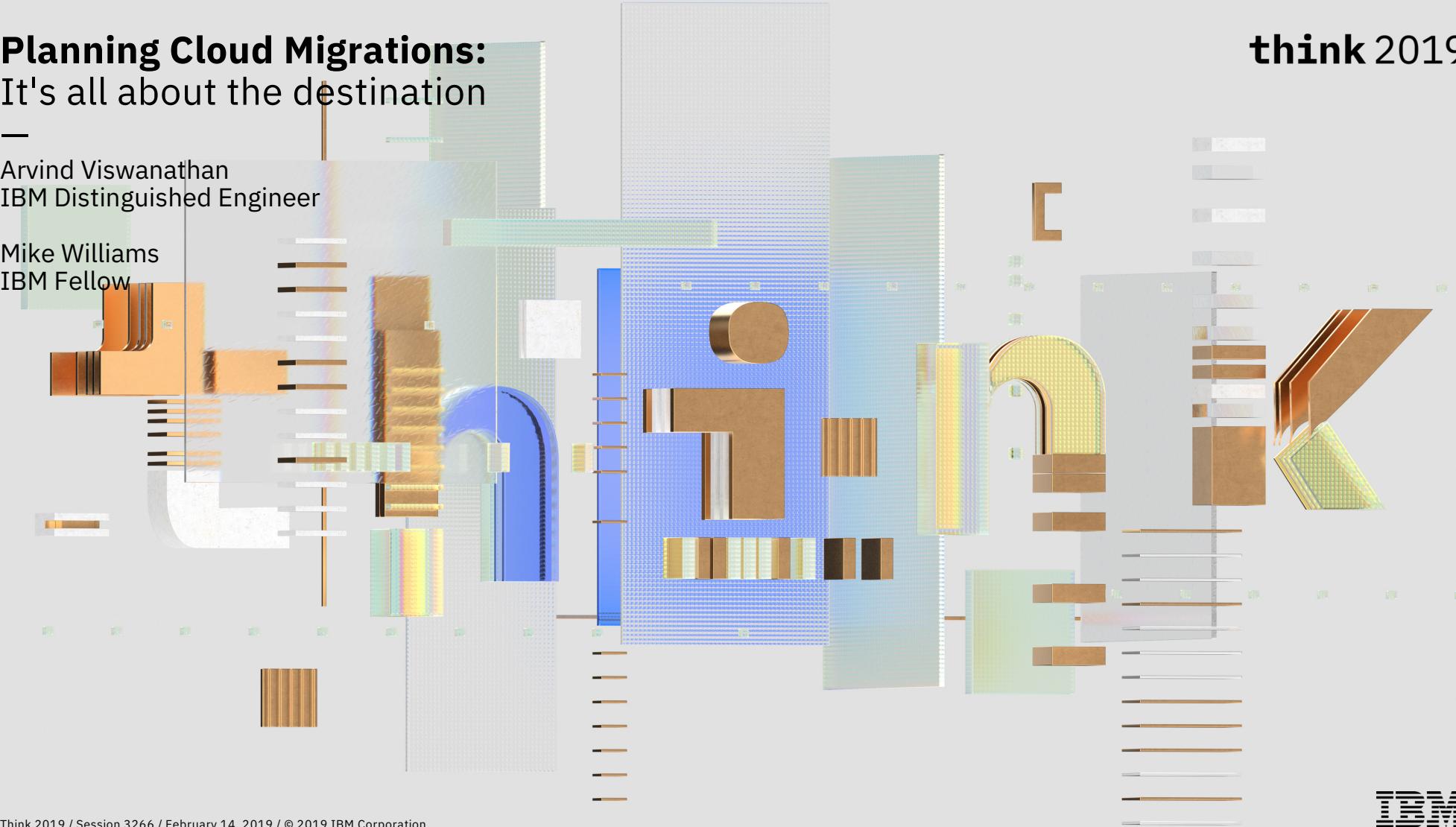


**think** 2019

# Planning Cloud Migrations: It's all about the destination

—  
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IBM Distinguished Engineer

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Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.



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# Agenda

## Problem statement

What does it take to plan your journey to the cloud?

## Success factors

The key questions to ask when planning your journey

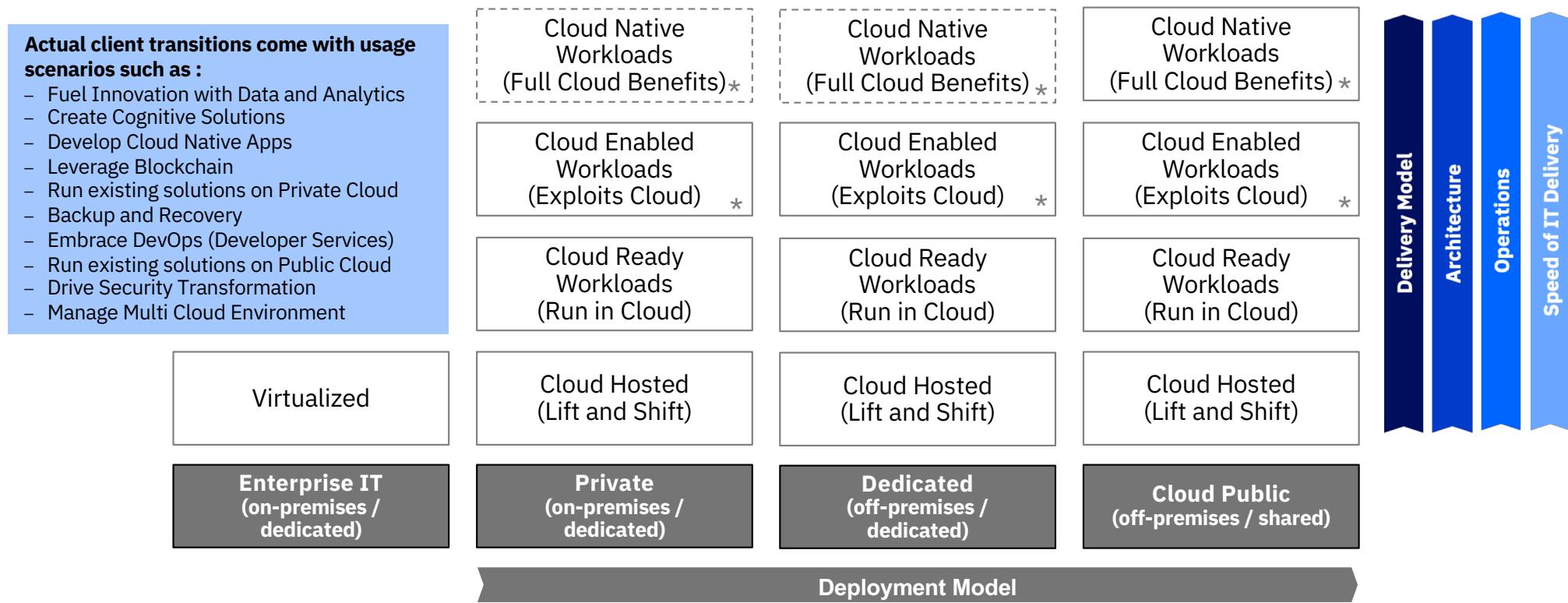
## Our Approach

IBM Cloud Advisory process, methods and tools

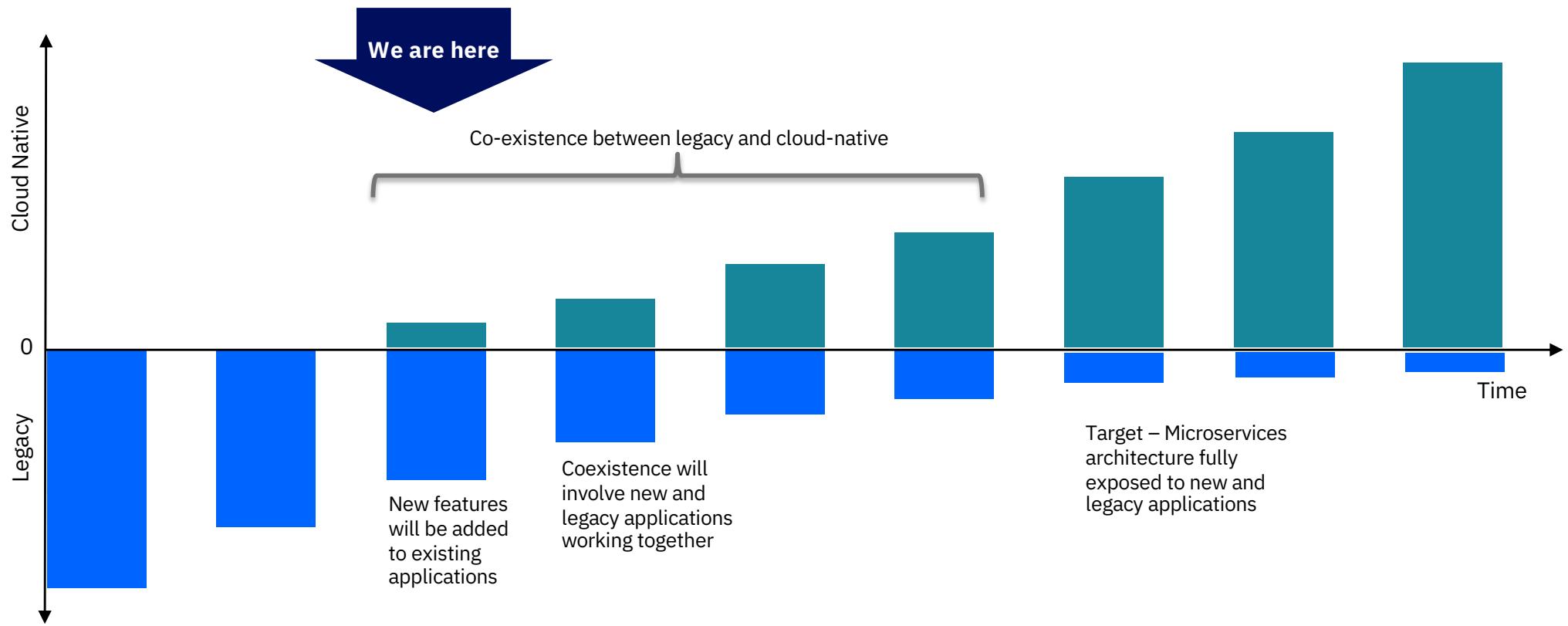
# Cloud adoption maturity dimensions

Maturity	 <b>Cloud hosted</b> Lift and Shift	 <b>Cloud ready</b> Runs in Cloud	 <b>Cloud enabled</b> Exploits Cloud	 <b>Cloud-Native</b> Full Cloud benefits
Gates	Ungoverned implementations + PoC's + Some automation	Partial 12 Factor adoption + Horizontal scalability	Agile DevOps + Container orchestration + Self healing	Resilient deployment at scale + Microservices w/CI/CD
Characteristics	<ul style="list-style-type: none"> <li>✓ IaaS</li> <li>✓ Improved agility</li> <li>✓ Some automation</li> <li>✓ Single speed IT</li> </ul>	<p style="text-align: center;"><b>Delivery Model</b></p>	<ul style="list-style-type: none"> <li>✓ Hybrid (XaaS)</li> <li>✓ Composable at scale</li> <li>✓ DevSecOps with AI</li> <li>✓ Multi-Modal IT</li> </ul>	

# Enterprise Out Cloud Journey Framework



# Cloud native & legacy apps will co-exist for the next 10+ years



# IBM's Cloud Innovate Method

...not just for IBM Cloud



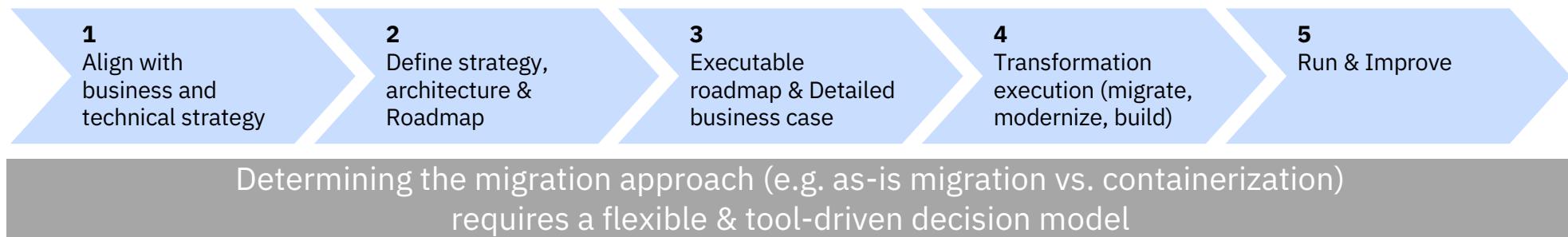
Think 2019 / Session 3266 / February 14, 2019

Cloud Innovate is IBM's method built on years of cloud experience, our breadth of expertise, and industry best practices.

The method provides a streamlined approach to facilitate your hybrid cloud journey using predefined pathways and practices

- Full lifecycle – from advice to management
- Full stack - Addresses Applications, Infrastructure, DevOps to cover hybrid journey
- Consistency of experience from IBM ensuring predictable outcomes
- Incorporates agile approaches to increase speed to value

# The five stages for a typical Cloud transformation opportunity



## 1 Exclude the anti-patterns

Example Anti-Patterns:



Workloads requiring specialized hardware



Applications ready for retirement



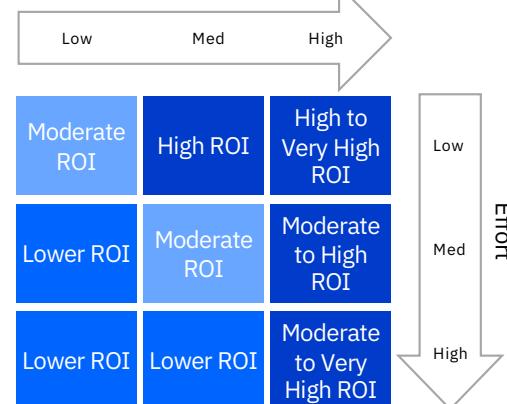
Applications targeted for SaaS



Applications with low number of defects and enhancements and low total cost of ownership

## 2 Examine Value vs. Effort

Business Value



## 3 Determine Transformation Pattern, Cost & Benefit

Example Transformation Patterns:



Migrate as-is to IaaS / VMaaS



Containerize and move to CaaS / KaaS



Re-architect and re-write to be cloud-native / microservices

# A typical client scenario prior to the move to cloud

Thousands of services to migrate

Choice of VMs, containers, functions

Choice of IBM Cloud Private, IBM Public Cloud, other Cloud

DevOps transformation well underway

Optimized management for on-premises environment

## Five questions to ask yourself about the destination

1. What workloads and services to move to Cloud?
2. What type of application modernization should be applied?
3. What location, degree of sharing, and delivery model?
4. What degree of development and operations modernization are possible?
5. How will I integrated a new delivery and operating model into my existing landscape?



## Determining what to move to Cloud

- What subsets of workloads within the current estate would benefit from being moved to the Cloud in the next 3-12 months?
- Considerations and tradeoffs
  - Prioritization of workloads is key at this stage
  - Current pain points such as aging hardware, capacity issues, out of date software or hardware, need for increased agility, upcoming major releases, addressing compliance issues, improved resiliency
  - What would be easiest to move and modernize:
    - Apps with few(er) external dependencies on other systems or data
    - Workloads that are less critical (at least for initial migrations)
    - Packaged software available in the cloud (SaaS),
    - Urgency / time to value

## Method, tools and techniques

- Cloud Advisory Services Method
- RVTools
- IBM Service Platform With Watson Technical Health Check
- RiscNetworks CloudScape
- IBM Services for Multicloud Management
  - Planning application (Application Screener)

## Best practices:

- Prioritizing workloads
- Dividing journey into bite size chunks
- Tying workload selection to business value
- Iteratively doing discovery

## Anti-pattern:

- Selecting all workloads at once

## Determining level of modernization

- What level of modernization should be applied to the workload?
- Considerations and tradeoffs
  - Choose between several modernization options:
    - As-is VM moves
    - VMs described as IaC,
    - Managed Cloud Services (e.g. Cloud Foundry),
    - Containers with microservices
    - Serverless
  - Urgency vs. affordability; desired timeline
  - Choice of modernization technique may vary by application or even workload within application
  - Skills

## Methods, tools and techniques

- Migration patterns from Cloud Innovate
- Data from prior migration projects



## Best practice:

- Show incremental progress before tackling more ambitious projects
- Consider the business case and balance with existing technical debt

## Anti-pattern:

- Aiming to modernize all workloads at once

## Determining where to land workload

- Where should the workload land in the Cloud?
- Considerations and tradeoffs
  - Multiple choices for transformation: IBM Cloud Private, IBM Cloud Public, VMware mission critical landing pad, OpenWhisk, Azure, AWS ....
  - Each landing pad has its unique performance, scalability, compliance, cost ...
  - Decision is frequently linked to the nature of existing workload, service levels, data gravity
  - Fact-based approach to selecting the right place to run the workload.

### Methods, tools and techniques

- IBM Services for Multicloud Management
  - Planning application (Cloud Compare)

### Best practice:

- Use a fact-based decision to determine where to land workload

### Anti-pattern:

- Picking too many landing pads without considering operational impact

## What degree of development and operations modernization are possible?

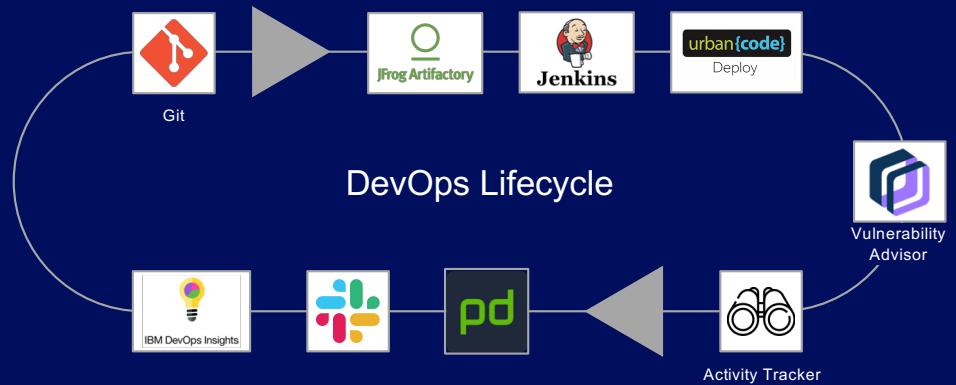
DevOps transformation can provide radically improved **velocity** for application innovation and operational **efficiency**.

- It is important to understand the **architecture and design principals** for Cloud Native applications.
- Technologies like Containers and Kubernetes make life much easier for the Cloud Native developer, however you must **understand the principals** to leverage them effectively.
- Take the **Twelve-Factor Methodology** Seriously.
- There is no such thing as Sort-of **Immutable**.
- Infrastructure is treated as **Cattle vs. Pets**.
- Treat **Infrastructure as Code** and manage in your single source code management system (e.g. Git).
- The “Ops” in DevOps can’t be overlooked and requires a **“shift-left”** in operations from Day-2 into Development.

**DevOps is a culture change** across people, processes and tools to both applications and operations teams.

## Methods, tools and techniques

### DevOps transformation



### Best practices:

- Focus on those applications that allow for full transformation of people, process, and tools.
- Integrate Operations into Development employing an **SRE model**.

### Anti-patterns:

- Assuming this is a DevOps tools and technology selection problem only.

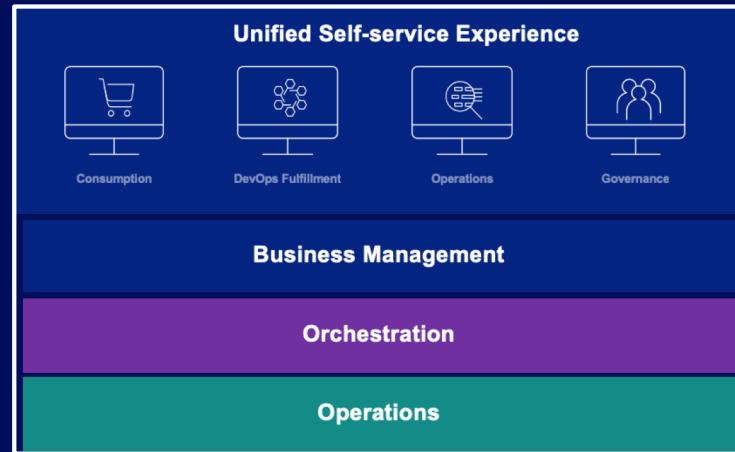
## How will I integrated a new delivery and operating model into my existing landscape?

- Dedicate resources to the **optimization** and **automation** of legacy apps and IT, driving towards cloud native and DevOps practices (e.g. Infrastructure as Code).
- Dedicating resources to the **development of new** and **transformation existing** applications to cloud native and DevOps and avoid compromises.
- **Integrate** new cloud consumption and management models (e.g. self-service) with traditional services management models (e.g. approvals, ticket based tracking, etc.)
- Leverage a **Cloud Management Platform (CMP)** that embraced a Dual Speed (Multi-Modal) IT model.

Embrace **Multi-Modal IT**... Co-Existence between one traditional enterprise service management and DevOps will be a reality for the foreseeable future .

## Methods, tools and techniques

### IBM Services for Multicloud Management



## Best practice:

- Provide consistency and unification through federation across both the traditional and new service management models.

## Anti-pattern:

- Attempting to apply a single service management model to all.

## IBM offers Cloud Advisory Services to help prepare for Migration and Modernization



- Application Migration & Modernization strategy
- Infrastructure, workload and application assessments for cloud disposition recommendations
- Application portfolio assessment for modernization
- Maturity assessment for future state application portfolio and initiatives
- Business Case creation
- Roadmap development, including prioritized initiatives
- Opportunity identification for migration, modernization, rationalization, optimization, security and innovation

### Additional Advisory Services

- MultiCloud Strategy, Architecture and Design
- Operations and Operating Model
- MultiCloud Transformation
- MultiCloud Security and Compliance
- DevOps Adoption
- Governance and Organization
- ....and others

# Thank you

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