Arriving at the new normal

"Software is eating the world."

- Marc Andreessen

"Open source keeps eating the world."

– Deutsche Bank

2011

2015

2016

2020

2021

2022 – onward

"Every company is a software company."

- Seemingly everyone in tech

Pandemic

accelerates digital transformation initiatives by several years

Major security incidents

accelerate software supply chain security

Red Hat | intel

What is happening in your "Digital" world?

Red Hat | intel

in the **banking** industry, tech is initiating a new wave of disruption, forcing banks to operate with **speed**

Data, the "new fuel" of the **automotive** industry, is forcing massive **scale** of digital systems

Open banking transforms how institutions need to think about tech and security.

Auto manufacturers are becoming **IoT platform and device companies**

Everything is mobile: **89% of customers** use mobile banking regularly.

Real-time data analysis through AI/ML is key to successful **autonomous driving systems**

Red Hat | intel.

in the **Telecommunications** industry, tech is initiating a new wave of disruption, forcing Telcos to design new Infrastructure

in the **Consumer / Retail Industry** E-Commerce is becoming the de-facto engagement for retail transactions

the **Public Sector** must deliver better services to citizens

Digitisation of all Transactions places massive data loads and demand for scale

Online Presence Existential It's also mandatory for driving growth and market share capture

Digital Modernization Improve aging systems to meet the needs of residents and stakeholders

Everything is mobile: The network becomes a configurable "Telco cloud" with inbuilt flexibility

User Satisfaction Critical Users will migrate to suppliers/retailers with easy and effective to use applications

Support Country Competitiveness "business as usual" is not enough anymore; Public Sector must drive business

the New Normal

Chart 1

Over the next 12 months, what are your company's top IT technology funding priorities? (Select up to three)
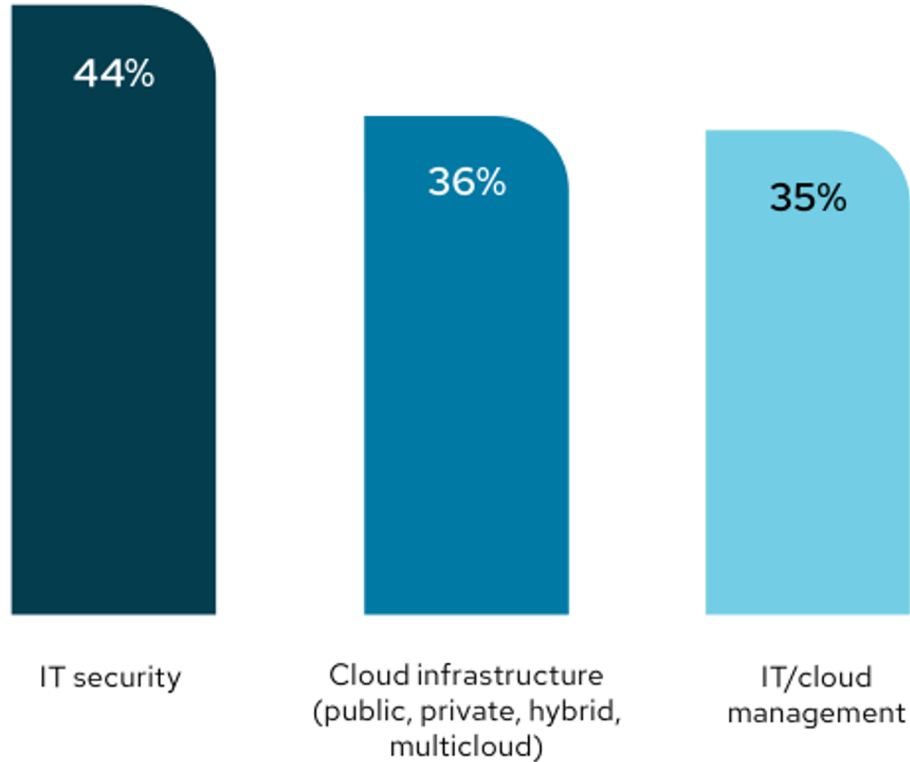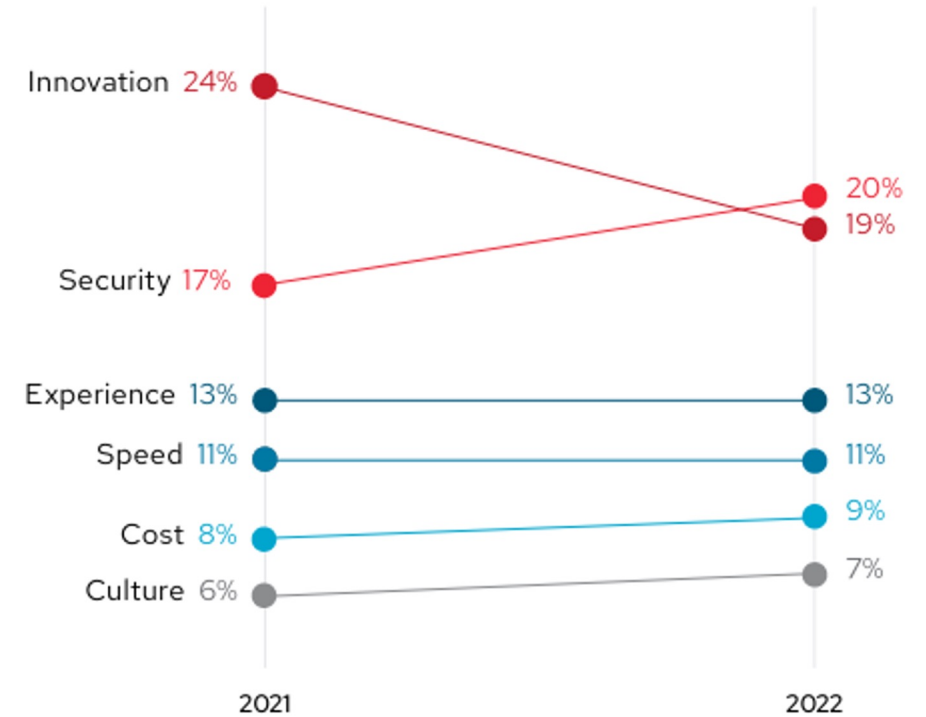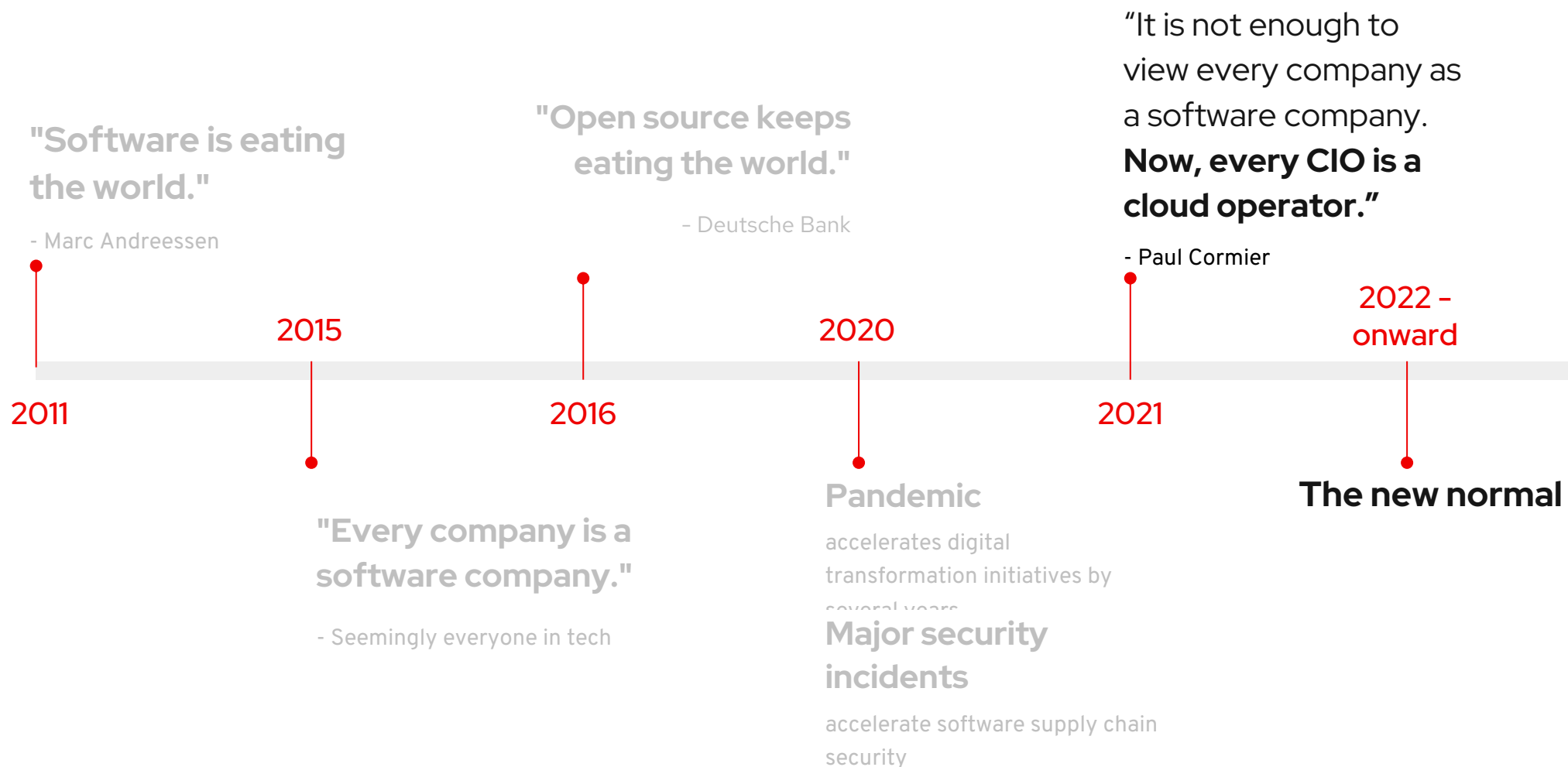
Chart 8

If you were to characterize your absolute top priority for your company's digital transformation in a single term, which of the following would best fit?

Chart 1 bars:
- IT security — 44%
- Cloud infrastructure (public, private, hybrid, multicloud) — 36%
- IT/cloud management — 35%

Chart 8 (2021 → 2022):
- Innovation 24% → 19%
- Security 17% → 20%
- Experience 13% → 13%
- Speed 11% → 11%
- Cost 8% → 9%
- Culture 6% → 7%

Red Hat | **intel**

2023 Global Tech Outlook (a survey from Red Hat)

Arriving at the new normal

"Software is eating the world."

- Marc Andreessen

"Open source keeps eating the world."

– Deutsche Bank

"It is not enough to view every company as a software company. **Now, every CIO is a cloud operator.**"

- Paul Cormier

2015

2016

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2011

"Every company is a software company."

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The new normal

Red Hat | intel

How do we help you to accelerate your "Digital" capability?

Red Hat enables **innovation** anywhere with broad choice and flexibility

Cloud–Native Development
develop, deploy, & manage
any application, on any
environment & give
developers what they need to
innovate
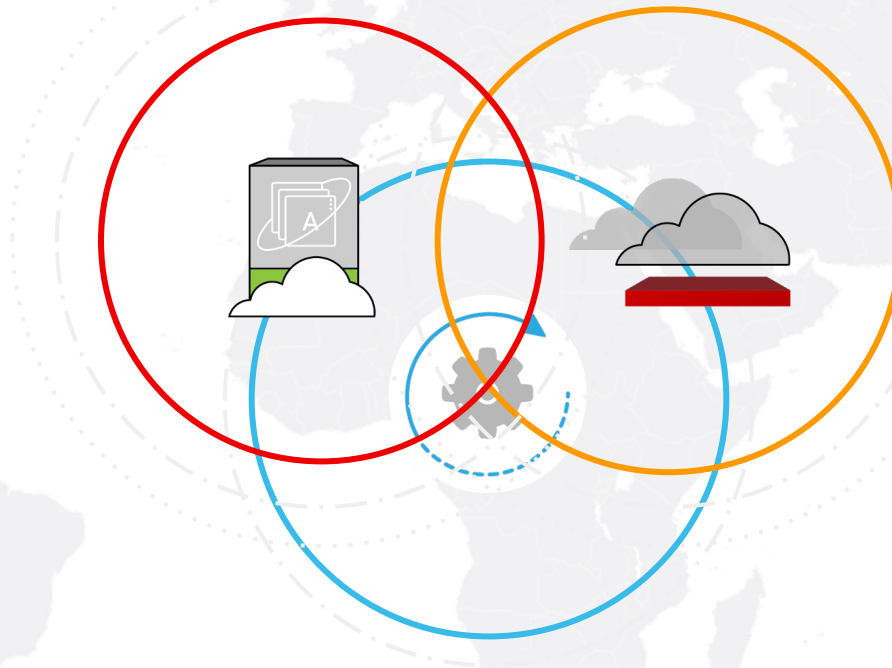
**Hybrid Cloud
Infrastructure**
secure, scale, & manage
foundations for traditional &
cloud workloads across all
environments

Management & Automation
easily & seamlessly manage
Red Hat platforms and automate across hybrid
environments

in the **banking** industry, tech is initiating a new wave of disruption, forcing banks to operate with **speed**

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CRÉDIT AGRICOLE

gm

Red Hat | intel

in the **Telecommunications** industry, tech is initiating a new wave of disruption, forcing Telcos to design new Infrastructure

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in the **Public Sector** must deliver better services to citizens

12.0M developers in 2012

94.0M total developers in 2022

20.5M+ new developers +27%y/y joined GitHub in 2022

85.7M+ new repositories with 20% y/y growth

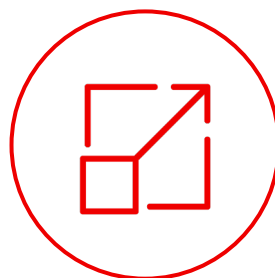**50%** first-time contributors work on "commercially projects"

*"You can't develop software anymore
these days without doing open source"*

Hybrid cloud helps your organization achieve
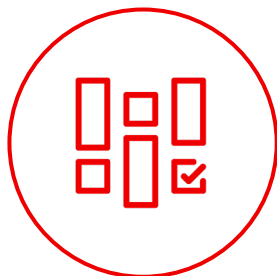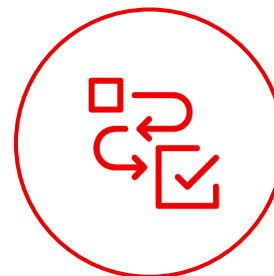
Speed

Scalability

Stability

Security

Compliance

Agility

Portability

Open

Red Hat | intel

Hybrid cloud approach

Traditional N-tier apps

Cloud-native microservices

Data, analytics, and AI/ML

ISV packaged apps

Development	Management and automation systems

Applications platforms, and operating system

Bare metal

Virtual

Private cloud

Public cloud

Edge

RHEL for Edge: Small footprint edge OS
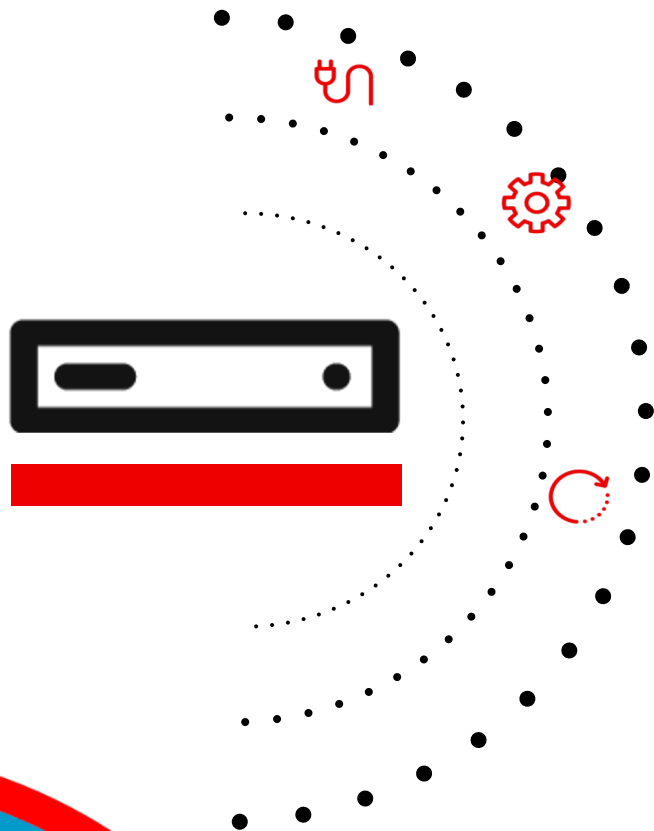
RHEL for Edge ensures operational stability and flexibility to easily adapt deployments. Quick image generation, transactional OS updates, and intelligent OS rollbacks, provide both traditional and containerized workloads the additional security and resiliency required for edge environments.

Use cases

Edge servers and gateways*	Standalone container host	Customer premise equipment	Intermittently connected

Red Hat Device Edge (R4E + MicroShift)
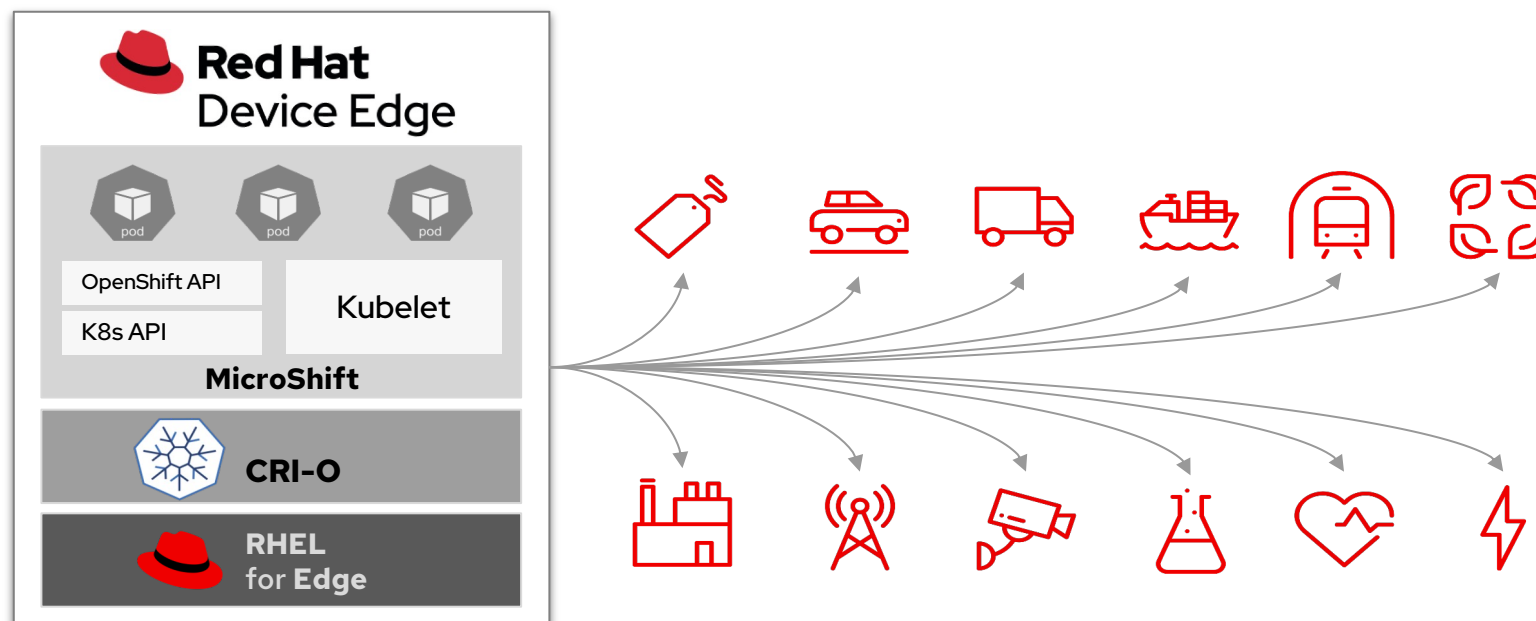
Red Hat Device Edge* brings **MicroShift** (a minimal OpenShift implementation) and **RHEL for Edge** to small form factor devices optimized for edge computing and headless devices with as conservative a resource overhead as possible.
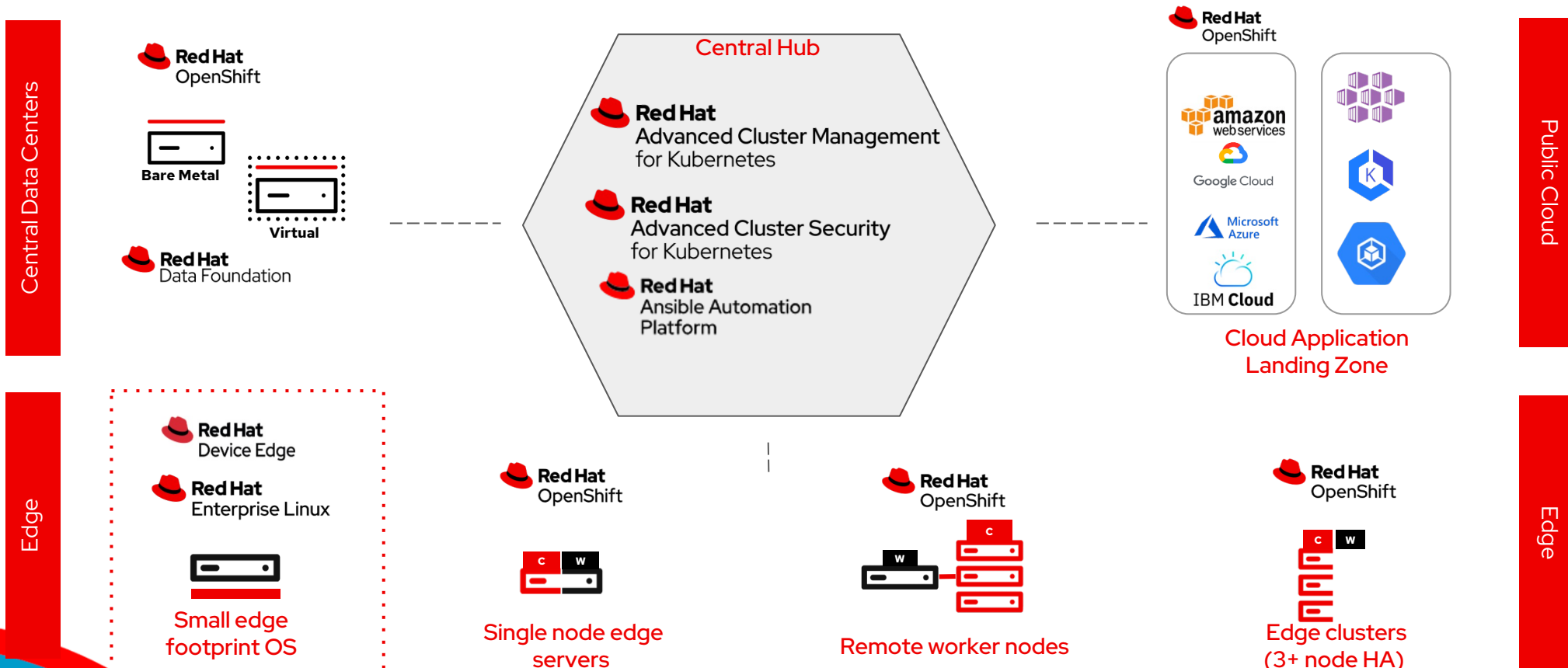
DevPreview: **https://www.redhat.com/en/technologies/device-edge**

Governance and Security a seamless experience for Hybrid Cloud

Central Data Centers

Red Hat OpenShift

Bare Metal

Virtual

Red Hat Data Foundation

Central Hub

Red Hat Advanced Cluster Management for Kubernetes

Red Hat Advanced Cluster Security for Kubernetes

Red Hat Ansible Automation Platform

Red Hat OpenShift

amazon web services

Google Cloud

Microsoft Azure

IBM Cloud

Cloud Application Landing Zone

Public Cloud

Edge

Red Hat Device Edge

Red Hat Enterprise Linux

Small edge footprint OS

Red Hat OpenShift

c w

Single node edge servers

Red Hat OpenShift

c w

Remote worker nodes

Red Hat OpenShift

c w

Edge clusters (3+ node HA)

Edge

DevPreview https://www.redhat.com/en/technologies/device-edge

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More Flexibility than ever: "Hypershift" Project
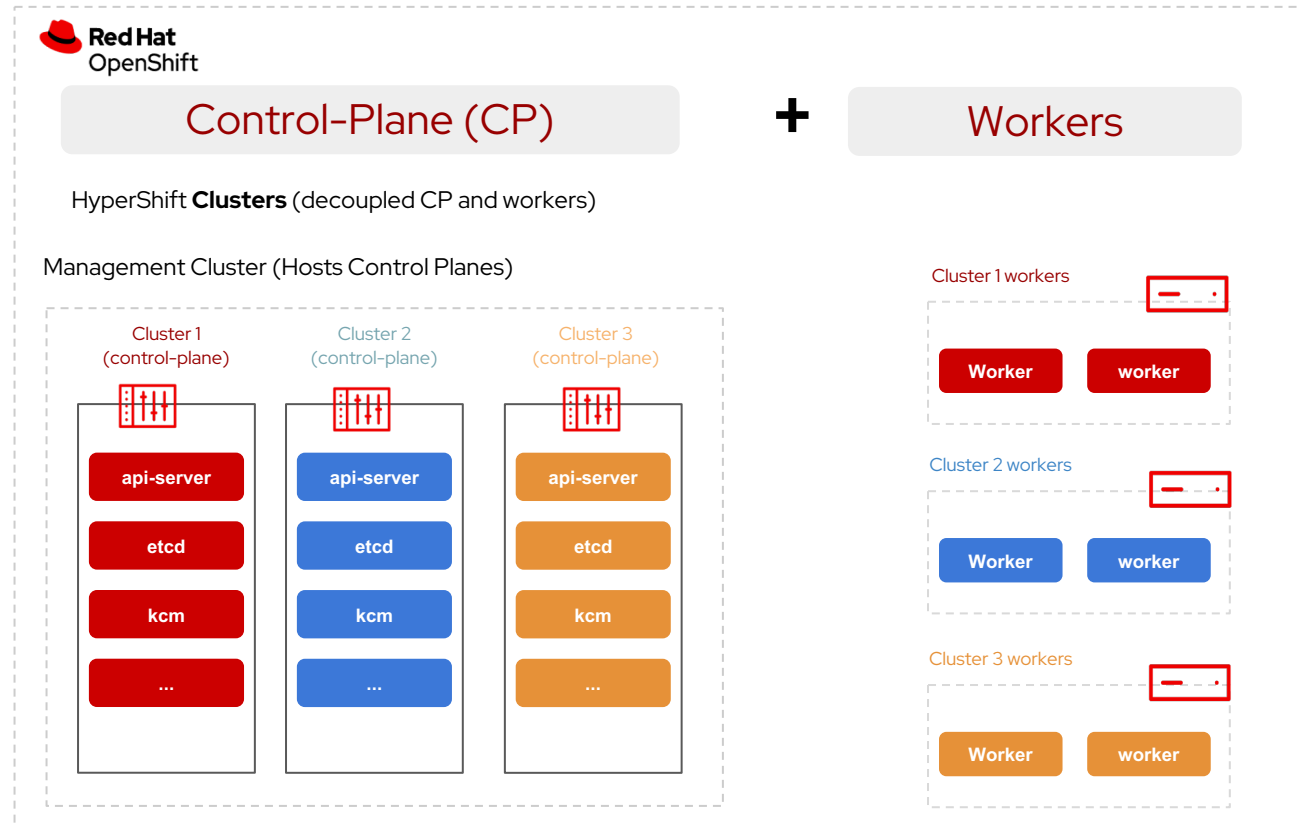
Red Hat OpenShift

Control-Plane (CP) + **Workers**

HyperShift **Clusters** (decoupled CP and workers)

Management Cluster (Hosts Control Planes)

Cluster 1 (control-plane)
- api-server
- etcd
- kcm
- ...

Cluster 2 (control-plane)
- api-server
- etcd
- kcm
- ...

Cluster 3 (control-plane)
- api-server
- etcd
- kcm
- ...

Cluster 1 workers
- Worker
- worker

Cluster 2 workers
- Worker
- worker

Cluster 3 workers
- Worker
- worker

Low CAPEX and OPEX costs (bundling of CPs + CP as pods)

Central Management of CPs (easy operation & maintenance)

Multi-arch support (e.g. CP x86, workers ARM)

Mixed IaaS For CP and Workers

Fast cluster bootstrapping (CP as Pods)

Dev Preview: https://cloud.redhat.com/blog/hosted-control-planes-is-here-as-tech-preview

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Ansible Automation Platform on Marketplace

Automation from your cloud to on-premises, edge, and IT resources
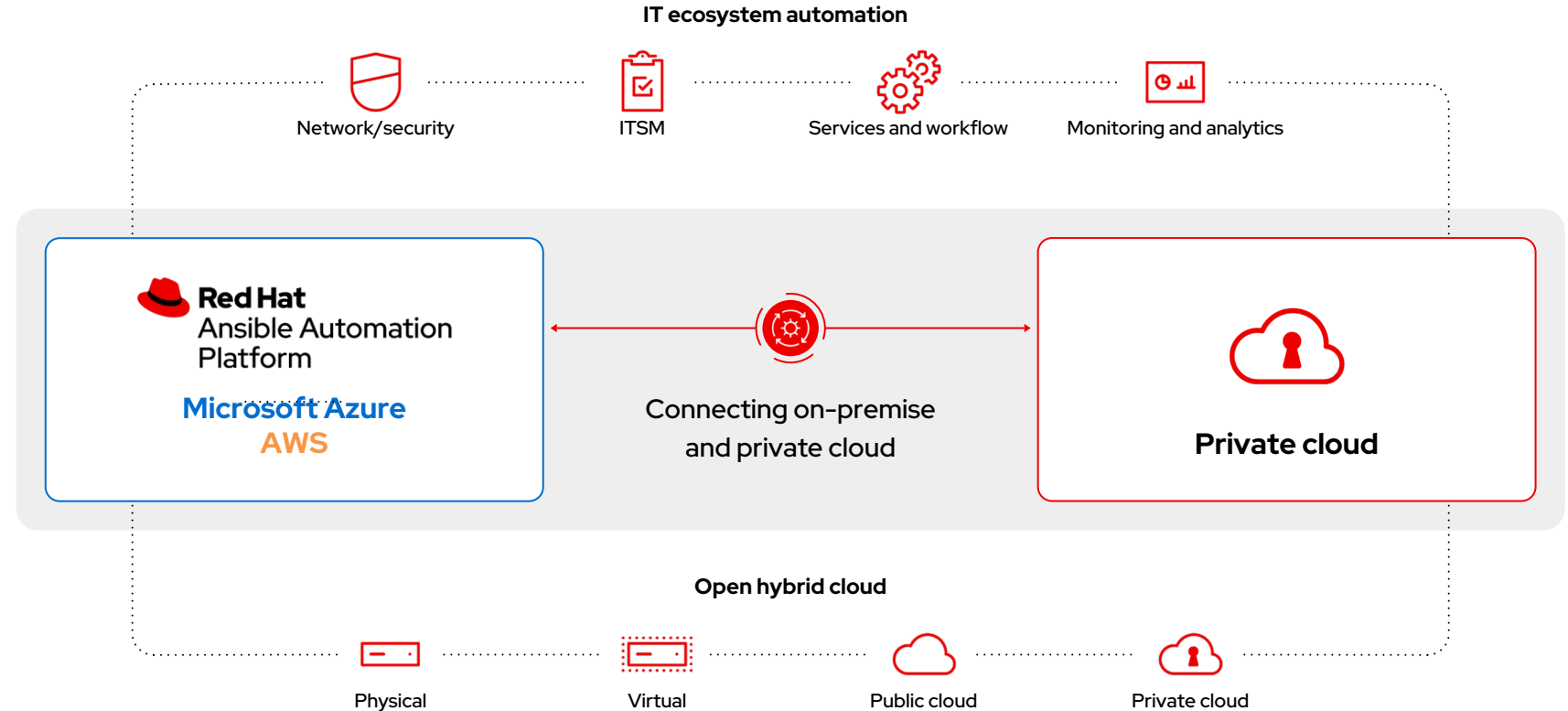
Runs in your AWS / Azure cloud

Fully installed and integrated

Fully supported by Red Hat

Integrated to Azure / AWS billing

Counts toward spend agreements

IT ecosystem automation

Network/security

ITSM

Services and workflow

Monitoring and analytics

Red Hat Ansible Automation Platform

Microsoft Azure
AWS

Connecting on-premise and private cloud

Private cloud

Open hybrid cloud

Physical

Virtual

Public cloud

Private cloud

Red Hat | intel

Dev Preview: https://www.ansible.com/blog/introducing-event-driven-ansible

Event-Driven Automation with Ansible

Implement event-driven automation within and across multiple IT use cases

Automate decision making

Leverage numerous sources of events

Achieve efficiency service delivery and cost savings

Dev Preview: https://www.ansible.com/blog/introducing-event-driven-ansible

Wisdom: AI and IT Automation

AI model to infuse Ansible with new capabilities

PROJECT
Wisdom

Project Wisdom will be able to read plain English entered by a user, and then generate automation content written in the Ansible syntax: Ansible Playbooks and Ansible Roles
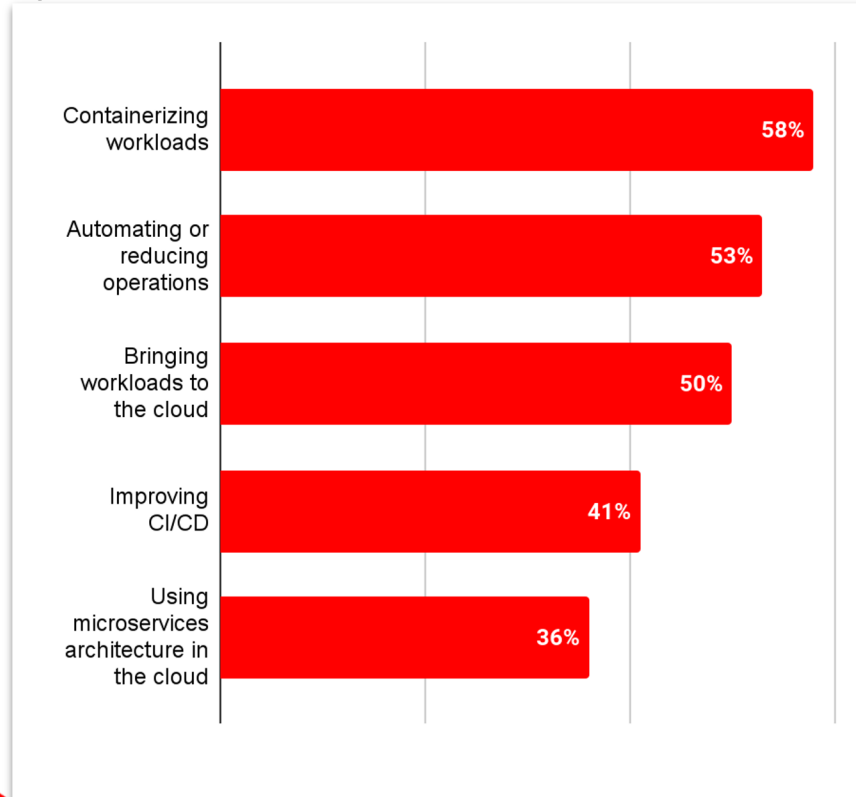
https://www.youtube.com/watch?v=9Zvuz9r9bc4&t=5s

Red Hat | intel

The State of Application Modernization Report 2022

Ways companies define modernization

Containerizing workloads	58%
Automating or reducing operations	53%
Bringing workloads to the cloud	50%
Improving CI/CD	41%
Using microservices architecture in the cloud	36%

Top reasons for modernization

To increase scalability	68%
To increase reliability	67%
To decrease costs	59%
To improve security	54%
To improve customer experience	33%
To increase employee productivity	19%
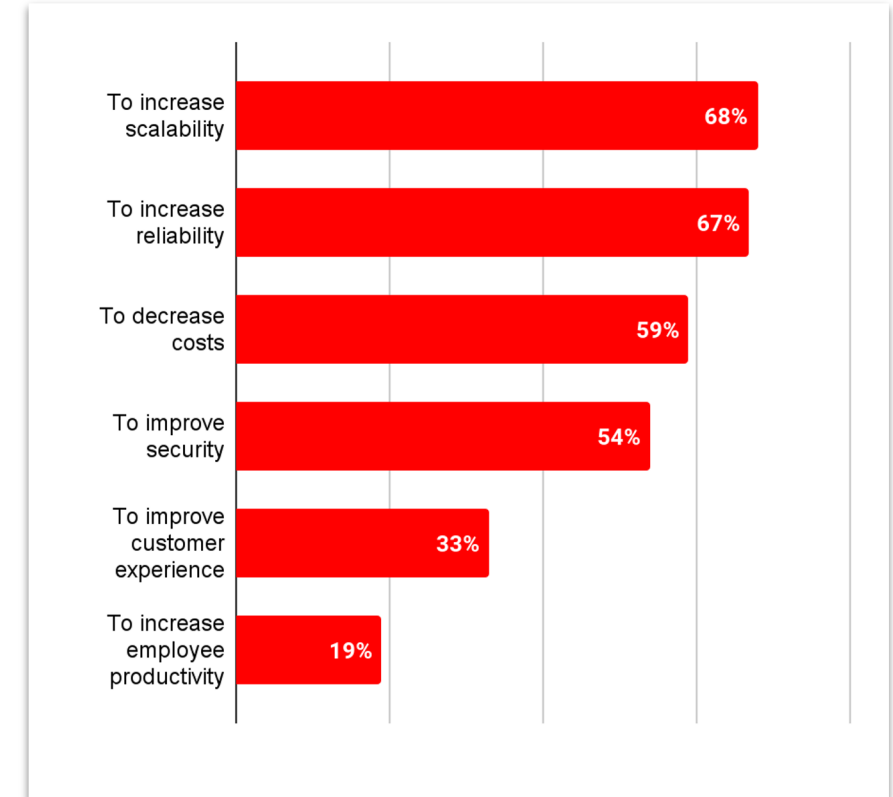
Source: report

Application Modernisation – **konveyor**
Accelerate Your Application Modernization to Kubernetes

KONVEYOR FORKLIFT
Rehost virtual machines to KubeVirt

KONVEYOR CRANE
Rehost apps between Kubernetes clusters

KONVEYOR MOVE2KUBE
Replatform applications to Kubernetes

KONVEYOR TACKLE
Refactor applications for Kubernetes

KONVEYOR PELORUS
Measure software delivery performance

Process | Technology | Service

Red Hat | **intel**

konveyor.io/modernization-report

Fully Managed Platform and "Application" Services

Red Hat Cloud Services

Application and data services*

Red Hat OpenShift API Management	Red Hat OpenShift Streams for Apache Kafka	Red Hat OpenShift Data Science
Red Hat OpenShift Service Registry	Red Hat OpenShift Connectors	Red Hat OpenShift Database Access

Platform services

Red Hat OpenShift Service on AWS	Microsoft Azure Red Hat OpenShift	Red Hat OpenShift on IBM Cloud	Red Hat OpenShift Dedicated

Cloud providers

aws · Microsoft Azure · IBM Cloud · Google Cloud

Hybrid cloud flexibility

*https://www.redhat.com/en/technologies/cloud-computing/openshift/application-services

Red Hat | intel.