Application Performance Monitor

2016-11-24

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Introduction

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Agenda

- What is APM
- APM components
- When to apply APM
- 4 Examples
- Summary
- Q&A

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What is APM

- Application Performance Monitor is additional software
  - Complements the monitoring available in the Mendix cloud
  - It exposes the performance of your application's inner working (Mendix model)
  - Applies on end-user experience (the time an end-user has to wait on result)

- Benefits
  - Faster issue resolution
  - Increased end user productivity and satisfaction
  - Improved availability and stability of your application

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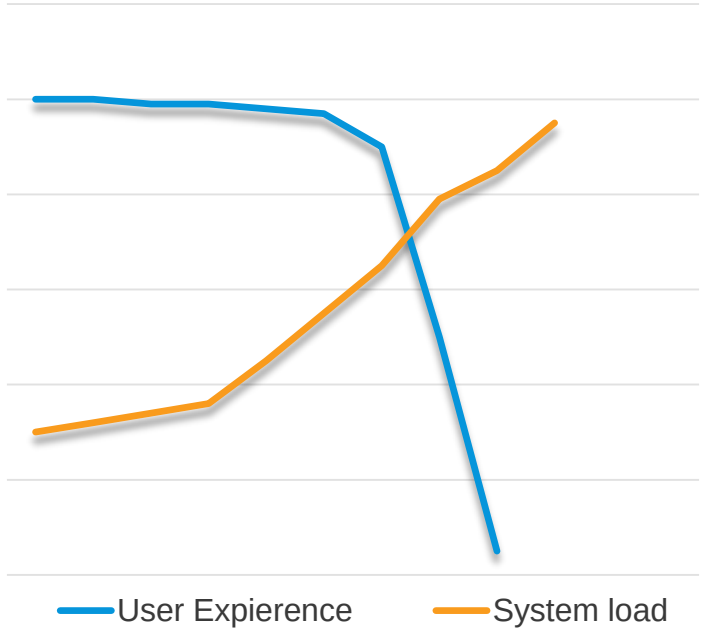
What is APM

- APM enables developers to
  - Detect application performance problems
  - Diagnose application performance problems
  - Maintain an expected level of service



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What is APM

- An add-on, available in the App Store
  - Offering as a cloud service (expected 2017)
- Records activities of your application, like
  - Microflows triggered by a user
  - Scheduled events
  - Executed queries (Xpath, SQL)
  - Application logs
- Developer tooling to
  - Perform root cause analysis of performance related issues
  - Reduce the effort required to troubleshoot
  - Analyze of the usage of an application
  - Plot and predict usage and performance over time

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APM Components

Trap Tool

Stores deep level log information that happened before an error occurred

Performance Tool

Record usage and shows all activity from invocation to database queries

Measurements Tool

Records application activity when system resources reach critical thresholds

Statistics Tool

Identifies trends by gathering statistics of application performance

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When to apply APM

- Applied at applications which are
  - Heavily used
  - Deal with large volumes of data
  - Mission critical
  - Focussed on customer (end-user) experience

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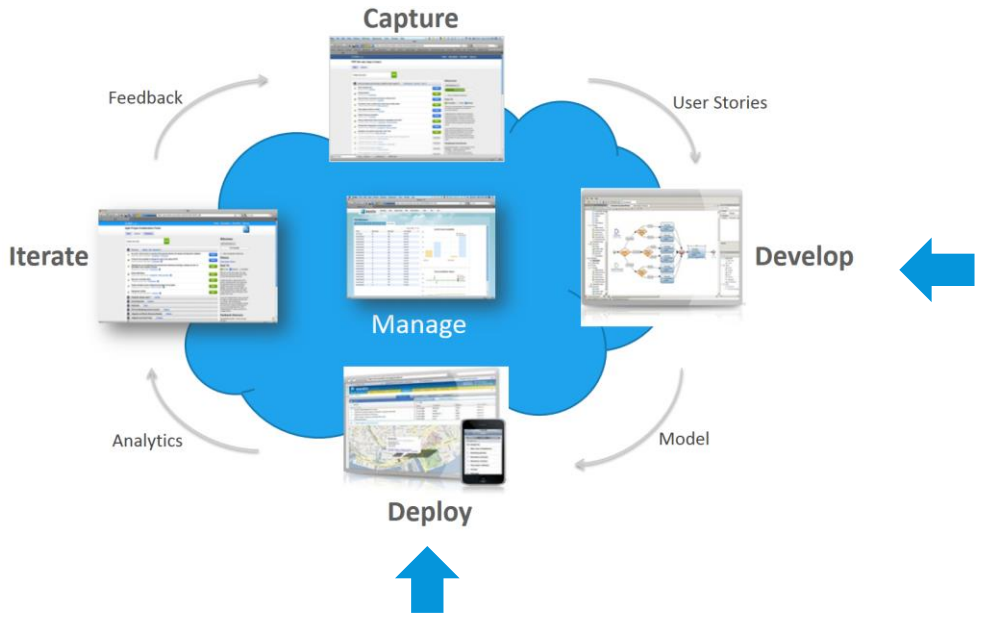
When to apply APM

- Development
  - Debug errors or performance issues
  - Predict behavior on production
  - Test on production (-like) data and environment
  - Load test
- Production
  - Identify areas to improve
  - Explore behavior on actual usage
  - Discover context of performance issues
  - Perform root cause analysis of an error



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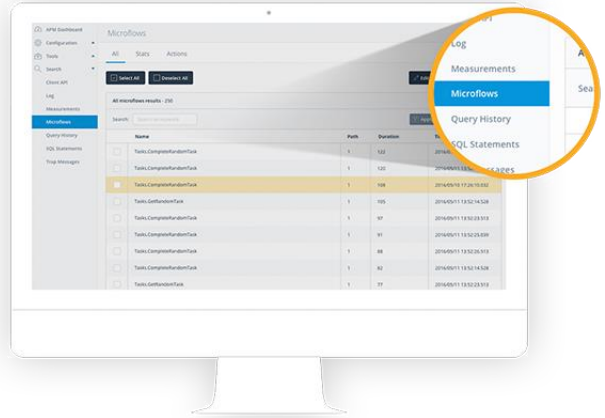
Customer example

	Problem	Solution
Business	150 FTE helpdesk	Saves over 1 FTE (750 minutes a day of waiting time)
End user	Handling tickets and doing on average 4 ticket actions per hour	Saves each user about 5 minutes of waiting per day
Process	Action menu takes 10 seconds	Action menu takes 1 second
Server	Significant load on the application server	Load on the application server is reduced 6 x
App	3 retrieves required to determine an action; each of them takes 2-3 seconds	Combined into 1 retrieve and optimized queries

4 Examples

- Quick insight into performance issues
- Deliver performing logic first time right
- Pro-actively prevent performance issues
- Speed up error resolution

Quick insight into performance issues



Problem

- Slow responses in GUI
- Long running batches, exports and reports
- Trial-and-error solving
- Unable to validate a solution

Using APM

- Discover root cause faster
- Dramatically reduce the time and effort to solve performance issues.

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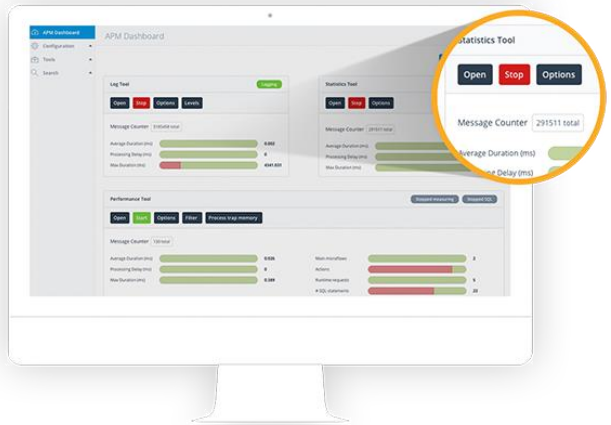
Demo – Performance

Deliver performing logic first time right

Problem

- Redesign or refactoring to solve performance issue
- Difficult to predict performance of new complex logic before production



Using APM

- Avoid many performance issues
- Prevent loss of end-user productivity
- Improve user experience
- Improve development productivity

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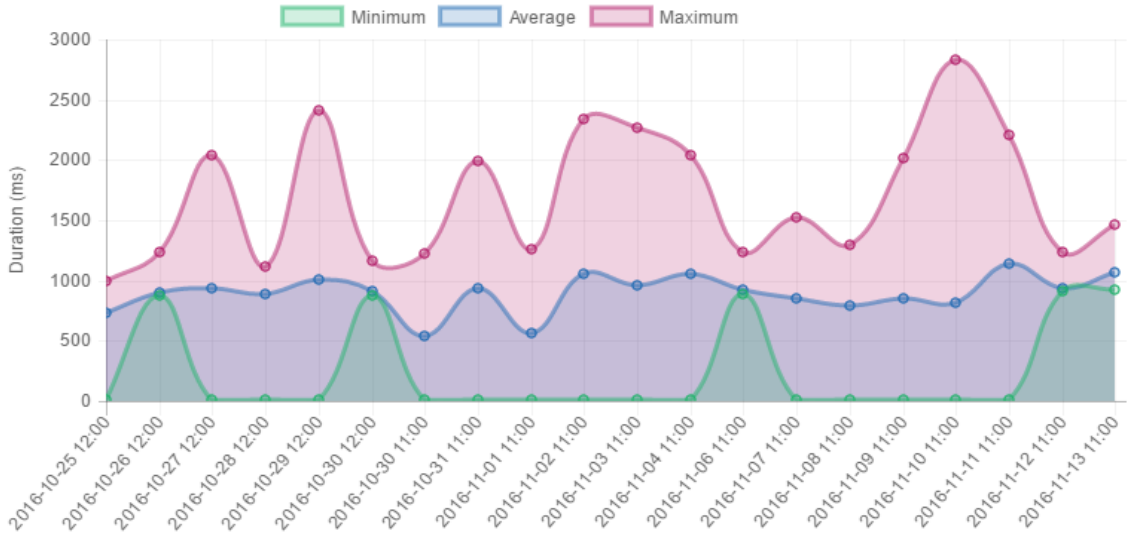
Pro-actively prevent performance issues

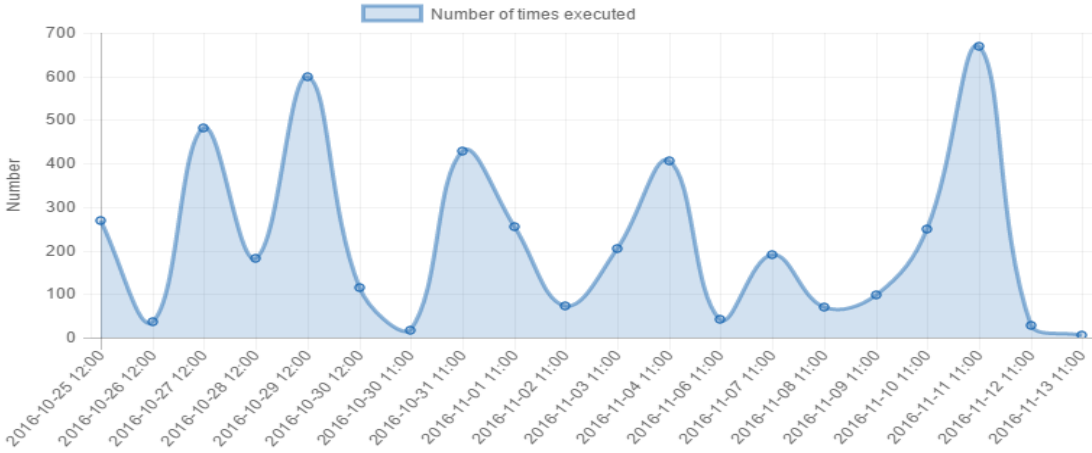
Problem

- App uses too much system resources
- Lack of insight in degrading performance over time
- Unknown usage of App



Using APM

- See which actions are used the most
- See which actions are most time consuming
- See a trend
- Fix performance issues before they arise



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Demo – Statistics

Speed up error resolution

Problem

- User can’t reproduce the error
- The error occurs occasionally or at unpredictable moments
- The root cause of the error can’t be derived from the log
- Turning on high-level (trace, debug) logging causes issues with log file size

Using APM

- Provides context by storing high-level logs that happened just before the error
- Links errors to the actions being performed at that moment in time
- Having the right logging available

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Demo – Traps

Additional tools

- JVM browser (JMX)
- Query tool
  - Perform queries (Xpath, OQL, SQL)
- Log tool
  - Search through logs
  - Rerouting (of Java logging to Mendix logs)

Summary

- Reduce issue resolving time
- Increase end user experience and productivity
- Protect our application against performance problems

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Q&A

More information:

- Find documentation at https://docs.mendix.com/APM
- Visit the App Store at https://appstore.mendix.com