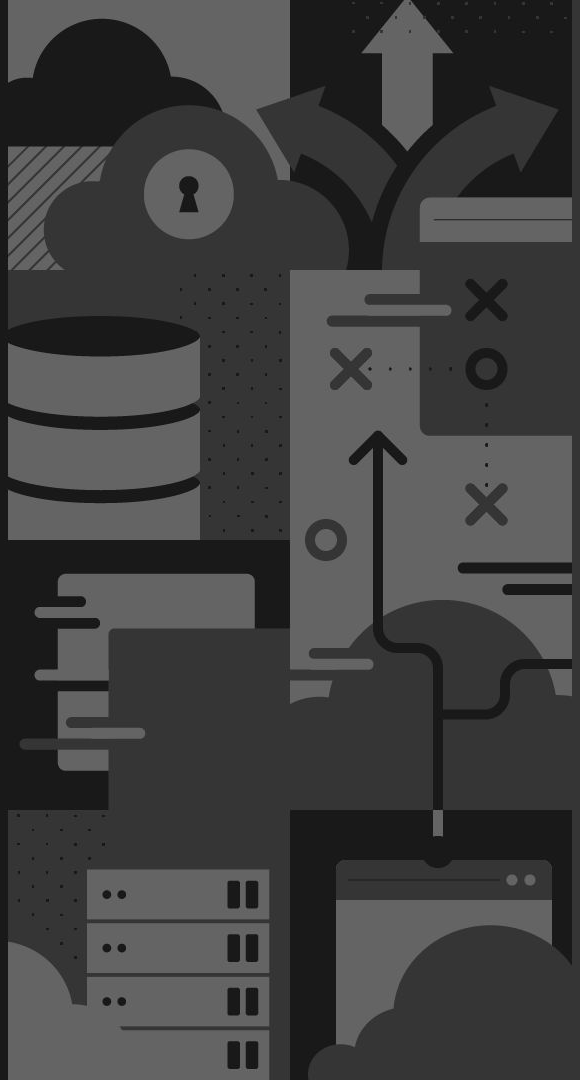
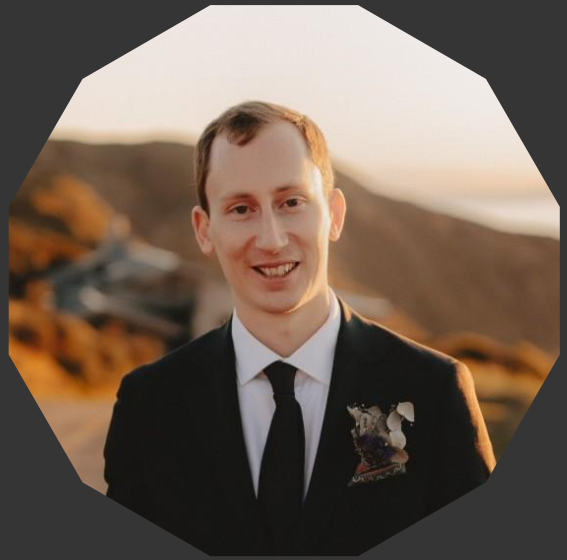


Connecting clouds the easyier way

James Blair

Specialist Solution Architect, Red Hat

Who am I??



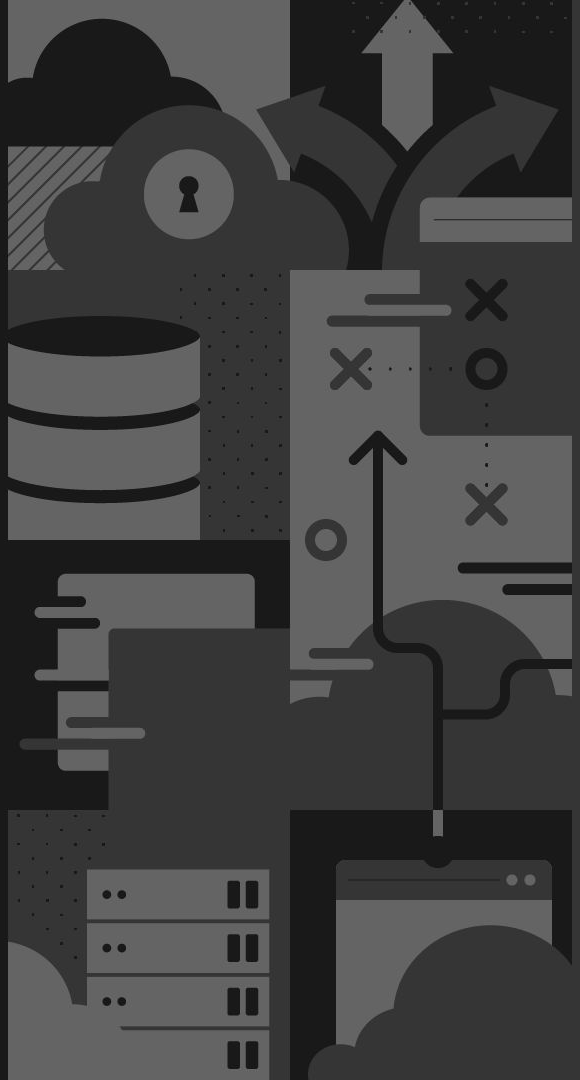
- Open source enthusiast & contributor.
- Kubernetes cluster pipeline plumber.
- Specialist solution architect @ Red Hat.

Contact
james.blair@redhat.com

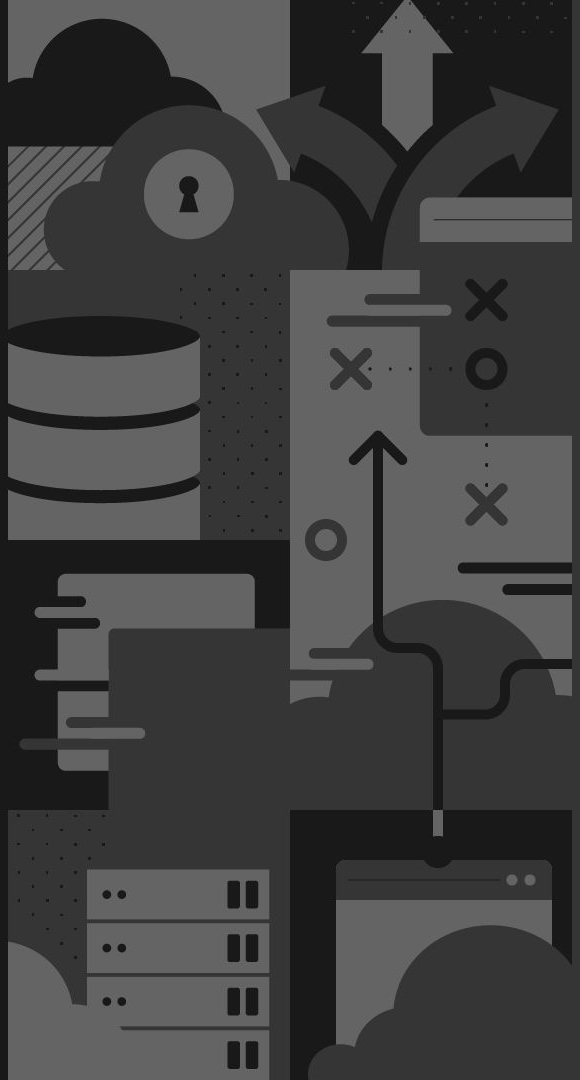
Github
https://github.com/jmhbnz

What we'll explore today

- Challenges of adopting cloud native
- Introduction to skupper
- Live demo of a progressive cloud native adoption with skupper



Challenges of adopting cloud native

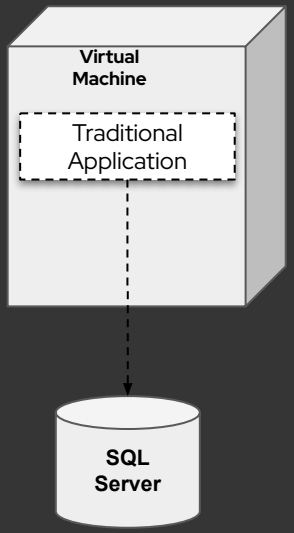


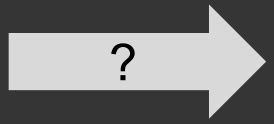
Challenges of adopting cloud native

6R's

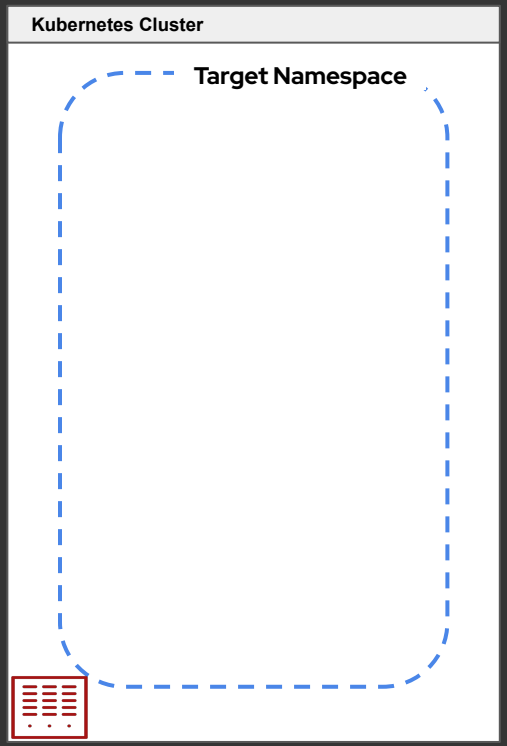
- Six different approaches we can take when considering modernising an application.
- Different approaches for different applications. No one size fits all approach.
- Whatever your approach, there is almost always cost and complexity caused by moving constituent parts to a new location.

Common scenarios

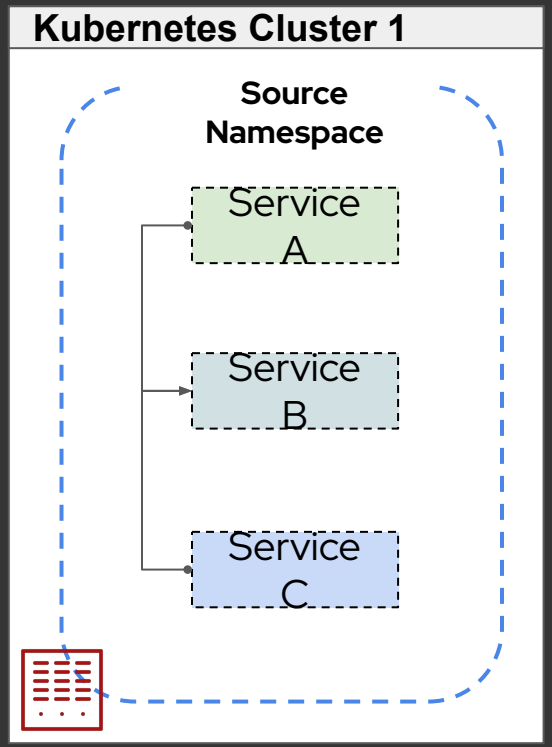


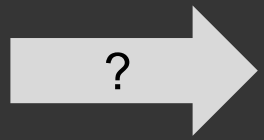


How do you replatform or refactor the monolith in the most efficient way possible?

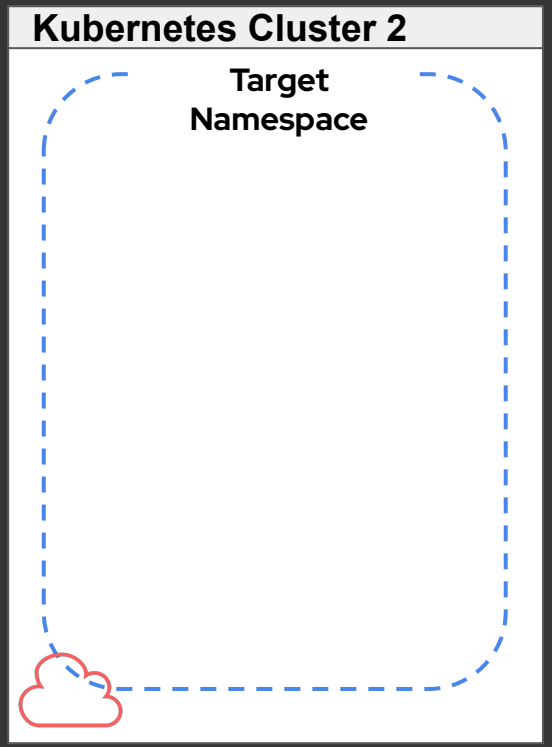


Common scenarios

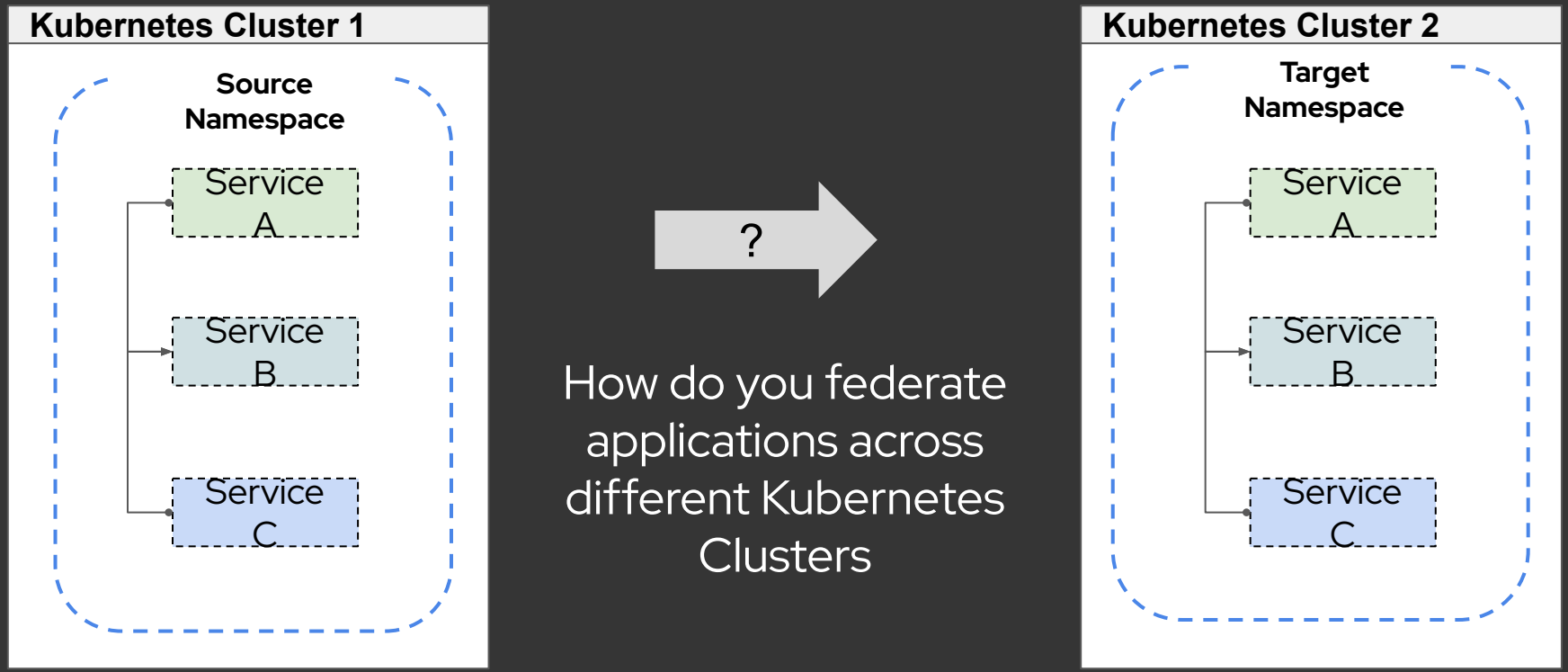




How do you rehost the workloads from cluster A to cluster B in the most efficient way possible?

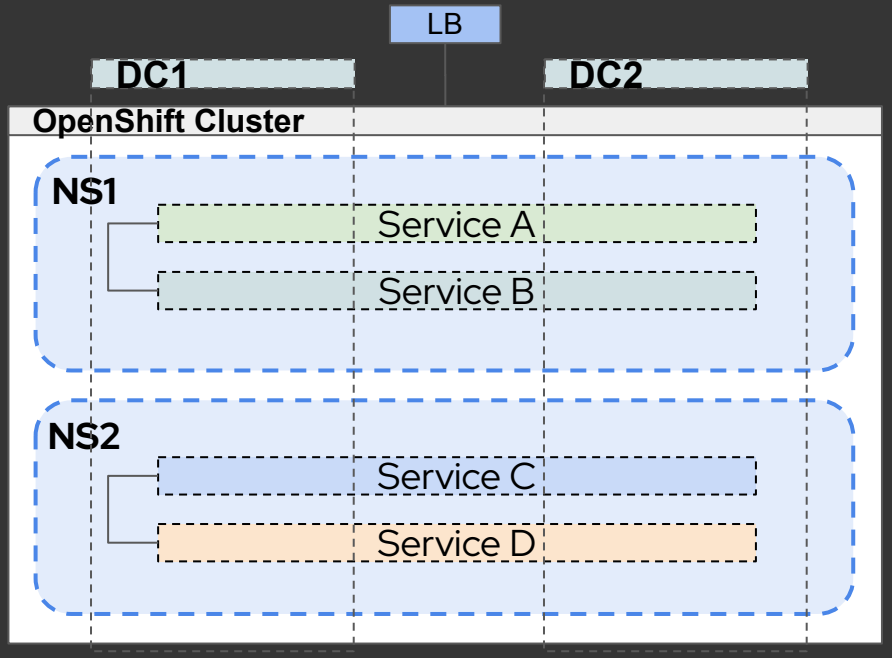


Common scenarios



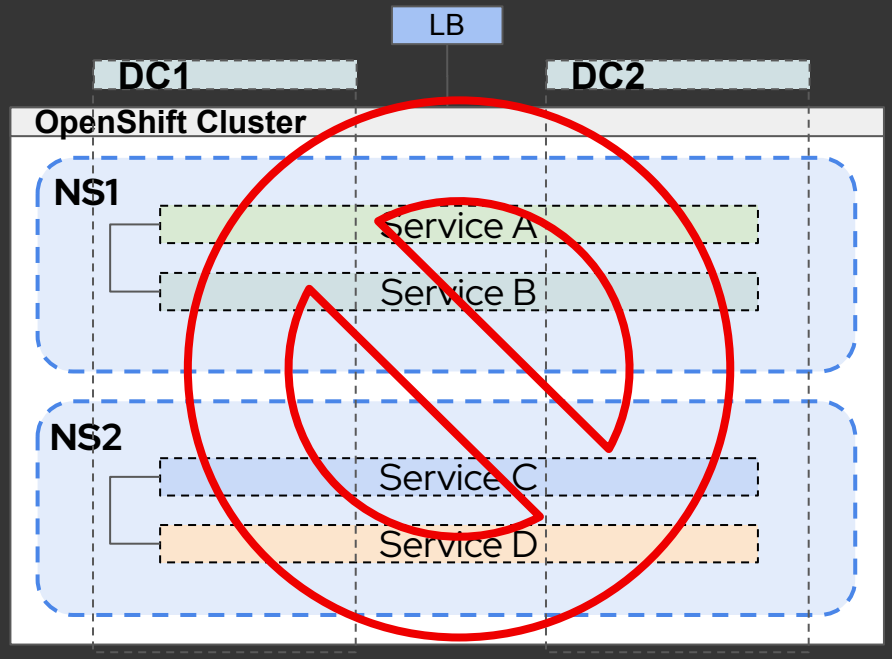
Some existing approaches

- Stretch cluster across sites.



Some existing approaches

- Stretch cluster across sites.
  - Puts etcd at pretty extreme latency risk
  - Huge blast radius if you lose the cluster
  - Complex (costly, lengthy) design and implementation.

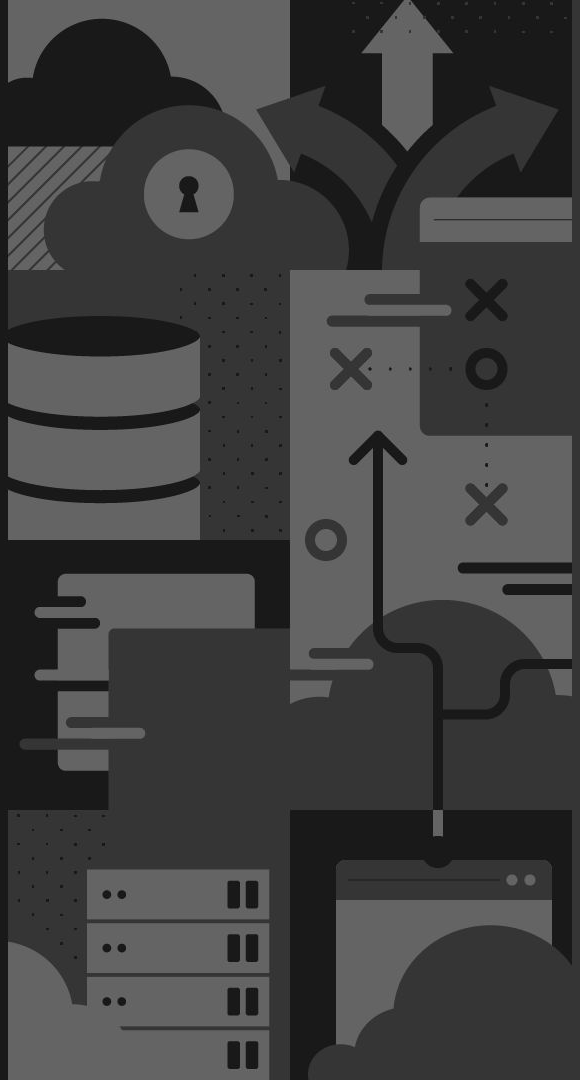


Some existing approaches

- Multi cluster service mesh (istio multi cluster, linkerd multi cluster, cilium mesh)

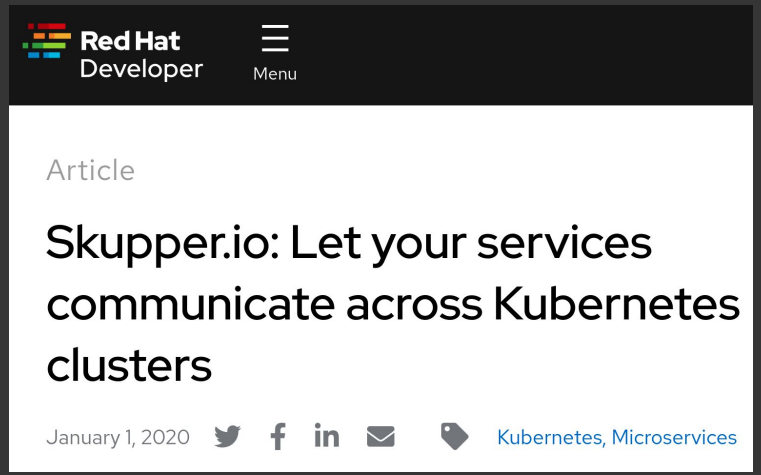
Some existing approaches

- Multi cluster service mesh (istio multi cluster, linkerd multi cluster, cilium mesh)
  - Might not be CNI agnostic, i.e. Cilium needs to be present on all clusters.
  - Heavy implementation i.e. may involve sidecars for workloads.
  - Complex (costly, lengthy) design and implementation.



A new way...

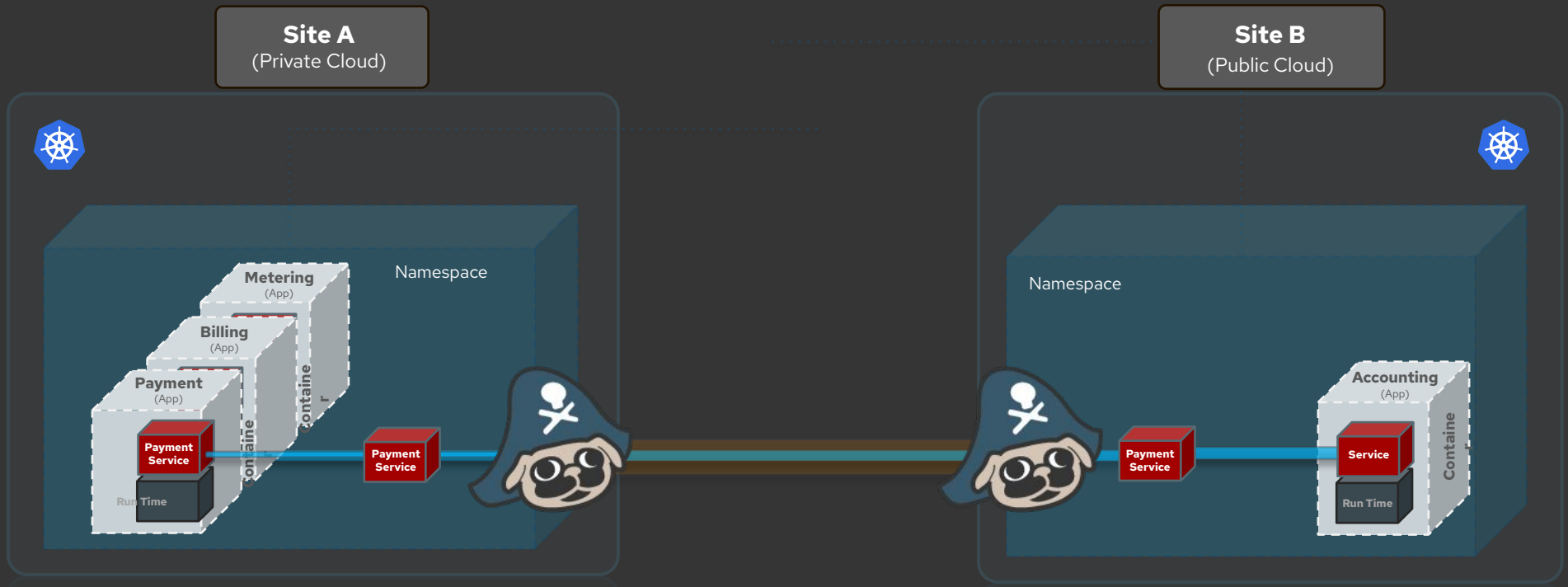
Connecting clouds with skupper



Background

- Open source project, written in Go: https://github.com/skupperproject
- First release 2020, 1.0 Release May 2022.
- Skupper is a Layer 7 service interconnect. It enables secure communication between locations with no VPNs or special firewall rules.
- Creates secure **virtual application networks** to connect **any service** running **anywhere**.

Virtual application network

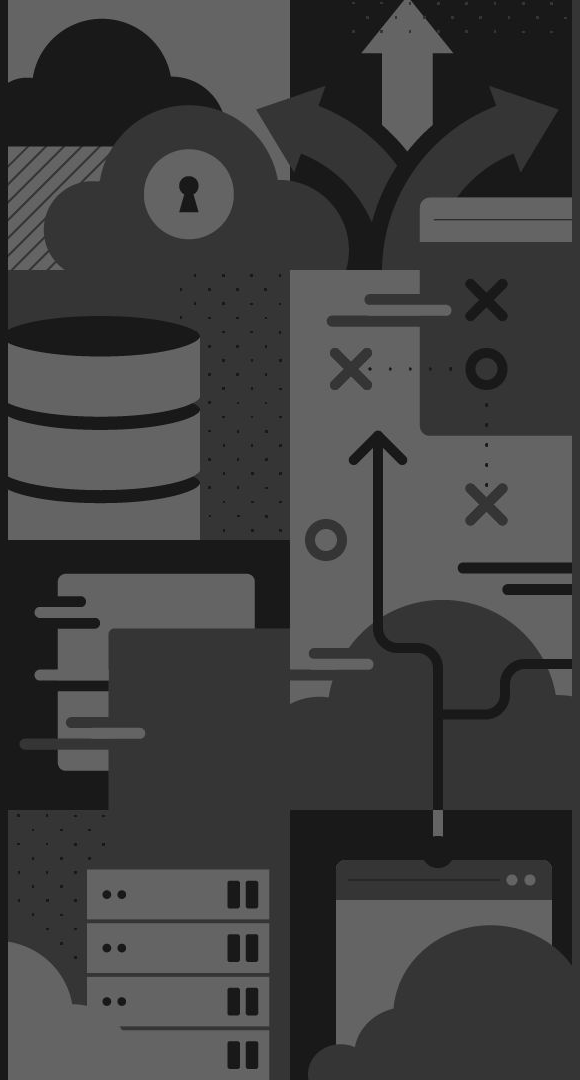


Why should we care - Technical

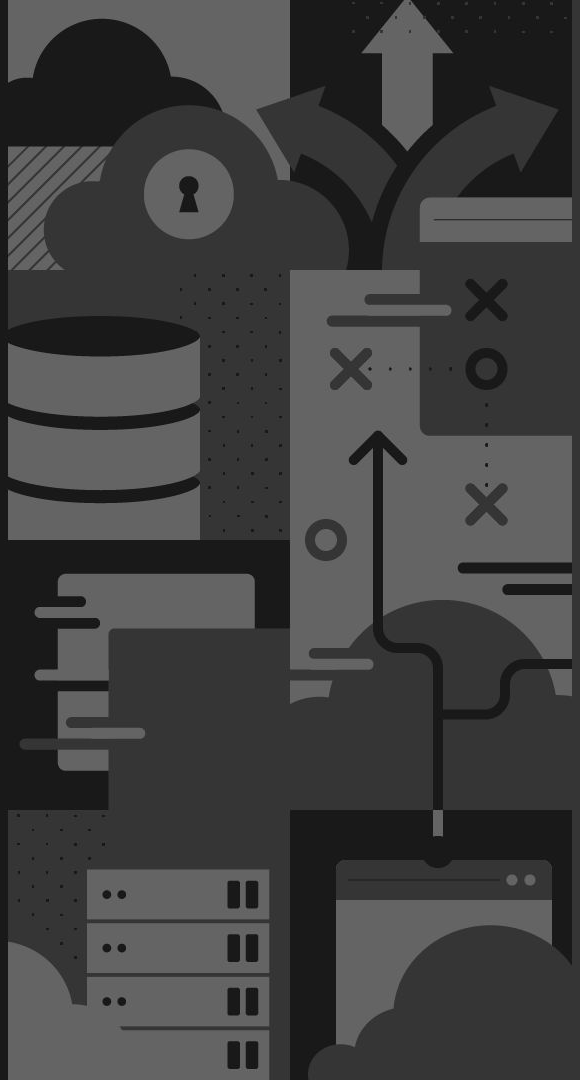
- **Simple** - No application changes, no sidecars, no cluster admin privileges, just a namespace and a `skupper init` to spins up the two lightweight skupper pods.
- **Flexible** - Supports transparent HTTP, gRPC or TCP communication. Works anywhere, including traditional vm environments outside kubernetes.
- **Secure** - mTLS between locations and no need to expose service ports to the internet. Reduced attack surface and blast radius.
- **Efficient** - Implements cost based routing across your network topology.
- **Resilient** - Dynamic load balancing based on service capacity. Will pick alternative routes automatically in the event of a network failure.
- **Stable** - Based on AMQP which has been around since 2006 and is now an ISO standard.

Why should we care - Business

- **De-risk** - Complete cloud migration actions in small chunks with less blockers.
- **Data protection** - Take the time to better address data sovereignty concerns.
- **Reduce costs** - Cloud migrations requires less upfront investment.
- **Speed to value** - Get to building customer facing features faster.



Connecting clouds with skupper - demo



Questions??

Thank you!