



turbonomic

IBM

Manage Kubernetes at Scale with  
IBM and Turbonomic

# Introductions



## **Mike Mallo**

Technical Offering Manager Lead – IBM  
Cloud Pak for MultiCloud Management  
IBM



## **Michael Isaia**

Solution Architect  
Turbonomic

# Agenda

Overview of Cloud Pak for MultiCloud Management

What is IBM ARM and what problem does it solve?

Demo

Q&A

# Organizations are Modernizing their approach to Hybrid Cloud Management

## Hybrid Management Platform – Cloud Pak for Multicloud Management

### **Modernize** Infrastructure

*From traditional environments to Cloud Native readiness*

*Right now, 500 Million new logical apps are being created, equal to the number built over the past 40 years*

### **Manage** Hybrid Applications

*Unified management across deployments and clouds*

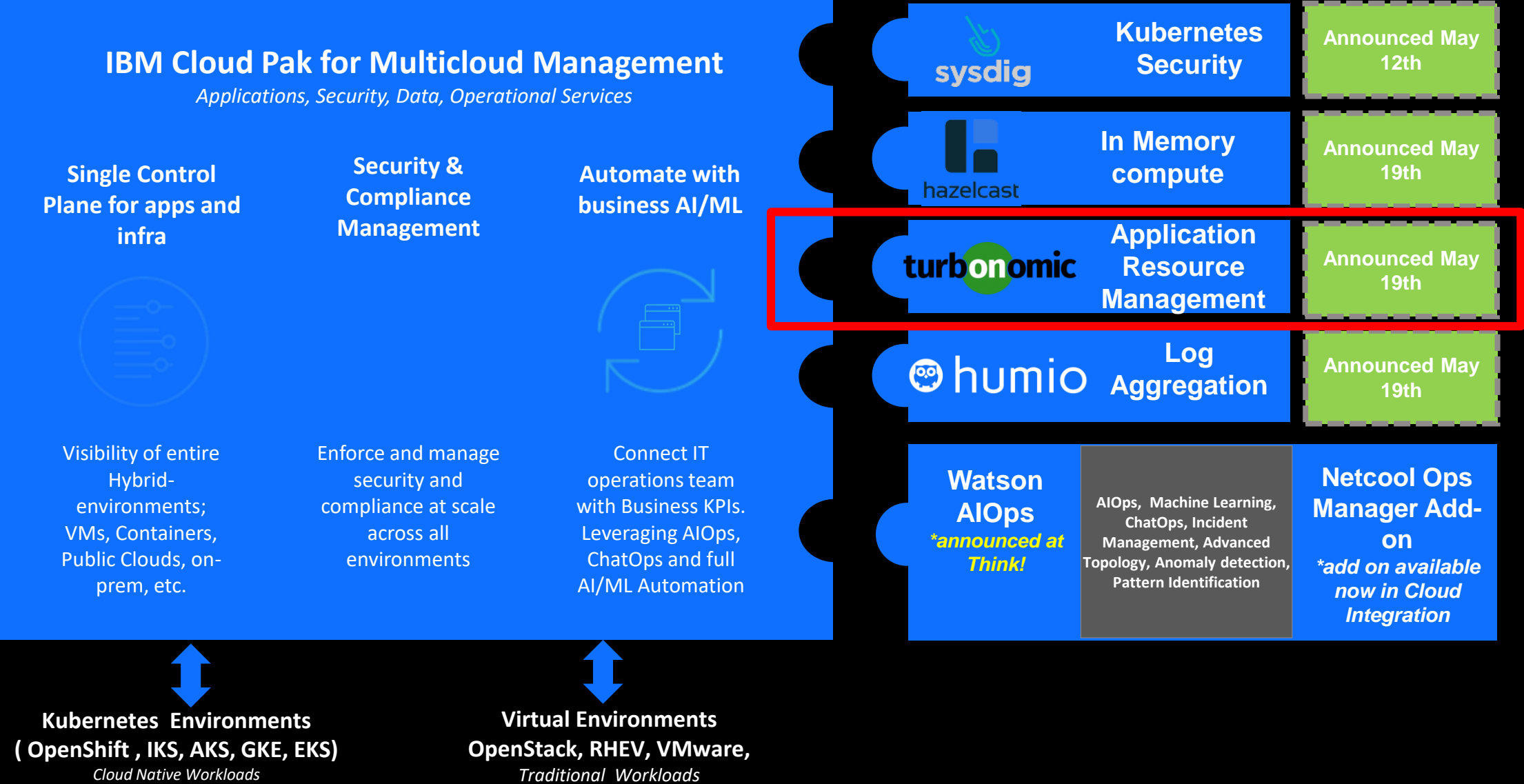
*70% of enterprises will deploy management tools to integrate clouds*

### **Automate** Intelligent Cloud Operations

*AI drives intelligence into DevSecOps*

*Organizations report fixing incidents up to 50% faster with AIOps*

# Extensive Ecosystem Expands Capabilities



IBM public cloud



AWS



Microsoft Azure



Google Cloud

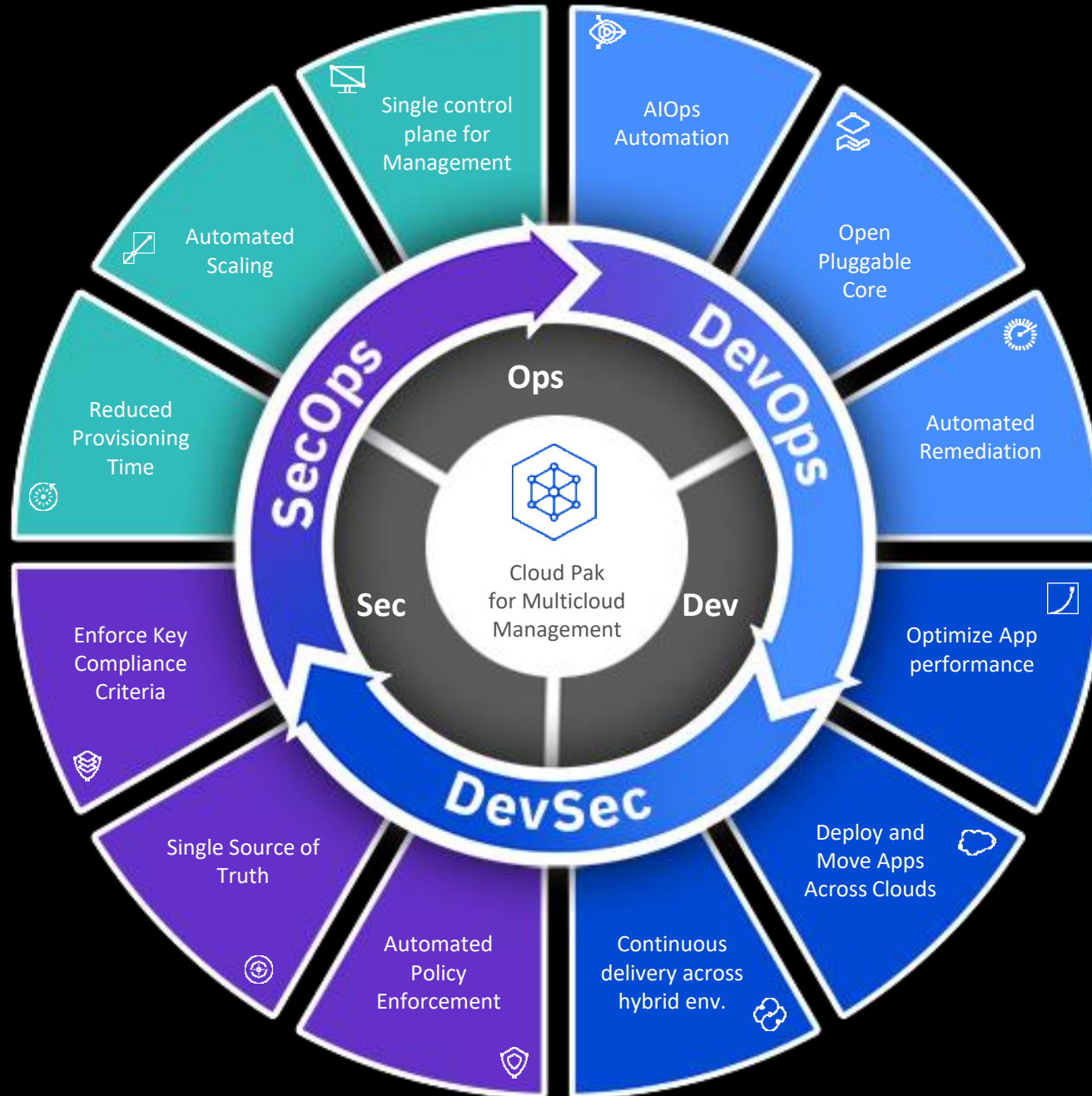


Private



# Cloud Pak for Multicloud Management + Application Resource Management

by **turbonomic**

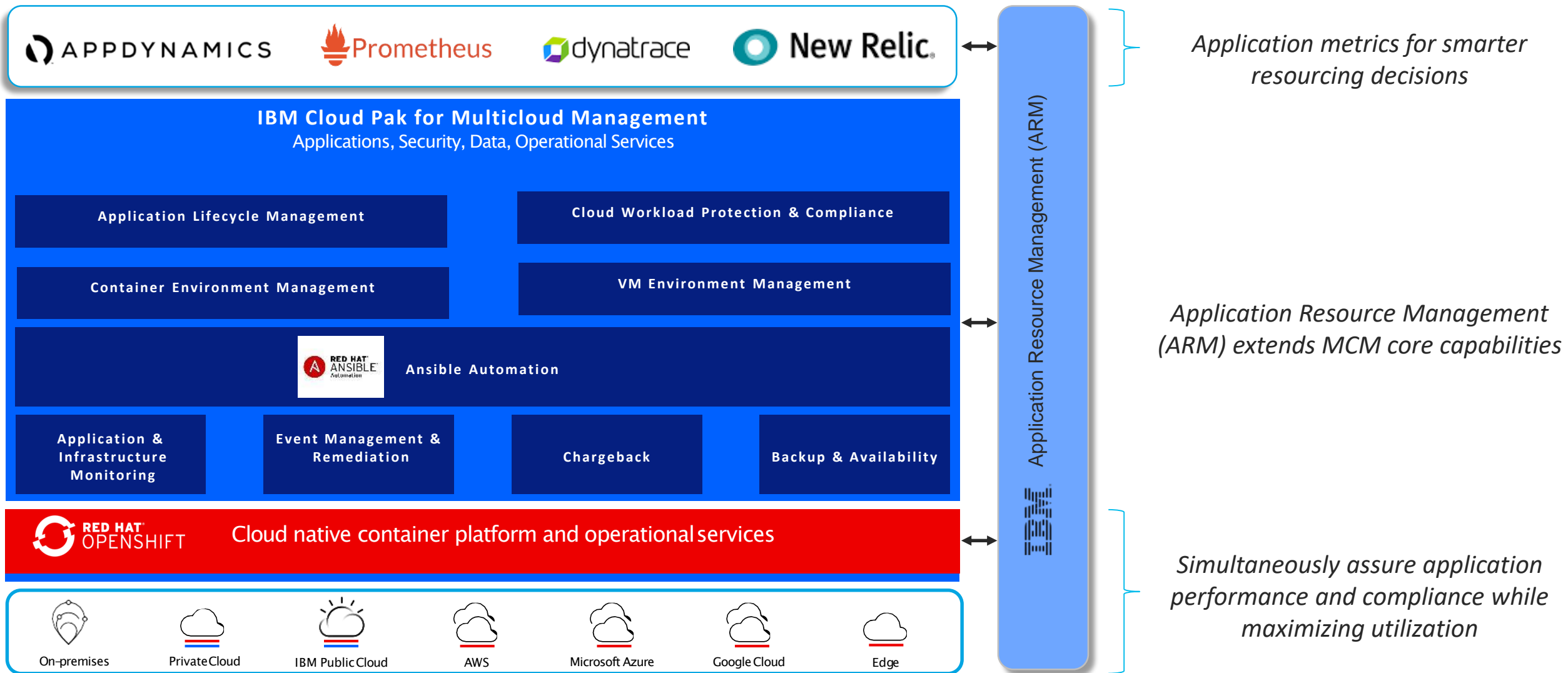


IBM Cloud Pak for Multicloud Management with Turbonomic Application Resource Management (ARM) capability is the only *enterprise-ready, containerized software management solution*.

*This solution ensures applications get the resources needed to deliver on their service level agreement while maintaining compliance to business policies in a cost-effective manner.*

- Prevent *resource congestion* and noisy neighbor impacts by automatic pod rescheduling to assure performance
- Meet *dynamic application demands* by continuously scaling with intelligent clusters meeting resource needs while maintaining cost controls.
- Enable a *single control plane* (single trusted source) to accelerate time to market by unifying AppOps, DevOps, SecOps, and ITOps with full-stack insight, control and automation, freeing up critical resources to solve your business's hardest problems.

# Extending CP4MCM and OpenShift to Automate Performance

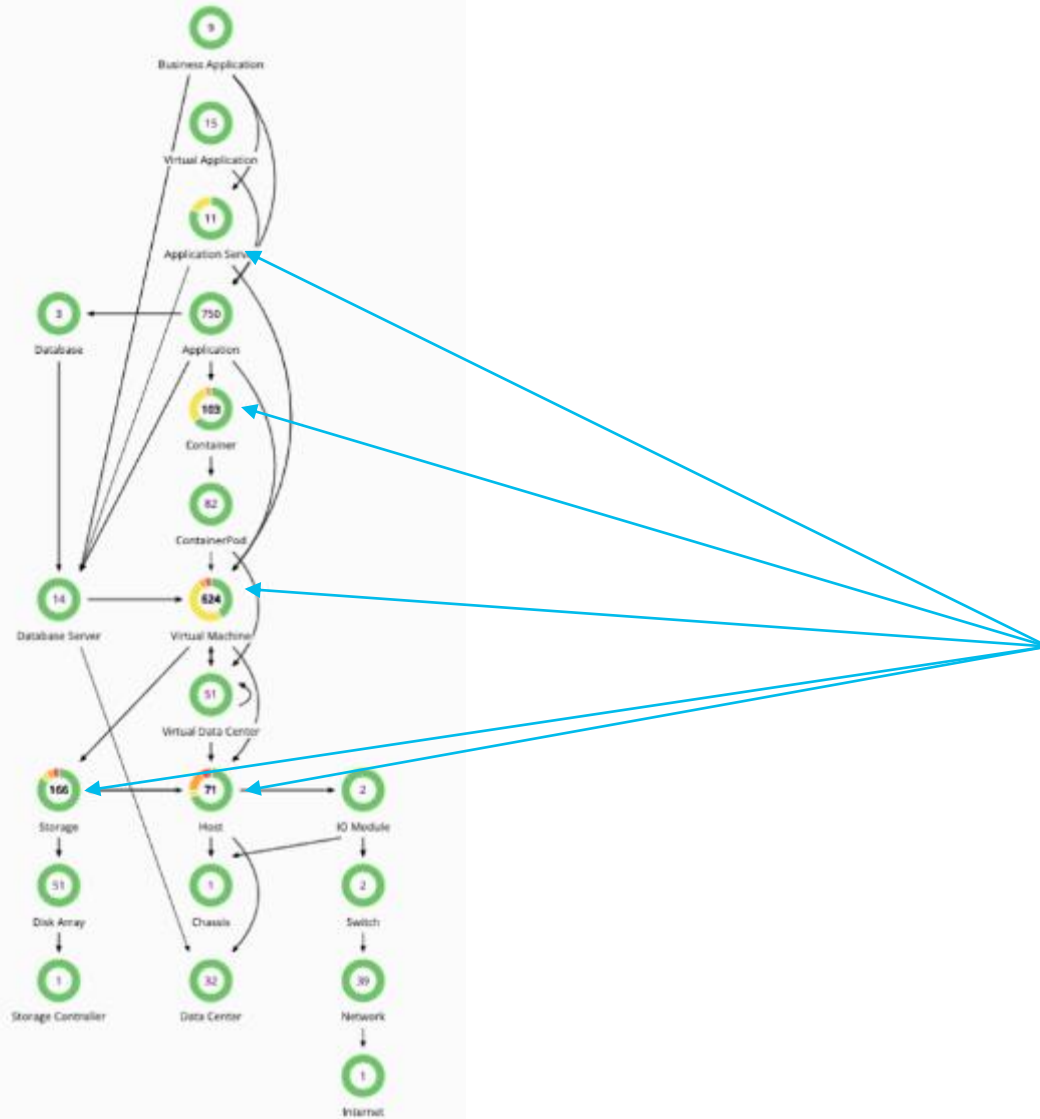
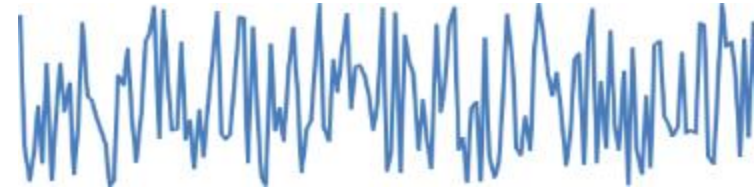


# Agenda

**What is IBM ARM and what problem does it solve?**

# The Application Stack:

Driven by Ever-Changing Demand:



Causes Congestion (here)



The Result:



**Loading**

# Congestion





# Manual Tools

Cannot Scale







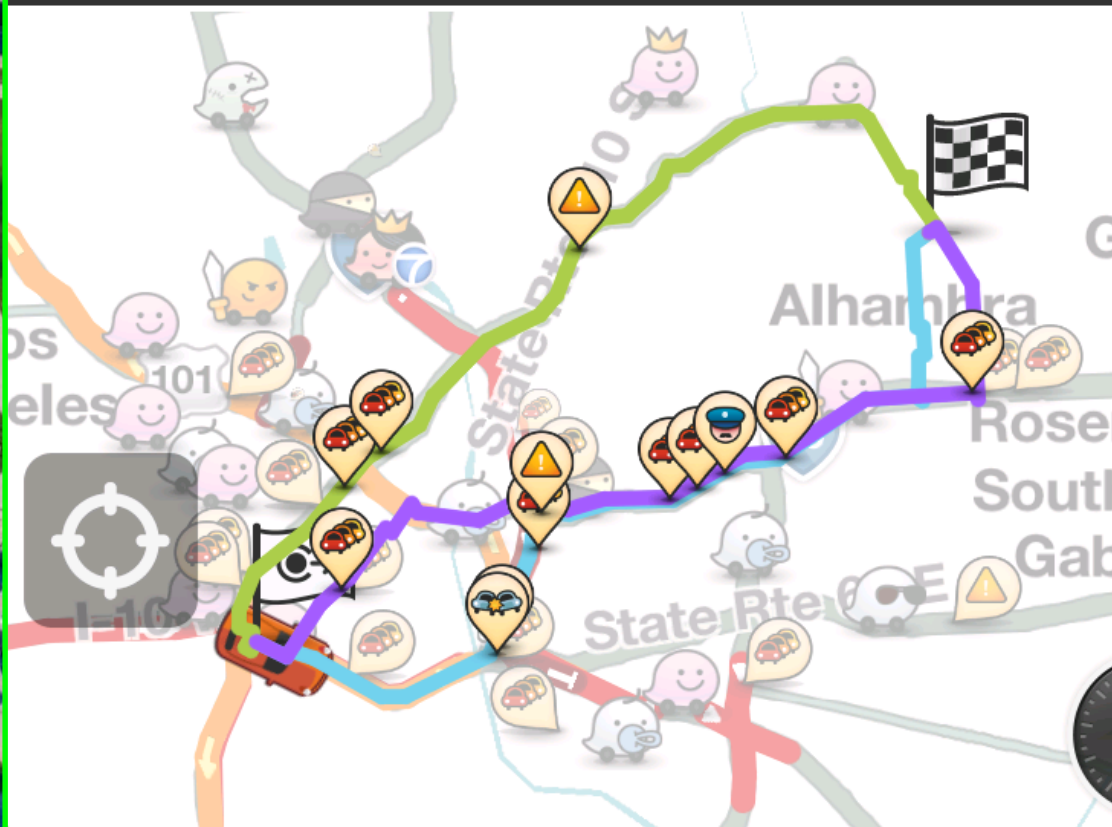
# Overprovisioning

...is far too costly



## Routes

List



1 30 min.

2 35 min.

3 35 min.

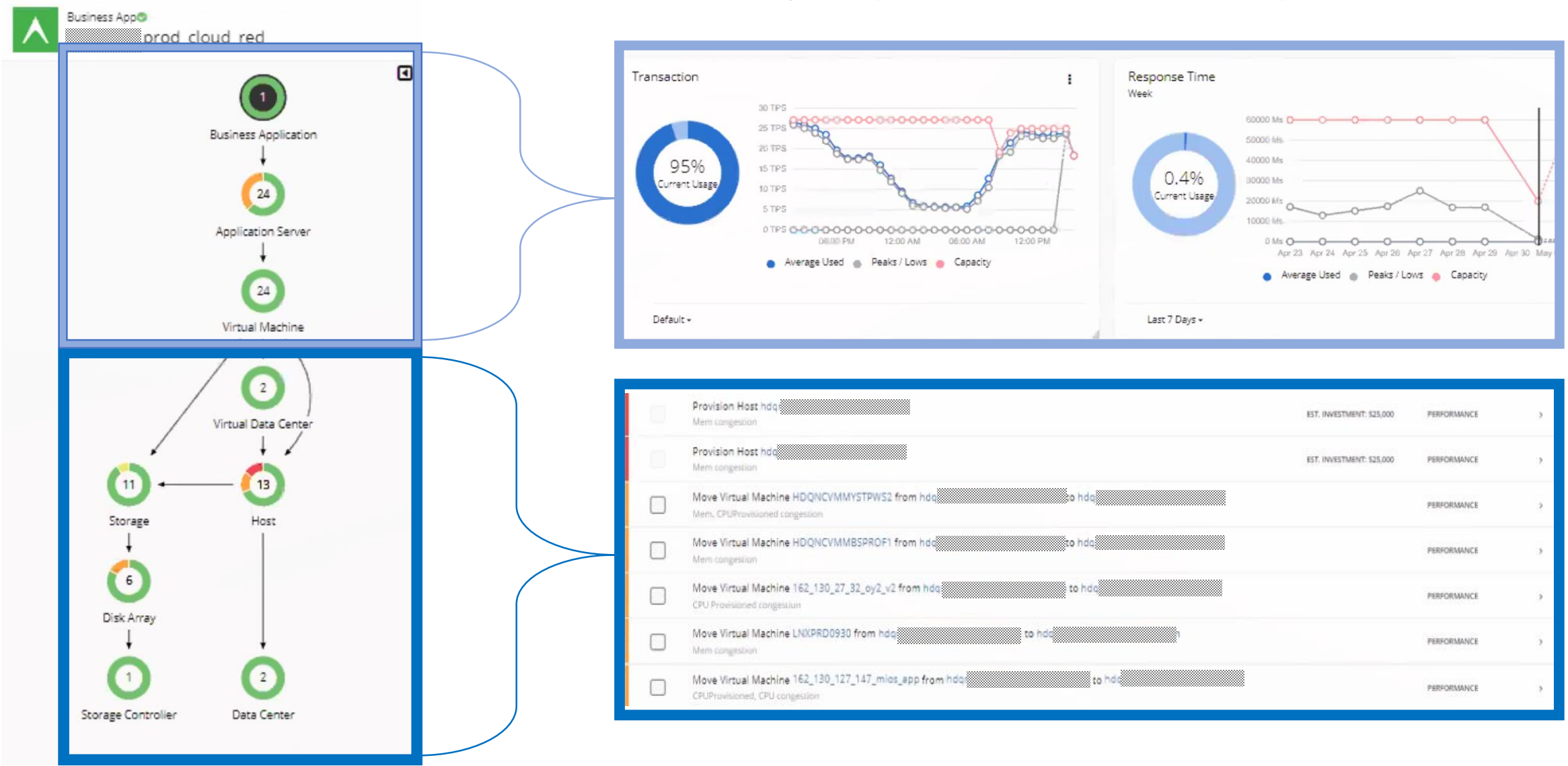
Via: 10  
Express  
Lanes / HOT

Go



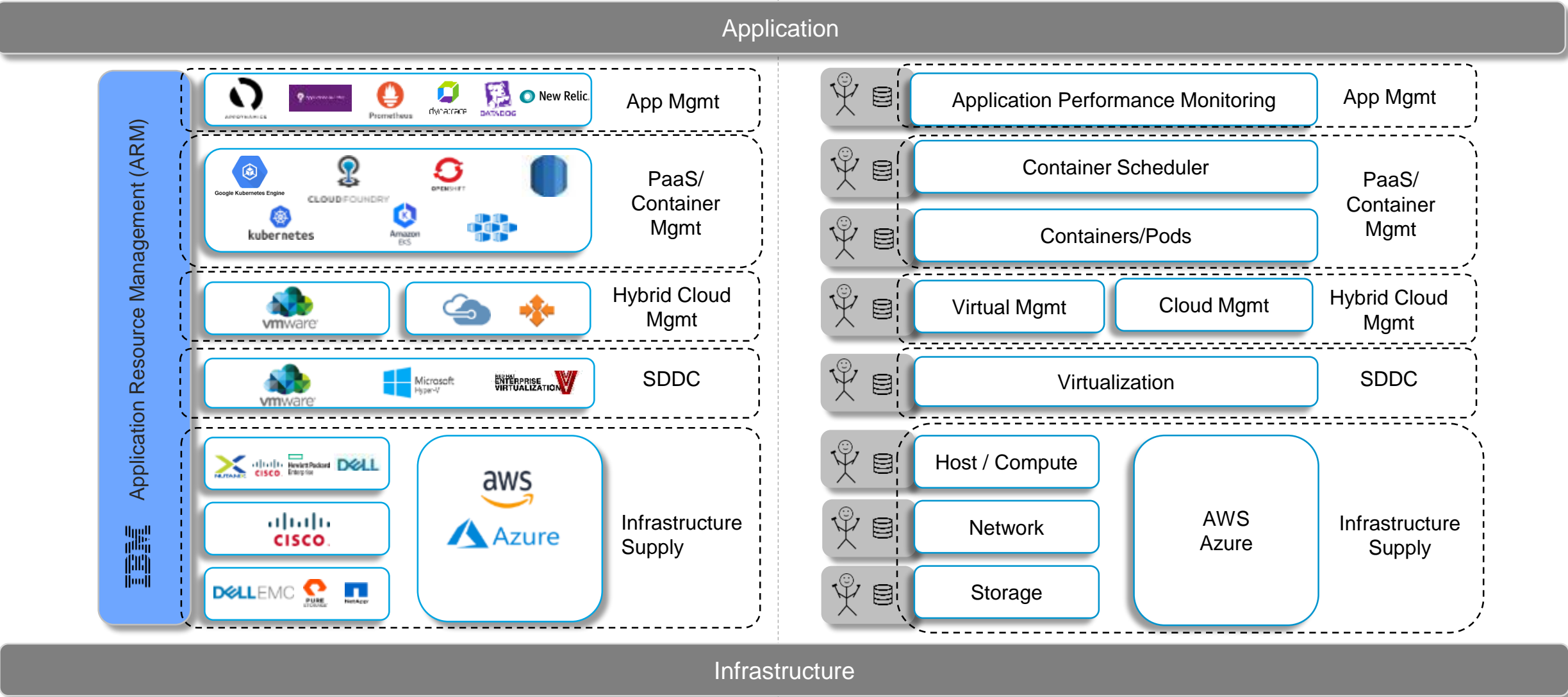
# Application Supply Chain

Application Utilization  
Visibility of response time (ms) and transactions (per second)

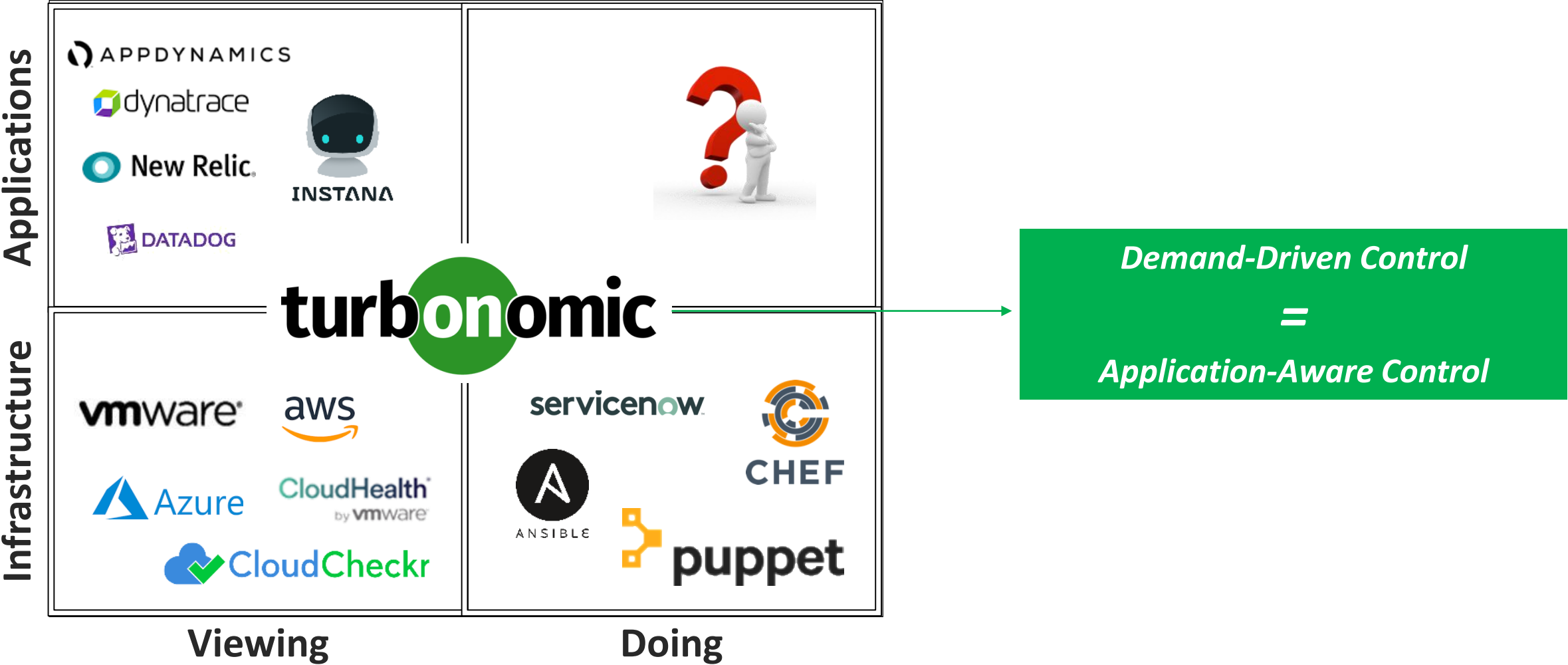




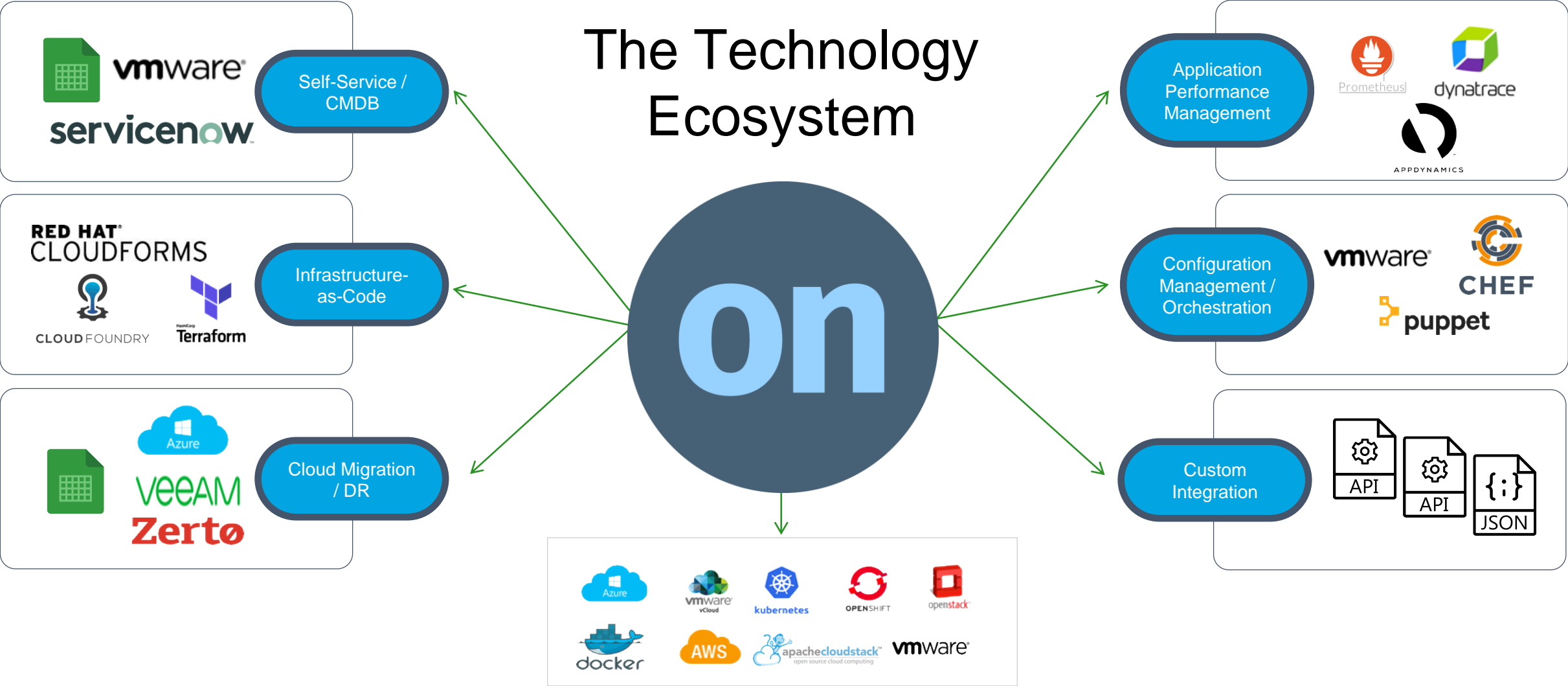
# Application Resource Management



# The Technology Landscape



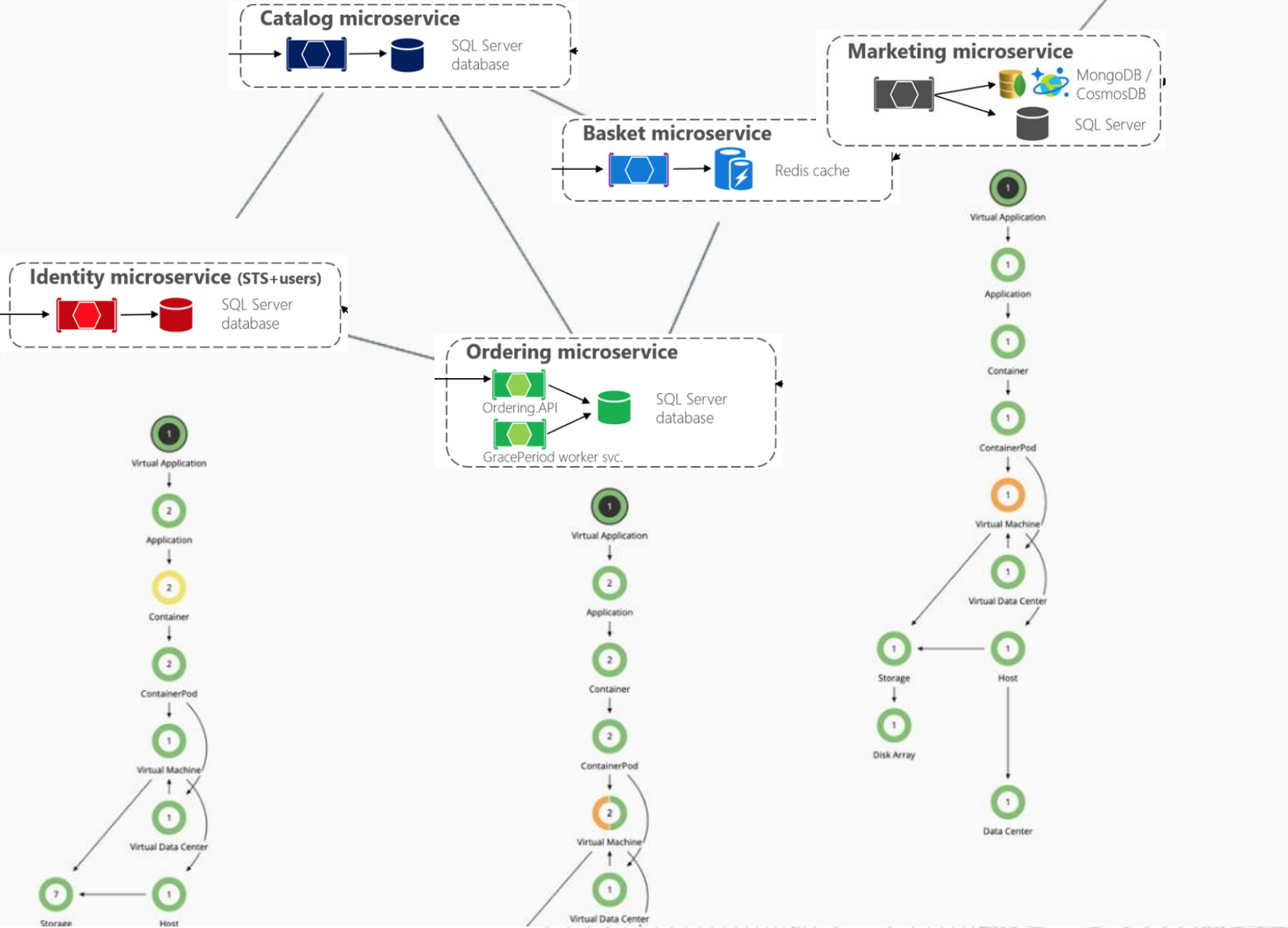
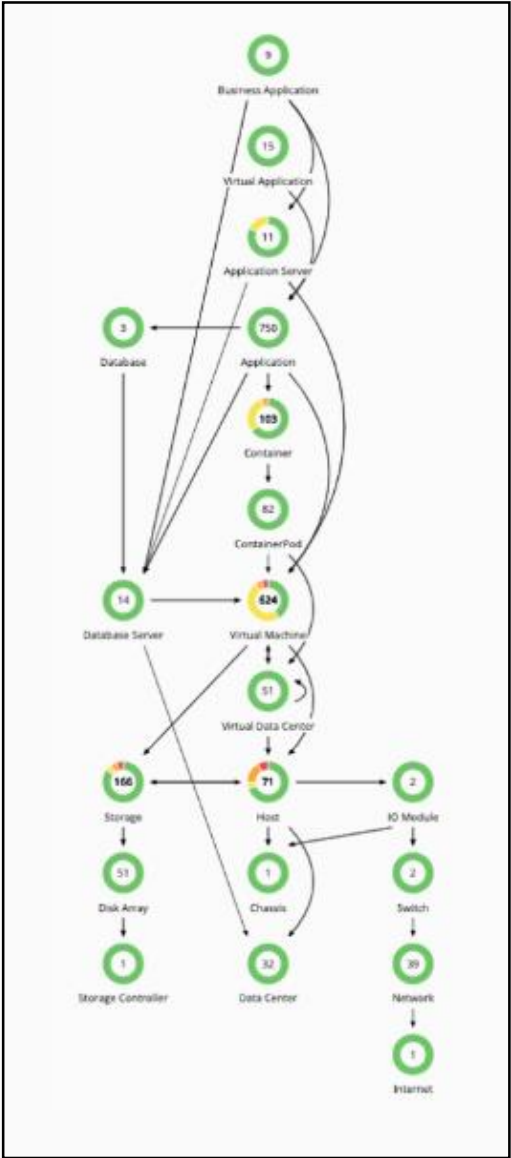
# The Technology Ecosystem



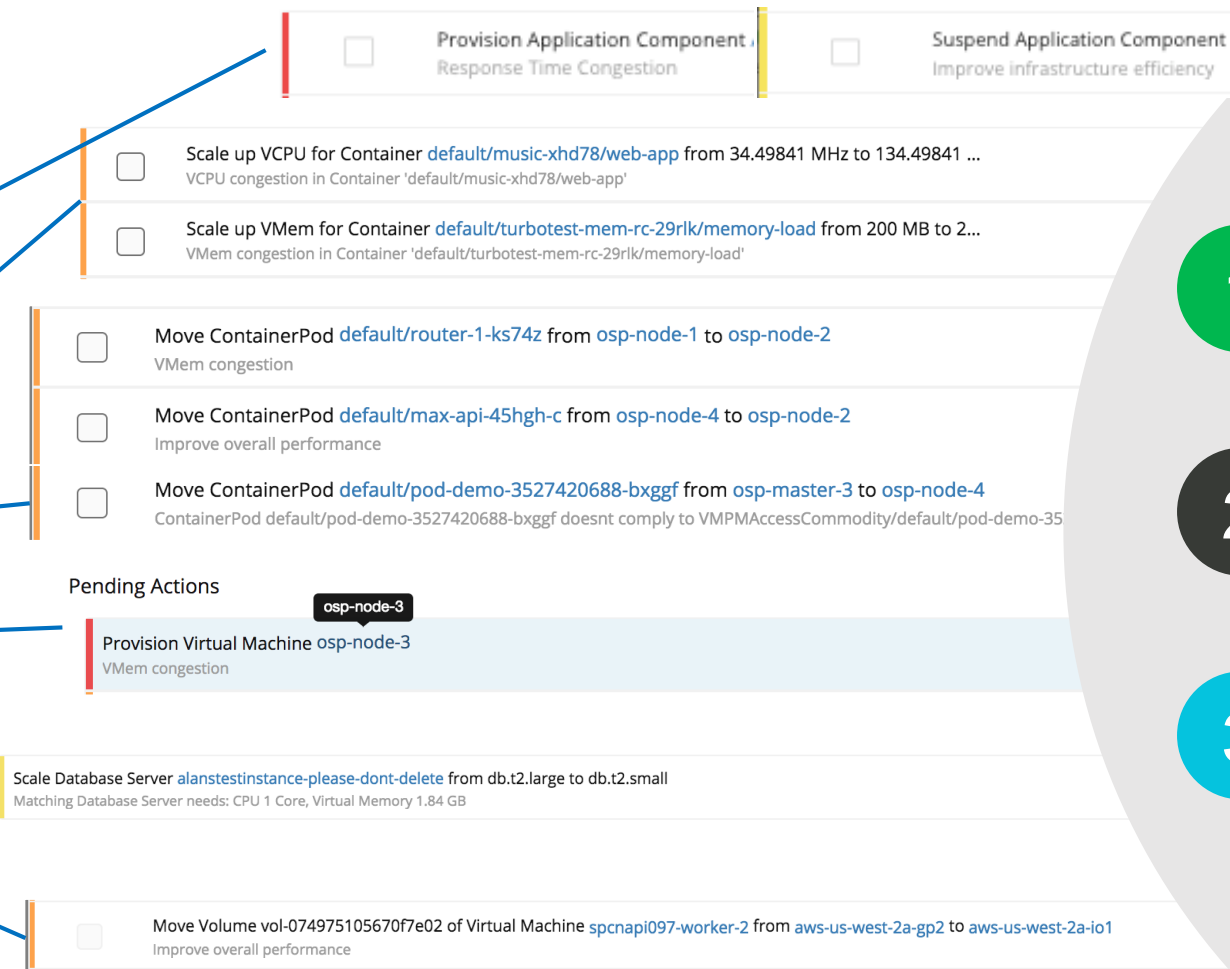
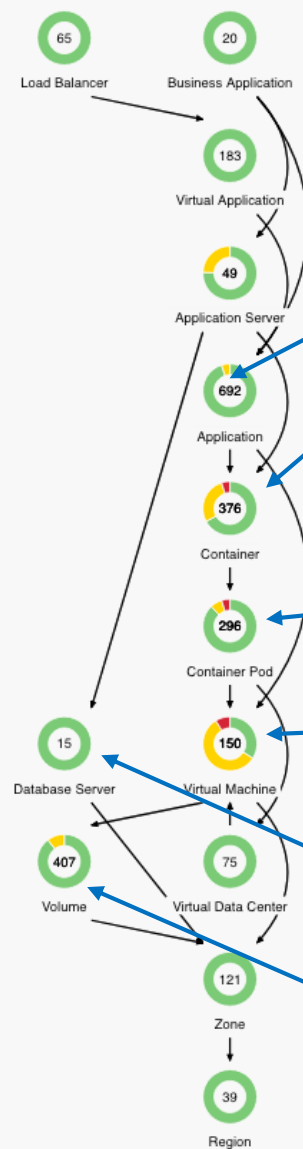
# Agenda

## IBM ARM for Cloud Native Workloads

# Making the Complex Simple



# The right resource decisions for every layer of the stack.



1

**SIZING:** How should you size containers?

2

**PLACEMENT:** When do you need to reschedule (move) pods? To which nodes?

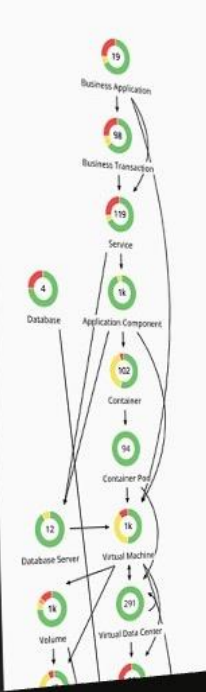
3

**SCALING:** When do you need to scale out (or back) the service? Or the cluster? By how much?





- ON
- SEARCH
- PLAN
- PLACE
- DASHBOARD
- SETTINGS



APPLICATION ON-PREM CLOUD

24 24h 7D 1M 1Y

Apr 01, 10:00 AM

Pending Actions: Global Environment

303 Pending Actions 82 Delete Actions 827 Scaling Actions 44 Deploy Actions 80 Stop Actions

Top Business Applications: Global Environment

Sort by: application resource health

Business Application Name	Application Resource Health	SLA Violation	Avg. Response Time	Peak Response Time	Action
AD Financial	<div><div></div></div>	No	82ms	80ms	19 Apr 2015
Monzo Verde	<div><div></div></div>	Yes 42%	32ms	1115ms	16 Apr 2016
DataBridge	<div><div></div></div>	Yes 18%	231ms	125ms	16 Apr 2015
LexCorp WebMail	<div><div></div></div>	Yes 45%	1148ms	833ms	17 Apr 2015
World's Most Critical Application	<div><div></div></div>	No			16 Apr 2015

Demo



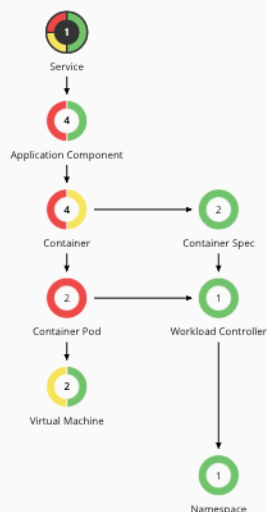
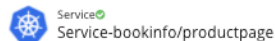
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Thank you!



# App Owner: Service Scaling to Meet SLOs

HOME / SERVICE-BOOKINFO/PRODUCTPAGE



Service -> Cnt/Pods  
-> Nodes  
Context, Actions

OVERVIEW DETAILS POLICIES LIST OF APPLICATION COMPONENTS (4) ACTIONS (2)

2H 24H 7D 1M 1Y

May 16, 11:00 PM

Pending Actions  
Service-bookinfo/productpage

19  
Placement Actions

2  
Start/Buy Actions

1  
Stop Actions

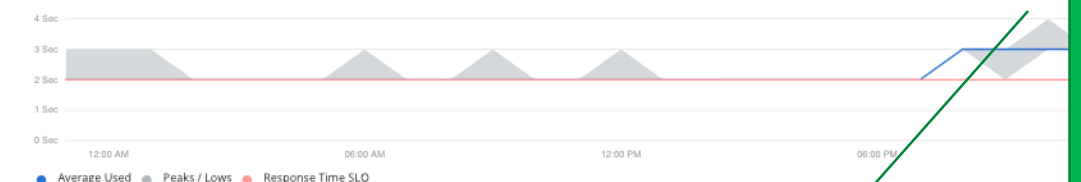
Transaction

Service-bookinfo/productpage



Response Time

Service-bookinfo/productpage



Understand  
Resource and SLO  
Performance (OCP  
Service Mesh)

Actions to Scale  
Services based on  
SLO

Top Application Components

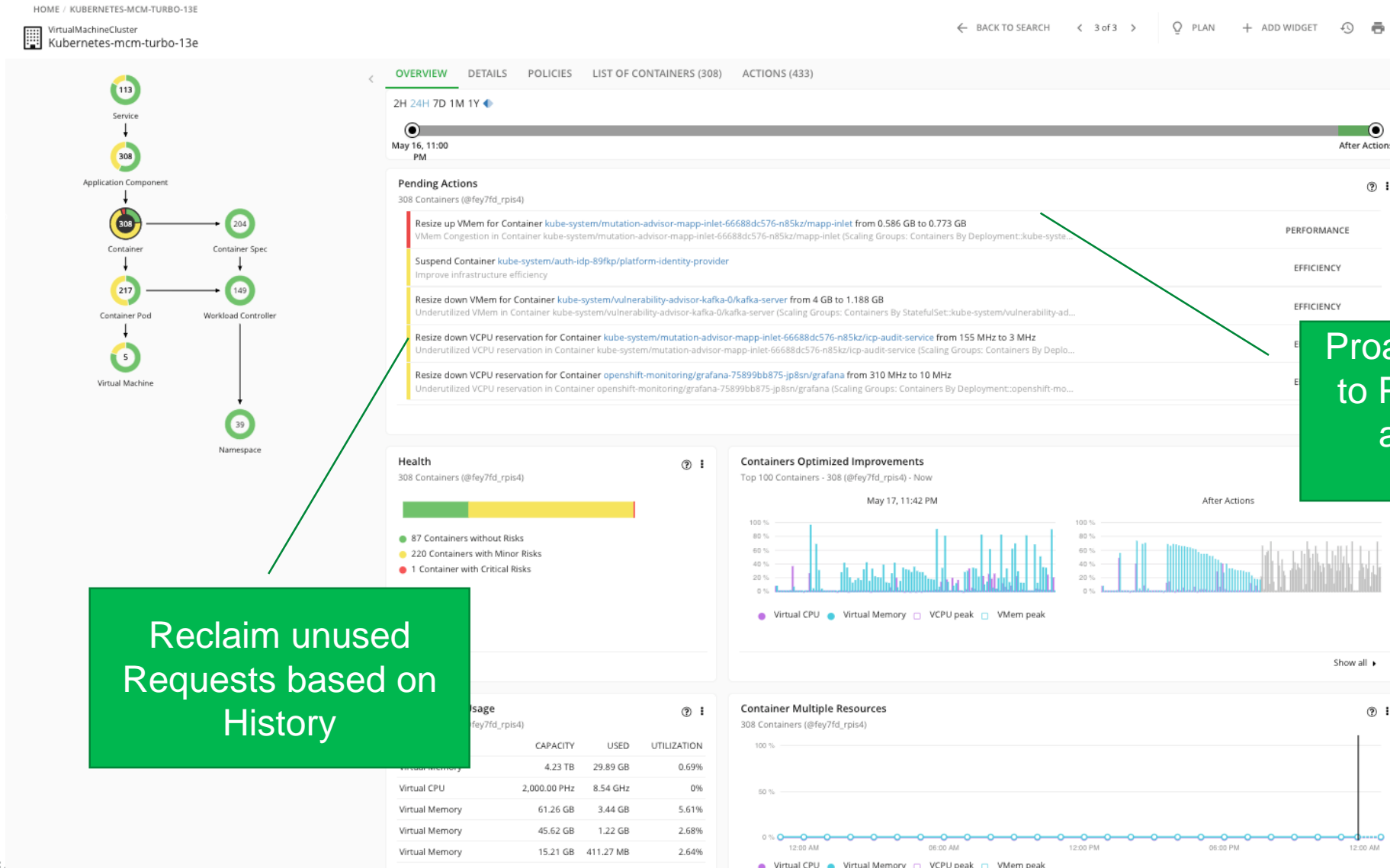
Service-bookinfo/productpage

Sort by APPLICATION RESOURCE HEALTH

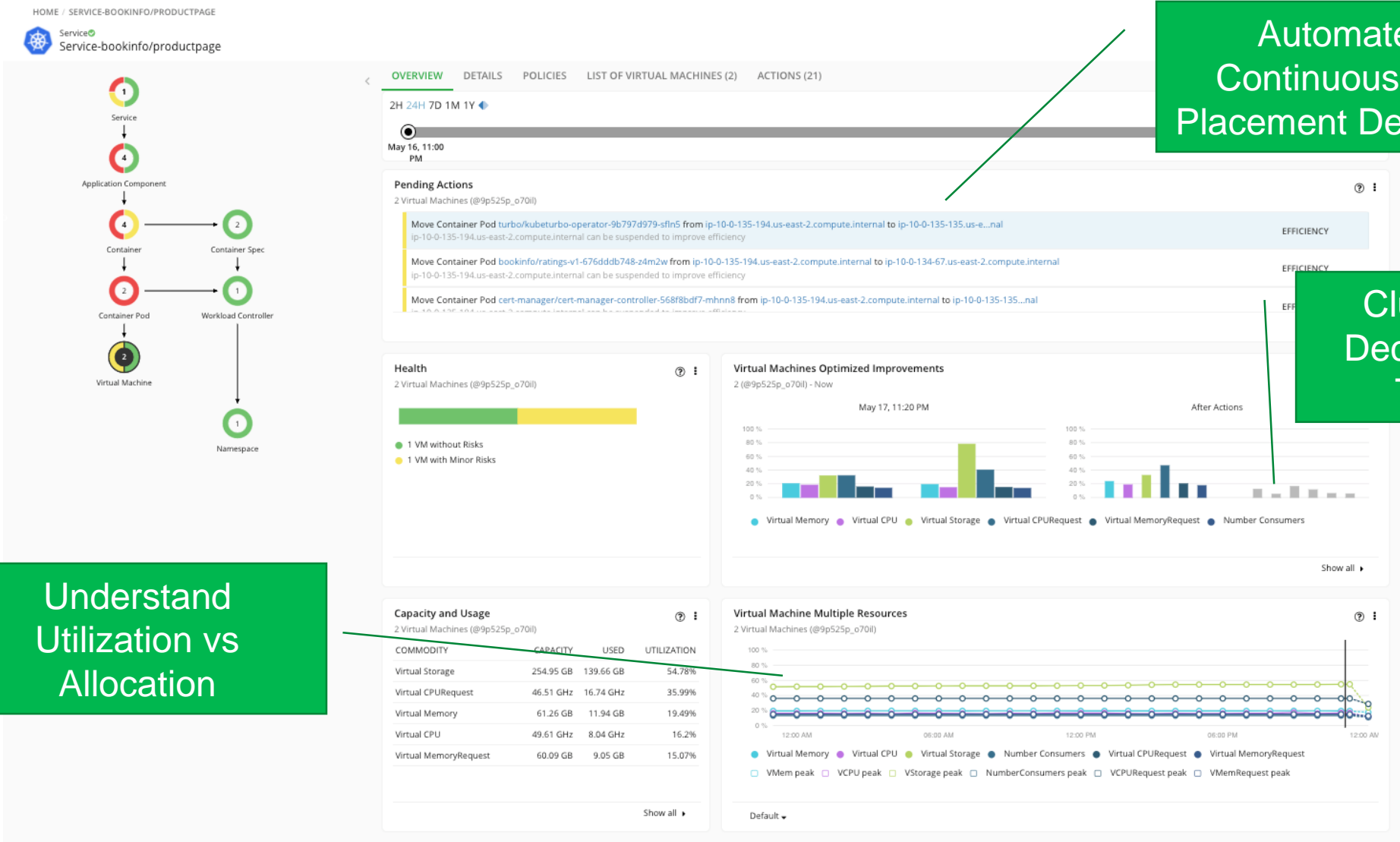
Application Component Name	Application Resource Health	SLA Violation	Avg. Response Time	Peak Response Time	Actions
App-bookinfo/productpage-v1-84655c46b6-rv8...	<div></div>	Yes <span>57%</span>	1569ms <span>25%</span>	1569ms <span>13%</span>	1 ACTION
App-bookinfo/productpage-v1-84655c46b6-qbz...	<div></div>	Yes <span>42%</span>	1418ms <span>1%</span>	1418ms <span>15%</span>	1 ACTION
App-bookinfo/productpage-v1-84655c46b6-rv8...	<div></div>	No			no actions

Provision Application Component App-bookinfo/productpage-v1-84655c46b6-rw8c/productpage  
Response Time Congestion

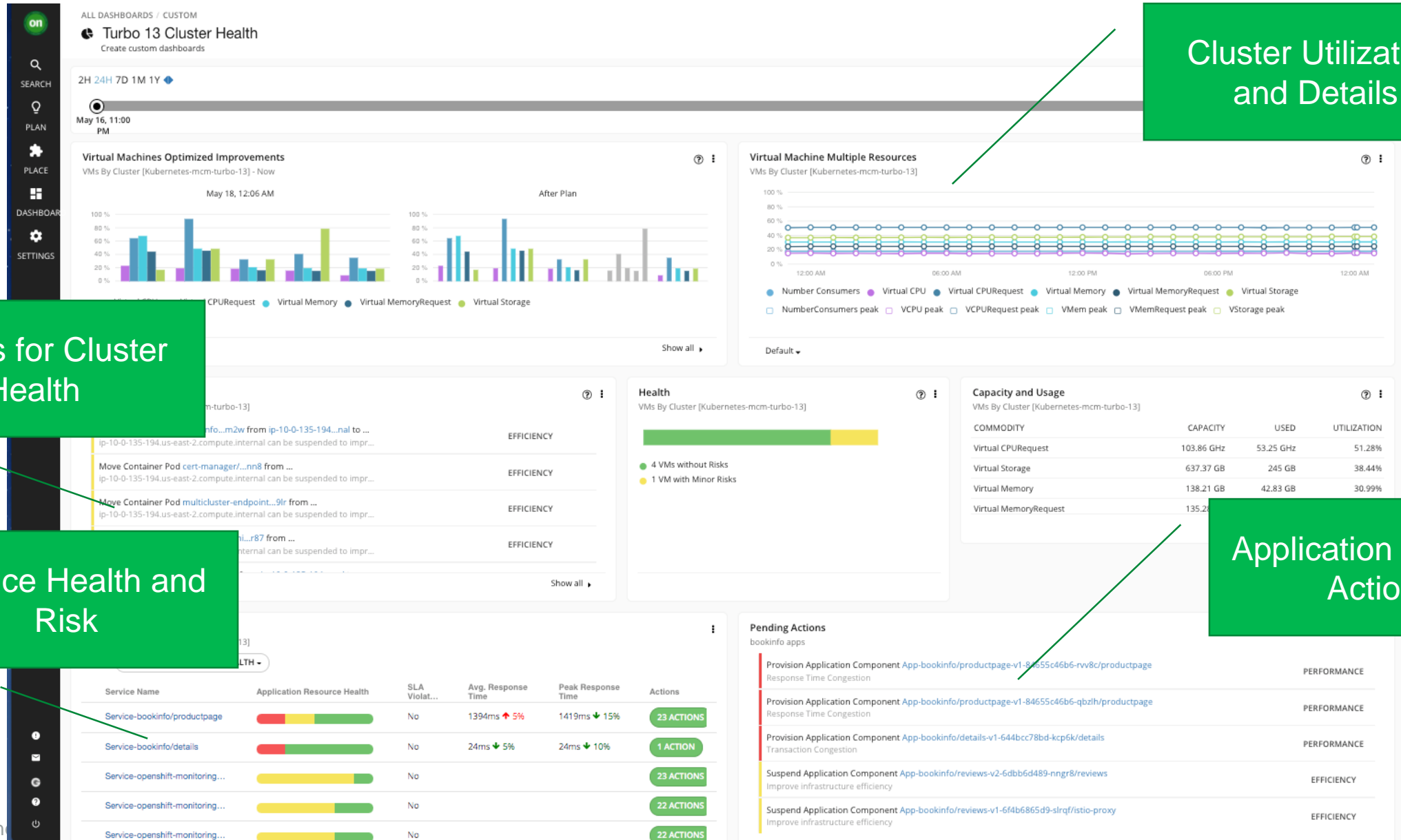
# App Owner & DevOps: Unlock Fragmented Resources and Performance Risks



# Dev Ops: Manage Node Resources for Service Performance & Cluster Efficiency



# DevOps Cluster and Service Health: Actions, Data with Context



Cluster Utilization and Details

Actions for Cluster Health

Service Health and Risk

Application / Service Actions



# Application Resource Management -> Full Stack & Multicloud

