API Architectures for the Modern Enterprise

Extend your legacy SOA/ESB infrastructure to Mobile & IoT

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Agenda

NEW AGE OF DIGITAL ENTERPRISES

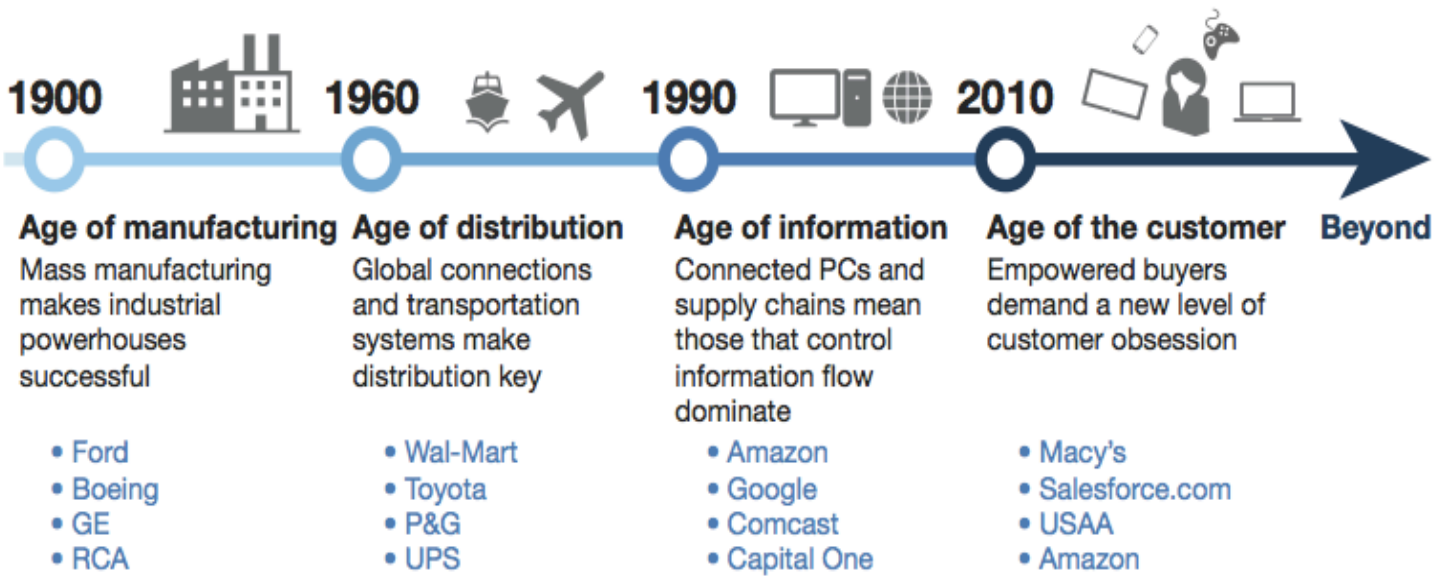WEAKNESS OF EXISTING LEGACY INTEGRATION MODELS
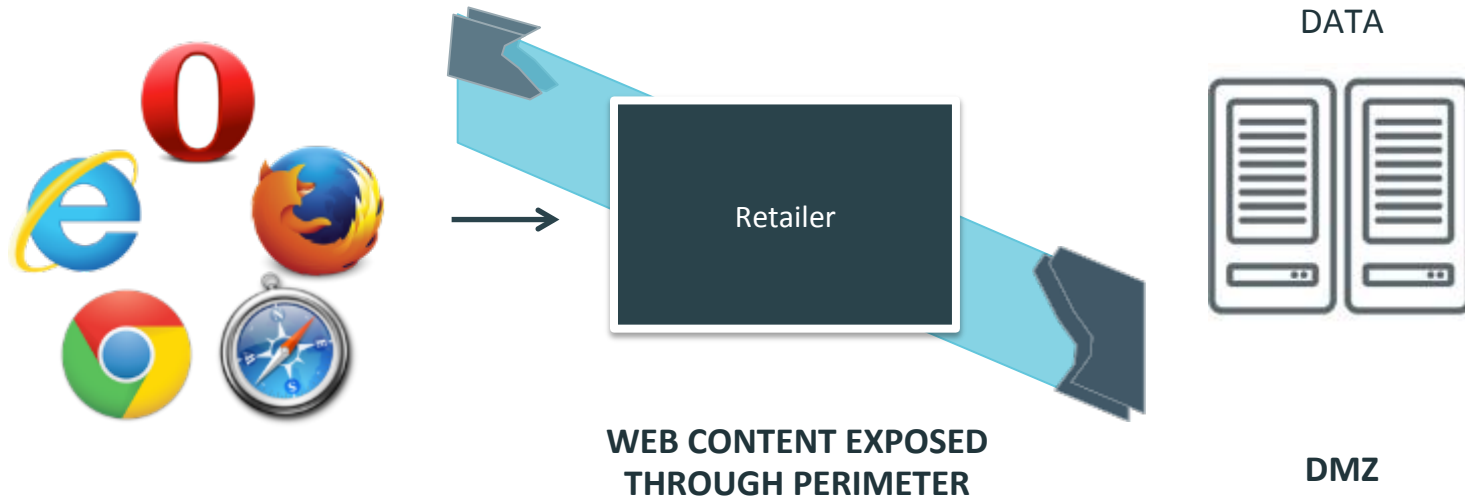
USE CASES

NEW STRATEGIES

NEXT STEPS

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Welcome to the Age of the CUSTOMER

1900 — **Age of manufacturing**
Mass manufacturing makes industrial powerhouses successful

- Ford
- Boeing
- GE
- RCA

1960 — **Age of distribution**
Global connections and transportation systems make distribution key

- Wal-Mart
- Toyota
- P&G
- UPS

1990 — **Age of information**
Connected PCs and supply chains mean those that control information flow dominate

- Amazon
- Google
- Comcast
- Capital One

2010 — **Age of the customer**
Empowered buyers demand a new level of customer obsession

- Macy's
- Salesforce.com
- USAA
- Amazon

Beyond

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Turn big data into business insights

Transform the customer experience

Age of the customer

Embrace the mobile mind shift
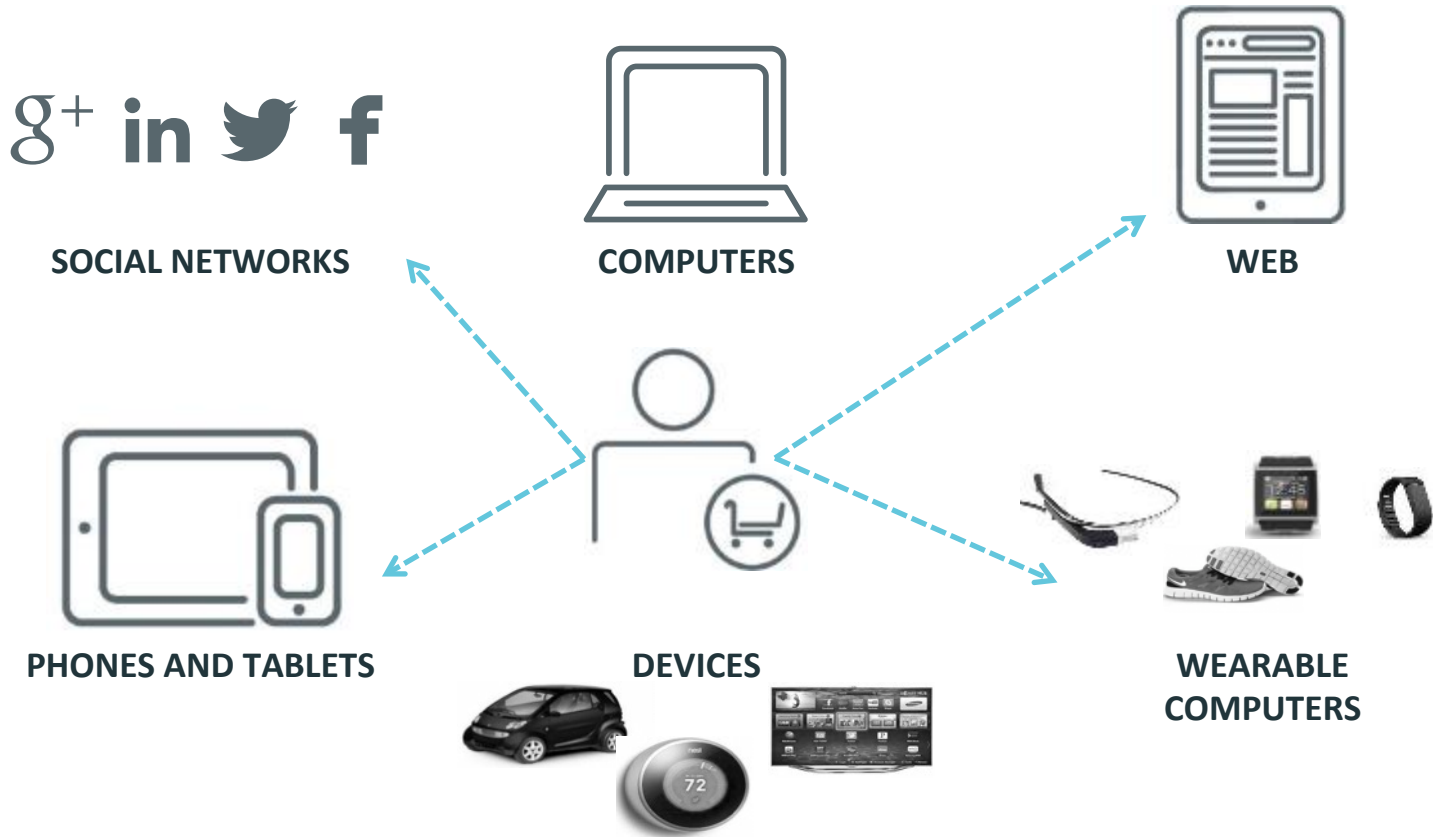
Accelerate your digital business

They are also referred to as drivers of **Business Digital Transformation** and have given rise to the **APP ECONOMY**

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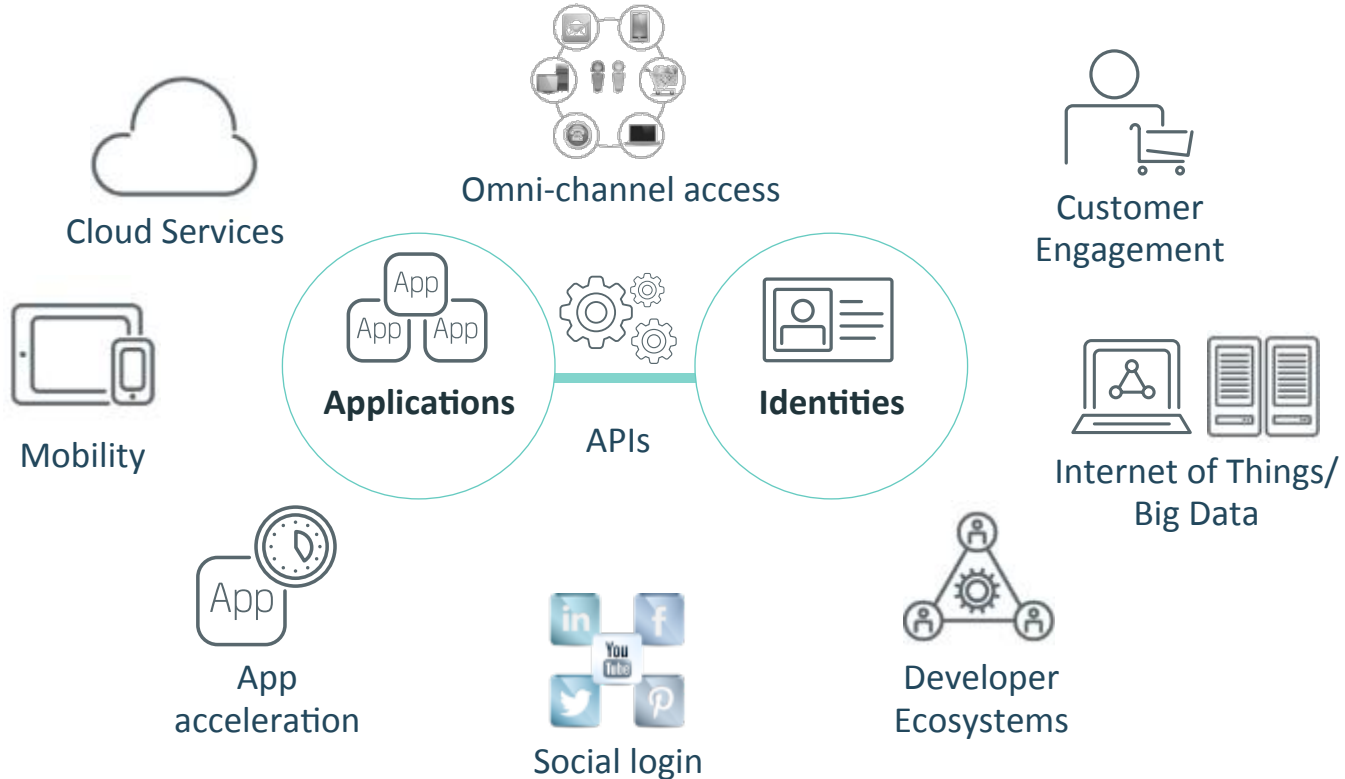# Delivering New Customer Services Over Internet Used to be All About the Browser

Retailer

DATA

WEB CONTENT EXPOSED THROUGH PERIMETER

DMZ

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No Longer – It's About the Application

SOCIAL NETWORKS

COMPUTERS

WEB

PHONES AND TABLETS

DEVICES

WEARABLE COMPUTERS

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The Application Economy

New Challenges and Opportunities

Cloud Services

Omni-channel access

Customer Engagement

Mobility

Applications

APIs

Identities

Internet of Things/ Big Data

App acceleration

Social login

Developer Ecosystems
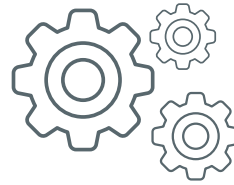
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The New "Application Economy"

IDENTITIES

You need to ensure that the right people ...using the device of their choice

APP

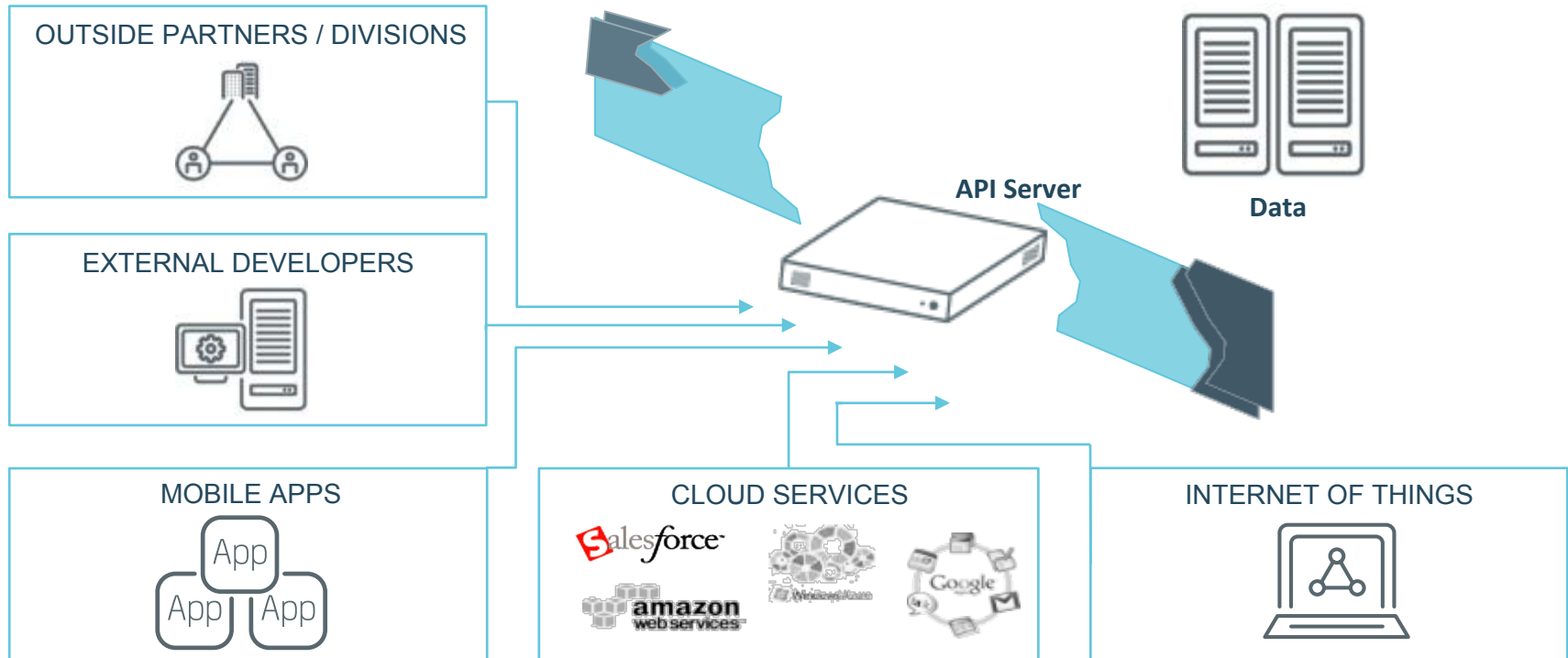...to securely access applications

API

...thru APIs

DATA

...to obtain data

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Focus on APIs

Enable Anything, Everywhere Application Access

OUTSIDE PARTNERS / DIVISIONS

EXTERNAL DEVELOPERS

MOBILE APPS

CLOUD SERVICES

INTERNET OF THINGS

API Server

Data

App
App App

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The new enterprise architects in the digital enterprise

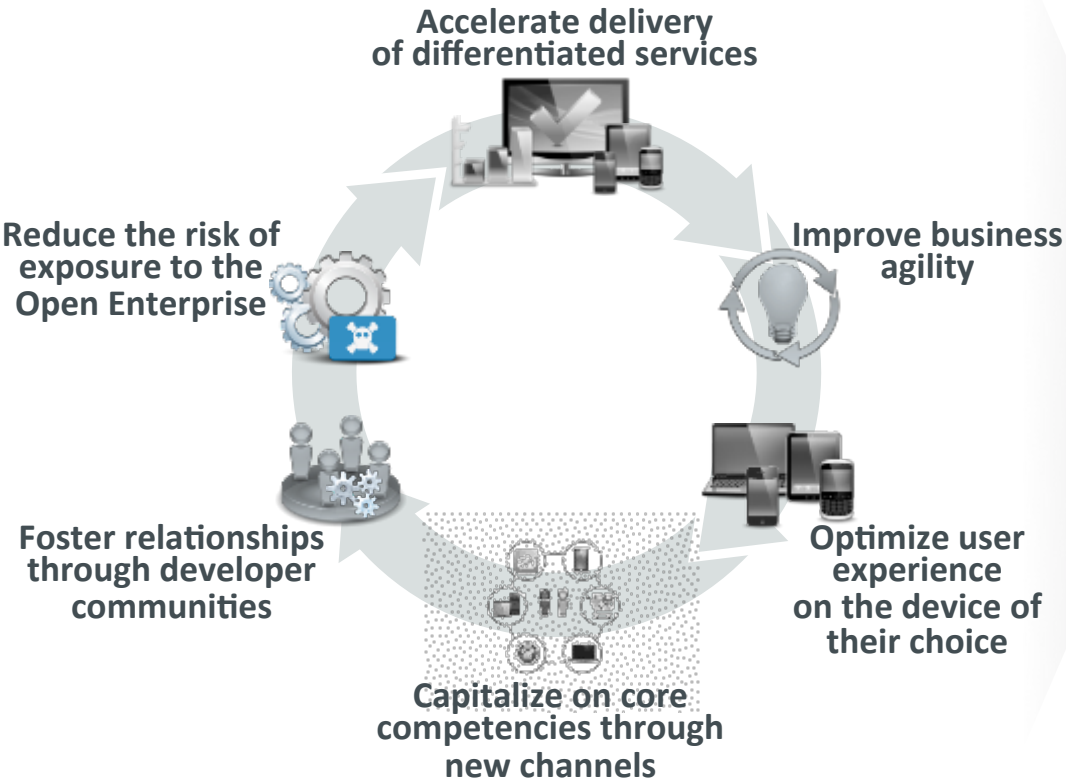| Digital Customer Experience Architect	Digital Operational Excellence Architect
• Create architecture strategy focused on customer life cycle • Collaborate on digital product and service design • Guide customer-facing technology choices	• Guide integration with ecosystem partners • Support innovation with technology and prototyping • Co-develop holistic agility strategy

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Key Business Drivers

**Accelerate delivery
of differentiated services**

**Reduce the risk of
exposure to the
Open Enterprise**

**Improve business
agility**

**Foster relationships
through developer
communities**

**Optimize user
experience
on the device of
their choice**

**Capitalize on core
competencies through
new channels**

Required Initiatives

- Seamlessly connect key apps to enterprise data

- Decouple business logic from the mobile app

- Be ready to connect to anything that processes or computes (IoT)

- Manage the API and developer lifecycle independently

- End-to-end security from the client to the backend API

- Flexible delivery models meeting specific business needs

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Weakness of legacy integration models

Legacy Integration architecture challenges

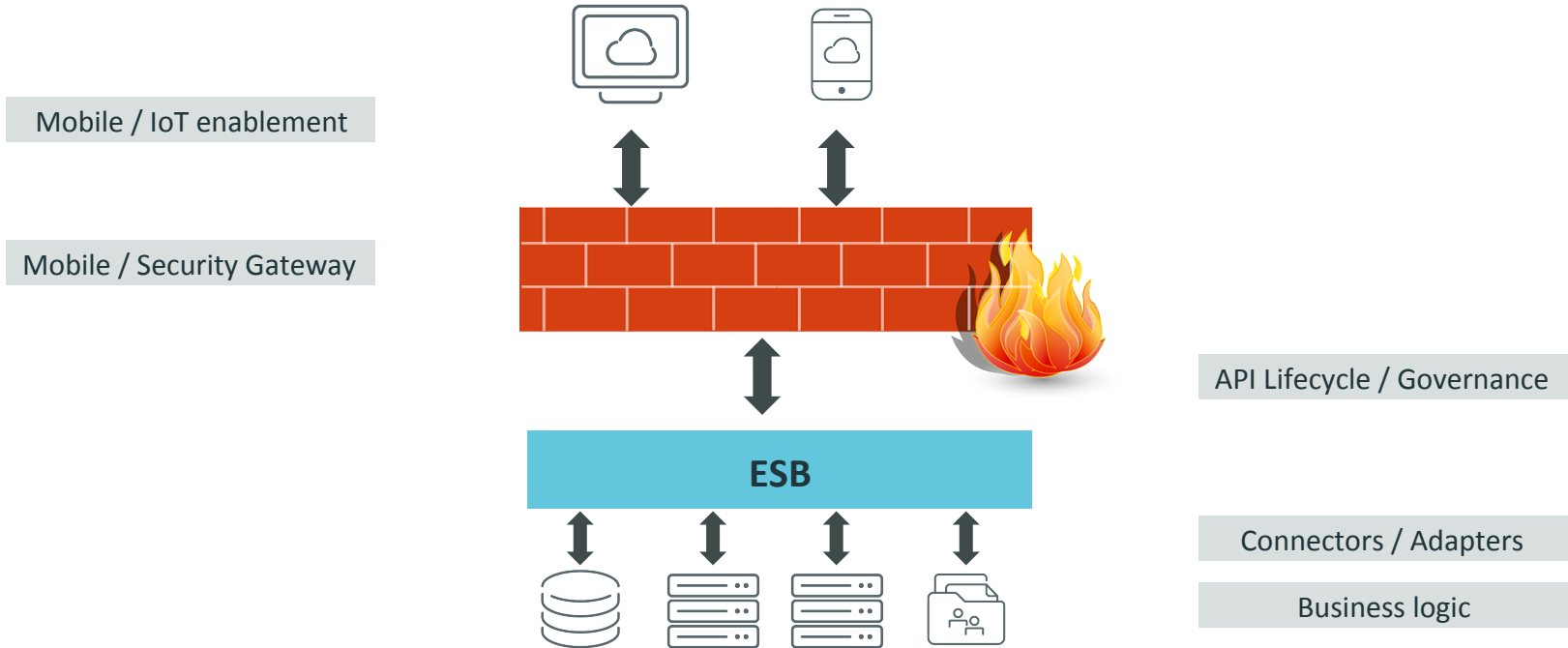Model originally developed for massive on-premises systems

Integration software in a state of flux due to cloud, mobile, big data and IoT

Unable to scale at the speed of internet and needs of mobile / IoT

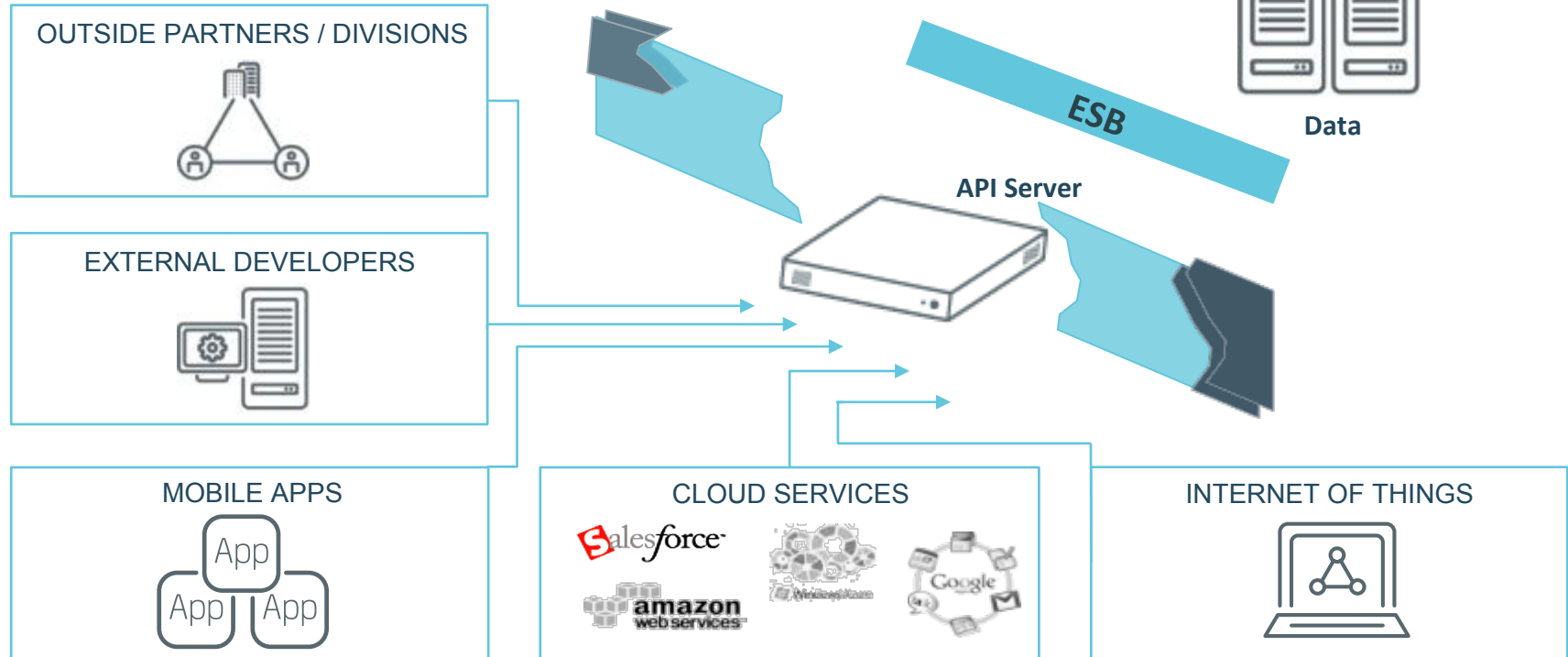Explosion of SaaS applications warrants hundreds of connectors – not scalable or maintainable

Lack of flexible security models to support internal / external threats

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ESB Architecture diagram showing gaps

Mobile / IoT enablement

Mobile / Security Gateway

API Lifecycle / Governance

ESB

Connectors / Adapters

Business logic

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API-management based architecture

Enable Anything, Everywhere Application Access

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EXTERNAL DEVELOPERS

MOBILE APPS

App

App App

CLOUD SERVICES

Salesforce

amazon web services

Windows Azure

Google

INTERNET OF THINGS

ESB

Data

API Server

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Enterprise Architect's Perspective

"Customers" are not just end users

Competition for budget is a real concern

Agility is key to success

Security requirements are unprecedented

One solution to do it all?

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Use cases

Retail use cases

- New customer channels

- Mobile apps for shopping

- Consumer info security

- Marketplaces
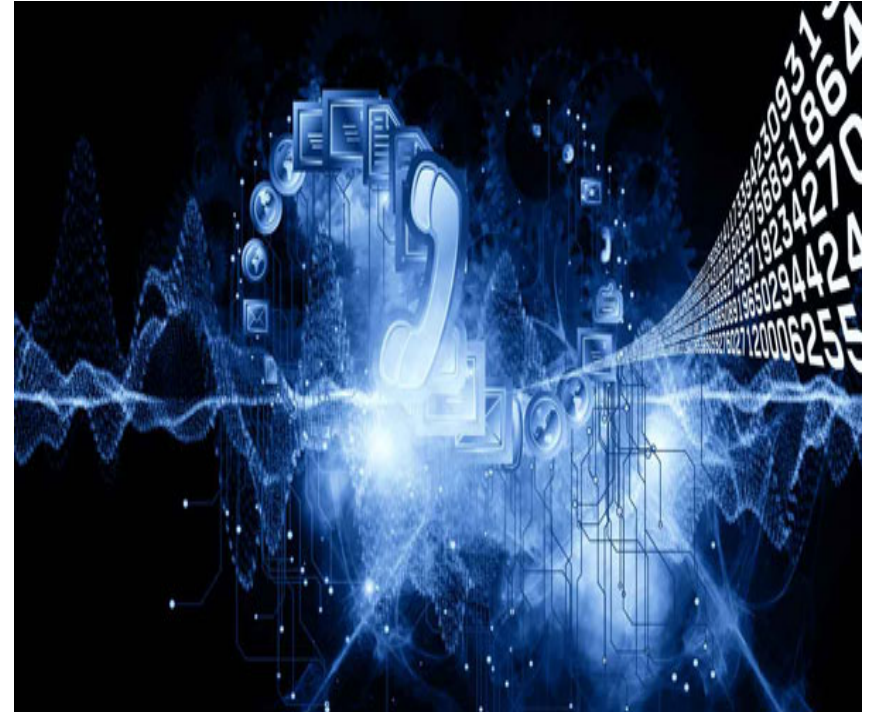
- Store integration

- Store replenishment

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Manufacturing use cases

- Partner onboarding

- Order visibility

- Mobile enablement

- Supply chain automation

- Parts fulfilment

- Inventory

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Telecom use cases

- Increase customer loyalty

- Enforce contract terms

- Usage tracking

- Managing SLAs

- Billing

- Partner enablement

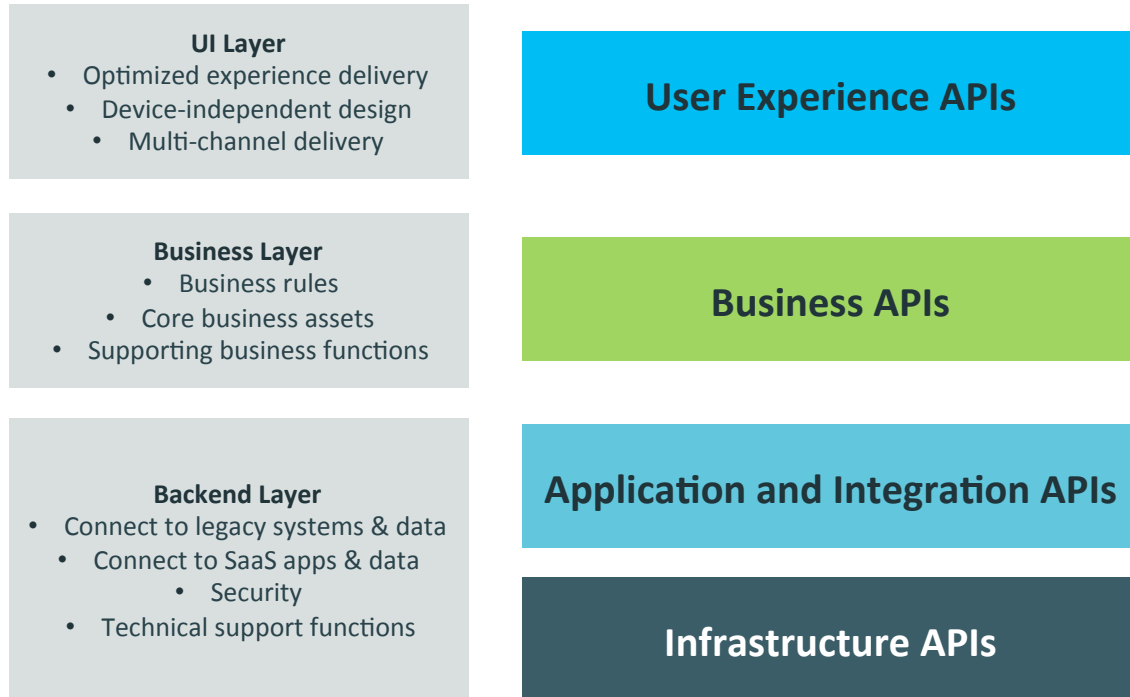# Government use cases

- Information security

- Threat protection

- Central management

- Tying down information silos

- API lifecycle management

New Strategies

Top EA initiatives

- Extend legacy systems such as ESB and SOA to support cloud/ mobile
- Implement a single architecture that supports existing infrastructure and embraces the new
- Integrate all of your digital projects with one platform for manageability
- Have a flexible future-proof platform to integrate with new technologies and standards

What is a "NoESB" architecture?

- Relatively new term coined last year

- Often misunderstood, but a useful construct when clear

- An analysis of SOA- and API-centric architectures

- Service gateway is most essential runtime component

- What does this mean for existing infrastructure?

- What if I don't have an existing infrastructure?
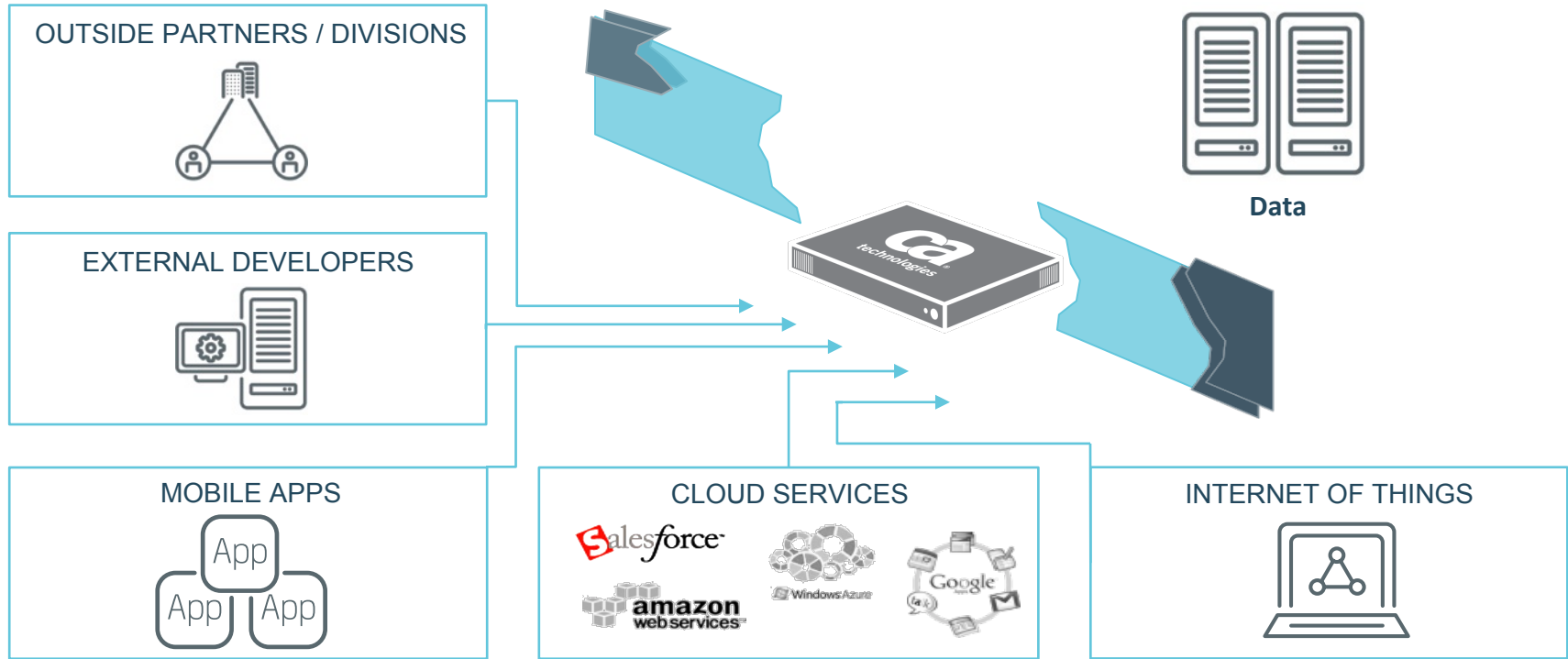
- What does this mean for future projects?

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API layers across the enterprise

UI Layer
- Optimized experience delivery
- Device-independent design
- Multi-channel delivery

User Experience APIs

Business Layer
- Business rules
- Core business assets
- Supporting business functions

Business APIs

Backend Layer
- Connect to legacy systems & data
- Connect to SaaS apps & data
- Security
- Technical support functions

Application and Integration APIs

Infrastructure APIs

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How do APIs help the EA achieve their goals?

- Bridge legacy architectures (SOA/ESB) with emerging technologies and digital initiatives

- Allow digital initiatives to access data faster, and reuse of existing systems without complex hardwired coding

- Requires a 4 phased approach that we call API360:
  – Alignment with Business Strategy
  – Designing APIs to Meet Your Customer and Developer Need
  – Architecting sustainable APIs for the future,
  – Selecting the right API Management and Security solution for success

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CA Addresses Critical API & Application Economy Needs

ENABLE APP DEVELOPERS

- Accelerate application delivery by providing flexible access
- Provide 'speed tracks with guard rails' – embed security into mobile app APIs
- Deliver portal to to define and easily expose a set of APIs for development, testing, deployment, security runtime, hosting and delivery

INTEGRATE EVERYTHING

- Streamline integration of cloud, on-premise and PaaS services
- Comprehensive, extensive mapping and protocol transformations – anything to anything
- Flexible deployment models – cloud portal and on-prem gateway

PROTECT APPs & APPLICATIONS

- Enforce authentication, access controls and authorization policies for APIs
- Secure API inputs and API outputs and provide application security, eg XSS and schema validation
- Simplify SSO and federation to apps and services through API brokering

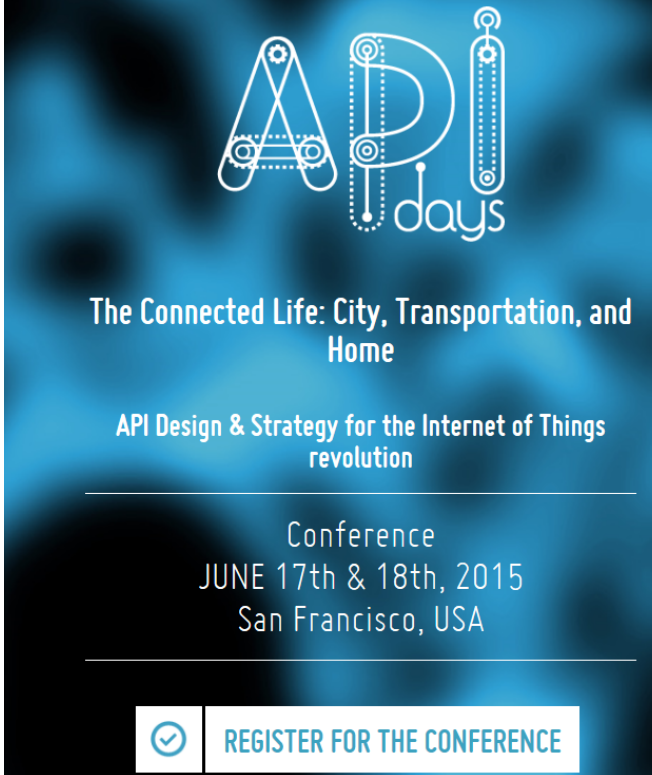## MONETIZION & THE BUSINESS OF APIS

- Easy-to-use and flexible way to generate revenue for the use of APIs
- Provide analytics and reporting on API activity
- Deliver billing system integration to facilitate a single view into APIs and billing

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Next Steps

- Visit www.ca.com/api for more product information

- Download the solution brief -
[An Architect's guide to extending your ESB and SOA environment to Mobile, Cloud and IoT"](An Architect's guide to extending your ESB and SOA environment to Mobile, Cloud and IoT)

- Download our new eBook
["An Architect's guide to API integration for ESB and SOA"](An Architect's guide to API integration for ESB and SOA)

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- Scott Morrison – Keynote

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