

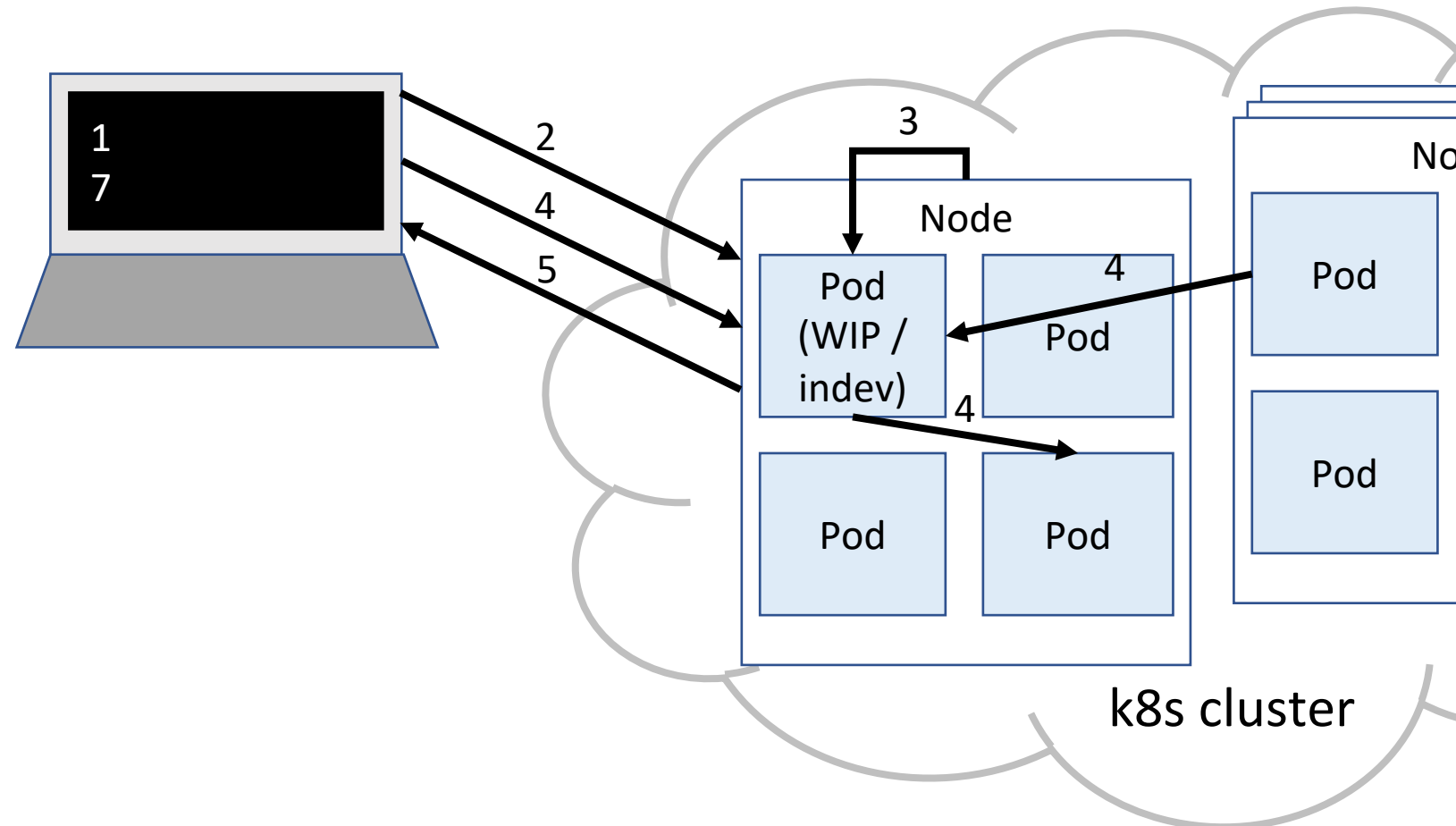


How I Stuffed my Laptop inside a K8s Pod

Kent Hagerman

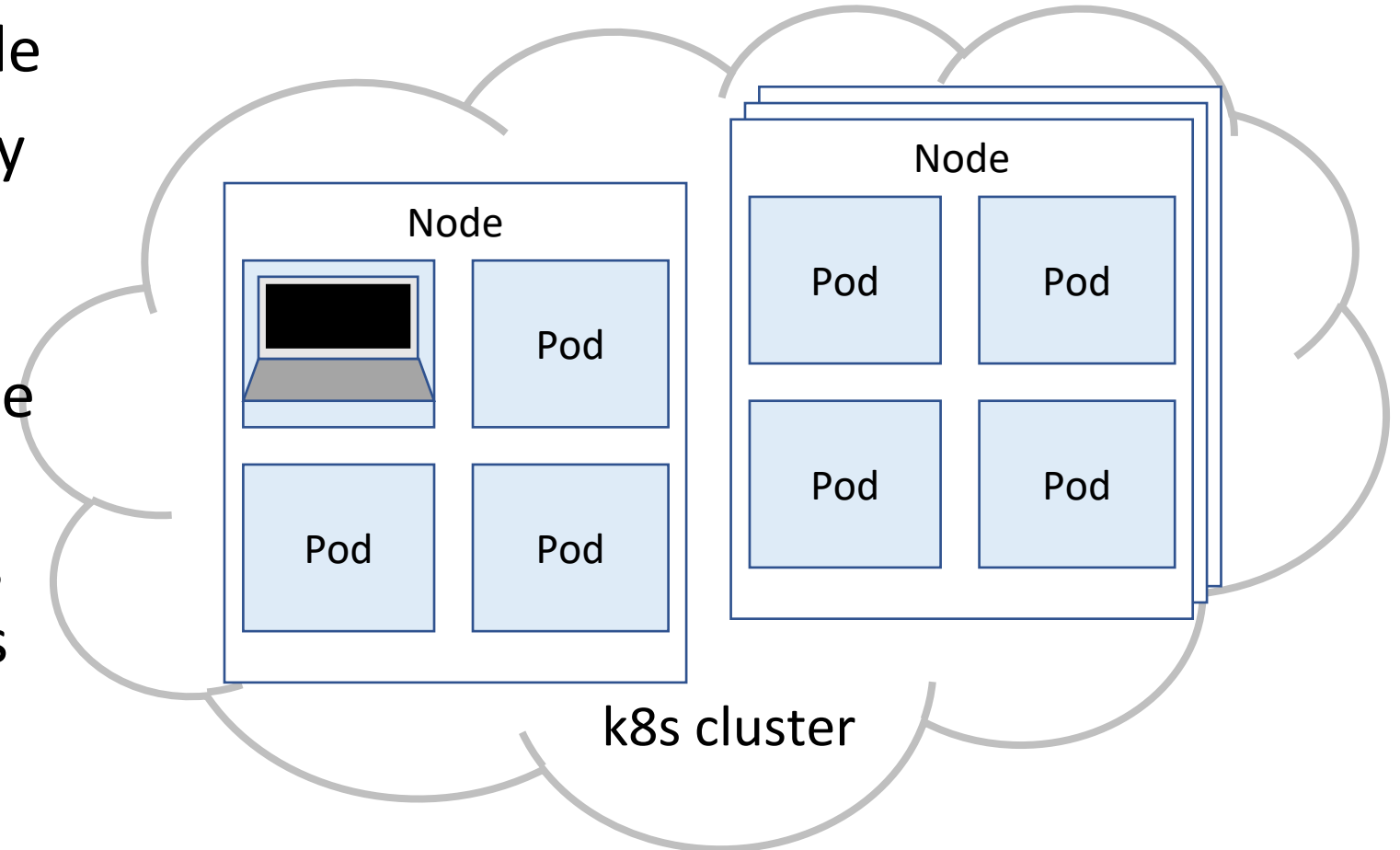
K8s App Development is a Frustrating Process

1. Build container
2. Push container
3. Redeploy
4. Test / Experiment
5. Recover logs
6. Optionally goto 4.
7. Make changes
8. Repeat

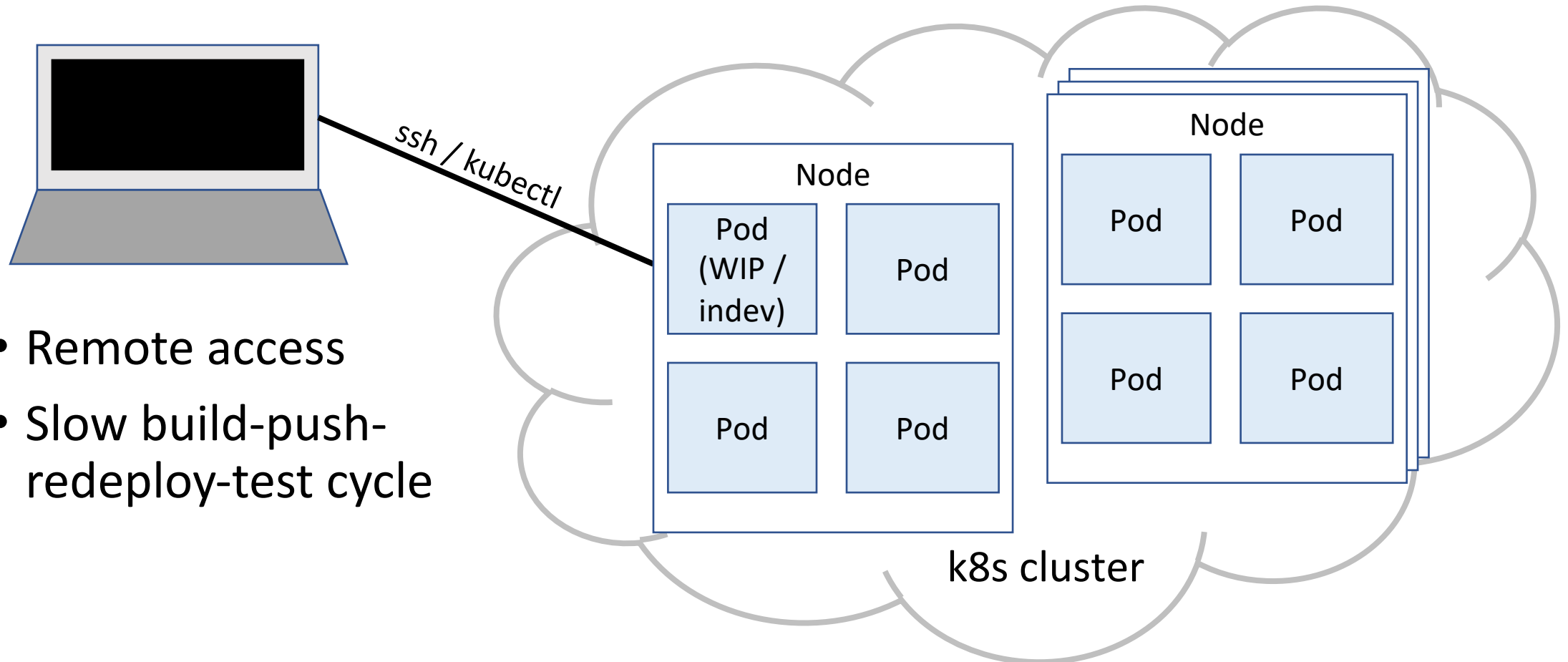


Wouldn't this be so much better?

- K8s services reachable
- Build-run-test directly on laptop
- Entire kubernetes environment available
- Allow outbound & inbound connections to & from other pods

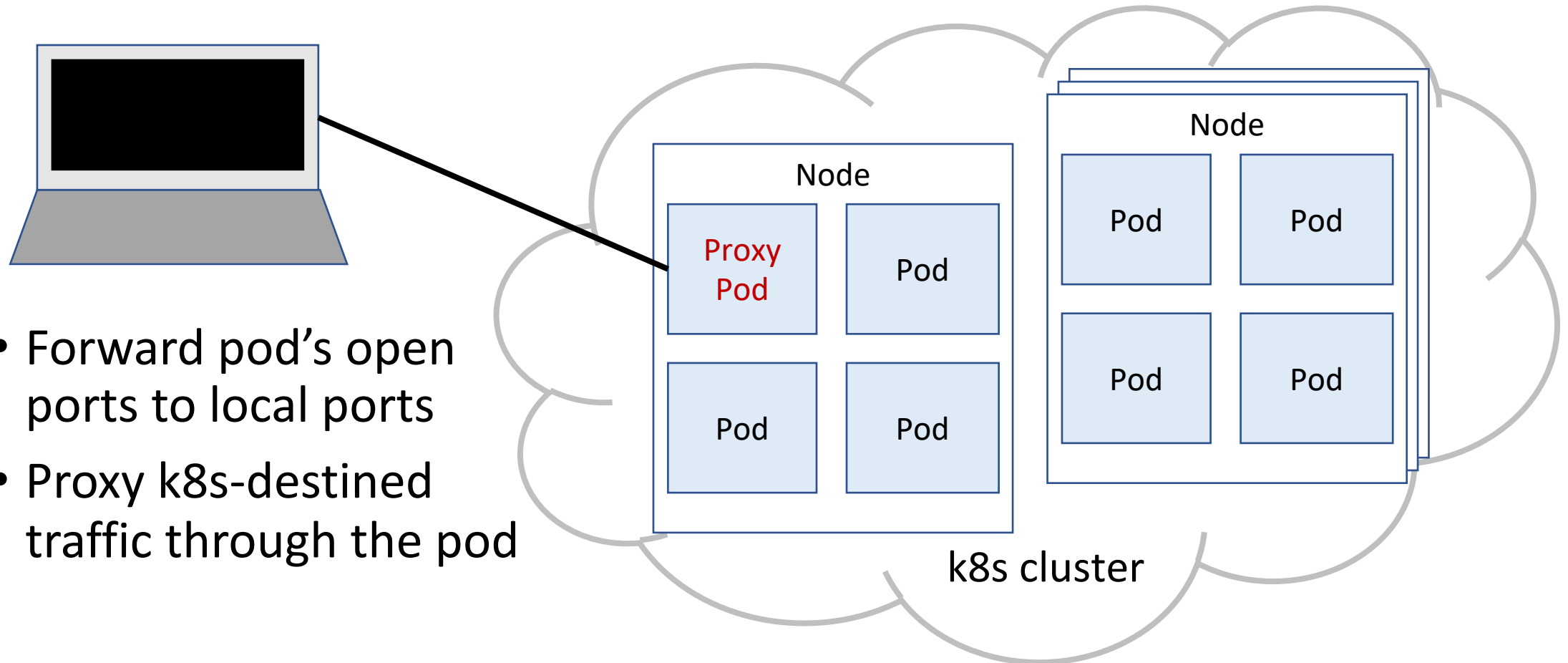


What I Have



- Remote access
- Slow build-push-redeploy-test cycle

Something like this...



- Forward pod's open ports to local ports
- Proxy k8s-destined traffic through the pod

Design Goals

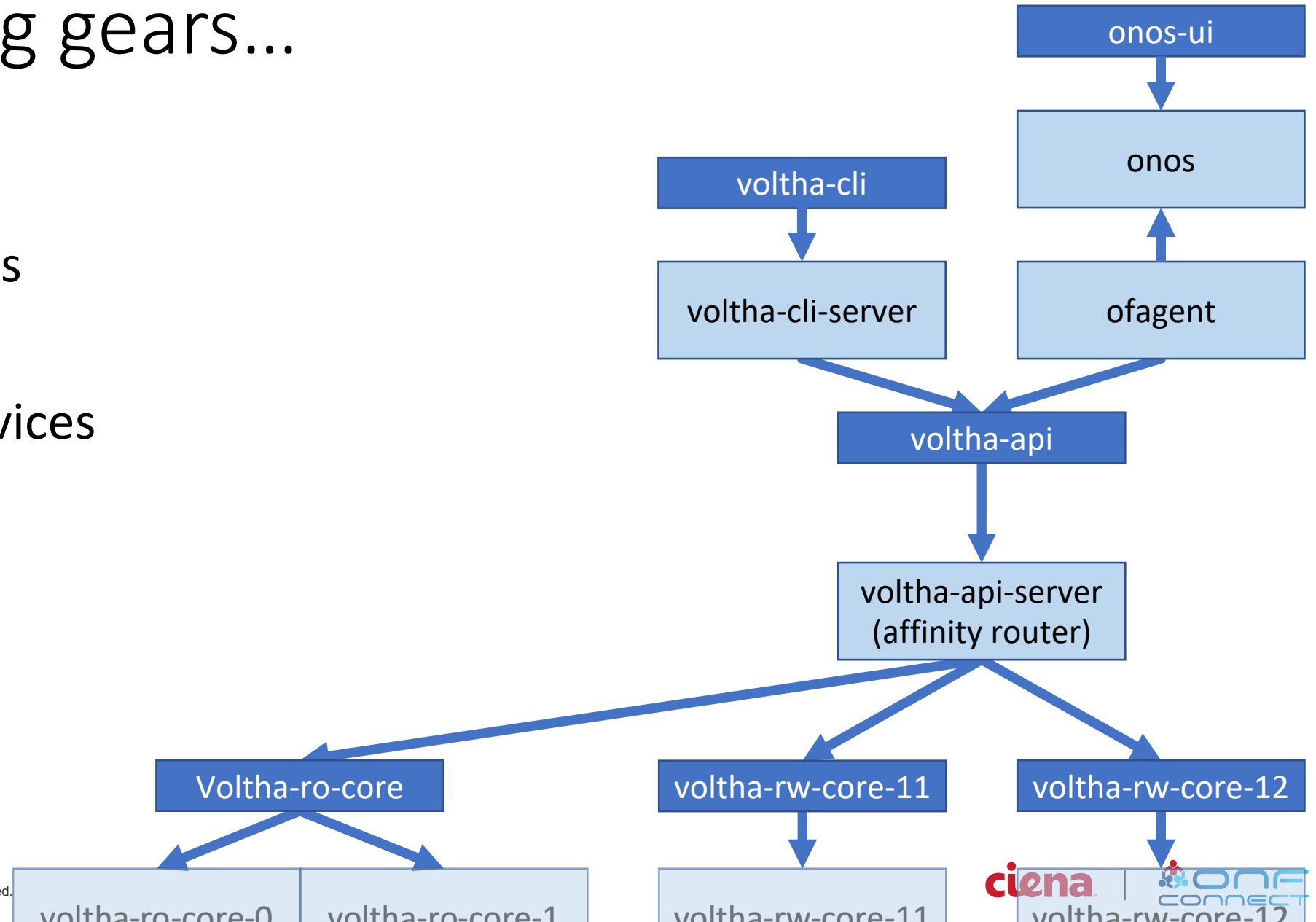
Ease of use

- Replace in-dev application image with proxy image
 - Deploy “as usual”
- Single command to connect laptop to proxy pod
- Build-run-test apps on local machine
 - Zero reconfiguration in the k8s cluster
 - Can build-run-test directly in IDE

Switching gears...

□ Pods

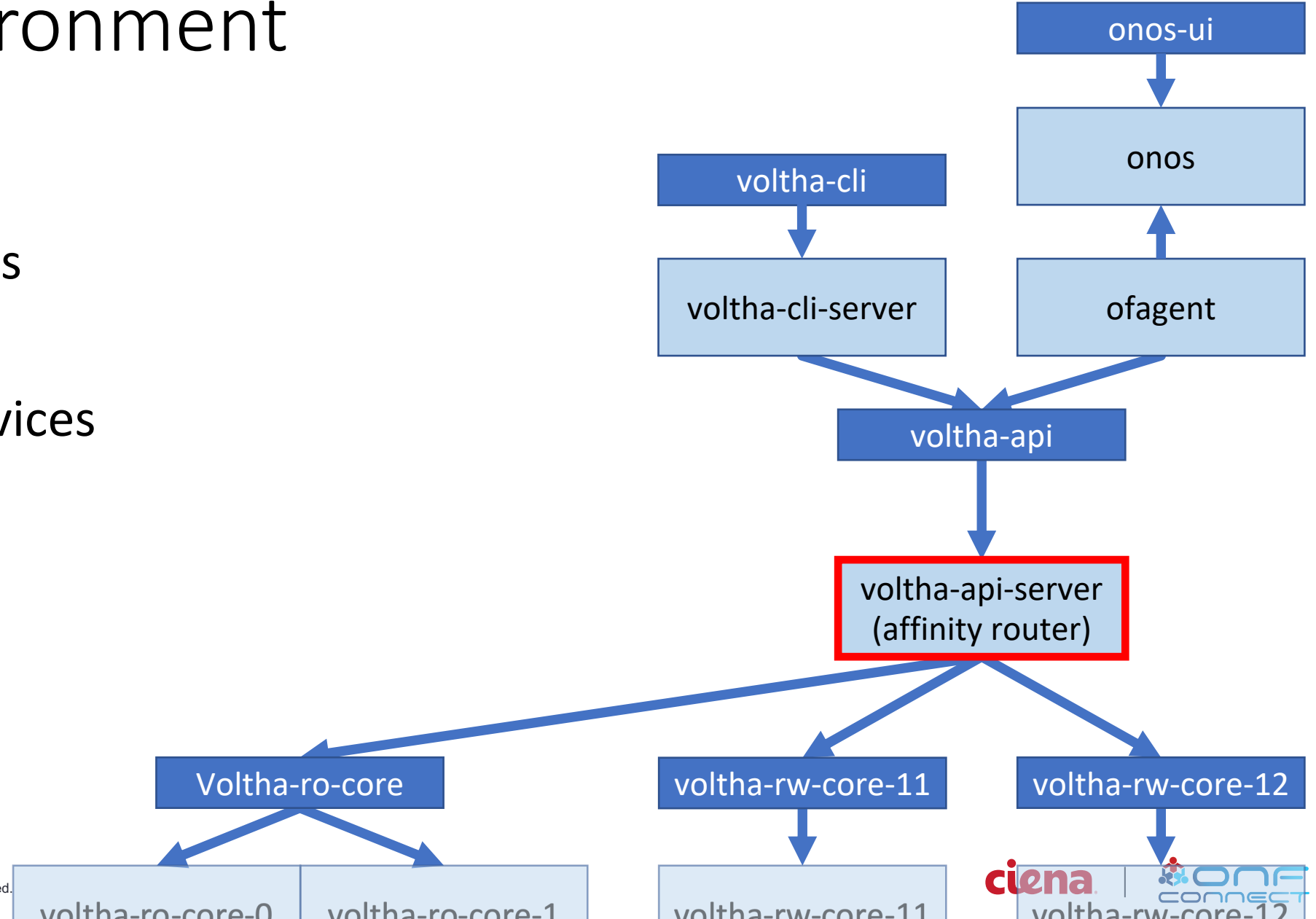
■ Services



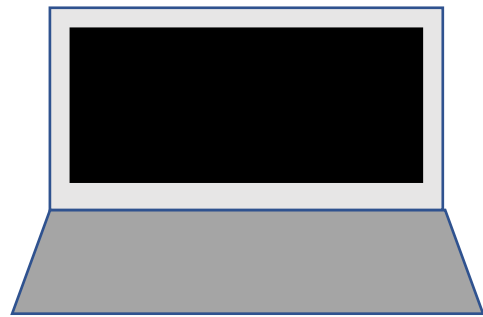
K8s Environment

□ Pods

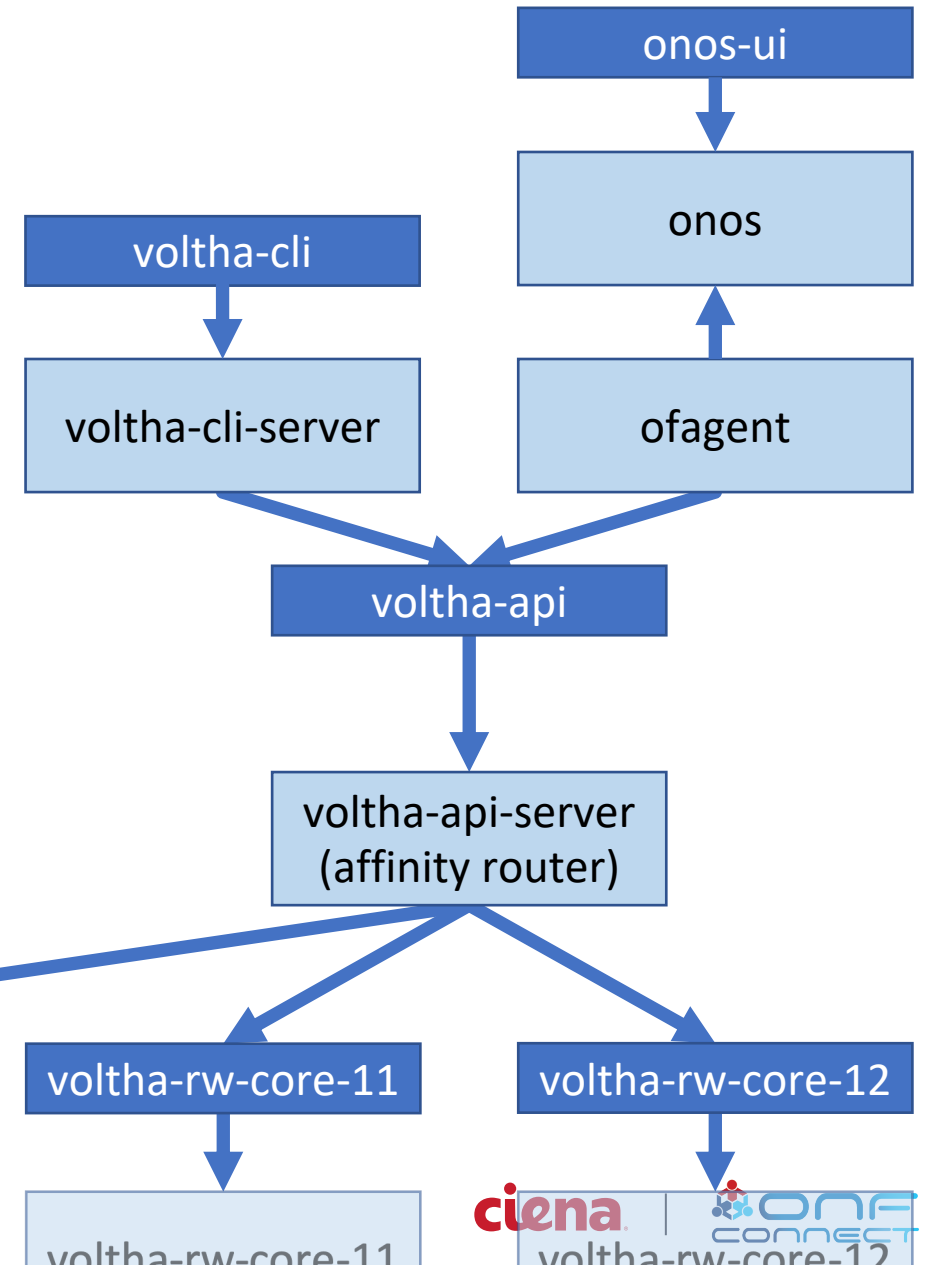
■ Services



Laptop -- Proxy Pod

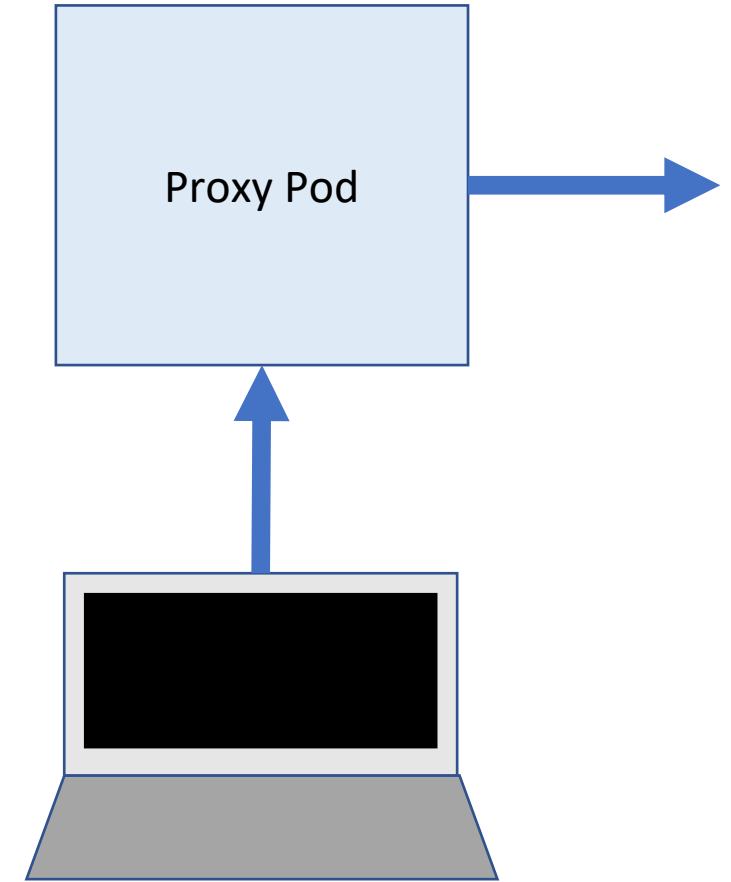


proxy pod



Outgoing Traffic

- Proxy traffic destined for k8s services through the pod
- Split DNS; proxy only *.cluster.local DNS requests through the pod



Demo #1

Laptop -> K8s Service

Home Insert Draw Design Transitions Animations Slide Show Review View



New Slide Table Pictures Screenshot Get Add-ins My Add-ins Shapes Icons 3D Models SmartArt Chart Zoom Link Action Comment Text Box Header & Footer WordArt Date & Time Slide Number Object Equation Symbol Video Audio

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Demo #1

Laptop -> K8s Service

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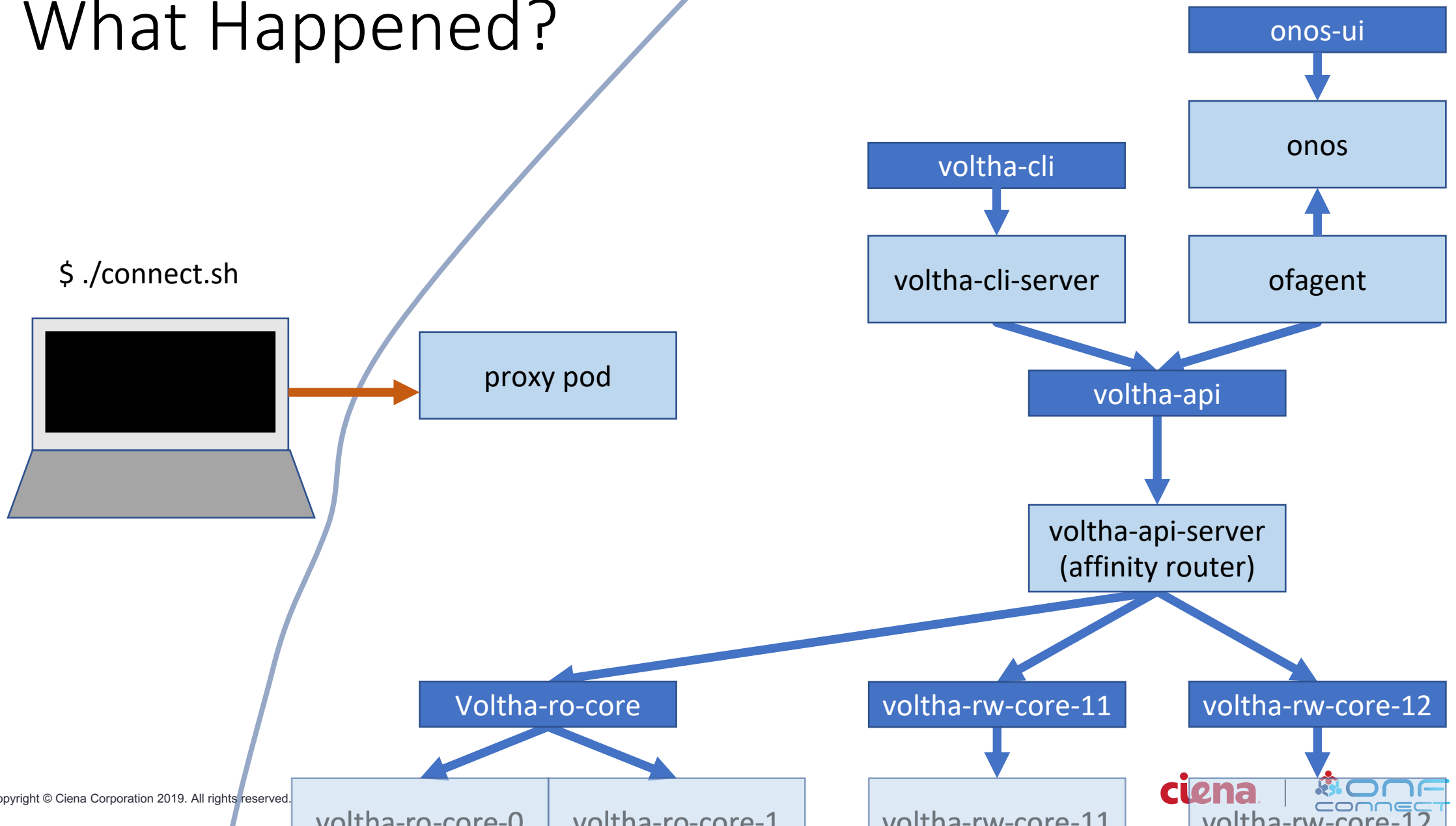


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Demo #1

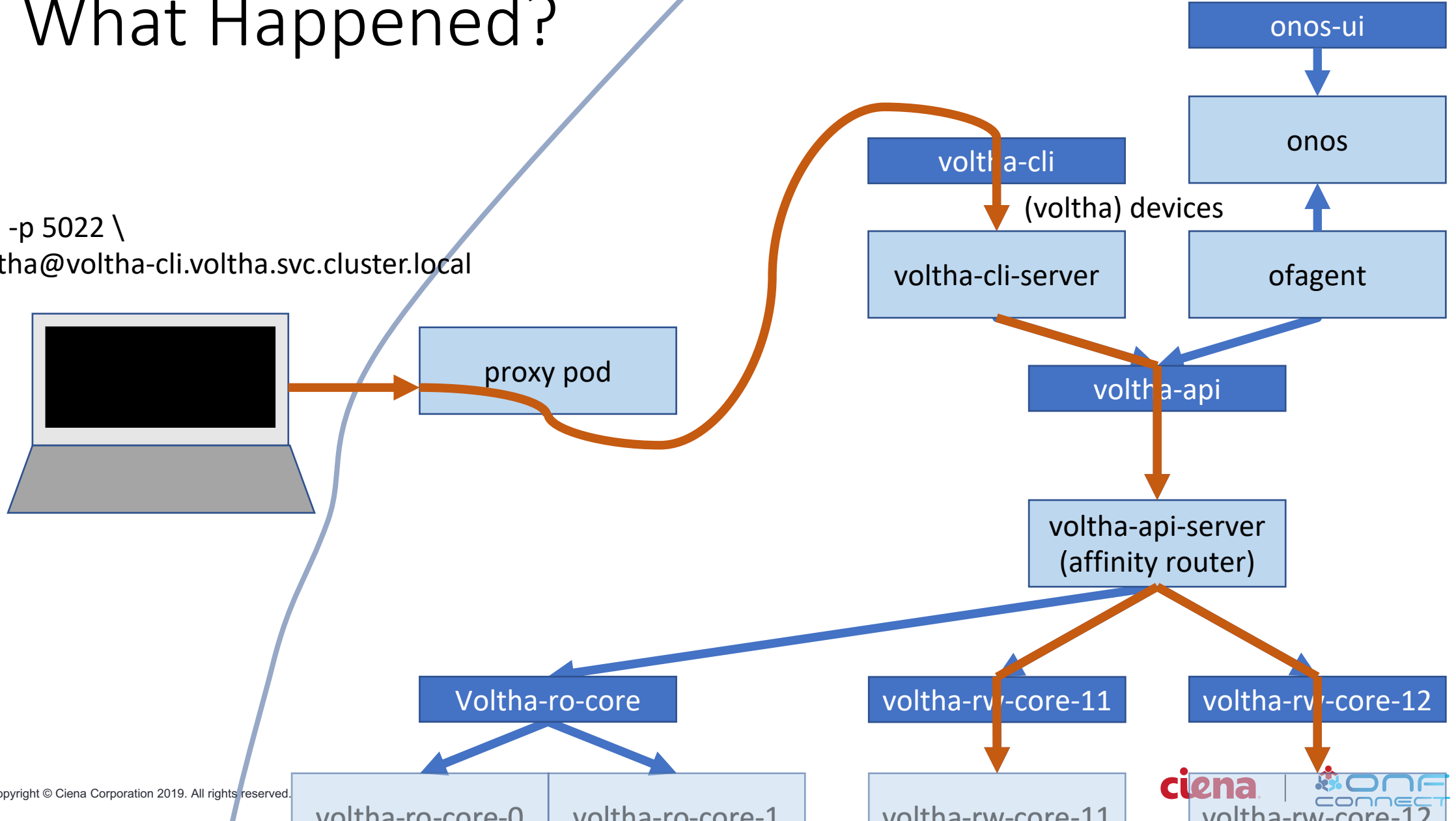
Laptop -> K8s Service

What Happened?

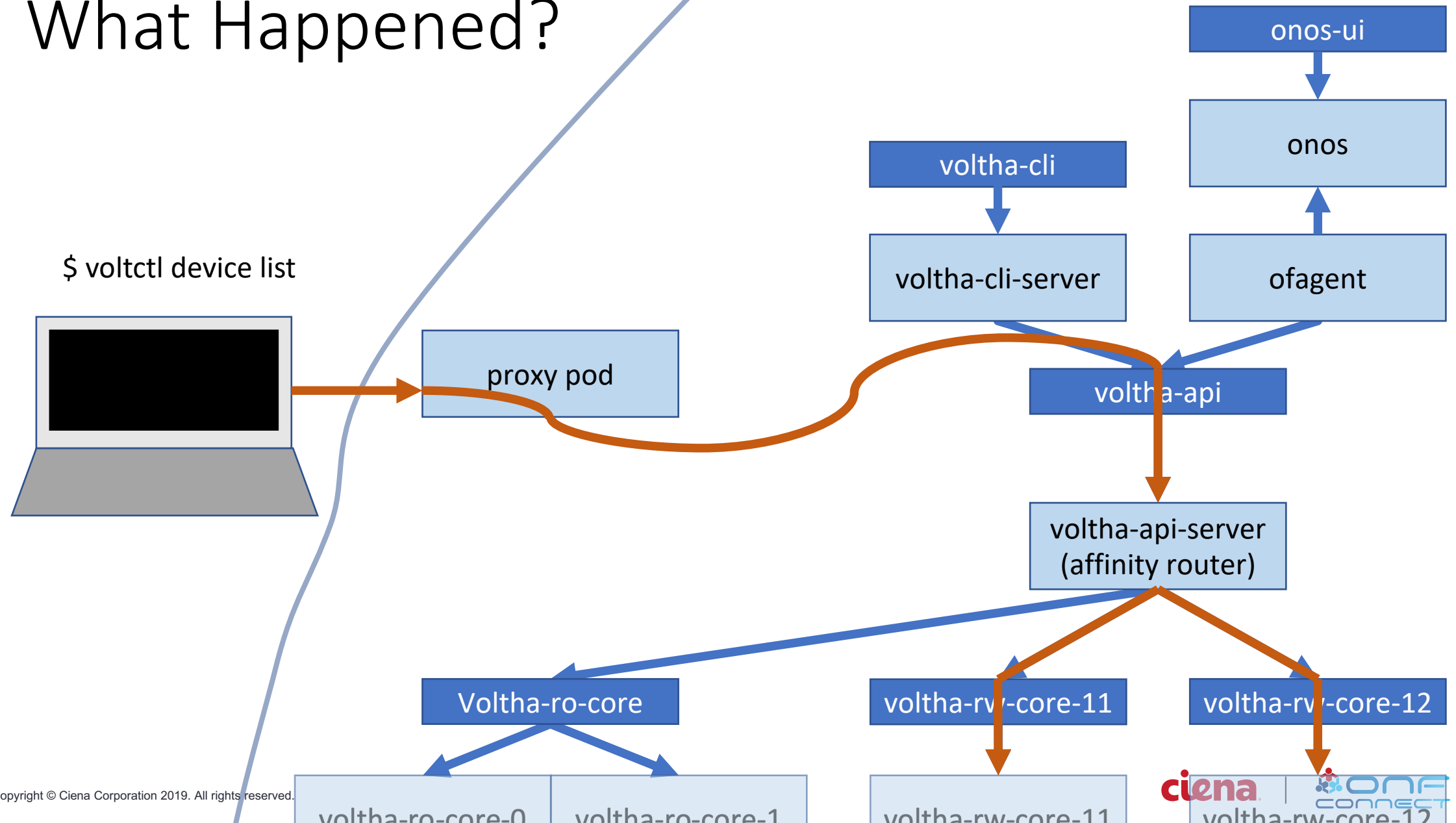


What Happened?

```
$ ssh -p 5022 \  
voltha@voltha-cli.voltha.svc.cluster.local
```

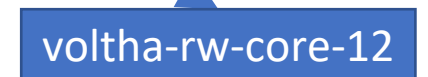
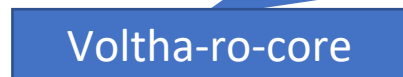
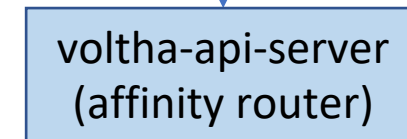
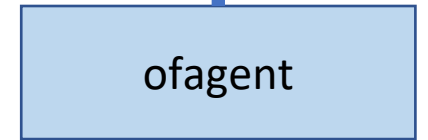
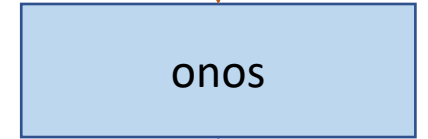
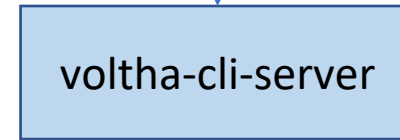
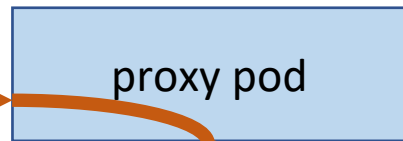
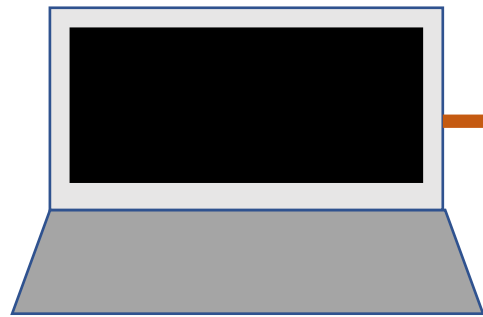


What Happened?



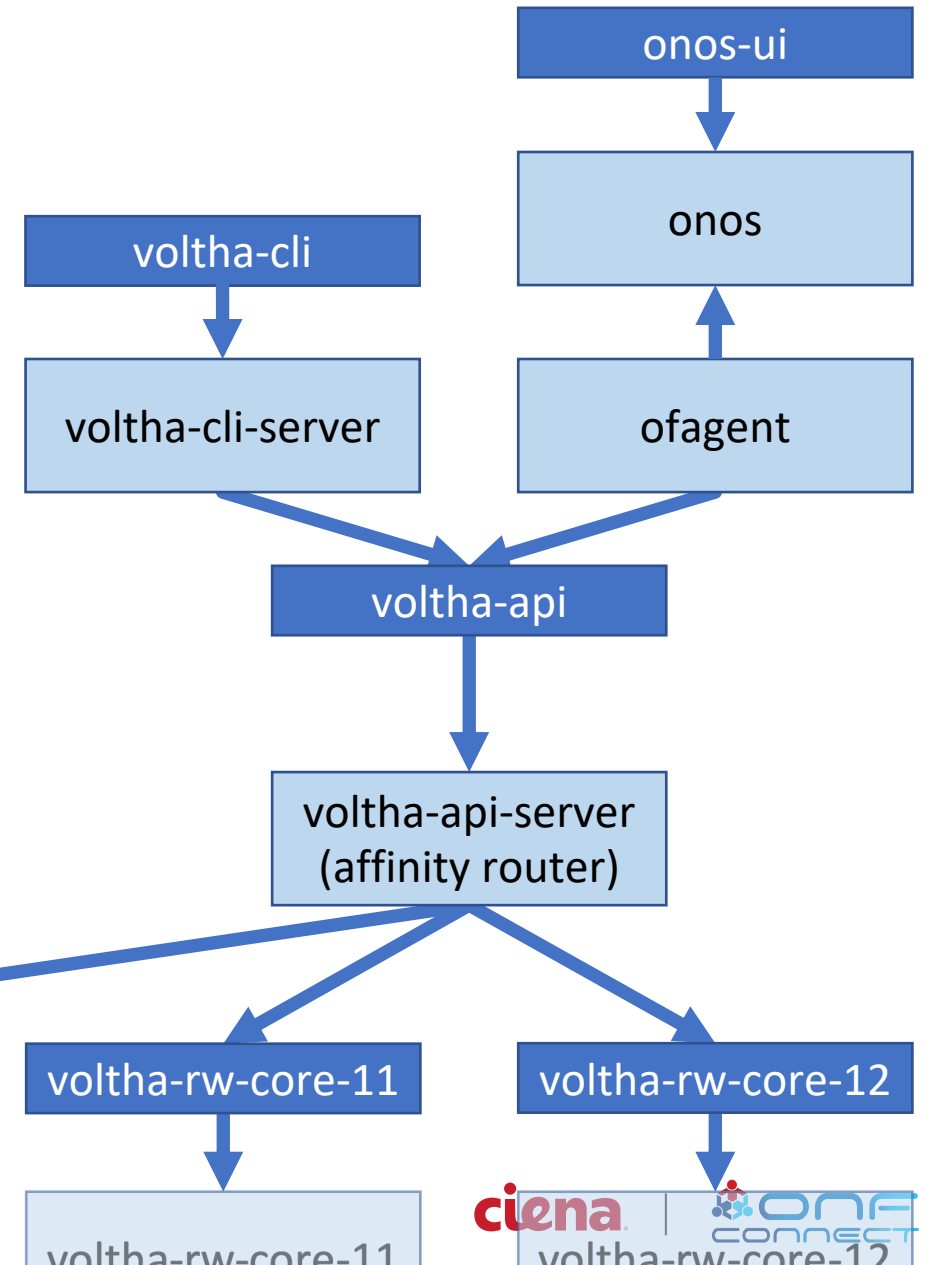
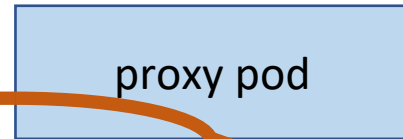
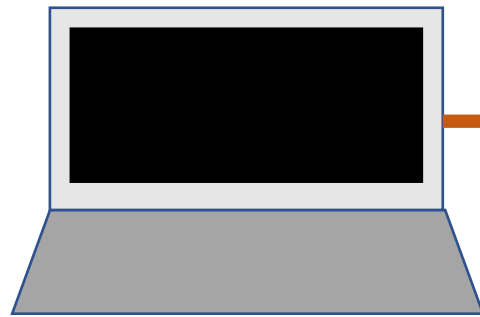
What Happened?

<http://onos-ui.default.svc.cluster.local:8181/onos/ui>



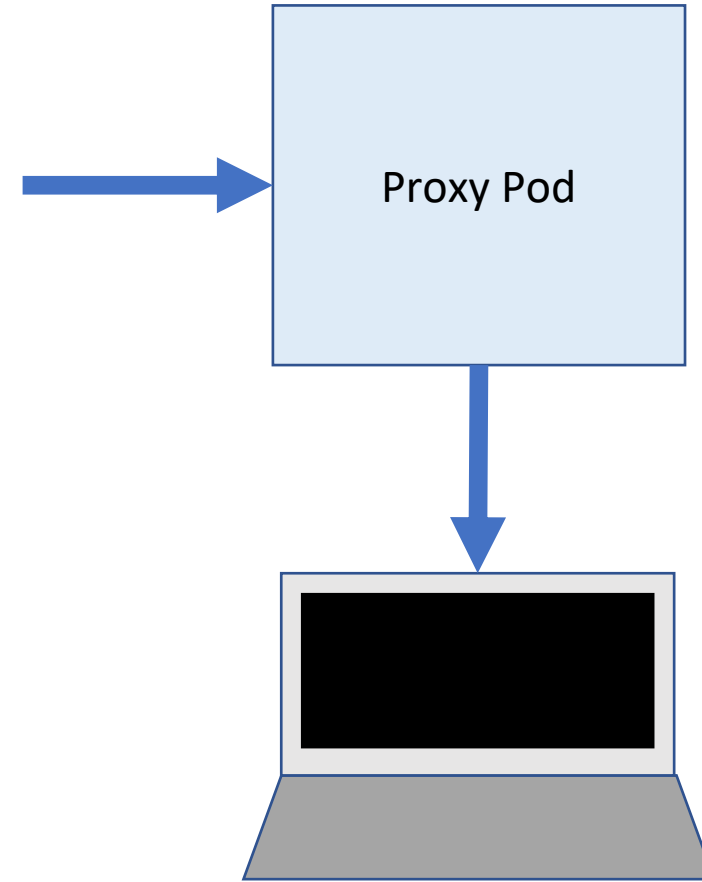
Laptop -> K8s

\$./connect.sh



Incoming Traffic

- Forward incoming traffic from the proxy pod to the laptop
- Redirect some k8s applications or services to the proxy pod



Demo #2

K8s Service -> Laptop

AutoSave ON Home Undo Redo Search in Presentation Share Comments

Home Insert Draw Design Transitions Animations Slide Show Review View

New Slide Table Pictures Screenshot Get Add-ins My Add-ins Shapes Icons 3D Models SmartArt Chart Zoom Link Action Comment Text Box Header & Footer WordArt Date & Time Slide Number Object Equation Symbol Video Audio

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Demo #2

K8s Service -> Laptop

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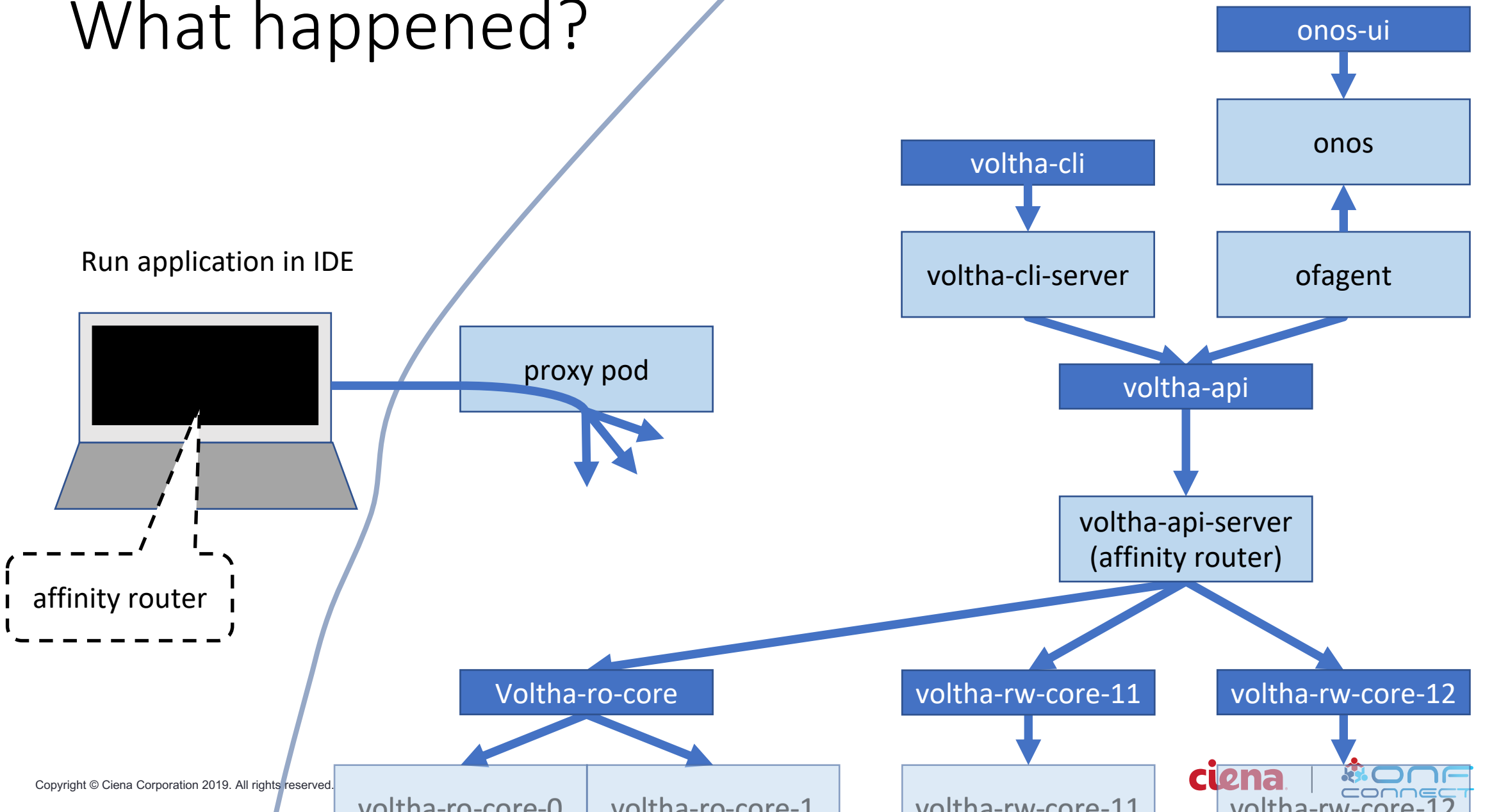


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Demo #2

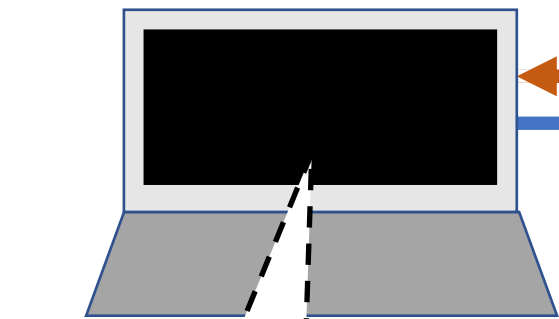
K8s Service -> Laptop

What happened?

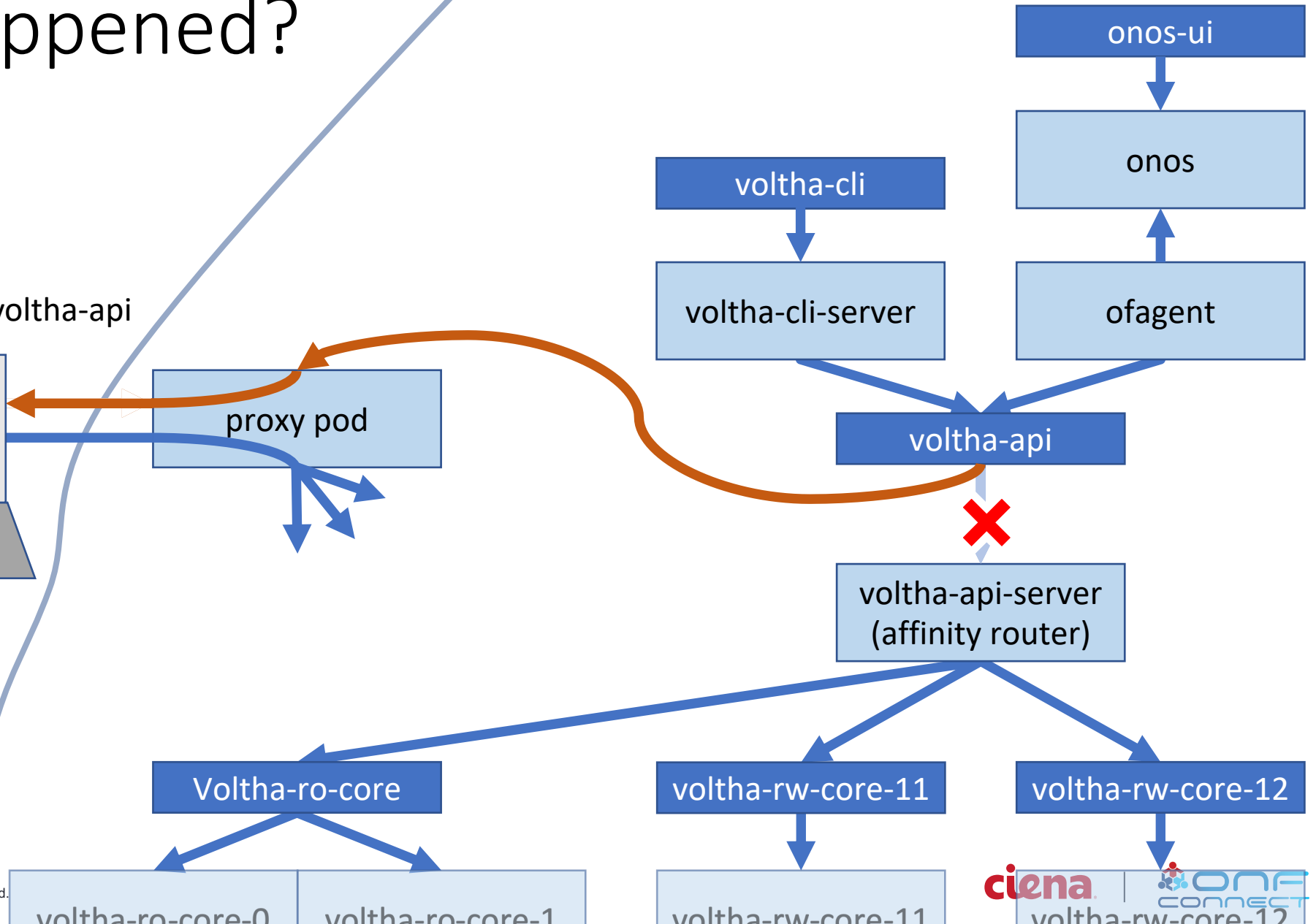


What happened?

```
$. /redirect.sh \  
-namespace=voltha voltha-api
```

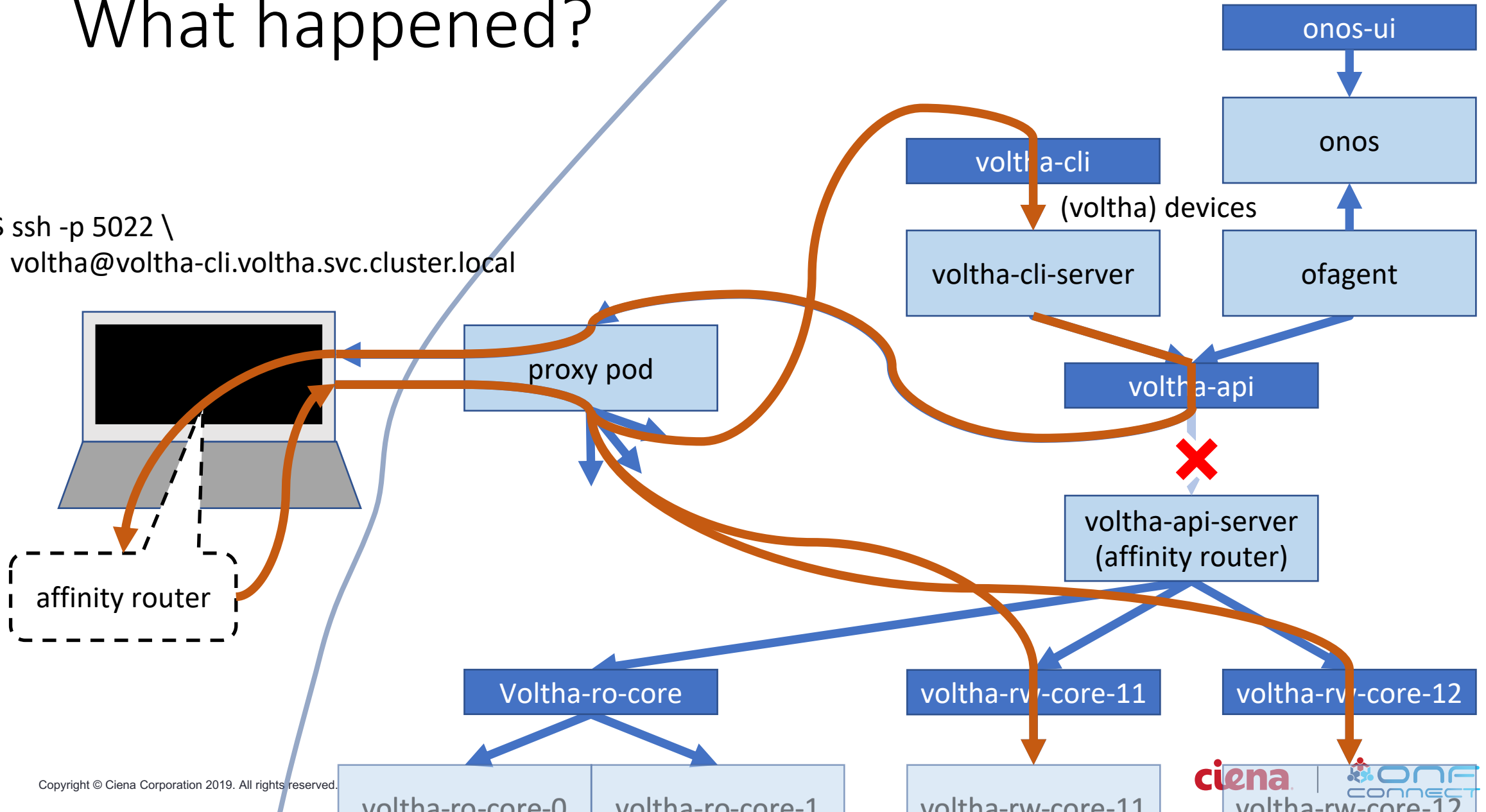


affinity router

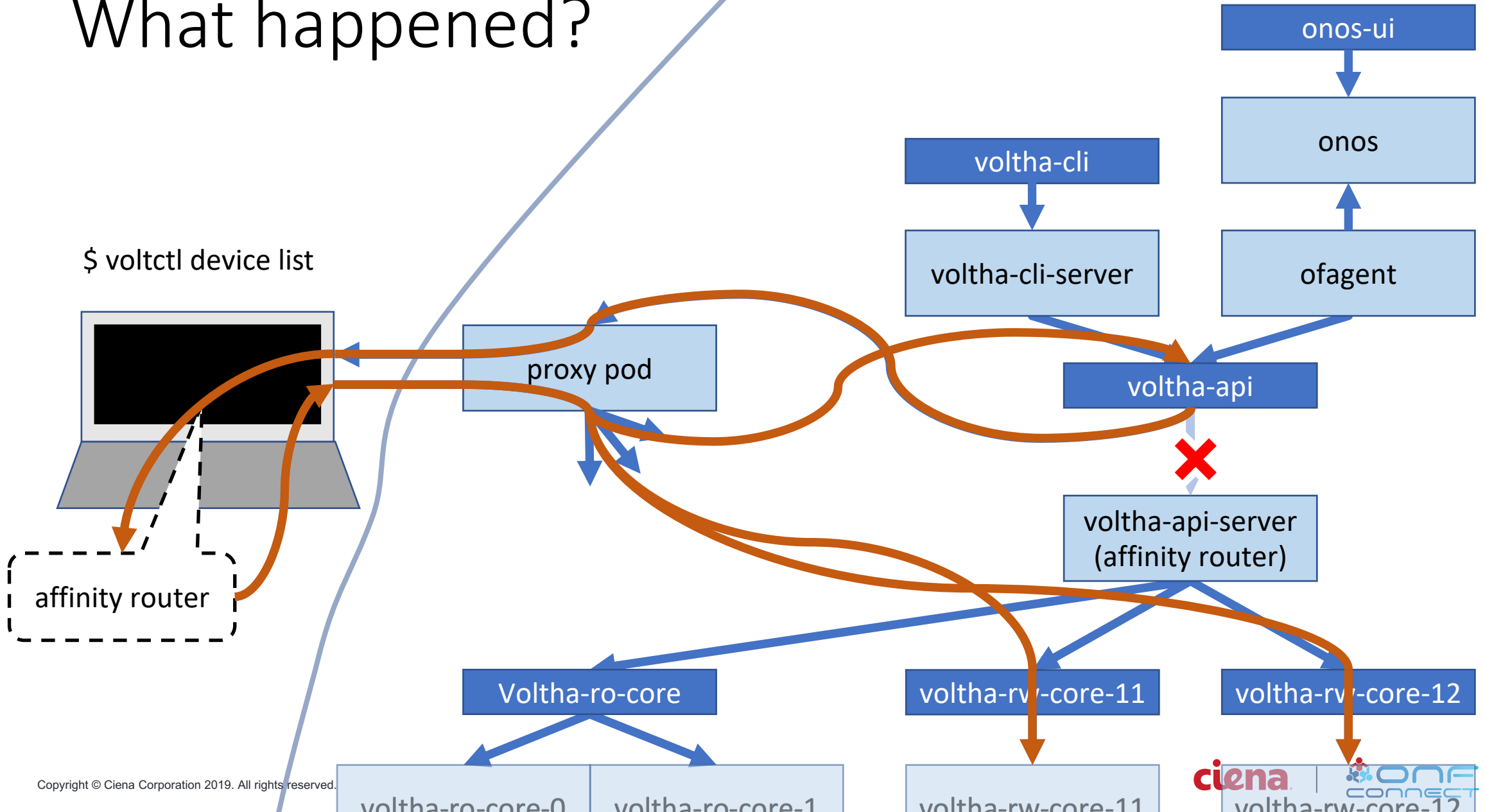


What happened?

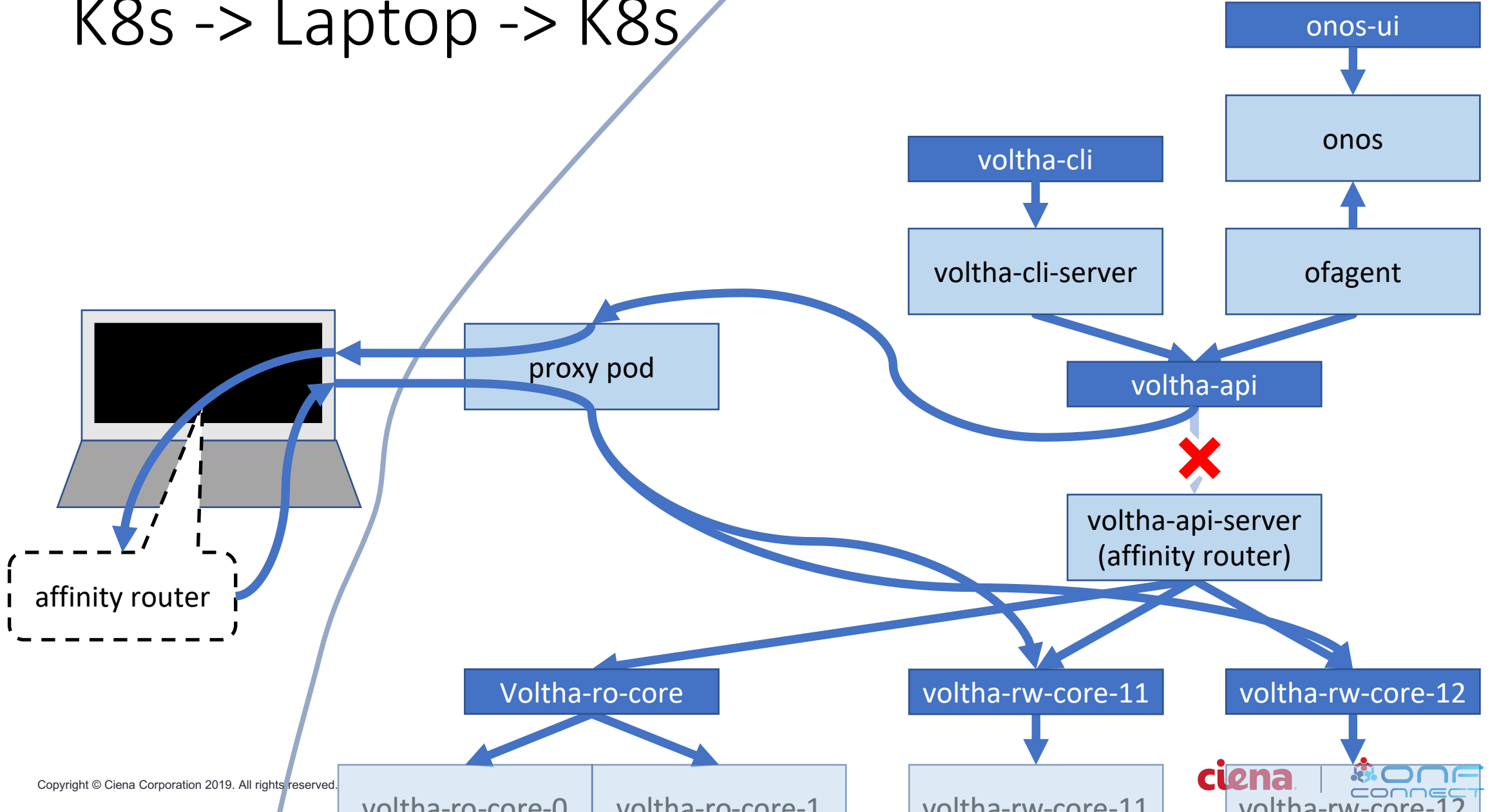
```
$ ssh -p 5022 \  
voltha@voltha-cli.voltha.svc.cluster.local
```



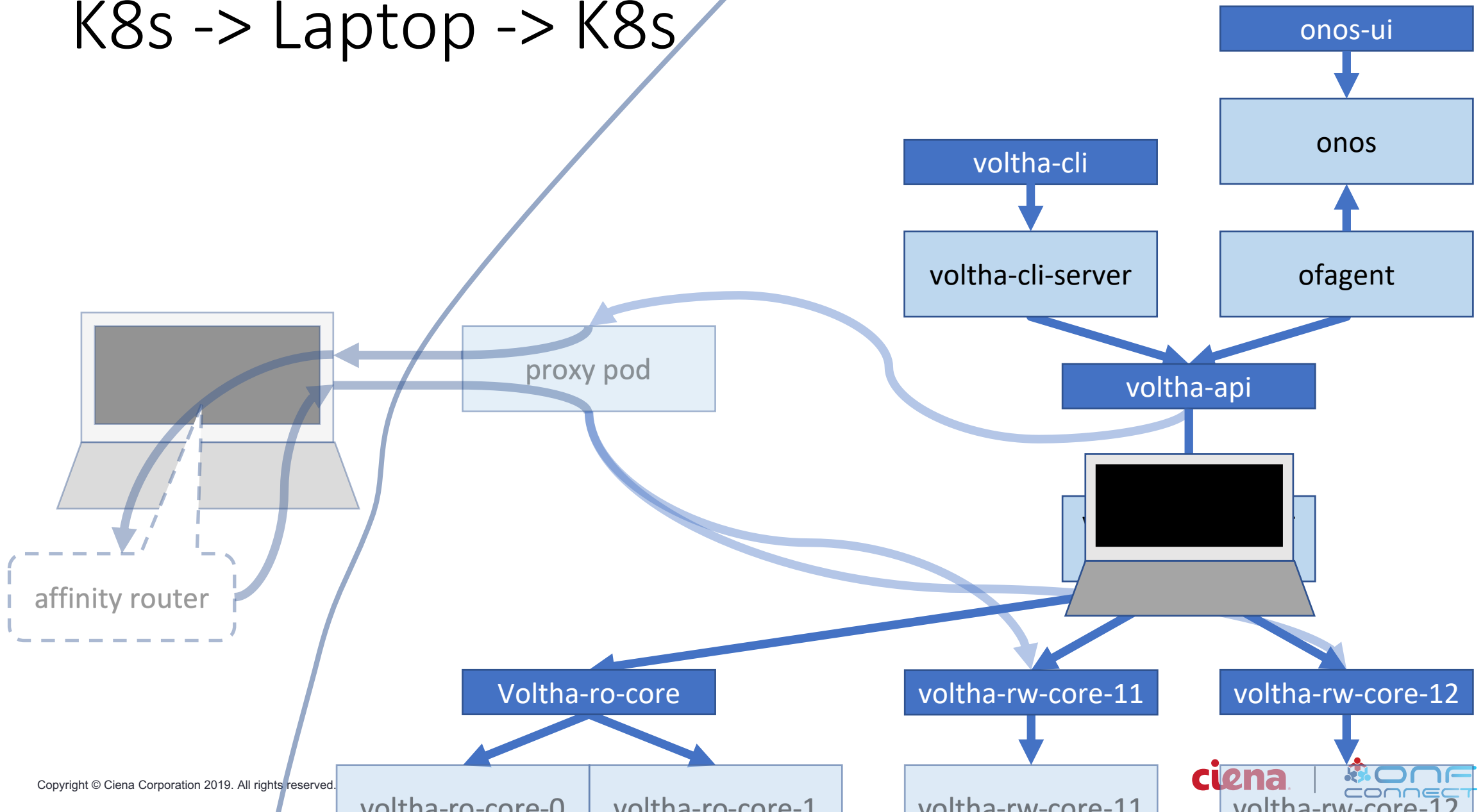
What happened?



K8s -> Laptop -> K8s



K8s -> Laptop -> K8s



Final Thoughts

- Set up your environment *just so*.
- Don't be afraid to reconsider bad processes.
- Make (better) tools.

Questions?

Tool repo:

github.com/kent-h/k8s-become-pod