CNCF Technical Advisory Group: **Observability**

Alolita Sharma, @alolita *AWS, TAG co-chair*
Matt Young, @halcyondude *Everquote, TAG co-chair*
Richard Hartmann *@TwitchiH* *Grafana Labs, TAG co-chair*

CLOUD NATIVE
COMPUTING FOUNDATION

Introductions

Matt Young

Matt is a Principal Cloud Architect @ EverQuote, delivering infrastructure, services, and developer-focused tooling for cloud-native applications.

With 20+ years of industry experience he's happily worn Dev, Test, Support and Research hats across the domains of embedded systems, virtualization, distributed applications, and enterprise infrastructure.

Matt is a co-chair for CNCF TAG Observability, and has been finding analog zen in his family, motorcycles and tennis matches.

Alolita Sharma

Principal Technologist at AWS where she leads open source observability strategy and engineering.

Co-chair of the CNCF Observability Technical Advisory Group

Member of the OpenTelemetry Governance Committee

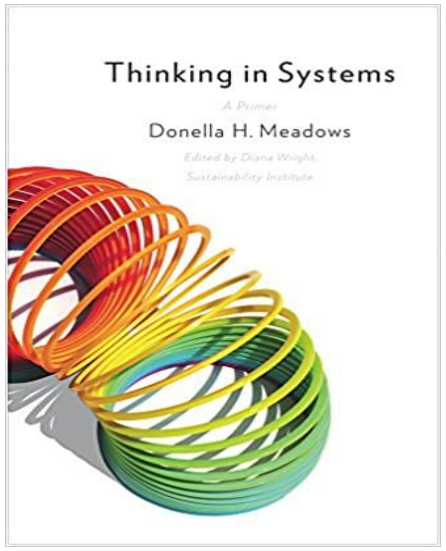
Board director of the Unicode Consortium

Served on the boards of the OSI and SFLC.in

Alolita has led engineering teams at Wikipedia, Twitter, PayPal and IBM.

Two decades of doing open source continue to inspire her. You can find her on Twitter @alolita.

Defy the Disciplines



"In spite of what you majored in, or what the textbooks say, or what you think you're an expert at, follow a system wherever it leads. It will be sure to lead across traditional disciplinary lines."

~ Donella Meadows

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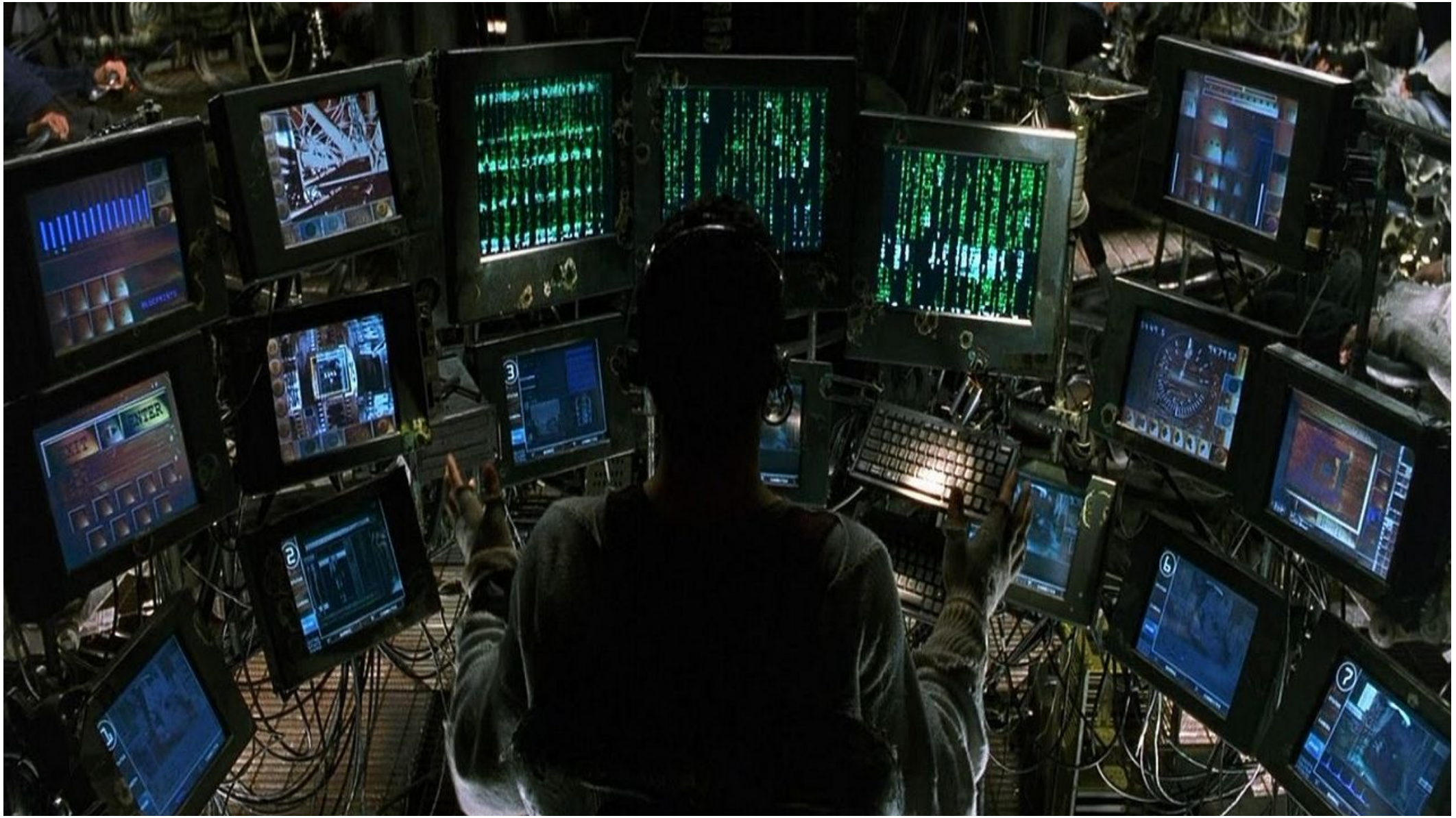
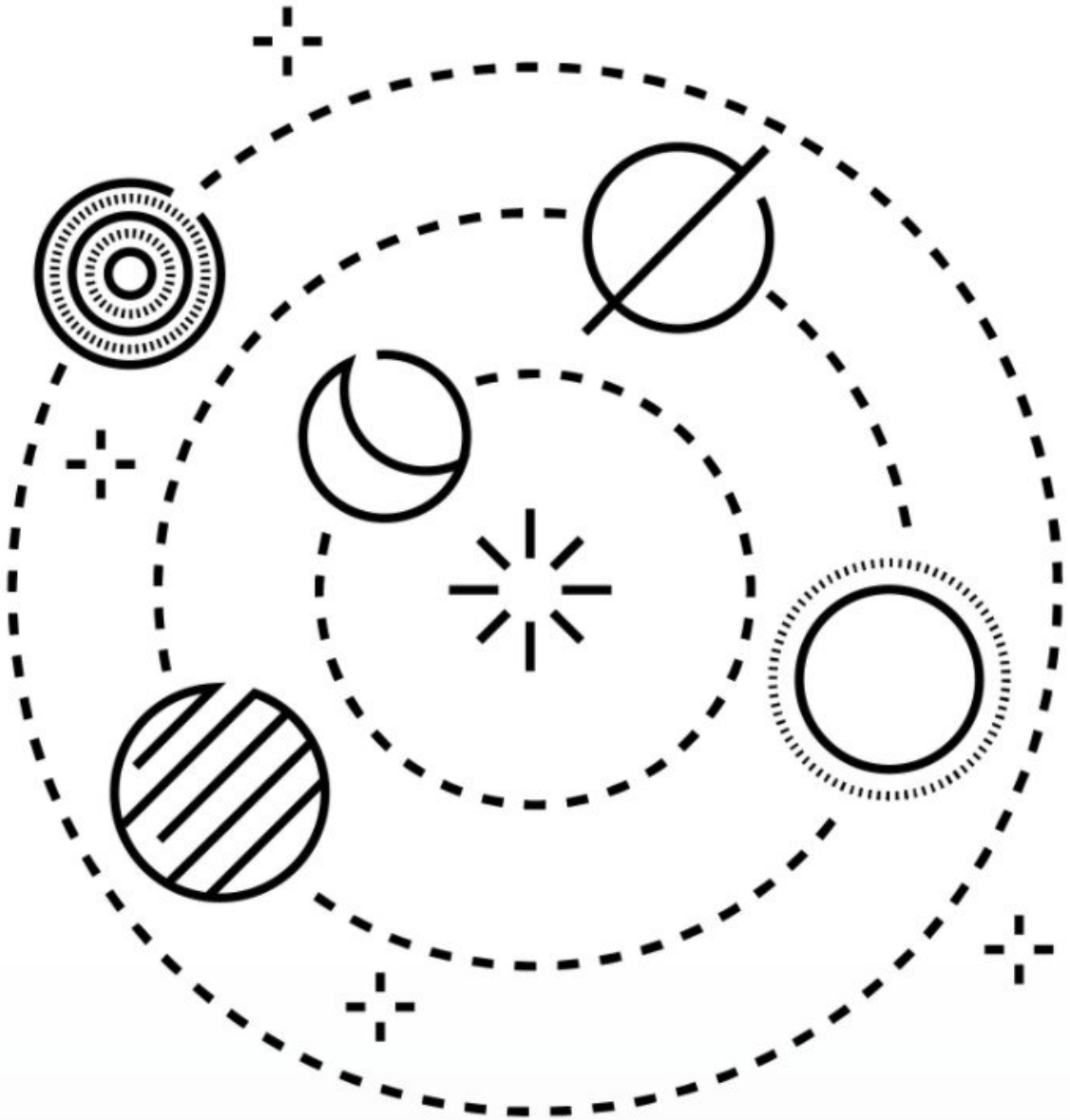
Observability

Wat?

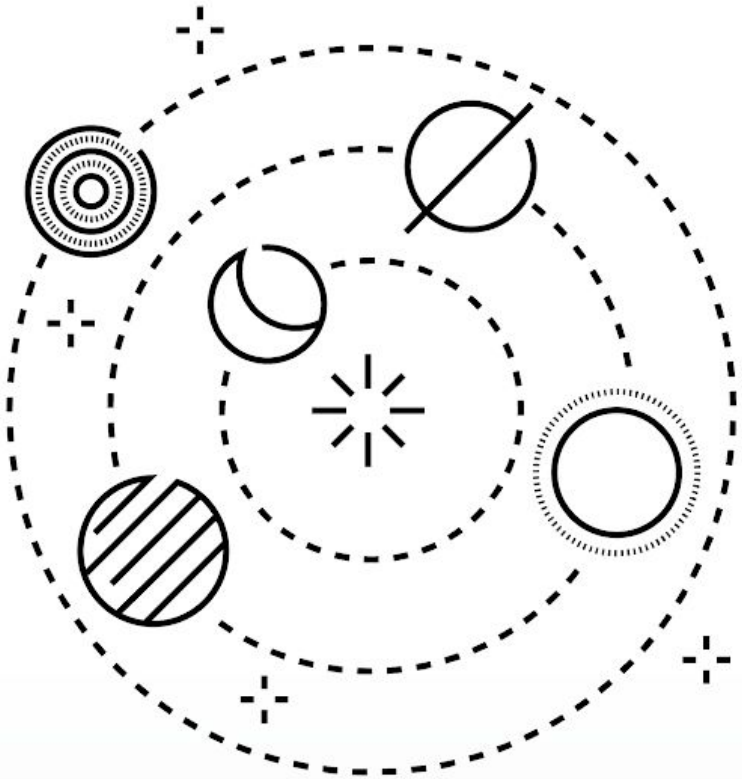
“More panels?”



Context

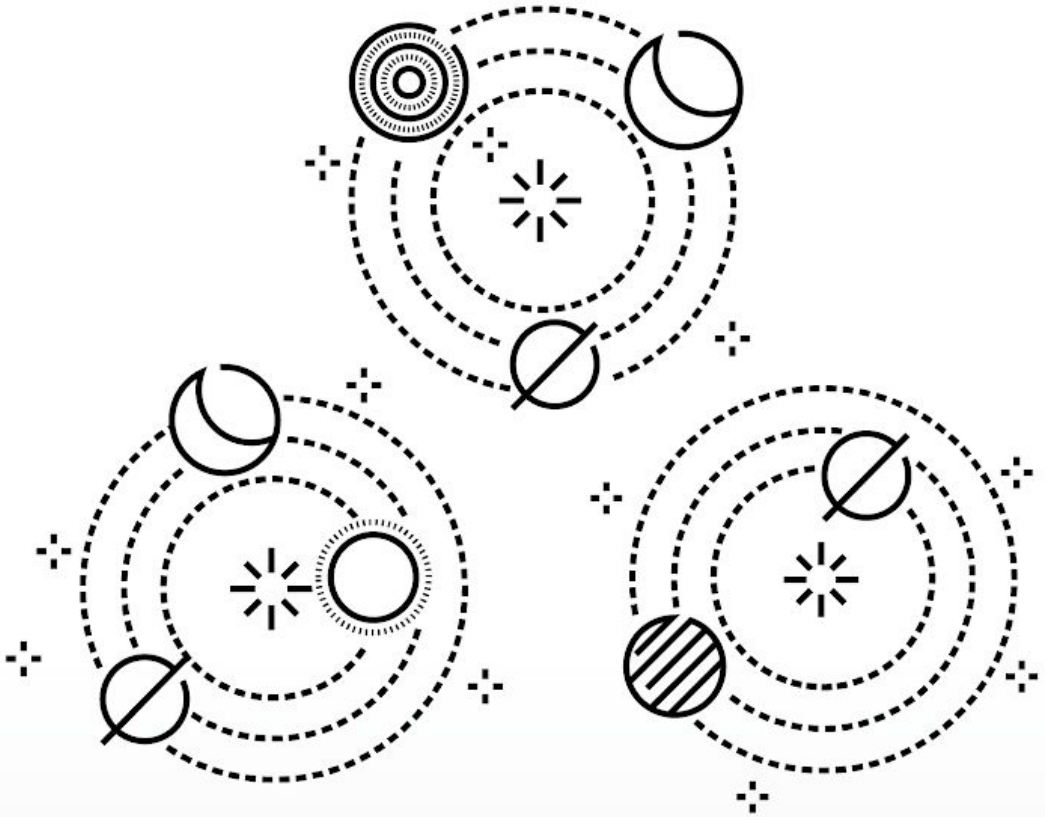


MONOLITH



VS

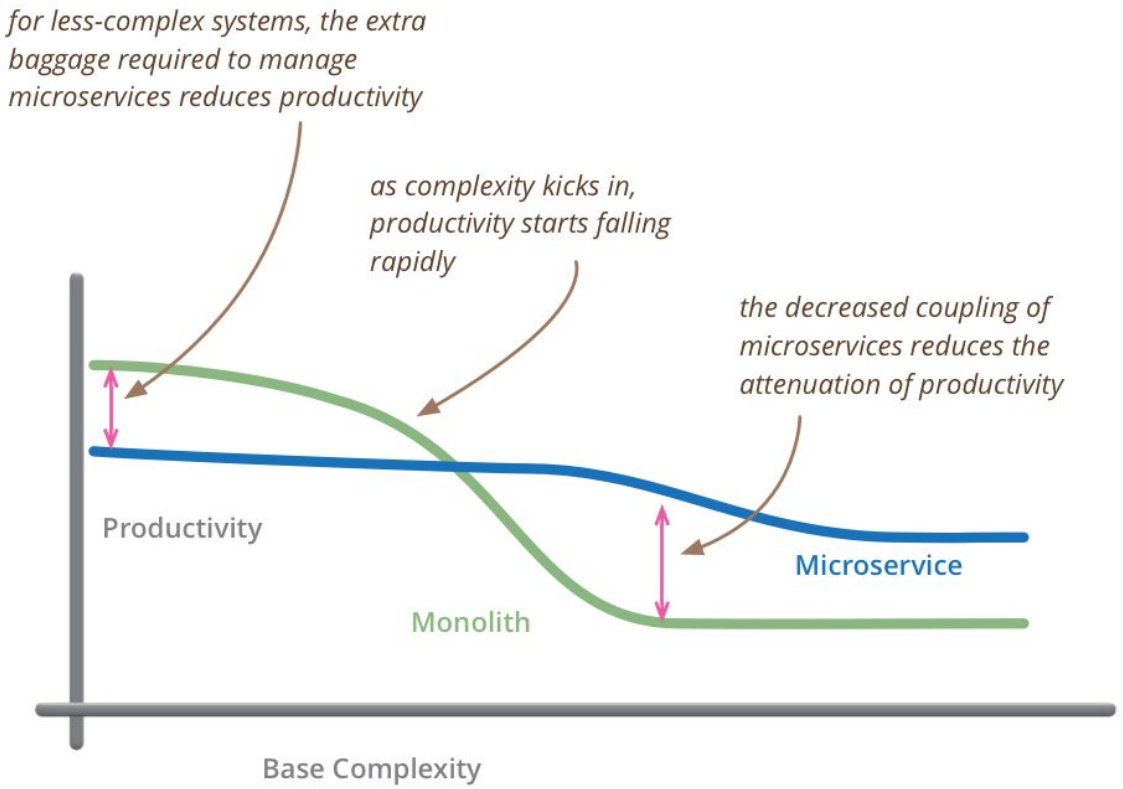
MICROSERVICES



Microservices enable scale...and complexity.

The microservices approach is all about handling a complex system, but in order to do so the approach introduces its own set of complexities. **When you use microservices you have to work on automated deployment, monitoring, dealing with failure, eventual consistency, and other factors that a distributed system introduces.** There are well-known ways to cope with all this, but it's extra effort, and nobody I know in software development seems to have acres of free time.

- Martin Fowler

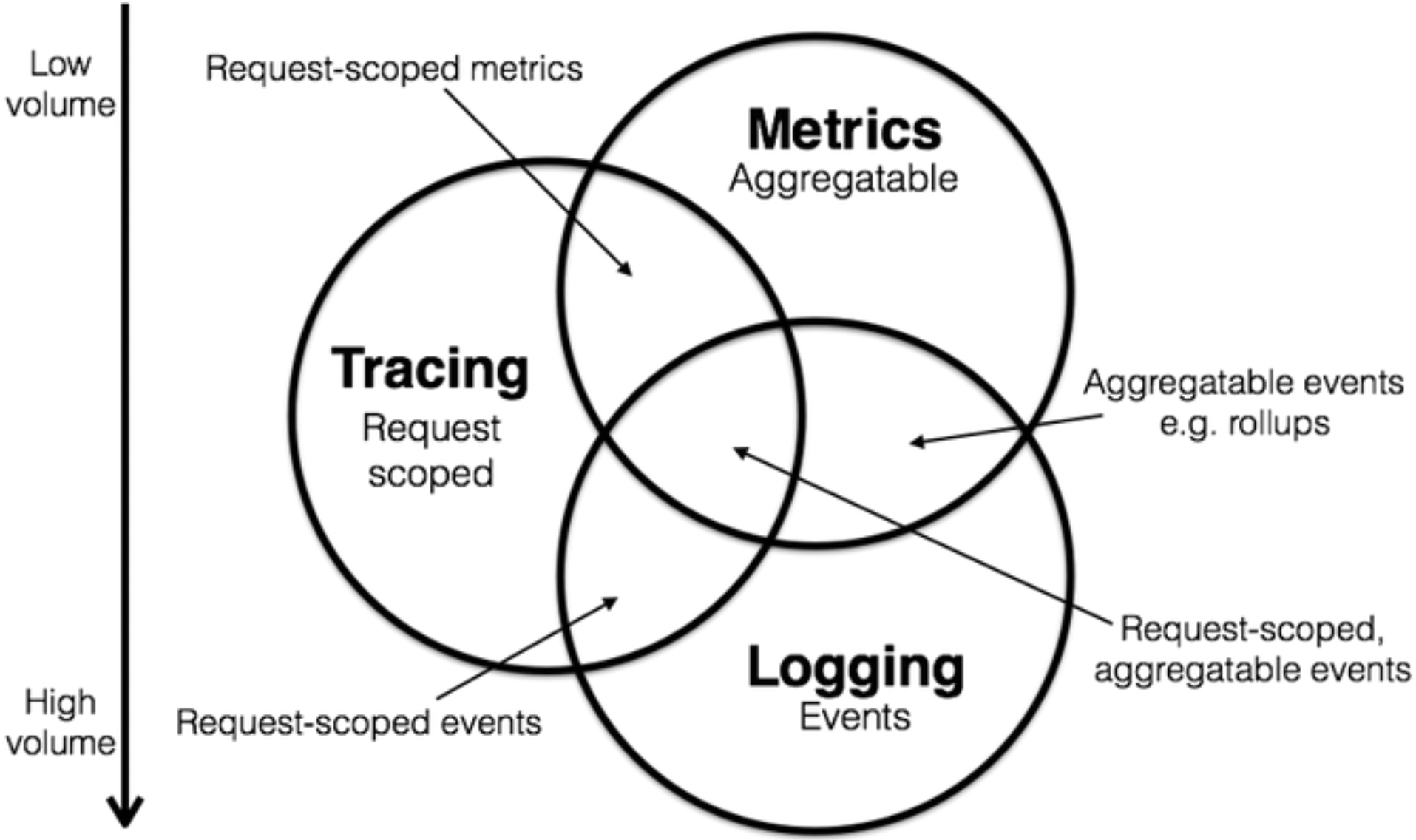


but remember the skill of the team will outweigh any monolith/microservice choice

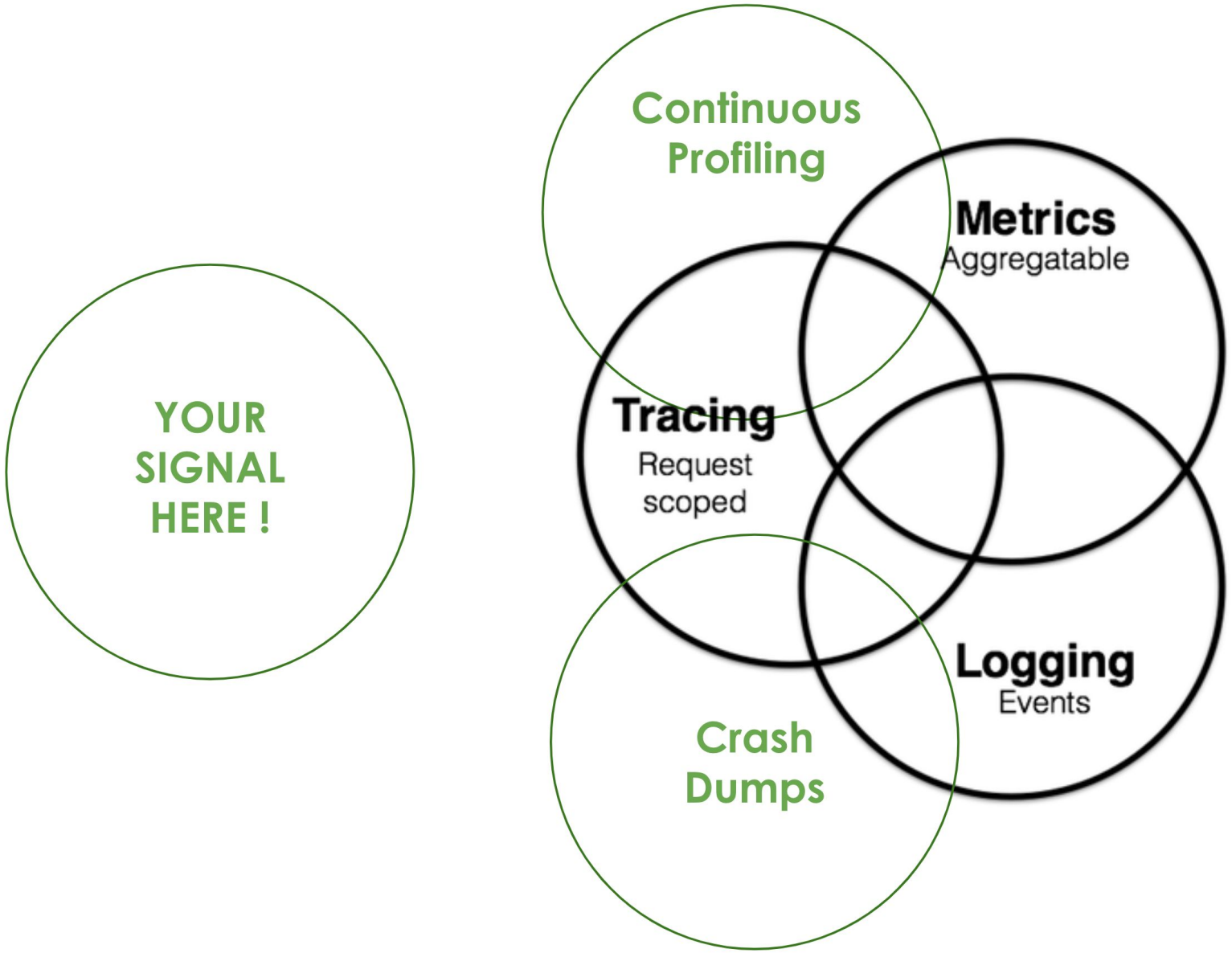
Monitoring tells you whether the system works.

Observability lets you ask why it's not working.

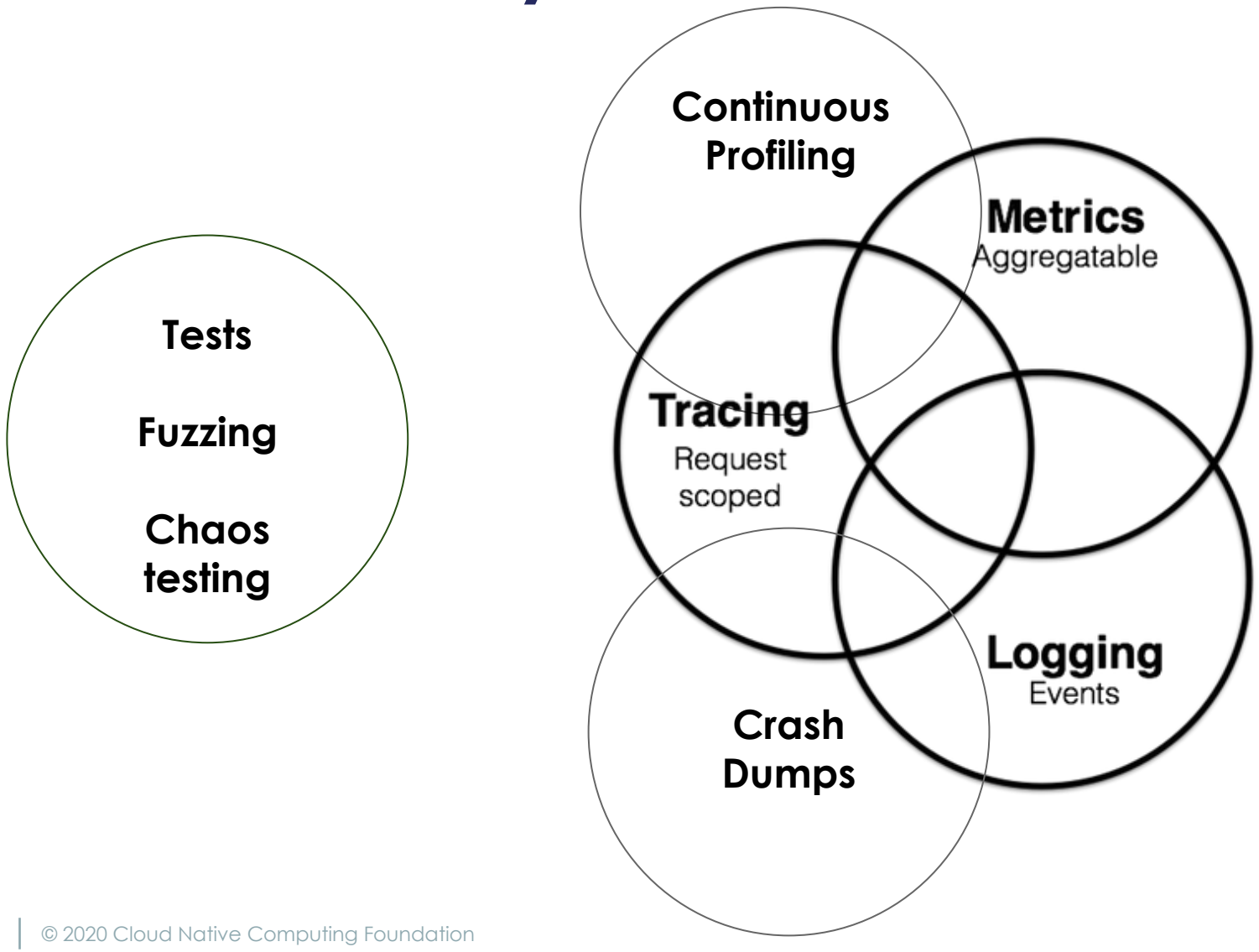
— Baron Schwartz (@xaprb) October 19, 2017



Credits for Diagram → *https://peter.bourgon.org/blog/2017/02/21/metrics-tracing-and-logging.html*



Observability Three Pillars... and beyond?



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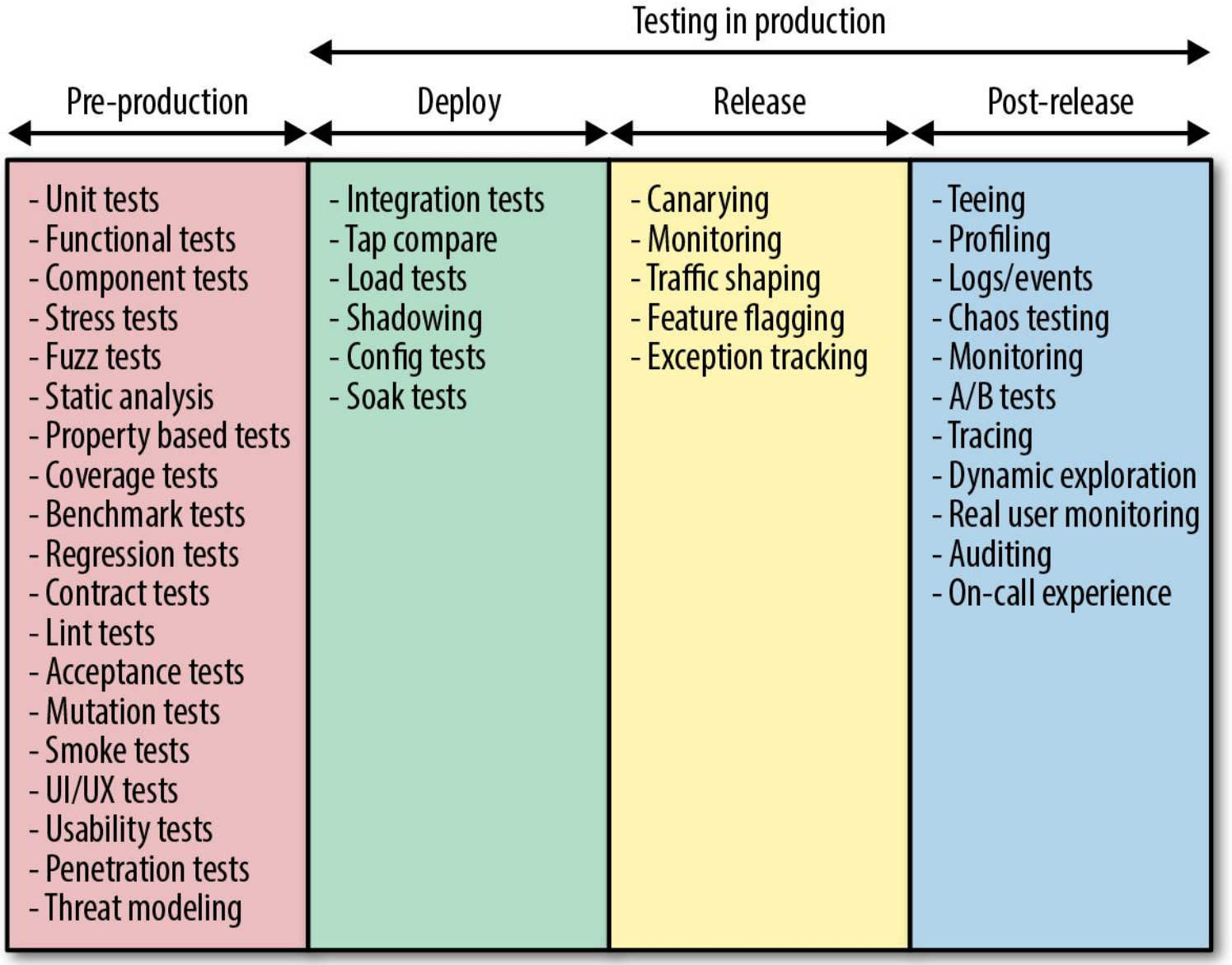
"**Logs**, **metrics**, and **traces** are often known as the **three pillars of observability**.

While plainly having access to logs, metrics, and traces doesn't necessarily make systems more observable, these are powerful tools that, if understood well, can unlock the ability to build better systems."

Cindy Sridharan
Distributed Systems Observability (O'Reilly)



Why does Observability matter?

developerExperience++

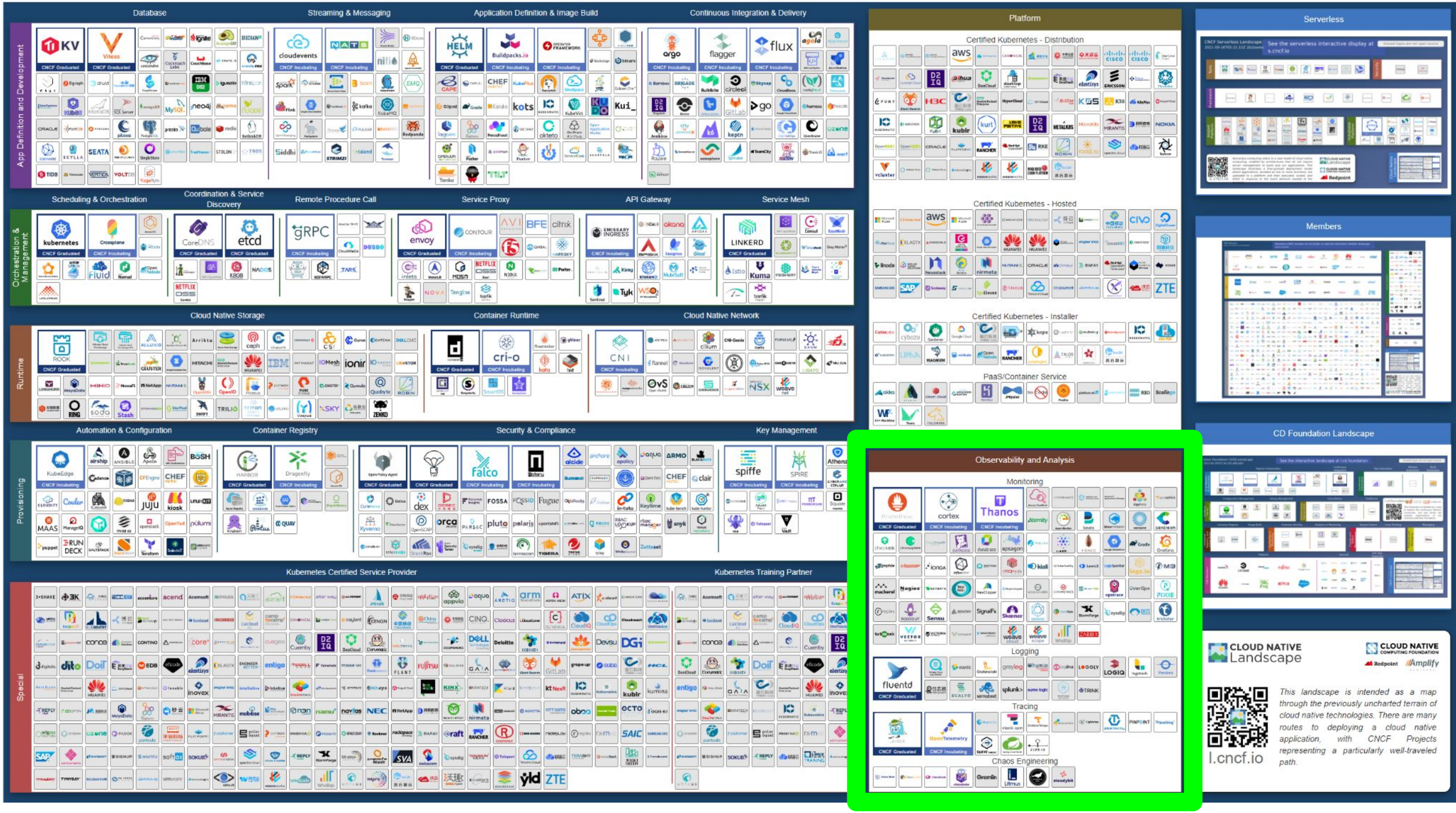
- **Easy**
- Data-driven Canaries using arbitrary data, safer rollouts.
- Correlate deployments & config changes with infra and business metrics.
- Low time to diagnose/fix
- Developer UX **saves $$$**

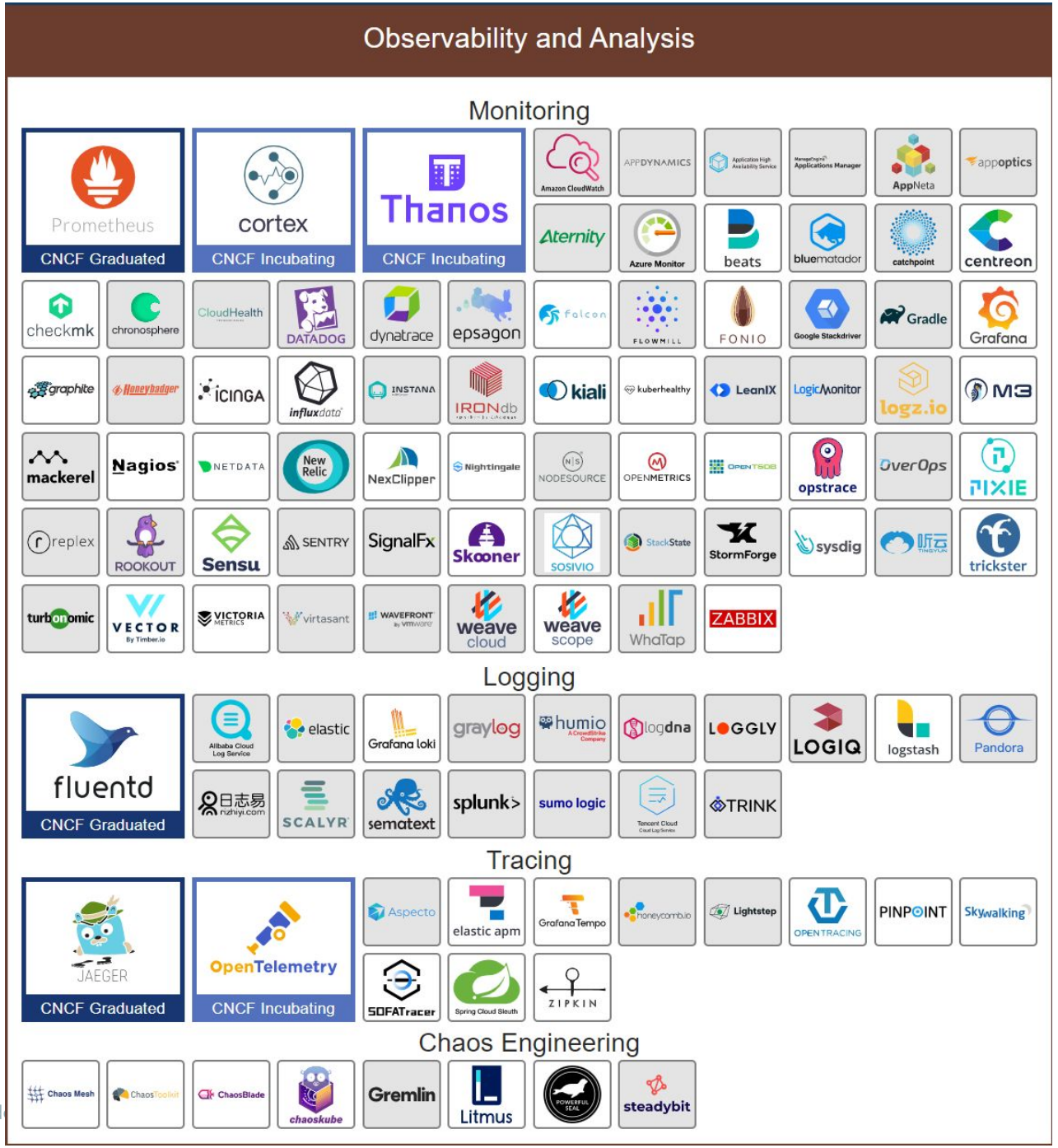
Data Enables Our Future

- Incident Response
- Durable Metrics, Logs, Traces
- Available & Usable at Scale
- Secure & Protect: PII and ePHI
- Autoscaling, ML, anomaly detection, intrusion alerting, optimizing infra scaling, …, …, ...

Fiscally Responsible

- Scale business not bills.
- Correlate Costs w/ workloads
- Spend Strategically
- Open Source is capable...USE IT!


App Definition and Development
Database
Streaming & Messaging
Application Definition & Image Build
Continuous Integration & Delivery
Orchestration & Management
Scheduling & Orchestration
Coordination & Service Discovery
Remote Procedure Call
Service Proxy
API Gateway
Service Mesh
Runtime
Cloud Native Storage
Container Runtime
Cloud Native Network
Provisioning
Automation & Configuration
Container Registry
Security & Compliance
Key Management
Special
Kubernetes Certified Service Provider
Kubernetes Training Partner
Platform
Certified Kubernetes - Distribution
Certified Kubernetes - Hosted
Certified Kubernetes - Installer
PaaS/Container Service
Observability and Analysis
Monitoring
Logging
Tracing
Chaos Engineering
Serverless
Members
CD Foundation Landscape
CLOUD NATIVE Landscape
CLOUD NATIVE COMPUTING FOUNDATION
Redpoint
Amplify
l.cncf.io
This landscape is intended as a map through the previously uncharted terrain of cloud native technologies. There are many routes to deploying a cloud native application, with CNCF Projects representing a particularly well-traveled path.



CNCF Structure

- Mainly vendors
- Fund the organization
- Marketing and strategic direction

- 11 top technical architects
- Admit new projects
- Acts as a resource to projects

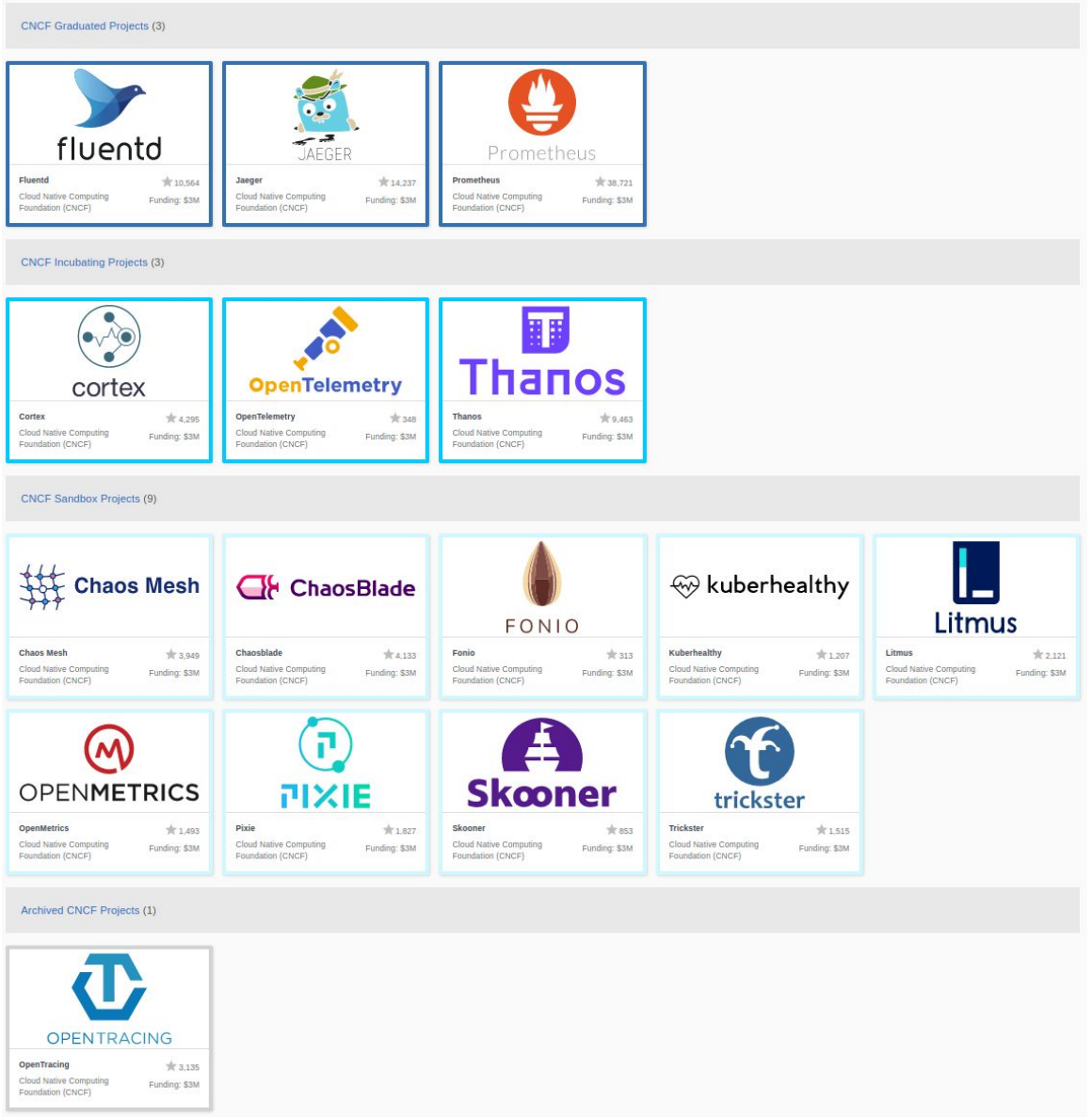
- Real end users of these technologies
- Communicate back requirements
- And good and bad experiences

Excerpt from our charter

- Foster and sustain the observability ecosystem
- Identify gaps in the CNCF's portfolio
- Provide actionable feedback to the TOC on the state and health of the ecosystem.
- Curate and disseminate patterns and best practices
- Provide users with unbiased information
- Vendor-neutral setting for thought validation and project feedback
- Where end-users, projects, and vendors

Observability Landscape

- Graduated:
  - Fluentd, Jaeger, Prometheus
- Incubated:
  - **Cortex**, **OpenMetrics**, **OpenTelemetry**, OpenTracing, **Thanos**
- Sandbox:
  - Chaos Mesh, Litmus, Trickster



https://landscape.cncf.io/category=observability-and-analysis&format=card-mode&grouping=category&project=hosted

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Accomplishments

- Due diligence for the incubation of
  - OpenTelemetry
  - Cortex
  - Thanos
  - OpenMetrics

- Evaluation for sandbox
  - Pixie

- WG kick-off: Observability White Paper

What's coming within the TAG

- Guidance on what's coming in the ecosystem
- Webinars
- YouTube in the CNCF TAG channel
- Case studies
- Project demos
- Workgroup topics
  - CNCF Project Engagement
  - Persona development: Gathering feedback from End Users

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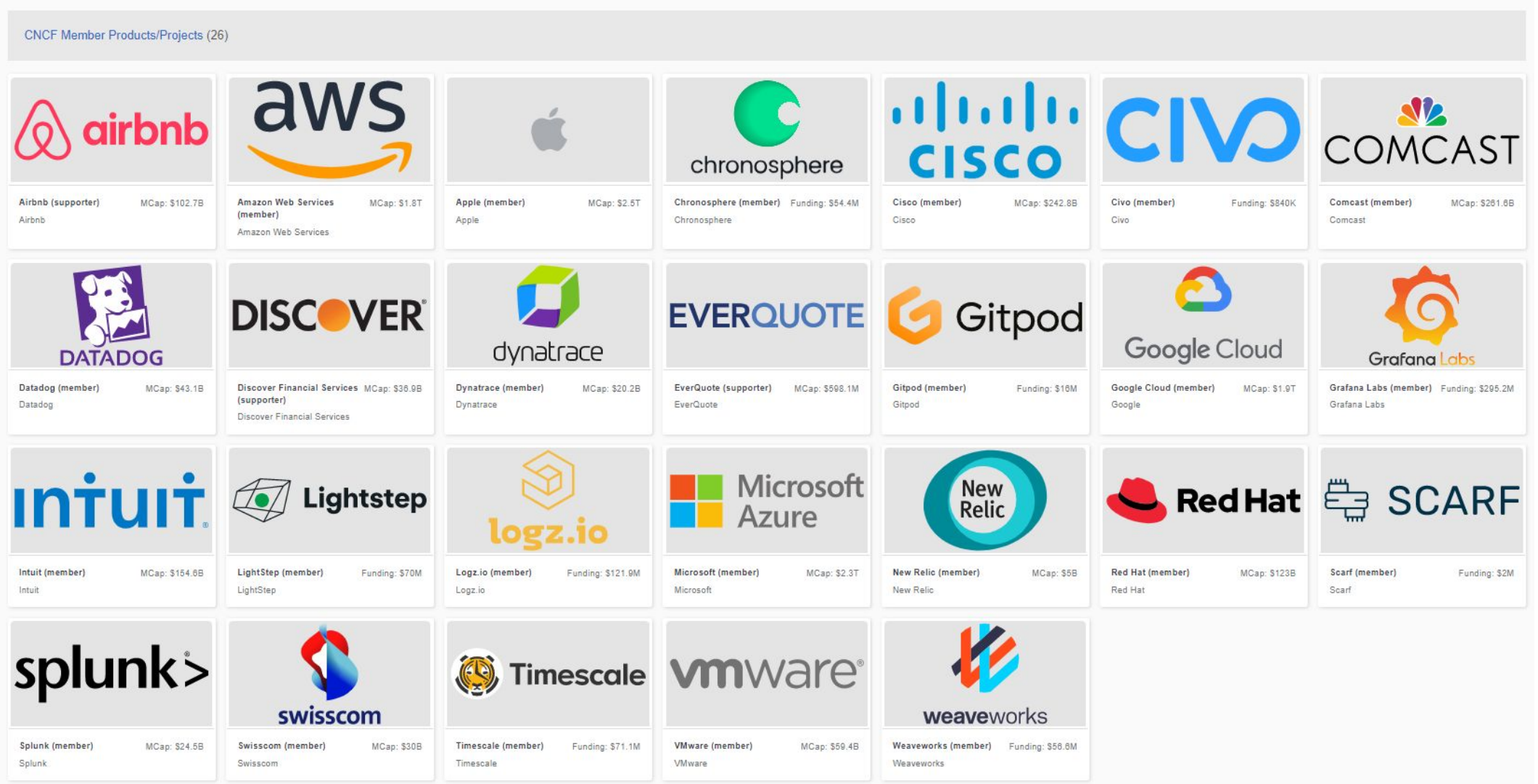
TAG Participants (non-exhaustive!)



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Join us

- **Meeting on 1st and 3rd Tuesdays of the month:** TAG Observability Meeting Notes
- **GitHub Repository:** https://github.com/cncf/tag-observability
- **CNCF Slack:** #tag-observability
- **Mailing list:** cncf-tag-observability@lists.cncf.io

➢ Feedback?
➢ Help needed?
➢ Passion for developer tools and experience?
➢ Ideas to improve Observability CNCF space?
➢ Want to discuss solutions and groovy tools?

2021 Acknowledgements (part1)

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Alolita Sharma (AWS / OTel GC)
Anais Urlichs (Civo)
Arthur Sens (Gitpod)
Avi Press (Scarf)
Bartek Plotka (Red Hat)
Ben Sigelman (LightStep / OTel GC)
Blair Rampling (Red Hat)
Bogdan Drutu (Splunk)
Callum Styan (Grafana Labs)
Chris Marchbanks (Grafana Labs)
Christian Weichel (Gitpod)
Constance Caramanolis (Splunk / OTel GC)
Cornelia Davis (Weaveworks/CNCF TOC)
Daniel Gonzalez Lopes (k6.io)
Daniel Khan (Dynatrace)
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Dario Maiocchi
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David Grizzanti (Comcast)
David Kaltschmidt (Grafana Labs)
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Dotan Horovits (Logz.io)
Eli Rodriguez (AppDynamics/Cisco)
Frederic Branczyk (Polar Signals)
Gibbs Cullen (Chronosphere)
Haoyu Sun (Red Hat)
Ian Bartholomew (nobl9)
Ian Billett (Red Hat)
Ivan Santos (EverQuote)
Ivan Sim (Red Hat)
Ivana Atanasova (VMware)
Jaana Dogan (AWS)
Jessica Brown (Grafana Labs)
Jéssica Lins (Red Hat)
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Julien Pivotto (Inuits)
Kara Yimoyines (VMware)

2021 Acknowledgements (part 2)

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Matthias Loibl (Polar Signals)
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Michael Hausenblas (AWS)
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Mike Cohen (Splunk)
Milan Klanjsek (VMware)
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Roberth Strand (Crayon)
Rong Hu (Airbnb)
Ryan Perry (Pyroscope.io)

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Thanks!

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