

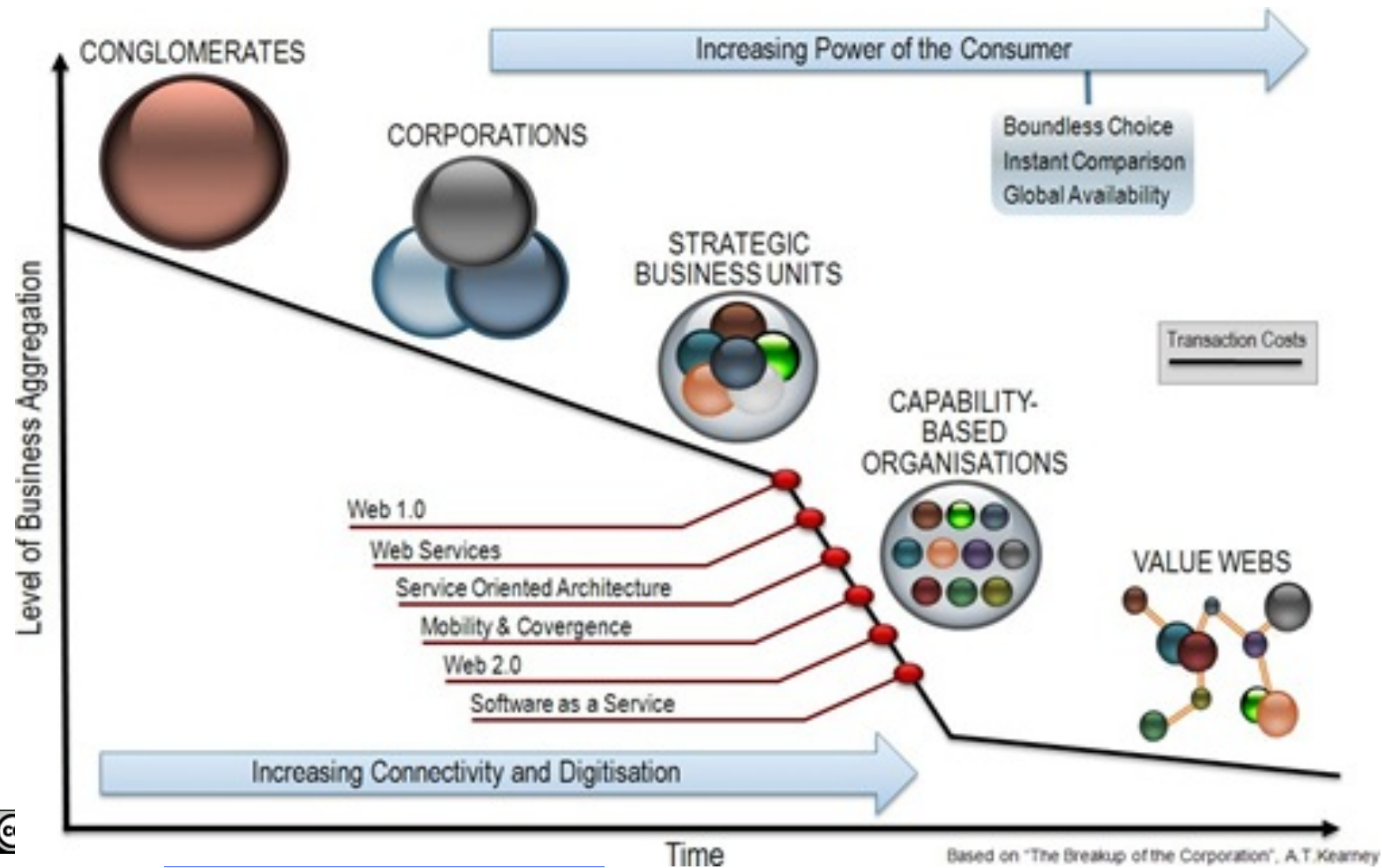
APIs and API Management

Oxford University
Software Engineering Programme
Dec 2013



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The Breakup of the Corporation

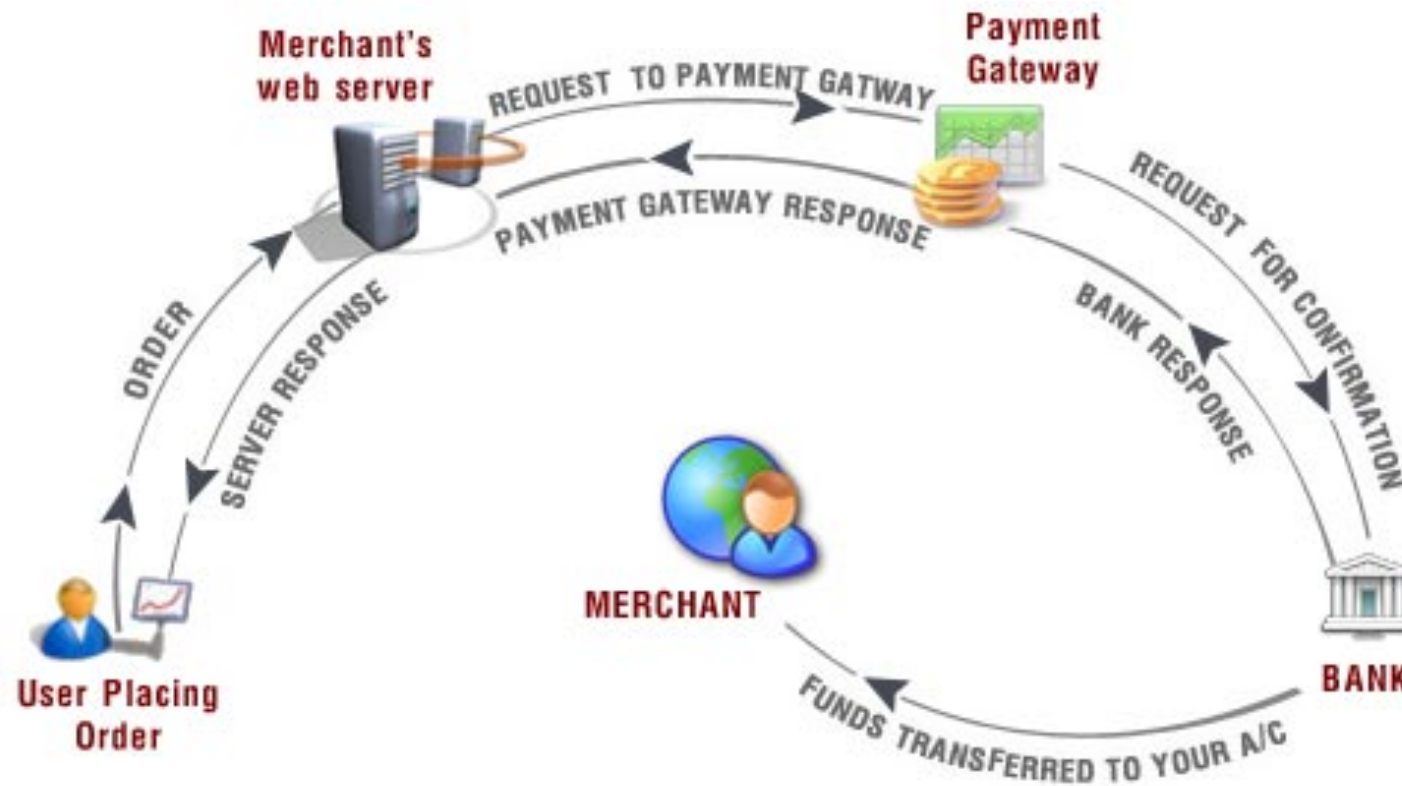


APIs

- **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

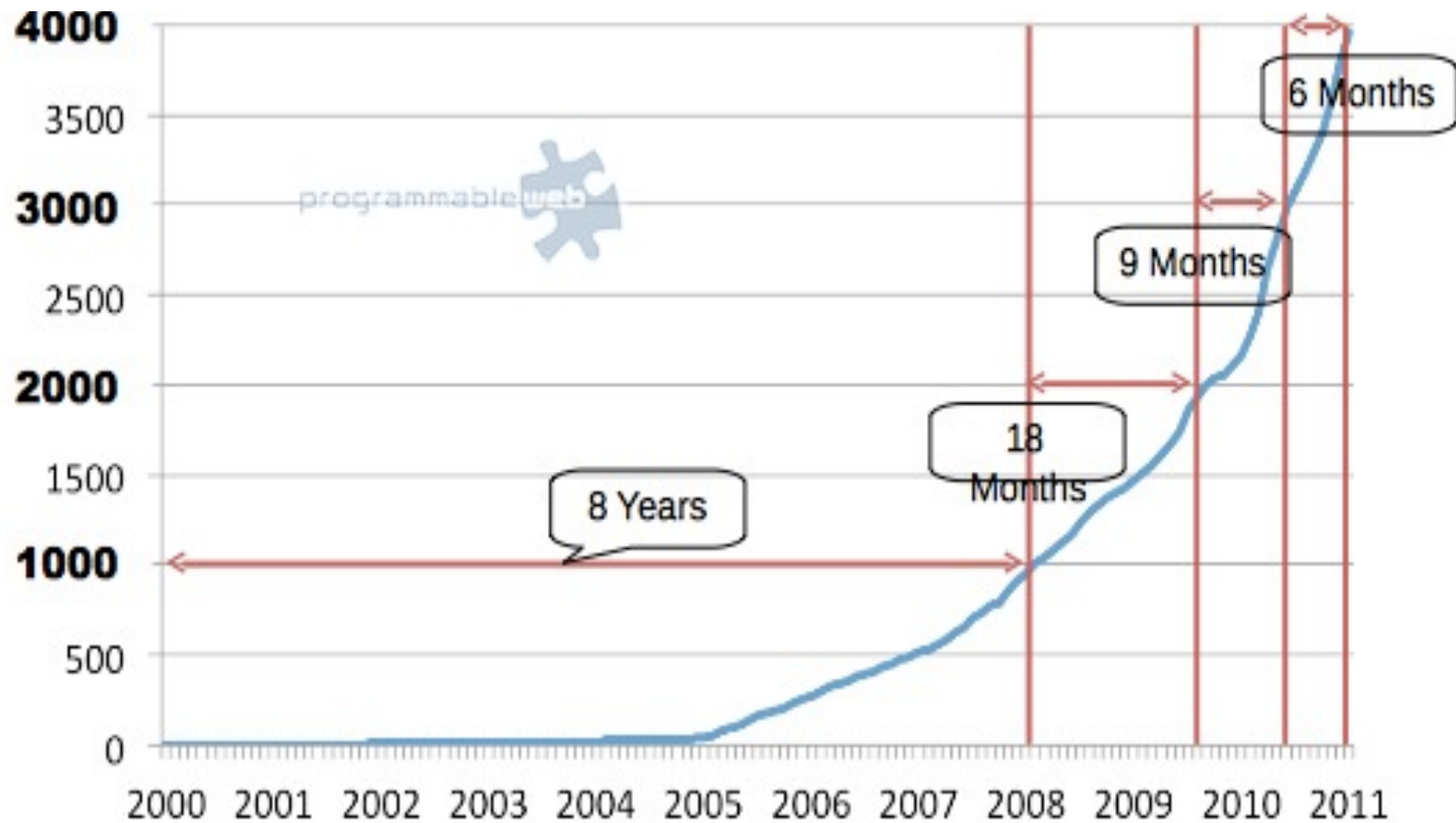


APIs All the Way...



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Don't ignore API Proliferation



Total APIs over time



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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 2 billion transactions per day



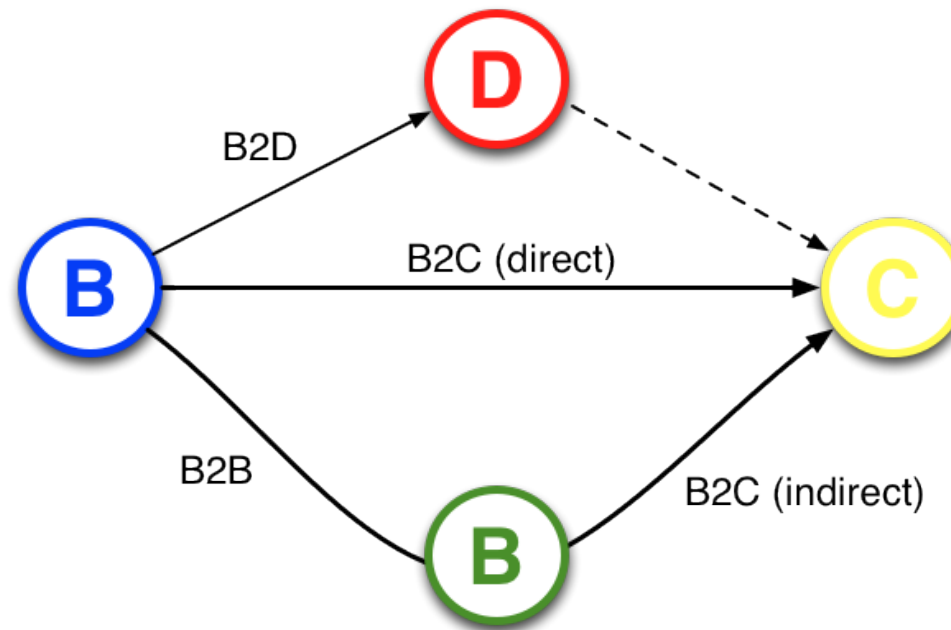
The New Web

Create an Architecture of Participation across multiple brand name properties



Source: <http://blog.programmableweb.com/2011/01/03/api-growth-doubles-in-2010-social-and-mobile-are-trends/>

API Opportunities

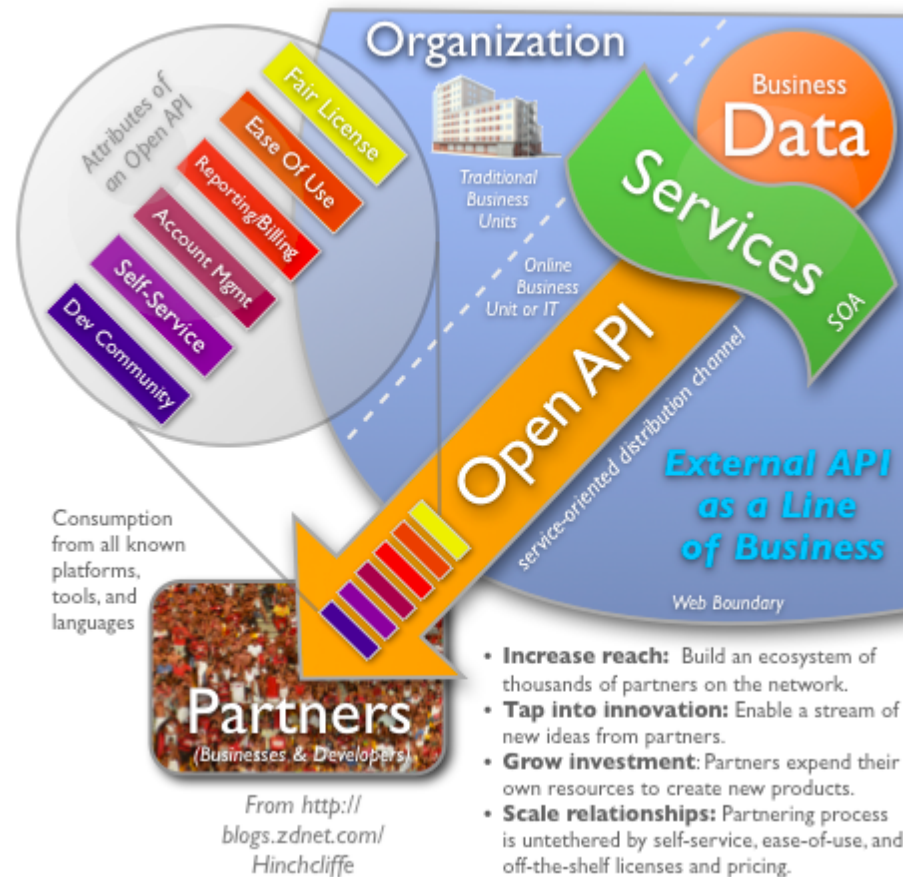


“APIs create a new relationship opportunity –
B2D; Business to Developer, that creates
direct B2C, B2B and indirect B2C relations”



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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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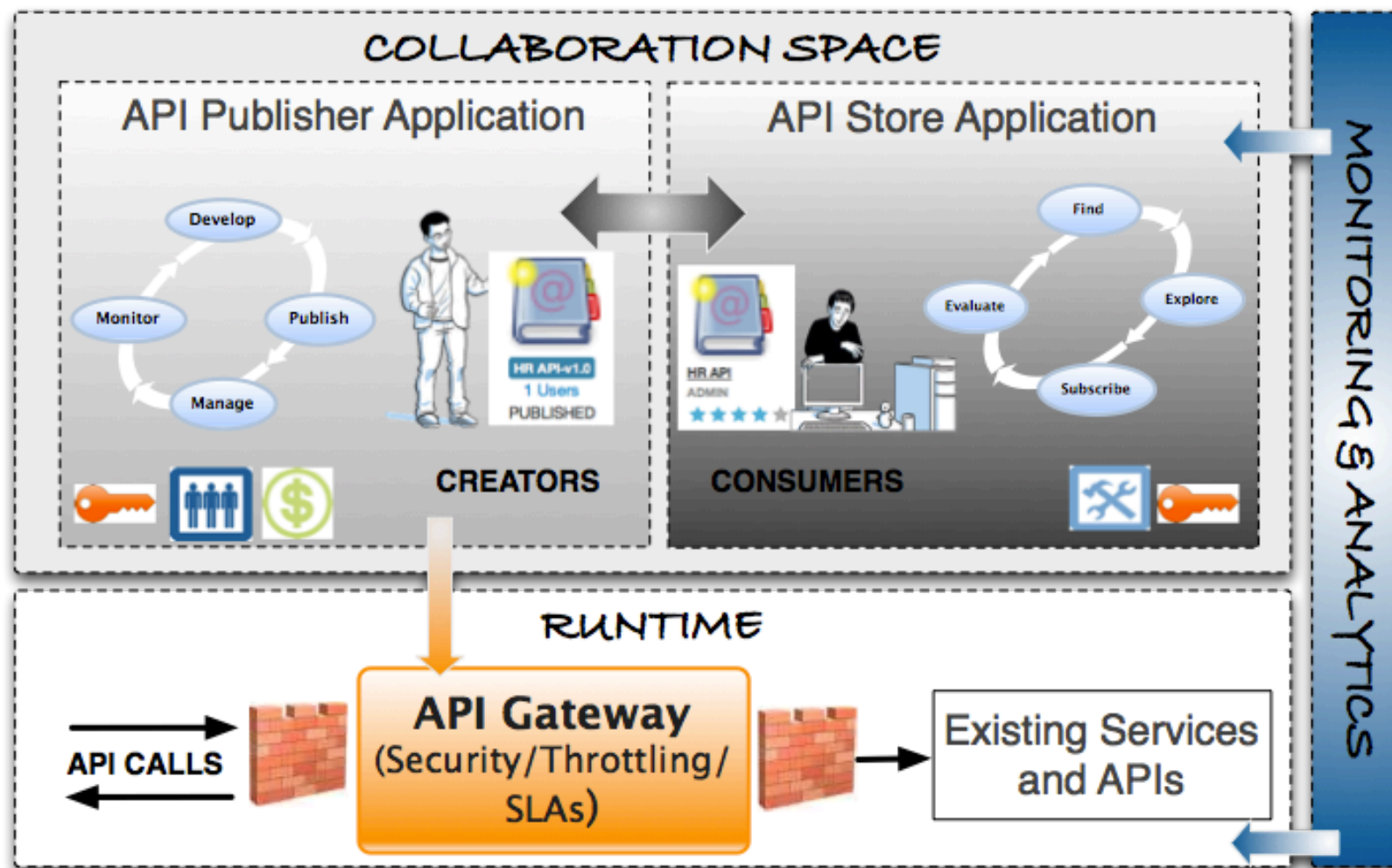
API Ecosystem Model

- **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



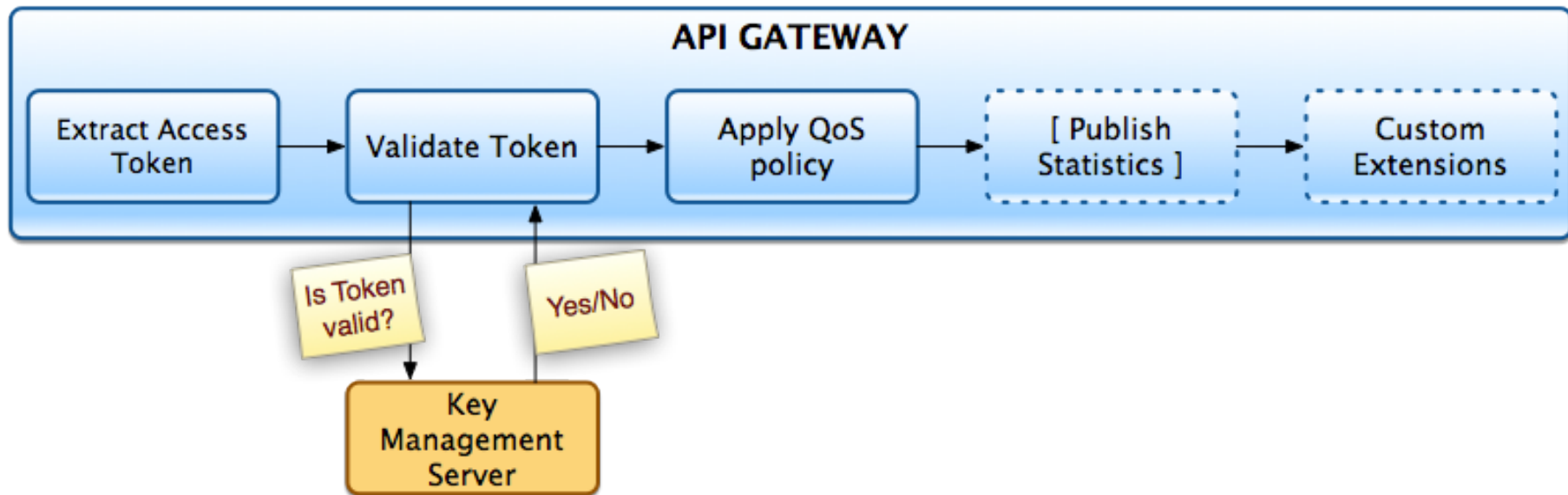
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Understanding the Flow

- 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 / Apify
- 3Scale
- Mashery
- IBM Castiron
- WSO2 API Manager



Questions?



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