

Trendy Technologiczne

Partner Day

18 maja 2022

Wojciech Furmankiewicz

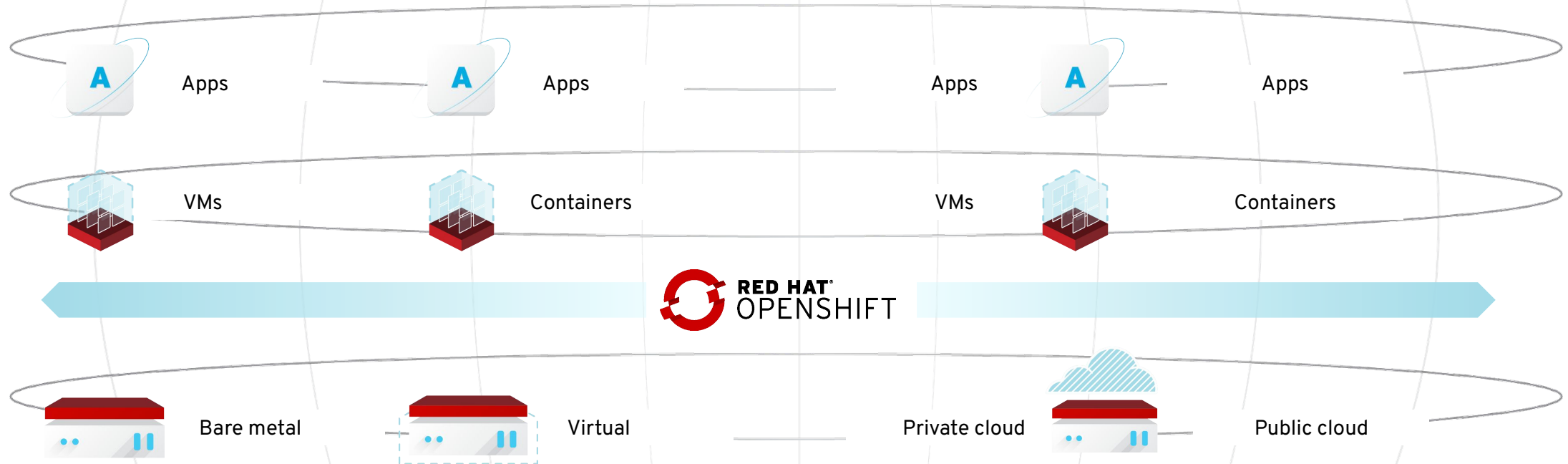
Regional Manager, CEE, Solution Architecture

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Red Hat

Jedna Platforma



RHEL przyszłości

 **Red Hat**
OpenShift
Platform Plus +  **Red Hat**
OpenShift
Data Foundation
Advanced

OpenShift product family

 **Red Hat**
Advanced Cluster Management
for Kubernetes

 **Red Hat**
Advanced Cluster Security
for Kubernetes

 **Red Hat**
Quay

 **Red Hat**
OpenShift
Data Foundation

Multicloud management

Observability | Discovery | Policy | Compliance |
Configuration | Workloads

Cluster security

Declarative security | Container vulnerability
management | Network segmentation |
Threat detection and response

Global registry

Image management | Security scanning |
Geo-replication Mirroring | Image builds

Cluster data management**

RWO, RWX, Object | S3 | Efficiency |
Performance | Security | Backup |
DR Multicloud gateway

Manage workloads

Platform services

- Service mesh | Serverless
- Builds | CI/CD pipelines
- GitOps | Distributed Tracing
- Log management
- Cost management

Build cloud-native apps

Application services*

- Languages and runtimes
- API management
- Integration
- Messaging
- Process automation

Data-driven insights

Data services*

- Databases | Cache
- Data ingest and preparation
- Data analytics
- AI/ML

Developer productivity

Developer services

- Developer CLI | IDE
- Plugins and extensions
- CodeReady workspaces
- CodeReady containers
- Migration tools

Kubernetes cluster services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | VMs | Operators | Helm

Kubernetes (orchestration)



 **Red Hat**
Enterprise Linux

Linux (container host operating system)

 **Red Hat**
Enterprise Linux
CoreOS



Physical



Virtual



Private cloud



Public cloud



Edge

Runtime -> Development -> Enterprise Hybrid Cloud Platform

Red Hat OpenShift Kubernetes Engine

Essential enterprise
Kubernetes Infrastructure

Includes:

- Enterprise Kubernetes runtime
- Red Hat Enterprise Linux CoreOS immutable container OS
- Administrator console
- OpenShift Virtualization

Red Hat OpenShift Container Platform

Opinionated application
development platform

Adds:

- Developer console
- Log management and metering/cost management
- Red Hat OpenShift Serverless (Knative)
- Red Hat OpenShift Service Mesh (Istio)
- Red Hat OpenShift Pipelines & Red Hat OpenShift Gitops (Tekton, ArgoCD)

Red Hat OpenShift Platform Plus

Manageability and consistency across
hybrid and multi cloud with advanced
security for DevSecOps

Adds:

- Red Hat Advanced Cluster Management for Kubernetes
- Red Hat Advanced Cluster Security for Kubernetes
- Red Hat OpenShift Data Foundation Essentials
- Red Hat Quay

Aplikacje

```
public class HelloWorld {  
  
    public static void main(String[] args) {  
        // Prints "Hello World" to the terminal window.  
        System.out.println("Hello World");  
    }  
  
}
```



Build the
application



Prepare
Dockerfile



Build the image
with docker



Push the image
to the registry



Prepare
YAML for
Kubernetes



Run with
kubectl



Does it work?

No ->
Fix &
repeat



Life with Kubernetes



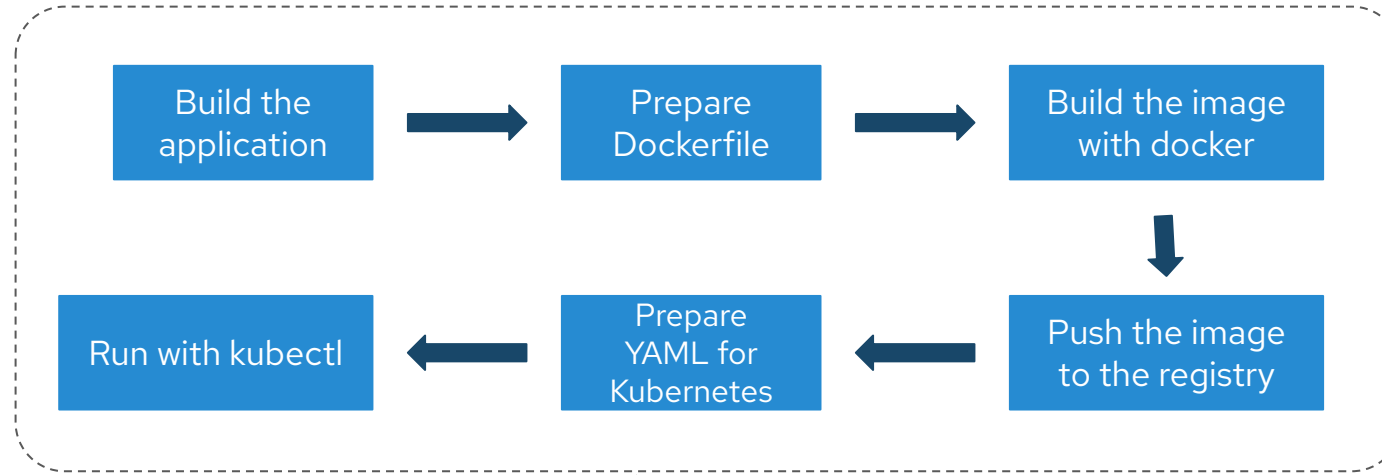


"I am a **developer**, I don't want to care about Dockerfiles, Images and stuff."

Every Developer
Everywhere



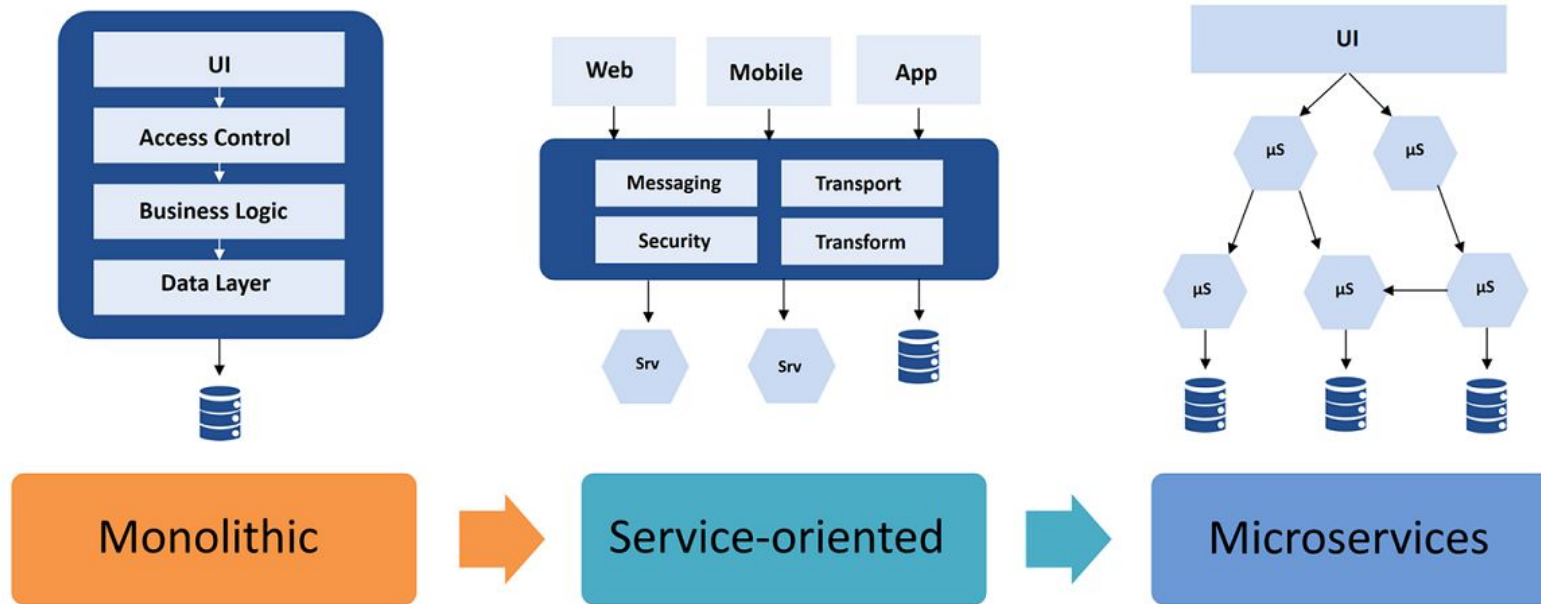
Life Made Easier



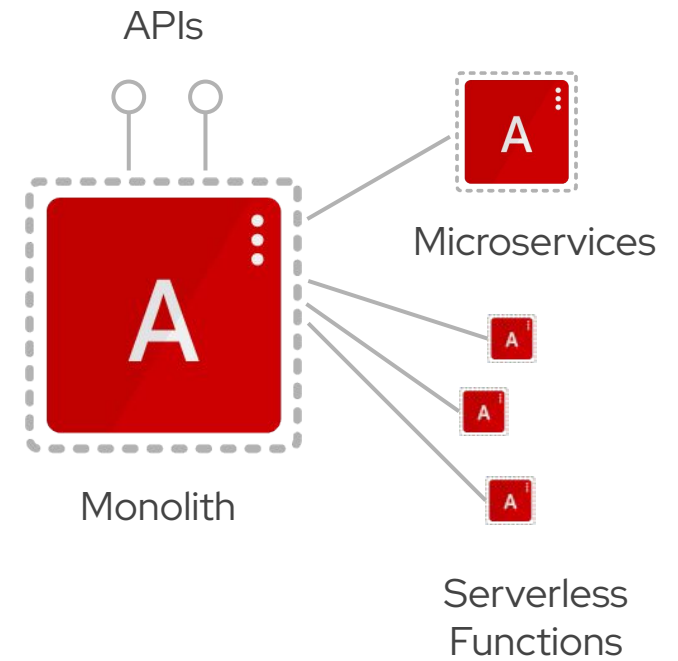
Single command



Evolution of Software Architecture



Hybrid App



Elastyczne środowisko Cloud-Native



Red Hat
Ansible Automation
Platform



Red Hat
Application Services



Red Hat
CodeReady

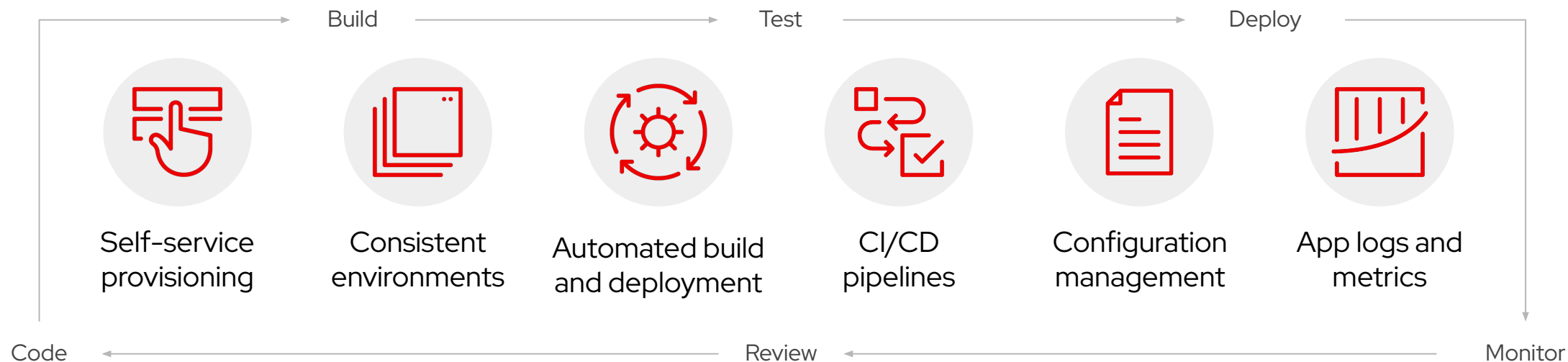


Red Hat
OpenShift

Service Mesh | Pipelines | Serverless



Red Hat
Data Services



Red Hat

Our vision is to simplify the creation of cloud-native services and serverless functions with a rich set of components and tools to match the **workloads** of modern cloud native apps

Automate Kubernetes application operations with DevOps in mind



Runtimes, frameworks and services to build applications natively on Kubernetes



Tools and standard processes to increase developer productivity on Kubernetes



Wirtualizacja

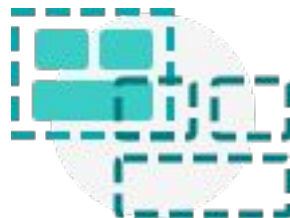


KubeVirt

KubeVirt technology addresses the needs of development teams that have adopted or want to adopt Kubernetes but possess existing Virtual Machine-based workloads that cannot be easily containerized



Leverage KubeVirt and Kubernetes to manage virtual machines for impractical-to-containerize apps

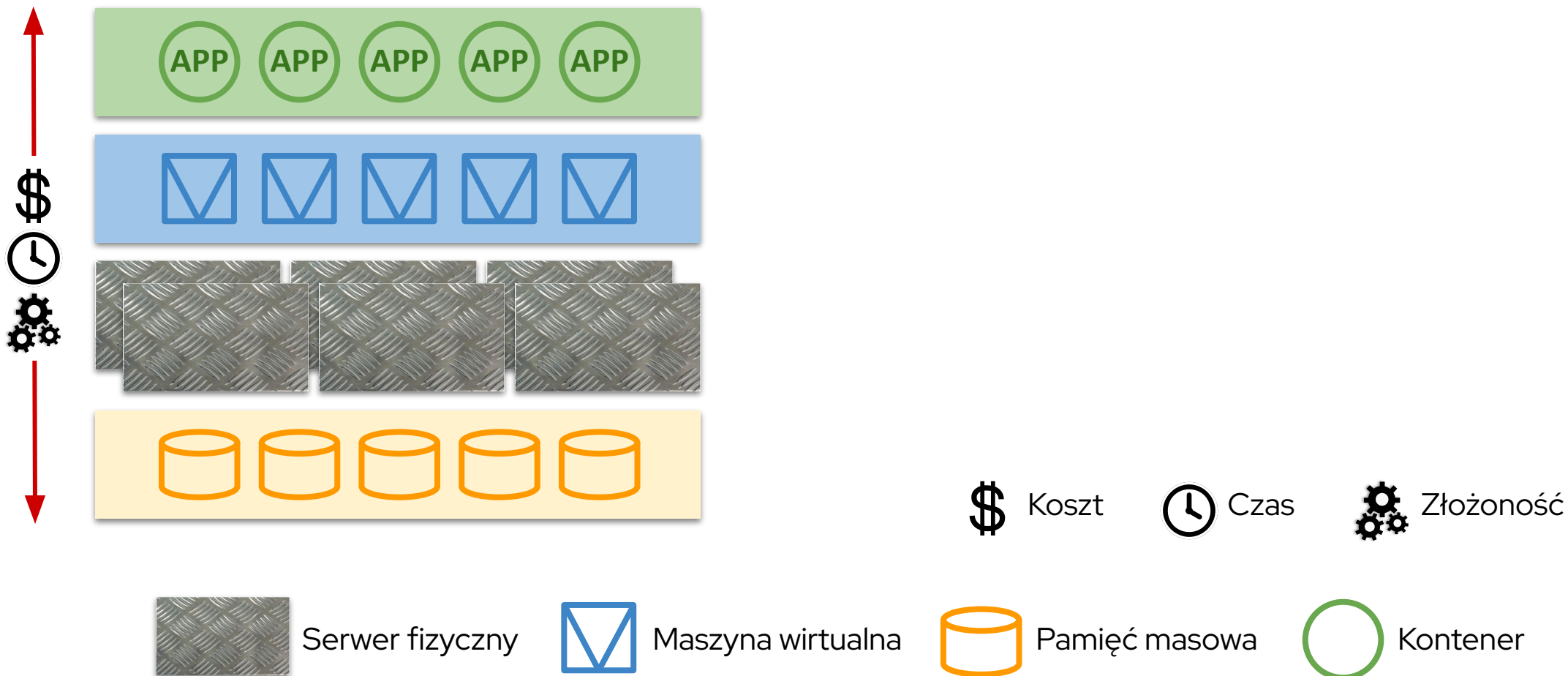


Combine existing virtualized workloads with new container workloads on the one platform

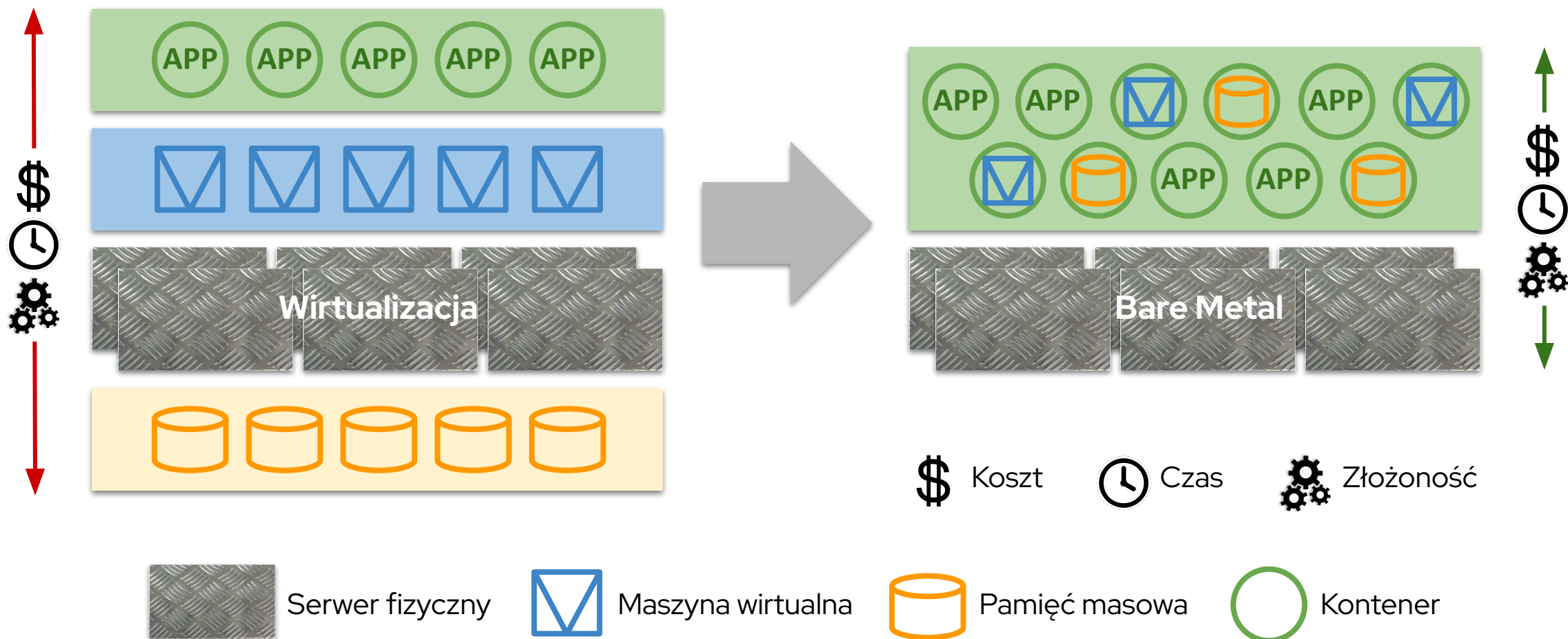


Support development of new microservice applications in containers that interact with existing virtualized applications

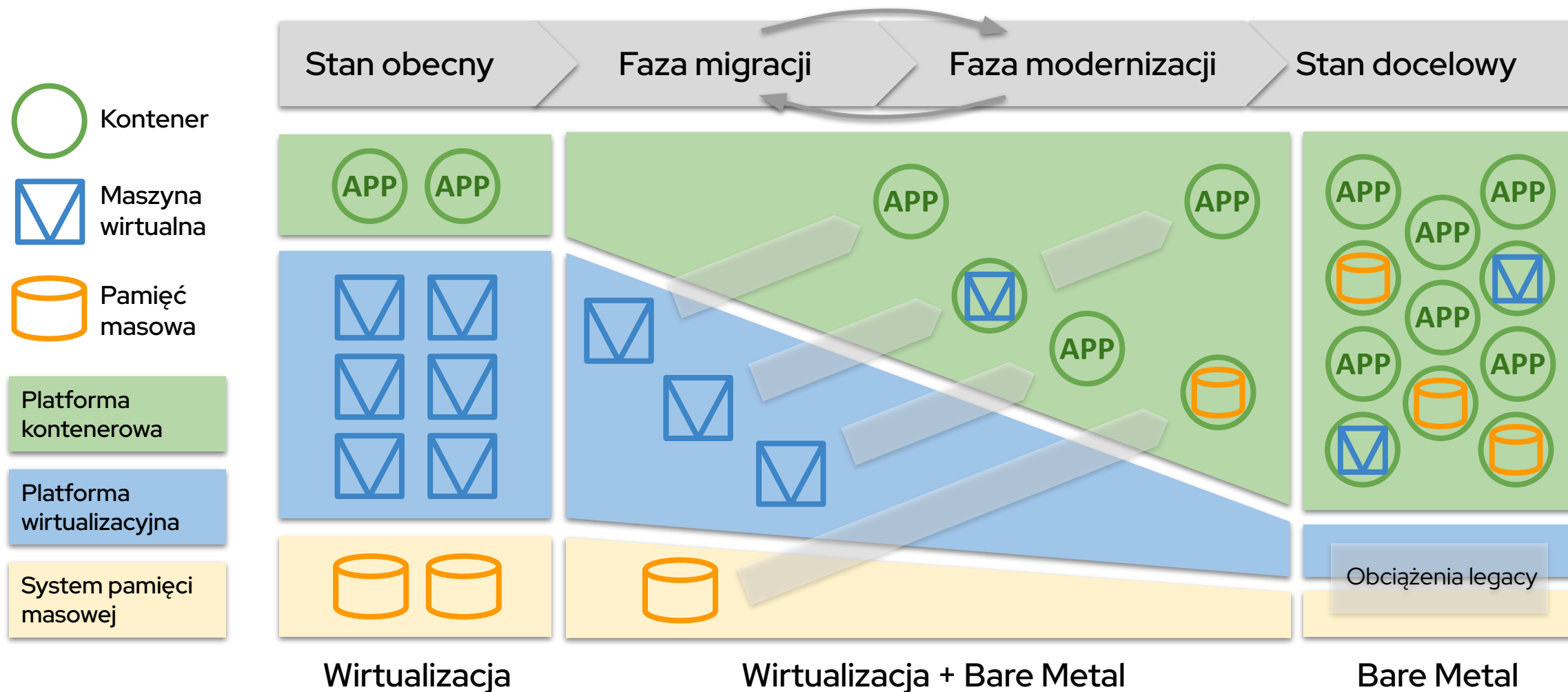
Tradycyjna infrastruktura aplikacyjna



Modernizacja infrastruktury aplikacyjnej



Proces transformacji infrastruktury aplikacyjnej



Decyzje technologiczne na wczesnym etapie transformacji



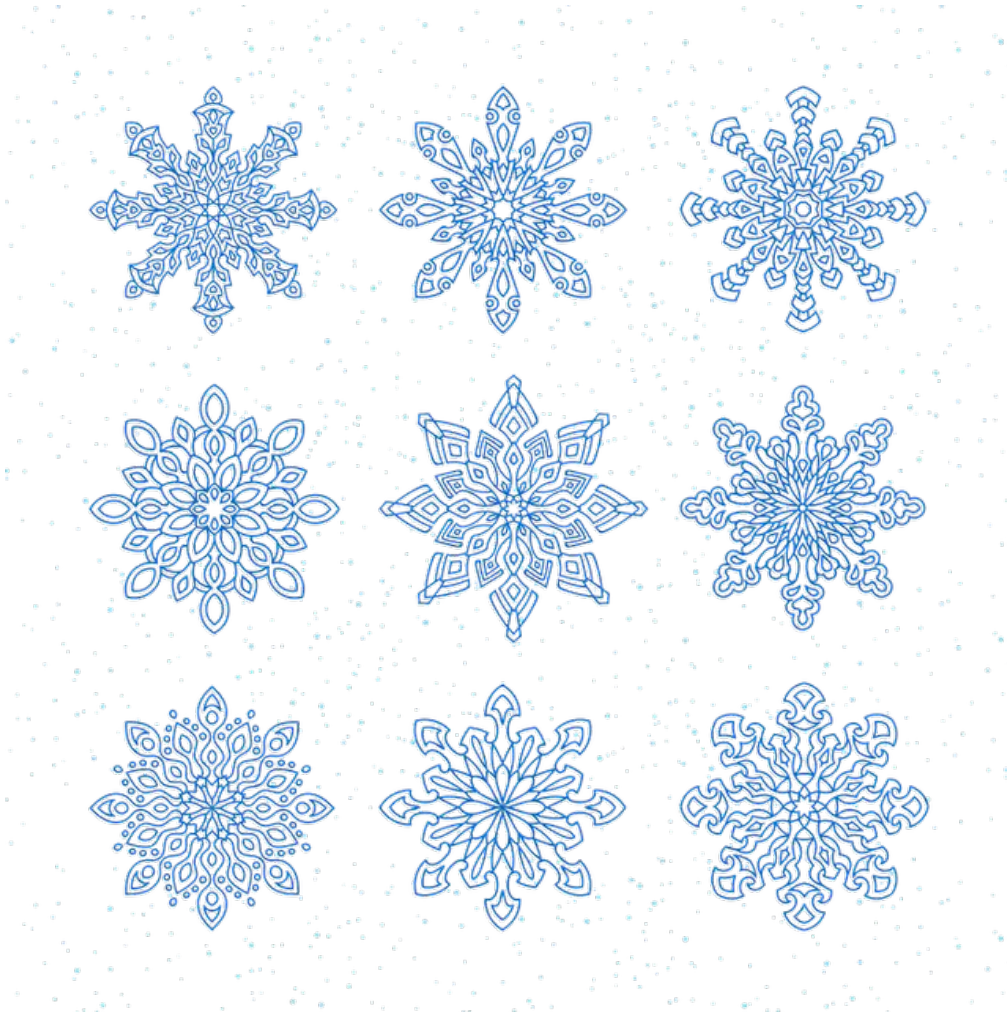
Decyzje technologiczne na wczesnym etapie transformacji



Automatyzacja



Infrastructure as Code



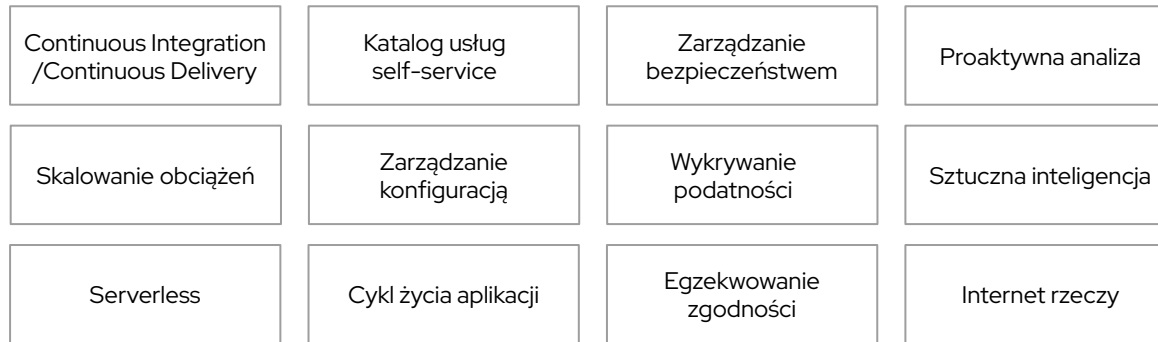
Wyzwania w największych organizacjach

Wiele niezintegrowanych, różnorodnych narzędzi i procesów
Czasochłonność operacji manualnych, błędy ludzkie, niespójność konfiguracji
Luki w bezpieczeństwie, trudność w utrzymaniu zgodności i egzekwowaniu polityk

Użytkownicy



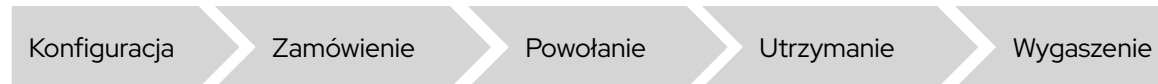
Obszary funkcjonalne



Domeny technologiczne



Cykl życia usługi



Red Hat
Ansible Automation
Platform

Najbardziej powszechna i najszybciej rozwijająca się technologia na rynku

Najbardziej atrakcyjna i poszukiwana wiedza ekspercka

Baza certyfikowanych modułów bezpośrednio od dostawców technologii

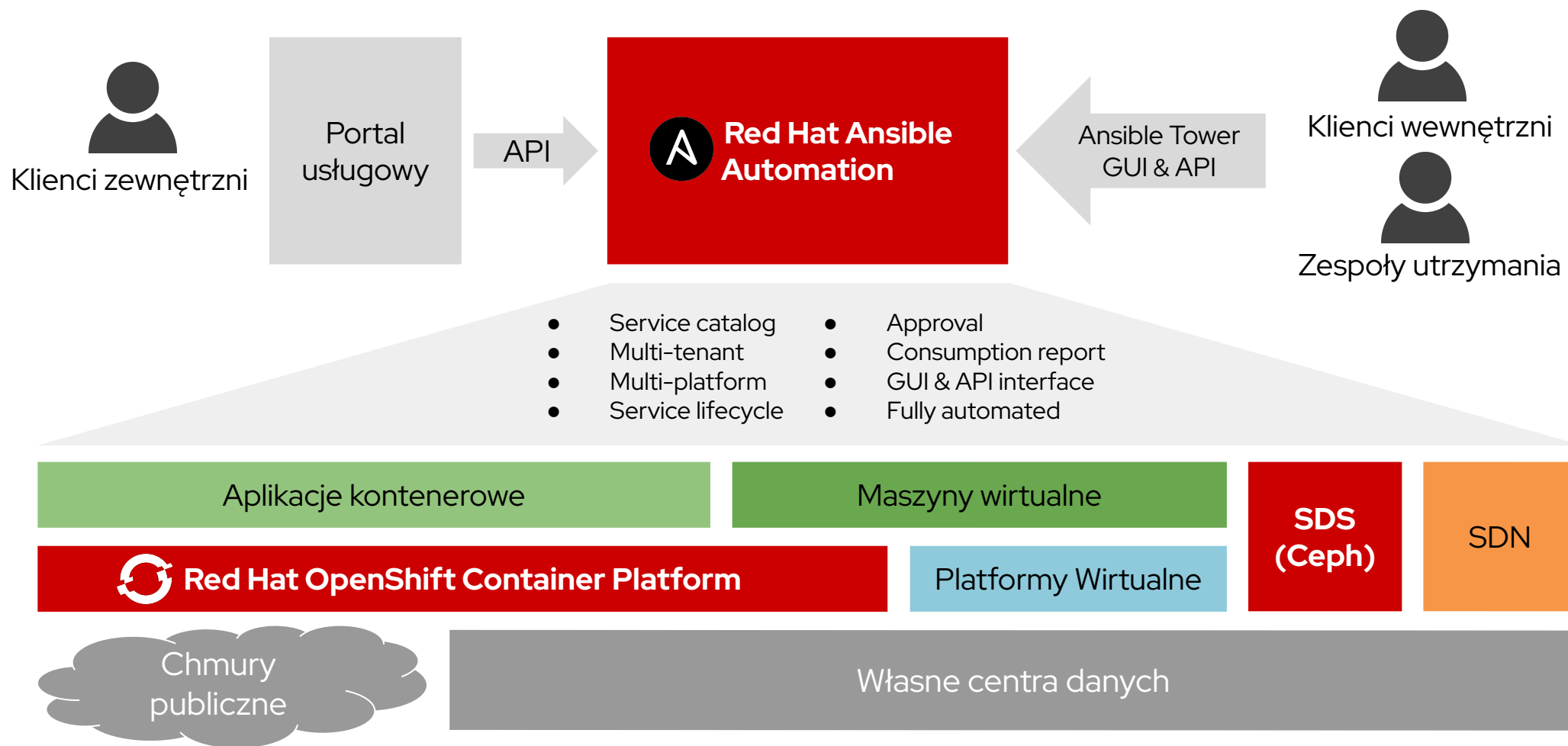
Obsługa całego stosu technologicznego w modelu infrastruktura jako kod (IaC)

Wsparcie 24/7, usługi wdrożeniowe i szkolenia

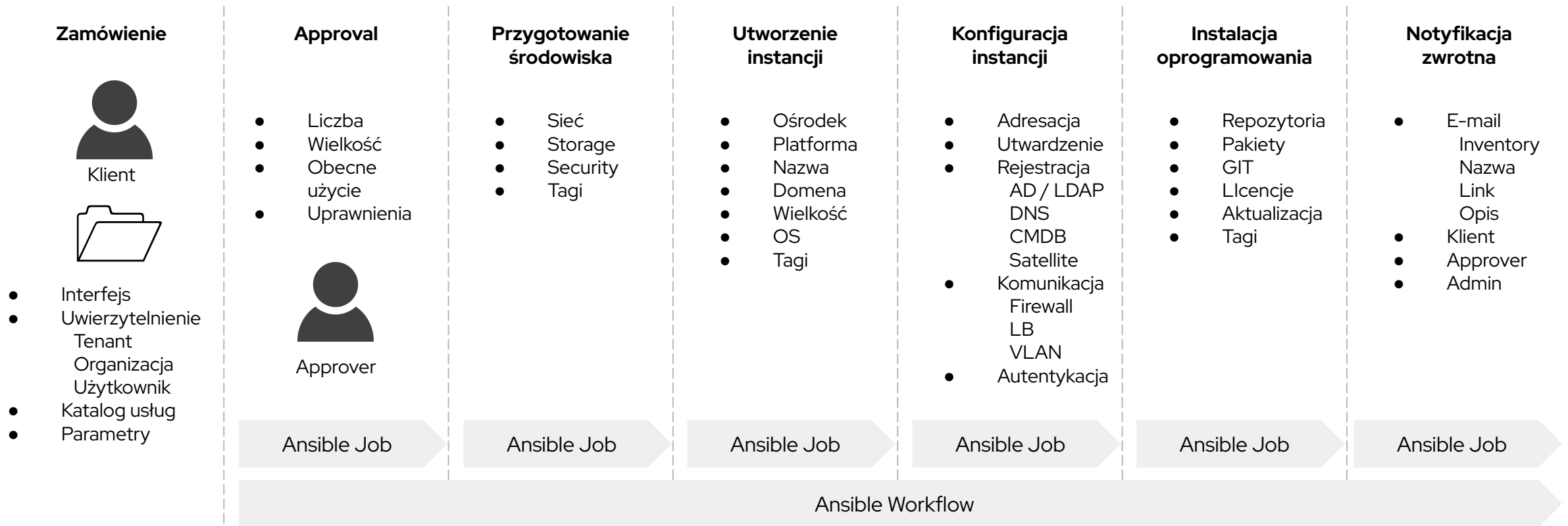
Kompleksowa automatyzacja procesów technologicznych w środowiskach o dużej skali



System orkiestracji środowisk chmurowych



Proces realizacji usługi



Bezpieczeństwo

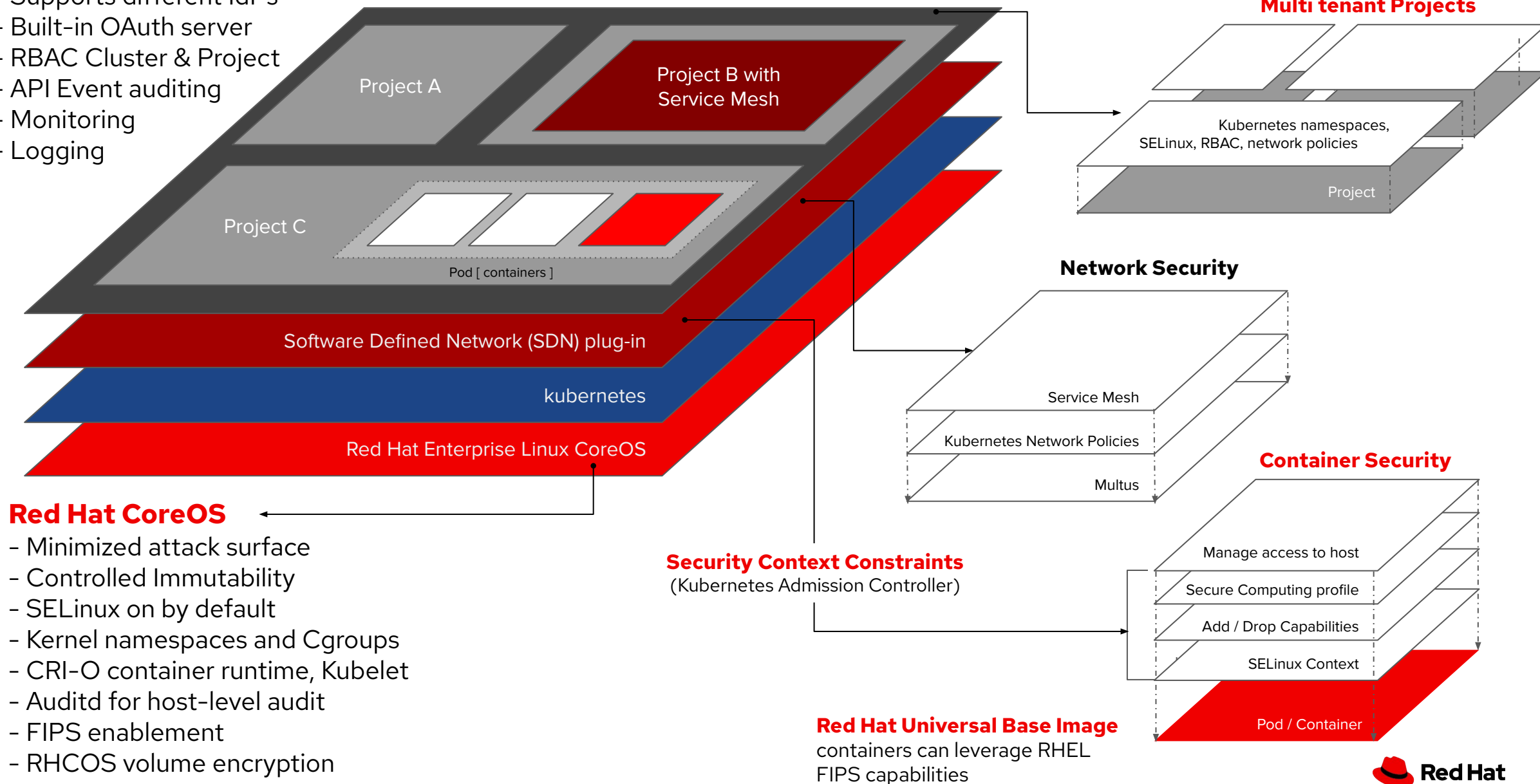
Kubernetes Attack Matrix

Initial Access	Execution	Persistence	Privilege Escalation	Defense Evasion	Credential Access	Discovery	Lateral Movement	Impact
Using Cloud credentials	Exec into container	Backdoor container	Privileged container	Clear container logs	List K8S secrets	Access the K8S API server	Access cloud resources	Data Destruction
Compromised images in registry	bash/cmd inside container	Writable hostPath mount	Cluster-admin binding	Delete K8S events	Mount service principal	Access Kubelet API	Container service account	Resource Hijacking
Kubeconfig file	New container	Kubernetes CronJob	hostPath mount	Pod / container name similarity	Access container service account	Network mapping	Cluster internal networking	Denial of service
Application vulnerability	Application exploit (RCE)		Access cloud resources	Connect from Proxy server	Applications credentials in configuration files	Access Kubernetes dashboard	Applications credentials in configuration files	
Exposed Dashboard	SSH server running inside container					Instance Metadata API	Writable volume mounts on the host	
							Access Kubernetes dashboard	
							Access tiller endpoint	

OpenShift Container Platform

- Supports different IdPs
- Built-in OAuth server
- RBAC Cluster & Project
- API Event auditing
- Monitoring
- Logging

Defense in Depth



Detect | Protect | Respond



Detect



Protect



Respond

Trusted content

Container registry

Build management

CI/CD pipeline

Vulnerability Analysis

App Config Analysis

APIs for CI/CD pipeline

Kubernetes platform lifecycle

Identity and access management

Platform data

Deployment policies

Image Assurance

Compliance Assessments

Risk Profiling

Container isolation

Network isolation

Application access and data

Observability

Runtime Behavioural Analysis

Auto-suggest Network Policies

Threat Detection

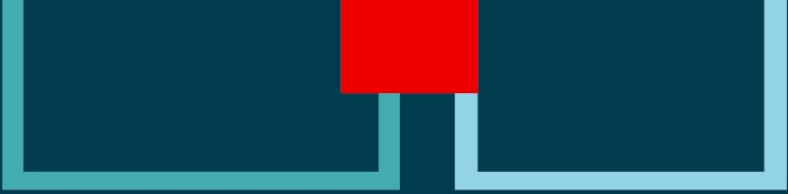
RHACS

Build

Deploy

Run



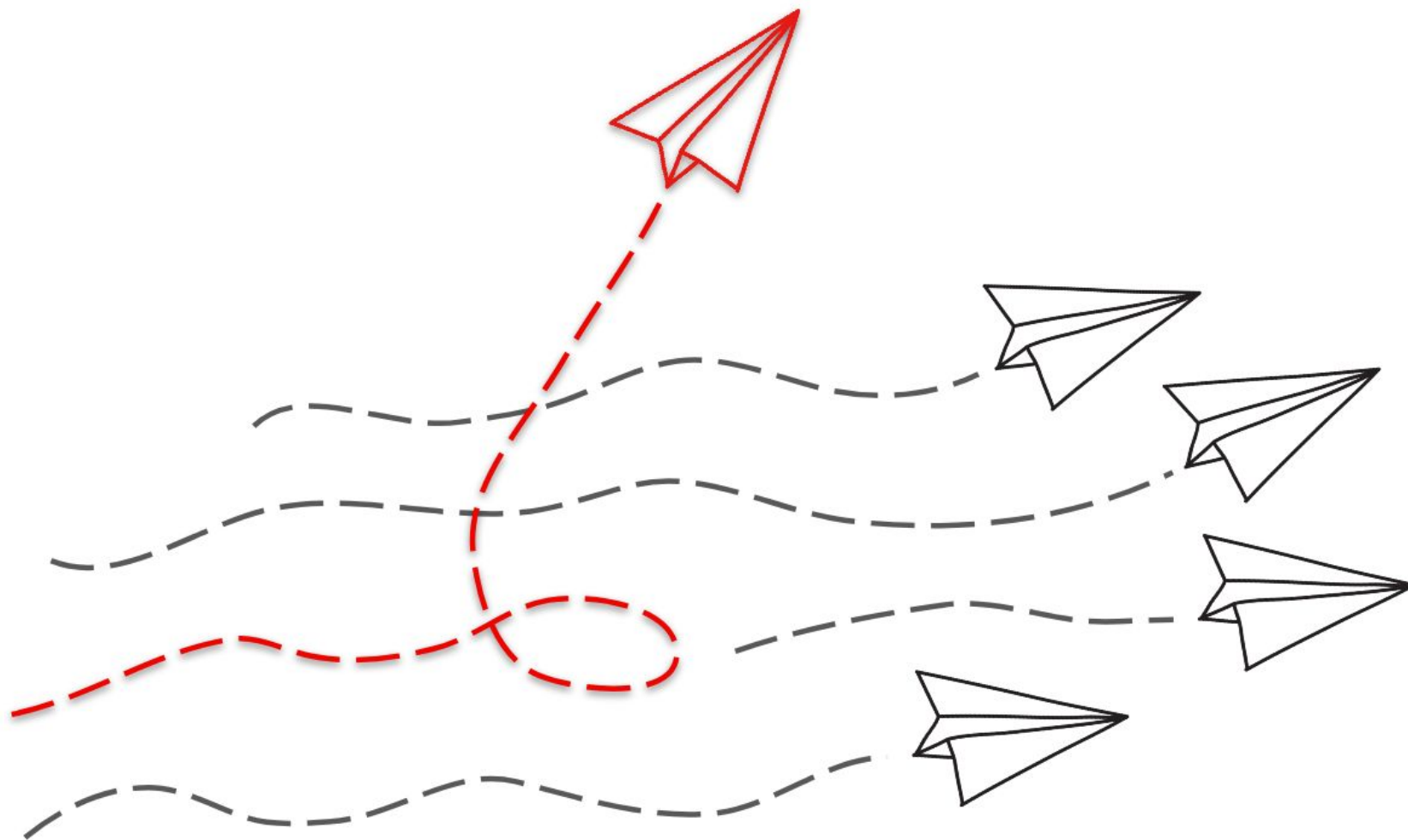


Usługi

Czego oczekują klienci



Szczęście sprzyja lepszym



Dziękuję !

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