



# Fission

Open Source Serverless Functions For  
Kubernetes

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# ► Agenda

- Functions as a Service: Motivation and background
- Fission: What it is and how it works
- Demos
- Questions



# Containers

- Brought uniformity to a complex space
- Somewhat heavyweight:
  - Image management, versioning etc.
  - Registry management

# ► Resource Allocation

- We're moving to a world with a lot of small services
- Rarely-used services still need minimum resource allocation
- Cluster capacity as a function of deployment size vs. actual use

# ► What if?

- What if we had the power of containers but very light dev workflows?
- What if we could have cluster capacity as a proportion of actual service usage?

# ► Functions as a Service

- Short-lived stateless “functions”
- Source / function / module level
- Associated with an Event / HTTP / other trigger; activated on request only
- Fast on-demand start (“cold start”)

# Fission

- Open source FaaS framework for Kubernetes
- By Platform9 Systems + many open source contributors

# ► Fission: FaaS on Kubernetes

- Functions
- Environments: “Generic” containers
- Triggers



## ► Fission: how it works

- Pool of “generic” containers for each environment
- Functions loaded on demand

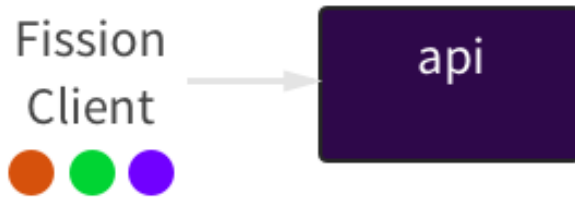
Fission  
Client



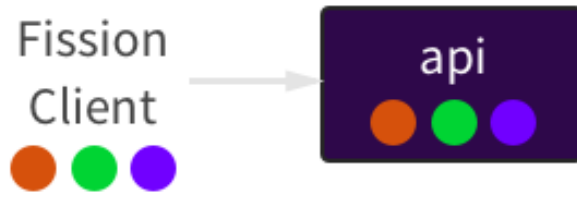
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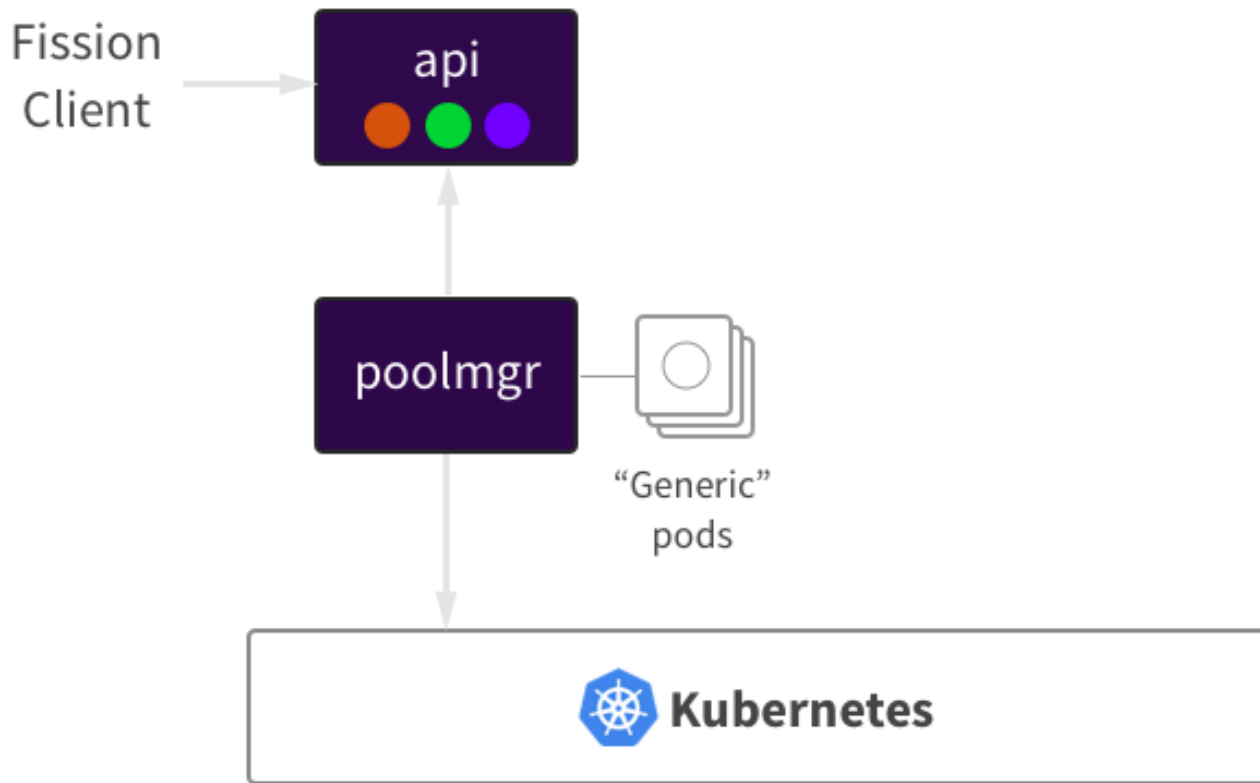
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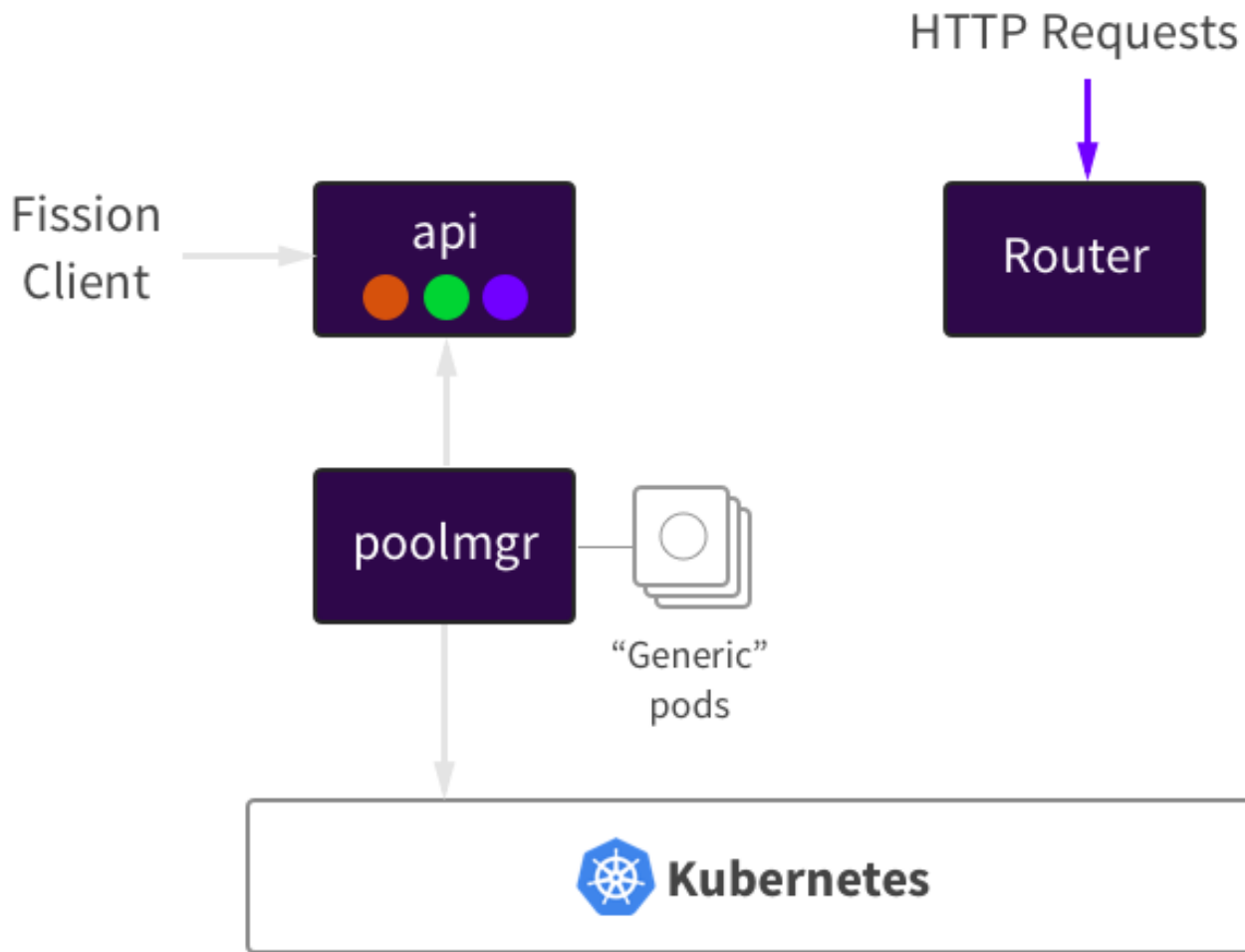


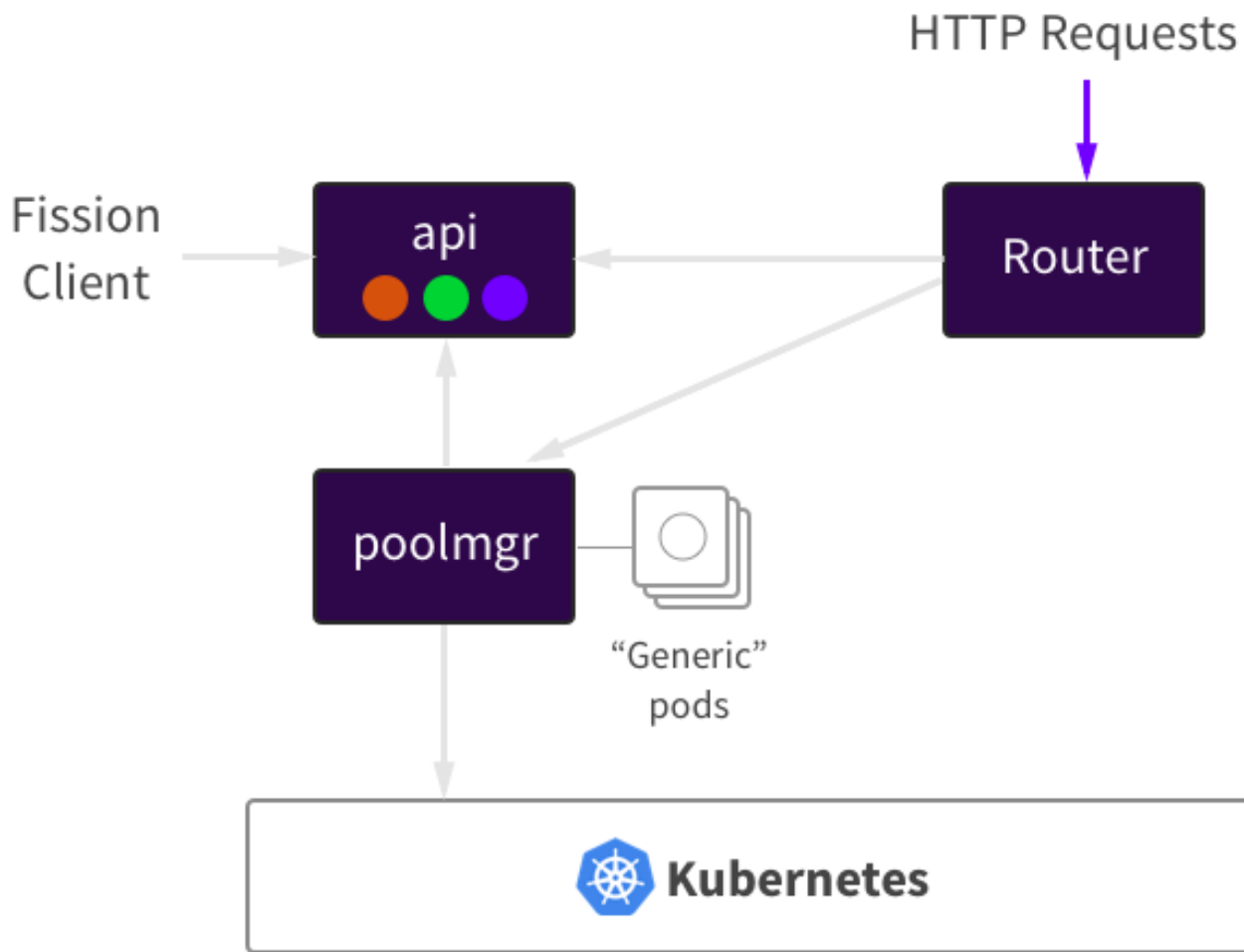
**Kubernetes**

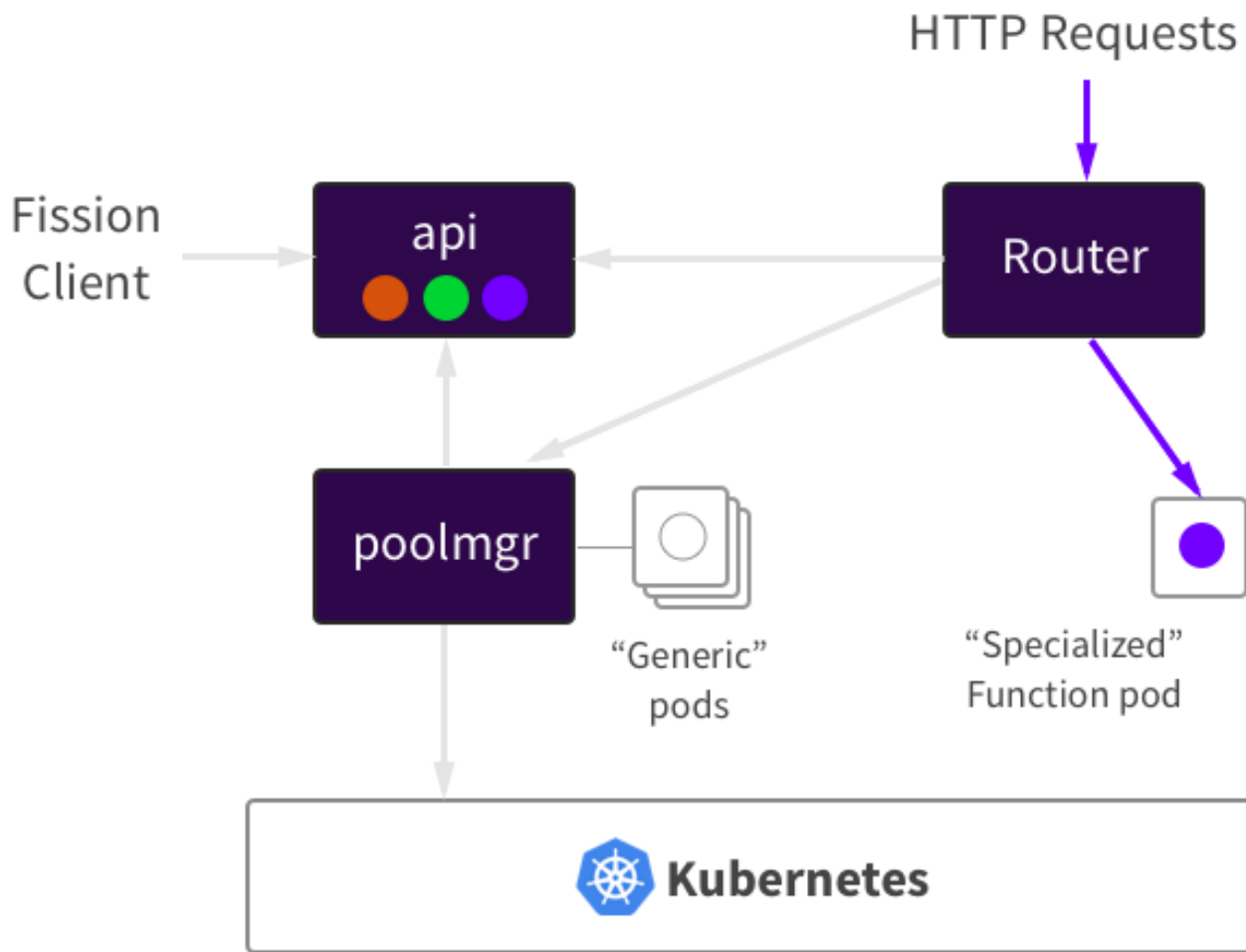


**Kubernetes**

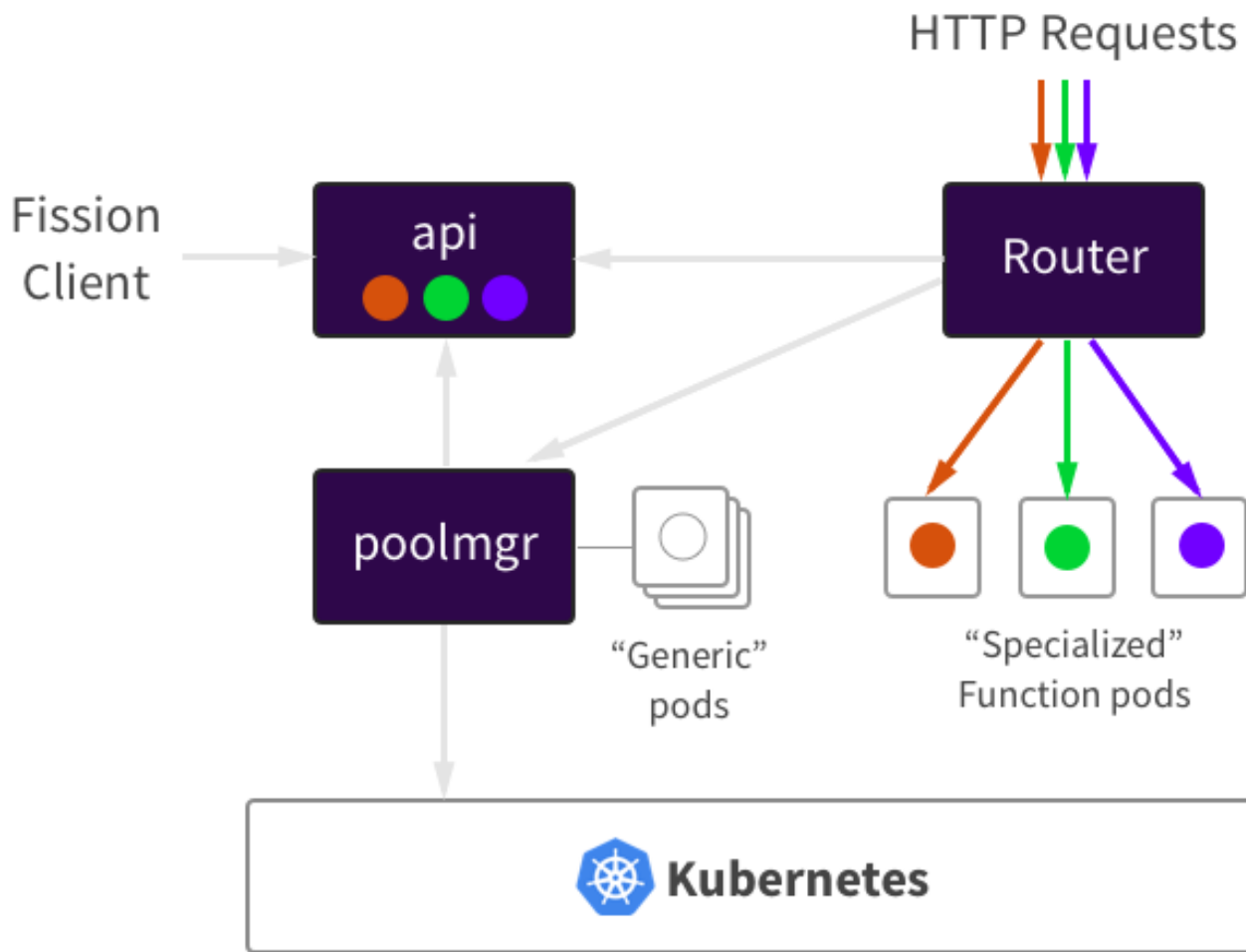




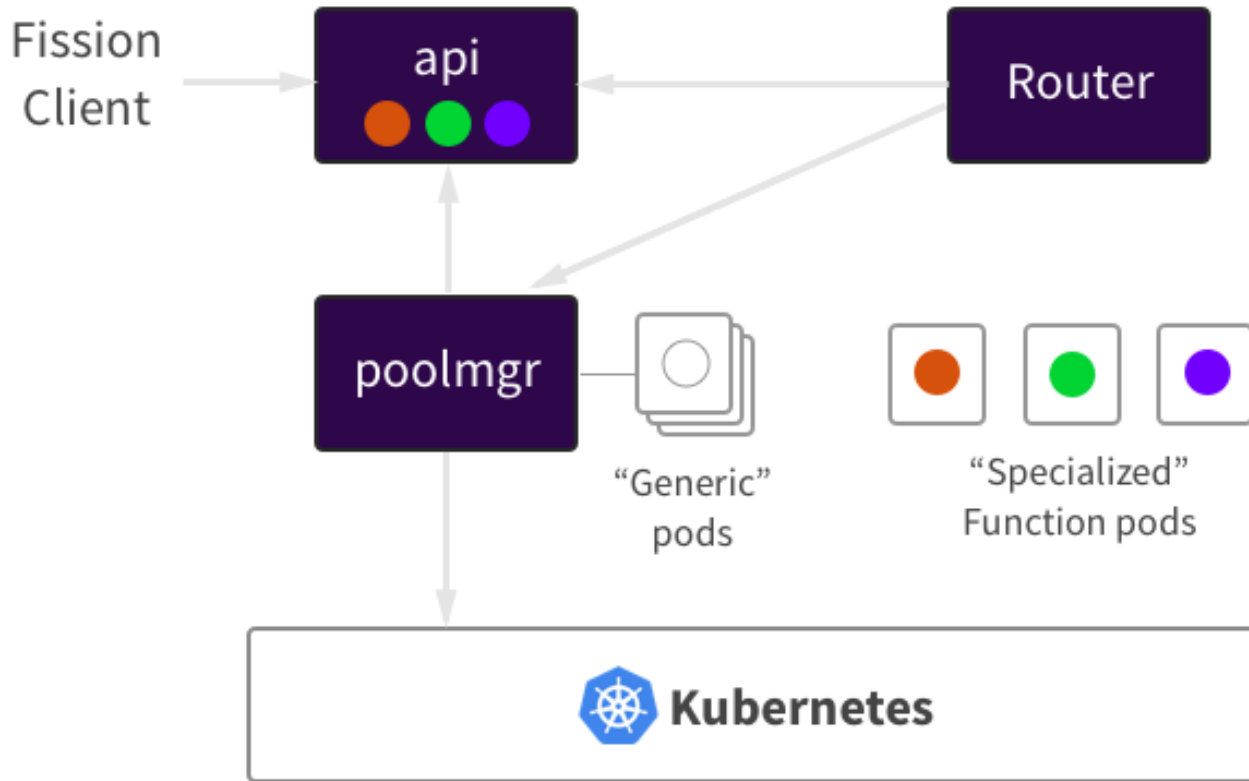




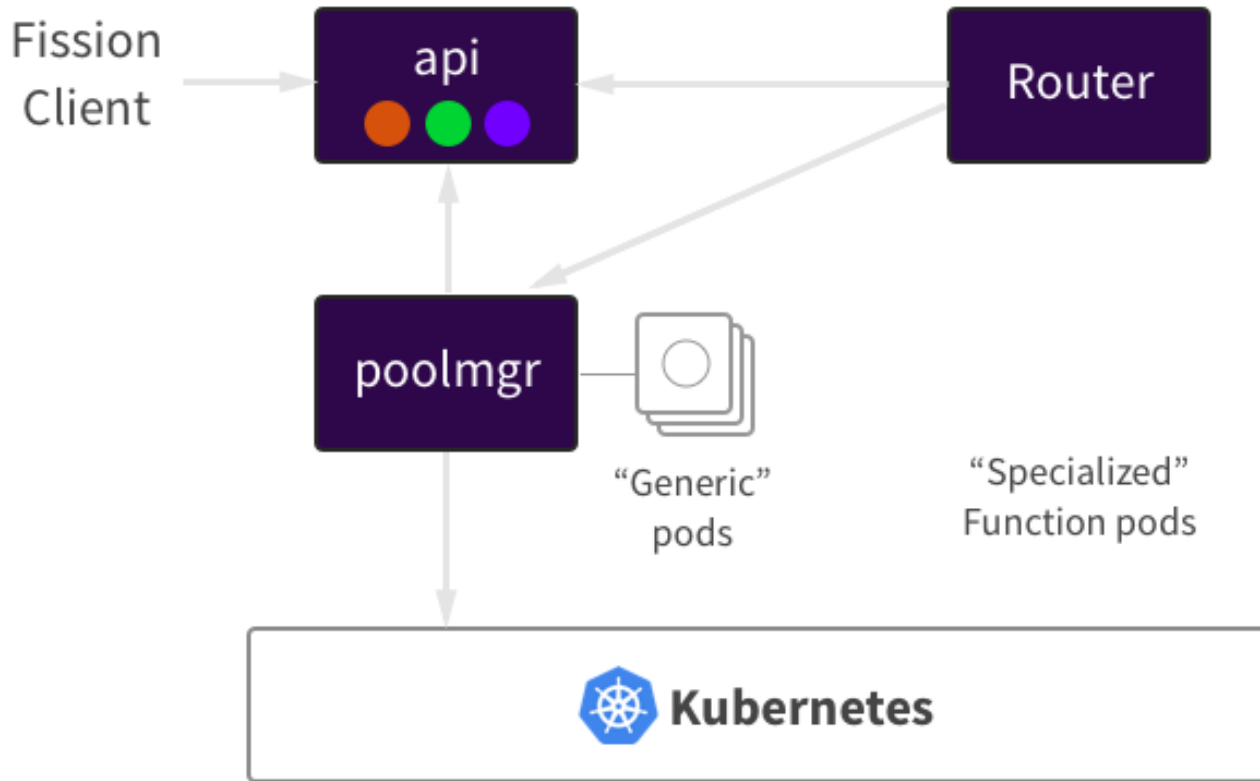




## HTTP Requests



## HTTP Requests





# Use Cases

- ~Small REST APIs
- Webhook implementations
- Kubernetes watch event handlers

# ▶ Demos



# Project Status

- Open sourced Nov 2016
- Currently alpha; beta in Nov 2017
- Healthy community!
- 1900 Github stars, 33 contributors, 165 on the Slack

# ► Near-Future Roadmap

- More powerful environments (packages, compile step)
- Composing functions together into Workflows
- Deployment and testing: incremental updates, unit testing
- Event queues (NATS.io; cloud-specific queues)
- Monitoring: Prometheus, OpenTracing/Zipkin
- Better K8s integration (ThirdPartyResources, Ingress, etc)
- Autoscaling for functions
- Fission UI improvements

## ▶ Recap

- Fission is a lightweight, open source FaaS framework
- Runs everywhere that Kubernetes runs:
  - Public cloud, your own infrastructure,
  - Or your laptop
- Head to <http://fission.io> for setup instructions



## ▶ Links

Github: <https://github.com/fission/fission>

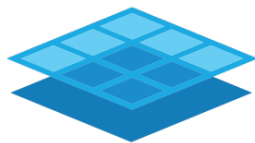
Web: <http://fission.io>

Slack: <http://slack.fission.io>

Twitter:

@fissionio

@soamv



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