

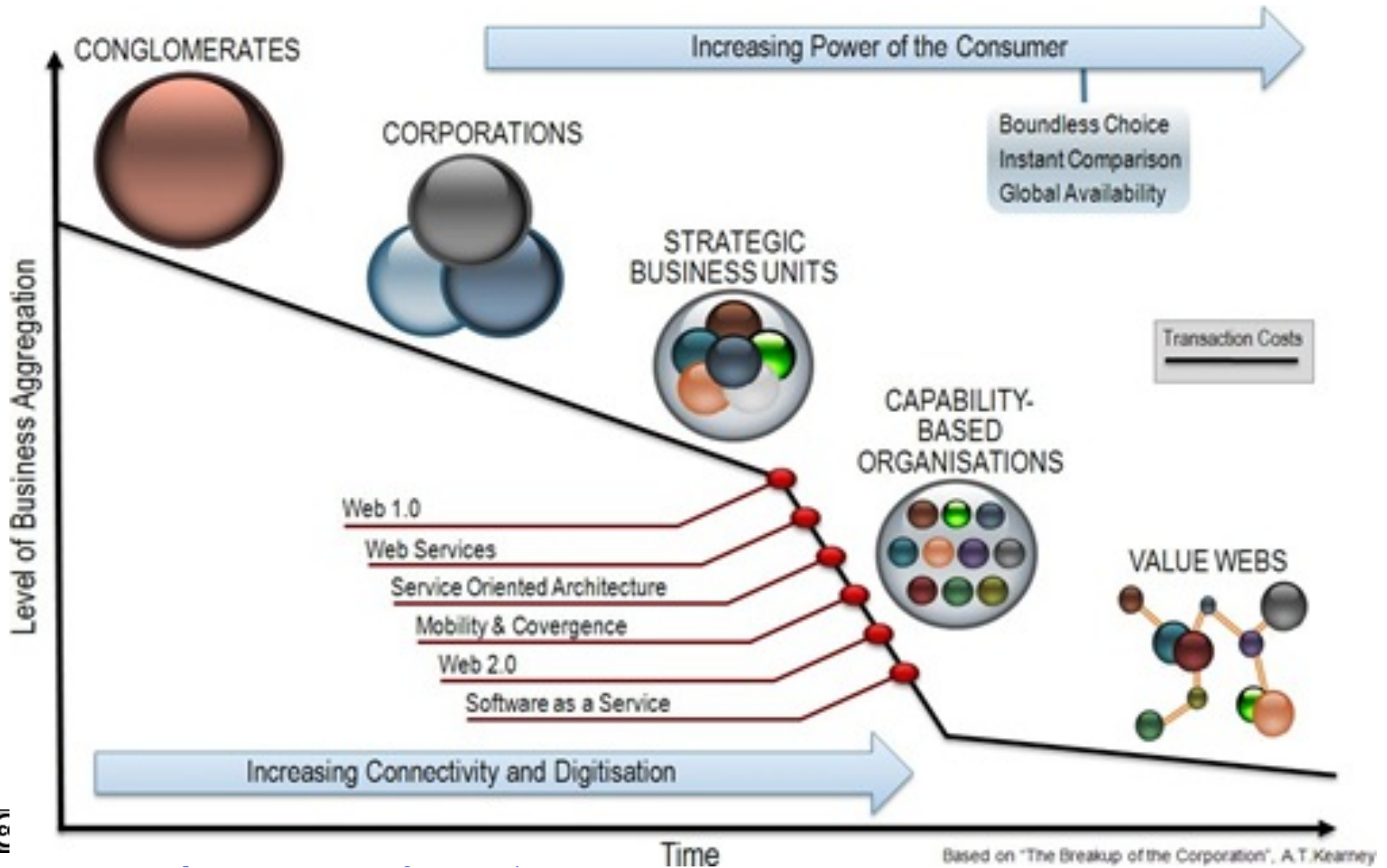
# APIs and API Management

Oxford University  
Software Engineering Programme  
Sep 2015



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# The Breakup of the Corporation

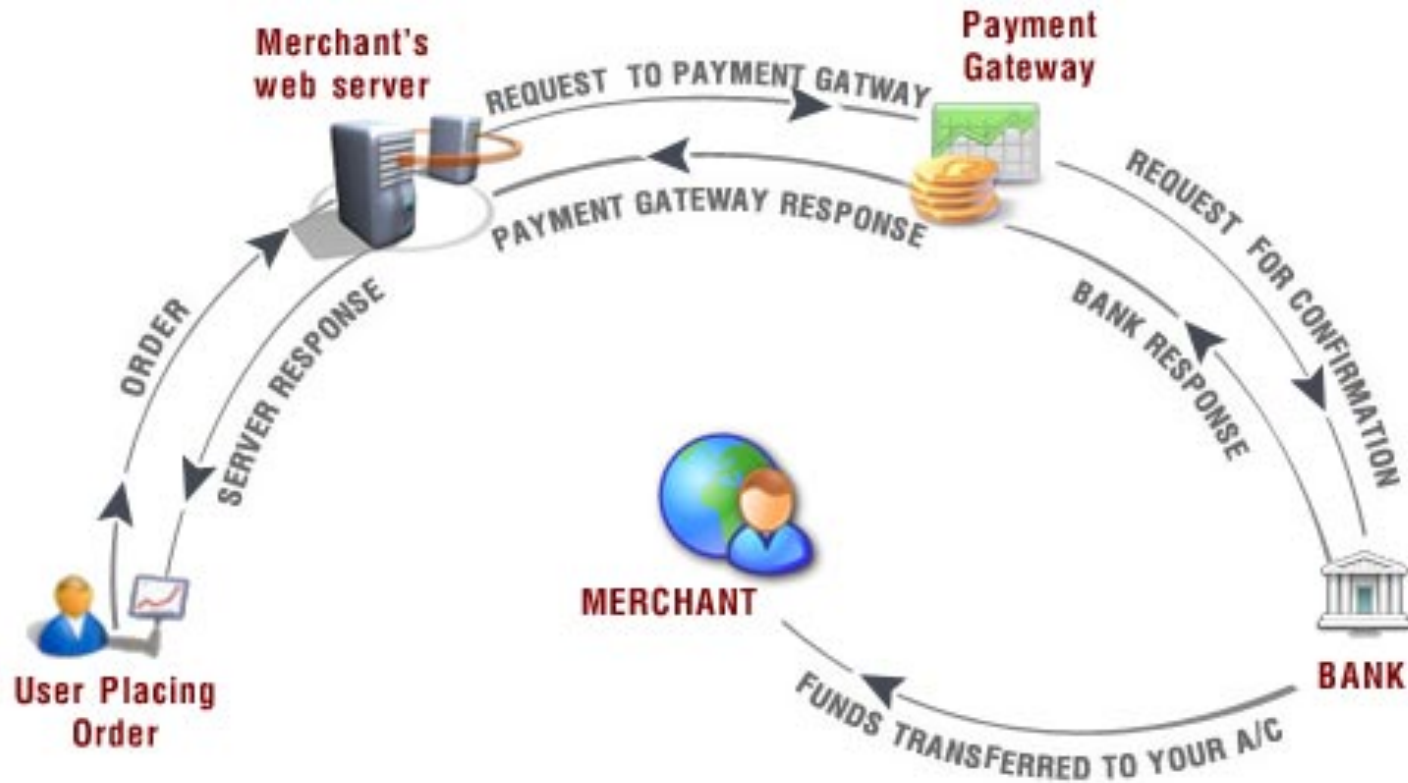


# APIs

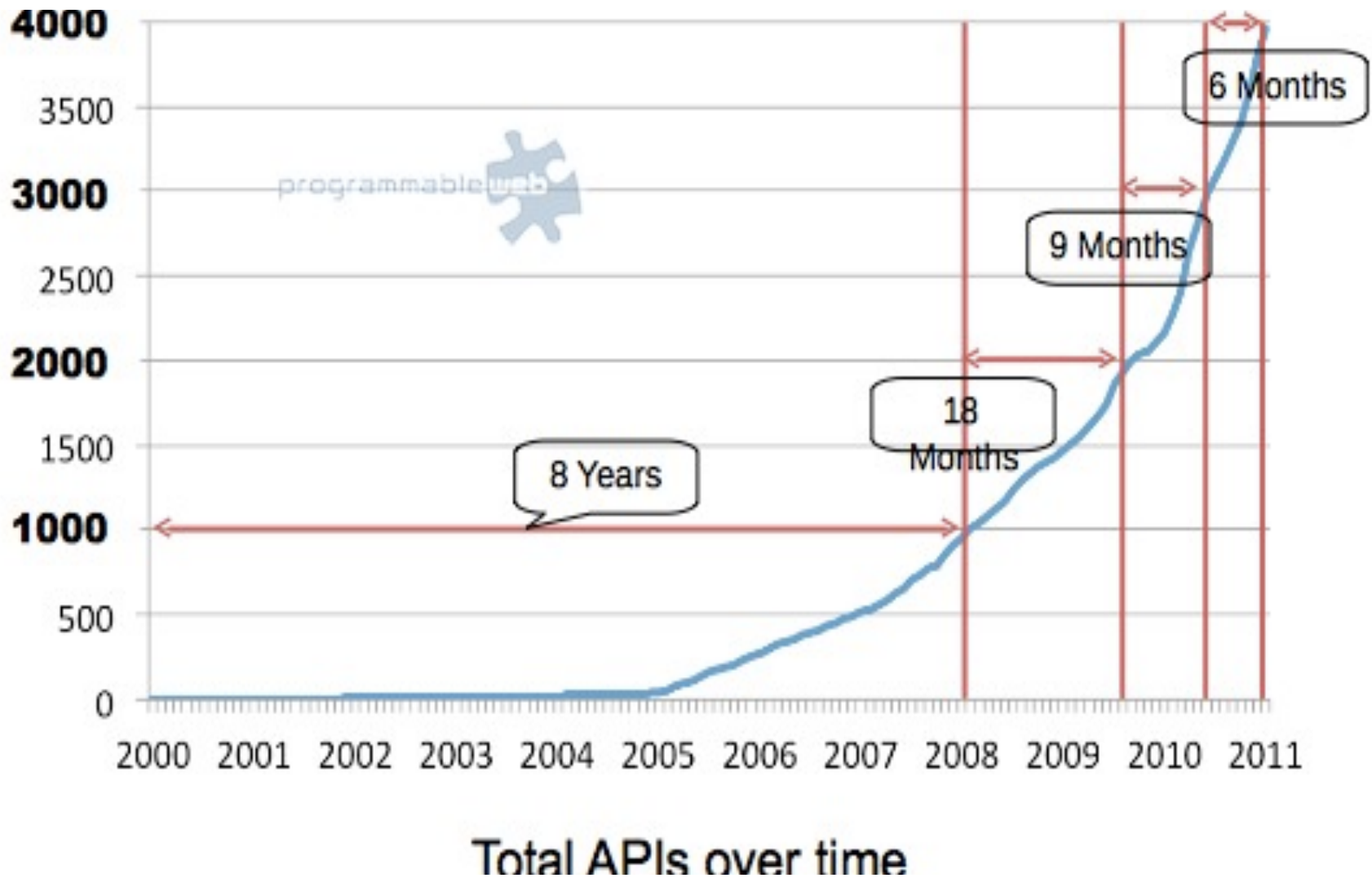
- **An API** is a business capability delivered over the Internet to internal or external consumers
  - Network accessible function
  - Available using standard web protocols
  - With well-defined interfaces
  - Designed for access by third-parties
- **A Managed API** is:
  - Actively advertised and subscribe-able
  - Available with SLAs
  - Secured, authenticated, authorized and protected
  - Monitored and monetized with analytics



# APIs All the Way...



# Don't ignore API Proliferation



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See <http://blog.programmableweb.com/2011/10/03/4000-web-apis-whats-hot-and-whats-next/>



# Some Statistics

- Twitter : More than 15 billion calls per day 75% through APIs
  - Netflix : More than 1 billion calls per day
  - Facebook : More than 5 billion calls per day
- Amazon : More than 260 billion objects store in S3
- eBay : More than 6 billion transactions per day

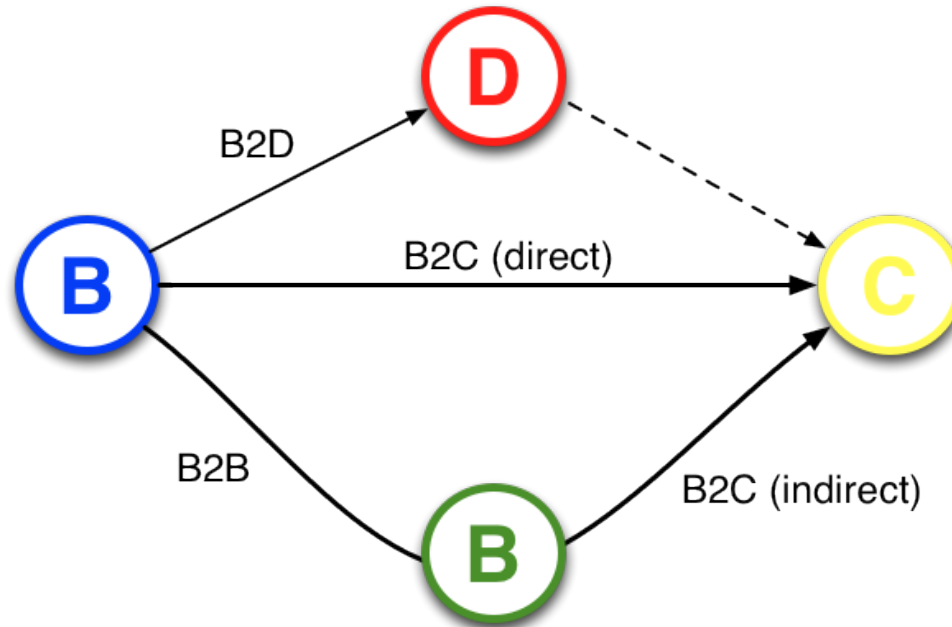


# The New Web

Create an Architecture of Participation across multiple brand name properties



# API Opportunities

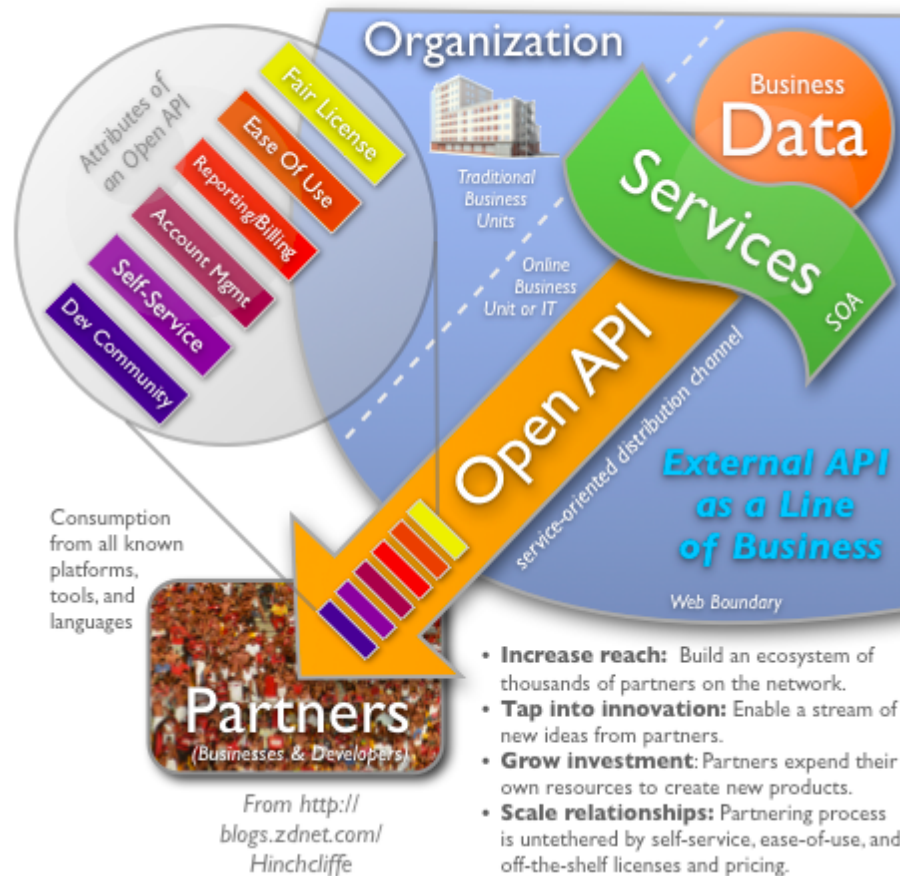


“APIs create a new relationship opportunity –  
B2D; Business to Developer, that creates  
direct B2C, B2B and indirect B2C relations”





# Running your SOA like a Web startup



<http://www.zdnet.com/blog/hinchcliffe/running-your-soa-like-a-web-startup/525>



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# API Ecosystem Model

- **From SOA lessons learned, best practices roles**

- **API Creator**

- Builds, manages, and versions API
- Understand business and technical requirements
- Cares about usage and scaling
- Seeks feedback, ratings, usage

- **API Publisher**

- Publishes, Promotes and encourages consumers to adopt APIs
- Determines usage patterns and how to best monetize asset
- Monitors and secures

- **API Consumer**

- Understands the interface definition
- Subscribes and connects application to API
- Monitors own usage and cost basis
- Provides feedback and ratings

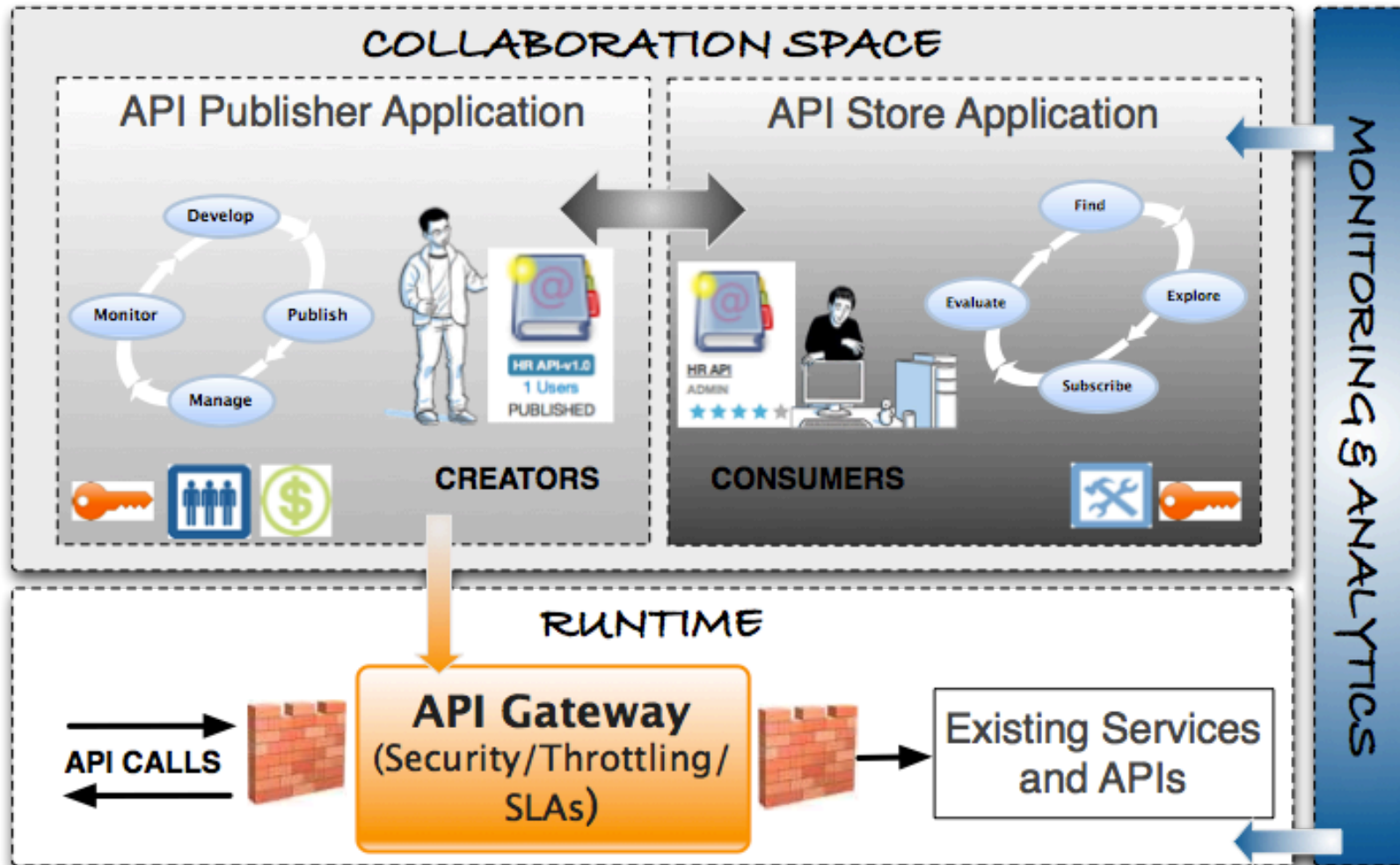


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# API Manager Components

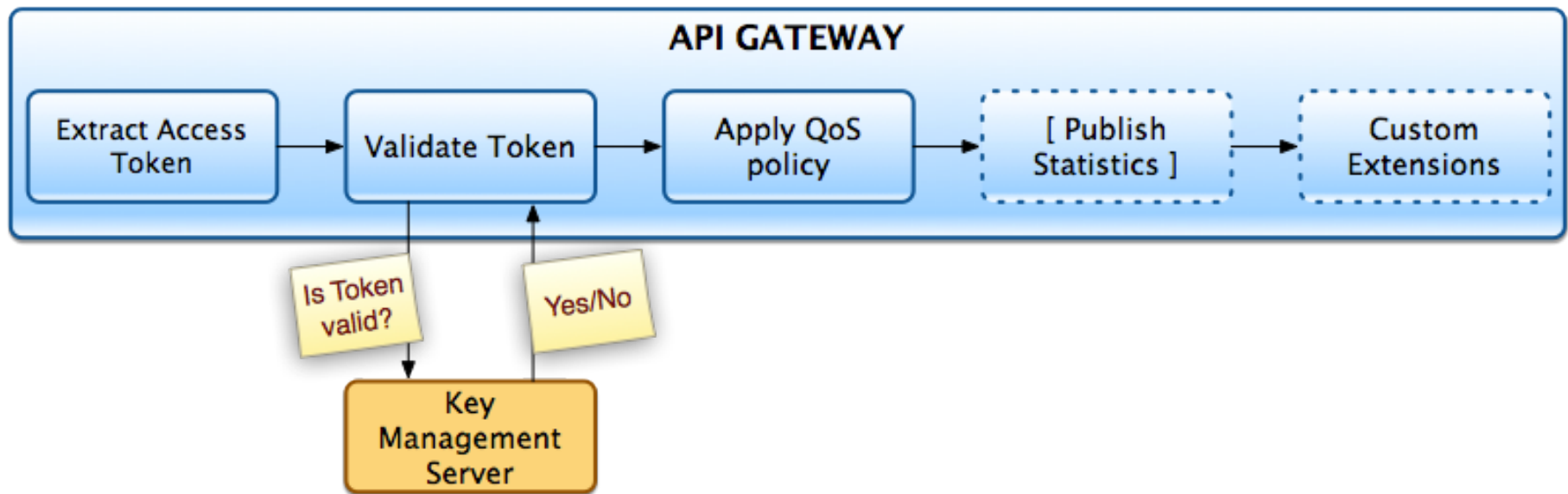


# Understanding the Flow

- API Creator adds API into API Manager
  - [Optionally provides Sandbox endpoint]
- API Publisher approves publish
- API Consumer finds API
- API Consumer subscribes to API and obtains a key
  - [Optional an approval process is started]
- OAuth2-based Key issued
  - [Optionally issue both production and sandbox keys]
- API Consumer application makes a call
- API Key is validated
- API Key metadata is used to identify:
  - Throttling / Rate limiting policy
  - Sandbox / Production endpoint
  - Event is metered/monitored against the API, Key, IP address, etc



# Using the API key to enable context



# API Management market

- Apigee
- Layer7 / CA
- 3Scale
- Mashery / Intel
- IBM Castiron
- WSO2 API Manager



# Questions?



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