Google Cloud

Edge Overview Series
Product Overview

Intelligent API platform enables the Digital Value Chain
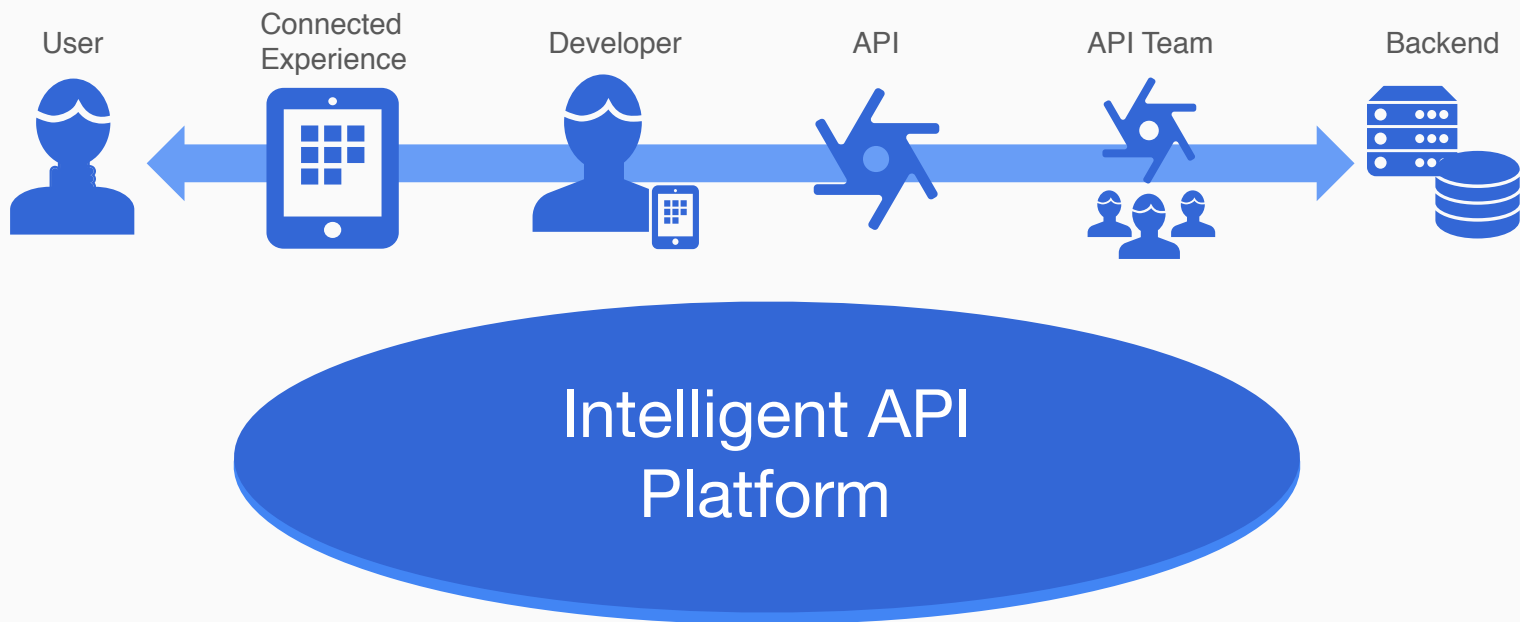
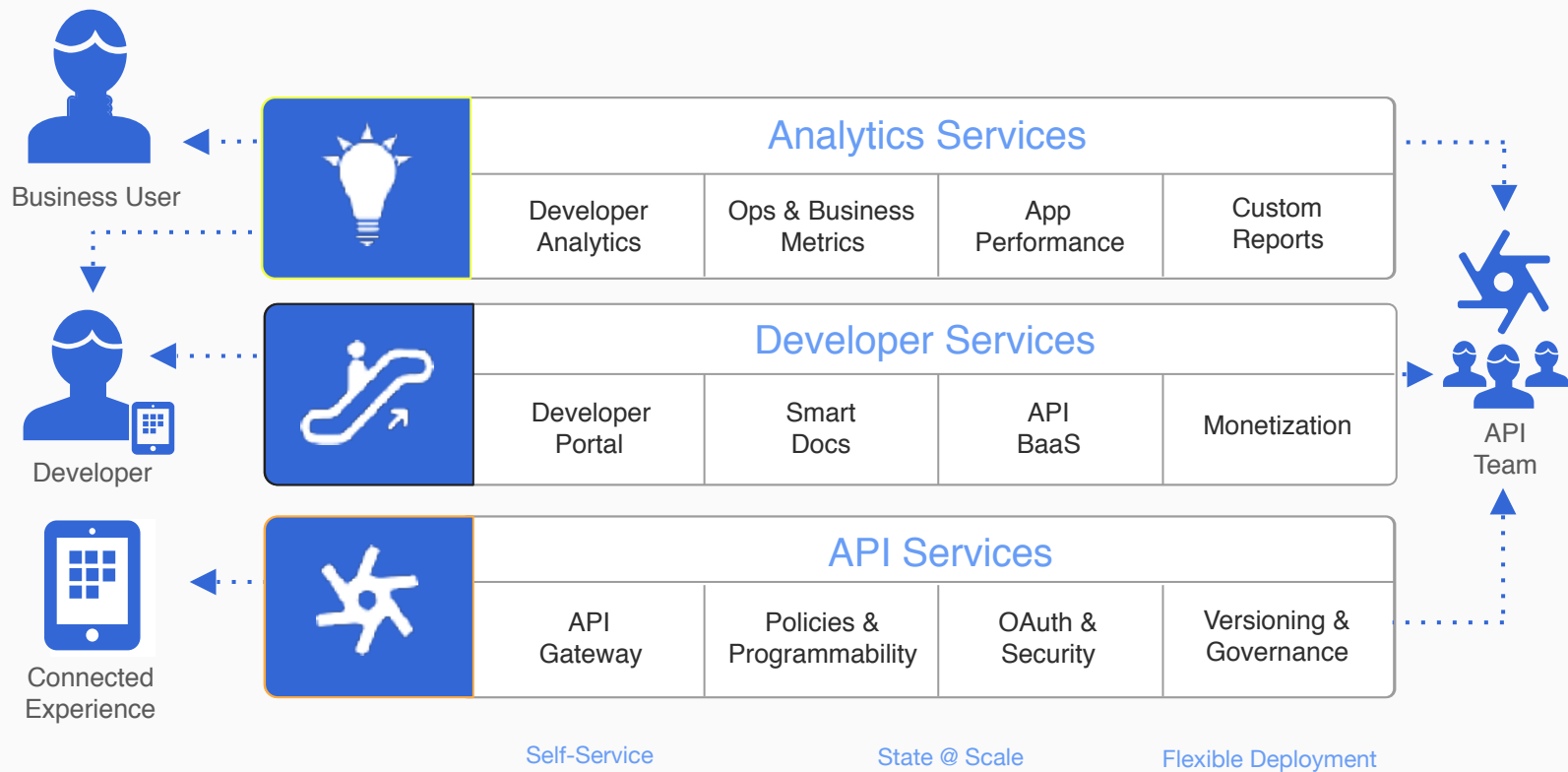User · Connected Experience · Developer · API · API Team · Backend

Intelligent API Platform

Edge - API Management

Business User

Developer

Connected Experience

Analytics Services

Developer Analytics	Ops & Business Metrics	App Performance	Custom Reports

Developer Services

Developer Portal	Smart Docs	API BaaS	Monetization

API Services

API Gateway	Policies & Programmability	OAuth & Security	Versioning & Governance

API Team

Self-Service   State @ Scale   Flexible Deployment

Edge: API-first - Built for APIs, Built with APIs

Self-Service

Alerting and Monitoring

Authentication and authorization

19 Data centers
7 Geographical locations

Mission Critical Scaling

Flexible Deployment

Developer Portals

Management UI

SDKs

Apigee Edge APIs

Gateway API
- Policies
- Proxies
- Node.js
- Connectors

BaaS API
BaaS Engine
- Collections
- Graphs
- Notifications
- App Users

Analytics API
Analytics Engine
- Trends
- API Usage
- Customization

Highly Available "NoSQL" Data

Billing API

Monetization Engine

Scalable Time-Series Data

Google Cloud

Complete and Unified Across the Entire API Lifecycle

Design

Develop

Secure

Publish

Scale

Monitor

Analyze

Monetize

edge

Complete and Unified Across the Entire API Lifecycle

Design
Design first. Document Smart. Full support for Swagger 2.0

Monetize
Flexible rate plans
Internationalization support
Usage tracking
Limits and notifications

Develop
Configuration: Over 30 ready-to-use & configurable policies
Code: Built-in support for Node, JavaScript and Java extensibility
BaaS

Analyze
Complete visibility– from app end to backend
Automatically and continuously collect all API-traffic data out of the box

edge

Secure
End-to-end security
Threat protection
Access control
Simple OAuth implementation for your APIs
PCI and HIPAA compliance

Monitor
Centralized control, decentralized development
Multi-tenant architecture
Billions of API calls, including large spikes

Publish
Turnkey developer portal

Scale
Self-service
State @ scale
Flexible deployment

Google Cloud

Edge

Google Cloud
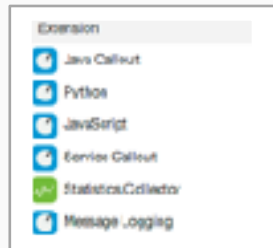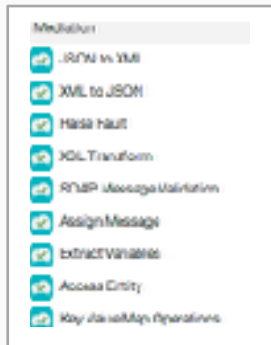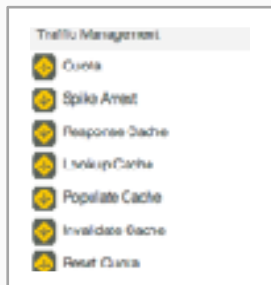
Build more consumable APIs

Edge

Build APIs faster

Manage interactions with API consumers and optimize performance

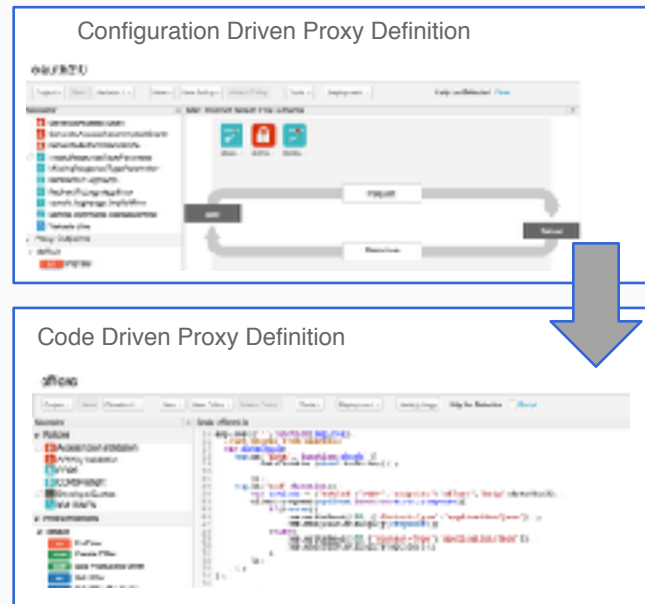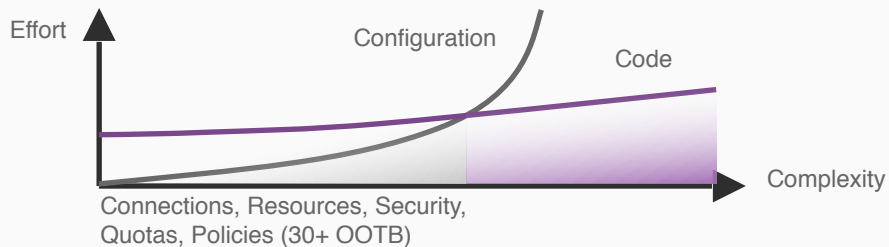**Transform**, translate and reformat data for easy consumption

Traffic Management
- Quota
- Spike Arrest
- Response Cache
- Lookup Cache
- Populate Cache
- Invalidate Cache
- Reset Quota

Mediation
- JSON to XML
- XML to JSON
- Raise fault
- XSL Transform
- SOAP Message Validation
- Assign Message
- Extract Variables
- Access Entity
- Key Value Map Operations

Security
- XML Threat Protection
- JSON Threat Protection
- Regular Expression Protection
- OAuth v2.0
- Get OAuth v2.0 info
- OAuth v1.0a
- Verify API Key
- Access Control
- Generate SAML Assertion
- Validate SAML Assertion

Extension
- Java Callout
- Python
- JavaScript
- Service Callout
- Statistics Collector
- Message Logging

Secure APIs and protect back-end systems from attack

Extend with programming when you need it

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Easily debug APIs

Trace API call flow and debug errors sooner

Increase reuse, consistency, and agility

Effort

Configuration

Code

Complexity

Connections, Resources, Security,
Quotas, Policies (30+ OOTB)

Configuration Driven Proxy Definition

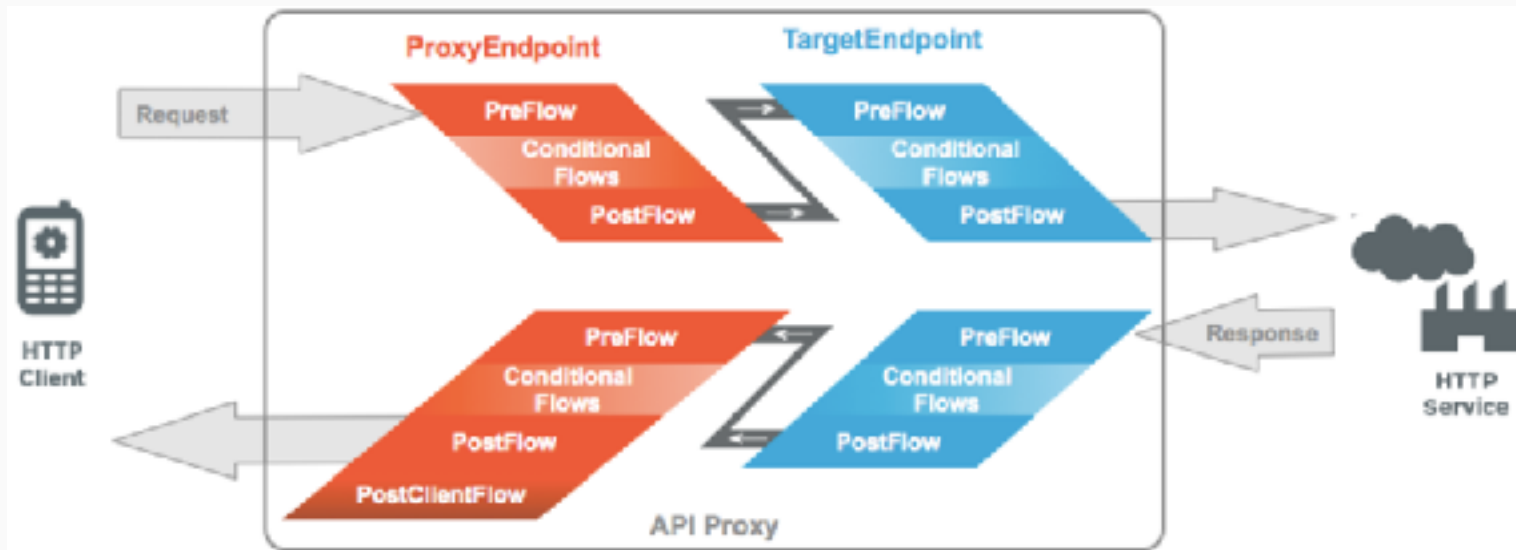Code Driven Proxy Definition
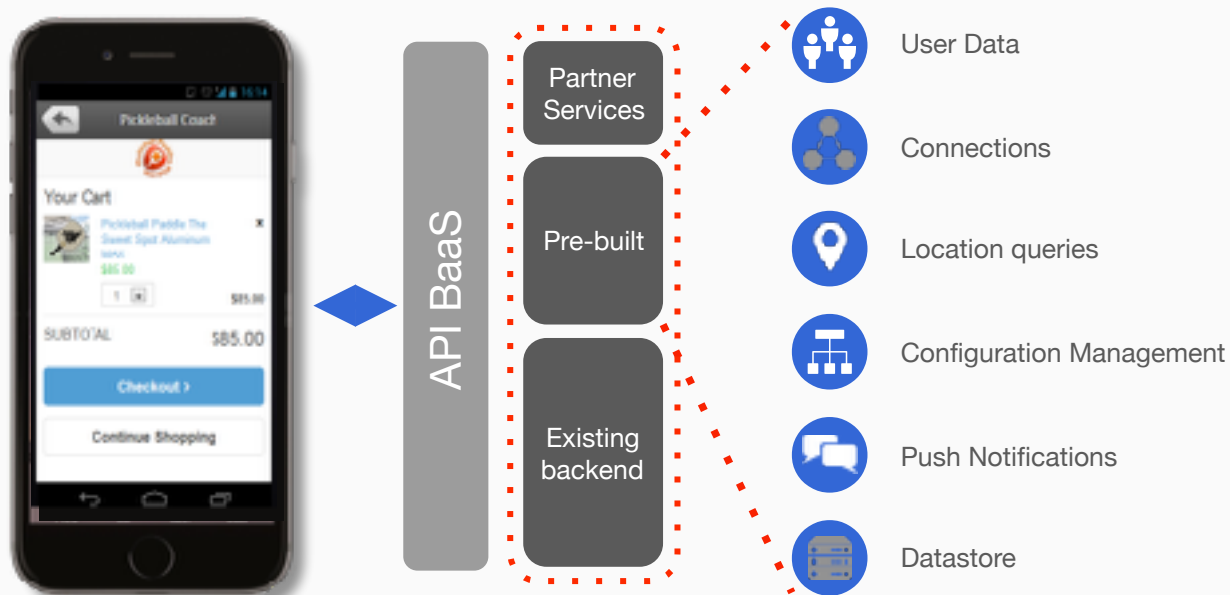
Code and Configuration

Enable fine grain controls in the API proxy

Segment each part of the flow, including default and non-default paths, as well as pre-flow and post-flow for both the request and response

Build apps faster

API BaaS

Partner Services

Pre-built

Existing backend

- User Data
- Connections
- Location queries
- Configuration Management
- Push Notifications
- Datastore

Built in back-end as a service to store data for your apps and provide out of box social login, push-notifications, activity streams and more

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Edge

Secure

Secure all points of engagement

edge

Users	Connected Experience	Developers	APIs	API Team	Back-end
OAuth2	API key	Access	OAuth2	RBAC	Mutual TLS
MFA	OAuth2	Block	Quotas	AD / LDAP	IP Access
Federated Login	Mutual	Revoke	Spike Arrest	Audit	Control
IP Access	TLS	SSO	Threat Protection		Southbound VPN
Control		RBAC	Intrusion		
			Detection		
			Bot Detection		

End-to-end security
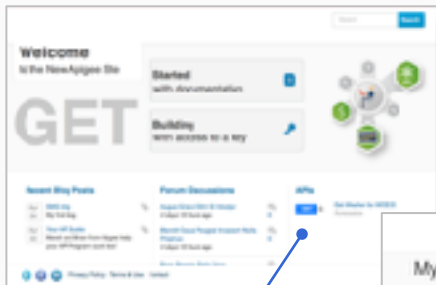PCI and HIPAA compliance
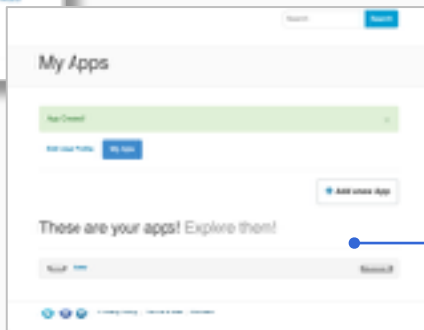
Google Cloud

Edge

Publish
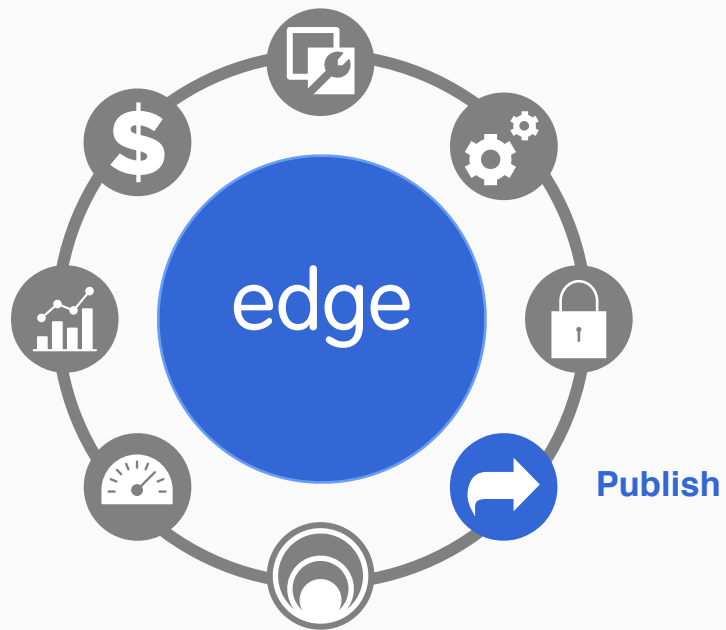
Make it easy for developers to use your APIs

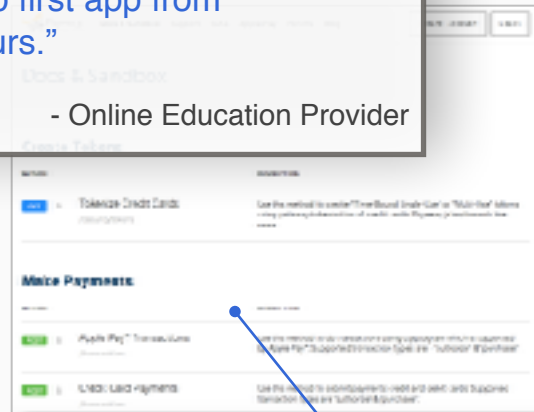"Reduced time to first app from 4 weeks to 6 hours."

- Online Education Provider

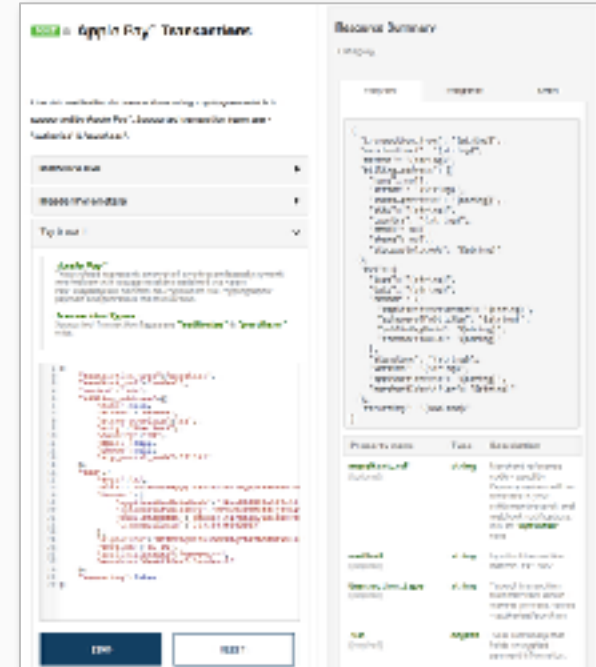Automatic or manual registration

Self-service app key requests

Self-documenting

Turnkey developer self-service portal

Testable Documentation

SmartDocs

Easily manage multiple API versions

Performance tests

Live traffic

Test Environment

/v2

Prod Environment

/v1

API Traffic

/v2 deployed

/v2

/v1
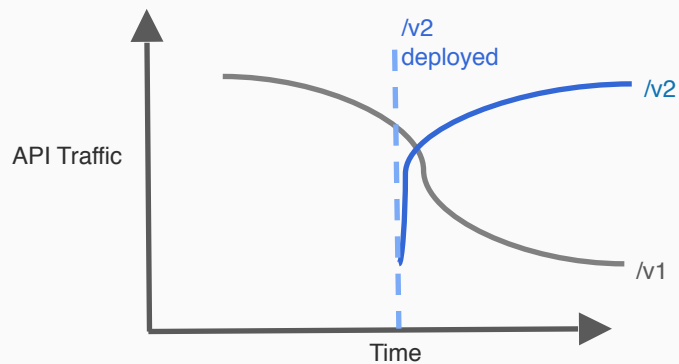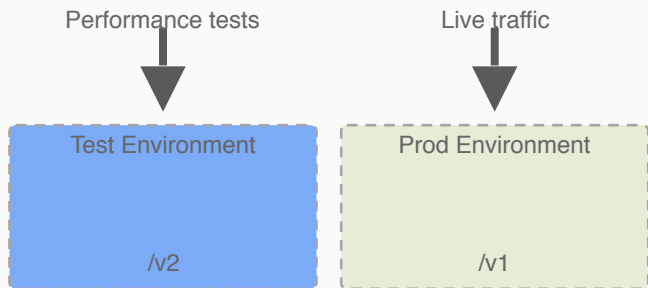
Time

Shared infrastructure via environments
Zero downtime deployment

edge

Edge

Scale

Operational Excellence

API Processing

Region

Pod | Pod

Region

Pod | Pod

Traffic Isolation
Independent Scaling

Data

Low Latency

Management

UI, API Definitions, Users, Roles, System Configurations

Simpler Administration

Centralized control, decentralized development
Multi-tenant architecture
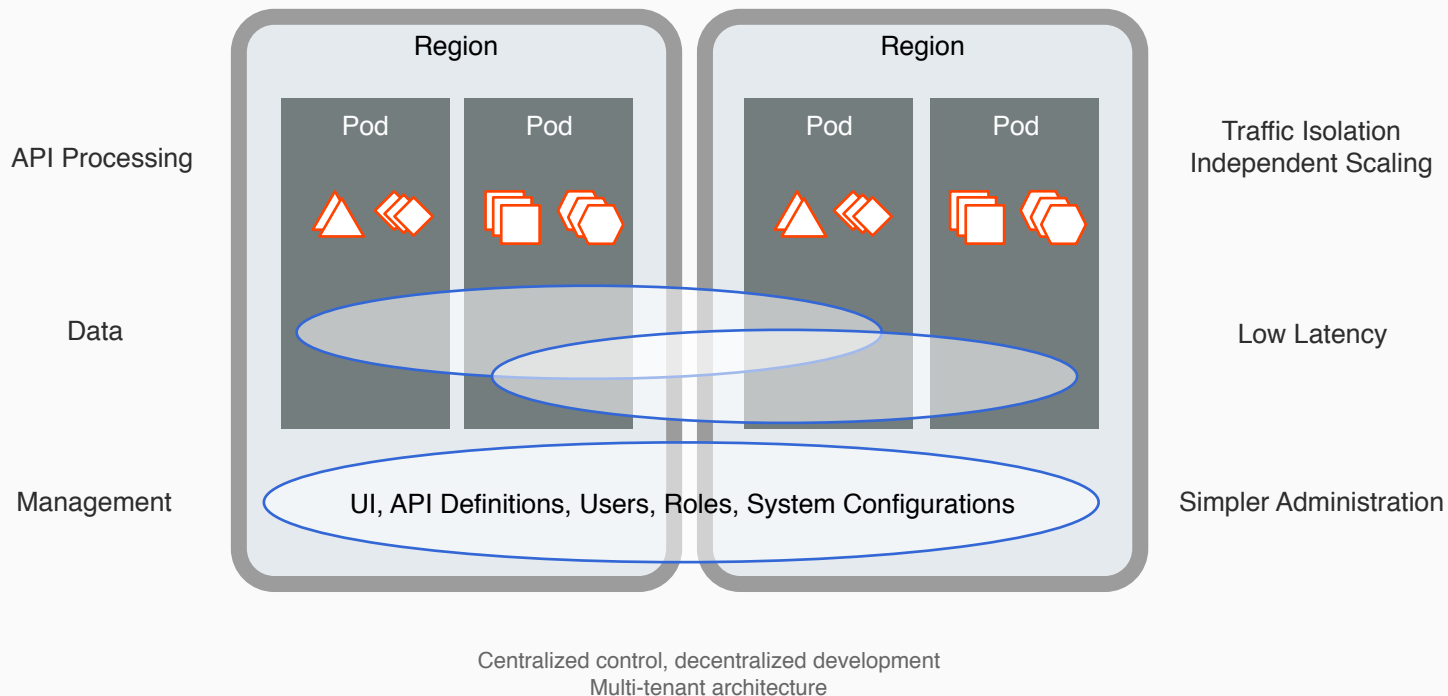
Support web-scale mission-critical operations

4x scale year/year

Scaled 2x within 2 hours

Zero impact to all other customers

4x

Edge Black Friday Holiday Traffic

Edge Cloud Stats 2014

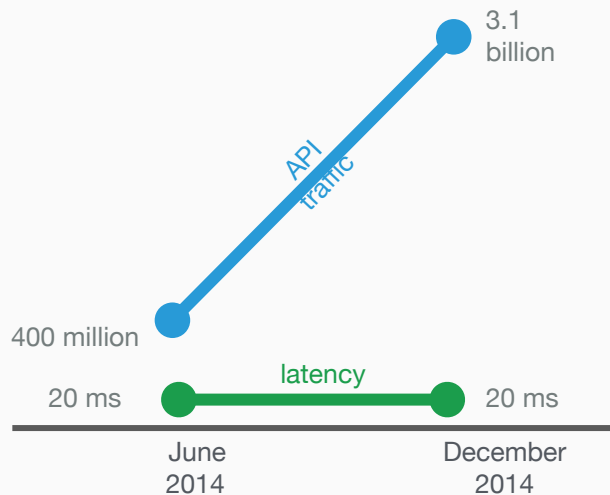| API requests handled:	
Servers managed:	3000+

Billions of API calls, including large spikes, processed regularly without disruption

edge

Google Cloud

Case Study: Scale with High Performance

Leading Media Company – Apigee Hosted

8x growth within 6 months
No impact to latency

3.1 billion

API traffic

400 million

20 ms   latency   20 ms

June 2014   December 2014

100+ APIs

700+ Apps

1,200+ average TPS

9+ TB analytics data

Deploy in the public or private cloud
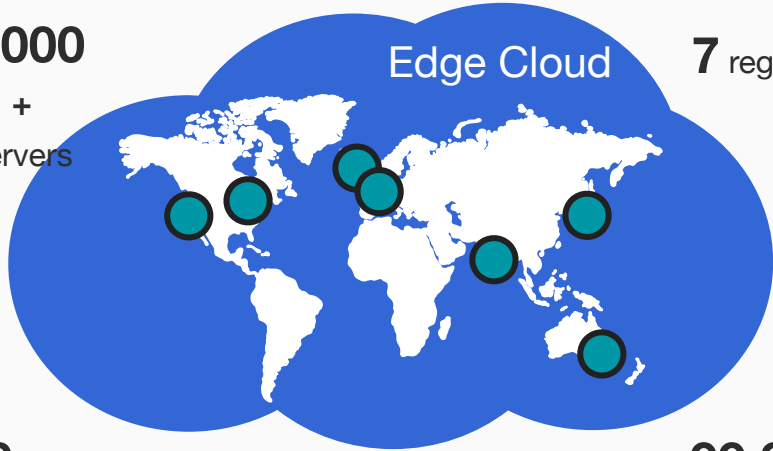
19 availability zones

3,000 +
servers

Edge Cloud

7 regions

~**20 ms**
average latency

~**1/2 billion**
transactions / day

>**99.9%**
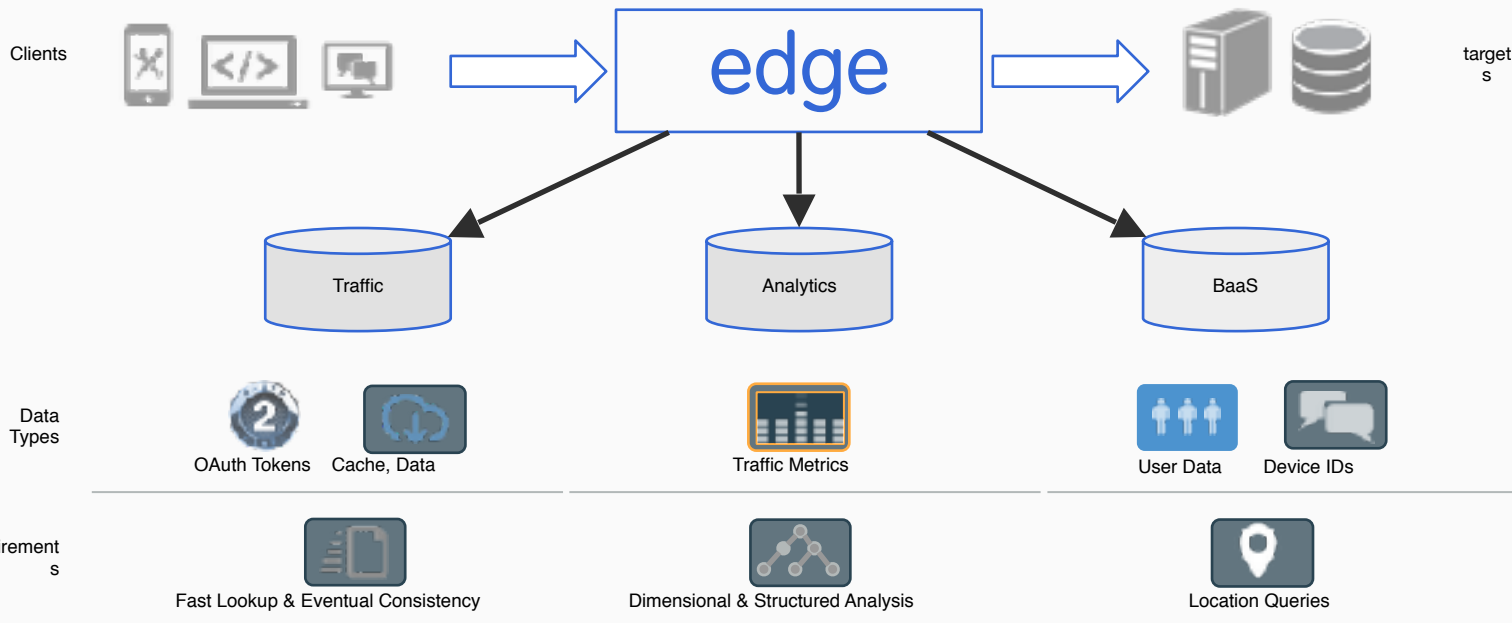API availability

Private Cloud = Public Cloud

Private Cloud
leading Telco

1+ Billion
calls / month

Multi-Datacenter Deployment

edge

Google Cloud

High performance. Always.

Clients

edge

targets

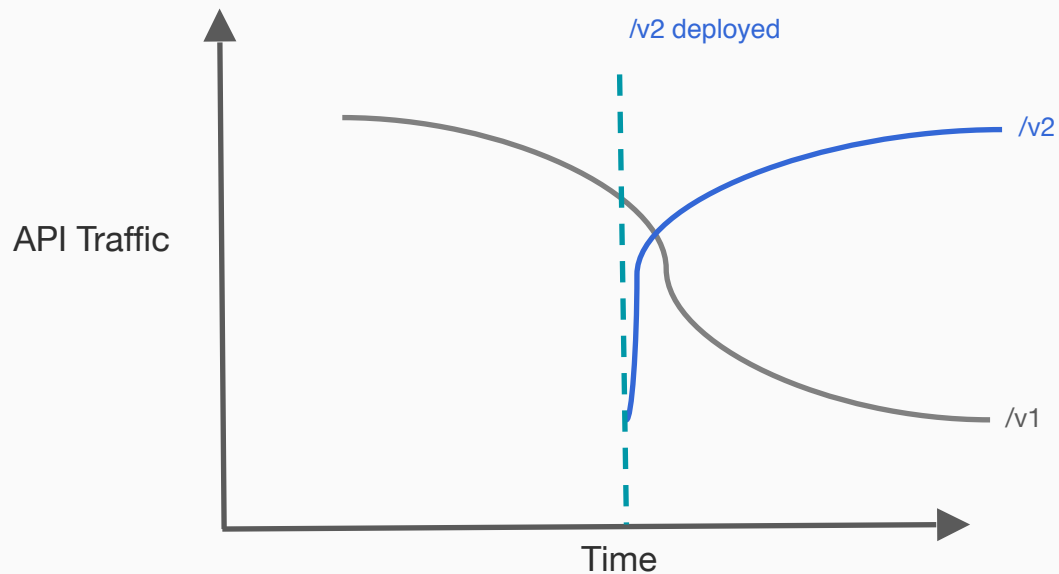|	Traffic	Analytics	BaaS
Data Types	OAuth Tokens Cache, Data	Traffic Metrics	User Data Device IDs
Requirements	Fast Lookup & Eventual Consistency	Dimensional & Structured Analysis	Location Queries

Scale with state and without compromising latency
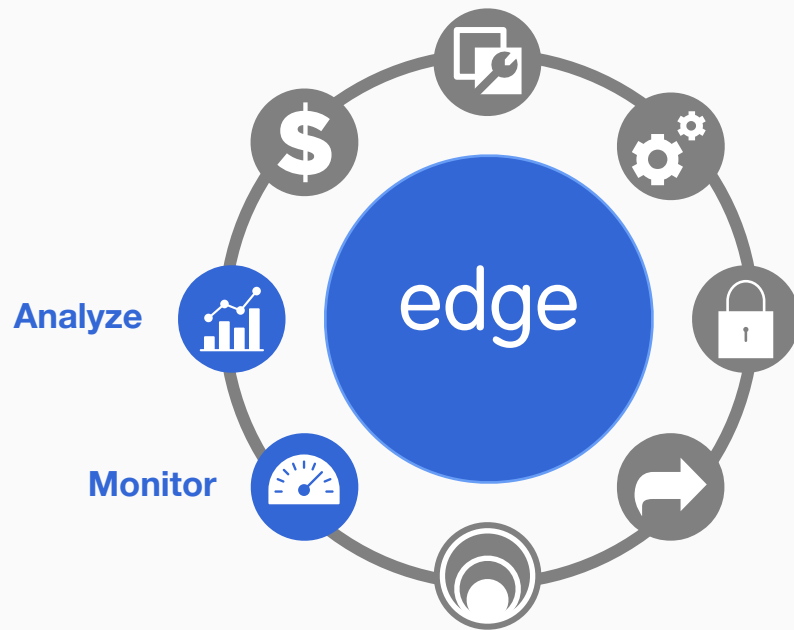
Zero downtime deployment

Deploy new versions without disrupting in-flight API traffic

Case Study: High Volatility

- Leading Internet Travel Company - Edge Private Cloud

    - 1 to 2 Billion + API calls / day

    - 10,000 + TPS spikes

    - Varying Payload Sizes from 250KB up to 12MB

    - Latency of < 10 milliseconds within Edge
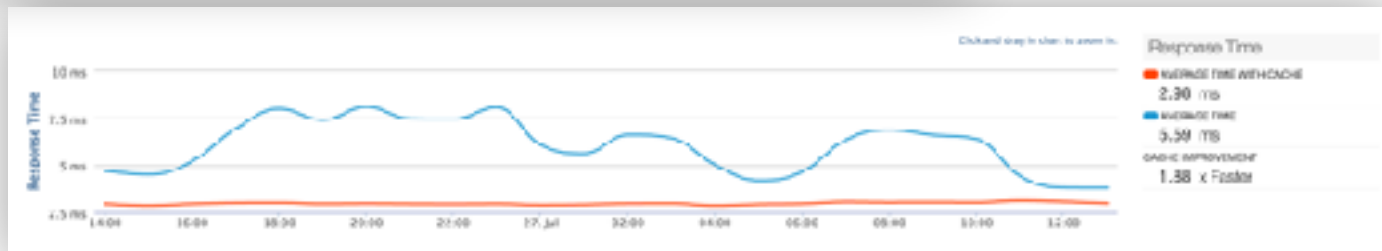
Edge

Gain visibility into the entire Digital Value Chain

Relevant, Actionable and Extensible Dashboards, Tools & Custom Reports

edge

User

App Analytics
- App Performance
- App Usage
- API Performance
- Filter by app version, device, platform, OS, etc.

Developer Analytics
- Top Developers
- Developer Engagement
- Top API Users
- Top Products
- Top Apps

API Analytics
- API Traffic Patterns
- API Performance
- Geo location
- Anomalies
- Multiple metrics – traffic, response times, errors, data exchange, etc.

Backend

Complete visibility— from app end to backend
Automatically and continuously collect all data about your API traffic out of the box

Improve API response times

In-memory, persistent response, and distributed, key / value map cache
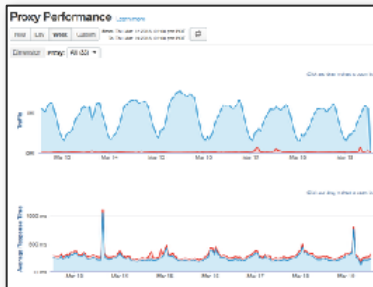
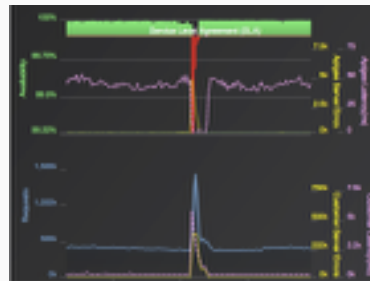# Gain complete visibility into API performance and usage
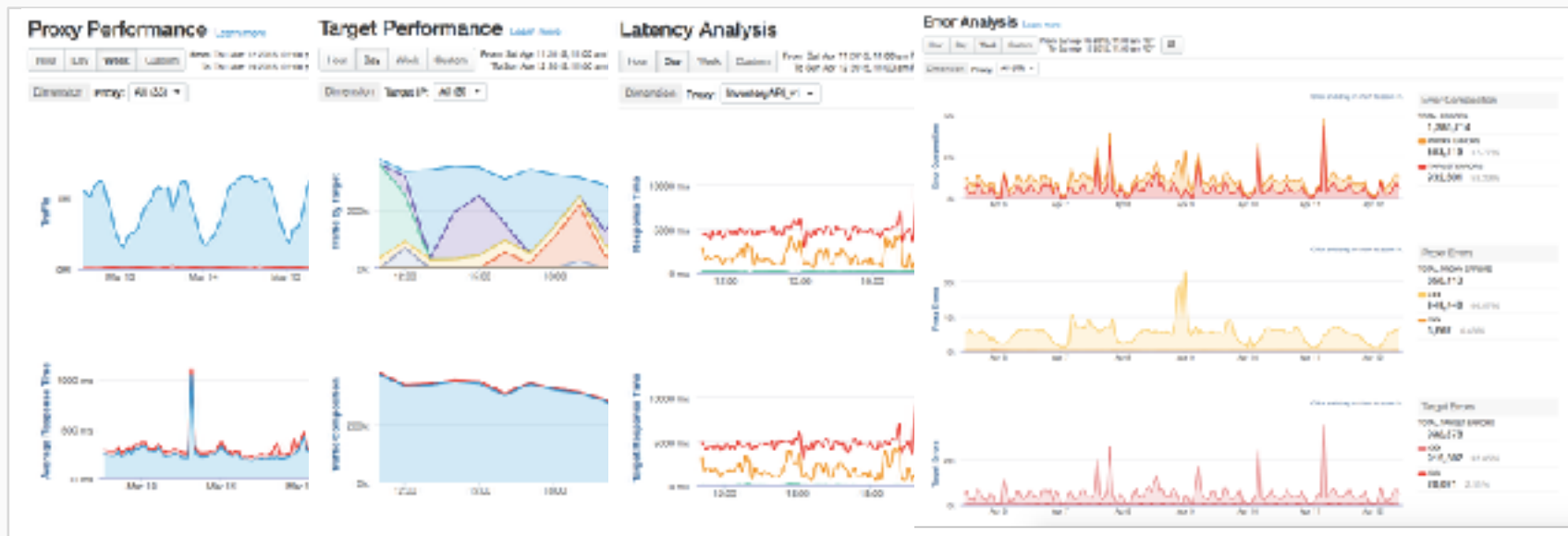
Many ready to use out of the box charts and reports

Analyze and improve APIs

What you
see

What we see
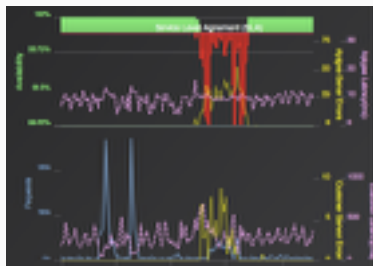
Automatically and continuously collect all data about API traffic out of the box

Build your own reports

500+ Gateway Variables

API Request

API Response

Request Payload Response Payload

Custom Metrics

and Dimensions

Reports

Custom Reports
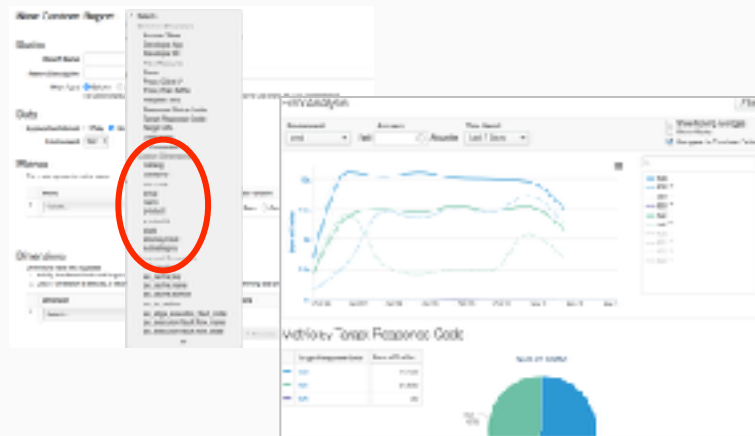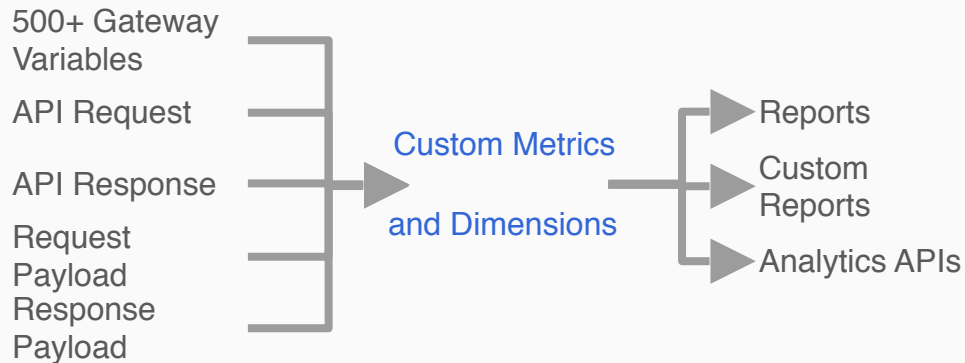
Analytics APIs

Self-service custom reports: Define custom metrics, dimensions, queries, reports, and dashboards using virtually any attribute that defines traffic

Easily integrate API analytics with enterprise tools

- Over 120 query APIs
- Metric
- Dimension
- Aggregation type
- Interval
- Ordering
- Time duration
- Filter

Create custom queries against raw traffic data using 120+ Analytics APIs

Measure and grow the API program
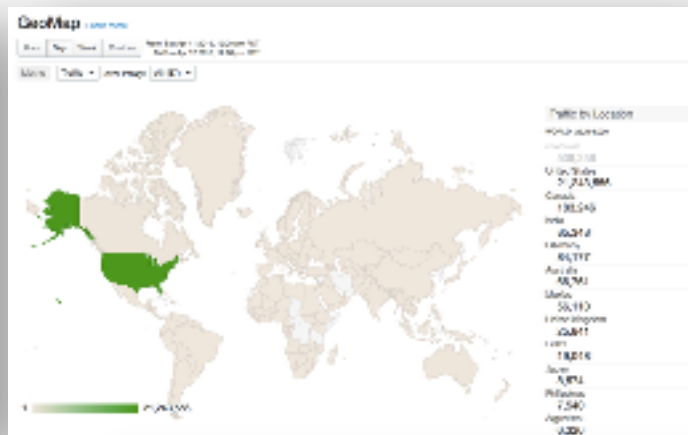
Edge

Monetize

edge

Monetize APIs: Any partner, any business model

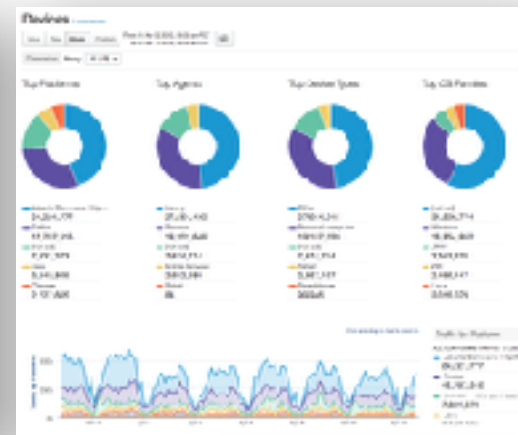| Revenue-sharing models |
|---|
| (API provider charges developer) |

- → Fixed
- → Flexible
- → Hybrid
  (flat fee plus fixed and flexible)

Fee-based models
(API provider charges developer)

- → Transaction
  - → Transaction Volume
  - → Custom Attribute
  - → Revenue / Volume Bands
- → One-time
- → Subscription
  - → Advance / Arrears
  - → Pro-rated / Full amount

Freemium models

- → Duration
- → Quantity
- → Hybrid

Flexible rate plans, internationalization support, usage tracking, limits and notifications

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Usage tracking
Limits and notifications

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Google Cloud

THANK YOU