It’s ALL about the End User

The key to unlocking application problems by monitoring End User Response Time

Do You Know How Much “Slow” Costs?

Slow. It’s the word that network engineers dread to hear. No matter how many monitoring tools they have, upgrades they make, or trouble tickets they solve, conquering “slow” seems to be a battle that is never won. However, network engineers should not be alone in this fight. Businesses are often unaware that slow applications are costing them thousands of dollars per year in reduced employee efficiency and lower customer confidence.

Today, a high performance business is directly connected to high performance applications. If these are slow, this will impact the bottom line.

How widespread are these performance problems?

- 75% of IT organizations suffer from degraded (slow) business applications\(^1\)
- 70% of the time, IT organizations learn of performance problems directly from end users rather than from their monitoring system\(^2\)
- 70 - 80% of end user problems are not reported to the help desk or network engineering\(^3\)

These statistics show us that many businesses are suffering performance problems that impact profitability, while tying up network engineers for weeks, if not months. In fact, Forrester Research discovered that **31% of performance issues take more than a month to resolve or are never resolved.**

Top 4 questions to ask yourself:

1. Is this true in your environment?
2. With advanced monitoring systems in place today, why is it that performance problems remain widespread and take so long to solve?
3. What can be done to mitigate these problems and ensure the business is not losing money on degraded applications?
4. How can you get a handle on the root cause of application problems and finally bring an end to poor user experience?

There are three basic reasons that performance problems are continuing to plague IT departments.

1. Businesses underestimate how expensive “slow” really is so they don’t invest in the tools necessary to isolate and resolve complex application problems.
2. Applications no longer involve a simple one client/one server architecture and are very difficult to troubleshoot, causing network engineers to focus on exonerating the network rather than finding root cause.
3. Performance problems are often intermittent and are difficult to reproduce on-demand.

In order to stay ahead of these challenges, and bring an end to lingering application problems, network engineers need to go beyond monitoring each device and connection on the network. Instead of focusing only on the health of the infrastructure, they need to incorporate End User Response Time (EURT) measurements. This means that they go beyond monitoring latency, bandwidth, and packet loss for each connection. Engineers need to analyze how users are interacting with applications and how these systems are responding in order to resolve performance issues. Monitoring End User experience allows engineers to quickly identify and resolve application problems, whether they are reported into the help desk or not.
Unlocking the Power of End User Response Time

Network Engineers who are concerned with the health of the network infrastructure may be able to exonerate their IT domain but are missing what is most important – performance from the end user perspective. They may have data collection points all over the network to watch device health and connection usage, but these do not give insight into the end user experience.

Engineers that take responsibility for monitoring EURT find that they can prove it’s not the network while isolating the true problem, allowing them to actively monitor for problems, contribute to the resolution, and ultimately save money for the business.

Why is EURT so critical to pinpointing and resolving application problems?

By monitoring end user transactions at the packet level for critical applications and supplementing these statistics with synthetic transactions, engineers have access into the real-time health of these systems. If a problem hits, not only do they have the packet-level detail to dig into the event, they also have visibility into what the user experienced, regardless of what the infrastructure or server health tools show. EURT is a real representation of how the system is performing, which allows network engineers to quickly hone in on a slow component – even if the transaction happened in the past.

How End User Response Time is measured

EURT can be measured by collecting packet detail from the wire and analyzing real transactions or by generating synthetic user requests into an application system. Analyzing end user experience from packet detail is ideal when the applications are hosted locally and the tools can be positioned closer to the servers. In a borderless enterprise, where applications are hosted in a hybrid environment – both data center and cloud - synthetic tests can be generated to measure the performance in terms of application, network, and server response time. Depending on the environment, both packet detail and synthetic testing can be used to holistically approach EURT analysis.

When monitoring real end user transactions, metrics are collected from packets that are sent on the wire. After an end user opens an application and connects to a server, they unknowingly will send user requests to the application.

For example, in web-based applications, end user requests are most commonly called “GET” or “POST” commands. Once that request is sent to the server, the end user will wait for the application to fulfill and transmit the response. This may involve the application server communicating with several other systems (such as database servers) before it can begin to transmit data back to the client. This is how application delay is measured, which is one component of the overall response time.

Network Engineers who are monitoring EURT from packet detail are able to breakdown the overall transaction response time into its four components – application delay, server delay, client delay, and network delay. These measurements enable engineers to determine if the problem is due to a slow application or server, or if packet loss, latency, or other network issues are the root cause.
If network delay is high, network engineers can focus on tracking down congested links, packet drops, Ethernet errors, or CoS problems, rather than blaming the application for the problem. When synthetic transactions are used to measure an application environment, the same metrics can be generated to pinpoint the cause of slowness and application errors.

**How Monitoring for EURT Saves Time**

Since packets don’t lie, they have long been used to isolate the root cause of an application problem. When this is used to track an issue, packets are collected on the client or server and used to interpret where time is being spent in user transactions.
The complexity of manual trace file analysis quickly becomes unmanageable in the data center, as user activity far exceeds what analysts can follow at the packet level. With an automated system monitoring EURT, engineers are able to filter on slow or broken transactions through terabytes of data, extracting relevant information rather than being buried in details.

Synthetic testing increases the time saved since it actively measures response time and can quickly trigger notifications during slow performance or downtime. Rather than pointing fingers at other silos within the IT organization, teams can collaborate and take a unified approach to application problems, which speeds resolution time.

**How EURT Saves Money**

As we saw at the beginning of this document, most environments learn about performance problems from user complaints rather than monitoring systems. They mistakenly conclude that no news from the users is good news, and that green lights on the network health map mean that application performance is high.

These facts show that in most IT organizations, application issues are already impacting user productivity before network engineers learn about them. Ultimately, this will cost the business a tremendous amount of money.

Rather than waiting for users to complain about an application problem, network engineers can proactively use EURT to determine when performance is slow. They can be well on the way to resolving it before it seriously impacts the users. This will help network engineers to preserve high performance while mitigating the financial loss of slow or faulty applications. Rather than spending weeks or months chasing the root cause, engineers will be free to focus on other IT projects and upgrades.

**End User Response Time - The Key to Solving Complex Application Problems**

Application performance problems prevent businesses from reaching their full potential of profitability. The cost of these issues can be difficult to quantify, business to business, therefore it is seldom measured. However, application issues greatly impact employee productivity and customer experience, which can impact the bottom line.

The complexity of application environments and the intermittent nature of performance problems can cause these issues to linger in the system far longer than they should.

To resolve these problems and stay ahead of new ones, network engineers need to leverage the power of packet data and synthetic tests by monitoring End User Response Time, which:

- Saves Network Engineers time
- Saves the business lost money in reduced productivity
- Stops the blame game
- Helps engineers quickly get to the root cause
- Improves the reputation of IT

Don’t let your organization suffer one more day of slow performance. Unlock the problem resolving power of End User Response Time.

To learn more, please visit [www.netscout.com](http://www.netscout.com).

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1IDG Research Services  
2Gartner Research  
3Knoa White Paper, Monitor, Measure and Manage the End User Experience