



portworx[®]
by Everpure[™]

Any Application. Any Cloud. Any Infrastructure.



Red Hat



portworx
by Everpure

PX: Sovereign by Design

Data Mobility Across Multi-Cloud and Virtualized Environments

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Cloud Native Architect

Portworx by Everpure | EMEA North

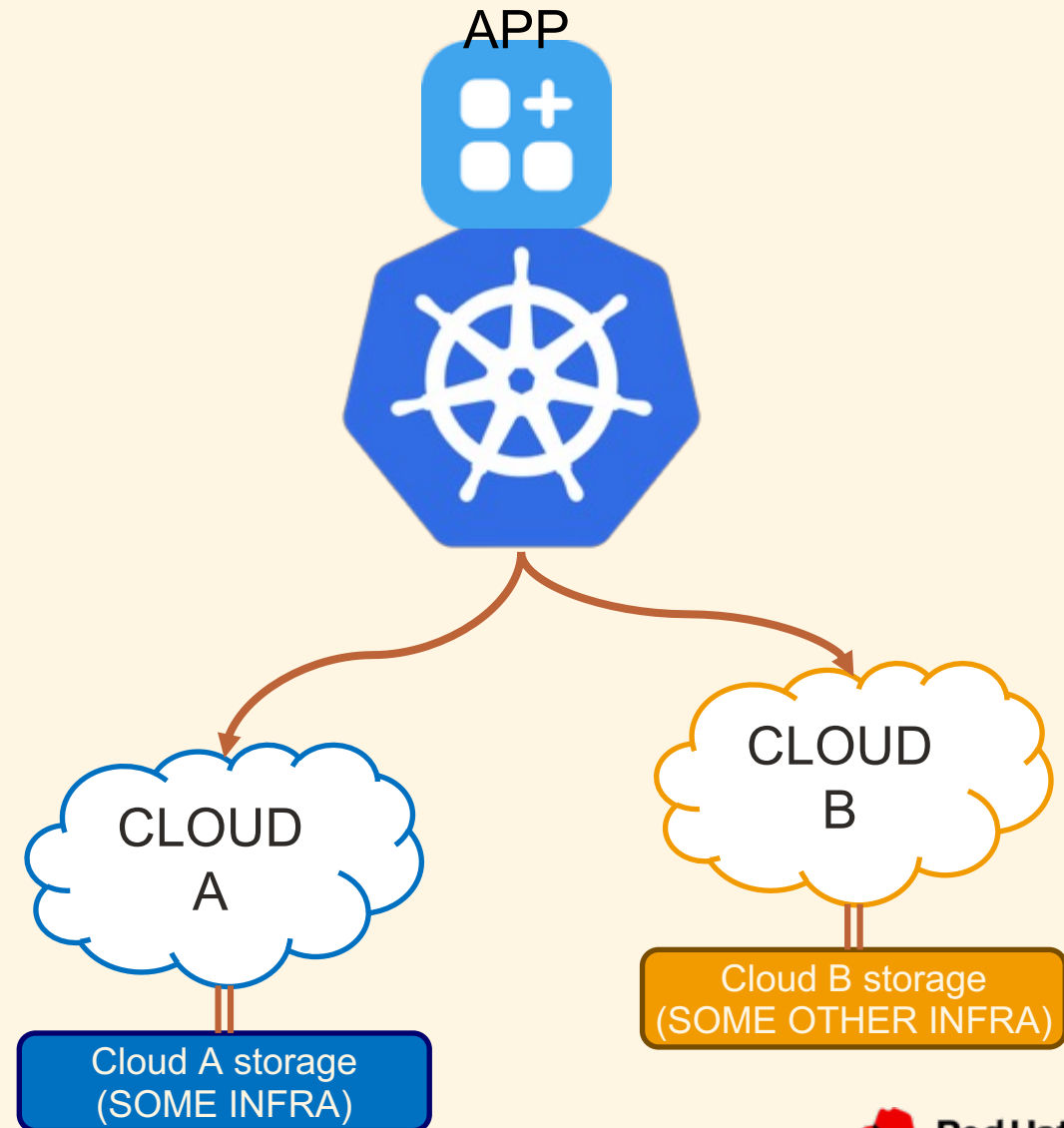
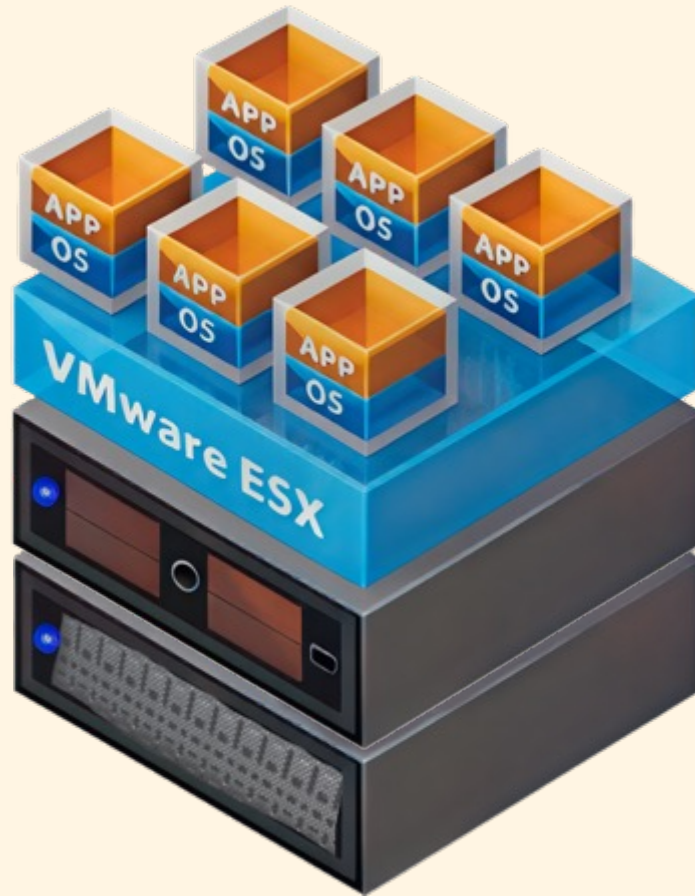
The Sovereign Problem.

Where does my
Application
Live?!?

Where is it
ALLOWED
to live?

What about
The Data?

Traditional infrastructure versus modern Kubernetes



→ Compute became portable, NOT the data.



YOU CAN SLINGSHOT THE APP

→ Compute became portable, NOT the data.

BUT K8s CAN'T SLINGSHOT THE DATA

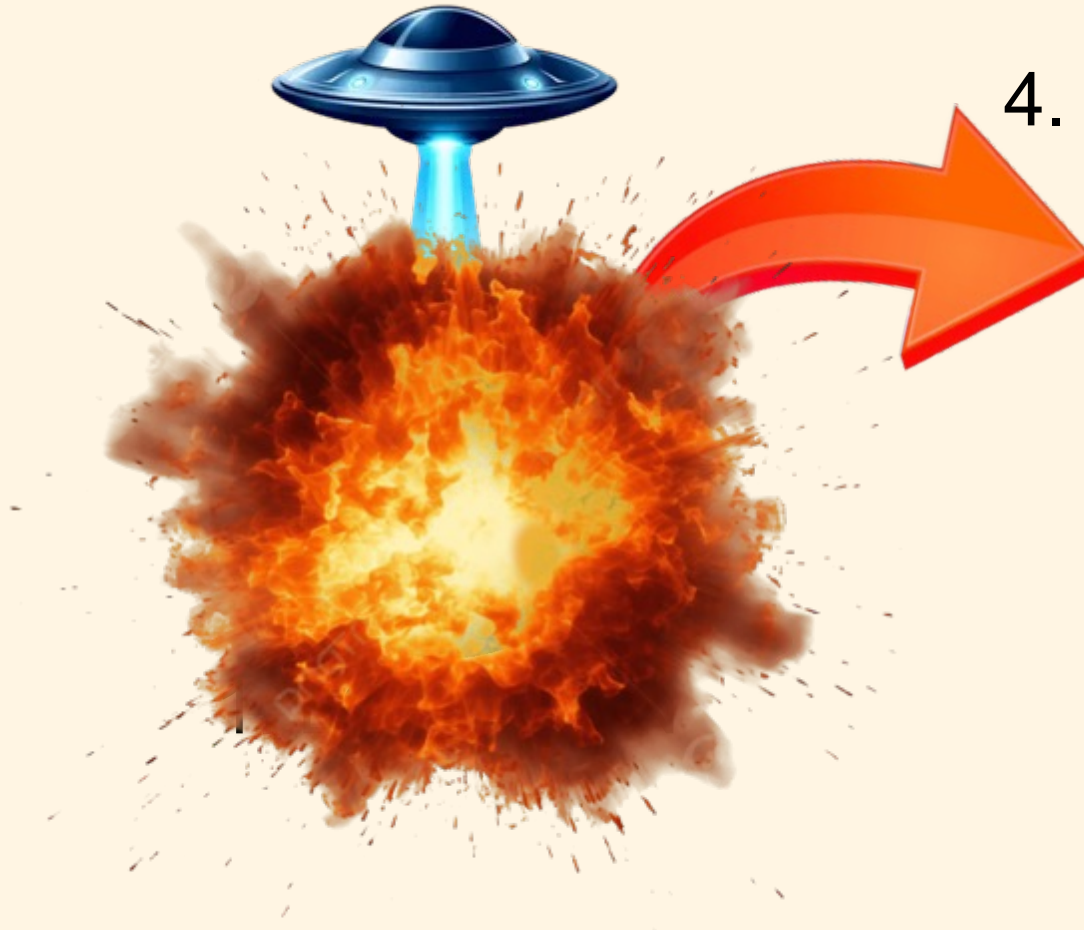


Now add sovereignty – What does that mean?



3. ACCESS

2. CONTROL



4. CONTINUITY



Data sovereignty isn't just about where the bytes are.

**Data sovereignty isn't just about where the bytes are.
It's about whether you remain in control of those bytes.**



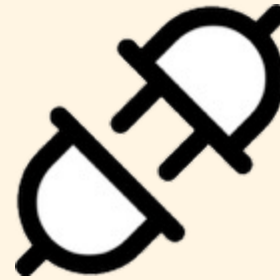
PUBLIC
CLOUD



HYBRID
CLOUD



PRIVATE
CLOUD



DISCONNECTED



AIR GAPPED

INCREASE SOUVEREIGNTY

Note the App never changed – the Operating environment did.

Can my K8s data follow across environments?



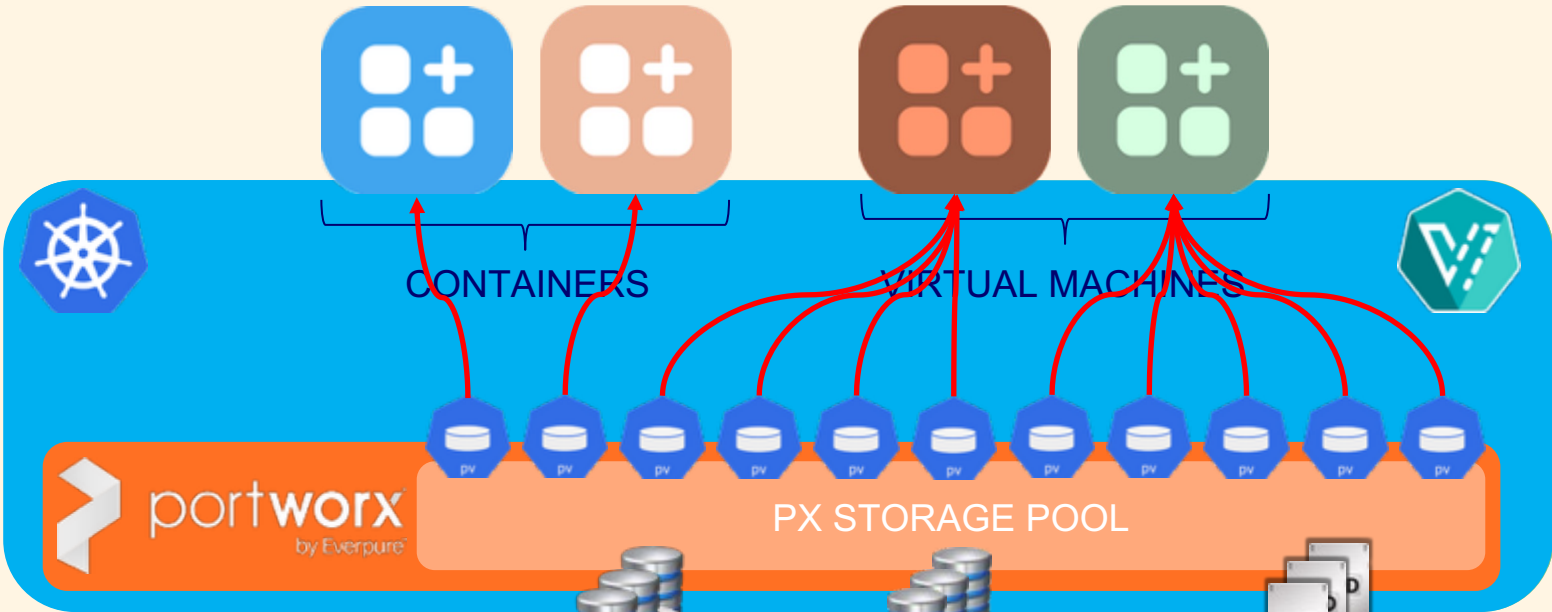
Enter Portworx!

ANY PERSISTENT APP

ANY K8S DISTRO

UNIFORM DATA LAYER

ANY
INFRASTRUCTURE
OR CLOUD



KUBEVIRT

CLOUD
BLOCK
DEVICES

SAN
DEVICES

LOCAL
DISK
DEVICES

PUBLIC CLOUDS

ON PREMISES

EDGE

SCENARIO 1:

THERE IS NO CLOUD.

**IT IS JUST
SOMEONE ELSE'S
COMPUTER**



SCENARIO 1:

THERE IS NO CLOUD.

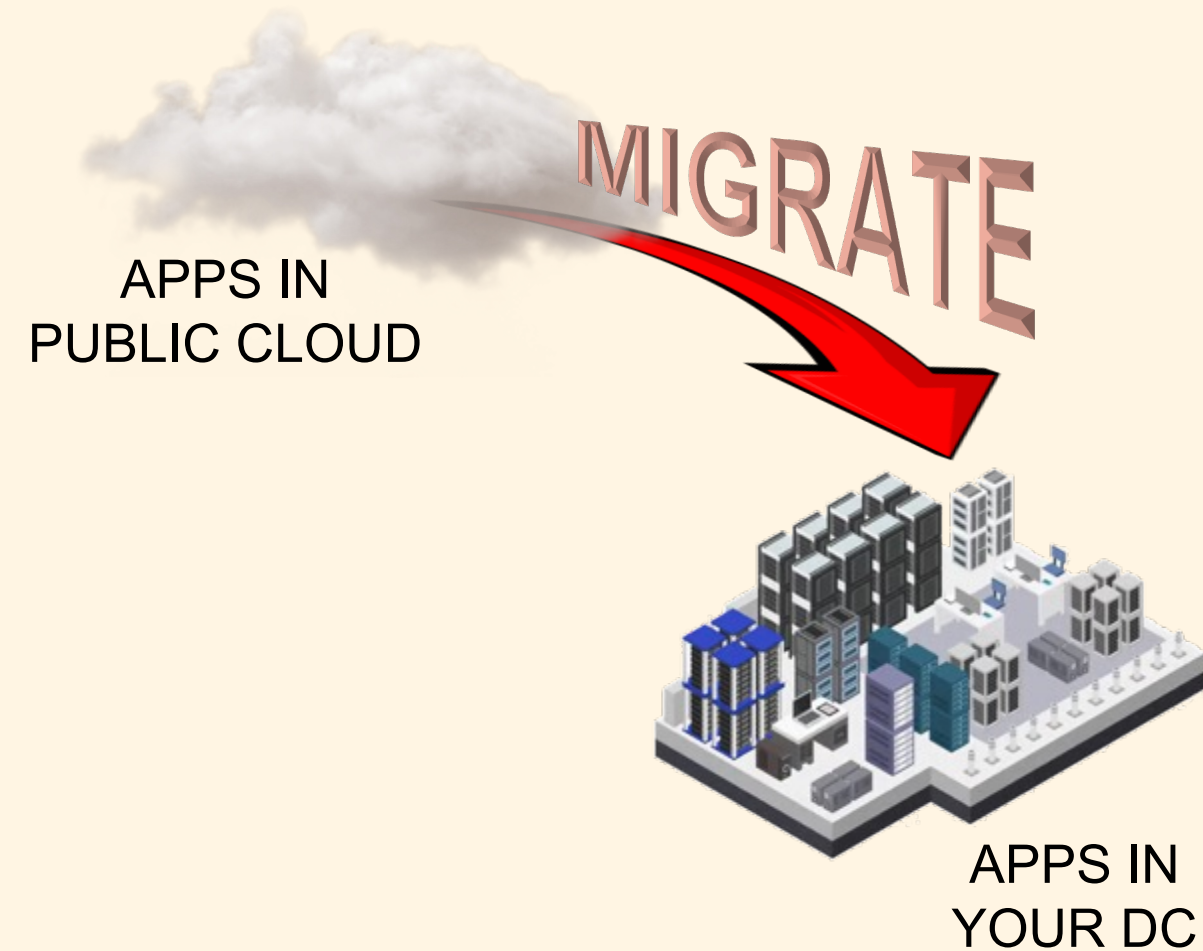
IT IS JUST

SOMEONE ELSE'S

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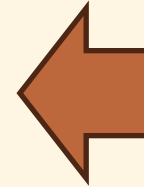


SCENARIO 1: Data mobility – Cloud exit scenario



What actually has to move?

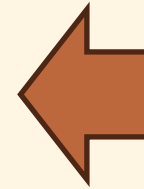
K8s
Can do
This



- Deployment
- Service
- ConfigMap
- Secret

But also:

Nor K8s
Nor CSI
Does
This

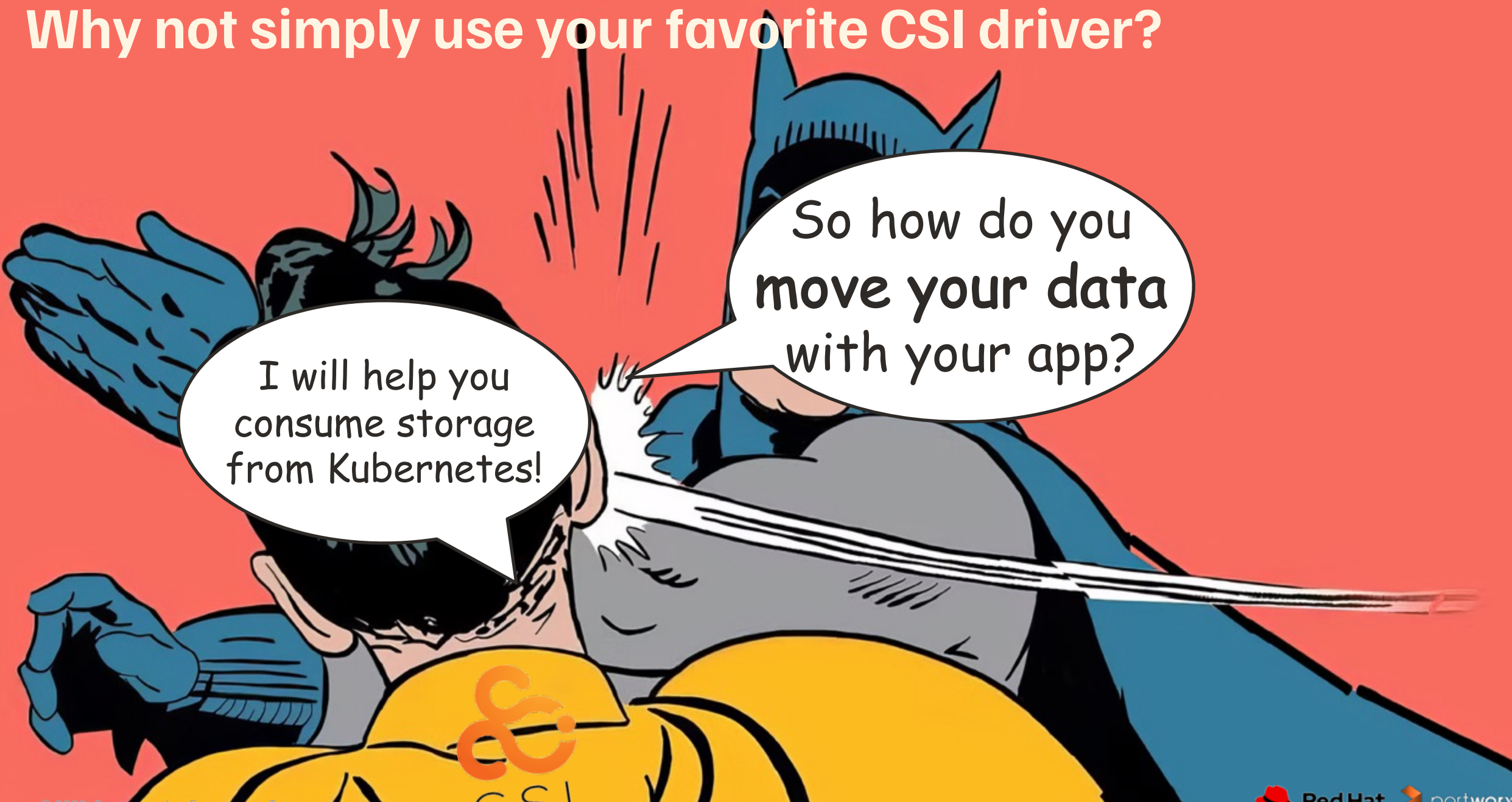


- Persistent volumes
- Database state
- Application consistency
- Storage configuration
- Recovery point
- Dependencies

Why not simply use your favorite CSI driver?



Why not simply use your favorite CSI driver?



I will help you
consume storage
from Kubernetes!

So how do you
move your data
with your app?



Why not simply use your favorite CSI driver?

→ CSI is a Necessity

It will help you
consume storage
from Kubernetes!

So how do you
move your data
with your app?

Not a Sufficiency

Scenario 2:



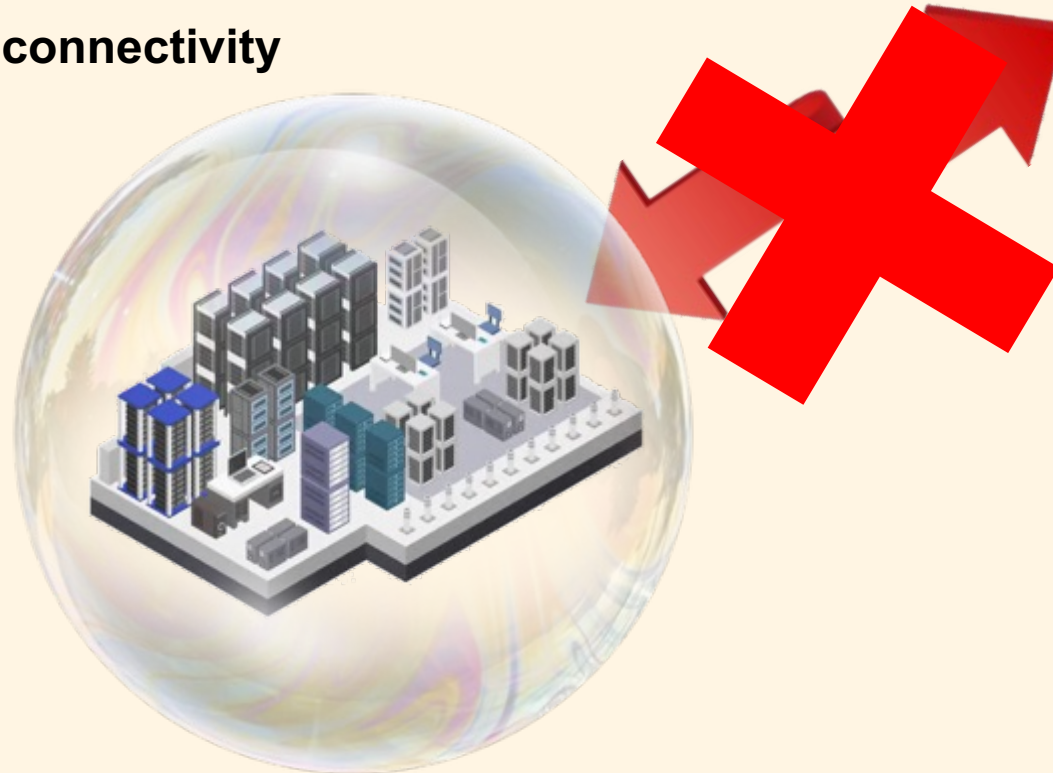
Scenario 2: Disconnected / Air-gapped K8s

Sovereignty isn't only a legal problem



Some environments can't have external connectivity

- Defense
- Critical Infrastructure
- Industrial environments
- Regulated environments



“What happens when your cloud-native platform has to operate without the cloud?”

Who can access what?

Multi-tenancy, Encryption at-rest and in-flight



Encryption At-Rest

0 1 0
0 0 1
1 0 0
0 1 0
0 0 0
1 1 0
0 0 1
1 1 1
0 0 0
1 1 0
0 0 1



- CSI just “connects” →
- Block data leaves K8s unencrypted.
- Encryption now relies on the storage device underneath

Encryption In-Flight

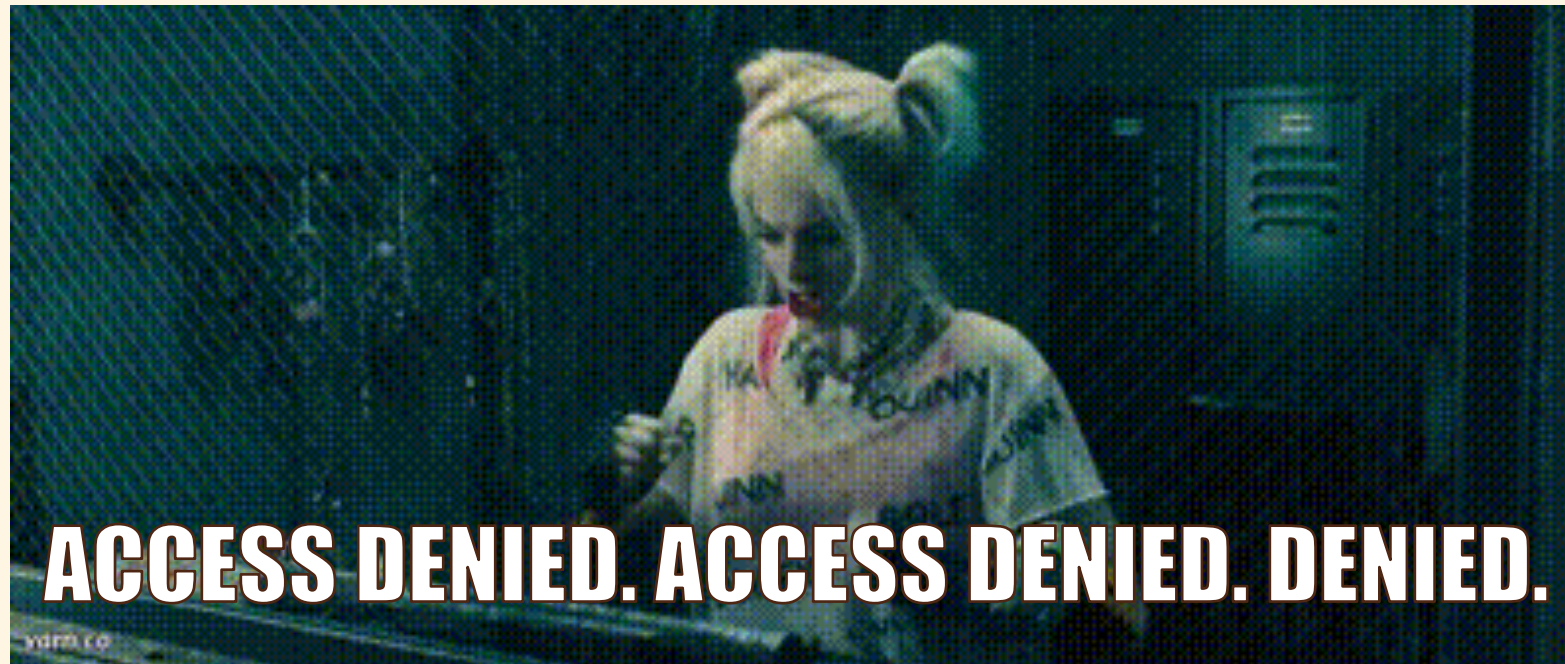
Portworx sits in the data path inside Kubernetes providing encryption,

→ Data leaves Kubernetes Already Encrypted



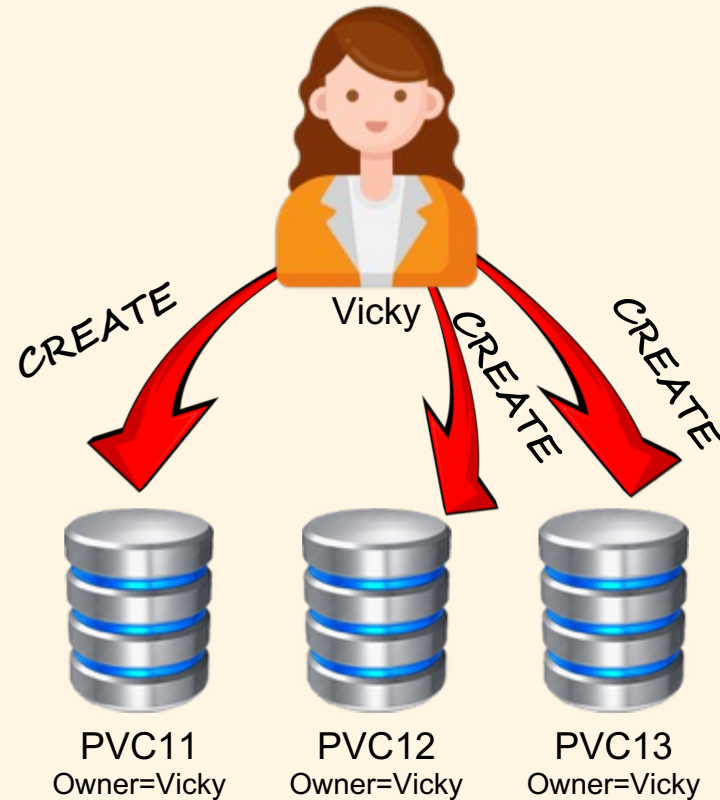
Keys are Cluster-wide
or unique per PVC

Multi-Tenancy and Role-Based Access (RBAC)



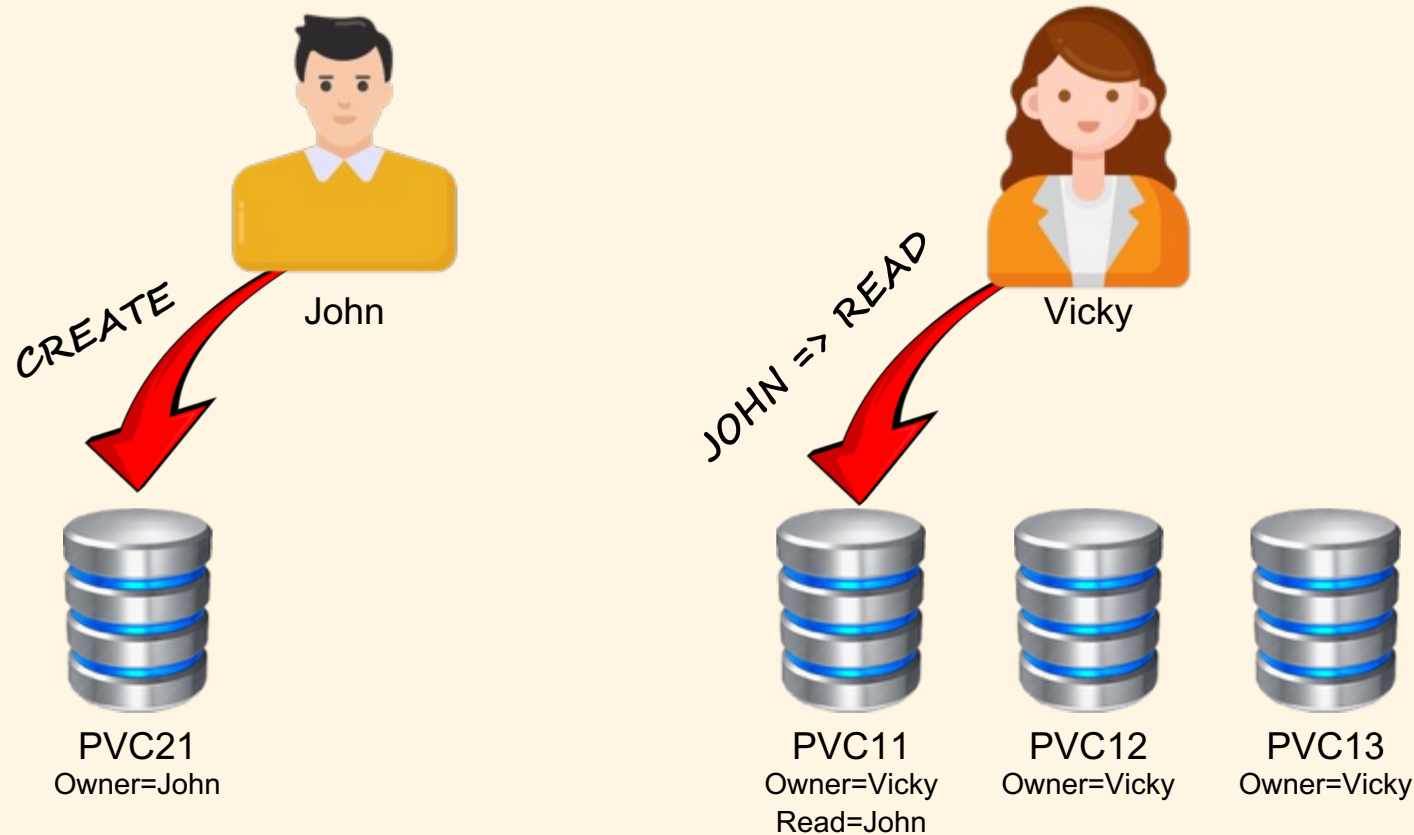
Sovereign Control Built on Kubernetes Principles

Kubernetes-aligned RBAC and multi-tenancy provide scoped access, tenant isolation, and delegated administration



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John



Vicky



PVC21
Owner=John



PVC11
Owner=Vicky
Read=John



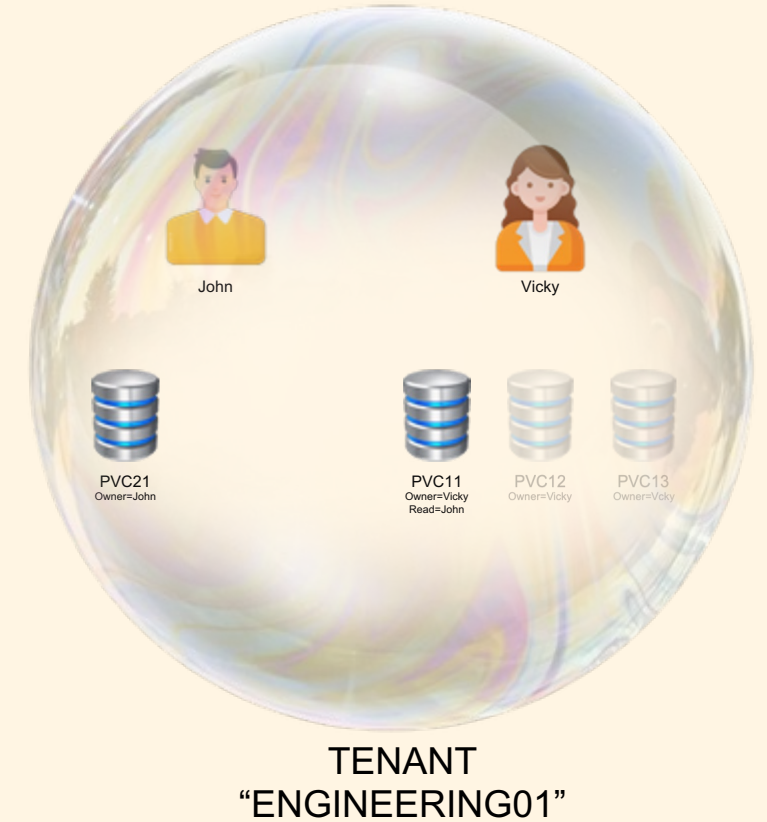
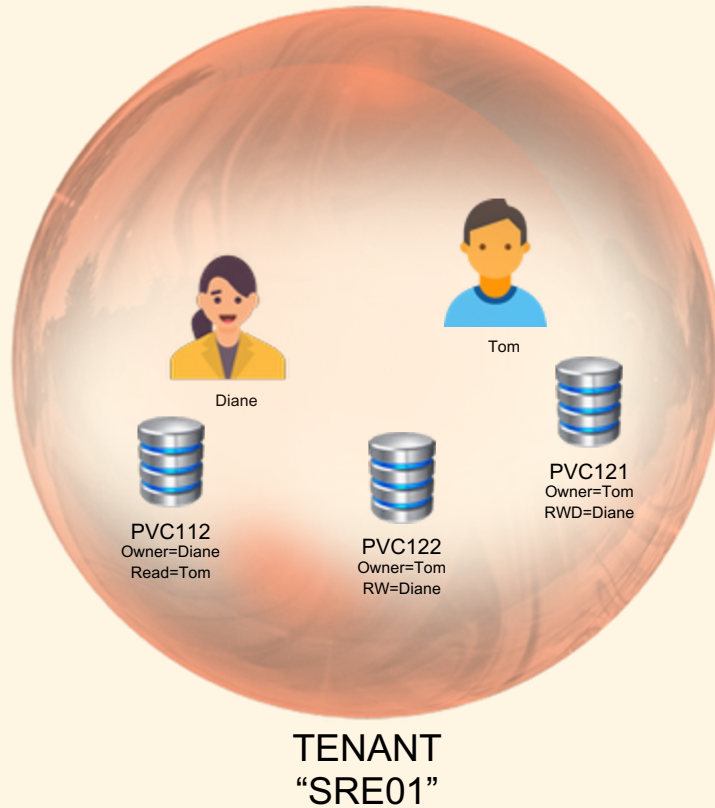
PVC12
Owner=Vicky



PVC13
Owner=Vicky

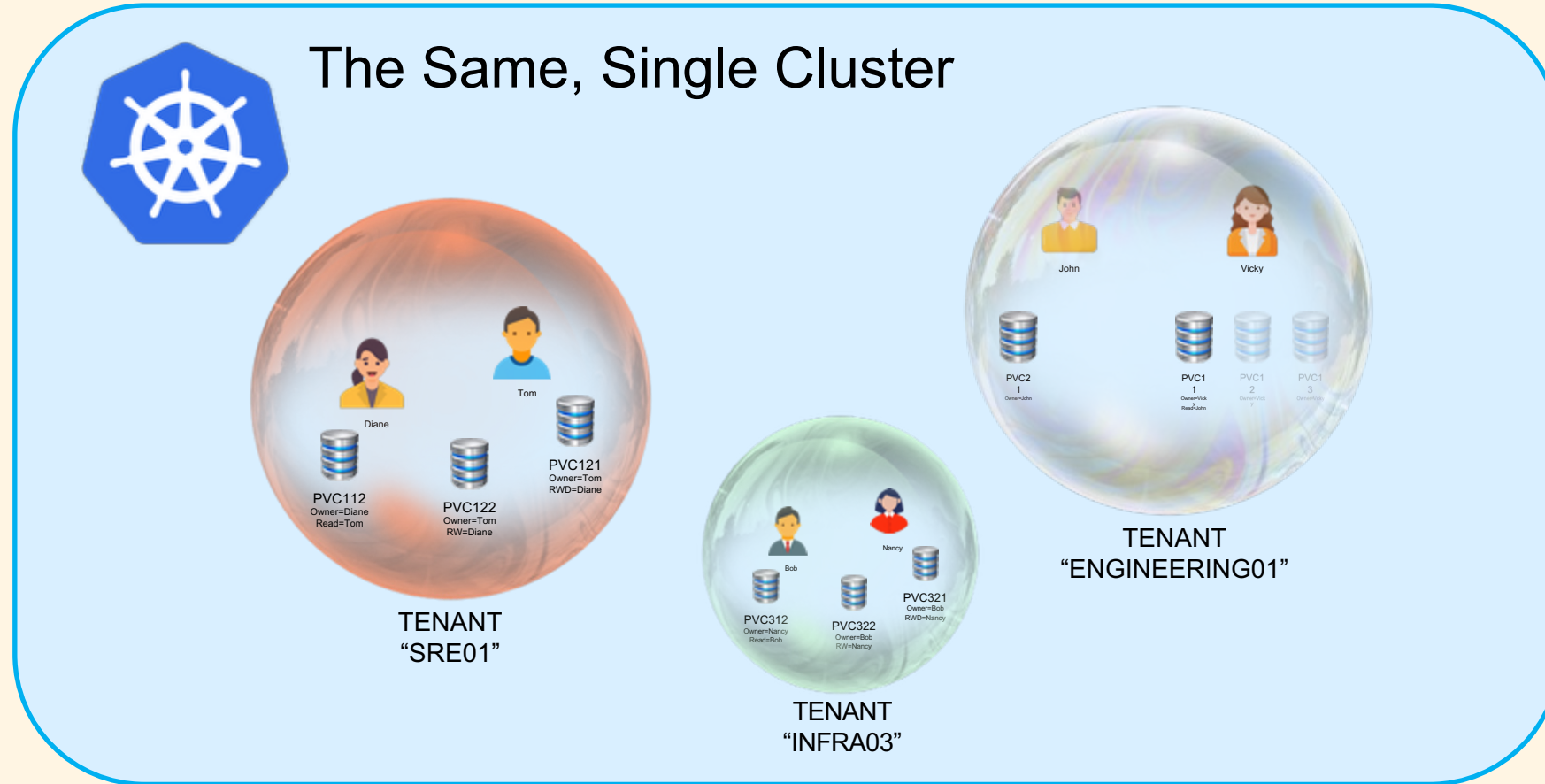
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Sovereign Control Built on Kubernetes Principles

Kubernetes-aligned RBAC and multi-tenancy provide scoped access, tenant isolation, and delegated administration



Sovereignty benefit: Enables tenant-scoped control and delegated operations without cross-tenant visibility / access

Cost benefit: Gain efficiency by not always a need to build many small clusters

Keys stay yours, in a jurisdiction you choose

KEYS ARE MINE, MINE! MY PRECIOUS!

GOING MULTI-SITE

Migration, Resilience, Data Continuity & DR

Because
Sovereign data
should not live
in Mordor

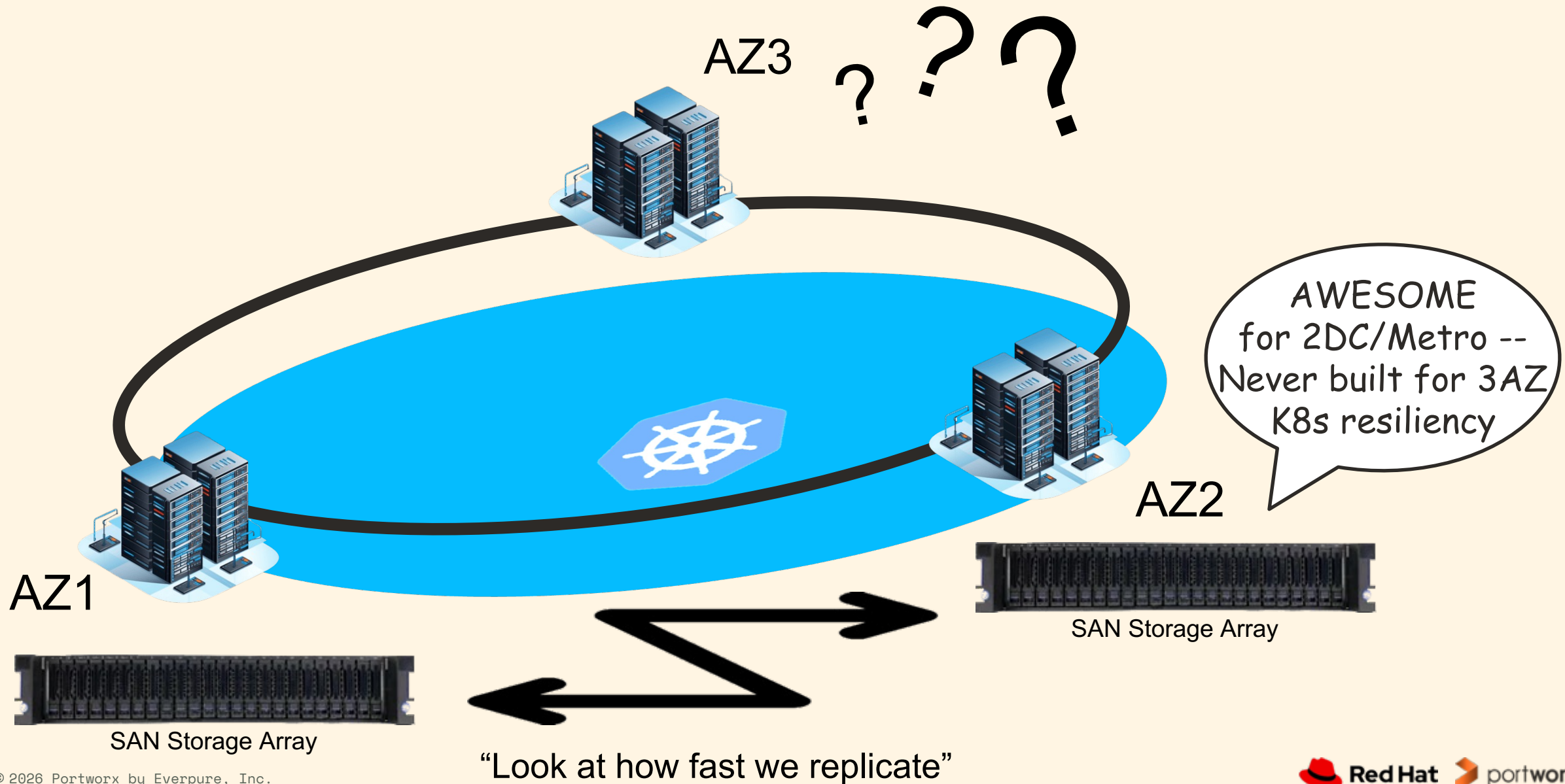
(unless it sits on SauronDb™ )

A full-page background image featuring Dr. Evil from the Austin Powers film series. He is bald, has a wide-eyed, intense expression, and is wearing a grey turtleneck. He is holding a large black rolled-up document behind his back with both hands, and he is making peace signs with both hands. The background is a dark, slightly out-of-focus interior.

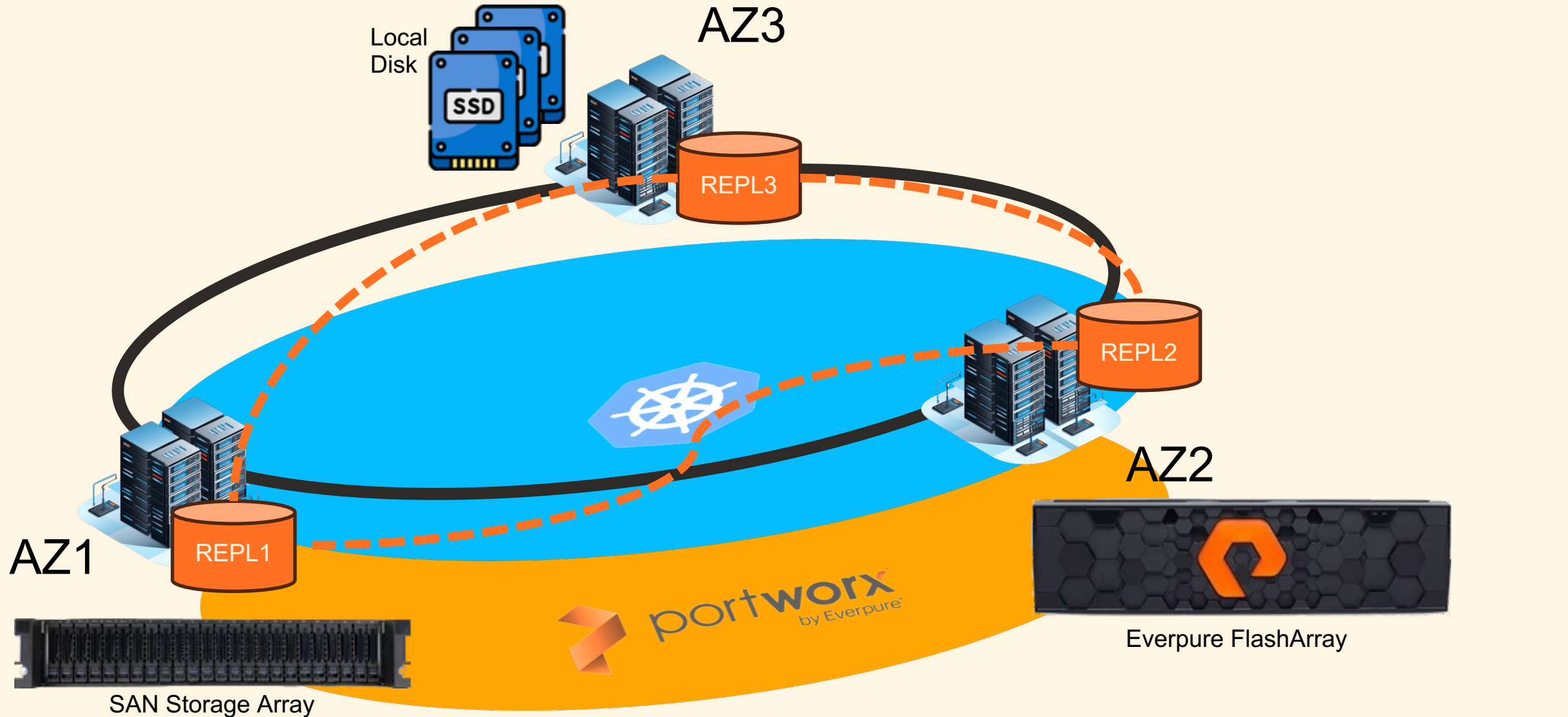
Multi-site Resilience

“THE MODERN HIPSTER WAY”

Multi AZ Kubernetes with CSI?



Multi AZ Kubernetes the Portworx way

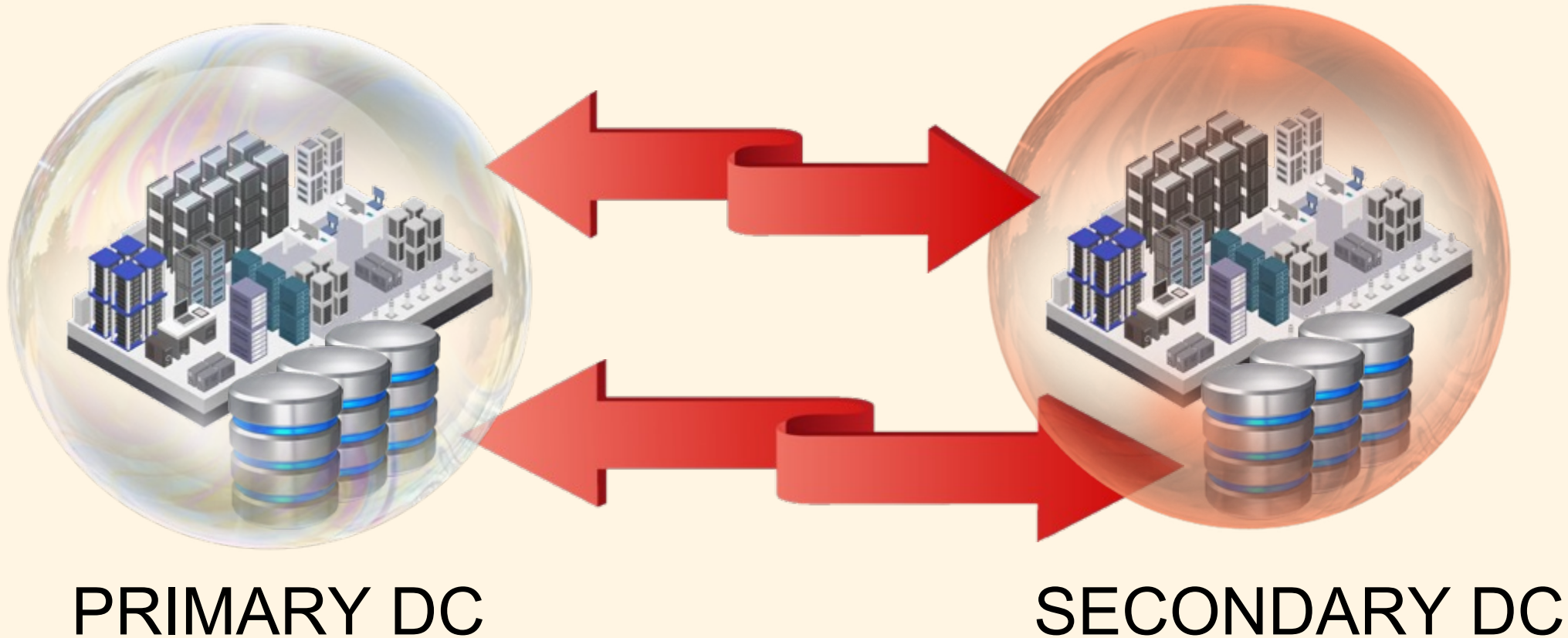




Multi-site
Resilience

“THE CLASSIC WAY”

Multi-Site Resilience: The classic way



- K8s we keep separate
- But WHO will replicate the compute?
- And WHO will replicate the data?
- Who will automate the failover?

DR is more than just storage replication. Consider:

**Non-Uniform
Infrastructure**



How to replicate
between different
Infra's?

How to replicate
The K8s objects
across?



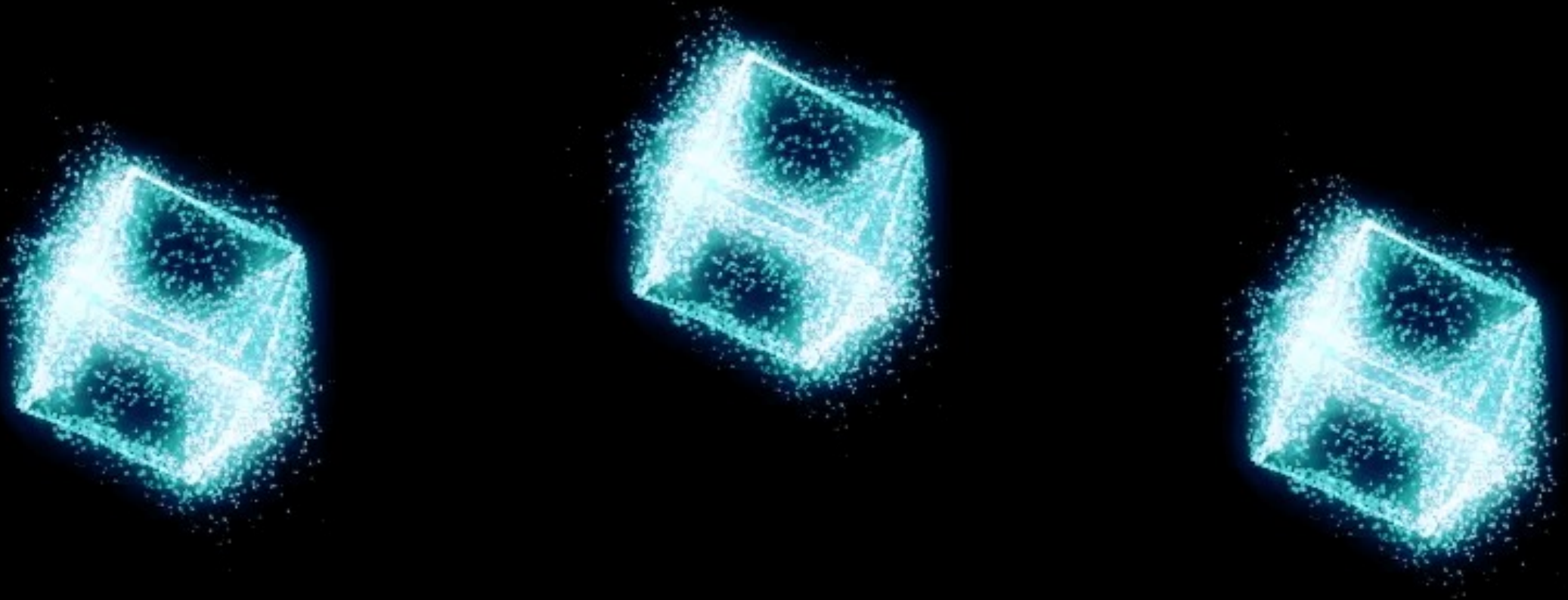
**WHO BUILDS THE
FAILOVER BUTTON?**



portworx
by Everpure™

CAN HELP!

What about Red Hat OpenShift Virtualization?



Is “*data*” identical for containers and VMs?



“The data layer shouldn’t have to care whether the app is a VM or a container.”

portworx[®]

SO MUCH COOL STUFF

and so little time

Sovereign? But... Portworx is part of Everpure... **Which is a US company?!?**

TRUE

But Portworx can run Air-gapped by design, with no phone-home required

MSP customer quote:

“Portworx basically resolves **all our hurdles** to sovereignty except the product itself. And we can mitigate for that one.”

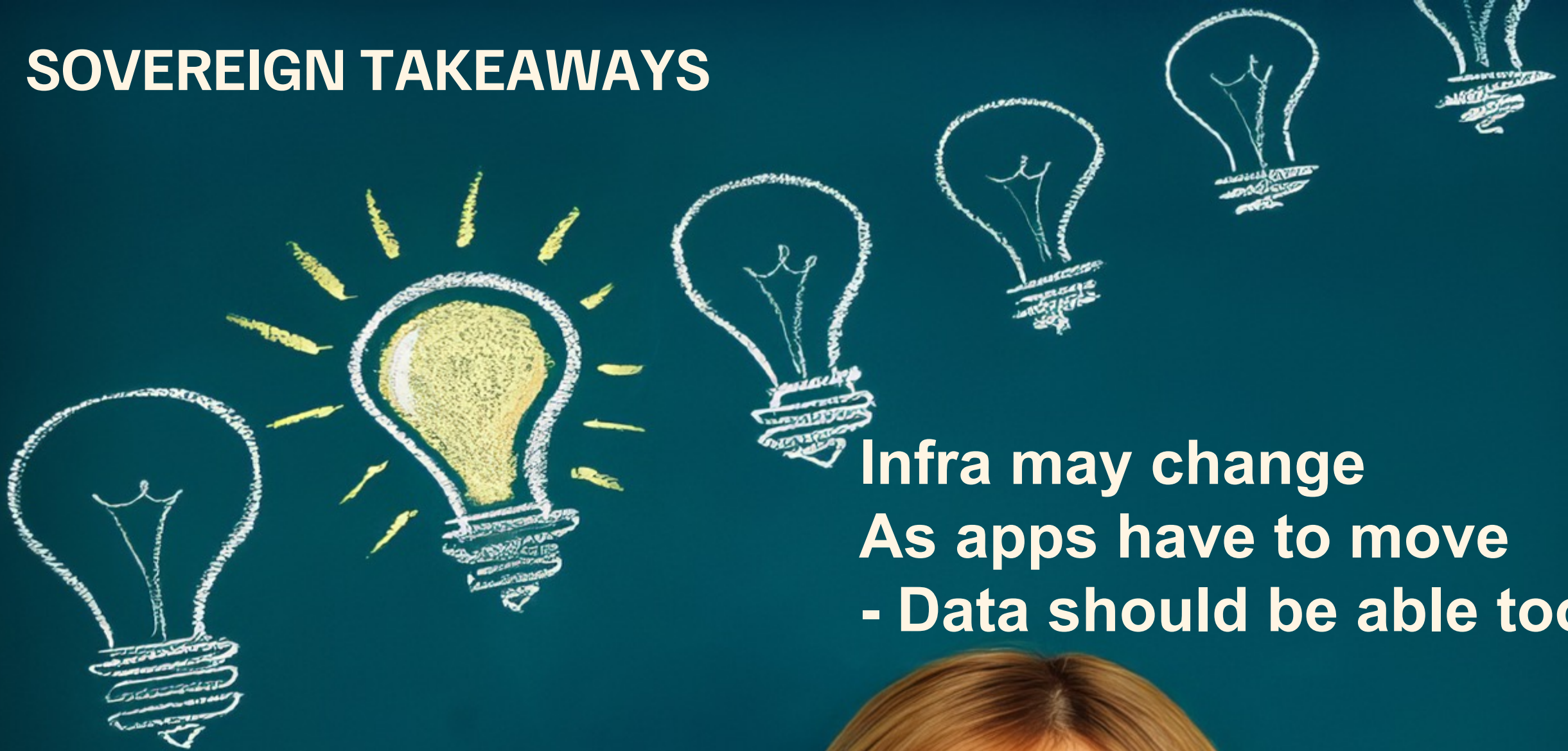
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But Portworx can run Air-gapped by design, with no phone-home required

“You Own it, You Run it”

SOVEREIGN TAKEAWAYS



**Infra may change
As apps have to move
- Data should be able too!**

SOVEREIGN TAKEAWAYS

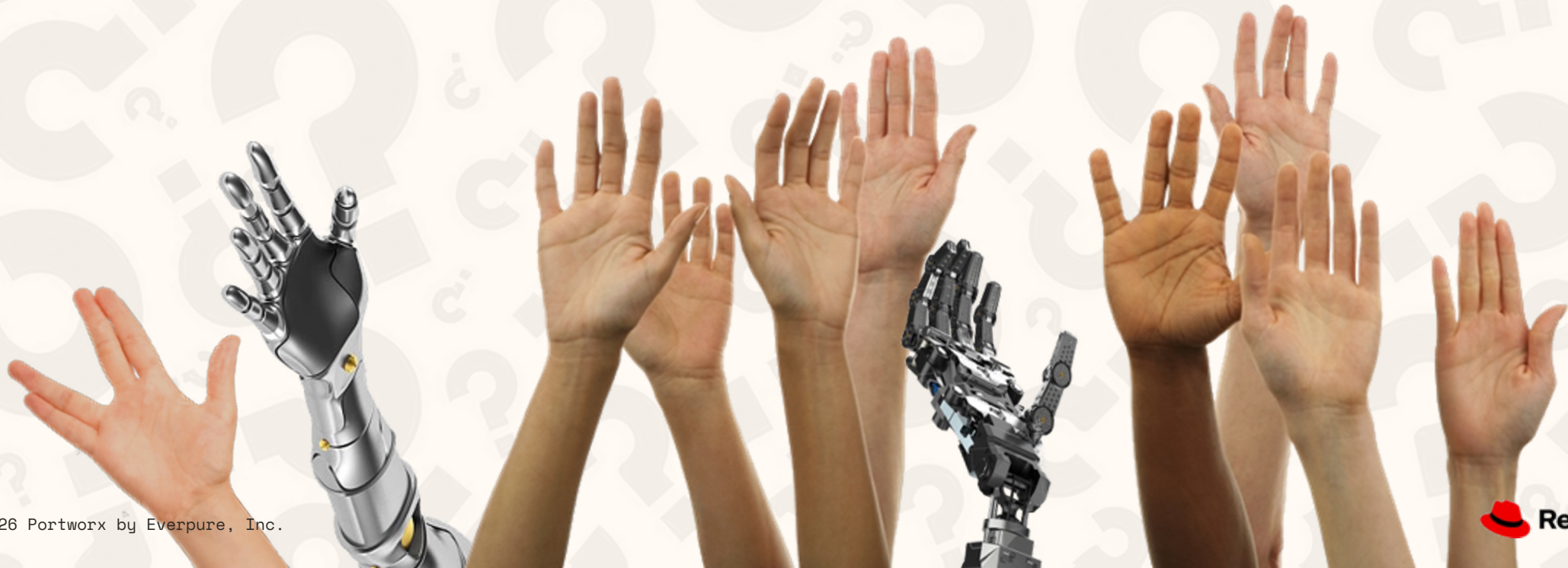


Stay in control: Compute and Storage need to work as one.



Questions?

Come find me afterwards!



THANK YOU



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