Integration …

The missing link in your cloud adoption strategy

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A TALK IN THREE PARTS

What is this ‘Integration’ you speak of?

Where Integration fits in one’s cloud adoption strategy

Patterns and best practices for cloud-native integration

INTEGRATION (?)

KEY INGREDIENTS

APIs

Events

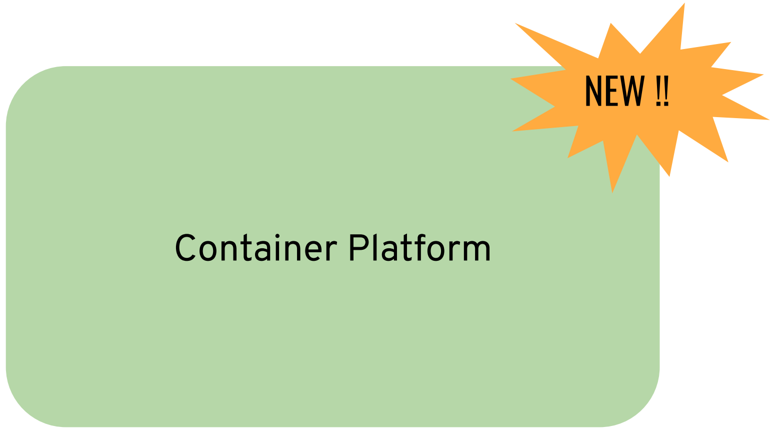
EIPs

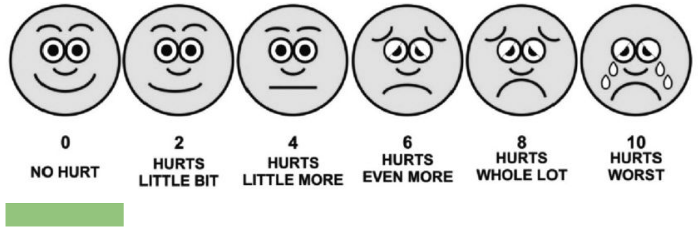
Data

CLOUD ADOPTION - THE INTEGRATION GAP

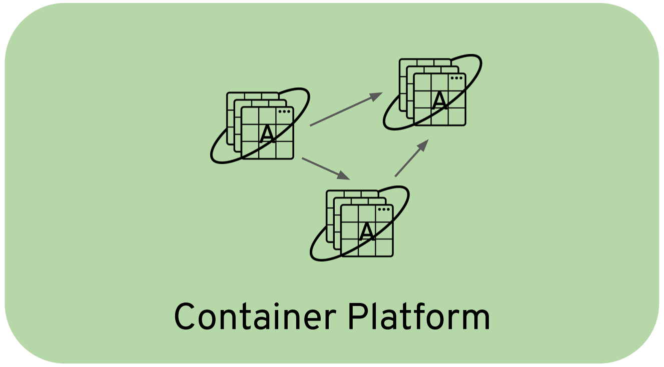
THE JOY OF CLOUD ADOPTION

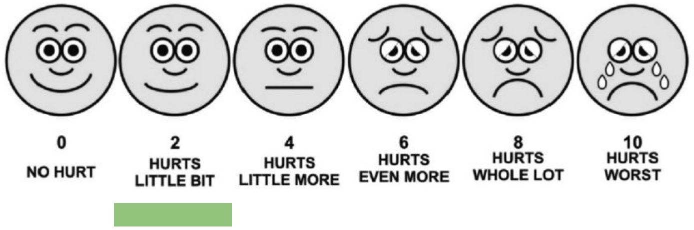
CLOUD ADOPTION - STAGE 1



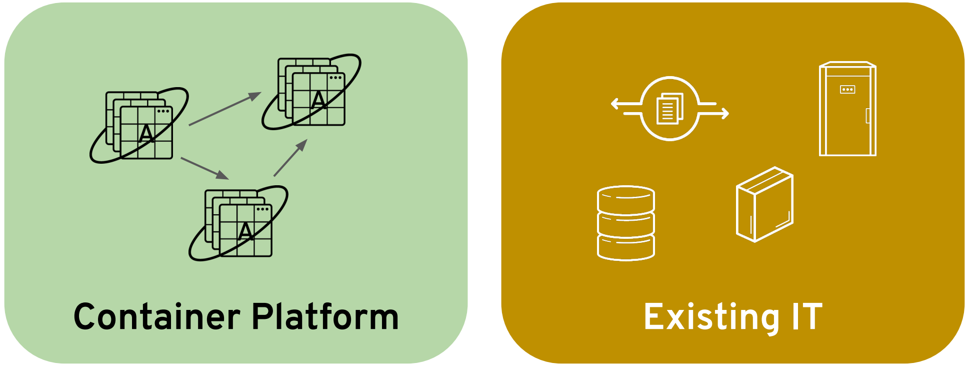


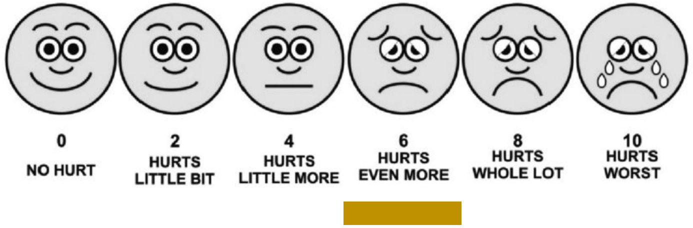
CLOUD ADOPTION - STAGE 2



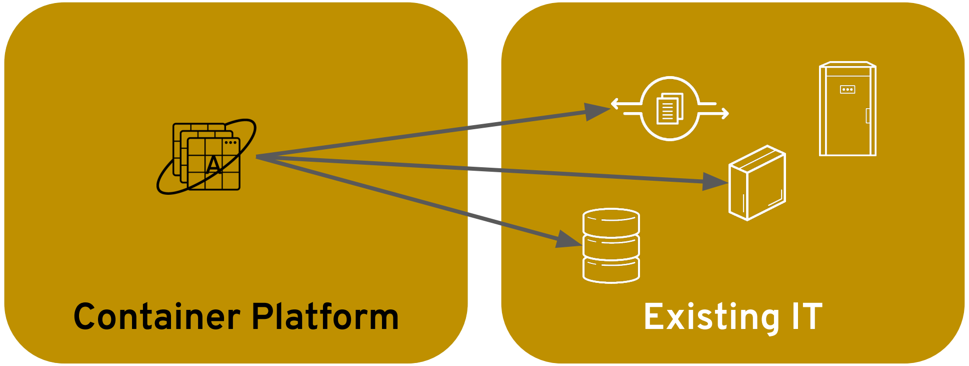


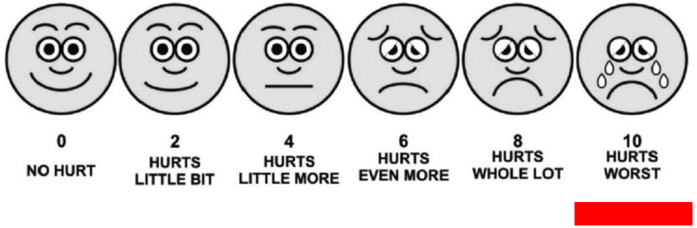
CLOUD ADOPTION - STAGE 3



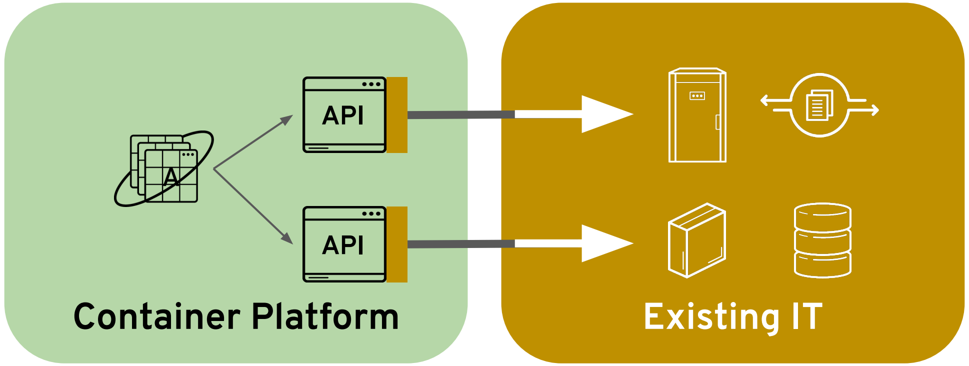


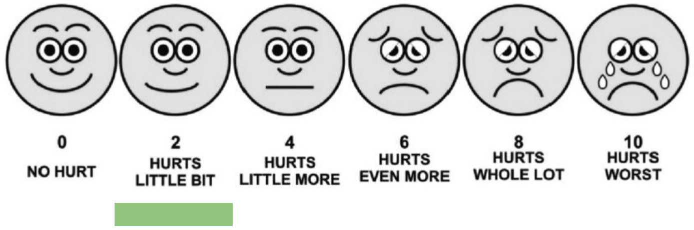
CLOUD ADOPTION - STAGE 4



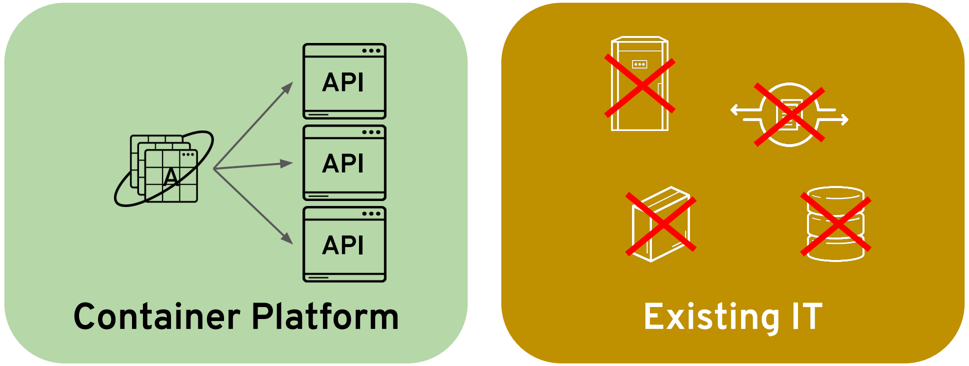


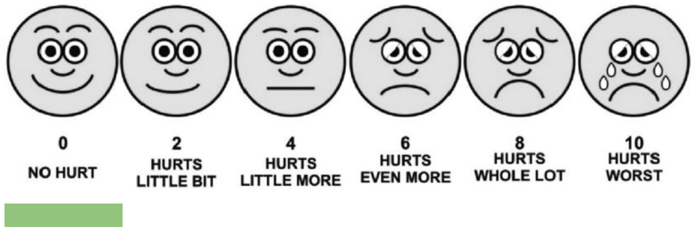
CLOUD ADOPTION - STAGE 5





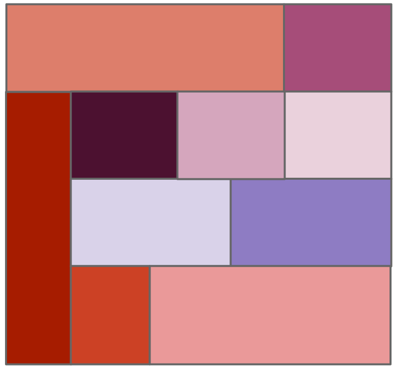
CLOUD ADOPTION - STAGE 6

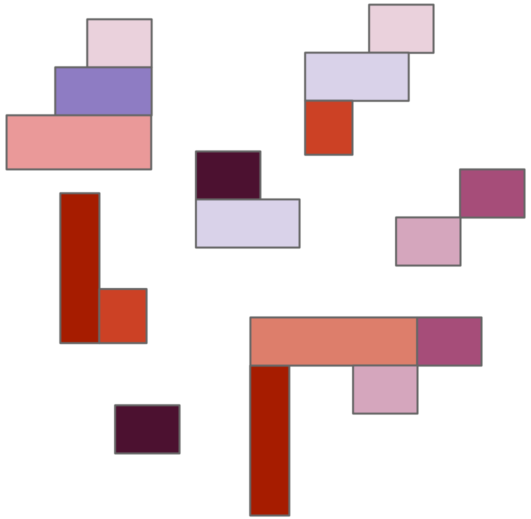




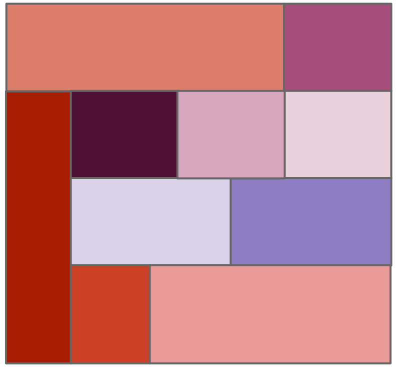
MICROSERVICES

MICROSERVICES MADE EASY


Crusty Monolith


Awesome Microservices

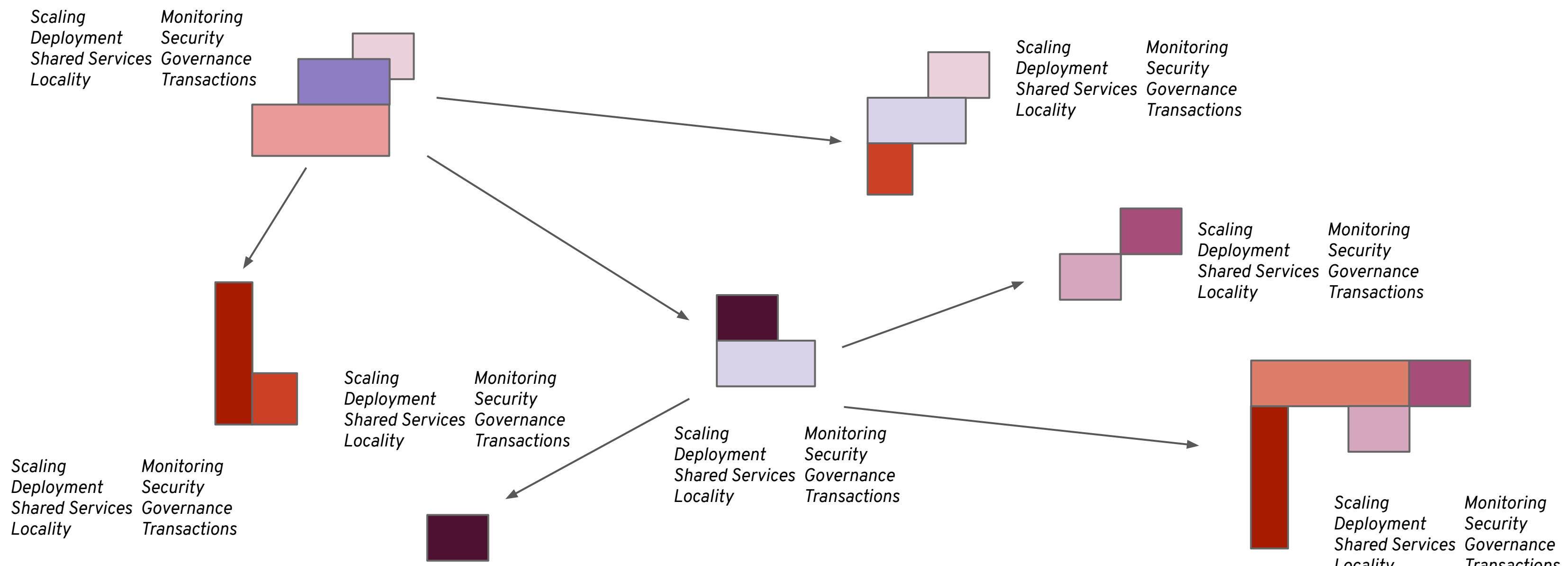
REALITY CHECK - THIS IS EASY



Crusty Monolith

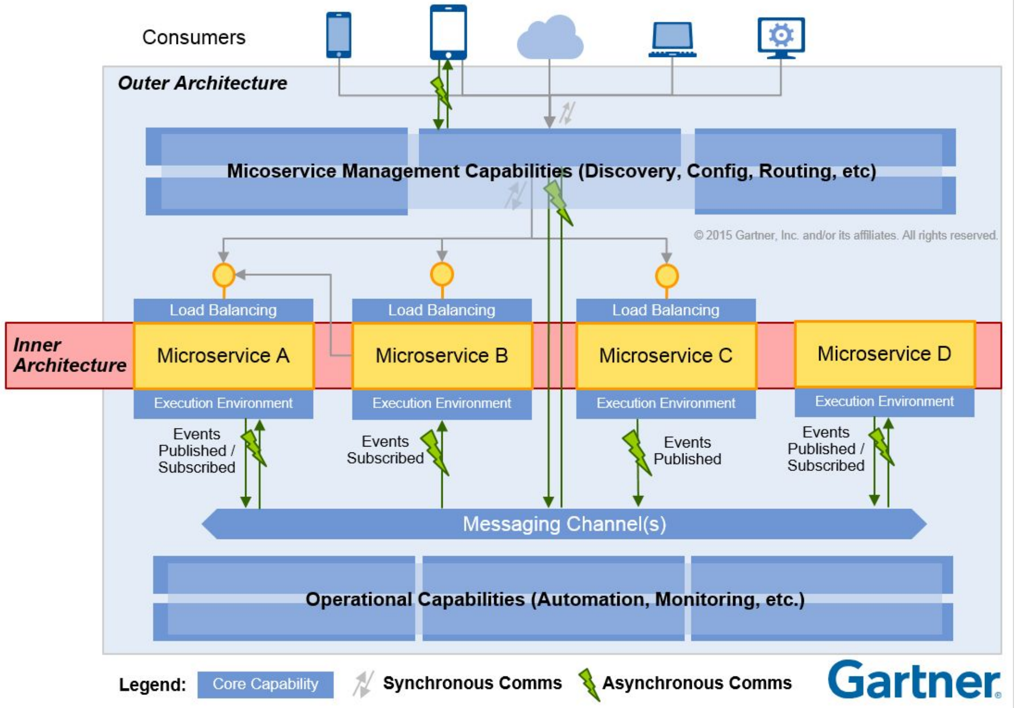
Scaling	*Monitoring*
Deployment	*Security*
Shared Services	*Governance*
Locality	*Transactions*

WHOOPS!



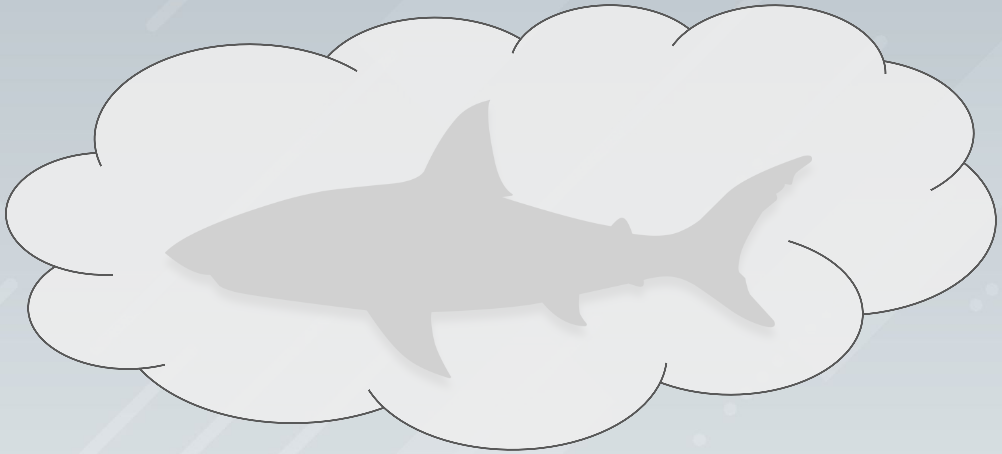
(NOT SO) AWESOME MICROSERVICES

INNER vs. OUTER ARCHITECTURE



https://blogs.gartner.com/gary-olliffe/2015/01/30/microservices-guts-on-the-outside/

JUST WHEN YOU THOUGHT IT WAS SAFE TO MOVE TO THE CLOUD ...



ARE YOU DOING MULTICLOUD?

Multicloud is a cloud approach made up of more than 1 cloud service, from more than 1 cloud vendor—public or private.

https://www.redhat.com/en/topics/cloud-computing/what-is-multicloud

RED HAT® OPENSHIFT

Pivotal Cloud Foundry®

aws

Azure

Google Cloud

salesforce

servicenow

slack

CLOUD-NATIVE INTEGRATION PATTERNS & BEST PRACTICES

DON'T WING IT

THREE PILLARS OF AGILE INTEGRATION

Key foundational capabilities needed by today's enterprises

DISTRIBUTED INTEGRATION

- ❏ Lightweight
- ❏ Pattern Based
- ❏ Event Oriented
- ❏ Community Sourced

FLEXIBILITY

MICROSERVICES CONTAINERS

- ❏ Cloud Native Solutions
- ❏ Lean Artifacts
- ❏ Individually Deployable
- ❏ Container Based Scaling and High Availability

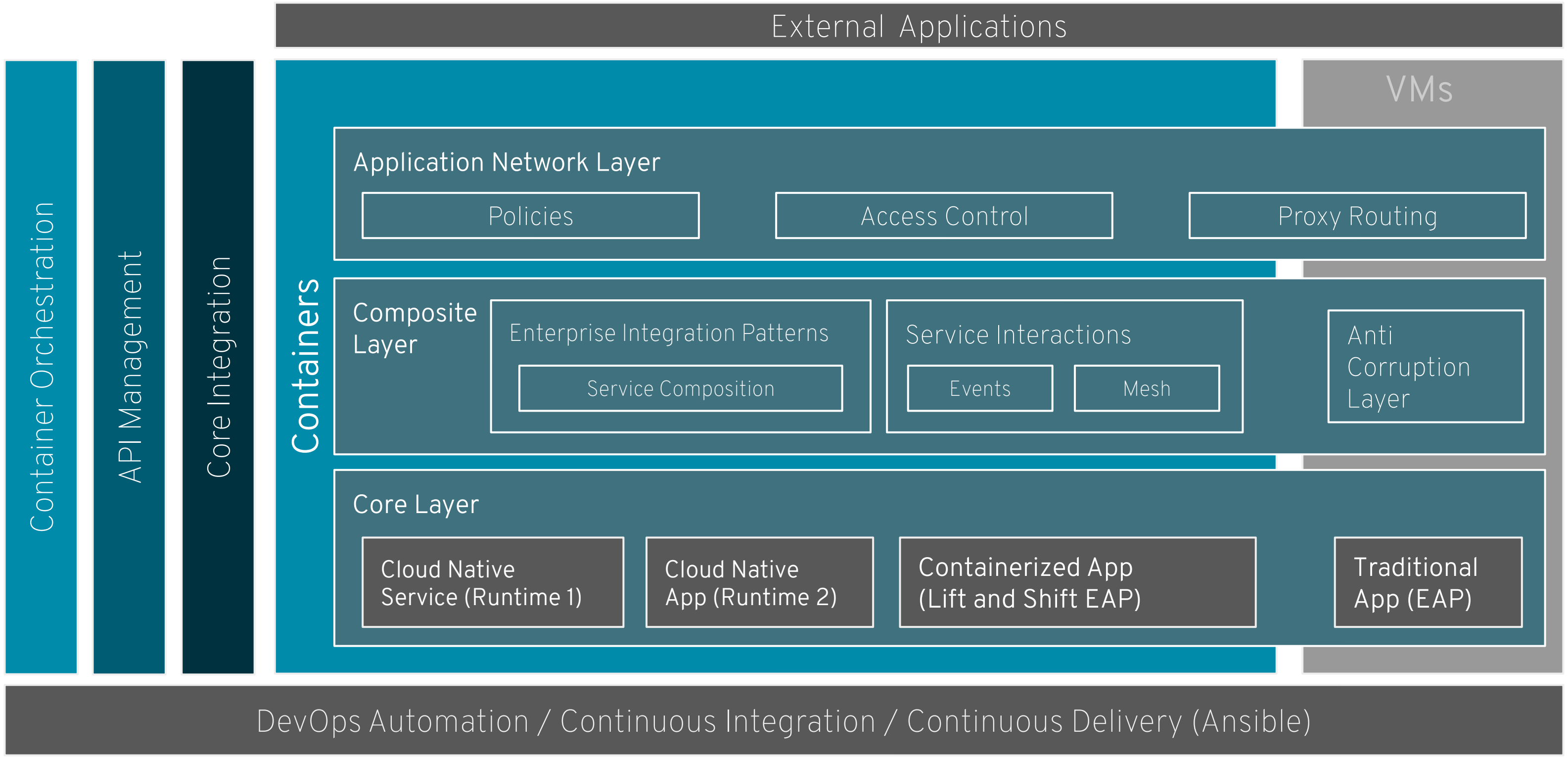
SCALABILITY

APIs

- ❏ Well Defined
- ❏ Reusable
- ❏ Well Managed End-points
- ❏ Ecosystem Leverage

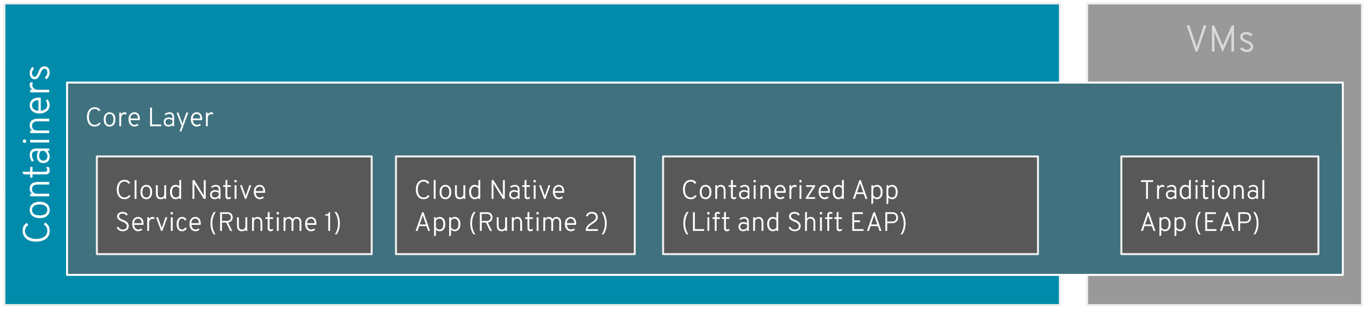
RE-USABILITY

AGILE INTEGRATION ARCHITECTURE



CORE SERVICES LAYER

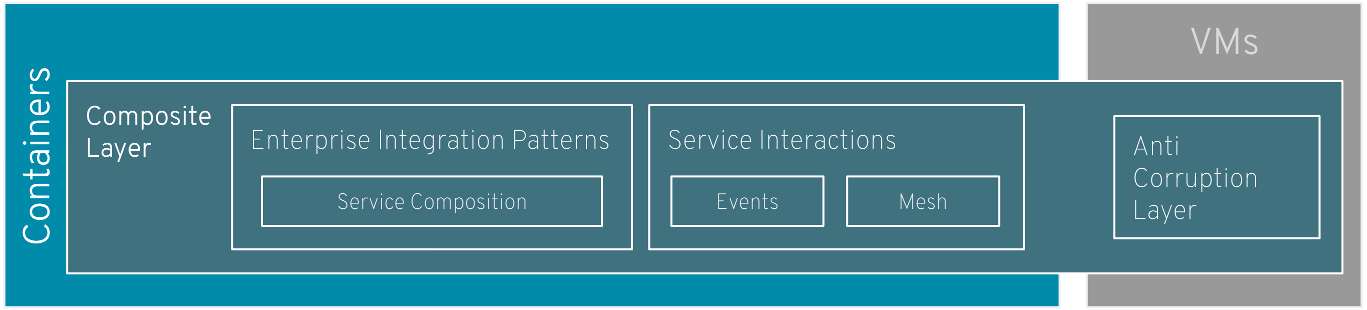
* Brownfield and greenfield services
* Microservices and monoliths
* Delivered independently
* Independent data contexts
* Mixed connectivity


VMs
Containers
Core Layer
Cloud Native Service (Runtime 1)
Cloud Native App (Runtime 2)
Containerized App (Lift and Shift EAP)
Traditional App (EAP)

COMPOSITE LAYER

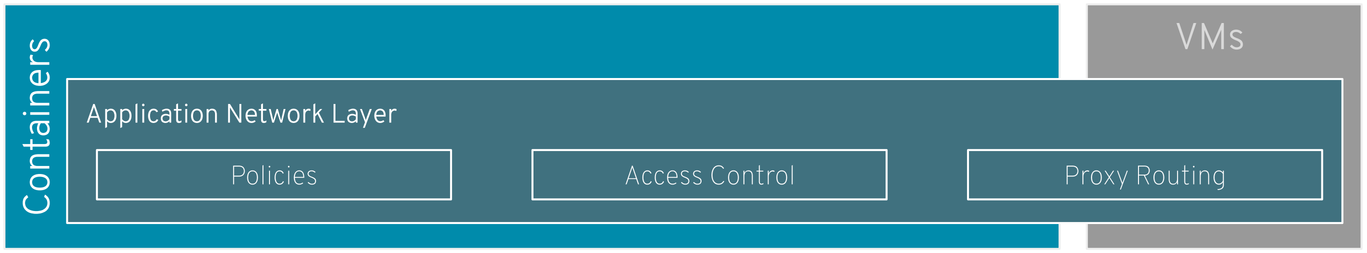
* Service composition
* Routing and orchestration
* Data transformation

* Connectivity
* API ←→ Event Bridging
* Legacy facade (ACL)



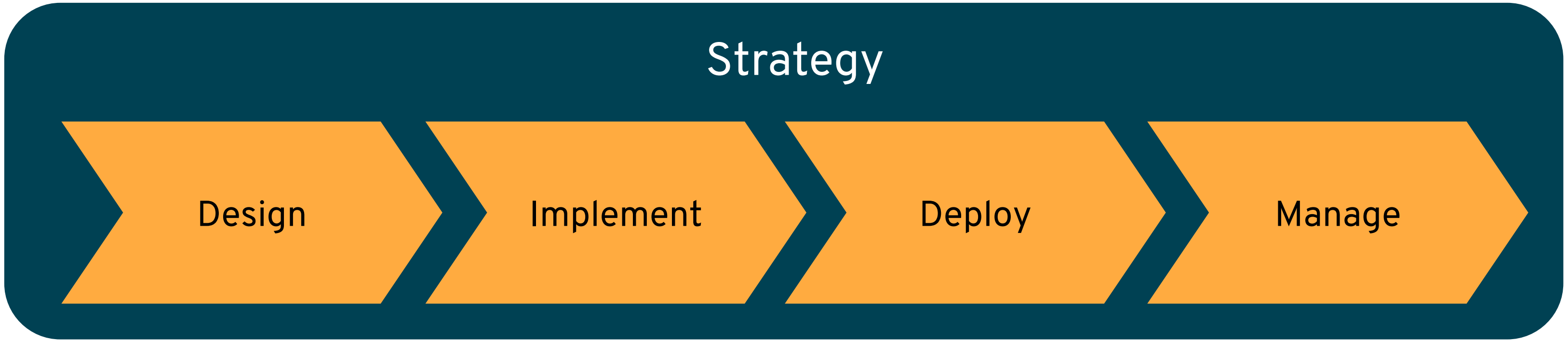
APPLICATION NETWORK LAYER

* Gateway layer for services
* Access and policy control
* Developer onboarding
* Analytics
* Monetization
* Scales independent of other layers



AGILE != ANARCHY

API-CENTRIC INTEGRATION LIFECYCLE



API STRATEGY

AUDIENCE

- ❑ Internal API clients
- ❑ External API clients

GOVERNANCE

- ❑ Security
- ❑ Lifecycle
- ❑ Automation

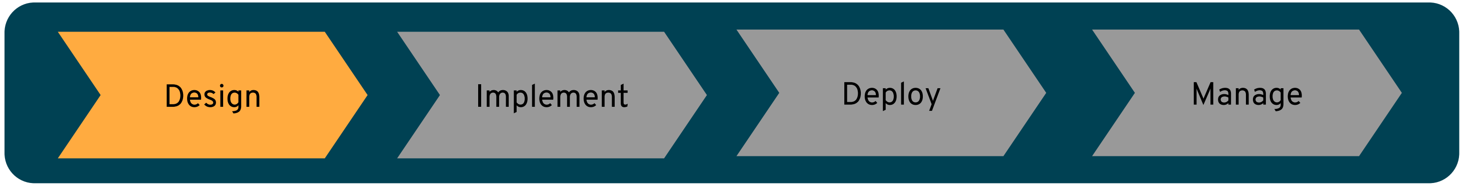
SCOPE

- ❑ Single API
- ❑ Multiple microservices
- ❑ External APIs

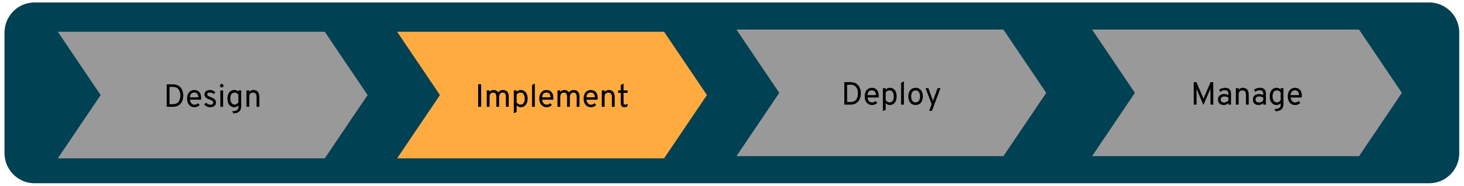
ENVIRONMENT

- ❑ Standalone
- ❑ Private Cloud
- ❑ Public Cloud
- ❑ Hybrid Cloud

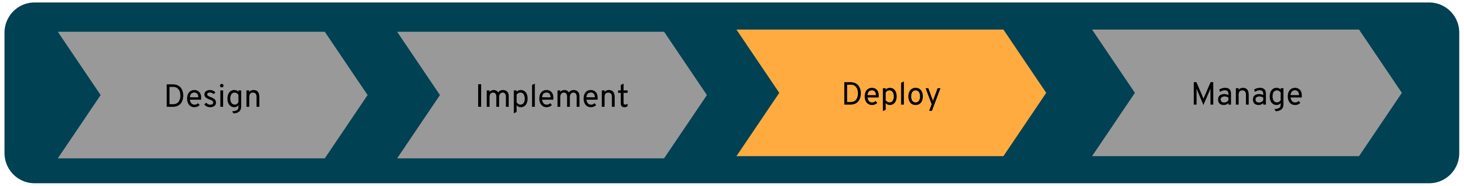
BUSINESS STRATEGY



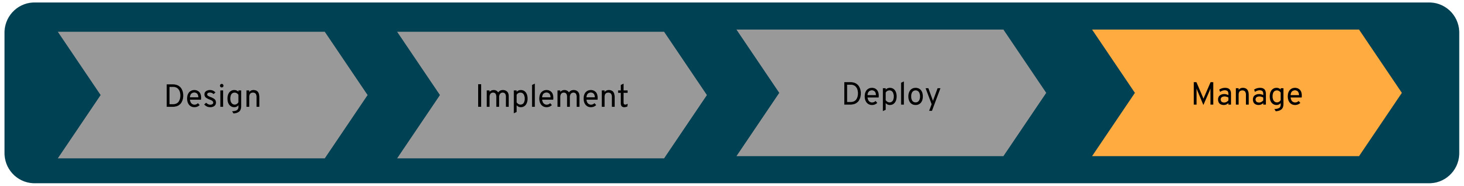
CLIENT-FOCUSED	❑ Design with the API client in mind ❑ Design with tooling fit for purpose ❑ Collaborate ASAP
VALIDATE EARLY	❑ Use API mocking for early feedback ❑ Skeleton implementation can be just as good as a mock
FAVOR INTEROPERABILITY	❑ Create API definitions based on standards in open communities ❑ Maximize tool portability and client generation



HONOR THE TRUTH	❑ API Definition is the source of truth ❑ Favor generation over translation
NOT ALL APIs ARE THE SAME	❑ Standalone ❑ Orchestration ❑ Legacy Facade ❑ Data API ❑ Event Bridge
WHICH PERSONA?	❑ Developer ❑ Non-developer



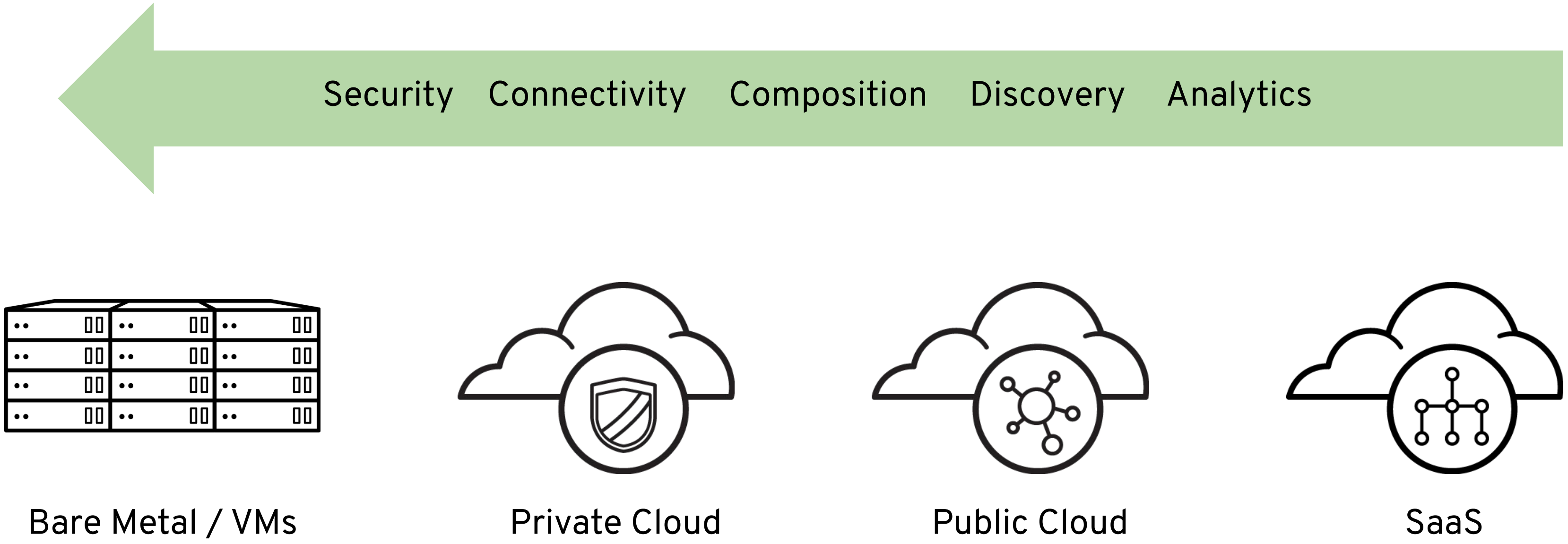
CONTAINERS	❑ Best way to develop services (polyglot, portability, availability, service wiring, advanced deployment, …) ❑ Maximize inner vs. outer architecture pattern
HYBRID ENVIRONMENT	❑ Support integration and management of APIs living outside containerized environment ❑ Consistent architecture across private, public, and managed cloud
AUTOMATE	❑ API-driven infrastructure services ❑ Ability to automate application and infrastructure services in a single pipeline



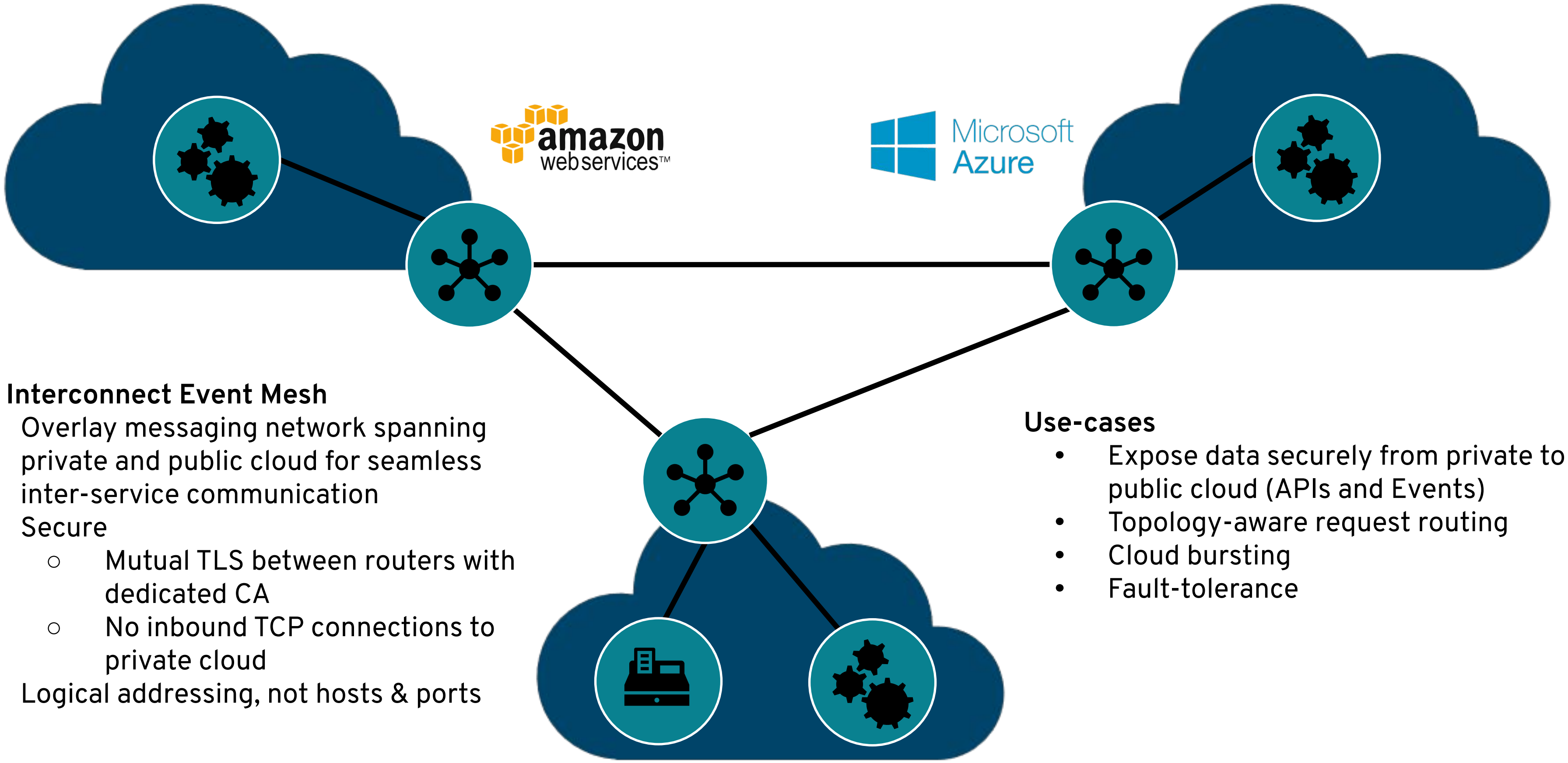
CONTROL	❏ Securing APIs ❏ Traffic flow control via policy ❏ Policy extensibility
VISIBILITY	❏ Developer onboarding and engagement ❏ Traffic and policy alerts ❏ Use analytics to understand how APIs are tracking against business objectives
FLEXIBILITY	❏ Centralized management and distributed enforcement ❏ API management architecture must span multiple environments

HYBRID CLOUD > MULTICLOUD

HYBRID SERVICE PLANE



HYBRID EVENT PLANE



AMQ Interconnect Event Mesh

- Overlay messaging network spanning private and public cloud for seamless inter-service communication
- Secure
  - Mutual TLS between routers with dedicated CA
  - No inbound TCP connections to private cloud
- Logical addressing, not hosts & ports

Use-cases

- Expose data securely from private to public cloud (APIs and Events)
- Topology-aware request routing
- Cloud bursting
- Fault-tolerance

DOUBLE ROADMAP!!

PART I

APIs, events, and data—your roadmap for agile integration with Red Hat

Wednesday @ 10:30am
Room 160A

PART II

Best practices for developing modern applications with Red Hat Integration

Wednesday @ 11:30am
Room 157B

THREE THINGS TO REMEMBER

1. You ***are*** doing integration today
2. The move to cloud ***increases the need*** for integration
3. Integration is a core component of your ***cloud adoption strategy***

RED HAT
SUMMIT

THANK YOU

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