GO BEYOND DATA
Real-time Analytics for Application Performance Management

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Agenda

- Modern applications
- Monitoring challenges
- INSTANA approach
Business Demand: **Write and Deploy code faster!**

Drives adoption of
- **Agile**
- **Continuous Delivery**

Drives adoption of
- **Cloud**
  - Containers / Microservice
  - Reactive / Polyglot Technologies
Monitoring

Why monitor systems and the applications?
- to obtain information needed to guide whether the system is working properly

Reality of monitoring
- produce data - data is not information
- current insight tools are system oriented
- built from the perspective of the system providing the metrics
- require specialised knowledge to use and interpret

How it should be
- information about the quality of service
- help diagnose what is causing the problem
- suggest what to do to fix the problem
“And at our scale, humans cannot continuously monitor the status of all of our systems. To maintain high availability across such a complicated system, and to help us continuously improve the experience for our customers, it is critical for us to have exceptional tools coupled with intelligent analysis to proactively detect and communicate system faults and identify areas of improvement.”
Monitoring Challenges: Intense operational complexity

**AGILE**
Daily/Hourly code and configuration changes.

**CLOUD**
Shared infrastructure.

**POLYGLOT**
Experts knowledge needed.

**CONTAINERS**
Throw away infrastructure.

**REACTIVE**
Non-deterministic code path.
Vision
Creating a Virtual DevOps Expert
Creating a Virtual DevOps Expert

Intelligent Sensor Technology
- Dynamic Component Discovery
- Realtime Sensing
Intelligent Sensor Technology

Realtime Sensoring

Data viewed as 1 minute running average

CURRENT APM

Data viewed as 5 second running average followed by 1 second data points. INSTANA collects 1 second resolution data.

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Aggregation = loss of information
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Intelligent Health Management
- Dynamic Dependency Graph
- Adaptive Learning
- Predictive Alerting & Optimization
Intelligent Health Management
Streaming, Analytics, Learning & Knowledge

Realtime Stream Processing
- Persistence
- Stream Processing
- Dynamic Graph
- Communication

Health Management
- Machine Learning
- Knowledge Base
- Predictive Alerting

Memory
- Raw Store
- Result Store
- Health Signatures

Sensor Data

3D Map
Dynamic Dependency Graph

Cassandra Cluster

Tomcat Cluster

Service A

Service B

Instana, Inc. Proprietary and Confidential
Dynamic Dependency Graph

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Severe Situation Detected
JVM GC Overhead too high - Impact on Service >20%.
Knowledge Base recommendations:
1. Update to Java 1.6.62
2. Increase Eden Space to -XX:NewRatio=2
at 10:43am.

Optimization Detected.
com.mycomp.Calc.calc() consumes 20% of Clock time.
Optimization will have high impact on Service response time for Shop service.
a few seconds ago
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3D Map
- Runtime Visualization
- Persona Optimized Perspectives
STAN - a Virtual DevOps Expert
THANK YOU!