

Microservices Monitoring

Objectives

- Service Monitoring & Monitoring Tools
- Introduction to the Instana Service Monitoring Solution

Service Monitoring

- Microservices give rise to complex, frequently changing systems.
- Performance degradation in one service can lead to failure in other services, or even bring down your entire system.
- From an SRE perspective this introduces significant administration challenges.
- Monitoring Tools are essential to running a microservices application.

Monitoring Tools

- Prometheus + Grafana
 - The current “Gold standard” for cluster monitoring etc.
 - Free and open source.
 - Quite complex configuration necessary.
- Proprietary tools:
 - There are loads of these
 - We will look at Instana today as an example

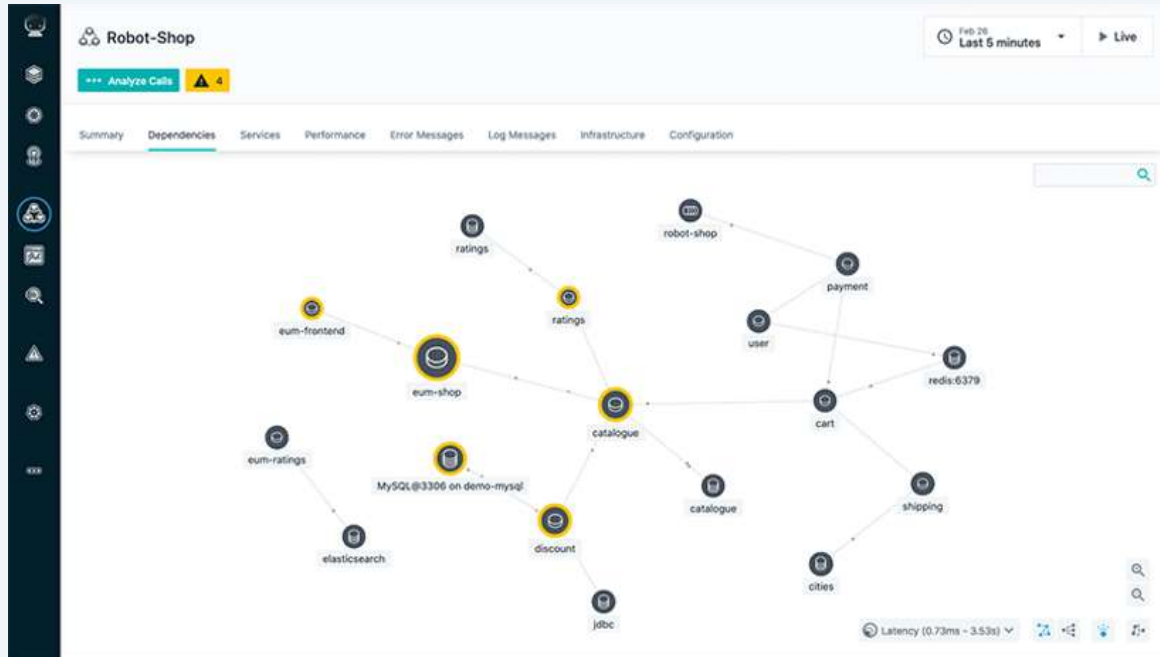
Instana Service Monitoring

- From IBM
- An Application Performance Management (APM) solution designed specifically for managing microservices.
- This means Instana is more interested in the services deployed on your cluster than the cluster itself
 - The two are related, but many solutions focus on your infrastructure.



INSTANA

What does Instana Do?



Ingests observability metrics

Traces every request on your system

Profiles every process

All this is put together so you can

See your whole system
at a glance

Know where problems
originate

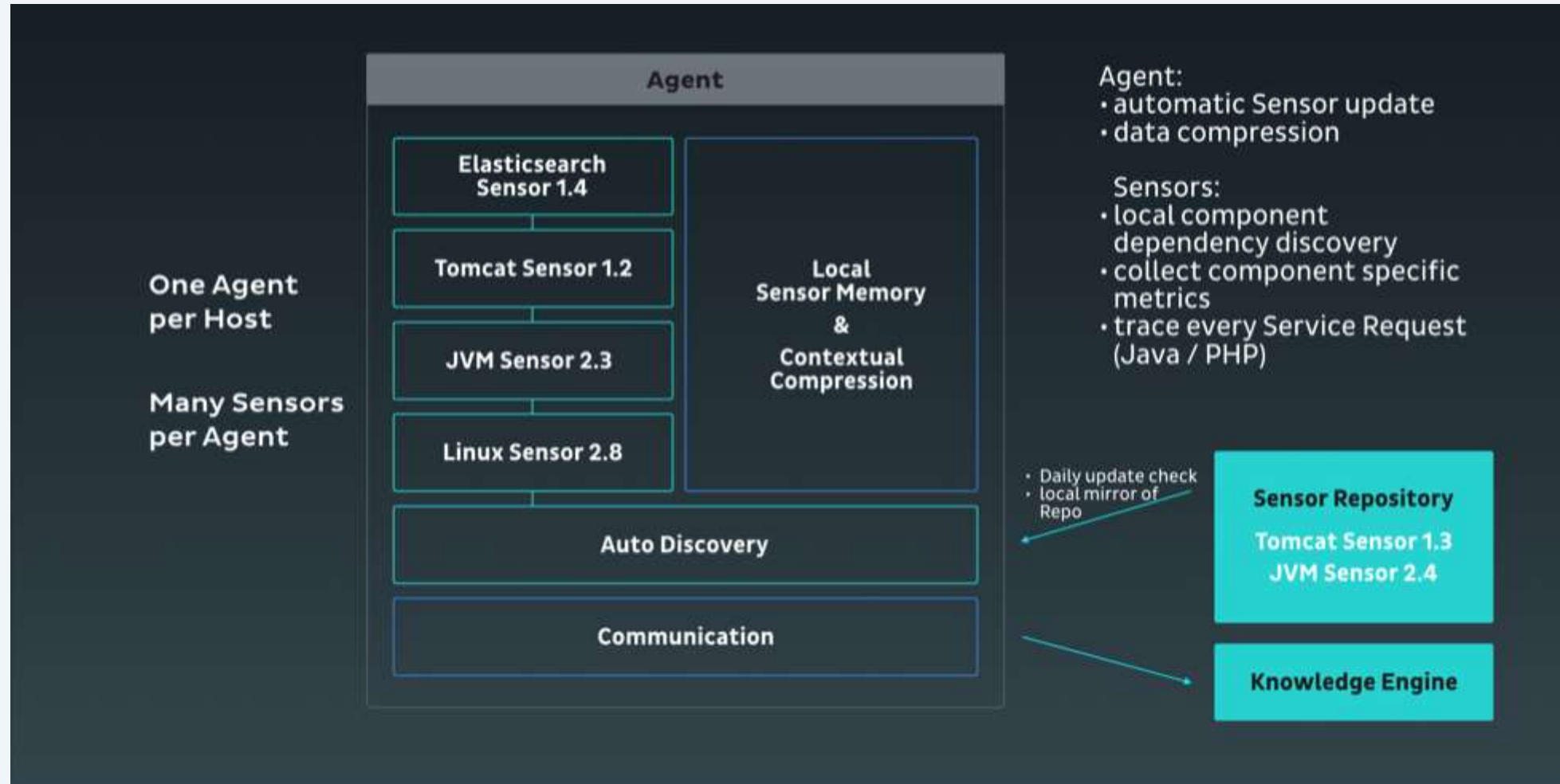
Know what services are
affected

Instana Core Capabilities: Automated discovery and monitoring

“And at our scale, humans cannot continuously monitor the status of all of our systems” [Netflix](#)

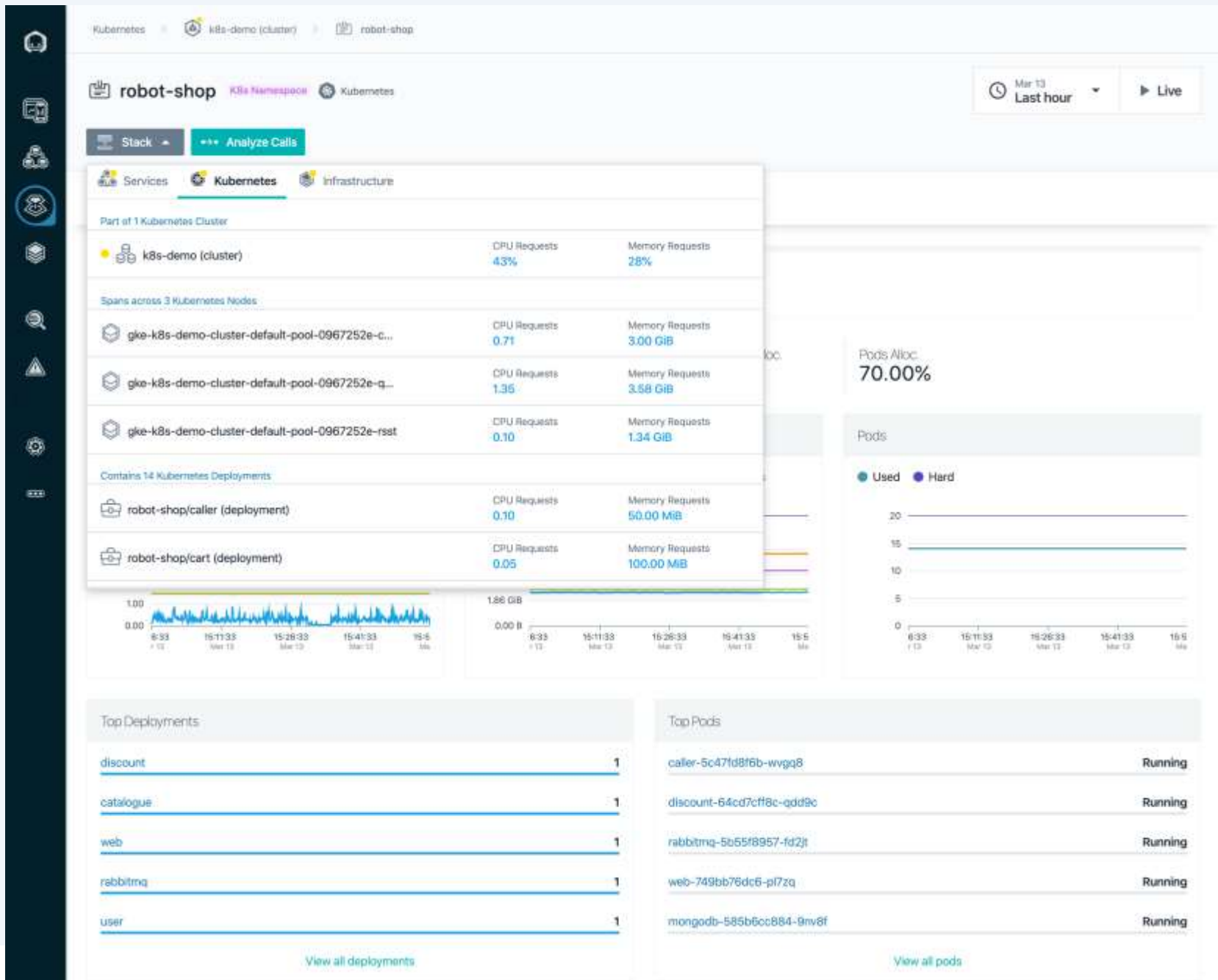
- To effectively monitor a complex system, sensors need to be in place to handle changes/failures in
 - Physical components - compute, containers, clusters etc
 - Logical components - services, endpoints, service calls
 - Business components - business services, business processes
- Instana installs a agent on each host to monitor all the necessary components, detect and log changes
 - Scanning is done every second.

Instana discovery agent



Instana Components: Context Guide

- Instana collects information at the services, cluster and infrastructure levels
 - You can drill down to a particular service, or cluster node
- Metrics are also logged for all the calls made, and an upstream/downstream visualization is provided to navigate dependencies of
 - an application
 - service or endpoint
 - infrastructure entity
 - Kubernetes entity.



Instana Components: Root Cause Analysis

- Instana automatically detects **changes**, **issues** and **incidents**

Changes

- an event representing anything from a server start/stop, deployment, configuration change etc

Issues

- an event created if an application, service or any part of it gets unhealthy.

Incidents

- the most severe events, created when edge services accessed by users are impacted or imminently impacted.

Instana Components: Root Analysis

- Events are logged and displayed in the Events submenu
- The details of any event can be obtained by drilling down
- Related changes and events are displayed in a timeline.



Sudden increase in the number of erroneous calls



Events

Events (7)

- 11:30:37 offline
On: `/usr/sbin/mysqld`
- 11:30:45 **SERVICE IMPACT**
Sudden increase in the number of erroneous calls **DURATION** 10m
On: MySQL@3306 on demo-mysql
- 11:31:45 **SERVICE IMPACT**
Sudden increase in average latency **DURATION** 10m
On: MySQL@3306 on demo-mysql
- 11:33:00 **SERVICE IMPACT**
Erroneous call rate is too high **DURATION** 5m
On: MySQL@3306 on demo-mysql
- 11:30:45 **SERVICE IMPACT** **TRIGGERING EVENT**
Sudden increase in the number of erroneous calls **DURATION** 10m
On: discount
- 11:32:05 **SERVICE IMPACT**
Sudden increase in average latency **DURATION** 10m
On: discount
- 11:33:00 **SERVICE IMPACT**
Erroneous call rate is too high **DURATION** 5m
On: discount

Stan's Robot Shop

- Instana makes available a sample microservices application [Stan's Robot Shop](#) that you can install locally to play with.
- They also provide a sandbox with the robot shop running so you can experiment with Instana features.

Lab

Go to <https://play-with.instana.io/> and start the sandbox
Work through the Getting Started exercises (bottom left)

Summary

- Service Monitoring & Monitoring Tools
- Introduction to the Instana Service Monitoring Solution

Questions or Comments?

