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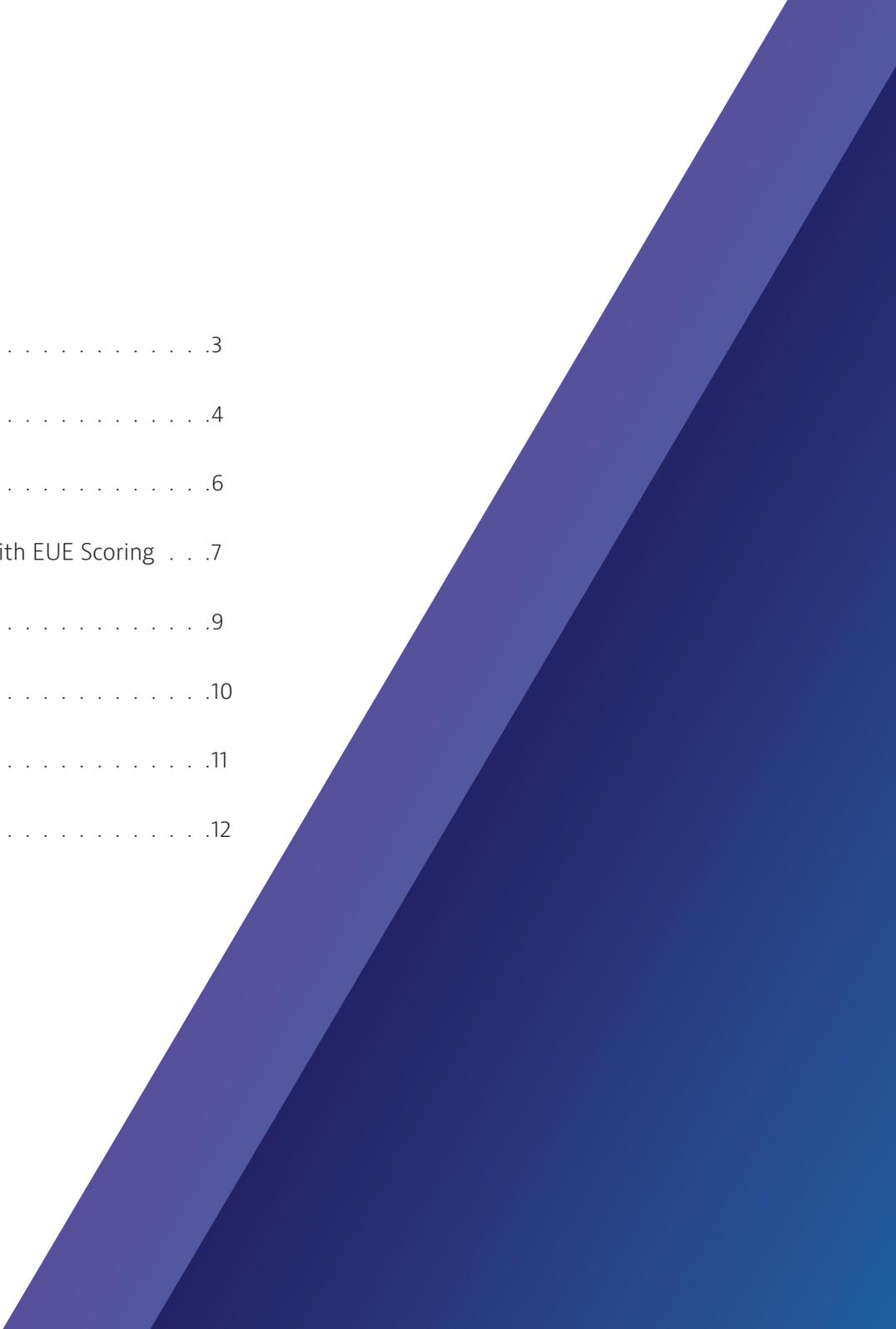
VI.AVI Solutions

End-User Experience Scoring

**THE KEY TO SPENDING LESS TIME HUNTING FOR THE SOURCE OF
NETWORK PERFORMANCE ISSUES. FEWER METRICS. MORE CLARITY.**

CONTENTS

- Introduction3
- Old World Problems.4
- The Challenge6
- Simplifying Network Complexity: Get Fewer Metrics and More Clarity with EUE Scoring7
- Sound Too Good to be True? Here's How EUE Scoring Works9
- What Does an EUE Score Look Like?.10
- 4 Ways to Use End User Experience Scoring Today.11
- The Time for Transformation is Here12



INTRODUCTION

Keeping up with the myriad of network monitoring, troubleshooting, and complaint resolution issues has always been challenging. With today's network boundaries stretched by work from home (WFH), private cloud, hybrid cloud, and software as a service (SaaS), your juggling act as a network engineer or IT support team member has likely exceeded its limits. Rather than being overwhelmed by tickets with no clear path to resolution, there is a better way – and it all begins with the end-user experience.

The idea behind end-use experience (EUE) scoring is a simple one: There are many ways to interpret the ocean of available network data sources but reviewing them through the prism of user experience puts everything in the right perspective. A unified scoring method makes it possible to analyze, sort, and prioritize information like flow and packet data based on end-user outcomes.

If the concept is simple, developing the complex algorithms and machine learning tools needed to distill many KPIs into meaningful scores was a challenging endeavor. As you will discover, the result of these efforts pays huge dividends when you dramatically reduce mean time to resolution (MTTR) while making advanced troubleshooting and monitoring methods accessible to IT professionals at all levels.

Let's explore how end-user experience scoring makes it easier to convert the wealth of available network performance data into satisfied customers.

OLD WORLD PROBLEMS

Each team or individual develops their own go-to set of tools and metrics to use when problems occur. But do they ever consider how well these tools help with efficient problem validation, isolation, and resolution?

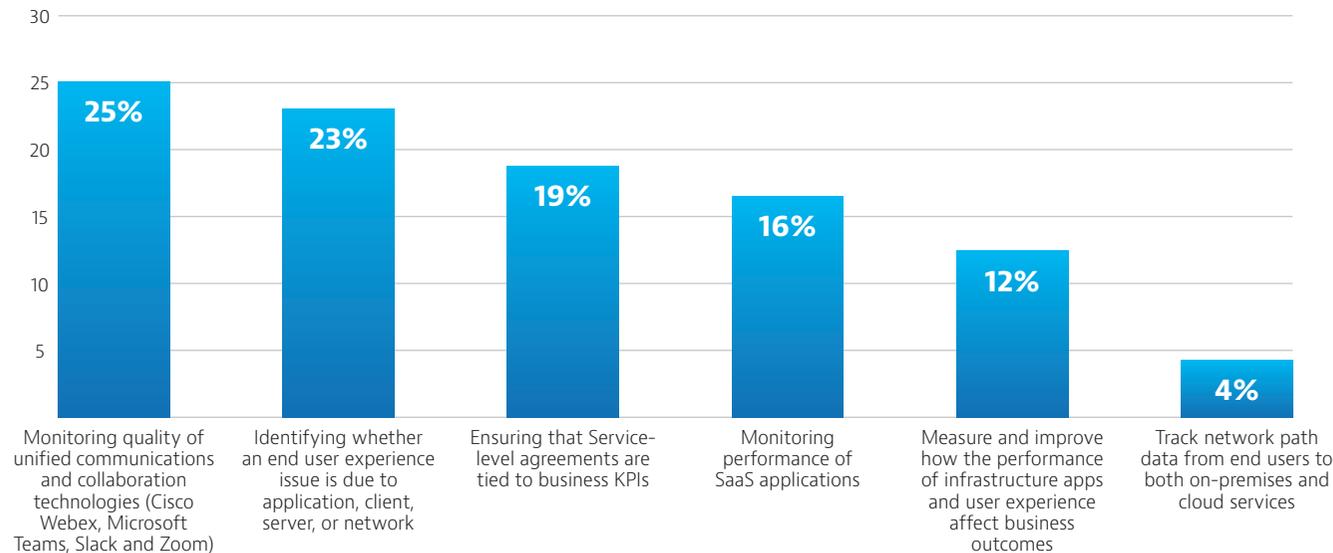
Consider the issue of network delays from the end user perspective. 2023 saw increases in cloud service provider (CSP) outages, application outages, and the percentage of U.S.-centric outages¹. End users don't care whether the problem is caused by the network, server, or application, they simply want it fixed. The reality of 'work from anywhere' has only amplified user expectation—while making them harder to attain. User issues quickly become IT issues when the clock is ticking.

Let's imagine a different approach—one that begins with the end-user experience, not the infrastructure and applications. That means utilizing a single metric—a definitive score that prioritizes where the issues lie based on user impact. An intuitive scoring method instantly reveals the extent of performance degradation, from slightly impaired to completely unavailable. Beyond just the severity of the issue, the EUE score also captures the scope and duration, allowing you to compare performance across multiple sites within a single dashboard. This means spending less time hunting through data and more time resolving issues efficiently, transforming how we manage network stability and user satisfaction.

1. Cisco Thousand Eyes 2023 Internet Outage Trends



What are the most critical aspects of EUE Monitoring for your IT organization?



Understanding the end-user experience (EUE) has become a vital priority for your IT organization, particularly given the dramatic changes brought on by recent events. Almost overnight, many of your users moved from a controlled office environment—where you had substantial visibility into how things were performing—to remote setups filled with new, unpredictable variables. These variables, often beyond your control, have left you without direct visibility into what’s happening in your users’ virtual environments. Now that remote work has become the norm, you are faced with an additional challenge: Managing the multitude of tools designed to support these environments. This proliferation of tools adds complexity and can make it difficult to maintain a clear overview of network performance and user satisfaction. Faced with this new normal, your IT teams are under immense pressure to understand and resolve application performance

issues quickly. Monitoring and improving end-user experience remains the top objective, demanding your attention and resources to ensure seamless operation.

The tools, techniques, and processes that you once relied on—and likely helped build—were not intended for the fast-paced, cloud-enabled, and mobile world we find ourselves in today. The trend toward ‘bring your own device’ (BYOD), migration from on-premises applications to public cloud and hybrid architectures, and the adoption of SD-WAN deployments only compounded the challenges. Each of these shifts, though seemingly minor, has significantly altered network traffic patterns and complicated your ability to effectively troubleshoot network and application performance issues.

THE CHALLENGE

One of the top challenges for IT teams is pinpointing the problem domain of an issue, especially those intermittent problems that lead to user frustration and impatience. The conventional approach to troubleshooting starts within the infrastructure and spans across applications. Engineers can quickly find themselves overwhelmed as they sift through vast amounts of data and performance metrics, attempting to understand what users have experienced and where the issue might originate from. This becomes more challenging when all indicators suggest everything is fine, yet the user experience issue continues. According to Forrester Research, one-third of user complaints either persist unresolved for a month or are never resolved at all.

This can make you feel like you're being pulled down a rabbit hole when trying to determine the root cause of a problem. You might find yourself in the midst of a business-critical issue, with the application team pointing fingers at the server team, who in turn blame the cloud provider, until ultimately, the blame shifts to your network. In the meantime, employees, revenue, customers, and business operations can suffer, costing the business money and damaging their reputation.

It's time to for a new strategy. Solutions that automate identification of problem domains during troubleshooting can streamline the process, quickly restoring operations with less impact on the business. A more effective approach is available now—one that our customers have helped us develop, test, and perfect. This collaborative effort has resulted in a solution tailored to meet the real-world needs of IT teams like yours by enhancing efficiency and ensuring smoother operations.



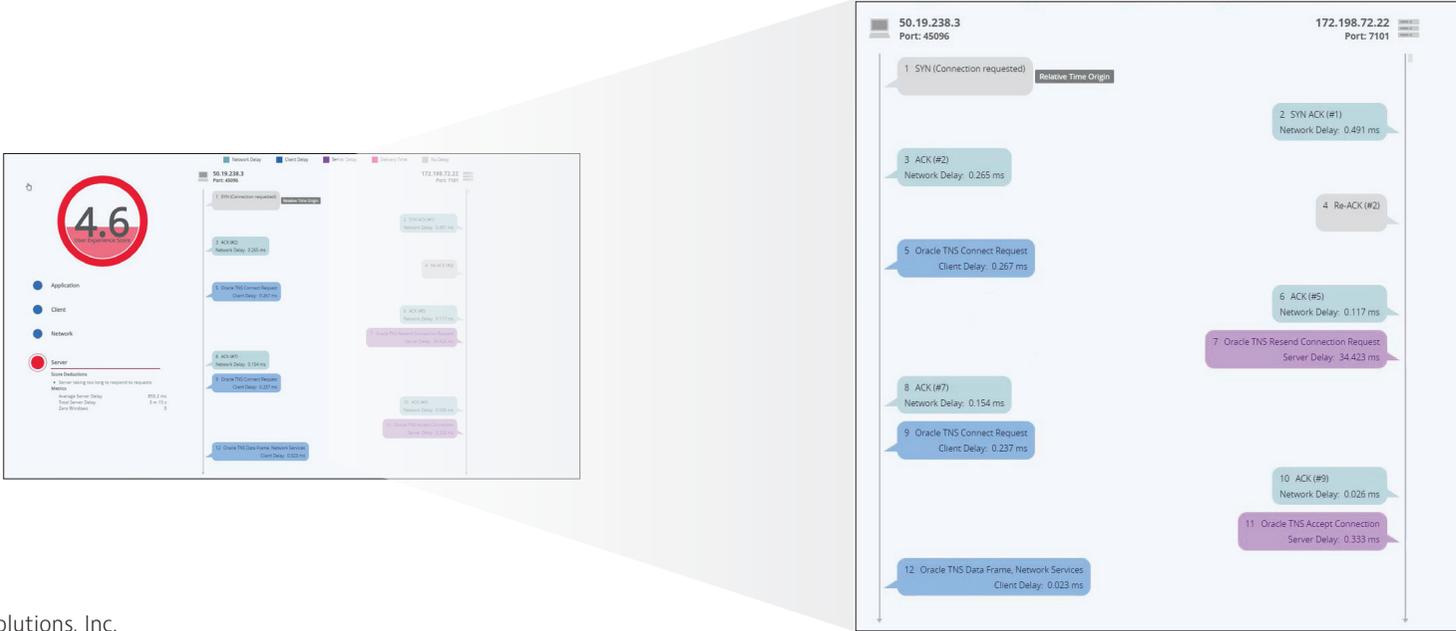
SIMPLIFYING NETWORK COMPLEXITY: GET FEWER METRICS AND MORE CLARITY WITH EUE SCORING

In today's complex IT landscape, with applications dispersed across private data centers, public clouds, and edge locations, traditional monitoring tools often fall short. The new era of network management is here, offering a streamlined, effective solution—our patented End-User-Experience (EUE) Scoring. This innovative approach doesn't just add another feature to the toolbox—it truly transforms how we perceive and resolve network issues.

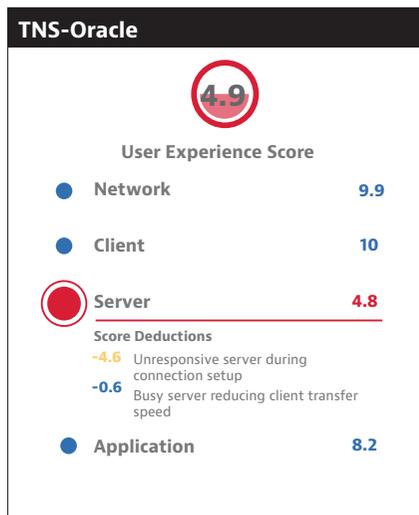
Understanding and improving the end-user experience is at the core of our solutions, and our patented EUE Score is the central element that simplifies the complexity of network troubleshooting. A clear, color-coded score between 0 and 10 not only quantifies user experience but also breaks down the scoring and root cause by domain—Network, Server, Client, and Application. This allows you to assess the severity, scope, and duration of an issue on one scorecard, delivering a faster, more targeted response.

While the traditional approach might have you sifting through numerous devices and user interfaces, coordinating with various teams to find a resolution when an end-user reports performance issues, EUE Scoring condenses this process into a single, comprehensive scorecard.

With the VIAVI Observer Platform, you replace hundreds of disparate KPIs with one intuitive EUE Score, eliminating guesswork and streamlining your troubleshooting process with fewer metrics and more clarity.



Many vendors offer metrics touted as one-size-fits-all solutions to every network problem you might encounter. But let's be real—while single metrics or KPIs have their value, they often don't provide the actionable insights you really need. How do you decide what to do with these numbers? How can you tell if they're signaling good performance or highlighting a problem? The truth is, context is crucial, and data quickly loses its value without it. Sometimes, less really is more.



What you need is a way to make sense of all the available information. That's where EUE scoring from VIAVI comes in. It's not about drowning you in data; it's about clarity and simplicity. Fewer metrics, more clarity—this approach transforms complex data into clear, actionable insights. With our EUE

scoring, you get a comprehensive yet straightforward view of what's happening, enabling you to quickly identify and address the root causes of issues. This intuitive method replaces meaningless numbers in reports with a real understanding of your network challenges.

This EUE score isn't just a number—it's a gateway to actionable insights. Each score is intelligently derived from machine

learning algorithms, providing real-time visibility into how your users are interacting with applications and services. For more complex environments, our platform offers detailed visualizations and performance metrics, making it easier to pinpoint where issues are occurring, and why.

The EUE Scoring system is also designed to support multiple IT needs—from network operations and architects to developers and executives—by answering critical questions that drive business and IT initiatives. Questions like:

- Are customers satisfied with their experience?
- How has the new data center affected user experience?
- Was the application update successful?
- Are we prepared to support security operations in the event of a breach?

With this approach, you only need one precise tool to measure and improve user satisfaction, ensuring your network and services are not just operational but optimized for peak performance. This streamlined method meets the current demands of network management while setting a new standard for the future, where clarity and efficiency lead the way in IT operations.

EUE Scoring provides three things:

1. Simple numeric score that tells you when there is a problem and how severe it is
2. Automated domain isolation — is it a network, application, server, client issue or some combination
3. The evidence that supports the conclusion — simple actionable explanations of what has been observed

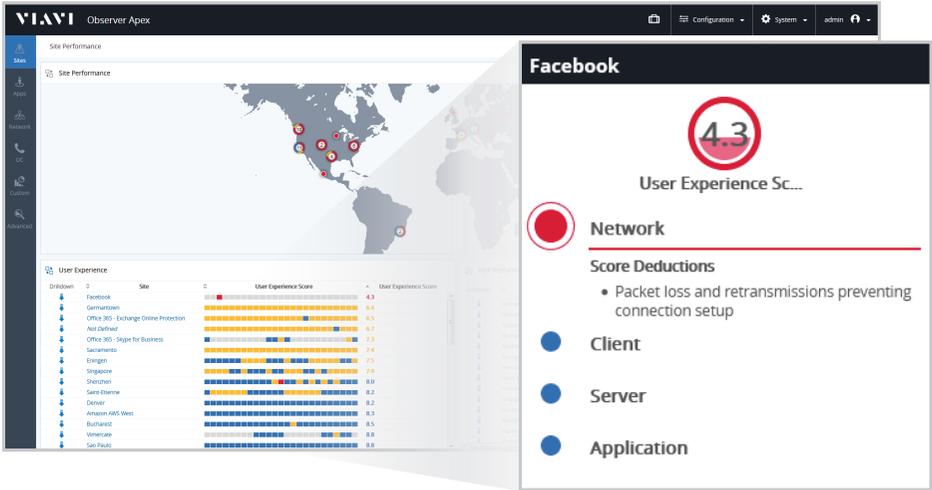
SOUND TOO GOOD TO BE TRUE? HERE'S HOW EUE SCORING WORKS

If all of this sounds too good to be true, let's go a little deeper to explain how the score is calculated and how the domain isolation is determined.

The single numeric score reflecting severity of user impact is derived from an algorithmic analysis of 30 key performance indicators captured from every conversation. In addition, we look at layer 4 data to determine how the transport protocols are behaving. This helps to provide automated problem domain isolation.

Observer Apex automatically analyzes delays between all packets involved in a network conversation, in real-time. As each record is captured and analyzed, the tool analyzes potential causes for delay, the extent to which the delay impacted the end-user, and records the information. At the end of the conversation, Apex identifies the root cause of any detected performance degradation. The conversation is assessed based on the IP pair and application, and the results are presented as a single End-User Experience Score.

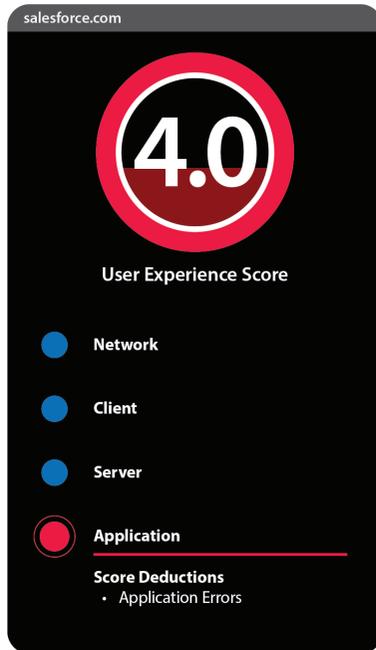
End-User Experience Scores are only as accurate as the underlying data from which they are calculated. In other words, every piece of data matters! Each missed or inaccurate detail has real-world implications that impact the ability to troubleshoot service issues.



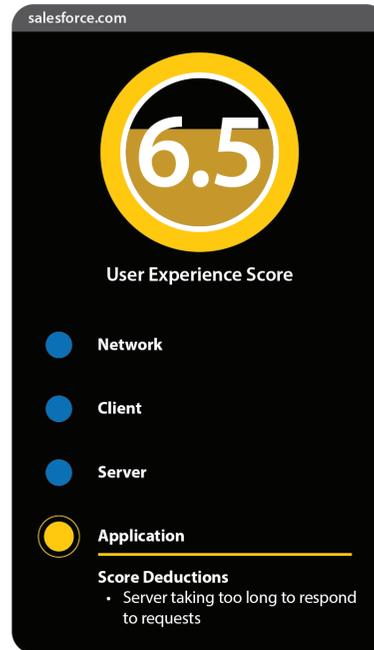
Observer assures accurate visibility on every network conversation by capturing data from all available sources — a fact that is validated by third-party analysts.

WHAT DOES AN EUE SCORE LOOK LIKE?

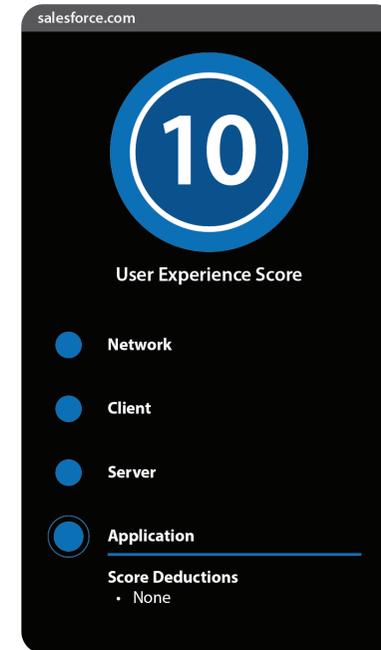
Scores range from 0 to 10 and use color coding for at-a-glance validation. Anomalies become clear, false positives disappear, and the noise that frequently masks problems is eliminated:



Red (0-5) = Critical



Yellow (5.1-7.9) = Marginal



Blue (8-10) = Good

Scores can provide visibility into a single user's experience or groups of users defined by site, geolocation, etc., as needed.

IT teams save hours troubleshooting by "following the yellow scores" to act early and prevent serious network degradation by drilling up, down, and laterally via site performance dashboards. Our intuitive workflows put you no more than three clicks away from problem resolution. No more chasing false positive KPIs or data that leads back down the proverbial rabbit hole.

4 WAYS TO USE END USER EXPERIENCE SCORING TODAY

- 1. Gain Actionable Insight into End-User Satisfaction:** Knowing whether users are happy with their service delivery is the ultimate harbinger of customer fulfilment. Until recently, this was difficult for IT teams to assess without deploying complex and costly agents on each user device. Too much time has been spent chasing red performance indicators without truly understanding if or how they are impacting the business or end users.

VIAVI Observer End-User Experience Scoring eliminates the guesswork and manual sleuthing from performance monitoring, automating the process by scoring every transaction and isolating problems to the network, application, server, or client domain.

- 2. IT Operational Clarity, Fewer Metrics:** IT teams need comprehensive visibility into service health and meaningful answers to troubleshooting problems, not endless lists of KPIs. Data without direction is meaningless, so VIAVI Observer offers multi-dimensional End- User Experiencing Scoring. Observer does the heavy lifting to help you understand which users are impacted, and why, by performing advanced analytics of numerous operational variables.

Calculated in real-time and retained over extended periods, End-User Experience Scoring reports on every transaction using an easy-to-understand zero to ten numeric values along with an intuitive color grading schema based on red (critical), yellow (warning), and blue (good). Each score is then broken out by the associated domain: server, application, client, and network-application, with a precise breakdown of individual score deductions.

Available at the individual user level, scores are also intelligently rolled-up so IT teams can quickly assess if the problem is global or localized, and what applications are impacted.

- 3. Increased IT Team Results and Satisfaction:** With IT teams stretched to the limits by monitoring, troubleshooting, and digital transformation projects, finding solutions that allows them to quickly 'see' what needs attention, triage it quickly and definitively, and reduce war room scenarios should always be a priority. VIAVI Observer End-User Experience Scoring provides a better way to enhance IT staff productivity, development, and satisfaction.

- 4. Optimized Digital Experience for the Full Picture:** With cloud-hosted and SaaS application use on the rise, resolving application performance issues has become much more complex. EUE scoring continues to evolve by adapting algorithms to account for this new reality, while incorporating new metrics like AWS VPC flow logs and Azure Network Security Group (NSG) flow logs. This evolution eliminates SaaS blind spots by providing insight into cloud services.

THE TIME FOR TRANSFORMATION IS HERE

It's natural to approach new solutions like VIAVI EUE Scoring with a bit of skepticism, but with insights gathered from hundreds of customers and use cases, we've zeroed in on the metrics and outcomes that truly matter to IT teams and the customers they serve. We developed this revolutionary tool to help you use your valuable time more wisely and productively.

While other vendors might claim to offer an EUE score, often, it's simply a measurement of round-trip latency— while useful, it's hardly enough to provide a deep, actionable understanding of the end-user experience or isolate problem domains effectively. For us, establishing a unified EUE score means instilling as much value and insight as possible into a single indicator. Fewer metrics. More clarity.

The VIAVI EUE score is not just a number—it's a comprehensive tool that starts with the end-user, not the infrastructure, allowing you to make a significant impact swiftly and effectively. Benefits abound across the board—from users to IT professionals to executives. Here are just a few:

- **Tier One Helpdesk Efficiency:** Issues are validated and documented more efficiently, with problems accurately assigned to the right team from-the-start, thanks to automated domain isolation.
- **Reduced Need for Escalations:** Many problems can be resolved without the need to reassign or escalate, thereby streamlining operations.
- **Proactive Network Health Management:** EUE scoring makes it easier to identify and address underlying network health issues.
- **Resource Optimization:** In an era marked by skill shortages, fewer highly skilled engineers and IT experts are needed to manage your networks.

Staying with familiar processes and solutions might be comforting, but without accelerating your capacity to identify, prioritize, manage, and remediate issues, you could face significant headwinds. Patience from users and executives is dwindling, just as the pace of digital transformation is accelerating, pushing the limits of your business, and those of your competitors. If you don't keep pace, you risk falling behind.

Would you like to see the Observer EUE in action? Take the opportunity to review this innovative one-stop shop for yourself, including the customizable dashboards designed to consolidate your tools and simplify your processes. There's nothing to lose and a world of visibility to gain.



Learn more about leveling up your network and services with
Fewer Metrics. More Clarity.
and see our solutions at:
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Contact Us **+1 844 GO VIAVI** (+1 844 468 4284)

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