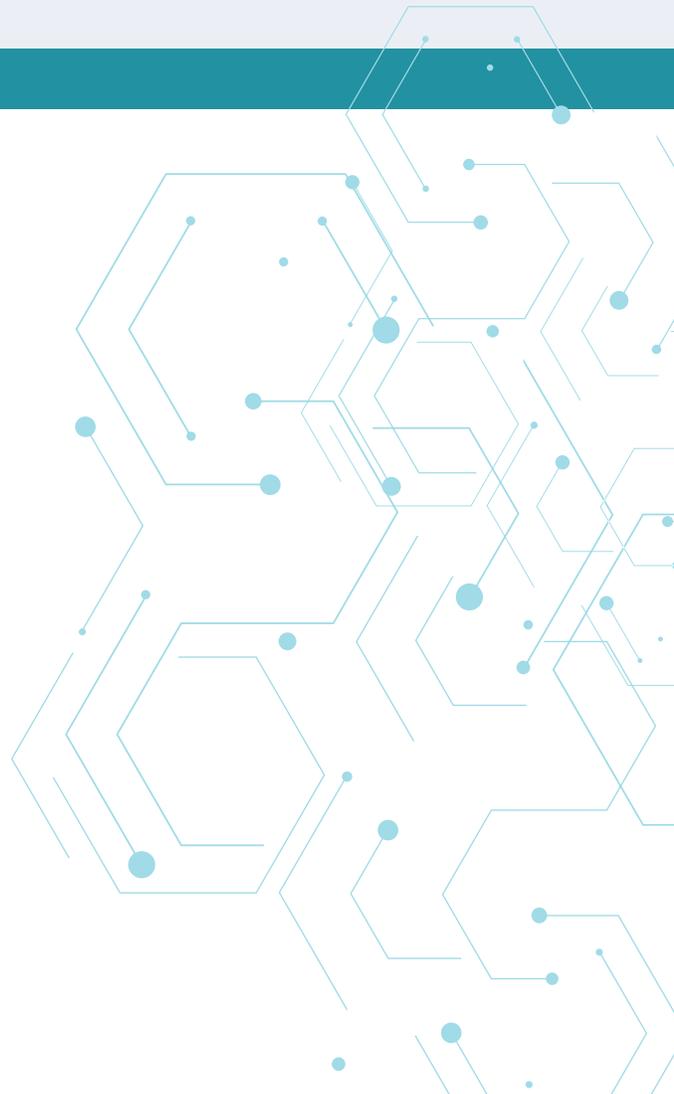
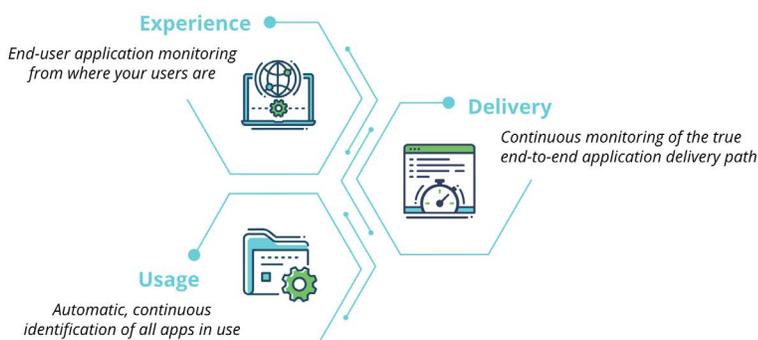




The Keys to Monitoring Internal Web Applications

Much of the focus on applications today revolves around SaaS apps delivered from the cloud. However, many large enterprises are also required to ensure good end-user performance for internally built applications. In some cases, these internal applications are the lifeblood of the organization, yet somehow traditional infrastructure monitoring tools are often the only recourse for handling issues when they arise.

Monitoring and quantifying the performance of internal apps is crucial for IT teams. Being able to pinpoint the location of an issue quickly can help reduce the overall time it takes to resolve. Internal applications can demand a lot of resources. With modern architectures, the use of microservices, distributed databases, or load balancing can add to the complexity. Outside of the development team, internal applications may seem like just another web app. When that app is slow, complaints from users often lack detail and, most of all, understanding as to what the underlying problem could be. WiFi is blamed, not a slow database query. The internet is slow instead of app resources loading inefficiently. The fault falls on IT, not the internal development team. These examples are commonplace. IT operations teams need to get ahead of the complaints by monitoring the applications independent of development.



AppNeta's focus is on this end-user perspective. [Delivery, Usage, and Experience monitoring](#) all deliver key information to reduce the troubleshooting time for IT teams. While Usage monitoring uses packet data to determine network and application latency, Experience monitoring looks at the application experience by mimicking user interaction.

Is the Issue with the Network or the Application?

IT operations teams in the enterprise are almost always separated from the development teams of internal apps. Years of finger-pointing over problems with internal apps can get in the way of resolving issues, ultimately creating divides in the war room. By implementing continuous monitoring for internal web apps, IT can offer a solution to quickly identify whether or not an issue's root cause is in the network or the application.

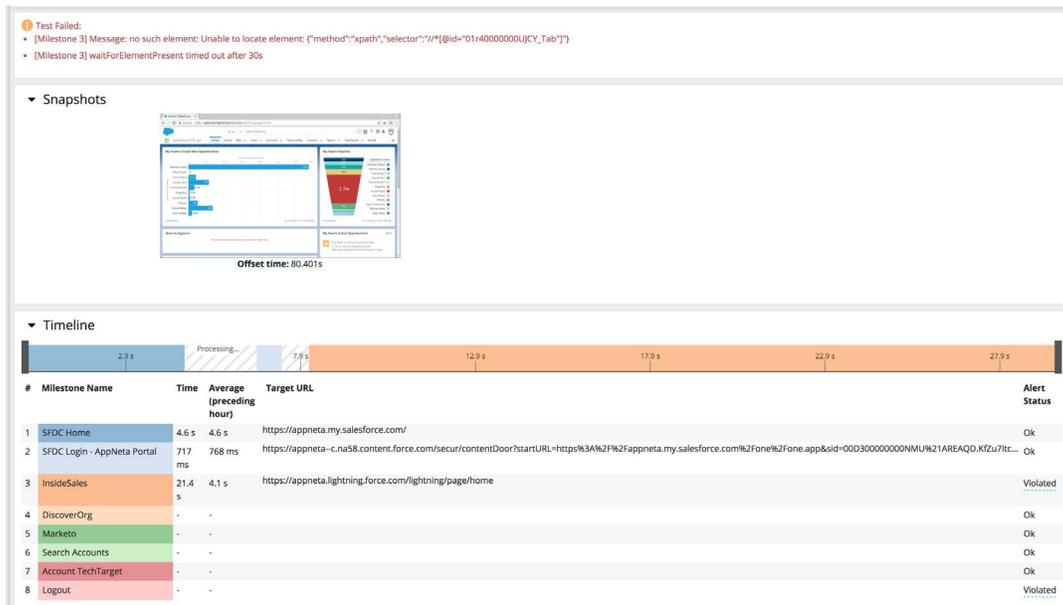
Operational Costs

AppNeta focuses on the end-user perspective which means that monitoring can accurately depict the path and experience of a user over time. The issue with host metrics is that issues can only be detected if a user is experiencing poor performance. AppNeta uses continuous, low-overhead monitoring to pre-empt that problem by providing active baselines of your internal applications and all of the components that make up your apps.

Monitor Apps Continuously

AppNeta's Experience monitoring focuses on using synthetic transactions to benchmark app performance and alerts on thresholds where the perceived performance drops from a good to a bad experience. The key to monitoring apps is to monitor from where your users are. Running scripts throughout the day on an interval allows baseline performance to be monitored. When issues occur you don't have to wait for a user to complain.

Using industry-standard tools like Apdex, AppNeta can provide an early warning system before users are affected. While basic availability checks can help, it is beneficial to create a multi-step script to perform functions like login, click through an interface, and load data. This tests authentication server response, user interface load timing, and database response all in one. AppNeta has created Milestones to allow users to mark points in the script that represent logical transitions in the workflow and see the timing performance for each step individually.

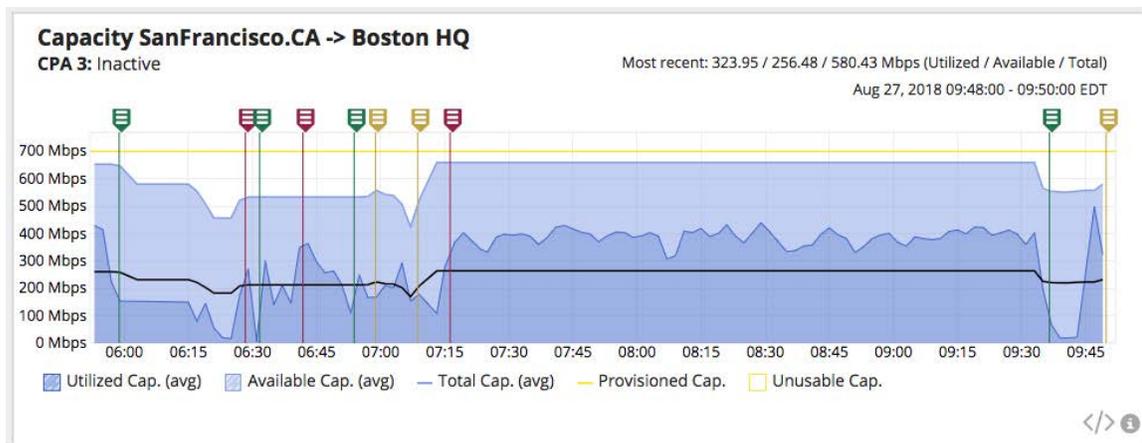


Each test execution of the script will provide Milestone timing, a full resource waterfall chart, and screenshots of errors. With AppNeta this application monitoring data is also uniquely tied to our network monitoring information in our Delivery component which allows troubleshooting teams to understand when network performance is at fault and when applications are to blame.

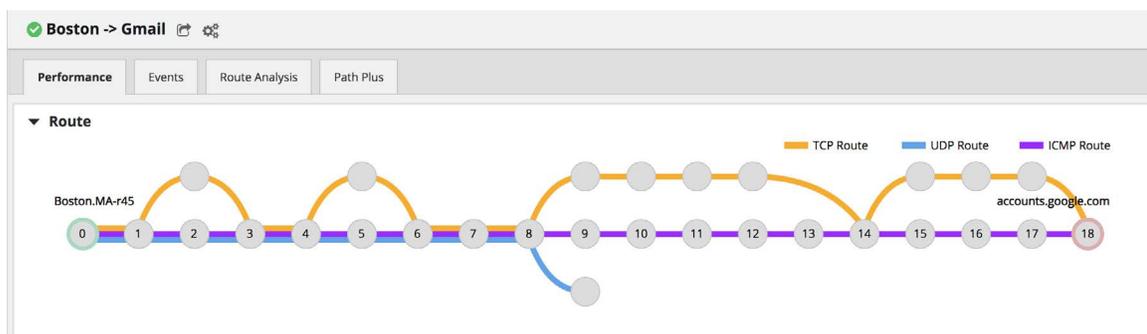
Monitor the Network

For every application, there is a network transport of resources that can severely impact performance. Even internal networks can result in high latency scenarios if you factor in load balancers, misconfigured private WANs, and overutilization of the network resources. The trade-off for scale and security can sometimes be performance slowdowns. Utilizing continuous monitoring on the network between key user locations and the application servers develops a baseline where monitoring thresholds can be set to notify the monitoring team of poor user experience.

AppNeta Performance Manager provides a proactive approach by sending and analyzing our own traffic, and not relying on legacy protocols like SNMP or NetFlow for performance analysis. This approach gives IT teams the metrics they need to troubleshoot where a problem occurred and, if it's in the network, fix it fast.



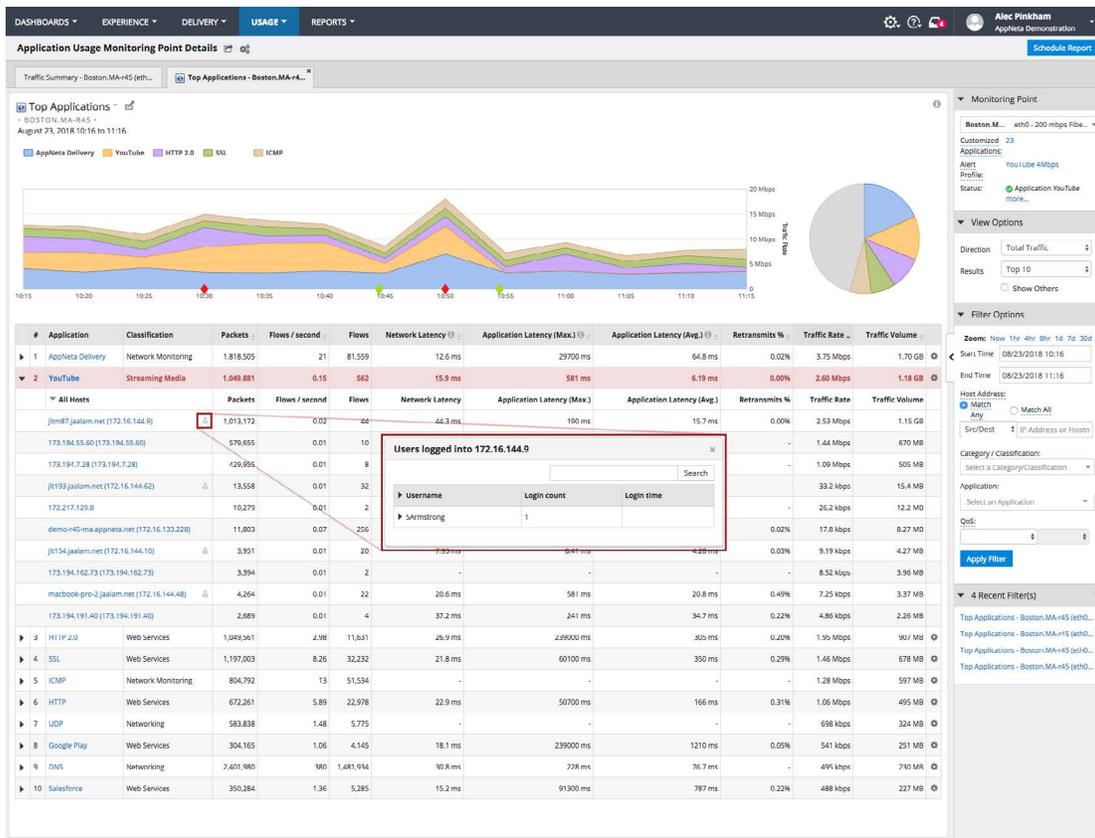
At its core, AppNeta's Delivery monitoring is designed to monitor the most complex networks from the end-users' perspective. The [TruPath™ methodology](#) sends 30-50 packets per minute over the same network path that users are route over allowing AppNeta to see the network the same way the user does and experience the same good or bad performance.



Every path configured via AppNeta's Delivery monitoring shows a multi-protocol route analysis using TCP, UDP, and ICMP testing. The primary reason is to understand what route each type of traffic takes. AppNeta offers both dual-ended where AppNeta endpoints act as the source and the target as well as single-ended testing where AppNeta endpoints act as just the source. In the case where even single-ended monitoring fails, the route determination (using traceroute) can still illustrate network transport paths.

Visibility into Actual Application Traffic

Through AppNeta's Usage monitoring, customers are also able to capture the real user traffic to identify the actual end-user performance. The emphasis on this type of monitoring is on understanding and detailing the [network latency and application latency](#) from the packets on the wire. An AppNeta public monitoring point can be tested using UDP traffic alongside internal monitoring to provide a point of reference to determine when applications across an organization are affected beyond internal apps.



A secondary benefit that AppNeta's Usage monitoring can deliver is automatically classifying the applications seen through analyzing packets via Deep Packet Inspection (DPI). AppNeta allows users to customize the application identifications as well by entering the port, protocol, and domain information. This allows you to segment internal apps into their components if the traffic uses multiple ports or traffic types. The network and application latency can be listed per user with Active Directory or LDAP integration.

Protocol: IP address: Port:

Identify one or more application servers. For each input you may enter a single address or an address range:

- Single Address: 10.11.0.1
- IP Range: 10.11.0.1-10.11.0.5
- Wildcard: 10.11.0.*
- CIDR: 10.11.0.0/24

Single ports and ranges are accepted:

- Single Port: 8080
- Port Range: 8080-8085

Protocol: TLS Host:

When using wildcard, *.example.com does not cover example.com; a separate rule is required for the latter.

Dealing with Load Balancers

With applications, the use of load balancers means that at some level of the stack there is enough traffic or demand that developers felt the need to build in resiliency. The problem with these at scale is that it can create ghost issues where performance is not consistent when one load balancer has an issue. Infrastructure and host monitoring is one component of performance, but when an issue is more complex than a poorly performing host, where do you turn?

Continuous monitoring of applications via synthetic traffic gives network operations teams a wealth of historical data to review when issues are reported. By viewing both network and application monitoring data teams can see load balancing in the route as well as load balancing at the application server level by looking at the route history and the responding IP respectively. By targeting all load balancers that are serving the application teams can also review relative performance over time to find the bad actor.

Historical data is key to troubleshooting issues and reducing the time it takes to resolve them because user complaints are often well after an issue has happened. Being able to review the route history and application performance history can allow for in-depth troubleshooting. With AppNeta that visibility can even be up to a year in the past.

Comprehensive Monitoring

Aside from the politics between teams, monitoring internal apps is everyone's responsibility. When the end-user is an employee bad performance leads to lower productivity. In the end, that costs money. Internal apps typically help run a business and don't always benefit from the latest technologies available in the cloud. IT teams need to remain constantly vigilant of both the network and the applications in use to stay on top of issues and avoid costly escalation. Unlike traditional infrastructure monitoring, you need performance monitoring from the end-user perspective.

AppNeta can provide that detail to get you out of the war room and back to the projects that help IT thrive in today's enterprise



ABOUT APPNETA

AppNeta is the only network performance monitoring solution that delivers deep, actionable, end-to-end network performance data from the end-user perspective. With AppNeta's SaaS-based solution, IT and Network Ops teams at large, distributed enterprises can quickly pinpoint issues that affect network and business-critical cloud application performance, regardless of where they occur. AppNeta is trusted by some of the biggest Fortune 1000 companies, including 3 out of the 5 largest corporations in the world, as well as 4 out of the 5 largest cloud providers. For more information, visit www.appneta.com.

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