SKILUP DAYS by: DevOps Institute

Observability in Modern Applications: Simplifying Complex Systems

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About Me

- Director of Sales Engineering
- @devonlawler1
- <- ~15 minutes after my wedding!

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What We'll Discuss Today

- Old-School Monitoring Approaches
- Troubleshooting Pitfalls
- Observability in Distributed Environments
- In-House vs. Managed Solutions

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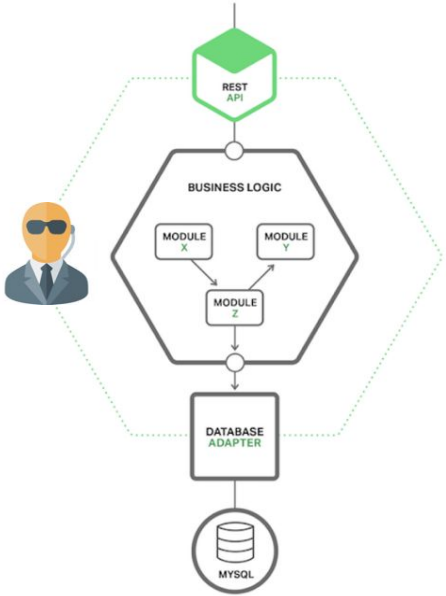
Old-school Monitoring

- Distributed logs
- Collects only host data
- Collects only metrics



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Troubleshooting

We need more debug data -> logs

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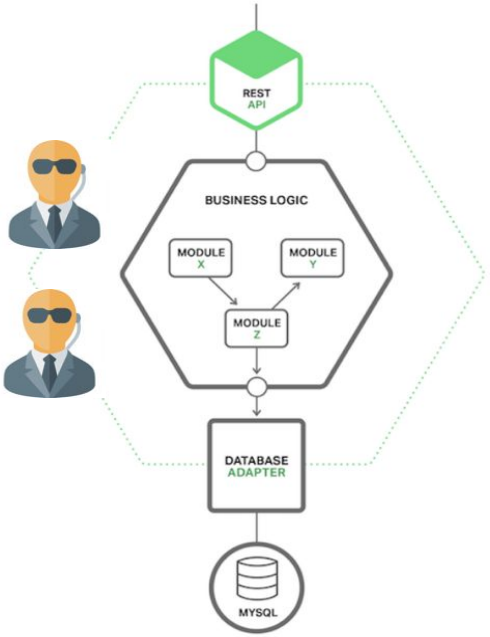
Old-school Logging

- YaA (Yet another Agent)
- Expensive
- Collects only logged data



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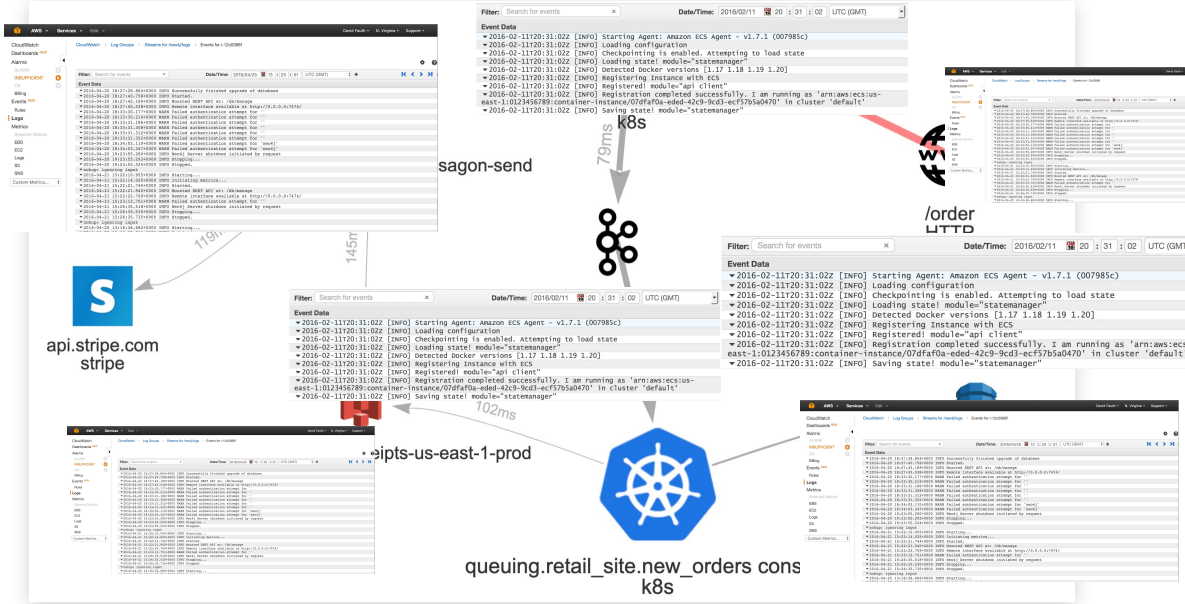
Distributed Logs Don’t Scale



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Challenges for Engineering and DevOps

Development	Monitoring	Troubleshooting
"I'm not sure what's currently running in production. How can I build new services?"	"Is my app working properly?"	"Are basic logs and metrics the right tool for highly distributed applications?"

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The Three Pillars of Observability

Combining metrics, logs, and traces for observability is the **only** way to understand complex environments

Metrics tell us the "what"

Logs tell us the "why"

Traces tell us the "where"

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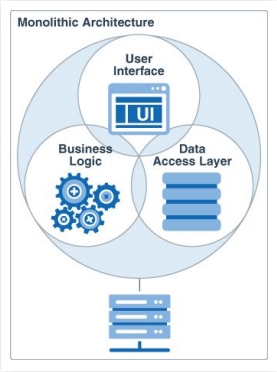
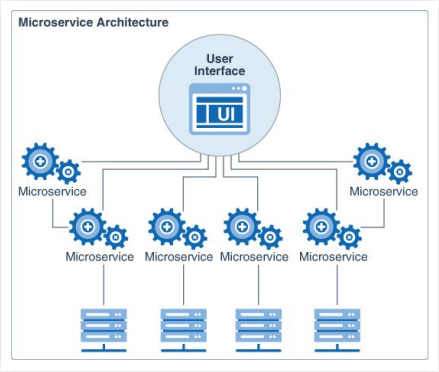
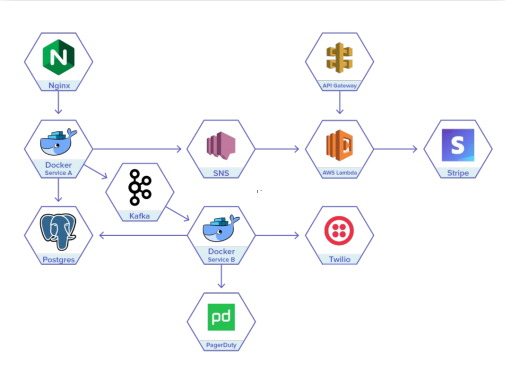
Something is Still Missing

- Manual Correlation
- Multiple Sources
- Single pane of glass

The Rise of Microservices in the Cloud







Host-based Monolithic → Host-based Distributed → Abstracted-host Highly Distributed

Extremely hard to monitor and troubleshoot

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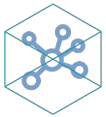
Traditional Monitoring Solutions are Limited



Logs & Metrics are NOT Enough

- Traces are needed on top of metrics and logs
- Distributed tracing is crucial in order to find the root-cause efficiently

Bytecode becomes a bottleneck

- Bytecode provides limited value in distributed applications
- Bytecode comes with significant overhead in microservice environments

Manual Monitoring Kills Agility

- Getting distributed traces require manual instrumentation
- Metrics, logs and traces are correlated manually

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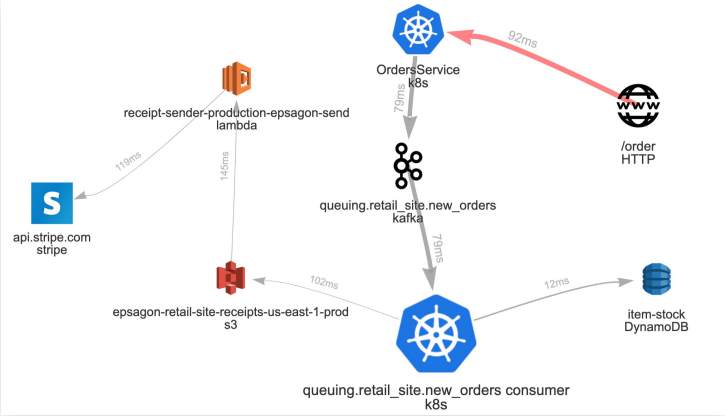
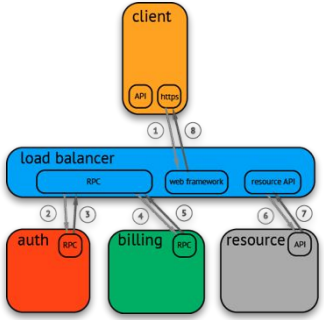
Why Distributed Tracing Is Critical Today

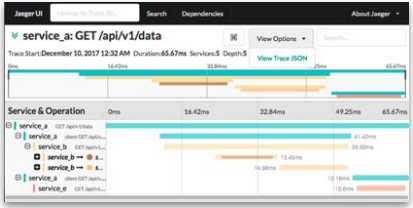
The Only Way to Understand Cloud-Native Workloads

Due to high complexity and the need for manual instrumentation, distributed tracing remained an approach viable only for very **tech savvy** companies

> A trace tells the story of a transaction or workflow as it propagates through a distributed system







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Open-source Tools

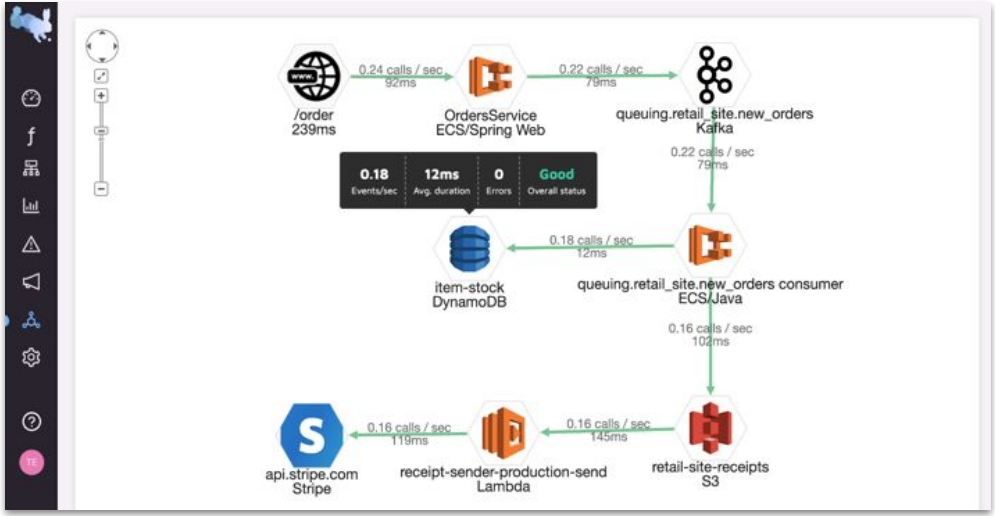
Generating Traces

Ingestion & Client

Best Practices for Observability

- **Automated** setup and zero maintenance
- **Supports any environment**

  (K8s, cloud, FaaS)
- Connects **every request** in a transaction
- **Searches and analyzes** your data
- **Helps** to quickly pinpoint problems
- **Correlation**



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Observability Benefits

- Reduction in Error Rates
- Reduction in Troubleshooting Time
- Faster Shipment of Features
- Improved DevOps & Engineering Efficiency

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The Journey to Observability

- Identify your business goals and architecture model
- Determine your approach: DIY or managed
- Trial observability solutions
- Make sure the new service integrates to your ecosystem

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Summary

- Modern applications require more than just monitoring
- Distributed tracing is a crucial component in such environments
- Automation and Unification for efficiency and ease
- Stop implementing your own solutions unless needed

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Special Offer for SkilUp Day: Observability

Visit https://epsagon.com/skilupday/

Start a free trial, send your first trace & we'll send you our Cloud Observability Drone

1-in-10 will also receive a pair of Bose Headphones!

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Thank you!

Meet me in the Network Chat Lounge for Questions.

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