

MICHIGAN STATE  
UNIVERSITY

# Beta Presentation

## Kubernetes Cluster Inspection Tool

The Capstone Experience

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*From Students...  
...to Professionals*

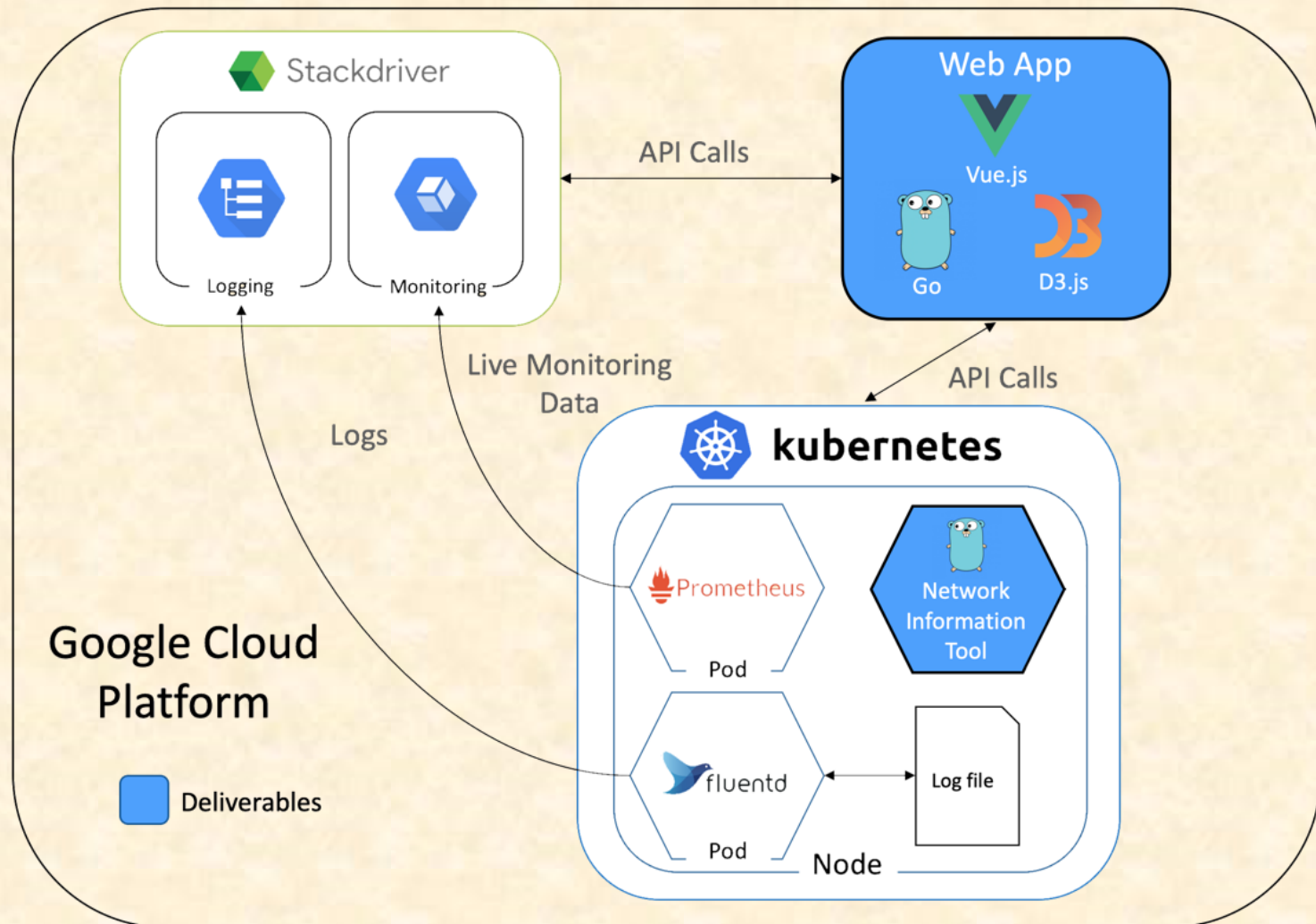
# Project Overview

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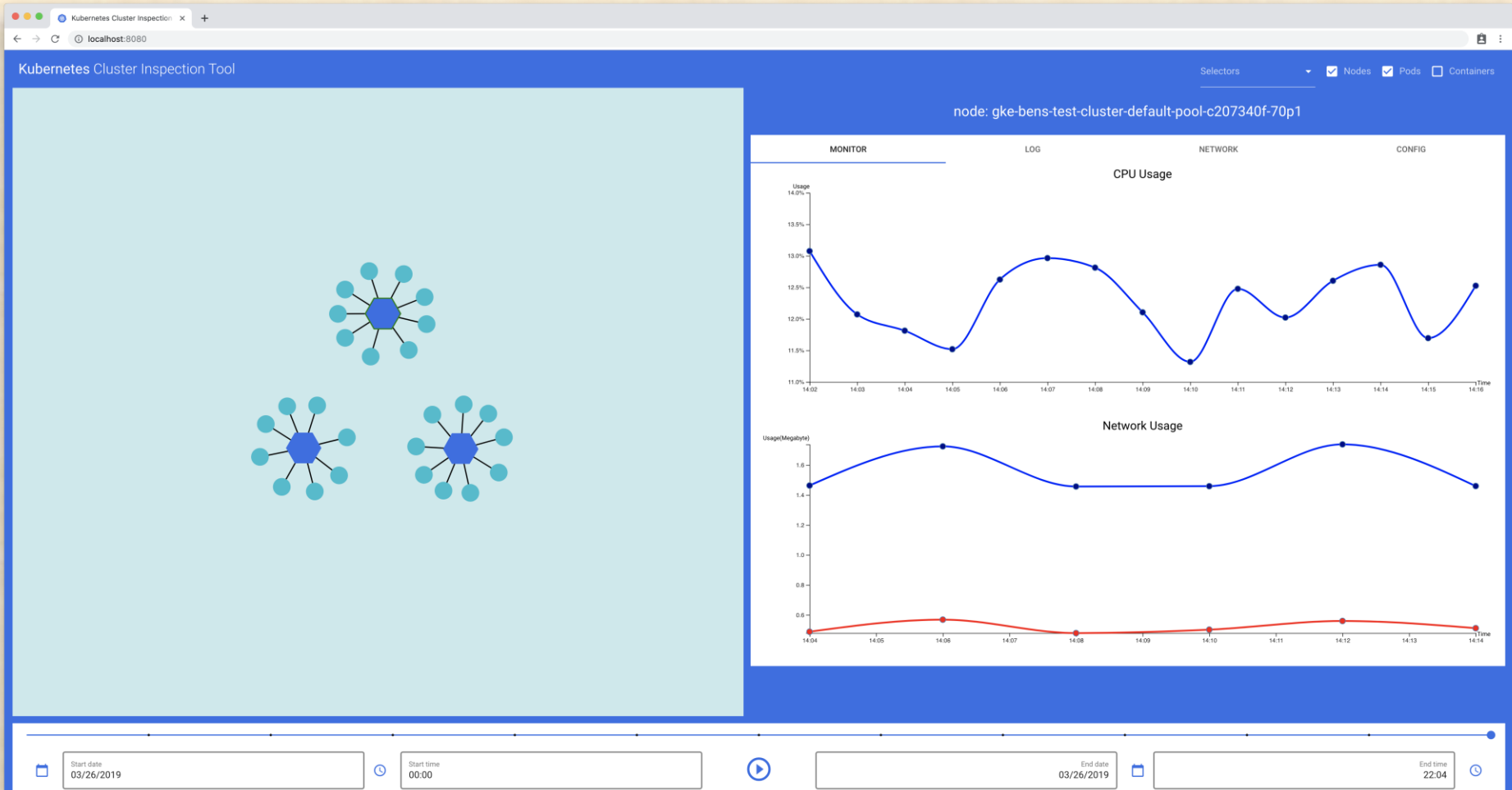
- Provide Robust Inspection Tool of Kubernetes Cluster
  - Both Current and Historical State
- Gather All Cluster Data into a Single Interactive View
  - Provide Health, Performance, and Resource Changes
  - Ingest with Native, Kubernetes Stackdriver Agent
  - Trace Lifecycle of Nodes, Pods, and Containers
- Implement Easily on Any GCP Kubernetes Cluster



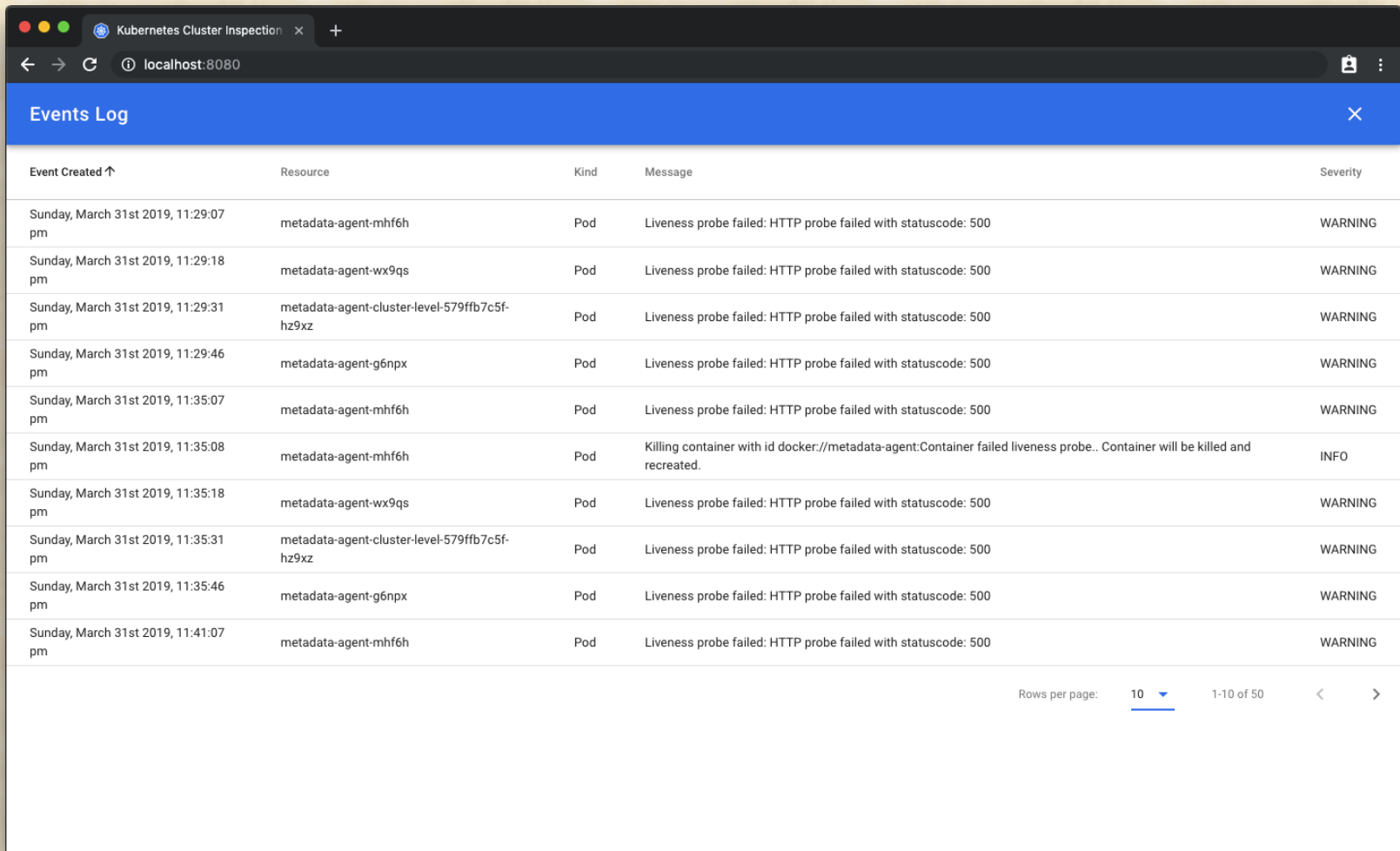
# System Architecture



# Stackdriver Monitoring Metrics for a Selected Node



# Cluster Events from Stackdriver Logging

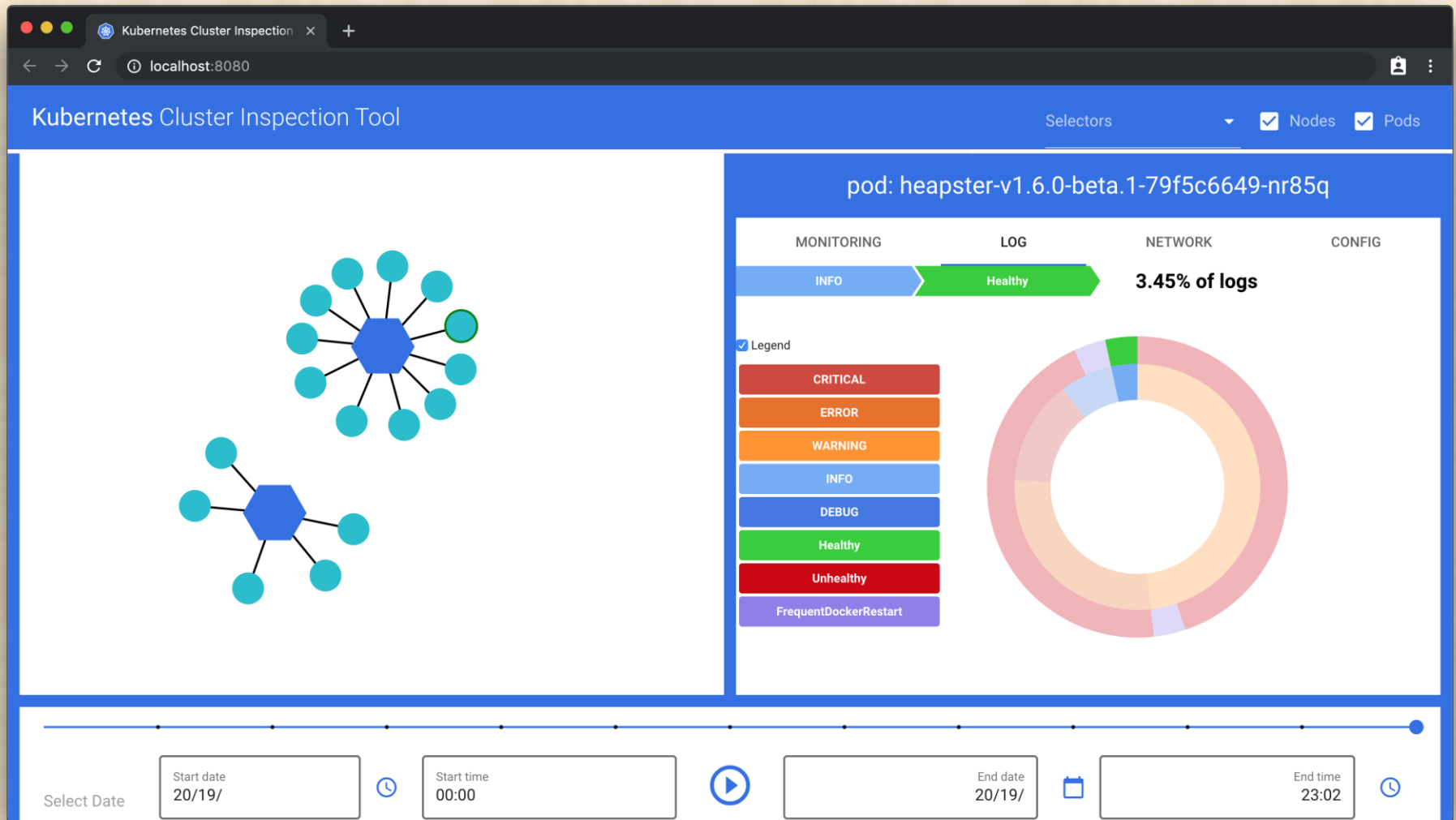


Event Created ↑	Resource	Kind	Message	Severity
Sunday, March 31st 2019, 11:29:07 pm	metadata-agent-mhf6h	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:29:18 pm	metadata-agent-wx9qs	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:29:31 pm	metadata-agent-cluster-level-579ffb7c5f-hz9xz	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:29:46 pm	metadata-agent-g6npx	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:35:07 pm	metadata-agent-mhf6h	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:35:08 pm	metadata-agent-mhf6h	Pod	Killing container with id docker://metadata-agent:Container failed liveness probe.. Container will be killed and recreated.	INFO
Sunday, March 31st 2019, 11:35:18 pm	metadata-agent-wx9qs	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:35:31 pm	metadata-agent-cluster-level-579ffb7c5f-hz9xz	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:35:46 pm	metadata-agent-g6npx	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING
Sunday, March 31st 2019, 11:41:07 pm	metadata-agent-mhf6h	Pod	Liveness probe failed: HTTP probe failed with statuscode: 500	WARNING

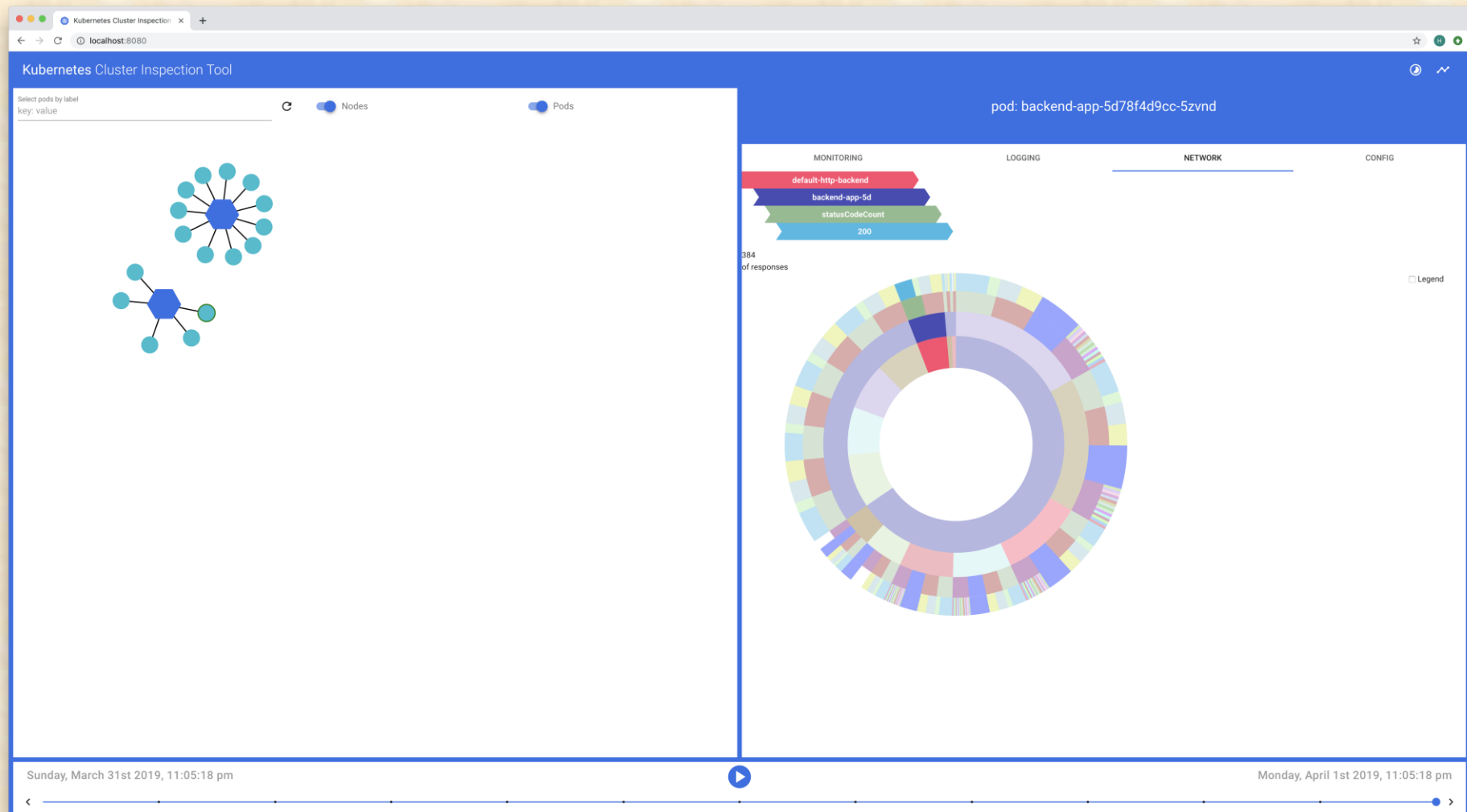
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# Severity Insights from Stackdriver Logging



# Network Traffic Between Pods





# What's left to do?

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- Google Cloud Platform Deployment of the Network Information Tool
- Specific Keyframes for Important Events in Playback
- Flexibility for Playback Timeframes
  - Timezones
- IAM Roles Instead of Tokens
- Polishing the Front End





# Questions?

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