

# HPC Scheduling with Kubernetes

Sprint 5

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# Content

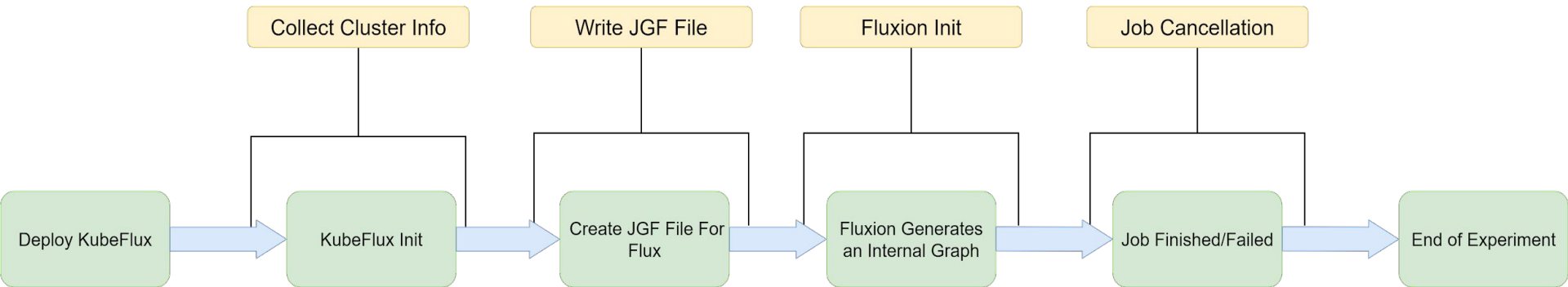
- Project recap
- Performance metrics
- Demo of time measurement
- Burndown chart
- Final Steps

# About the Project

- State inconsistencies between the Kubernetes cluster and the Kube-Flux scheduler
- Implemented an informer to update cluster state information to the Kube-Flux resource graph for its own scheduled pods
- Explored the solution to solve the co-scheduling of pods deployed by multiple schedulers
- Working on gathering statistics report of the Kube-Flux performance

# Performance Metrics

- Collect Cluster Information
- Write JGF (Json Graph Format) File
- Fluxion Initialization
- Job Cancellation



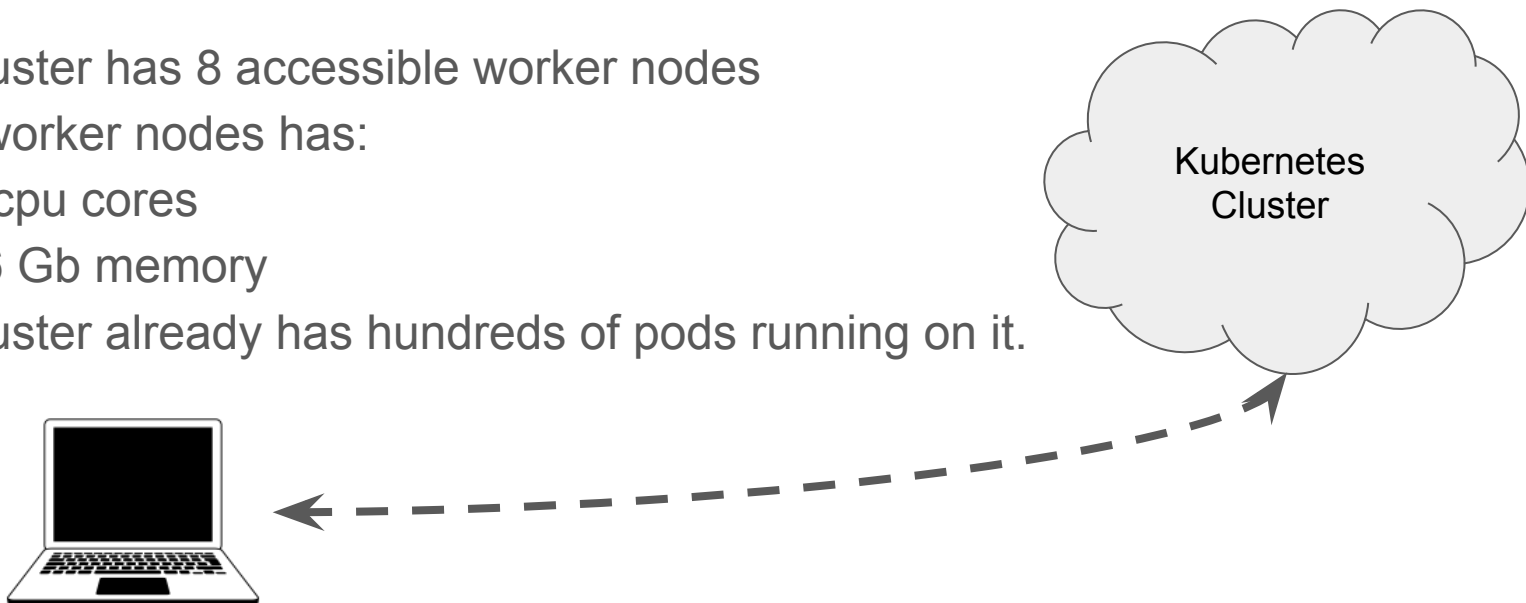
# Demo Outline

1. Introduce our remote cluster
2. Measure time consumption of operations in Kubeflux
3. Present results

# Remote Cluster

This time we do our demo on a remote cluster instead of a local cluster in order to collect information in a production environment

- The cluster has 8 accessible worker nodes
- Each worker nodes has:
  - 4 cpu cores
  - 16 Gb memory
- The cluster already has hundreds of pods running on it.

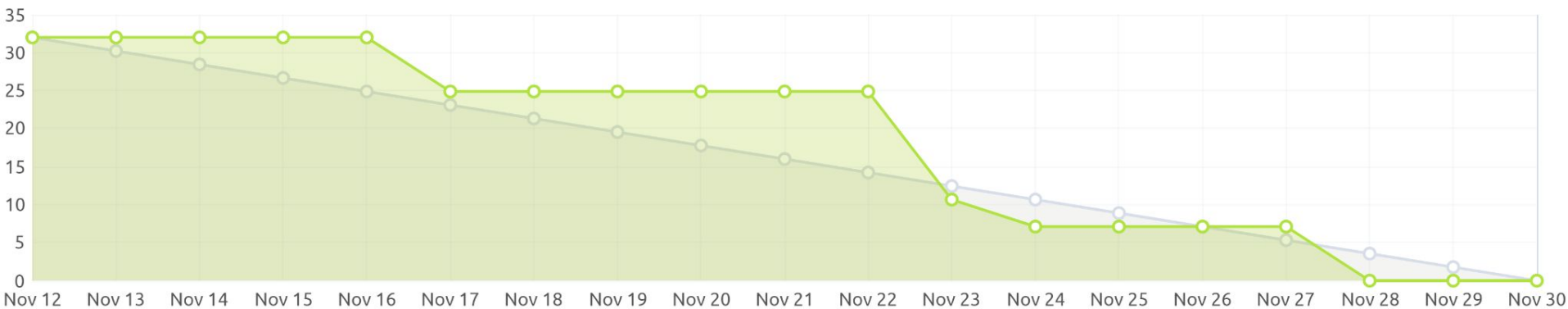


# Demo - Experiment Results

Measurements in Experiments (Unit: Second)					
No	Resource Graph Creation				Job Cancellation
	Collect Cluster Information	Write JGF File	Fluxion Initialization	Overall Time Consumption	
1	2.15588139	0.00185015	0.002944827	2.160676367	0.000160137
2	0.424259821	0.001822241	0.003250035	0.429332097	0.000161866
3	0.281901809	0.002125131	0.004601823	0.288628763	0.000138845
4	0.382038727	0.006396838	0.003113534	0.391549099	0.000142303
5	0.211644054	0.004054272	0.003107828	0.218806154	0.000151261
6	0.45694305	0.001359202	0.003051238	0.46135349	0.000130882
7	0.216843598	0.007000077	0.003323509	0.227167184	0.000113033

# Sprint 5: Closed Tasks

- Performance of informer in an real world cluster
- Compare performance of KubeFlux operation





# Closing Steps for the Project

- Final Demo
- Updating the README
- Updating repository to provide clear steps for setting up and running the project

Thank You!