

## Cloud Computing and SOA Convergence



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# Cloud Computing and Sons of Anarchy (SOA) Convergence





MARCH 02, 2012

## Redefining cloud computing -- again

**Hype, misuse, and misplaced aspirations have clouded the term's definition. Here's what it's really about**

By [David Linthicum](#) | [InfoWorld](#)

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Back in August, I [declared the term "cloud computing" officially meaningless](#) because of its extensive overuse and misuse. No matter what a vendor sold, it was somehow "cloud computing." These days, when somebody wants me to define "cloud computing," I fight the urge to eject them from the conference room. It's so widely defined, and thus so vague, that providing a crisp definition is nearly impossible.

More disturbing, there seems to be an increasing overuse of cloud computing concepts as saviors for all past IT mistakes. Pushing cloud computing as the way to solve all, or even most, computing problems reveals those who make such statements as less than credible.

[ [Read InfoWorld's seminal definition of cloud computing.](#) | In the data center today, the action is in the private cloud. InfoWorld's experts take you through what you need to know to do it right in our "[Private Cloud Deep Dive](#)" PDF special report. | Also check out our "[Cloud Security Deep Dive](#)," our "[Cloud Storage Deep Dive](#)," and our

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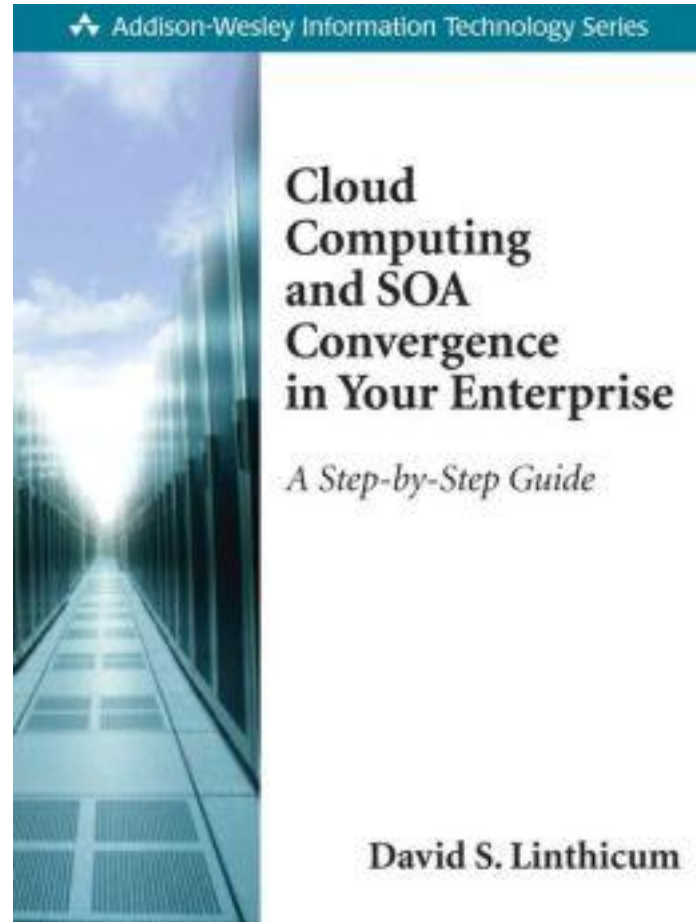
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# The Book



# So, what is cloud computing?

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Architecture?

Technology?

Use cases?

What will it be soon?



# From Hype to Growth

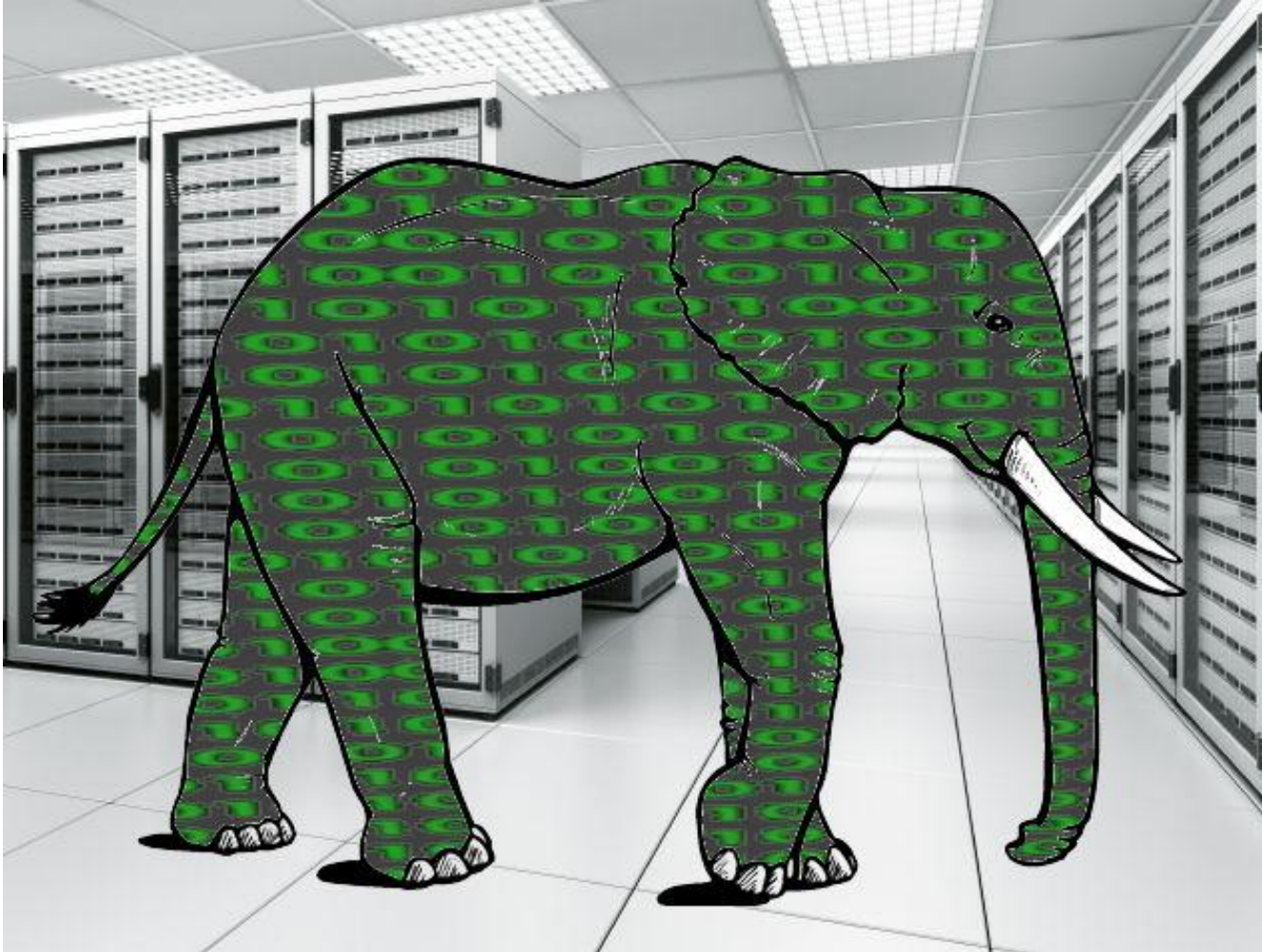
Public Cloud Services Market and Annual Growth Rate, 2010-2016



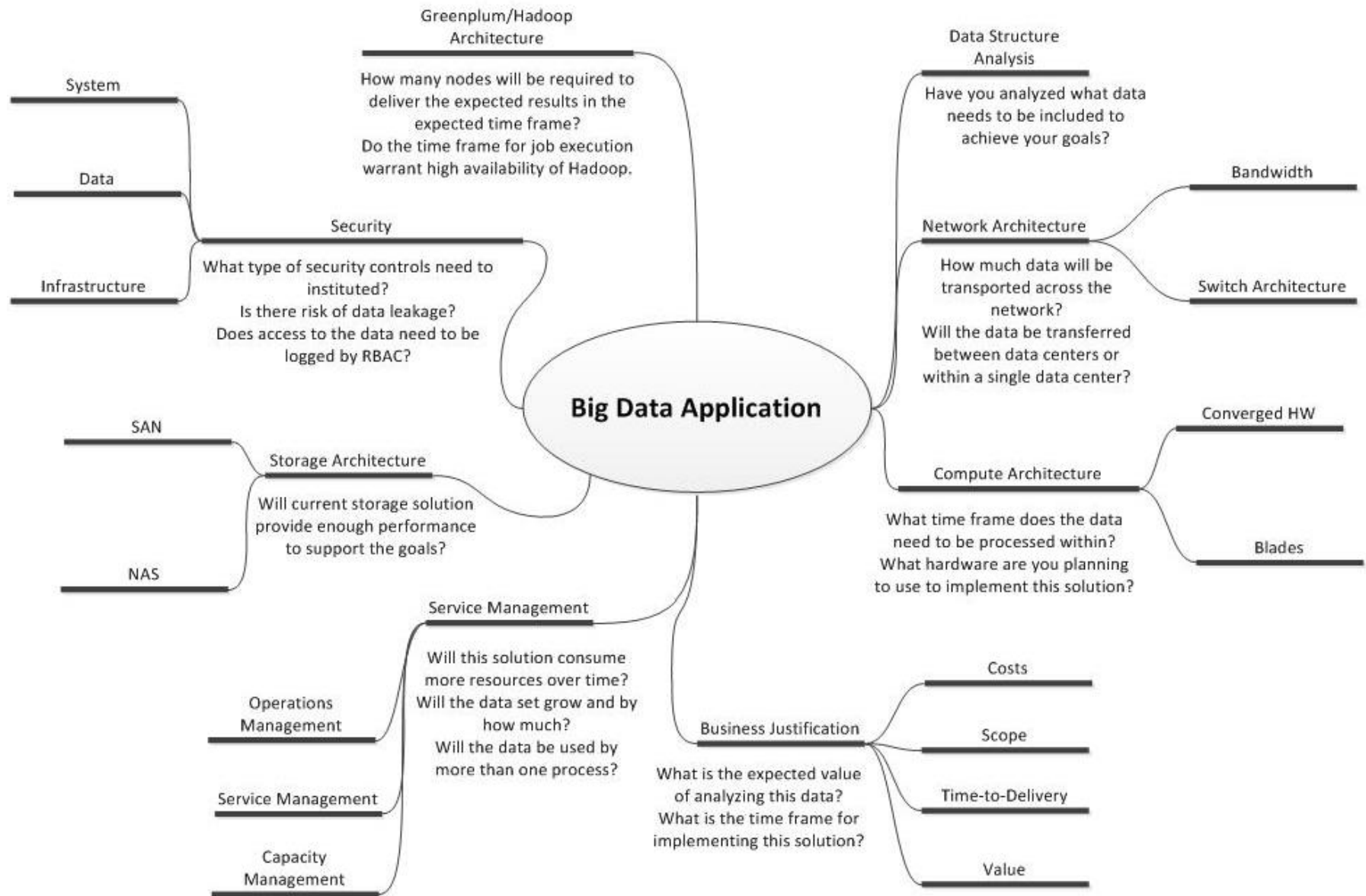
Source: Gartner (February 2013)



# Data is the “Killer App” for Cloud



# Touchpoints of a Conversation Around Big Data



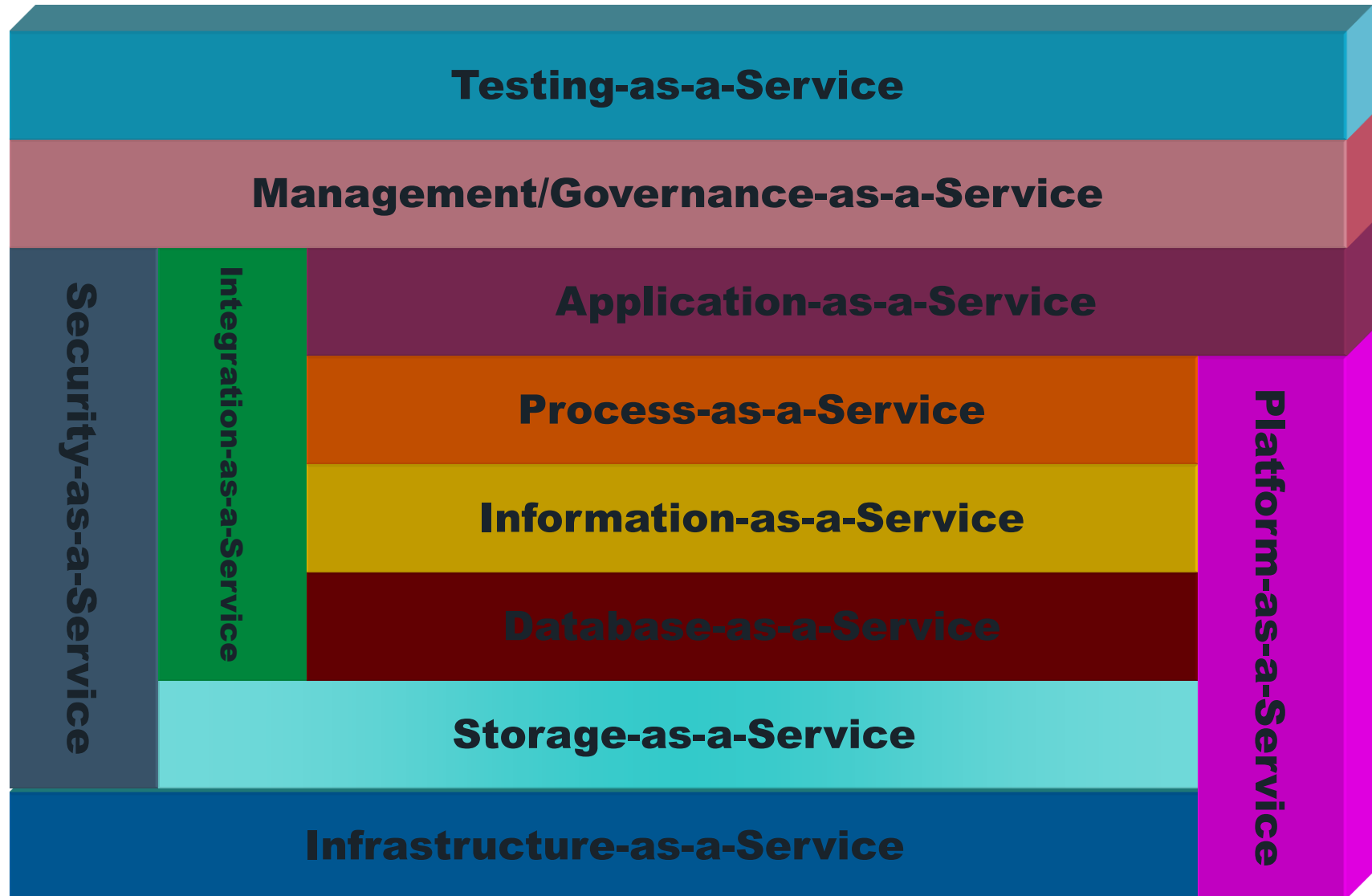


# Delivery Models Morphing

- Software as a Service (SaaS)
  - Applications as a Service
  - Utilities as a Service
  - Connected and Disconnected
- Platform as a Service (PaaS)
  - Design as a Service
  - Process as a Service
  - Testing as a Service
- Infrastructure as a Service (IaaS)
  - Database as a Service
  - Management as a Service
  - Middleware as a Service
  - Integration as a Service
  - Information as a Service
- ...And more.



# New Stack Emerging



# What Works in the Cloud

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- The ability to expand storage quickly, and at a lower cost.
- DevOps, around the use of PaaS.
- Large and highly expandable data systems.
- SaaS-delivered enterprise applications.
- New or small business support.
- High performance computing on-demand.
- Office automation applications.



# What Does Not Work in the Cloud

- Most legacy system migrations.
- Systems that require a high degree of security.
- Systems that are subject to a lot of regulatory control.
- Systems that need to be tightly integrated with local systems and data.
- Enterprises that have made a significant investment in hardware and software.
- Enterprises with substandard network infrastructure.



# Cloud Computing is Becoming Systemic

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# Evolution of Cloud Computing

- Buzzword “cloud computing” is absorbed into computing.
- Focus on fit and function, and not the hype.
- Security moves to “centralized trust” models.
- Centralized data becomes a key strategic advantage.
- Mobile devices become more powerful, but thin.
- The rise of the “composite cloud.”

The screenshot shows the InfoWorld website interface. At the top, there's a blue header with the 'InfoWorld' logo and navigation links like 'News', 'Blog', 'White Papers', 'Webcasts', 'Test Center', and 'Technologies'. A user is logged in as 'David Linthicum'. Below the header is a red banner for 'AVAYA' with the tagline 'Bring the right people together in real-time. Avaya. The Power of V'. The article title is 'It's official: 'Cloud computing' is now meaningless' by David Linthicum, dated August 10, 2011. The article text begins with 'Gartner's 2011 hype cycle shows that cloud computing is entering the trough of disillusionment as everyone claims to be cloud-centric, but few are'. Social media sharing buttons for Digg, Reddit, and others are visible on the left. A 'Print' button and '8 Comments' link are at the bottom of the article content.

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## Cloud Computing

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InfoWorld Home / Cloud Computing / Cloud Computing / It's official: 'Cloud computing' is now...

Cloud Computing  
DAVID LINTHICUM

AUGUST 10, 2011

### It's official: 'Cloud computing' is now meaningless

Gartner's 2011 hype cycle shows that cloud computing is entering the trough of disillusionment as everyone claims to be cloud-centric, but few are

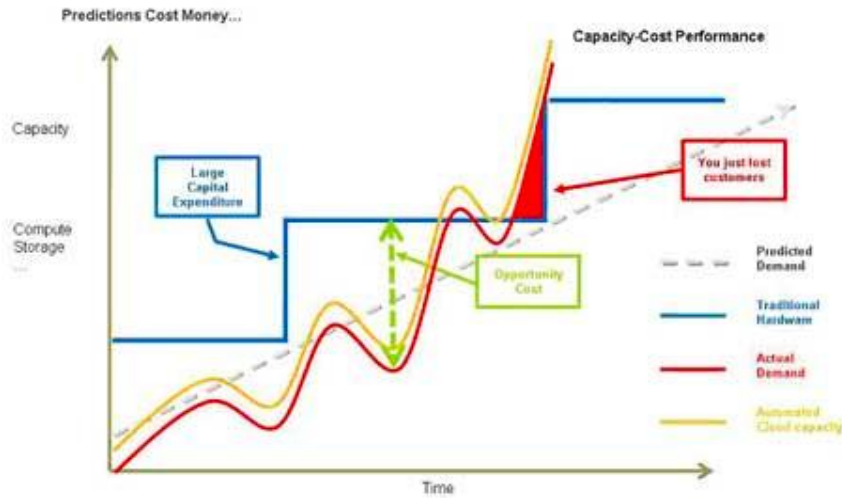
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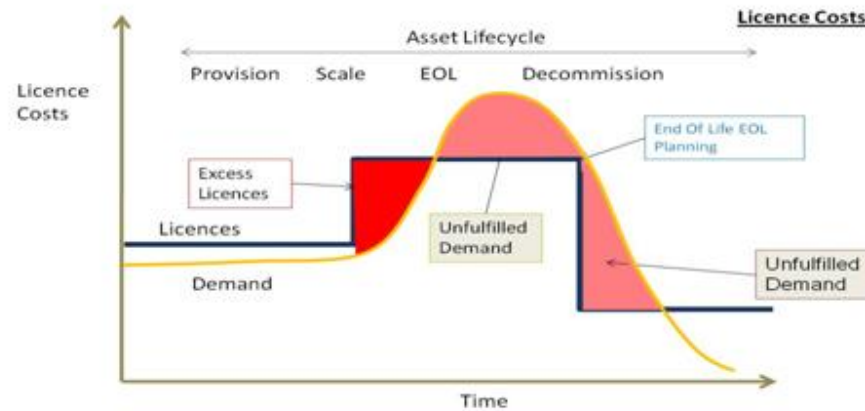
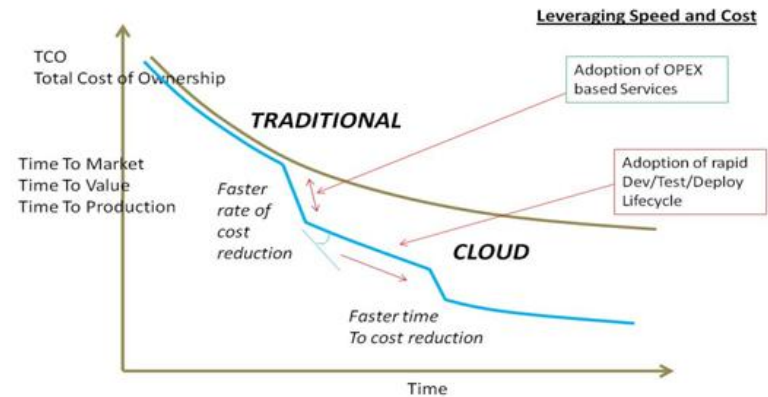
I have to credit my good friend and fellow blogger [Brenda Michelson](#) for relaying to me that yet another Gartner hype cycle report is now out. You can expect to see its accompanying graphic (below) used in every vendor's presentation from now on. (There must be a law or something.)

Figure 1. Hype Cycle for Cloud Computing, 2011

# The Operational Benefits Are Obvious

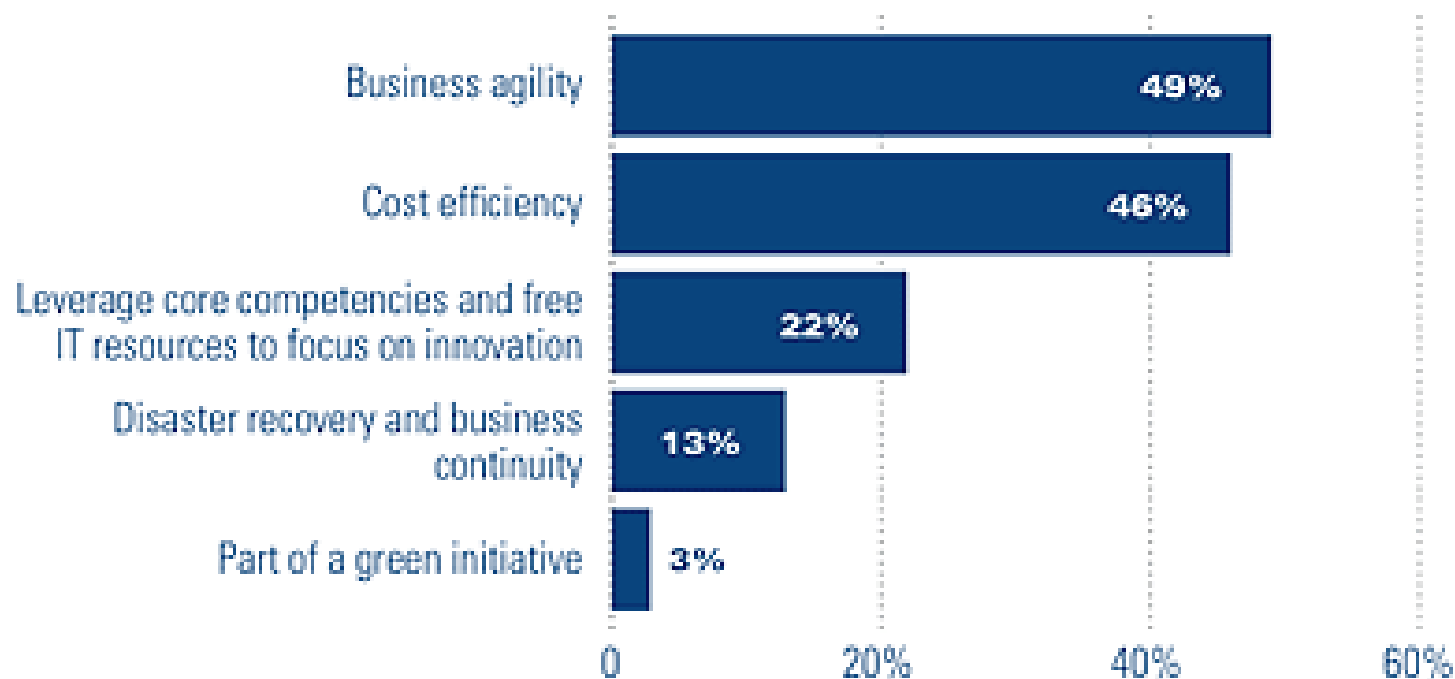


Source: Amazon Web Services



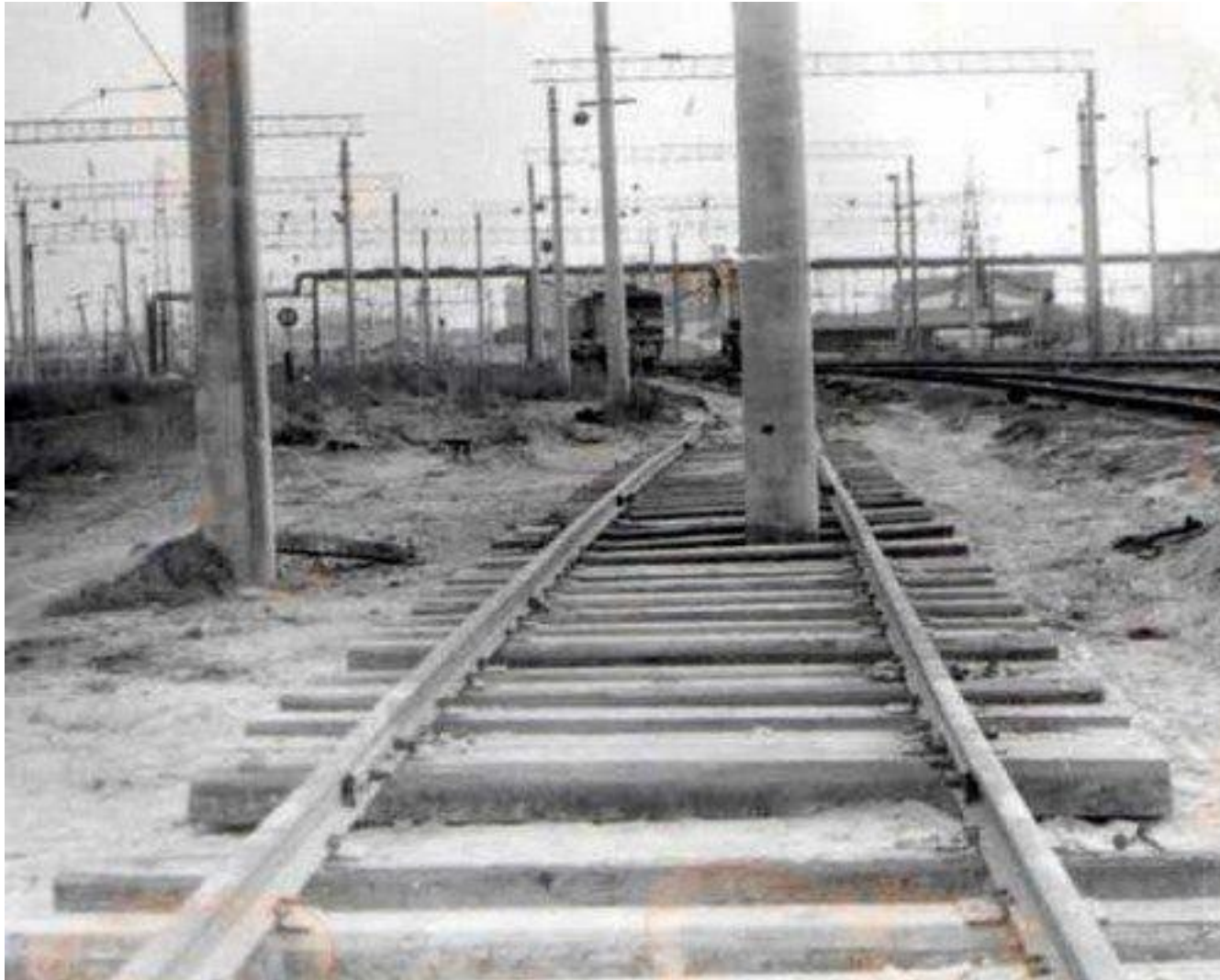
# Business Agility is the Objective

**Fig. 5.2** Reasons for Moving to Cloud Computing



**Source:** Sand Hill Group Cloud Computing Survey 2010

# Most Cloud-Based Systems Are Lacking Architecture



JUNE 19, 2012

# Cloud failures cost more than \$71 million since 2007

**The economic impact of cloud outages is probably underestimated, researchers say**

By Loek Essers | IDG News Service



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2 Comments



A total of 568 hours of downtime at 13 well-known cloud services since 2007 had an economic impact of more than \$71.7 million dollars, said the International Working Group on Cloud Computing Resiliency (IWGCR) on Monday.

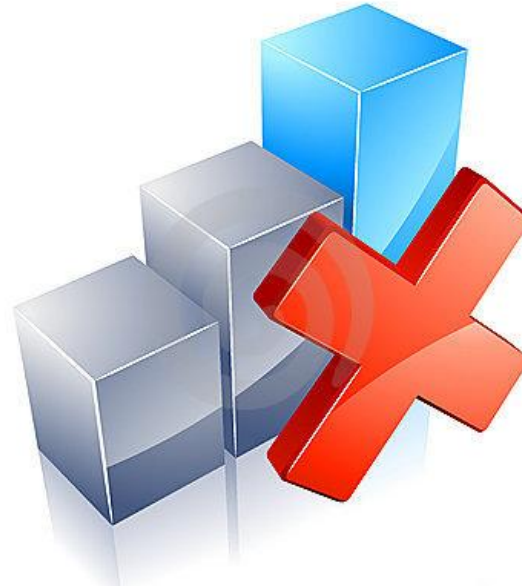
The average unavailability of cloud services is 7.5 hours per year, amounting to an availability rate of 99.9 percent, according to the group's preliminary results. "It is extremely far from the expected reliability of mission critical system (99.999 percent). As a comparison, the service average unavailability for electricity in a modern capital is less than 15 minutes per year," **the researchers noted in their paper.**



# The Results

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- Inefficient utilization of resources.
- Resource saturation.
- Lack of elasticity and scalability.
- Lack of security and governance.
- Frequent outages.
- Bad or no tenant management.
- Other very bad things.



# Common Mistakes

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- Not understanding how to make architectures scale.
- Not dealing with tenant management issues.
- Not understanding that security is systemic, and impacts performance.
- Not understanding the proper use of services (Yes, that means SOA).
- Tossing technology at the problem.
- Listening to the wrong people.

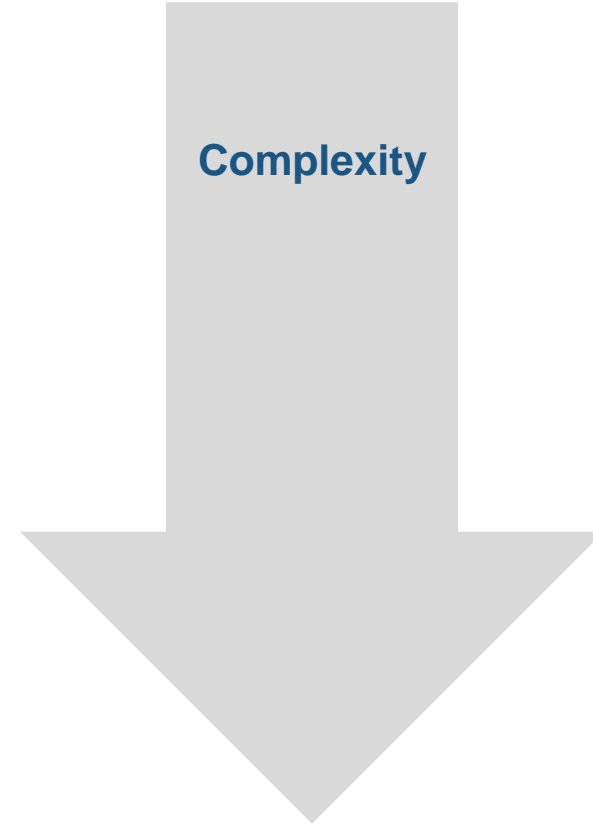
# Can SOA Help?



The core components which make up an SOA implementation

# Types of Cloud Architecture Patterns Emerging

- Migration to a Cloud
  - Business Systems
  - Infrastructure
- Building on a Cloud (PaaS)
- Building a Hybrid Cloud
- Building a Cloud
  - IaaS
  - SaaS
  - PaaS



# Types of Cloud Architecture Patterns Emerging

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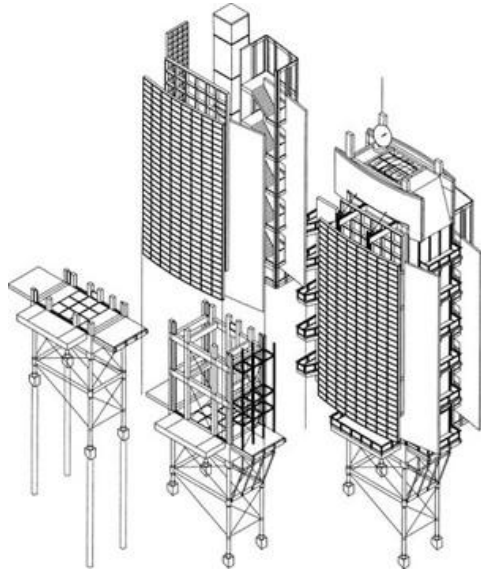
We'll focus here

Complexity





## General Architecture Patterns to Follow



## Build a solid foundation:

- Determine business drivers
- Understand: data, services, business processes and system integration points
- Design a “cloud-friendly” enterprise architecture roadmap that leverages Services Oriented Architecture (SOA)
- Determine an integration strategy for internal and external systems
- Outline a migration path for legacy systems to the new architecture

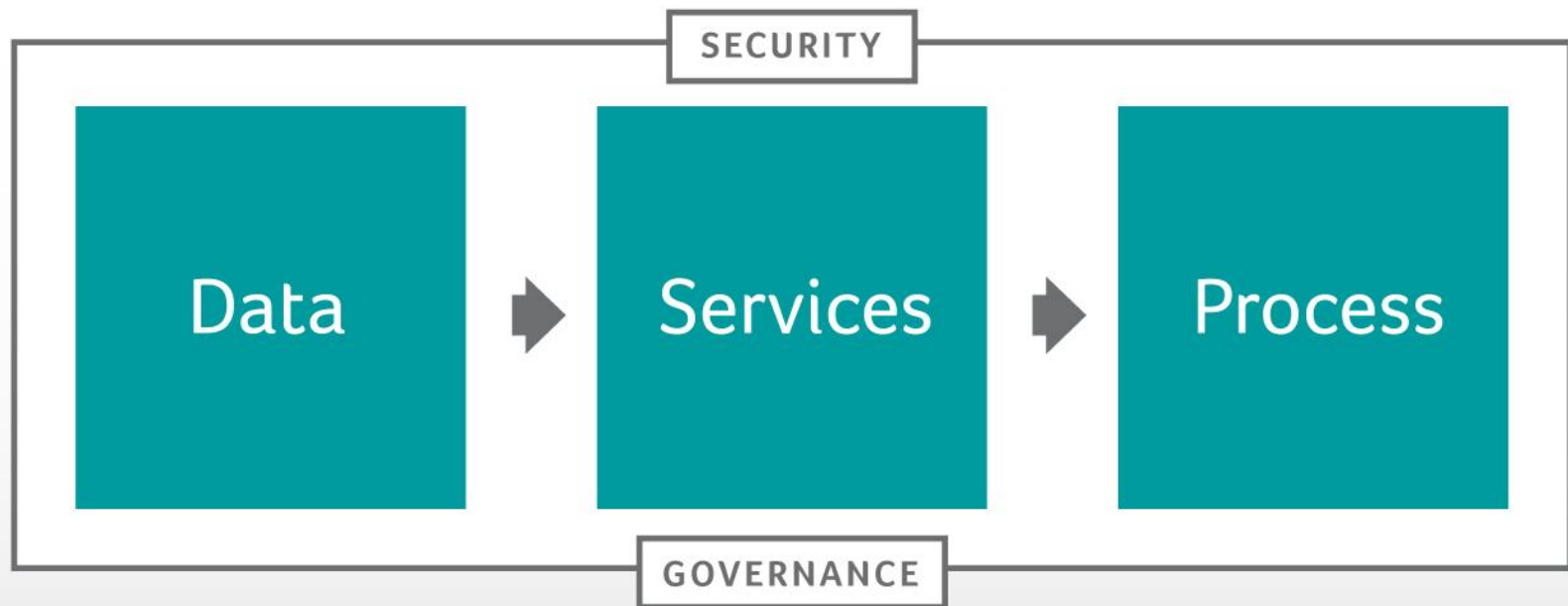
For the Cloud

AS-IS

TO BE

DEPLOY

## Business Case



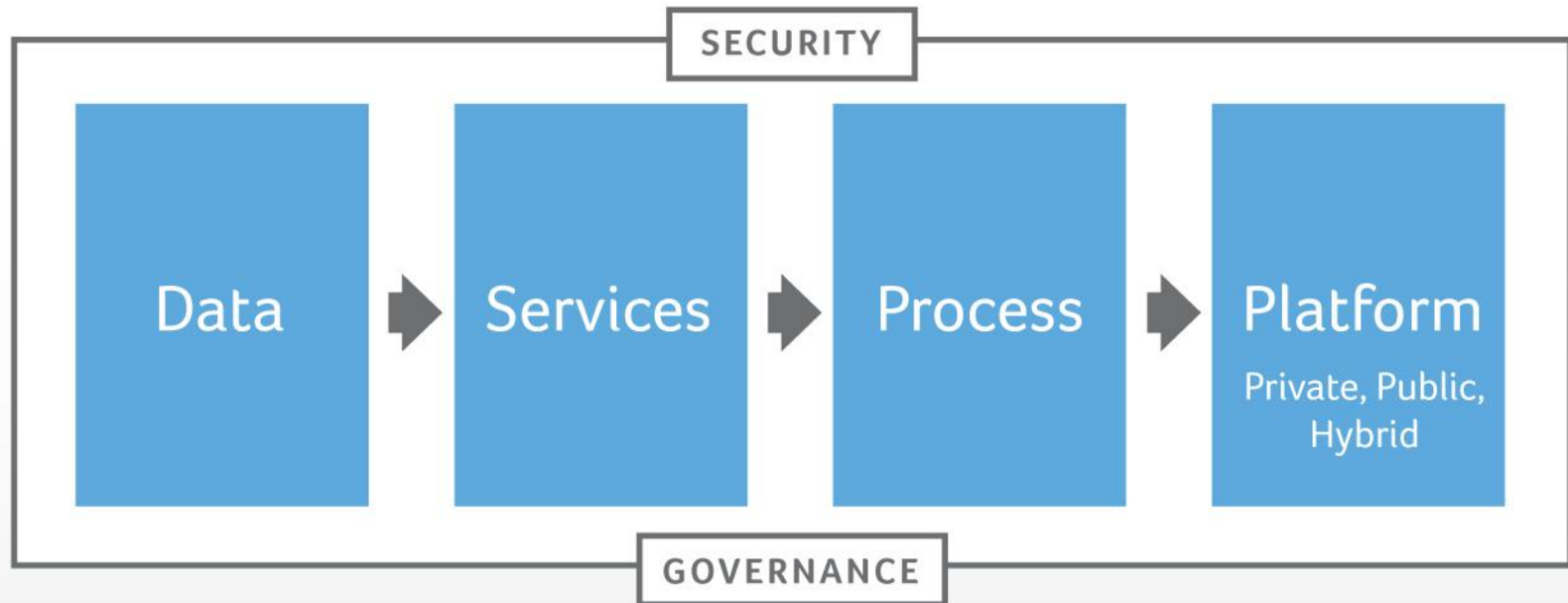
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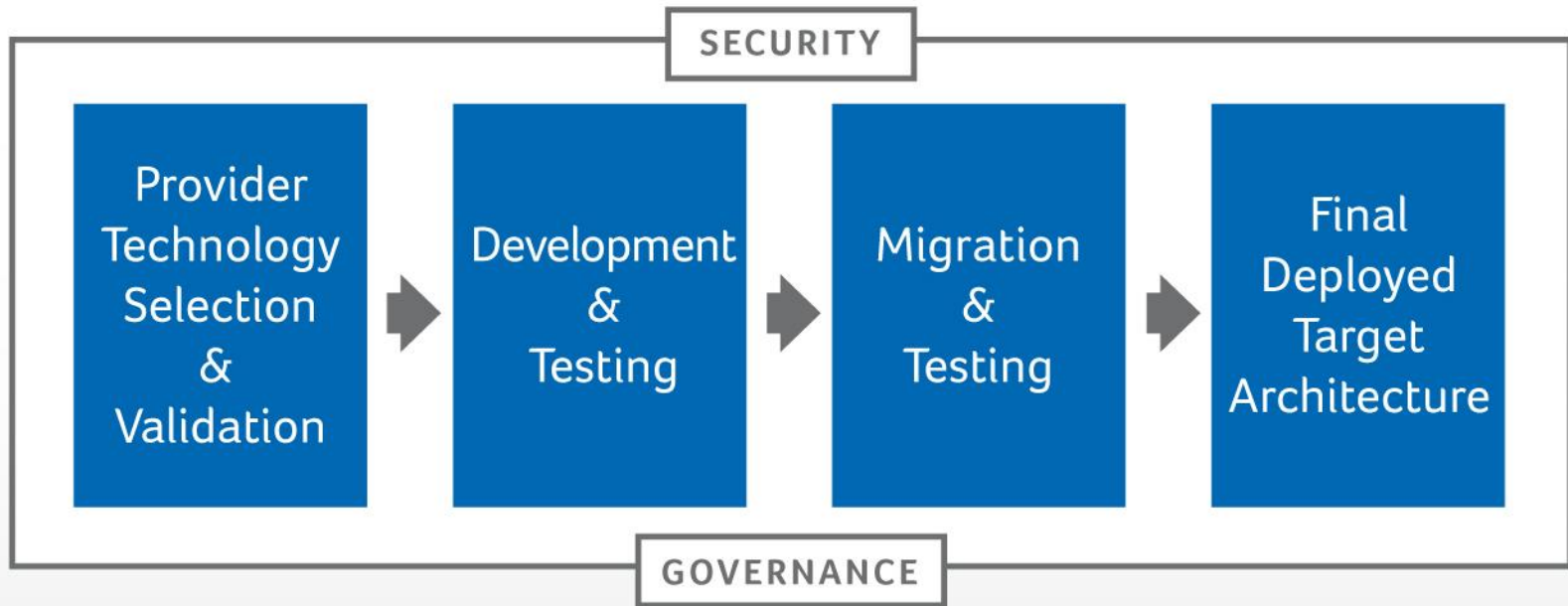
AS-IS

TO BE

DEPLOY



# Deploy



# General Rules & Guidelines

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- Focus on the primitives.
  - The best clouds are sets of low level services that can be configured.
    - Data services
    - Transaction services
    - Utility services
- Leverage distributed components that are centrally controlled.
- Build for tenants, not users.
- Don't lean too much on virtualization.
- Security and governance are systemic.

**Use Case:**

**General Business System Migration to the Cloud**



# The General Idea

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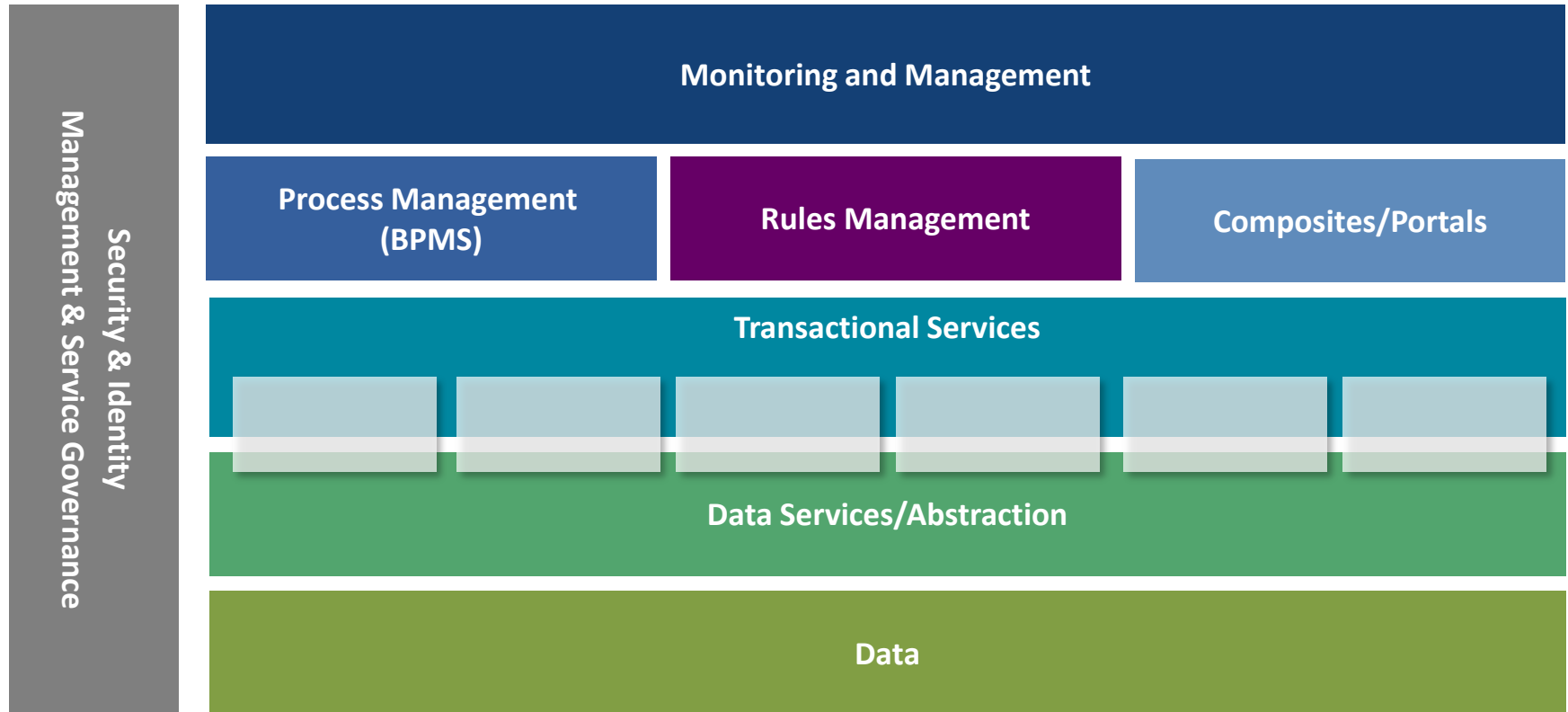
- Break the system down to it's component parts, understanding each part.
- Rethink the database, it's typically a mess.
- Rethink the system as sets of services/API, watch the granularity.
  - Data services, transaction services, utility services
- Create a security and governance plan.
- Consider the user interfaces.
- Consider device interfaces.
- Migrate only the components to the cloud that will provide the best value.

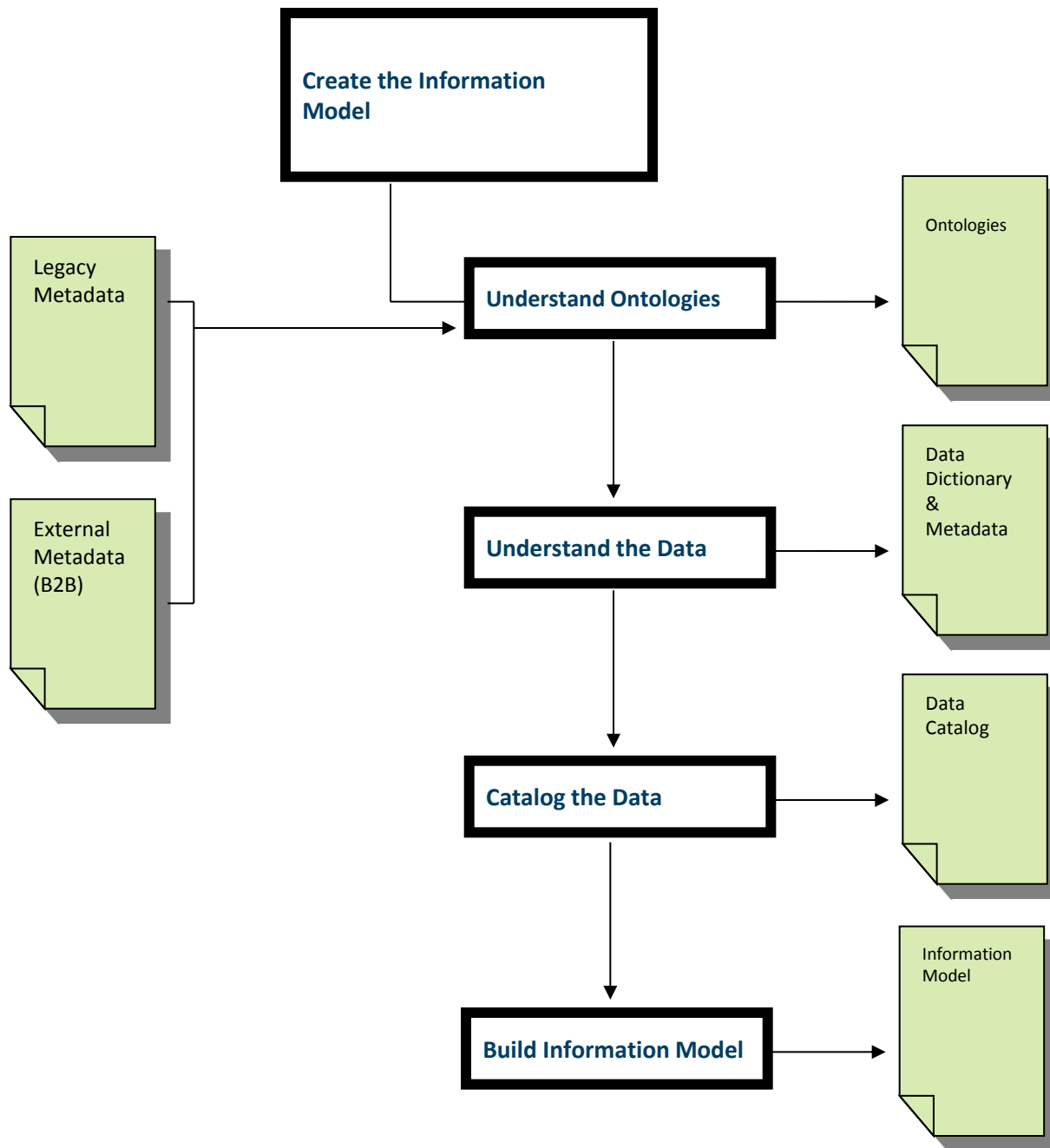
# Good News / Bad News

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- Good News:
  - Most cloud platforms provide the tenant management features for you.
  - Most cloud platforms manage the resources for you.
  - The cloud platforms are getting better.
- Bad News:
  - Security is still your problem.
  - Application and service design is still your problem.
  - Testing can be a hassle.
  - Watch out for immaturity if standards.

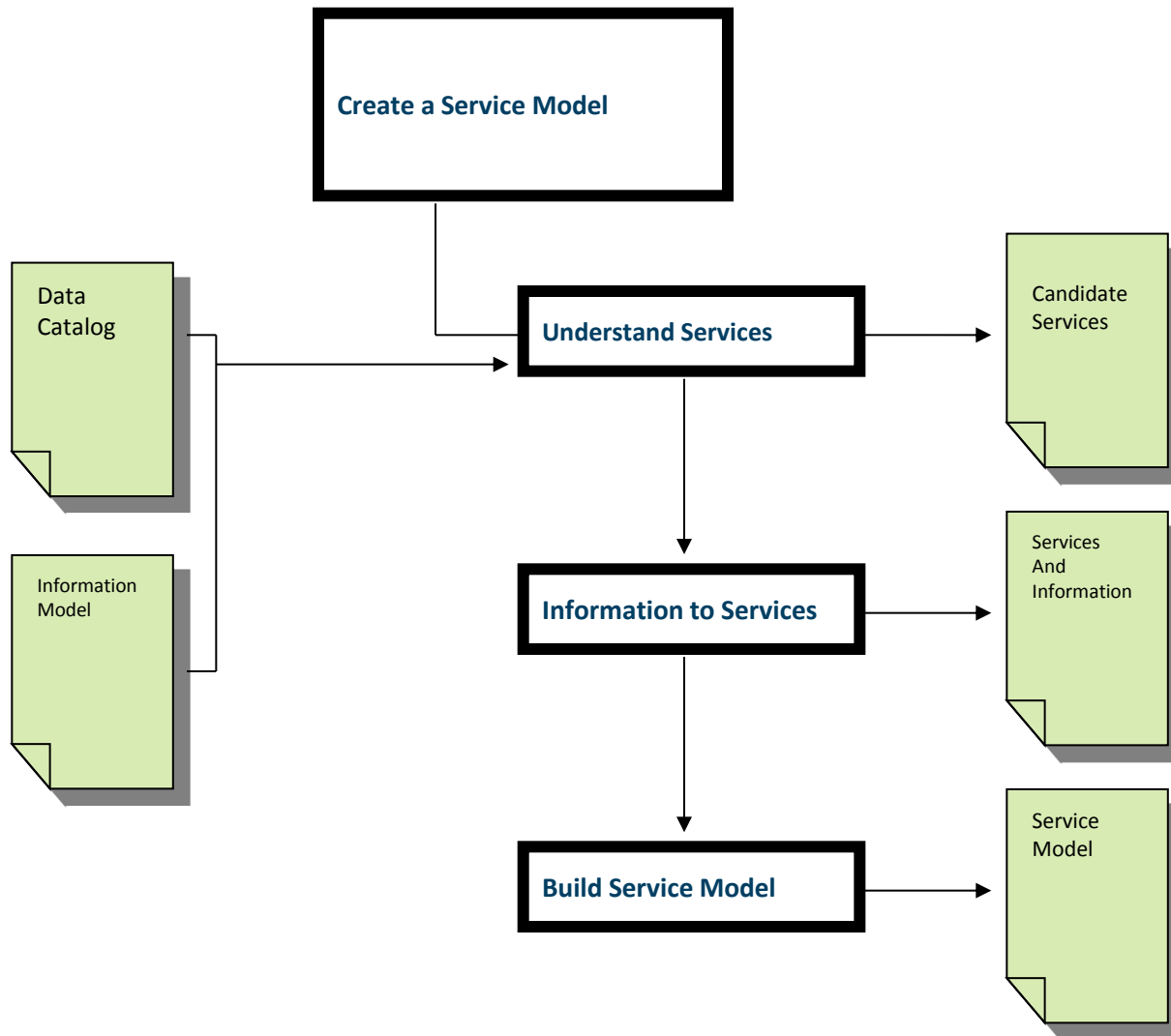
# Reference Architecture

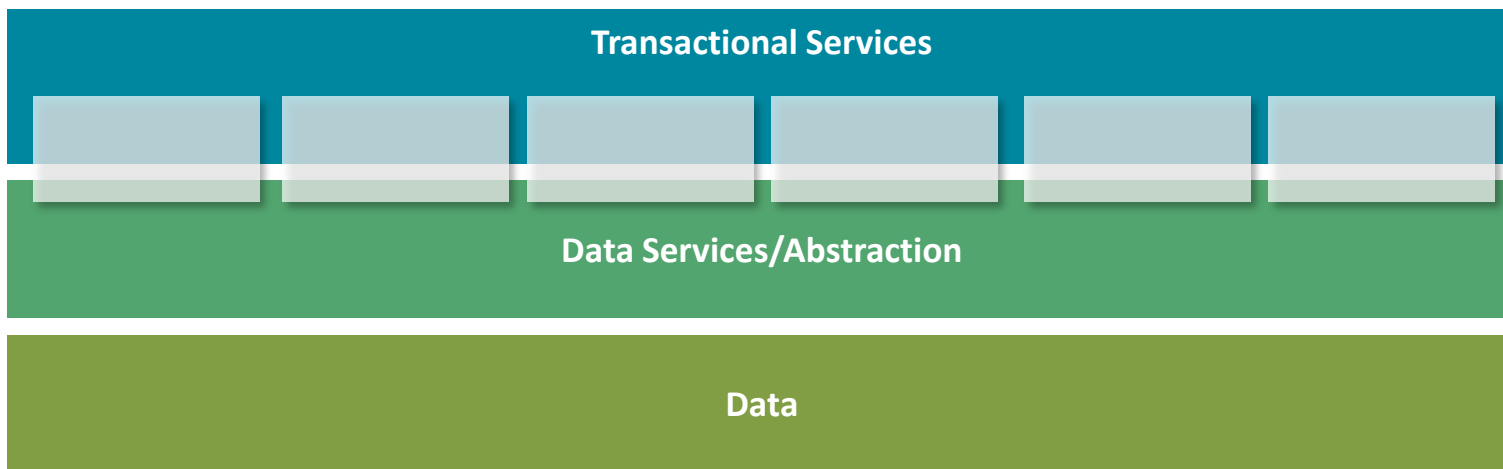




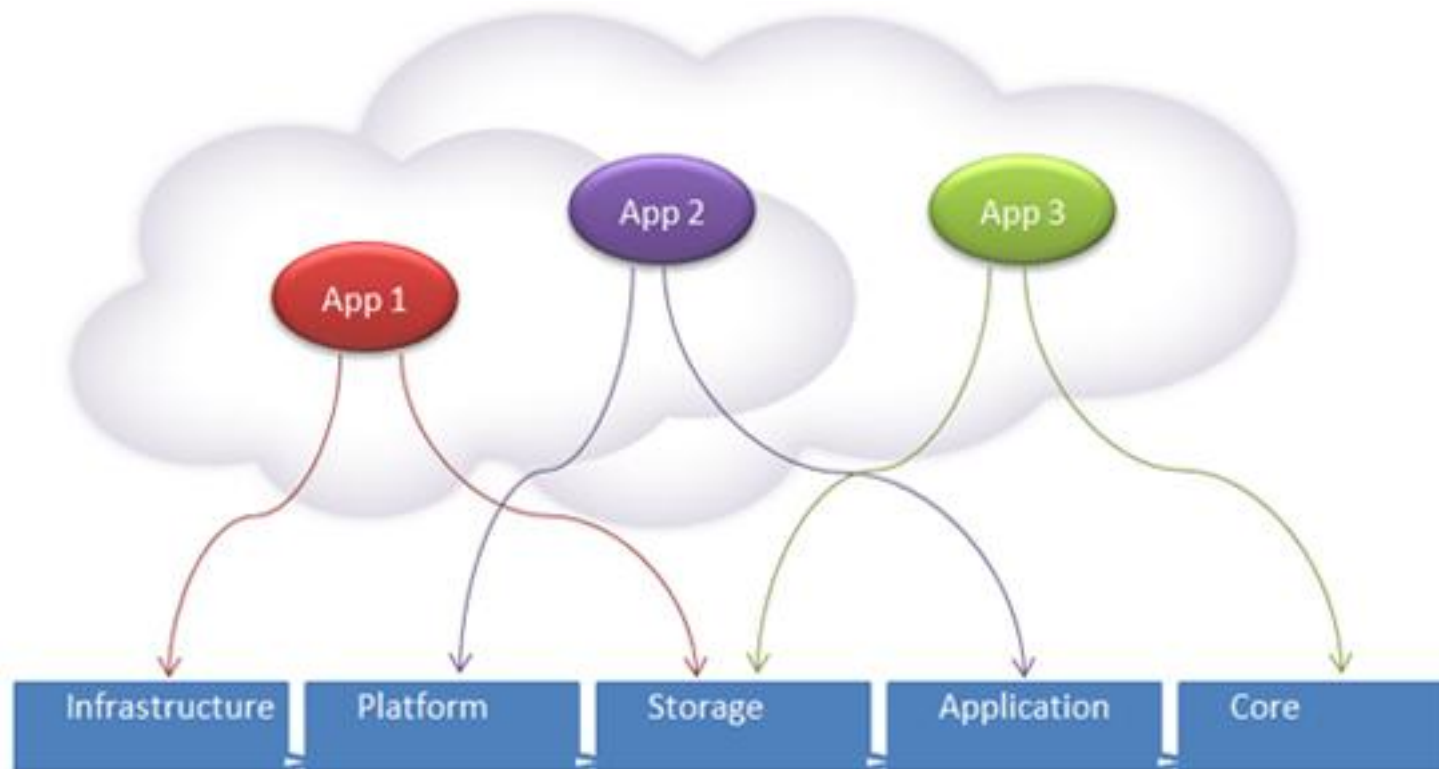
**Data Services/Abstraction**

**Data**

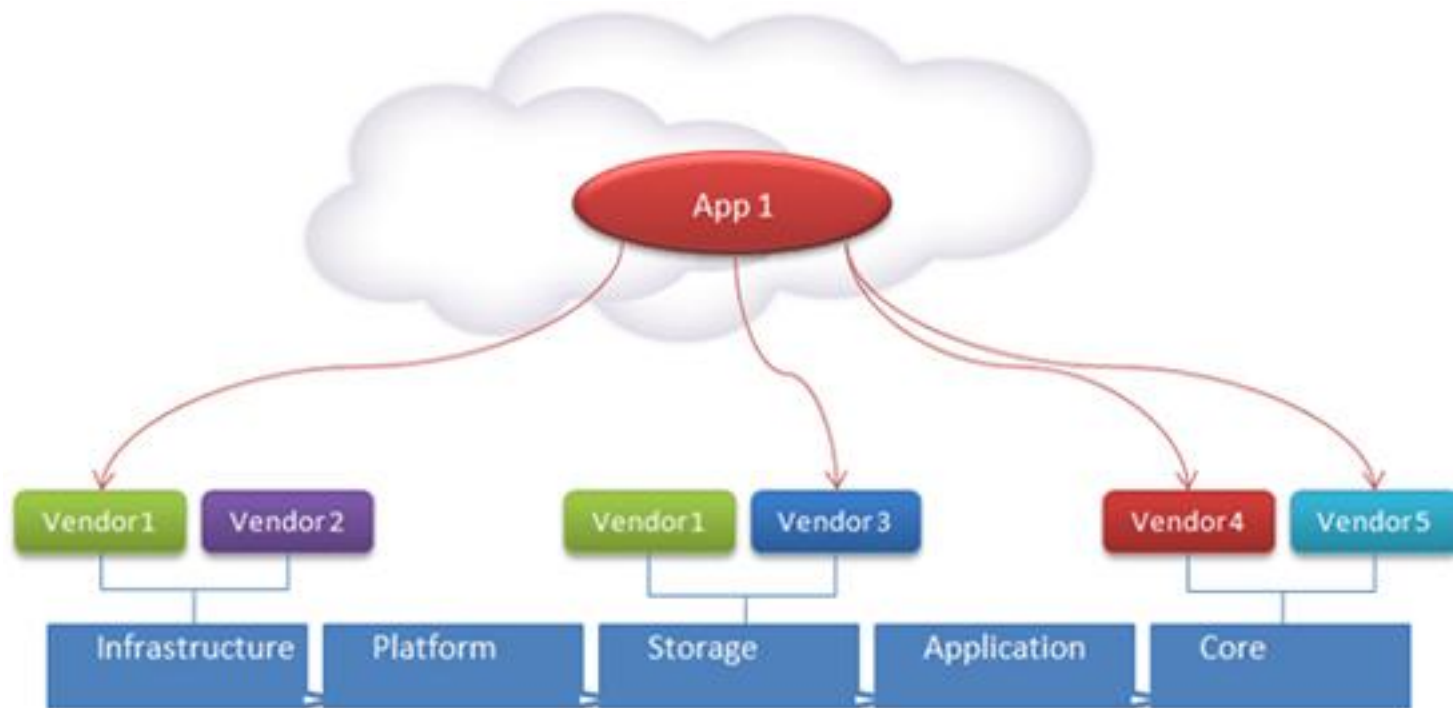




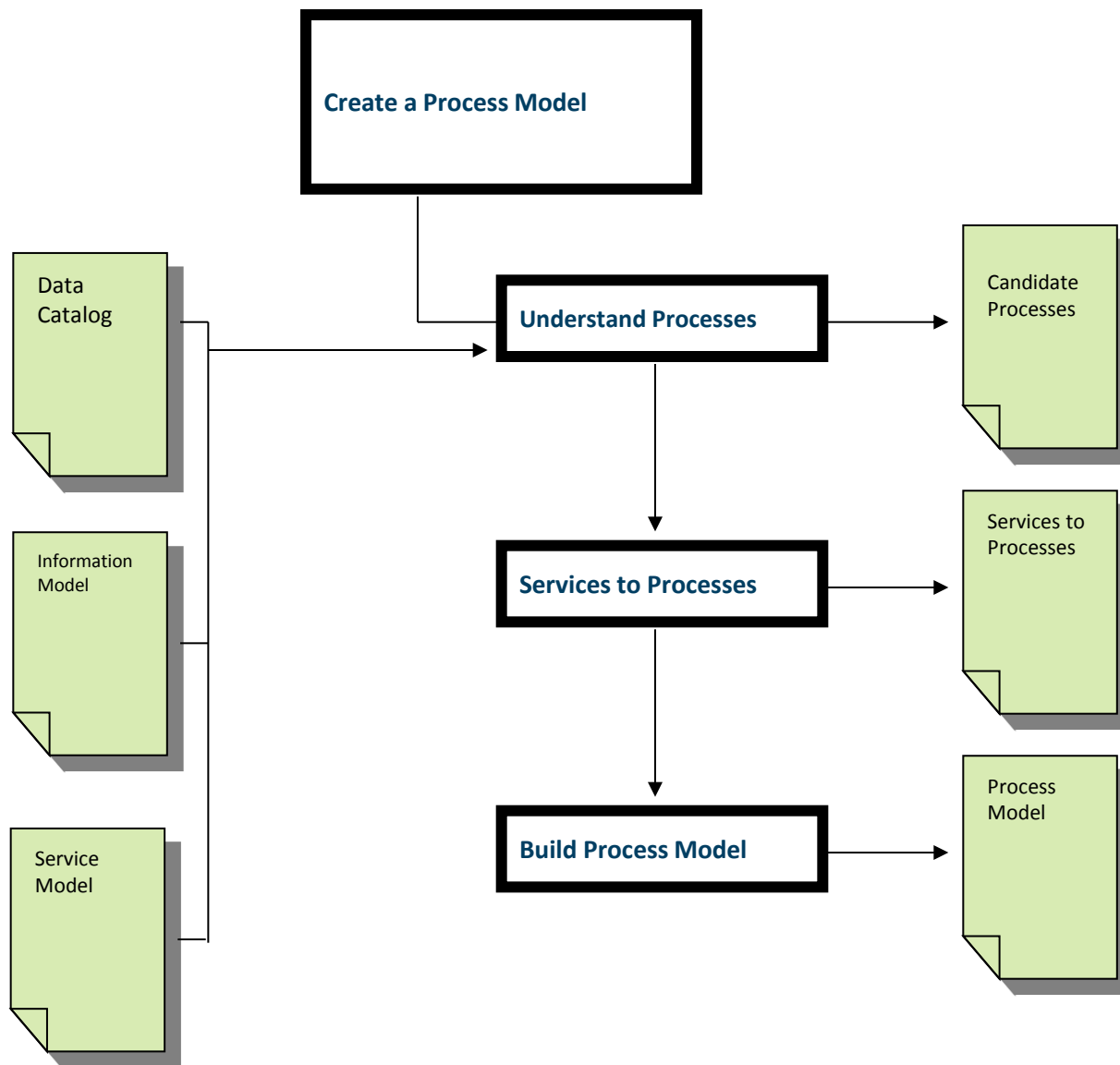


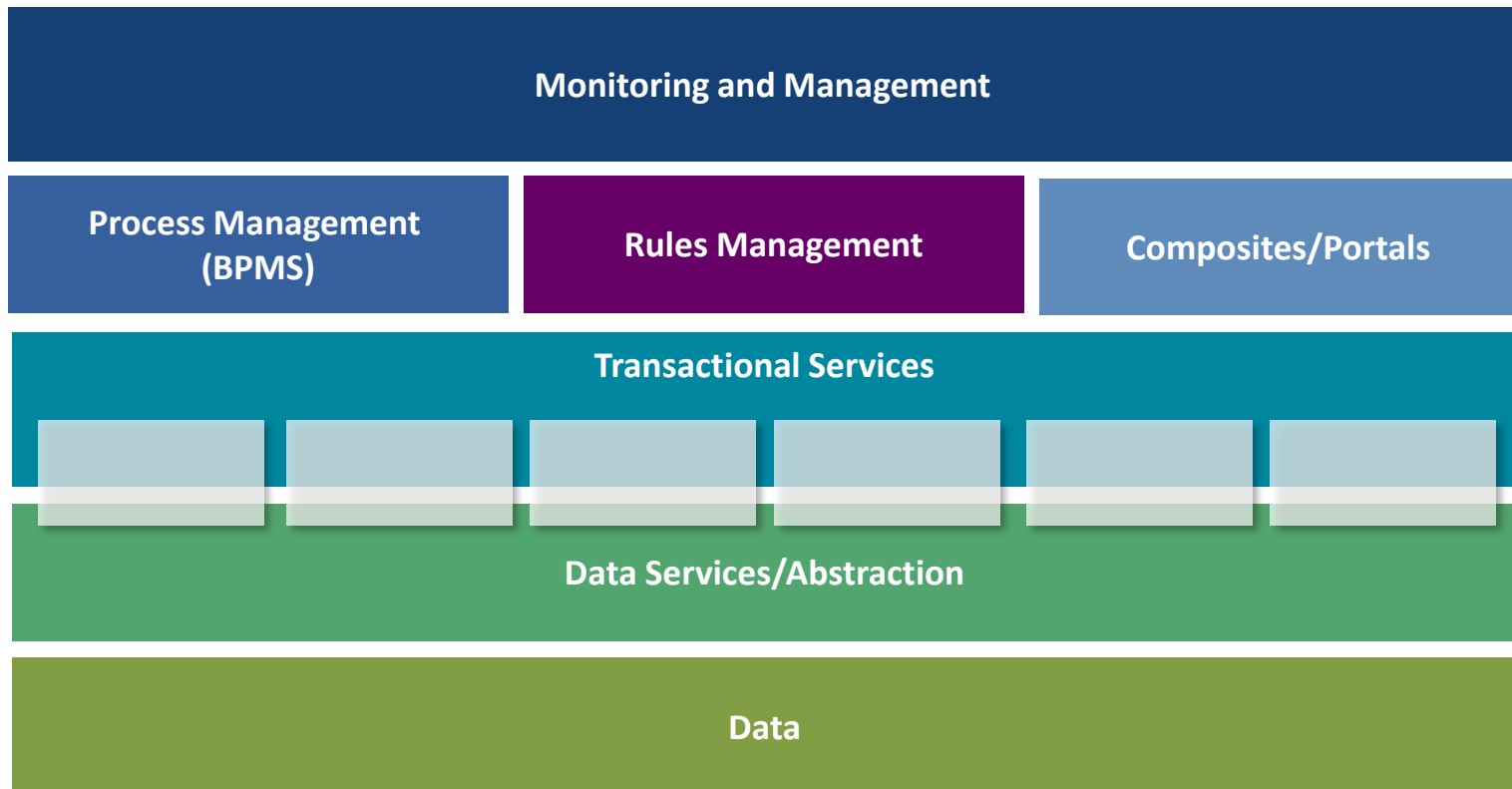


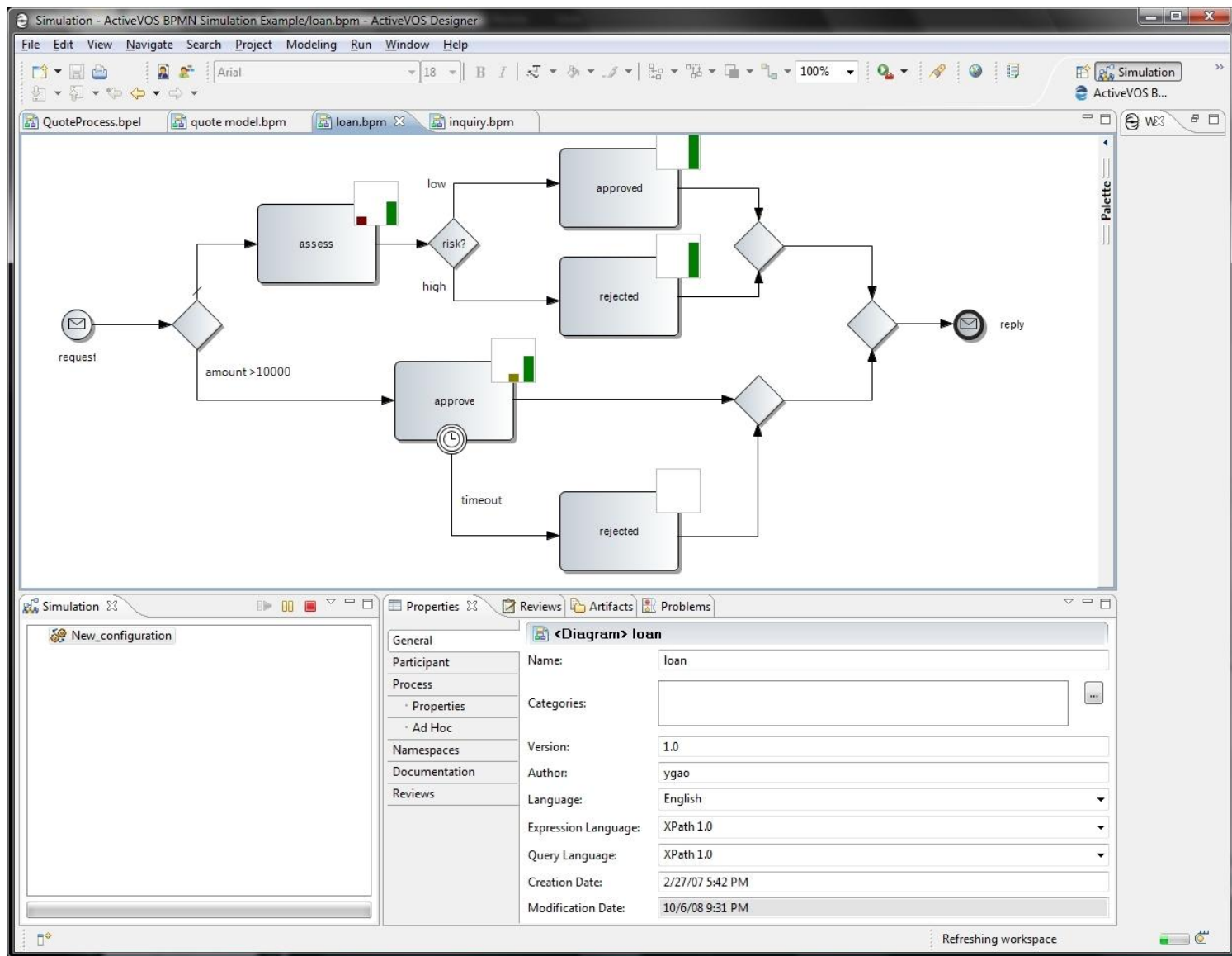
Source: Microsoft



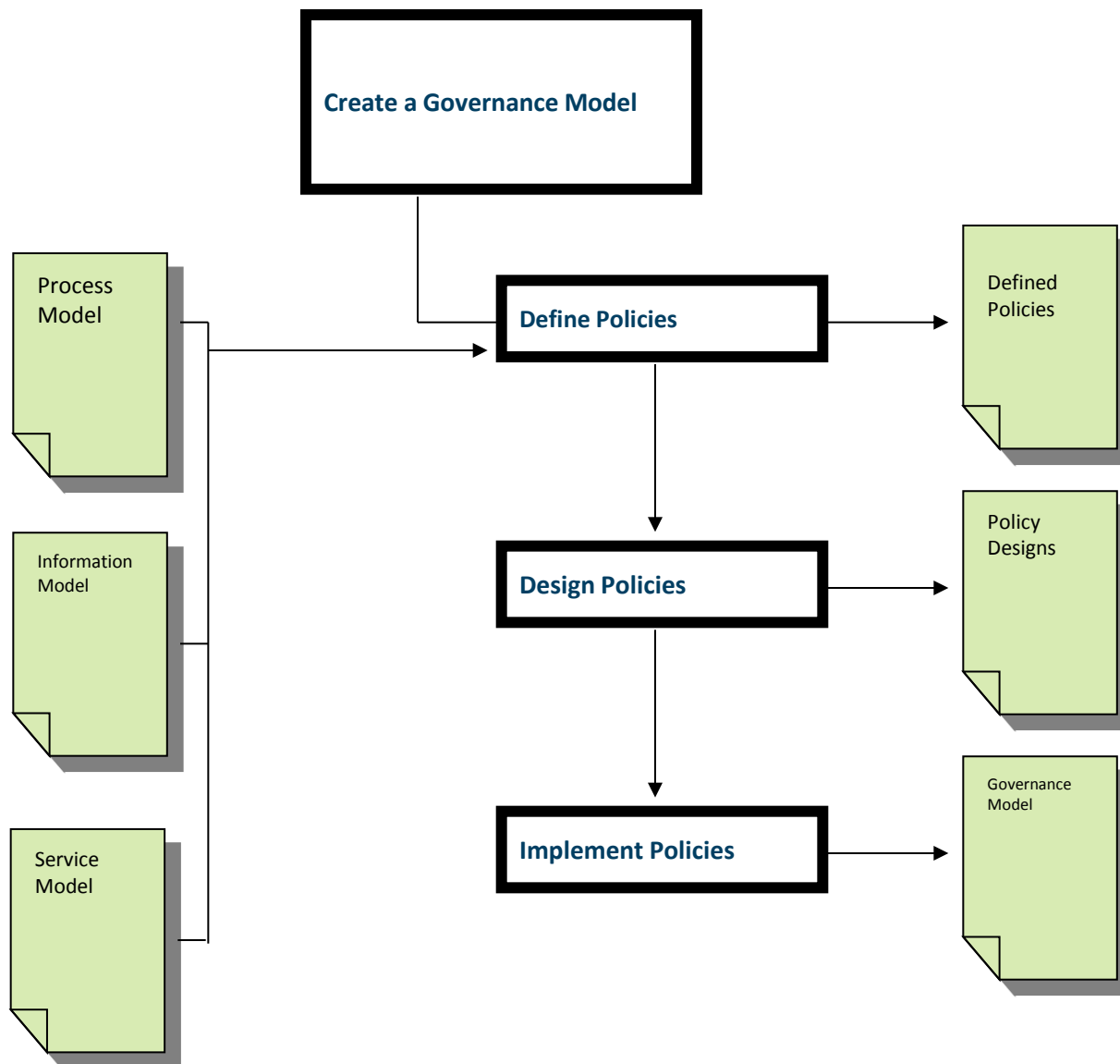
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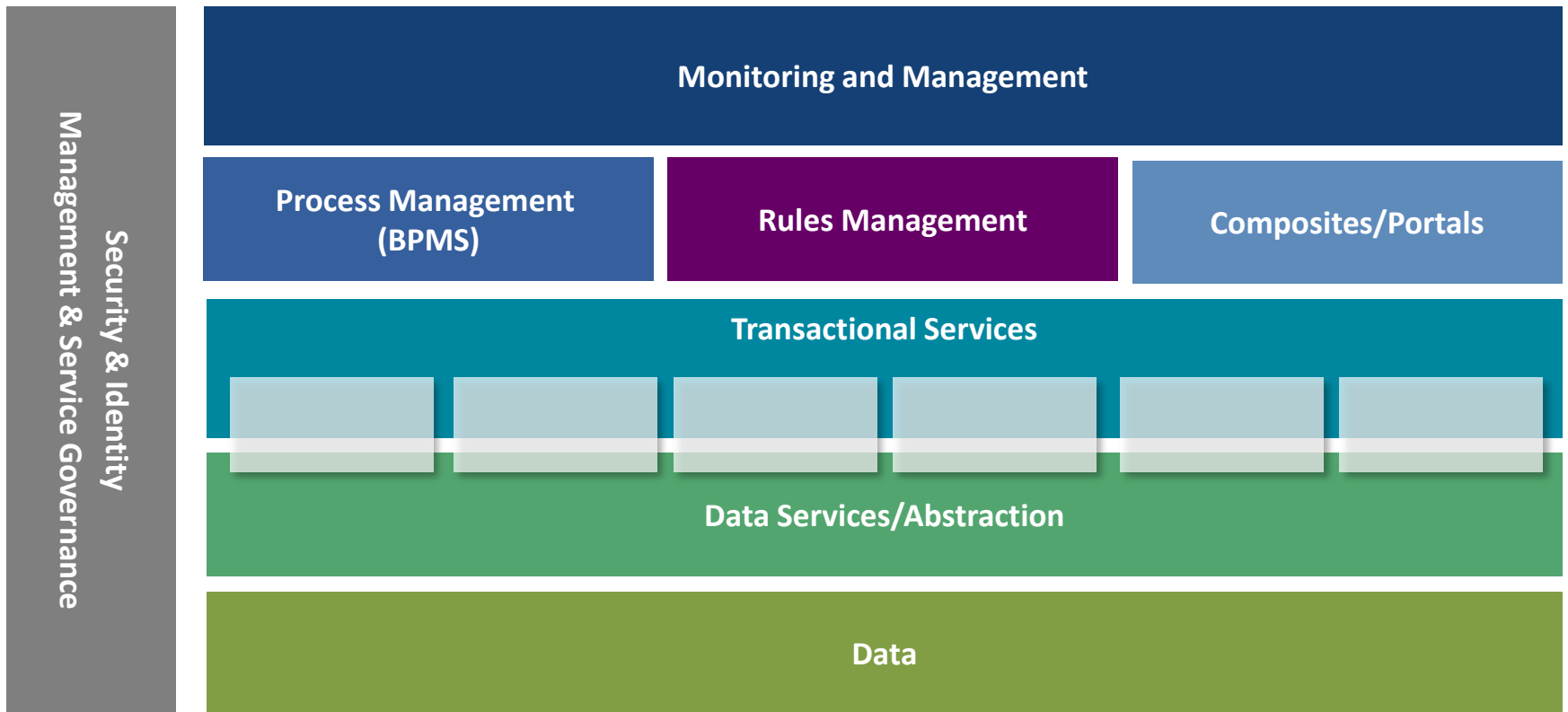




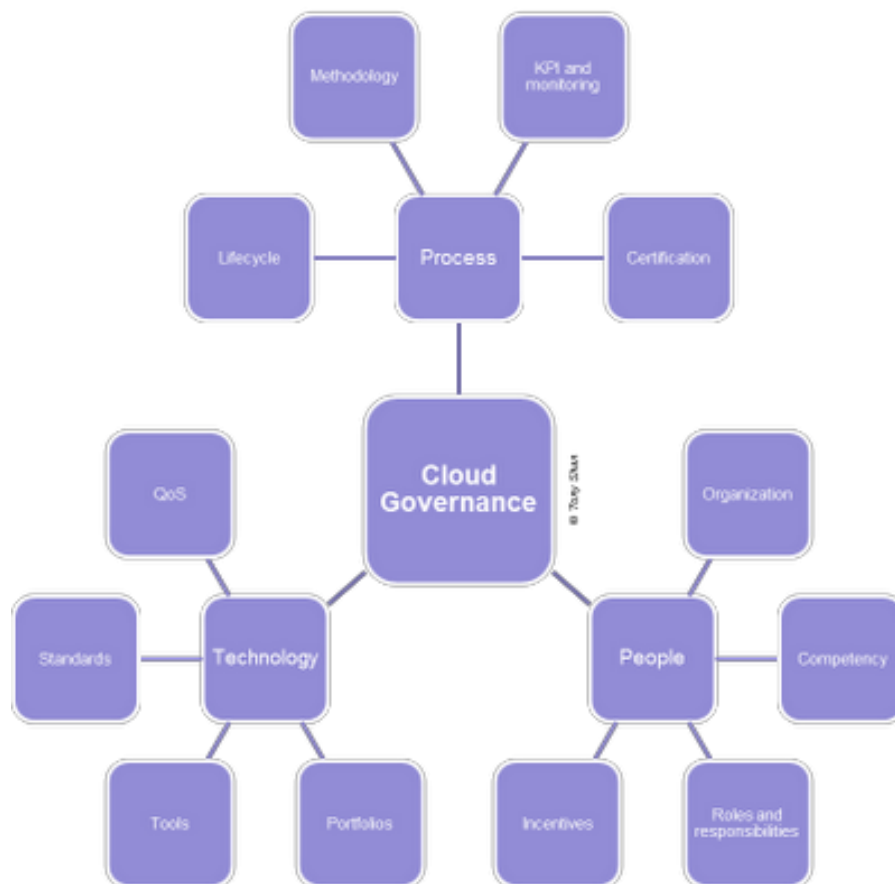


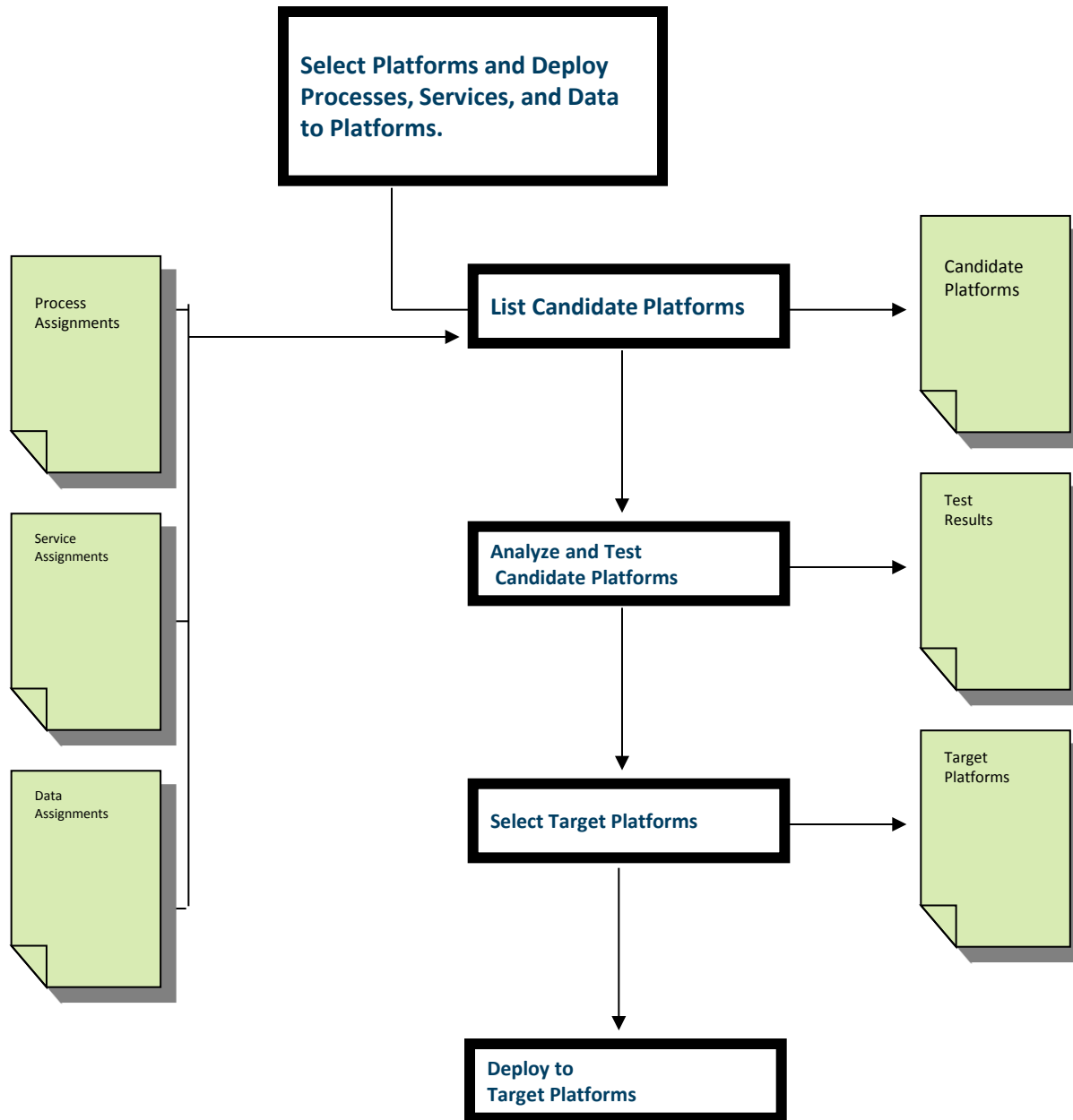
Source: Activevos











**Thanks!**

