

Break New Ground

API 平台

数字化转型的加速器

李玉奇

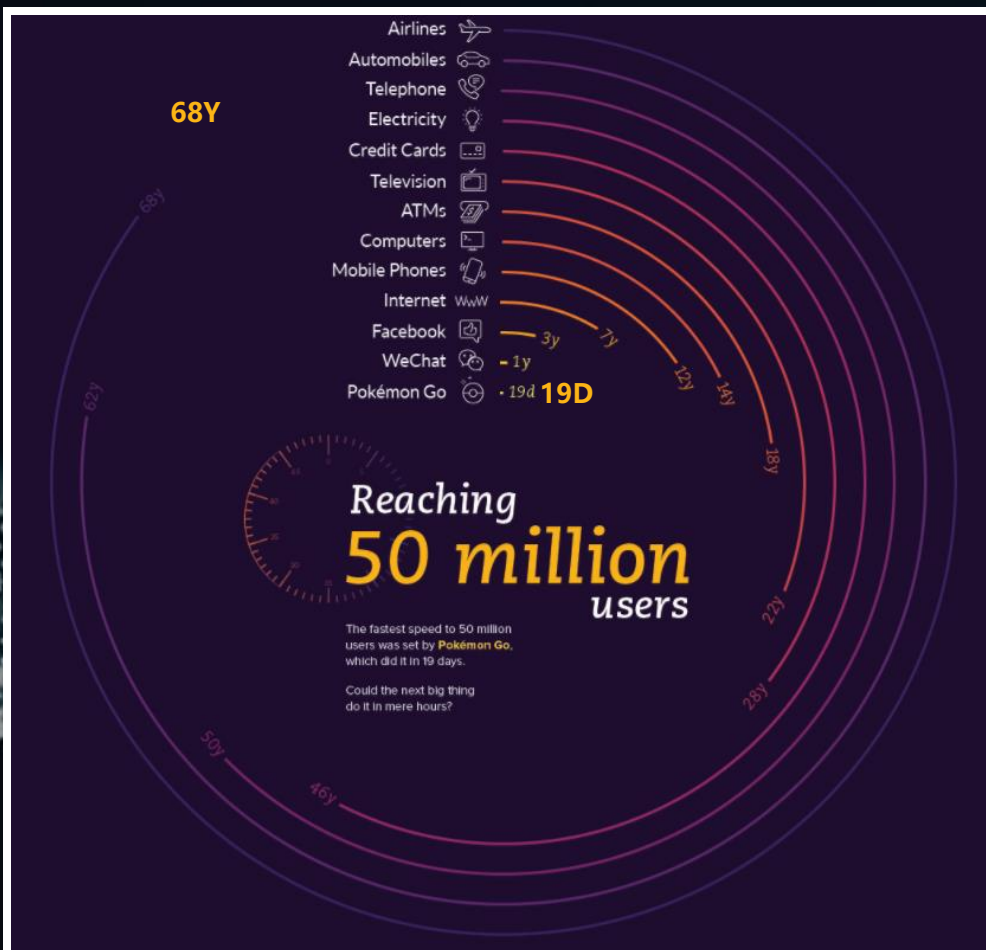
创新和云解决方案总监, 首席架构师
甲骨文亚太区创新和云解决方案事业部

2019-04-16

**ORACLE
CODE**

数字化创新正在加速！

背后发生了什么？



累积到5000万用户，从“飞机”到“梦GO”游戏，68年到19天？



“精灵宝可梦”



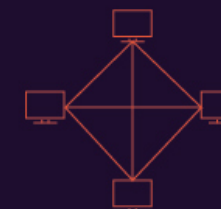
HOW LONG DOES IT TAKE TO HIT 50 MILLION USERS?

The impact of the shift to digital, and the power of network effects

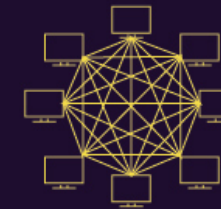
In the digital age, companies can attract millions of users at an unprecedented rate. This is possible through **network effects**, instantaneous communication, and the nature of digital goods themselves.



2 users
=
1 connection



4 users
=
6 connections



8 users
=
28 connections

网络效应，连接

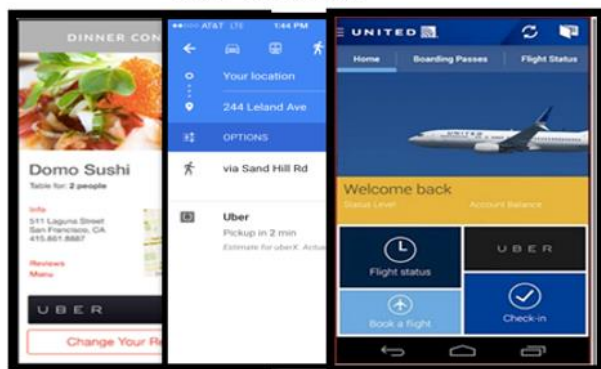
数字化正在让世界快速变化, API!

举个例子, 想想UBER的业务是什么? UBER是有效“连接”

Uber in 2014



Uber in 2015...

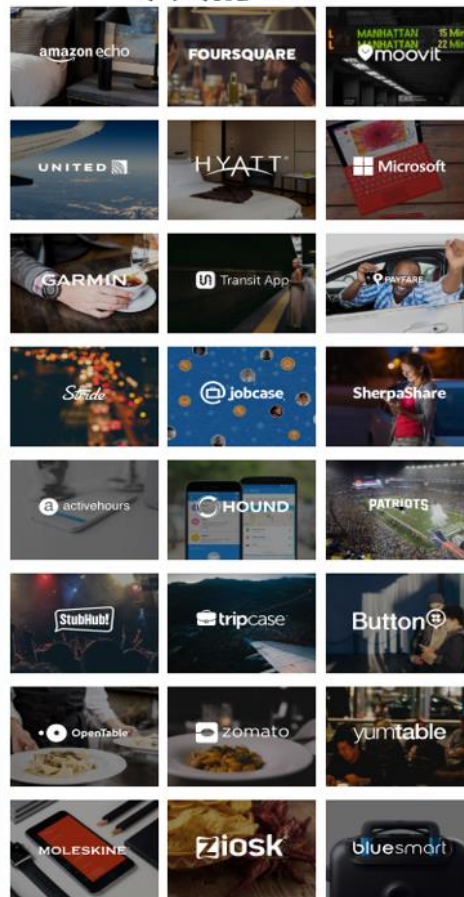


OpenTable

Google Maps

United

今天的Uber



API Economy Billionaires

Twitter	13 billion API calls / day (May 2011)
Google	5 billion API calls / day (April 2010)
Facebook	5 billion API calls / day (October 2009)
Netflix	1.4 billion API calls / day (May 2012)
AccuWeather	1.1 billion API calls / day (April 2011)
Klout	1 billion API calls / day (May 2012)
eBay	1 billion API calls / day (Q1 2012)
Sabre	1 billion API calls / day (January 2012)

通过API实现你自己的核心能力, 使你成为生态系统的一部分, 不再需要独自开发所有的想法, 而是业务API的相互调用。

UBER | Microsoft

我可以在outlook中订车, 并在Outlook中设置提醒
我可以语音控制Cortana做更多的订车相关的事情
我可以做更多.....

UBER

amazon echo



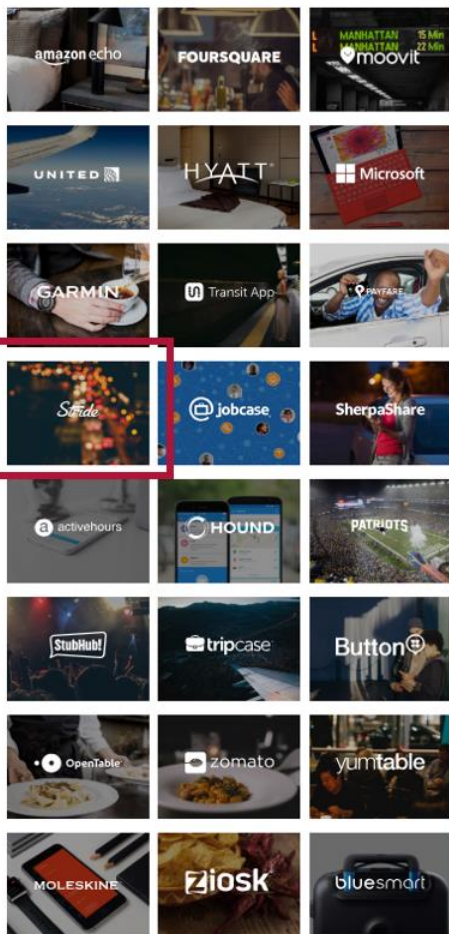
Alexa,亚马逊音响的大脑, 我可以语音控制Alexa为我订车
我可以做更多.....

优步 (Uber) 一个不拥有汽车的“移动出行服务”公司, 用API能力快速打造自己的业务和生态

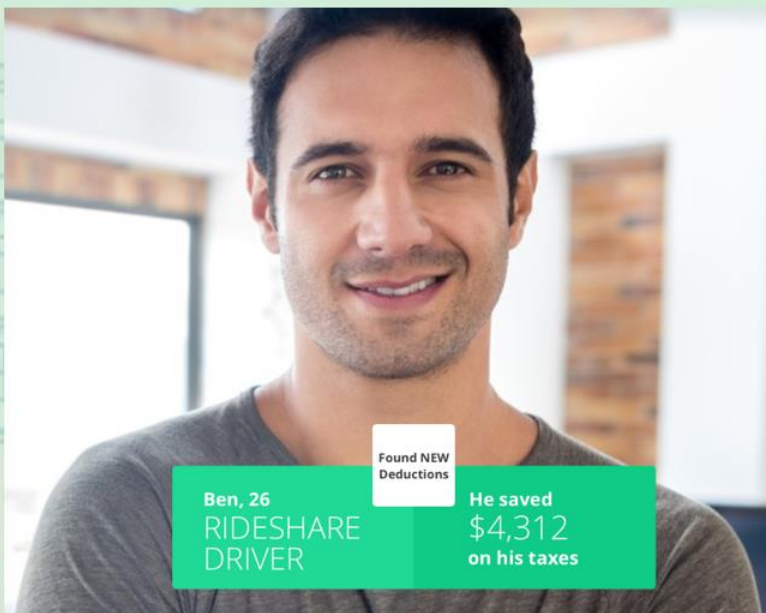
API正在改变您的产品，您的合作伙伴和您的生态系统！

To Be API, or Not to Be API?

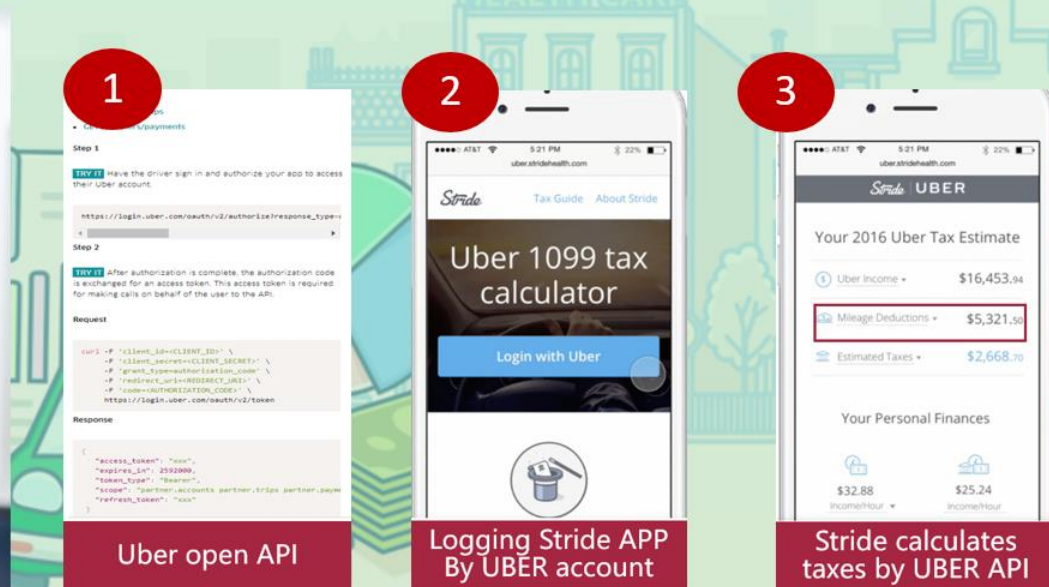
UBER



1. Stride Heath:一家美国公司专注于健康保险和报税的公司
2. Stride+Uber:帮助司机省钱，合理报税。
3. 怎么做到的？Stride在自己的APP应用中调用Uber API，获得行程支付信息，再合理算税。



UBER + Stride:
有效的连接产生新的业务



API正在加速数字化转型！也在塑造API经济

APIs will be a
\$2.2 trillion economy
by the end of 2018

如何面对API带来的机会和挑战？

1. 什么是API? 什么是REST API?

2. 为什么API {first}设计很重要?

3. 为什么需要API网关?

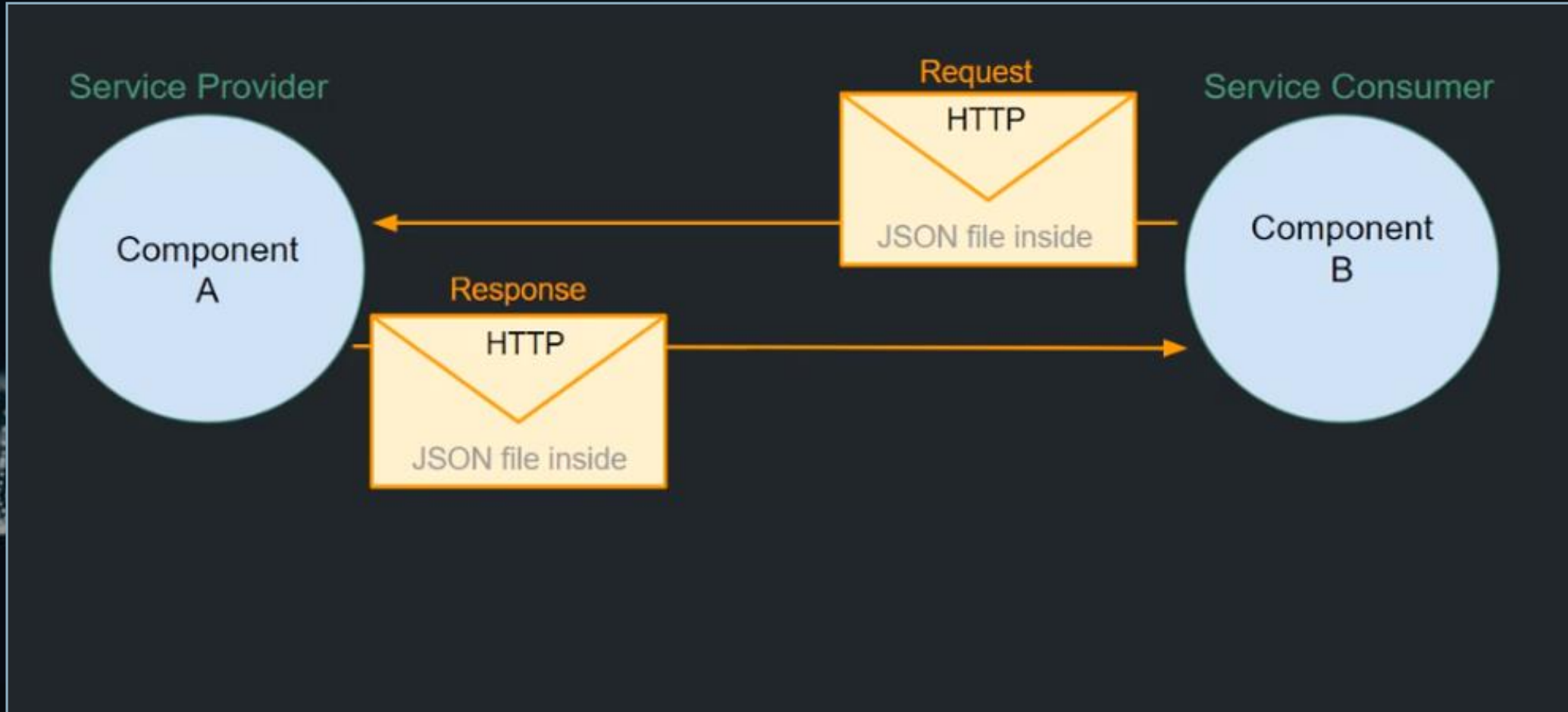
4. 什么是API管理?

5. 涵盖所有, API 平台 @ Oracle

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CODE**

什么是API(Application Programming Interface)? 什么是REST API? ?

API是一种让软件组件相互通信的方法



API无处不在，内部和外部！

让我们更多地思考和谈论 “software component” and “contract”

Contract:

REST
RPC
PUSH

- REST: HTTP, CoAP, command invoked in protocol
- RPC: SOAP, XML, command invoked on service: SOA
- Push: WebSockets, Webhooks, PubSubHubBub,...

Hello!
Ciao! Guten Tag!
Ahoj! 안녕하세요

客户

API 消费者

供应商

合作伙伴

更好地构建REST API层：易于外部使用

Within

In One monolithic System

Between

In One monolithic System

Between

Within

In Micro-Services

让我们开始这个旅程，创建第一个REST API

今天我会构建一个“支付服务”，现在第一个API：POST /v1/payments

Exciting!

POST /v1/payments

REQUEST SAMPLES

Payload Curl PHP Java Python Ruby C#

application/json

Copy Expand all Collapse all

```
{
  "accountId": "4028905f5a87c0ff015a87d25ae90025",
  "amount": 44.1,
  "comment": "normal payment",
  "currency": "USD",
  - "debitMemos": [
    + { ... }
  ],
  "effectiveDate": "2017-03-01",
  - "invoices": [
    + { ... }
  ],
  "paymentMethodId": "402881e522cf4f9b0122cf5dc4020045",
  "type": "External"
}
```

Request

RESPONSE SAMPLES

200

application/json

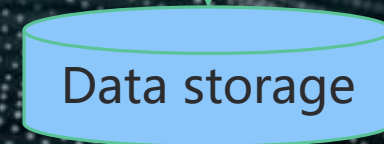
Copy Expand all Collapse all

```
{
  "id": "4028905f5a87c0ff015a87eb6b75007f",
  "number": "P-00000001",
  "status": "Processed",
  "type": "External",
  "accountId": "4028905f5a87c0ff015a87d25ae90025",
  "amount": 44.1,
  "appliedAmount": 44.1,
  "unappliedAmount": 0,
  "refundAmount": 0,
  "creditBalanceAmount": 0,
  "currency": "USD",
  "effectiveDate": "2017-03-01",
  "comment": "normal payment",
  "paymentMethodId": "402881e522cf4f9b0122cf5dc4020045",
  "paymentMethodSnapshotId": null,
  "authTransactionId": null,
  "bankIdentificationNumber": null,
  "gatewayId": null,
  "gatewayOrderId": null,
  "gatewayResponse": null,
  "gatewayResponseCode": null,
  "gatewayState": "NotSubmitted",
  "markedForSubmissionOn": null,
  "referenceId": null,
  "secondPaymentReferenceId": null,
  "softDescriptor": null,
  "softDescriptorPhone": null,
  "submittedOn": null,
  "settledOn": null,
  "cancelledOn": null,
  "createdDate": "2017-03-01 11:30:37",
  "createdById": "402881e522cf4f9b0122cf5d82860002",
  "updatedDate": "2017-03-01 11:30:37",
  "updatedById": "402881e522cf4f9b0122cf5d82860002",
  + "financeInformation": { ... },
  "success": true
}
```

Response



Service logical
Data handling



Data storage

API 实现

API 定义

1. 什么是API? 什么是REST API?

2. 为什么API {first}设计很重要?

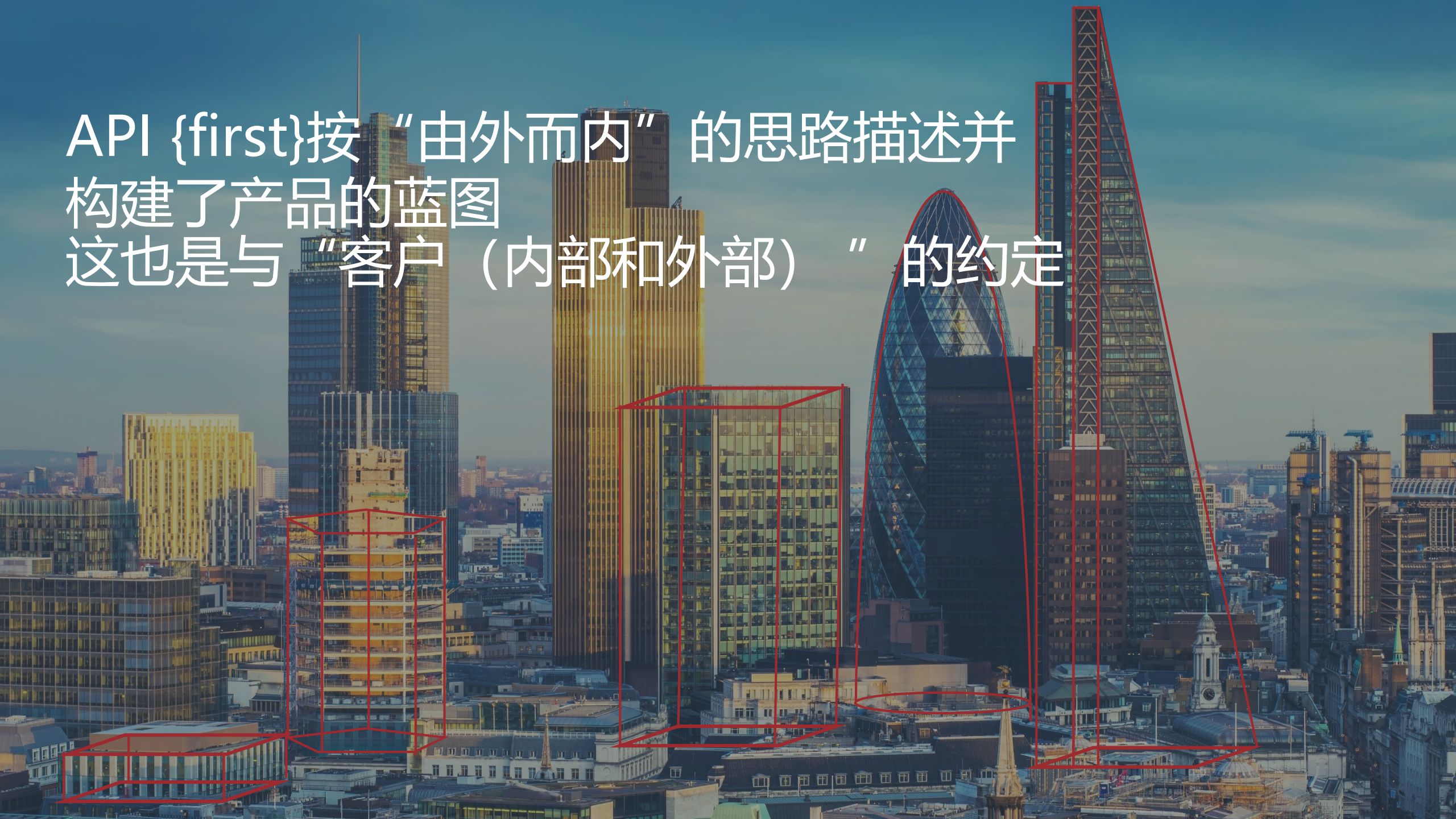
3. 为什么需要API网关?

4. 什么是API管理?

5. 涵盖所有, API 平台 @ Oracle

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CODE**

API {first}按“由外而内”的思路描述并
构建了产品的蓝图
这也是与“客户（内部和外部）”的约定



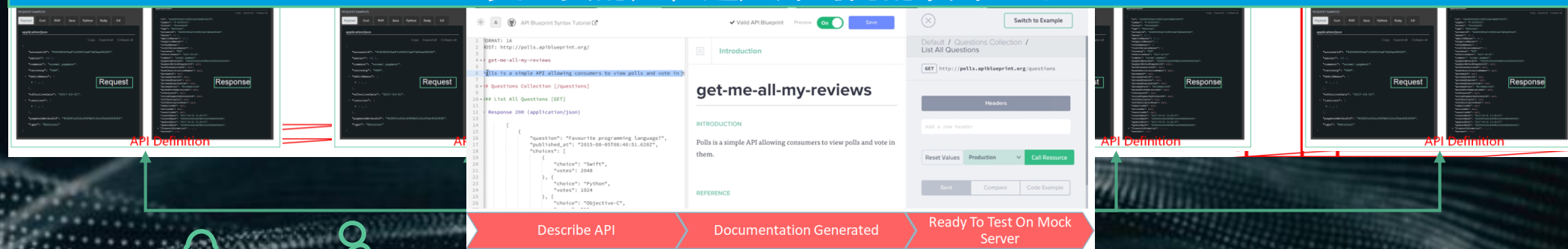
理解API {first}设计

我的“支付服务”也是如此：从外到内的API {first}设计



合作伙伴

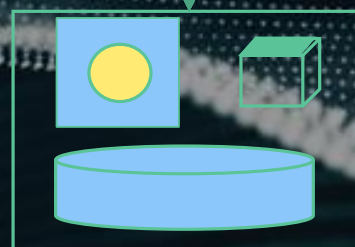
API层：即功能，即契约，即文档
更重要的是，这是外到内的设计思考。



产品经理



API 设计者



API 实现者



测试人员

1. 什么是API? 什么是REST API?

2. 为什么API {first}设计很重要?

3. 为什么需要API网关?

4. 什么是API管理?

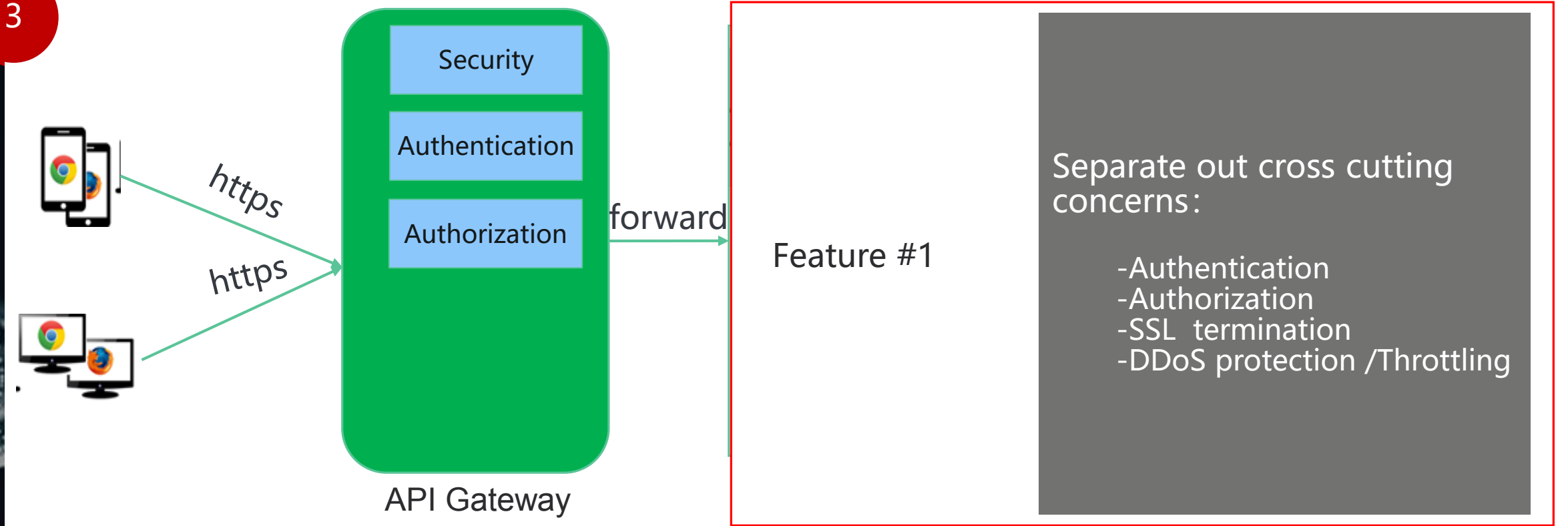
5. 涵盖所有, API 平台 @ Oracle

**ORACLE
CODE**

考虑更多的复杂性，为什么需要API网关？

考虑在我的产品中部署“支付服务”

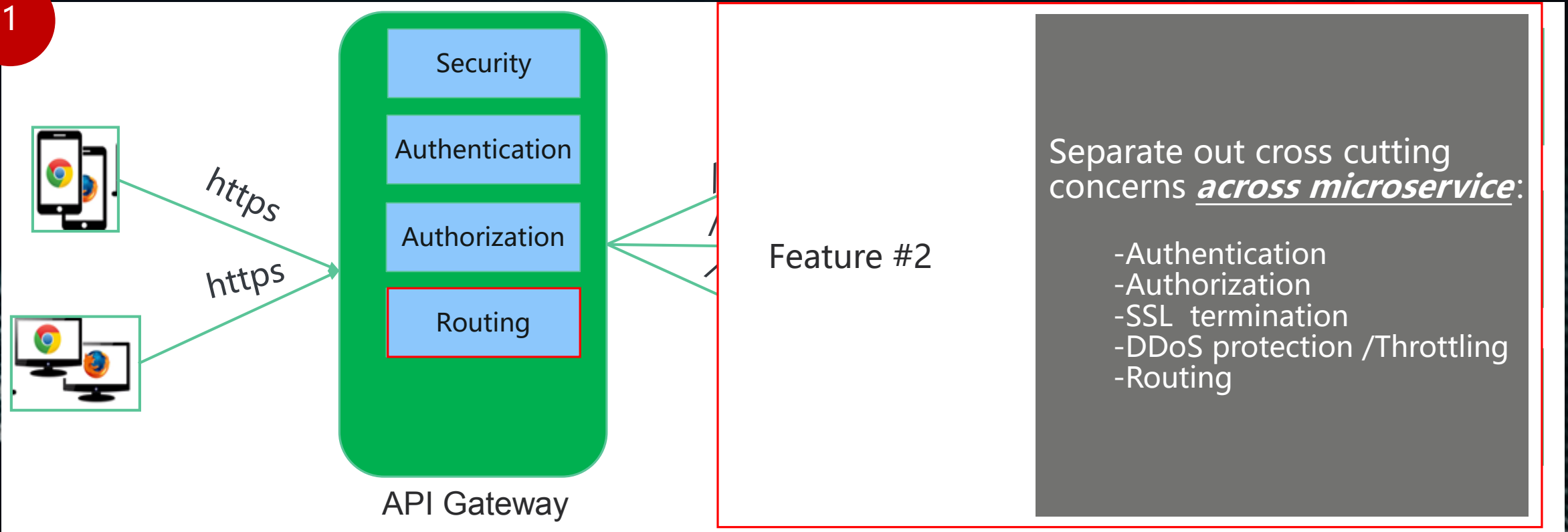
3



考虑更多的复杂性，为什么需要API网关？

考虑在我的产品中部署“支付服务”

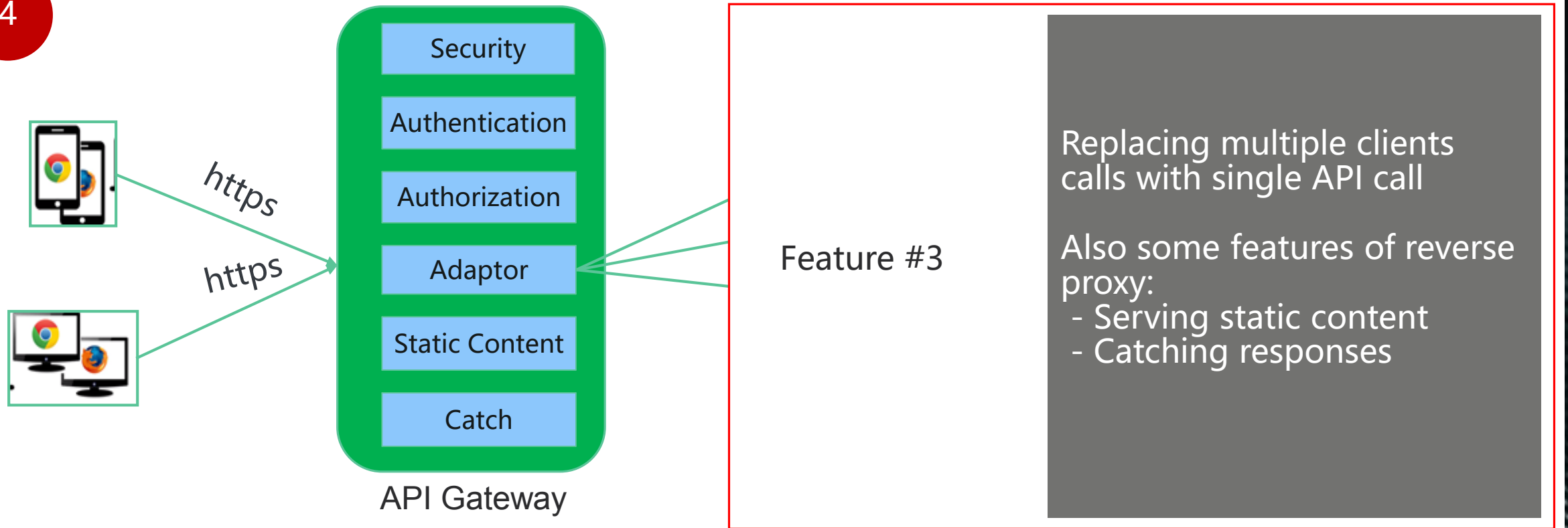
1



考虑更多的复杂性，为什么需要API网关？

考虑在我的产品中部署“支付服务”

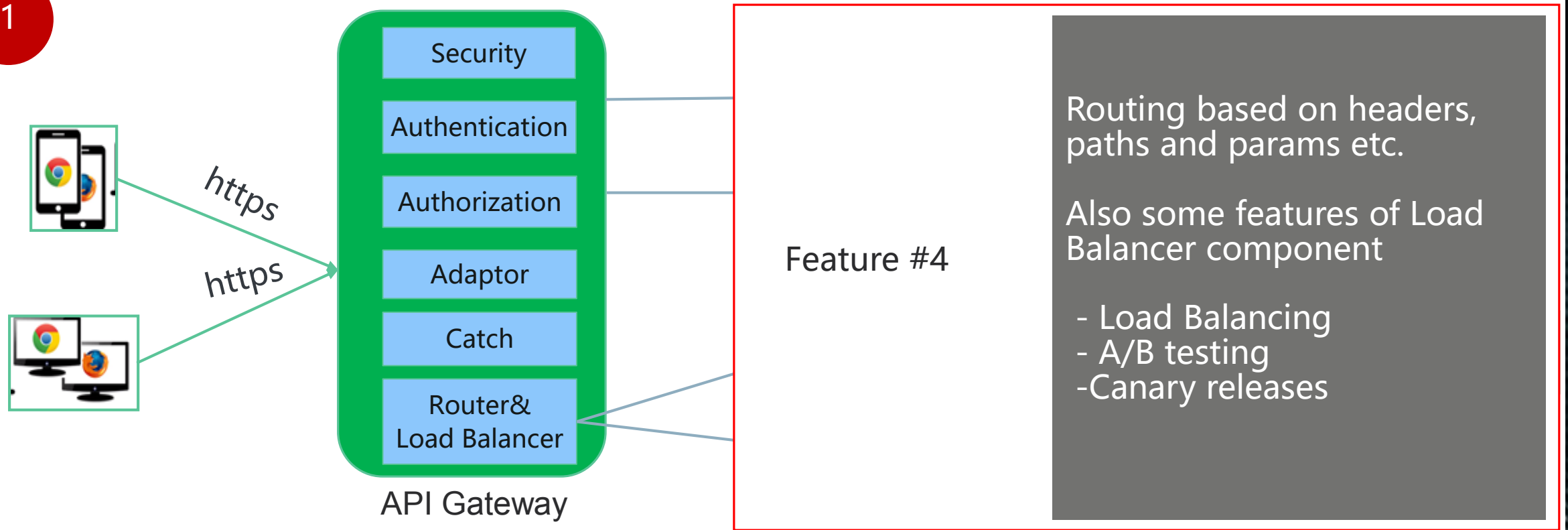
4



考虑更多的复杂性，为什么需要API网关？

考虑在我的产品中部署“支付服务”

1



考虑更多的复杂性，为什么需要API网关？

考虑在我的产品中部署“支付服务”

现在，我们理解了API网关的必要性。

问题：您真的想自己构建一个API网关吗？或者找一个合适的API网关产品？

1. 什么是API? 什么是REST API?

2. 为什么API {first}设计很重要?

3. 为什么需要API网关?

4. 什么是API管理?

5. 涵盖所有, API 平台 @ Oracle

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API生命周期和管理

以我的“支付服务”产品开发和团队为例



1. 什么是API? 什么是REST API?

2. 为什么API {first}设计很重要?

3. 为什么需要API网关?

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5. 涵盖所有, API 平台 @ Oracle

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CODE***

最好有一个平台来覆盖所有 我的“支付服务” API开发和产品部署之旅

5

申请和批准API



合作伙伴

2

API层：即功能，即契约，即文档
更重要的是，这是外到内的设计思考。

发布
文档
测试

API Definition

API

API Definition

API Definition

1

产品经理

创建

API 设计者

3

连接

后台
服务

4

部署到

API 网关

API 实现者

测试人员

Describe API

Documentation Generated

Ready To Test On Mock
Server

API平台参考架构

SYSTEMS OF ENGAGEMENT



Management

Design & Development Portals

Policy Definition

Lifecycle Management

Runtime Analytics

User Management

Single Purpose APIs

Special Purpose APIs

Presentation APIs

Public [Consumer] APIs

Partner [B2B] APIs

[Managed] Business APIs

API Applications

System APIs

Finance

System APIs

SCM

System APIs

Legacy, etc

System APIs

CX

System APIs

HCM

SaaS

Microservices

Utility APIs

Identity

Logging

Error Handling

Notifications

SYSTEMS OF RECORDS

SYSTEMS OF INNOVATION

Event Hub

API平台参考架构@Oracle

SYSTEMS OF ENGAGEMENT



Management

Oracle API 平台 - Management Service



Oracle API 平台 - Developer Portal

Single Purpose APIs

Special Purpose APIs

Presentation APIs

Public [Consumer] APIs

Partner [B2B] APIs

Oracle API 平台 - Gateways

API Applications (Polyglot)

System APIs

Finance

System APIs

SCM

System APIs

Legacy, etc

System APIs

CX

System APIs

HCM

SaaS

Microservices (Polyglot)



SYSTEMS OF INNOVATION

Utility APIs

Oracle Identity Cloud

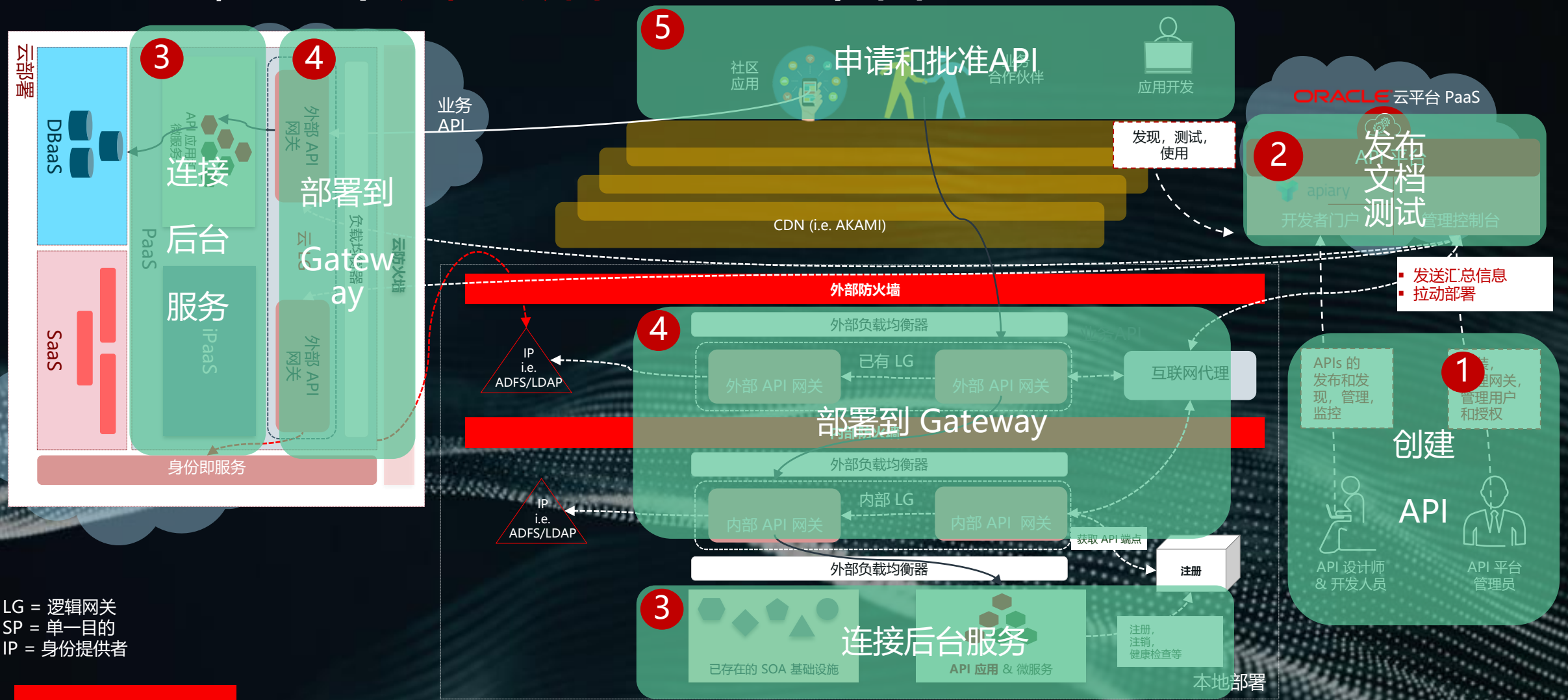
Oracle Management Cloud

SYSTEMS OF ENABLEMENT

SYSTEMS OF RECORDS

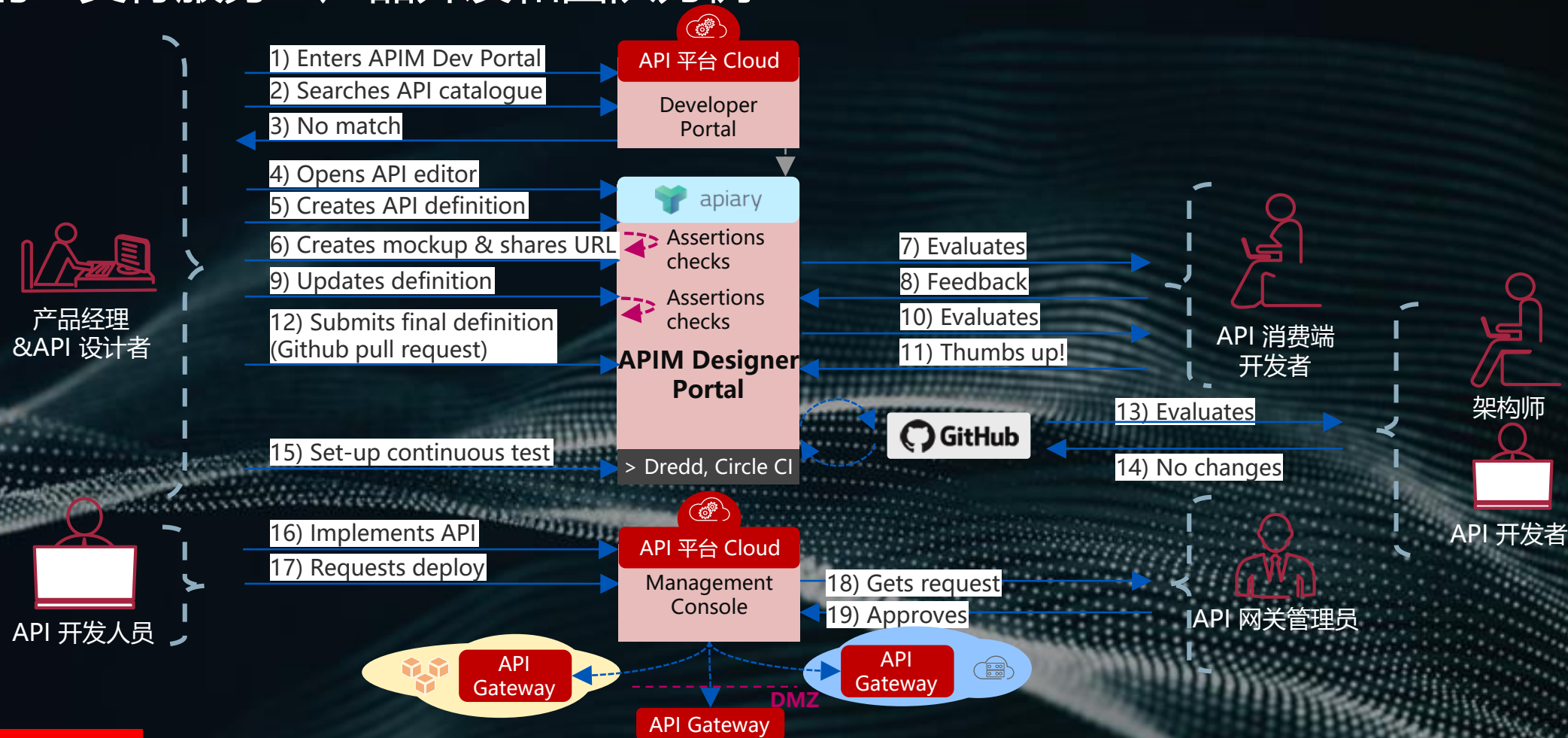
Event Hub

Oracle, 一个涵盖所有的API平台



Oracle API 平台如何支持API {first}设计

以我的“支付服务”产品开发和团队为例



Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅

APIs

POST /v1/payments

REQUEST SAMPLES

Payload Curl PHP Java Python Ruby C#

application/json

Copy Expand all Collapse all

```
{
  "accountId": "4028905f5a87c0ff015a87d25ae90025",
  "amount": 44.1,
  "comment": "normal payment",
  "currency": "USD",
  - "debitMemos": [
    + { ... }
  ],
  "effectiveDate": "2017-03-01",
  - "invoices": [
    + { ... }
  ],
  "paymentMethodId": "402881e522cf4f9b0122cf5dc4020045",
  "type": "External"
}
```

RESPONSE SAMPLES

200

application/json

Copy Expand all Collapse all

```
{
  "id": "4028905f5a87c0ff015a87eb6b75007f",
  "number": "P-000000001",
  "status": "Processed",
  "type": "External",
  "accountId": "4028905f5a87c0ff015a87d25ae90025",
  "amount": 44.1,
  "appliedAmount": 44.1,
  "unappliedAmount": 0,
  "refundAmount": 0,
  "creditBalanceAmount": 0,
  "currency": "USD",
  "effectiveDate": "2017-03-01",
  "comment": "normal payment",
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  "bankIdentificationNumber": null,
  "gatewayId": null,
  "gatewayOrderId": null,
  "gatewayResponse": null,
  "gatewayResponseCode": null,
  "gatewayState": "NotSubmitted",
  "markedForSubmissionOn": null,
  "referenceId": null,
  "secondPaymentReferenceId": null,
  "softDescriptor": null,
  "softDescriptorPhone": null,
  "submittedOn": null,
  "settledOn": null,
  "cancelledOn": null,
  "createdDate": "2017-03-01 11:30:37",
  "createdById": "402881e522cf4f9b0122cf5d82860002",
  "updatedDate": "2017-03-01 11:30:37",
  "updatedById": "402881e522cf4f9b0122cf5d82860002",
  + "financeInformation": { ... },
  "success": true
}
```

Hover

click

Iterative

Request

Response

2

建立第一个API



Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅

The screenshot displays the Oracle API Platform interface. On the left, the API Blueprint Syntax Tutorial is visible, showing the definition of the 'get-me-all-my-reviews' endpoint. The main panel shows the 'Introduction' section for this endpoint, which describes it as a simple API for viewing polls and voting. The right panel shows the 'List All Questions' endpoint with a 'GET' method and a 'Call Resource' button. Below the screenshot, a red banner contains three steps: 'Describe API', 'Documentation Generated', and 'Ready To Test On Mock Server'.

Describe API

Documentation Generated

Ready To Test On Mock Server

1

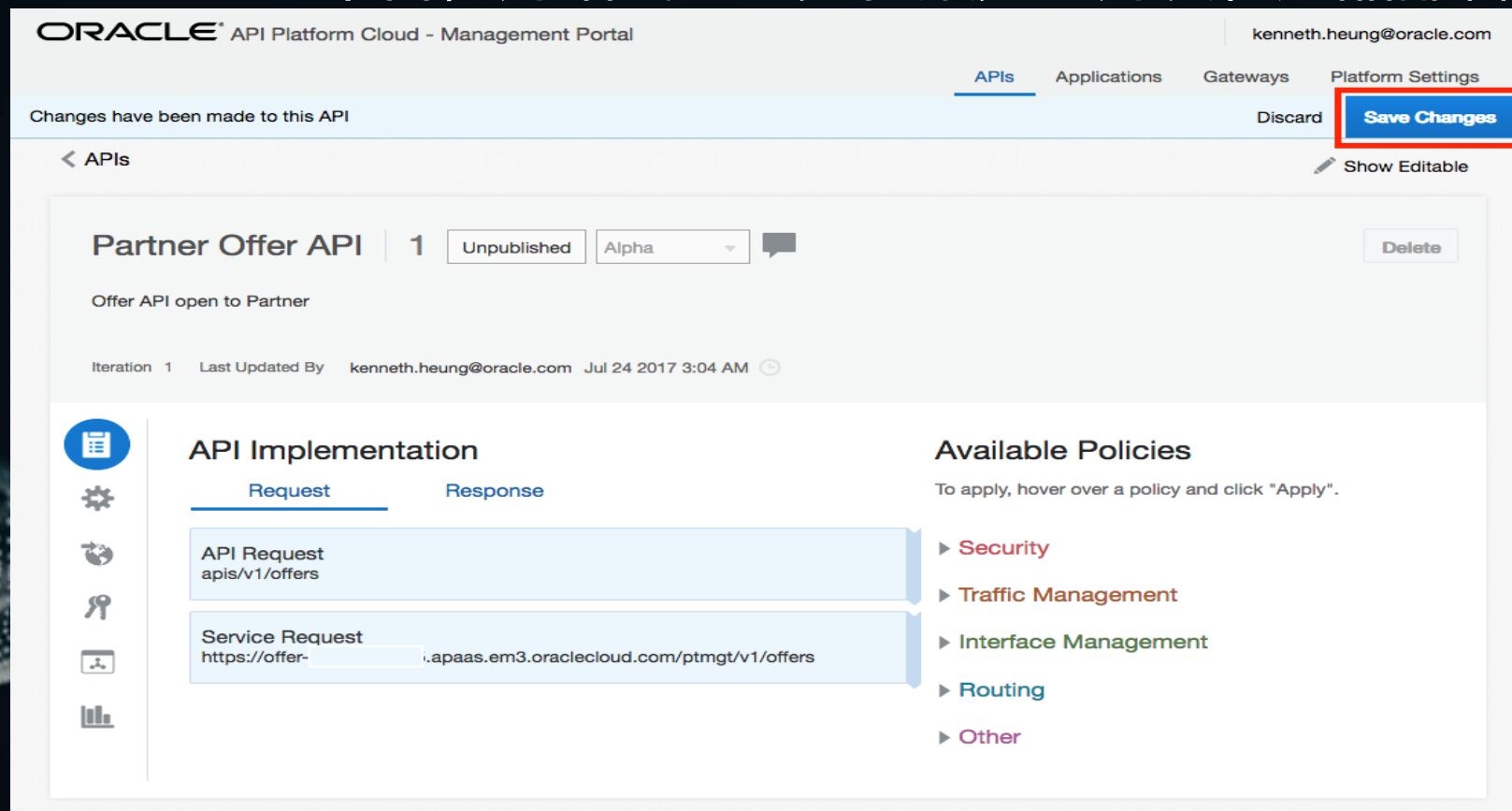
把API发布到 开发者门户

ORACLE



Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅



1

建立您的第一API, 配置service Request, 连接后台应用



Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅

< APIs

Show Editable

Partner Offer API | 1 | Unpublished | Alpha |

Offer API open to Partner

Iteration 2 | Last Updated By | kenneth.heung@oracle.com | Jul 24 2017 3:20 AM |

API Implementation

Request

Response

API Request
apis/v1/offers

Key Validation

Service Request
https://offer-i.apaas.em3.oraclecloud.com/ptmgt/v1/offers

Available Policies

To apply, hover over a policy and click "Apply".

Security

☒ Traffic Management

expand Traffic Management

API Throttling - Delay | 1.0

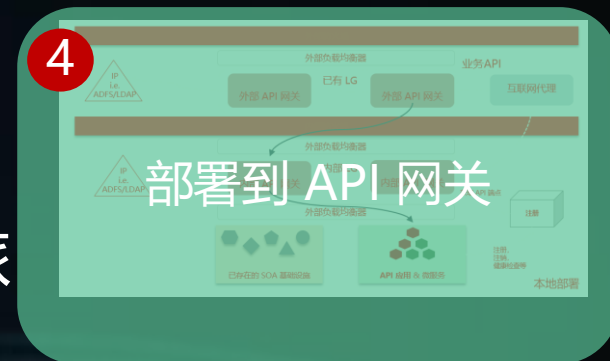
Application Rate Limiting | 1.0

API Rate Limiting | 1.0

Interface Management

2

修改您的API 策略



Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅

Partner Offer API | 1

Offer API open to Partner

Iteration 6 Last Updated By kenneth.heung

Grants

Manage API (1) View all

Users issued this grant are all

Add Grantee

Choose an existing user or group. [Learn more](#)

Add To Grant - Request registration

Users issued this grant are allowed to request to register applications for this plan.

Choose Grantee

Filter by grantee name or ID

Name	Role
☐ weblogic	Administrator
☐ api-admin-user	Administrator
☐ api-manager-user	APIManager
☐ kenneth.heung@oracle.com	Administrator
☐ APIManagers	APIManager
☐ APICSAdministrators	Administrator
☒ APPDevelopers	ApplicationDeveloper

Add

Add Grantee

request registration (0)

1

授权 合作伙伴注册您的API

5

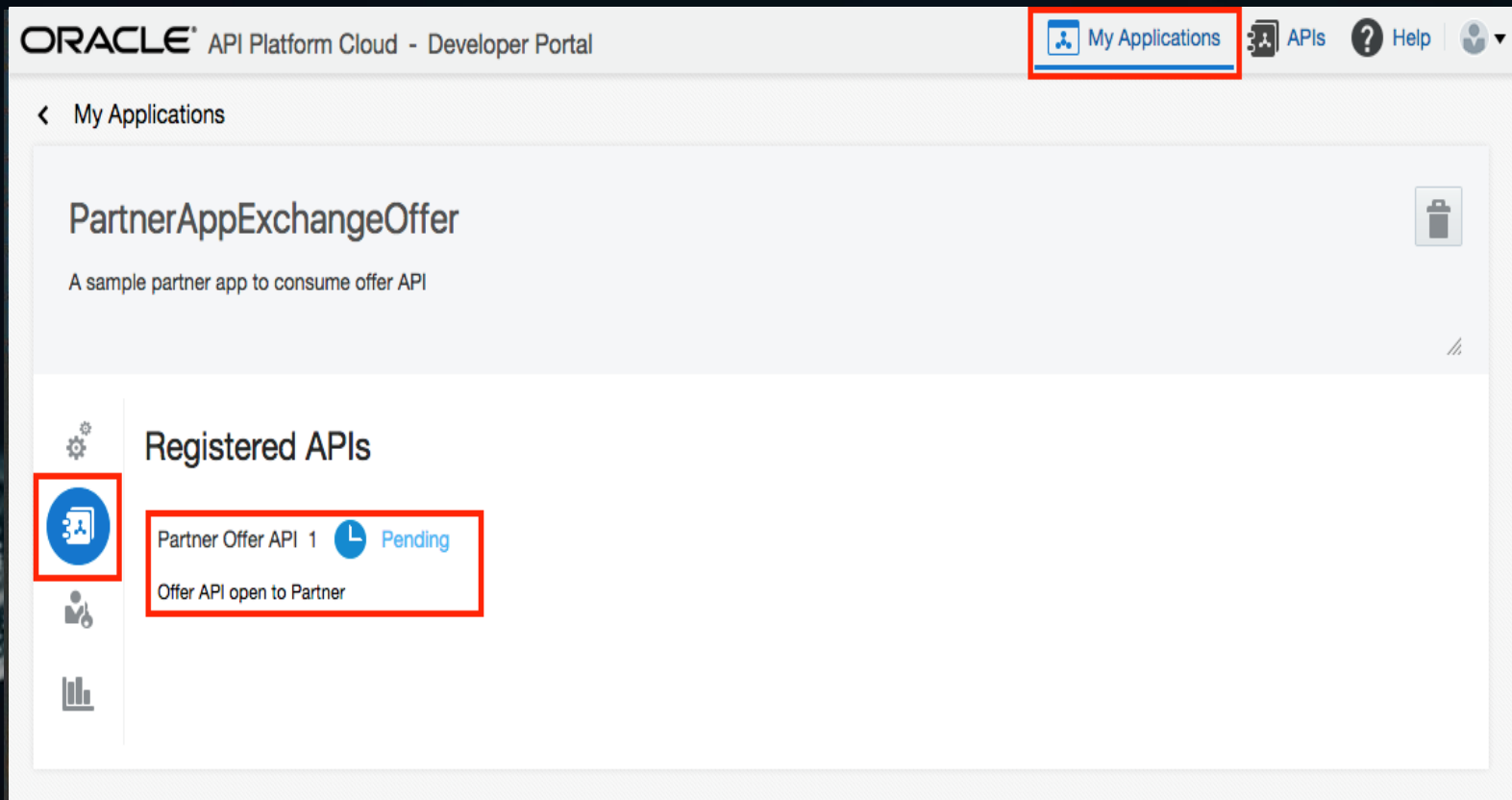
申请和批准API



API 平台
管理员

Oracle, AP平台是如何工作的?

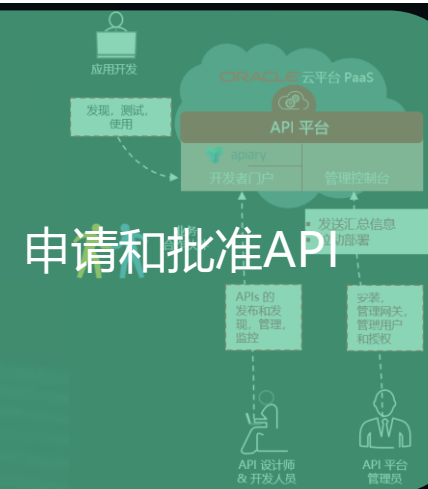
在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅



1

应用程序开发者浏览API和请求访问API

5



业务
合作伙伴

Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅

ORACLE API Platform Cloud - Management Portal

kenneth.heung@oracle.com

APIs Applications Gateways Platform Settings

< APIs Show Editable

Partner Offer API 1 Published Alpha Delete

Offer API open to Partner

Iteration 6 Last Updated By kenneth.heung@oracle.com Jul 24 2017 5:08 AM

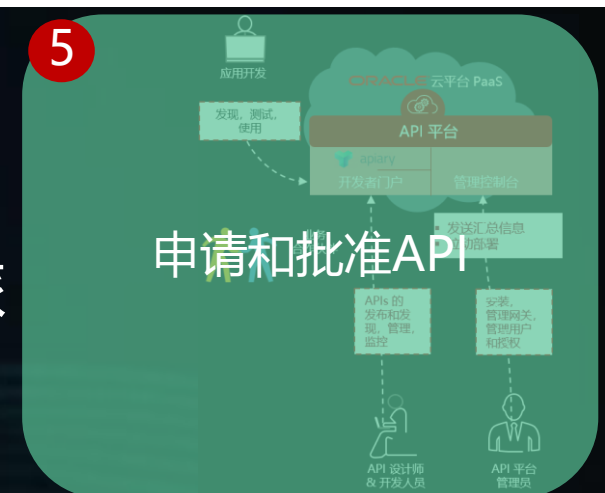
Registrations Register Application

Registered (0) Requesting Registration (1) Suspended (0) Rejected (0)

Application	Requested By	Requested On	
PartnerAppExchangeOffer	app-dev-user	Jul 24, 2017	Delete Reject Approve

App ID: 100

Description: A sample partner app to consume offer API



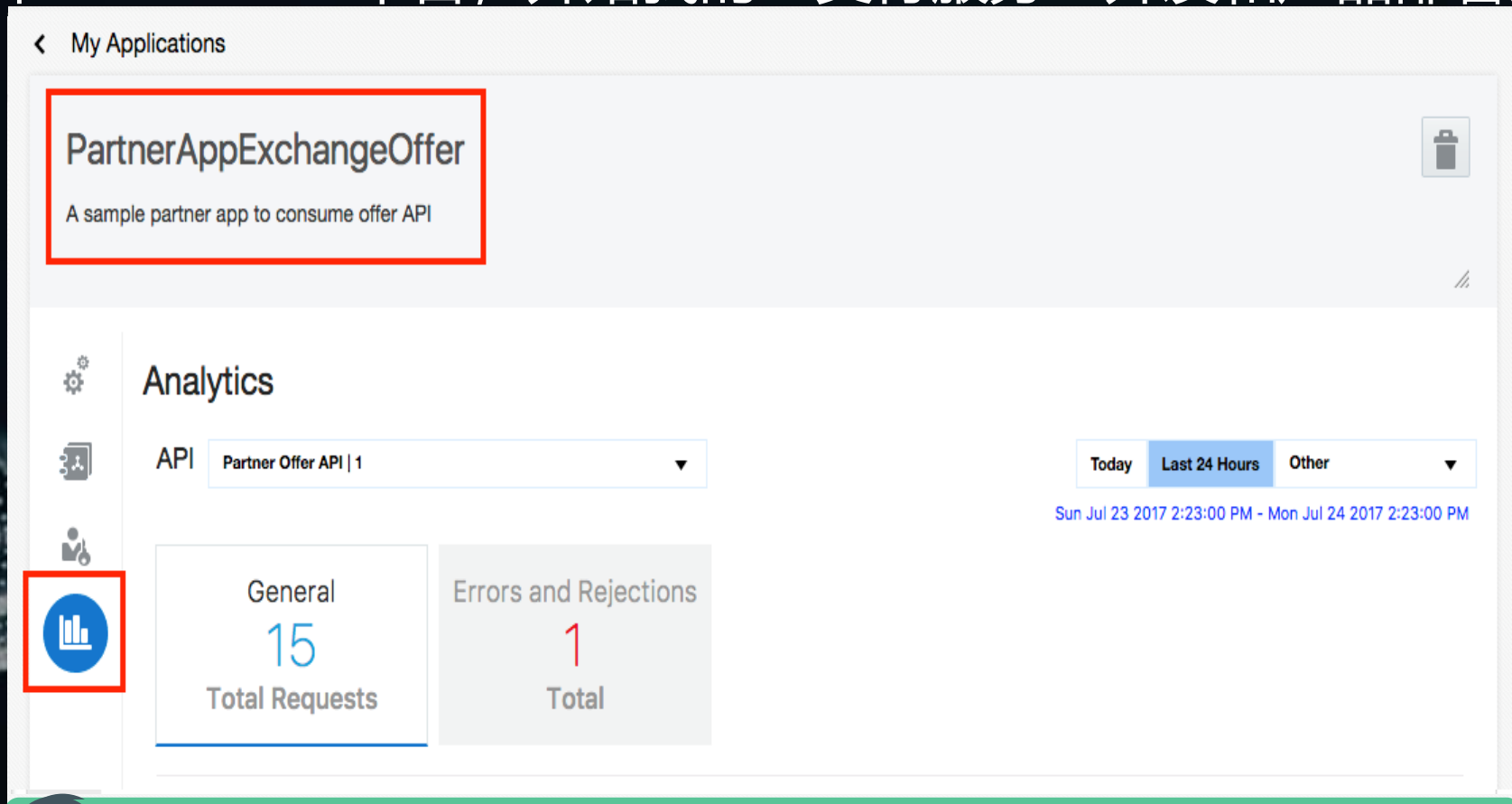
API 平台
管理员

1

API Admin / API Manager 批准API申请

Oracle, AP平台是如何工作的?

在Oracle API平台, 开始我的“支付服务”开发和产品部署之旅



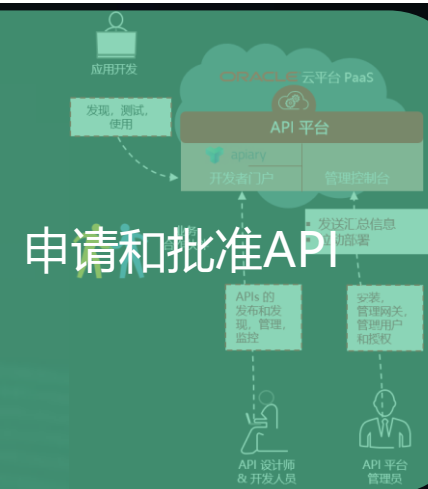
3

合作伙伴使用分析功能

ORACLE®

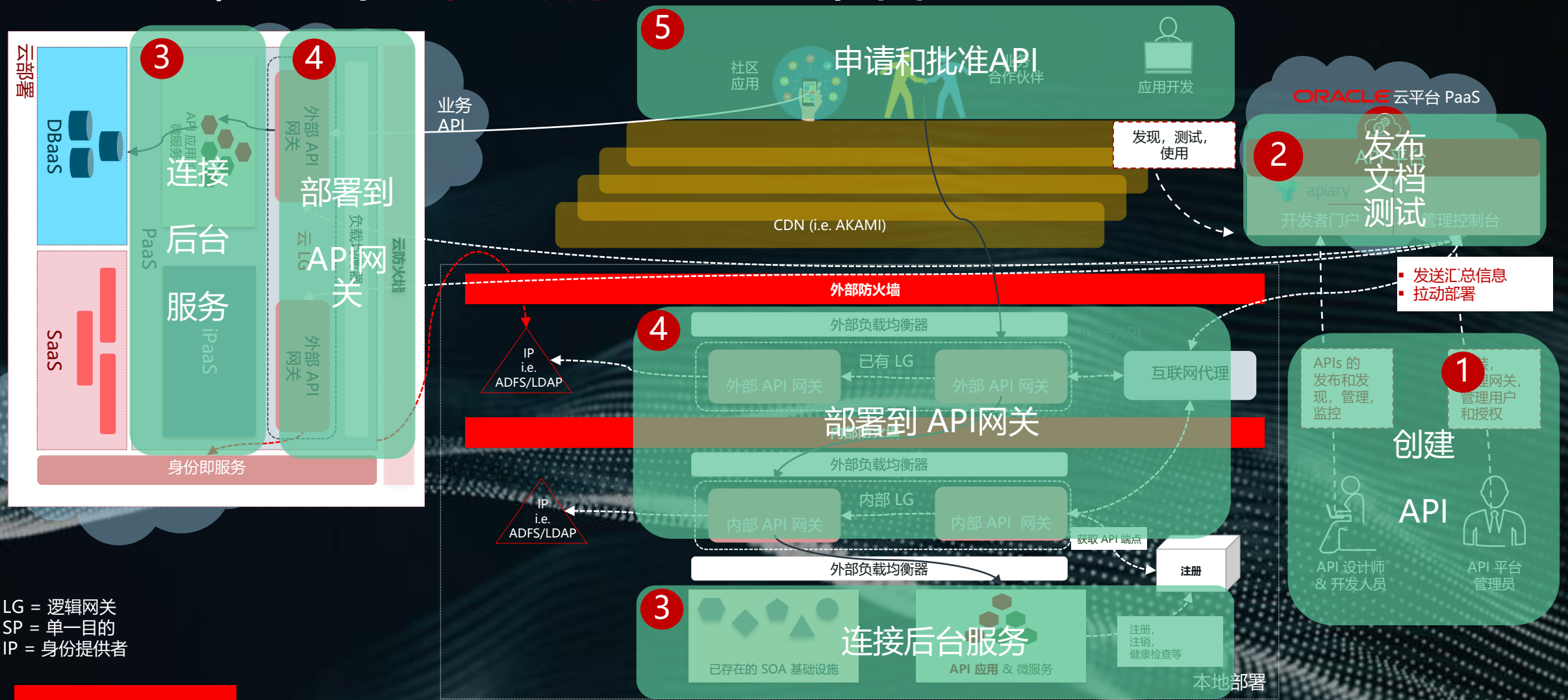
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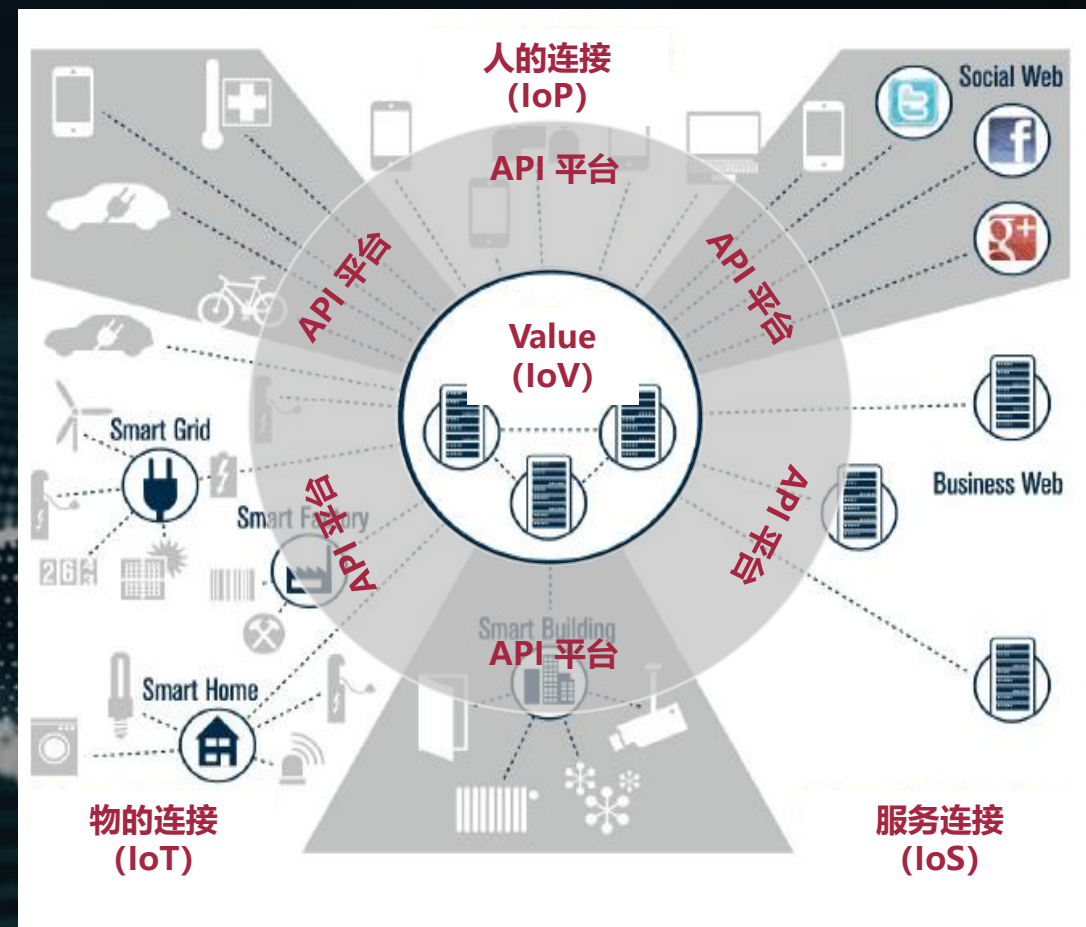
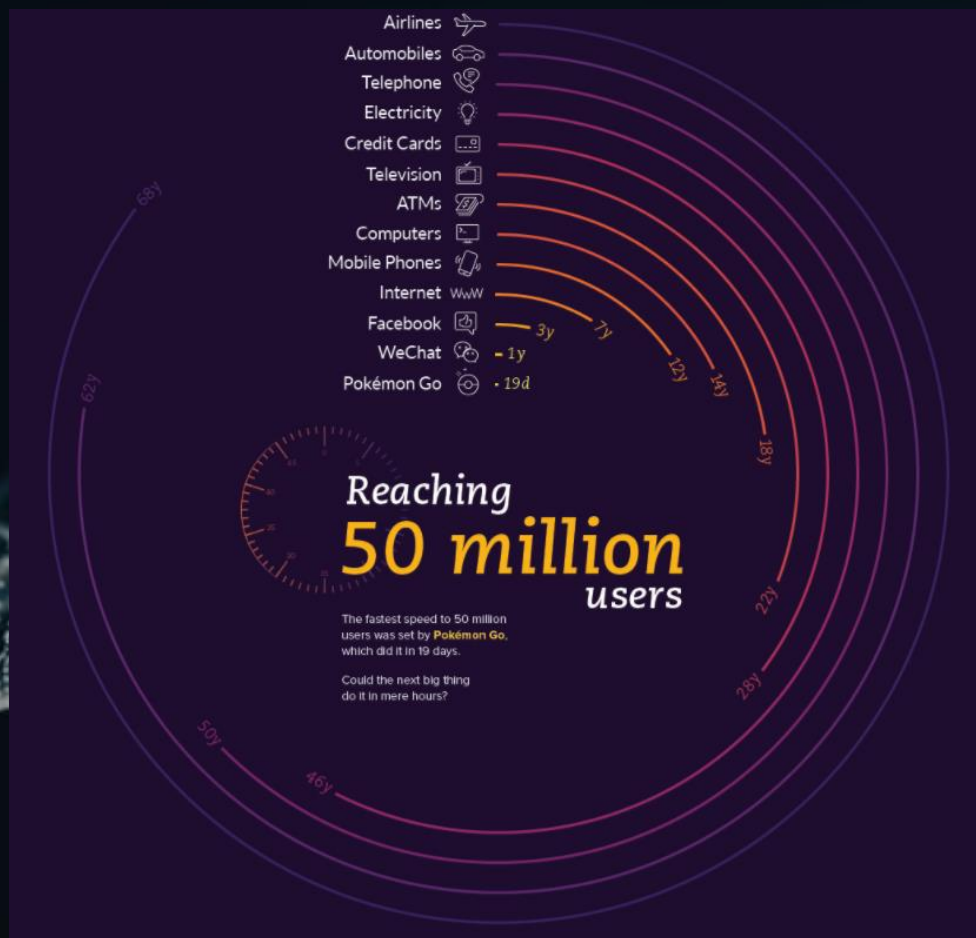
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