



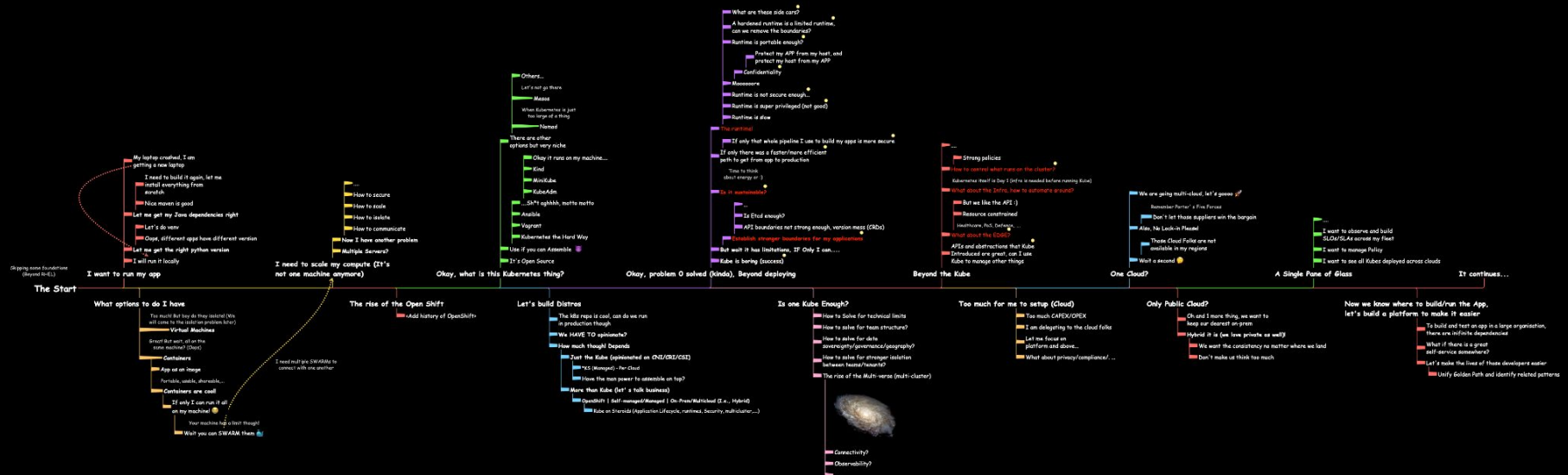
Red Hat  
OpenShift

# The Next Frontier: Pioneering the Next Wave of Innovation

Adel Zaalouk, Product Manager

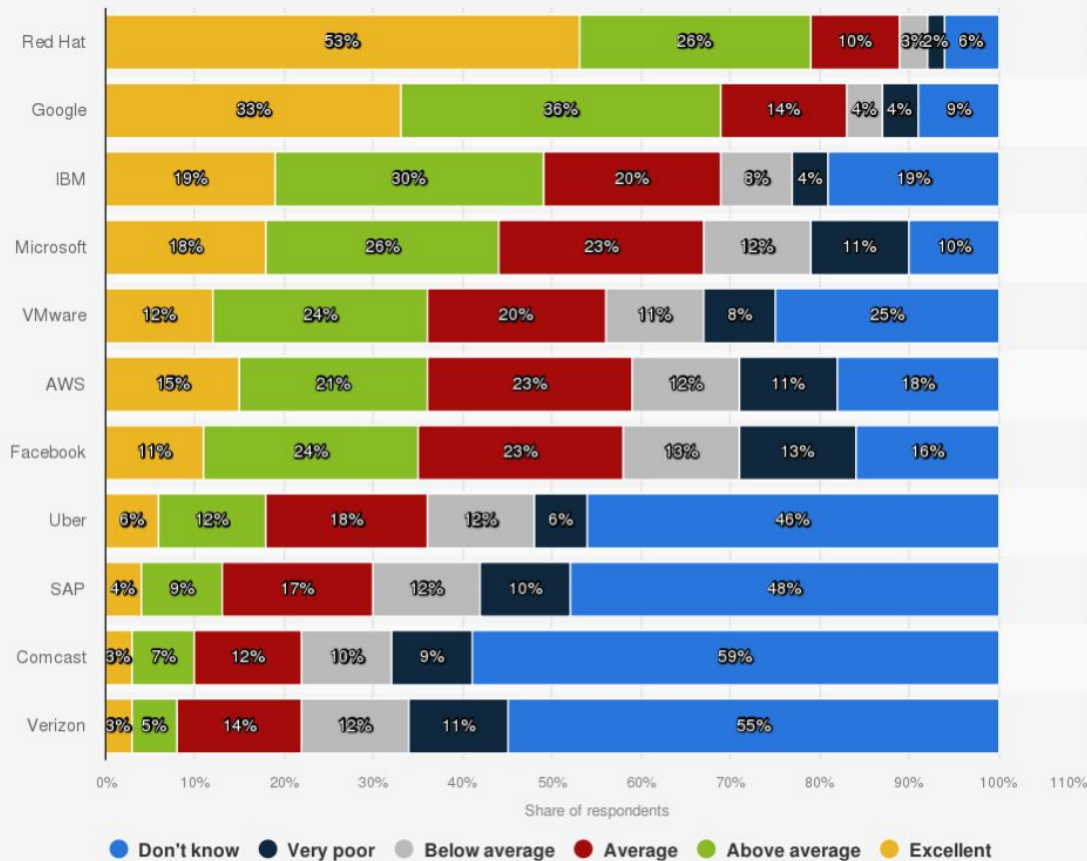
# Table of Contents

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



# The Innovation Machine

Level of open source community engagement worldwide in 2021, by company



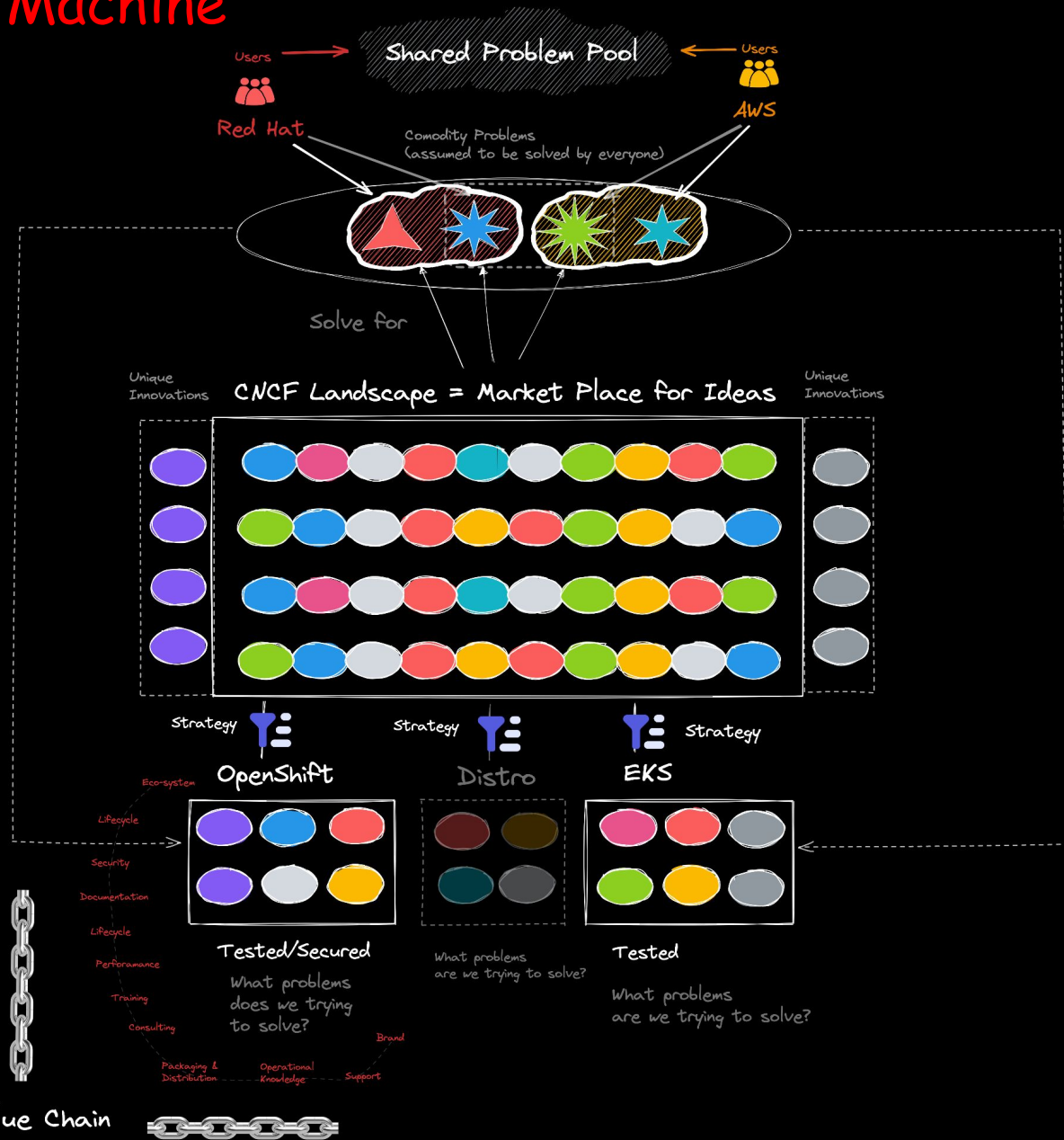
## Sources

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

## Additional Information:

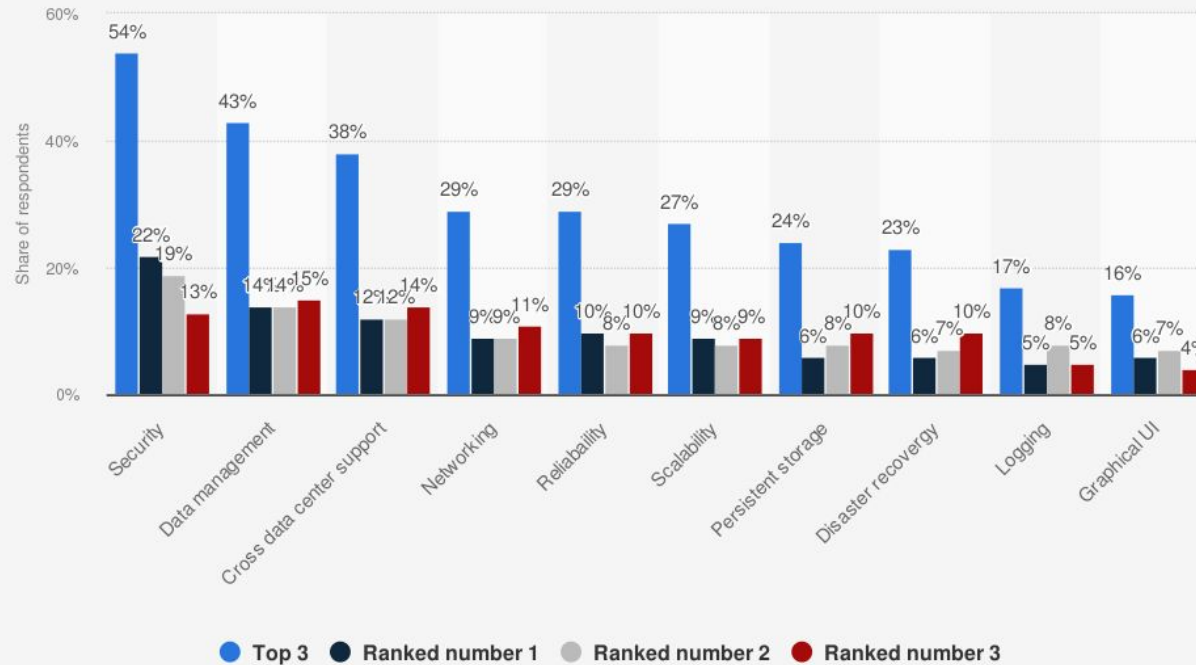
Worldwide; Linux Foundation; TODO; The New Stack; Statista estimates; June 10 through June 29, 2021; AWS N=717, Comcast N=714, Google N=718, IBM N=715, Microsoft N=720, Red Hat N=721, SAP N=717, Uber N=711, Verizon N=711, VMware N=717, an organization with an open source program or initiative; Online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

# The Innovation Machine



# The Innovation Machine

In order to run Kubernetes, what are the top three challenges that have been the most difficult for your organization to overcome?



#### Sources

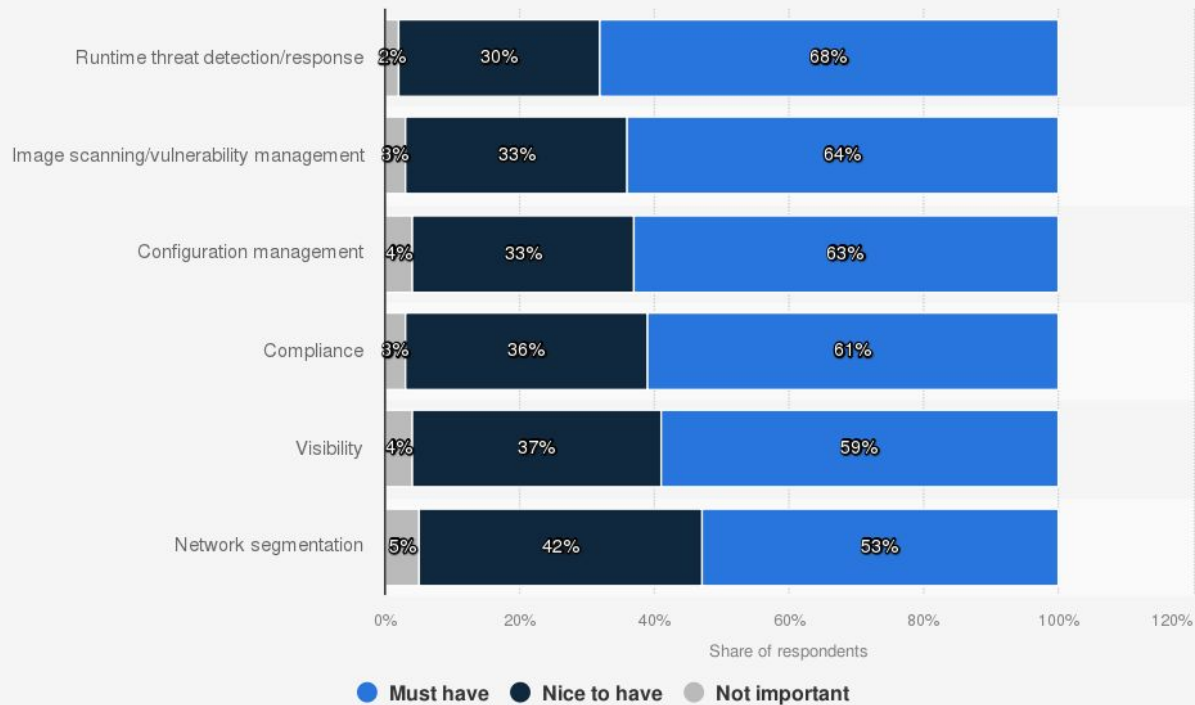
Portworx; Market Cube; Pure Storage  
© Statista 2022

#### Additional Information:

Worldwide; Market Cube; March 22 to March 26, 2021; 500 respondents; IT professionals\*; Online survey

# Branches of Innovation: Challenges

How would you rate the importance of the following Kubernetes security capabilities?



**Sources**  
Red Hat; StackRox  
© Statista 2022

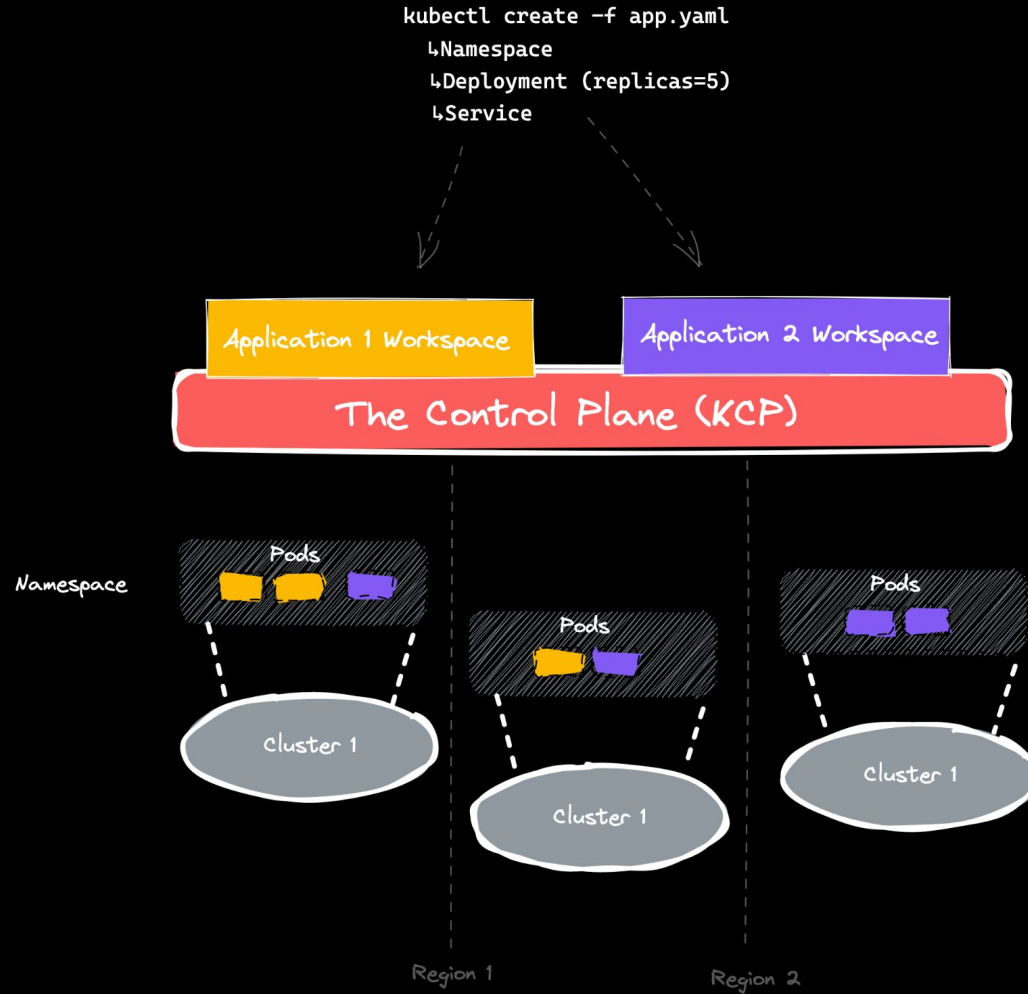
**Additional Information:**  
Worldwide; StackRox; early 2021; 500 respondents; DevOps, engineering, and security professionals\*

# Branches of Innovation

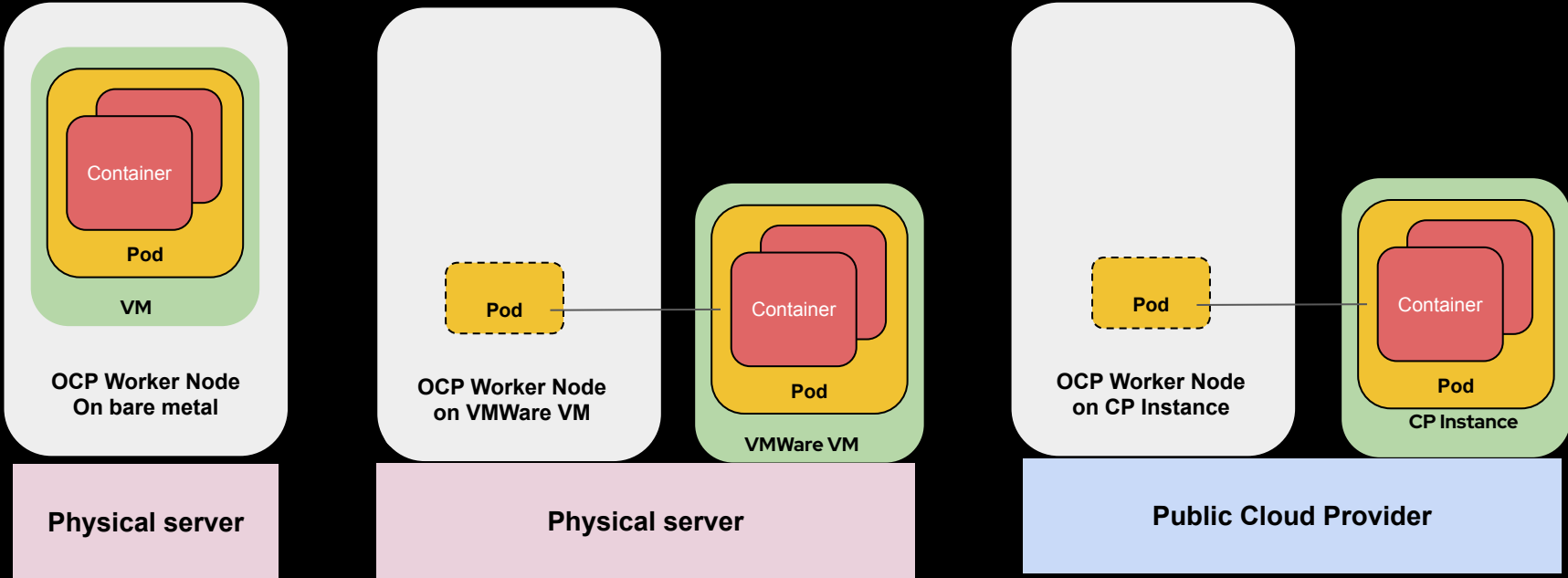




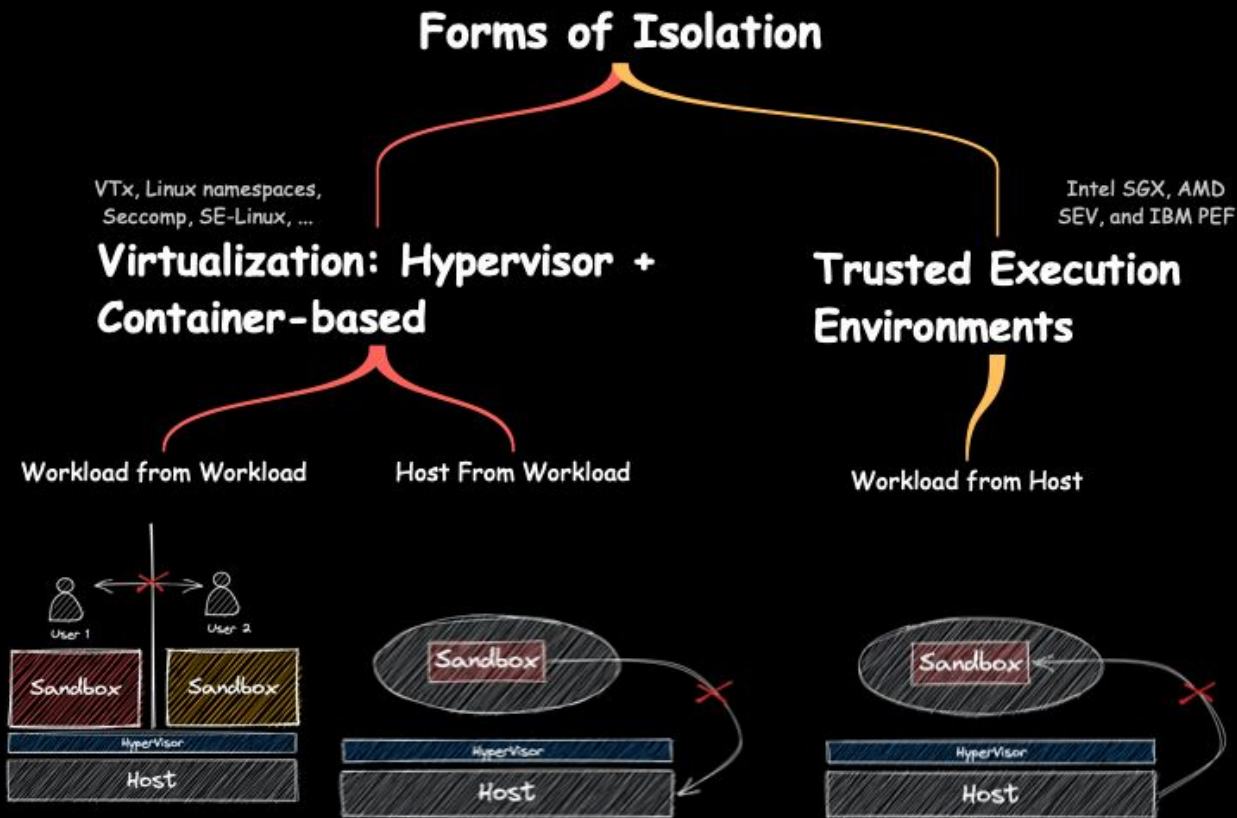
# Branches of Innovation: KCP



# Branches of Innovation: Peer-pods

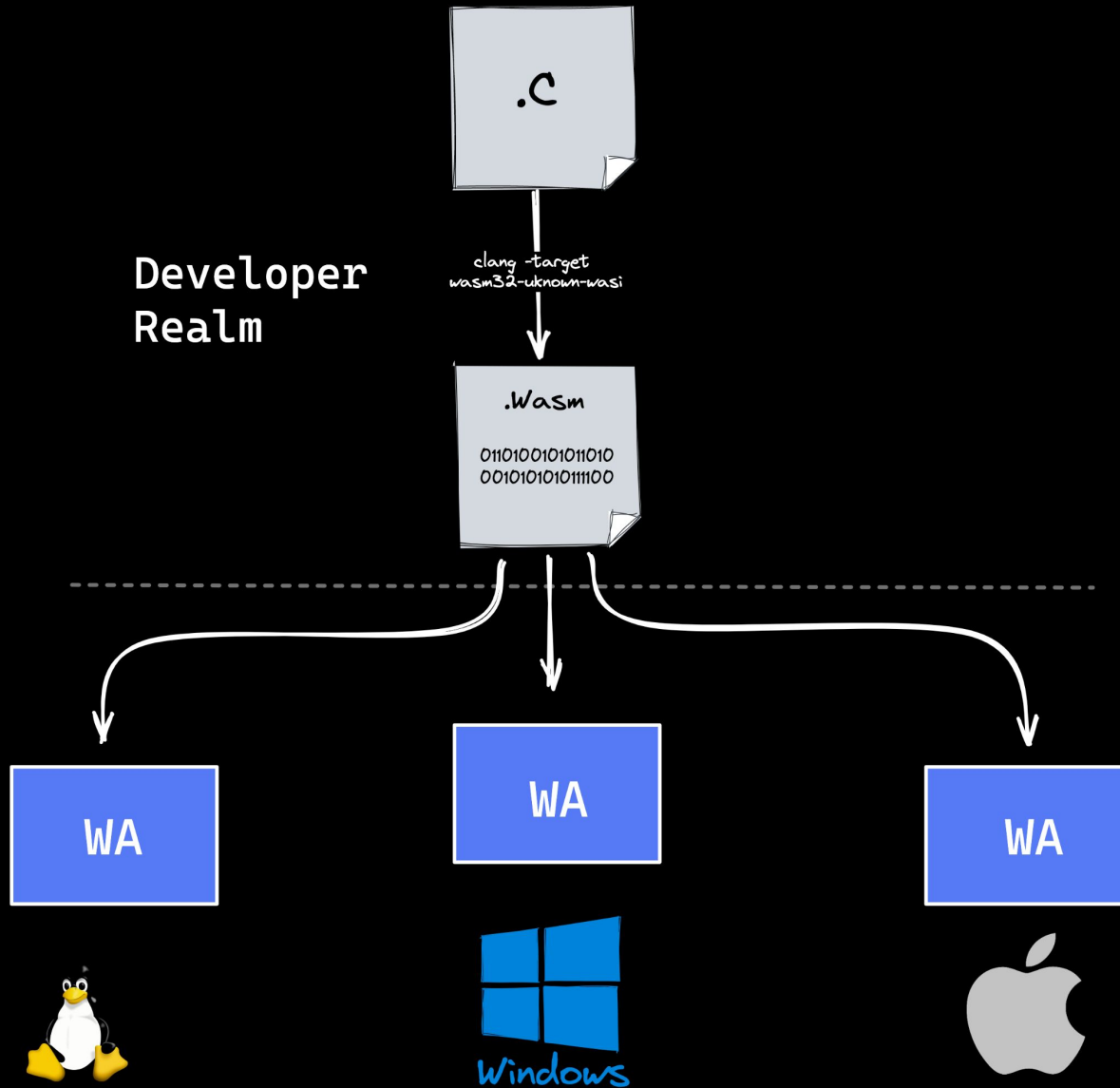


# Branches of Innovation: Confidential Containers



# 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

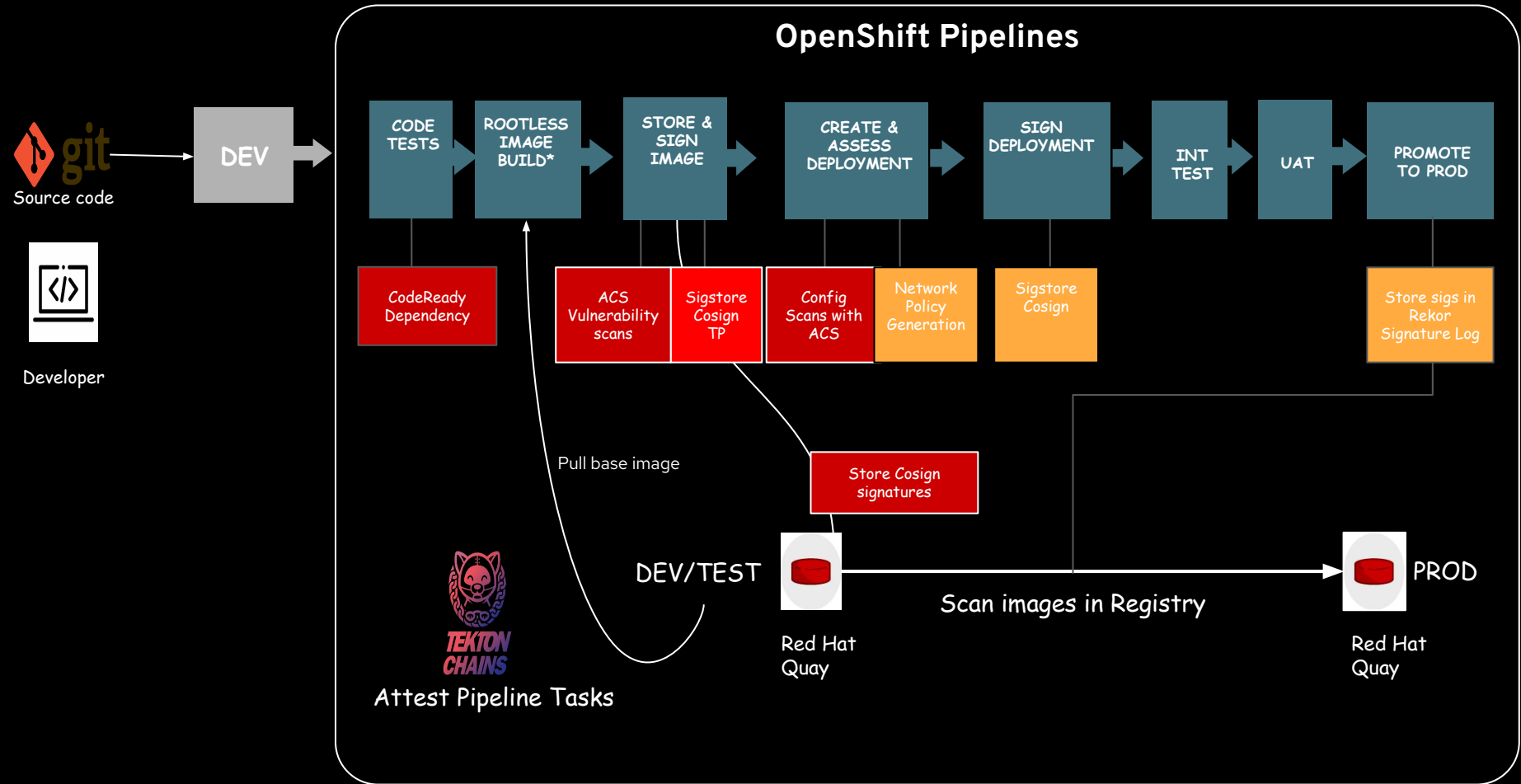
```
podman build -t custom-rhcos -f ./Dockerfile
podman push custom-rhcos registry.example.com/custom-coreos/custom-rhcos
```

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>"
```

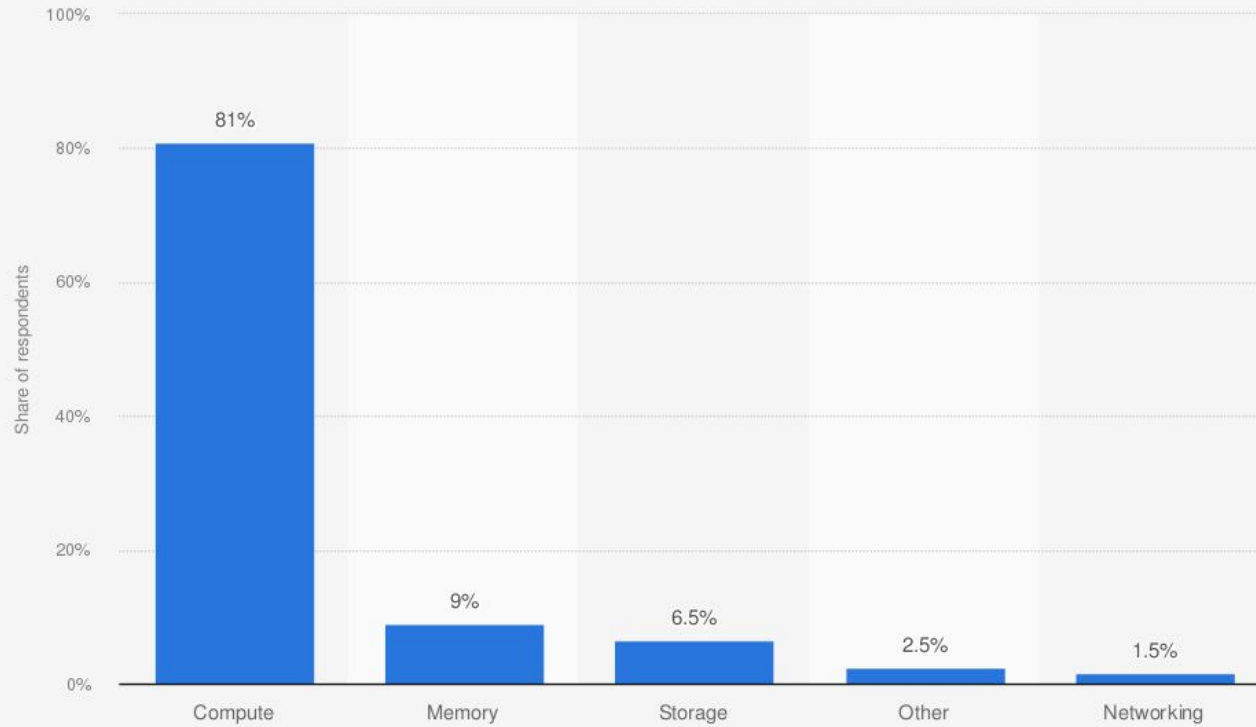
Click Upgrade ✨

# Branches of Innovation: Secure Supply Chain



# Branches of Innovation: HyperShift

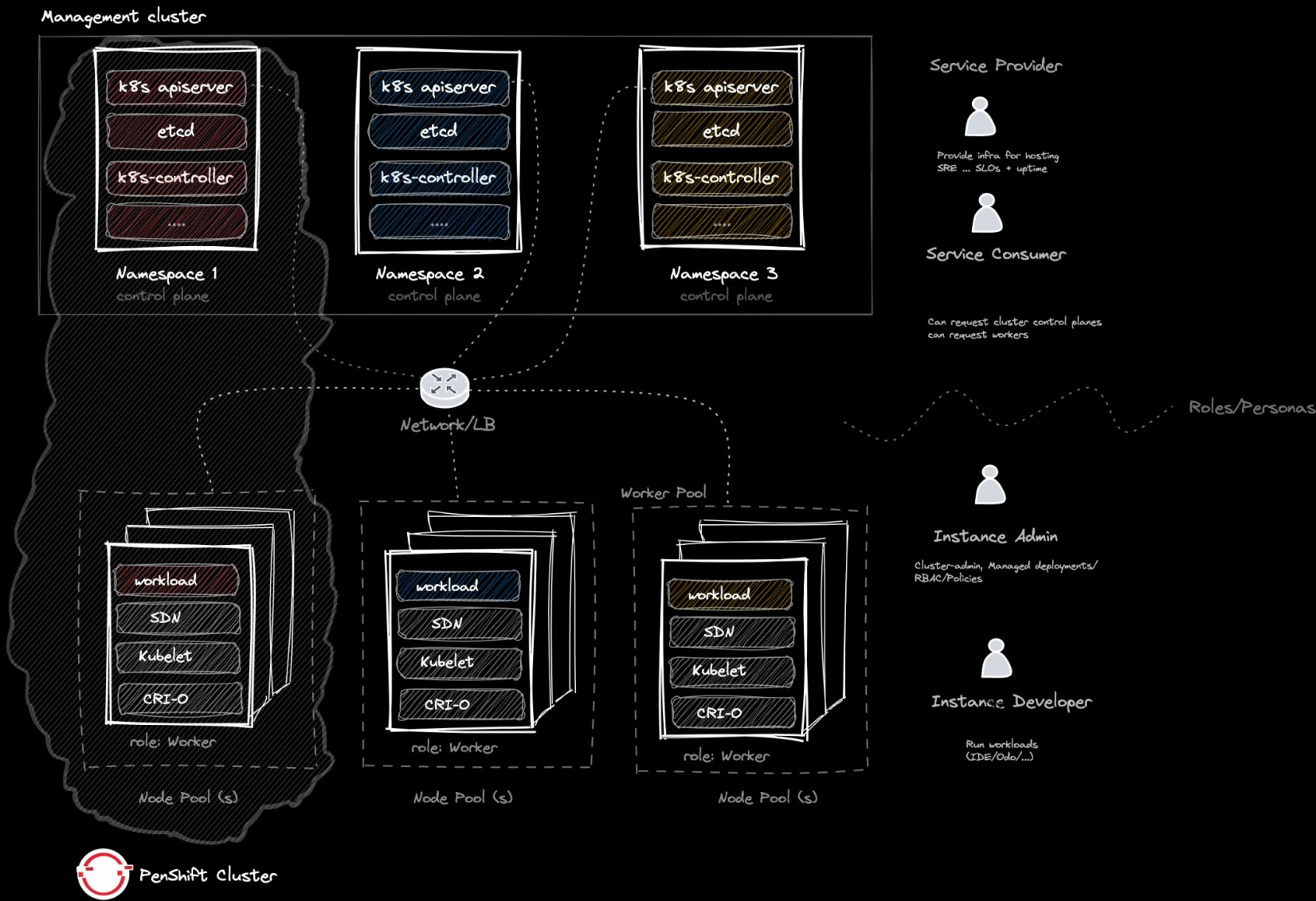
Where is the majority of your Kubernetes spend?



Source  
CNCF  
© Statista 2022

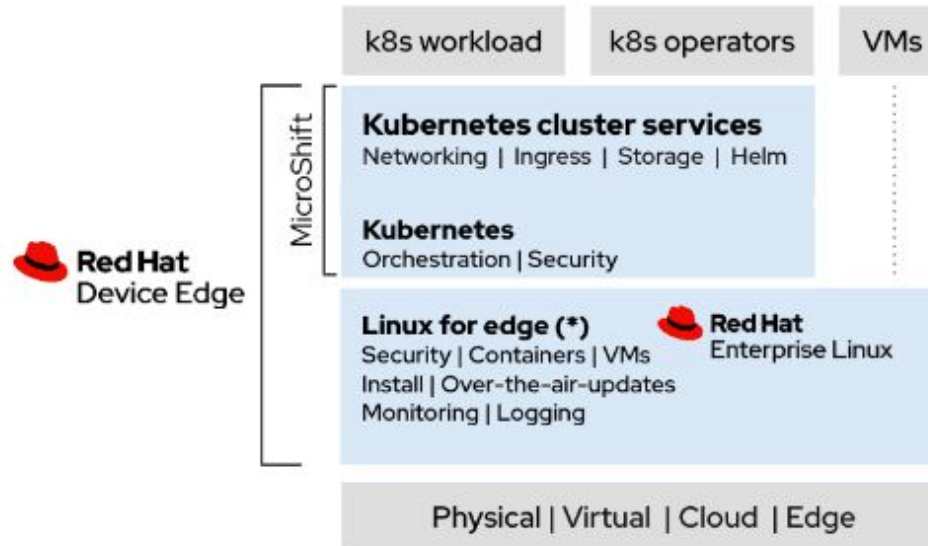
Additional Information:  
Worldwide; April and May 2021; 178 respondents; Cloud native community\*

# 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](#)

