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SOFTWARE ROBOTICS

END USER EXPERIENCE AT ITS BEST

A Hybrid Monitoring Approach with Dynatrace und Servicetrace

In the digital society, „user experience" is emerging as the the key success factor for any company.

EXECUTIVE SUMMARY

IIn the digital society, the „user experience" is becoming a decisive success factor: „Business continuity" is only ensured if employees and customers can access powerful digital applications 24/7. Slow loading times, failed transactions or even outages of crucial IT services, on the other hand, have a directly damaging impact on business: Business processes stagnate, productivity drops, broken service levels result in high contractual penalties, the company's reputation suffers and, in the worst case, customers migrate to the competition.

IT providers and IT departments that operate business-critical applications for internal and external users should give the topic of „user experience" a correspondingly high priority in the context of an overall „application performance management". In complex IT environments, it is not possible to draw conclusions about the IT service quality for users simply by monitoring the components of the service delivery chain, such as the database, application server, web server or network links. IT managers therefore need suitable tools and methods that provide site-specific information on the availability and performance of IT services from the user's point of view and enable fast and effective root cause analysis and troubleshooting when problems occur.

A mature application performance monitoring combines various technologies that enable a complete view on the availability and performance across your digital landscape, identify bottlenecks and incidents timely and provide information for focused troubleshooting at any time: first, the provider-side monitoring of all layers of the IT infrastructure, second, the monitoring of availability and performance of IT services from the user's perspective.

INTRODUCTION: APPLICATION MONITORING IN COMPLEX ENVIRONMENTS

It is becoming more and more difficult to monitor complex applications. Years ago, applications were operated centrally on large mainframe computers. Monitoring these straightforward one-tier architectures was easy, and the sources of any problems could be swiftly identified and eliminated.

We then saw the introduction of Client/Server applications with components distributed over two to three layers. This kind of application infrastructure typically consisted of a webserver, an application server and a database server.

Even at this stage, analyzing errors was a tedious business because the individual components were generally managed by various departments, something that hampered the communication essential to the analysis.

The expression "silo mentality" was coined to describe the poor cooperation and lack of transparency among the various departments and the problems that this caused.
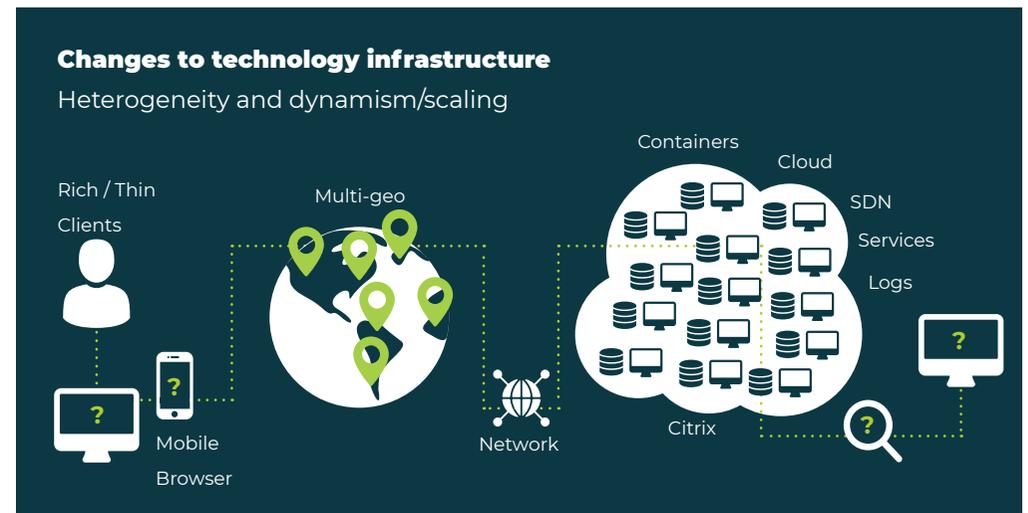

As IT environments become more complex, application monitoring has to meet ever-growing demands

Nowadays, applications span multiple layers and multiple locations that are distributed around the world. Business applications depend on other IT services such as DNS, LDAP, network infrastructure, services from third-party providers and so on. Applications are based on various technologies and are operated on virtual servers with high-availability functions that allow an application to be relocated from one computer center to another on-the-fly. IT services are either relocated to the cloud completely, or are operated as a hybrid-cloud solution. In short: modern IT environments are complex and, in regular operation, extremely dynamic.

BLIND SPOT: THE USER'S PERSPECTIVE

Despite all-encompassing solutions that monitor individual components at all levels, the heterogeneous architecture and dynamic nature of the IT environment often means that the end user has to contend with application failures or performance problems, even though all individual monitoring routines are on green.
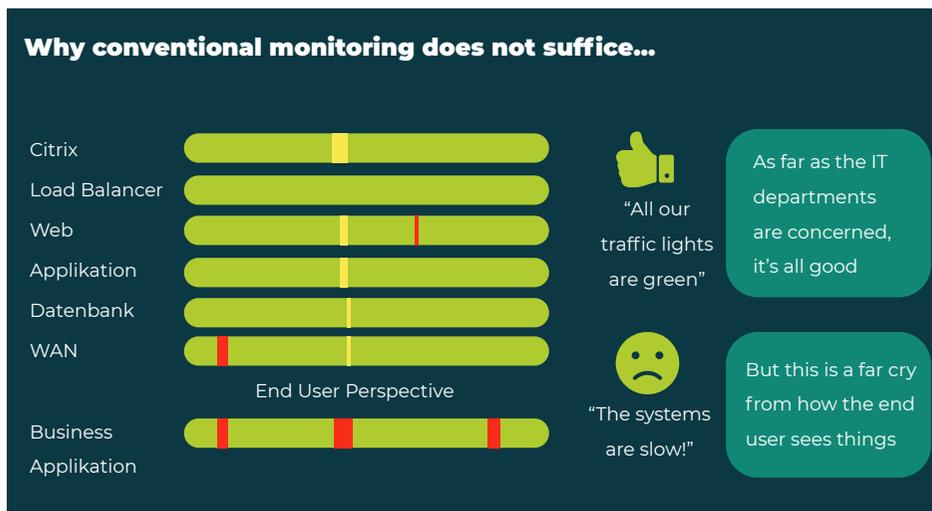
Monitoring individual components does not provide any information about the quality of IT service for end users

Bottom-up approaches to monitoring at business service level, where services are modeled from the individual components for example, are often unable to keep pace with the dynamism of today's IT infrastructures. This is why expanding an infrastructure monitoring solution with effective end-user monitoring for reviewing IT services from the user's perspective is gaining traction.

USER EXPERIENCE AS THE KEY TO SUCCESS

In our increasingly digitalized society, the user experience is moving up the agenda to become the most business-critical factor. No matter whether webshop, CRM or ERP: a company's success hinges on the way internal or external customers experience the service. A positive user experience is aligned with high customer satisfaction and increased productivity.

A user's experience (UX) bundles all aspects as they interact with a product or a service, digital applications being one example.

Key criteria for assessing the user experience are:

Usability
of applications

Availability and performance
of applications

Application usability is evaluated and optimized with the help of user interviews or technical means such as eye tracking tools, while application performance monitoring covers the second important criterion of user experience: the availability and performance of IT services.

UNDERSTANDING THE USER PERSPECTIVE: METHODS AND TECHNOLOGIES

Bottom up – companies use a vast range of monitoring solutions for analyzing the hardiness of business-critical applications. Many of these solutions essentially monitor all individual components of the IT stack, from the server infrastructure to application layers such as databases, middleware and webservers all the way through to network components. From the combination of these separately collected performance data, we then take a bottom-up approach to drawing conclusions about the business service available to the end user or the customer.

This highly complex process is usually able to solve application problems only from a reactive stance. The increasingly complex and dynamic IT structures make it difficult to correlate individual items of monitoring information with a business service. The abundance of alarms generated at individual component level is barely manageable and is now ignored in most cases. That said, the data can be very useful when it comes to tracing a problem back to its origins using troubleshooting and root cause analysis procedures..

Top down – meeting the requirements for proactive monitoring through precise and objective measurement of the application's availability and performance at business service level calls for effective top-down end-to-end monitoring. This involves measuring and testing the services provided to the user from the user's perspective. Two practical methods have emerged here: real user monitoring and synthetic monitoring.

Real User Monitoring – with real user monitoring (RUM), all interactions of real users are recorded using webserver or cloud-based applications. A look at the gathered real user data shows the quality of service at which the application is currently available to the user, and whether failures or performance problems are occurring.

The real user data delivers valuable information for the troubleshooting or root cause analysis procedure used to investigate application problems. With real user monitoring, "passive" monitoring technology means collecting data only when active users are in the system and executing transactions there.
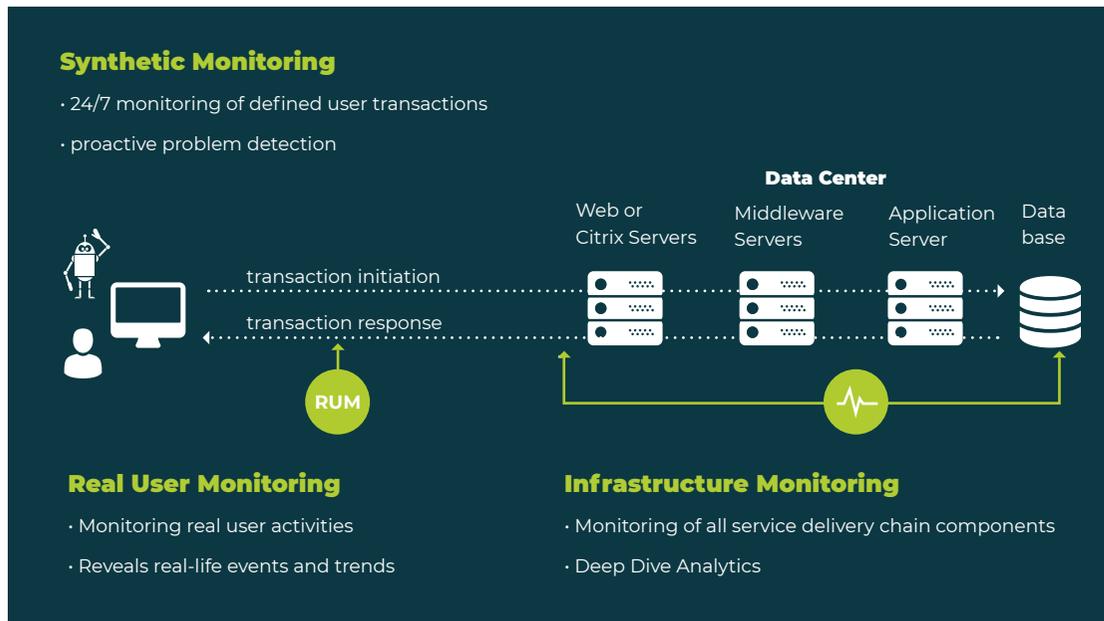
Synthetic Monitoring – synthetic monitoring involves the use of simulated users in the form of software robots. They execute defined, recurring user transactions in an application 24/7, measuring its availability and performance in the process.

The continuous operation of digital users permits proactive monitoring, meaning continuous monitoring of service availability or proof of provision of service level agreements even without any real user activity.

Unlike human users, who handle applications in a different way every time and only ever selectively, synthetic users repeatedly follow standardized workflows with defined reference points. This way, not only are all neuralgic transactions in applications checked at regular intervals, objective comparison analyses of application performance, in different company locations for example, are made possible by the standardized processes..

USER EXPERIENCE MONITORING: BEST PRACTICE

Both methods for end user monitoring offer specific benefits that are most powerful in a combined usage: Synthetic 24/7 checks of business-critical transactions provide data from standardized measurement points and enable proactive problem detection and remediation before real users are affected. Real User Monitoring complements standardized end-to-end workflows by providing visibility into real and spontaneous user interactions.

Synthetic Monitoring
· 24/7 monitoring of defined user transactions
· proactive problem detection

Data Center

Web or Citrix Servers · Middleware Servers · Application Server · Data base

transaction initiation

transaction response

RUM

Real User Monitoring
· Monitoring real user activities
· Reveals real-life events and trends

Infrastructure Monitoring
· Monitoring of all service delivery chain components
· Deep Dive Analytics

Best practice for comprehensive end user experience analysis: hybrid approach of infrastructure, real user and synthetic monitoring

If, in addition, the end user experience information is correlated with data from conventional application and infrastructure monitoring, the result is a complete and uninterrupted view of the application landscape. If availability or performance problems occur, this bundled information paves the way for a sharp entry into a detailed root cause analysis.

E2E APPLICATION PERFORMANCE: BEST OF BREED TECHNOLOGY

Dynatrace – the Dynatrace platform automatically identifies and models relationships of IT components in dynamic and complex environments, thus allowing a fast root cause analysis in case of failure. It offers a complete visualization over the entire IT stack of an application, from the end-user perspective to the application services all the way through to the underlying IT infrastructure from the computer center or the Cloud provider.

Dynatrace real user monitoring gathers application metrics from user sessions and correlates these data with the underlying infrastructure and application information. Artificial Intelligence components are used to help fix the problem in dynamic and complex environments.

Because Dynatrace can be completely automated via an open API, no intervention is required anywhere along the process – from deployment to configuration and analysis through to the problem solving stage.
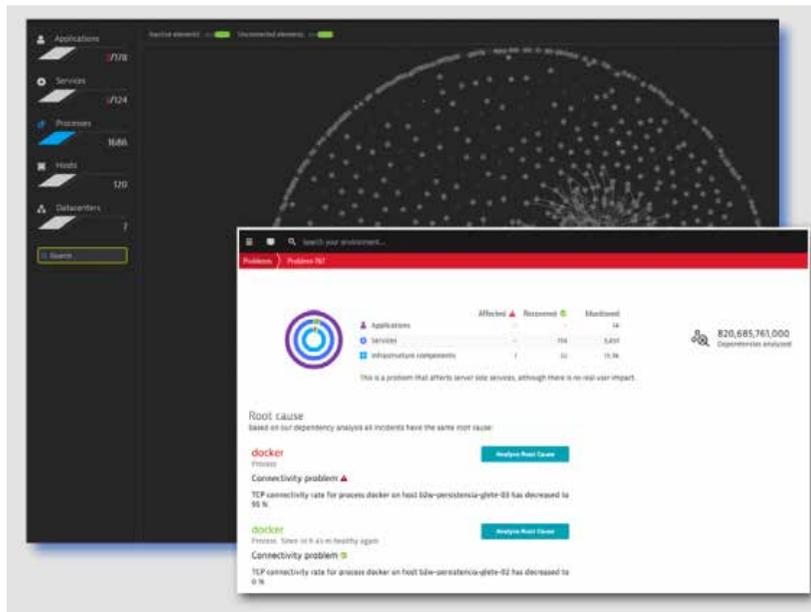
Servicetrace – As „synthetic users", Servicetrace Software Robots operate digital applications on the user interface in the same way as human users, using the same means, e.g. image, pattern and character recognition, mouse clicks and keyboard input. With this universal GUI method, Servicetrace software robots can automatically operate all applications based on Windows platforms without exception – even in terminal environments such as Citrix – and measure their availability and performance at the transaction level with millisecond precision.

In addition to its broad applicability, Servicetrace End-to-End Monitoring stands out in the vendor comparison with its particularly simple handling and high operational security: The automated business processes that the software robots are to run through do not have to be scripted, but are created as a graphical sequence in the Workflow Studio in a wizard-supported, intuitive low-code approach with simple drag-and-drop actions. The productive end-to-end measurements run in hidden Windows sessions absolutely protected from unauthorized access to sensitive processes and data.
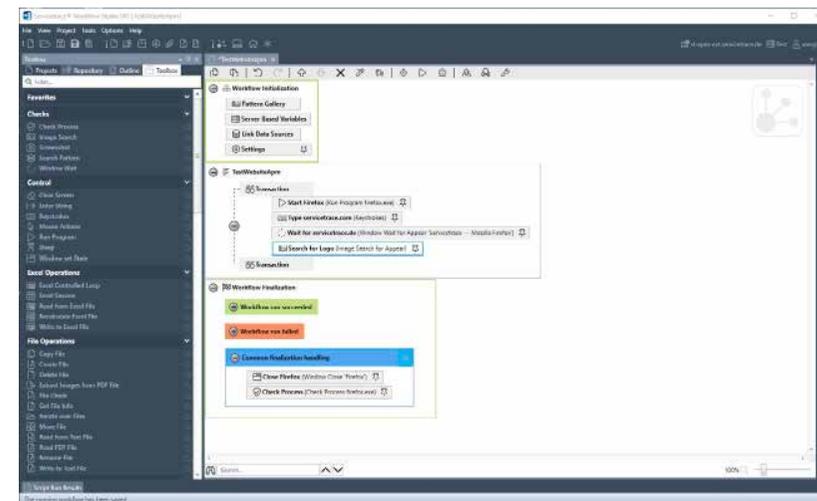
Design workflows graphically and simulate every user transaction with synthetic monitoring from Servicetrace.

360° VIEW ON DIGITAL SERVICES: COMBINING E2E MONITORING & APM

The Dynatrace Software Intelligence Hub recommends Servicetrace as the preferred technology partner for synthetic end-to-end monitoring. Unlike the Dynatrace module for synthetic monitoring of web applications only, the Servicetrace technology is suitable for all applications without restrictions.

By connecting Servicetrace synthetic end user monitoring to the Dynatrace APM suite, the comprehensive hybrid approach described above for determining and optimizing the end user experience can be easily implemented at a technologically

high level for any digital environment. The end-to-end measurement data collected by the Servicetrace software robots is aggregated with the real-user and component measurement data from Dynatrace.

When performance fluctuations occur among users, the consolidated 360° view of all relevant application performance metrics quickly detects the components associated with the cause of the error and enables targeted, proactive troubleshooting.
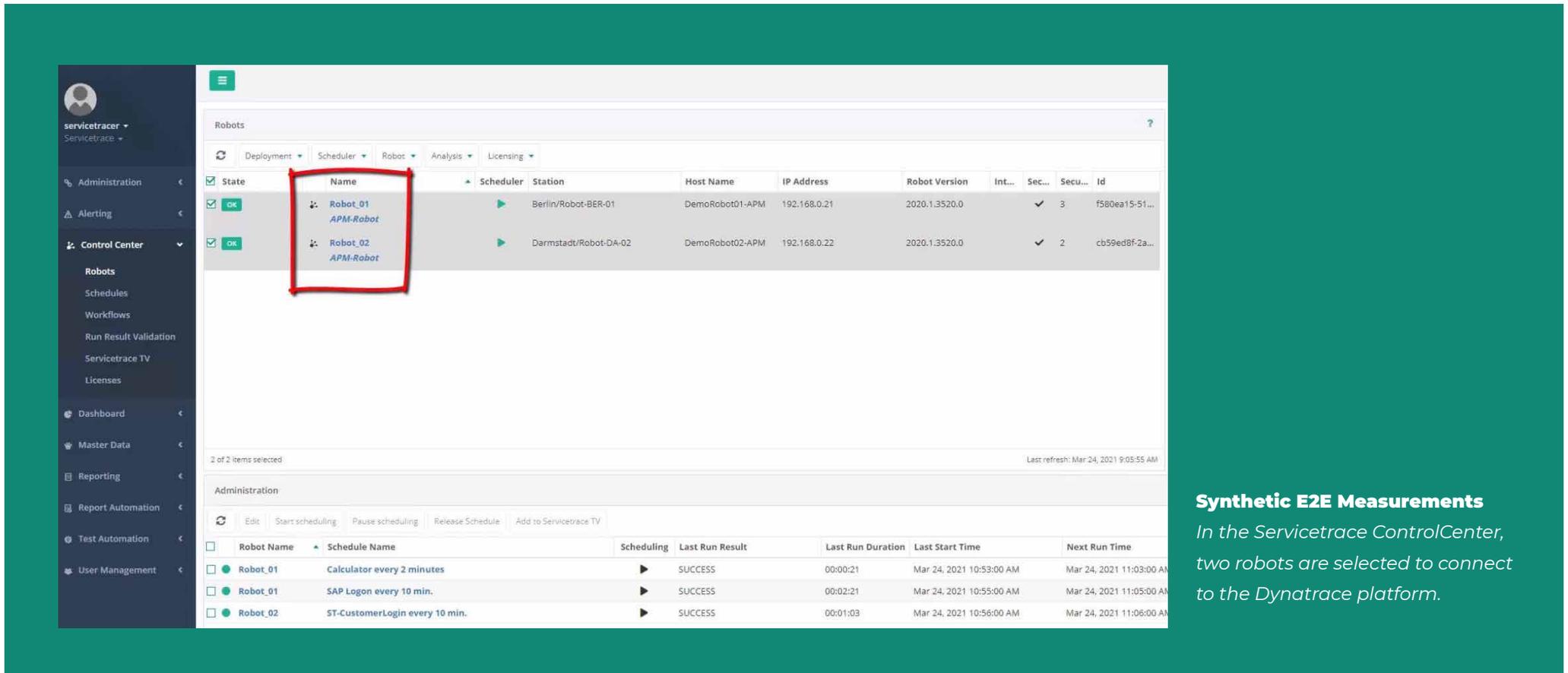

Synthetic E2E Measurements
In the Servicetrace ControlCenter, two robots are selected to connect to the Dynatrace platform.

## GATEWAYONE: EASY INTEGRATION OF DYNATRACE AND SERVICETRACE

For easy integration of both vendor solutions, Servicetrace provides the GatewayOne data connector. GatewayOne allows data exchange between Servicetrace End-to-End Monitoring and third-party solutions such as Jira, Grafana or Dynatrace.

GatewayOne is operated via a web-based interface. Here, Servicetrace E2E Monitoring is configured as the transmitter and the Dynatrace suite as the receiver.

Once connected, the synthetic E2E measurement data is immediately displayed in the Dynatrace platform.
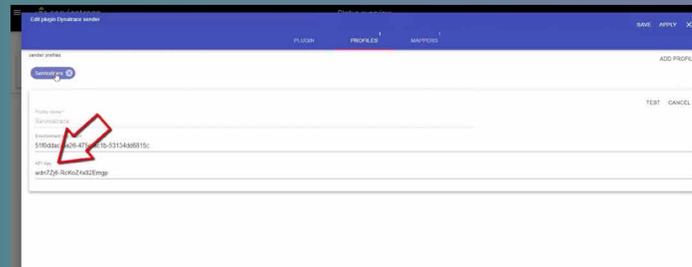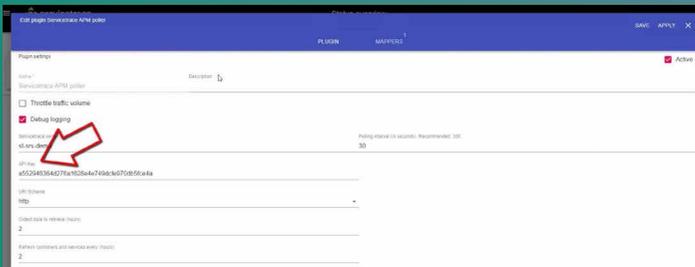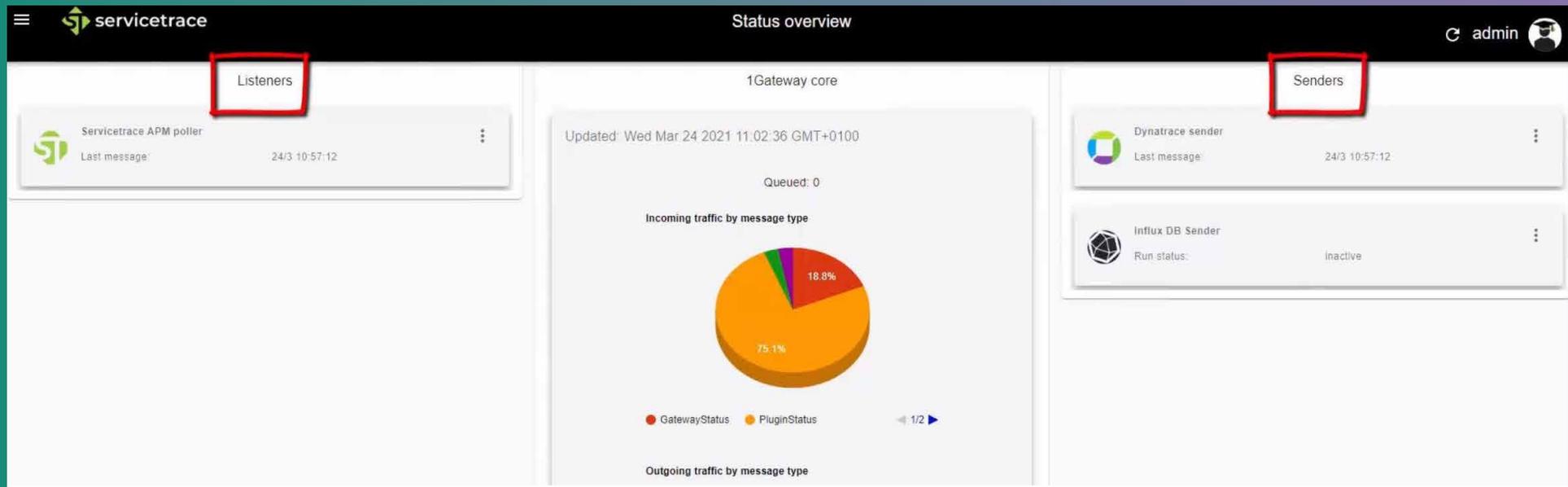
Data integration via GatewayOne

simple sender/listener

configuration via API keys
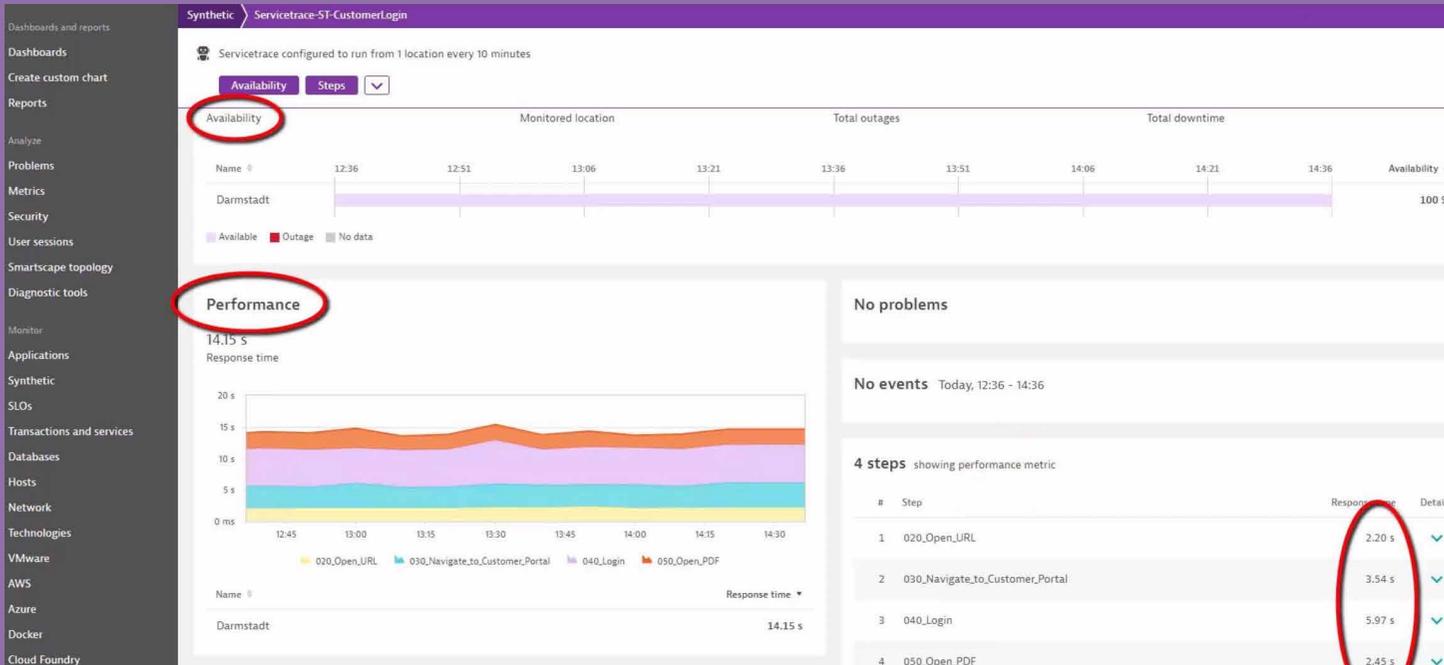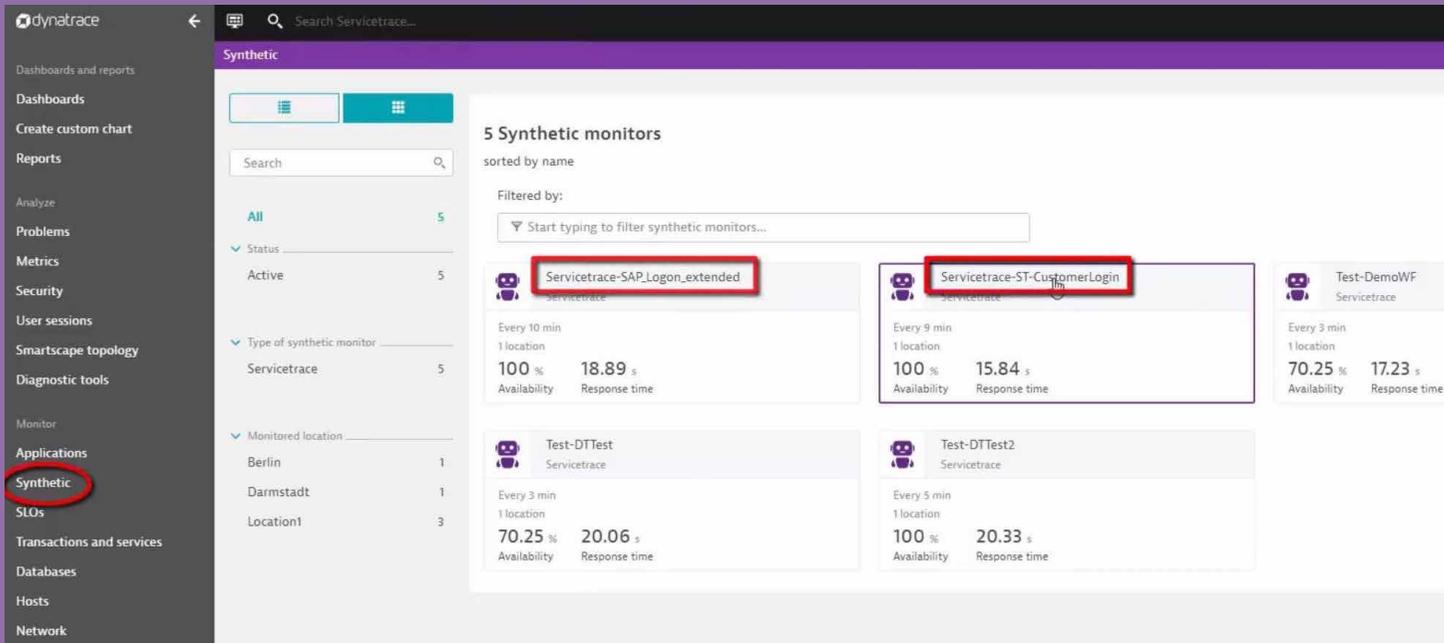
E2E Bots in Dynatrace Monitoring

After the integration, the Servicetrace bots appear in the Dynatrace Monitoring dashboard.

Detail view E2E performance

Drilling down to individual measurements shows the E2E performance as a graphical trend and provides the milisecond-accurate measured values for individual transactions

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DYNATRACE APM & SERVICETRACE E2E MONITORING AT A GLANCE

- Dynatrace Real User Monitoring and deep APM analytics augmented with synthetic E2E measurements provide comprehensive metrics for proactive application performance management

- Stable E2E measurements of all applications (web, non-web) without exception, including Citrix environments

- Continuous E2E checks of neuralgic business processes

- 24/7 transaction-level measurements enable proactive troubleshooting

- Standardized performance monitoring workflows provide valid metrics for SLA benchmarking and service level monitoring / reporting

- Easy and fast integration of Dynatrace APM and Servicetrace E2E Monitoring via the GatewayOne data connector

Video: Integration via GatewayOne: https://youtu.be/JAGK144Cbeo

Servicetrace:
Leading provider of synthetic end-to-end monitoring

Since its founding in 2004, Servicetrace has leveraged its patented GUI technology and a simple no-code approach to establish itself as the leading German provider in the area of End-User Experience Monitoring with software robots.

Using Servicetrace synthetic E2E monitoring, companies from all sectors monitor their key digital applications and business-critical processes from a customer perspective and they successfully prevent performance drops and system failures.

Customers value the easy creation and adjustment of monitoring workflows in the Workflow Studio (no-code approach), the suitability for all applications without exception and the robust running stability of the solution. Industries subject to high data protection requirements choose Servicetrace because of its secure operation which is unmatched in the market – in covert robot sessions, sensitive data and processes are protected at all times against unauthorized access. Thanks to parallel robot sessions on a terminal device, you can also scale your monitoring landscape quickly and cost effectively. And: With just a few clicks, you can incorporate Servicetrace E2E monitoring into existing APM systems such as Dynatrace.

End User Experience Monitoring in Citrix environments

Customer Story