QUESTnet
Conference 2017

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Gartner CATALYST CONFERENCE

Hybrid Architectures for Cloud Computing

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Key Issues

1. What are the trends for cloud and private infrastructure?
2. How do I determine what stays private and what can go to public providers?
3. What are the approaches to modernizing private infrastructure to support digital business?

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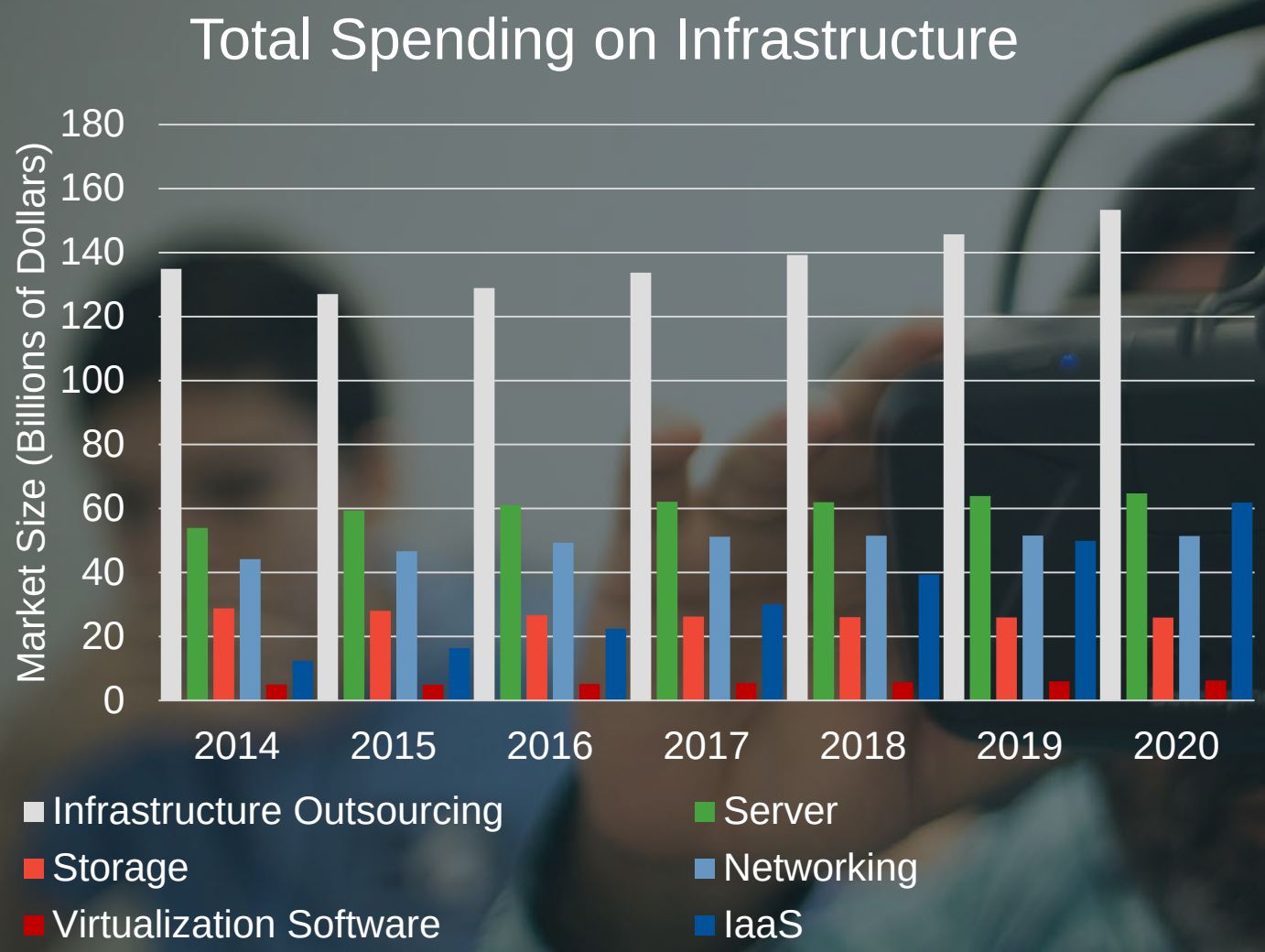
Cloud Shift in Infrastructure



Noncloud Infrastructure

2.5%

(5-Year CAGR)

Cloud Infrastructure

30.5%

(5-Year CAGR)

Source: "Gartner Market Databook, 2Q16 Update" (G00296772)

IaaS (for COTS) Mix by 2020

2020/IaaS

On average

40%

Will go into public cloud

On average

33%

will remain on-**premises**

On average

27%

Will move into **colocation**

Base: n =104 Gartner Research Circle Members

Q. What percentage of IaaS do you expect to use the following styles of computing by YE20?

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Custom-Built Apps Mix by 2020

Custom-built/2020

On average

40%

Will go into public cloud

On average

38%

will remain on-**premises**

On average

22%

Will move into **colocation**

Base: n =114 Gartner Research Circle Members

Q. What percentage of custom built applications do you expect to use the following styles of computing by YE20?

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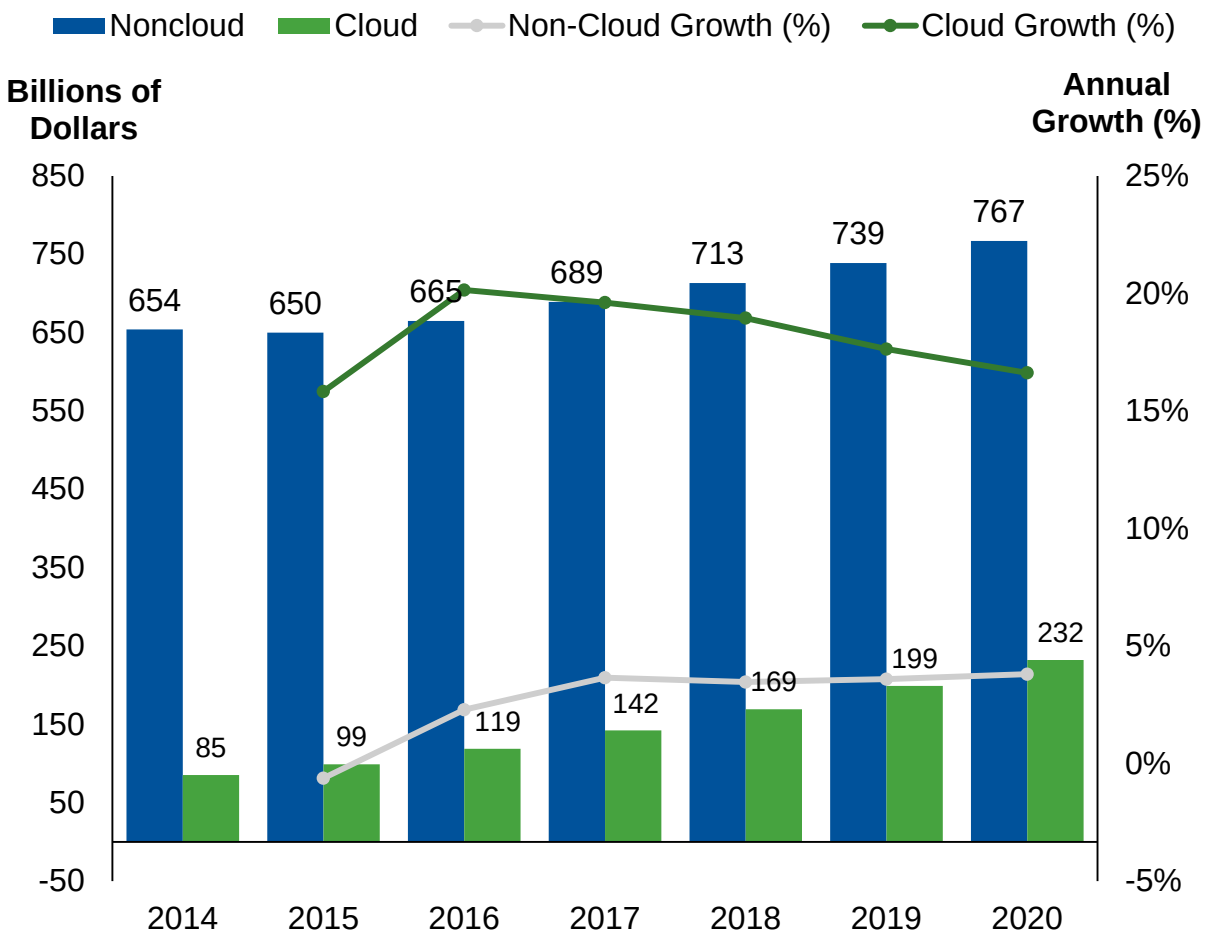
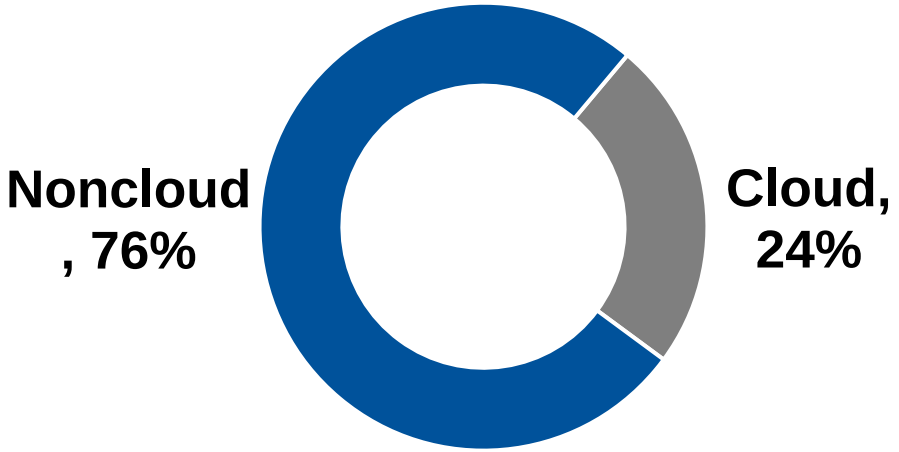
Cloud Shift for Total IT Spending



Total IT Spend (Outsourcing, Services, Software, Infrastructure) Is



by 2020

Source: "Gartner Market Databook, 4Q16 Update" (G00303152)

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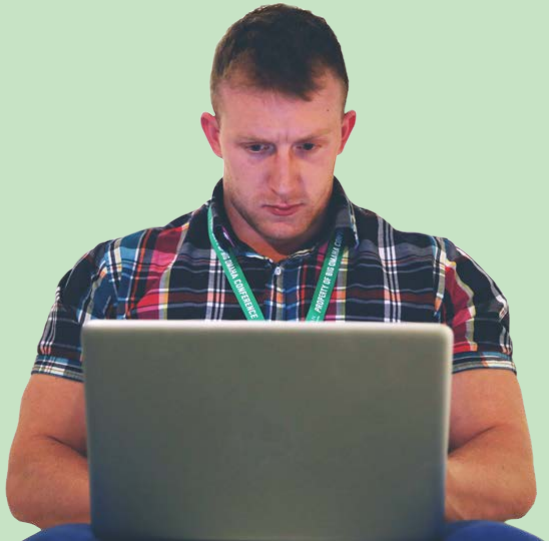
Conclusions

Public cloud is growing rapidly,
but 60%+ of the workloads
and 70%+ of the $
are still noncloud by 2020



We did a cloud strategy …
We also need a strategy
for what to do
with these private workloads!

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Hybrid

"Of mixed character; composed of different elements"

— *Oxford English Dictionary*

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Application and Service Placement

1. Where do I host each IT application or service?
   - External (cloud, managed hosting or colocation).
   - Internal (data center).
2. What parts of my value to the business should I control and build?
   - And what should I offload to a provider?

The output of this process is a list of **technology silos** that require **integration** for capacity, capability or efficient management.

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Technology Silos

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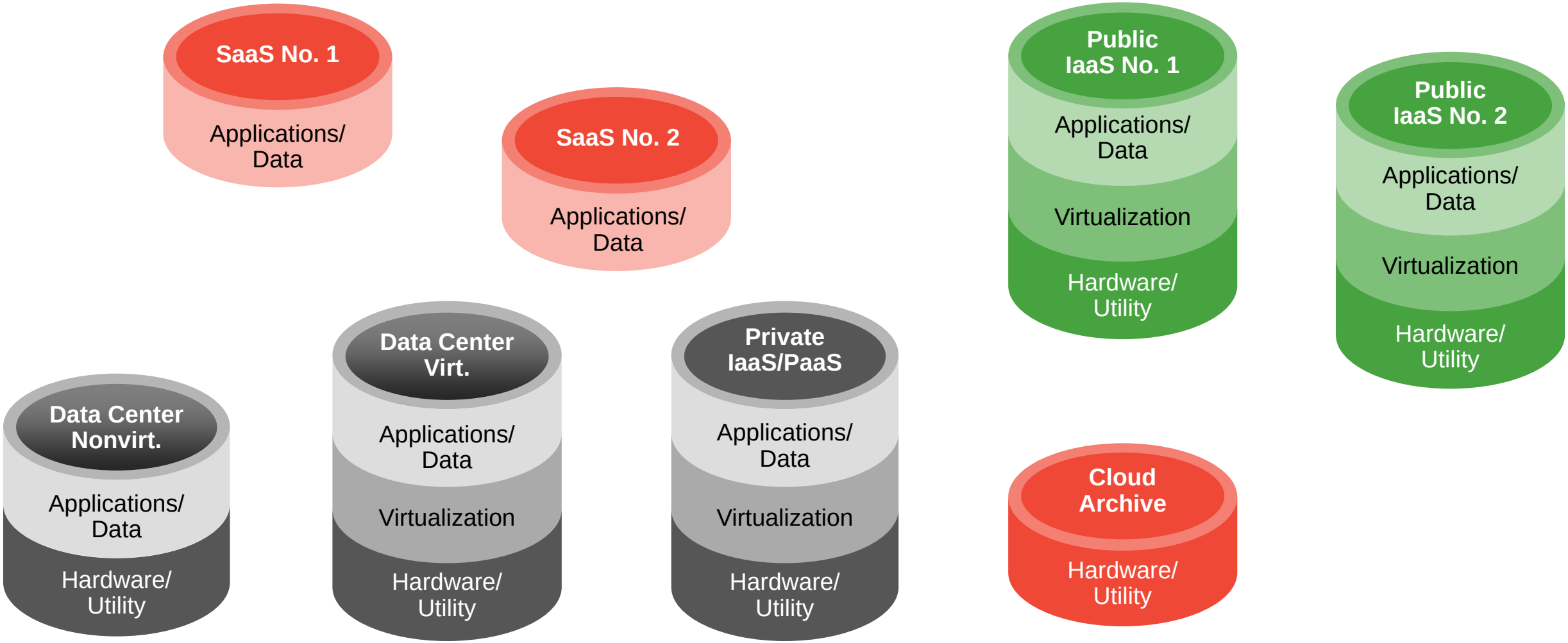
Technology Silos



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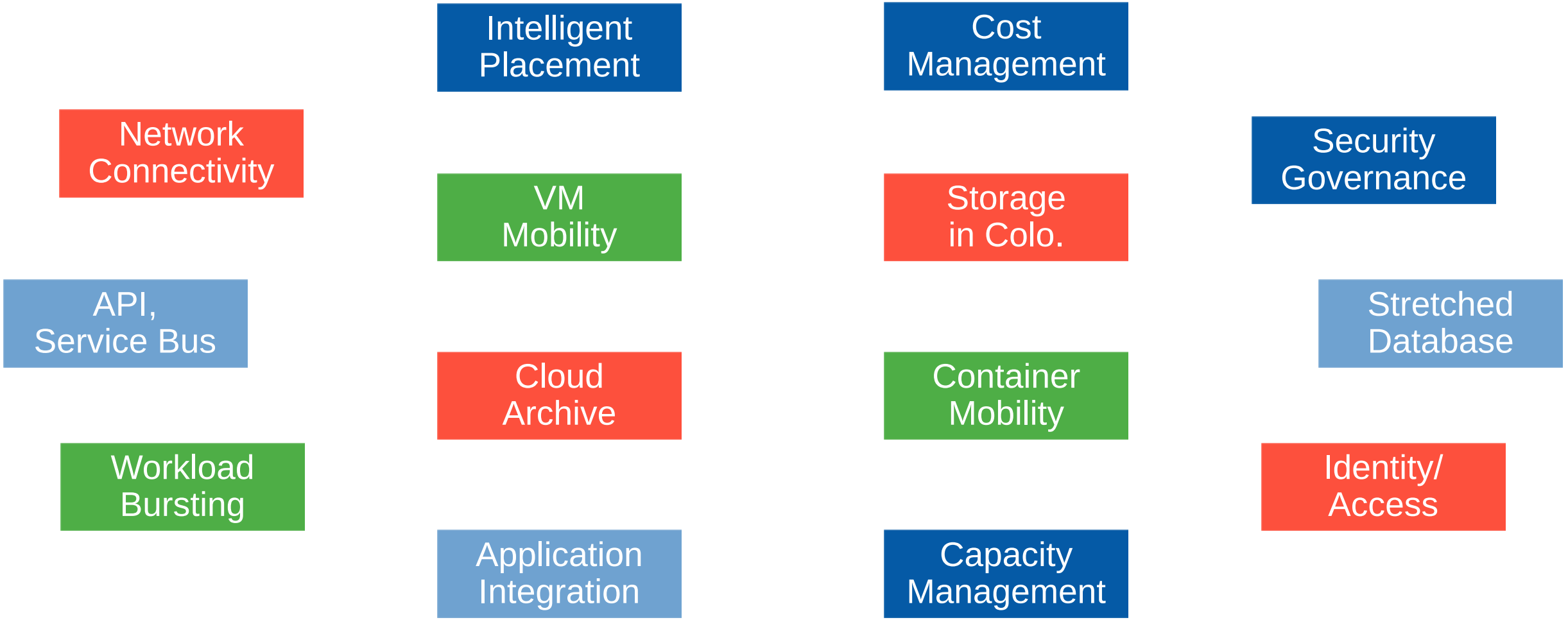
Integration — What Capability Do I Want Across Silos?



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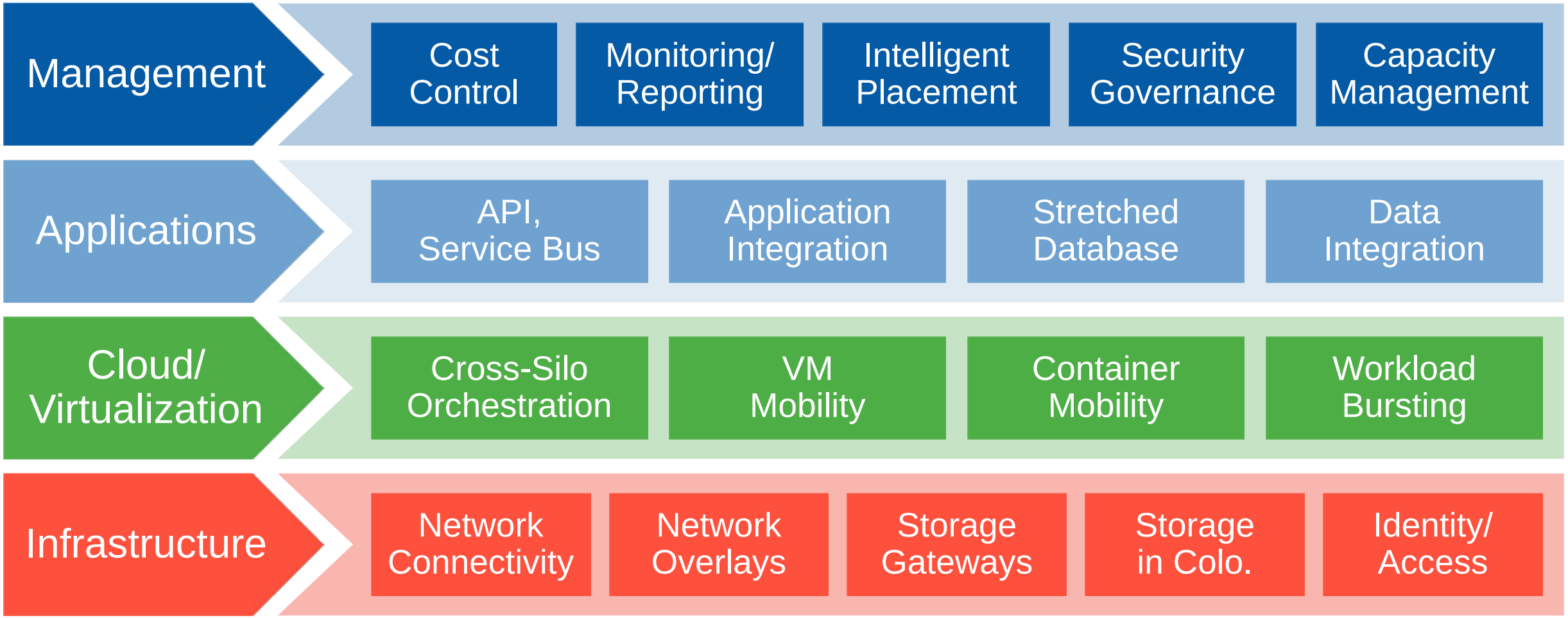
Integration Happens at Different Levels



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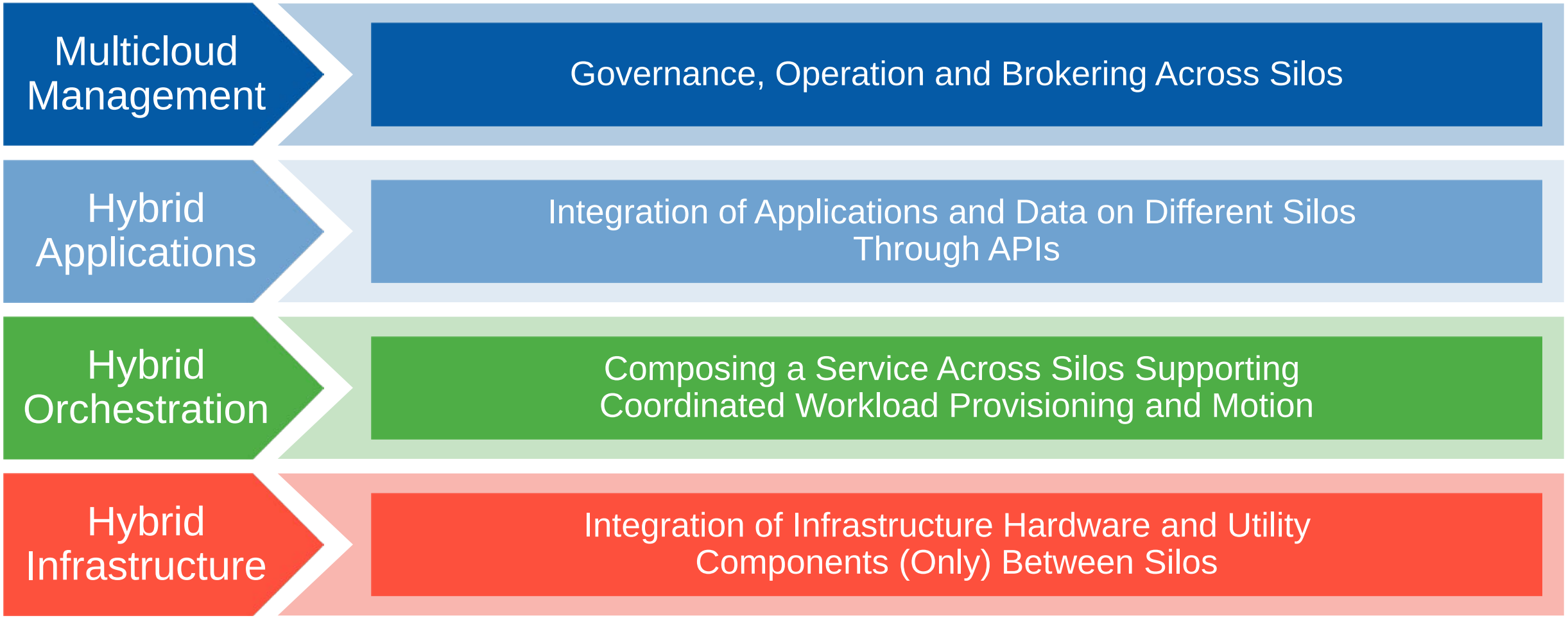
Four Hybrid Architectures



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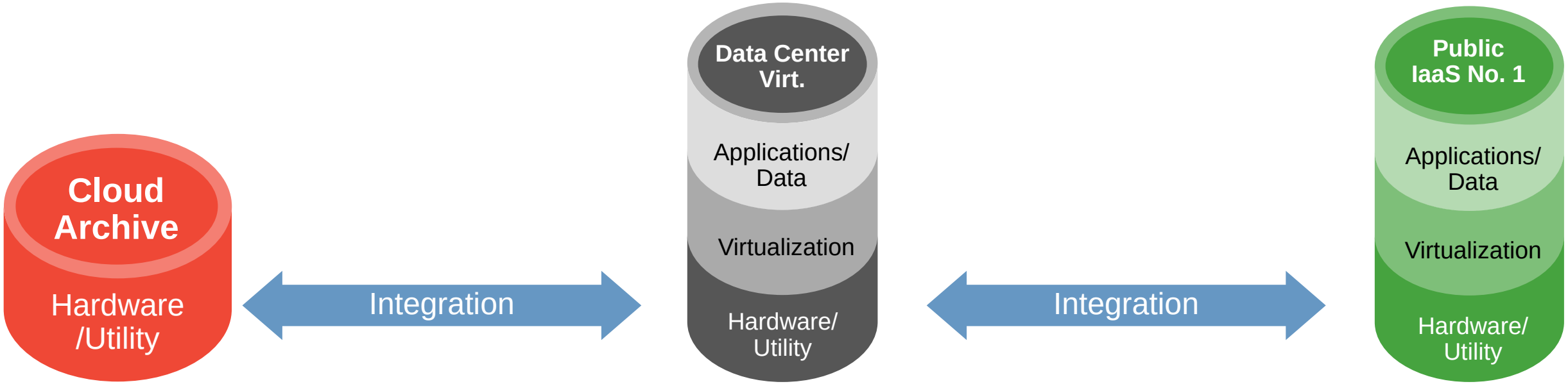
Hybrid Infrastructure



Integration of infrastructure hardware and utility components (only) between silos.

Examples: AWS Direct Connect, Azure ExpressRoute, federated identity, storage in colocation hub, compute in cloud IaaS with DB on-premises, backup to cloud.

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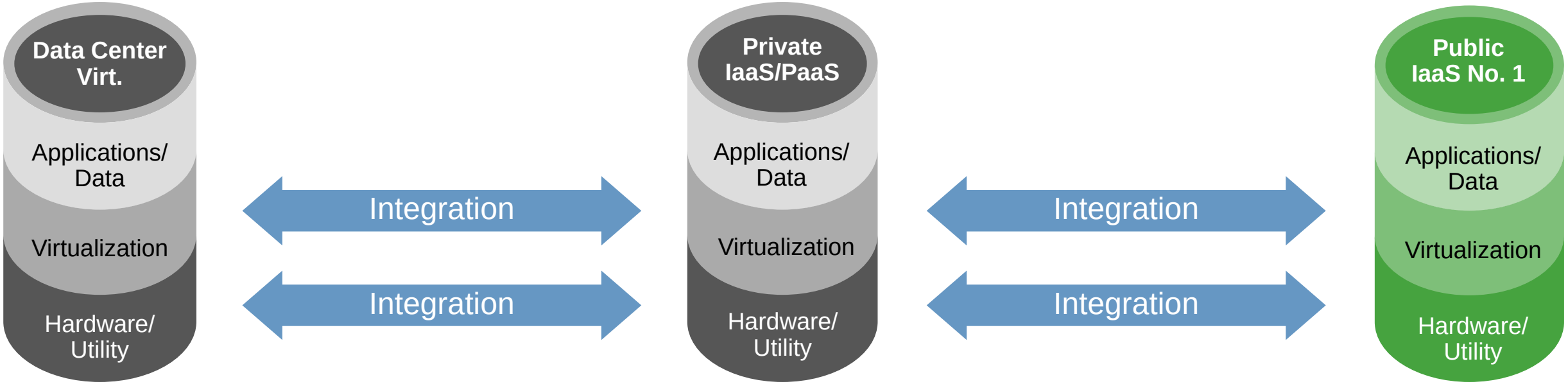
Hybrid Orchestration



A single composed service using a platform managing across silos, supporting workload portability and bursting between silos.

Examples: VMware's vRealize + vCloud Air, Microsoft's Azure Stack + Azure, cross-cloud orchestrators.

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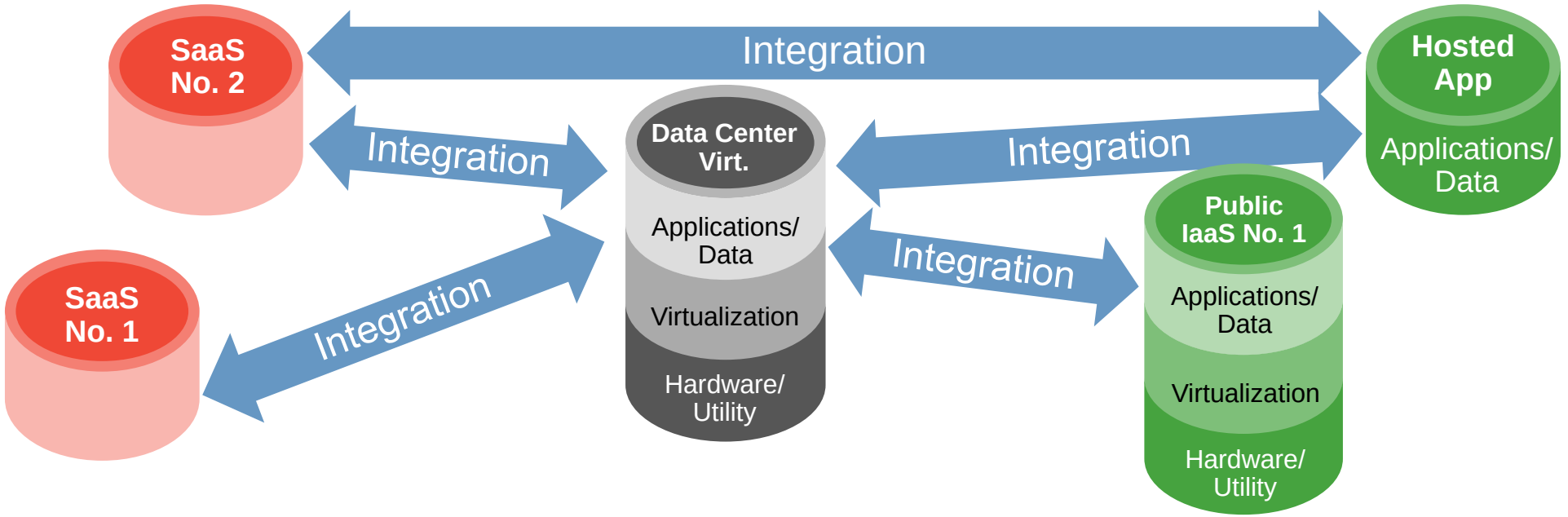
Hybrid Applications



Using application APIs, brokers or agents to enable the composition of services, applications and data spread across data center(s) and cloud(s) to build functionality.

Integration is at the application layer, not the CMP or infrastructure layer.

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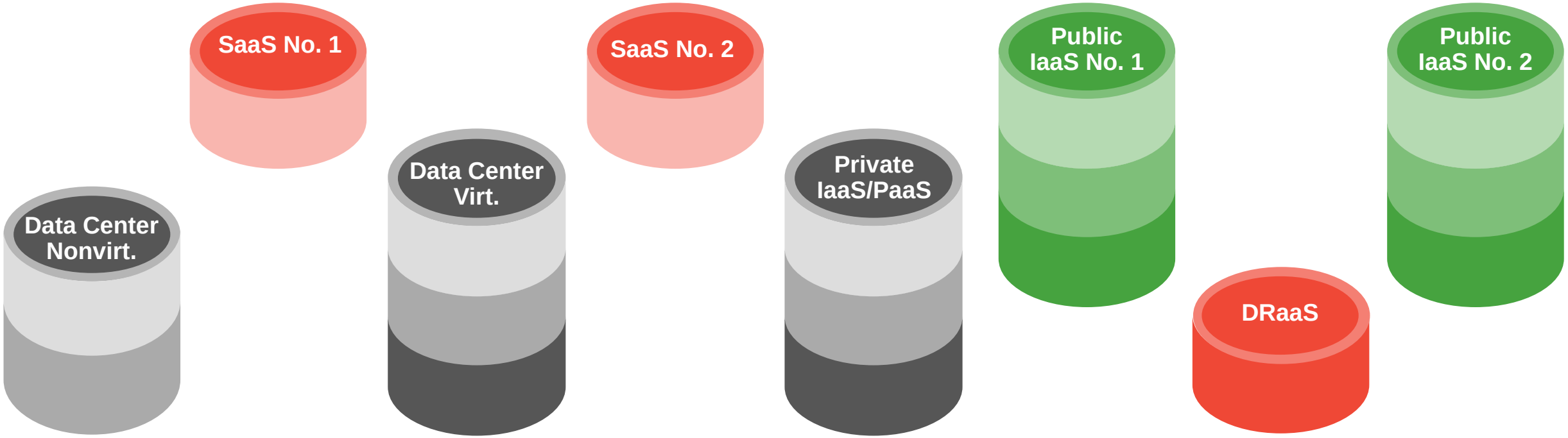
Multicloud Management



Management and operation with or without tight integration of services or mobility between the silos.

Examples: Cloud service brokers, virtual automation + AWS + Microsoft Office 365, VMware + SaaS.

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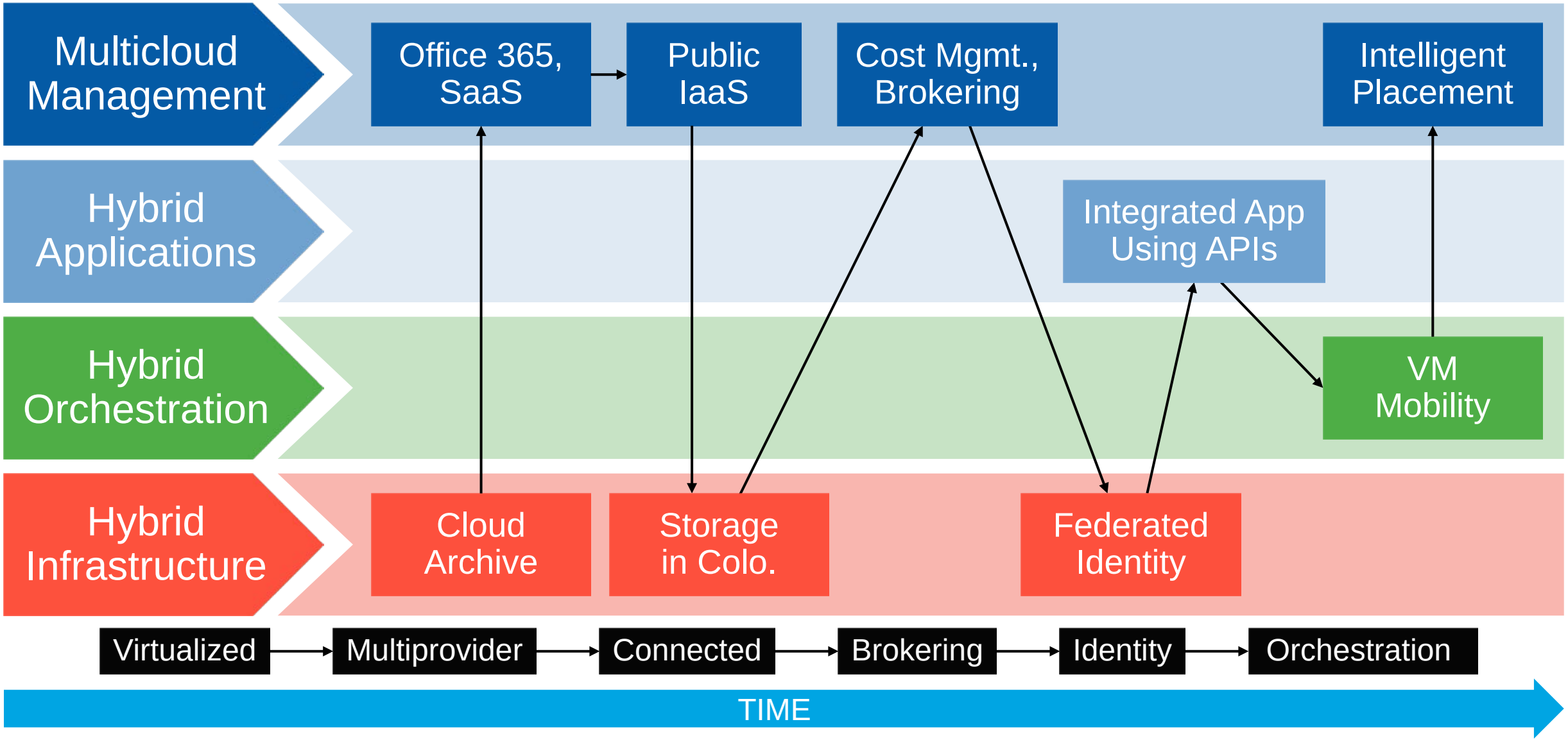
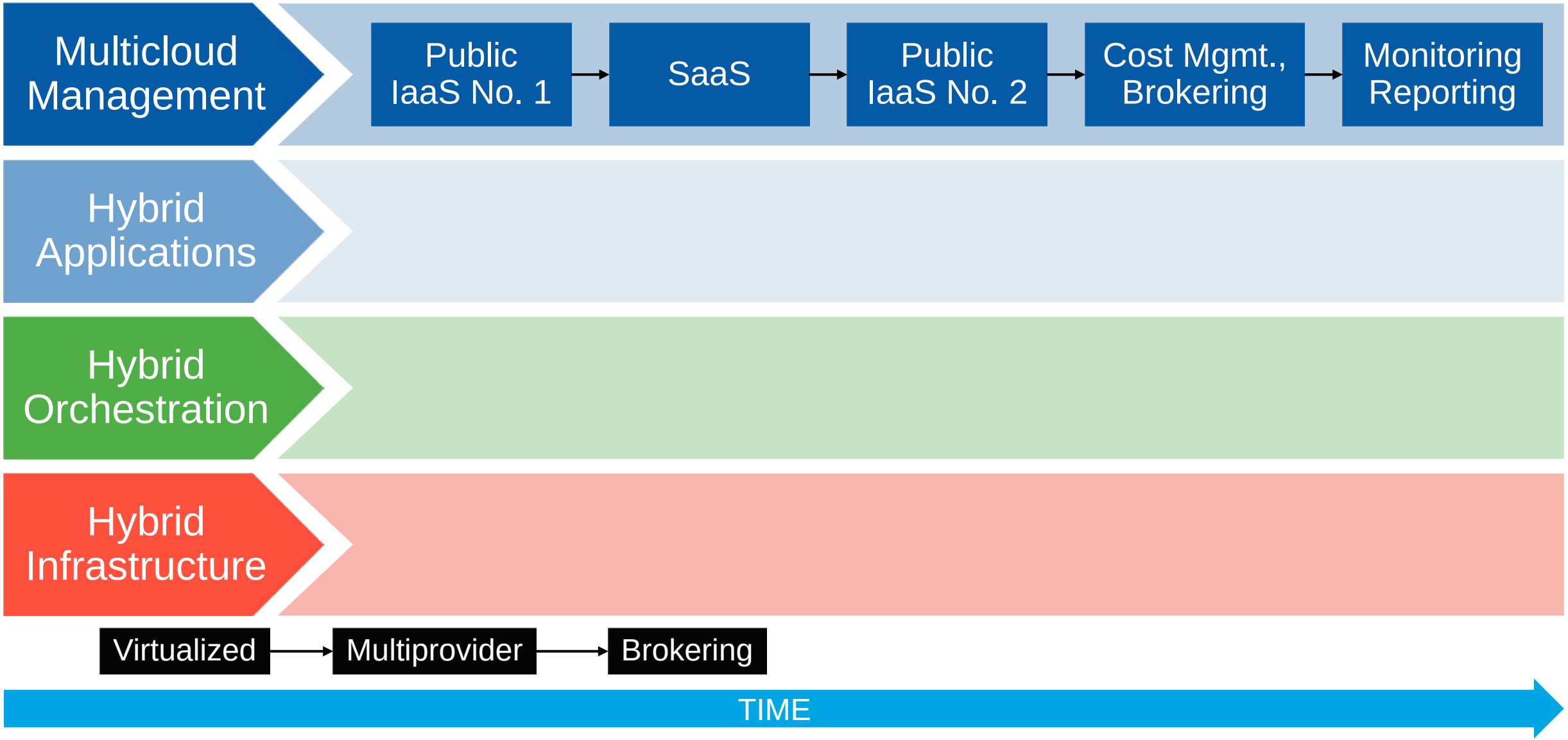
A Sample Journey



A Different Journey



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Here is my code. Just run it for me.
I don't care where.
I care!
About cost, performance,
security, availability, backup, DR …

What Is Private Cloud?

Private

- Infrastructure Isolation
- Single Tenant

Cloud

- Elastic
- User Self-Service
- Metered by Use
- Services Delivered by Control Plane (CMP)

"Private" Does Not Mean "On-Premises"

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Improving Private Workloads

Precision

- What needs to be private?
- Focus on modernizing most-provisioned workloads
- Clearly define the "private cloud" outcome to the business.

Disposability

- Standardization
- Avoid building "unique snowflakes"

Autonomy

- Evaluate self-service
- Process Improvement and Automation

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Principles to Keep in Mind

Not everything can or should be "cloud"

Some workloads must remain private due to regulatory compliance, physical location or other requirements

Private cloud-building technology will not deliver the breadth, depth, innovation of service providers

You can't update, innovate, or reduce the costs of internal cloud services as quickly as providers

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Guidance for Workloads

Why does it have to be private?

Why does it have to be cloud?

What do I need to build and operate, and what can be procured from a third-party provider?

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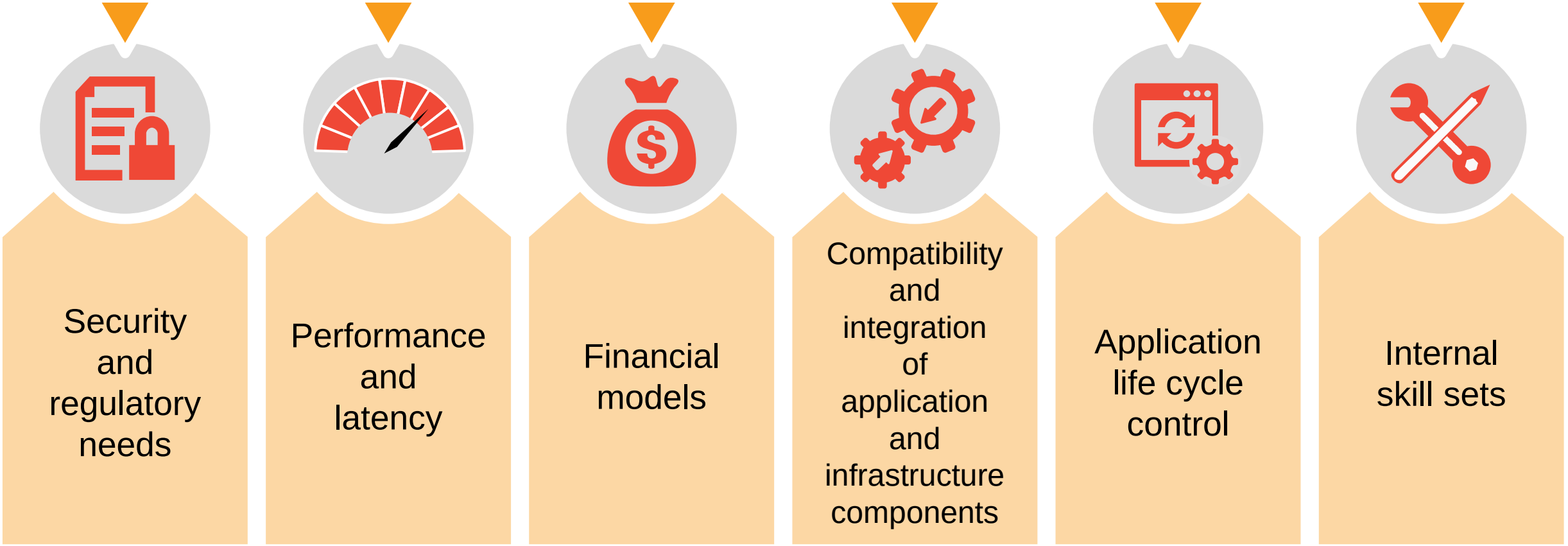
Which Workloads Need to Be Private?

The primary reasons for requiring private workloads are:



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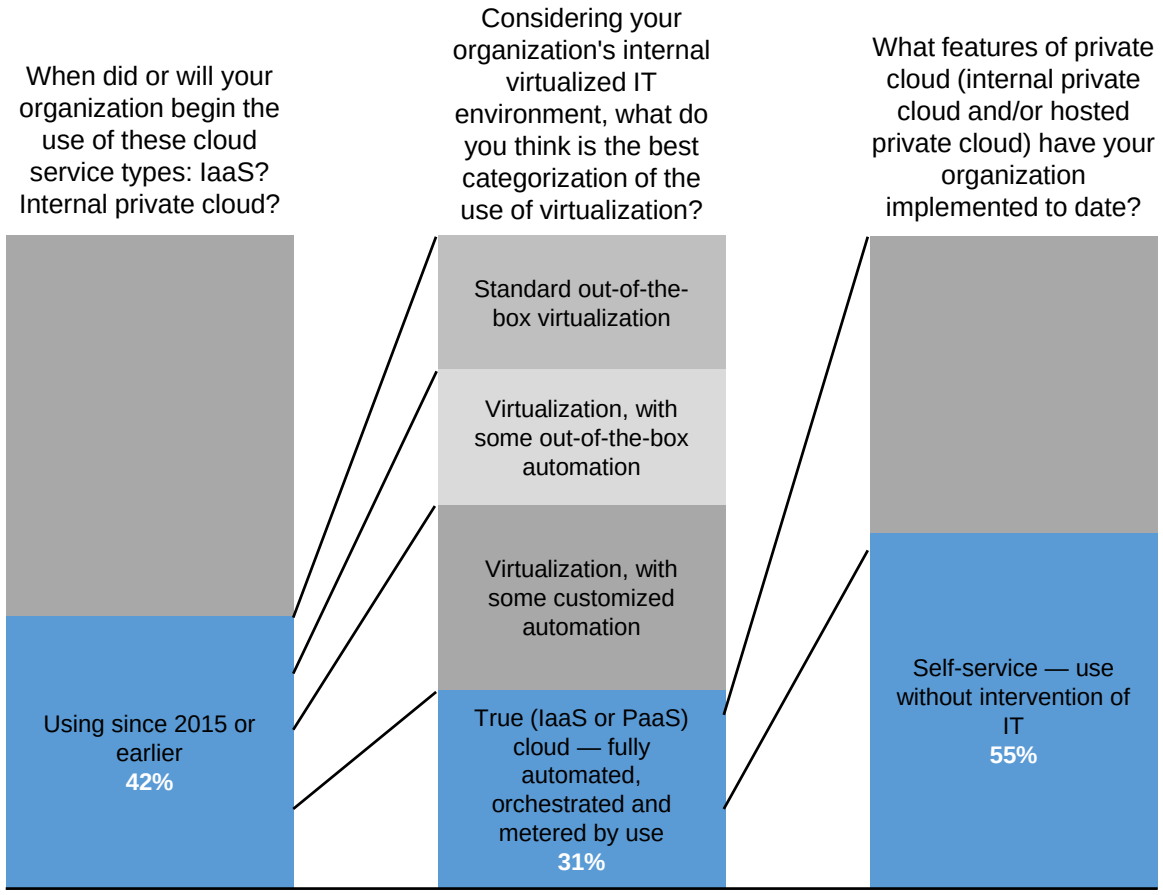
Why Does It Have to Be Cloud IaaS?



Only 7% of "Private Cloud" Implementations Are "True" IaaS Private Cloud

Gartner 2015 Cloud Adoption Survey, September 2015 n = 1,037

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Most Organizations Stumble Building Full Private IaaS

"We simply cannot keep up with the features and services coming from the public cloud providers"

"Life was easier for IT, but the business units weren't using it"

"Given the effort involved, we didn't see an ROI on the project"

"After 12 months of effort and hundreds of thousands of dollars, the business doesn't perceive a difference from IT"

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Questions to Ask for Workloads

- What services will run within your private environment?
  What can run on public providers?
- What class of users will you support for these private workloads?
- Do you need self-service?
  Only for IT or for end users/departments?
- Do you need advanced "as-a-Service" capabilities for your private workloads or just fast provisioning?

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Clearly Define the Goal

- Focus on delivering the value and benefits you **need**, regardless of whether that fulfills the definition of private cloud.
- You don't need to build an Amazon Web Services/Microsoft Azure clone internally.
- Failure happens because you try to build too much, too soon.

Source: Andy Jamieson

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Keys to Success for Private Workloads

Start Small, Think Big	▪ Exponential Complexity as You Add Options. ▪ Automate a Few, Most Provisioned Workloads. ▪ Choose the Correct Private Workload Approach.
Set the Process and Structure First	▪ "Who Owns This?" ▪ Ruthless Standardization. ▪ Silos Trying to Run a Cloud Doesn't Work. ▪ Automating a Broken Process Won't Fix It.
Define the Success Criteria	▪ E.g., "Reduce Deployment Time to Less Than Three Days."

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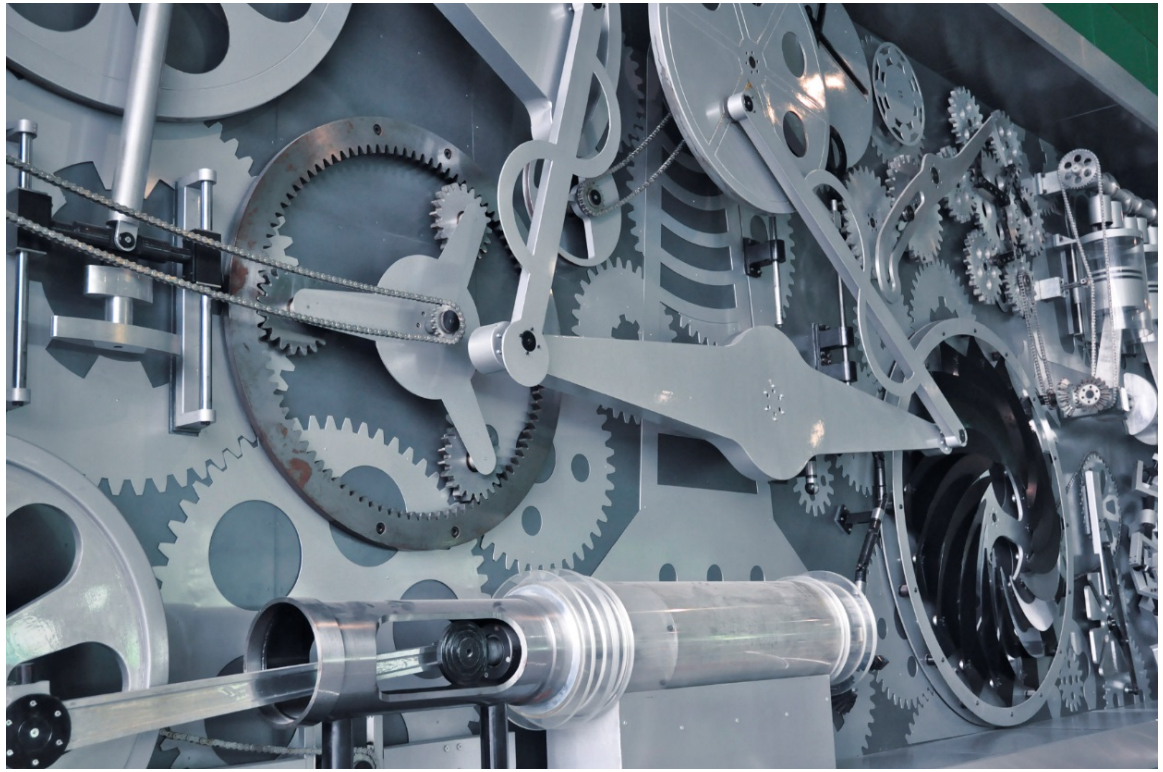
Choose the Simplest Solution That Meets Your Needs



Don't Build Anything Unless You Need to!

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Recommendations

- ✓ Define which private workloads are targeted for modernization:
  - Focus on the most provisioned workloads where agility is required.
  - Clearly define the private cloud outcome to the business.
  - Don't dismiss public cloud — what really needs to be private?
- ✓ Avoid complexity and significant customization (and self-lock-in) by externalizing capabilities where possible.
- ✓ Understand that "IaaS cloud" is not a requirement for all private workloads.
- ✓ Plan for a hybrid IT environment:
  - Public cloud will be in the picture
  - You still must improve private workloads as well.

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Reference

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Alternatives to Building Private IaaS

Simplified Data Center

- Hyperconverged Infrastructure
- Appliances and Bundled Solutions

Virtualization Automation

- Automation With CCA Tools
- Scripting
- DevOps

Private PaaS and CaaS

- Packaged Development Environments
- Container Management Platforms

Hosted/ Outsourced Private IaaS

- Offload Complexity
- Remain Single Tenant

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Automation: Tools of the Trade

CCA Tools

CM Tools

SA Tools

Provisioning



Scripts



Events

CI/CD Tools


ITSSM

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Common PaaS and CaaS Vendors

PaaS

Container Frameworks

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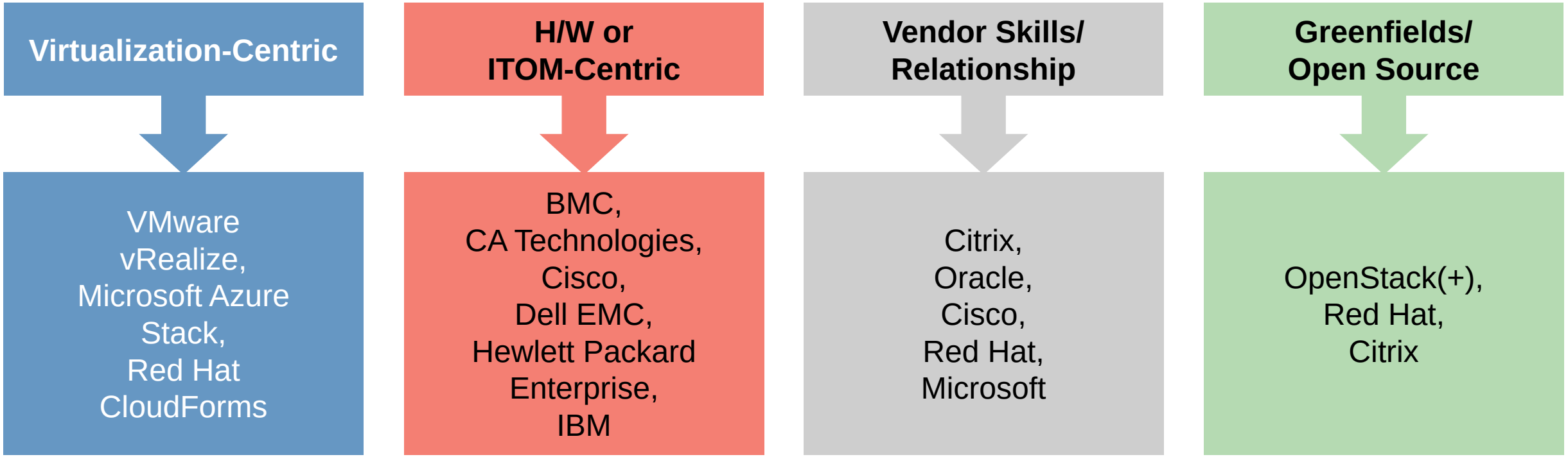
Common IaaS Orchestrators
Most Will Choose "Path of Least Resistance"

Organization Scenario



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