The Role of APIs in Digital Transformation

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The Role of APIs in Digital Transformation

Digital transformation – a business perspective
IT Innovations driving change
Digital transformation – a technical perspective
The role of APIs
Summary, best practices

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Questions, problems, ideas and rivals prompt digital transformation

What is digital transformation?

Uses IT innovations **to effect business outcomes, create new markets, enable competitive advantage.**

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So what! What's different now?

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No barrier to entry

Amazon EC2 Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using AWS Simple Monthly Calculator. The prices listed are based on the Region in which your instance is running. For a detailed comparison between On-Demand Instances, Reserved Instances and Spot Instances, see Amazon EC2 Instance Purchasing Options.

Free Tier*

As part of AWS's Free Tier, new AWS customers can get started with Amazon EC2 for free. Upon sign-up, new AWS customers receive the following EC2 services each month for one year:

- 750 hours of EC2 running Linux, RHEL, or SLES t2.micro instance usage
- 750 hours of EC2 running Microsoft Windows Server t2.micro instance usage
- 750 hours of Elastic Load Balancing plus 15 GB data processing
- 30 GB of Amazon Elastic Block Storage in any combination of General Purpose (SSD) or Magnetic, plus 2 million I/Os (with Magnetic) and 1 GB of snapshot storage
- 15 GB of bandwidth out aggregated across all AWS services
- 1 GB of Regional Data Transfer

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Behaviors constantly modify

Instagram / Todayshow

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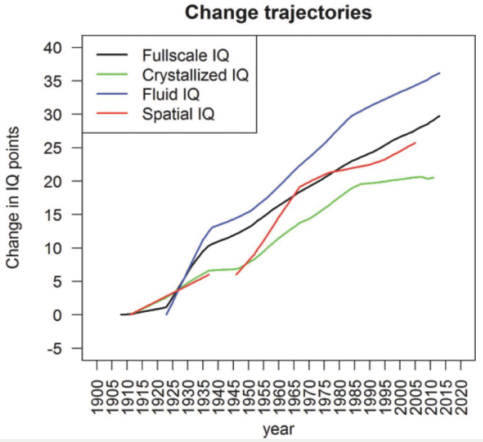
People are getting smarter



In a comprehensive study of the Flynn effect, Jakob Pietschnig and Martin Voracek looked at 271 independent samples comprising 3,987,892 participants covering a time span of 105 years (1909–2013).[1] They find evidence to support the claim that IQ has been increasing substantially over time.[2] The paper discusses several explanations for the observed increases, namely education, exposure to technology and nutrition.

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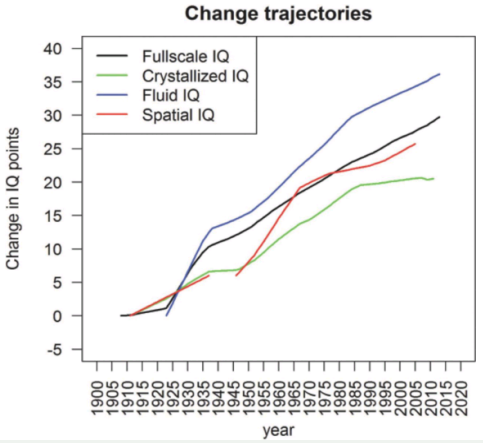

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Anything can happen! It's unpredictable! BUT…

"The best way to predict the future is to invent it!"

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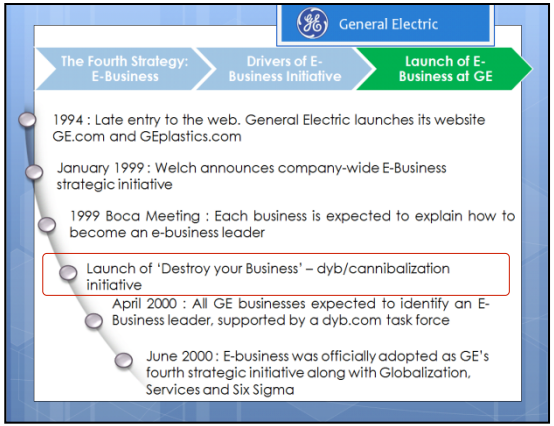
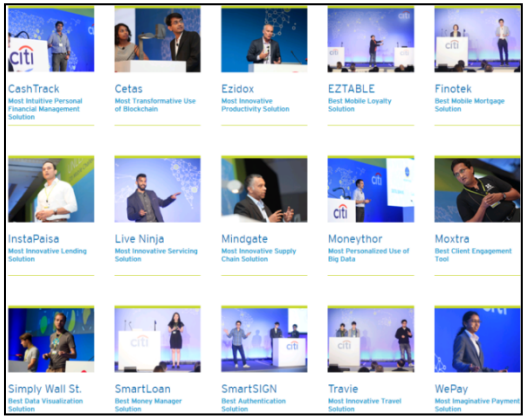
So what do you do?

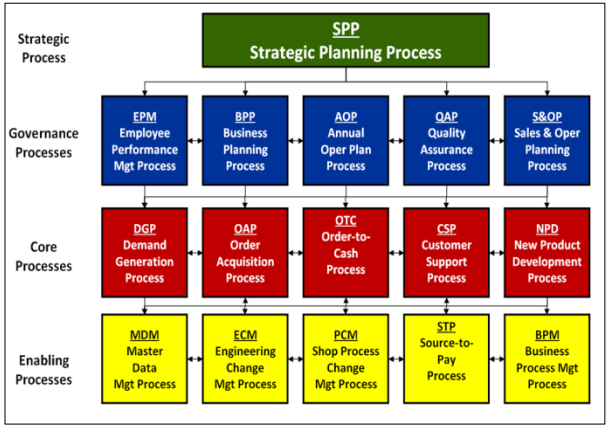
Destroy Your Business



Crowd Source



Process Improvement



Source: Sloan Valve

Common denominator = HOW!

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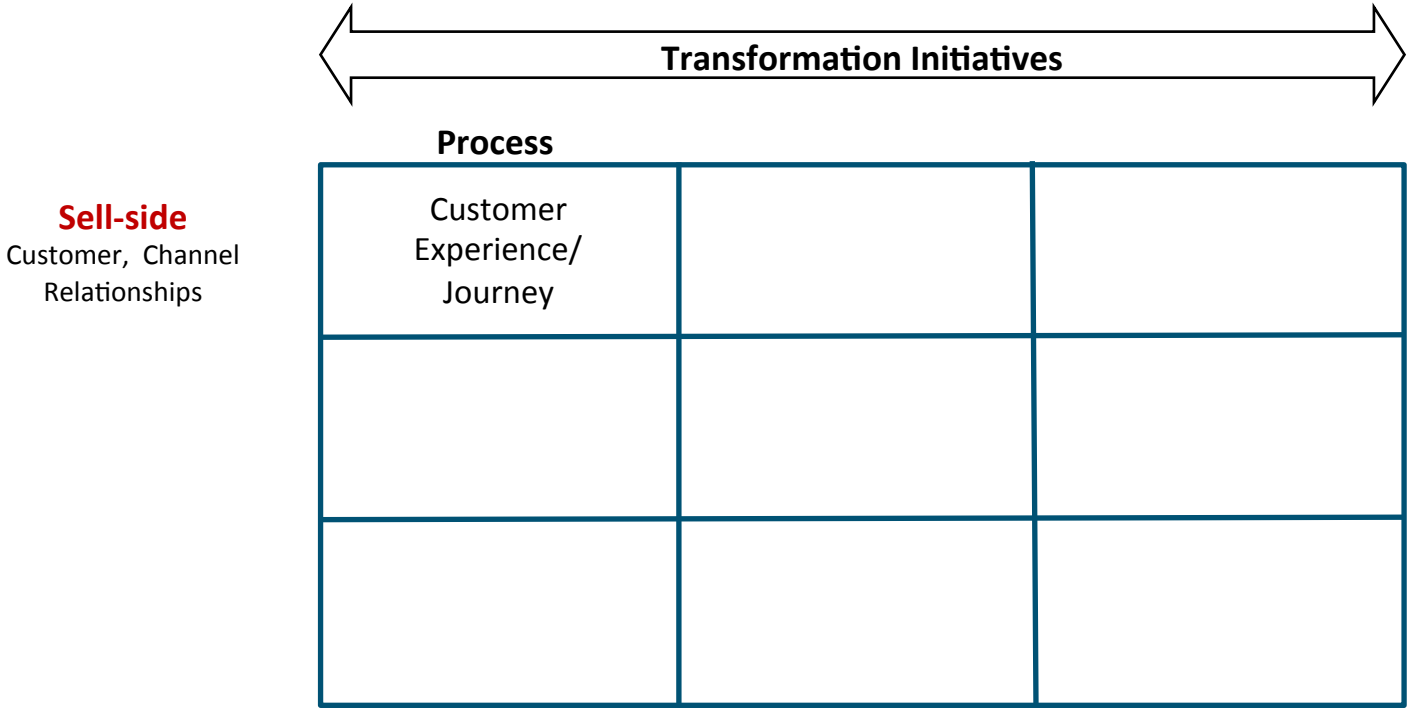
Uses IT innovations **to effect business outcomes, create new markets, enable competitive advantage.**

Focus on HOW!



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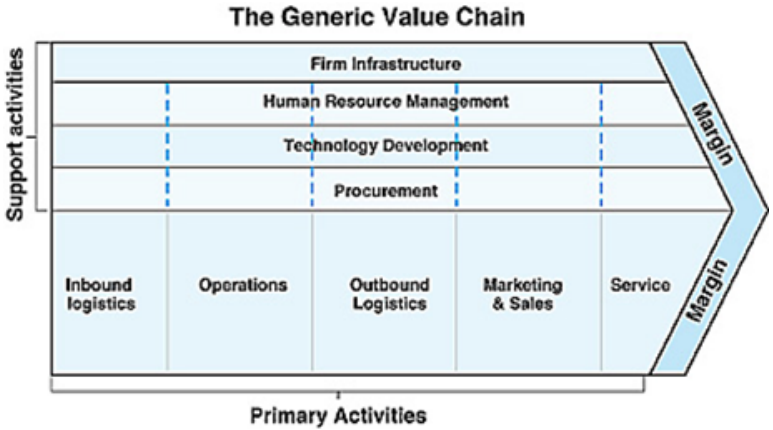
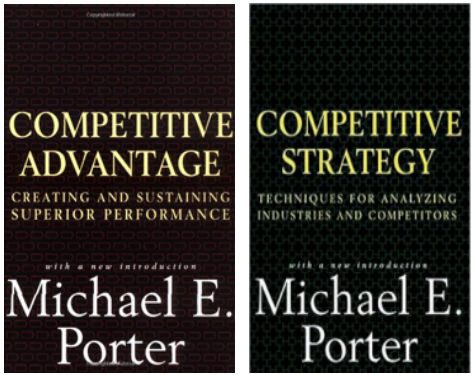
	Process	Collaboration	Management
Sell-side Customer, Channel Relationships	Customer Experience/ Journey	Product Design	Market Share, Profitability
In-side Organizational Effectiveness, Social Business. Knowledge Management	Workforce Productivity	Product Development	Employee Satisfaction, Innovation
Buy-side The API Economy Partner, Supplier Controls	Production	Resolution Management	Strategic Sourcing

‘How’ means creating competitive advantage using competitive strategy

*“A systematic way of **examining all the activities** a firm performs **and how they interact** is necessary for analyzing the source of **competitive advantage**.”*





Source: Michael Porter

***Competitive strategy* is doing the same things as rival but differently, and/or doing different things = HOW…**

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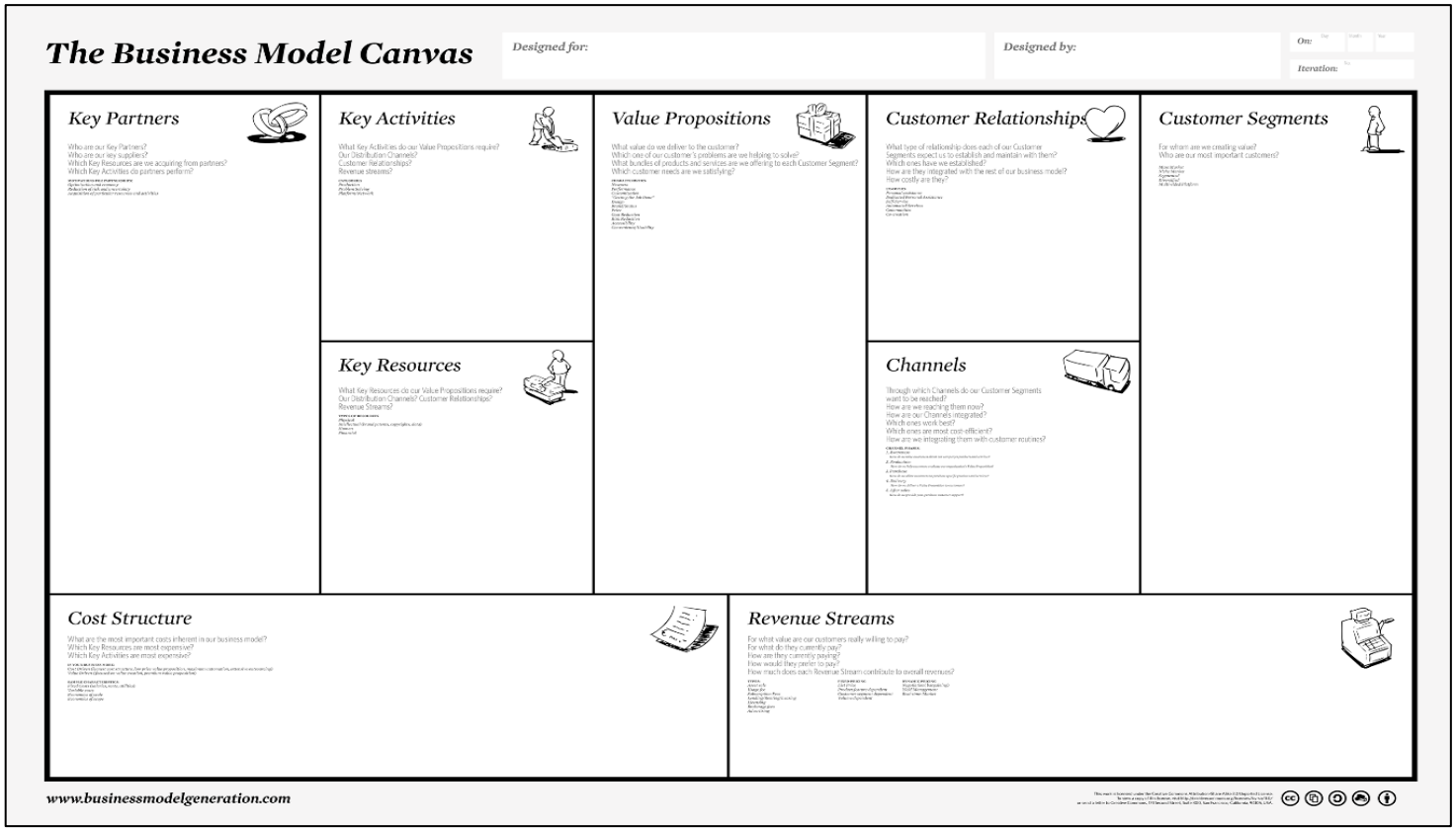
‘Strategy’ means rethinking how you do ‘things’ in your business model



Source: Business Model Generation, 2010: Alexander Osterwalder and Yves Pigneur

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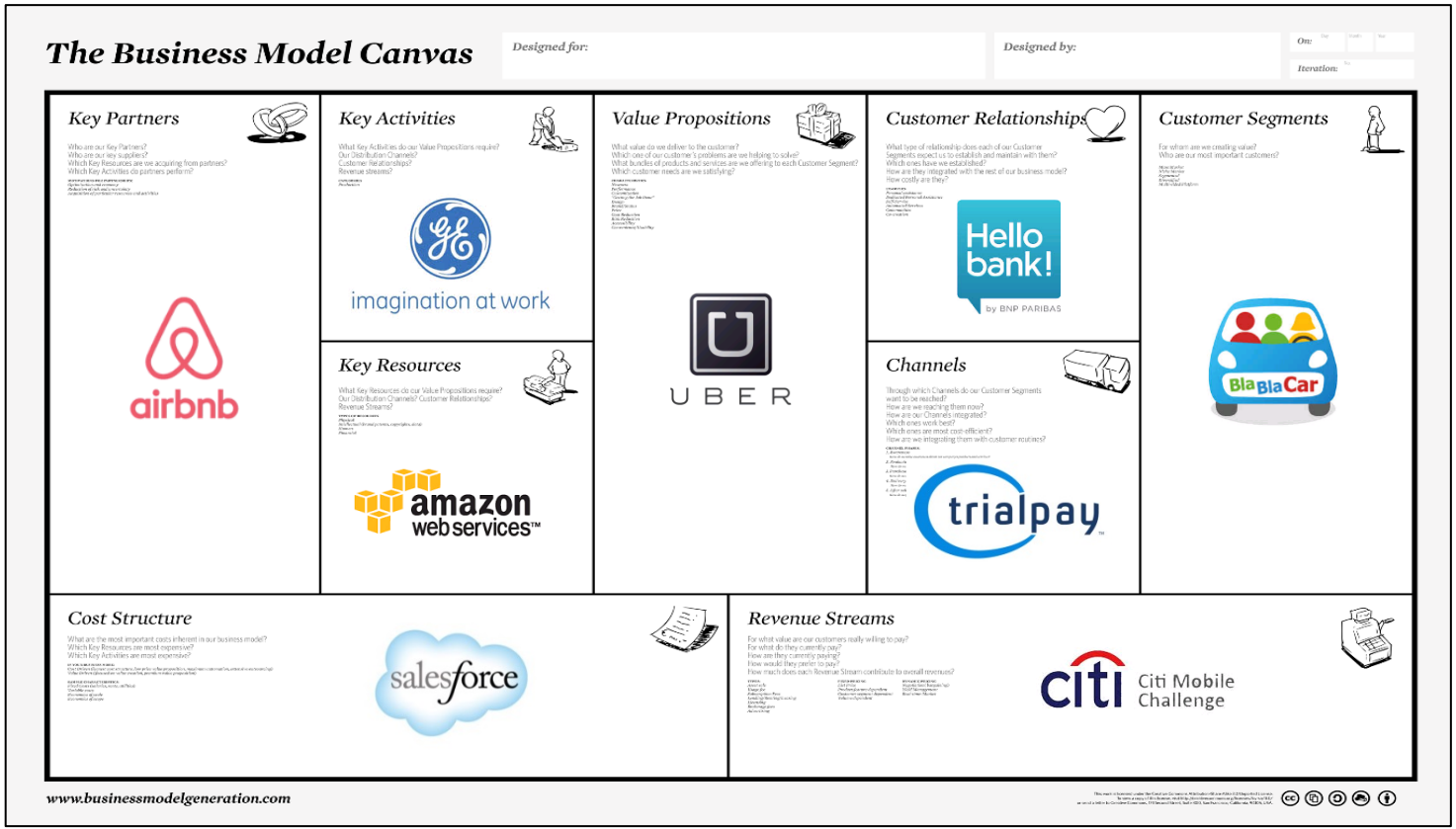

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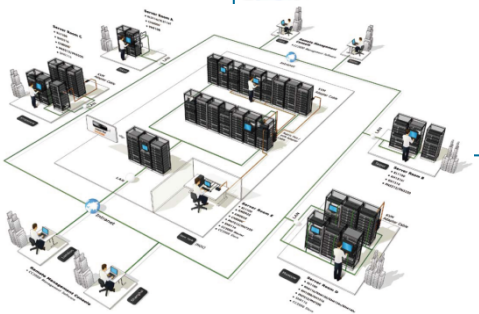
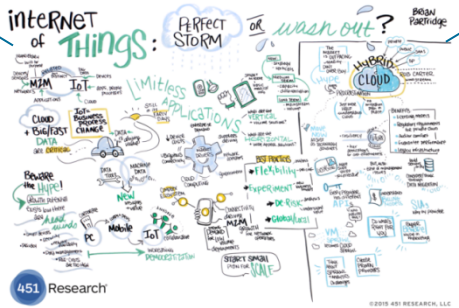
Innovations driving change: the obvious





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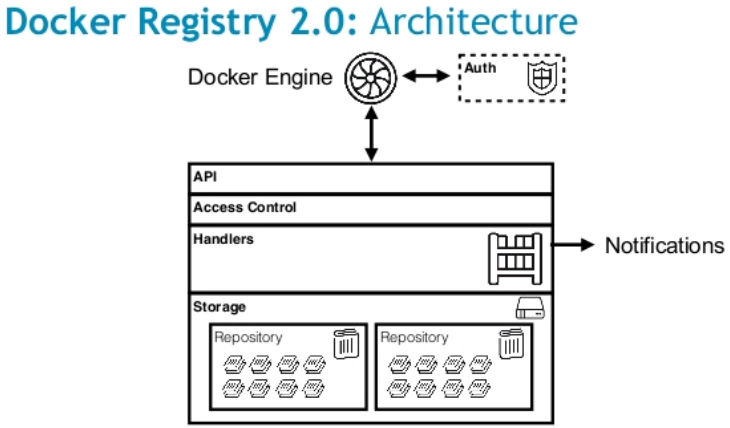
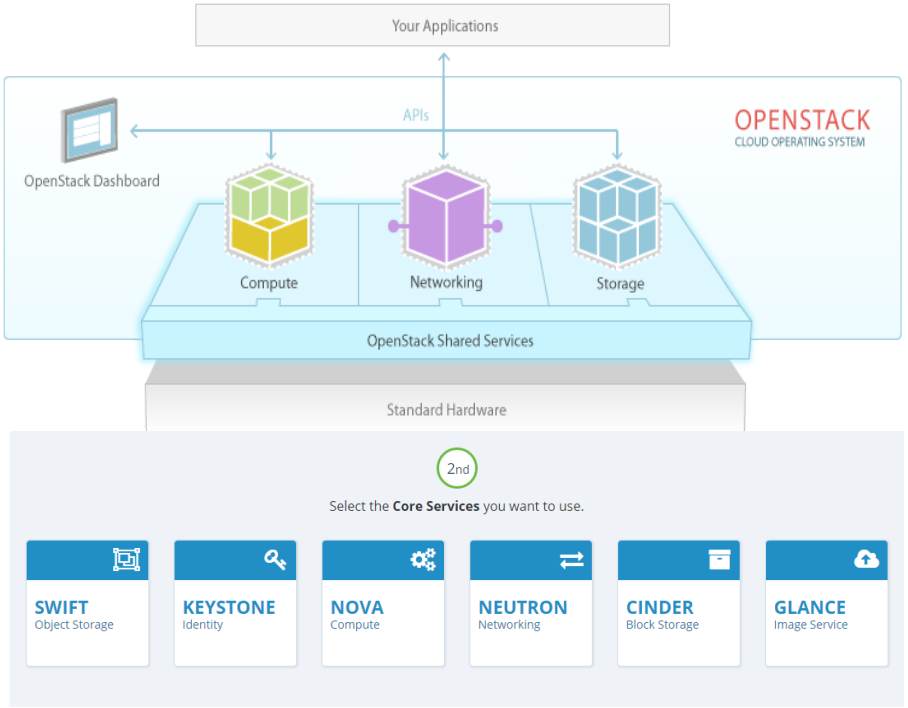
Innovations driving change: the not so obvious

- Application package builds
- Container integration
- Microservice integration
- Cloud OS integration





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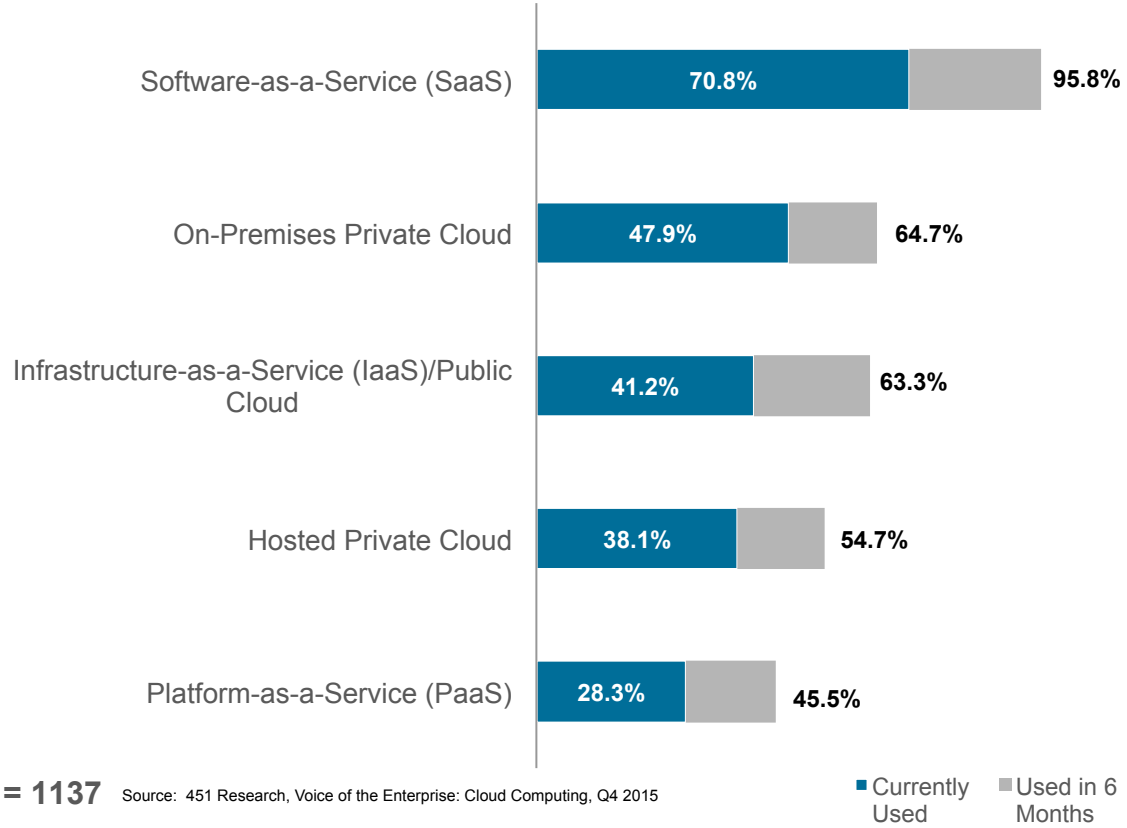
Investments in clouds….

Which of the following types of cloud services, if any, does your organization currently use and what will it use in 6 months?



n = 1137 Source: 451 Research, Voice of the Enterprise: Cloud Computing, Q4 2015

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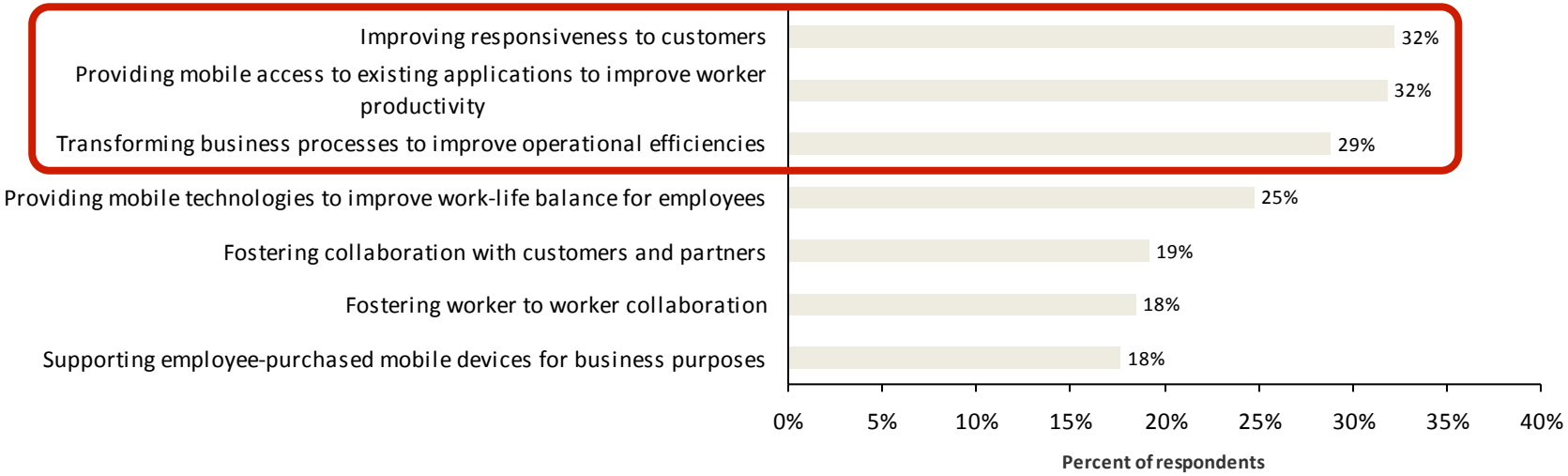
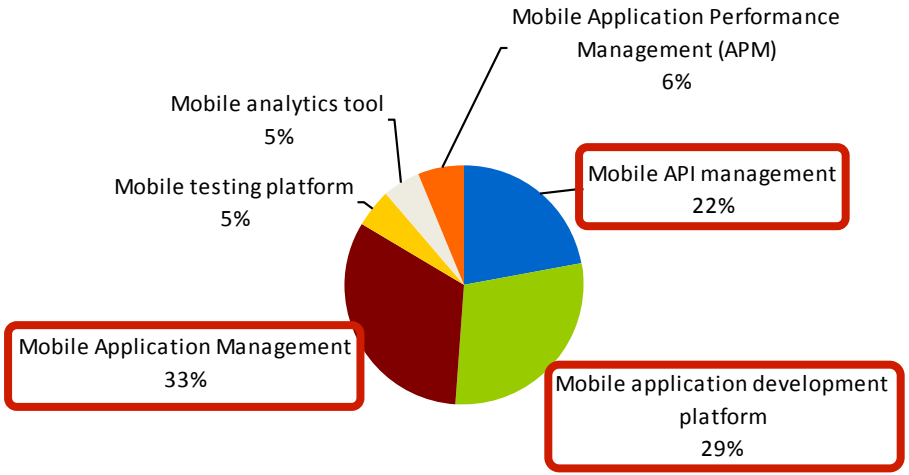
Drivers of investments in mobility…

In your opinion, which of the following activities are the biggest drivers for your company's investments in mobility solutions? (Please select up to two) (n=2027)



Most important investment priority for mobile apps project…

With regard to any planned mobile applications projects over the next year which of the following is the most important investment priority? (n=512)



APIs = common denominator to all IT innovation, BUT…

Unguided

☒ Incomplete

API Product Manager

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Digital transformation

UX ‘The Journey’
Sell-side, In-side, Buy-side

Who, What, How

Device

UI

Apps

Data

Processes

Infrastructure, Services

Partners

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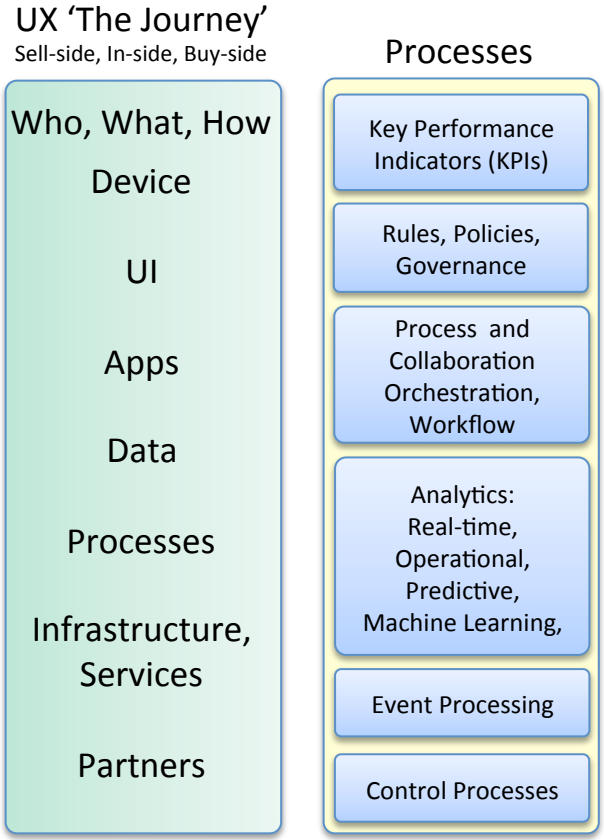
Digital transformation technology stacks



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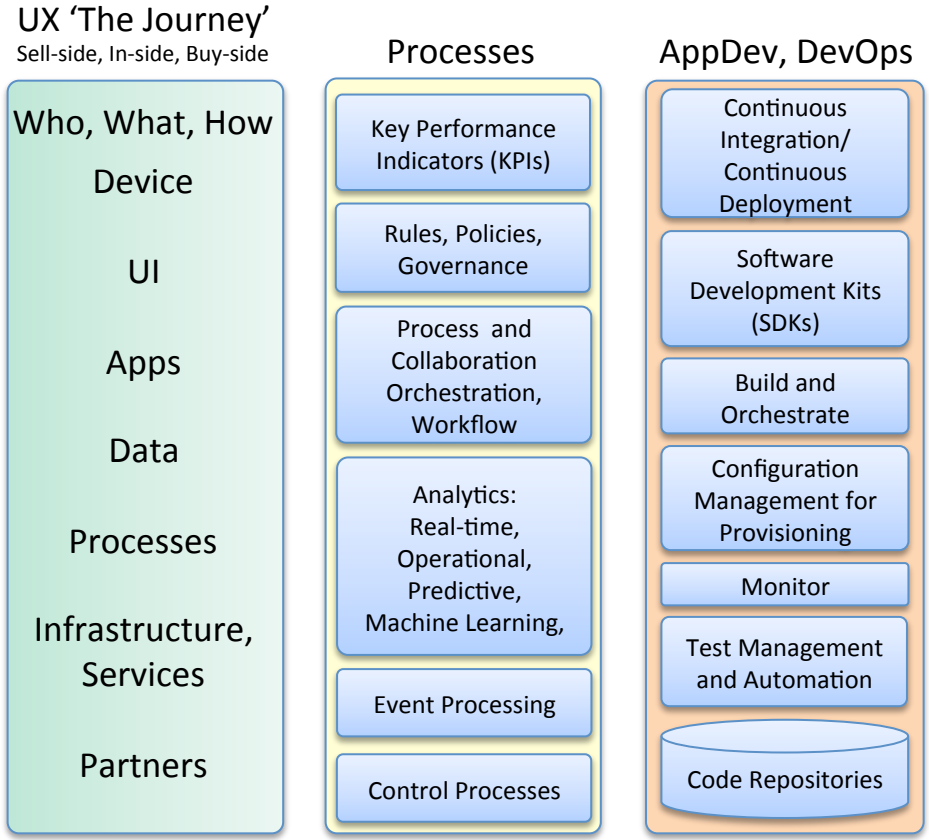

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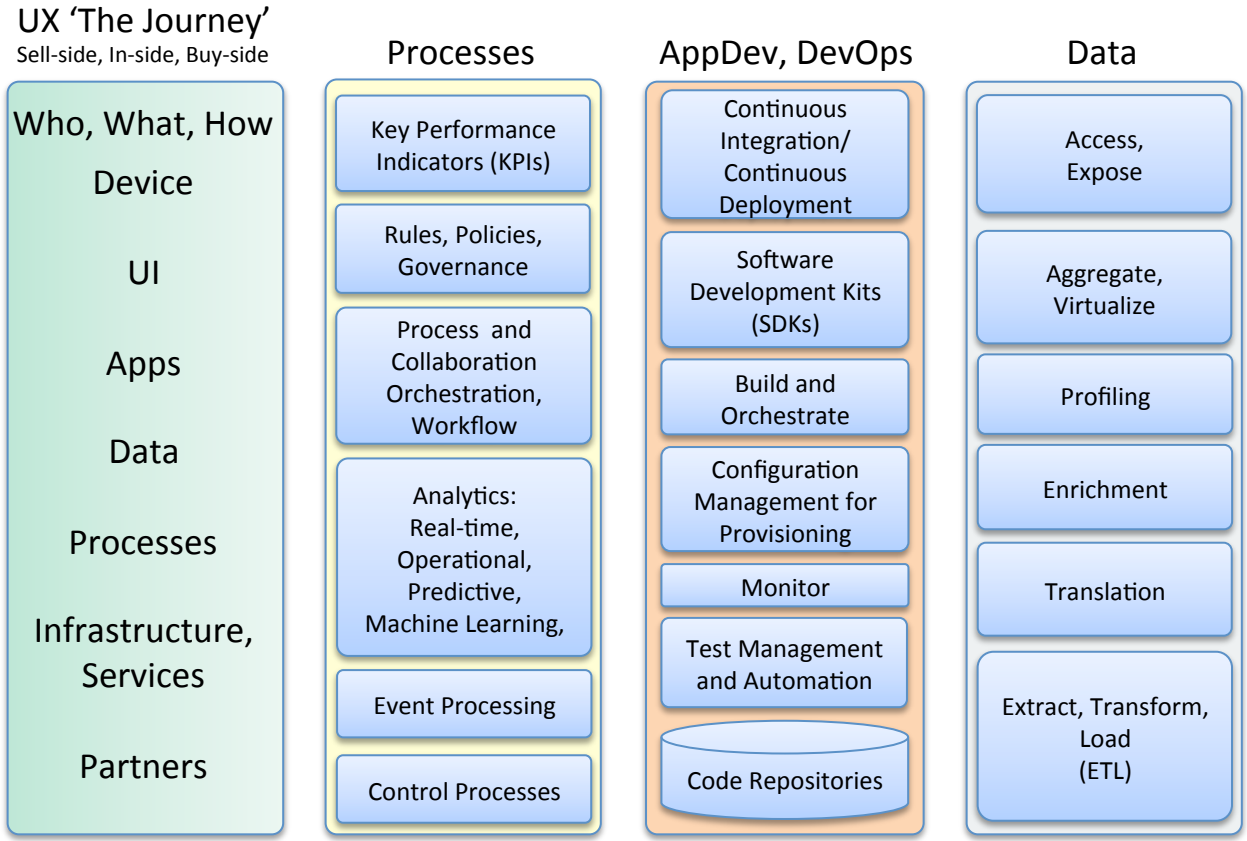

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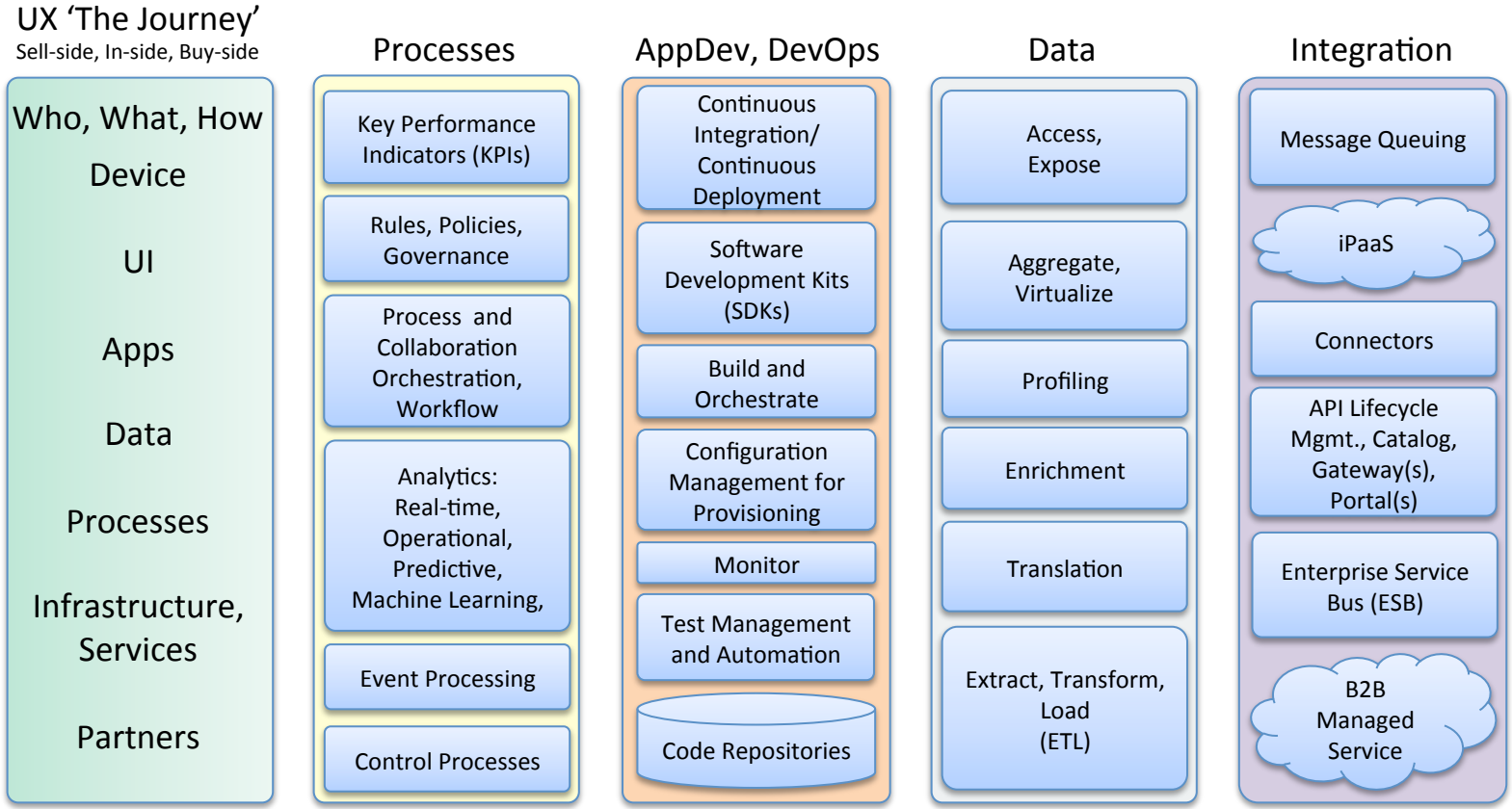

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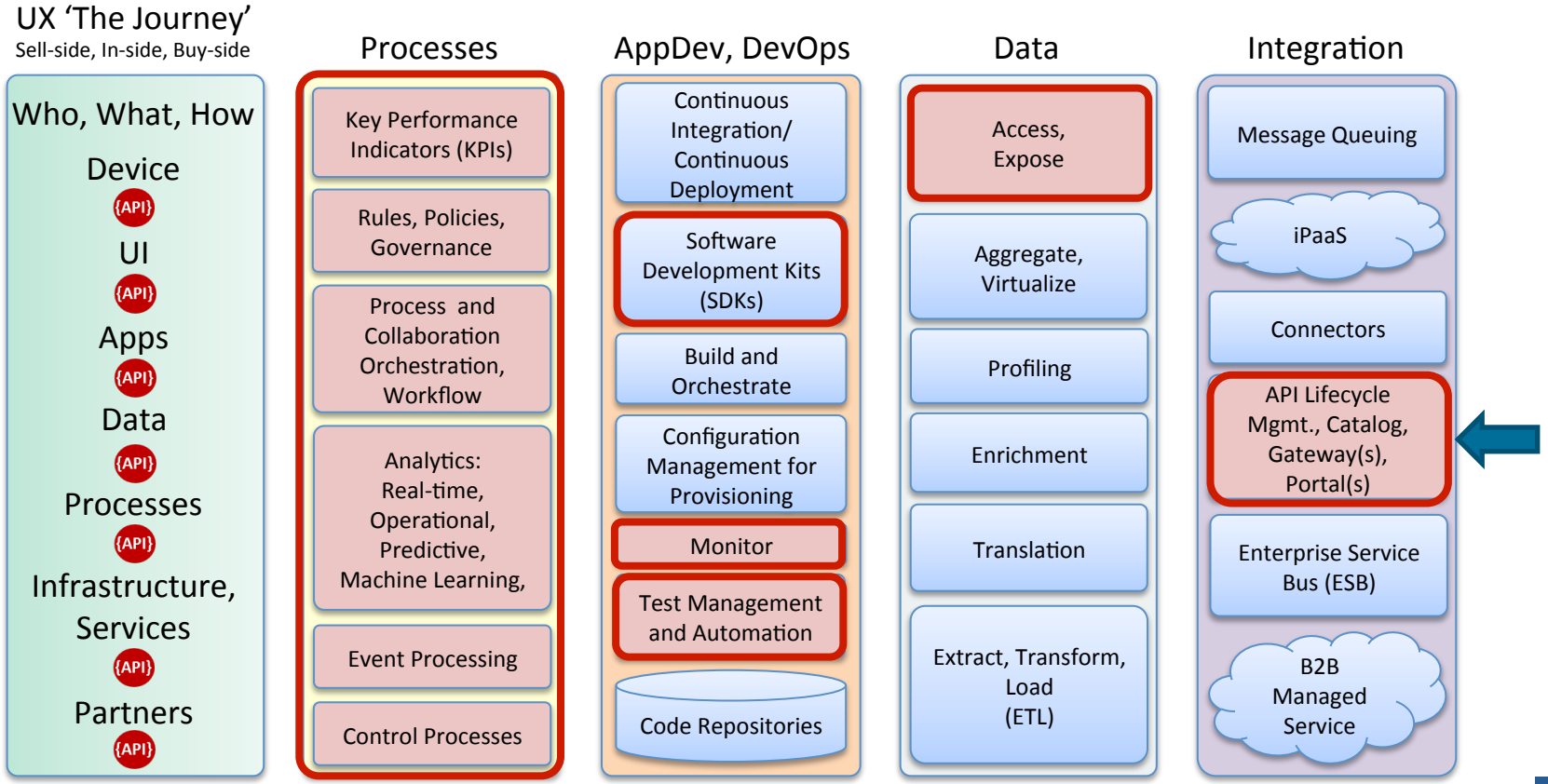
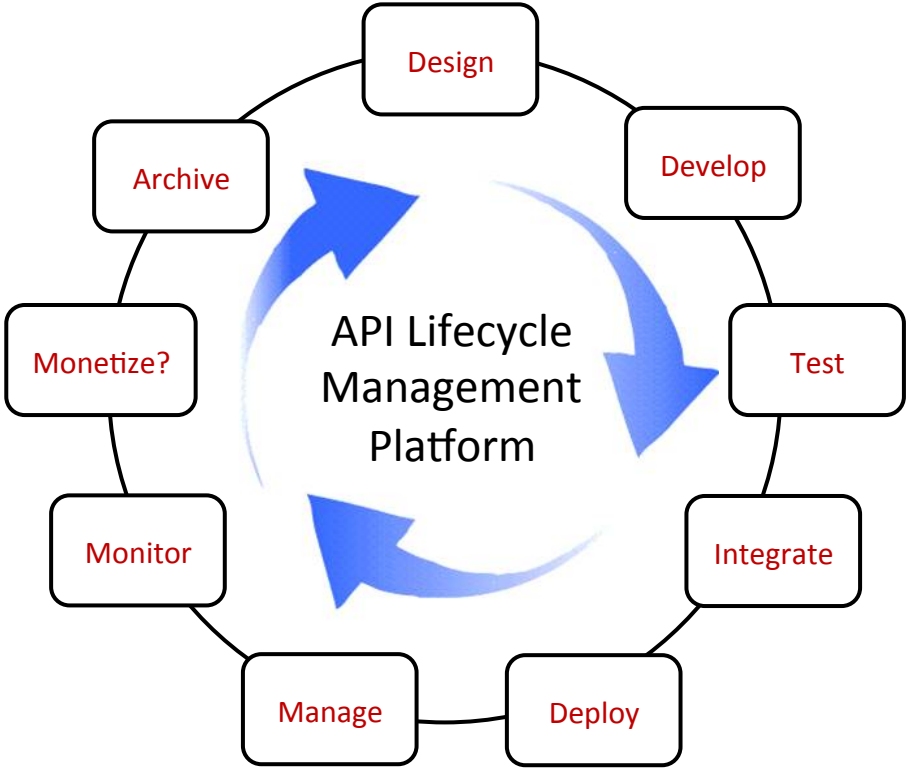


The API Anatomy and Lifecycle

Structure
- A protocol for communication
- Authenticate valid data exchange
- Structure requests
- Process operations and messages
- Return responses
- Handle errors
- Documentation, examples, SDKs

API contract
- The terms and conditions that govern use
- Purpose and function (business relationships)
- Messages
- Data models, validation rules
- Fees and terms for payment (optional)



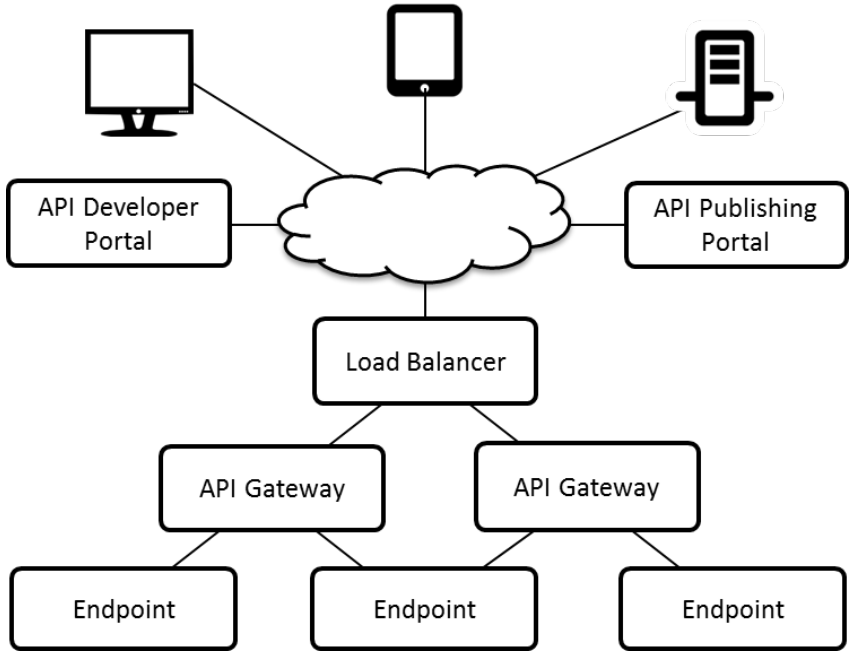
Well-designed APIs promote developer use

API lifecycle management platform

API Developer Portal
- Knowledgebase(s)
- Marketplace(s)
- Documentation
- SDKs

API Publishing Portal
- Discovery
- Publishing/download
- Subscription

API Gateway
- Security, identity, resource and access management
- Throttling (usage, network traffic)
- Event management, alerting, error handling
- Reporting, analysis (usage, performance, trends, traffic)
- Analytics (customer behavior, digital channel performance)



Best when integrated with Process, App, Data and Integration Stacks

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Summary, best practices: The Role of APIs in Digital Transformation

- Know the audience
  - Behavior, smarts
- Its not just the customer journey
  - Sell-side > In-side > Buy-side
- Strategy = How!
  - Know your business model
  - Focus on How!
- Well designed APIs = digital transformation accelerants
- APIs enable ‘journeys’
  - Who – Device – UI – Apps – Data – Processes – Infrastructure/Services – Partners
- APIs connect the technology stacks
  - Process – AppDev/DevOps – Data – Integration
- Add APIs to AppDev/DevOps lifecycle management practices

AnyPresence Background

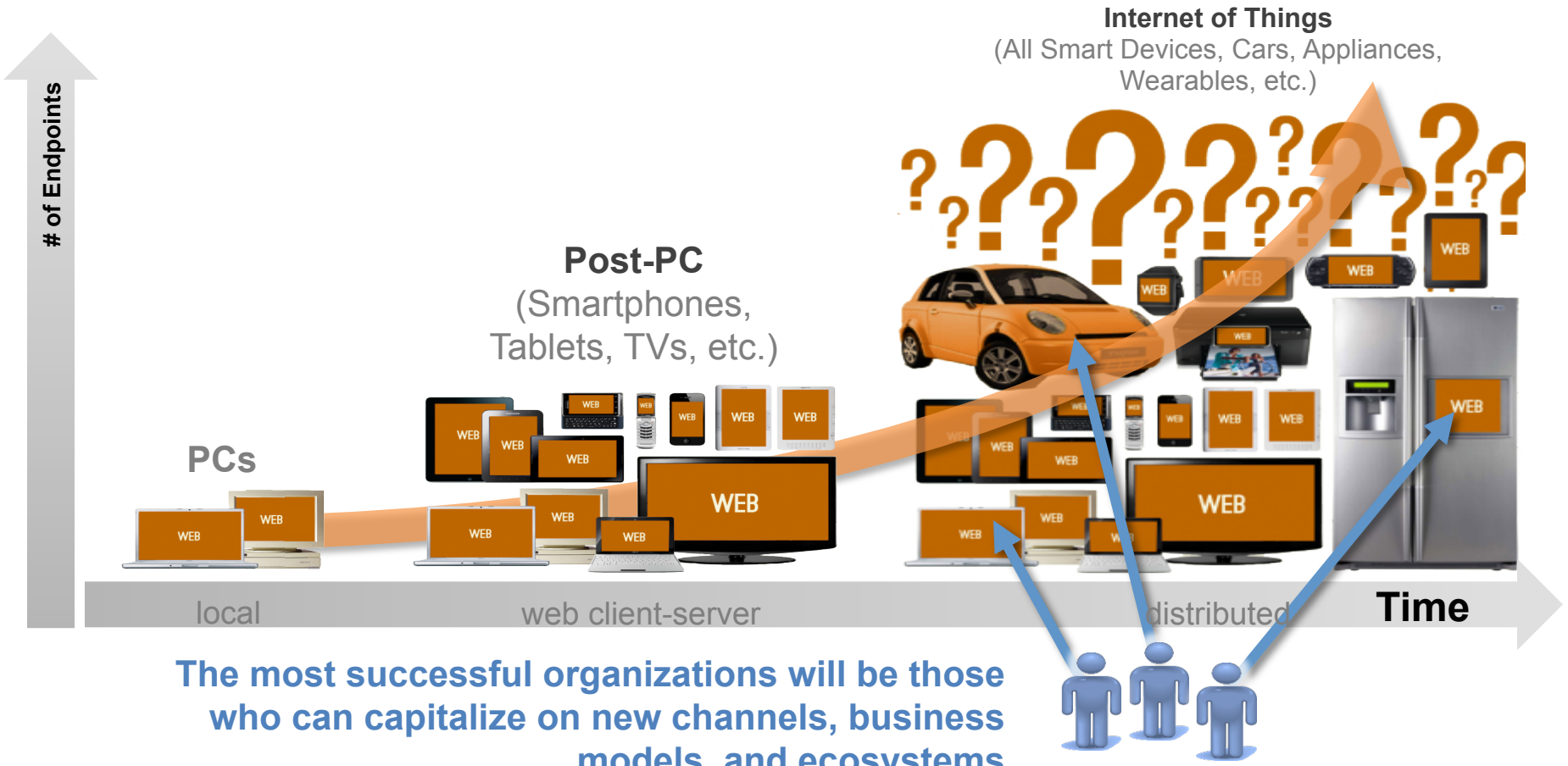
- Digital transformation platform to help enterprises build APIs, cross-platform apps, and support developer ecosystems
- Leader in enterprise backend services platforms
- Former enterprise software executives from SAP, Oracle, Siebel, RIM
- Venture funded
- Headquartered in Reston, VA

CUSTOMER PROVEN

CONSISTENTLY RECOGNIZED FOR TECHNOLOGY LEADERSHIP

Forrester Wave Leader

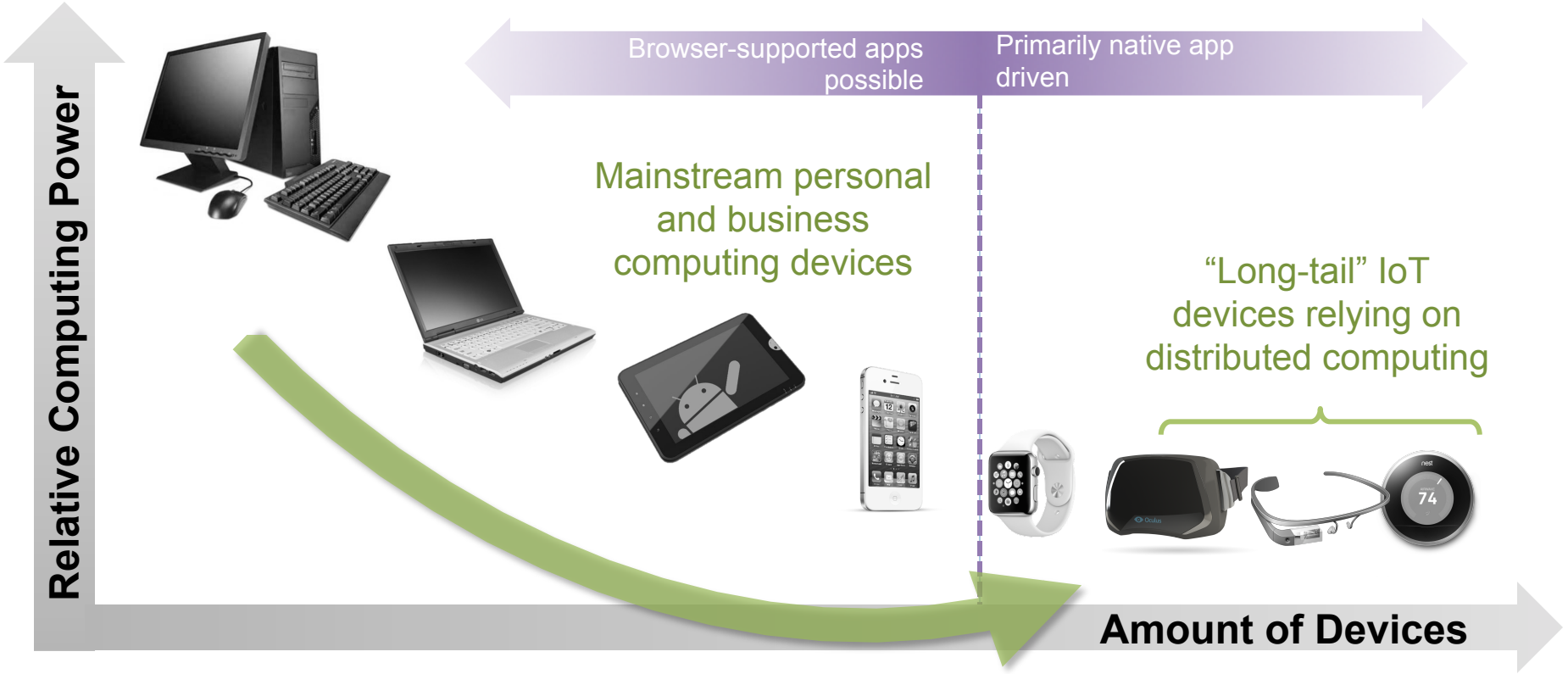
What is Driving Digital Transformation?



The most successful organizations will be those who can capitalize on new channels, business models, and ecosystems

Images: Brad Frost

Forecast: More Fragmentation, Distributed Computing



Development Expectation Challenges

LESS TIME 

Development cycles down to 6-8 months or less, from 12-18

LESS BUDGET 

Development budgets not increasing to match cross-platform needs

MORE COMPLEX 

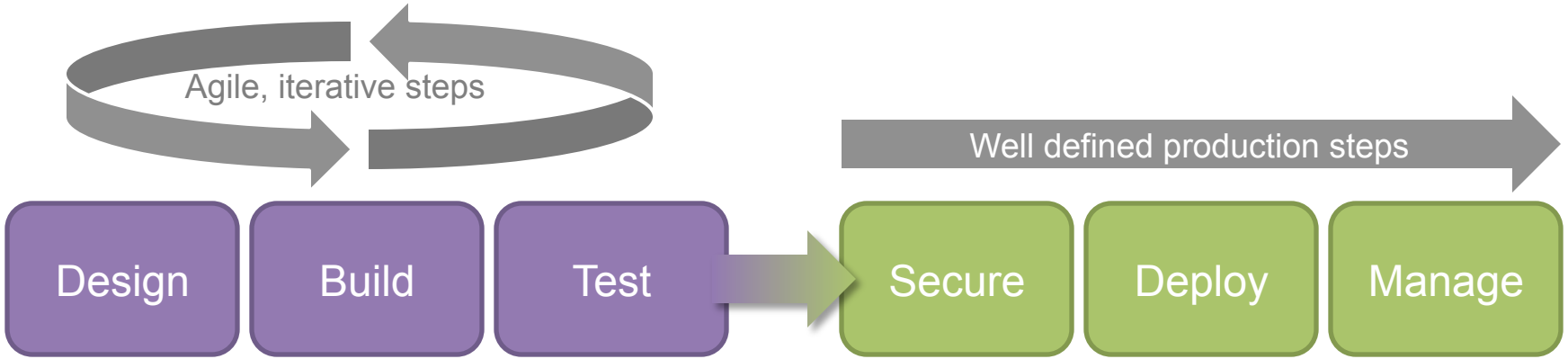
Complexity across **Front-end, back-end** and **secure, scalable integration**

MORE DYNAMIC 

Development, Design, Develop, Test all work on the same cadence: **Rapid Prototyping and Ongoing Updates**

Source: Forrester Research

API Development Process



- Define and iterate business logic and workflow quickly
- AB testing with different versions
- Rapid on-premise or cloud updates
- Test with different client platforms
- Decide on signatures and protocols

- Implement governance policies
- Scale based on production needs
- Manage lifecycle (updates, deprecation)
- Track usage and monetization as needed

Develop
Rapid pace of change
Must be nimble and flexible

Manage
Fixed pace of change
Must be secure and stable

The API Development Challenge

"I need some RESTful APIs for my app"

I can build them on my own, but that takes time and requires me to think about how to scale and manage them. Adds complexity and code liability to my app. I also may not be good at backend development.

I can use an MBaaS, but I wont have control over how the APIs are defined, and cloud-based MBaaS designers cannot connect to my systems behind the firewall or run locally on my laptop for quick development.

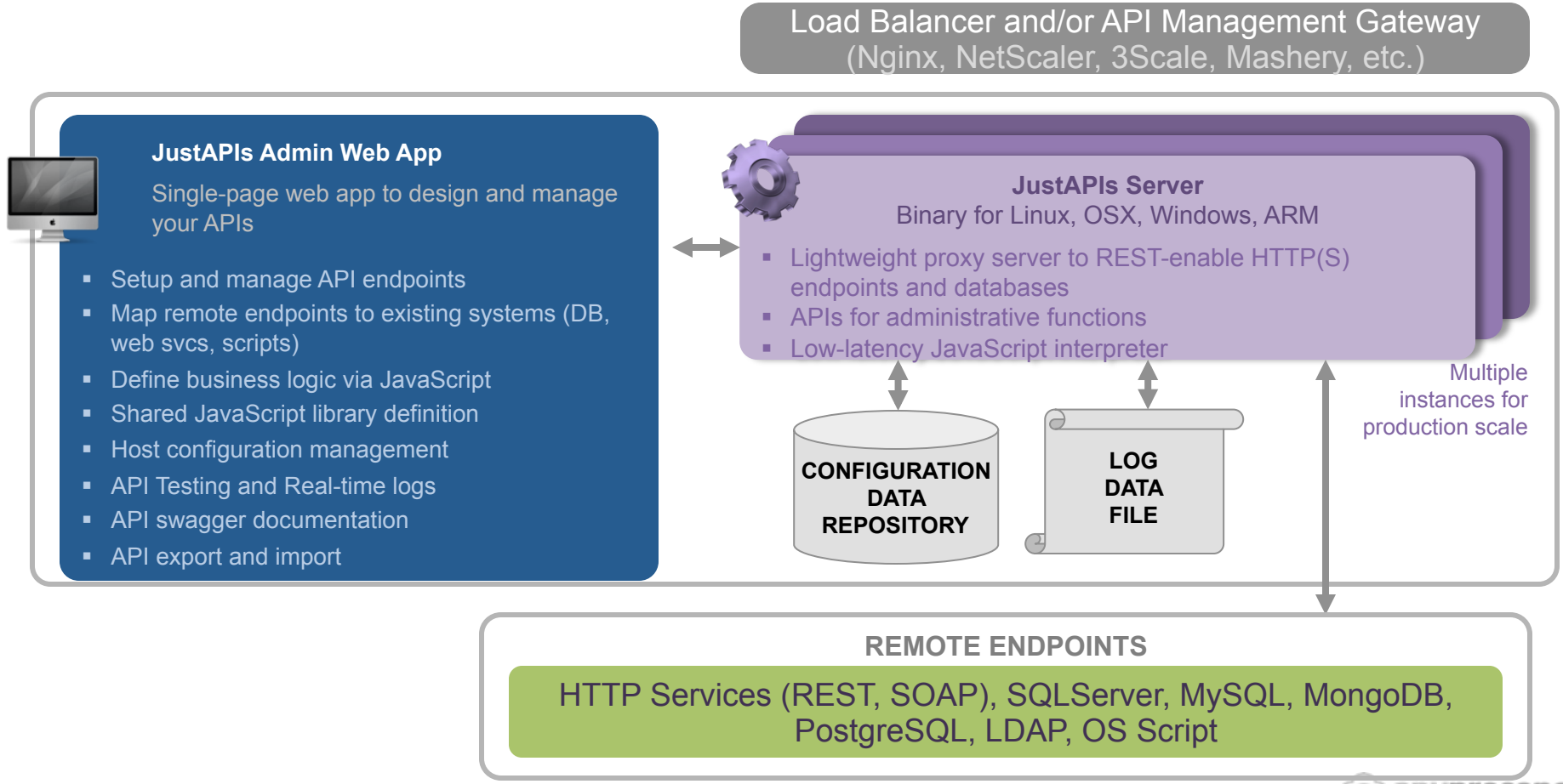
I can use an API management solution, but these are typically focused on governance, not development. My first order problem is building and testing good APIs, then I will worry about how to manage them.

Must chose a solution that:

1. Enables me to define or prototype APIs quickly
2. Can run on-premise or on my local laptop, and migrate as needed
3. Is not expensive and doesn't takes a long time to build and deploy

JustAPIs Demonstration

JustAPIs Architecture Overview



Rapid API Development Supports Multiple Use Cases

Use Case	Description
APP BUILDING USE CASES	
Create Modern APIs on Legacy Systems	Create proxy endpoints that invoke legacy HTTP services
Create APIs for App Development	Create proxy endpoints or new APIs required for mobile or web apps
Migrate Existing App Backend	Migrate your app backend using JustAPIs to simulate the existing backend APIs and route calls to a new backend. Helps to minimize client-side code changes.
INNOVATION USE CASES	
Rapid API Prototyping	Developers can run a local JustAPIs instance to quickly prototype APIs, perform A/B testing
API Simulation or Virtualization	Create APIs that mimic production systems or simulate future APIs (useful for IoT device simulation)
Enable Sandboxes for Hackathons	Enhance hackathon experience with sample data and simulated responses with customizable business logic

Summary

- Fragmentation in client-side platforms is driving the need for de-centralized application services
- APIs are the core building blocks of modern application services and “digital transformation”
- The ability to develop APIs in an agile manner is becoming a critical capability for all enterprises
- There are several productivity tools and vendors to help enable a strong API development competency

Thank You