Kubernetes on Sumo Logic

K8s User Certification

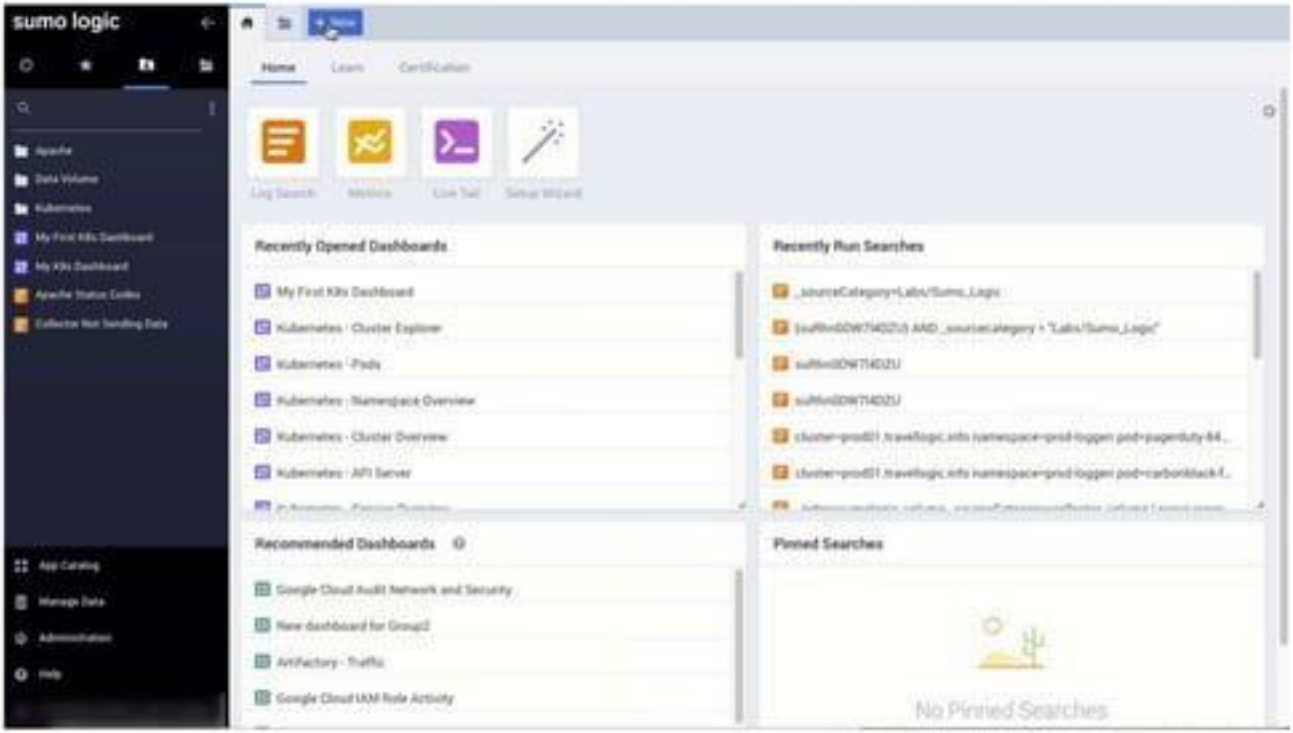
Become a Sumo Logic Kubernetes expert

1. Discover Kubernetes data and metadata in Sumo Logic
2. Explore your Kubernetes clusters with enriched metadata
3. Install apps, partner apps, and pre-built dashboards
4. Create your own custom dashboards from scratch
5. Monitor and troubleshoot with alerts and the Explore tab
6. Get certified with the Kubernetes on Sumo Logic exam

Course Agenda

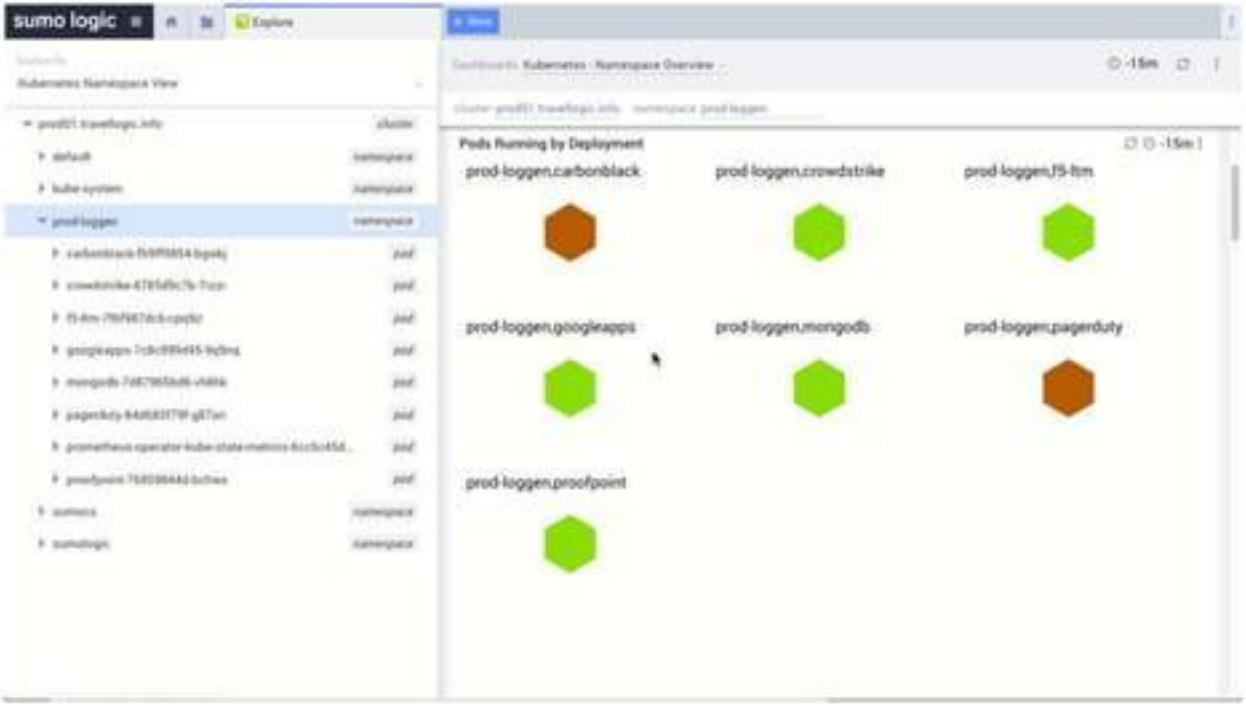
5 min.	Review Kubernetes basic concepts
5 min.	Review Sumo Logic data pipeline and metadata
5 min.	Explain Kubernetes data collection and enrichment
10 min.	Hands-on labs: Search with metadata
10 min.	Sumo Logic apps available for Kubernetes
10 min.	Explore tab and pre-built dashboards
5 min.	Break time!

Install apps and explore pre-built dashboards

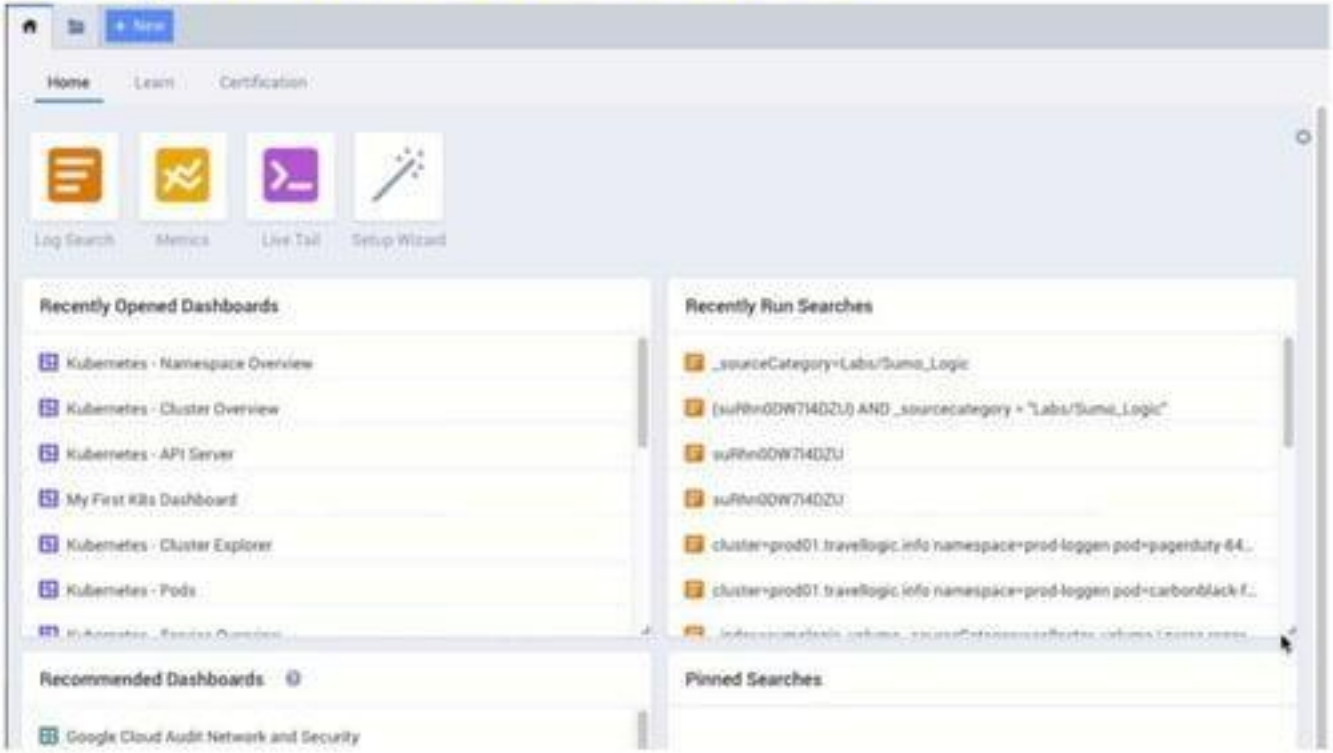


Create and customize your own dashboard

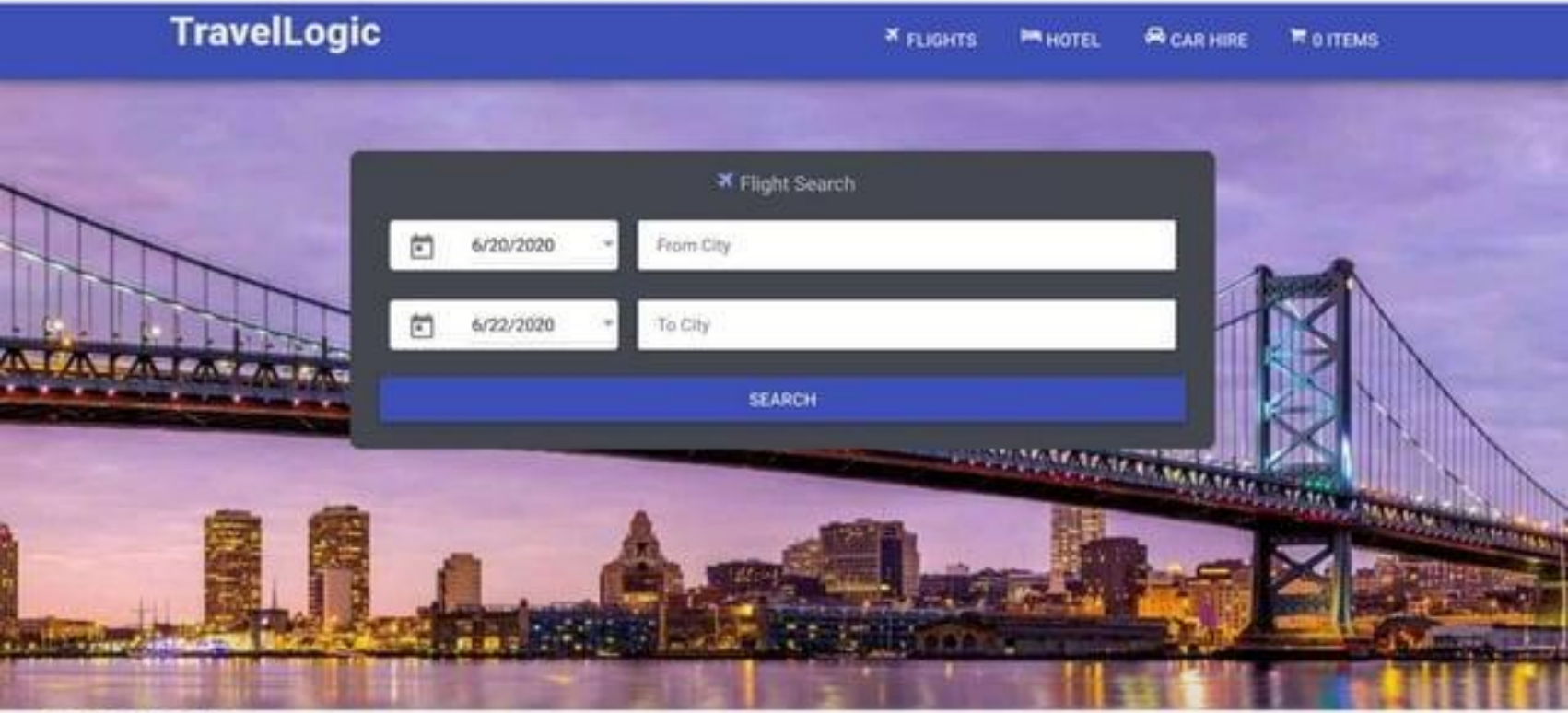
Investigate and troubleshoot a crashed pod



Create your own custom alerts

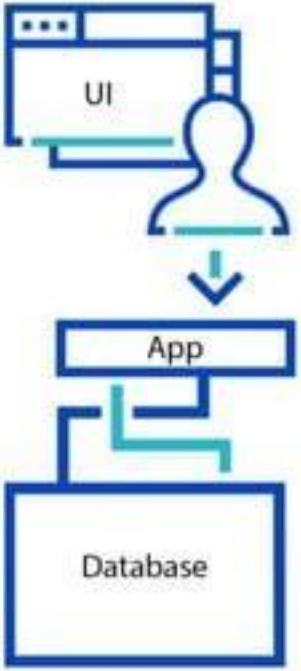


Welcome to TravelLogic Inc!

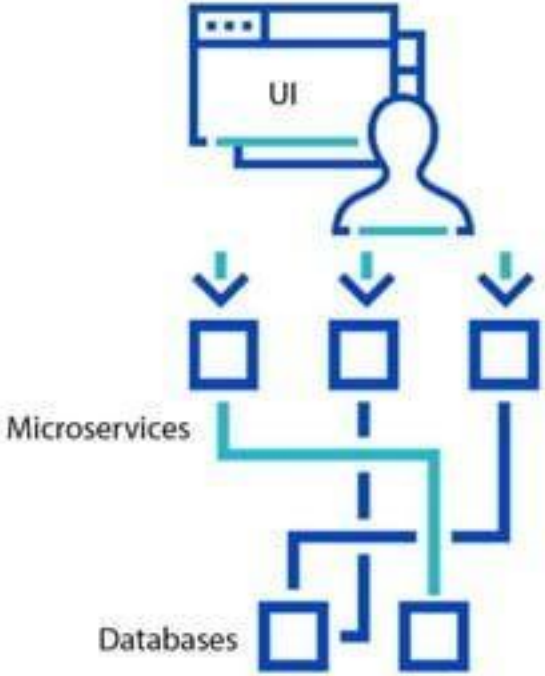


Review: Kubernetes

Monolithic Architecture



Microservices Architecture



What is Kubernetes?

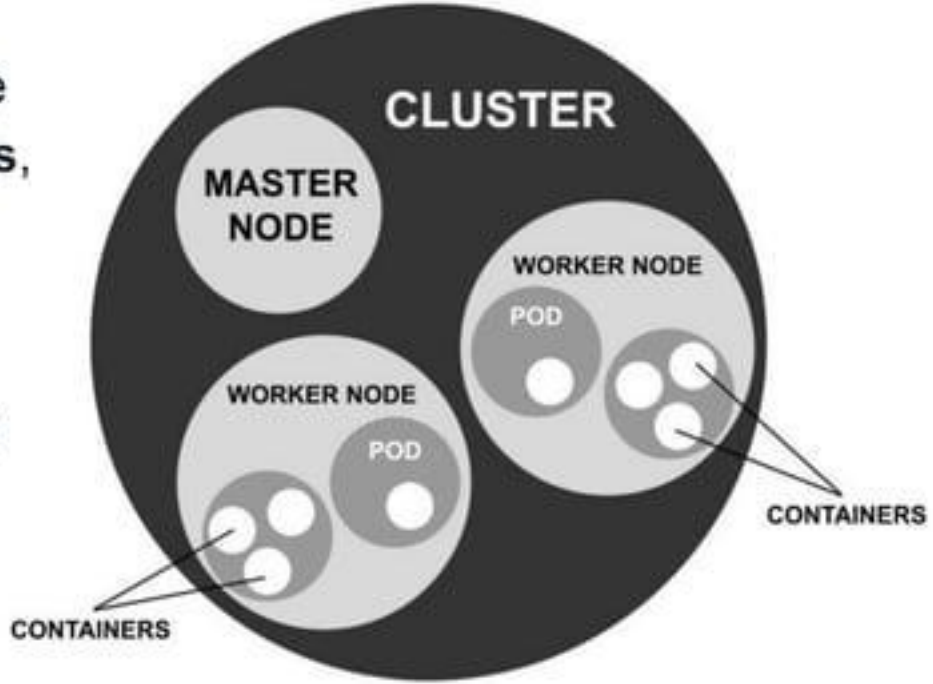
- Container orchestration system
- Open source and CNCF certified

- Guides and controls your containers, just like a ship's helmsman
- "K8s" replaces the eight letters in "ubernete" to abbreviate Kubernetes

Inside a Kubernetes Cluster

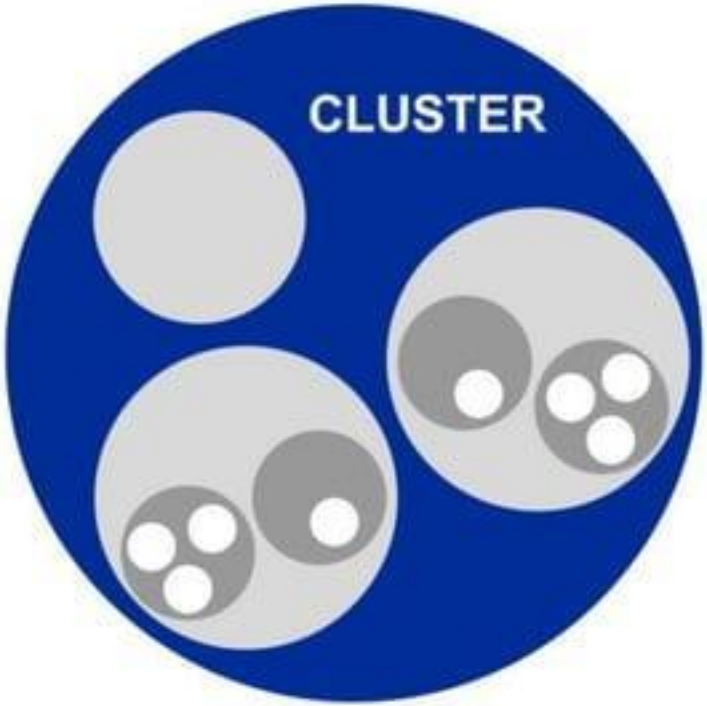
Containers are nested inside **pods**, which are inside **nodes**, which are inside **clusters**.

Abstract partitions like **services**, **deployments**, and **namespaces** also organize your cluster.



Cluster

A **cluster** is a group of machines that distribute work, providing efficiency and fault tolerance.

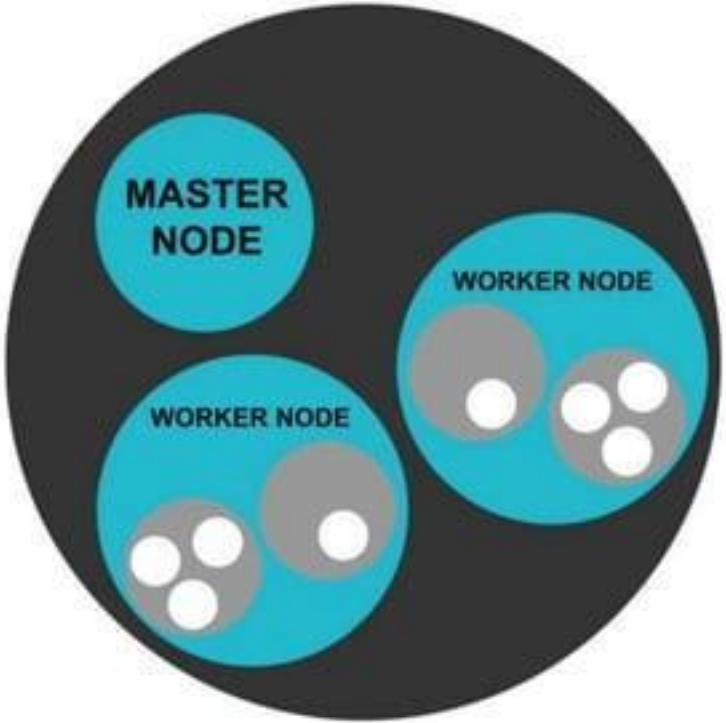


Nodes

A **node** is a single machine inside a cluster. It can be a physical or virtual machine.

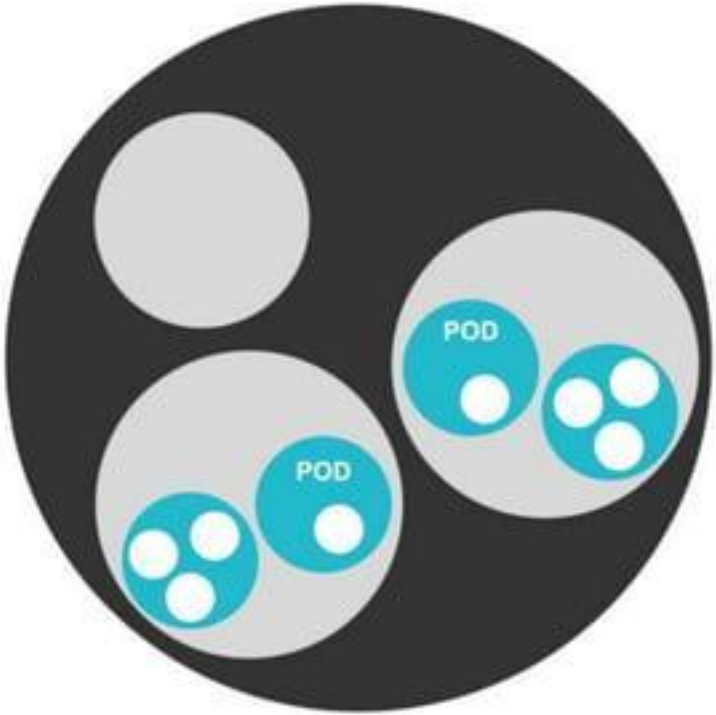
Each cluster has one **master node**. The master node assigns work to worker nodes.

Worker nodes run software, crunch numbers, store data, and do all the work.



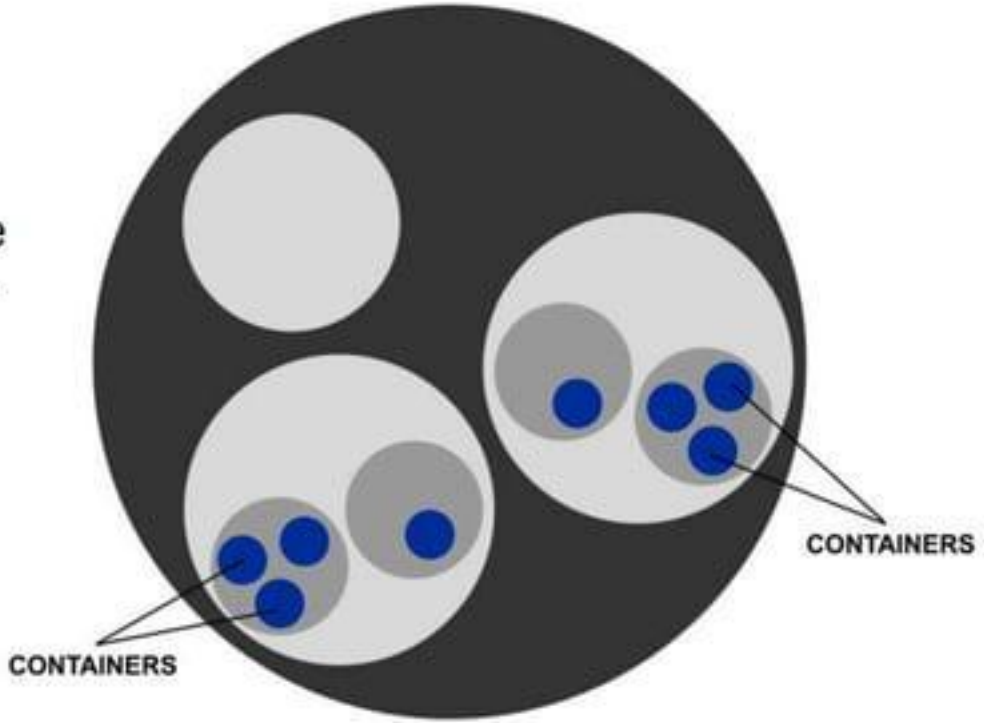
Pods

Pods are the smallest unit that Kubernetes can orchestrate.



Containers

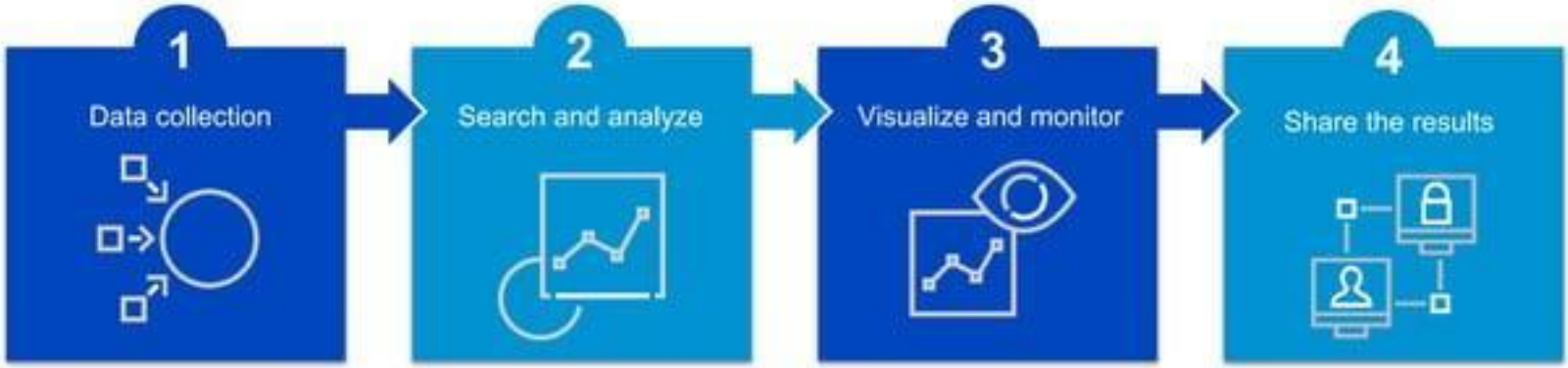
Containers are a package of code, data, and all their dependencies. They each run a single microservice.



Review:

Sumo Logic data pipeline

Sumo Logic Data Pipeline

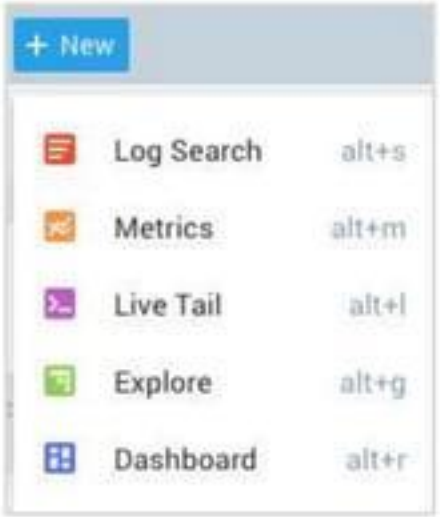


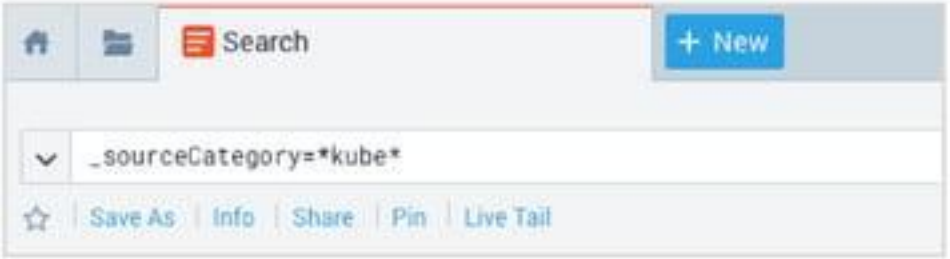
Data collection

Data Collection | Searching and Analyzing | Visualizing and Monitoring | Sharing the Findings

Search and analyze

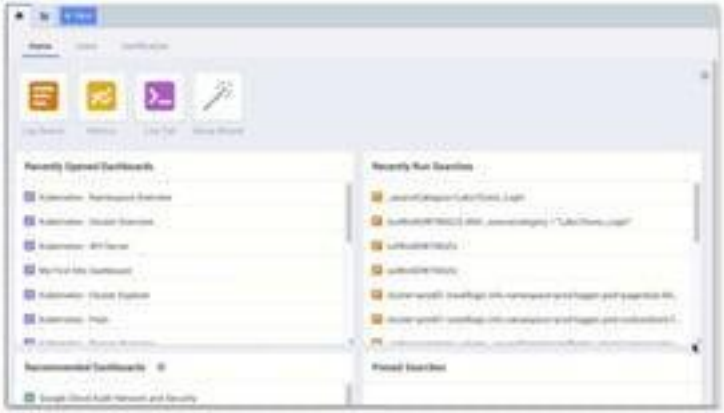
Data Collection | Searching and Analyzing | Visualizing and Monitoring | Sharing the Findings





Visualize and monitor

Data Collection | Searching and Analyzing | **Visualizing and Monitoring** | Sharing the Findings



sumo logic

Share

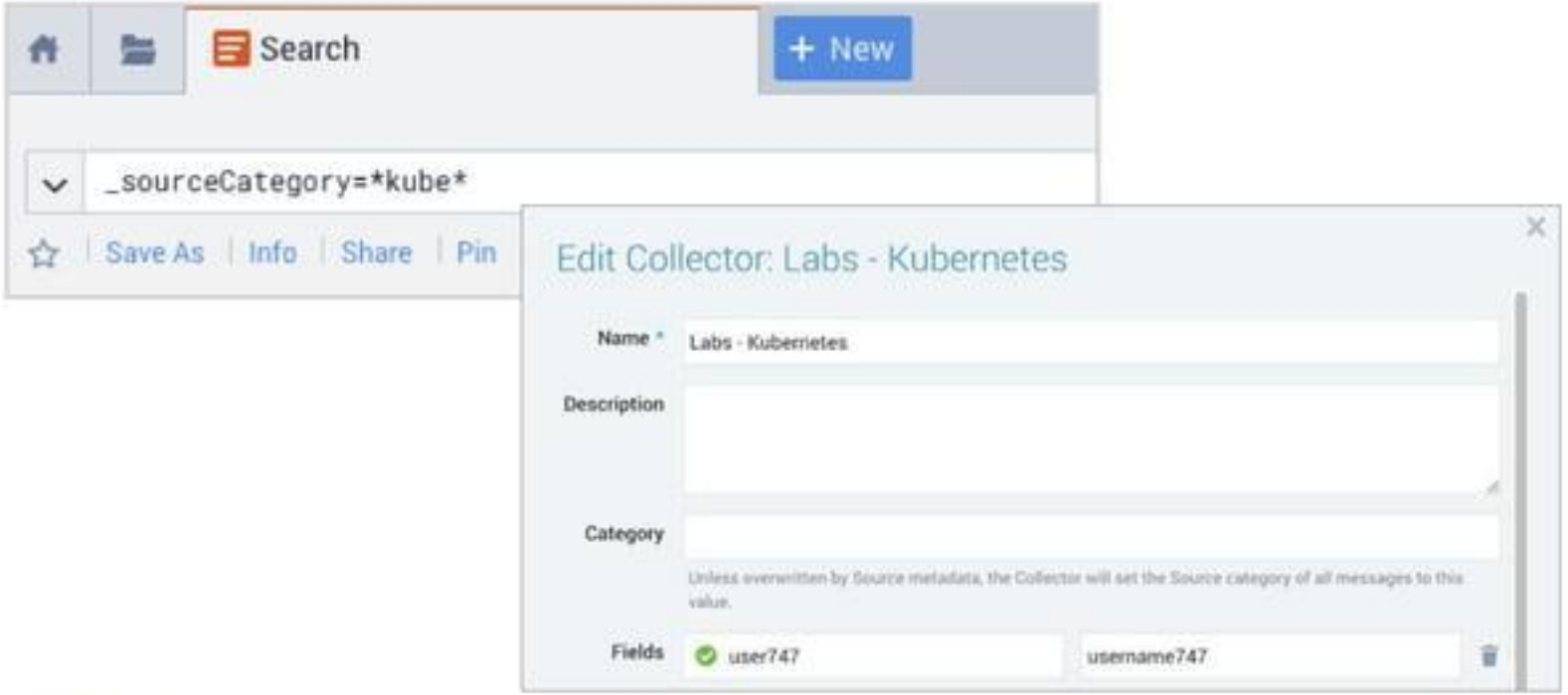
Data Collection → Searching and Analyzing → Visualizing and Monitoring → Sharing the Findings

Data collection and metadata enrichment

What is metadata?

- **Data:** Information stored by your app
- **Metadata:** Data about your data
- Searchable by fields, source categories, key-value pairs, etc.
- Good metadata design will save you time and money

Using metadata



Kubernetes data pipeline

Metadata enrichment

- Prometheus provides autodiscovery that tags pods and nodes
- Sumo Logic's metadata enrichment tags services and deployments
- Custom key-value pairs (fields) provide details on your cluster

Hands-on labs:

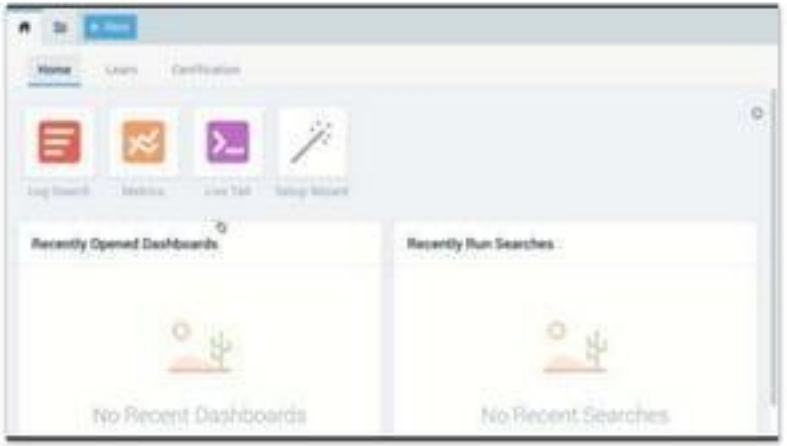
Log in to training environment

Identify metadata

Search with metadata

Access the lab guides

1. Go to: service.sumologic.com
2. Log in using your Sumo Logic credentials.
3. Click **Certification > Get Certified**.



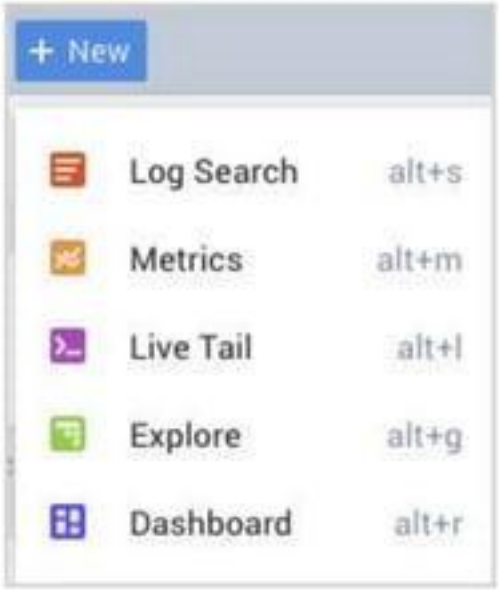
4. Go to **Kubernetes > Cert Jam Lab Guide** and enroll.

Lab 1: Identify metadata

1. Navigate to the the Sumo Logic UI.
2. Start a new **Log Search**.
3. Search for the `*kube*` metadata.
4. Click **Manage Data > Collection** for an alternate view of source category metadata.

Lab 2: Search with metadata

1. Navigate to the the Sumo Logic UI.
2. Start a new **Log Search**.
3. Search for the `sumologic` namespace.



Sumo Logic apps for Kubernetes

Your TravelLogic app

Your Kubernetes cluster

Sumo Logic's Kubernetes app

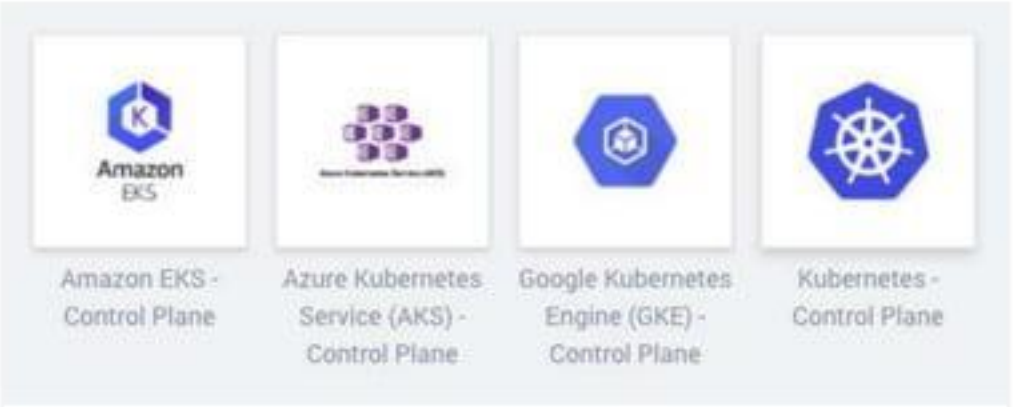
kubernetes

Sumo Logic Kubernetes app

- Manage and monitor multiple clusters
- Centralized metadata enrichment
- Visibility into the worker nodes of a K8s cluster
- Namespace, deployment, and service views
- Dynamic, live pre-built dashboards
- CNCF standards and out-of-the-box security features

Control Plane apps

- Work alongside the Kubernetes app
- Visibility into master nodes
- Open source or managed service



DevOps and CI/CD apps

- **CircleCI**. Monitor and secure the DevOps pipeline to increase delivery velocity.
- **Istio**. CI/CD partner app, including securing, connecting, and monitoring microservices.
- **Spinnaker.** Infrastructure management platform for hybrid-cloud, multi-cloud, and Kubernetes.

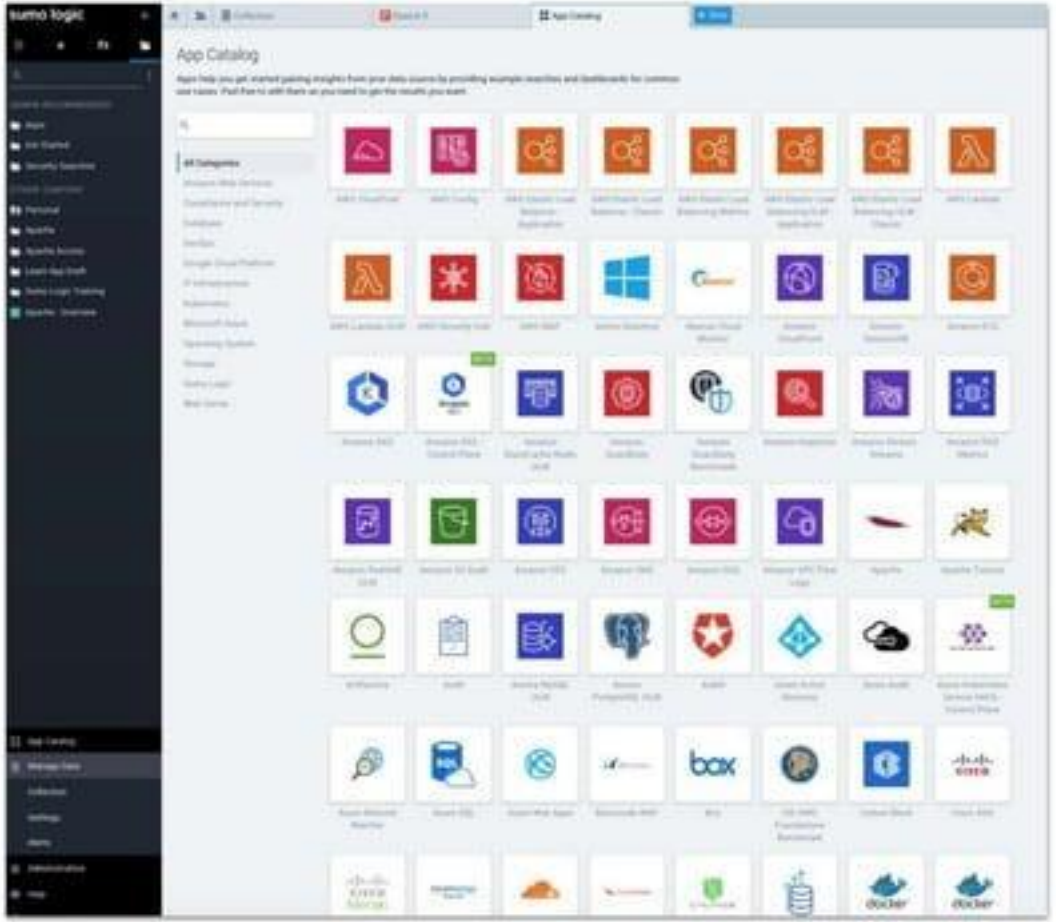
Security apps

- **Alcide kAudit.** Enhanced visibility into audit logs.
- **Stackrox.** Detect vulnerabilities, compliance violations, and runtime threats.
- **Twistlock.** Monitor and analyze hosts, containers, images, and registry.
- **Aqua Security.** Provides security and compliance for cloud-native applications.
- **JFrog Xray.** Investigate vulnerabilities across deployment environments.

JFrog Xray

Hundreds of apps

- 200+ Apps available
- Dozens of K8s apps
- Installed apps appear in your personal folder
- Only install each app once per account



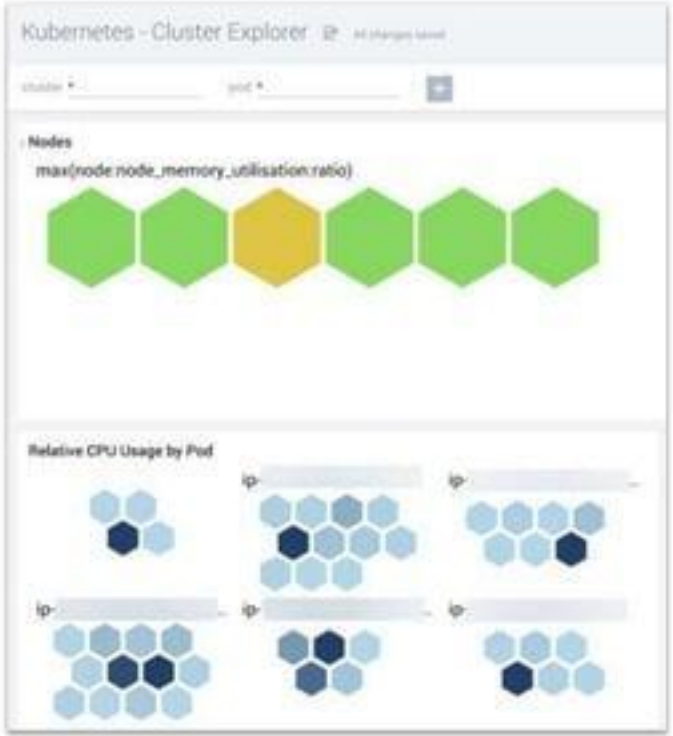
The Explore Tab and pre-built dashboards

Pre-configured dashboards

- Cluster Explorer
- Cluster Overview
- Container Logs
- Containers
- Daemonsets and StatefulSets
- Development overview
- DPM
- DPM - Timeseries
- Health Check
- Hygiene Check
- Namespace Overview
- Nodes
- Pods
- Security Overview
- Security Rules Triggered
- Service Overview

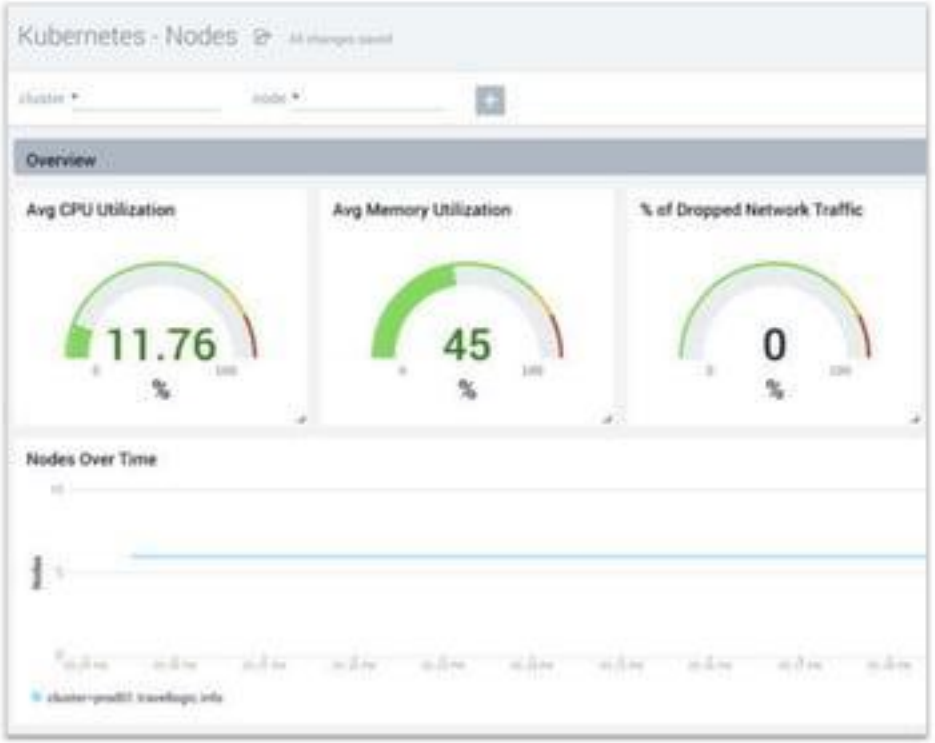
Cluster Explorer dashboard

- Overview of memory and CPU usage per node and pod
- Each cell of the honeycomb charts represent a node or pod
- Color dynamically displays resource utilization relative to other nodes and pods



Nodes dashboard

- Health and performance metrics for all nodes
- Compare long-term averages and trends

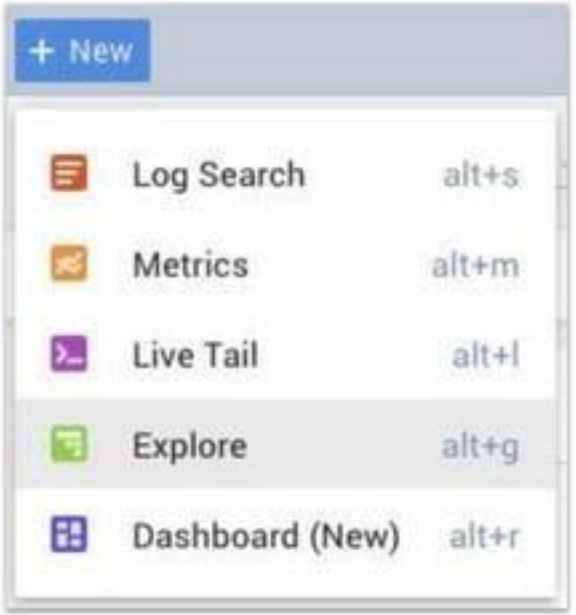


Security Overview dashboard

- High-level details about alerts, events, and errors
- Configure rules with Falco
- See which rules, nodes, pods, or apps triggered your alerts

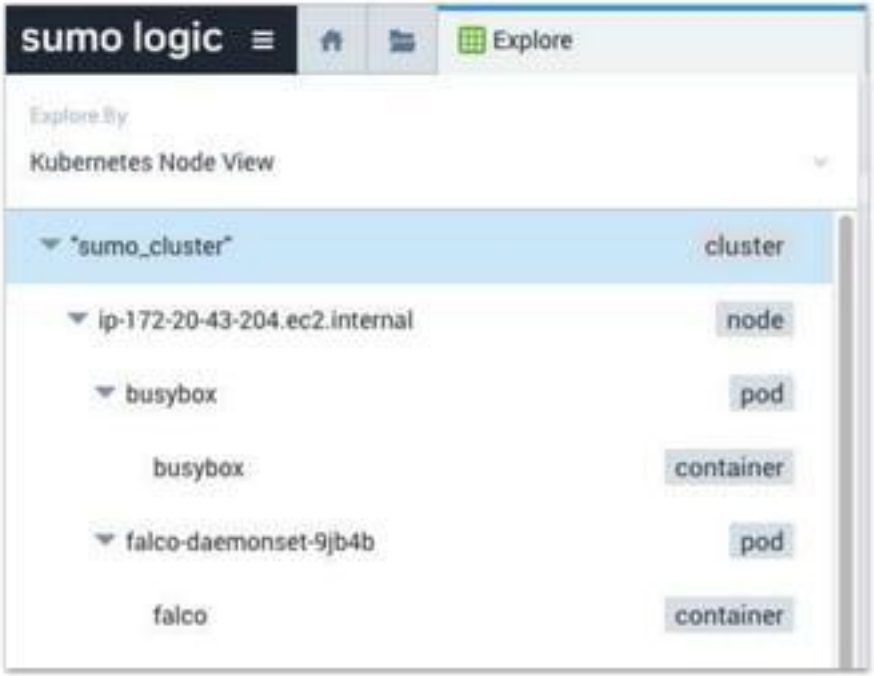
The Explore Tab

- Different views to monitor your cluster from different perspectives.
- **Node View.** Visualize cluster hierarchy.
- **Deployment View**. Organize data by deployment to monitor performance.
- **Service View**. Organize pods and nodes used by each service.
- **Namespace View**. Track environments across teams or projects by namespace.



Node View

- Visualize cluster hierarchy
- Explore infrastructure topology in public cloud, private cloud, or bare metal



Deployment View

- Displays the deployments used by each namespace
- Shows which pods and containers run inside each deployment
- Monitor deployment performance and manage necessary changes

Service View

- Displays services running in each namespace
- Monitor and improve UX

Namespace View

- Organize your cluster into namespaces
- Useful for large clusters divided into teams or products

Break time!

Course Agenda (cont.)

15 min.	Hands-on labs: Install apps; pre-built dashboards; Explore
5 min.	Classic Dashboards and Dashboards (New)
15 min.	Hands-on lab: Create a Dashboard (New)
5 min.	Monitoring and troubleshooting
10 min.	Demo: Troubleshoot a pod
10 min.	Hands-on lab: Create an alert
60 min.	Q&A and get certified as a Kubernetes on Sumo Logic user

Hands-on labs:

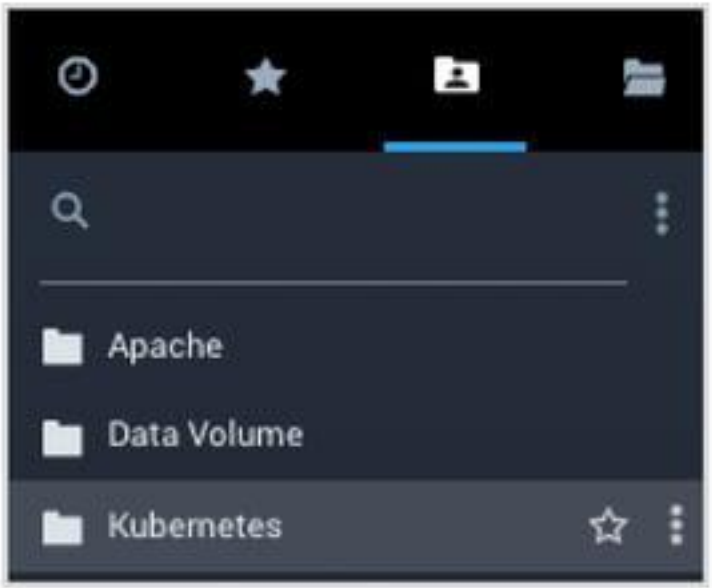
Install the Kubernetes app

View pre-built dashboards

Navigate with Explore

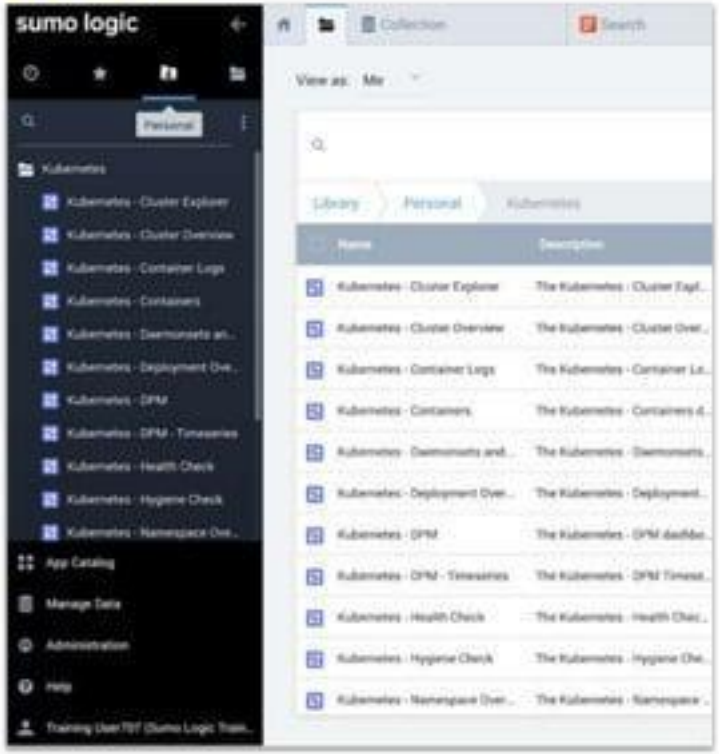
Lab 3: Install the Kubernetes app

1. Check the **Personal** folder for the Kubernetes app.
2. Click **App Catalog** in the left nav.
3. Search for “Kubernetes.”
4. Install the Kubernetes app if it hasn’t already been installed.



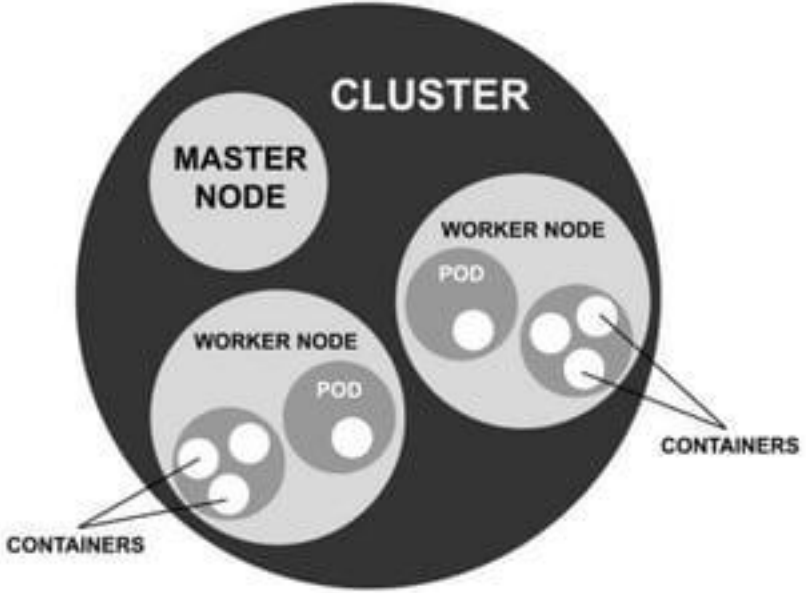
Lab 4: View pre-built dashboards

1. Open the **Kubernetes** folder under your personal folder.
2. Click the **Kubernetes - Cluster Overview** dashboard.
3. Use this dashboard to answer the questions in your lab guide.



Lab 5: Navigate Kubernetes with Explore

1. Click **+New > Explore** to open an Explore tab.
2. Select the **Kubernetes - Node View**.
3. Drill down to find the nodes inside your cluster, the pods inside your nodes, and the containers inside your pods.



Classic Dashboards and Dashboards (New)

Classic Dashboard

- Basic charts, like time series and categorical
- Few color and font choices
- Panels created from search and metrics tabs
- Limited filters and queries
- Still supported

Dashboard (New)

- New charts, like Honeycomb
- Full control over look and feel with JSON
- Build panels directly in the dashboard
- Advanced filtering and metrics query building

Single values and text boxes

- Simplest panel types
- Single values can highlight key metrics
- Text boxes can provide explanation, like data sources or how to interpret data

Categorical charts

- Compare data across categories
- Pie charts to compare percentage of errors by error type
- Works best with `counts` or other categories

Time series charts

- Compare data over time, like errors per minute or amount of resources used per hour
- Data must be `timesliced`

Honeycombs and maps

- Map charts are great for geolocation data
- Honeycombs are great for comparing relative data
- Both display hotspots: physically or virtually

Hands-on labs:
Create a Dashboard (New)

Lab 6: Create and share a Dashboard (New)

1. Create a four panel dashboard. The labs guide you through creating a text panel, single value, time series, and categorical chart.
2. Customize your dashboard. Try using your favorite colors or your company's brand colors.
3. Save and share your dashboard.

Monitoring and Troubleshooting

Troubleshooting and monitoring

- Does every alert or warning need your immediate attention?
- How can you find more information about an issue?
- How can you resolve the issue?

Basic cluster checks

- How many worker nodes are unhealthy?
- What disk, CPU, and memory resources are being used up?
- Have any pods crashed?
- Is my autoscaler scaling out as expected?
- Are my requests getting routed as I expected?

Common alerts

- **Crash loop.** Replication service keeps restarting pods.
- **Nodes not ready.** Insufficient resources allocated to a node.
- **Memory limits exceeded.** Container requests too much memory and may be destroyed and restarted.

Ask for help

1. **Get your company info.** Your company's account information and the your Sumo Logic account rep's contact.
2. **Get your cluster info.** Details like cluster name, YAML files, version numbers, and how you collect data into Sumo Logic.
3. **Describe the problem**. Document and gather things like log files, error codes, and a description of the problem.
4. **Submit a ticket**. Go to https://support.sumologic.com/

Demo

Troubleshoot a pod

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Hands-on labs:
Create an alert

Lab 8: Create an alert

1. Click **Manage Data > Alerts** to create a new metrics query.
2. Write your query and click the **Alerts** icon (bell).
3. Set up rules for when your alert is triggered, who gets notifications, and how those notifications are delivered.

Questions?

Assessment

Assessment Description

- 20+ questions
- 60 minutes to take it
- Need a 70% to pass
- Open Resource (slides, labs, and documentation)

Certification

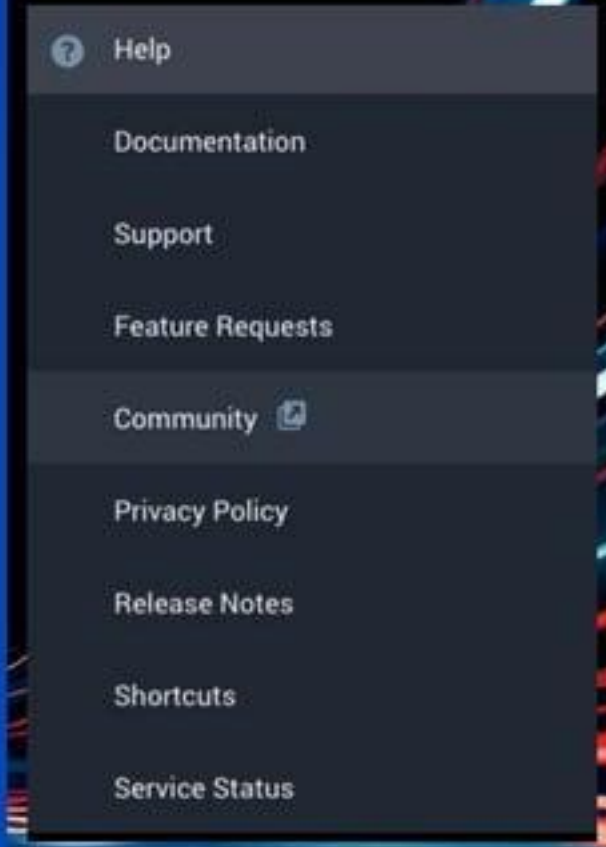
In order to get credit for the exam, go to **your own Sumo account and login**
(your company account, not the training account)

Assessment:

1. Click  > **Certification**
2. Click **Get Certified**
3. Click **<course category>**
4. **Click <course name>**
5. Click Register | FREE
6. Under **Read Me First,** click **Before you start**
7. Click Next
8. Click START ASSESSMENT

If you find your login is cycling back to the exam screen, do the following:

- In the black left bar, click **Help**
- Click **Community**
- An email verification should be sent to your inbox
- Once you verify, you should able to take the exam without any issues



In order to get credit for the assessment

Follow these steps:

1. After each section, click **Next** or **Submit**
2. When you get to the last section, click **Go to results**
3. When you passed the class, you'll get a congratulations message. Then click **Submit results**.
4. After your feedback, you can click **Close course**

For passing the exam, you will earn:

- A Certificate
- An invitation to our LinkedIn Group
- The respect of your peers
- Fame, Fortune and more...

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Start your review today
(it should only take 10-15 minutes)

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