

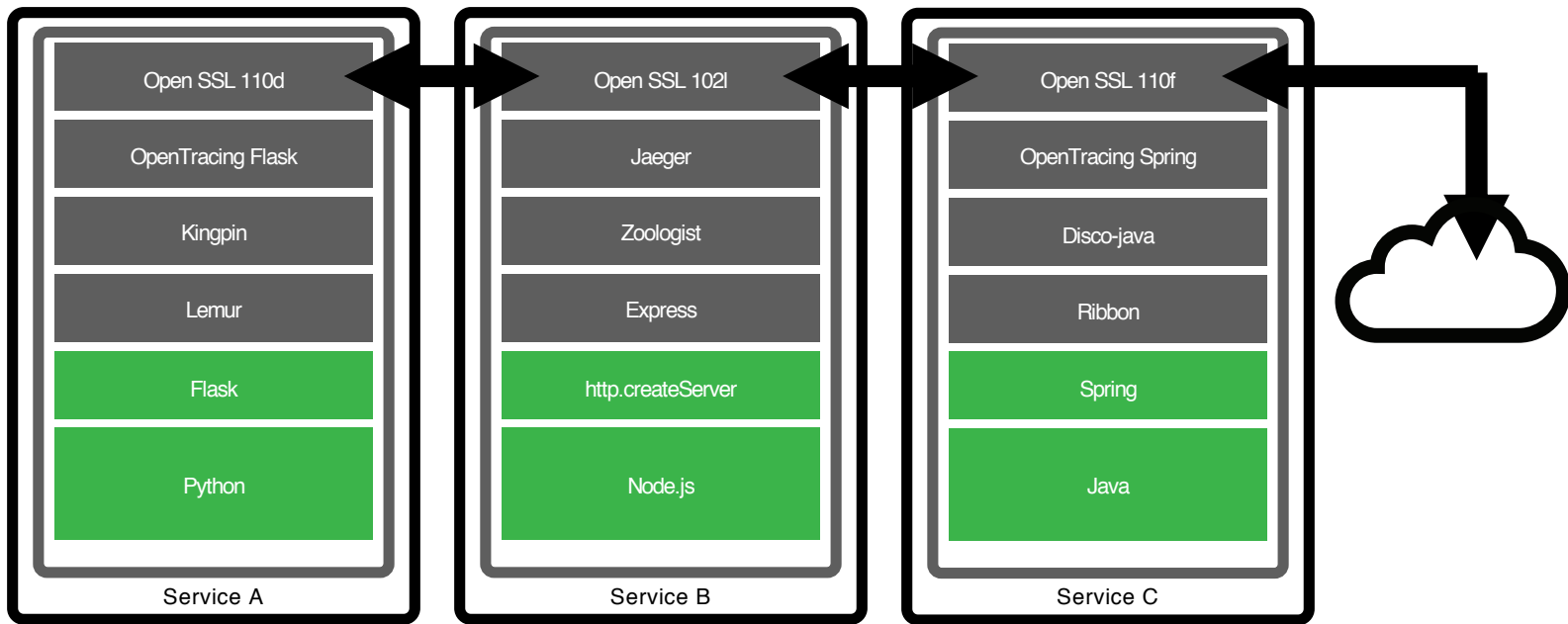
# How to Gain Insights from Istio by Leveraging Tools Like Jaeger, Prometheus and Cortex

CNCF WEBINAR SERIES

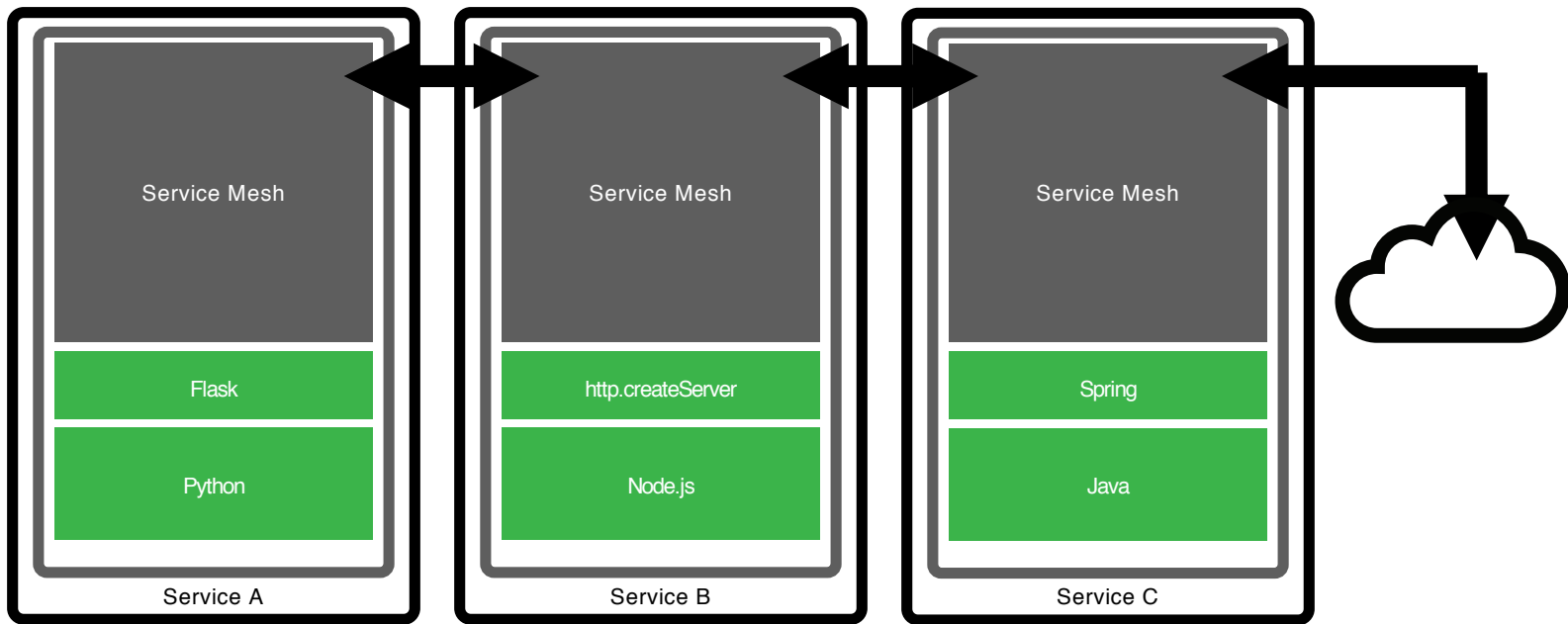
Neeraj Poddar  
Platform Lead



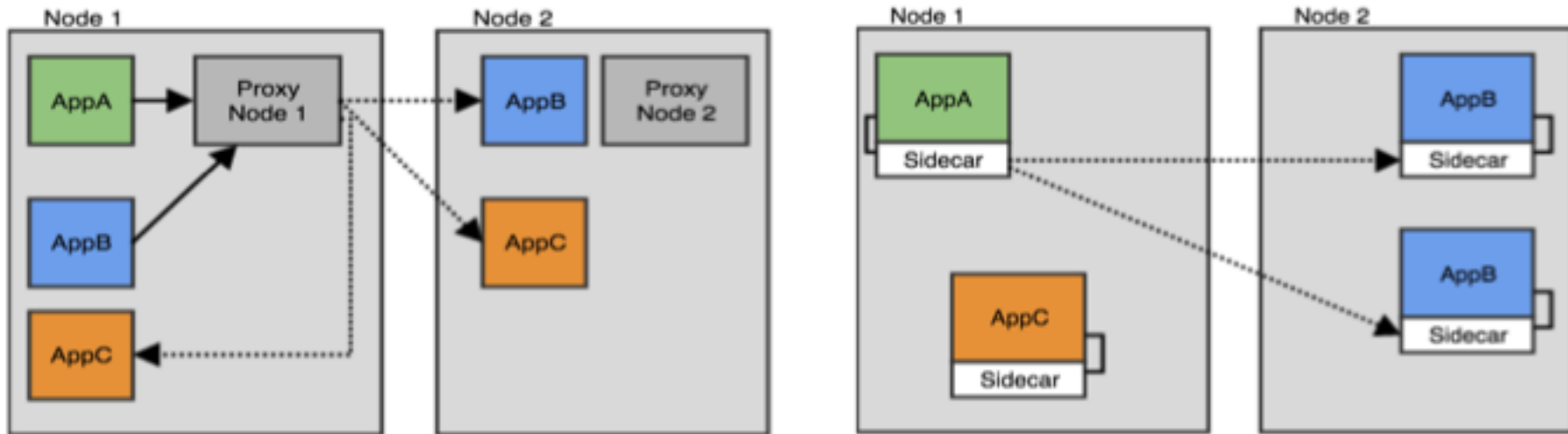
# Microservices Without a Service Mesh



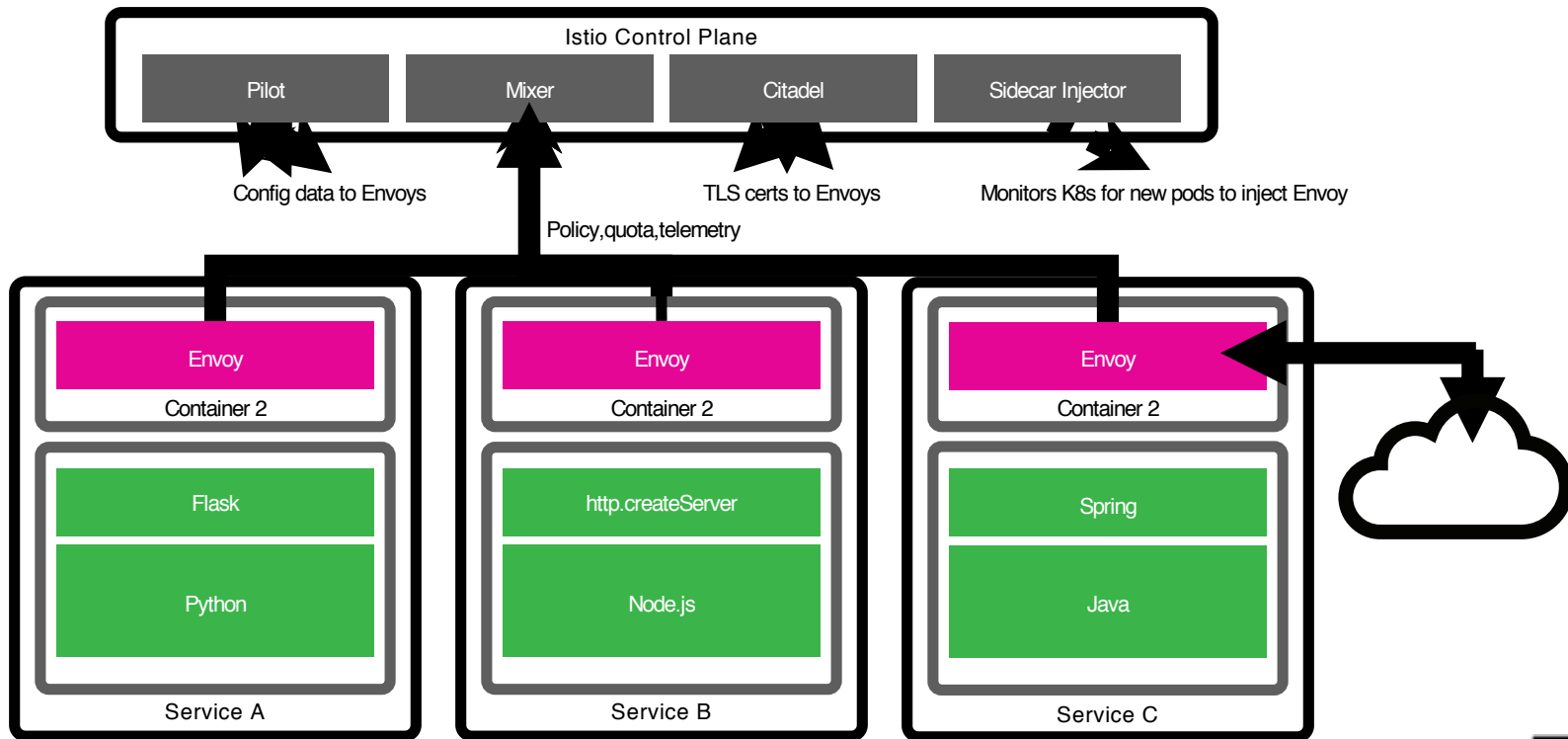
# Microservices With a Service Mesh



# Service Mesh Architectures



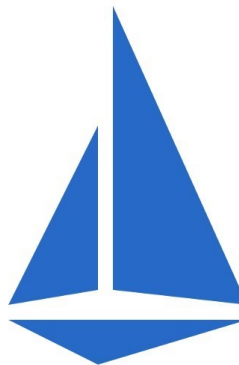
# Microservices with Istio



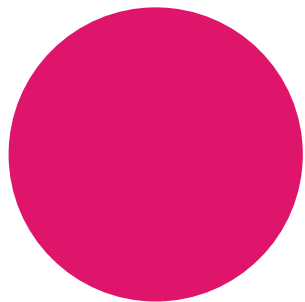
# Istio Features

## A bundling of capabilities

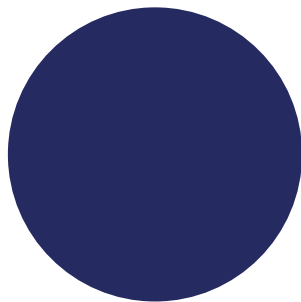
- Service discovery
- Load balancing
- Advanced traffic management
- Enhanced security
- Policy
- Tracing
- Metrics



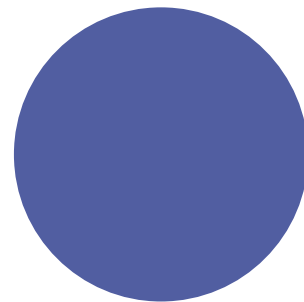
# Benefits of Tracing



Service dependency  
analysis



Track requests across  
multiple microservices



Identify performance  
bottlenecks

# Tracing with Istio

- Automatic tracing of all network requests
- Context handling
- Asynchronous span reporting
  - Start and end times
  - Source & destination service
  - HTTP headers
- Application header propagation
- Multiple backend integrations
  - Zipkin
  - Jaeger

Distributed tracing with Istio in AWS

Tracing gRPC with Istio





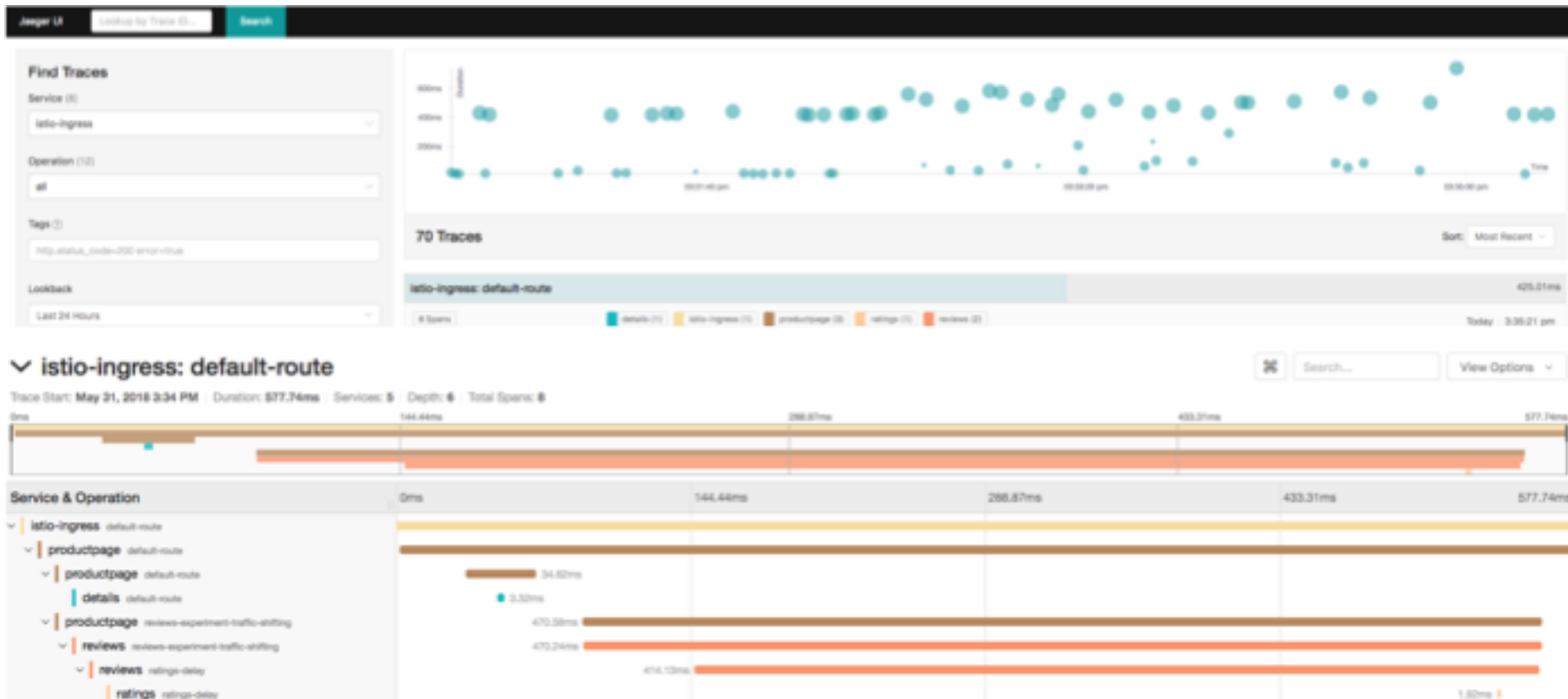
# Jaeger



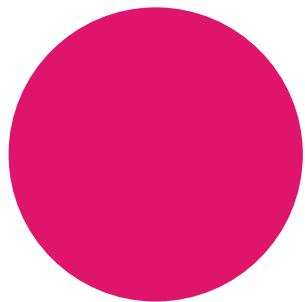
- OpenTracing compatible API
- Flexible & scalable architecture
- Multiple storage backends
  - Cassandra
  - Elasticsearch
- Advanced sampling
- Accepts Zipkin spans
- CNCF project & active OS community
- Great UI



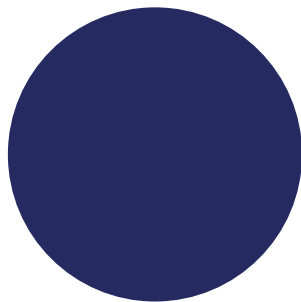
# Jaeger UI



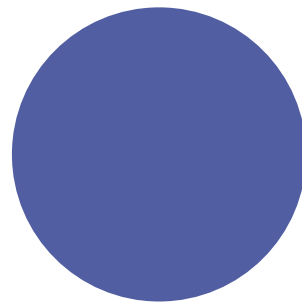
# Benefits of Metrics



Historical view



Debugging & fault  
analysis



Monitoring &  
alerting

# Metrics with Istio

- Envoy stats
  - Request Pending
  - Connection bytes buffered
  - SSL failures
- Mixer service stats
  - Request latency
  - Request counts
- Custom metrics
- Telemetry monitoring options
  - StatsD
  - Stackdriver
  - Prometheus

[Envoy Stats Overview](#)



**STATSD**



Stackdriver



# Prometheus



- Pull model
- Flexible query API
- Efficient storage
- Dashboard integrations
  - Grafana
- Exporters
  - [Prometheus Integrations](#)
- CNCF project & strong OS community



# Enhancing Prometheus with Cortex

- Long term durable storage
  - AWS DynamoDB
  - Bigtable
  - Cassandra
- Scalable Prometheus query API
- Multi-tenancy
- Easy to manage
- Intent to add as CNCF project



# More on Getting the Most from Istio

## Istio 0.8 Release

- Stability & Scalability
- Envoy v2
- Istio v1 alpha3

We are active users of Istio and are happy to talk in greater depth  
Please feel free to reach out:

- [neerai@aspenmesh.io](mailto:neerai@aspenmesh.io)
- <http://aspenmesh.io/blog>



# Questions



# Thank You