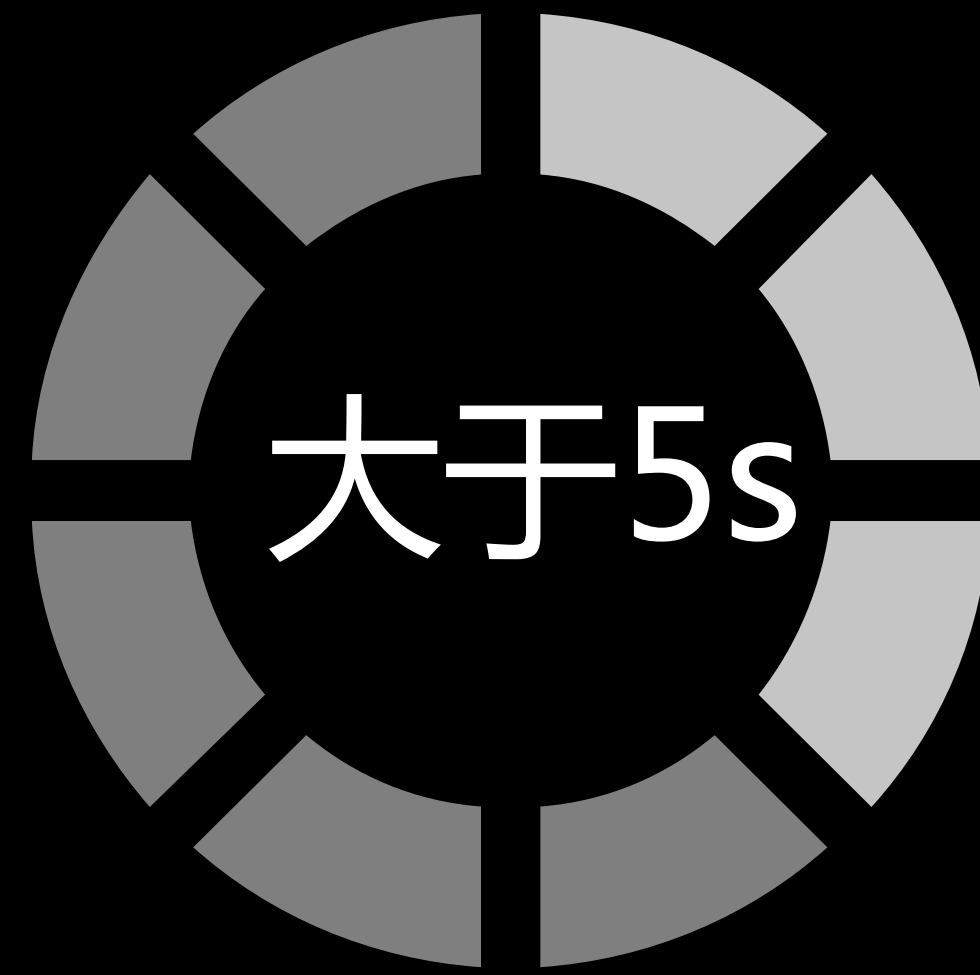


百度搜索速度现状



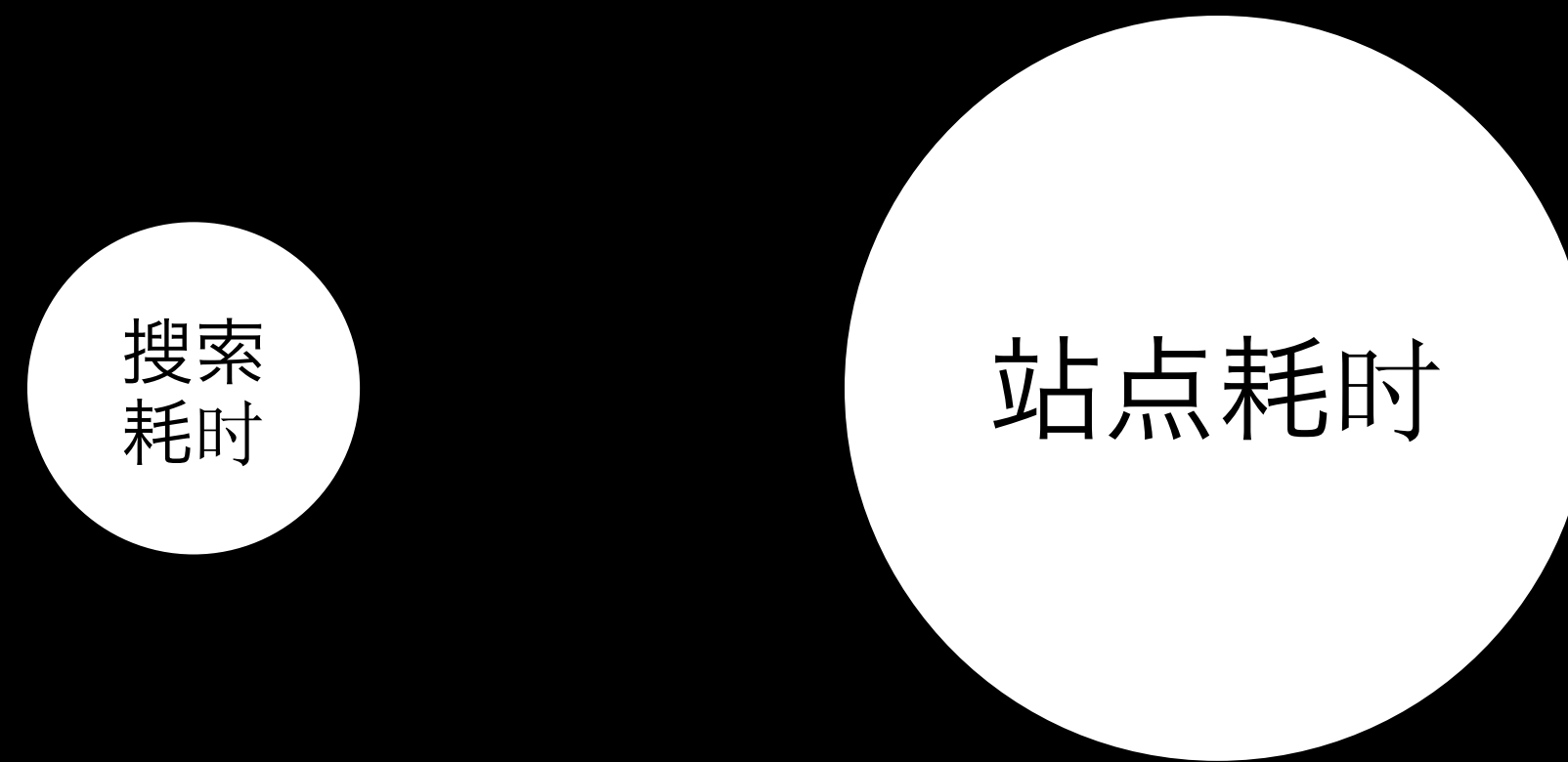
80%用户搜索首屏时间

百度搜索结果站点速度现状



平均加载时间

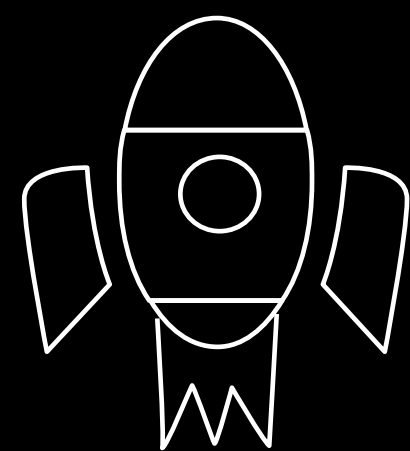
百度搜索结果站点速度现状



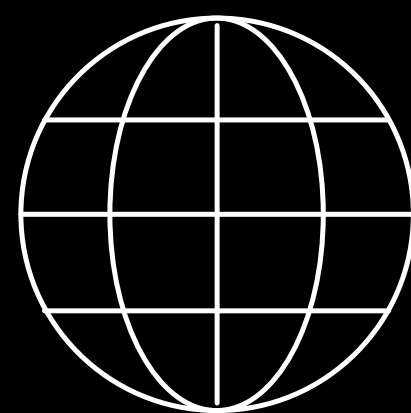
全流程体验差距大

如何优化？

目录



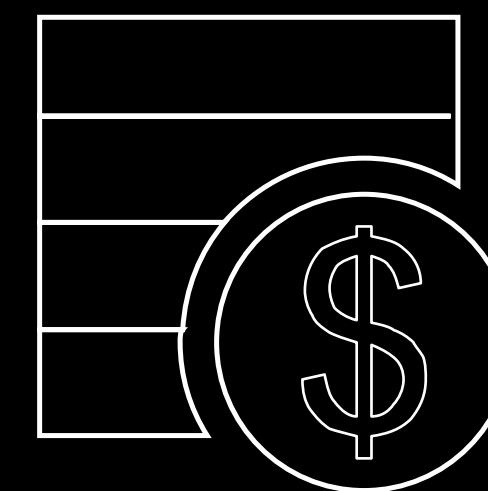
速度之于搜索



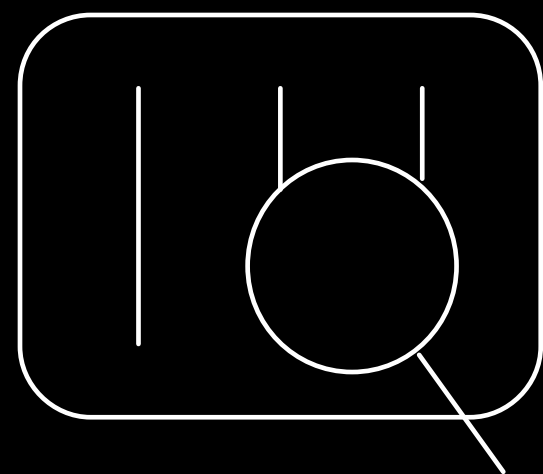
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



应用现状与收益



搜索极速浏览框架
探索与实现

◆ 全流程优化思路

◆ 解决哪些问题

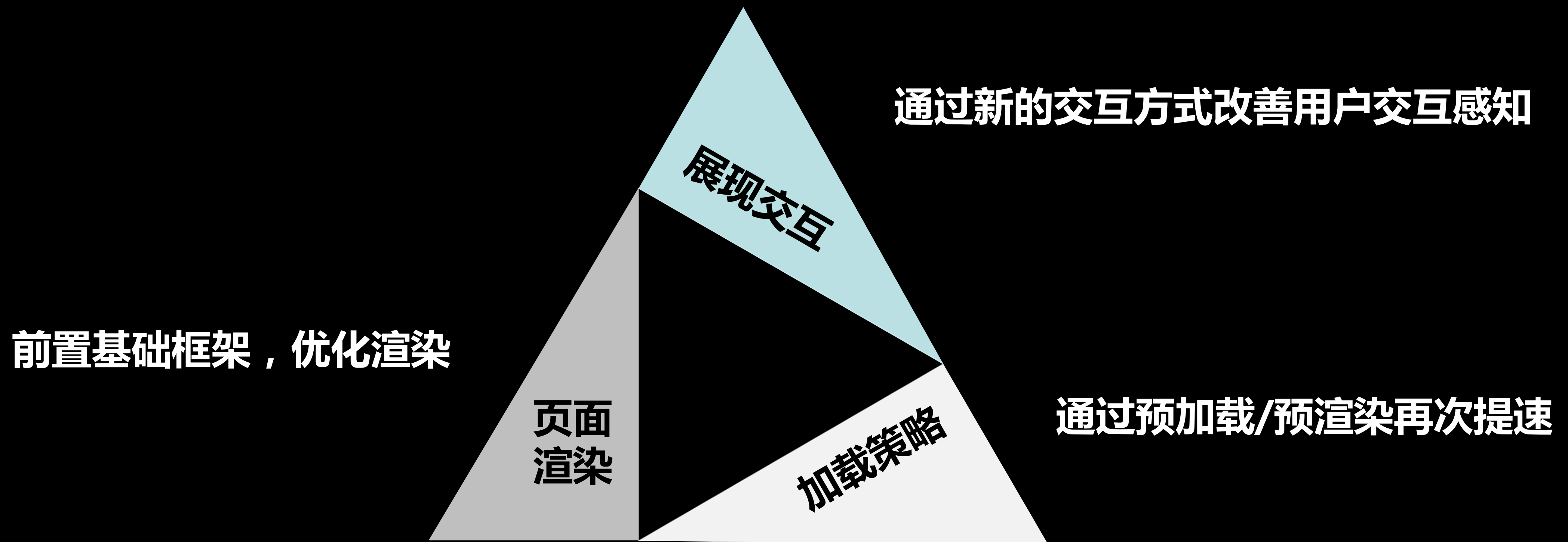
◆ 加速原理

页面优化普适方案

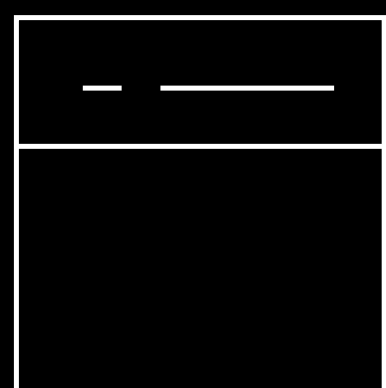
优化页面自身加载速度

优化页面加载/展现方式

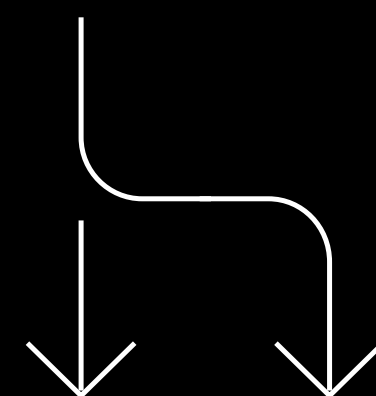
全流程优化思路



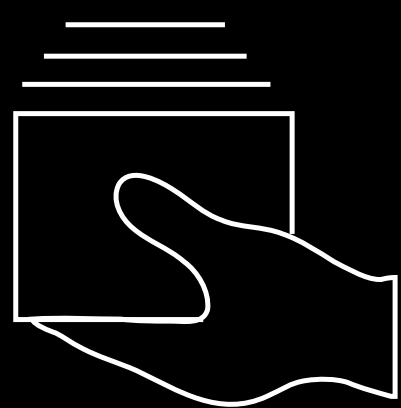
框架解决这些问题



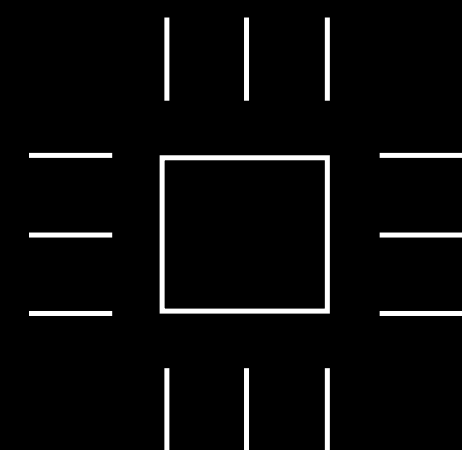
创建容器视图
提升展现交互体验



异步加载渲染
提升页面渲染速度



提前预取实例
优化网络与服务开销



提供组件机制
优化细粒度模块速度

Case1



感知交互：1.2s

加载时间：5.3s

3G网络

Case2

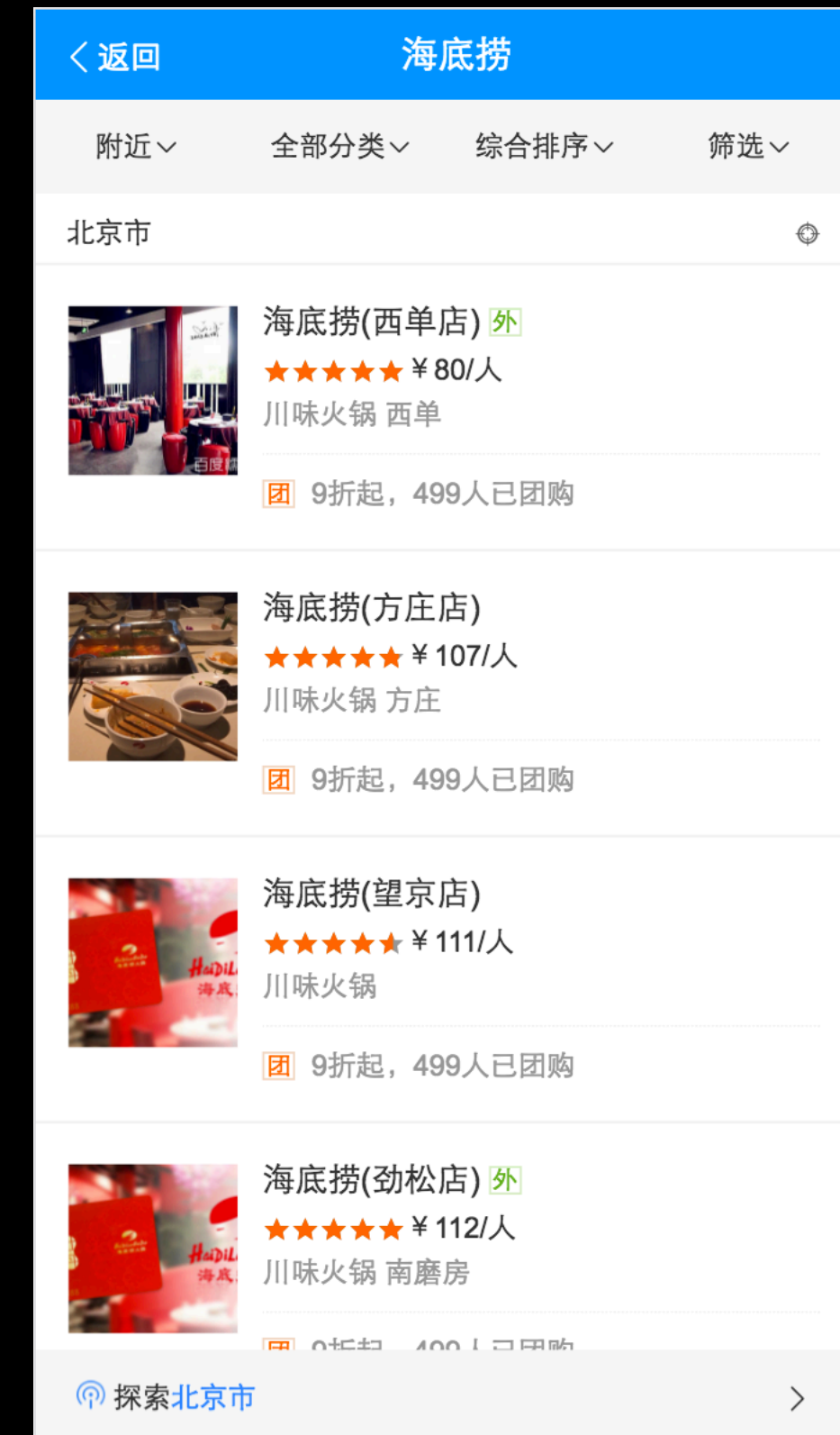
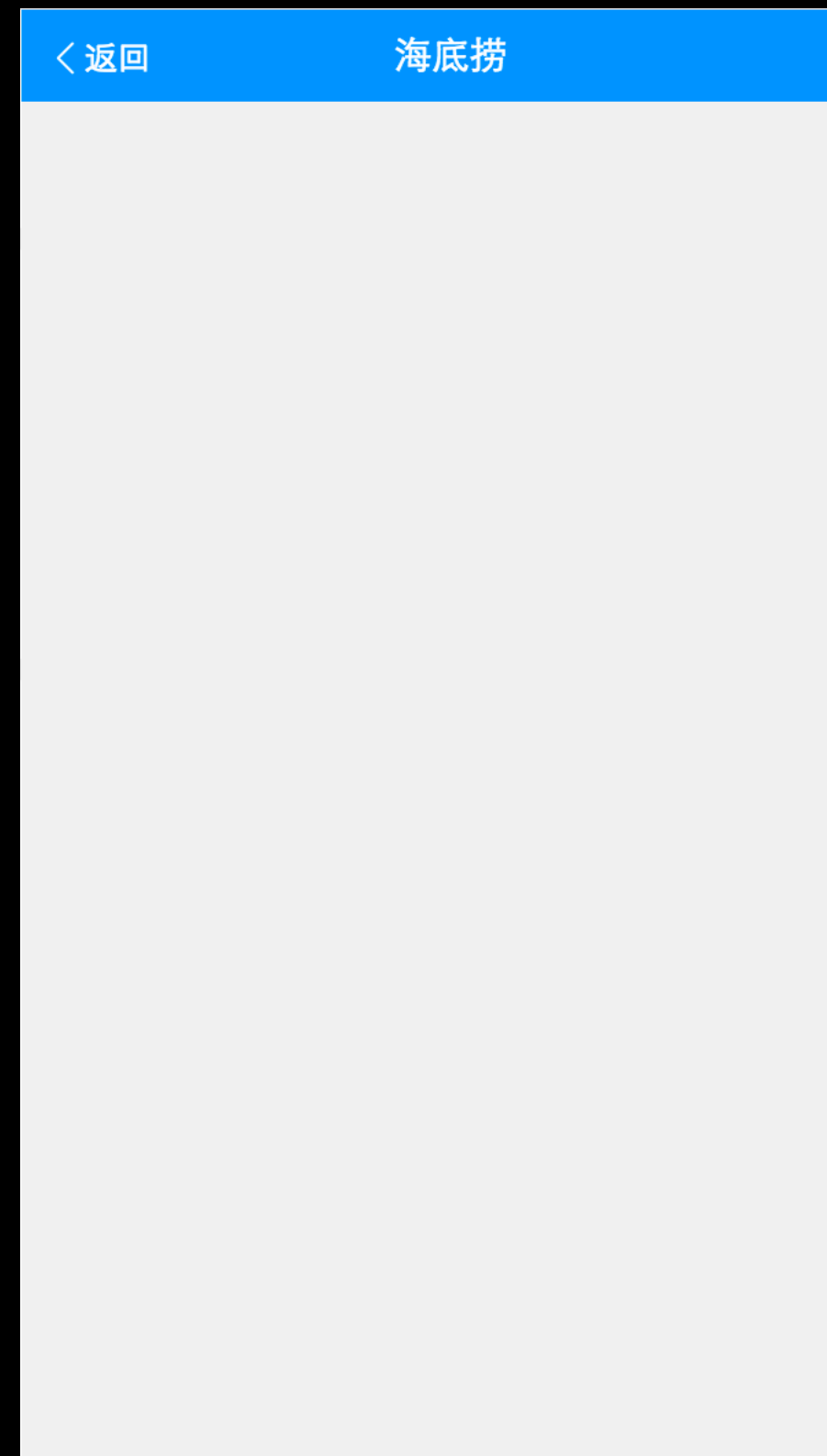


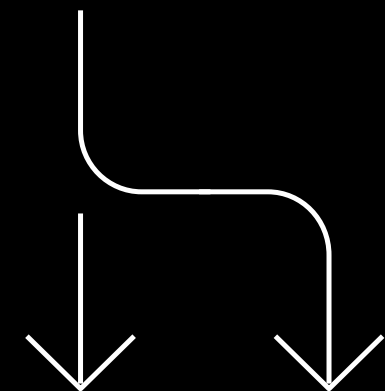
感知交互：0s

加载时间：2.1s

3G网络

创建容器视图 提升展现交互体验





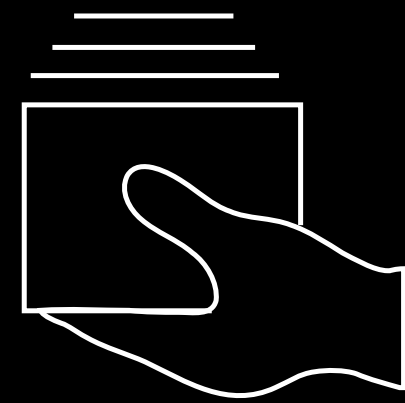
异步加载渲染
提升页面渲染速度

同步请求

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异步请求

	sf?openapi=1&dspName=iphone&f... /from=844b	GET	200 OK	xhr	VM2657:1 Script	42.5 KB 142 KB	366 ms 343 ms	
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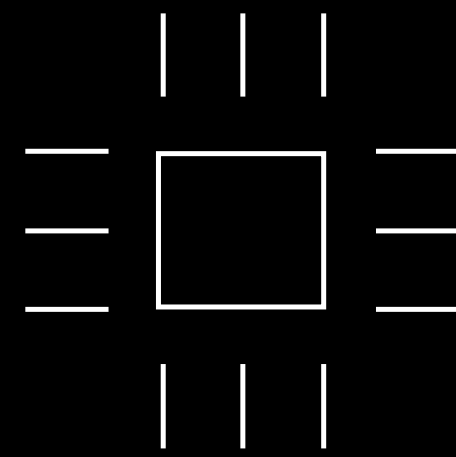
提前预取实例 优化网络与服务开销

移动站应该尝试**百度MIP**的五个原因|MIP官...

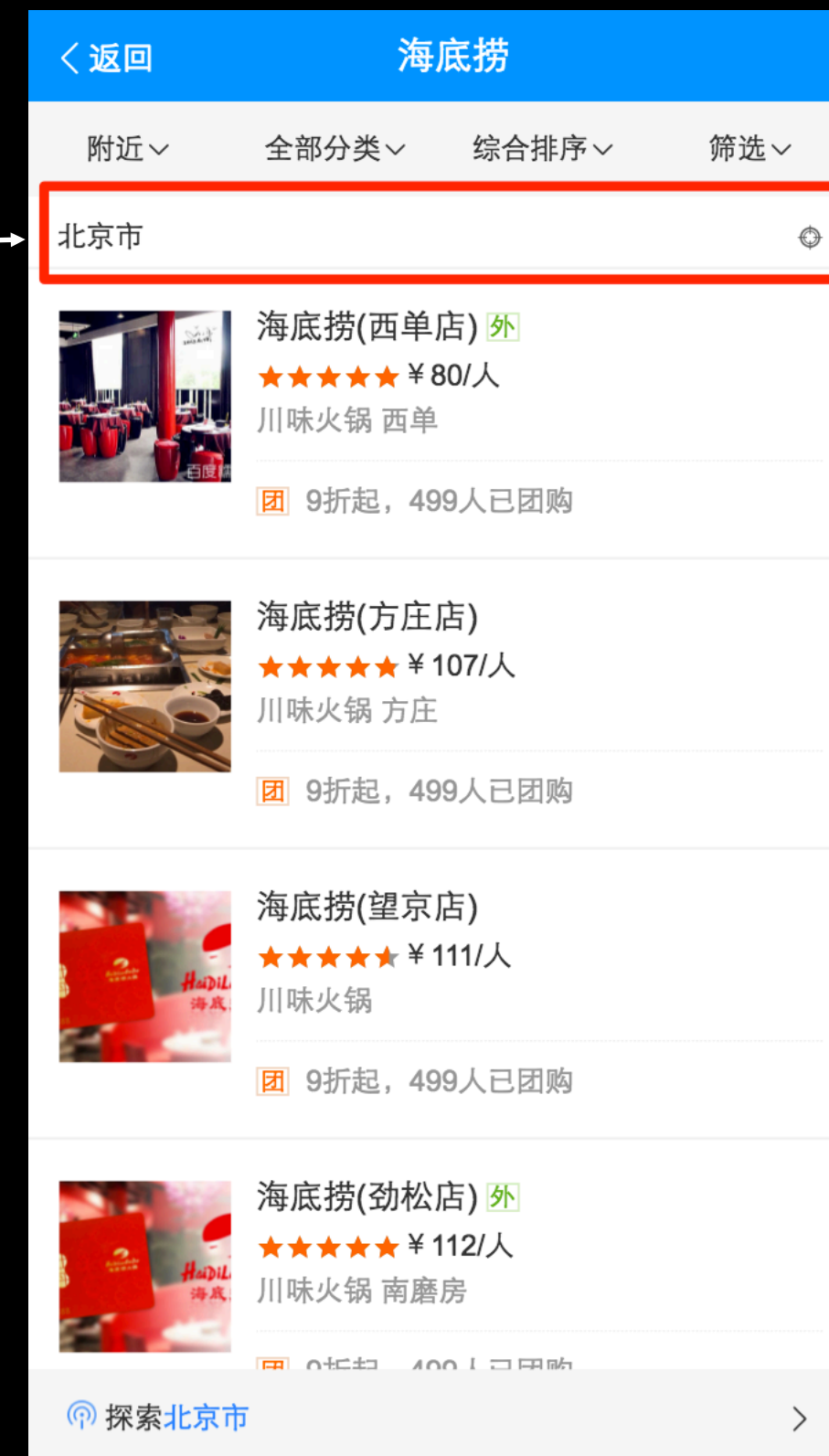
这里有五个原因，告诉你**MIP**的好处：一．加速移动端页面，一切的基础二．提升到达率和用户体验，更少的流失率三．**百度**搜索提权，更大的用户量四．开发简单，迁移成...
www.mipengine.org ⚡

	base_f6ea7b0.js m.baidu.com/se/static/sf/app/js/uia...	GET	200 OK	script	VM2869:1 Script	3.1 KB 6.0 KB	15 ms 13 ms			
	5-reasons-to-try-mip.html www.mipengine.org/article	GET	200 OK	document	VM2869:1 Script	6.0 KB 18.4 KB	206 ms 204 ms			
	mip-mipengine-nav.js mipcache.bdstatic.com/static/v1.1	GET	200 OK	script	5-reasons-t... Parser	2.1 KB 4.5 KB	51 ms 49 ms			

提前预取页面内容



提供组件机制 优化细粒度模块速度

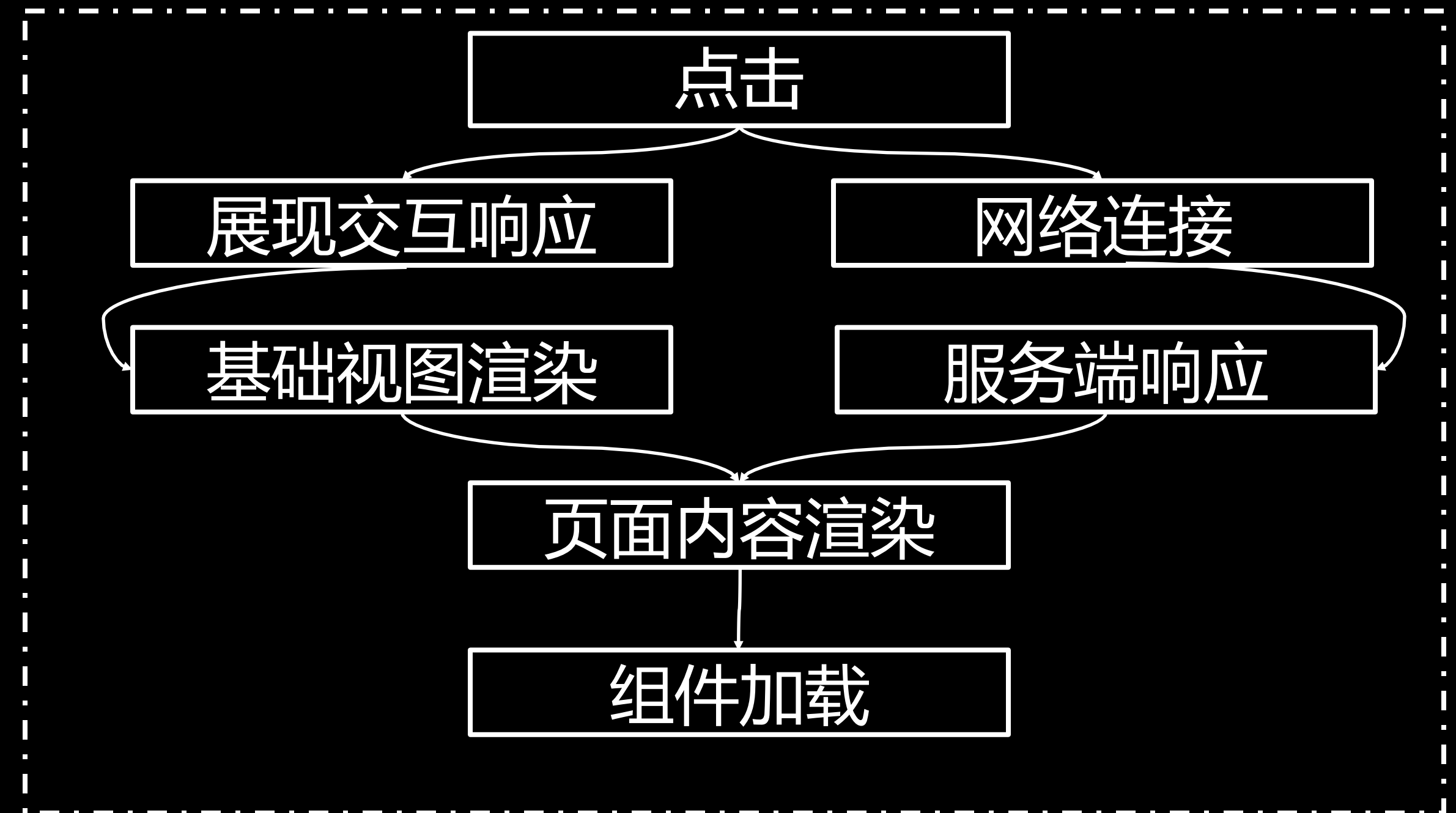


加速原理

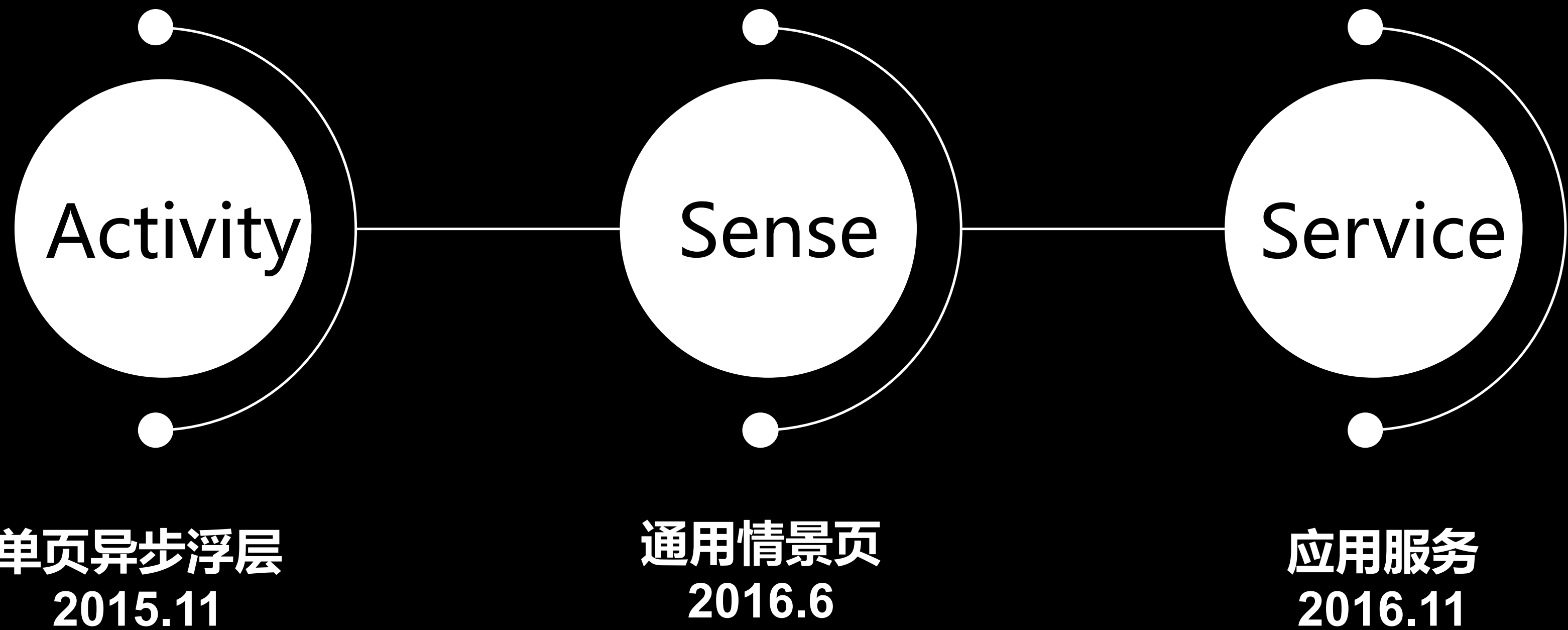
传统页面



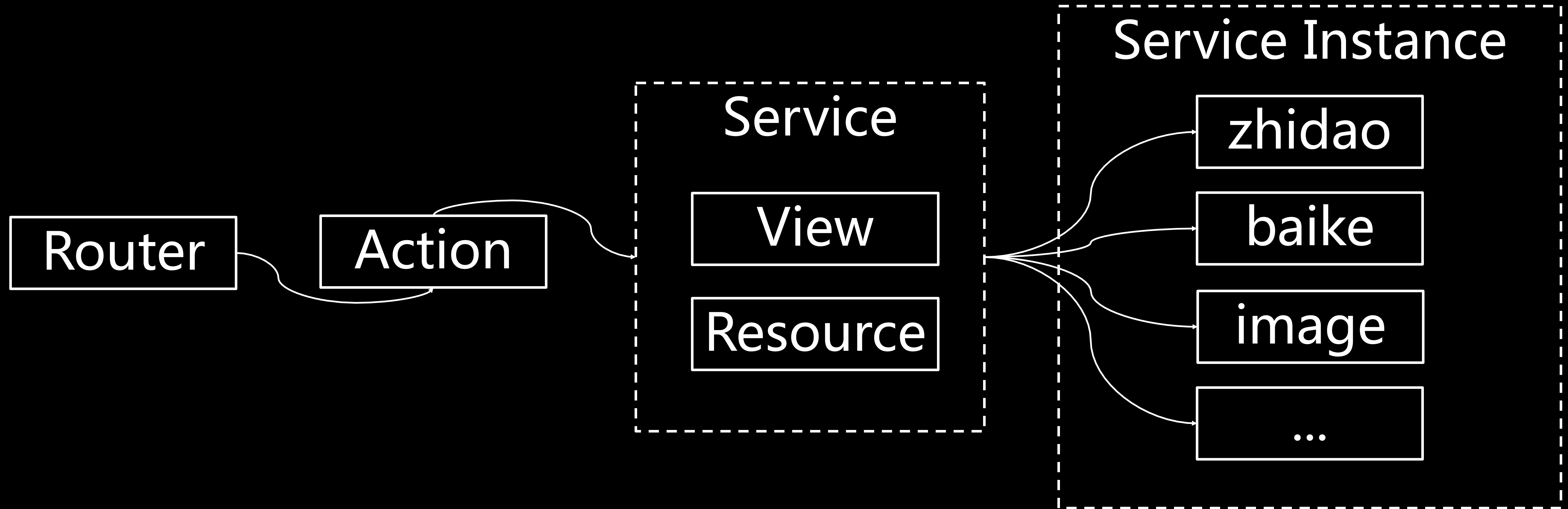
加速页面



框架历史演变

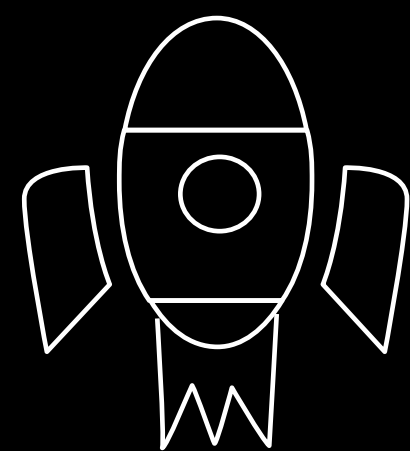


搜索极速浏览框架

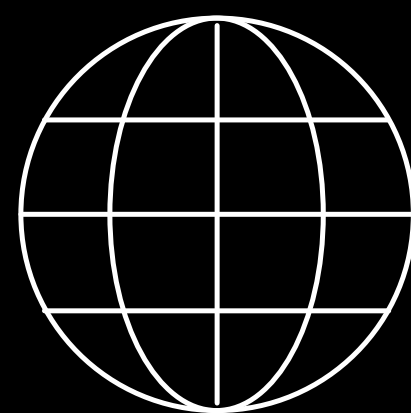


架构图

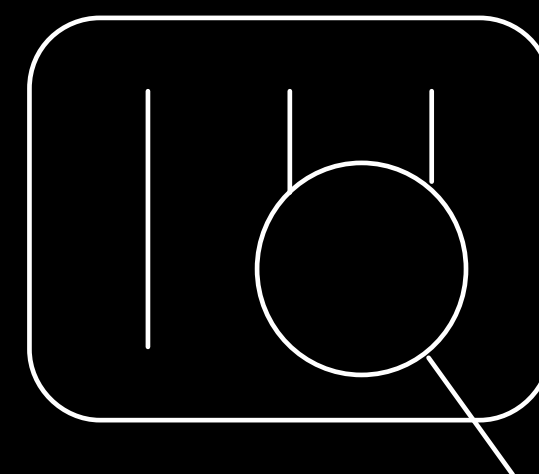
目录



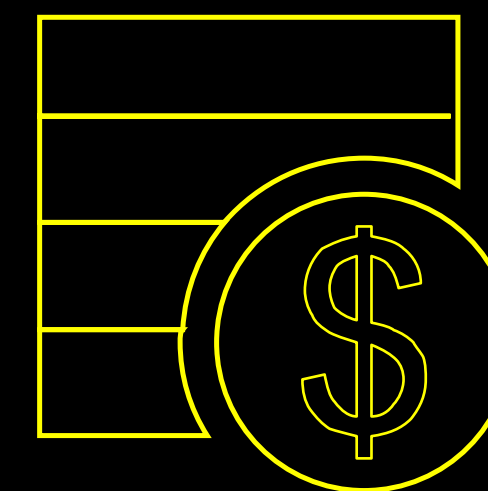
速度之于搜索



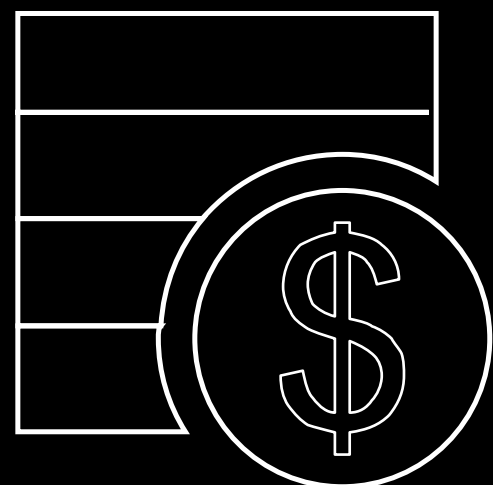
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



应用现状与收益



应用现状与收益

◆ 与自身产品结合

◆ 站点如何达到类似体验

◆ 一些数据

与内部产品结合



与内部产品结合

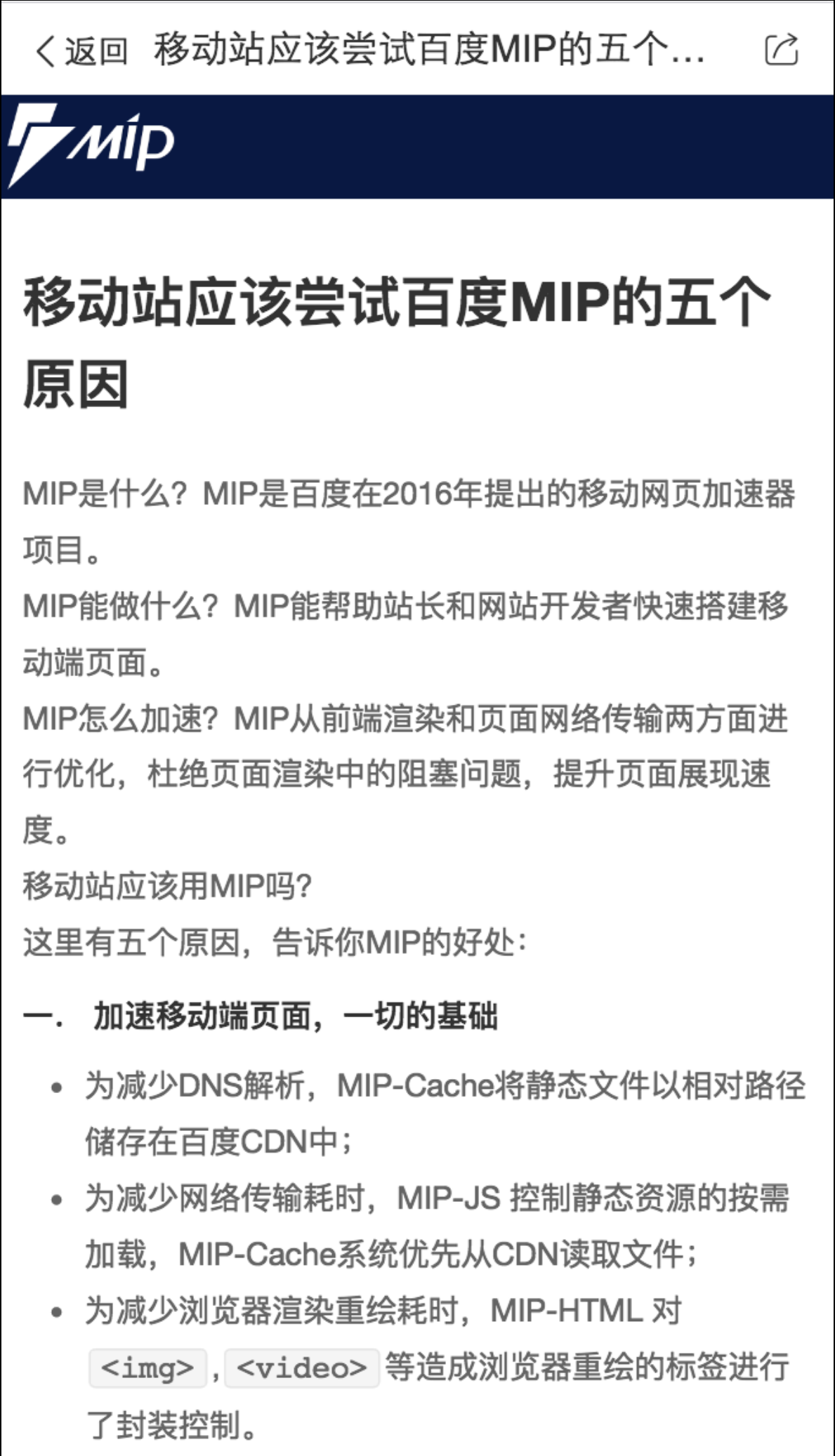
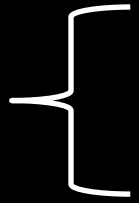


与内部产品结合

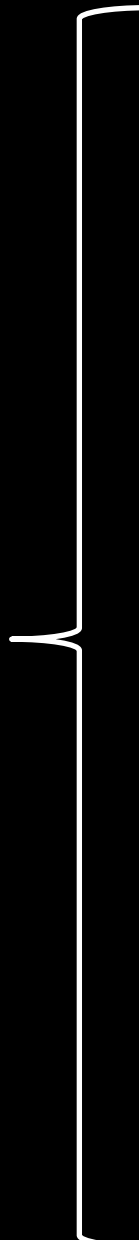


站点如何达到类似体验

Frame



MIP Bridge



← MIP Page

Frame：极速浏览框架

MIP Bridge：MIP页面在框架中的运行环境

MIP Page：MIP页面

站点应用实例



站点应用实例



站点应用实例



应用现状

到达提升
5%~40%

覆盖
10亿+页面

速度提升
30%~80%

核心价值：搜索体验的提升

The logo features the text 'O'REILLY®' in white on a teal background. Below it, 'Velocity' is written in a large, white, serif font, and 'CONFERENCE' is in a smaller, white, sans-serif font. A horizontal line separates the title from the tagline 'BUILD RESILIENT SYSTEMS AT SCALE' in a white, sans-serif font. The entire text is set against a black background with vibrant, colorful light trails in red, orange, yellow, green, and blue on the left side.

O'REILLY®

Velocity

CONFERENCE

BUILD RESILIENT SYSTEMS AT SCALE

velocityconf.com

[#velocityconf](https://twitter.com/velocityconf)

Q&A

The logo features the text 'O'REILLY®' in white on a teal background. Below it, 'Velocity' is written in a large, white, serif font, followed by 'CONFERENCE' in a smaller, white, sans-serif font. A thin white line separates this from the tagline 'BUILD RESILIENT SYSTEMS AT SCALE' in a white, sans-serif font. The entire text is set against a black background with vibrant, colorful light trails (red, orange, yellow, green, blue) on the left side.

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Thanks