



The bridge to possible

Assure Application and API Reliability in DevOps Environments with ThousandEyes

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BRKAPP-2034

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Agenda

- Introduction
- History & Goal of DevOps
- Application and API Assurance with ThousandEyes
- Demo
- Other Strategies to Augment Monitoring and Assurance
- Conclusion

We're in a new world

Your Apps

Your People

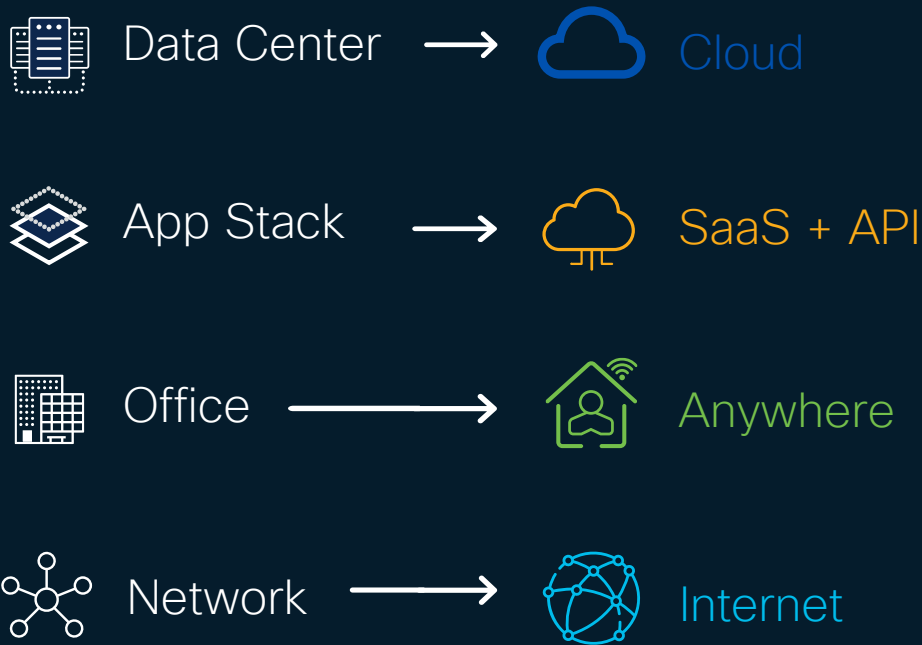
Your Infrastructure

All
distributed



Visibility and control is shrinking

External dependencies are exponentially growing



Massive
blind spots
erode ability
to manage



Importance of Application and API Reliability



Your Apps

- Revenue loss
- Customer churn
- Brand damage



Your People

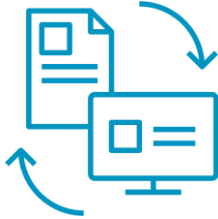
- Productivity loss
- Dissatisfied employees



Your Infrastructure

- Business continuity risks
- Compliance violations

Increased Pace of Change



- The acceleration of digital transformation initiatives has led to a rapid pace of change in technology stacks



- Move toward agile methodologies, which demand more frequent updates, feature releases, and patches

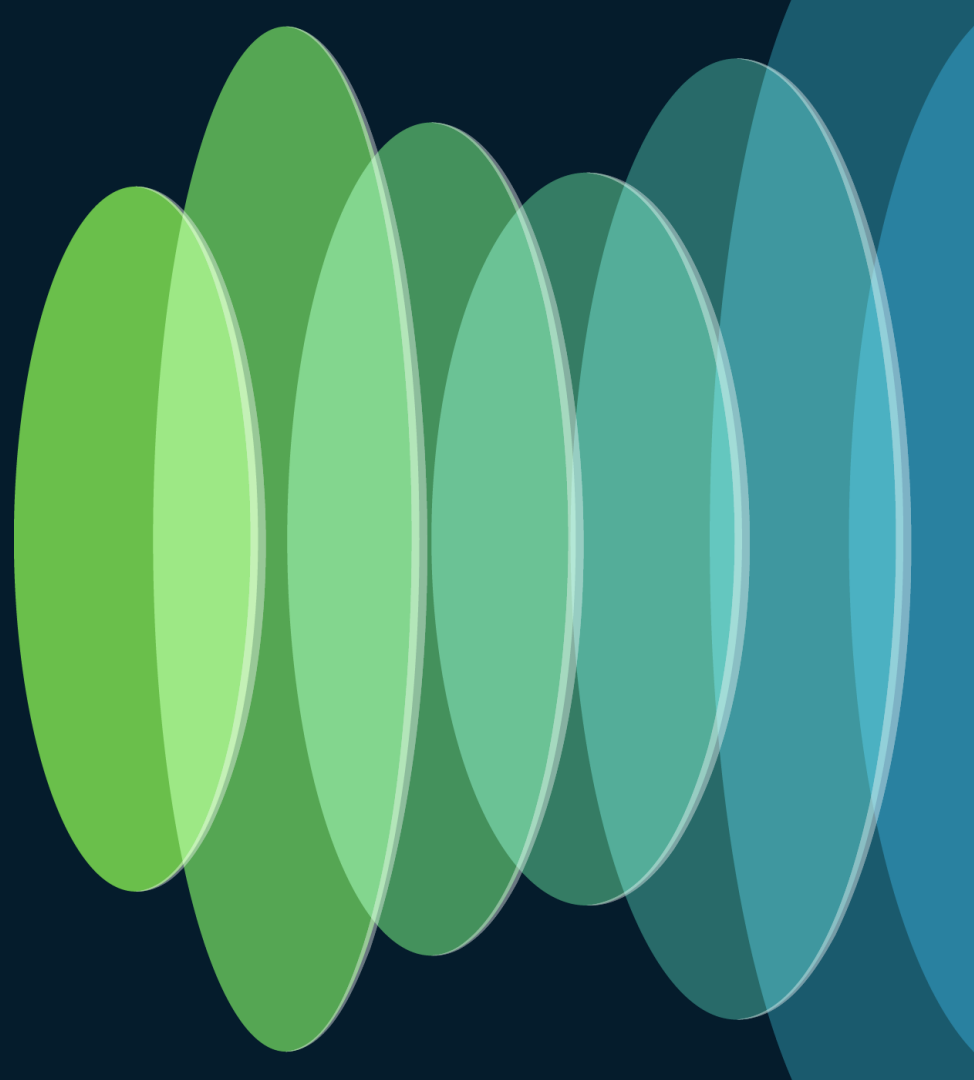


- Pressure to reduce time-to-market for new features at odds with maintaining stability and reliability when changes are continually being made

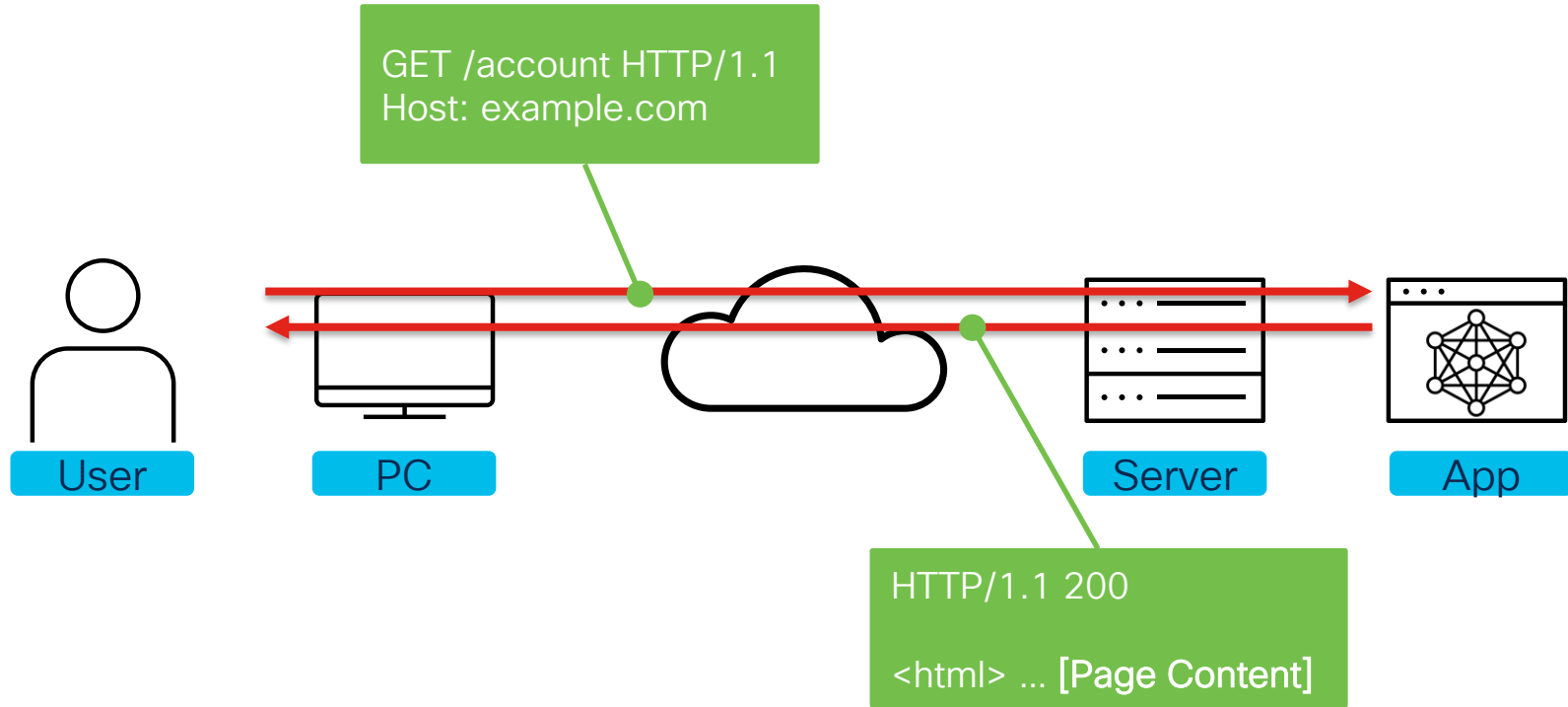


Critical to have processes and tools in place to manage these changes effectively without compromising on quality or user experience.

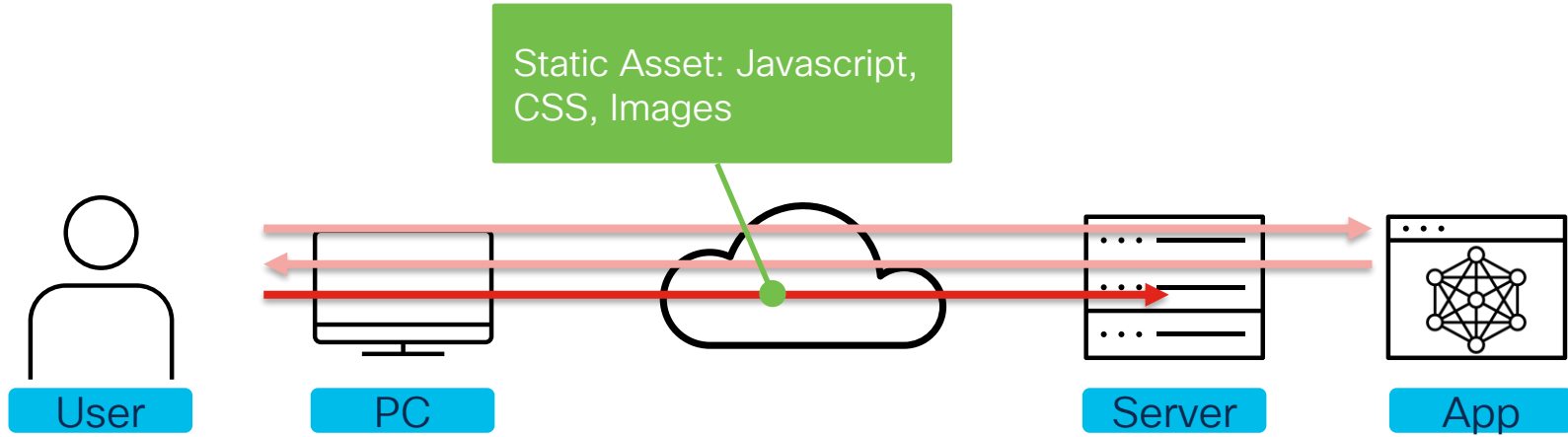
History & Goal of DevOps



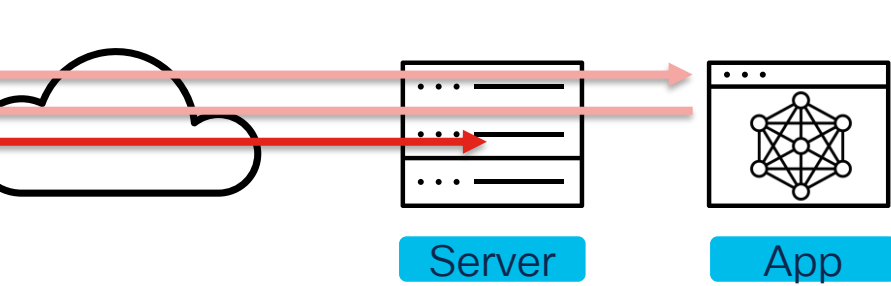
Monolithic Architecture



Monolithic Architecture



Monolithic Architecture

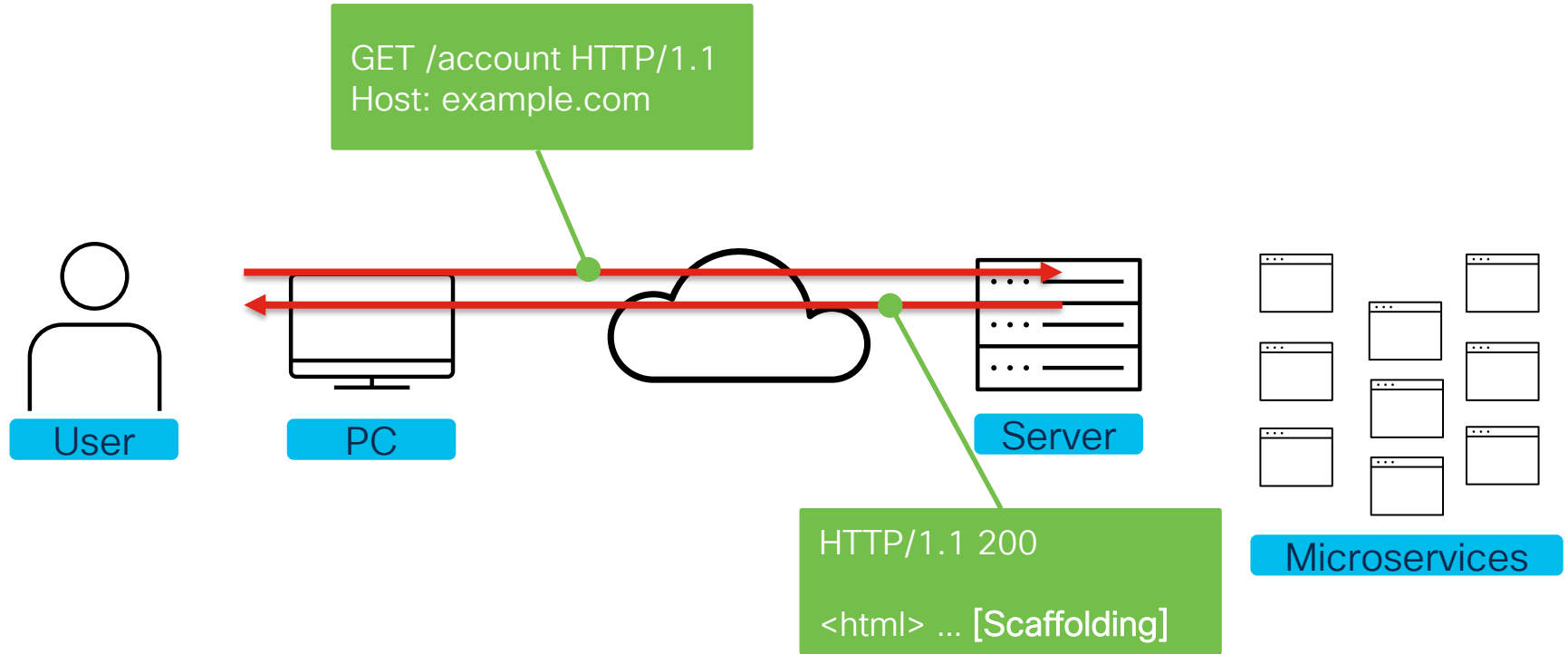


Developed by **Multiple Development Teams**

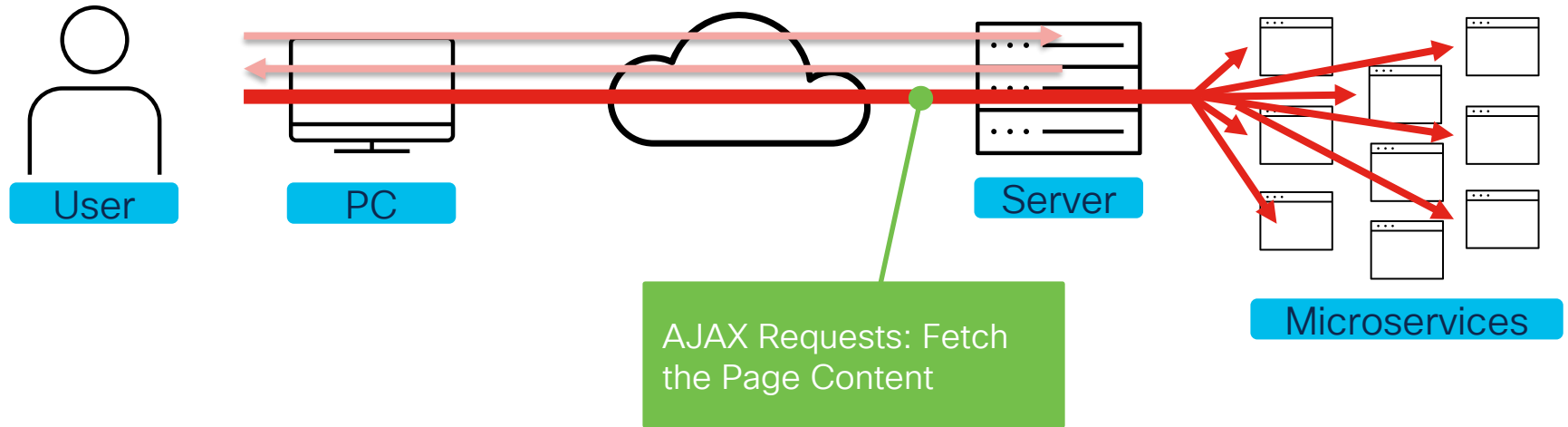
Built & Deployed by a different **Build Team**

Supported & Monitored by a separate **Operations Team**

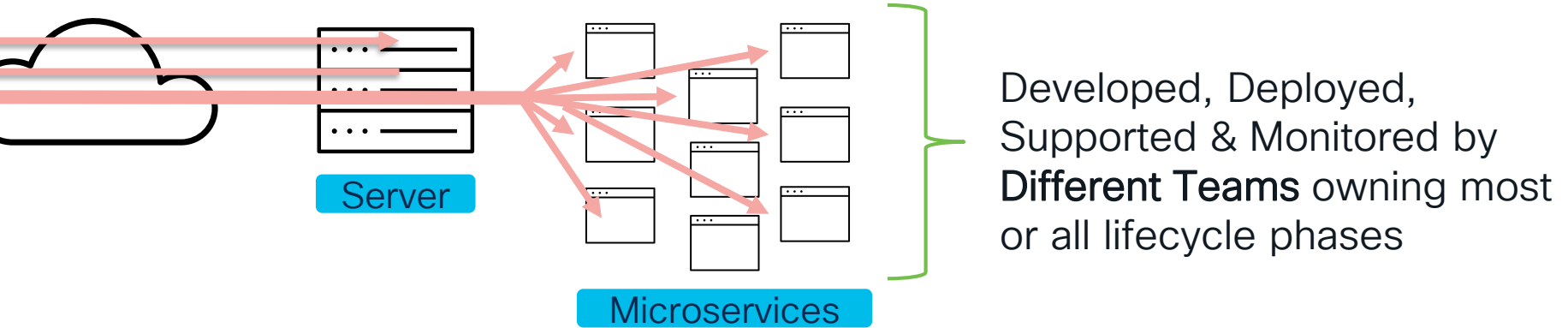
Microservice Architecture



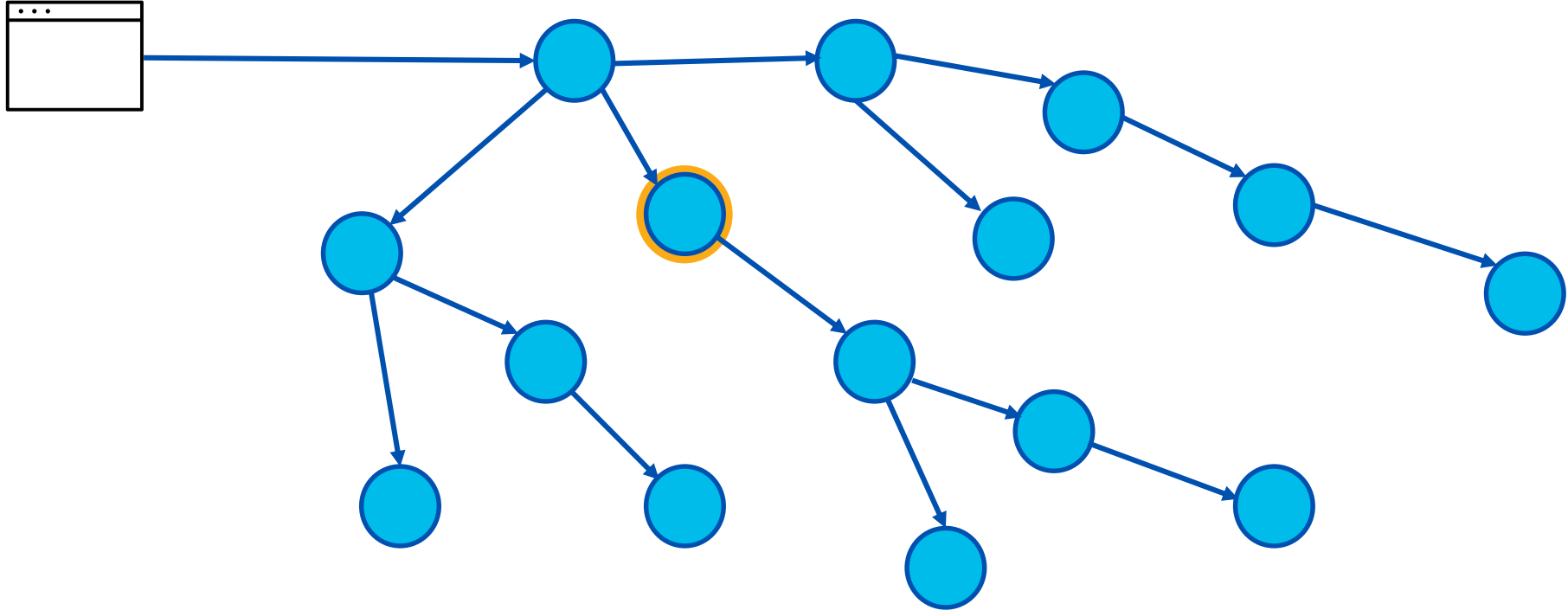
Microservice Architecture



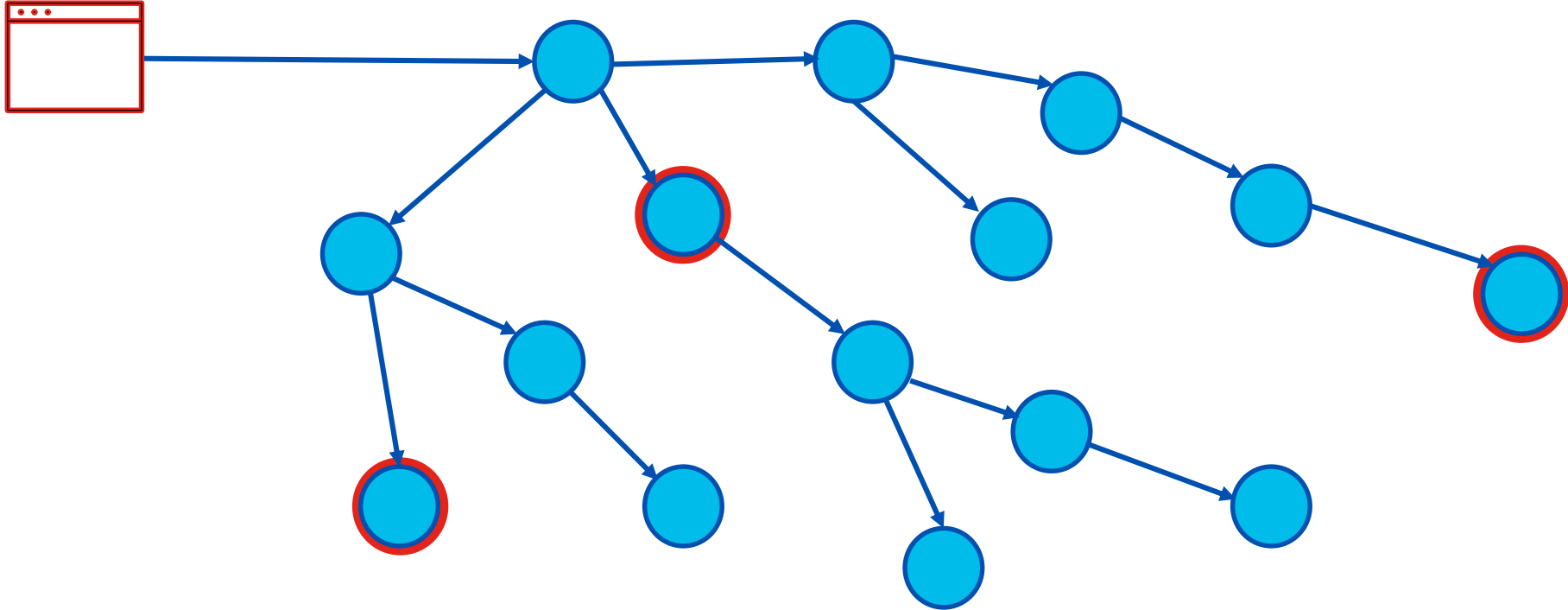
Microservice Architecture



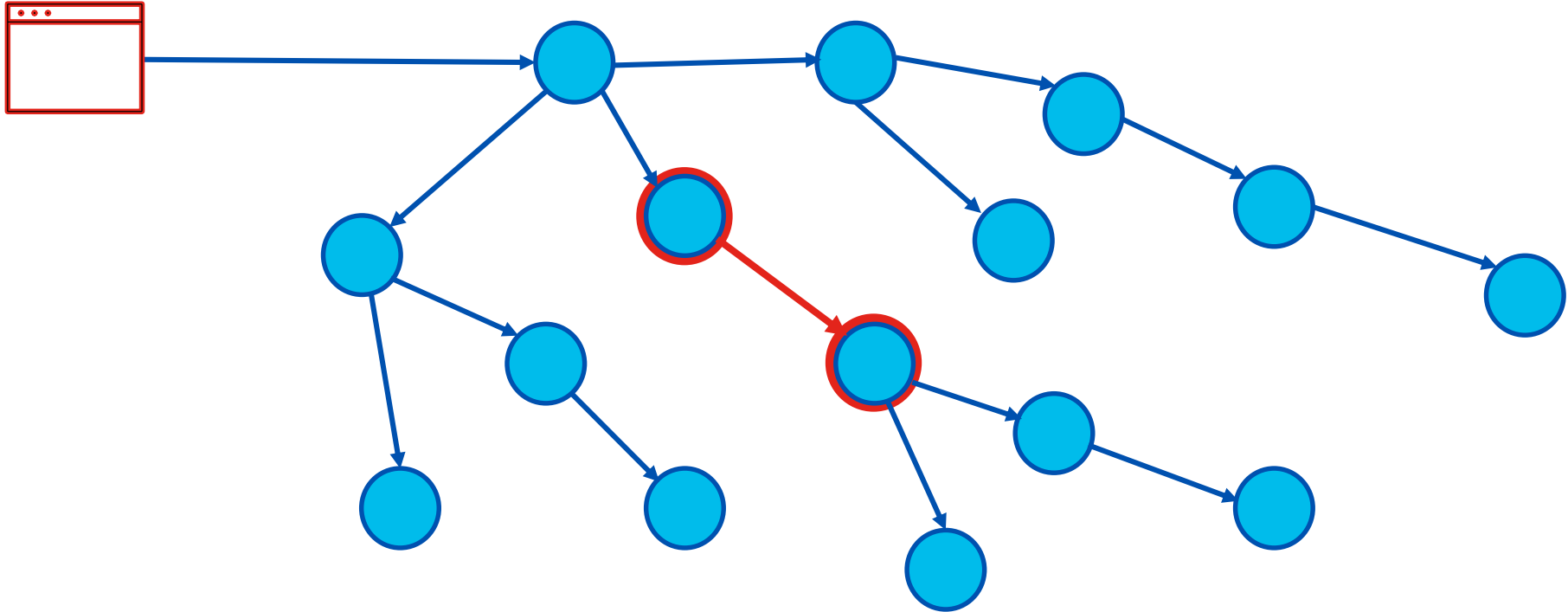
Microservice Explosion



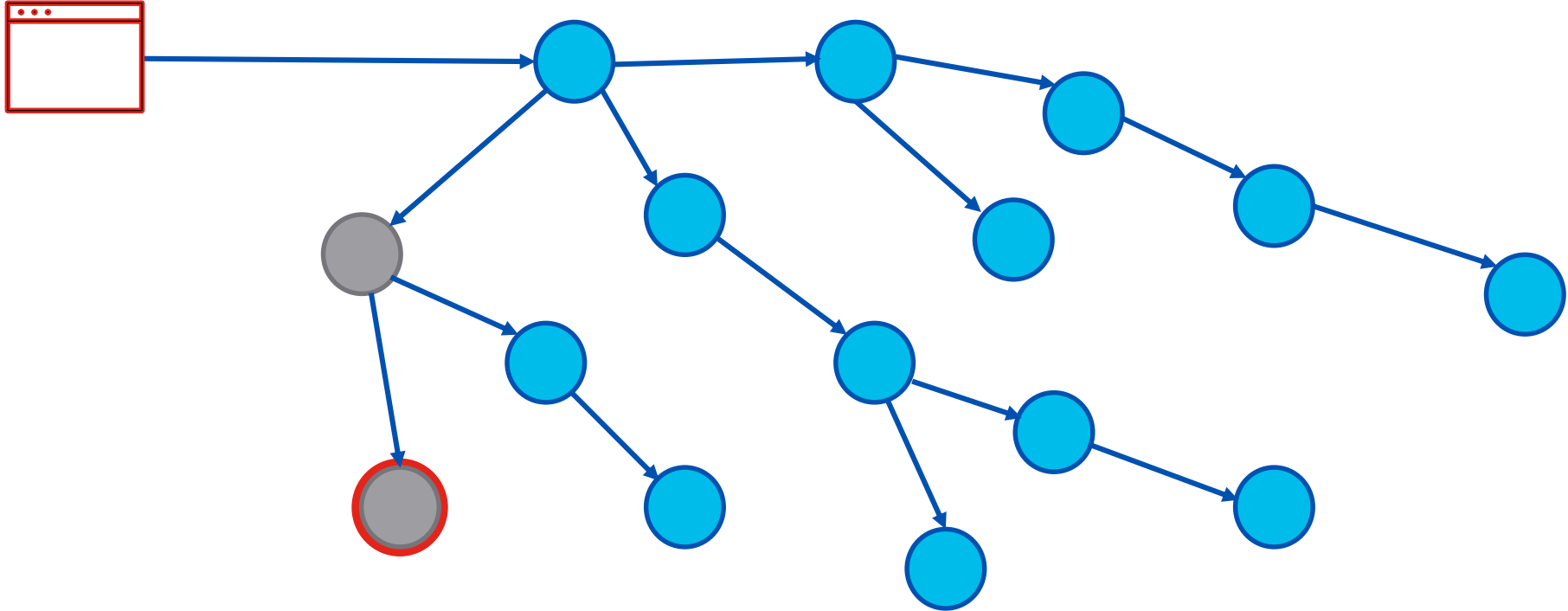
Microservice Explosion



Microservice Explosion




Microservice Explosion



Consequences of Architectural Shift

- Teams own their own code, but also **release and monitor that code** rather than rely solely on a centralized team
- Proliferation of monitoring tools, each team may have their own, and likely more than one
- Good for problems within the team's control **but** harder to reason about root cause or problems that affect more than one microservice



For centralized teams in this type of environment (centralized IT, centralized SRE team, technology leadership...) it can be incredibly hard to get complete visibility!

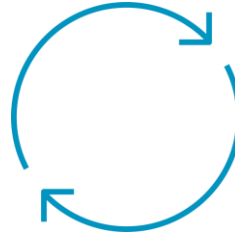
A Shift in Organizational Culture: DevOps

- DevOps emphasizes collaboration and communication **between software developers and other IT professionals** *while* automating the process of software delivery and infrastructure changes
- Promotes a culture of **shared responsibility**, where the traditional silos between development and operations are broken down
- DevOps fosters a culture that embraces change, values continuous improvement, and encourages innovation
- Impacts the way teams approach problem-solving and troubleshooting

DevOps and Increased Deployment Frequency



- Enable faster and more frequent deployments to production, accelerating the delivery of features, fixes, and updates to users



- Continuous integration (CI) and continuous deployment (CD) pipelines facilitate this by automating build, test, and deployment processes



- Challenges that come with this faster pace: the potential for increased system complexity and the need for robust proactive monitoring to keep up with the rate of change

Reactive vs. Proactive Monitoring

- Reactive monitoring is a traditional approach, where action is taken only after problems have occurred, often leading to downtime and poor user experiences
- Proactive monitoring is a strategy that emphasizes anticipating and resolving issues before they impact users
- Proactive monitoring can include setting thresholds, predictive analysis, anomaly detection, and automated responses to potential issues



Shifting from a reactive to a proactive stance is necessary to ensure application and API reliability with today's agile workflows

Strategies for Mitigating Unpredictable Releases

Feature Flags and Canary Releases

Chaos Engineering

Rapid Rollback

Immutable Infrastructure

Monitoring Strategies For a Complex World

Visibility for New API Endpoints



When deploying API Services for the first time, unforeseen challenges may come up. Using API tests to ensure new API endpoints are monitored can help you respond quickly and remain agile.

Catch Regressions Pre-Release



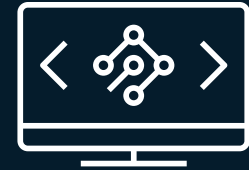
Setup API tests to your staging environments to ensure that you can identify any changes to your APIs before your customers are affected in production.

Health Checks Post-Release



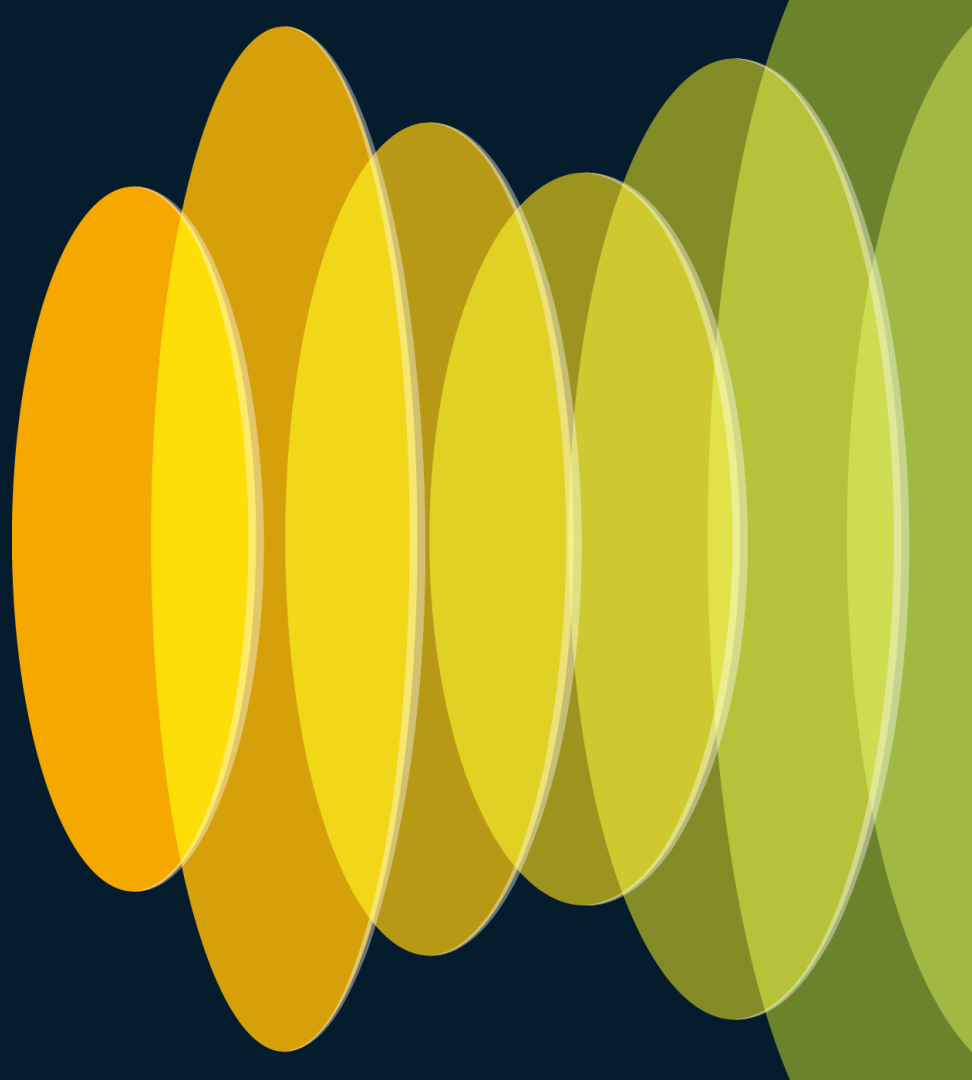
Releasing new versions of APIs can introduce unintended changes. Setup API tests to production so that you can be alerted on API functionality or performance changes

Standardized API Visibility



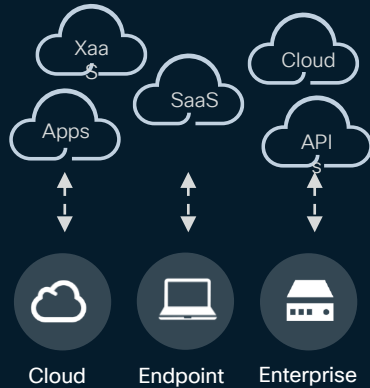
API Instrumentation can often differ team by team. Using templated API tests allow you to have consistent visibility into API performance and functionality whether you own the API or not.

Assuring Applications and APIs with ThousandEyes

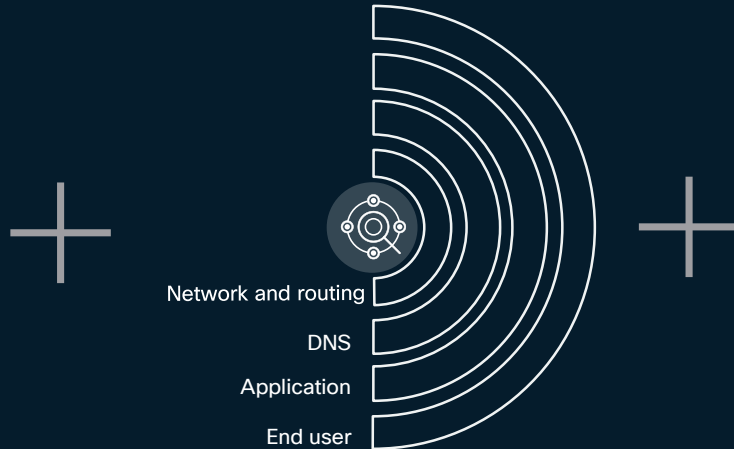


Comprehensive Monitoring with ThousandEyes

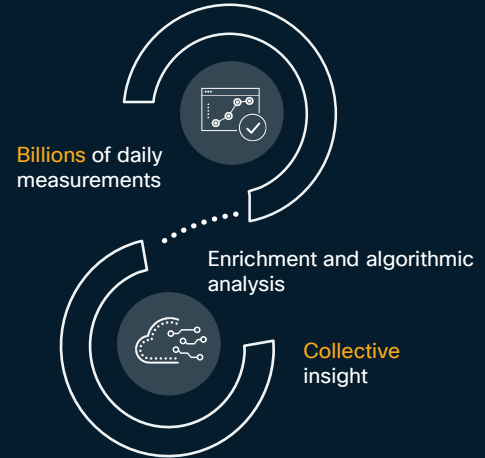
1000s of Global Vantage Points



Unique X-layer Telemetry



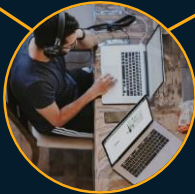
Global Collective Insight



Comprehensive Monitoring with ThousandEyes



- REST API
- Native integrations
- Custom webhooks
- Cloud templates
- Infra as Code tools
- Sharelinks for easy sharing across teams



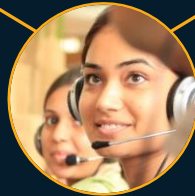
SREs & App Owners

Troubleshoot and optimize App, APIs, and delivery services



NetOps (Service delivery)

Tune BGP and peering and monitor for anomalies, hijacks, and sub-optimal routing



Customer Support

Build trust with timely, data-driven communication



IT Helpdesk

Rapidly prioritize, resolve, and direct issues to the right team to ensure workforce productivity



Enterprise WAN Ops

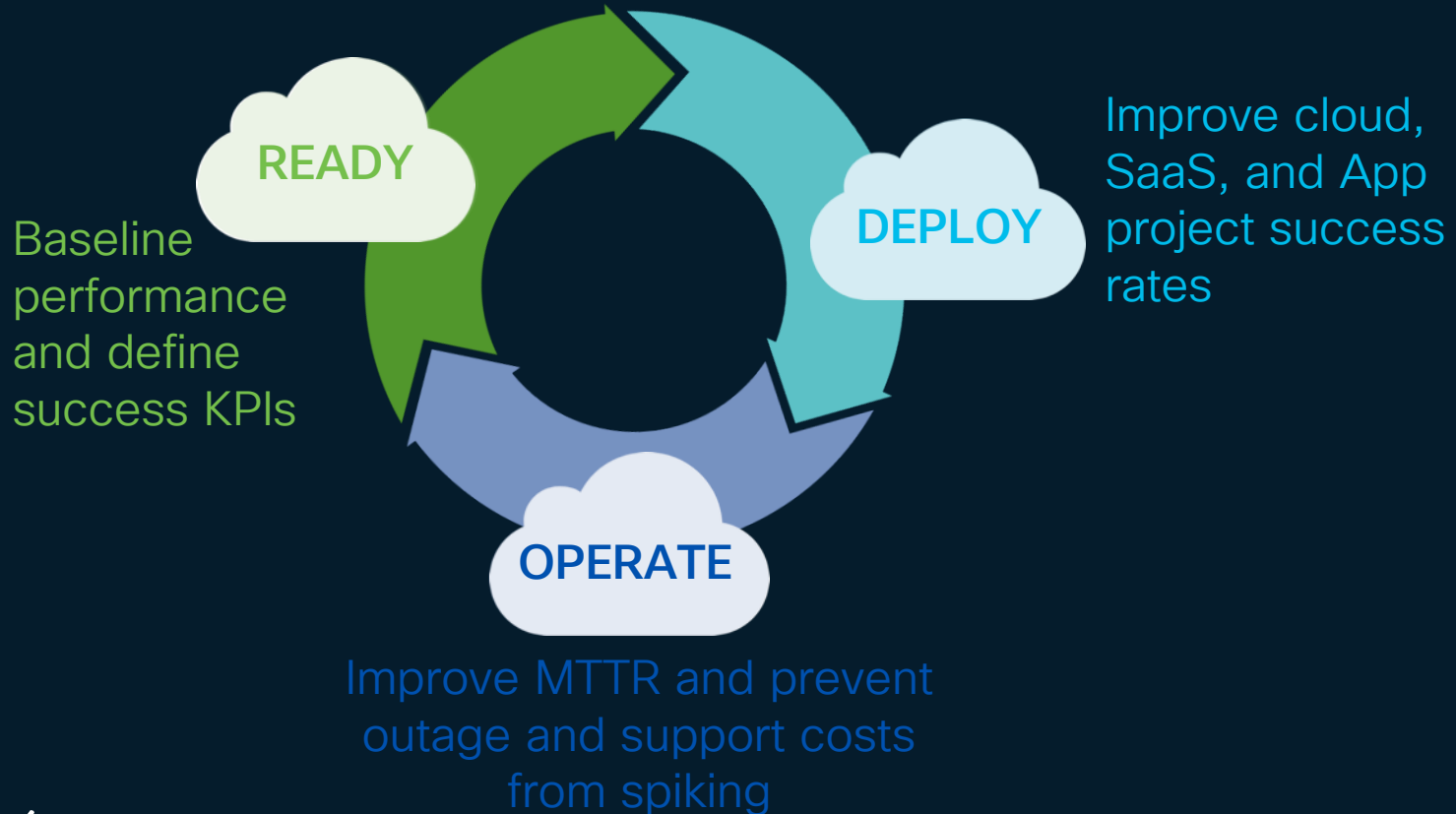
Proactively manage and improve SD-WAN and cloud connectivity to assure app performance for users across sites



External Teams

Receive detailed, actionable information to quickly resolve issues

Assurance in the DevOps Lifecycle



Monitoring Web Apps with ThousandEyes

ThousandEyes Synthetic Testing

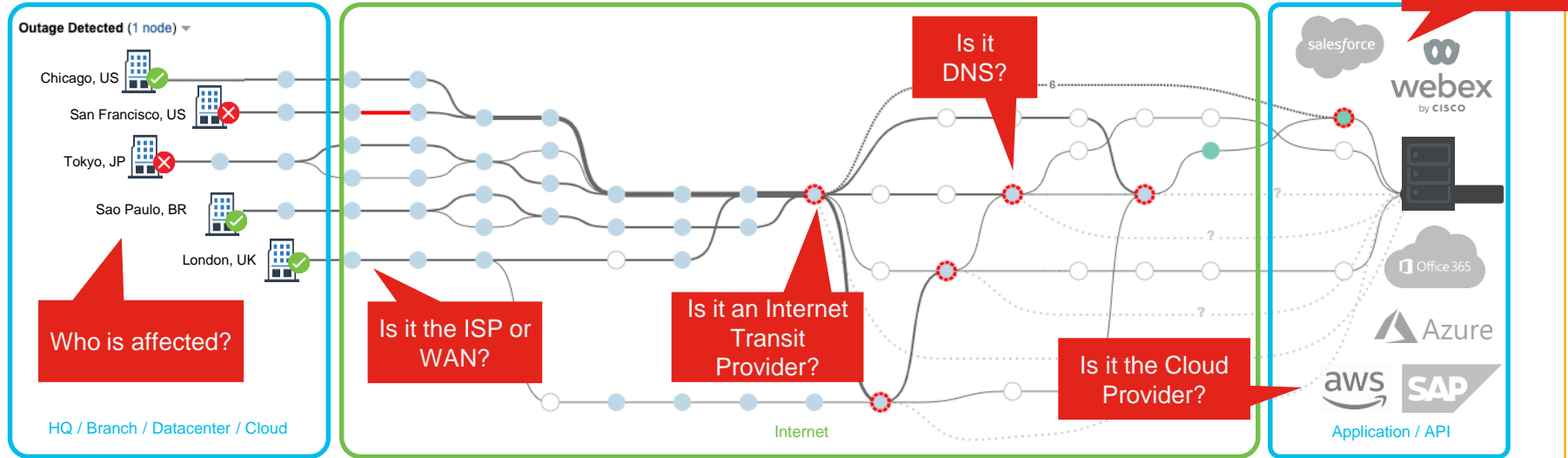
- Proactive monitoring on scheduled basis
- For apps you own **and** apps you don't
- Telemetry throughout the network and application stack

Visualizations, Alerts, Integrations

- Holistic visibility across services and apps
- Performance trending over time
- Hold vendors accountable to SLAs
- Notifications and Integrations when you need them
- APIs & SDKs for automation & remediation

Assuring Application Experience

End-to-End Assurance



Monitoring APIs with ThousandEyes

API Endpoint Testing

Perform continuous testing and functional validation

Performance Benchmarks

Identify performance degradations on a per-call basis or a complete multi-call transaction

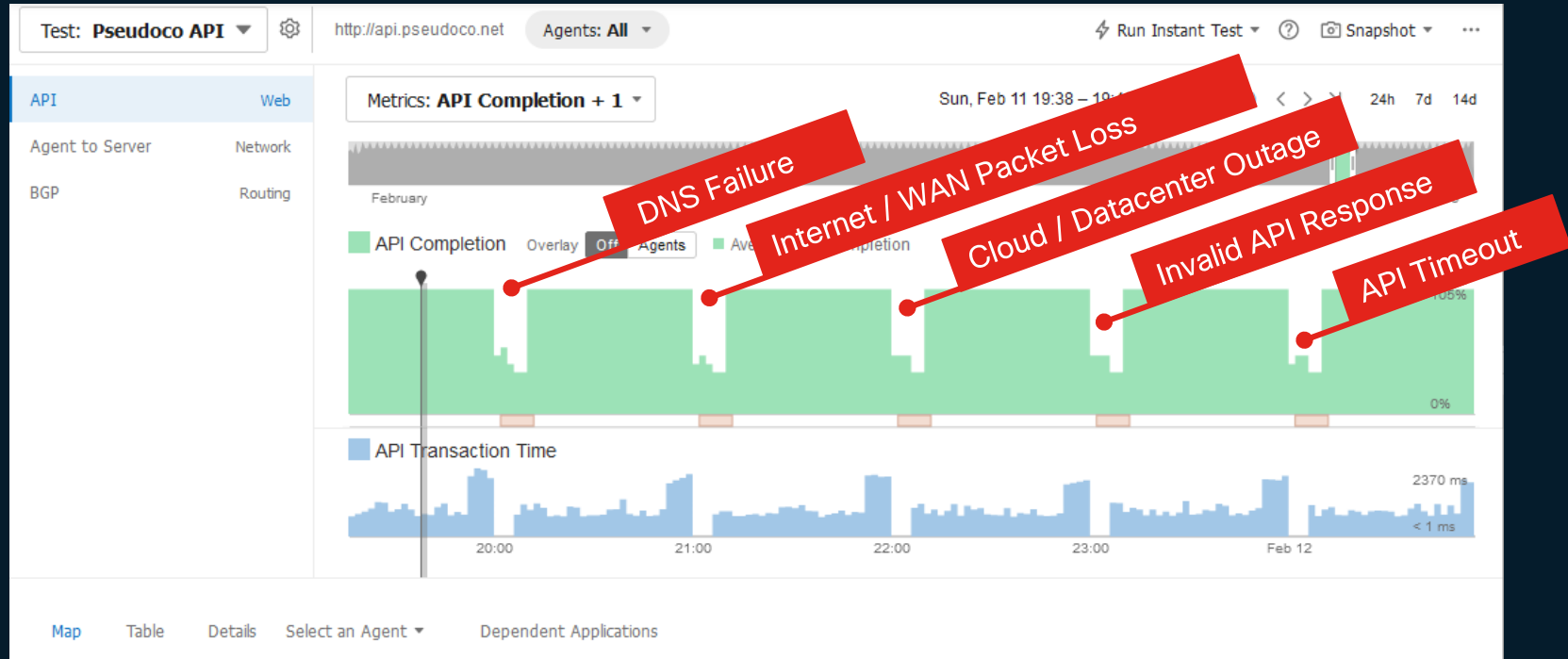
Alerting

Direct alerts to the appropriate team based on detected issue(s) and responsible owners

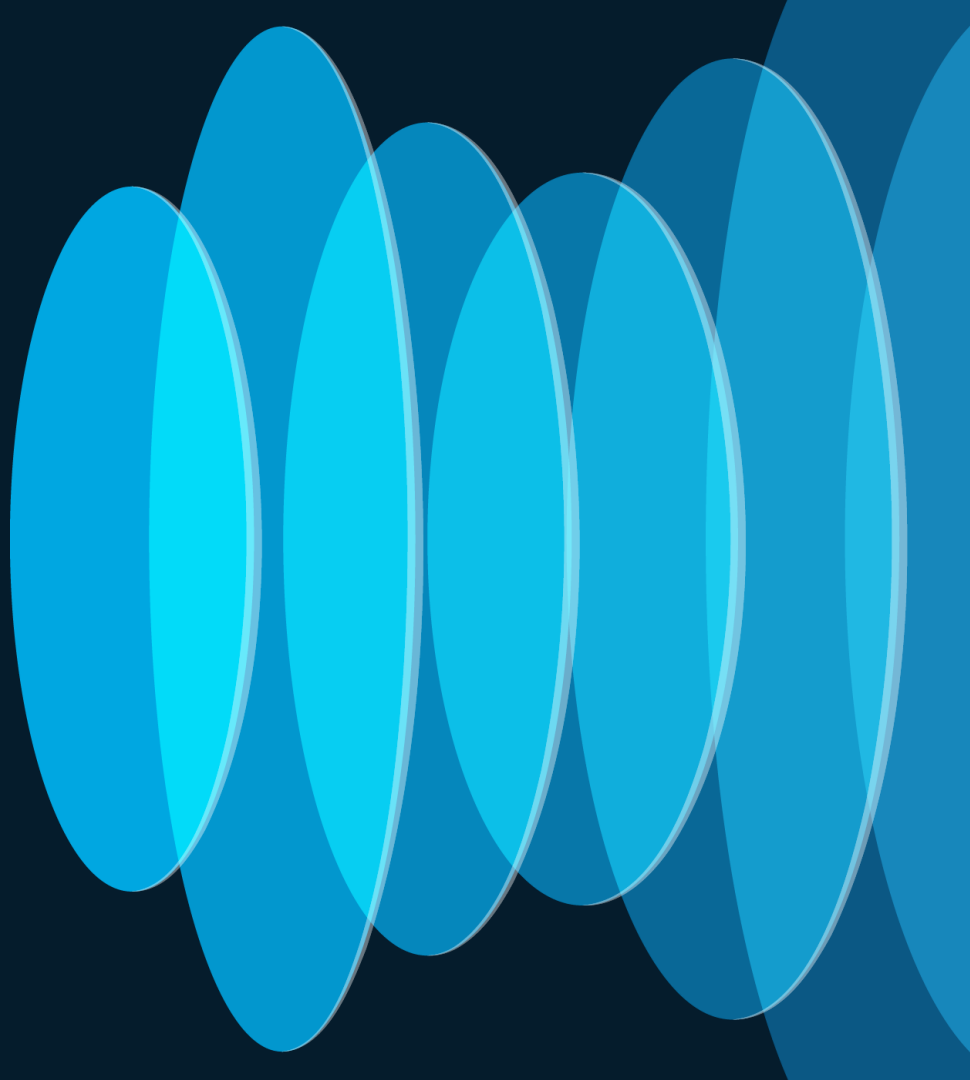


No scripting required! Easily configure your API tests with a UI-based wizard

When APIs Fail, Understand How and Where



Demos



Other Strategies to Augment API Monitoring

- Augmenting that basic monitoring suite with additional domains:
 - DNS Monitoring
 - Branch or retail location network tests
 - Transaction for user journeys in web applications
- More monitoring around critical times:
 - Pre-release testing
 - Post-release testing
 - Instant tests, ThousandEyes API and SDKs
- Integration into APM tools with OTel streaming – bring together your outside-in monitoring and your inside-out monitoring with a full understanding of system state

Recap of Key Points

- Your application architecture and organizational culture **has changed and will continue to change**
- Increased velocity and distribution of responsibilities **introduces challenges for assuring applications and user experience**
- ThousandEyes digital experience assurance provides the visibility and intelligence **needed in today's increasingly complex environments**

Continue your education

- Reach out to your account team, technical account manager, or adoption engineers to implement best practices for application and API assurance
- Get your free trial at <https://www.thousandeyes.com/signup/>
- Attend more ThousandEyes sessions here at Cisco Live (70+!)
- Visit the ThousandEyes booth in the World of Solutions

Contact me in the BRKAPP-2034 Webex Space
[webexrooms://im?space=62891ce0-1327-11ef-926c-71ca67a9d9ff](https://webex.teams.com/join/11ef-926c-71ca67a9d9ff)

ThousandEyes Sessions at Cisco Live US '24

BRKENT-1656

Beginner's Guide to Digital Experience Assurance with ThousandEyes

- Monday, Jun 3 @ 2:30 pm
- L2, Mandalay Bay H

BRKAPP-2035

Streamlining Network Visibility with Automated Monitoring using ThousandEyes, Ansible and Terraform

- Tuesday, Jun 4 @ 10:30 am
- L2, Breakers FL

BRKOPS-2076

The Art of Designing ThousandEyes Alerts and Dashboards

- Wednesday, Jun 5 @ 2:30 pm
- L3, South Seas G

And **dozens** more!

<https://www.ciscolive.com/global/learn/session-catalog.html?search=ThousandEyes#/>

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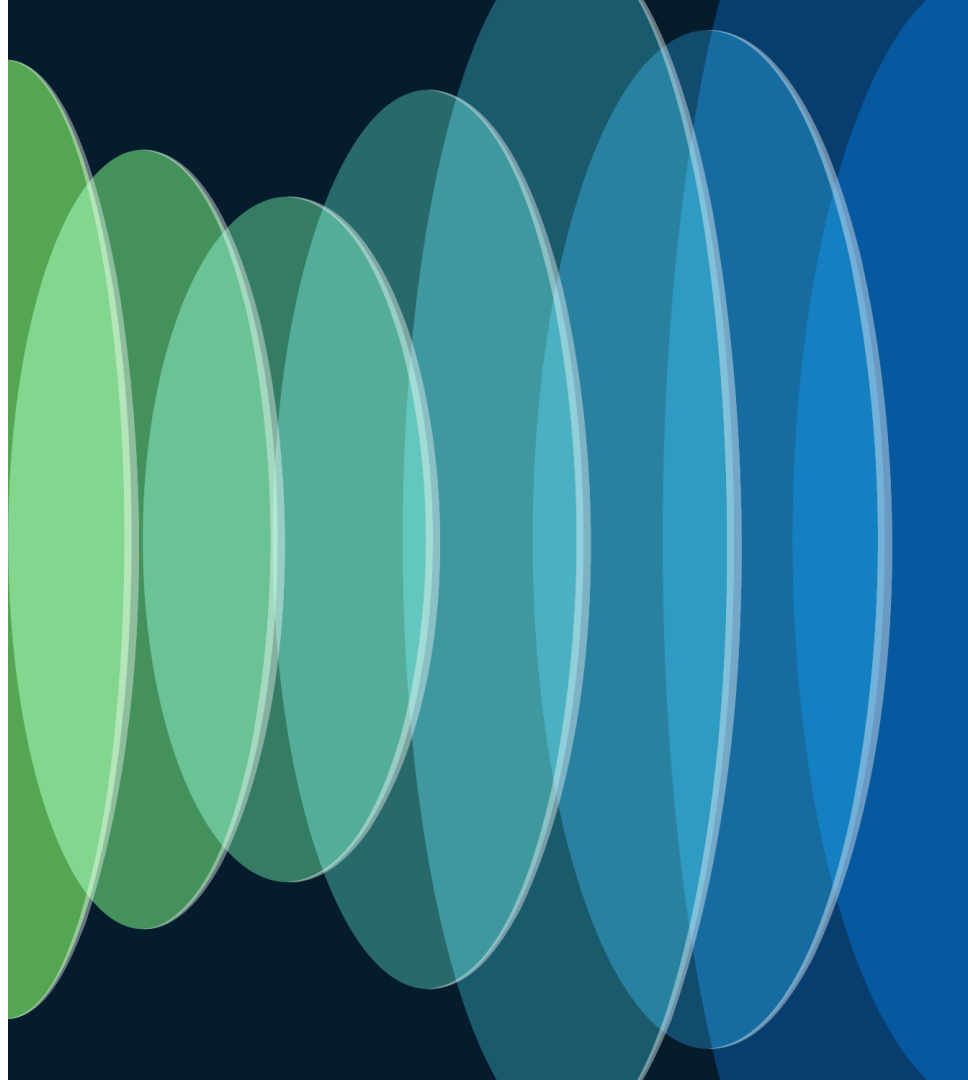


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Q&A





The bridge to possible

Thank you

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