

While you are waiting for our webinar to begin, you might be interested in the downloads on the Attachment tab:



A copy of today's presentation



Information on how to dial in if you are unable to attend via VoIP

Have a question for our analyst? Click the Question tab. Q&A will be at the end of today's presentation.

If you have any difficulties, please email gartnerwebinars@gartner.com.

Gartner at a Glance



Foundational Principles of the Next-Generation Application Architecture for Your Future Software Initiatives

Yefim Natis
@ynatis

© 2014 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. or its affiliates. This publication may not be reproduced or distributed in any form without Gartner's prior written permission. If you are authorized to access this publication, your use of it is subject to the [Usage Guidelines for Gartner Services](#) posted on gartner.com. The information contained in this publication has been obtained from sources believed to be reliable. Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information and shall have no liability for errors, omissions or inadequacies in such information. This publication consists of the opinions of Gartner's research organization and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice. Although Gartner research may include a discussion of related legal issues, Gartner does not provide legal advice or services and its research should not be construed or used as such. Gartner is a public company, and its shareholders may include firms and funds that have financial interests in entities covered in Gartner research. Gartner's Board of Directors may include senior managers of these firms or funds. Gartner research is produced independently by its research organization without input or influence from these firms, funds or their managers. For further information on the independence and integrity of Gartner research, see ["Guiding Principles on Independence and Objectivity."](#)

Gartner

Applications created today using the good-old traditional architecture will be a business-constraining legacy before they are completed.



Digital business will demand a leap to the new excellence in IT application architecture.

Key Issues

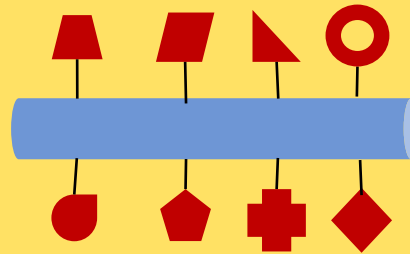
1. What new demands on IT solutions come from the emerging digital business?
2. How will software-defined architecture help IT respond to the demands of digital business?
3. What will be the core principles of digital business ready application architecture?

In the Age of Digital Business, the Demands of Business and IT Merge

Nexus-ready

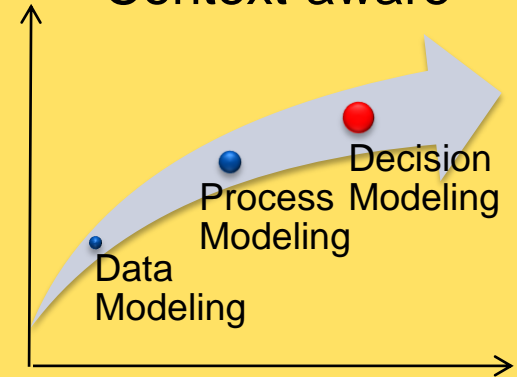


Integrated



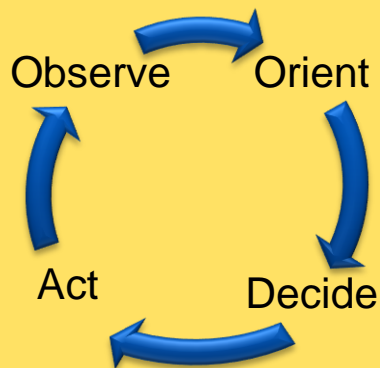
Business Diversity

Context-aware

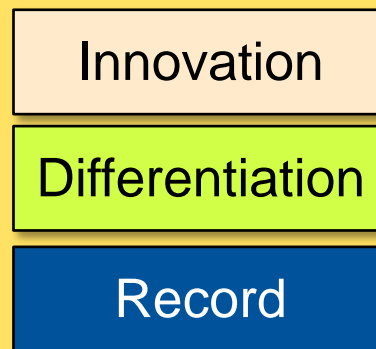


Business Analytics

Real-time

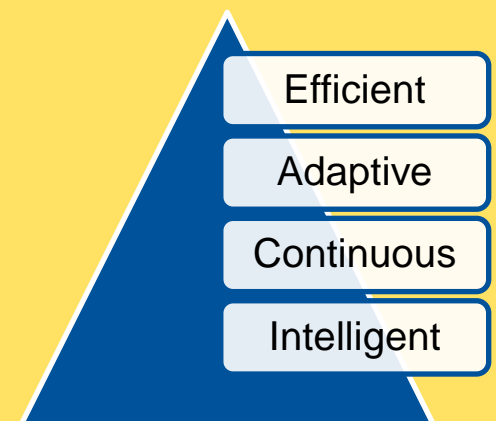


Controlled Risk



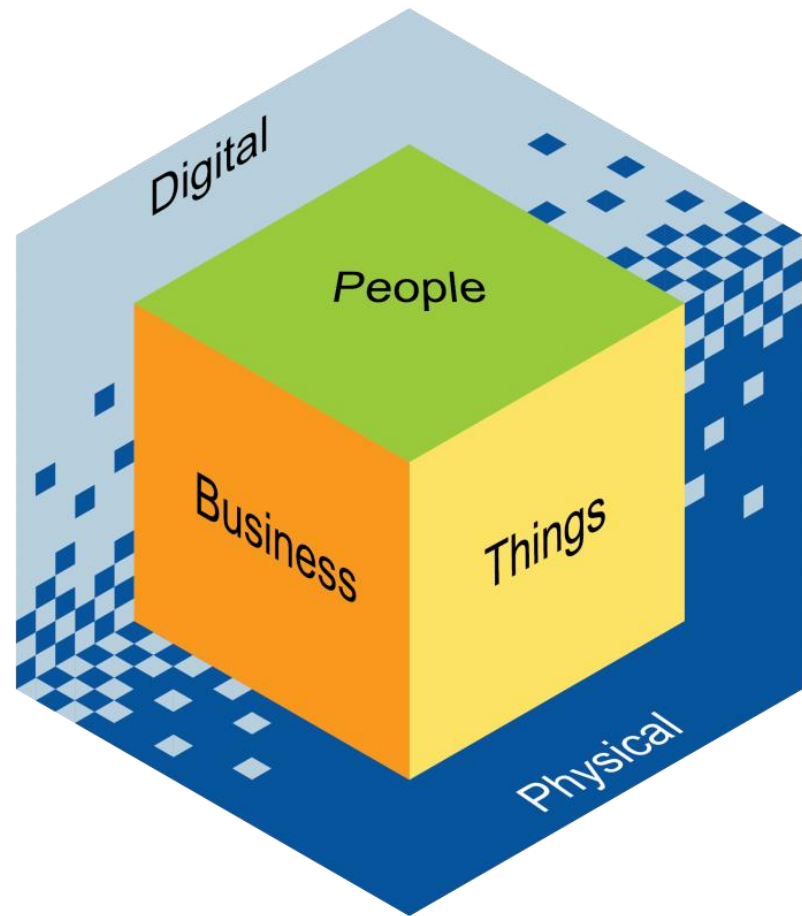
Business Risk/IT Risk

Web Scale



The Era of Digital Business

The creation of **new business designs** by blurring the digital and physical worlds



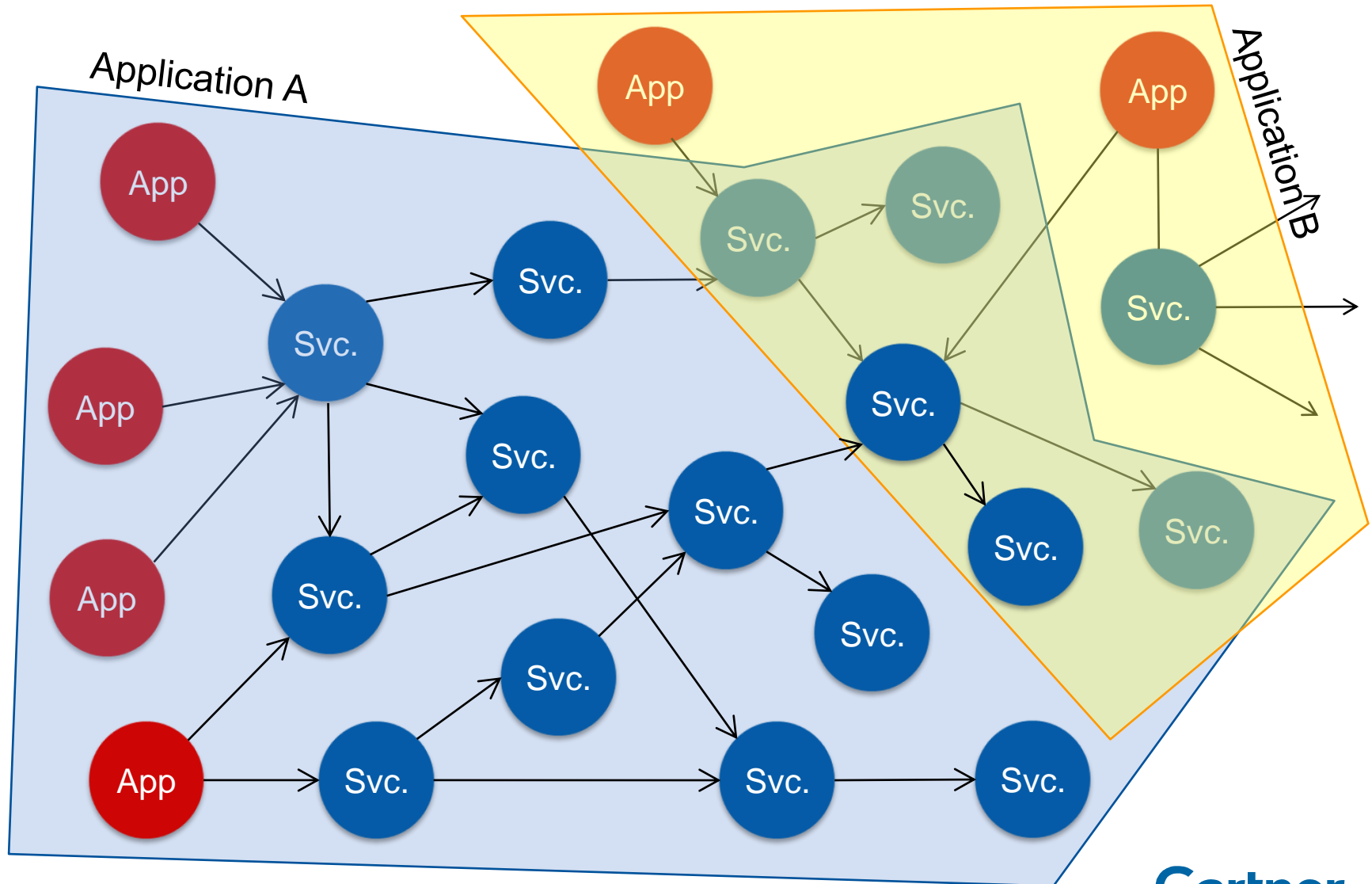
The Old Architecture Does Not Measure Up

- ✗ Monolithic design
- ✗ Over-provisioning and hoarding of resources
- ✗ Stateful
- ✗ No support of parallel or in-memory computing
- ✗ Not open for programmatic access
- ✗ Tightly-coupled
- ✗ Not modular
- ✗ Not designed for 24/7 use
- ✗ Discontinuous versioning
- ✗ Not horizontally-scalable
- ✗ Not instrumented for governance
- ✗ Single-channel front-end
- ✗ Complex
- ✗ Expensive
- ✗ Locked into platforms and vendors

Key Issues

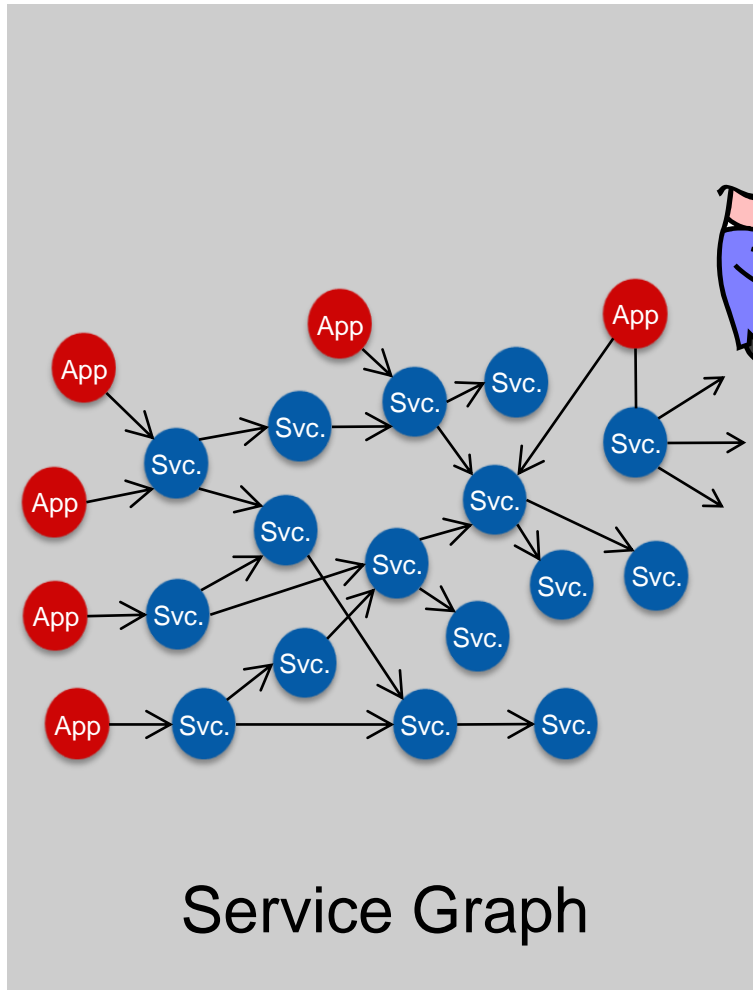
1. What new demands on IT solutions come from the emerging digital business?
2. How will software-defined architecture help IT respond to the demands of digital business?
3. What will be the core principles of digital business ready application architecture?

SOA as the Engine of Agility: The Service Graph



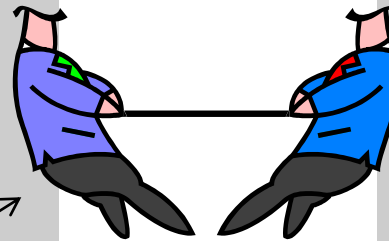
Conflicting Imperatives in Modern Application Architecture

Agility



Control

- Security
- Privacy
- Scalability
- Availability
- Quality of service
- Version control
- Compliance
- Event detection
- Activity monitoring
- Integration
- Orchestration
- Intelligence injection
- Resource management



Emerging Software-defined Architecture



Application Plane

Control Plane

Physical Plane

- Software-defined networking (SDN) 2008
- Software-defined data center (SDDC) 2012
- Software-defined storage (SDS) 2013
- Software-defined security perimeter (SDSP) 2014

Software-defined Architecture: Control Plane Translates and Adds Value



The diagram illustrates the three layers of Software-defined Architecture as three stacked, slightly offset rectangular planes. The top plane is red and labeled 'Application Plane'. The middle plane is yellow and labeled 'Control Plane'. The bottom plane is blue and labeled 'Physical Plane'. A vertical line on the right side of the planes connects the 'Control Plane' to the list of capabilities on the right.

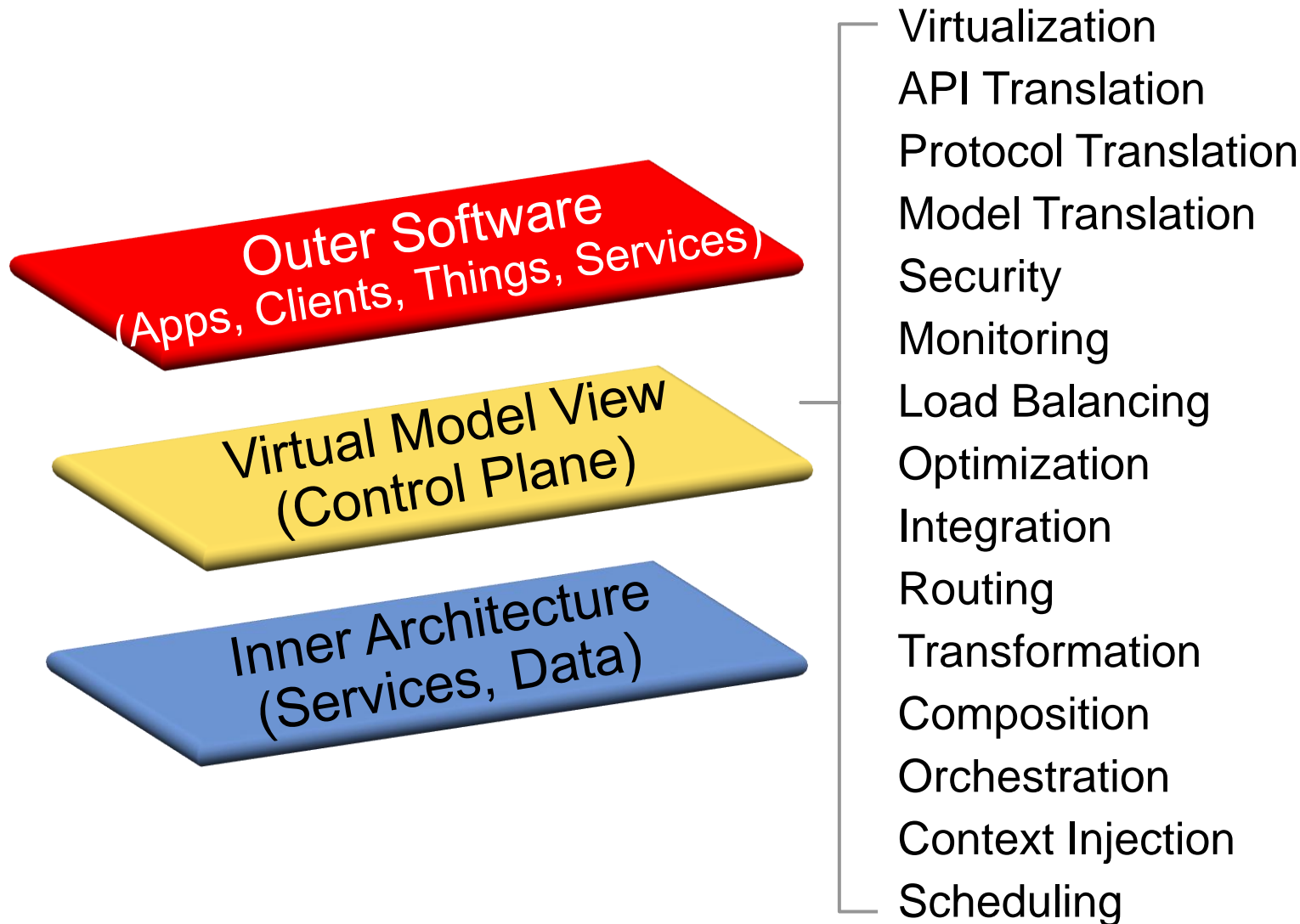
Application Plane

Control Plane

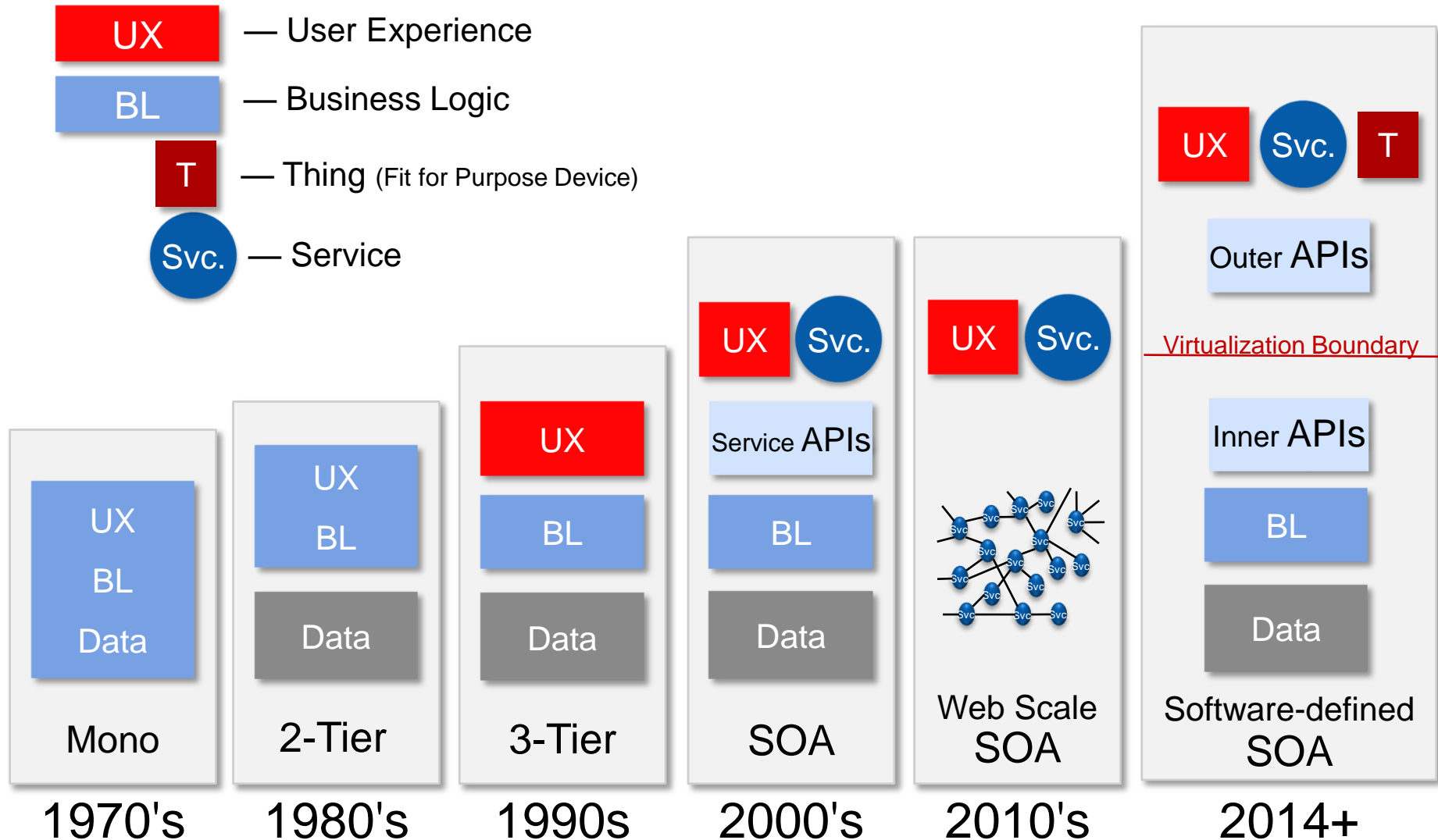
Physical Plane

- **Resource virtualization** —
Decoupling of the control plane from the physical plane.
- **Resources as a service** —
Resources are pooled and allocated as needed. They are provisioned, operated, and managed through an API.
- **Managed resources** —
Intelligent software monitors utilization and performance. Dynamically responds to anomalies. Enables agility, automation and dynamic reconfiguration. Improves efficient resource utilization.
- **Injection of additional capabilities** —
Improves quality, increases robustness, enforces policy at the source.

Software-defined Architecture for Applications: The Gateway Takes Control



Software-defined Applications on the Application Architecture Road Map

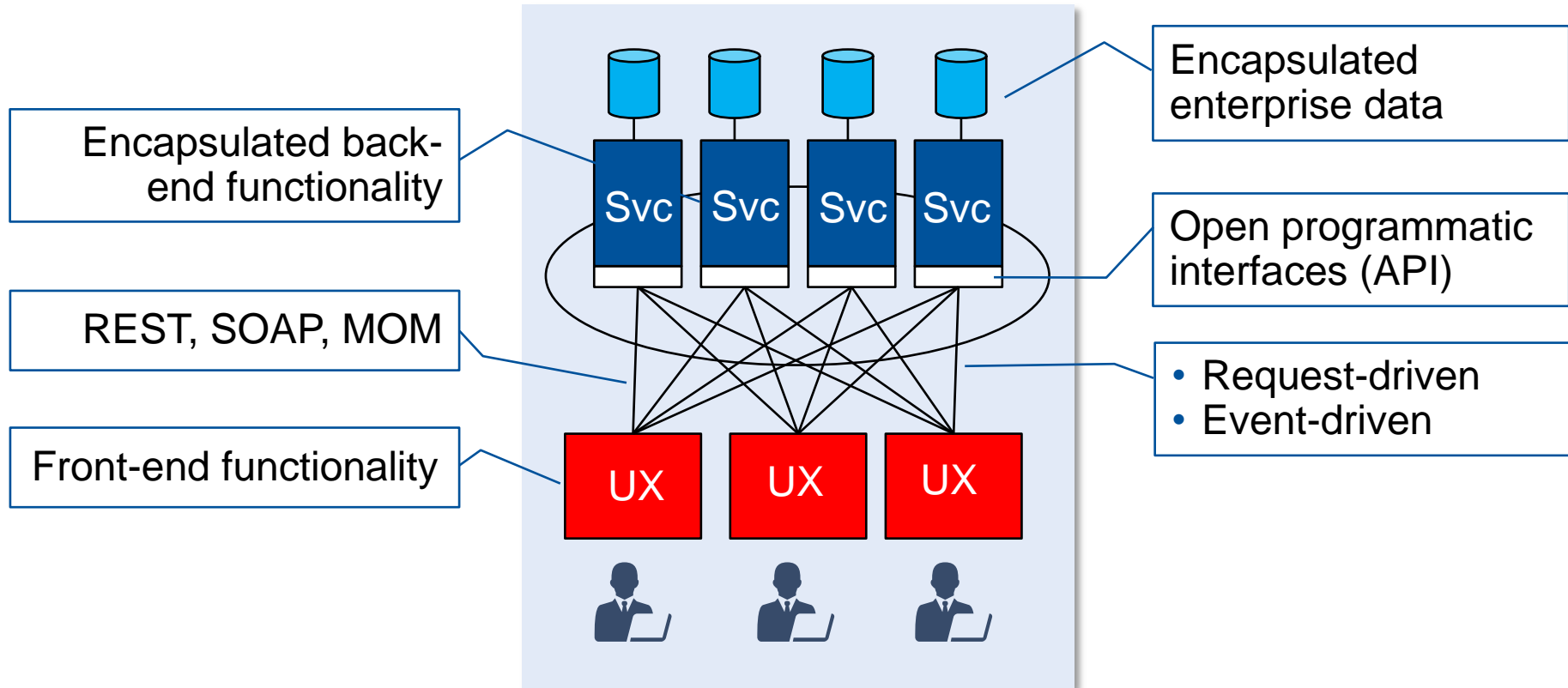


Key Issues

1. What new demands on IT solutions come from the emerging digital business?
2. How will software-defined architecture help IT respond to the demands of digital business?
3. What will be the core principles of digital business ready application architecture?

Step Up to Digital Business:

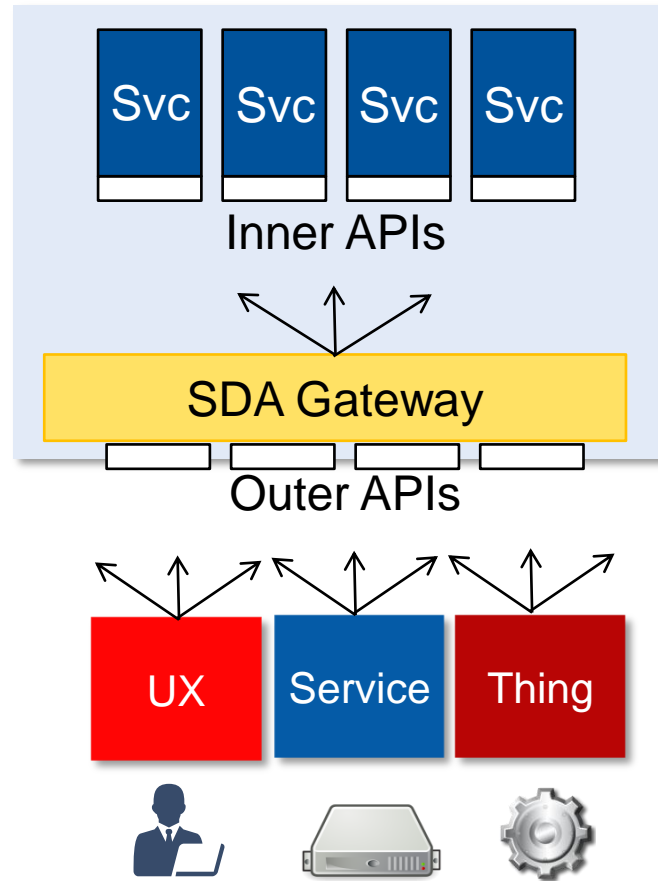
1. Services, the Starting Point



Standardize, Compose, Integrate, Scale,
Channel, Reuse, Replace

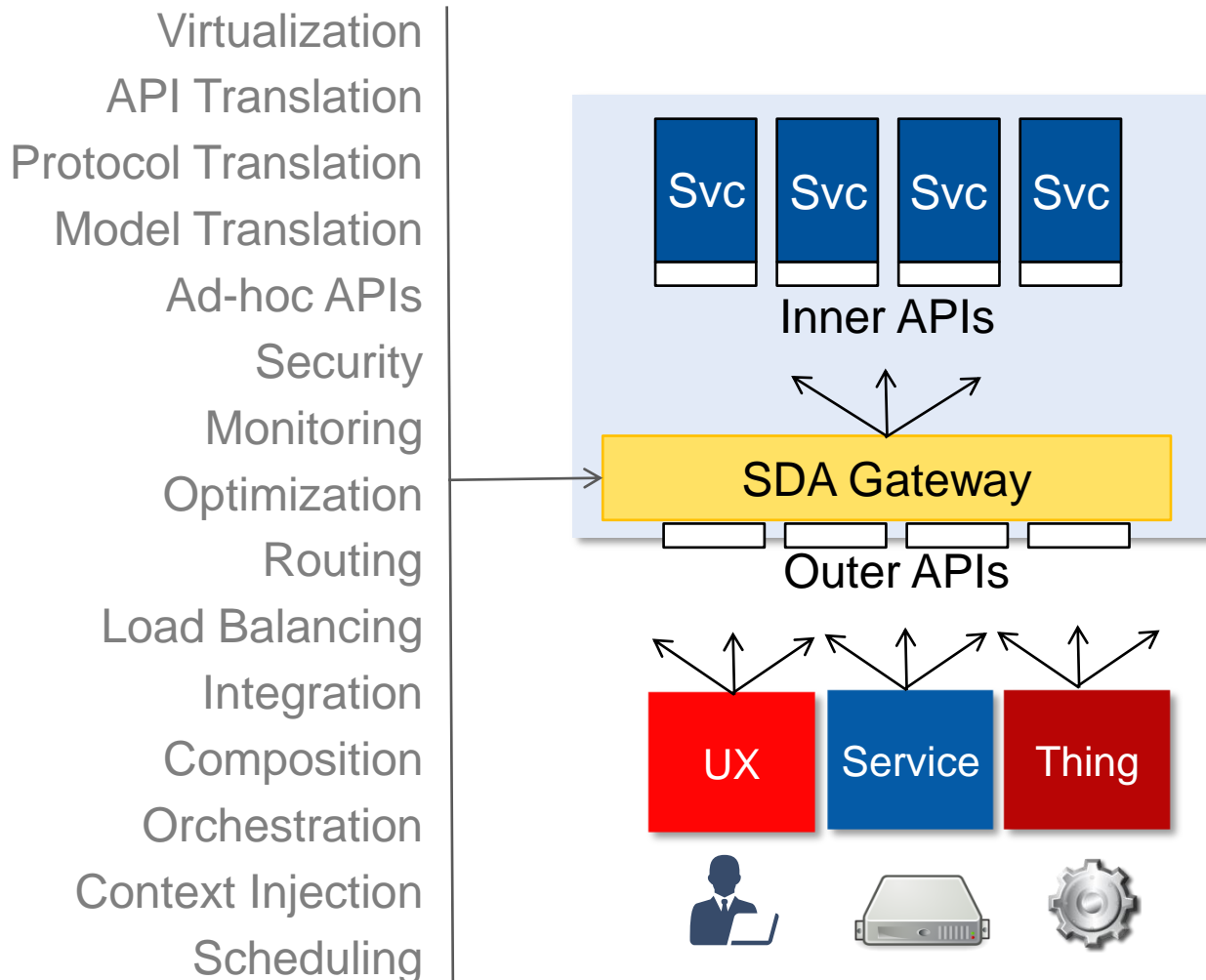
Step Up to Digital Business:

2. Software-defined Architecture for Applications



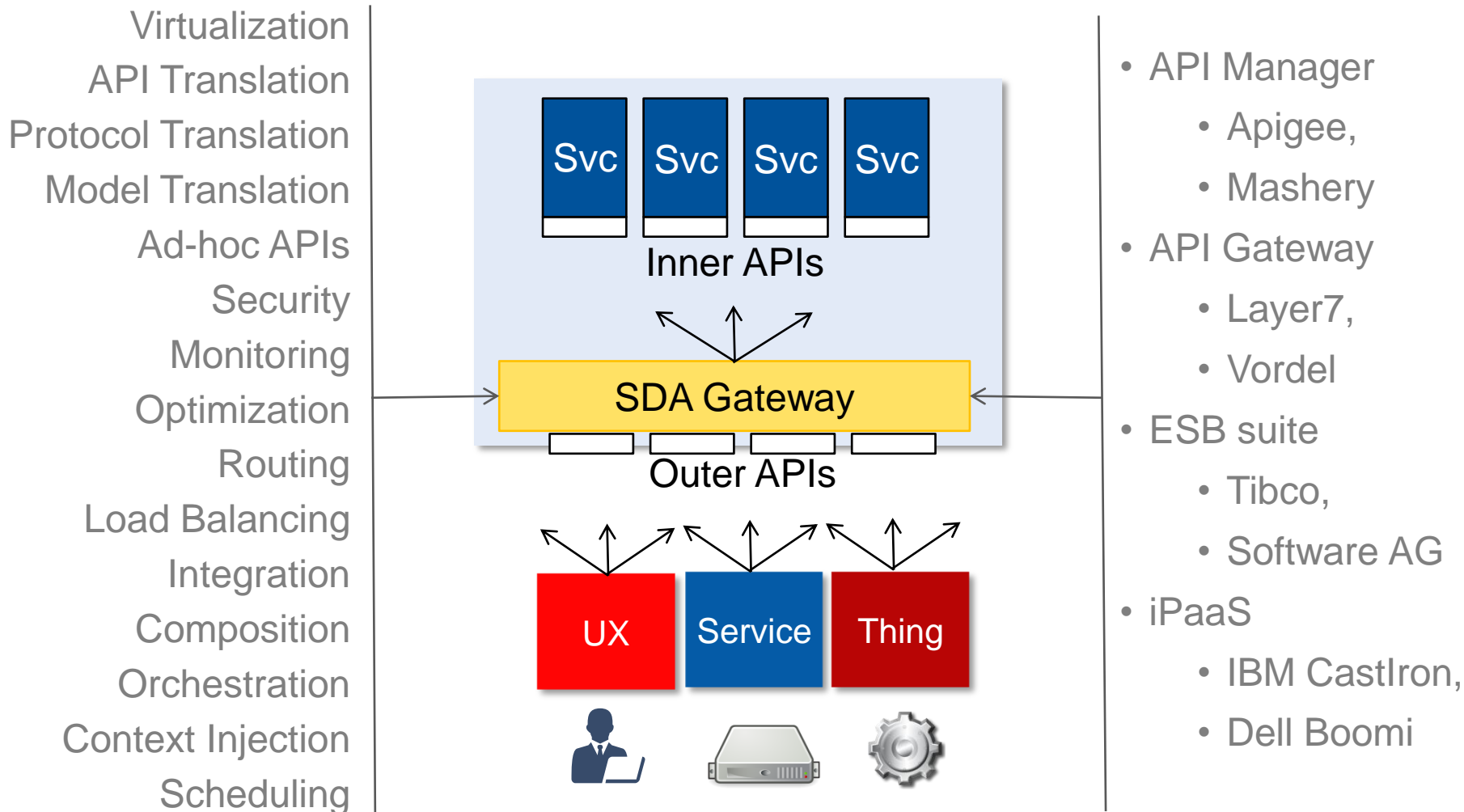
Step Up to Digital Business:

2. Software-defined Architecture for Applications



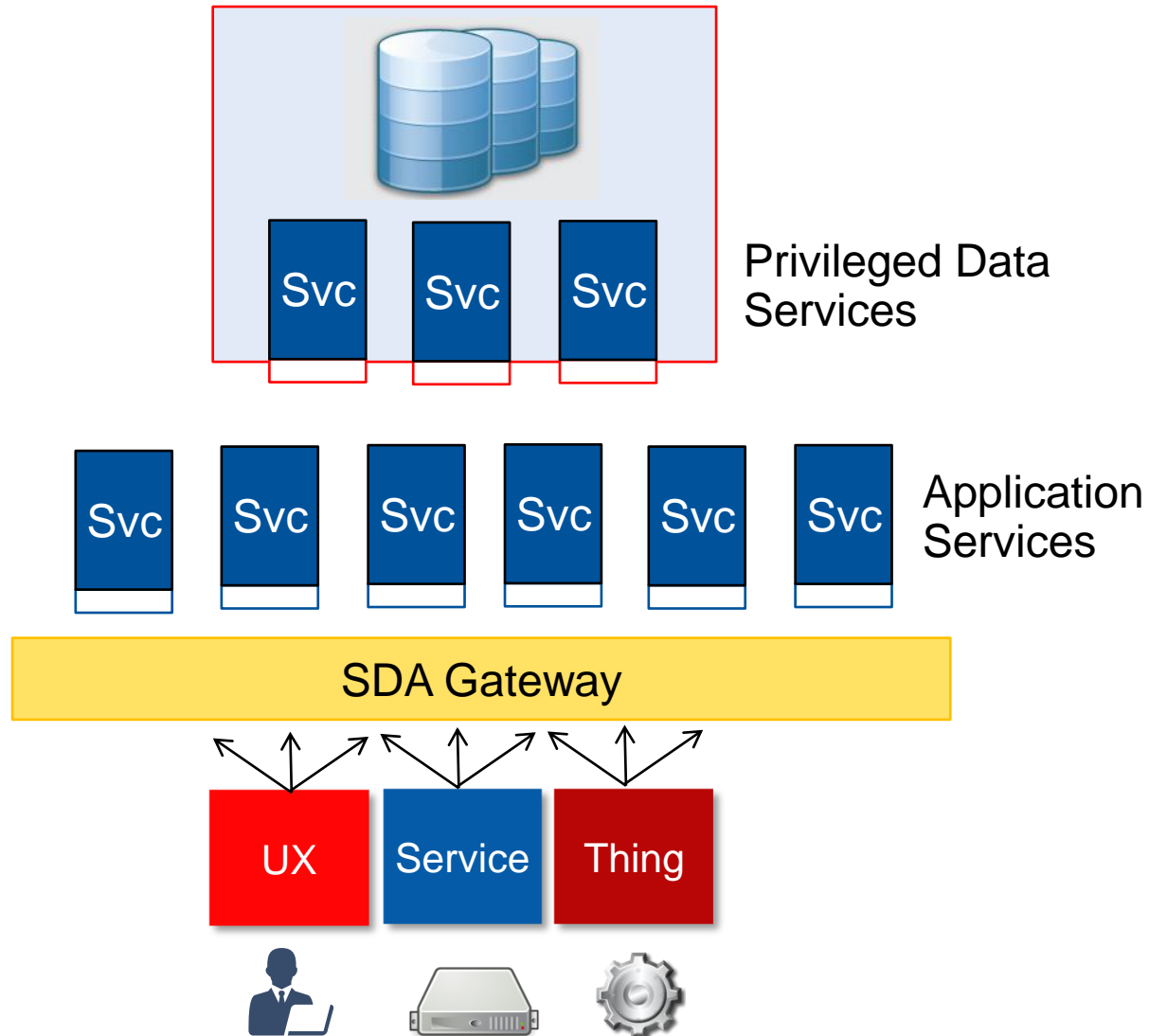
Step Up to Digital Business:

2. Software-defined Architecture for Applications



Step Up to Digital Business:

3. Guard Your Data



Step Up to Digital Business:

4. Think Mobile/Think Cloud

Front-end

Think Mobile

- Consumer-grade user experience
- Consider user in context
- Service-oriented
- Event-driven
- Reduced chattiness
- Minimal message sizes
- Multidevice
- Loosely-coupled
- Frequently changed
- Fast attrition
- Intermittent access

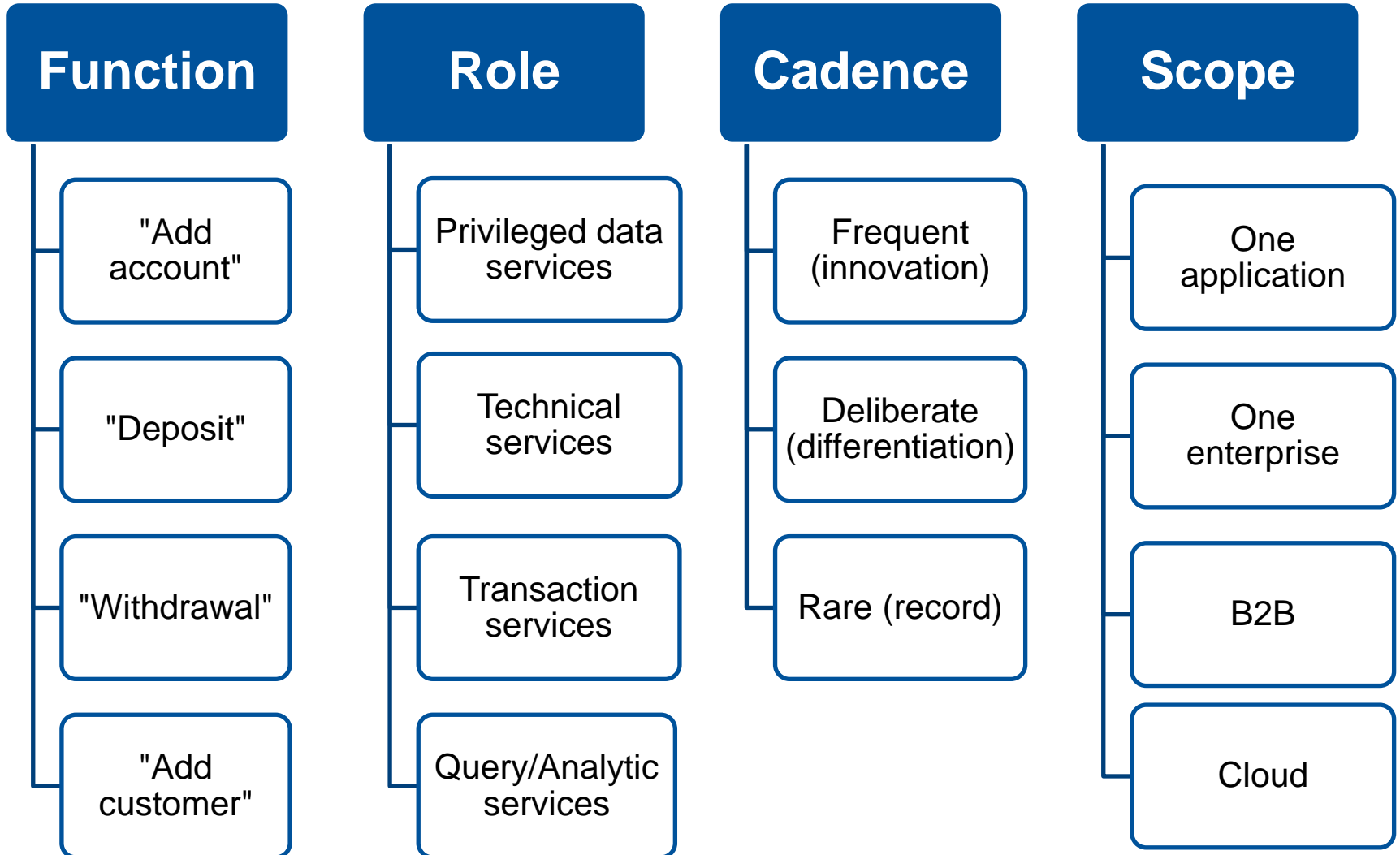
Back-end

Think Cloud

- Service-oriented
- Loosely coupled
- Stateless and "hoardless"
- Multitenant ready
- Event-driven
- Continuously versionable
- Parallel and in-memory ready
- Instrumented for governance
- Low chattiness
- Frugal use of resources
- Platform-independent
- Composed and composable
- Public access ready

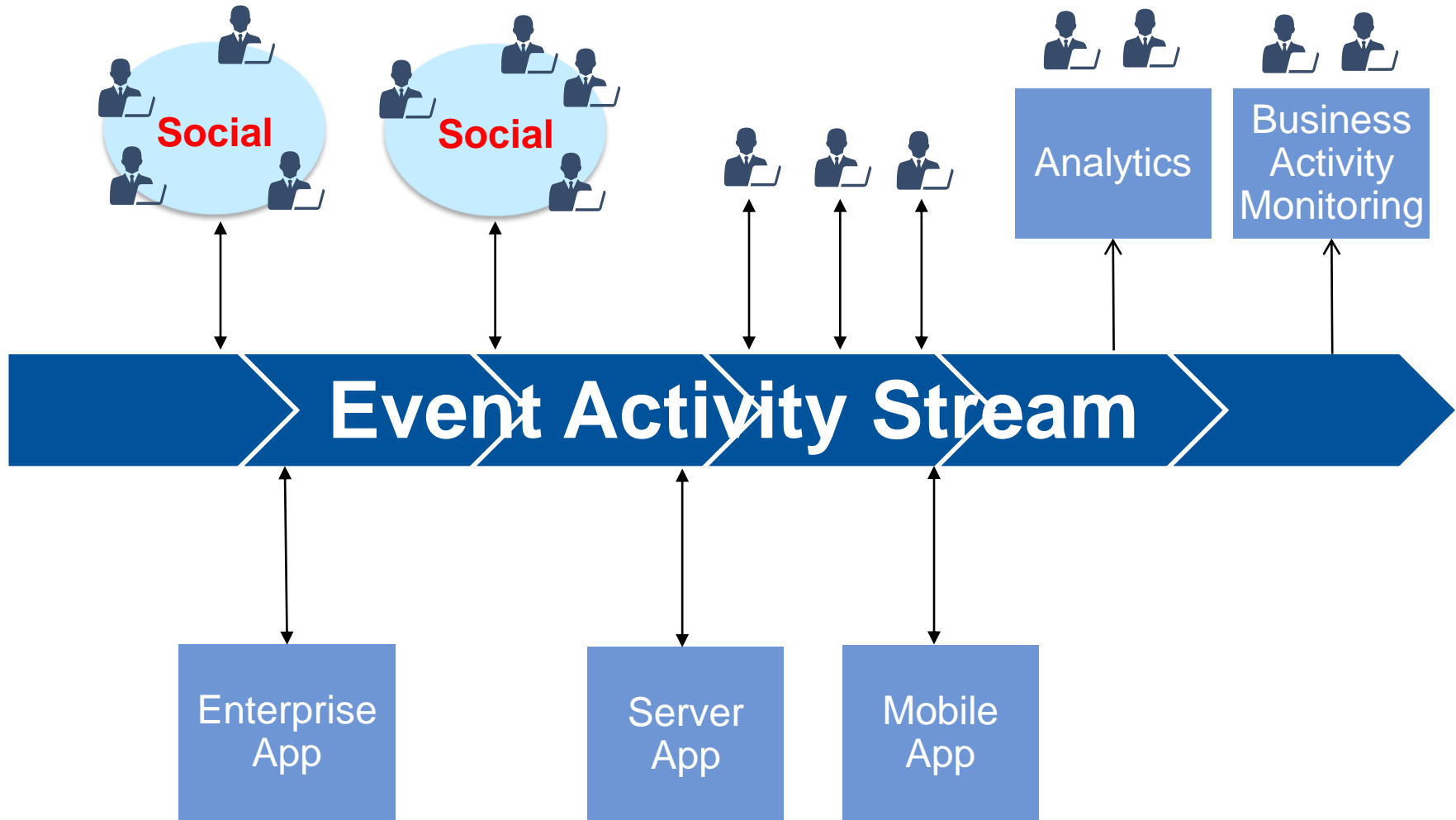
Step Up to Digital Business:

5. Divide and Conquer by Separation of Concerns



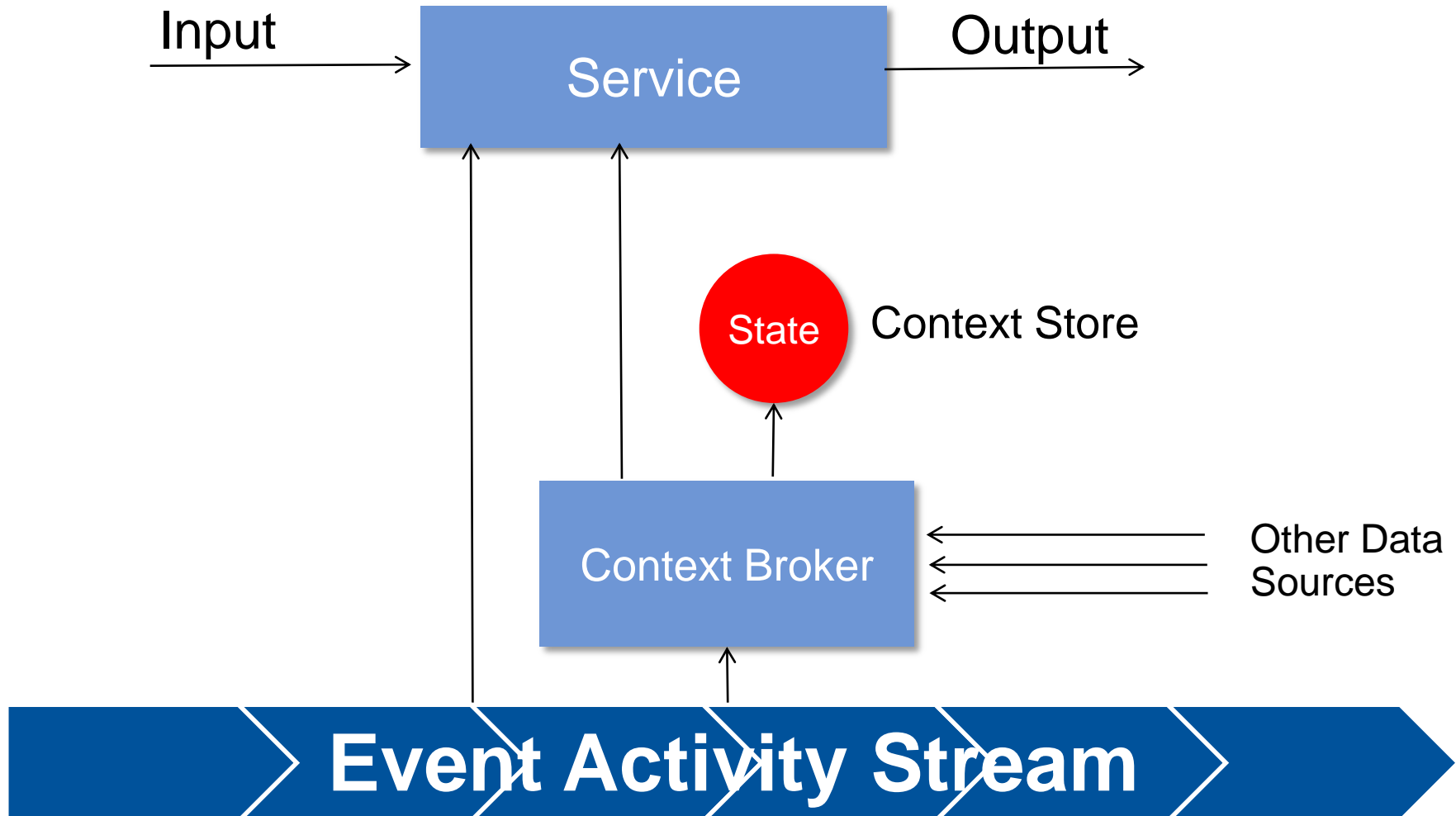
Step Up to Digital Business:

6. Use Event Processing in the Eventful World



Step Up to Digital Business:

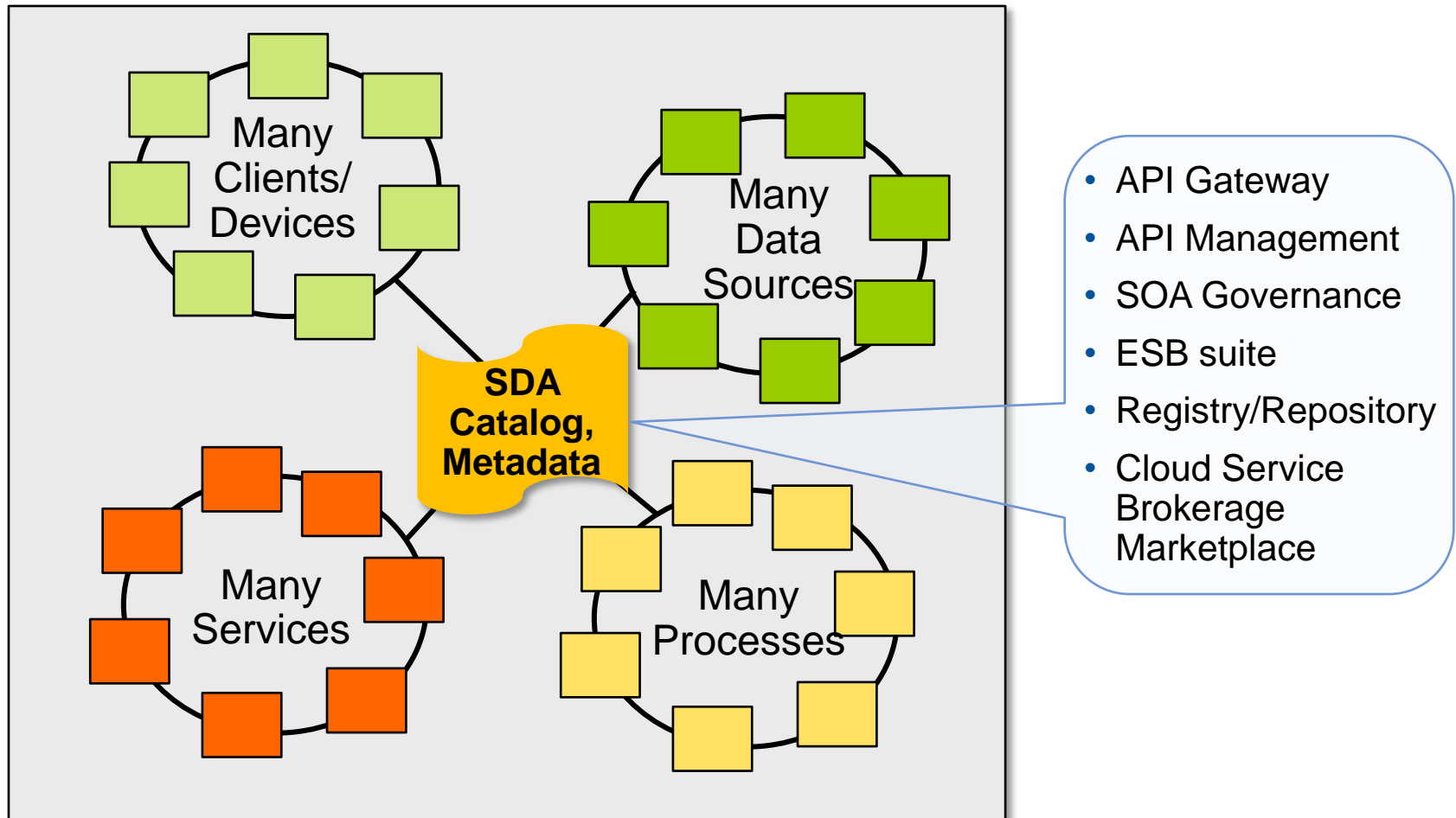
7. Automate Context Management



Step Up to Digital Business:

8. Build and Control a Service Ecosystem

One Service Ecosystem



The Bottom Line 1: Mind Your Architecture

Digital Business Architecture Principles

1. Build on SOA	Plan for modular, distributable, discoverable, shareable and replaceable services
2. Adopt software-defined application architecture	Establish a multifunctional gateway for virtualization and control of application services
3. Guard your data	Control direct access to data by authorizing a small number of privileged highly-controlled data services
4. Think cloud first, mobile first	All services in the cloud scale, all user experience in the mobile "lifestyle"
5. Implement separation of concerns	Separate services by role, cadence, semantic content, scope and more
6. Use event-driven architecture	Implement event processing to support real-time operations and devices
7. Inject context-awareness	Seek context to support situation-aware operations
8. Build and Control a Service Ecosystem	Control your ecosystem of resources, use them and let them be used safely

The Bottom Line 2: Change Starts With People

Cultural Change

Fight the not-invented-here syndrome

Think open, avoid fiefdoms and stovepipes

Socialize, listen, crowdsource and be transparent

Experiment, be systematically opportunistic

Avoid rigid architecture policies: Plan, act, learn and change

The Bottom Line 3: "Curb Your New Architecture Enthusiasm"

Reality Check

Avoid grandiose new architecture plans, build in-house expertise and culture gradually

Do not re-architect legacy systems for the sake of re-architecting: most old systems should be wrapped, then replaced.

Establish well-understood objectives to new architecture initiatives

Prepare to measure degree of success before starting on with the new architecture initiative

Do not over-design your systems of innovation or under-design the systems of differentiation or record

Recommended Gartner Research

- ➔ [Stepping Up to the Nexus of Forces With Nexus-Enabled Application Architecture](#)
Yefim V. Natis (G00238857)
- ➔ [The Nexus Effect and How the Nexus of Forces Alters Established Architecture Models](#)
Yefim V. Natis (G00238661)
- ➔ [Transform Your Business With the Nexus of Forces](#)
Chris Howard and others (G00262353)
- ➔ [Service-Oriented Architecture](#)
Anne Thomas Manes (G00253586)
- ➔ ["Service Oriented" Architectures, Part 1](#)
Roy Schulte and Yefim V. Natis (G0029201)
- ➔ ["Service Oriented" Architectures, Part 2](#)
Roy Schulte (G0029202)



Events for Application Professionals

Experience live analyst expertise plus much more at a Gartner event.

Gartner Portals, Content & Collaboration Summit 2014

5 – 7 May, Los Angeles, CA

15 - 16 September, London, UK

Gartner Customer 360 Summit 2014

19 - 21 May, Orlando, FL

Gartner Application Architecture, Development & Integration Summit 2014

19 – 20 May, London, U.K.

21 - 22 July, Sydney, Australia

8 - 10 December, Las Vegas, NV

Gartner Catalyst Conference

17 - 18 June, London, UK

11 - 14 August, San Diego, CA

Visit gartner.com/events



SYMPOSIUM/ITXPO

THE WORLD'S MOST IMPORTANT GATHERING
OF CIOs AND SENIOR IT EXECUTIVES

Symposium is Gartner's flagship conference and the industry's leading event for CIOs and senior IT and business strategists.

It delivers independent and objective content with the authority and weight of the world's leading IT research and advisory organization, and provides access to the latest solutions from key technology providers.

Symposium is the industry's only event to deliver the insight, tools and relationships necessary to create, validate and execute transformative business technology strategies.

Select a location to experience what IT's all about.

- Hundreds of analyst-led sessions, workshops, how-to clinics and more
- Role-based tracks designed to address your key priorities and challenges
- Immediately actionable take-aways—a clear action plan for the next three, six and 12 months
- Mastermind Interview Keynotes with industry leaders
- ITxpo exhibit floor with hundreds of top solution providers and exciting startups



September 10 -12	Cape Town, South Africa
October 5 – 9	Orlando, FL
October 14 - 17	Goa, India
October 27 - 29	Tokyo, Japan

October 28 - 30	Sao Paulo, Brazil
November 9 - 13	Barcelona, Spain
November 17 - 20	Gold Coast, Australia



Visit gartner.com/symposium

Simple steps for increasing the value of today's webinar experience



Today's presentation is available to download on the Attachment tab of our webinar portal and on our webinar page.



Visit gartner.com/webinars

Check out the schedule of upcoming Gartner webinars (plus on-demand webinars) and don't forget to share these resources with your colleagues.

Contact your Gartner account executive with any additional questions, comments or for a complimentary copy of today's presentation.