

Virtual

A Walk Through the Kubernetes UI Landscape

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- Kubernetes is complex
- kubectl is powerful, however...
 - Graphical User Interfaces can make things simpler
- So many Kubernetes UIs out there!
 - \circ $\,$ We have to decide what to look into

Selection Criteria



- Open Source
- Active development (at least one release in last 12 months)
- Standalone use
 - Can be used without a control plane / addons: either just running in-cluster, or as a local/desktop app
- Graphical User Interface

What we look into



- Installation: Hosted or Desktop ?
- Cluster support: Mono 1 or Multiple 1?
- Extensibility: Yes 💉 or No 🕅
- Read-only Read-Write
- Main use-cases, capabilities
 - Other remarks individually
 - Usability





Kubernetes Dashboard

CloudNativeCon

North America 2020

KubeCon



Ø ()

The "official" dashboard

- Deployed to cluster
- For application developers
- Authentication with SA token
- Exec, Logs, Scale, Edit
- Single-cluster
- Search
- Limited set of features



K8dash



Simple alternative to Kubernetes Dashboard

- Feels lightweight / simple
- UI and navigation could be arguably improved
- Editor shows documentation
- Not extensible
- Requires full access to cluster
 - \circ $\,$ Fails to auth with a view-only token $\,$
- No cluster search



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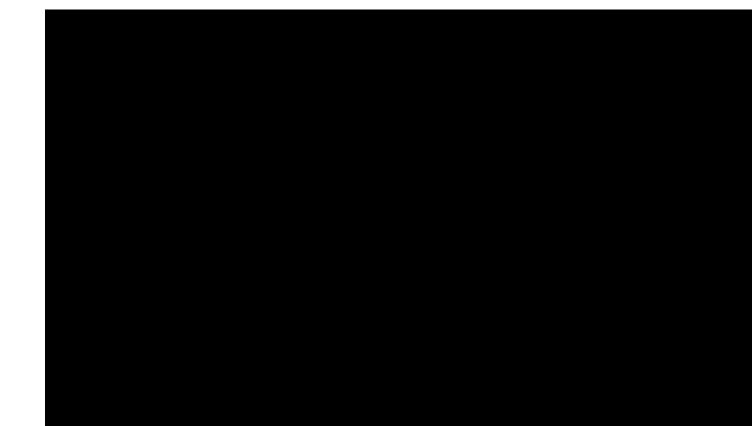
Kubevious



"Making app config & state safe and easy to understand"

- Analyze your cluster
- Custom rules (JavaScript)
- Custom marker icons
- Time machine (uses DB)
- Single-cluster
- Stripped-down "portable" version





Hosted | JavaScript / React | Apache 2.0 | Kubevious | <u>https://github.com/kubevious/kubevious</u>

Octant

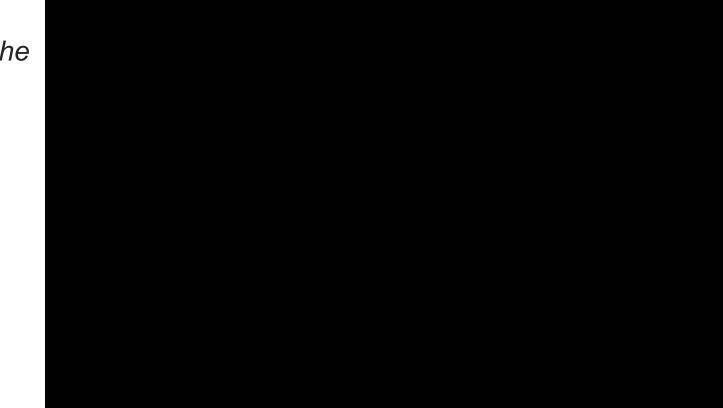




"for developers to better understand the complexity of Kubernetes clusters"

- Local only
- Object graph
- Nice flow for port forwarding
- Plugins
- No search
- No cross-cluster features





Local | Go, TypeScript / Angular | Apache 2.0 | VMWare | <u>https://github.com/vmware/octant</u>

Lens



"The Kubernetes IDE"

- Easy to install with builds for Linux, Mac, Windows
- Very good UI and UX
- Multi-cluster support
- Helm charts "store"
- Ships kubectl
- No cross-cluster features
- Not extensible



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Kubenav

"Kubernetes clusters right in your pocket"

- Works hosted, on desktop, and on mobile devices
- Mobile-first, so on the desktop the UI usability is lacking (e.g. lists instead of tables)
- Not clear how to authenticate (used whatever was in the kubeconfig)
- No cross-cluster features



CloudNativeCon

North America 2020



Headlamp



An easy-to-use and extensible Kubernetes UI

- Extensible through frontend plugins
- Editor shows documentation
- Actions cancellable within a grace period
- Controls dependent on the user's role
 - e.g. edit button not shown if the user cannot edit a resource
- Keyboard shortcuts
- No cross-cluster search yet (planned)

🔷 HERDLRHP

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Kubernetes Web View



"kubectl for the web"

- Support & Incident Response
- Permalinks
- Plain HTML/CSS
- Responsive
- Multi-cluster & search
- Advanced queries/filters
- HTML/style is customizable, but no plugins/extensions



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orth America 2020

CLI | Go | Apache 2.0 | Fernand Galiana | <u>https://github.com/derailed/k9s</u>

Honorable Mention: K9s

"Manage Your Clusters In Style"

- Interactive CLI
- Highly customizable
- Very good as a quick/simple way to navigate and operate a cluster
- Has a great logo

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lorth America 2020 —



Other Uls

Cluster Dashboard

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Not-standalone Uls

- **Rancher Dashboard UI** "Cluster Explorer", not available standalone (?)
- Gardener UI just for managing clusters
- Linkerd UI requires Linkerd control plane

5 days ago

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■ 0 stacks & 1 container - (01(00/♥0♥0 ▲ 1 volume ● 1 image ■1■11 cs - ● No tags

Search by name, group, tag, status, URI

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- **Kiali/Istio** requires Istio service mesh
- Weave Scope requires the probe app

lome 🞜

♥ Endpoints

• **Portainer** — requires data persistency

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Others left out

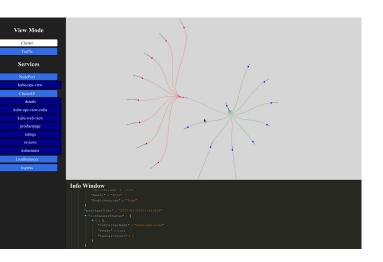
North America 2020

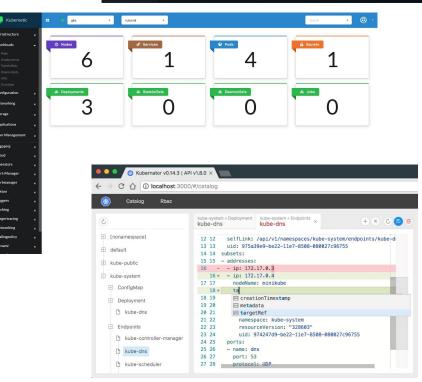
CloudNativeCon

KubeCon

- **Konstellate** stale, last commit July 2019
- **Kubeman** stale, last commit August 2019
- **Kubricks** stale, last commit February 2019
- Kubernator stale, "latest" tag one year old
- **Kubernetic** proprietary

docker-desktop	UPDATE CONTEXT
Type here to find Recipes	
Cluster Recipes	← Envoy ListenersConfig
Events	Envoy Proxy: fortio-deploy-cd48fb5db-h7wqd.client-sc1 @ Cluster: docker-desktop
Resources	
Namespace Recipes	0.0.0.0:15090 (static_listeners) Last Updated: 2019-05-26T04:10:24.025Z
Deployment Recipes	Socket Address
Service Recipes	<pre>address: "0.0.0.0" port_value: 15090</pre>
Pod Recipes	Filter Chain #1
Istio Ingress Recipes	Filter: envoy.http_connection_manager
Istio Pilot Recipes	<pre>name: "envoy.http_connection_manager"</pre>
	codec_type: "AUTO" http_filters:
Envoy Proxy Recipes	<pre>name: "envoy.router" stat prefix: "stats"</pre>
List Envoy Proxies	route_config: virtual hosts:
Tail Envoy Logs	- route:
Envoy Bootstrap Config	cluster: "prometheus_stats"
Envoy Clusters Config	match: prefix: "/stats/prometheus"
	domains: _ "*"
Envoy Routes Config	name: "backend"
Envoy Stats	10.1.2.8:8080 (dynamic_active_listeners) Last Updated: 2019-05-26T04:11:47.889Z
Envoy ServerInfo	Socket Address
Compare Envoy Configs	address: "10.1.2.8"









Wrap Up

Quick Comparison



Project	Multi-cluster	Local	Hosted	Read-Write	Extensible
Headlamp	1	1	1	✓	1
K8dash			1	✓	
Kubenav	✓	✓	1	1	
Kubernetes Dashboard		✓	1	1	1
Kubernetes Web View	✓		1		*
Kubevious		✓	1		1
Lens	1	1		1	
Octant	1	1		✓	1



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