Observability and the Golden Signals for SRE in Microservices

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What We’ll Discuss Today

• The 4 Golden Signals of Site Reliability
• The Rise of Microservices
• Observability in Microservices
• Microservices & The 4 Golden Signals
Golden Signals

Latency

Traffic

Errors

Saturation
Moving to Microservices
Business Modernization in the Cloud

The business world is transforming around cloud

“Own less, build more” means...

- Get closer to your customers
- Make static things smart
- Make slow things fast
But There’s a Catch

Cloud service APIs are difficult to troubleshoot

Thousands of containers, functions, and services with a wide variety of behaviors

Logic shifts from the code within a service to the calls between microservices
Old Tooling, New Architecture

Traditional APM sees within services, but not between services.

Log Aggregators: hours of manually correlation that bottlenecks team knowledge in one SME.

Infrastructure Monitoring: alerts DevOps to issues, but does not give Devs context to remediate.

Incomplete Data due to sampling and lack of payload visibility.
Something is Still Missing

• How do we correlate between metrics and logs

• How do we correlate between data in different services
Distributed Tracing
A **trace** tells the story of a request or data as it propagates through the distributed system.

Since distributed tracing connects every request in a transaction, it allows you to know and see what’s happening to every service component and app in production.
Achieving Observability for Microservices

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**”
Tracing, Observability & the Golden Signals
Distributed Tracing: Application Level
Distributed Tracing: Transaction Level
# Latency: Where is Time Spent?

Trace Start: Sep 23, 2020 2:26:15.760 PM | Duration: 3.29s

## Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Oms</th>
<th>0.8227ms</th>
<th>1.65s</th>
<th>2.47s</th>
<th>3.29s</th>
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<td>blog-site-app-prod-Request-Processor</td>
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</table>
Errors Visualized, Categorized

Count of error by exception.type
Resource Saturation (Kubernetes)
### Resource Saturation (ECS)

#### ECS Services

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Launch Type</th>
<th>Cluster</th>
<th>CPU Usage</th>
<th>Memory Usage</th>
<th>State</th>
<th>Created On</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>orders-service</td>
<td>Fargate</td>
<td>retail-store</td>
<td>1%</td>
<td>74%</td>
<td>ACTIVE</td>
<td>7 months ago</td>
<td>1/0/1</td>
</tr>
<tr>
<td>stock-updater</td>
<td>EC2</td>
<td>retail-store</td>
<td>1%</td>
<td>62%</td>
<td>ACTIVE</td>
<td>a year ago</td>
<td>1/0/1</td>
</tr>
<tr>
<td>orders-service</td>
<td>Fargate</td>
<td>retail-store</td>
<td>1%</td>
<td>74%</td>
<td>ACTIVE</td>
<td>a year ago</td>
<td>1/0/1</td>
</tr>
</tbody>
</table>

#### Charts

- CPU Utilization (%)
- Memory Utilization (%)

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**epsagon**
Moving Forward
A Good Observability Solution:

- Intuitive visualizations of Container and Serverless applications
- Streamlined Solution with low-code setup that make it easy to onboard new users
- Context-rich analysis for faster troubleshooting
Thank You!

Questions? Feel free to DM at chris@epsagon.com

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