

Dynataste

Driving Automation



The Unicorn Project: Developer Productivity & Autonomy through Automation

- Stable Environments & Self-Service Thinking
- Automated Feedback → Monitoring as a Self-Service
- Automated Quality Gates → Performance as a Self-Service
- Automated Delivery → Unbreakable Delivery Pipelines
- Automated Operations → Path to NoOps



Gene Kim
Tripwire Founder & CTO



The Unicorn Project, The Five Ideals and how DevOps evolved with Gene Kim

From: PurePerformance

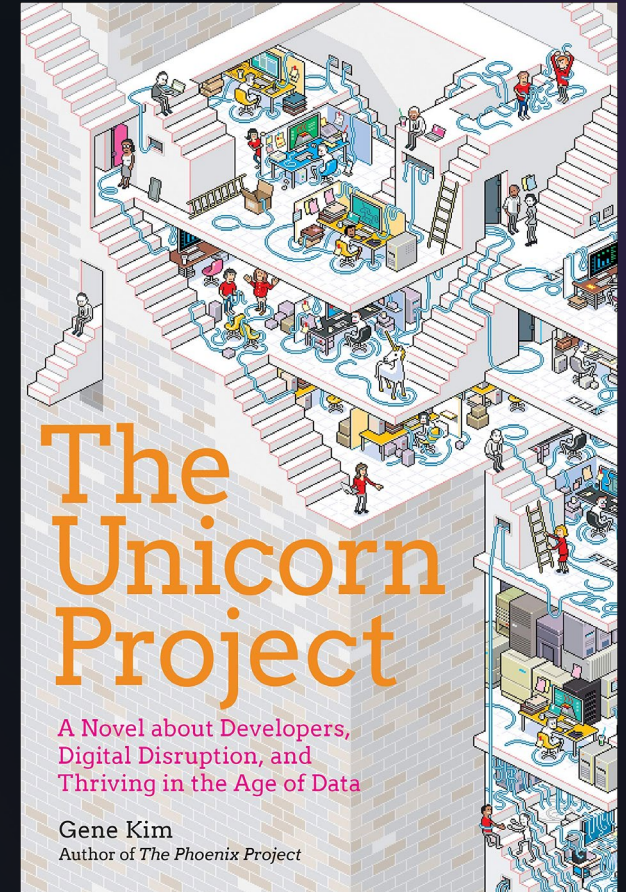
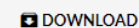
♥ 1 💬 0 ⌚ about 1 month ago

35 PLAYS 348 DOWNLOADS



00:00

52:17



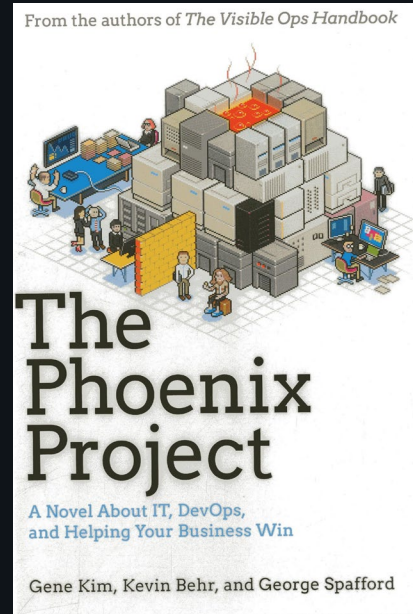
2013



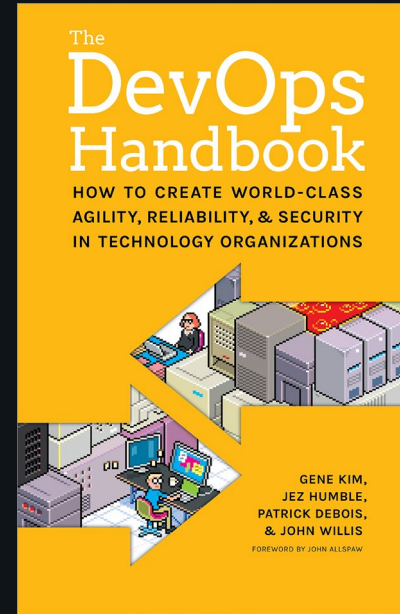
Gene Kim



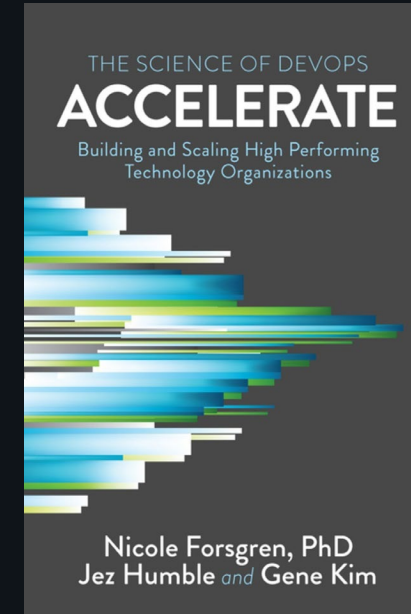
Jez Humble



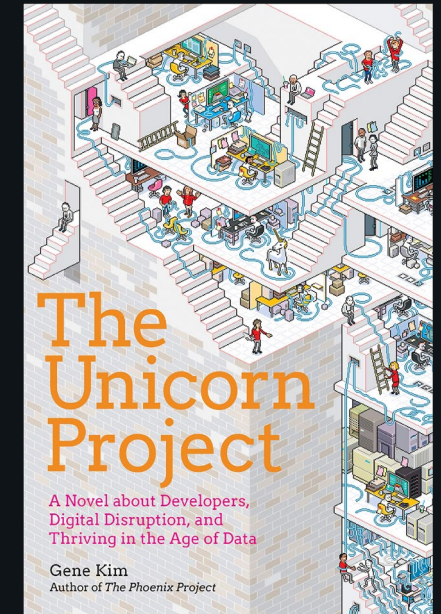
2016



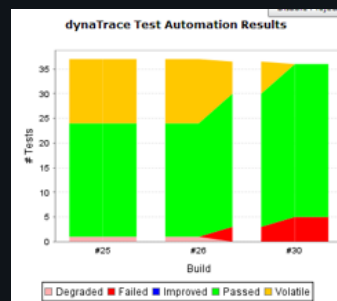
2018



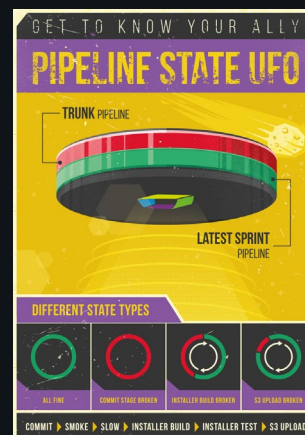
2019



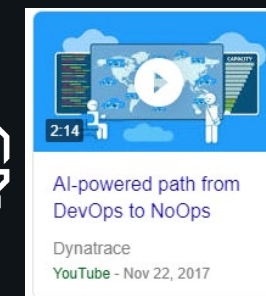
Shift-Left



CDF & UFO



Davis AI & NoOps

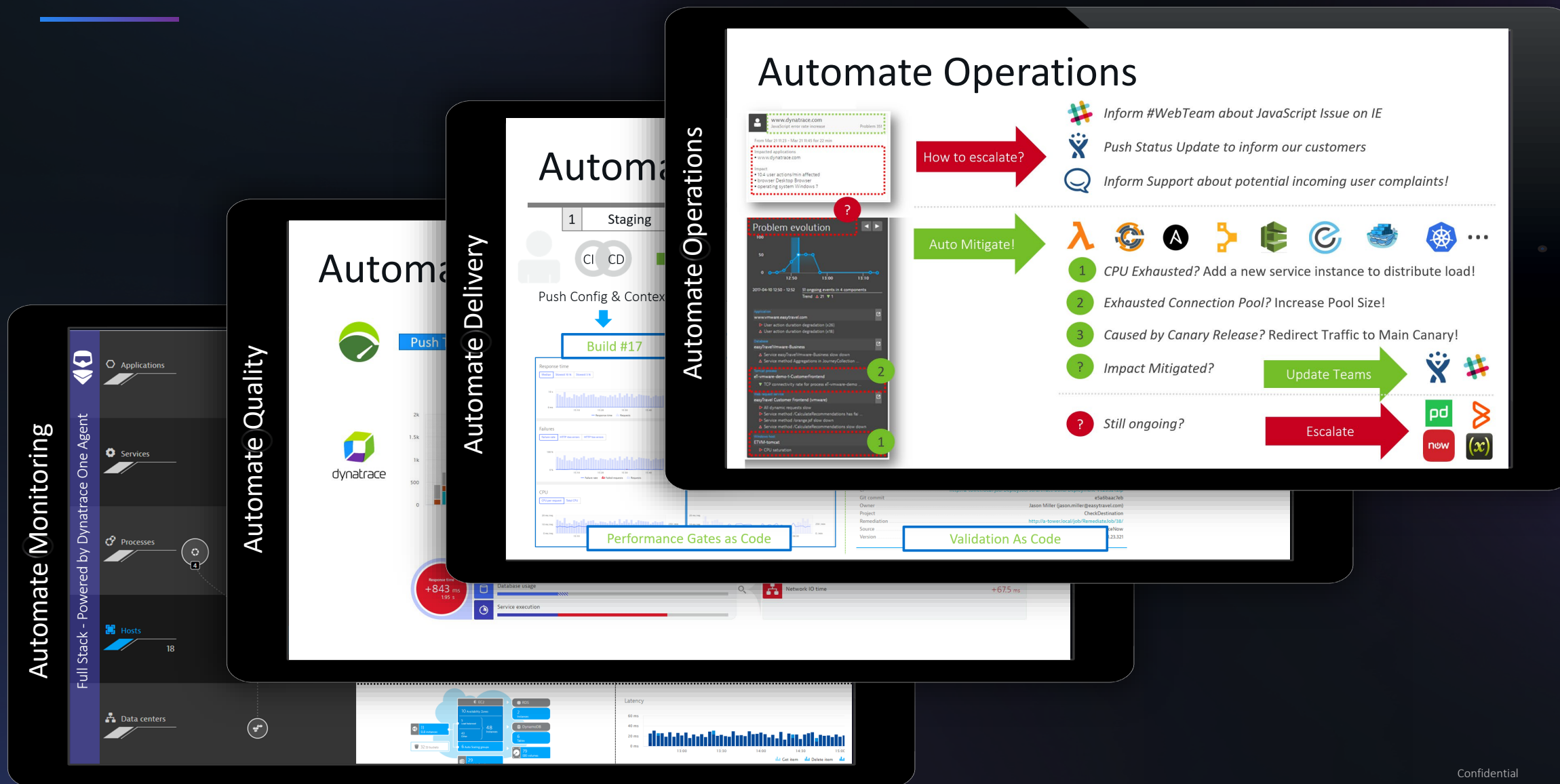


ACE & keptn

Autonomous
Cloud
Enablement



The DevOps Path to become “Unicorns” aka “Autonomous Cloud Enabled!”



Full stack observability with AI at the Core

= Foundation for Complete Automation

Auto deploy with a single agent

Discovery and mapping

Automated code instrumentation

No-touch upgrades

Trigger self healing

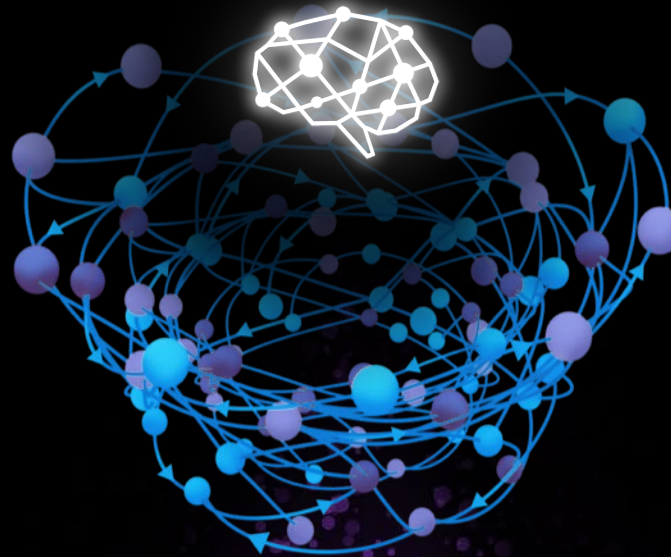
Causation, not correlation

Automated problem detection

Business impact determined

Precise root cause explained

No alert storms



topology



traces



events



metrics



logs



behavior



Davis finds problems for you and provides the answers.

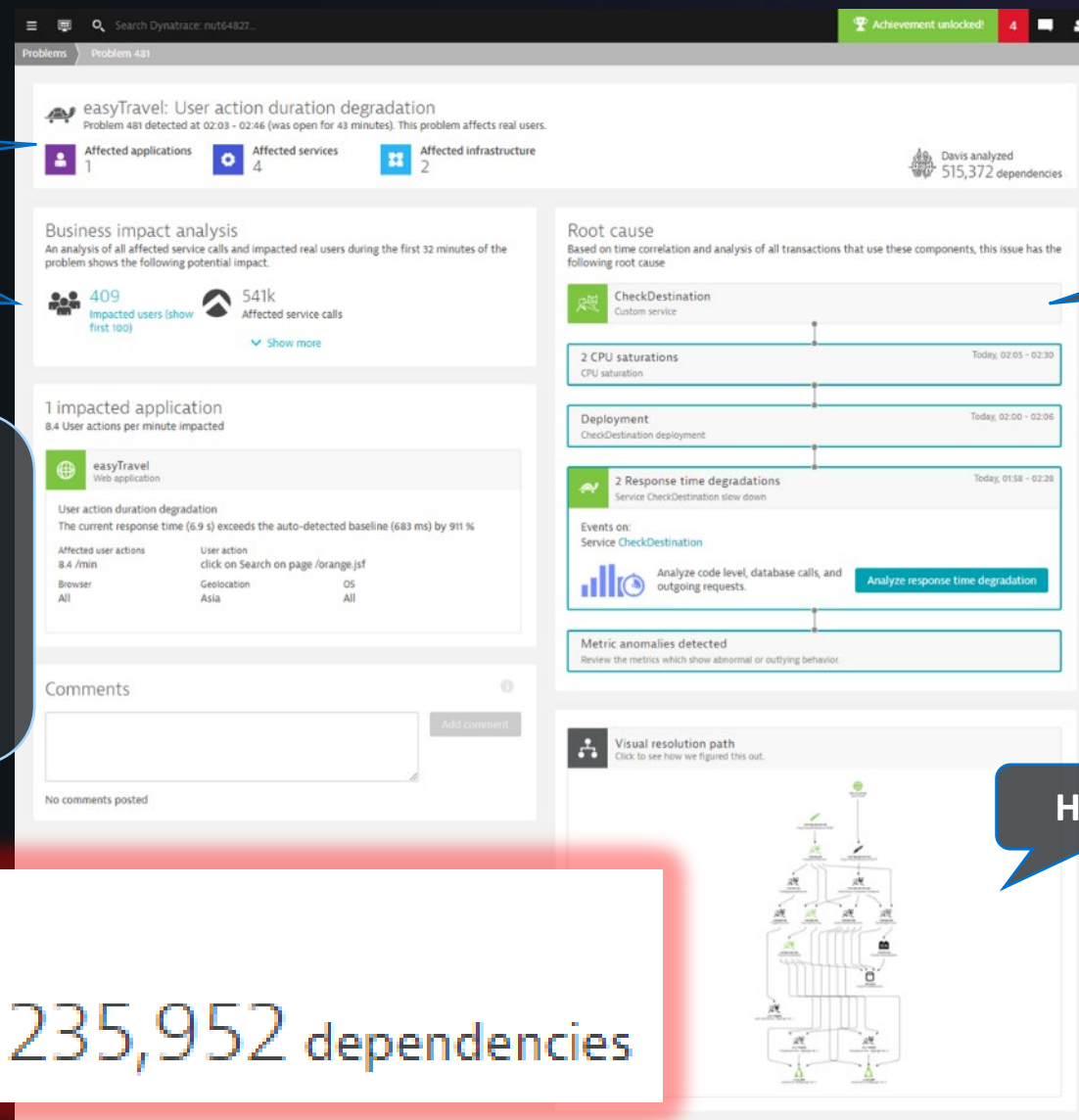
When? What?

Who?

Example from a customer:

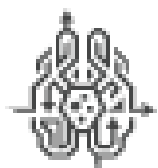
183+ TRILLION dependencies analyzed by Davis for a single problem.

It's impossible to do this manually.



Why?

How?



Davis analyzed
183,380,605,235,952 dependencies



Simple automation case: Self-Remediation

Problems

Problem 638

easyTravel: User action duration degradation

Problem 638 detected at Oct 10 02:00 - Oct 10 02:30 (was open for 30 minutes). This problem affects real users.

Affected applications

1

Affected services

2

Affected infrastructure

2

Davis analyzed

1,028,300 dependencies

Business impact analysis

An analysis of all affected service calls and impacted real users during the first 45 minutes of the problem shows the following potential impact.

507

Impacted users (show first 100)

447k

Affected service calls

Show more

1 impacted application

19 User actions per minute impacted

easyTravel

Web application

User action duration degradation

The current response time (3.58 s) exceeds the auto-detected baseline (669 ms) by 435 %

Affected user actions

19 /min

User action

click on Search on page /orange.jsf

Browser

All

Geolocation

Europe

OS

All

Root cause

Based on time correlation and analysis of all transactions that use these components, this issue has the following root cause

CheckDestination

Custom service

Deployment

CheckDestination deployment

Yesterday, 02:00 - 02:06

Source

ServiceNow

Version

1.23.321

CI

https://ven01382.service-now.com/nav_to.do?uri=change_request.do?sys_id=558cad5adbbcf300190bd92b5e961919

Remediation

https://ven01382.service-now.com/nav_to.do?uri=change_task.do?sys_id=e95de99adbbcf300190bd92b5e9619c7

Project

easyTravel

Approver

Alice McBright (alice.mcbright@easytravel.com)

Build Number

1.223.23432

Git commit

e5a6baac7eb

Owner

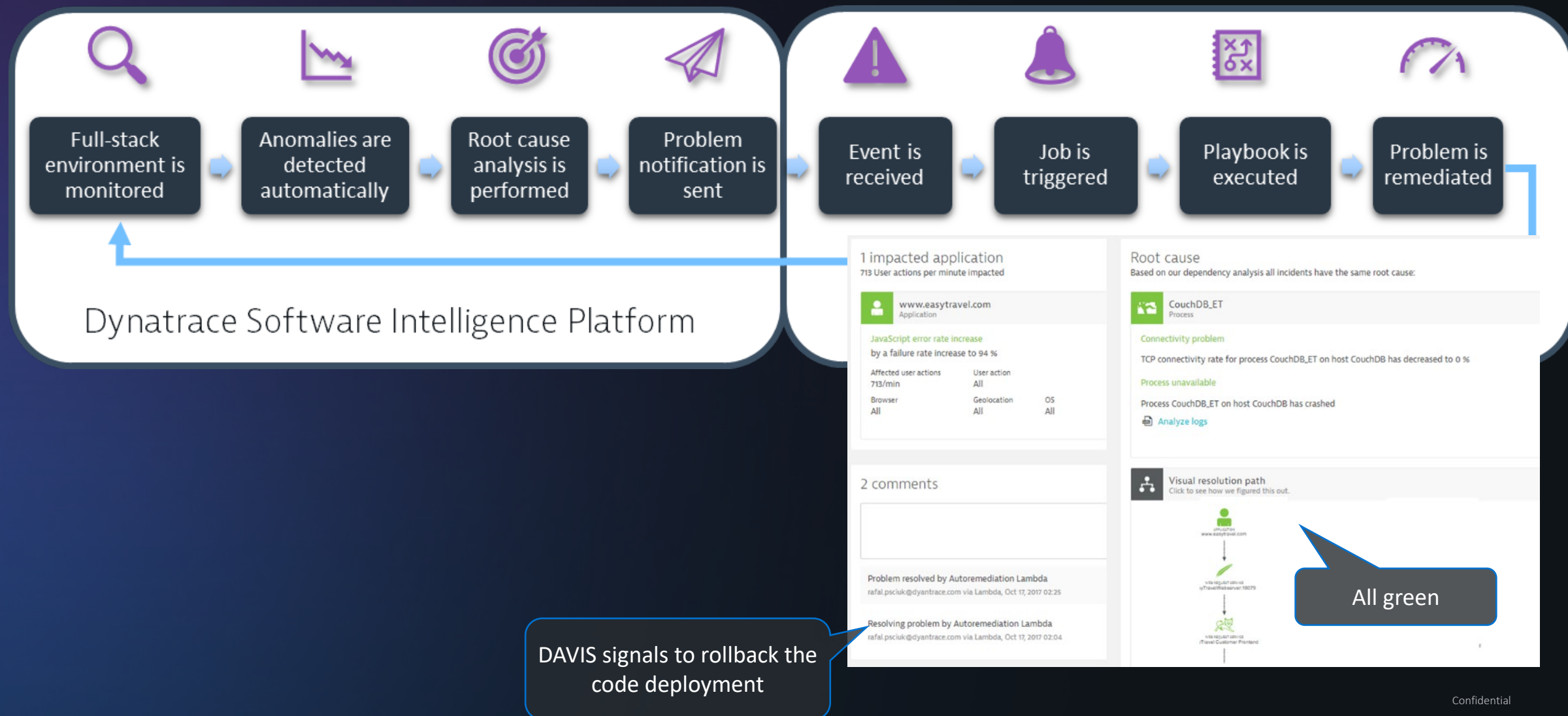
Chuck Ryan (chuck.ryan@easytravel.com)

Events on:

Service CheckDestination

Code deployments and configuration changes will be shown in root cause analysis if it contributed to the issue.

Simple automation case: Self-Remediation



But Davis can evolve and help you much more!

- **More data = smarter Davis**

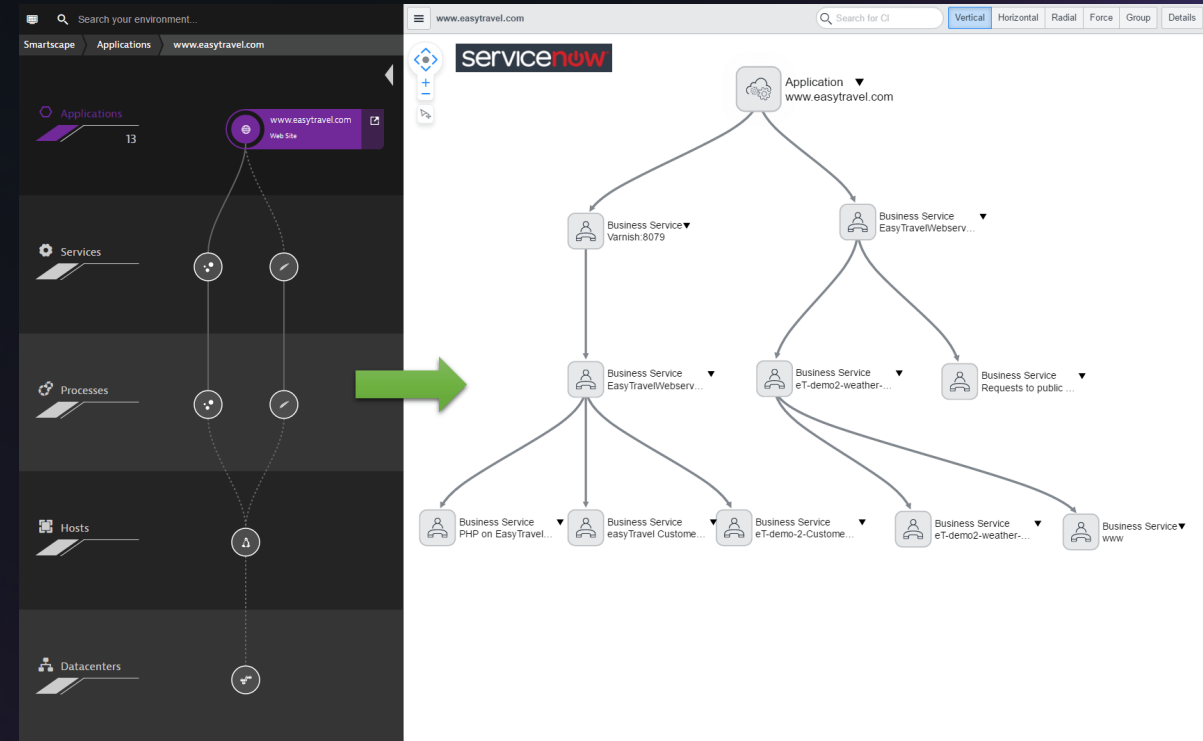
- Deploy more OneAgents = more AI power across your enterprise
 - Leverage the cloud infrastructure mode of OneAgent to deploy broadly with minimal license consumption
- Connect 3rd party tools into Davis to provide visibility where OneAgent cannot go
 - Data
 - Events

- **Connect Davis to Service Now**

- Problem reporting (ITOM)
- CMDB discovery and mapping

- **Connect Davis to deployment and configuration orchestration tooling**

- Send a signal to Davis when deployment is pushed to production
- Send a signal to Davis when infrastructure changes are made
- ServiceNow, Ansible, Puppet, Jenkins, etc.



Real-Time Release Tracking

Development system integration to report and track bugs

All releases, all environments, all applications... All Automated!

Real-time inventory

56 Releases

Component ▲	Version ▾	Environment ▾	Application ▾	Instances ▾	Throughput ▾	Details
HipsterShop: adservice	jdk11	hipstershop-prod	keptn-hipstershop-prod	5	0 B/s	
HipsterShop: adservice	jdk11	hipstershop-staging	keptn-hipstershop-sta...	6	0 B/s	
HipsterShop: adservice (pilot-ag...	jdk11	hipstershop-staging	keptn-hipstershop-sta...	1	0 B/s	
HipsterShop: cartservice	original	hipstershop-staging	keptn-hipstershop-sta...	5	0 B/s	
HipsterShop: cartservice	original	hipstershop-prod	keptn-hipstershop-prod	5	0 B/s	
HipsterShop: cartservice	9e830c2	hipstershop-prod	keptn-hipstershop-prod	2	0 B/s	
HipsterShop: cartservice	9e830c2	hipstershop-staging	keptn-hipstershop-sta...	2	0 B/s	
HipsterShop: cartservice (pilot-ag...	original	hipstershop-prod	keptn-hipstershop-prod	1	0 B/s	
HipsterShop: cartservice (pilot-ag...	original	hipstershop-staging	keptn-hipstershop-sta...	2	0 B/s	
HipsterShop: cartservice (pilot-ag...	9e830c2	hipstershop-staging	keptn-hipstershop-sta...	1	0 B/s	
HipsterShop: cartservice (pilot-ag...	9e830c2	hipstershop-prod	keptn-hipstershop-prod	1	0 B/s	
HipsterShop: checkoutservice	9e830c2	hipstershop-prod	keptn-hipstershop-prod	4	0 B/s	
HipsterShop: checkoutservice	9e830c2	hipstershop-staging	keptn-hipstershop-sta...	4	0 B/s	

Realtime release information

Query results matching the filter

1 Opened Support Tickets

Click to view them on:

<https://github.com/keptn-demo-live/hipstershop-demo1/issues?q=i...>

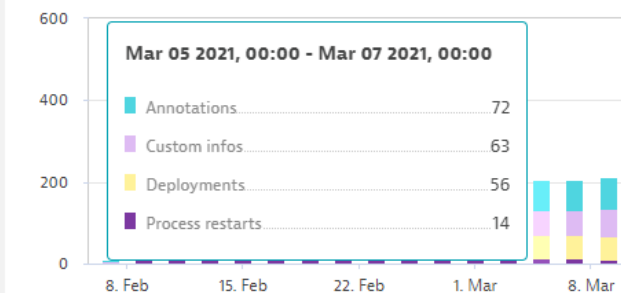
0 Opened Bugs

Click to view them on:

<https://github.com/keptn-demo-live/hipstershop-demo1/issues?q=i...>

Release events

3248 events matching the filter



1179 Anno...

984 Cust...

883 Depl...

Digital Business Analytics (Operations as IT service provider)

From business metrics for Application owners...

...to release-comparison metrics for DevOps teams

Enrollment milestones

Action count (load action, by browser)

318.8k

Home

76.9k

Payment

33.2k

Review

22.1k

Finish

Sessions by milestone

Home

318,826

Sessions
-12% vs 2 hours ago

Payment

76,981

Sessions
+4% vs 2 hours ago

Abandonment

Home

241,826

Abandonment
+32% vs 2 hours ago

Payment

25,271

Abandonment
-1% vs 2 hours ago

Canary validation

Production

Active sessions

317,535

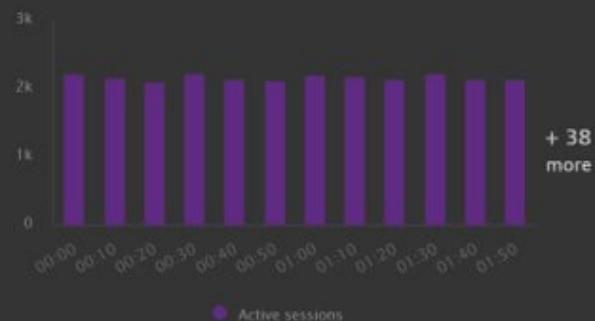
Active Sessions

Successful enrollments

76,959

Enrollments

Active sessions over time



Average contract value

2,359

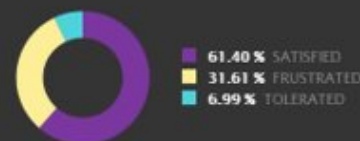
Average contract value (\$)

Conducted search queries

65,604

Search queries

User Experience Score



Canary 1

Active sessions

51,475

Active sessions

Successful enrollments

8,260

Enrollments

Active sessions over time



Average contract value

2,270

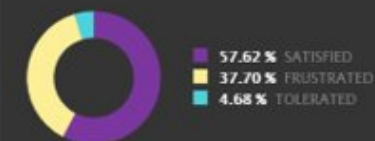
Average contract value (\$)

Conducted search queries

11,423

Search queries

User Experience Score



Site Reliability Engineering - SLO tracking

SLOs







 Review the status and error budget of each defined service-level objective or add a new custom SLO. For details, see [Service-level objectives](#) or [have a look at the SLOs](#)

All the SLO goals clearly visible with the evaluation timeframe of choice and immediate drilldown to analysis

Any monitored transaction, service or webpage automatically available for reporting

27 SLOs


































Show results for SLO timeframe

Name ▲	Status	Error budget	Target	Warning	Timeframe	Actions
 Azure CosmosDB SLO Cloud Azure Cosmos ServiceAvailability > 99.8%	100 %	0.2 %	99.8 %	99.9 %	-1w	  
 Azure ServiceBus SLO Cloud Azure ServiceBus Queue Requests Successful / Cloud Azure ServiceBus Queue	99.972 %	-0.008 %	99.98 %	99.99 %	-1w	  
 CouchDB SLO Tech Couchdb Http_2xx / Tech Couchdb Requests	99.959 %	0.459 %	99.5 %	99.7 %	-1w	  
 Mobile crash SLO for easyTravel Mobile (new) Apps Other CrashFreeUsersRate Os > 95.0%	94.481 %	-0.518 %	95 %	97.5 %	-1d	  
 Performance Objective www.angular.easytravel.com Apps Web ActionCount Category (filtered) / Apps Web ActionCount Category	85.099 %	-4.9 %	90 %	95 %	-1d	  
 Performance Objective www.gcp.hipstershop.com Apps Web ActionCount Category (filtered) / Apps Web ActionCount Category	0 %	-95 %	95 %	97.5 %	-1d	  
 Performance Objective www.vmware.easytravel.com Apps Web ActionCount Category (filtered) / Apps Web ActionCount Category	86.124 %	-8.876 %	95 %	97.5 %	-1d	  
 Performance Objective www.weather.easytravel.com Apps Web ActionCount Category (filtered) / Apps Web ActionCount Category	97.653 %	2.653 %	95 %	97.5 %	-1d	  
 Service Availability AuthenticationService Service Errors Server SuccessCount / Service RequestCount Server	100.001 %	5.002 %	95 %	97.5 %	-1d	  

Application Security

Exposure assessment levels through topology analysis


Automatically lists all detected vulnerabilities and assesses risk factor

Security								
<div> Security NEW Detect vulnerabilities in 3rd party libraries at runtime.</div>								
Filtered by:								
Showing 75 vulnerabilities								
The selected time frame impacts which vulnerabilities are shown, but the data itself reflects the current state of the entry, not the historical state.								
Vulnerability	Risk	CVSS score	Public internet exposure	Sensitive data affected	Public exploit available	Current state	First seen	Last change
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-174736 Problem 11691: 3rd party vulnerability	Critical	9.8				Open	46 d 5 h ago	20 h 12 min ago
 SNYK-JAVA-ORGECLIPSEJETTY-32385 Problem 11678: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	30 d 10 h ago
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-559106 Problem 11670: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	7 d 11 h ago
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-450917 Problem 11669: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	42 min 40 s ago
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-548451 Problem 11668: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	7 d 11 h ago
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-455617 Problem 11667: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	42 min 40 s ago
 SNYK-JAVA-COMFASTERXMLJACKSONCORE-450207 Problem 11666: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	42 min 40 s ago
 SNYK-JAVA-CHQOSLOGBACK-31407 Problem 11659: 3rd party vulnerability	Critical	9.8				Open	46 d 10 h ago	10 h 42 min ago

Application Security

Security

Problem 2052



SNYK-JAVA-COMGOOGLEPROTOBUF-173761: High risk to your environment

3rd party vulnerability (SNYK-JAVA-COMGOOGLEPROTOBUF-173761) detected at October 01 01:09


Problem context


Affected entities


Events


Vulnerable components


▼


No public exploit available

No public internet exposure

High risk


3rd party vulnerability CVSS V3.0 8.8

4929 affected entities

Sensitive data affected

Context and details


Find out more about the vulnerability, how it can be reached and what could be accessed through it.



No exposed processes

to the public internet, within 0 process groups. Forward user-controlled input

No exposed processes.



1550 affected processes

within 765 process groups

Overview

[com.google.protobuf:protobuf-java](#) is a Google's language-neutral, platform-neutral, extensible mechanism for serializing structured data.

Affected versions of this package are vulnerable to Integer Overflow by allowing remote authenticated attackers to cause a heap-based buffer overflow in serialisation process.

For further information visit [SNYK](#).

CVE

CWE

OWASP


[CVE-2015-5237](#)

[2017:A9](#)

[CWE-119](#)

Recent events

Find out what happened recently.

Event	Details
	<p>No recent events found</p> <p>No significant events detected recently.</p>

3 vulnerable components

Find out which components are causing this vulnerability.

Filename	Description	Affected processes
gwt-servlet-2.8.2.jar	com.google.protobuf:protobuf-java:2.5.0	1
kotlin-plugin.jar	com.google.protobuf:protobuf-java:2.6.1	0
	com.google.protobuf:protobuf	

14

Full Business automation experience is a reality

<https://www.dynatrace.com/news/customer-stories/vitality/>

The problem: Fitness tracking app that accumulates points that can be converted into rewards is spread through too many platforms and API's so sometimes reward redeeming fails.

The Solution:

1. Use Dynatrace to detect failed transactions
2. Match the user session in AWS with a CRM, apply machine learning
3. Automatically trigger a response to the customer providing the rewards or a call from the call center.



Enabling a smarter cloud ecosystem

