WSO2

An API is a business capability delivered over the Internet to internal or external consumers

- Network accessible function
- Available using standard web protocols
- With well-defined interfaces
- Designed for access by third-parties

A Managed API is:

- Actively advertised and subscribe-able
- Available with SLAs
- Secured, authenticated, authorized and protected
- Monitored and monetized with analytics

Create APIs
* WSO2 Application Server, Data Services Server and ESB

Find and subscribe/buy APIs
* API Store and Governance

Manage, secure and protect APIs
* API Management and Gateway

Monitor and Monetize APIs
* API Monitoring and Analytics

WSO2 Stratos and Cloud Development Platform
API Cloud

WSO2 AP
Manageme
Platform

Comparing Layer 7 and Apigee with WSO2 API Manager

	Layer 7	SOA Software	Mashery	Apigee	WSO2	Comments on WSO2 Offering
API Proxy						
Throttling and Rate Limiting	Y	Y	Y	Y	Y	Service Level Agreement tiers are enforced
Full On-premise offering using consistent technology	Y	Y	N (requires Cloud services and separate technology stack)	Y (extra cost)	Y	
Transport mediation	Y	Y	No	HTTP to JMS only	Y	The full list of WSO2 ESB transport protocols can be supported by editing the API configuration. A partial list of transport protocols includes JMS, WebSphere MQ, FTP, SMTP, MSMQ, SAP/R3 IDocs, FIX, XMPP
Enterprise-strength security and access control	Y	Y	No	Limited	Y	
Security Firewalling	Y	Y	No	Limited	Limited	
Authentication, Authorization, and Audit	Y	Y	Y	Y	Y	
XACML	Y	No	No	No	Y	

	Layer 7	SOA Software	Mashery	Apigee	WSO2	Comments on WSO2 Offering
API Lifecycle Management						
API Publishing	Y	Y	Y	Y	Y	
API Versioning	Y	Y	No	Y	Y	Several versions can be deployed in parallel
API Governance workflow	No	Y	No	No	Y	Basic lifecycle management (i.e. created, published, deprecated, retired) included in the initial WSO2 Manager offering. The offering integrates with the WSO2 Governance registry lifecycle, which offers advanced workflow and approval managemen
Publish documentation	Y	Y	Y	Y	Y	Associate documentation (i.e. files, inline text, external URLs) with APIs
API Metrics	Y	Y	Y	Y	Y	
Real time dashboard	Y	Y	Y	Y	Y	
Remote management APIs	Y	Y	No	No	Y	Web based management consoles

	Layer 7	SOA Software	Mashery	Apigee	WSO2	Comments on WSO2 Offering
Developer Portal						
API Reporting	Y	Y	Y	Y	Y	
API Usage	Y	Y	Y	Y	Y	
API Key management and distribution	Y	Y	Y	Y	Y	
Content Management System	Y	Y	Y	Y	No*	Interfaces with your content management system. The WSO2 API manager publishes API documentation containing inline text and URL pointers to online resources.
Architecture						
Multi-tenant components	N	N	N	N	Y	Multi-tenant components enable organizations to flexibly deploy multiple API Stores and re-use multi-tenant gateways
Open and Composable Architecture	N	N	N	N	Y	
100% Open Source	N	N	N	N	Y	

Layer 7 and WSO2 lead the pack. Layer 7 showed sophistication in its SOA-derived solution while offering solid solutions for new API management challenges. WSO2 has created an approachable product on a flexible architecture that nontechnical business owners will find attractive.

Intel, Mashery, IBM, Vordel, and 3scale offer competitive options. These vendors represent a wide set of business, deployment model, maturity, and self-service choices; there's something to like about each, depending on your needs.

Figure 5 Forrester Wave™: API Management Platforms, Q1 '13
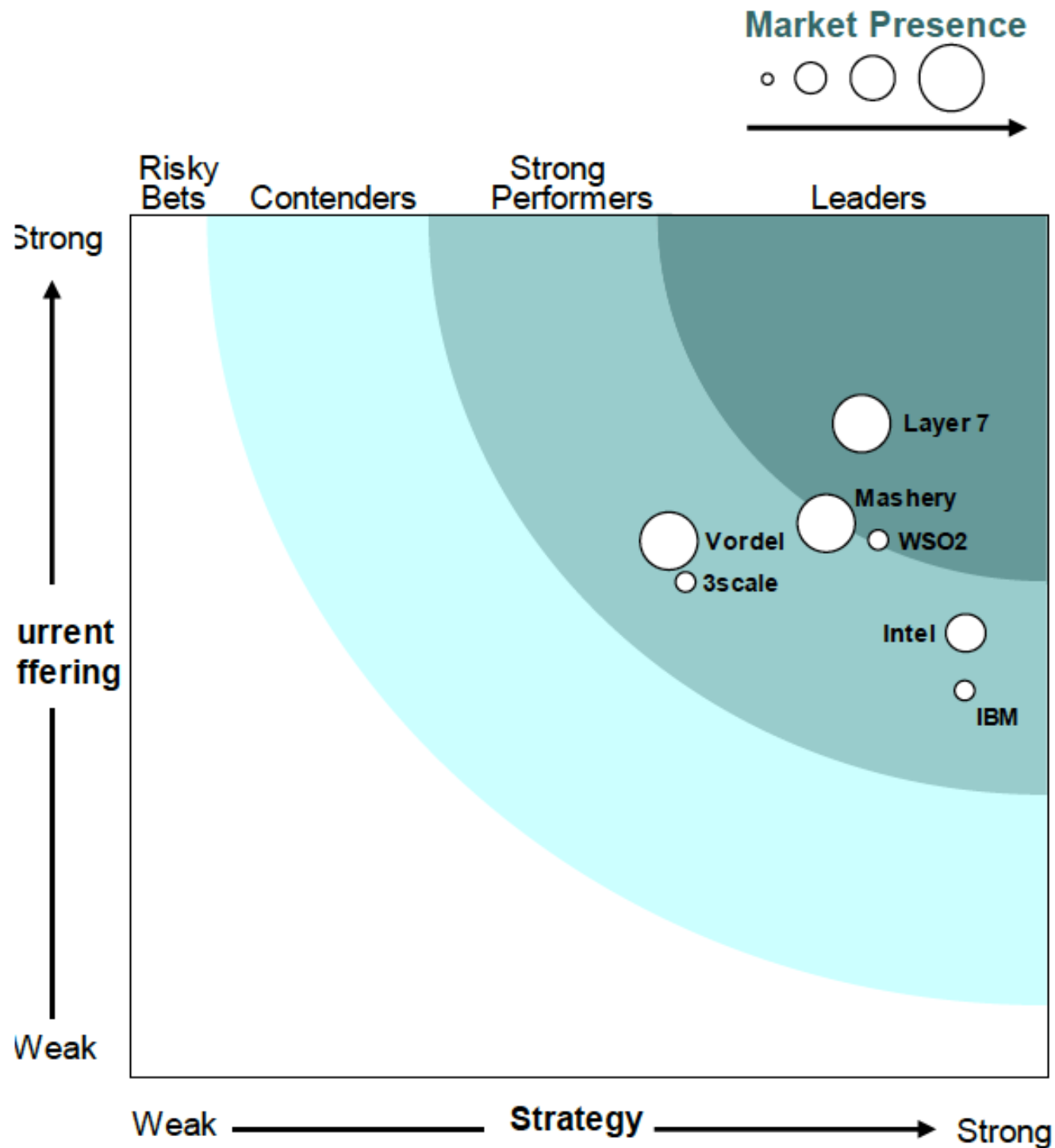
DELIVERY CHANNELS

Portals   Fat Clients   Cell   PDA   Applications   ...   IVR

PARTNERS

PUBLIC CLOUD

Elastic Load Balancer

PRESENTATION

WSO2 Gadget Server   WSO2 Application Server

WSO2 API Manager

WSO2 Cloud Gateway

MONITORING AND ANALYTICS   WSO2 Business Activity Monitor

BUSINESS PROCESS

WSO2 Business Process Server

BUSINESS SERVICES

WSO2 Mashup Server   WSO2 Business Rules Server   WSO2 Complex Event Processing Serv

WSO2 Enterprise Service Bus   WSO2 Identity Server   WSO2 Governance Registry

Adapters

Salesforce
PayPal

Legacy Apps
SAP
PeopleSoft.
CICS

CONNECTIVITY SERVICES

WSO2 Application Server   WSO2 Message Broker

DATA SERVICES

WSO2 Data Services Server

SERVICE-ENABLED APPLICA

WSO2 Application Serv

API Manager

Portals

Repository

Key Server

Gateway

Embedded
Transformation

**Business Activity
Monitor**

Cassandra Store

Analytics
Framework

Dashboards

Reporting

ESB

Transformation

Mediation

Adapters

etc

**IDENTITY
SERVER**

Federated SAML2
OpenId

Policy based
authorization
(XACML)

Directory
etc

CEP

High Performance
Stream
Processing

Complex Event
Processing

**GOVERNANCE
REGISTRY**

Service Lifecycle

Dependency
Management

Extensible
Metamodel

Notification

CORE | **RECOMMENDED** | **EXTENDED PLATFORM**

om SOA lessons learned, best practices roles

⊞ Creator

Builds, manages, and versions API

Understand business and technical requirements

Cares about usage and scaling

Seeks feedback, ratings, usage

⊞ Publisher

Publishes, Promotes and encourages consumers to adopt APIs

Determines usage patterns and how to best monetize asset

Monitors and secures

⊞ Consumer

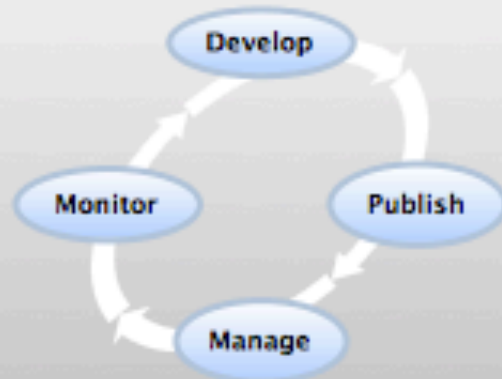Understands the interface definition

Subscribes and connects application to API

Monitors own usage and cost basis

Provides feedback and ratings
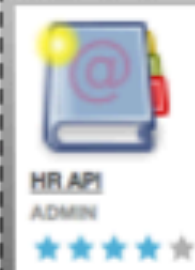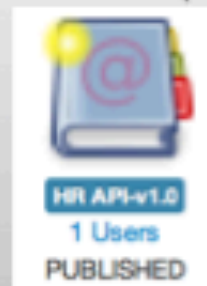
WSO2 ESB

- used as API Gateway by eBay, AAA, and others. eBay handles more than 1 billion API calls/day

WSO2 Governance Registry

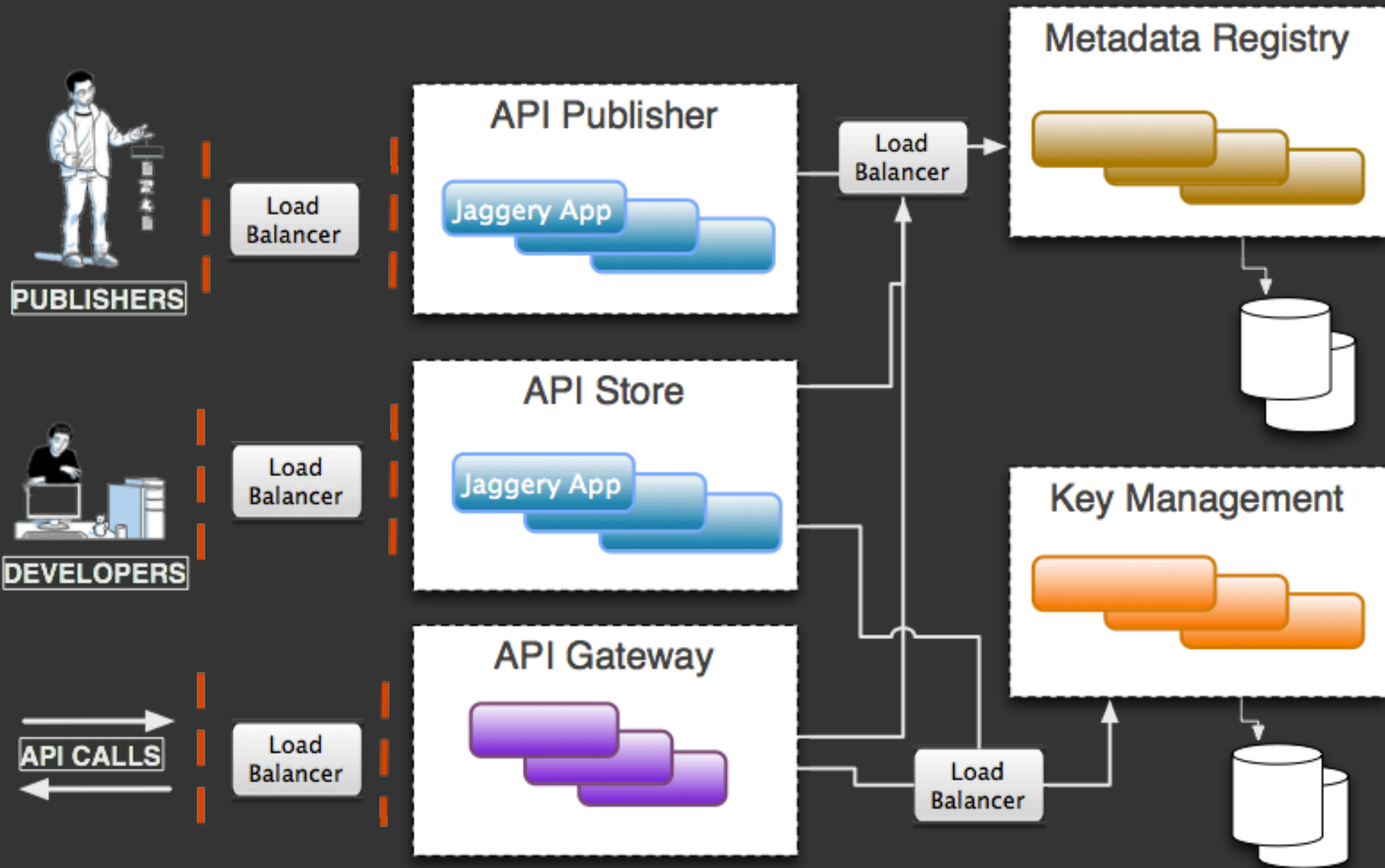- used by British Airways, Intermountain Healthcare, and many others

WSO2 Identity Server

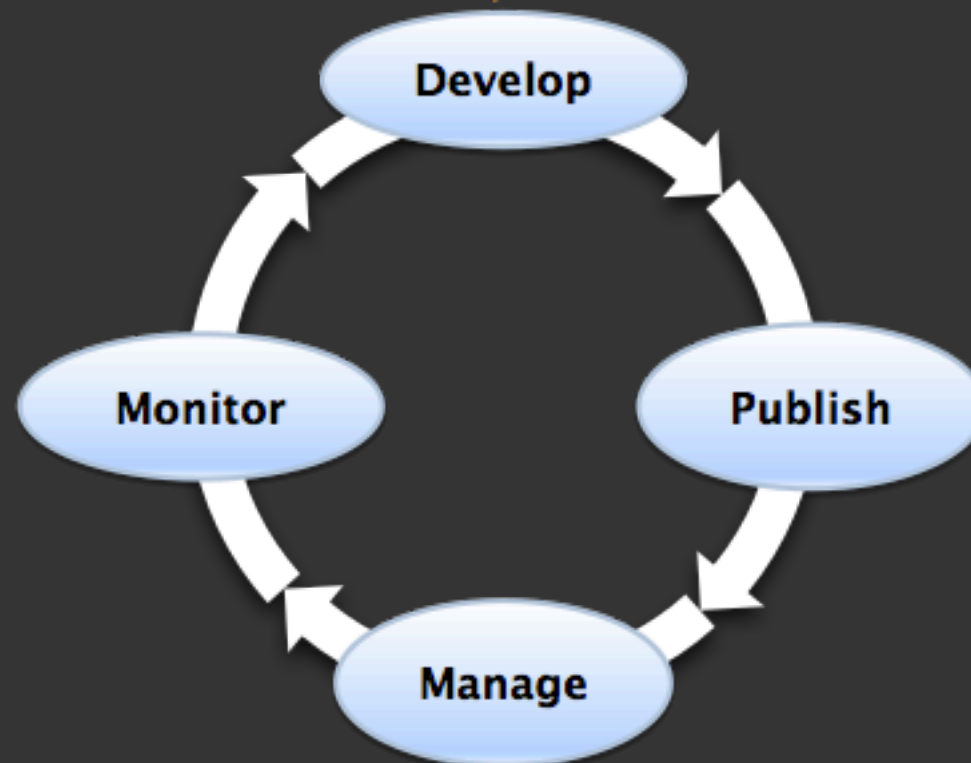- used by Citigroup, Federal Home Loan Bank of SF, US Navy and others

WSO2 Business Activity Monitor

- used by Mercedes Benz, Kaiser Permanente, NZ Ministry of Health

The API Management platform implements governance best practices developed with our customers.

✓ **Develop API / API changes**
✓ **Deploy to ESB /App Server**

Develop

✓ **Monitor API behavior**
✓ **Monitor API consumers**
✓ **Gather Consumer requirements**

Monitor

Publish

✓ **Register API**
✓ **Associate SLA**
✓ **Associate Security Requirements**
✓ **Associate Rate Limits / Throttling**

Manage

✓ **API Lifecycle**
✓ **API versions**
✓ **API policies**
✓ **API keys**

APIS

Browse

All Statistics

APIs / All / PlaceFinder-1.0.0

PlaceFinder-v1.0.0

- ▤ Overview
- ☑ Edit
- ◉ Life Cycle
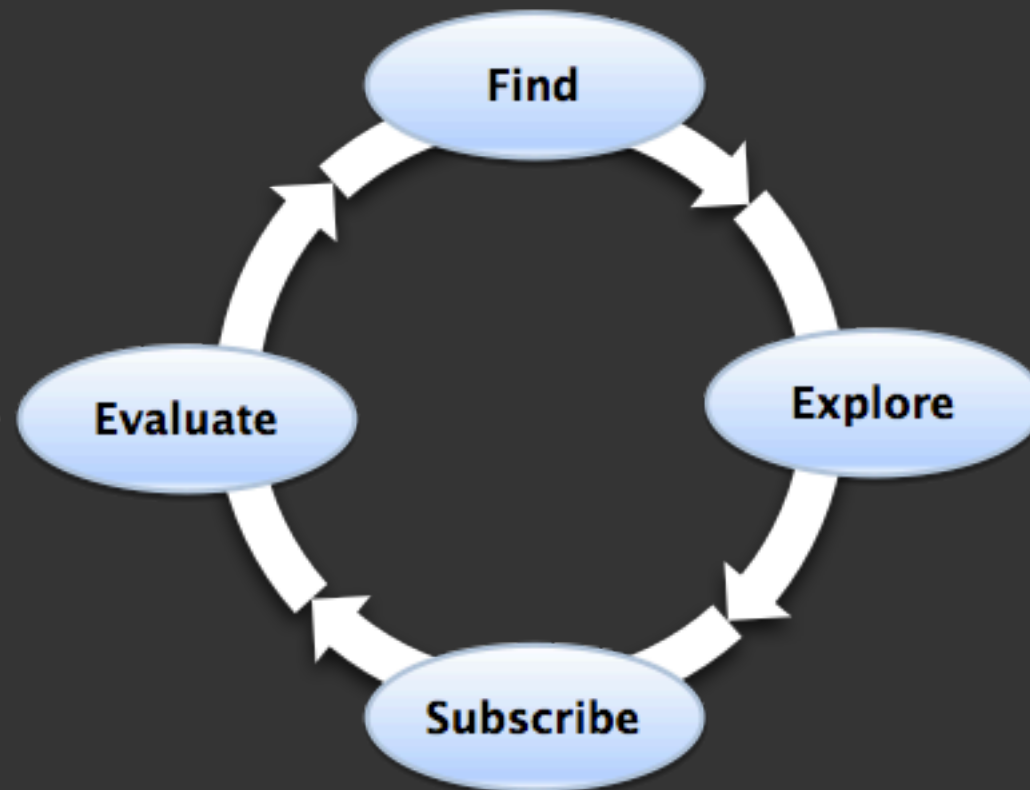- ☰ Versions
- ▤ Docs
- 👤 Users

State: PUBLISHED ⇕

☑ Push To Gateway
☐ Deprecate Old Versions
☑ Require Re-Subscription

Update **Reset**

Life-Cycle History

🛈 2012-06-15 19:39:34.227 👤isabelle   created the API.

Find
- ✓ View Top Used, New, Featured APIs
- ✓ Search by name, tag or provider
- ✓ Save Searches

Explore
- ✓ View ratings, comments
- ✓ Download Help and Docs
- ✓ Try it Online
- ✓ Ask Questions to owner

Subscribe
- ✓ Register Applications
- ✓ Obtain Key
- ✓ Subscribe to API
- ✓ Subscribe to API changes

Evaluate
- ✓ Rate API
- ✓ Share Comments
- ✓ Feature Requests
- ✓ Participate in forums

apicultur

cently Added

DetectorDeNumero...
Molinodeldeas
★★★★★

DetectorDePlural-1....
Molinodeldeas
★★★★★

DetectorDeSingular...
Molinodeldeas
★★★★★

Feminizador-1.0.0
Molinodeldeas
★★★★★

PatronPalabras-1.0.0
Molinodeldeas
★★★★★

APIs groups

Phonetics
All the phonetic word information you need: transcription, sillables, minimal pairs, stressed vowels...

Lemmatisation
Services to help you find lemmas and grammatical categories of different words and passages of text.

Frequency
Classification of words by levels of frequency.

Complexity Levels
Classification of words by levels of learning complexity (according to Cervantes Institute levels A/B/C/D)

Texts by Numbers
Find words that are more commonly used, less commonly used, longest, most repeated.... all from a given piece of text

Synonyms
Compile lists of synonyms by word and by lemma

Basic Spanish Dictionary
Spanish in 1000 words

Spanish Expressions
Information on the most common Spanish expressions: definition, alternative versions, level of difficulty, examples of use, etc.

Word Games
Anagram-Maker, Word Chains, Crossword and Scrabble solutions and other word games

Tag Cloud

Audio Basic Spanish dictionary

Buscadores de palabras

Complexity levels

Diccionario básico de español

El texto en cifras Fonetic

Frecuencia Frequency

Gender and Number

Genero y Numero

Juegos de Palabras Lematizac

Lemmatisation

Niveles de dificultad

Palabras del texto Phonetics

Procesamiento de texto Refranes

Silabas y Tildes Spanish express

Syllables and Accents
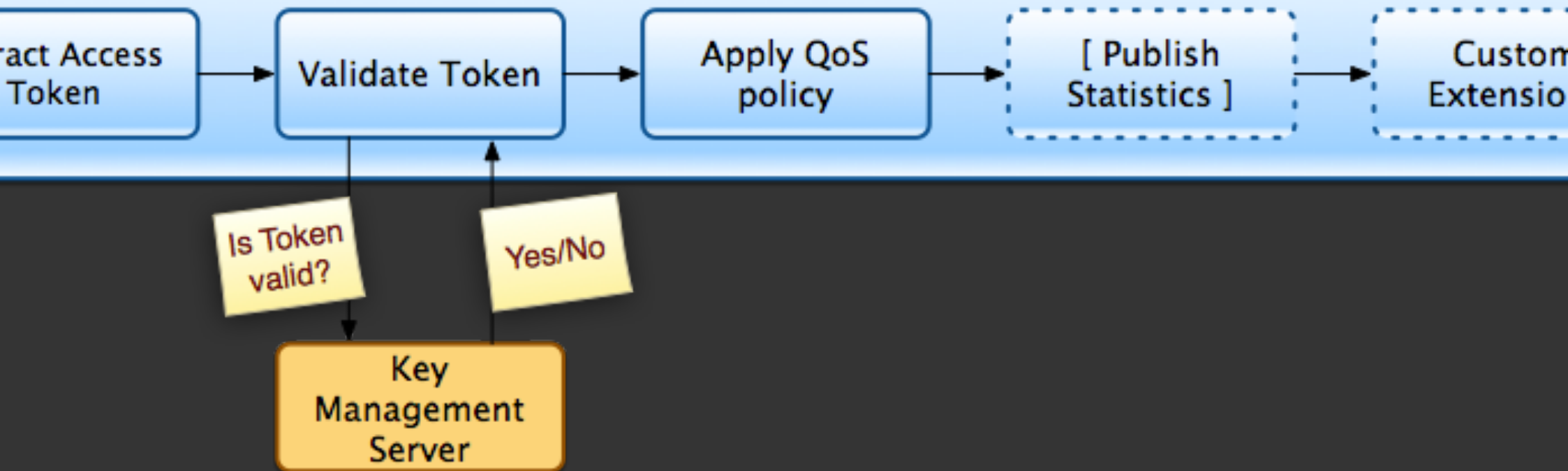
Text by numbers Text processing

Texts by numbers

Texts by words Verbos Verbs

Word Games Word searches

colocacion diccionario

API GATEWAY

ract Access
Token

Validate Token

Apply QoS
policy

[Publish
Statistics]

Custom
Extensio

Is Token
valid?

Yes/No

Key
Management
Server

OAuth2 standard compliant

Pre-generated Access Token: can be used from an application, to identify the application itself

On-demand Access Token: generated via login call from Consumer Key and Consumer Secret - Identifies the end user of an application (web application, mobile applications)
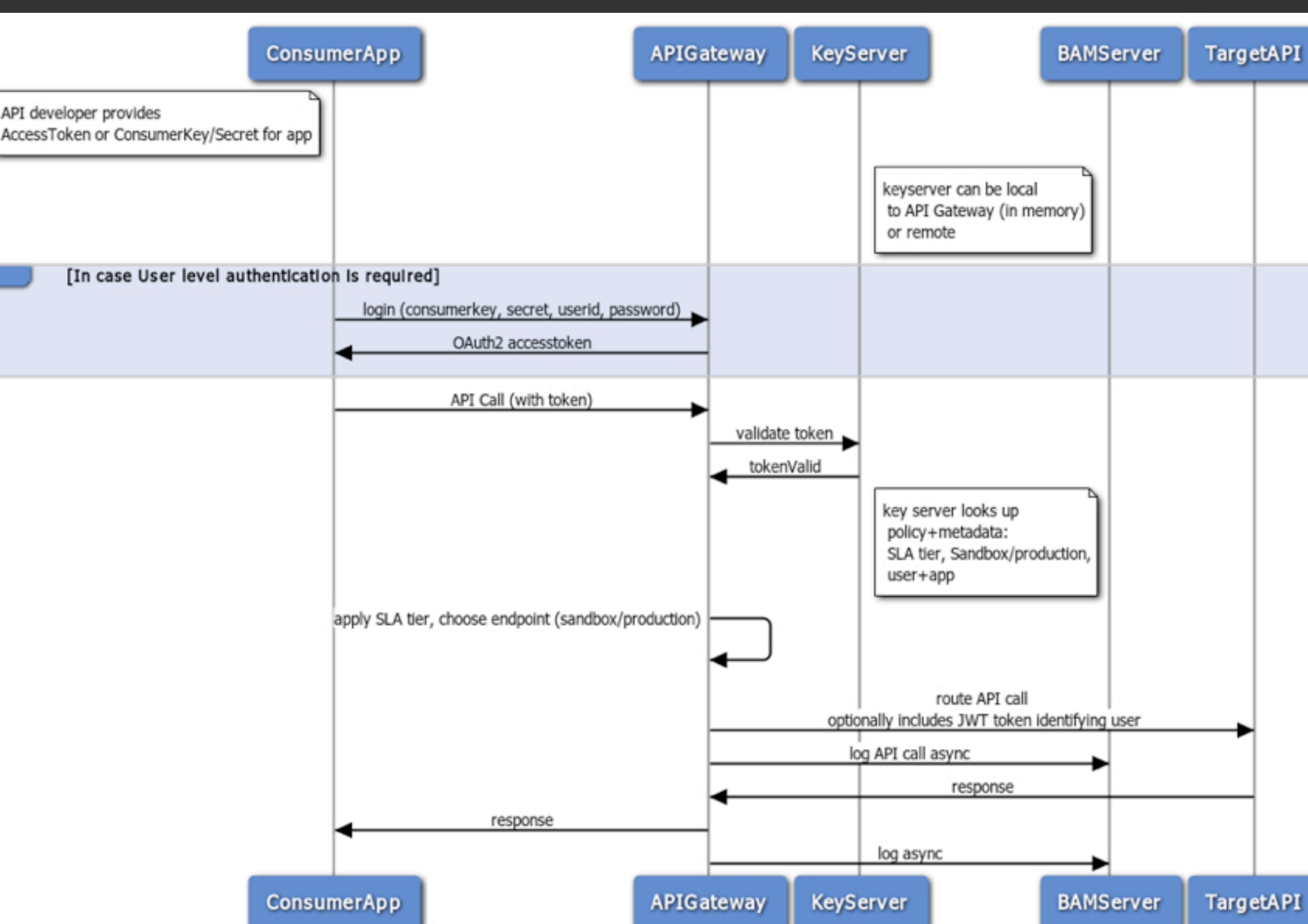
Keys

Production		Re-generate | Hide Keys
Access Token		RRu_q6Kps5N1NG20ZCsHAy5tC9ca
Consumer Key		JVlVyClRSgHs9AZWe0ufDO4BVv0a
Consumer Secret		3Zee66imMJPQuBky7wDrdisWYLka

ConsumerApp   **APIGateway**   **KeyServer**   **BAMServer**   **TargetAPI**

API developer provides
AccessToken or ConsumerKey/Secret for app

keyserver can be local
to API Gateway (in memory)
or remote

[In case User level authentication is required]

login (consumerkey, secret, userid, password)

OAuth2 accesstoken

API Call (with token)

validate token

tokenValid

key server looks up
policy+metadata:
SLA tier, Sandbox/production,
user+app

apply SLA tier, choose endpoint (sandbox/production)

route API call
optionally includes JWT token identifying user

log API call async

response

response

log async

ConsumerApp   **APIGateway**   **KeyServer**   **BAMServer**   **TargetAPI**

Monitoring and Analytics

How to collect data efficiently

How to store data effectively

Choose which data to capture

Data operations

Defining KPIs and analytics

Operating on large amounts of historical or current data

Creating intelligence

Visualization
Dashboards
Reports

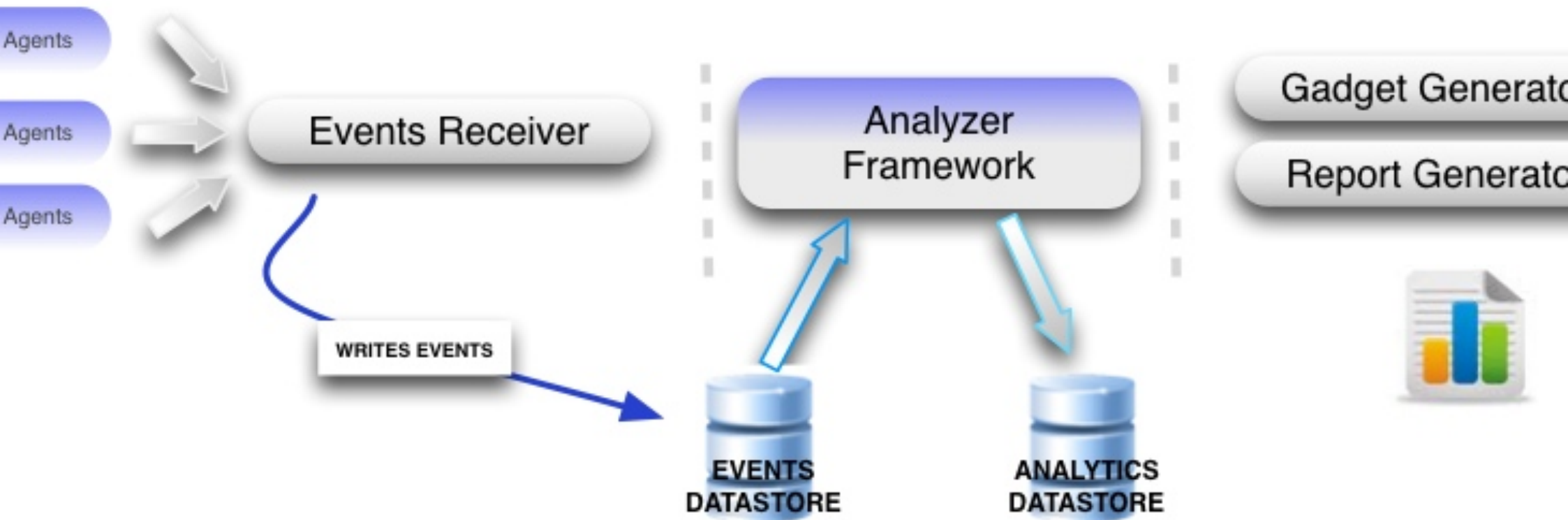# Build confidence in the API model

Understand your customer

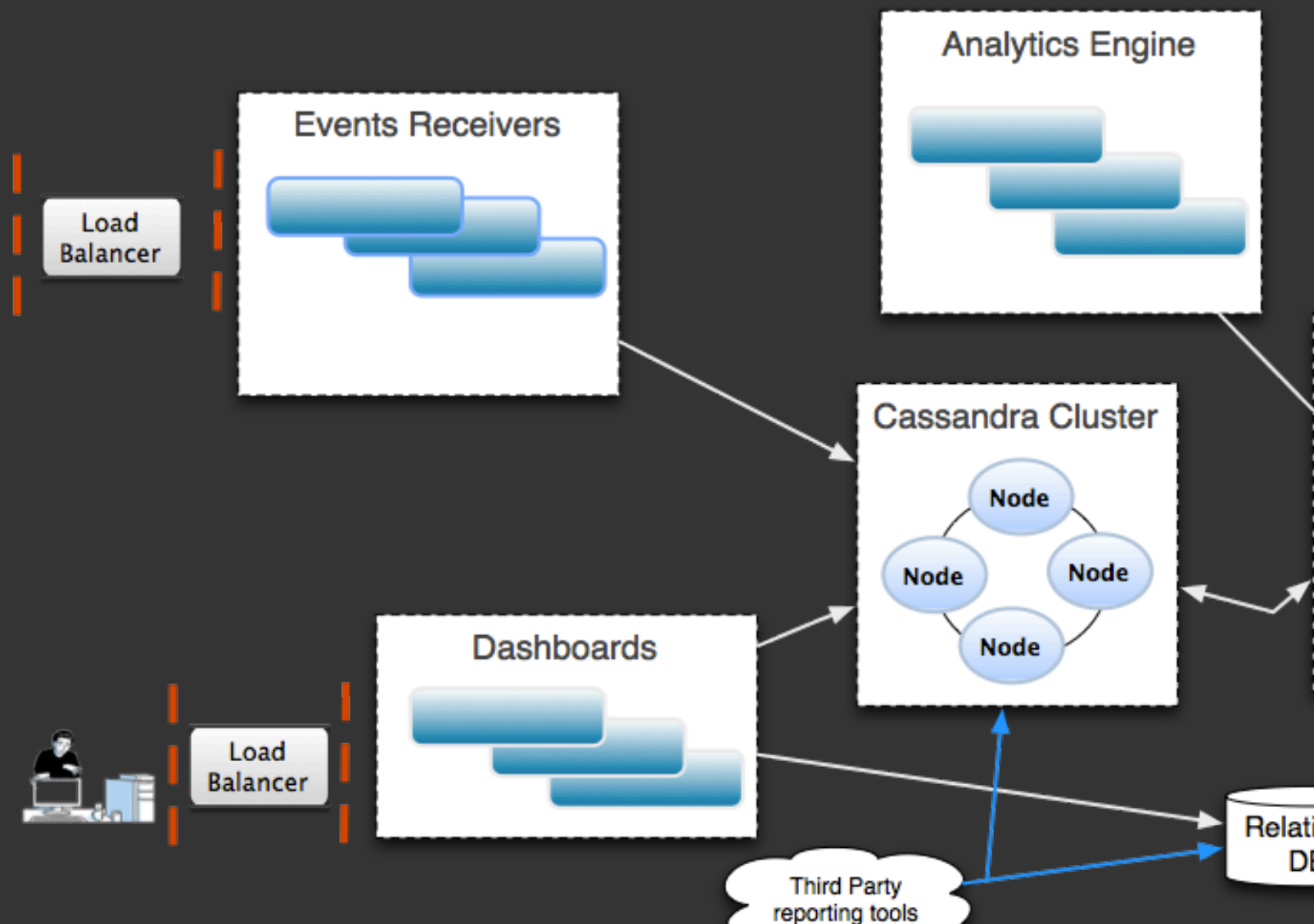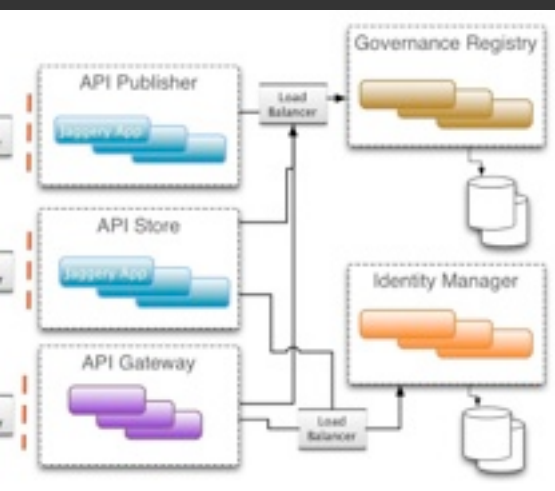- Not just the developer but also the end-user

Help manage services and versions

- Understand when deprecated services can be retired

Plan better

- Monitor the growth of aggregated API traffic
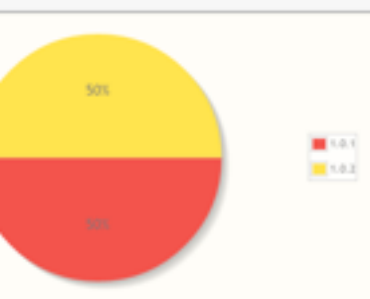- Monitor the growth of specific apps

ification-v1.0.1

Edit   Life Cycle   Versions   Docs   Users

Versions

Version	Number of API Calls
1.0.1	9

ons by Versions

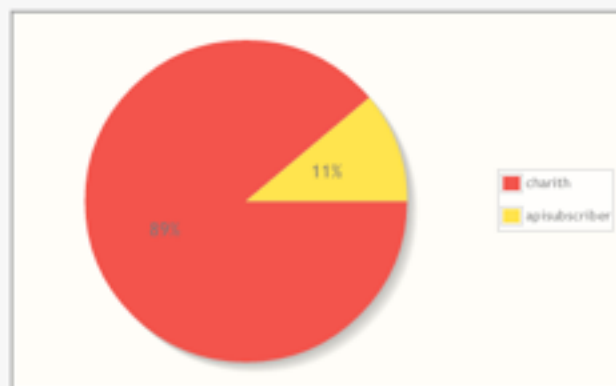| Version	Number of Subscriptions
1.0.1	2
1.0.2	2

PhoneVerification-v1.0.1

Overview   Edit   Life Cycle   Versions   Docs   Users

Active Subscriptions

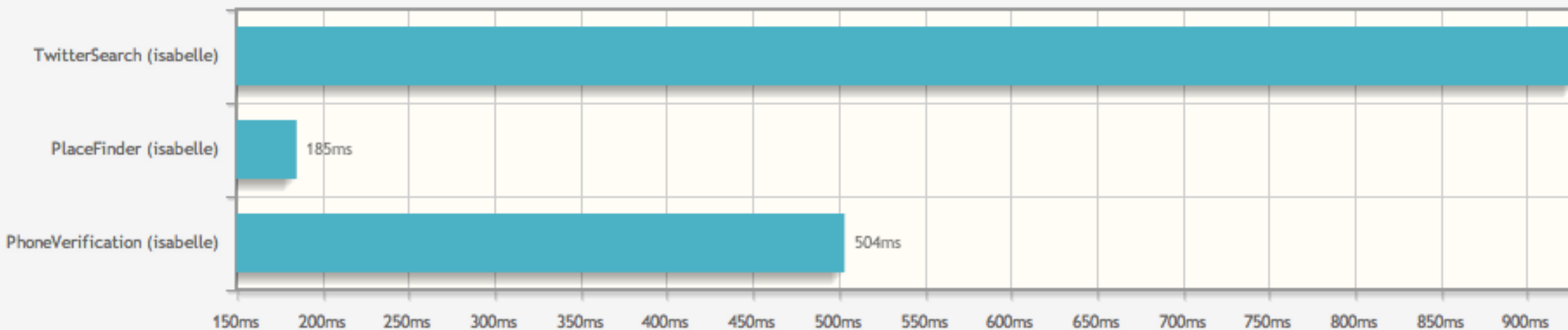| Name	Date of Subscription
charith	2012-06-21 12:30:25.707
apisubscriber	2012-06-20 22:46:44.042

Usage by Current Subscribers (v-1.0.1)

Subscriber	Number of API Calls
charith	8
apisubscriber	1

PI Response Times (Across All Versions)

Already delivered 1.0, 1.1.1, 1.2, 1.3

1.5 (Early Q2)

- Improved billing integration
- Improved flow/mediation configuration
- Swagger description for REST APIs
- Multi-tenancy
- Notification support

1.6 Mid-2013

- Async issuing of API keys
- OSQA support / Wordpress integration
- Table view of APIs and subscription
- Improved reporting and statistics

2.0 Sept/October 2013

- Much wider API ecosystem integration:
  - Github, StackExchange, ProgrammableWeb, Facebook, Google+
- SPDY and WebSockets support
- Built-in JMS integration (vs existing plugin)