Red Hat
OpenShift

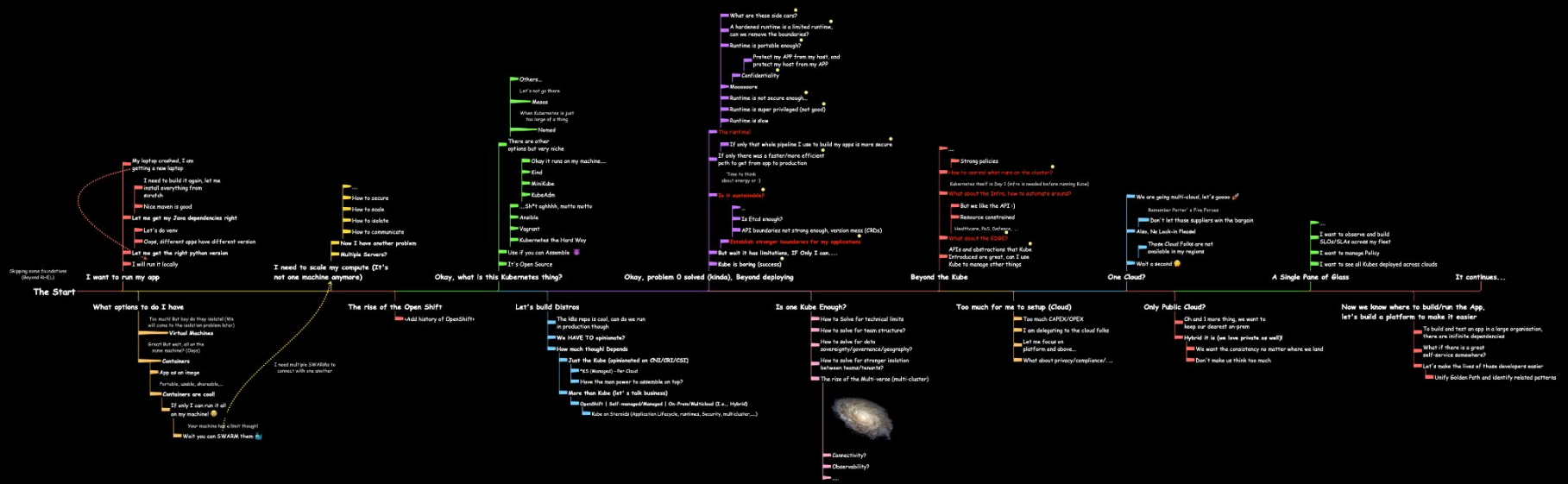
The Next Frontier: Pioneering the Next Wave of Innovation

Adel Zaalouk, Product Manager

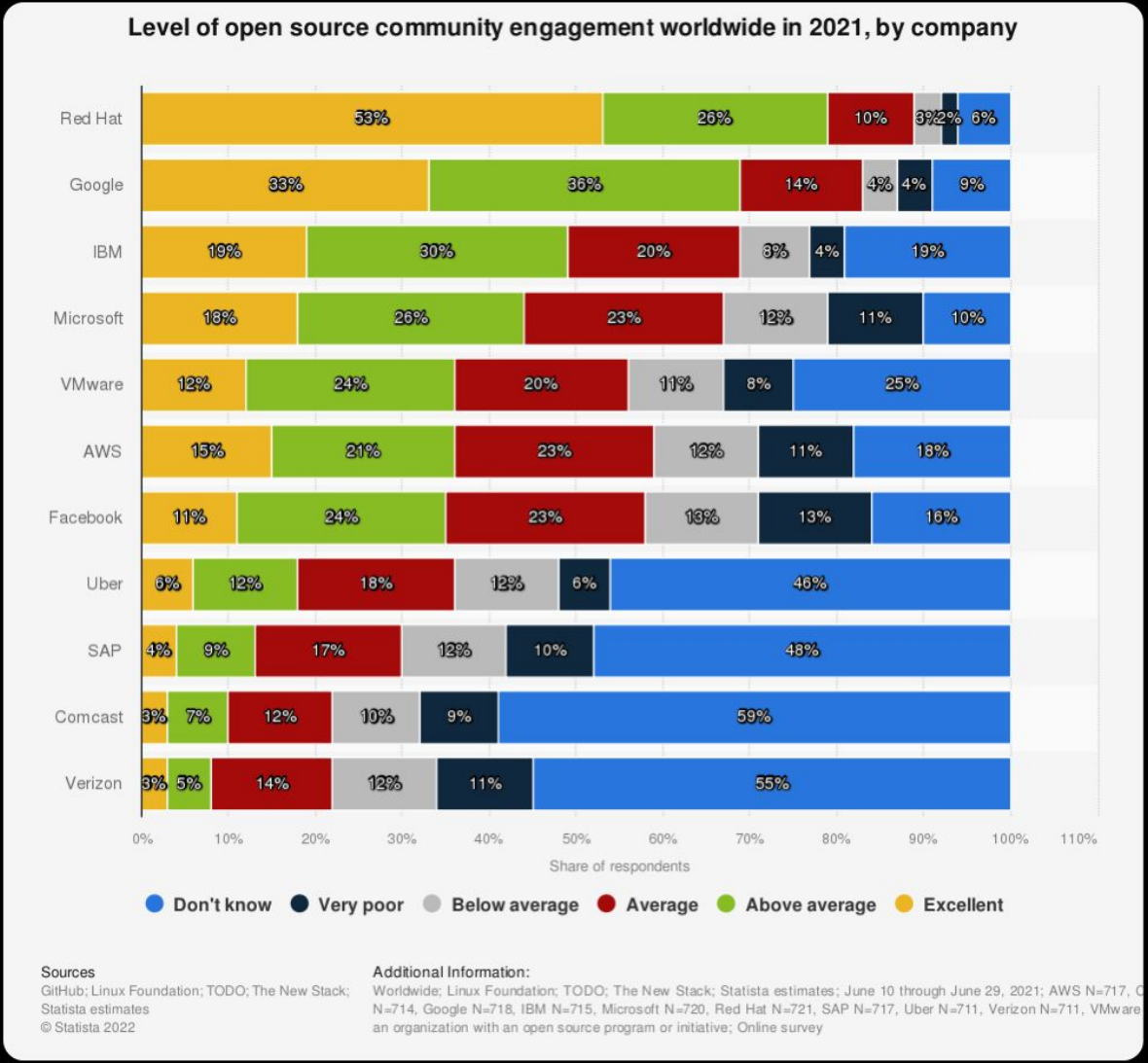
Table of Contents

- Reflecting on Progress: Milestones Leading to the Present
- The Innovation Machine
- Branches of Innovation
- Building with the Community

Reflecting on Progress: Milestones Leading to the Present



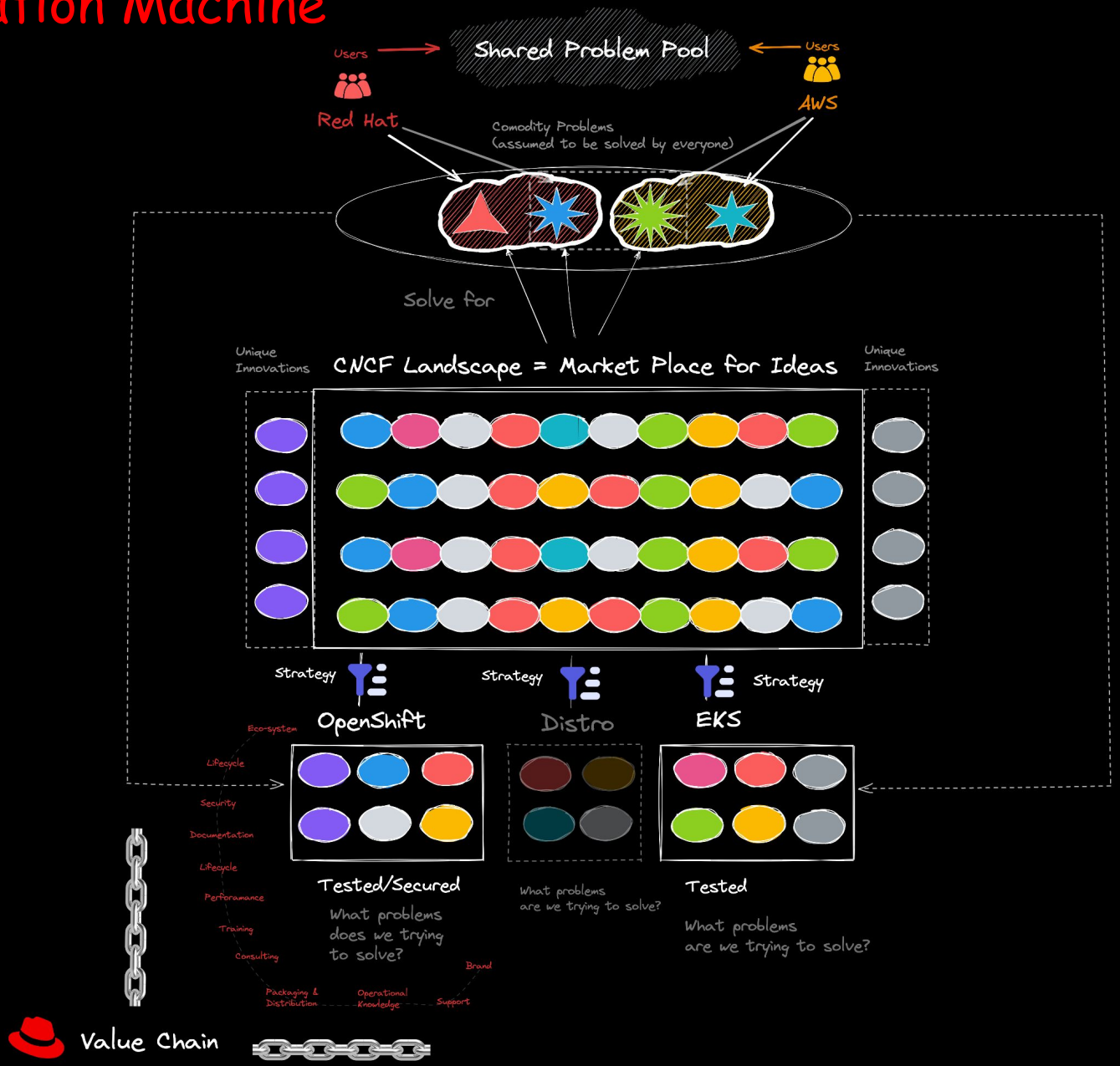
The Innovation Machine



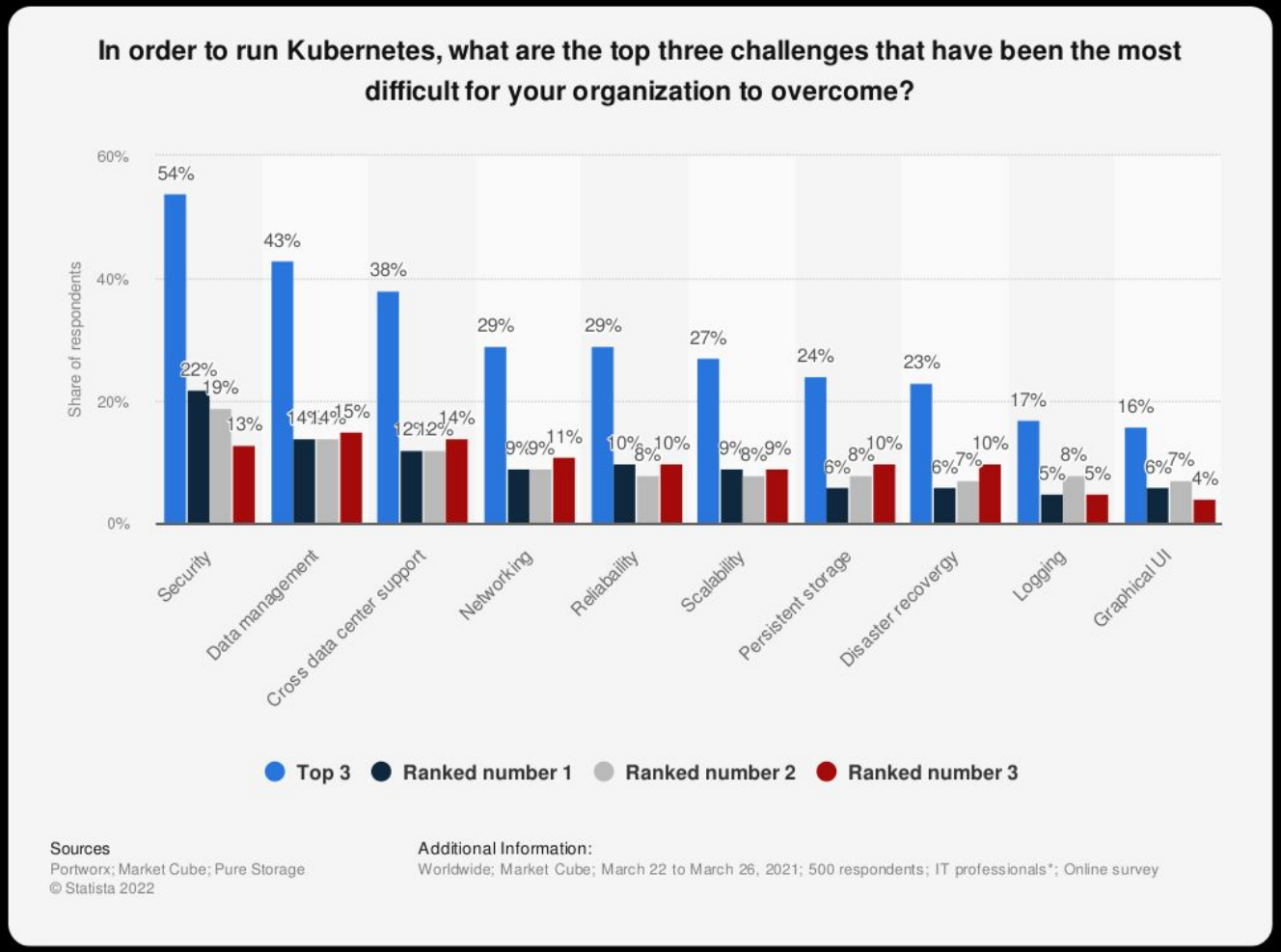
Sources
GitHub; Linux Foundation; TODO; The New Stack; Statista estimates
© Statista 2022

Additional Information:
Worldwide; Linux Foundation; TODO; The New Stack; Statista estimates; June 10 through June 29, 2021; AWS N=717, C
N=714, Google N=718, IBM N=715, Microsoft N=720, Red Hat N=721, SAP N=717, Uber N=711, Verizon N=711, VMware
an organization with an open source program or initiative; Online survey

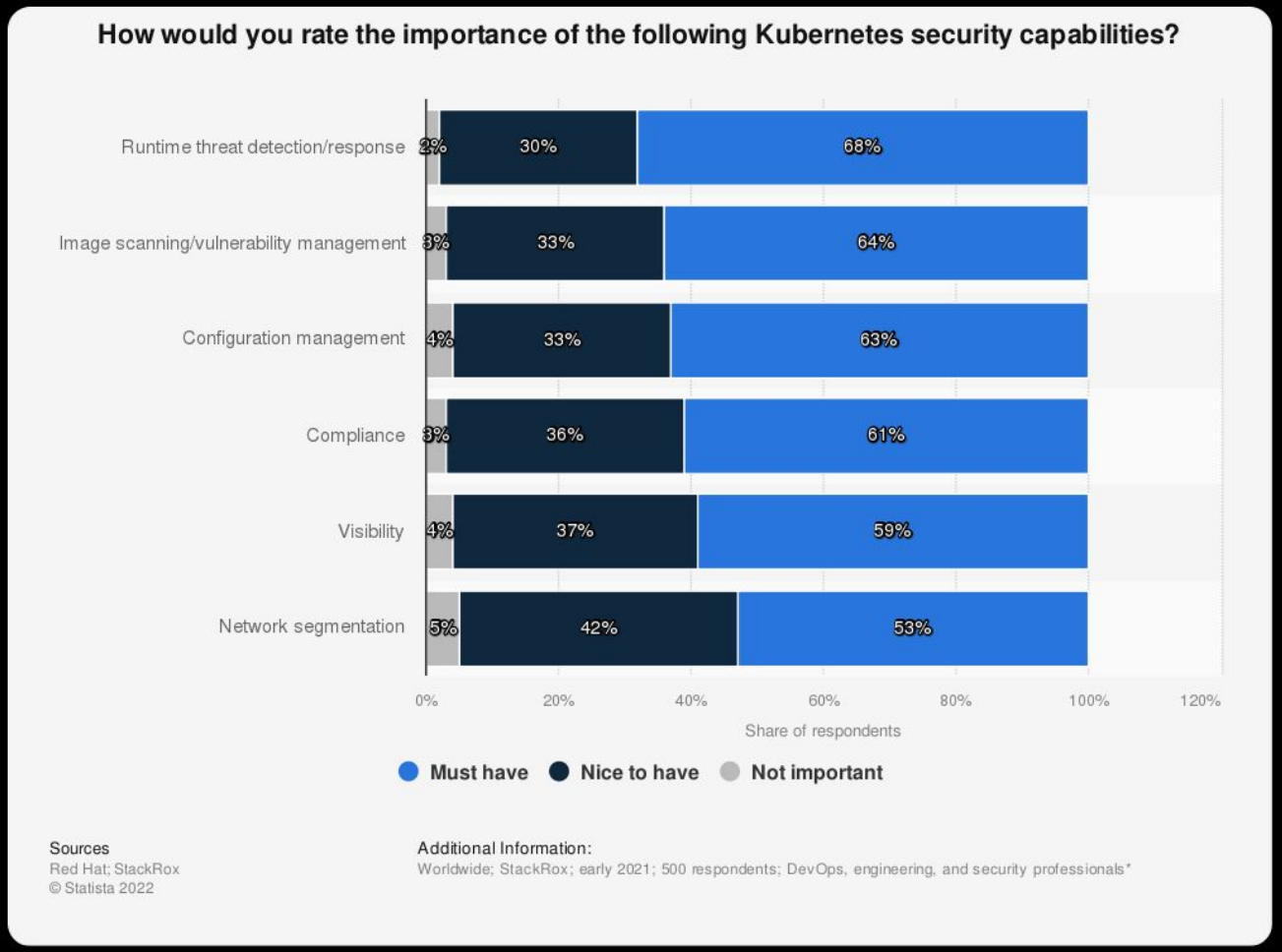
The Innovation Machine



The Innovation Machine

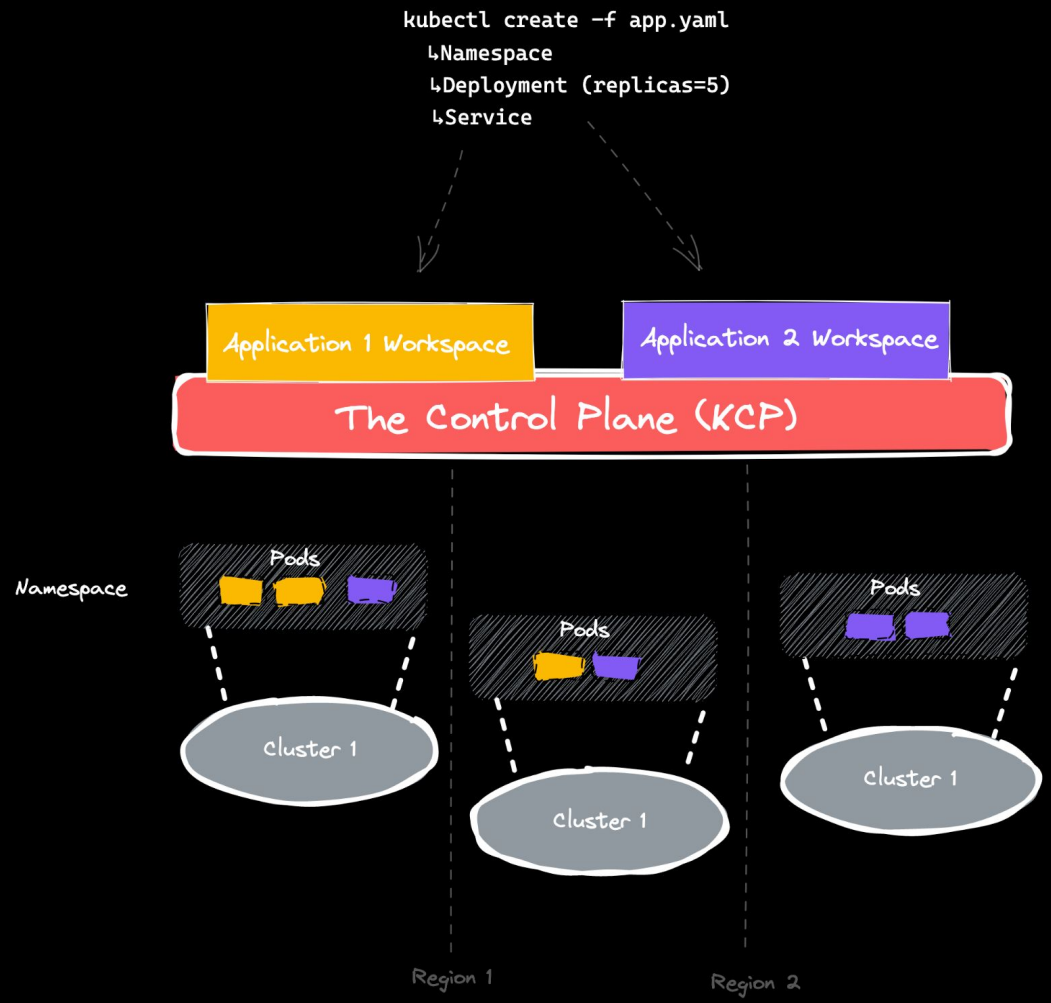


Branches of Innovation: Challenges

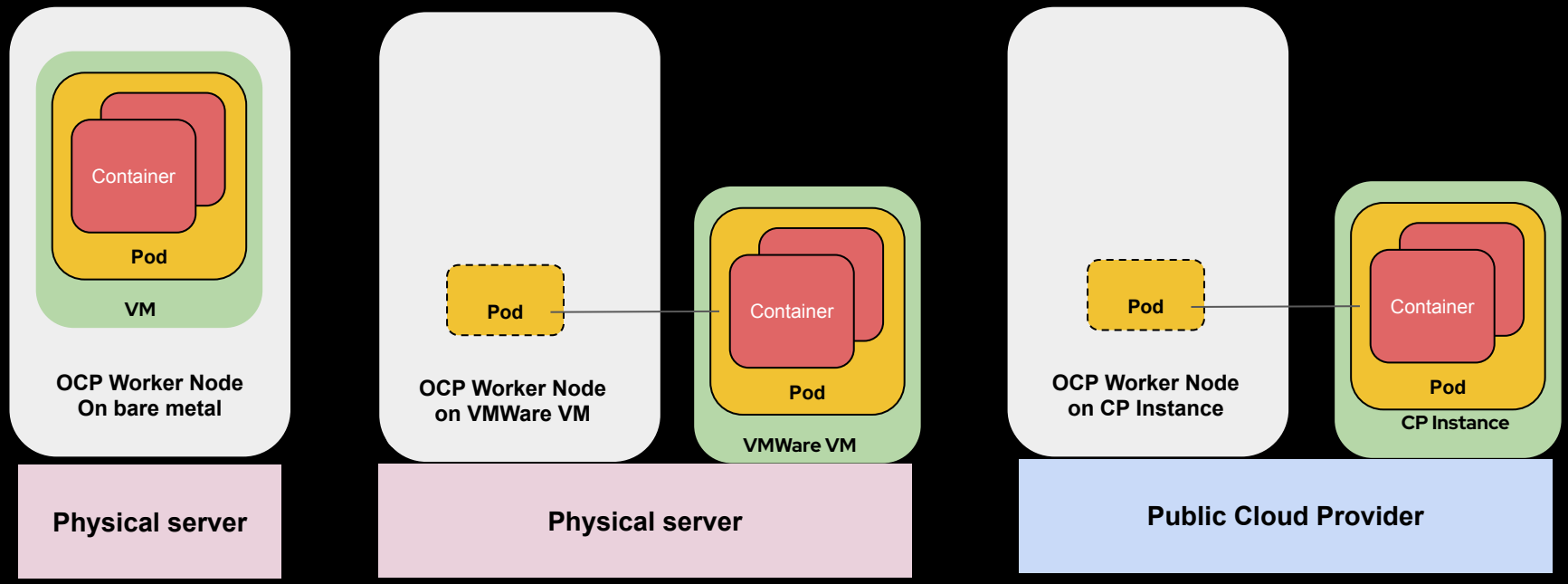


Branches of Innovation

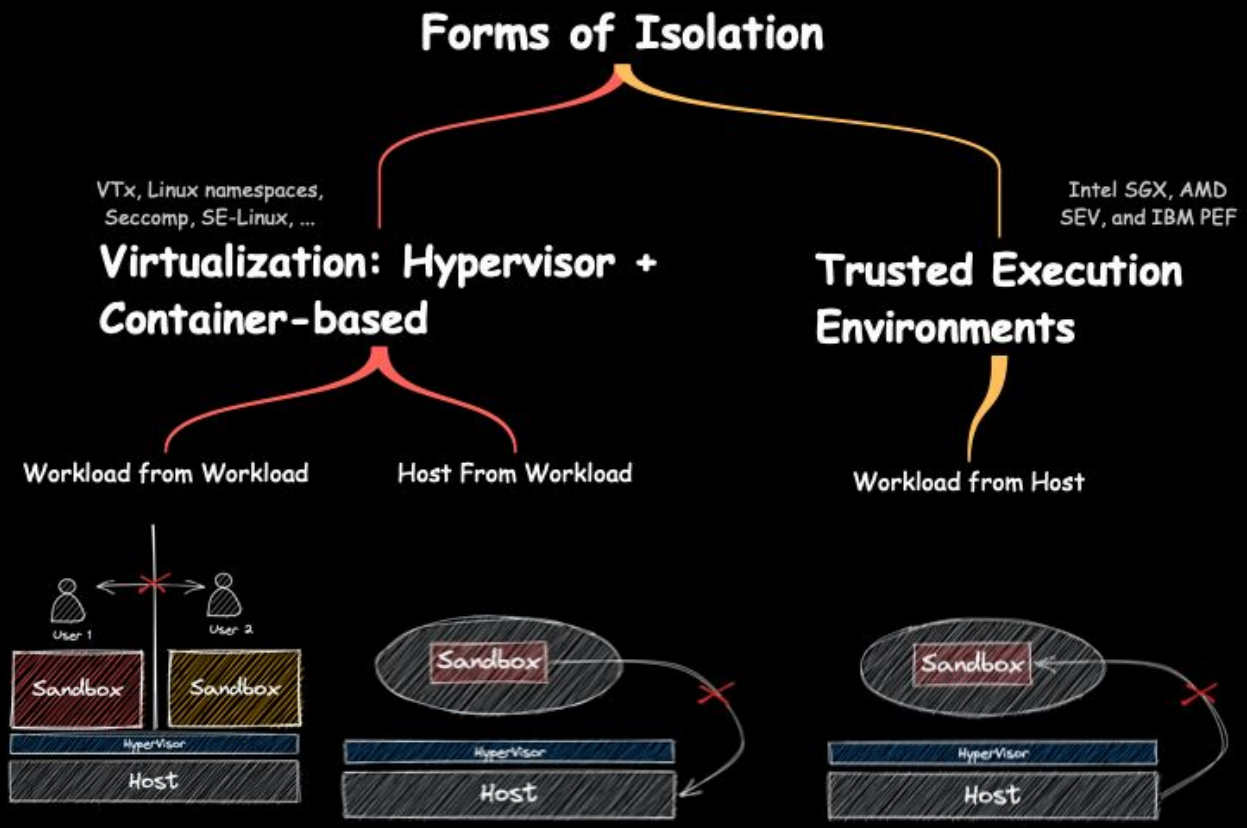
Branches of Innovation: KCP



Branches of Innovation: Peer-pods

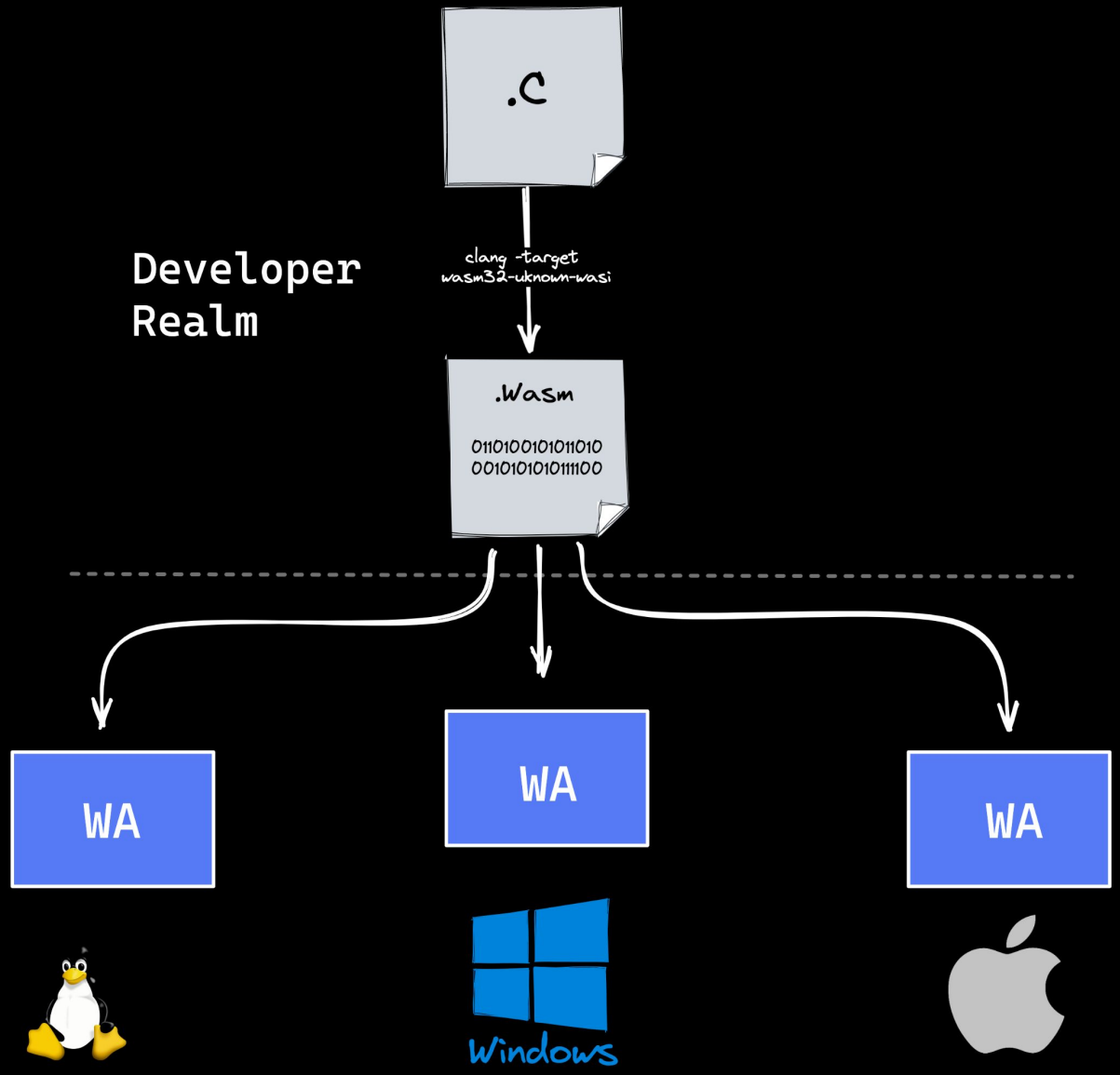


Branches of Innovation: Confidential Containers



Branches of Innovation: WASM

https://www.redhat.com/en/blog/red-hat-and-webassembly



Branches of Innovation: RHCOS Layering

Create a Dockerfile (Containerfile) to install firewalld and configure it with ansible

```
FROM quay.io/…/rhel-coreos-8
ADD configure-firewall-playbook.yml .
RUN rpm-ostree install firewalld ansible && \
ansible-playbook -vvv configure-firewall-playbook.yml && \
rpm -e ansible && \
rpm-ostree cleanup -m && \
ostree container commit
```

Build and push to registry

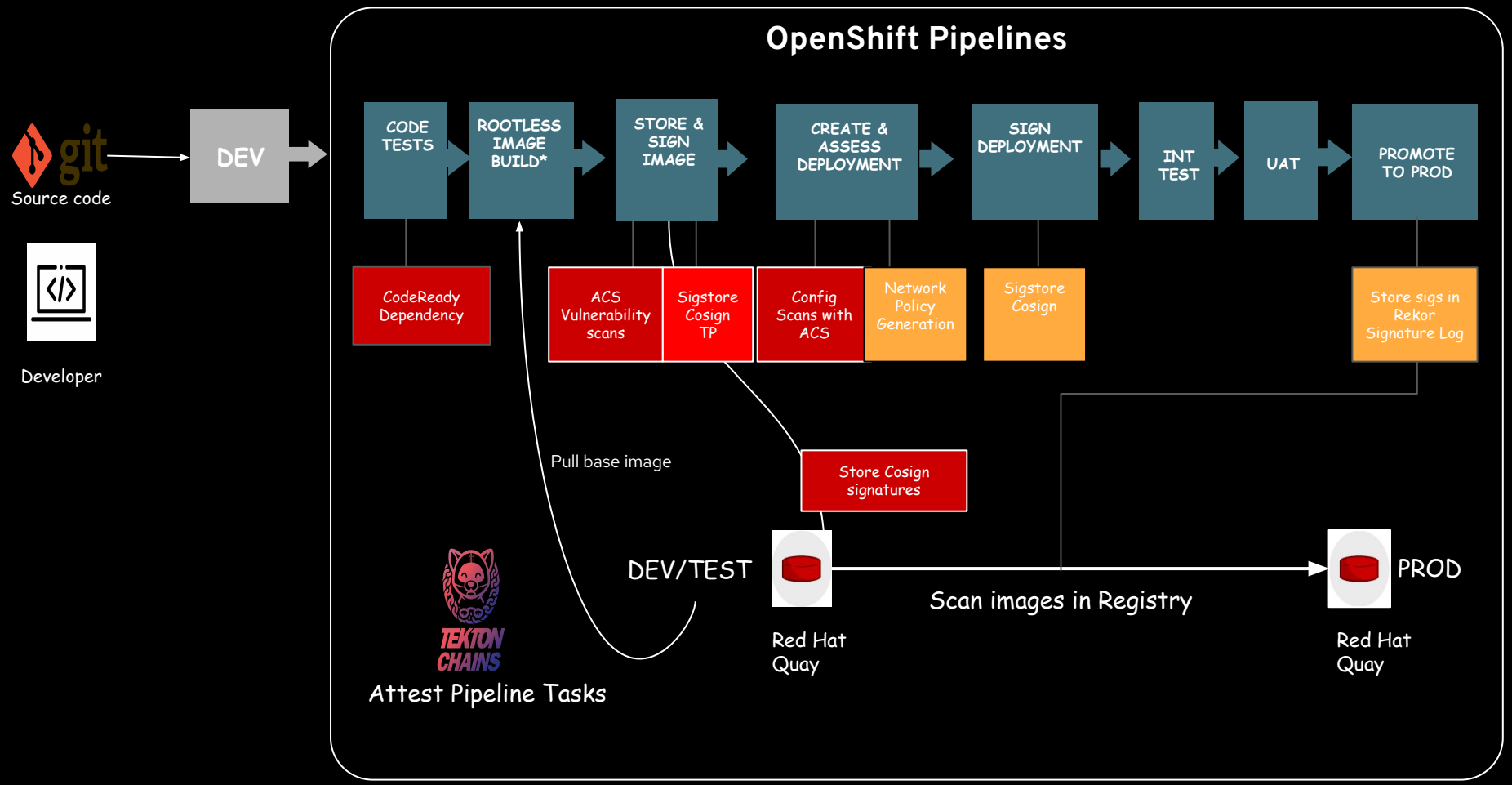
```
podman build -t custom-rhcos -f ./Dockerfile
podman push custom-rhcos registry.example.com/custom-coreos/custom-rhcos
```

Update osImageURL for a given MachineConfigPool

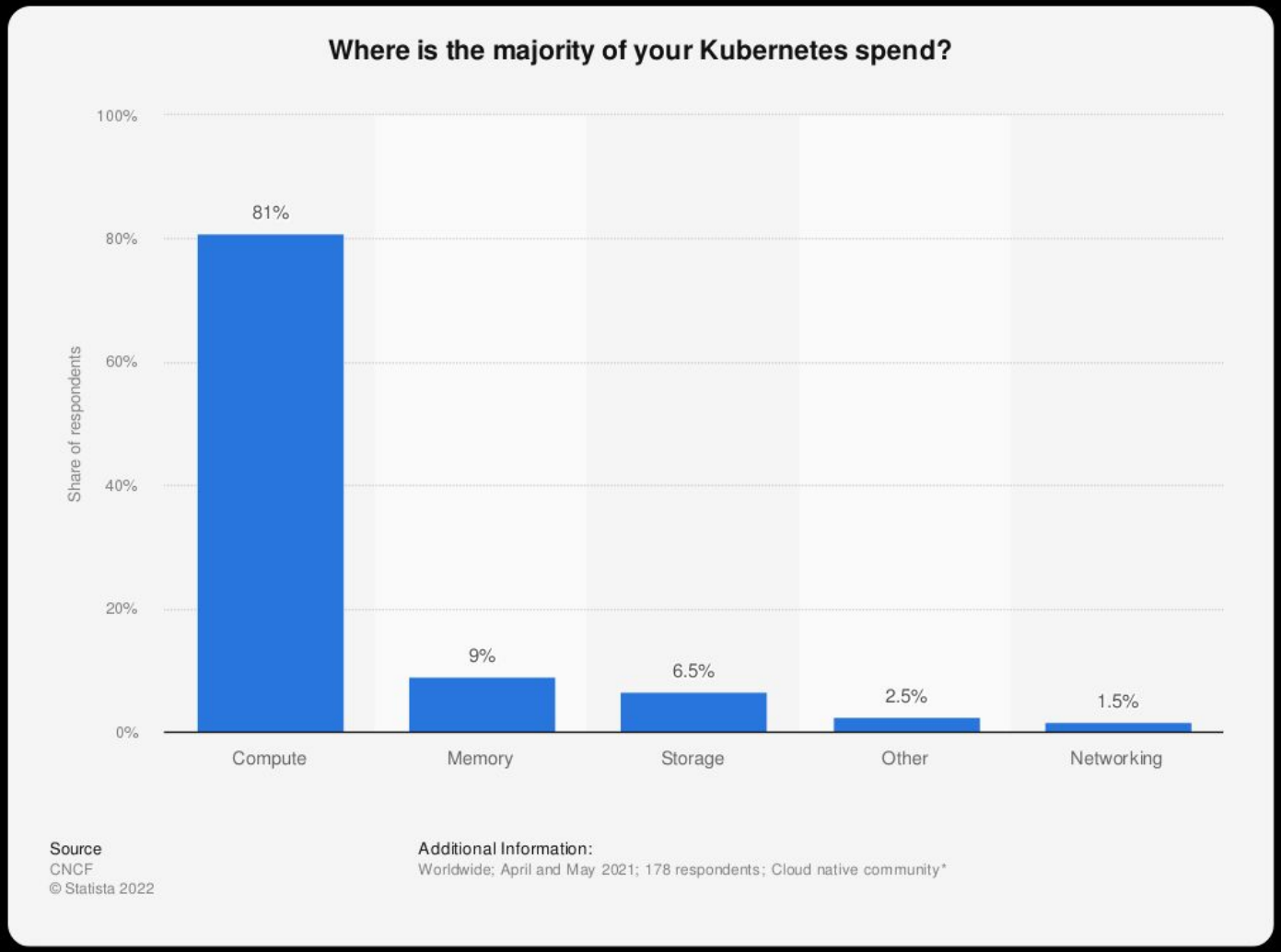
```
apiVersion: machineconfiguration.openshift.io/v1
kind: MachineConfig
metadata:
  labels:
     machineconfiguration.openshift.io/role: worker
   name: 99-override-osimageurl-external-image
spec:
  osImageURL: "registry.example.com/custom-rhel-coreos/custom-rhcos@<digest>"
```

Click Upgrade 🪄

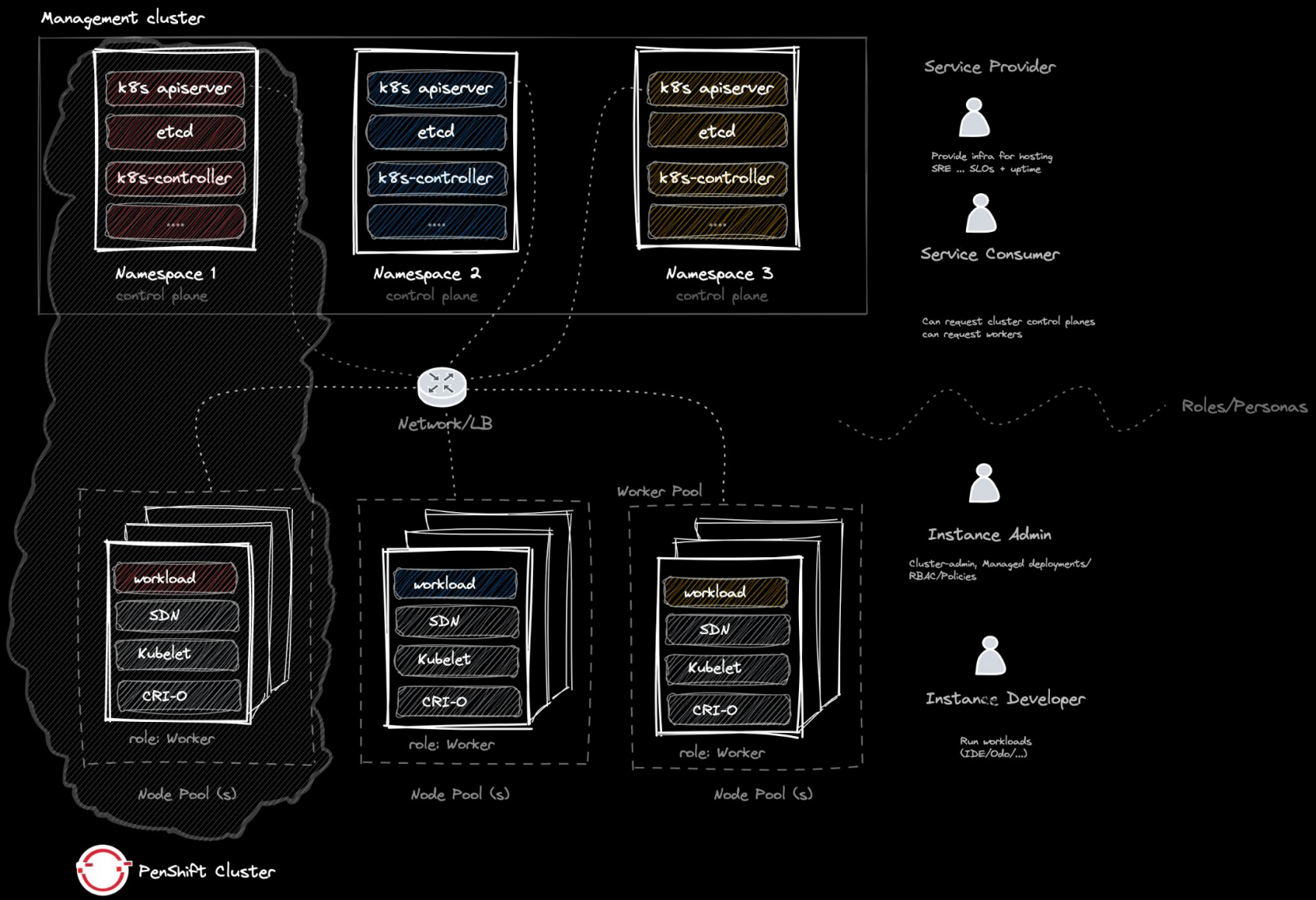
Branches of Innovation: Secure Supply Chain



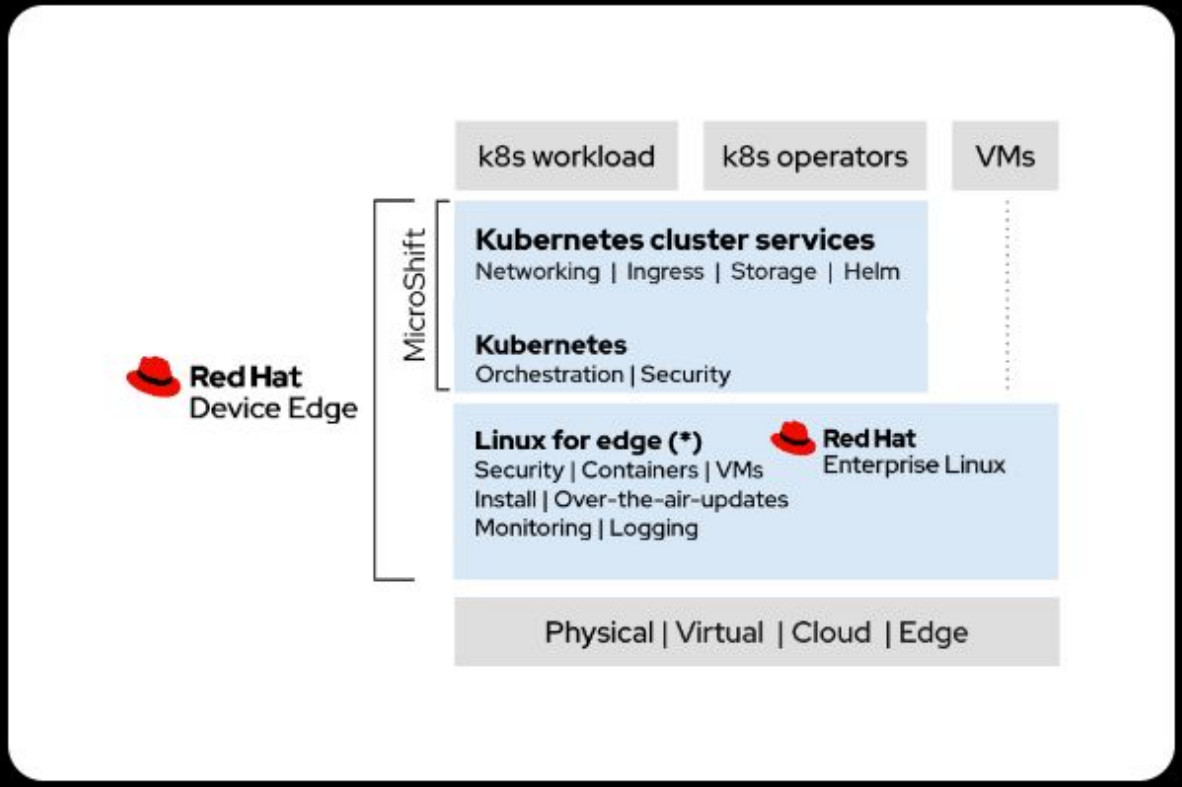
Branches of Innovation: HyperShift

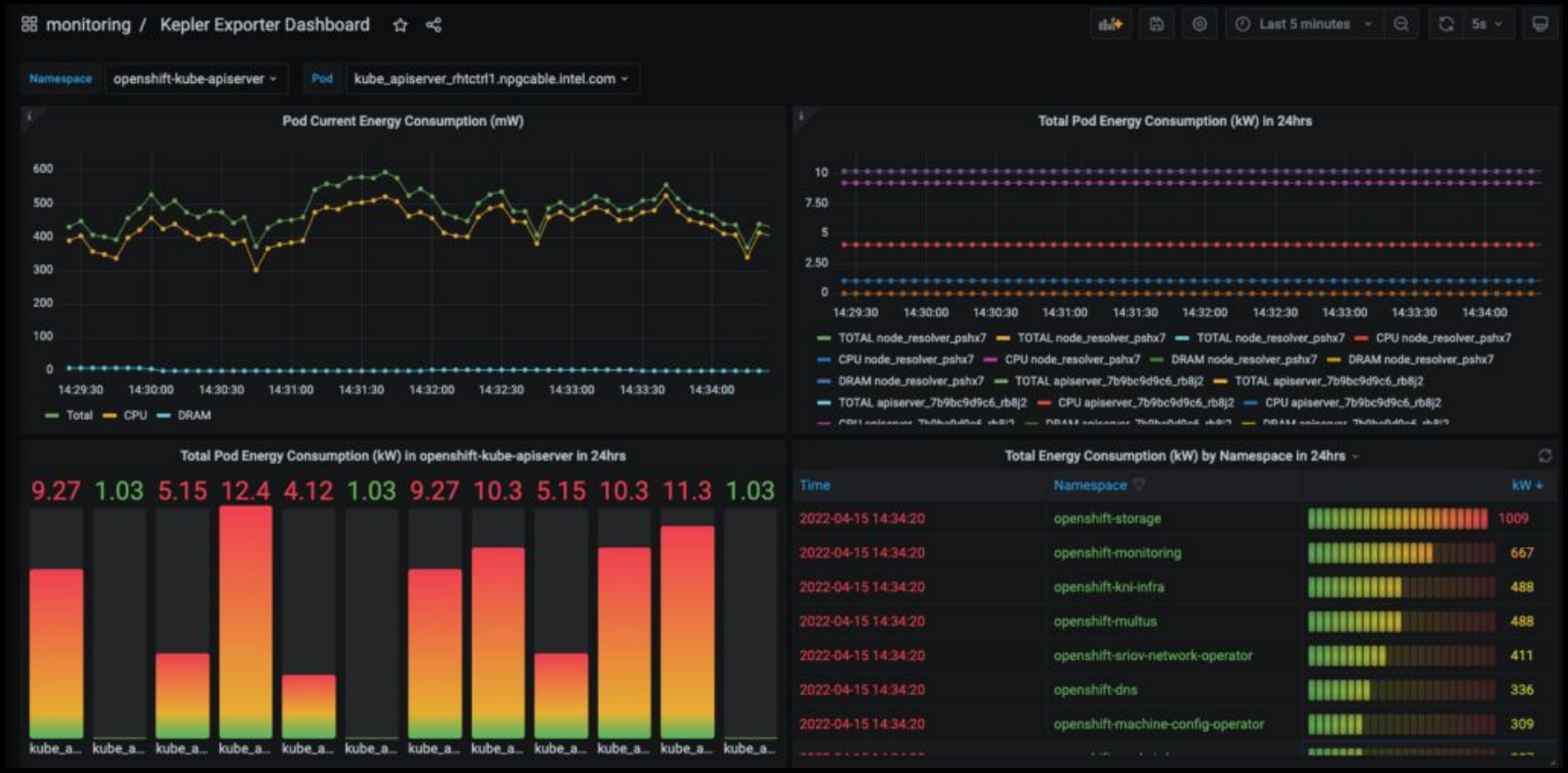


Branches of Innovation: HyperShift



Branches of Innovation: Red Hat Device Edge



Branches of Innovation: Kepler

[Red Hat Donates Kepler Tool for Tracking Power Usage to CNCF - Container Journal]