Zipkin & Splunk: Tracing Transactions Across Your ecosystem

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Zipkin & Splunk: Tracing Transactions Across Your Ecosystem

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- Title: Zipkin & Splunk: Tracing Transactions across your ecosystem
- Abstract:

Containers, microservices and serverless computing are here to stay, but how do you track performance across these complex, short-lived ecosystems? Zipkin is an open source, open tracing library that enables you to trace transactions from system to system in a standard way. Those traces can be collected and visualized in Splunk! Come see how to use Zipkin and Splunk together to see how transactions navigate your systems and services.
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Agenda

1. App Dev Flashback & Future
2. Observability vs. Monitoring
3. Distributed Tracing
4. Open Tracing
5. Zipkin + Splunk
6. Demo
Let’s Start at the Beginning
Containers, Microservices and Serverless…Oh my!

- Monolith apps
- Distributed apps
- Microservices
- Serverless
- Transactions
- External Systems?

- How do I monitor this?
But Wait, There’s More Complexity

- Dockerless Containers (OCI), Kubernetes or Mesos?
- AWS, GCP, Azure or all together?
- IaaS, PaaS
- DevOps, CI/CD (what version?)

- How Do I monitor this?
  Logs, Metrics & Tracing

“Observability”
Monitoring or Observability?

Both!

**Monitoring**

- Logs & Metrics
- Passive (poll)
  - ‘I observe you’
- Measure machines, networks, apps
- Overall Health
- Use Cases
  - Monitoring
  - Alerting
  - Troubleshooting
  - Capacity Planning

**Observability**

- Logs, Metrics & **Traces**
- Active (push/code)
  - ‘Make yourself observable’
- Measure interactions
- Granular Insights
- Use Cases ++:
  - Debugging
  - **Distributed Tracing**
  - Performance Analysis
  - Behavioral Analytics
Distributed Tracing

▶ A long history…
- Tag-and-Follow
- Application Tracing
- Transaction Tracing
- Cross Process Tracing

▶ Conceptually easy, but difficult to implement
- GUID? SessionID? UserID?
- Wait…I can’t change that system
- Multiple Vendors
- No consistency
Enter Open Tracing

▶ In the beginning…
  • There was Dapper (2010)

▶ Great if you’re Google 😐
  • Consistent hardware
  • Application templates
  • Zero involvement to instrument

▶ Enter OpenTracing
  • Consistent, vendor-neutral APIs
  • Multiple implementations
  • Plug-n-Play

▶ Zipkin, Jaeger, Lightstep
ZipZipkat?
An OpenTracing Implementation
Zipkin OpenTracing with Splunk!

- Topology
- Performance Metrics
- Traces
OK, But How?

- HTTP Event Collector
- Zipkin ‘Recorder’
- Application Code

```javascript
// Create an instance of the Splunk recorder
const {recorder} = require('./recorder');

// initialize tracer
const tracer = new Tracer({ctxImpl, recorder});

// instrument the client
const zipkinRest = rest.wrap(restInterceptor, {tracer, serviceName: 'frontend'});
```
Demo!

Splunk + Zipkin
More Visualizations… 😊 More on this tomorrow 😊
Helpful Links

▶ Dapper Paper
▶ OpenTracing - http://opentracing.io/

▶ Open Source Implementations
  • Zipkin - https://zipkin.io/
  • Jaeger - https://www.jaegertracing.io/

▶ Commercial Implementations
  • LightStep - https://lightstep.com/
  • Instana - https://www.instana.com/

▶ This Demo:
  • Zipkin-Demo Github Repository
  • Docker image (Splunk with Zipkin App)

▶ Jaeger Demos & Tutorials
  • Distributed Tracing with NGINX
  • Jaeger Implementations
  • HotRod Tutorial
  • MicroDonuts
  • Case Study: Distributed Tracing @ Uber
Thank You!

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