What?! No more 2am pager alerts?

How ROSA brings Business Value and Accelerates Developer Productivity

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Red Hat

Focus on making it to the finish line ...

Source: Photo by Chris Peeters from Pexels: https://www.pexels.com/photo/timelapse-photography-of-green-and-white-racing-vehicle-on-lane-12801/

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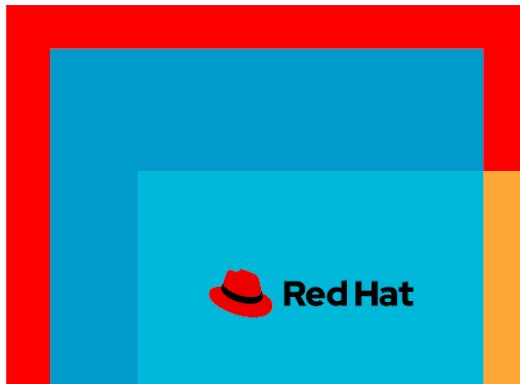
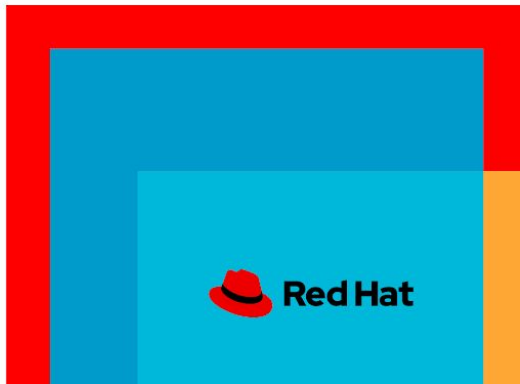
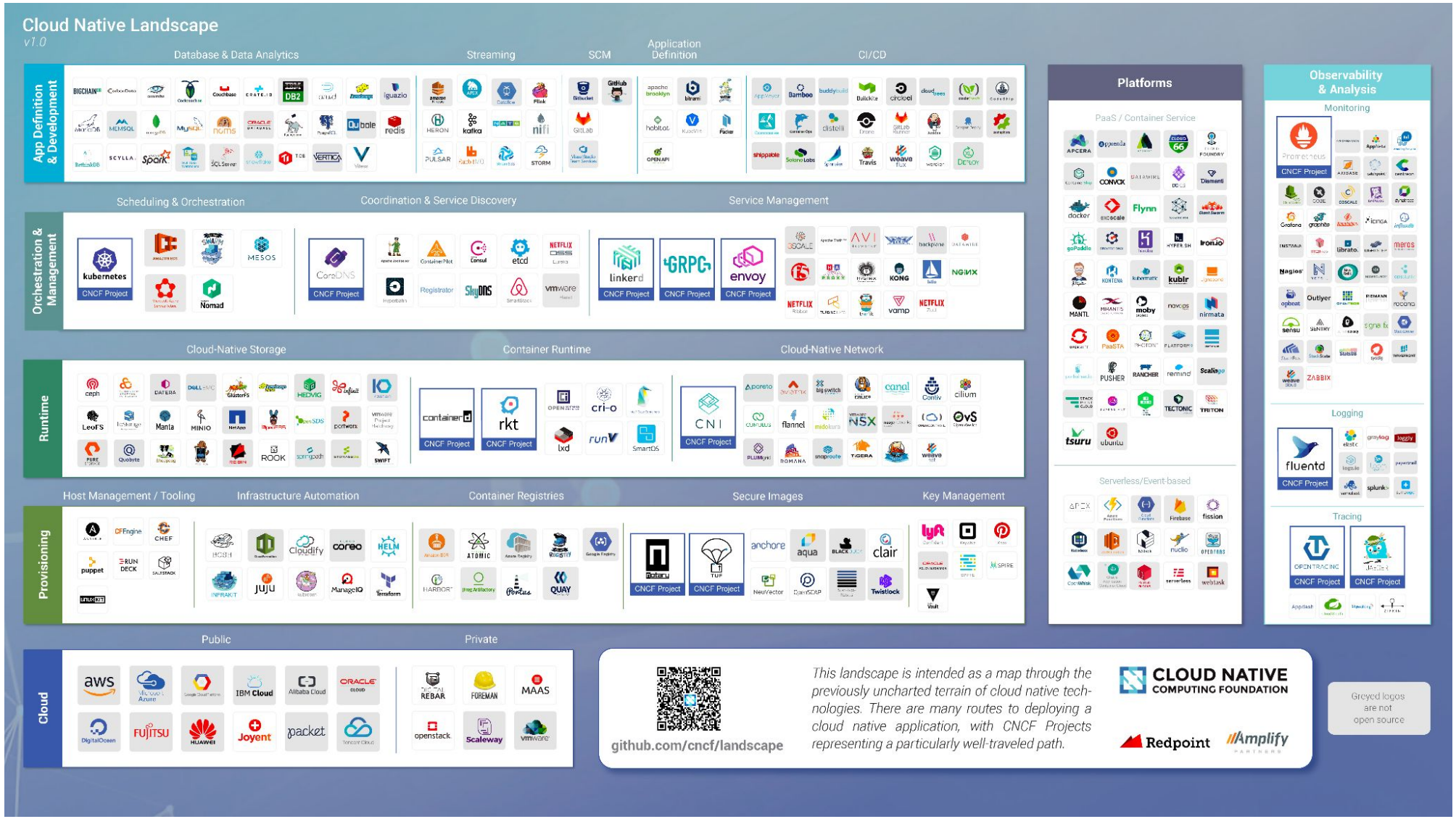
Roadmap

- The evolving Cloud Native landscape
- Cloud-Native development Platform
- We want a consistent developer experience: now what?
- Live Showcase



The evolving Cloud Native landscape




Cloud Native Landscape
v1.0
App Definition & Development
Database & Data Analytics
Streaming
SCM
Application Definition
CI/CD
Orchestration & Management
Scheduling & Orchestration
Coordination & Service Discovery
Service Management
Runtime
Cloud-Native Storage
Container Runtime
Cloud-Native Network
Provisioning
Host Management / Tooling
Infrastructure Automation
Container Registries
Secure Images
Key Management
Cloud
Public
Private
Platforms
PaaS / Container Service
Serverless/Event-based
Observability & Analysis
Monitoring
Logging
Tracing
CNCF Project
github.com/cncf/landscape
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.
CLOUD NATIVE COMPUTING FOUNDATION
Redpoint
Amplify
Greyed logos are not open source

Red Hat

New technologies emerged to enable innovation

Service Meshes

Observability

Security

Serverless

And so much more. In fact, there's so much choice...

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75%

of enterprise users identify complexity of implementation and operations as the top blocker to adoption

Source: The New Stack, The State of the Kubernetes Ecosystem, August 2017

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Many public Kubernetes failures

Kubernetes Failure Stories

A compiled list of links to public failure stories related to Kubernetes. Most recent publications on top.

- 10 More Weird Ways to Blow Up Your Kubernetes - Airbnb - KubeCon NA 2020
  - involved: MutatingAdmissionWebhook, CPU Limits, OOMKill, kube2iam, HPA
  - impact: outages
- Why we switched from fluent-bit to Fluentd in 2 hours - PrometheusKube - blog post 2020
  - involved: fluent-bit, missing logs, Fluentd
  - impact: lost application logs in production
- Make your services faster by removing CPU limits - Buffer - blog post 2020
  - involved: kops, CPU Limit, CPU throttling
  - impact: high latency
- The case of the missing packet: An EKS migration tale - MindTickle - blog post 2020
  - involved: EKS, AWS CNI Plugin,
  - impact: frequent connection failures when talking to services outside the cluster

Source: [1] https://codeberg.org/hjacobs/kubernetes-failure-stories
[2] Tesla cloud resources are hacked to run cryptocurrency-mining malware, ArsTechnica, Accessed 17th June 2021

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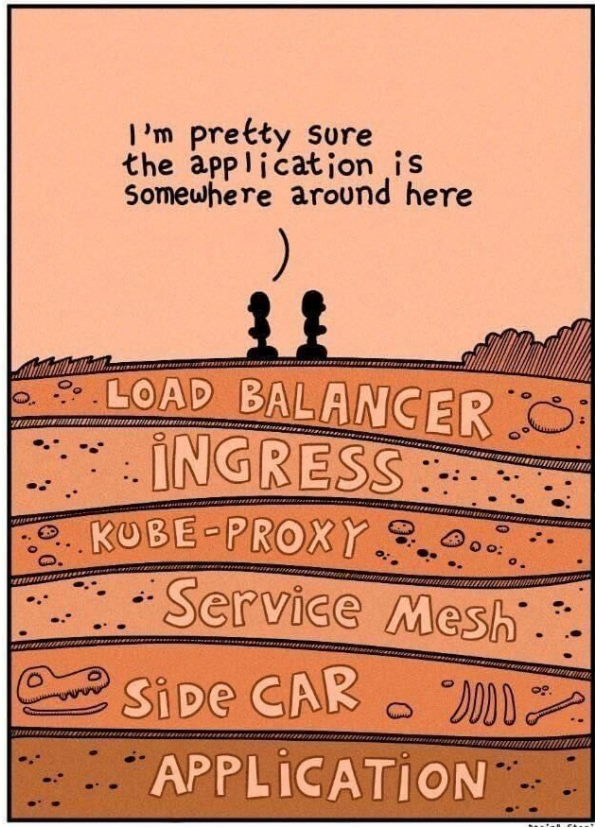
Day 2 operations of Kubernetes is hard



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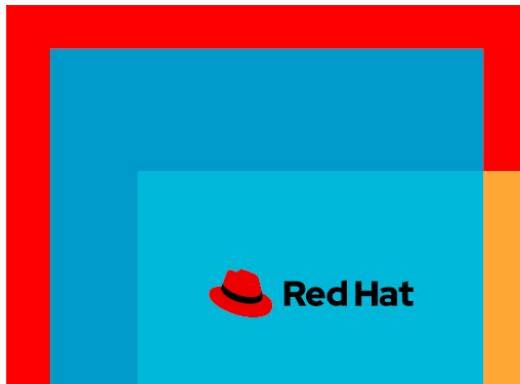
Cloud-Native Development Platform



What is an Application Platform?

And what do you mean by “no more 2am pager alerts”?

- An Application Platform focuses on enabling… well, applications!
- Similar to the cloud, an Application Platforms goal is to enable innovation and reduce the time spent on maintenance and lifecycle management
- Your business value comes from building and running applications, not on being an expert in running clusters somewhere

Unlock the power of technologies like containers and Kubernetes, while hiding the complexity of these technologies.

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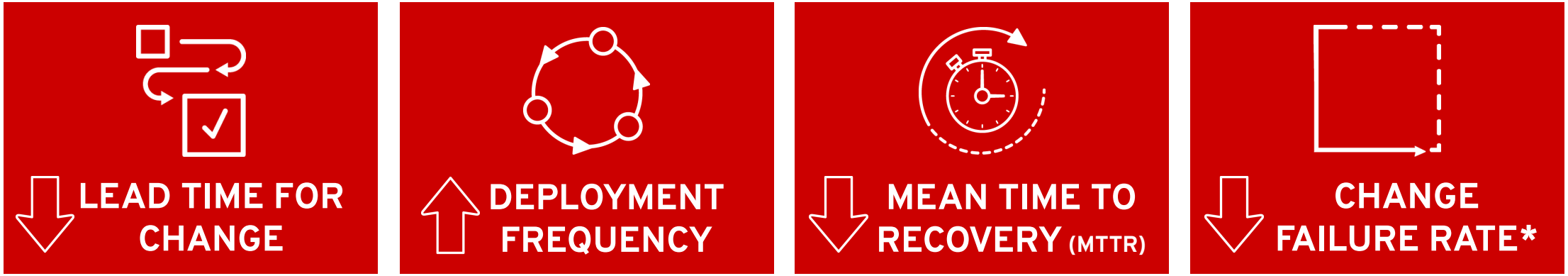
Top Level Metrics of Success from an Application Platform



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Red Hat OpenShift: A single platform for application innovation

Empowering developers to innovate

Get applications to production sooner with a wide range of technologies and streamlined workflows

A cloud-like experience, everywhere

Full-stack and automated operations on a consistent foundation for on-premises or hybrid cloud infrastructures

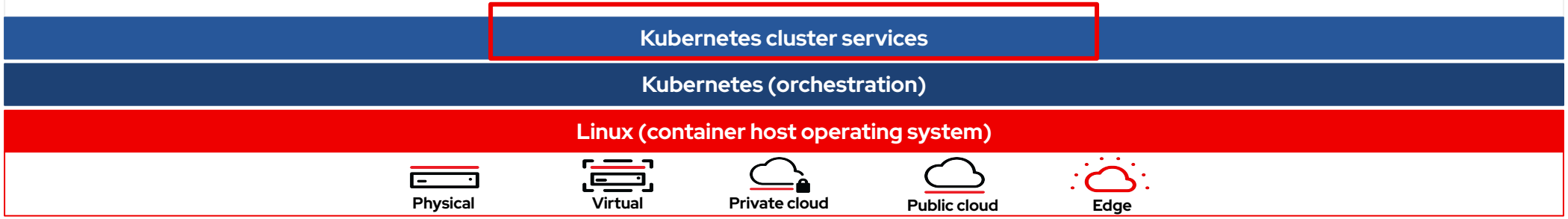
Trusted enterprise Kubernetes

Continuous security, world-class support and services, and deep expertise to confidently run any application

OpenShift is a turnkey application platform

Integrated tools and services powering your team for faster application development and delivery

- Red Hat OpenShift Service Mesh with Istio to connect, secure, and observe services
- Red Hat OpenShift Serverless with Knative to provide hybrid serverless, FaaS, & event-driven architectures
- Red Hat OpenShift pipelines with Tekton to provide Kubernetes-native CI/CD pipelines
- Red Hat OpenShift GitOps with ArgoCD to provide declarative GitOps based continuous delivery
- Red Hat OpenShift builds with Shipwright to build images from code using S2I + other & integrate with Github actions
- Red Hat Runtimes, including Spring Boot, Quarkus, OpenJDK, JBoss SSO, node.js, Apache Tomcat, Apache HTTP, and .NET
- Red Hat OpenShift developer console & CLI enhancements to improve dev experience
- Red Hat OpenShift Dev Spaces with Eclipse Che for cloud-native development & collaboration
- Red Hat OpenShift IDE plugin integrations to meet the developer where they are
- OpenShift developer sandbox and local cluster enhancements to improve access
- Application level observability for developers to build and manage their apps
- Red Hat OpenShift API Management, with first 100k API calls per day free for ROSA/OSDonAWS with full production support



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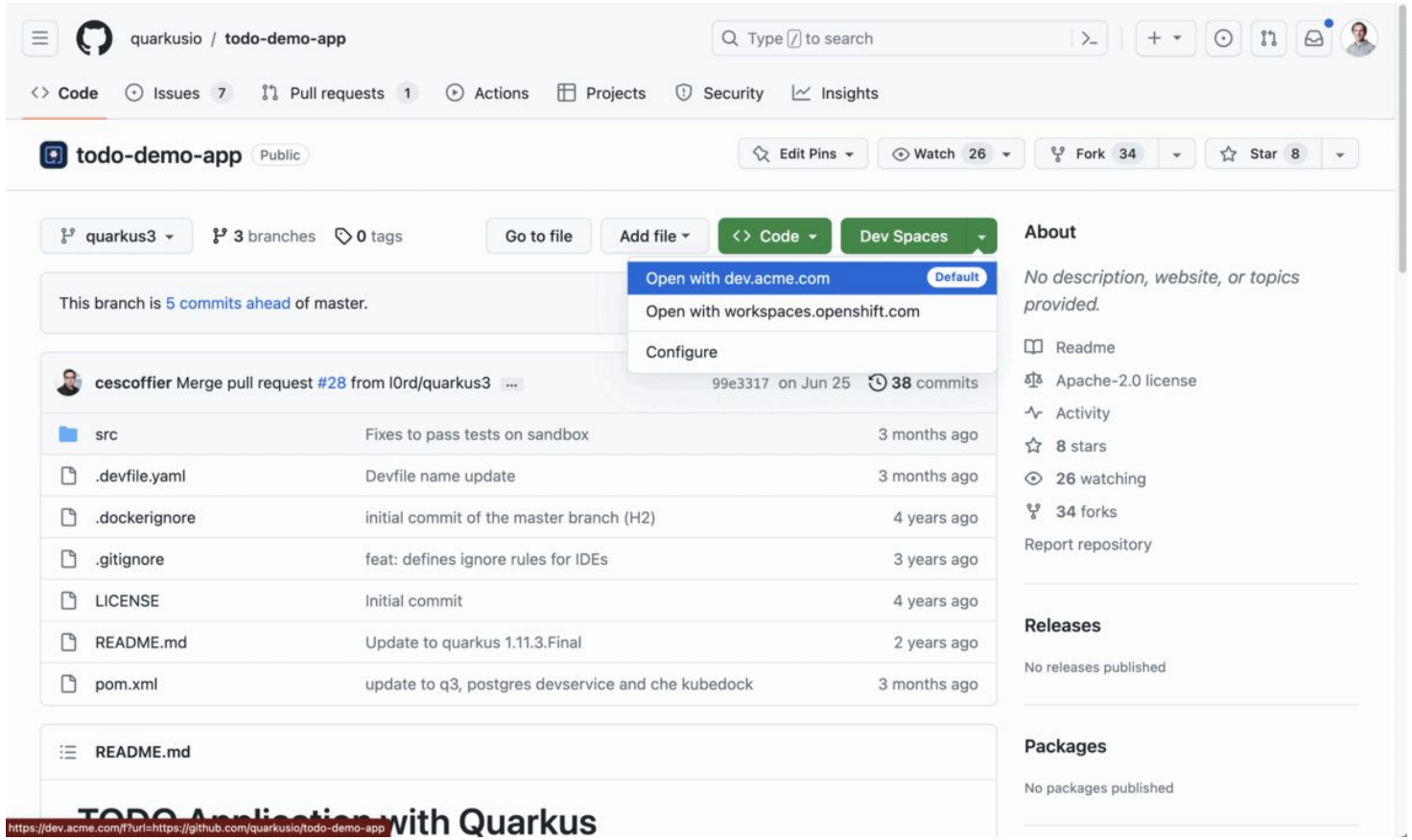
An introduction to Dev Spaces



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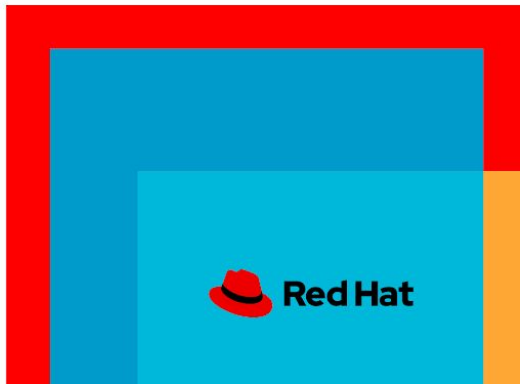
We want a consistent developer experience: now what?



Technical expertise

ROSA Working Group
Weekly cadence

Technical expertise
Black Belts
Technical Account Manager

24x7x365 Support
Support Cases
SRE Team

Red Hat

What ROSA can bring to...

A Developer

A Product Owner

An Operations Team

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Key personas

Developer

- *Use the technical requirements from the technical lead to create cost and timeline estimates*
- *Build the deliverables and communicate the status to the technical lead*
- *Stay up to date with new technologies on the market and assess them prior to implementation to ensure compatibility*

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What is achieved

Early delivery of software

Expect change

Always be shipping

Business and developer sides always working together

Team up motivated people and trust them

Face to face communication above all others

Working software, not SLOC, is success

A constant pace forever

Quality by default, always

KISS

Self organizing teams

Constant reflection and action

Red Hat

Key personas

Product Owner

- *Manage and prioritise the product backlog*
- *Collaborate closely with cross-functional teams to ensure the product meets customer needs, timely and within budget*
- *Ensure that the product is compliant with all relevant regulations and standards*

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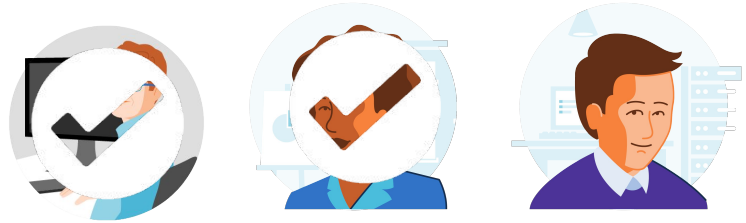
What is achieved



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Key personas

Operations Team member

- *Ensure that the organisation delivers the right product to the right customers on time*
- *Ensure organisation leads keep the budget in consideration when making important decisions*
- *Keep systems up and available, and enable the organisation to use technology to innovate*

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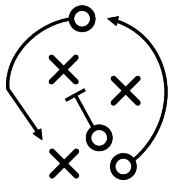
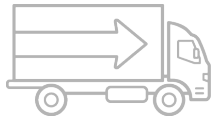
What is achieved

Early delivery of software



Expect change



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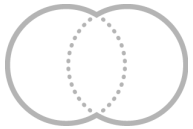
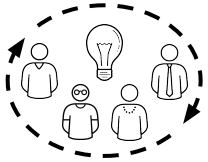


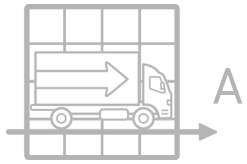
Business and developer sides always working together



Team up motivated people and trust them

Face to face communication above all others

Working software, not SLOC, is success



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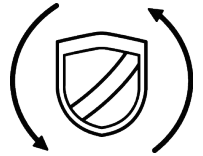

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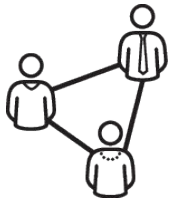
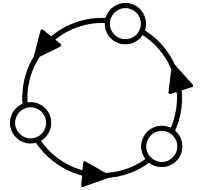


Self organizing teams



Constant reflection and action

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Red Hat Summit

Thank you

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