

# WebMorning APDC

## Hybrid Multicloud

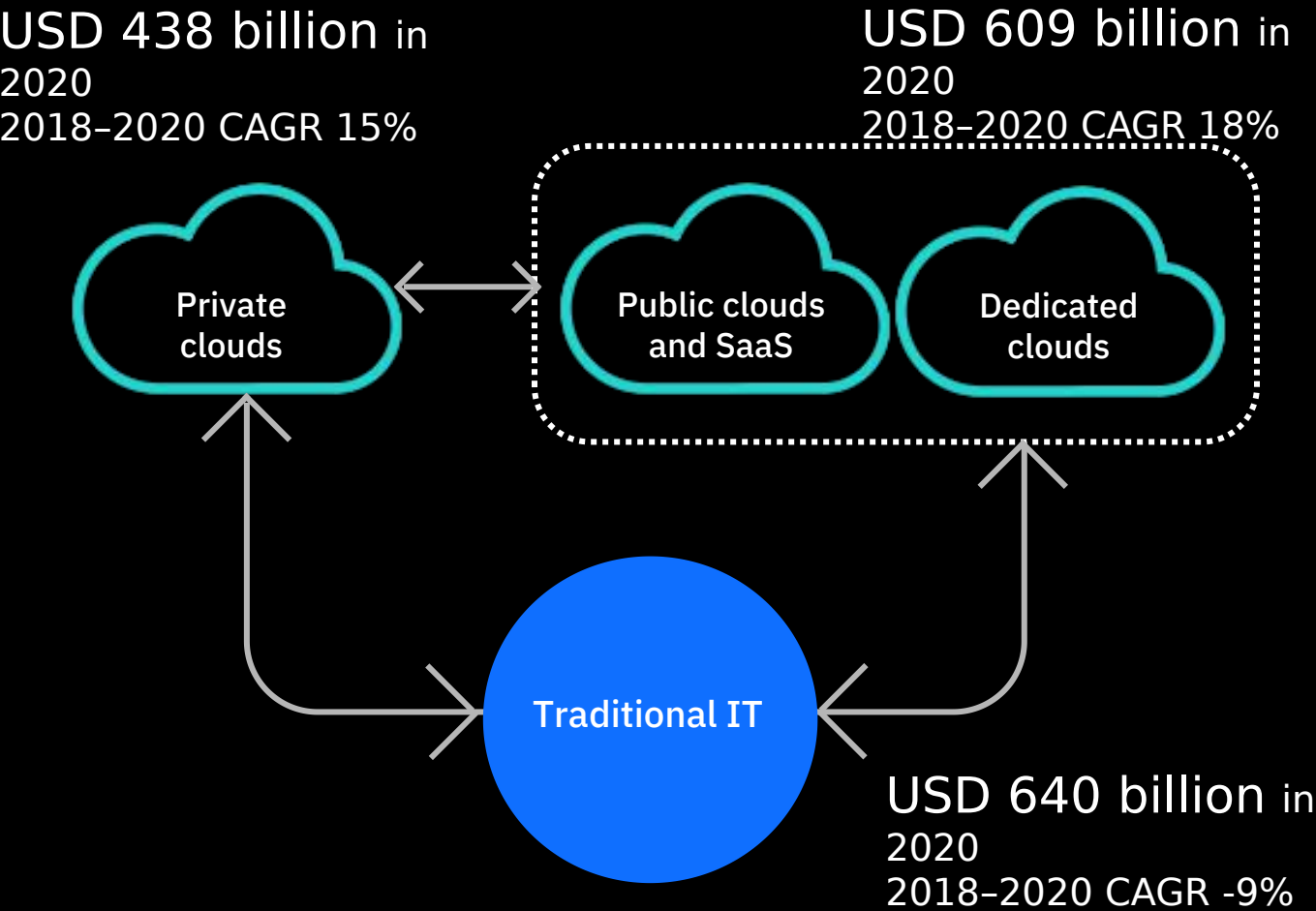
Frederico Muñoz | *Chief Architect*

APDC- September 2020



# When?

# Right now: the present is hybrid multicloud.



New opportunities and new challenges  
A real-world look at multicloud

94% Share of enterprise customers using multiple clouds

67% Share of enterprise customers using more than one public cloud provider



Movement between clouds

73% priority concern



Connectivity between clouds

82% priority concern



Consistency of management

67% priority concern

# Why?

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**Reduce lock-in:** pick and choose to enable future roadmap adjustments.

**Reduce risks:** bigger surface area, less catastrophic events.



But...

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**Quality:** forcing developers to use multiple technologies and clouds can be detrimental to quality control.

**Control & complexity:** multiple CSPs, multiple dashboards, multiple invoices .

54%

of enterprises execs say that they lack clear guidance or a strategic partner in multicloud

- **Lack of expertise & skills** to exploit true benefits of cloud and manage the unprecedented increase in complexity and heterogeneity of Hybrid Multicloud environment in a secure manner

66%

say an actively managed environment is crucial to get full value from multicloud

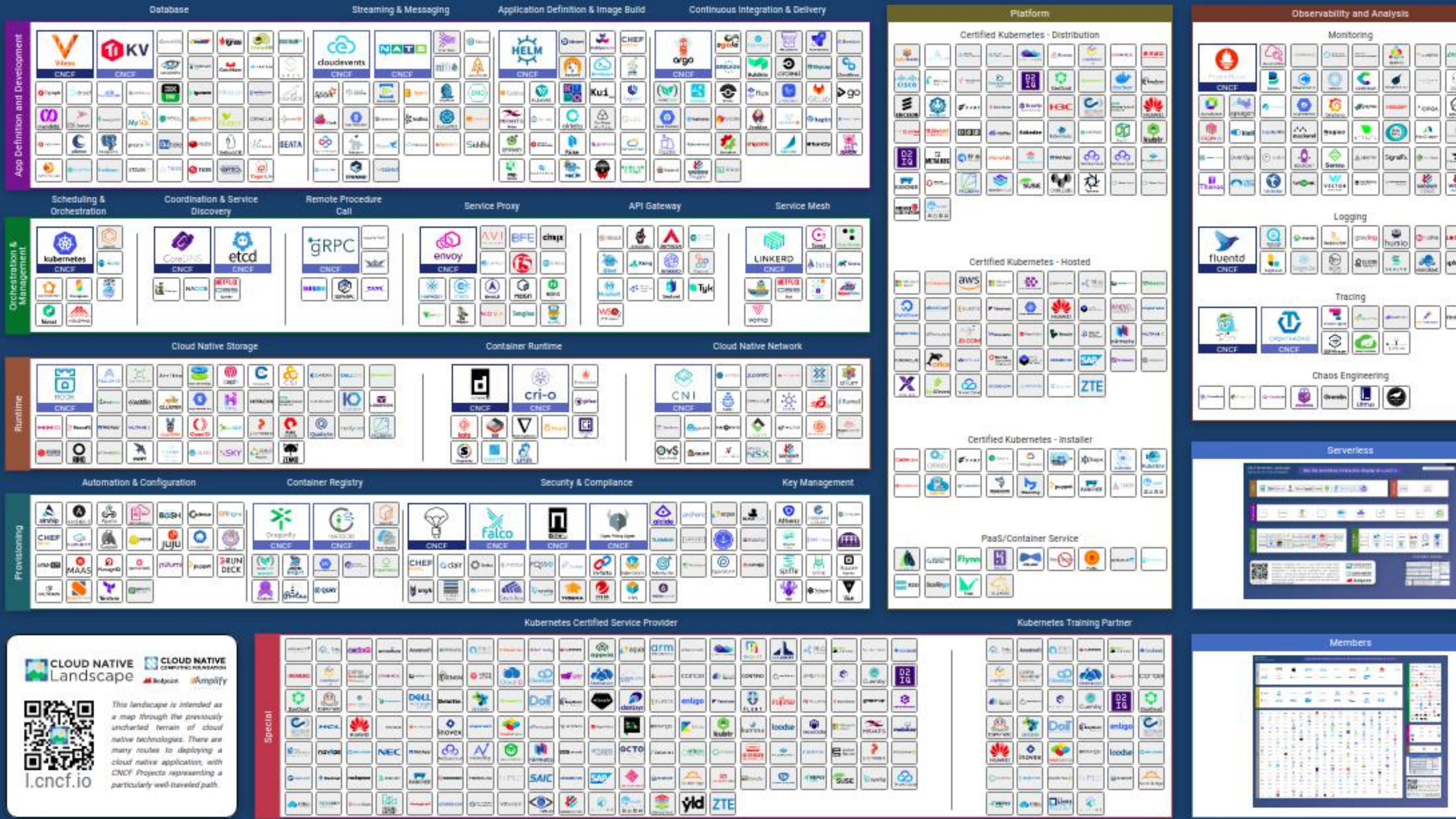
- **Lack of visibility and control** with Shadow IT potentially leading to Cloud sprawl

75%

of client workloads are “on prem”

- **Need for agile infrastructure management services** driven by DevOps & Containers that support faster time to market needs for applications.







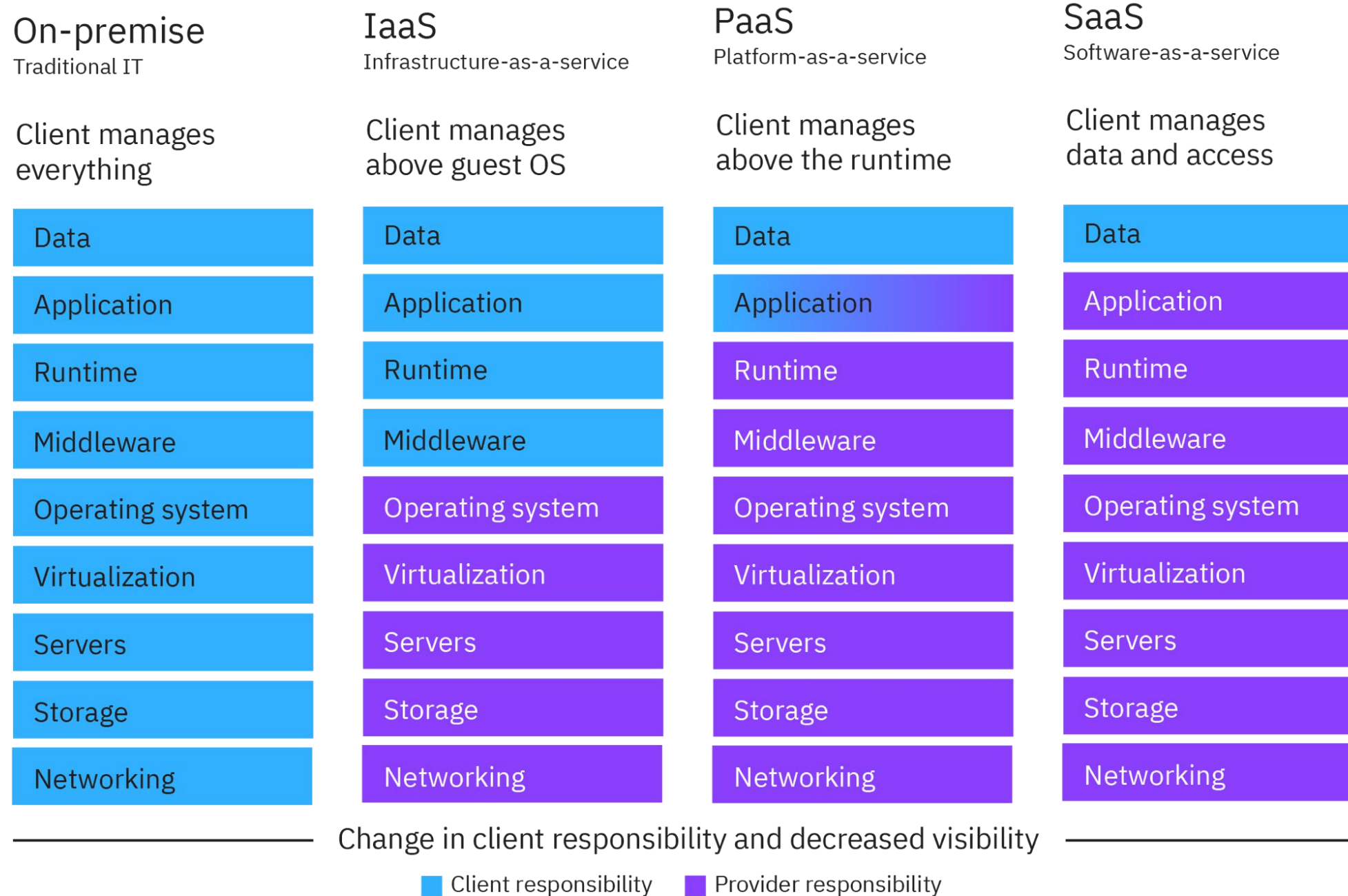
So while Hybrid Cloud is often a **necessity**,  
it's still being debated if it's really  
something to actively **seek after**.



(we think it is, with the right approach)

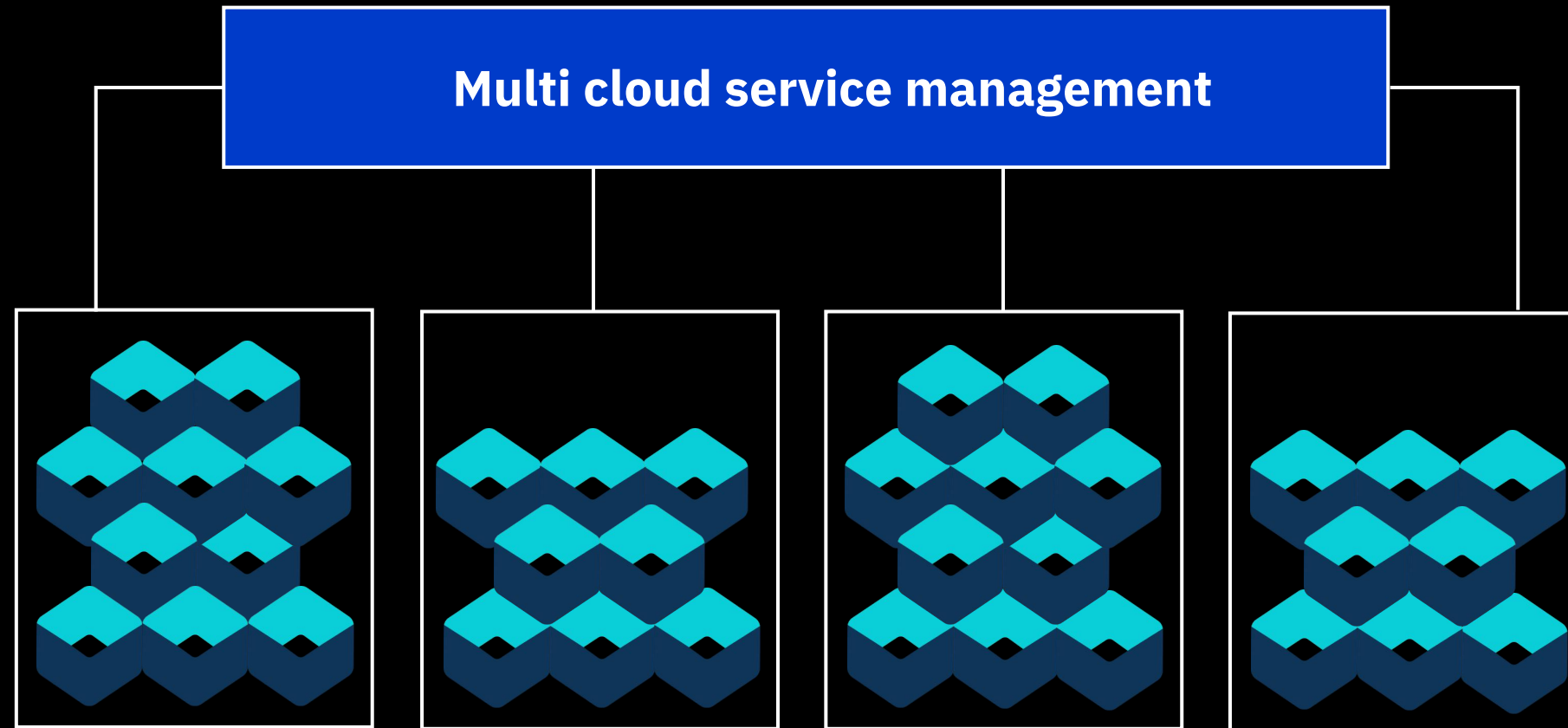
there is also **security** to  
consider

## Shared and changing security responsibilities



# and management

# The goal is to have visibility and control...



# ... with a lot of areas that need new answers.

## Orchestration & Tooling

- How to store and deploy images, applications and containers?
- How to maintain versioning?
- How do I ensure only approved changes are run?
- How do I recover when a system fails?

## Scalability

- How to grow the environment when more teams start to deploy their apps?
- Where should they scale to?

## Storage and Networking

- Where will application data be stored?
- How do I connect storage to different platforms?
- How will it be backed up and restored?

## Monitoring

- How do I monitor my applications and their underlying infrastructure in different clouds?
- How do I bring this together into an easy to understand dashboard?

## Security

- How do I secure my multicloud workloads and ensure vulnerabilities are not introduced?
- How do I get a comprehensive view of the several platforms?

## Development Tools

- How do I rapidly build and use an end to end development toolset?
- How do I extend this tools to the existing landscape?

# The “unified management” challenge

# Extending the cloud to on-premises

**A lot can be done with open technology and open standards, but consider:**

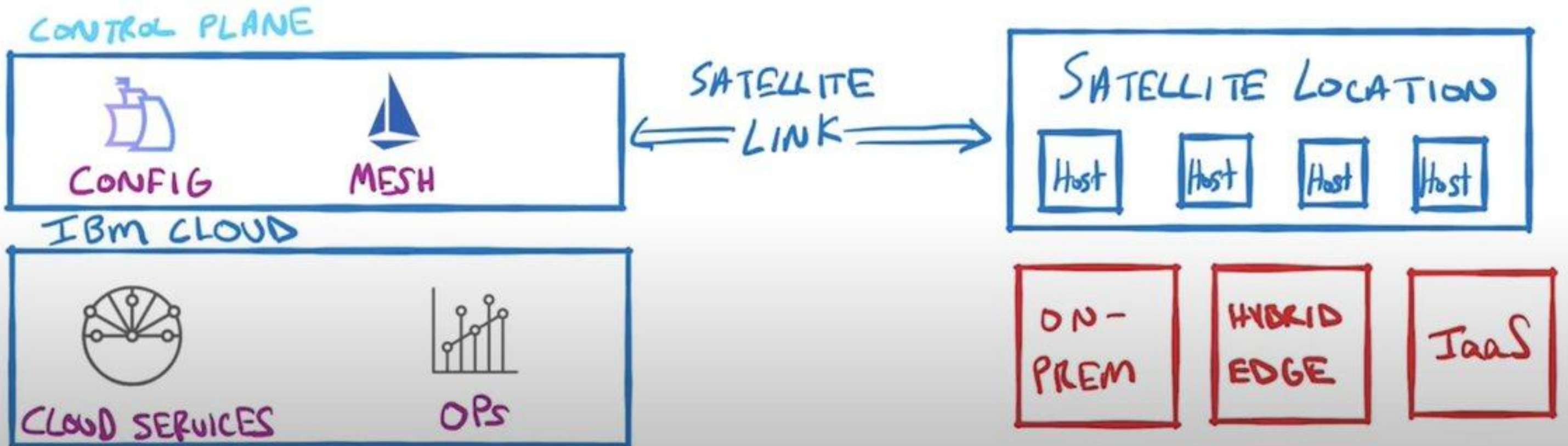
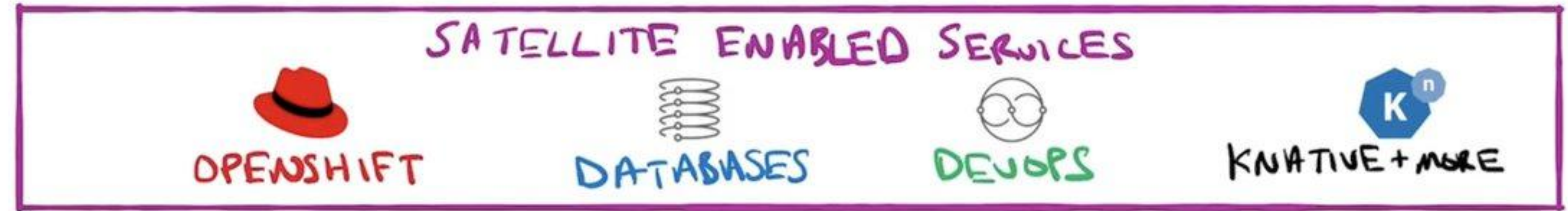
- **Programatic, API-based approach is sometimes insufficient** for operational control and visualisation.
- **No “single pane of glass”**, at least out-of-the box.
- **Requires a set of skills** that is not always aligned with how teams are currently structured.
- **Mostly DIY methods** to deploy on-premises and in the CSP region in a transparent way.
- **Lacks standardised networking/server/storage** approach for on-premises



# ”Hybrid extension” solutions

**Meta-control panes, application development enhancers, edge extensions... addressing regulatory and network latency problems, amongst others.**

- Google Anthos
- Amazon Outposts
- Azure Stack
- IBM Satellite



# How do we think it will work?

# With a plan to get there

# “Multicloud” begins with getting to the cloud... how?

~3,300 resources engaged in Build on Cloud activities

**Develop Rapid MVP Using Modern and Standard Tools**

AT&T | RBC | Citi | Siam Bank | Qantas

45+ App Ops engagements within the last 2 years

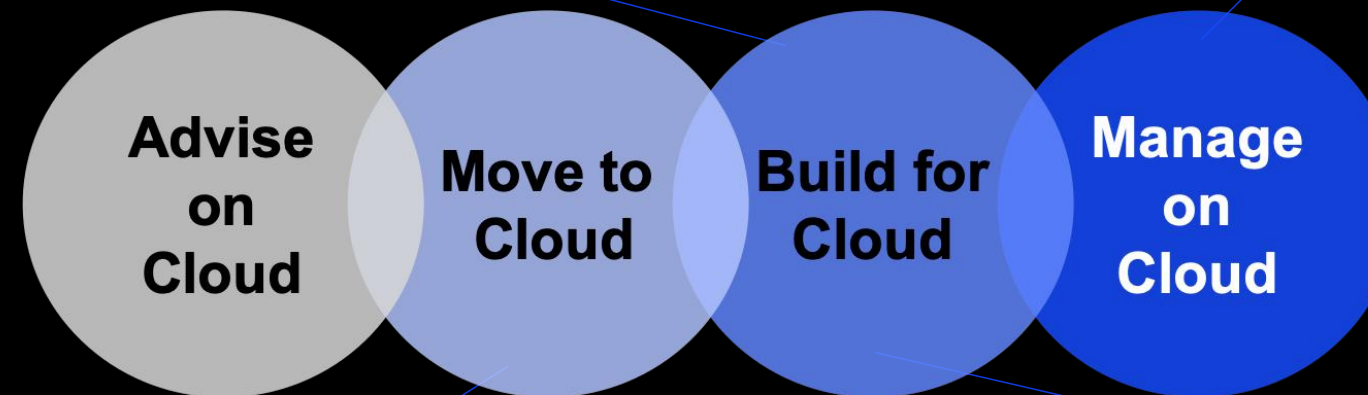
**Run Hybrid Multicloud DevOps and Business Service Operations**

Macy's | Philips | AA | Daimler | Unilever

70+ IT operating and organizational model engagements within the last 2 years

**Frame the Transformation**

Santander | Westpac | Lloyds | Vodafone | Kohl's



>75 modernization engagements in the last 2 years

**Transform Application Portfolio to Hybrid Multicloud**

AA | MetLife | Horizon BCBS | ABN Amro | Allianz

100,000 workloads migrated

**Focus on Efficiency and Speed in Migration**

Westpac | ABN Amro | Vodafone | AXA | WPP

using (one of the available)  
frameworks

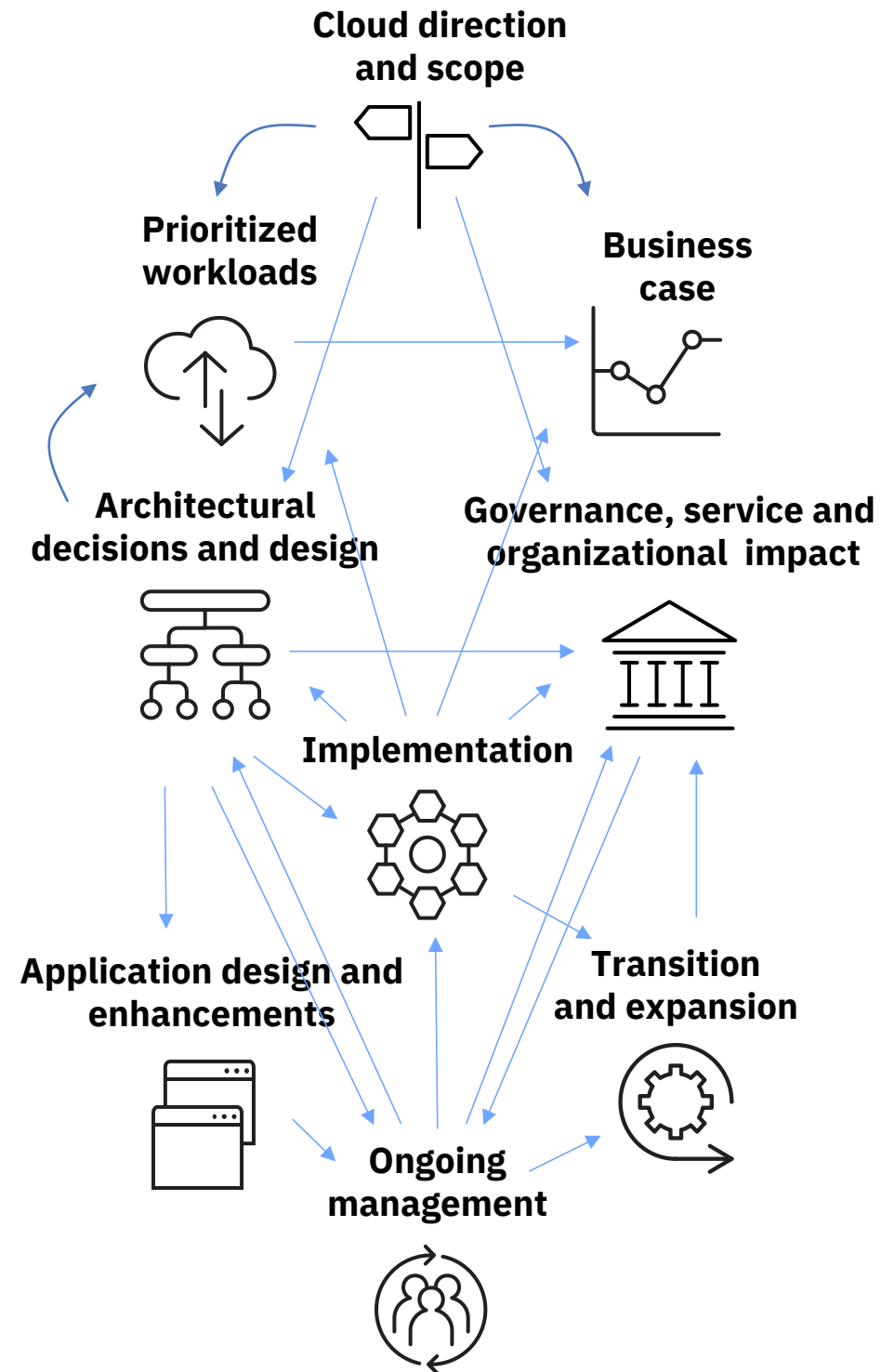
# The Adoption Journey

Envision

Design

Realize

Support





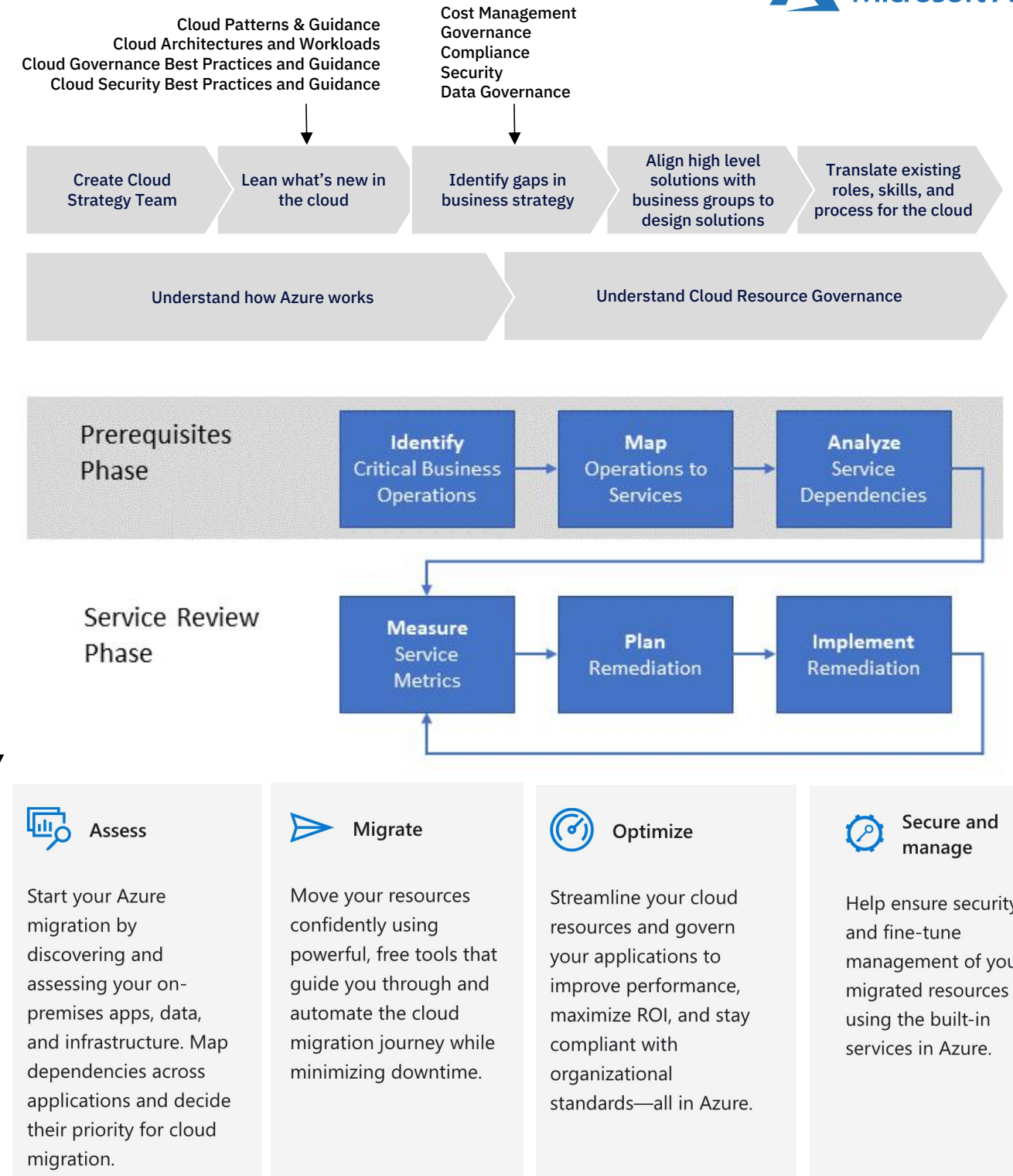
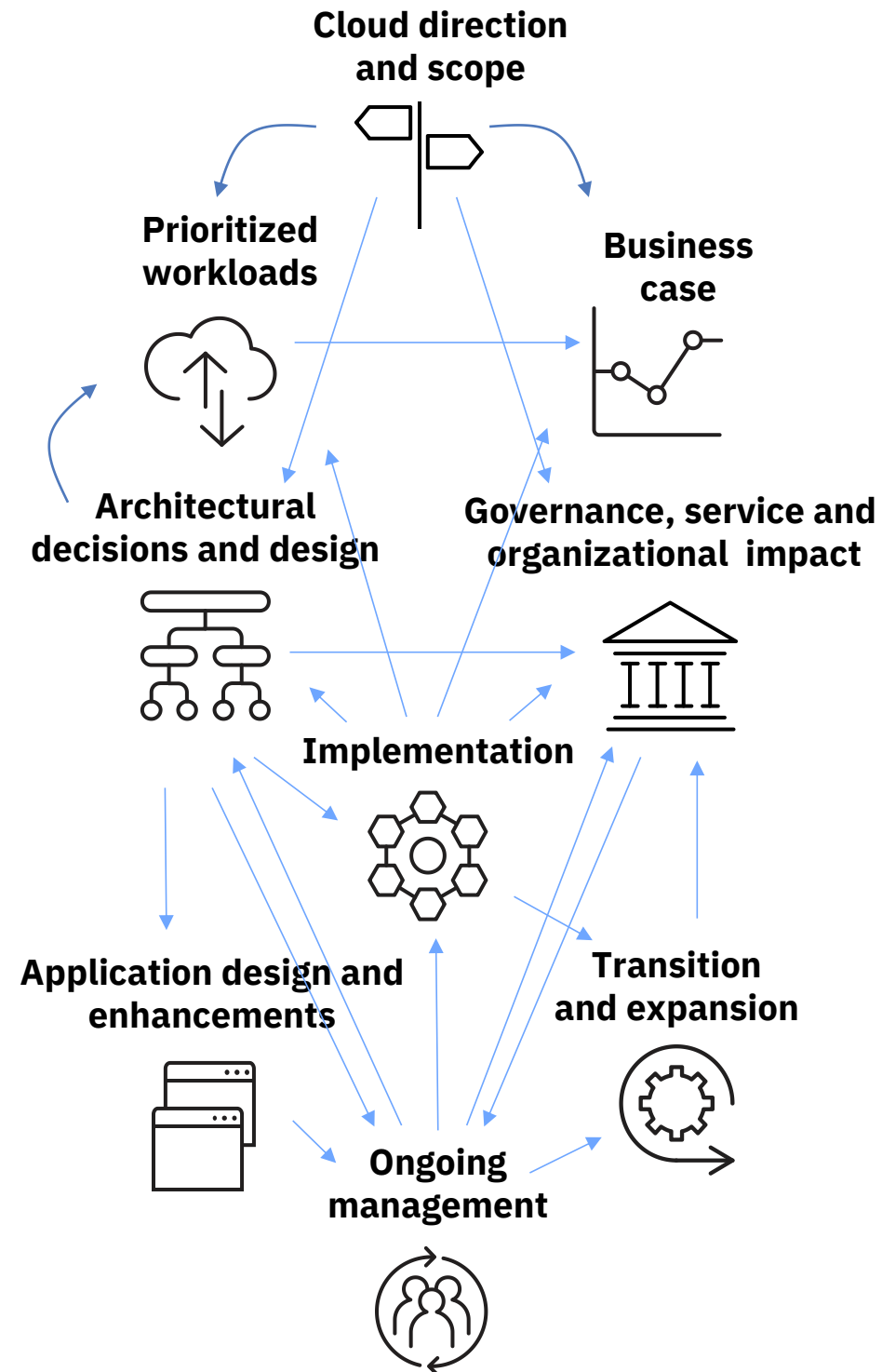
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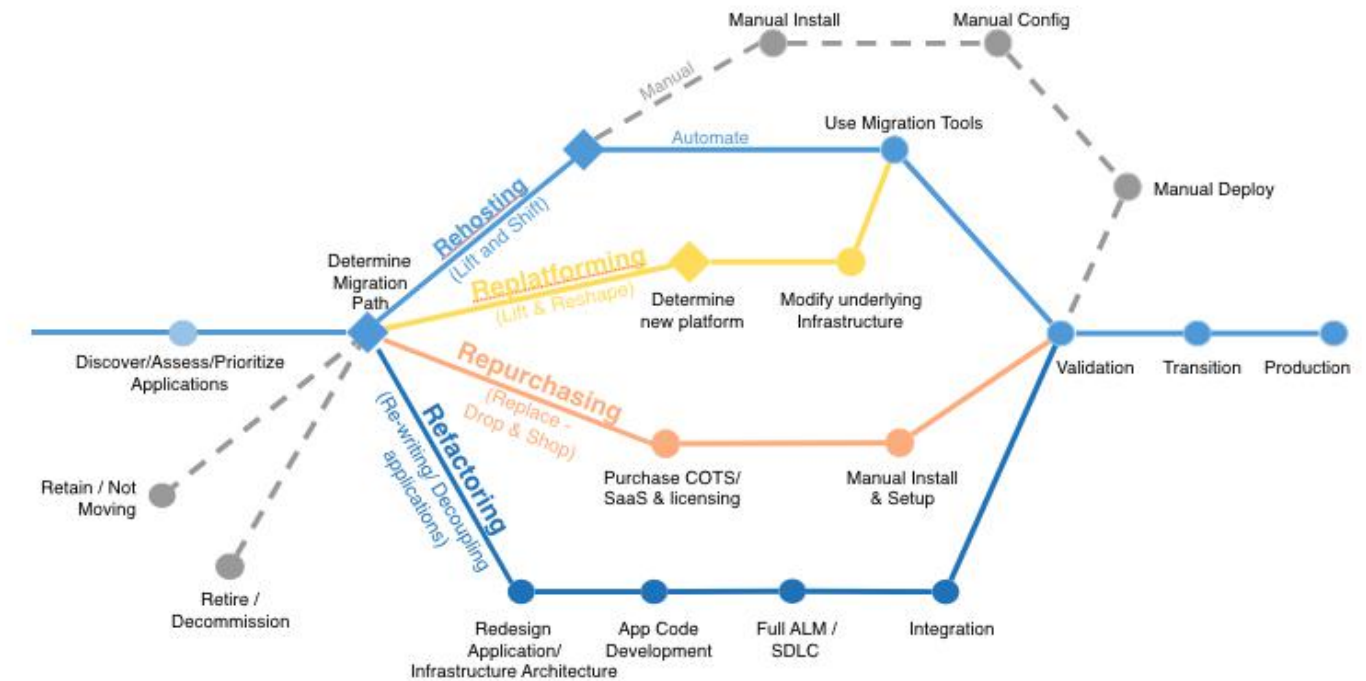
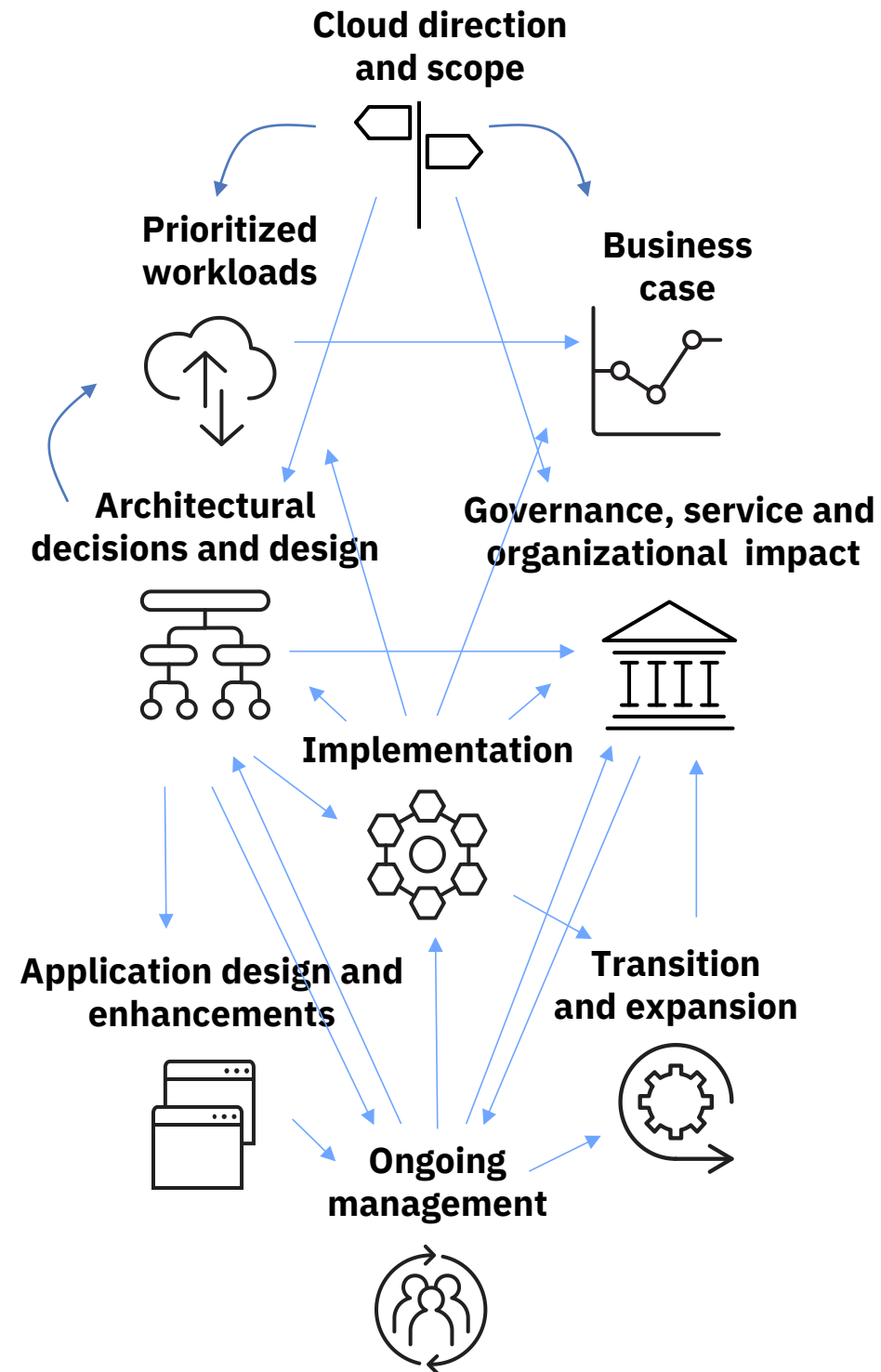
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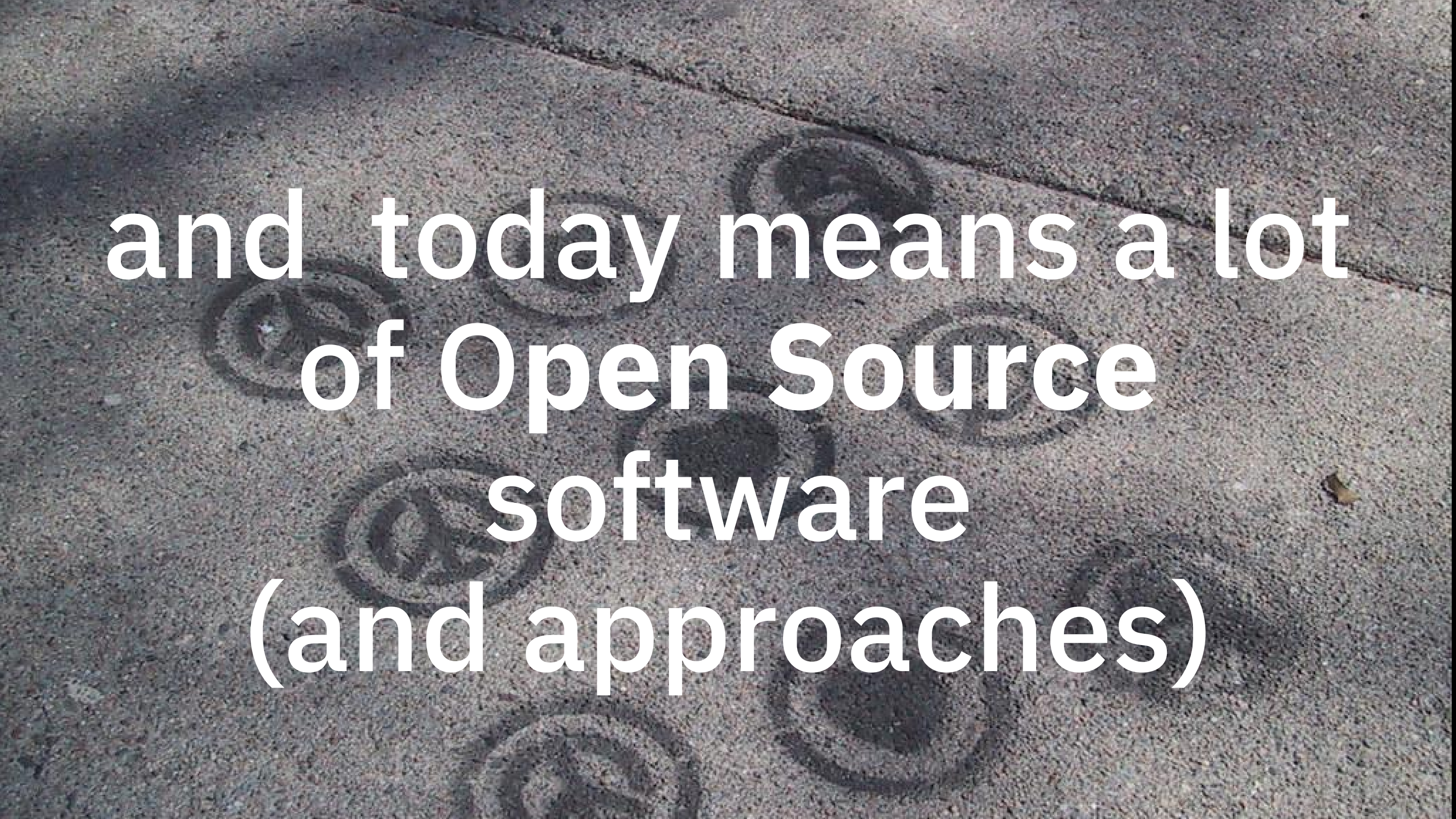
Design

Realize

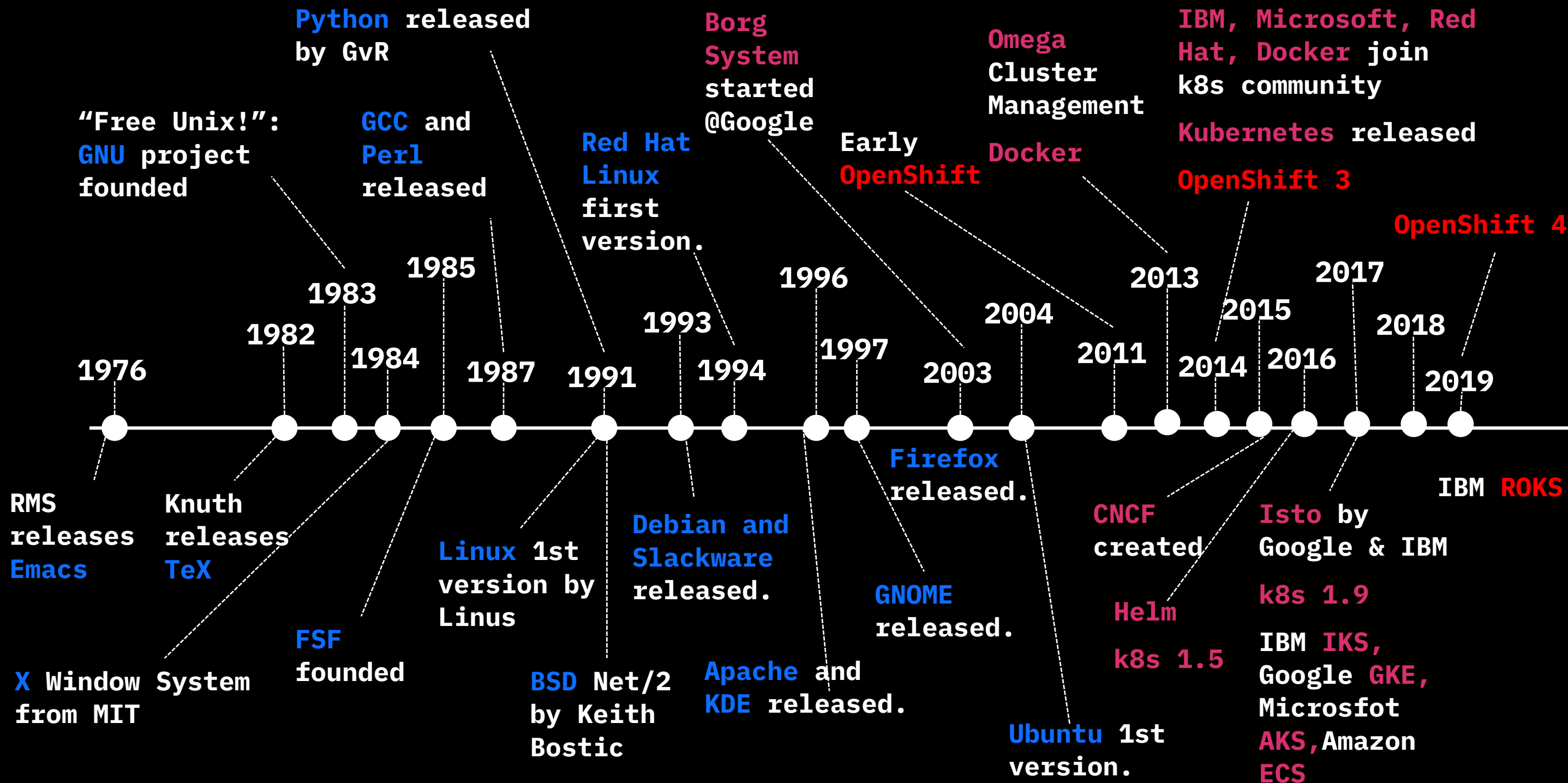
Support



With the **right technology**,  
avoiding adding *another lock-  
in point.*



and today means a lot  
of Open Source  
software  
(and approaches)

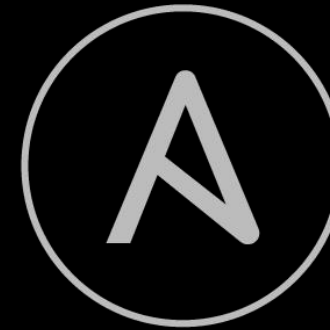


For us, FOSS is a cornerstone  
of *any* strategy.

## Orchestrate, both old and new.

*Bringing together disparate things into a coherent whole*

Fundamental aspect of multicloud and the evolution of current IT. Through application of Infrastructure-as-Code / Desired State Configuration provide: modernise once, harvest the fruits through low-touch management & improved quality of service. Extension of CI/CD mechanisms to so-called "traditional infrastructure" is key for a seamless evolution.



In IBM we have been increasingly focusing on **Ansible** as an engine for this cross-domain, multicloud orchestration; this allows us (and the many clients, partners and competitors that use Ansible) to adopt a vendor-agnostic orchestration and automation approach that crosses the cloud boundary.

# OpenShift, a common language for a multicloud world.

*Deploy anywhere, any time.*

Kubernetes in general and OpenShift in particular are an essential piece in any multicloud strategy: as a target for cloud-native and more generally for containerised solutions, it provides the feature set, the reliability, the community buy-in and the technical robustness needed for a multicloud strategy.



OPENSIFT

**OpenShift** is a Kubernetes-based platform, open source and based on the upstream OKD project, to which Red Hat adds support and value-added features. As a target platform for applications it enables multicloud and hybrid cloud adoption, as a batteries-included container orchestration platform it speeds up adoption.



... and we have been using it  
successfully ourselves



# Eating our own dog food: refocusing offerings to a multicloud reality

## Cloud Pak for Applications

- modernize applications
- develop cloud native apps
- deliver apps on multiple clouds

***Build applications***

## Cloud Pak for Data

- connect data for self-serve analytics
- operationalize AI w/ trust & transparency
- Avoid lock-in, run anywhere with agility

***Predict outcomes, automate data tasks***

## Cloud Pak for Integration

- integrate across hybrid, multicloud
- secure access across clouds
- integrate legacy & cloud native apps

***Connect everything anywhere***

## Cloud Pak for Automation

- automate decisions and workflows
- enrich content with intelligence
- visualize ops data; optimize processes

***Automate work***

## Cloud Pak for Multicloud Management

- dynamically monitor and ensure compliance
- create visibility across hybrid environment
- optimize app. modernization and IT ops

***Manage hybrid environments***


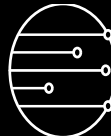

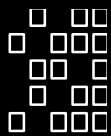

## Cloud Pak for Security

- connect security data and tools
- gain security insights
- orchestrate and automate actions

***Secure hybrid environments***

which is why we build our  
platform as an hybrid cloud  
platform *by default*

Hybrid Multicloud platform

	<b>Expertise</b>	Strategy   Design   Development   Operation
	<b>Advanced Technologies</b>	AI   Analytics   Blockchain   Encryption   IoT   ML   Quantum
	<b>Capabilities</b>	Application   Data   Integration   Management   Automation   Security
	<b>Foundation</b>	Linux   Containers   Common services   Multi-cluster management
	<b>Infrastructure</b>	IBM Public Cloud   AWS   Azure   Google Cloud   Edge   Private   Systems

including Multicloud  
management.

## Application and Workload

CloudNative Application

IBM Cloud Paks  
(Middleware)

Data and Analytics

AI Watson Services

## IBM Multicloud Management and Operation

IBM Multicloud Manager (MCM)

Cloud Automation Manager  
(CAM)

Service Catalog

Core Operational Services  
(log, Monitoring, Metering,  
Alerting)

## Container Orchestration Platforms

IBM Cloud Private

Red Hat OpenShift

IBM IKS

AWS EKS

Azure AKS

Google GKE

## Cloud Providers



More than *our* software,  
what's needed is an open  
ecosystems of hybrid  
multicloud solutions: a  
multicloud marketplace

A simpler way to buy and deploy  
container-based software across clouds



Find certified software for Red Hat OpenShift



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In short, and reviewing the  
previous issues:



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**Complexity:** focus on open technology, and on using it in a way that the backed is easily instrumented, but with an easy-to-use frontend for multicloud management.

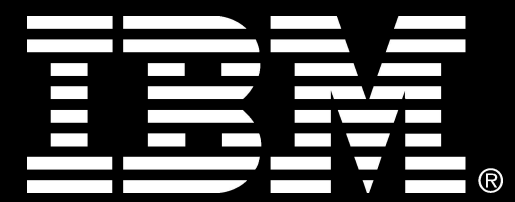
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# Additional References

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