09 Sat | May 2020 | 07:35 PM

UTC+4

Lee Calcote

Layer5

Getting started with Meshery

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ERPGO

kiss-conf

2 days, 13 speakers

Keep it stupid simple

https://kiss-conf.goupaz.com

Host: Sako M

Kiss.Conf 2020

LAYER5

THE SERVICE MESH COMMUNITY

Lee Calcote

Talks - calcotestudios.com

Kiss.Conf 2020

Third step in Cloud Native journey

Service meshes will be commonplace cloud native and edge infrastructure.

7 years ago

Containers

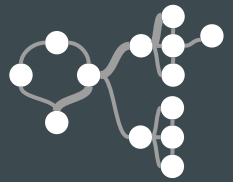
5.5 years ago

5.5 years ago

Orchestrators

4.5 years ago

4 years ago



Meshes

3 years ago

> “Service Meshes and Application Layer Network and Security Services:
> - are integral to elasticity and scale of modern applications.
> - will be deployed in more than 70% of cloud native environments by 2023.”
>
> - IDC FutureScape: Worldwide Enterprise Network Infrastructure 2020 Predictions

LAYER5

Projects

Landscape

Meshery

Performance

Kiss.Conf 2020

Service Mesh Landscape

Kiss.Conf 2020

It’s meshy out there

Infrastructure diversity is reality for enterprises

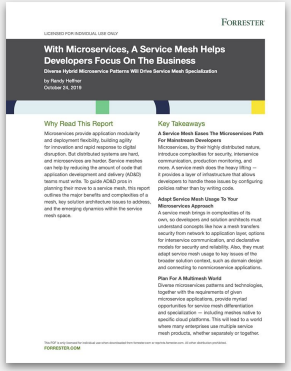
In a multi-mesh world with a landscape of 20 service meshes... let’s find your best fit.

https://layer5.io/landscape

These factors drive service mesh diversity:

1. Open source governance dictates a world of multiple meshes.
2. Huge range of microservice patterns drives service mesh opportunity.
   a. Open source projects and vendors create features to serve microservice patterns (they splinter the landscape and function differently).
3. Different organizations need different scopes of service mesh functionality.
4. Hybrid drives infrastructure diversity.
   a. Accommodate hybrid workloads - non-containerized workloads need to integrate and benefit from your service mesh as well.

A Multi-Mesh World



FORRESTER

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With Microservices, A Service Mesh Helps Developers Focus On The Business

Diverse Hybrid Microservice Patterns Will Drive Service Mesh Specialization

by Randy Heffner
October 24, 2019

Why Read This Report

Microservices provide application modularity and deployment flexibility, building agility for innovation and rapid response to digital disruption. But distributed systems are hard, and microservices are harder. Service meshes can help by reducing the amount of code that application development and delivery (AD&D) teams must write. To guide AD&D pros in planning their move to a service mesh, this report outlines the major benefits and complexities of a mesh, key solution architecture issues to address, and the emerging dynamics within the service mesh space.

Key Takeaways

A Service Mesh Eases The Microservices Path For Mainstream Developers

Microservices, by their highly distributed nature, introduce complexities for security, intensive communication, production monitoring, and more. A service mesh does the heavy lifting — it provides a layer of infrastructure that allows developers to handle these issues by configuring policies rather than by writing code.

Adapt Service Mesh Usage To Your Microservices Approach

A service mesh brings in complexities of its own, so developers and solution architects must understand concepts like how a mesh transfers security from network to application layer, options for intraservice communication, and declarative models for security and reliability. Also, they must adapt service mesh usage to key issues of the broader solution context, such as domain design and connecting to nonmicroservice applications.

Plan For A Multimesh World

Diverse microservices patterns and technologies, together with the requirements of given microservice applications, provide myriad opportunities for service mesh differentiation and specialization — including meshes native to specific cloud platforms. This will lead to a world where many enterprises use multiple service mesh products, whether separately or together.

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Forrester: Layer5 and Meshery Help Developers Focus On The Business

> *"Diverse microservices patterns and technologies, together with the requirements of given microservice applications, provide myriad opportunities for service mesh differentiation and specialization — including meshes native to specific cloud platforms. This will lead to a world where many enterprises use multiple service mesh products, whether separately or together."*

Source: Forrester, Oct. 2019

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Service mesh abstractions to the rescue

Meshery is compatible with all three

Service Mesh Interface (SMI)

A standard interface for service meshes on Kubernetes.

[Meshery, the SMI Conformance Tool]

Multi-Vendor Service Mesh Interoperation (Hamlet)

A set of API standards for enabling service mesh federation.

Service Mesh Performance Specification (SMPS)

A format for describing and capturing service mesh performance.

[Meshery, an implementation of SMPS]

Service Mesh Management

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The service mesh management plane

Service meshes will be ubiquitous and commoditized

Management Plane

- Provides federation, backend system integration, expanded policy and governance, continuous delivery integration, workflow, chaos engineering, and application performance tuning.

Not creating another service mesh.

Whether multi-mesh or single mesh, Layer5's offerings stand.

Control Plane

- Provides policy, configuration, and platform integration.
- Takes a set of isolated stateless sidecar proxies and turns them into a service mesh.
- Does not touch any packets/requests in the data path.

A service mesh

Data Plane

- Touches every packet/request in the system.
- Responsible for the execution of traffic control, health checking, routing, load balancing, authentication, authorization, and observability.

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MESHERY

THE MULTI-MESH MANAGER

Core Infrastructure Initiative

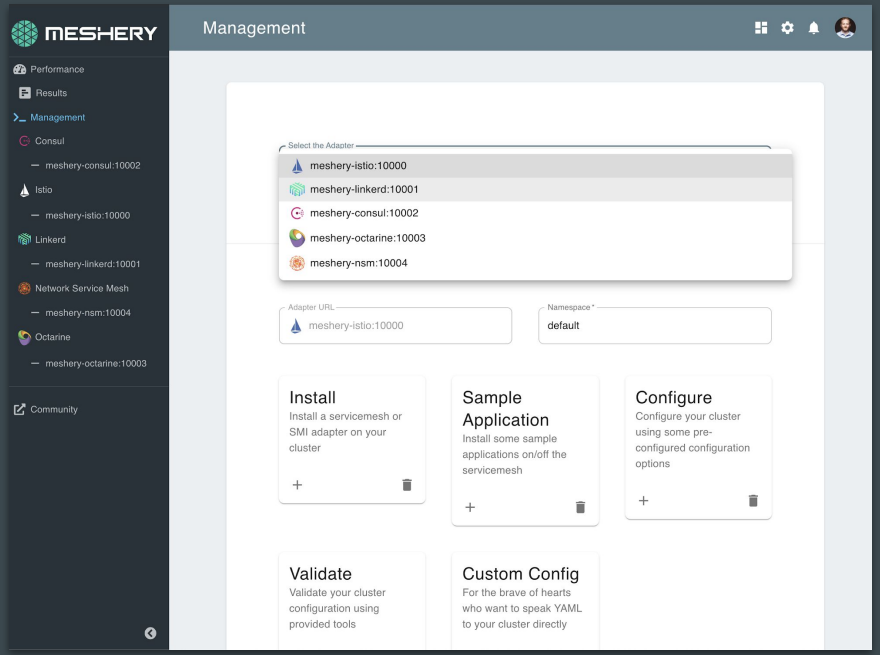
CLOUD NATIVE COMPUTING FOUNDATION

Google Summer of Code

Service Mesh Interface (SMI)

COMMUNITYBRIDGE

We are the makers of MESHERY



https://layer5.io/meshery

Multi-Mesh Management

- Lifecycle
- Workload
- Performance
- Configuration

Supports:

- **Citrix Service Mesh**
- Containous Maesh
- **HashiCorp Consul**
- **Istio**
- **Linkerd***
- **Octarine**
- **Network Service Mesh**
- VMware NSX-SM

- *AWS App Mesh*
- *Kong Kuma*

Google, IBM, Cisco, VMware, Buoyant, Octarine, HashiCorp, Citrix will incorporate Meshery in their release process as the defacto performance measure and SMI conformance validator.

Adapters in yellow built by the service mesh vendor/project maintainers.

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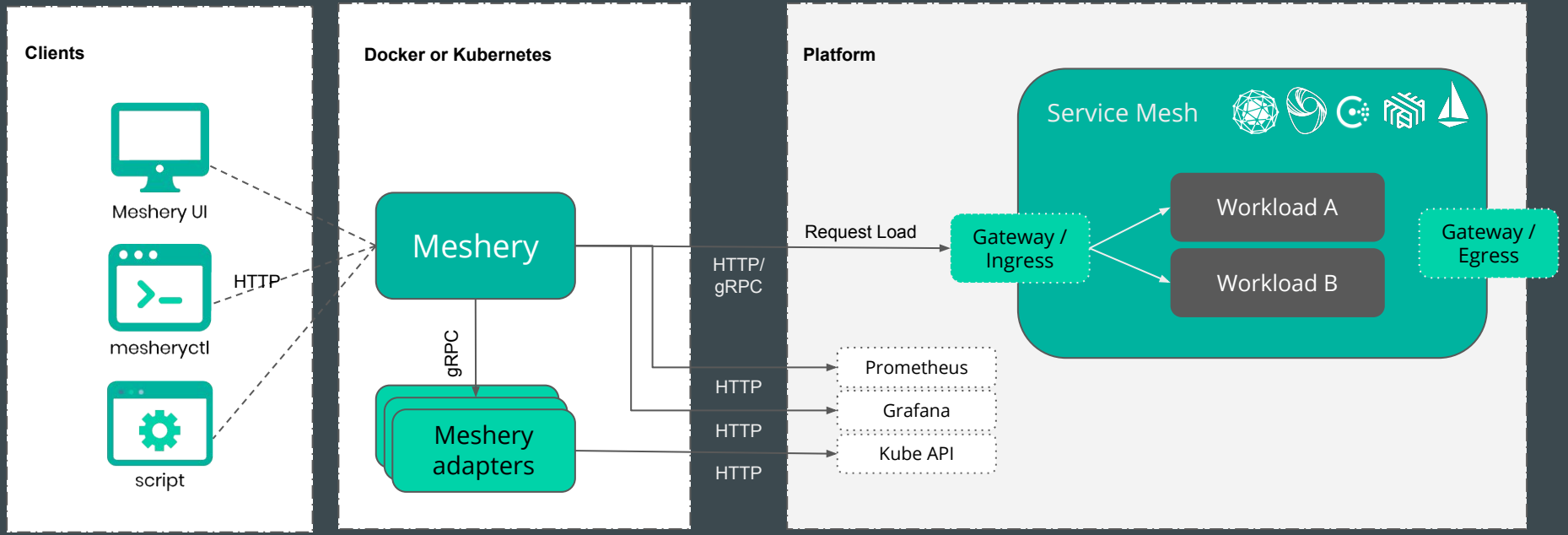
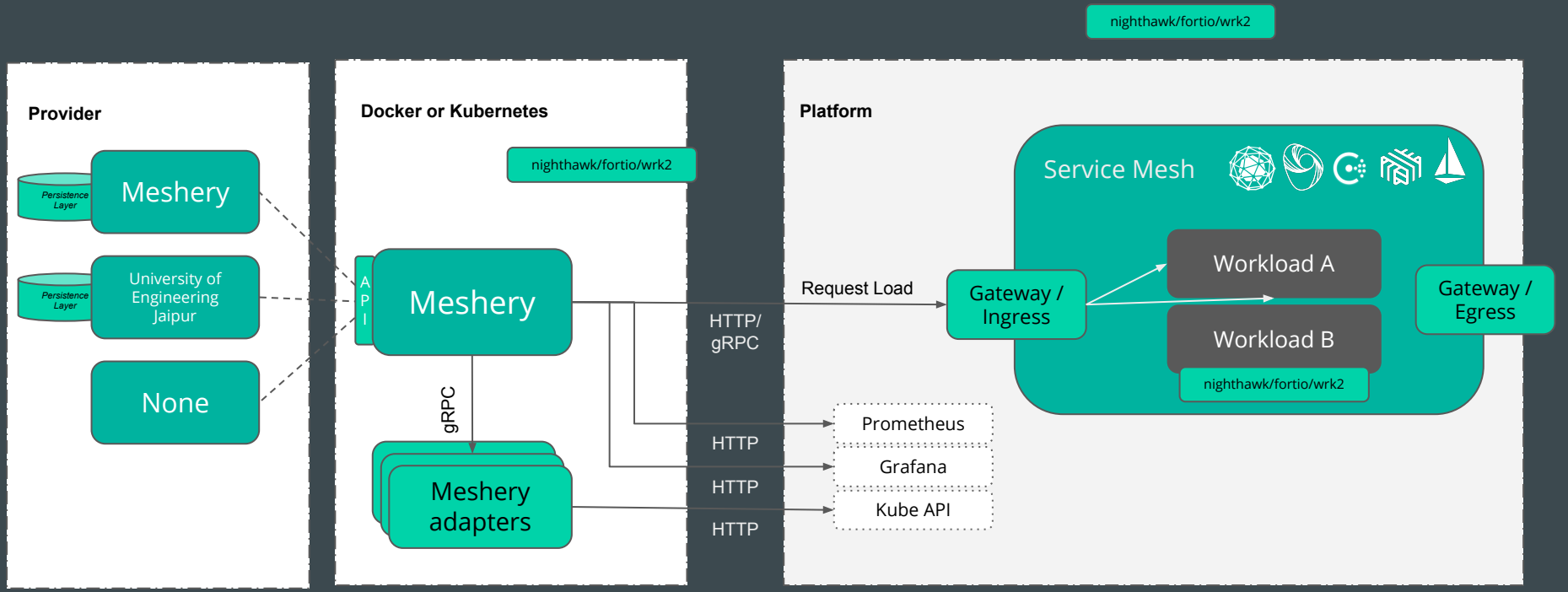
Meshery Architecture

Clients



Meshery Architecture

Providers



Solving dilemmas one persona at-a-time

We're at the beginning of what will be long-lived infrastructure

1. Adopters

How to get started? Which service mesh to use?

What is a service mesh and how does a service mesh work?

What's the cost of all this value? What's the right balance of cost vs. value?

2. Operators

What are service mesh patterns and best practices?

Where are my services and what is the service mesh doing?

Can I certify as a service mesh operator?

3. Developers

How do I realize the full promise of the infrastructure?

How can my infrastructure reduce my burden?

How do I migrate from client-libraries to a service mesh?

4. Product Owners

How do I deliver the convenience of serverless pricing without a product rewrite?

How do I enforce policies?

How do I provide delightful customer experiences without derailing my developers from core features?

Service Mesh Performance Working Group

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Initiatives Overview

- Distributed Performance Management
  - CNCF labs for benchmarking
  - Study of various distributed workloads and their effects of their performance under different service mesh configurations
    - Identification of interesting workloads
      e.g. GitLab, Mattermost, Elastic, FaaS (event-driven workloads), AcmeAir
  - GSoC: Distributed Performance Testing
    - Collaboration with Envoy/Nighthawk
- Service Mesh Performance Specification
  - Establishment of MeshMark
- Incorporated into each service mesh's release/test process
  - CommunityBridge: SMI Conformance Tool

TEXAS
The University of Texas at Austin
THE UNIVERSITY OF CHICAGO
Google
LAYER5

Makers of the *Service Mesh Performance Specification*

A vendor neutral specification for capturing details of infrastructure capacity, service mesh configuration, and workload metadata.

https://layer5.io/performance

Facilitates apples-to-apples performance comparisons of service mesh deployments.

Provides a universal performance index to gauge your mesh's efficiency against deployments in other organizations' environments.

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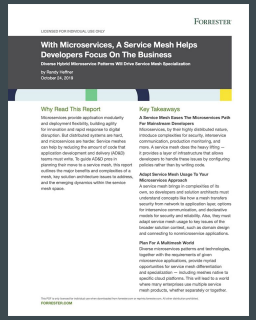
Community-first traction

Open governance, not just open source

Meshery

- 100+ Contributors
- 2,200+ Issues Opened
- 325 stars
- 47 releases
- 750 Slack users
- 820 performance tests collected
- 11 maintainers, 9 companies (Layer5, Octarine, Red Hat, Quantex, Independent, Lumina Networks, SolarWinds, VMware, Citrix, Microsoft)
- Users like Ziglu, TicketMaster, HPE

Listed in GNS3 network engineers' marketplace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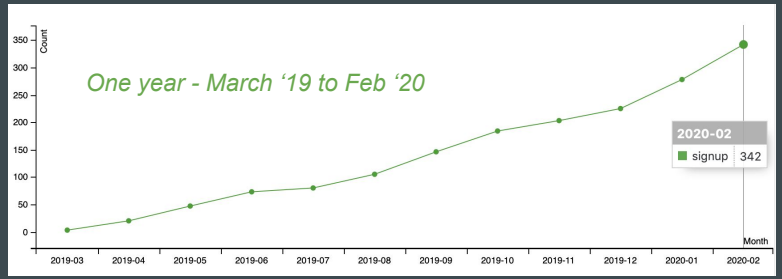
Key Takeaways

Making headlines

- *What the Numbers Say about How Service Meshes Are Used Today*, *The New Stack, Mar. 2020*
- *With Microservices, A Service Mesh Helps Developers Focus On The Business*, Forrester, Oct. 2019
- *CNCF SIG Network Set to Push Cloud Native Networking Forward*, Enterprise Networking Planet, Nov. 2019
- *The Top 3 Service Mesh Developments in 2020*, The New Stack, Dec. 2019

New User Signups



- 190 Twitter followers
- 400 Meshery users
- 1,500 visitors a month
- 3,000 mailing list subscribers

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Community Partners

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CITRIX

vmware

docker

HashiCorp

Q&A Discussion

Link to Q&A Panel: https://bit.ly/2KyViHb