

# INTRODUCTION TO KUBERNETES

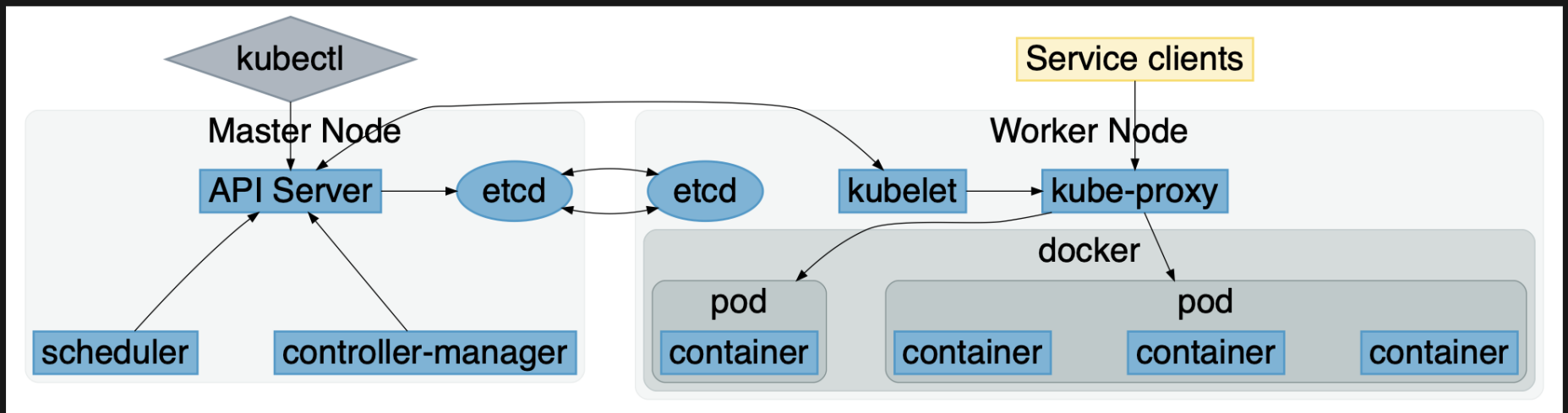
Janne Pelkonen, CTO, IdeaNova Technologies, Inc.

- Quick introduction to Kubernetes
- Overview of IdeaNova use cases and experiences
- Demo
  - Creating a sample application and a local cluster
  - Deploying, running and scaling the sample
- Presentation and demo is available on Github  
(<https://github.com/IdeaNova/kubernetes-talk>)

# KUBERNETES OVERVIEW

- Open Source system for deploying, scaling and managing containerized applications
  - "Operating System" for distributed applications
- Developed by Google
  - Conceptually based on internal systems (Borg/Omega)
  - Released in 2014
  - 1.0 release in 2015
- Vendor neutral, managed by CNCF

# KUBERNETES ARCHITECTURE



# DEMO

- Create app
- Deploy app
- Create a service
- Setup console
- Scale an app

# OUR EXPERIENCE @IDEANOVA

- Long time user of docker containers
  - Distributed as containers
  - Often pre-configured to work together with Docker compose
- Considerations for our cloud platform
  - Vendor independence (+)
  - Industry momentum (+)
  - Additional cost and complexity (-)

# CASE STUDY: CLOUD PACKAGER

- Used to DRM encrypt and package video content
  - Based on our battle-tested packaging technology
- Runs on AWS
- Main flow
  1. Content is copied to S3 inbound bucket
  2.  $\lambda$ -function is creates a Job in K8S cluster
  3. Packager pod
    1. Copies the content from S3 bucket
    2. Runs the packager
    3. Copies the output to an outbound S3 bucket

# EXPERIENCES

- We used Amazon EKS
  - AWS managed master
  - Worker nodes are your responsibility
- Set up is non-trivial
  - We used terraform to setup our cluster
- Setting up networking can be difficult
  - Multiple networking layers (AWS, VPC etc.)
  - Try to keep things simple

# EXPERIENCES (CONT'D)

- AWS provides AMIs for worker nodes
  - Early images (mid-2018) had issues
  - Upgrades were not always compatible
- Kubernetes itself performed as expected
- Local testing/debugging is a win



# DISCUSSION