



# Game changing — From zero to DevOps cloud in 80 days

Best practices

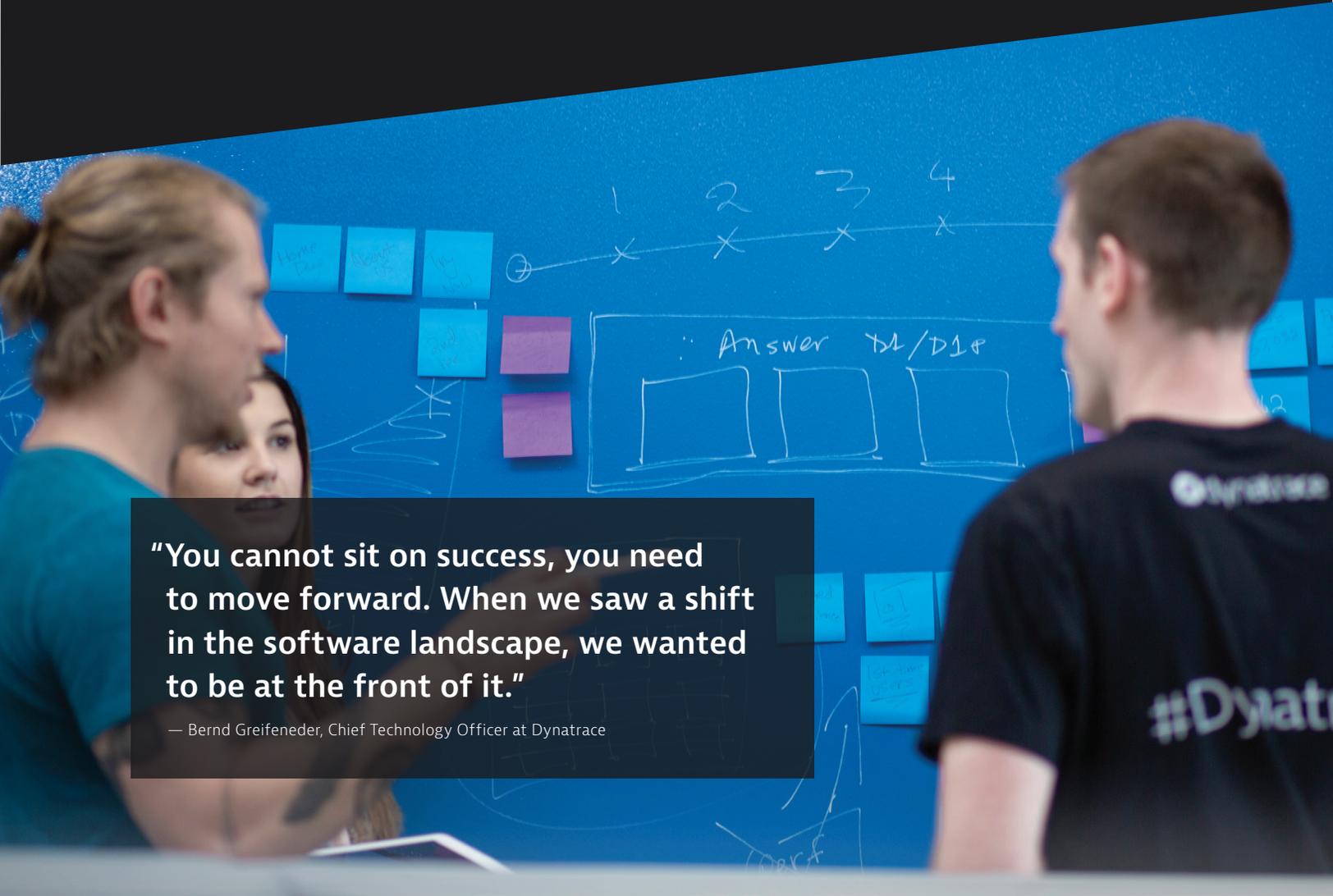
# Overview

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In today's digital world, almost every business is a software business and most organizations are looking for innovative ways of creating new products, or identifying new ways of operating, to be more competitive. This is the story of Dynatrace, a company that saw the digital shift early on and transitioned from delivering software through a traditional on-premise model to the successful hybrid-SaaS innovator it is today. The results have been exciting:

- A move from two releases per year to 26
- From 0 to over 5,000 daily deployments
- Today: 0 Ops resources & 7 R&D resources
- Named furthest for completeness of Vision and highest for ability to Execute in the Gartner Magic Quadrant for Application Performance Monitoring

Read on to pick up the best practices on delivering business innovation faster, improve change management, monitoring and emergency response of your delivery pipeline, or if you are interested in discovering more innovative ways to govern and release apps.



**"You cannot sit on success, you need to move forward. When we saw a shift in the software landscape, we wanted to be at the front of it."**

— Bernd Greifeneder, Chief Technology Officer at Dynatrace

# The Dynatrace transformation leap

Market disruptions can spark innovation and radical change. And this is what happened to vendors in Dynatrace's market — application performance management (APM).

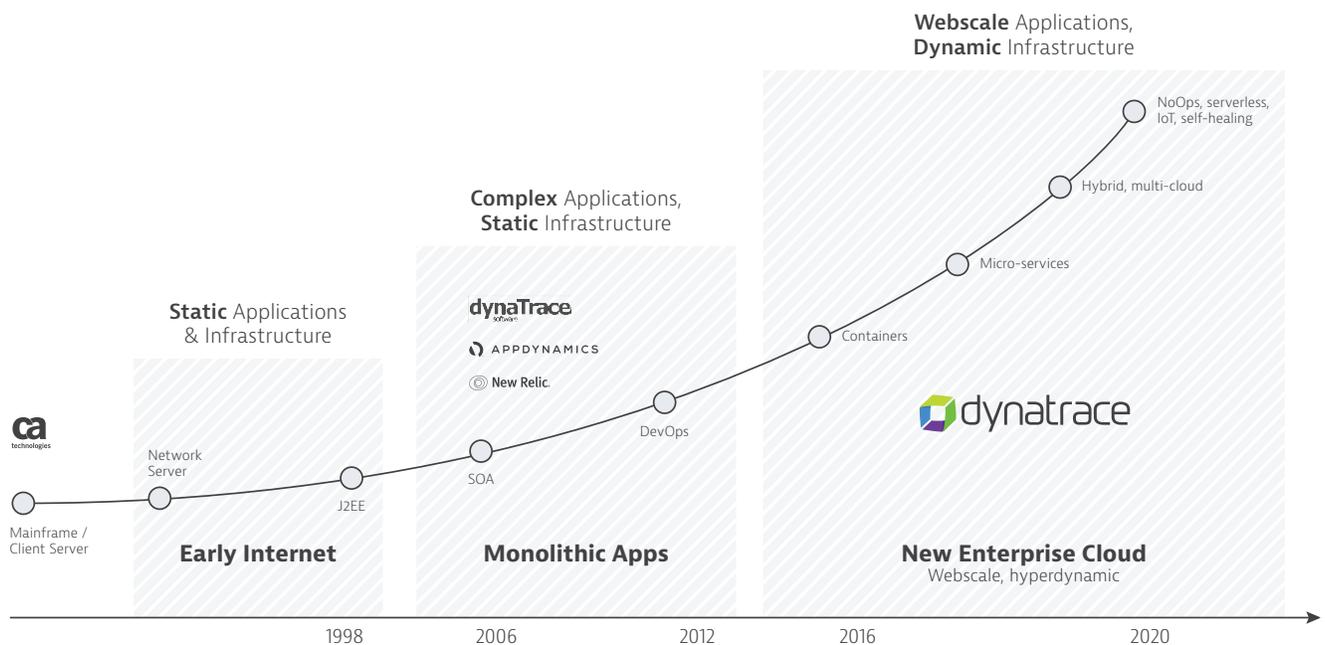
Although the company was disrupting and pioneering 2nd generation APM tools in the early 2000's, by 2011 it became apparent that cloud, microservices and containers were creating a better, faster way of developing and deploying software.

Dynatrace foresaw a need to transform their own development and product monitoring strategy in order to embrace these new environments and maintain and expand the company's market leadership.

At this start, Dynatrace was putting out new releases twice a year and customers installed them on-premise.

This was in line with the rest of the industry, but created significant problems:

- New features and innovation were not fully utilized — for most, Dynatrace learned, the health of a shaky environment took precedence over installing new releases.
- When problems would occur, Dynatrace engineers had to understand dependencies and configurations of a customer environment before they could resolve the defect.
- True quality of the code was not fully known until post-release (as scores of tickets came in) making Dynatrace engineers blind to the quality of code in production.
- Firefights consumed good resources that were needed for continuous improvement; a hot fix took an average of five working days and was ad hoc and reactive to the problems.



Traditional approaches and the old way — Dynatrace seeing the future of cloud native and a new way.



## The vision

To adapt, Dynatrace took 40 of its best engineers off its existing market-leading product and empowered them to transform how the next generation of monitoring software would be designed, developed, tested, and built:



Move beyond traditional APM, to a hybrid SaaS and managed All-in-one Software Intelligence platform that would auto-engineer entire complex cloud environments, from the smallest variation in any code, process, service or user experience.



Deployment would be a single agent architecture, which would automatically be deployed at scale, and would embrace modern architecture stacks — including microservices and containers — without any human intervention.



High-fidelity monitoring data would feed a deterministic AI-powered engine, Davis, in real-time and return not only root cause, but contextual data for remediation and repair.

Because the product would be both the business, and servicing the business, speed and constant innovation was a key goal, and the entire initiative was supported by management from the top down.



# Embracing disruption and sparking innovation — the new way

## 1 Focus on innovation and the application, not the infrastructure

Operational resources were shifted to dev, and using the Dynatrace product, all developers were now responsible for their own code in production.

This dramatic empowerment was referred to internally at Dynatrace as “NoOps” and built as an “as-a-service” model where teams would treat infrastructure-as-code. This would enable them to release quality improvements faster and serve customers in near-real-time — with the ideal scenario of pushing a code change from dev to production within one hour if necessary.

All of this allowed teams to now focus on the application value, versus worrying about the infrastructure.

## 2 Improve together, faster, by adding robust real-time automated feedback loops

A key to the DevOps philosophy and maturity is identifying and acting on feedback earlier in the delivery cycle, before it impacts costs, and more importantly, end-users.

Dynatrace embraced a “shift-left” strategy and built automated quality gates for earlier, proactive remediation. Dynatrace now runs more than 31,000 unit and integration tests per hour.

In addition, they “shifted-right” and automated the release cycle, pushing code, along with monitoring data, to alert for performance degradations.

This actively leveraged the automation of the previous gate, and important alerts, information and feedback was pushed out to stakeholders via JIRA, ChatOps and VoiceOps.

## 3 Expedite ongoing value to the customer

Today over 85% of Dynatrace’s customers are on Dynatrace code that is four weeks older or newer, and the pain of upgrades has been removed by automating them.

The results were better software, faster as well as increased customer satisfaction due to defects being caught and fixed earlier. And, customer confidence and commitment increased to new features and functions.

### Summary

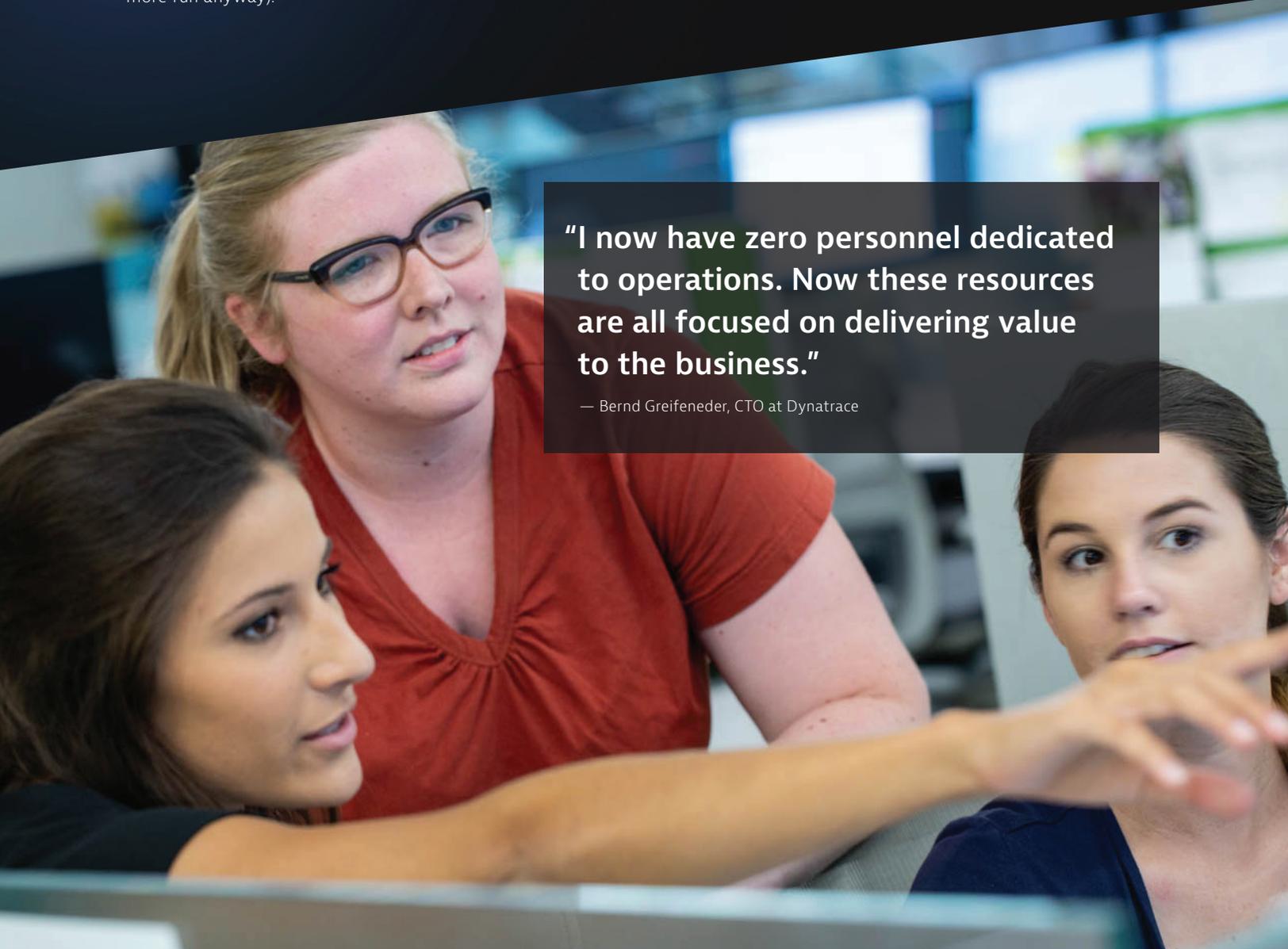
These actions, alongside others, allowed Dynatrace to achieve the goal of transforming into a DevOps / NoOps cloud-native software company; successfully shaping the product to the needs of modern software delivery pipelines; and providing great value to customers who are moving along their own transformation journey.



## The stats are a success story on their own

<b>Increased agility</b>	~200 code commits / day	340 stories per two-week sprint	24 x more releases
<b>Increased quality</b>	31,000 unit & integration tests / hour	68h UI tests per build	93% of bugs found by development
<b>Increased stability</b>	~1,000 global hybrid instances	99.99% global availability	~5,000 deployments per day

Dynatrace has gone from two releases per year to 26 per year, averages 120 code commits per day, and 340 stories per two-week sprint. Teams are spending less time on urgent bug fixes, and more time focusing on competitive, innovative features (which is more fun anyway).



**"I now have zero personnel dedicated to operations. Now these resources are all focused on delivering value to the business."**

— Bernd Greifeneder, CTO at Dynatrace

# Lessons learned along the way

## 1 Make dev depend on trunk quality

To make sure new features worked in the integrated sprint build, Dynatrace deployed sprint builds from trunk to an automatically prepared deployed environment. A feature was considered “complete” when it successfully ran in this environment.

## 2 Make architects responsible for production

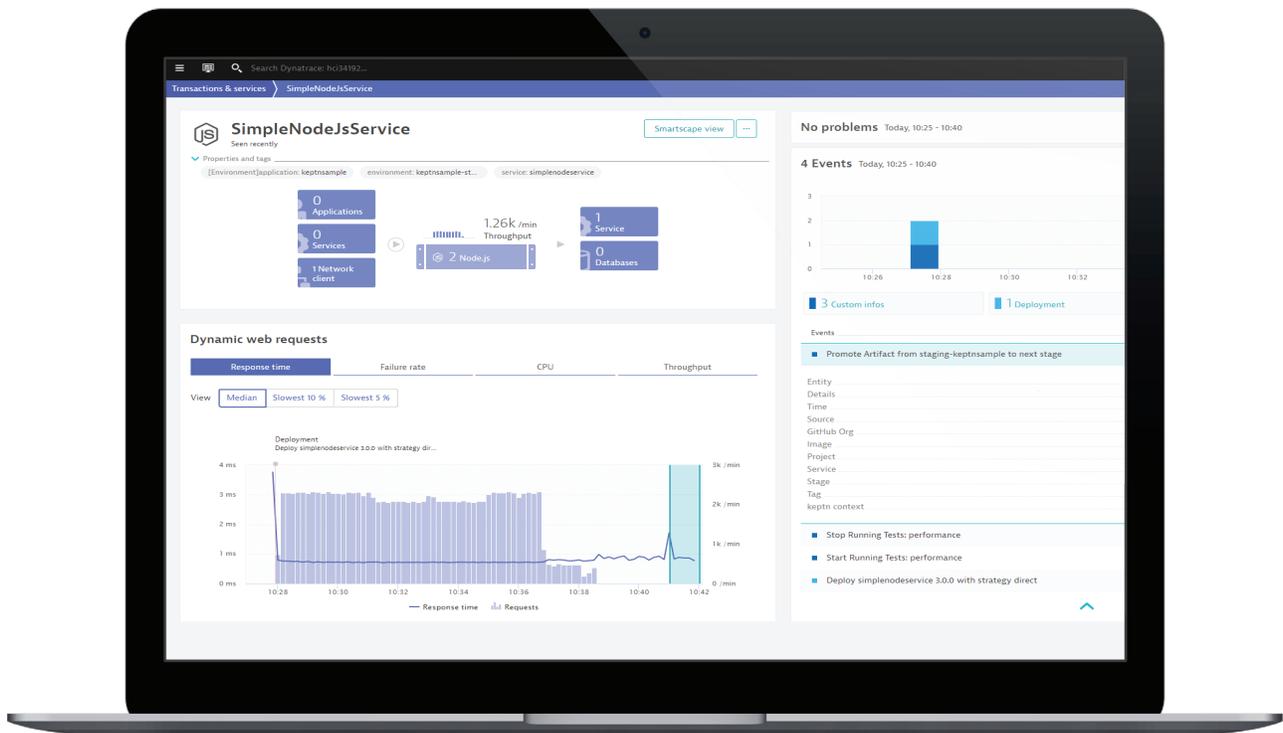
Chief Software Architects were made responsible for production quality, and this included defining the production monitoring and metrics strategy. This ‘first-hand’ experience helped visualize intuitive ideas to be considered for new features and capabilities.

## 3 Help dev access and consume production metrics

Giving developers full access to production monitoring data gave them better feedback on their features; they could experiment with options and effectiveness that impacted customer behavior.

## 4 Keep advancing to NoOps and automate runbooks

The team realized that most of the runbook actions could be automated. This led to one remaining runbook, which said *if* the system couldn’t self-heal now, *then* contact the engineer on call.



Dynatrace's AI-powered Software Intelligence platform helped drive our own digital transformation.

## Summing it up — You can take the leap, too!

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So Dynatrace made the leap from a company laboring under technical debt and fighting fires, to a software company that focuses on continuous improvement.

Dynatrace has used this maturity to enhance product differentiation, like new SaaS capabilities that introduced self-driving trials, to simplifying installation, to automatic upgrades, and complete pipeline analytics for customers. These derive from the people, processes and technology that Dynatrace is calling a “NoOps” approach — an approach where code is always production-ready, quality checks happen upstream, and ops teams have new dev-like roles.

In 2018, the Accelerate: State of DevOps Report<sup>1</sup> entered a new category for performers that meet a new, higher threshold called Elite Performers. This indicates that the bar for excellence continues to rise and that even high performers can further optimize complex cloud pipelines.

Part II in this series will look at how Dynatrace is evolving their high-performance to extend beyond these advancements and success.

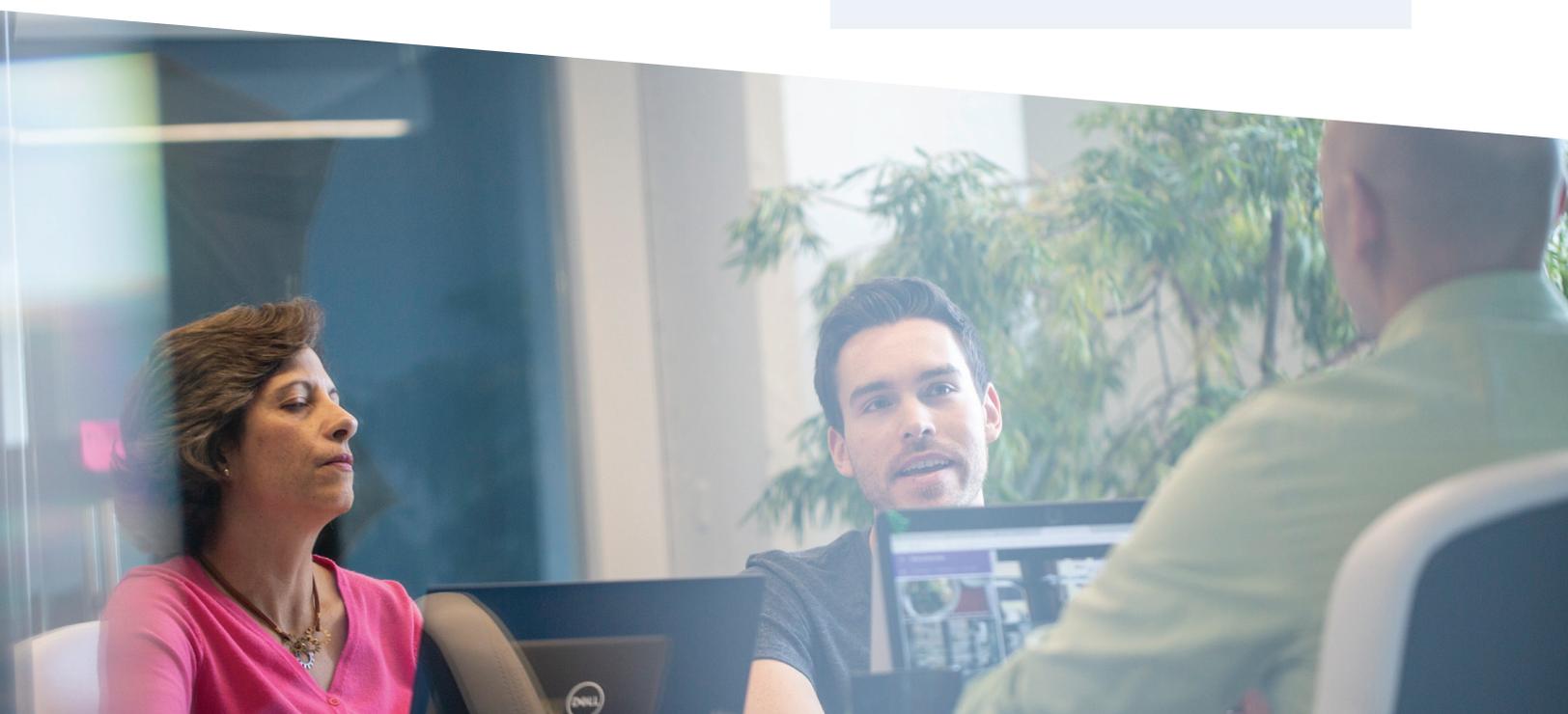


### **Dynatrace Pipeline UFO Operationalizes Performance Culture**

The health of the pipeline is everyone’s common goal. The Dynatrace DevOps team has installed a floating reminder of this called a pipeline UFO. It resides above the teams working on code and different settings sound alarms when the quality of the release is in danger. Focusing on pipeline health like this has encouraged teams to police their own quality. The Dynatrace UFO is an open source project, and if you have a 3D printer, you can print one yourself.

For more information, see:

<https://github.com/Dynatrace/ufo>



# Software Intelligence for the Enterprise Cloud

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We hope this brief has inspired you to take the next step in your digital journey.

Dynatrace is committed to providing enterprises the data and intelligence they need to be successful with their enterprise cloud and digital transformation initiatives, no matter how complex.

If you are ready to learn more, please visit [dynatrace.com/platform](https://dynatrace.com/platform) for assets, resources, and a free 15-day trial.

[Learn more](#)

<sup>1</sup> [Accelerate: State of DevOps Report](https://devops-research.com/2018/08/announcing-accelerate-state-of-devops-2018/) (devops-research.com/2018/08/announcing-accelerate-state-of-devops-2018/)

## Learn more at [dynatrace.com](https://dynatrace.com)

Dynatrace provides software intelligence to simplify enterprise cloud complexity and accelerate digital transformation. With AI and complete automation, our all-in-one platform provides answers, not just data, about the performance of applications, the underlying infrastructure and the experience of all users. That's why many of the world's largest enterprises, including 72 of the Fortune 100, trust Dynatrace to modernize and automate enterprise cloud operations, release better software faster, and deliver unrivaled digital experiences.