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Red Hat Service Interconnect

Is the network blocking your journey to hybrid cloud?

Phil Prosser

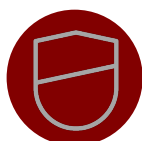
Specialist Solution Architect



Portable



Simple



Protected



Hybrid

What is Service Interconnect ?

Organisations today rely on applications everywhere

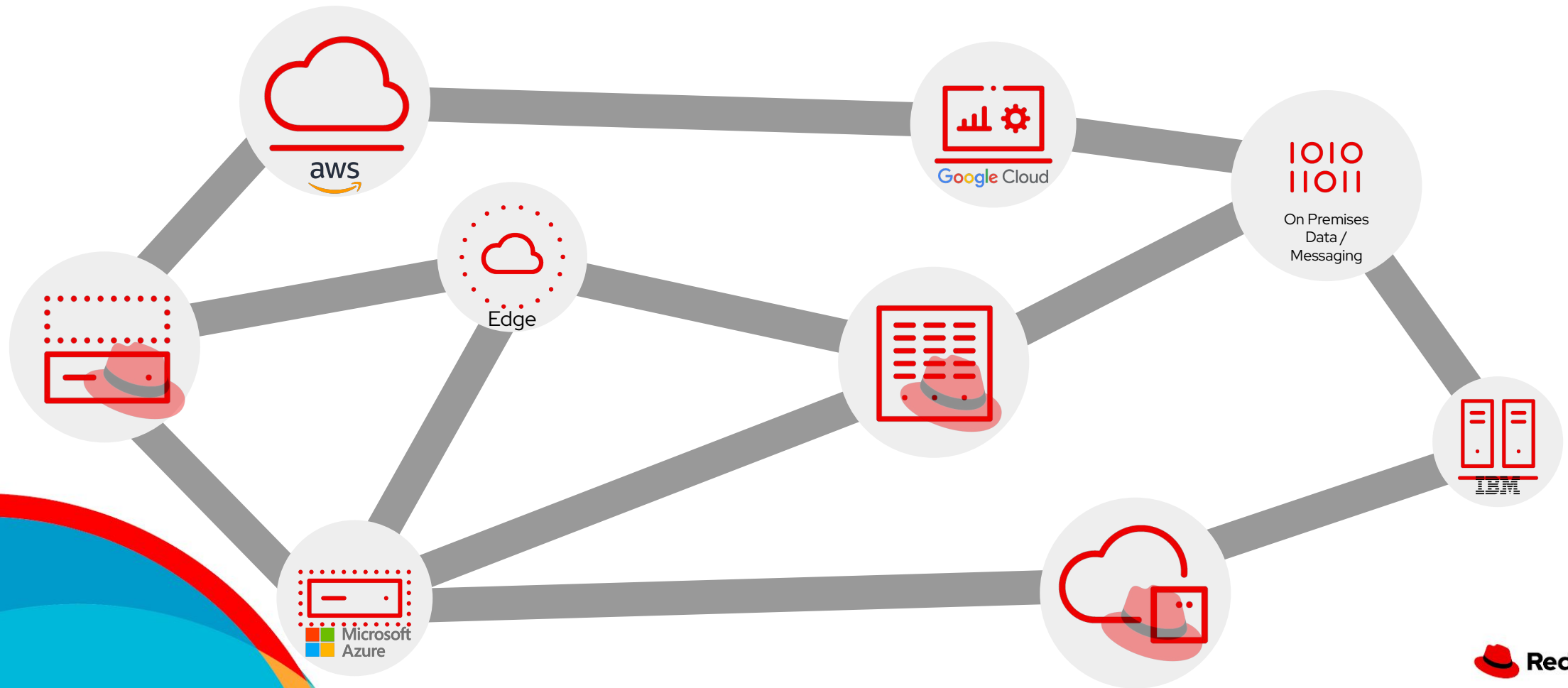
Each application resides in different environments



What is Service Interconnect ?

Interconnectivity delivers value

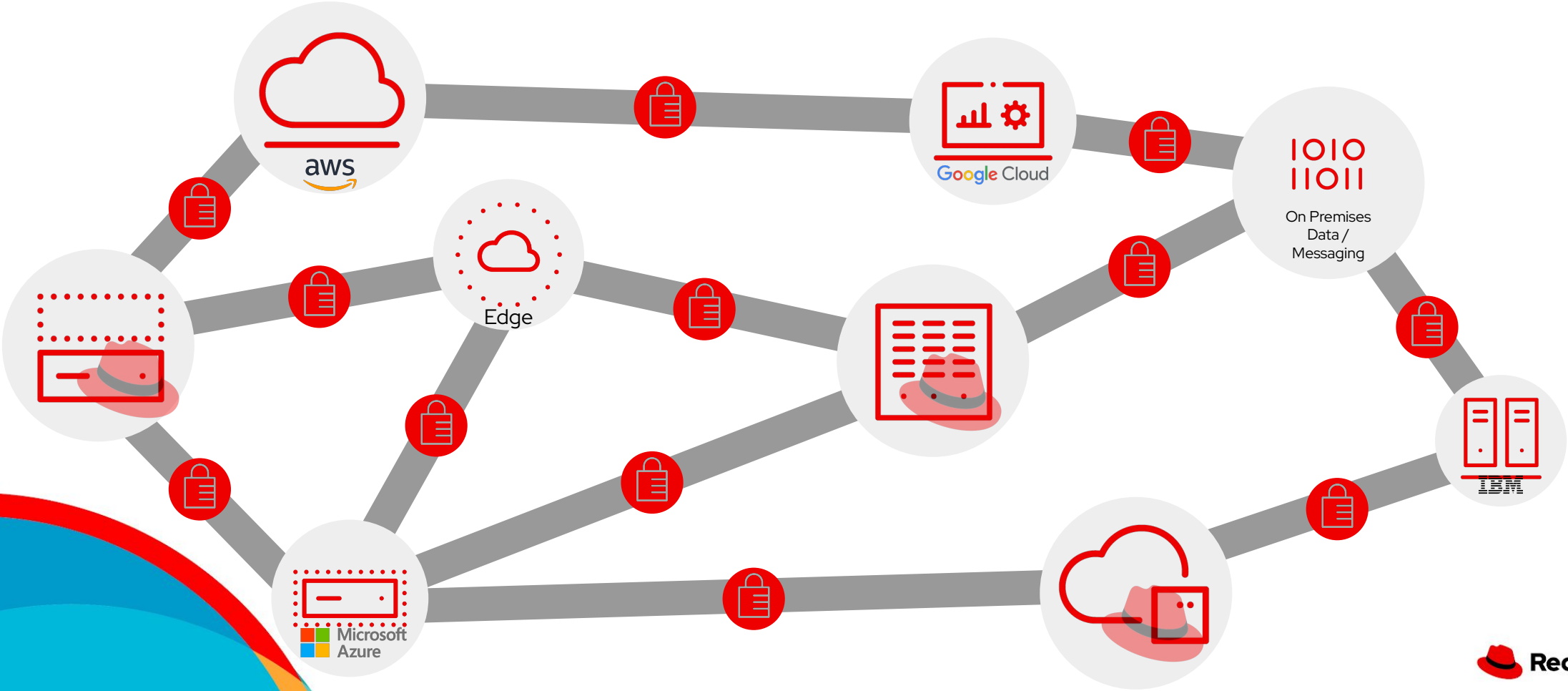
Combining different capabilities helps organizations deliver products and services.



What is Service Interconnect ?

Interconnections must be protected

Interconnections should not compromise the infrastructure or data



Some simple questions.... But not necessarily simple answers!



- ▶ Are you struggling to connect your applications together across hybrid environments, Geo's, dual data centres, edge...?
- ▶ Are you struggling to get your Cloud applications securely connected to your on premises applications/databases/legacy?
- ▶ How are you dealing with Cloud migration?
 - Is big bang a concern?
- ▶ Have you managed to build cloud portability into your cloud architecture? Are you worried about lock in?
- ▶ Are you trying to migrate from OpenShift 3 / xKS to OpenShift 4
- ▶ Do you need active/active services in different clusters / clouds
- ▶ Could punching out to cloud for additional capacity help every now and then - give a service more capacity and scale when needed

Connectivity

Portability

Scale / HA

Connectivity Options/Choices



Public IP Networks

- No network isolation
- No connectivity to sites behind NAT or Firewalls
- Each IP is a co\$t



Set up your own VPN network

- Network isolation
- Complexity (iptables and firewall rules)
- Hub-n-spoke topology
- Requires administrator privileges



Larger Provider Networks(AWS VPC)

- Network isolation
- Vendor lock in
- Requires cluster privileges
- Each connection is a co\$t



Red Hat Service Interconnect



Overlay Network (VAN)

- Fine-grained network isolation
- Low complexity
- Developer controlled
- Very low cost for additional resource

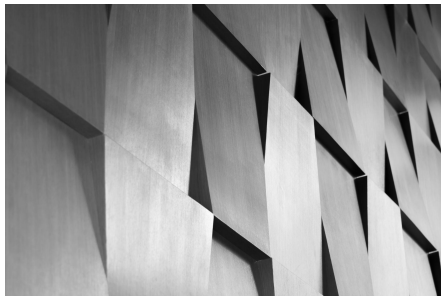


Red Hat



Red Hat Service Interconnect

Simple and secure application connectivity across platforms, clusters, and clouds



Application Focused Connectivity

Individual Apps running on virtually any platform can make native TCP calls locally to any other app running on any other platform securely without special VPNs.



Mutual TLS Encryption

Interconnections use Mutual TLS in order to prevent unauthorized interconnections.



Application Layer Abstraction

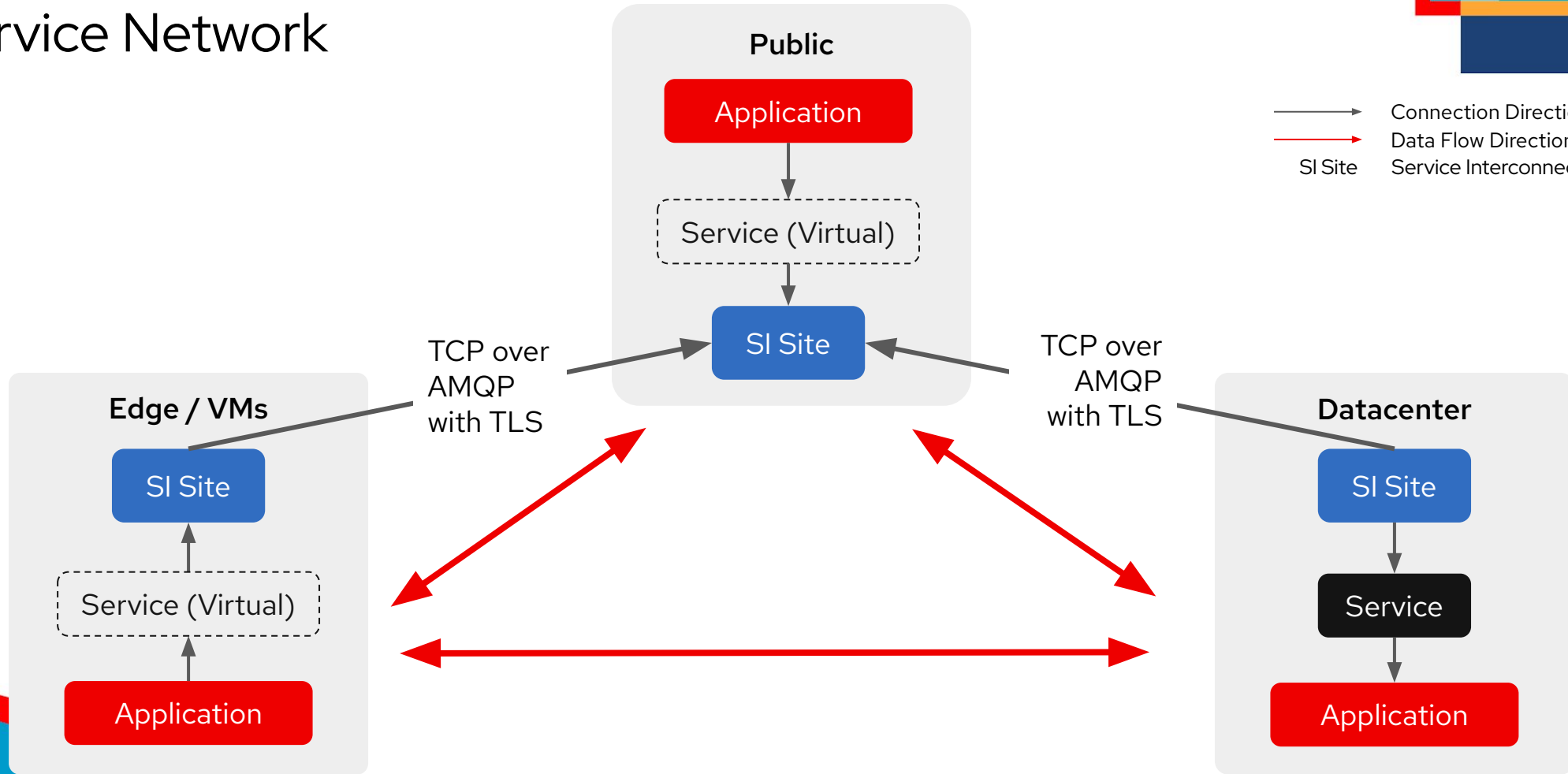
Agnostic of the environment and IP versions (such as IPv4 and IPv6) Enables portability for both applications and its associated networking. Migrations can be easily done without recreating the networking.



Layer 7 Addressing

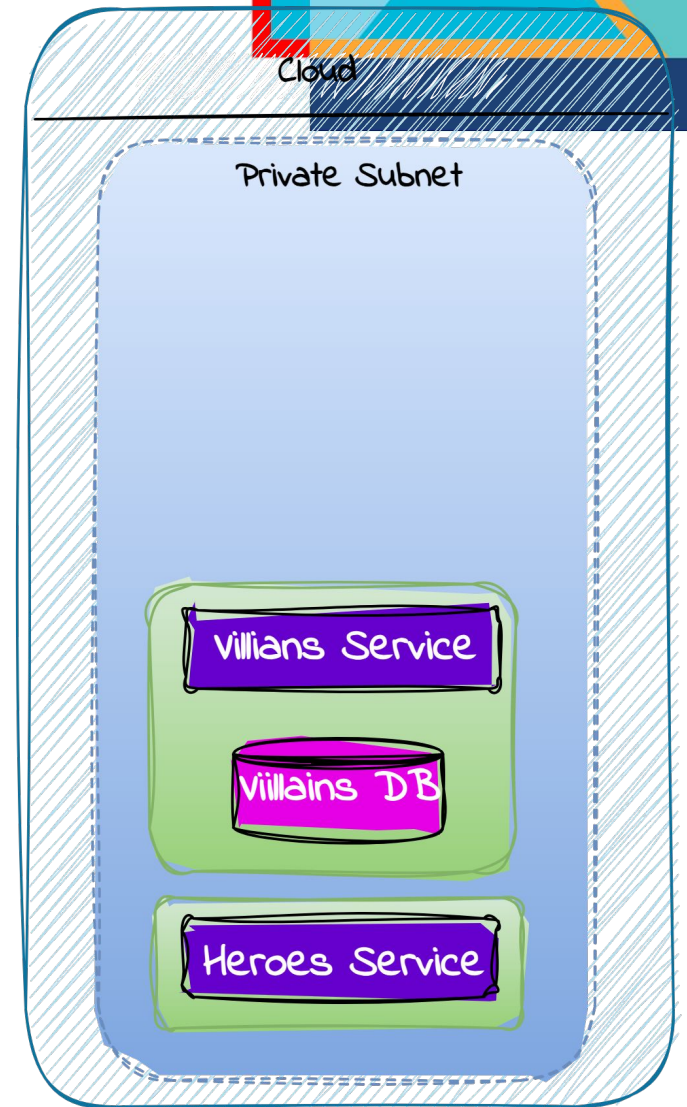
Instead of routing IP packets between network endpoints, Layer 7 application routers route messages between application addresses

Service Network



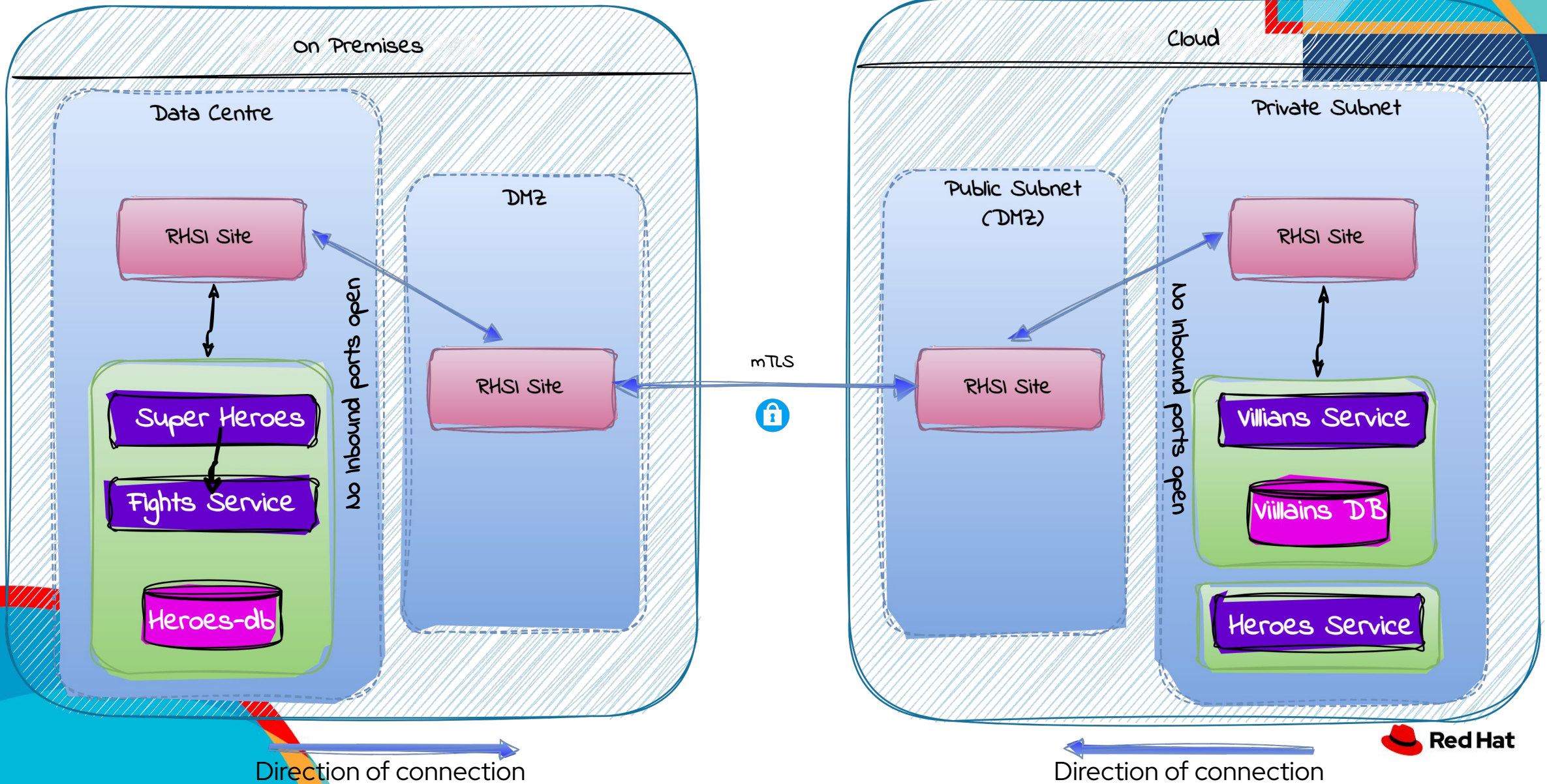
→ Connection Direction
→ Data Flow Direction
SI Site Service Interconnect Site/Router

Creating a secure, routable TCP connection across non routable networks

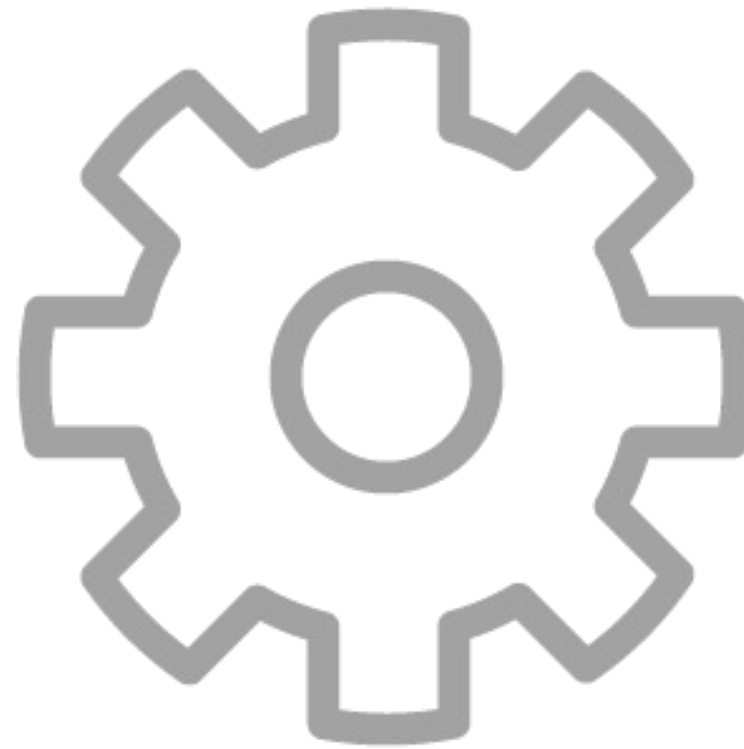
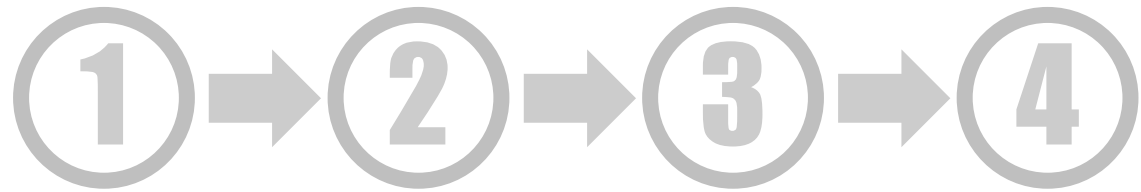


Creating a secure, routable TCP connection across non routable networks

“Connect the most private to the most public”



How to in 4 easy steps

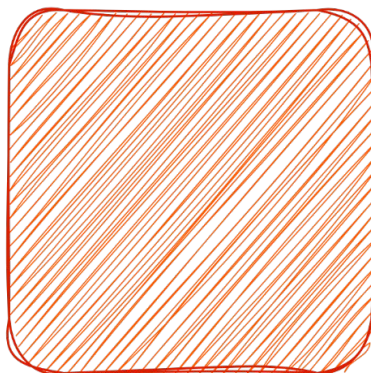


How to in 4 easy steps

Connect Services spread Across Different Environments



My Laptop



Public Cluster

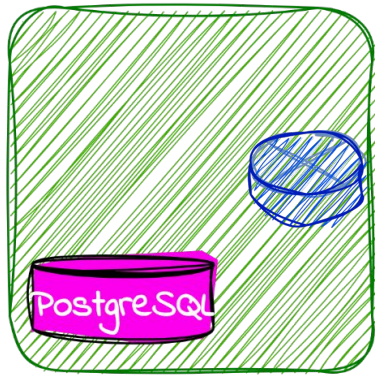


Private Cluster
intel.

Using Red Hat Service Interconnect in 4 Simple Steps

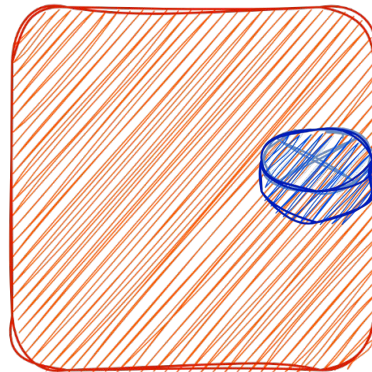
How to in 4 easy steps

Step 1 - Initialize the Routers



My Laptop

```
$ skupper init
```



Public Cluster

```
$ skupper init
```

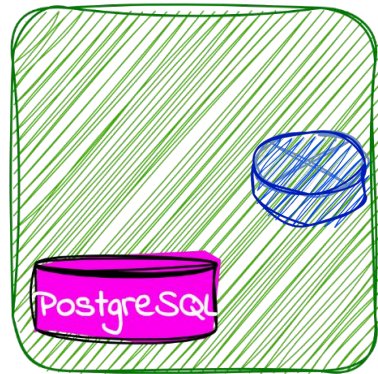


Private Cluster
intel.

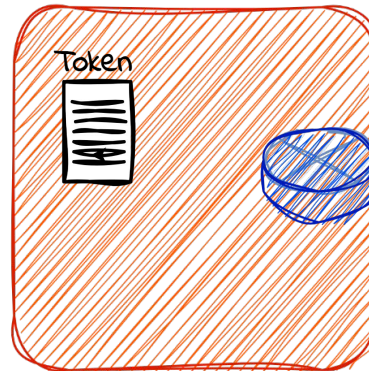
```
$ skupper init
```

How to in 4 easy steps

Step 2 - Create a Secure Token



My Laptop



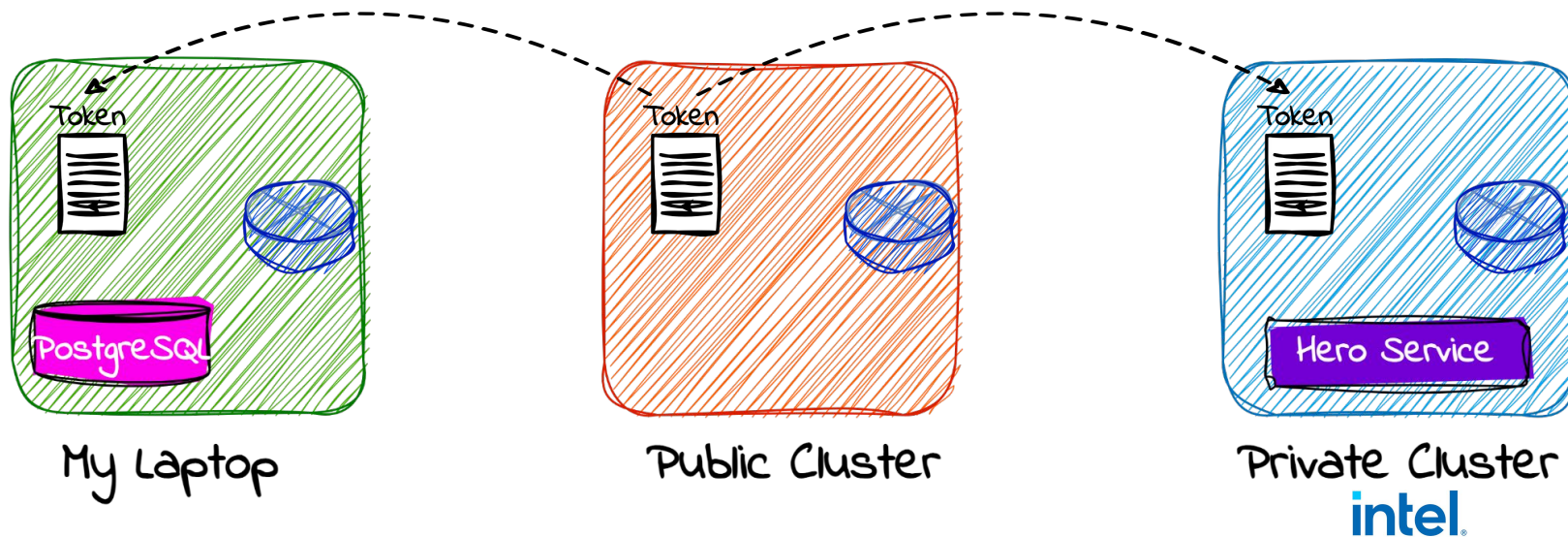
Public Cluster



Private Cluster
intel.

```
$ skupper token create ~/cloud.token
```

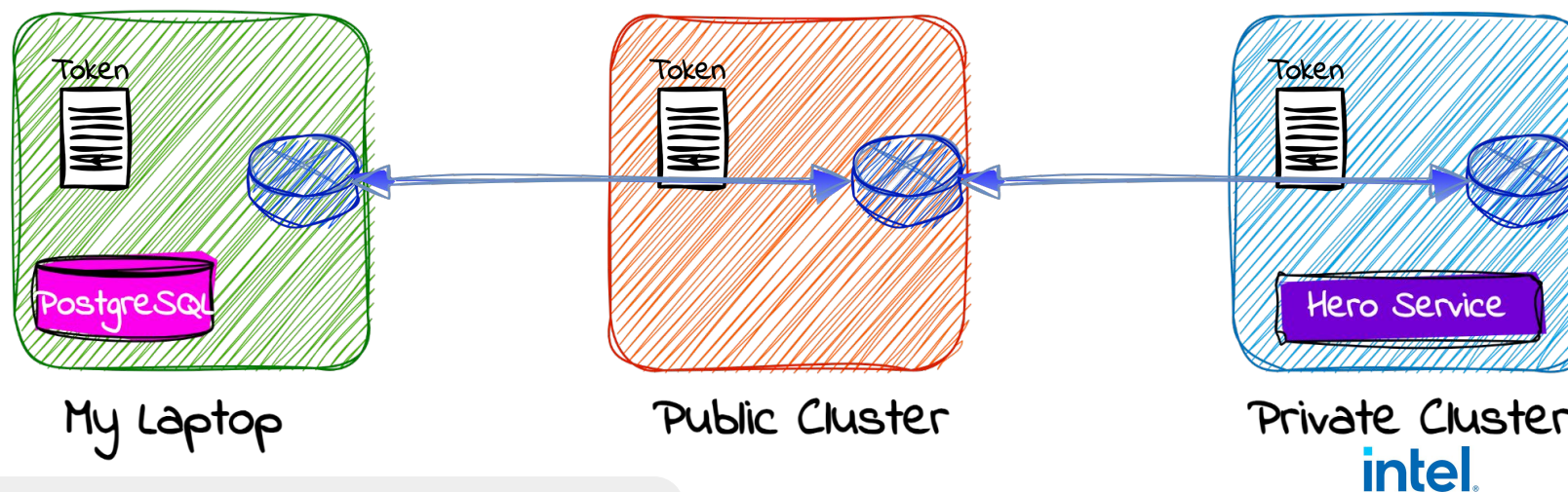
Step 3 - Transfer the Token and Link the Sites (Clusters)



```
$ skupper link create ~/cloud.token
```

```
$ skupper link create ~/cloud.token
```

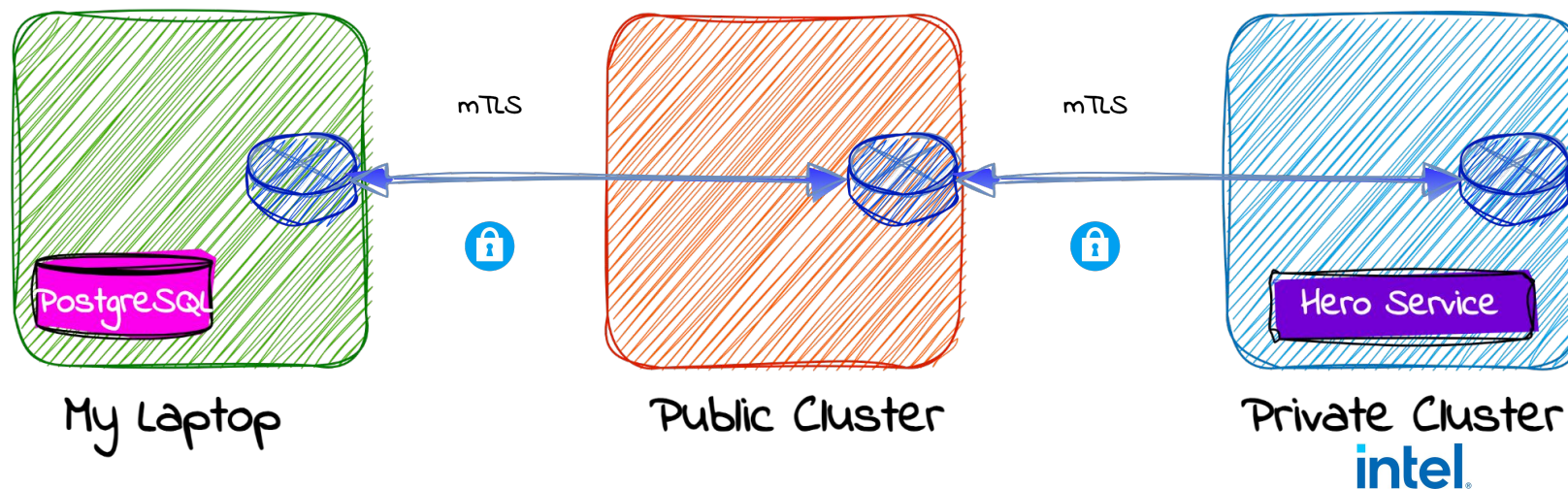

Step 4 - Expose only the Required Services



```
$ skupper expose deployment/heroes-db
```

None of the Services are available on the service network by default. Developers have to explicitly mention which service to expose

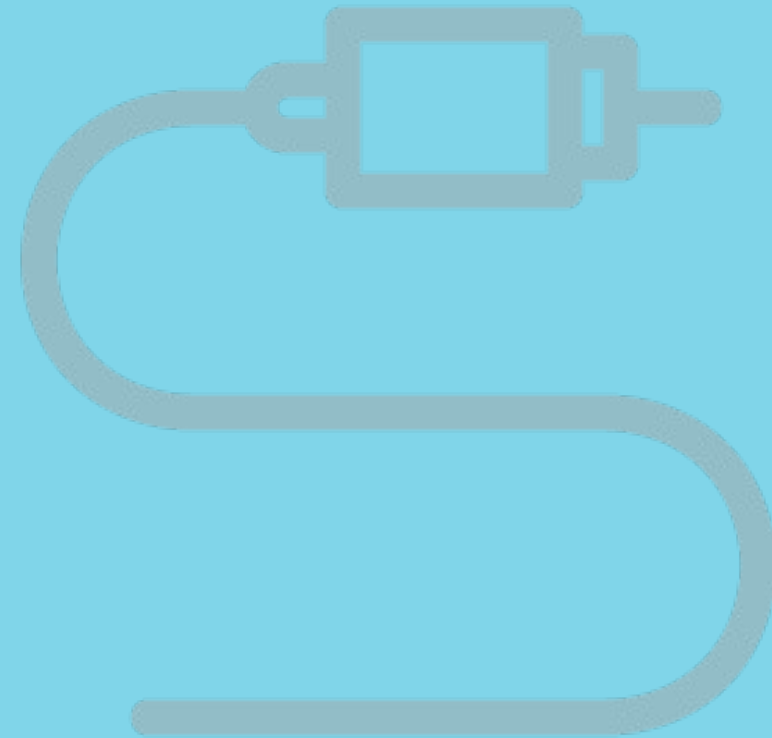
Secure Connectivity Established between Hero Service & Database



Red Hat Service Interconnect empowers developers to create **secure connections** between their apps or services, **regardless of the environment** – overlaid upon enterprise endorsed network flows

Simplicity

Service Interconnect simplifies application connectivity across Red Hat or non-Red Hat environments and platforms. No code changes required, no network changes required, no admin privileges needed.



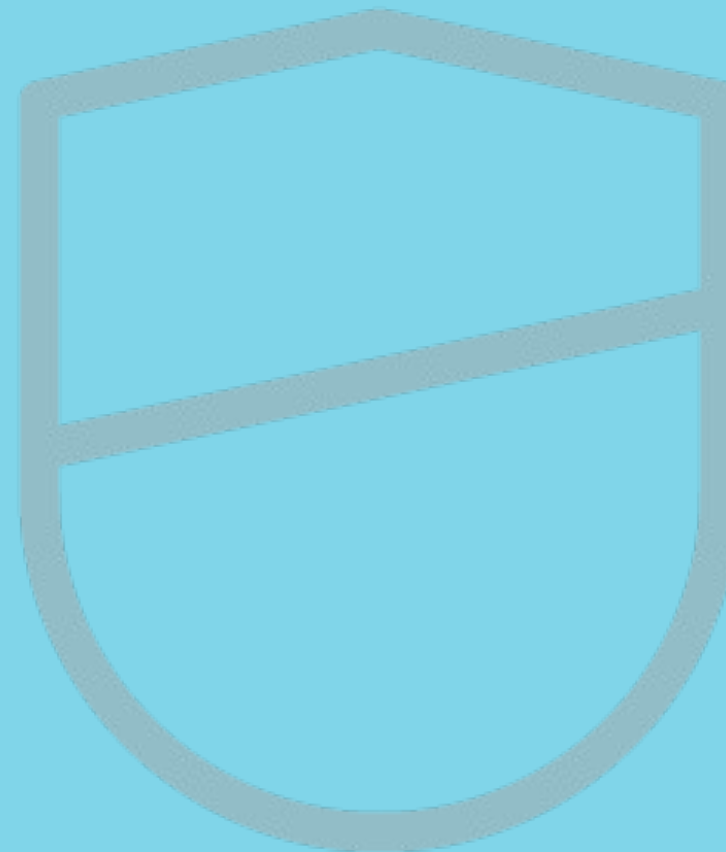
Portability

Applications using Service Interconnect are highly portable from a networking perspective, offering great freedom of operational efficiency and migration.



Protected

Interconnections created by Service Interconnect use Mutual TLS in order to prevent unauthorized interconnections. No networks are exposed. Networking at layer 7. No services are exposed by default.

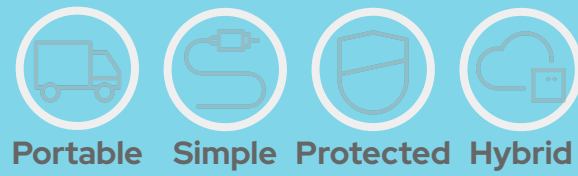


Hybrid

Service Interconnect makes hybrid cloud strategies easier to implement by allowing customers' development teams to easily, rapidly and safely interconnect any Kubernetes cluster, any public cloud, any virtual machine or any bare-metal host.



The questions....



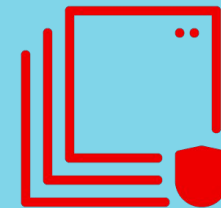
Connectivity



Portability



Scale / HA



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Thank you



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