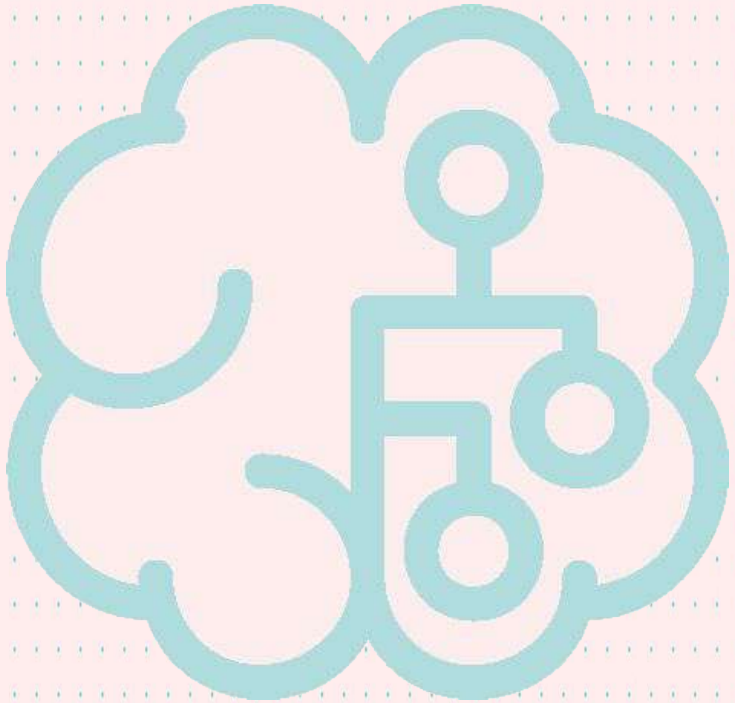
AI on Azure Red Hat OpenShift Workshop

Martin Seman
Sr. EMEA Black Belt, Red Hat

Yury Titov
Sr. EMEA Black Belt, Red Hat

Red Hat

Agenda



- **14:00 Workshop Introduction:** Digital Transformation at Parasol Insurance
  - Introduction to Parasol Insurance and the Hands-on Lab
  - Current claims handling process and proposed improvements
  - Connection and Setup
- **14:15 - Hands-On Lab:** Insurance claims lab
- **17:00 – Wrap-up: feedback and conclusion**

Mini presentations:

- Collaboration between the App Developer and Data Scientist
- Operationalize AI with Red Hat OpenShift AI & Azure services
- RH AI: quick web ui walkthrough
- MCP protocol

- **Complete quiz to get digital credential**

Red Hat

Enabling your AI apps:

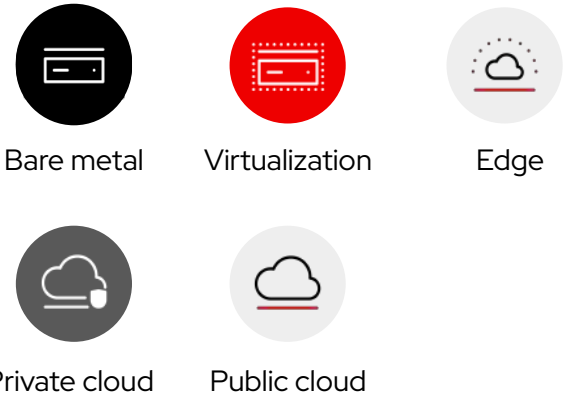
Collaboration between the app developer and data scientist

Red Hat

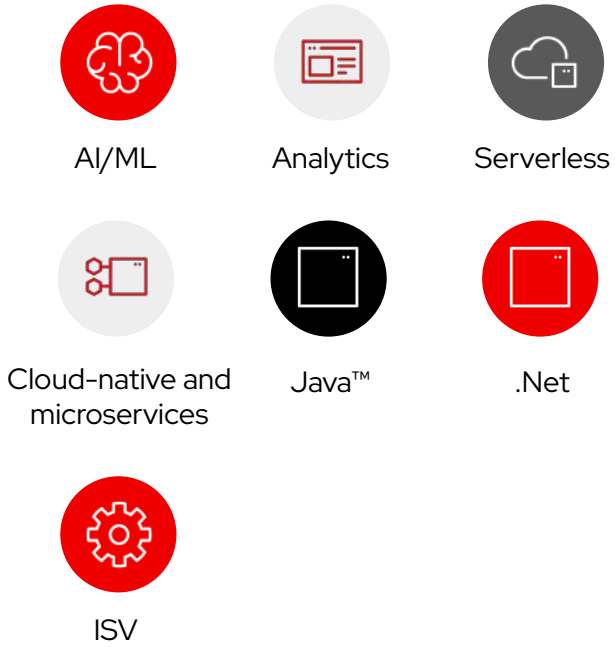
Reality of enterprise IT environments

Mixed infrastructure environments, diverse app portfolios, & limited automation

Infrastructure



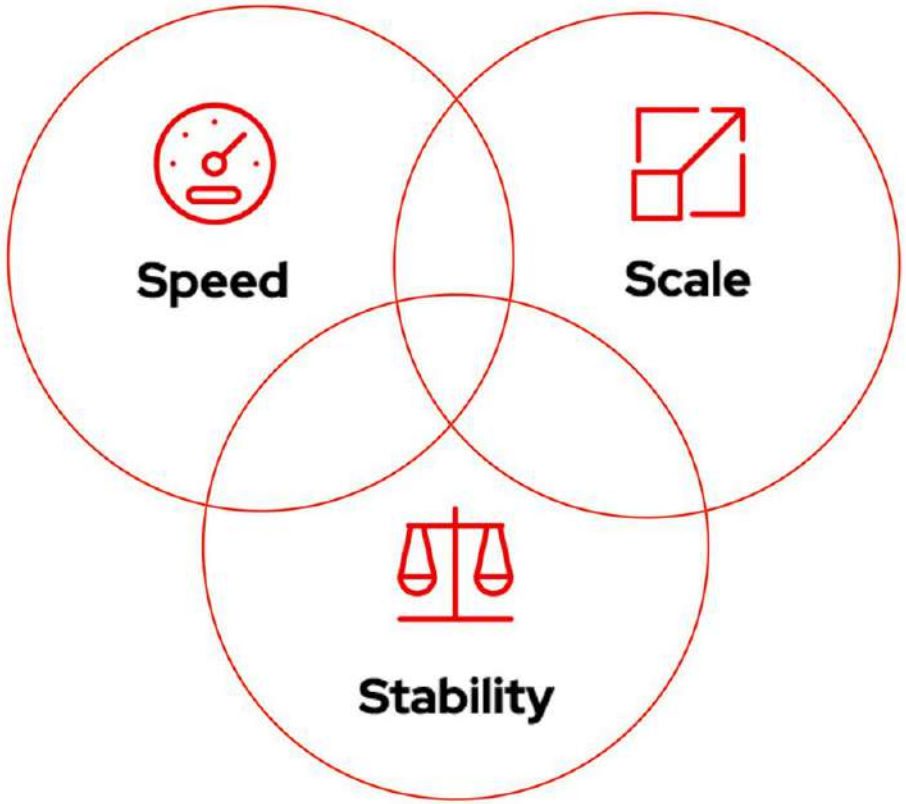
Applications



Development, IT processes, and skills

Source: Red Hat detail. "The State of Enterprise Open Source," Feb. 2021.

While the new world demands



Red Hat

100-x%

Skills

Security

Compliance

Standardization

Automation

Manage workloads	Build cloud-native apps	Data-driven insights	Developer productivity
Platform services	Application services	Data services	Developer services
Kubernetes cluster services			
Kubernetes			
Linux			

x%

Red Hat

The Challenge of Containers: **they require <u>many</u> components**

LOAD BALANCER ?

PLATFORM SECURITY ?

CI/CD ?

CONTAINER RUNTIME ?

AUTH ?

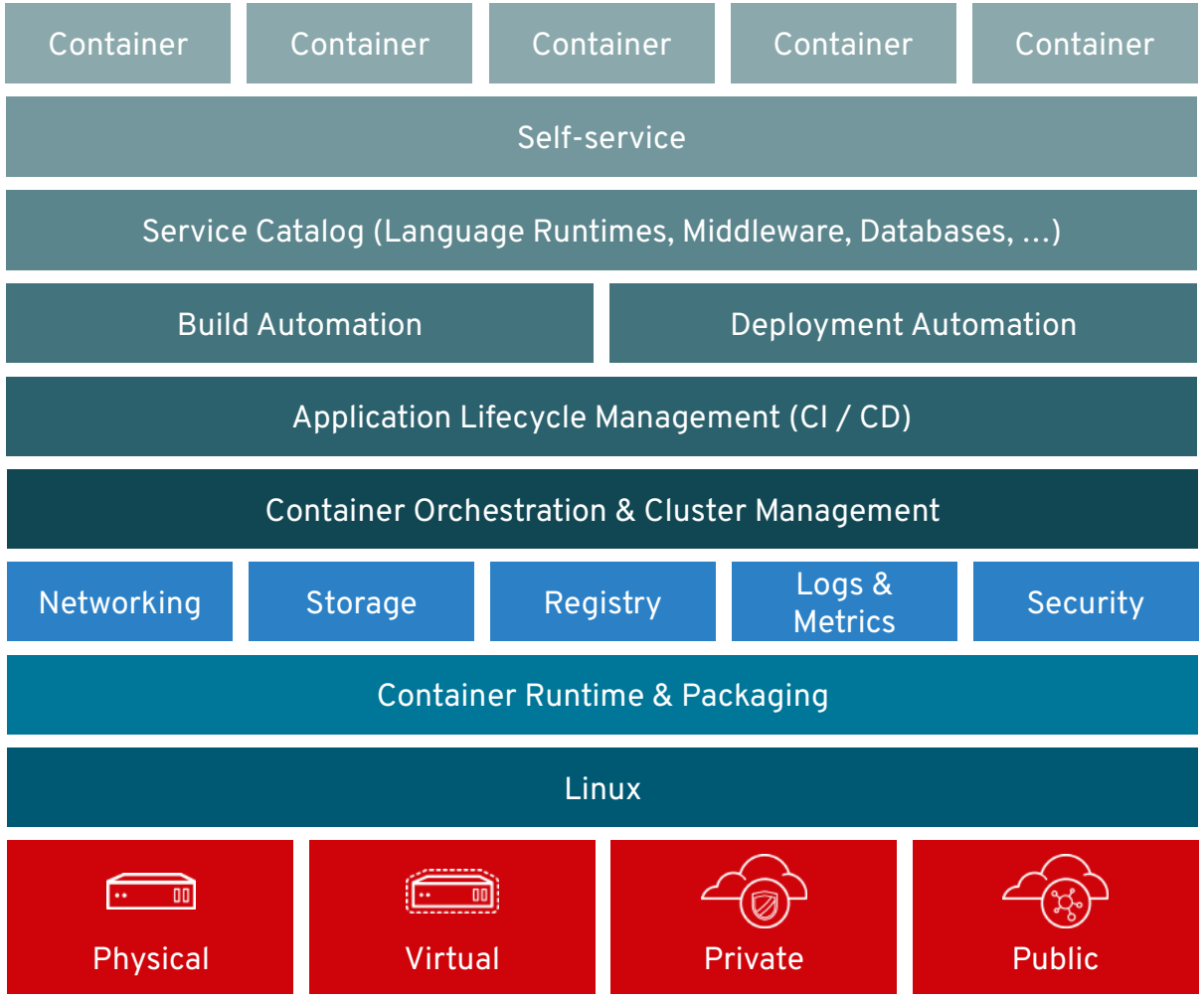
CONTAINER BUILD ?

NETWORK ?

CONTAINER REGISTRY ?

OPERATING SYSTEM ?

STORAGE ?



Red Hat

CNCF Cloud Native Landscape

2019-07-12T03:51:02Z 024e93b

Overwhelmed? Please see the CNCF Trail Map. That and the interactive landscape are at l.cncf.io

Greyed logos are not open source

App Definition and Development

Database

CNCF Incubating: TiKV, Vitess

Streaming & Messaging

CNCF Incubating: NATS, NIFI

Application Definition & Image Build

CNCF Incubating: Helm

Continuous Integration & Delivery

Orchestration & Management

Scheduling & Orchestration

CNCF Graduated: Kubernetes

Coordination & Service Discovery

CNCF Graduated: CoreDNS

CNCF Incubating: etcd

Remote Procedure Call

CNCF Incubating: gRPC

Service Proxy

CNCF Graduated: envoy

API Gateway

Service Mesh

CNCF Incubating: LINKERD

Runtime

Container Runtime

CNCF Graduated: containerd

CNCF Incubating: cri-o, rkt

Cloud-Native Network

CNCF Incubating: CNI

Provisioning

Automation & Configuration

Security & Compliance

CNCF Incubating: Notary, Open Policy Agent, TUF

Key Management

Platform

Certified Kubernetes - Distribution

Certified Kubernetes - Hosted

Certified Kubernetes - Installer

PaaS/Container Service

Observability and Analysis

Monitoring

CNCF Graduated: Prometheus

Logging

CNCF Graduated: fluentd

Tracing

CNCF Incubating: Jaeger, OpenTracing

Chaos Engineering

Serverless

Public

Cloud

Kubernetes Certified Service Provider

Kubernetes Training Partner

Special

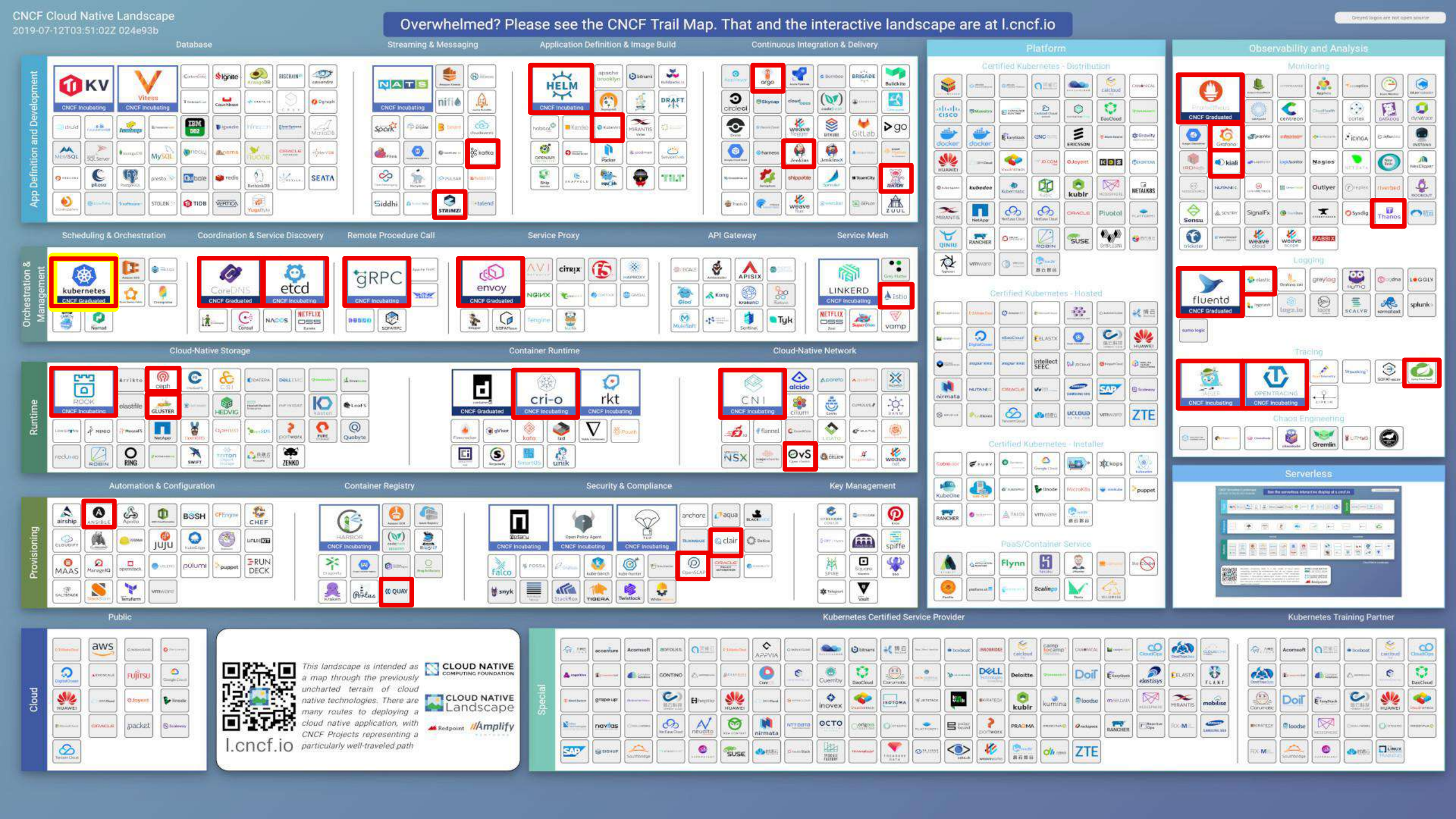
This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path

l.cncf.io

CLOUD NATIVE COMPUTING FOUNDATION

CLOUD NATIVE Landscape

Bedpoint Amplify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Orchestration & Management
Scheduling & Orchestration
Coordination & Service Discovery
Remote Procedure Call
Service Proxy
API Gateway
Service Mesh
Runtime
Cloud-Native Storage
Container Runtime
Cloud-Native Network
Provisioning
Automation & Configuration
Container Registry
Security & Compliance
Key Management
Public
Cloud
Kubernetes Certified Service Provider
Kubernetes Training Partner
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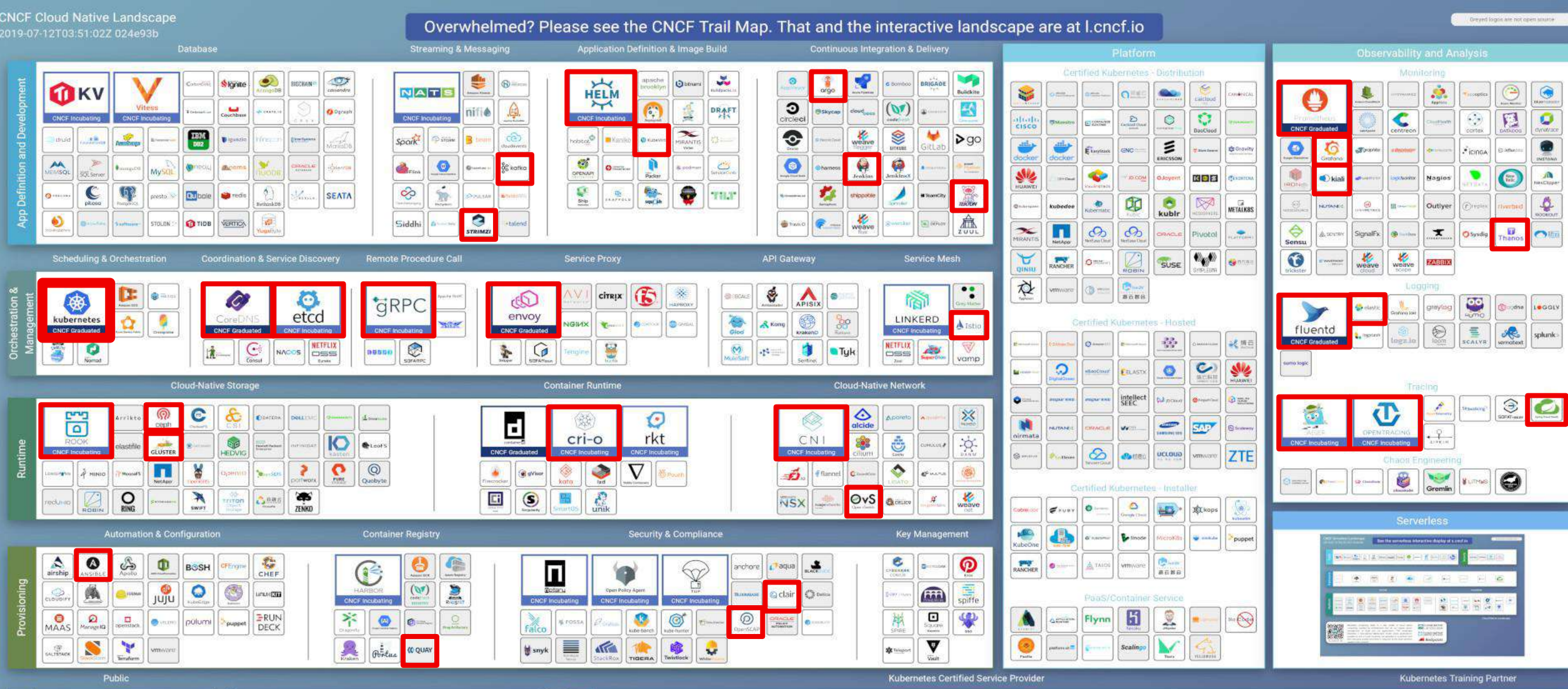
l.cncf.io
CLOUD NATIVE COMPUTING FOUNDATION
CLOUD NATIVE Landscape
Redpoint
Amplify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Service Proxy
API Gateway
Service Mesh
Runtime
Cloud-Native Storage
Container Runtime
Cloud-Native Network
Provisioning
Automation & Configuration
Container Registry
Security & Compliance
Key Management
Public
Kubernetes Certified Service Provider
Platform
Certified Kubernetes - Distribution
Certified Kubernetes - Hosted
Certified Kubernetes - Installer
PaaS/Container Service
Observability and Analysis
Monitoring
Logging
Tracing
Chaos Engineering
Serverless
Kubernetes Training Partner
Red Hat manages and MAINTAINS this complexity for its customers

A consistent platform no matter how or where you run

Red Hat OpenShift cloud services—Fully managed, start quickly

Red Hat OpenShift Service on AWS

Azure Red Hat OpenShift

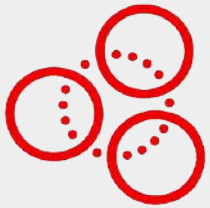
Red Hat OpenShift on IBM Cloud

Red Hat OpenShift Dedicated

Self-Managed Red Hat OpenShift—Customer managed, for control and flexibility

On **public cloud**, on-premises on **physical** or **virtual** infrastructure, and at the **edge**

Azure Red Hat OpenShift is a joint, 1st party Azure solution.



Integrated Dev tools and cloud native services

Joint Support & Engineering

Security, resilience and compliance

Single invoicing, utilize cloud committed spend

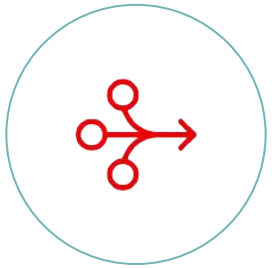
Red Hat

AI on Azure Red Hat OpenShift

What's in it for me?

Accelerate deployments

Build, train, deploy and monitors AI/ML workloads faster with a comprehensive app platform that operationalizes AI faster.



Focus

Focus on AI innovation and minimize risk with a fully managed platform

Consistency and choice

Flexibility to choose the right AI/ML technologies for your business, using the cloud of your choice, with a consistent experience.

Red Hat

Operationalize AI with Red Hat OpenShift AI and Azure Services

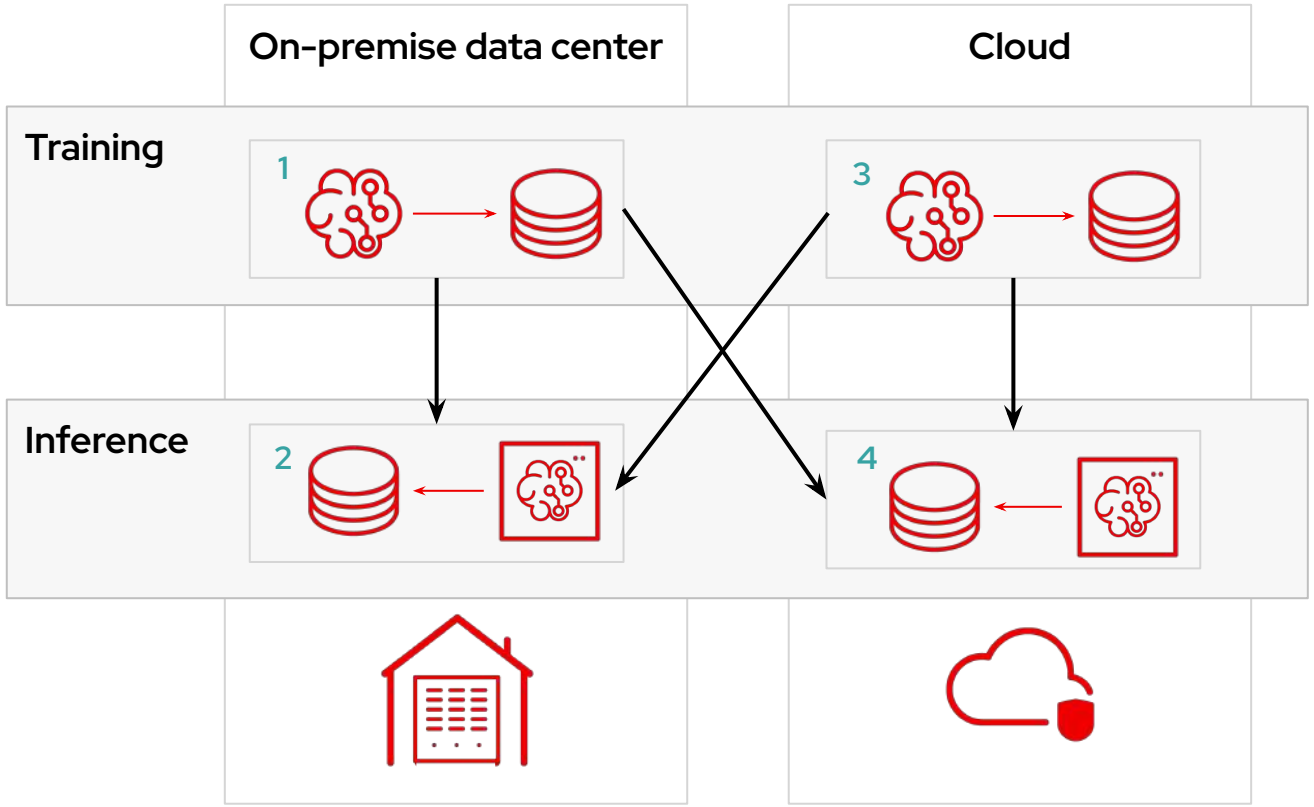
Red Hat

Gain hybrid cloud flexibility

Train and deploy models and AI-enabled apps on-premises, cloud or edge

What you do should not dictate **where** you do it

1. Data on-prem = Train on-prem
2. Data on-prem = Inference on-prem
3. Data in the cloud = Train on cloud
4. Data in the cloud = Inference on cloud



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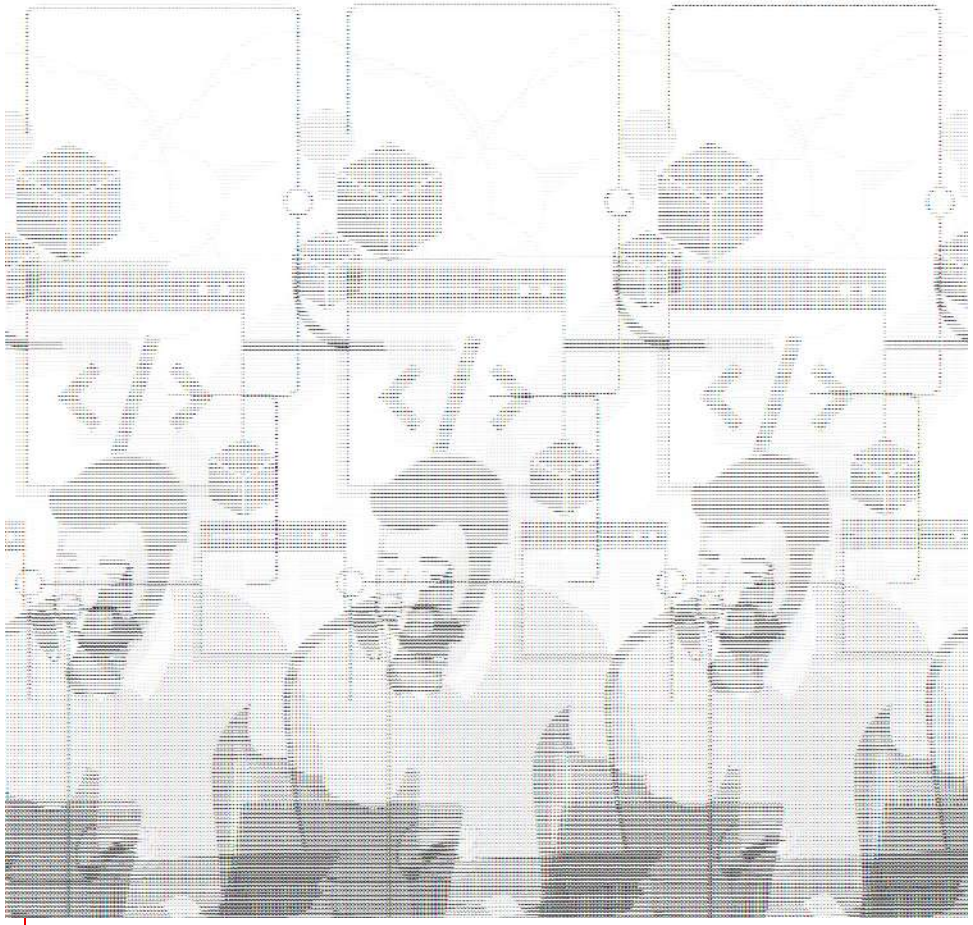
Why Red Hat OpenShift AI on Cloud

Economic Entry Point with Long-Term Cloud Viability



Red Hat OpenShift AI on Cloud

- Scalability and availability
- Cost effectiveness
- Integrated Cloud Environment for AI/ML Collaboration

Red Hat

Build an AI platform for E2E AI lifecycle management

Trusted, comprehensive and consistent hybrid application platform for managing the entire application lifecycle

Open hybrid AI/ML platform, built on top of OpenShift, to create and deliver AI-enabled apps securely at scale on-prem and across clouds

Create intelligent applications with out of the box prebuilt and customizable APIs and models

Red Hat

Azure Red Hat OpenShift integrates with OpenShift and Azure Developer and Management Tools

OpenShift developer console

Code Ready Workspaces

OpenShift Operators

OpenShift AI

OpenShift Pipelines

Red Hat Runtimes

OpenShift API Management

OpenShift Serverless

OpenShift Service Mesh

OpenShift developer sandbox

OpenShift GitOps

Log analytics workspace

Azure Arc-enabled OpensShift cluster

Azure Resource Manager

Azure Arc

Azure AD

Azure Monitor

Azure Firewall

Azure AI services

Azure Visual Studio

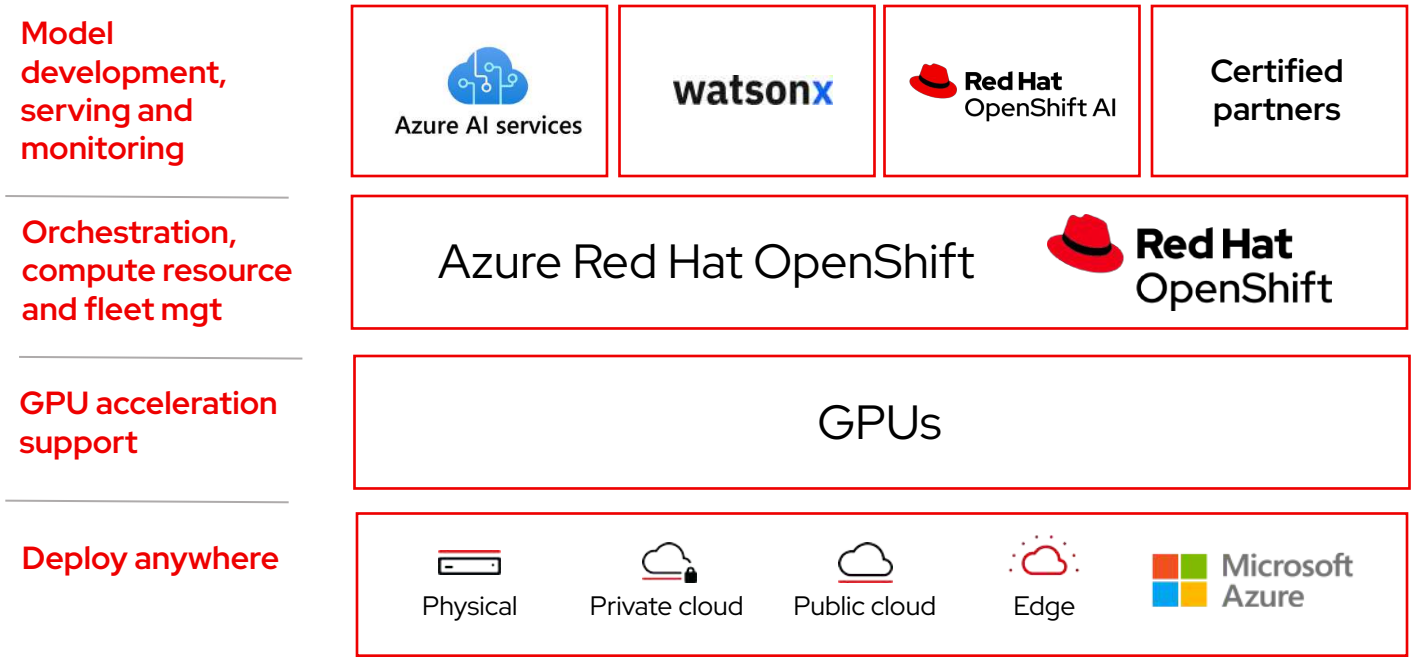
Azure Load Testing

Azure Log Analytics

Additional tools: Azure Developer Tools and Management products

Red Hat

More Choice for Model Development, Tuning and Serving on Azure Red Hat OpenShift



Consistency and choice across deployment options and AI/ML tools

Focus on AI Innovation and minimize complexity with a fully managed platform

Accelerate deployments with a comprehensive app platform that operationalizes AI faster

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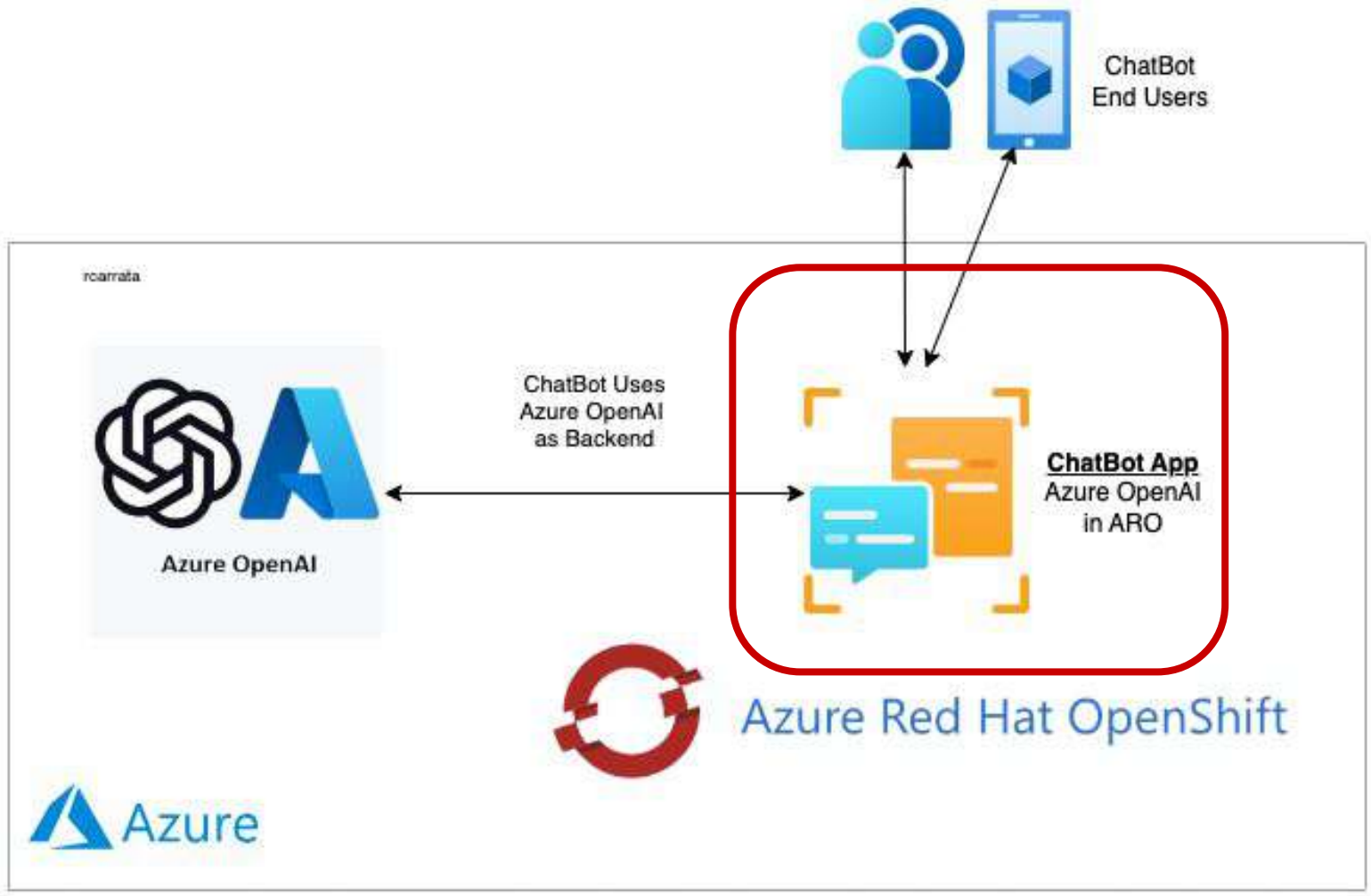
Example: AI ChatBot
in Azure Red Hat OpenShift fully integrated with Azure OpenAI



Red Hat

How the AI/ML landscape is evolving / MLOps and OpenShift AI Overview

Red Hat

Operationalizing AI is a major challenge

Understanding the nuances

What type of AI model should you invest in?

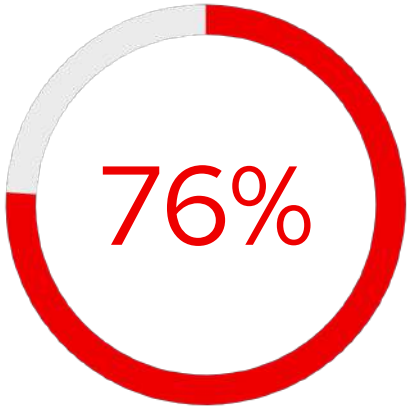
Building the right infrastructure

How do you choose and build the right environments for development and production?

Realizing value

How do you safely realize the business benefits of AI/ML innovation?

87% of data science projects never make it into production[1]



76% of respondents say it takes 7 mo to 1+ year to operationalize a model[2]

Source:
IDC - Market Analysis Perspective: Worldwide Artificial Intelligence Software, 2021
Gartner Peer Insights, Open Source AI for Enterprise survey, 2023

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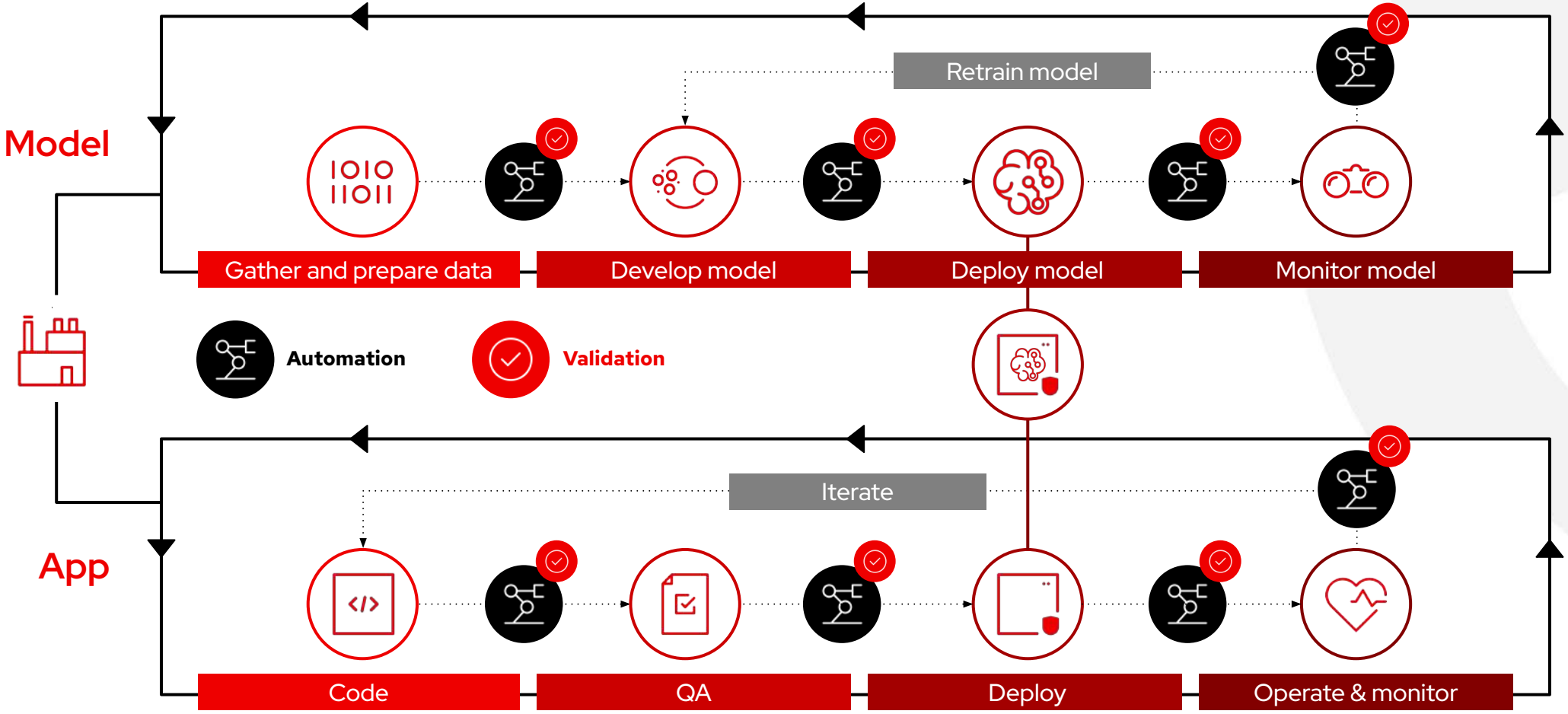
Lifecycle for operationalizing models



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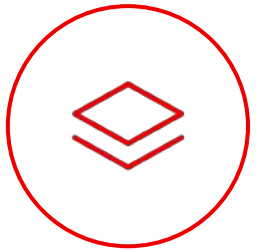
Red Hat OpenShift AI

Develop, train, serve, monitor, and manage the life cycle of AI/ML models and applications, from experiments to production.



Built on top of OpenShift®

Deliver consistency, **cloud-to-edge** production deployment and monitoring capabilities

Designed for Gen and predictive AI

Scale to meet the workload demands of foundation models and traditional ML.

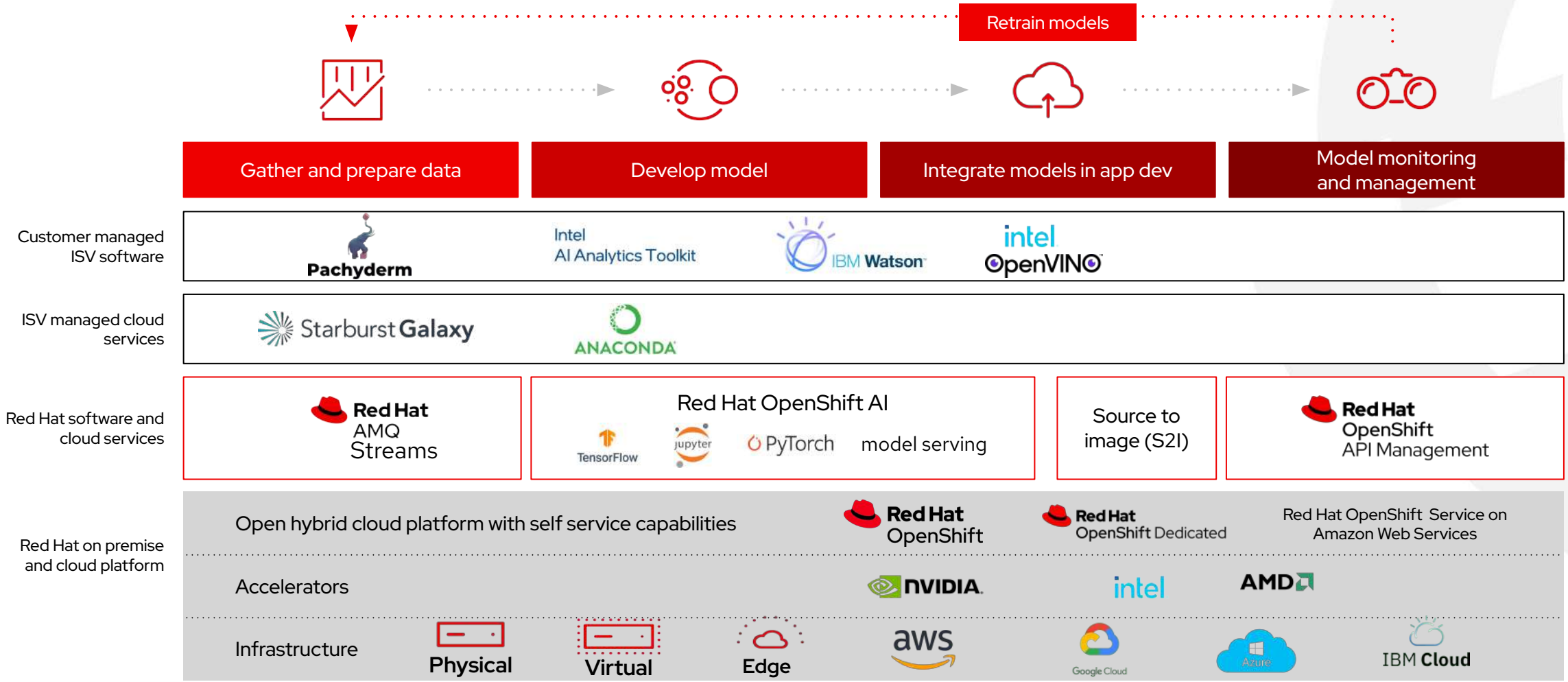
Empowered collaboration

Provide a **unified platform** for **data scientists, operations** and **intelligent application developers**

DevOps applied to ML

Set up rigorous **pipelines** and **workflows** to take you from **development** to **production**.

Red Hat OpenShift AI and MLOps



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Hands-on Workshop

Digital Transformation at Parasol Insurance

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Hands-on lab: Transparency Guide

Document

- You are accessing Azure Red Hat OpenShift, Red Hat OpenShift AI and Azure OpenAI via the Red Hat Demo Platform that is operated by Red Hat. **You are not using your own environment or applications during this demo.**
- Access to this demo is restricted by invitation only.
- Only sample text will be used in the demo; you will not bring your own data. **Do not enter personal or confidential information while using the demo.**
- Usage metrics from the demo environment are tracked for reporting purposes. Red Hat does not retain any customer entered data.
- Access to the lab will be turned off after the workshop is complete and the demo will be deleted.
- You can provide feedback about the demo environment functionality to your Red Hat Account Team who invited you to this session.
- You can provide feedback about the content of the demo to brjackso@redhat.com.

If you have any questions or concerns about the transparency guidelines listed above, please do no move forward with the workshop.

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Hands-on lab: Use AI/ML to help insurance adjusters be more productive

- Work with data projects and workbenches.
- Use a large language model (LLM), compare different model sizes, and test accuracy.
- Use the Retrieval Augmented Generation, or RAG, technique to get more accurate responses.
- Fine tune an image recognition model and test accuracy.
- Serve & deploy the models.
- Integrate a frontend application with the models.
- Test the application as a whole.

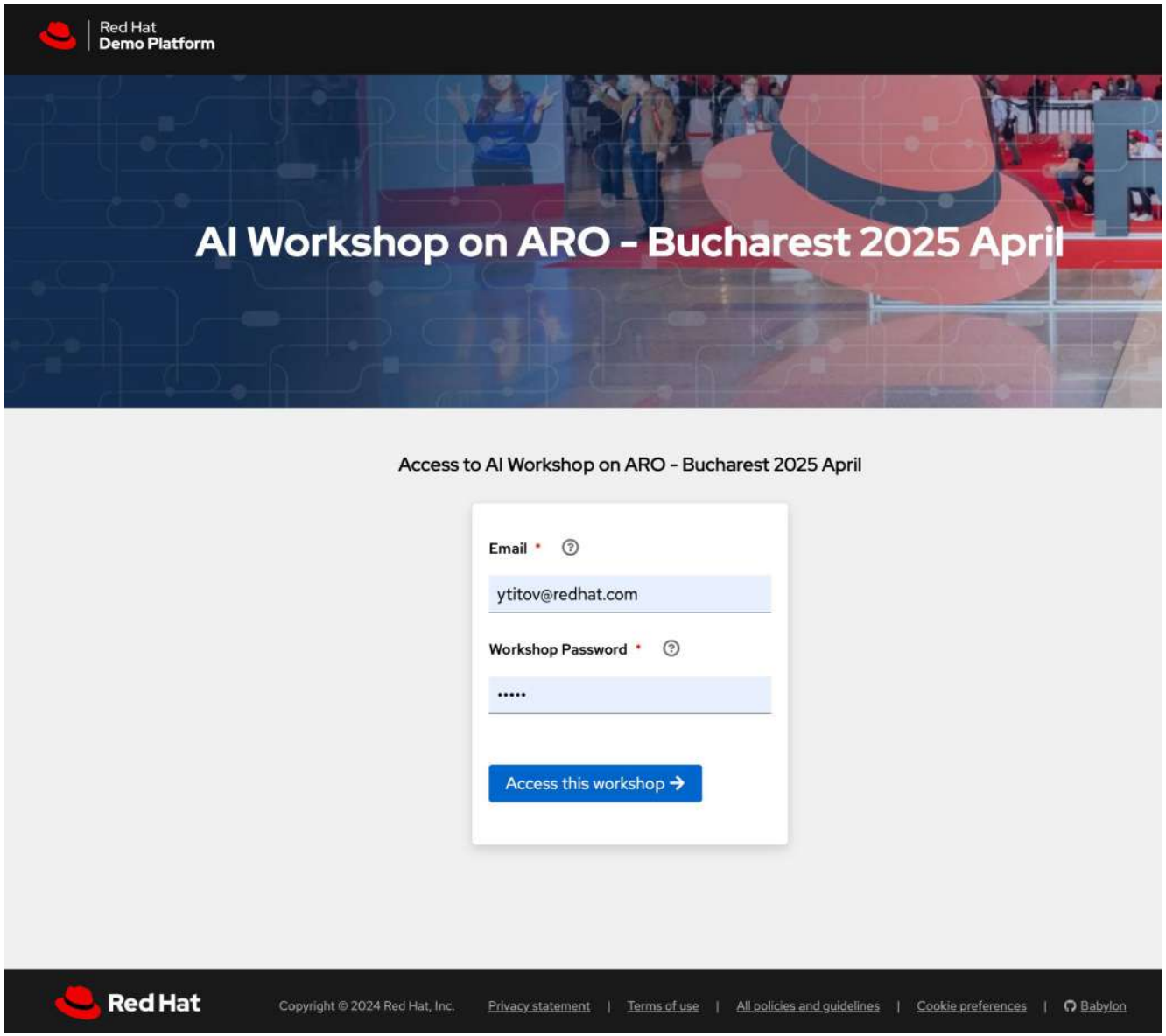
Hands-on lab: Access the Workshop

- Link:
  - https://red.ht/aro-ai-bucharest

  No place? Alternative:

  https://red.ht/aro-ai-bucharest-i-am-lucky
- Password:
  - **aro**

Red Hat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AI Workshop on ARO - Bucharest 2025 April
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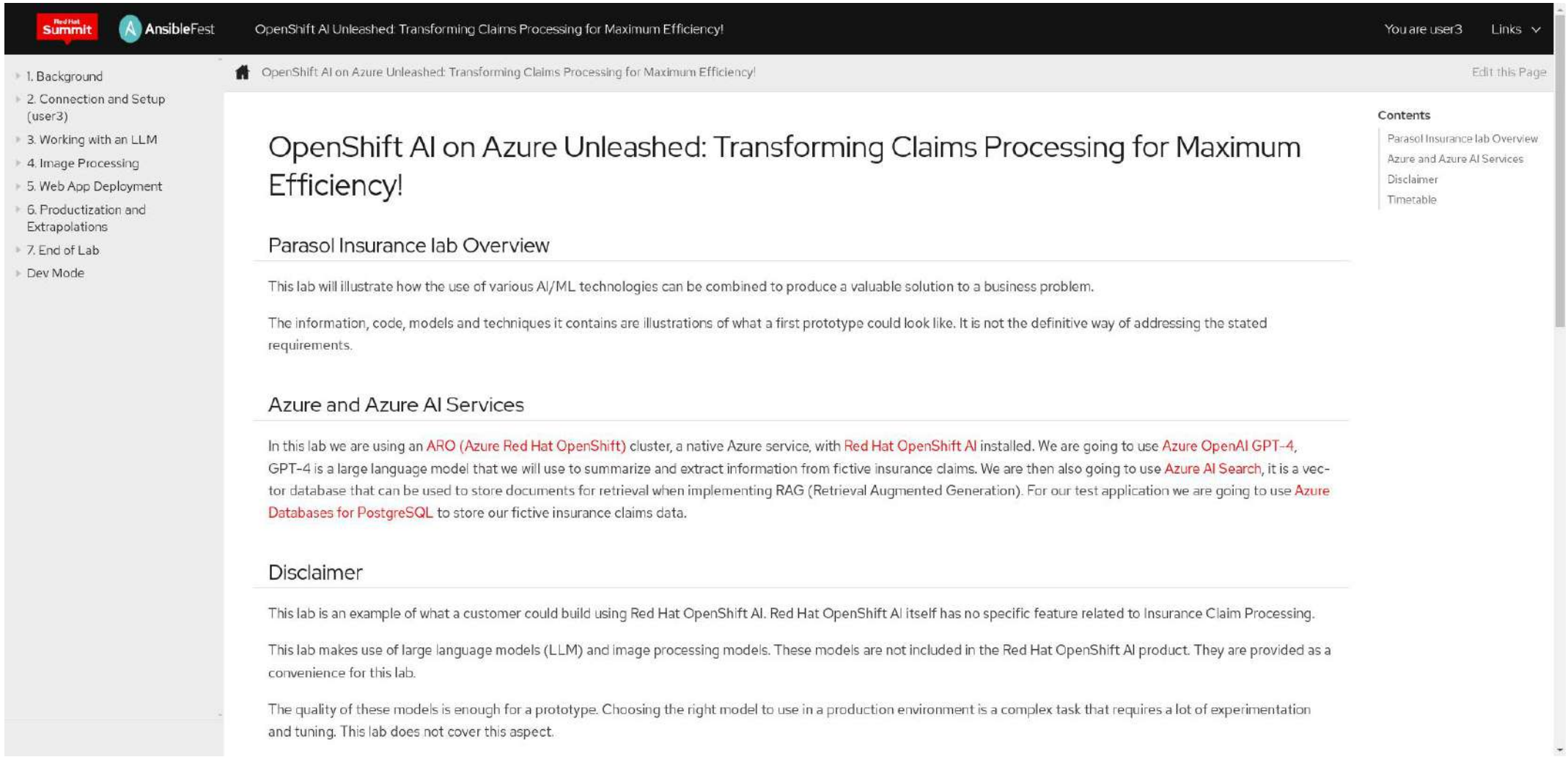
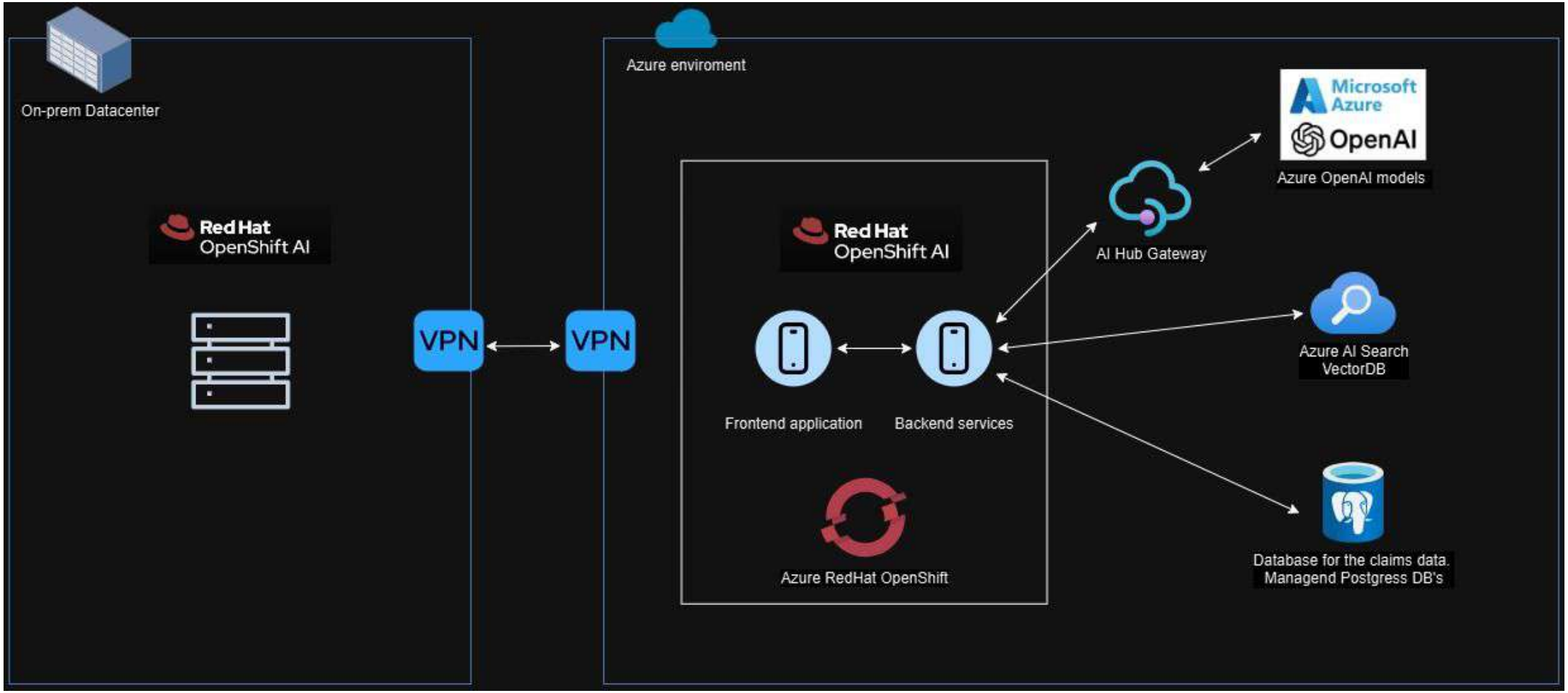

Red Hat Summit
AnsibleFest
OpenShift AI Unleashed: Transforming Claims Processing for Maximum Efficiency!
You are user3
Links
1. Background
2. Connection and Setup (user3)
3. Working with an LLM
4. Image Processing
5. Web App Deployment
6. Productization and Extrapolations
7. End of Lab
Dev Mode
OpenShift AI on Azure Unleashed: Transforming Claims Processing for Maximum Efficiency!
Edit this Page
OpenShift AI on Azure Unleashed: Transforming Claims Processing for Maximum Efficiency!
Contents
Parasol Insurance lab Overview
Azure and Azure AI Services
Disclaimer
Timetable
Parasol Insurance lab Overview
This lab will illustrate how the use of various AI/ML technologies can be combined to produce a valuable solution to a business problem.
The information, code, models and techniques it contains are illustrations of what a first prototype could look like. It is not the definitive way of addressing the stated requirements.
Azure and Azure AI Services
In this lab we are using an ARO (Azure Red Hat OpenShift) cluster, a native Azure service, with Red Hat OpenShift AI installed. We are going to use Azure OpenAI GPT-4, GPT-4 is a large language model that we will use to summarize and extract information from fictive insurance claims. We are then also going to use Azure AI Search, it is a vector database that can be used to store documents for retrieval when implementing RAG (Retrieval Augmented Generation). For our test application we are going to use Azure Databases for PostgreSQL to store our fictive insurance claims data.
Disclaimer
This lab is an example of what a customer could build using Red Hat OpenShift AI. Red Hat OpenShift AI itself has no specific feature related to Insurance Claim Processing.
This lab makes use of large language models (LLM) and image processing models. These models are not included in the Red Hat OpenShift AI product. They are provided as a convenience for this lab.
The quality of these models is enough for a prototype. Choosing the right model to use in a production environment is a complex task that requires a lot of experimentation and tuning. This lab does not cover this aspect.

Azure Red Hat OpenShift AI Workshop Architecture



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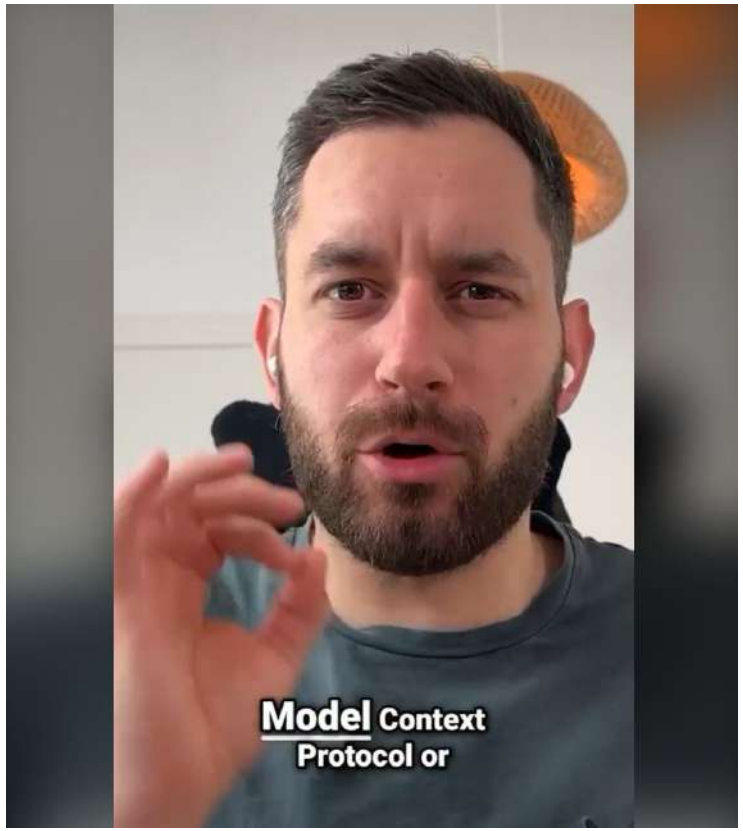
Hands-on Workshop

MCP Protocol

Red Hat

Model Context Protocol (MCP)

Say what now?



Video Link

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Earn your digital credential today

Complete the quiz and survey

red.ht/AIonARO_DigitalBadge.

- Complete the quiz and survey and pass it over 50 %
- Will be eligible for a digital badge.
- Successful recipients will receive an email from Credly.com within **2-3 weeks**
- **Promote your credential on LinkedIn and Tag one of your speakers (Red Hatters) on LinkedIn**

Any questions? Please reach out to us

Wrap up and Q&A

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Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

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Appendix

Red Hat

Operationalize AI with Red Hat Services

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Red Hat Consulting Services for your AI/ML journey

Accelerated expertise, hands-on assistance and mentoring
drives positive outcomes and quick time-to-value

Red Hat OpenShift AI Pilot

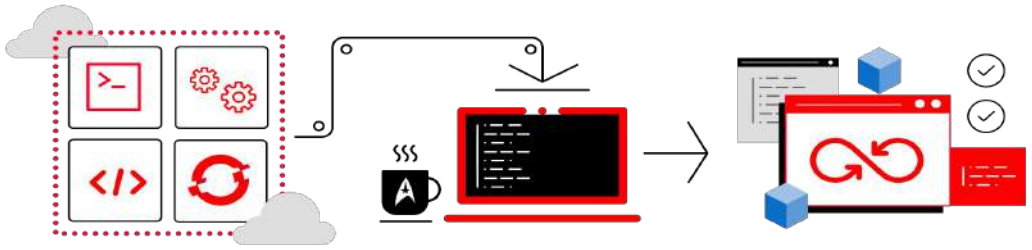
- Build a scalable unified AI/ML platform with Red Hat OpenShift and OpenShift AI and integrate all necessary tools.
- Enable entire organization to access tools and compute necessary to build and operationalize high quality AI/Ml projects.

MLOps Foundation

- Provide critical tools to operationalize AI/ML models through their full lifecycle..
- Assist operations team to automate full ML pipelines and roll them out to their users.

Generative AI Incubator

- Create a consistent flexible platform focused on addressing Generative AI use cases.
- Introduce automation to assist with data ingestion, processing and model fine-tuning.



Red Hat

Training and Certification

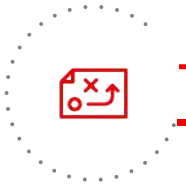
Close skills gaps and hone your teams' Red Hat product expertise; flexible learning options to meet your business needs

coming soon

Introduction to Red Hat OpenShift AI (AI262)	**Red Hat OpenShift AI Administration (AI263)**	**Creating Machine Learning Models with Red Hat OpenShift AI (AI264)**	**Deploying Machine Learning Models with Red Hat OpenShift AI (AI265)**	**Automation using Data Science Pipelines (AI266)**
Learn about the general architecture and main features of RHOAI and create some basic projects.	Get hands-on administration experience with RHOAI including install, upgrades, management and configuration.	Learn basic Machine Learning concepts and create and train Machine Learning models.	Deploy and serve Machine Learning models on RHOAI and troubleshoot deployed models.	Learn about and get hands-on experience with KubeFlow and Elyra pipelines.

Developing and Deploying AI/ML Applications on Red Hat OpenShift AI (AI267): 4 day instructor-led virtual training

Red Hat Certified Specialist: OpenShift AI (EX267): 3 hour exam



Technical Account Management

Proactive, trusted and expert technical advisor helps you operate resilient and secure platforms

Enterprise TAM
Senior specialist with expertise across multiple Red Hat products ensure solutions meet and evolve with unique needs of AI/ML

OpenShift TAM
Highly technical OpenShift product specialist who proactively partners with your organization to help achieve business outcomes

OpenShift AI TAM **coming soon**
Technical OpenShift AI specialist who proactively partners with your organization to help achieve business outcomes

Red Hat