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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

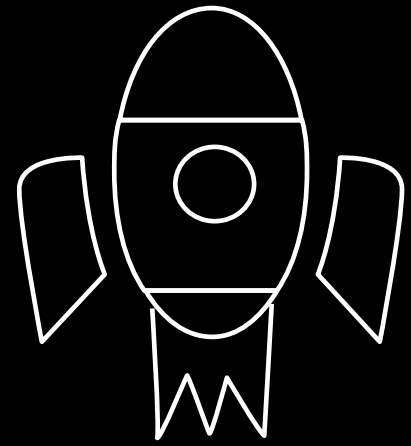
2015

百度搜索全站HTTPS

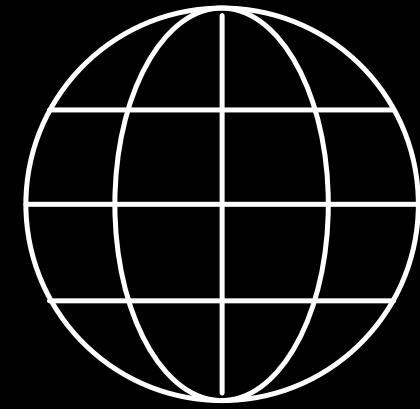
2014

百度搜索Web前端性能优化

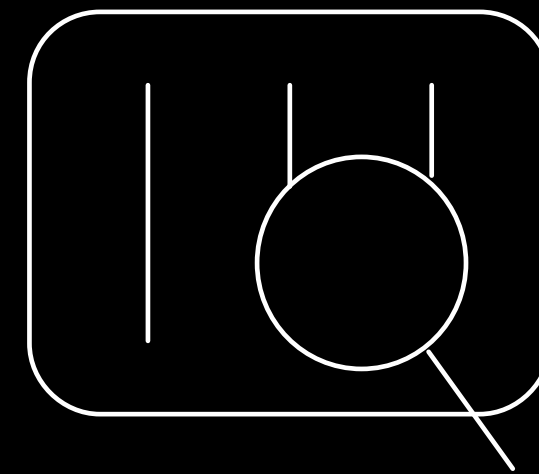
目录



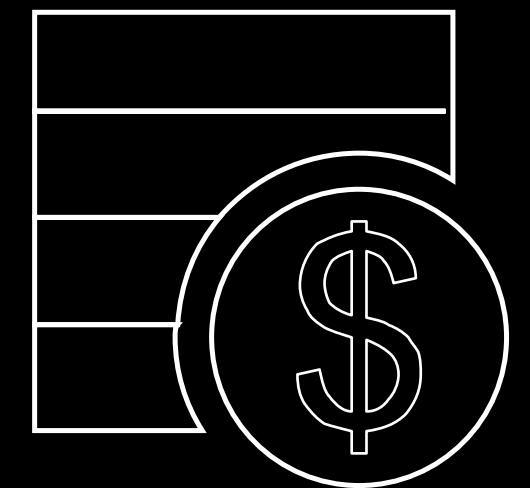
速度之于搜索



搜索全流程
速度现状

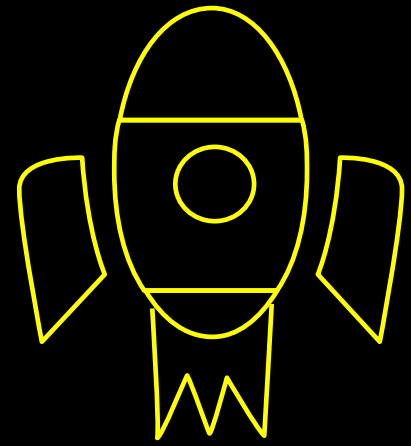


搜索极速浏览框架
探索与实现

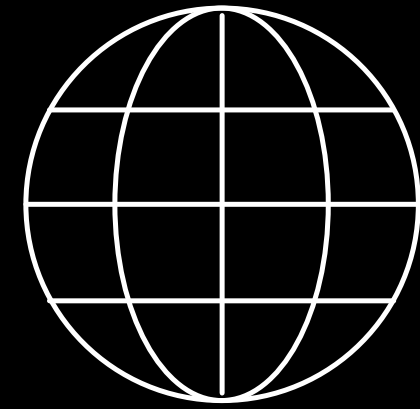


应用现状与收益

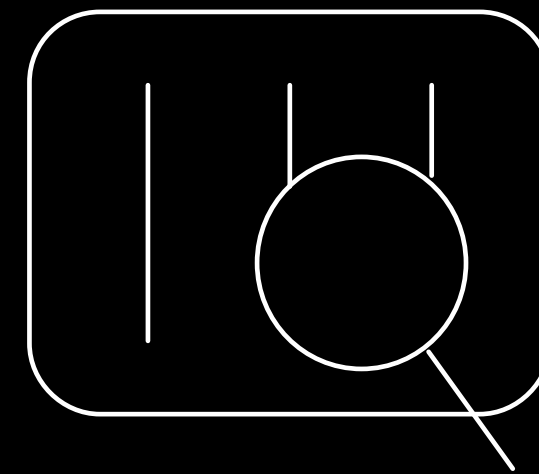
目录



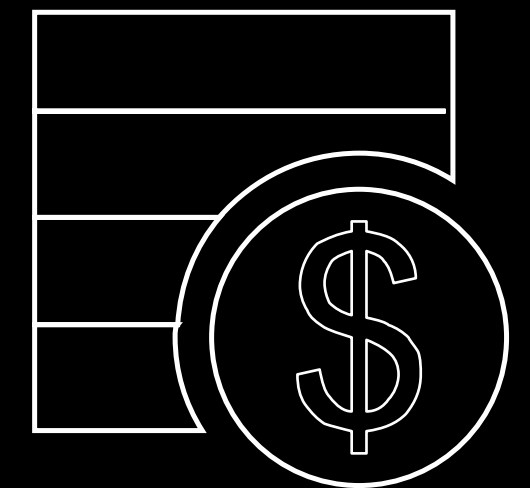
速度之于搜索



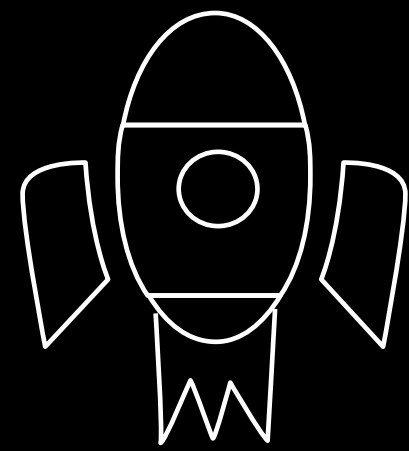
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



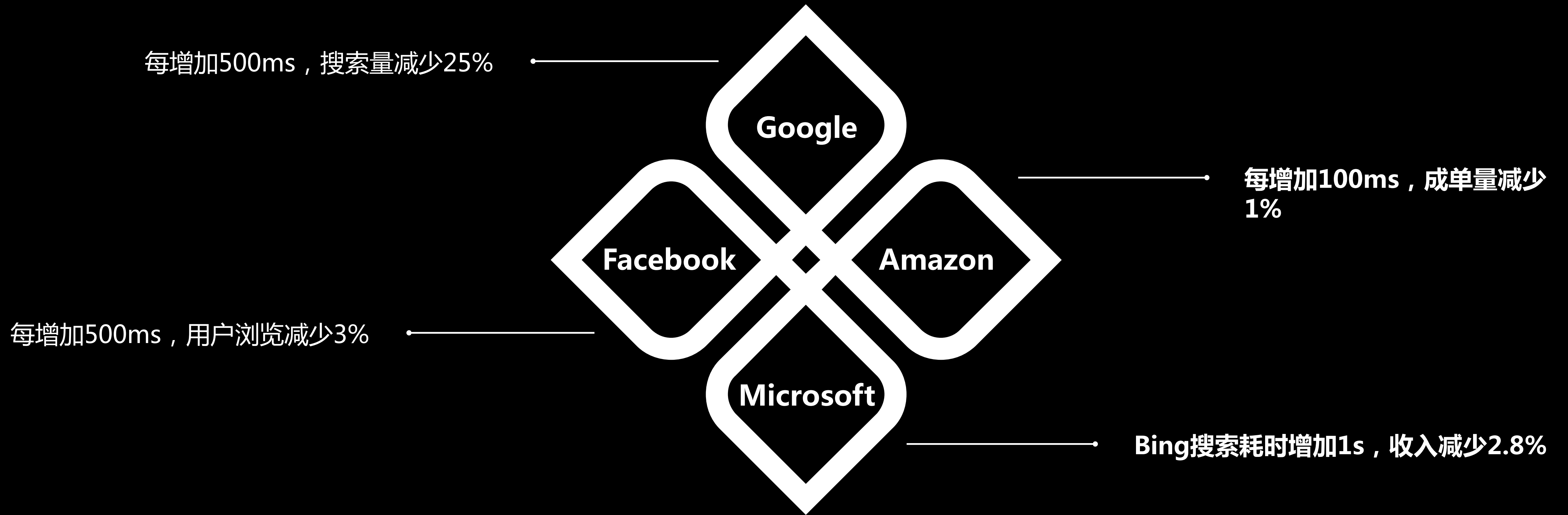
应用现状与收益



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

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

 amazon.com

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

 Google

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

 shopzilla

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.

 YAHOO!

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

 mozilla
Firefox

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

 bing

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

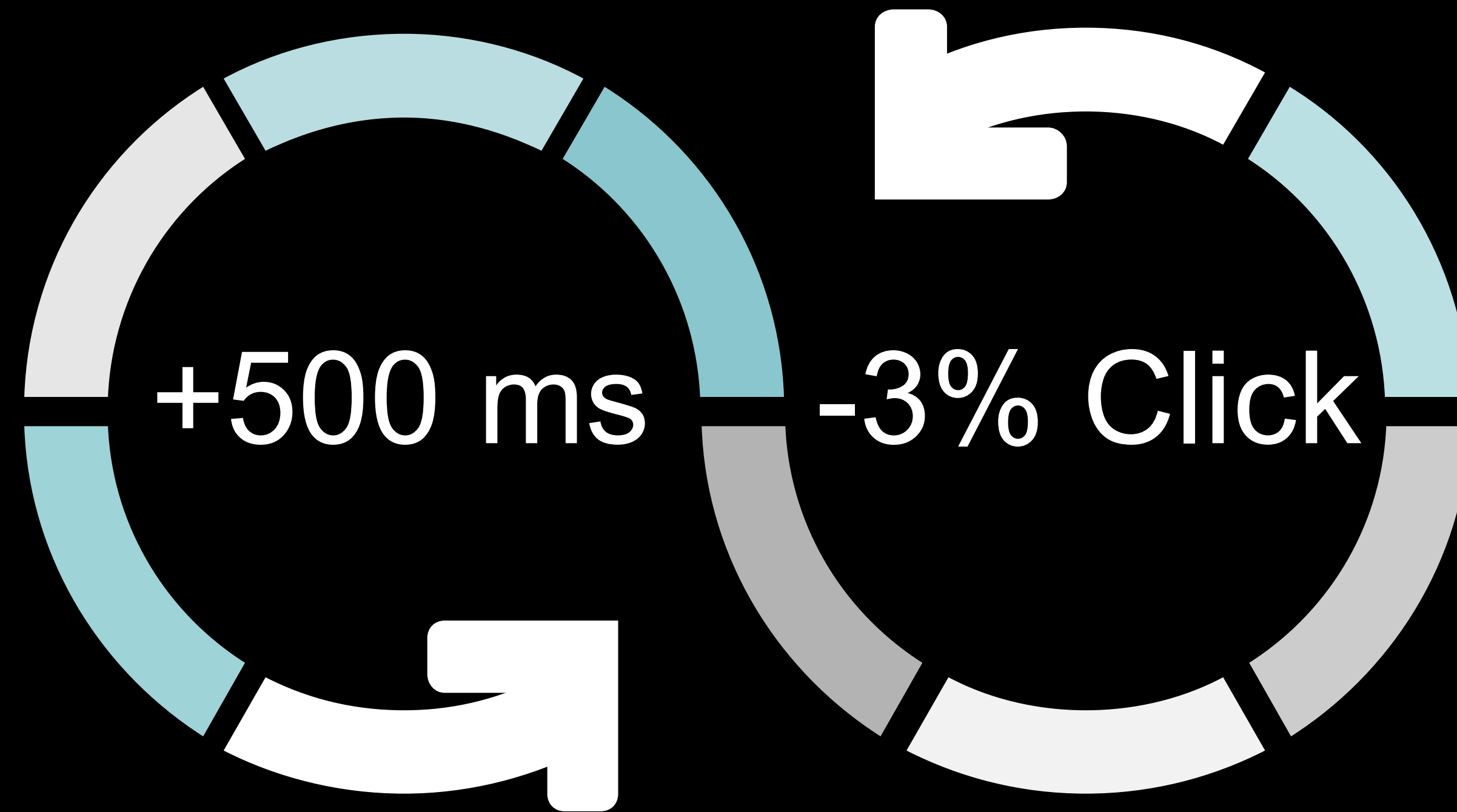
 NETFLIX

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

 Windows Live
Hotmail

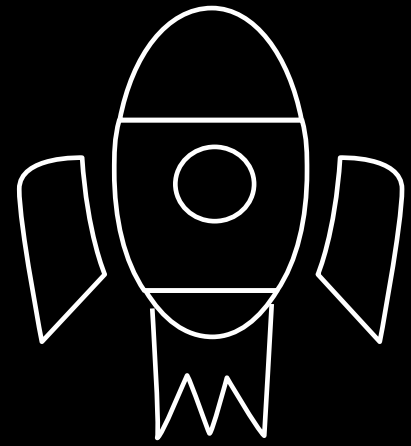
Hotmail discovered that a 6 sec delay in time to load caused a 40 Million drop in ad impressions per month,
which equates to a \$6 Million drop in ad revenues per year

速度对百度搜索的意义

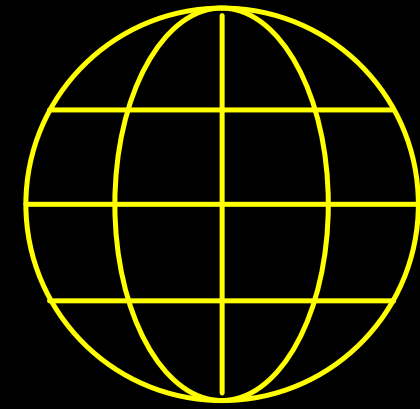


速度与用户体验息息相关！

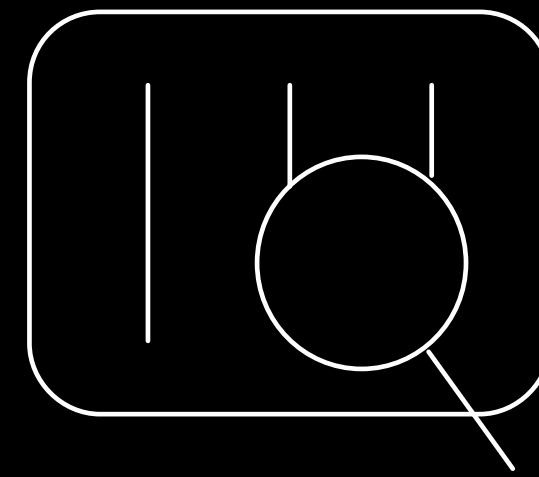
目录



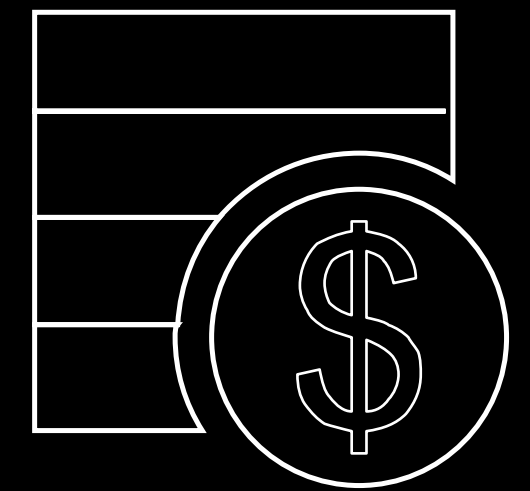
速度之于搜索



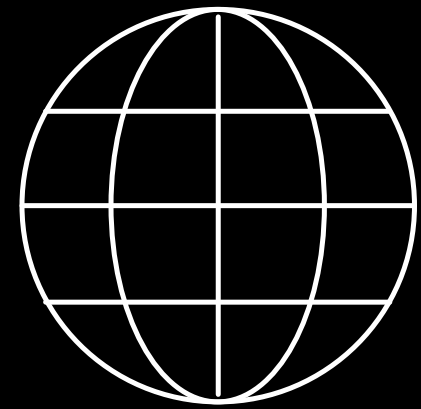
搜索全流程
速度现状



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

用户发起搜索

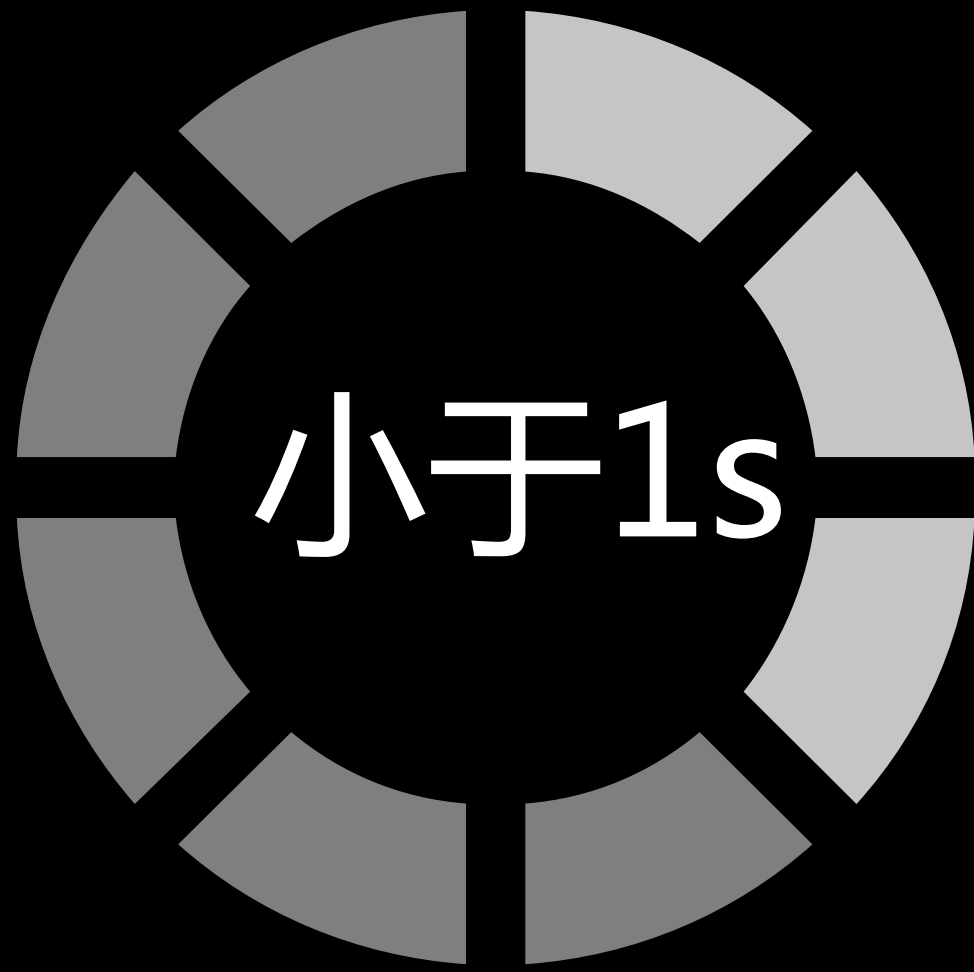
展现搜索结果页

用户点击某条结果

展现搜索结果站点

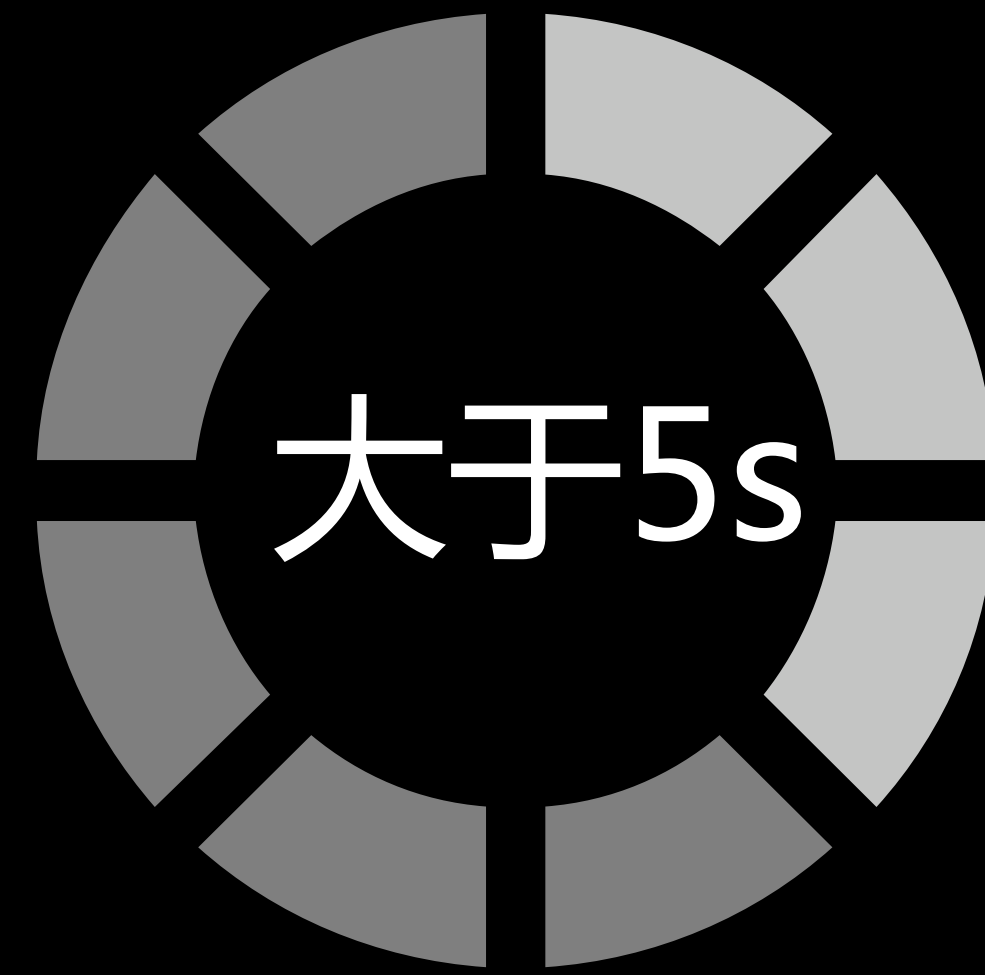
后续...

百度搜索速度现状



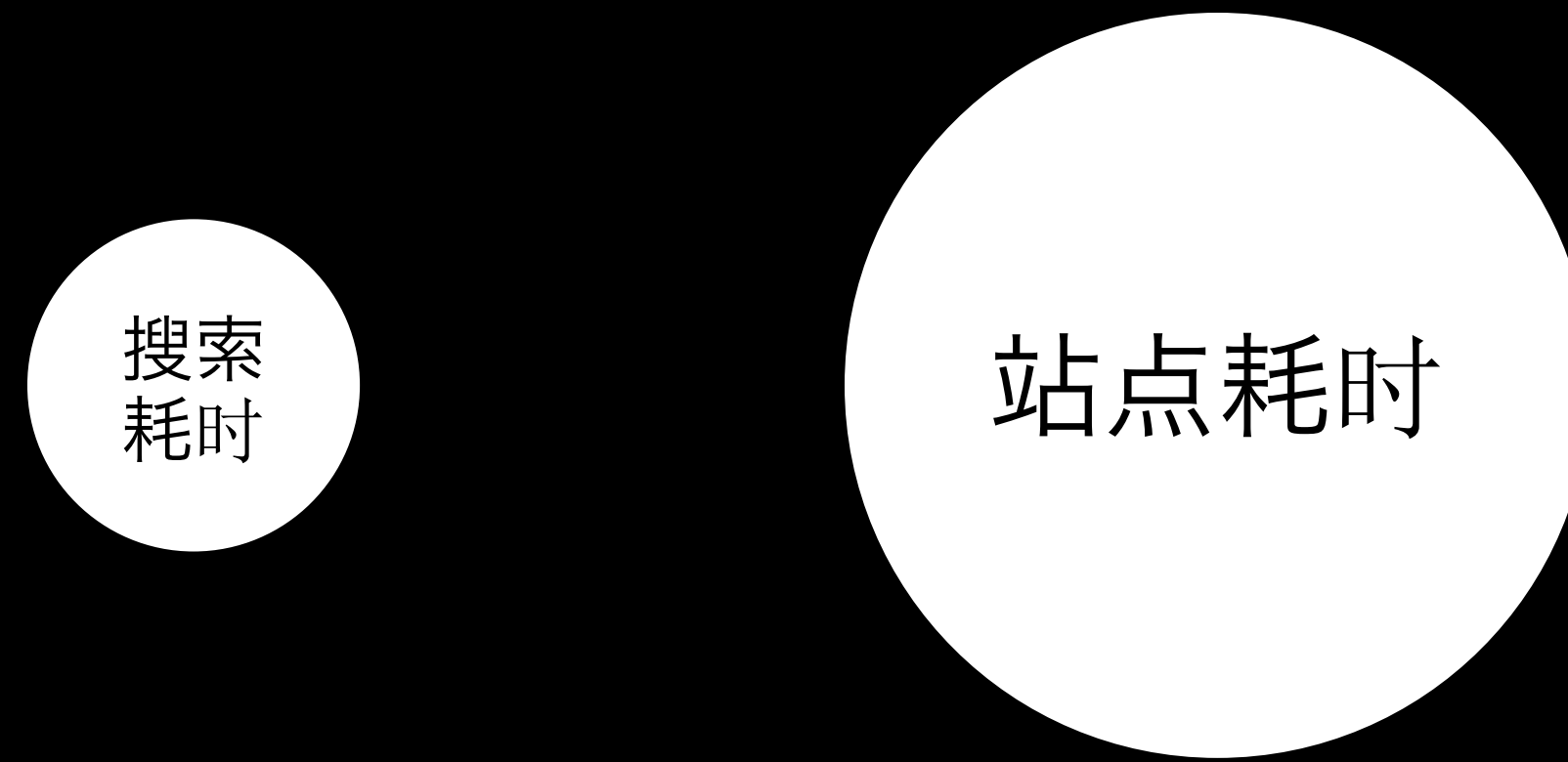
80%用户搜索首屏时间

百度搜索结果站点速度现状



平均加载时间

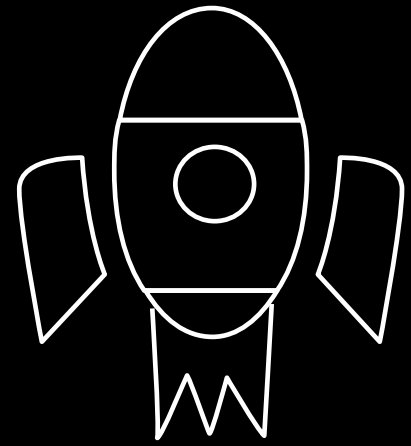
百度搜索结果站点速度现状



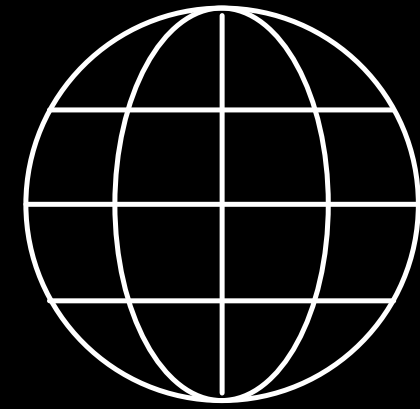
全流程体验差距大

如何优化？

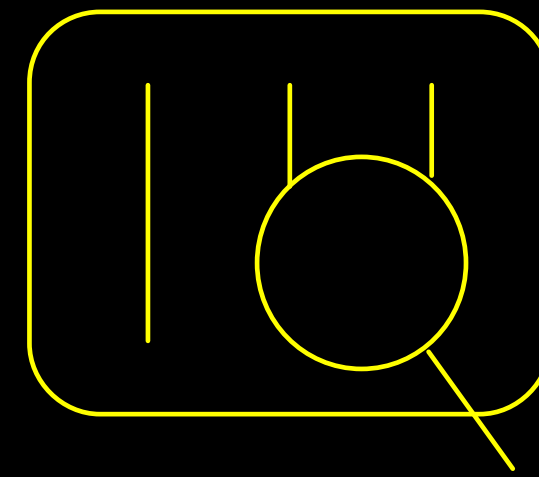
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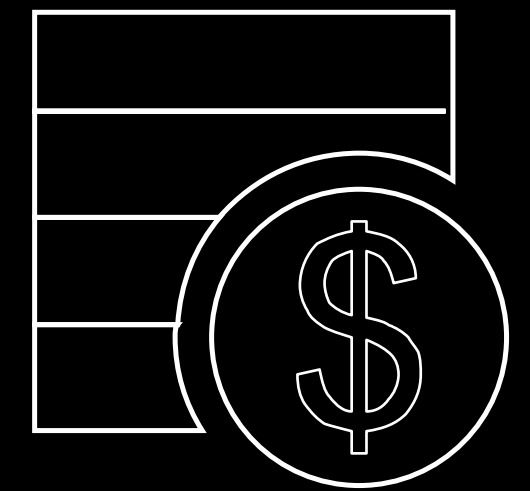
速度之于搜索



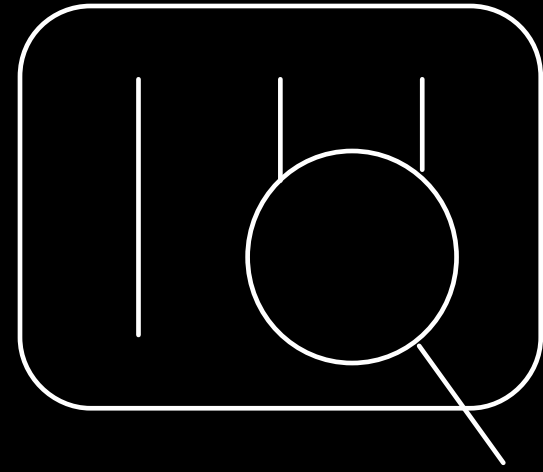
搜索全流程
速度现状



搜索极速浏览框架
探索与实现



应用现状与收益



搜索极速浏览框架
探索与实现

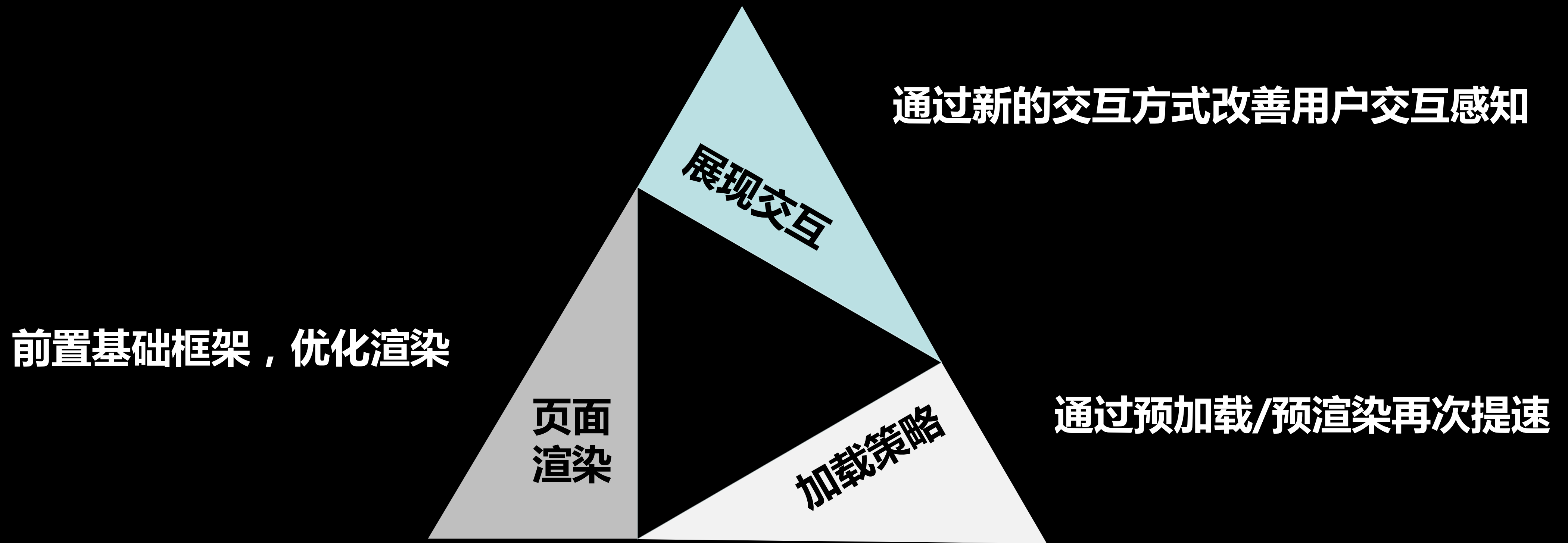
- ◆ 全流程优化思路
- ◆ 解决哪些问题
- ◆ 加速原理

页面优化普适方案

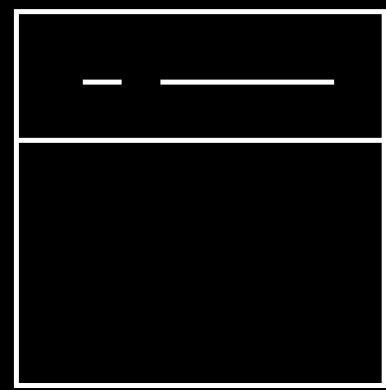
优化页面自身加载速度

优化页面加载/展现方式

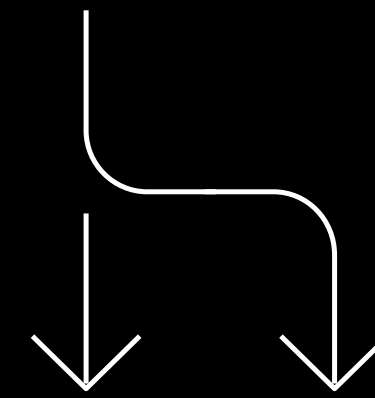
全流程优化思路



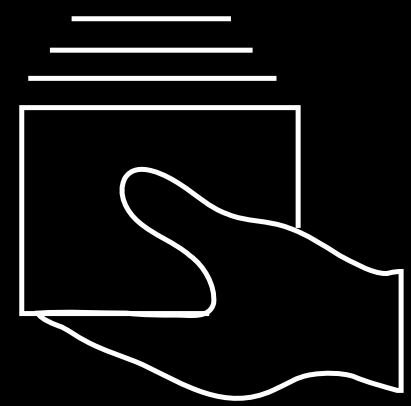
框架解决这些问题



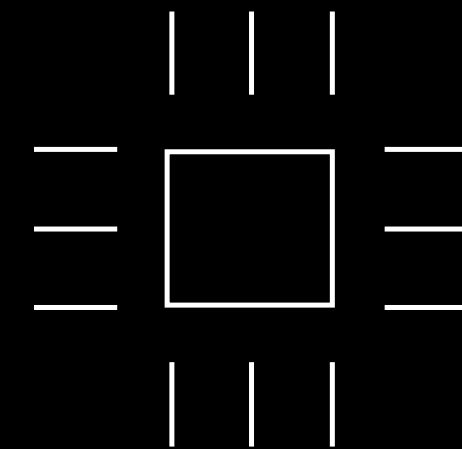
创建容器视图
提升展现交互体验



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

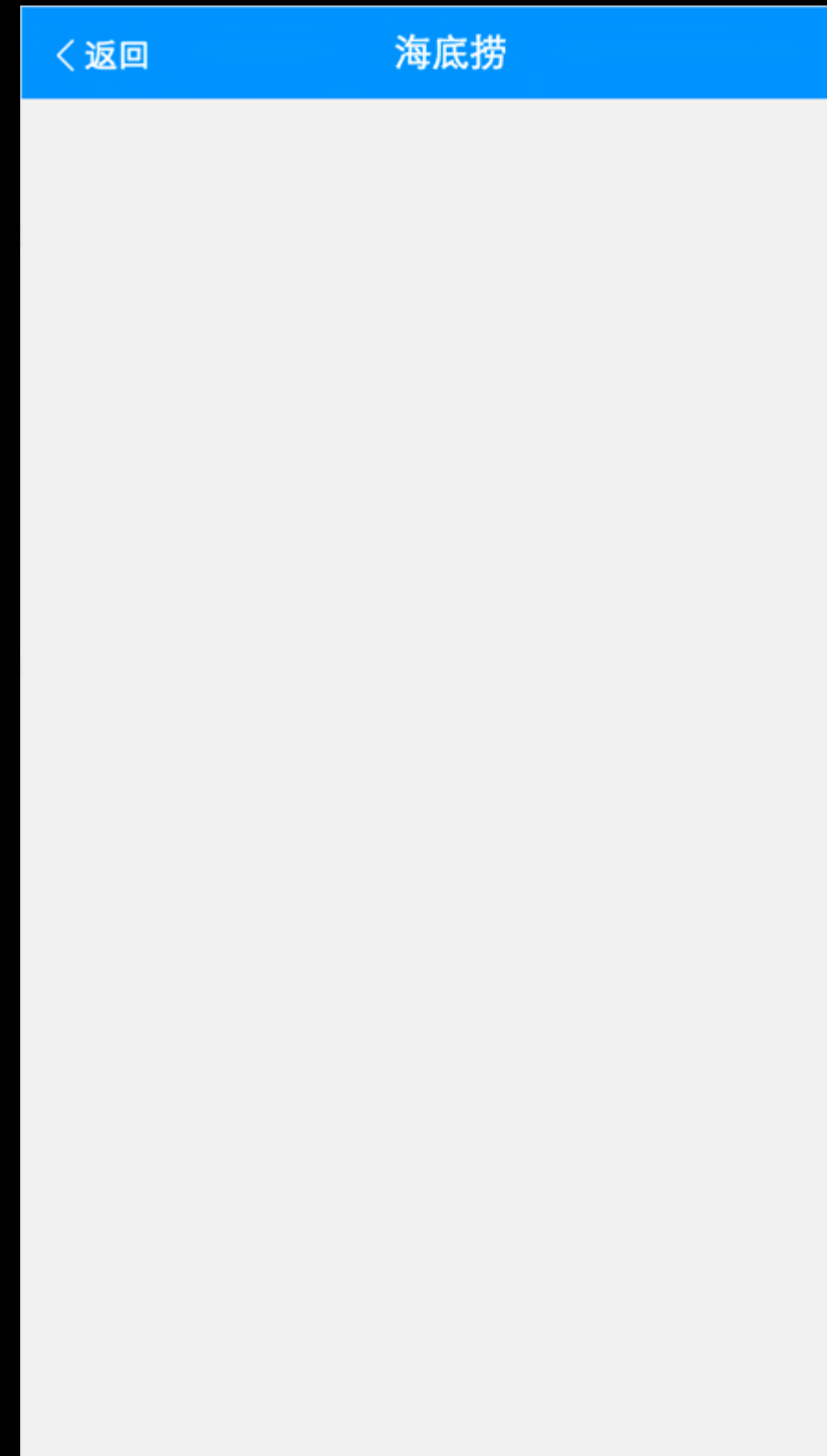


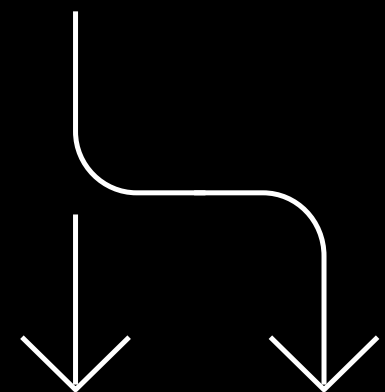
感知交互：0s

加载时间：2.1s

3G网络



创建容器视图 提升展现交互体验






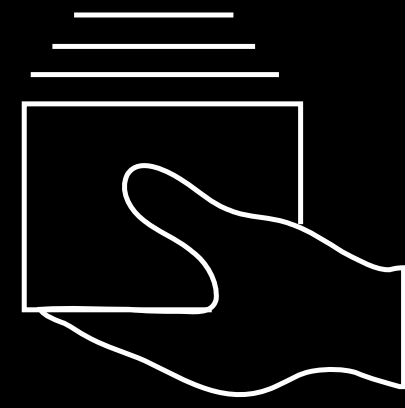
异步加载渲染 提升页面渲染速度

同步请求

	sf?openapi=1&dspName=iphone&f... /from=844b	GET	200 OK	document	Other	80.2 KB 251 KB	323 ms 302 ms	
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异步请求

	sf?openapi=1&dspName=iphone&f... /from=844b	GET	200 OK	xhr	<u>VM2657:1</u> 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

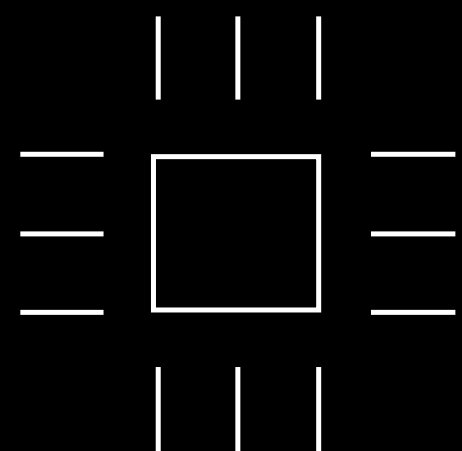
移动站应该尝试**百度MIP**的五个原因|MIP官...

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

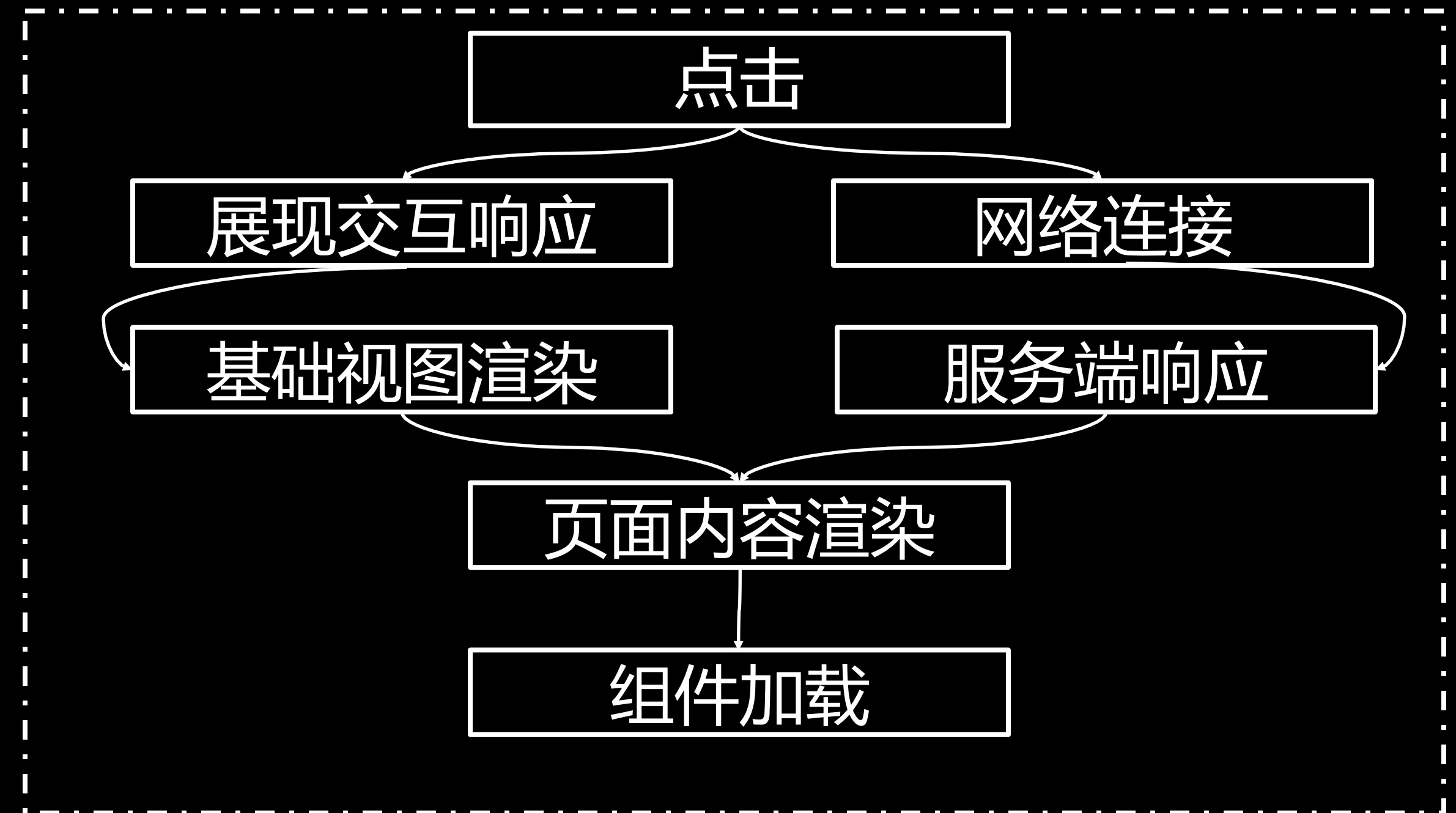


加速原理

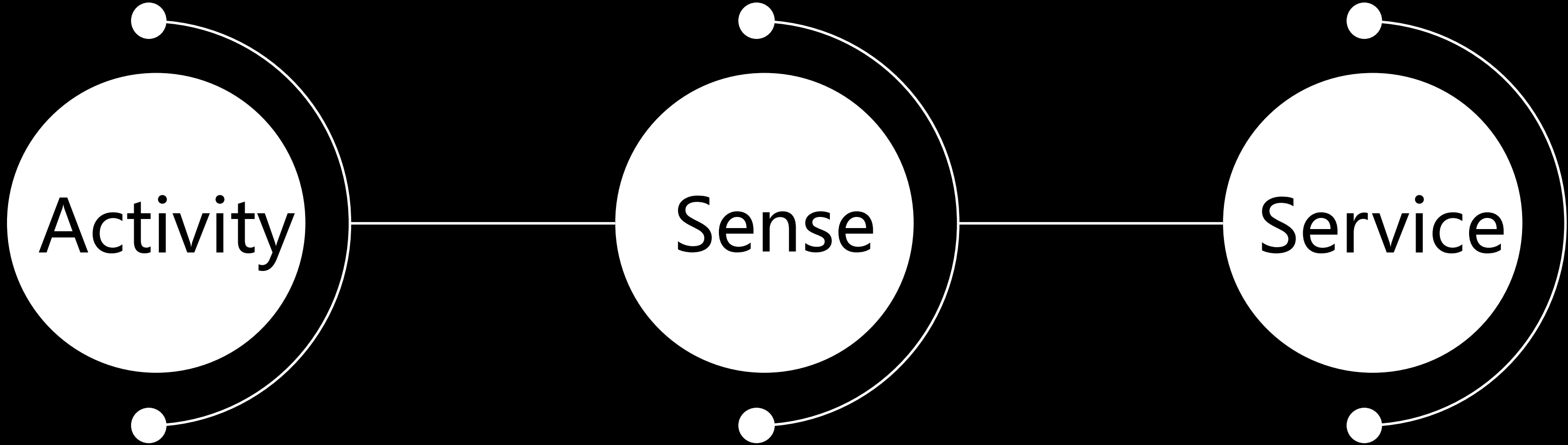
传统页面



加速页面



框架历史演变

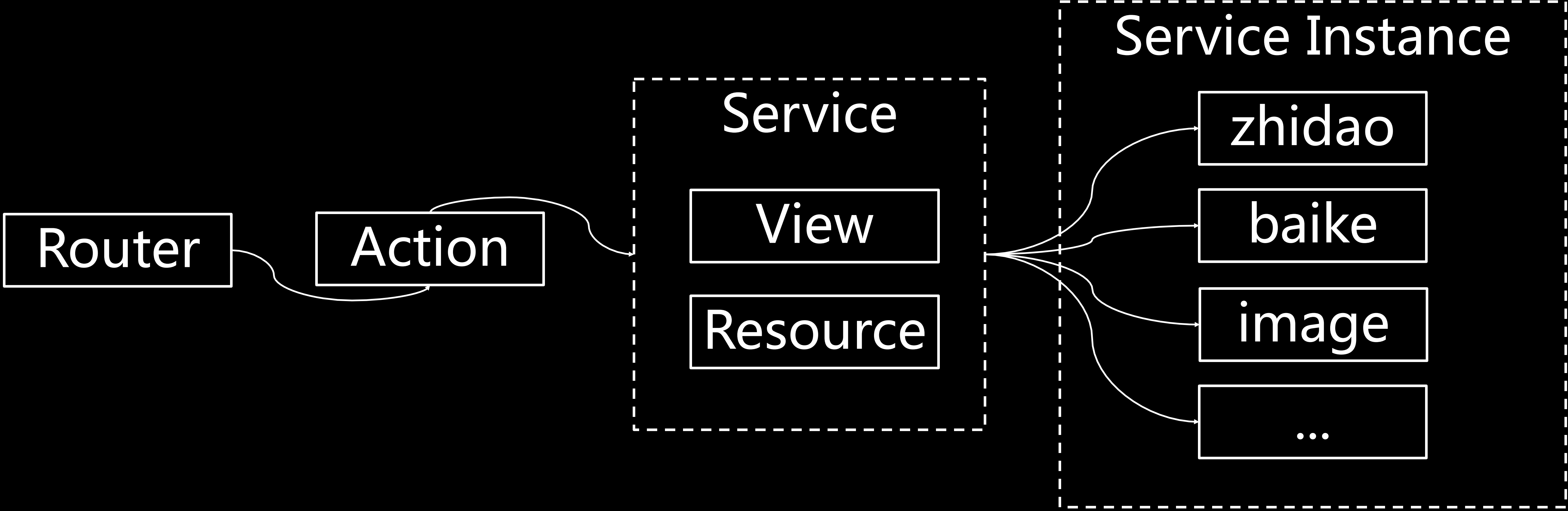


单页异步浮层
2015.11

通用情景页
2016.6

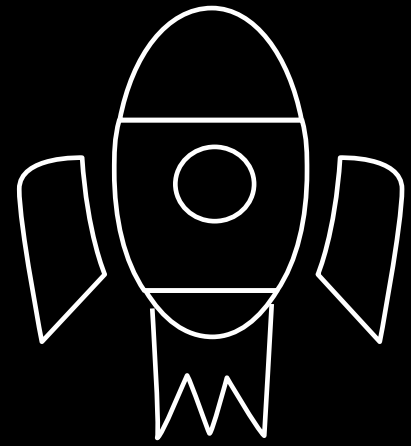
应用服务
2016.11

搜索极速浏览框架

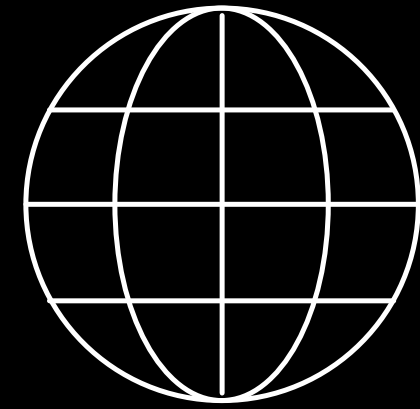


架构图

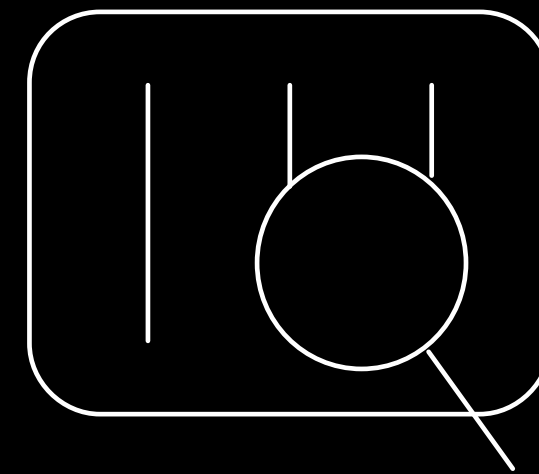
目录



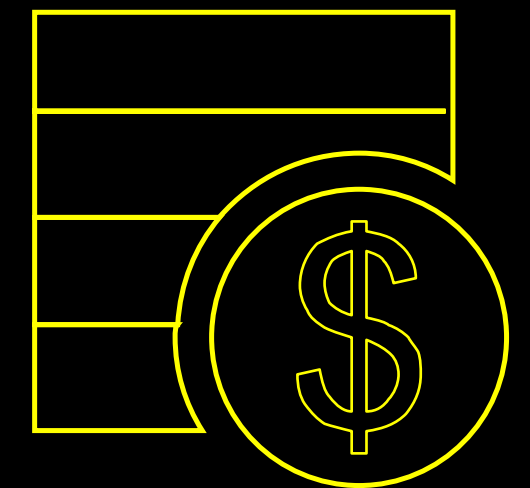
速度之于搜索



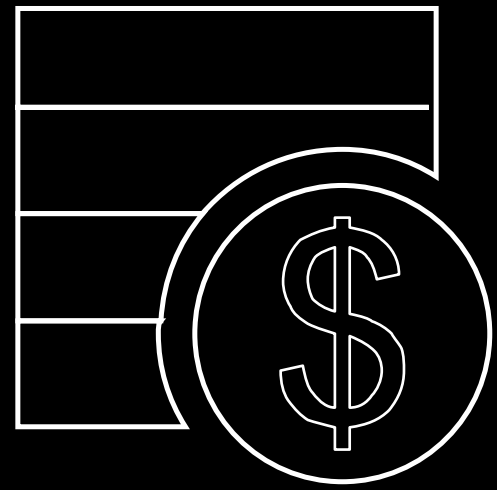
搜索全流程
速度现状



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

Baidu 百度 网页 地图 贴吧 应用 更多

刘德华 百度一下

刘德华_百度百科

生日: 1961年9月27日
概况: 174cm 63kg 天秤座
简介: 刘德华 (Andy Lau), 1961年9月27日出生于中国香港, 演员、歌手、作词人...

作品: 暗战、无间道、天若有情
关系: 妻子朱丽倩; 女儿刘向蕙; 老师彭登怀

查看全部含义 >

焦点资讯

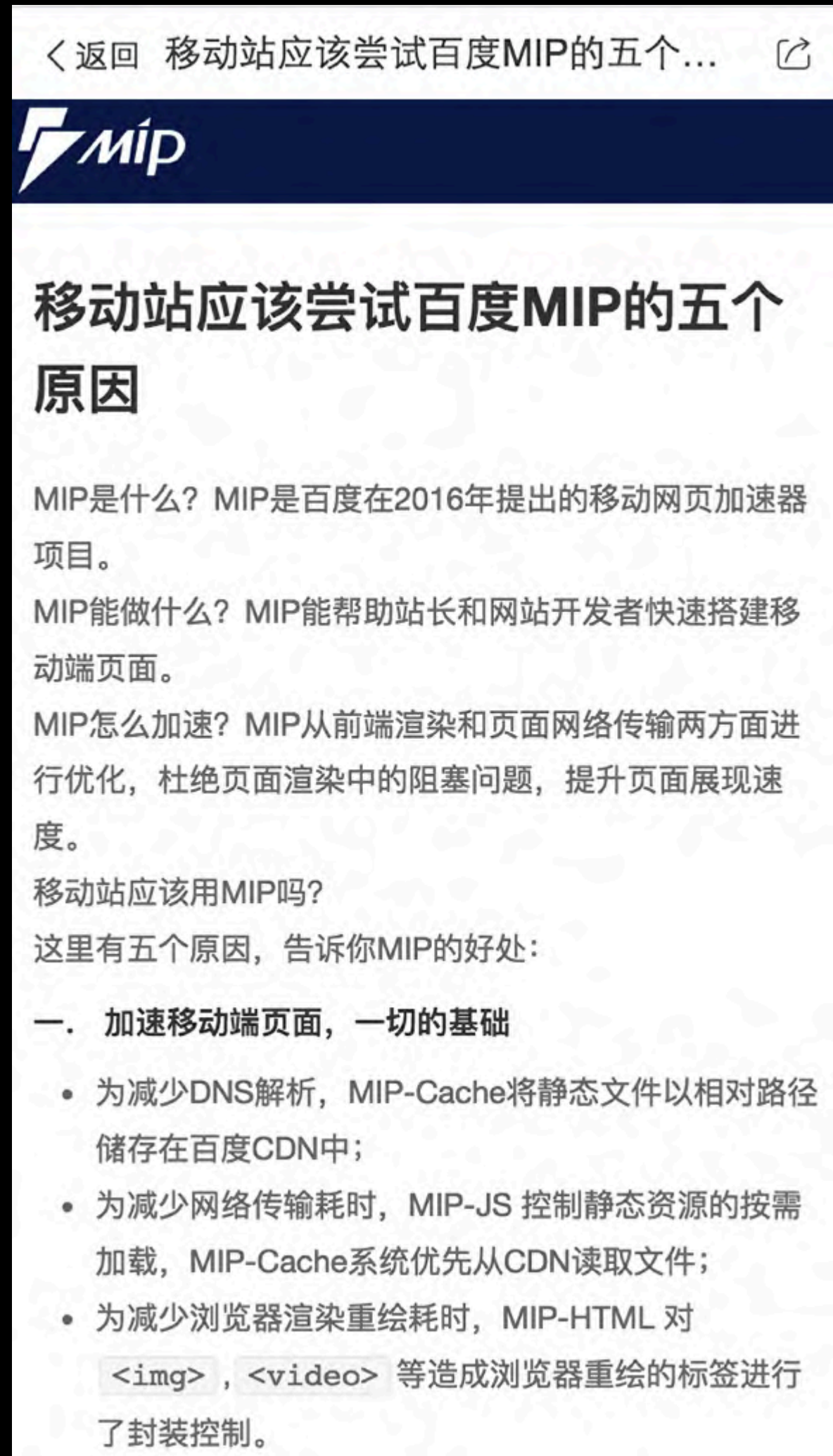
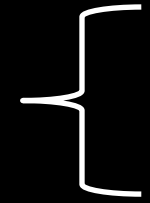
刘德华林志颖吕颂贤 50大最帅金庸武侠男神...
对比2016-11-29 15:14:29 来源:中国网 分享到: 如今娱乐圈很多...
1小时前 福州新闻网

香港十大封神实力男演员:谢霆峰未上榜,刘...
5小时前 株洲新闻网

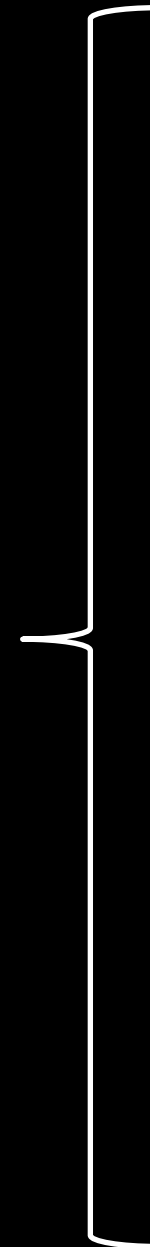
《赌神》:那一年,风华正茂的周润发和刘德...
1天前 腾讯娱乐

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

The screenshot shows a Baidu search result for the query '电饭锅糖炒板栗的做法大全'. The page features the Baidu logo and navigation links for '网页', '地图', '贴吧', '应用', and '更多'. The search bar contains the query and a '百度一下' button. Below the search bar, the main result is titled '电饭锅糖炒板栗_百度百科'. It includes a small image of chestnuts, a brief introduction, and a list of ingredients and instructions. Below this, there are several recommended recipes for '电饭锅糖炒板栗', each with a small image, a title, a '图解' (Image Guide) link, and a list of ingredients and tags.

Baidu 百度 网页 地图 贴吧 应用 更多

电饭锅糖炒板栗的做法大全 百度一下

电饭锅糖炒板栗_百度百科

简介: 电饭锅糖炒板栗是一道菜品, 主料为板栗。原料板栗做法1.把每一个板栗都用刀开个口, 至于什么形状随便大家。只要它能透气就行! 2.开完口的板栗稍微清洗一下, 倒入电...

原料 做法

百度百科

为您推荐: 高压锅糖炒栗子的做法 | 生板栗怎么去皮最快 | 家庭炒栗子的做法大全 | 电饭锅煮板栗的做法

电饭锅糖炒板栗精选菜谱_推荐做法大全(共3个)

电饭锅糖炒板栗_下厨房
图解
食材: 鲜板栗,冰糖,水,食用油
标签: 果香味 简单

电饭锅糖炒板栗_香哈菜谱
图解
食材: 板栗,白糖,水,
标签: 家常味 中级

电饭锅糖炒板栗_美食杰
图解

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

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Q&A

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Thanks