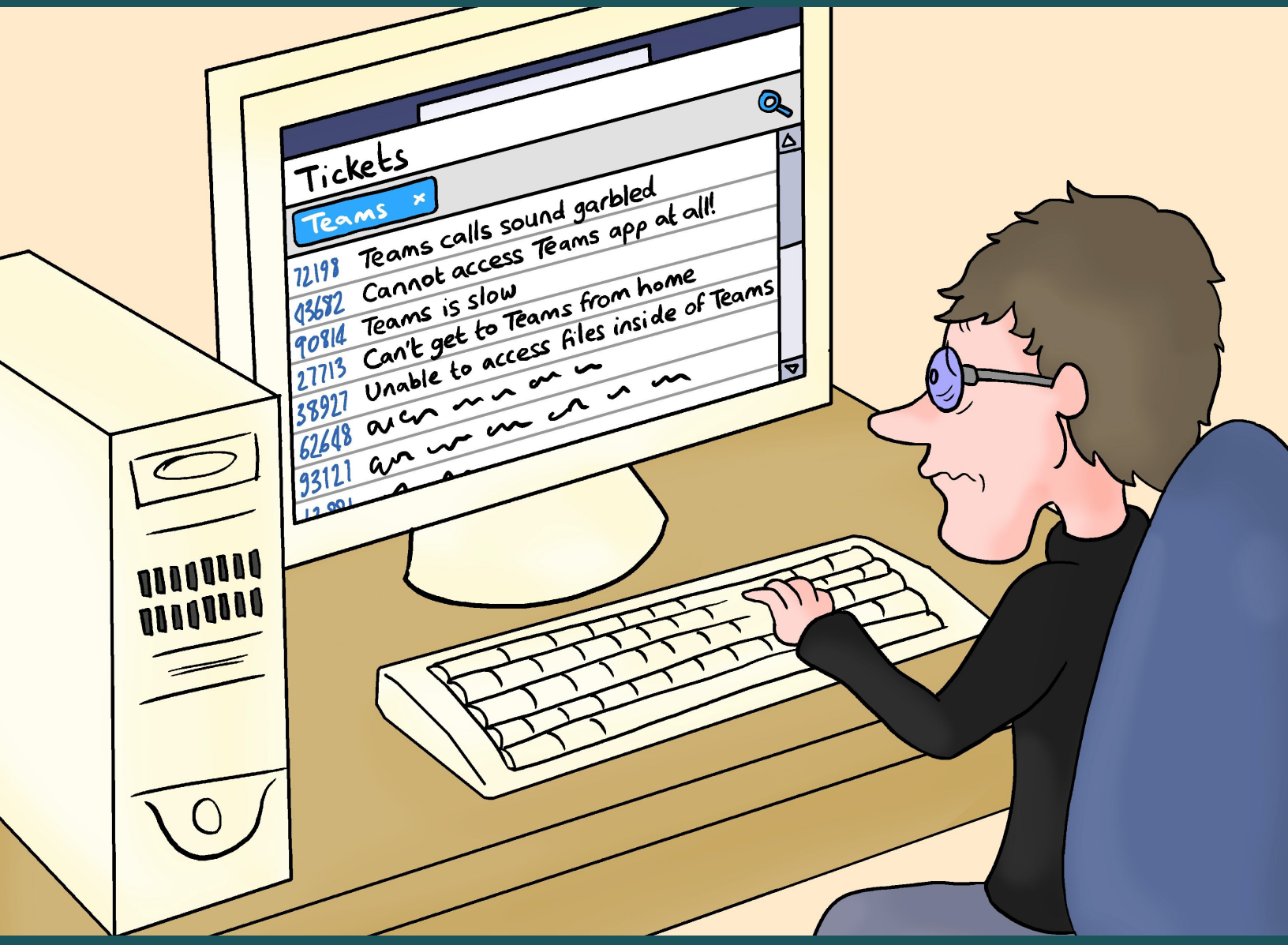
ConversationalGeek®

Microsoft Teams Performance Monitoring Solution

Buyer's Guide



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Choosing the Right Microsoft Teams Performance Monitoring Solution

Microsoft designed Teams to not just be the “next” online collaborative solution, but to be a hub for how teams of employees work together, amalgamating chat, file sharing, email, calendar, meetings, and integrations with countless third-party solutions all in one place. Their intent was to make it the one place your employees can get all of their work done; one might even call it a “digital workplace”.

You’re reading this Buyer’s Guide because you recognize your organization’s absolute reliance on Teams and, now that you find yourself responsible for the use of a platform owned and maintained by someone else (namely, Microsoft), you still need to understand what’s not working, when it’s not working, who is impacted, and why.

The answer lies in a Teams Performance Monitoring solution – one that centralizes all the disparate factors that can come into play when a user calls the helpdesk to say “Teams is extremely slow”. This includes everything from the user’s device and home network, to a VPN, to the corporate network, its infrastructure and services, and ISPs en route, the Microsoft cloud, and all those services behind the scenes that make up what we refer to as simply “Microsoft Teams”.

The question then becomes, how do you select the right solution that meets your specific needs? In this Buyer’s Guide, I’ll cover the critical (and not-so critical) capabilities found in today’s Teams performance monitoring solutions, giving you insight into what’s needed to properly monitor Teams. Keep in mind, that while I’ll break out monitoring into different areas of Teams, the reality is you need to centrally see every part of your organization’s interactions with Teams to understand when you’re having an issue, who’s impacted, and why. This guide will also provide worksheets that will help you determine which of the solutions on your shortlist are right for your organization.

- Brien Posey, Microsoft MVP

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How to Use This Guide

How to Use This Buyer's Guide

Conversational Geek Buyer's Guides help you assess and choose the right solution for your organization. *We do this by breaking the guide into two parts.*

Buying Criteria

We first provide you with a number of important buying criteria to consider. Each criteria section focuses on a particular set of features and capabilities available by solutions today. Those capabilities are then broken down into two distinct categories:

- **Required:** The capabilities listed in this criteria category are those that are fundamental for purchase consideration. Any solution you consider on your shortlist should have the capabilities listed at a minimum.
- **Optional:** The capabilities listed in this criteria category are features that will enhance your use of the solution but aren't part of the core required capabilities. An optional capabilitymight be considered innovative in nature or simply be of value but only to organizations with specific needs.

Start by reading the Selection Criteria portion of the Buyer's Guide, taking note of which capabilities are important to you, regardless of whether they are listed as *Required* or *Optional*.

Evaluation Worksheets

We then provide you with a set of worksheets that you can print and use to evaluate each solution you are considering. Print out one copy of the worksheets for each solution being considered. Each buying criteria set and associated capabilities is represented in the worksheets, split up between *Required* or *Optional* features.

Mousepads

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Ergonomic Design		Available in multiple color			
Memory Foam Wrist Rest		Available in multiple sizes			
Non-Slip Base					
				Total Optional Score	

For *Required* capabilities, assess whether these capabilities are available for each solution. For *Optional* capabilities, assign a value in the **Importance (Imp.)** column representing how important each capability listed is to your organization on a scale of 1-10 (with 10 being very important). Then in the **Score** column, assign the solution a subjective score, again on a scale of 1-10, with 10 being the highest. Multiply each **Importance (Imp.)** value with the corresponding **Score** value to get the **Calculated (Calc.)** value. Add the **Calculated (Calc.)** values to get the **Total Optional Score**.

Your worksheets should look something like this when completed:

Mousepads

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Ergonomic Design	✔	Available in multiple color	1	1	1
Memory Foam Wrist Rest	✔	Available in multiple sizes	5	10	50
Non-Slip Base	✔				
				Total Optional Score	51

Lastly, compare the availability of *Required* capabilities, and each of the Total Optional Scores for each solution being considered to determine which solution is right for your organization.

Buying Criteria Detail

Voice Quality Monitoring

PSTN Monitoring

Collaboration Monitoring

Network Performance Monitoring

Integrations

Voice Quality Monitoring

Businesses that once relied solely on legacy telephony now find themselves leveraging Teams to allow users to have access to a corporate "phone system" regardless of where they are working. This criteria section focuses on what aspects of voice quality can be monitored and acted upon to not just detect issues but be able to work to address them.

Required Features

- **Integration with Teams Call Analytics Data:** Because most organizations now support a hybrid workforce, it's important to be looking at call data for each user. By utilizing the data provided by Microsoft Teams' Call Quality Dashboard and Call Analytics features, it becomes simple to monitor the individual user, groups of users, and locations centrally, gaining insight into the scope and source of a problem.
- **Measurement of Key Performance Indicators:** The tried-and-true core call quality KPIs that have helped to determine call issues for decades still ring true with Teams. Solutions should measure *jitter, audio packet loss, and failed calls*. Additionally, meaningful metrics, such as *% uptime and dropped calls*, should be available to provide indicators of potential problems.
- **Graphical Dashboard View:** Teams voice performance should be presented in a graphical view that conveys the relationship between the call data and the associated user, device, location, infrastructure, etc., as well as building/location information, if supported and provided.
- **Filtered Views:** Monitoring calls strictly on a per-user basis won't scale and doesn't provide context around a problem. Call data should be able to be viewed based on any of a number of turnkey and/or custom categories including location, ISP, connectivity type, operating system, and more.
- **Granular Visibility:** No one wants to be presented with a massive table of users and properties to sift through; the expectation today is to make the data understandable and actionable. Solutions should include a variety of dashboards with an ability to drill down contextually into specific views and, eventually, down to specific users. Once looking at a specific user, visibility into raw call properties of the user should be feasible.
- **Alerting:** Beyond the fact that sending alerts is a staple in the monitoring world, it's also necessary so IT can be aware of issues materially impacting more than one user.

The Challenge of Monitoring Voice in Teams

Consider the parts of a potential path voice calls take when made within Teams – endpoint, home network, home ISP, VPN, corporate network, corporate ISP, Internet path to the Microsoft 365 Cloud, route to Teams servers, Teams services, and (depending on who's being called) outbound routing to facilitate the call – the problem can be anywhere along the path. The right solution sees it all to help identify the root cause of a performance problem.

Optional Features

- **Meaningful Summary Views:** In addition to an expected dashboard view, additional useful views such as “top users”, “top location”, “ISPs”, etc. can be provided to add value and improve ease of use.
- **Upload Building Data:** A data file containing details about network IP address ranges can be uploaded that helps identify and present the ranges in a user-friendly manner within a graphical view by including building name, address, and more for each IP range.
- **Use of Other Monitoring Sources:** This allows monitoring teams to cross reference voice call metrics with other relevant data, such as Microsoft 365 service availability, internal infrastructure, Internet routing performance, and more.
- **Client-Based Metrics:** Having one or more end-client-based metrics to better understand how they are experiencing calls can help identify a problem Teams call data isn’t showing and provide additional context into the root cause.
- **Reporting:** Turnkey and custom reporting can provide decision makers with historical performance detail. Some solutions offer reporting in the form of custom dashboards, while others provide more traditional reporting, exportable to PDF for easy offline access to report detail.

PSTN Monitoring

Those organizations leveraging Microsoft’s support for PSTN voice calls face an added layer of complexity when monitoring call performance. This criteria section is specific to PSTN-related functionality and assumes the presence of at least the required Voice Quality features mentioned in the previous section.

Required Features

- **Visibility Into Teams PSTN Connectivity:** It’s necessary to understand how the Teams environment is configured to use Direct Routing, Phone System, Operator Connect, Calling Plan, and SBC log data.
- **Intuitive User Experience:** In addition to an assumed ability to measure *jitter, audio packet loss, Round Trip Time (RTT), and failed calls*, the solution should also have an ability to measure and utilize PSTN-related call details to help further identify the scope and source of an issue. These include the trunk in use, call type, final SIP code, network effectiveness ratio, and more.

Monitoring PSTN Calls is Complex

The integration of PSTN technology into Teams implies the use of a PBX (or Microsoft’s Phone System), Session Border Controllers, and legacy telephony technologies – some or all, of which, the organization has no control over or visibility into. The right solution finds ways to provide visibility into call quality over PSTN, as well as where within the mix of technologies the problem resides.

Collaboration Monitoring

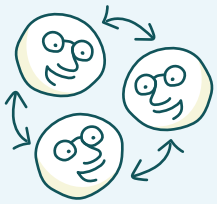
Teams was designed to be "the" place for groups of users to interact on common projects, providing them with the needed tools to share content, discuss ideas, schedule meetings, and create a tailored digital workspace that meets the needs of the specific team using it. To accomplish this level of online collaboration, Microsoft uses nearly all of its key services to, in total, present itself as Teams. This criteria section will outline those monitoring features needed to ensure a complete picture of the organization's ability to utilize Teams collaboration.

Required Features

- **Monitoring of Collaboration Actions:** Getting to the root of a generic problem like "Teams is slow" means having an understanding of which parts of a user's interaction with Teams are working well and which are either non-functional or having issues. From a monitoring perspective, think in terms of actions such as authentication, chat, use of channels, conversations, wikis, meetings, messages, documents, and more. The solution should provide either an end-client-based method of measuring the performance of each collaborative action or use synthetic monitoring to simulate collaboration actions. In either case, the data should be centrally available to monitor actions alongside other aspects of monitoring Teams.
- **Monitoring of All Underlying Teams Services:** Because Teams is made up of several Microsoft 365 services (Exchange Online, SharePoint Online, OneDrive for Business, Azure AD, Planner, and Power BI), the solution should integrate the Microsoft 365 availability data to provide insight into why collaborative actions may not be working.
- **Meaningful Views and Drilldown Capabilities:** As with Voice monitoring, collaboration requires a flexible and useful dashboard, capable of narrowing the scope and source of a problem using service heat maps, views by location, network, client type, and more.

Optional Features

- Client-Based Experience Metrics: Seeing how a user themselves experiences an interaction with Teams can provide additional context, helping to further ascertain whether the problem revolves around the endpoint, the user's personal network, their connectivity to the corporate network, etc.



What's the Right Way to Measure Collaboration?

The biggest challenge with monitoring collaboration with Teams is that you theoretically need to be watching a given user from one end or the other. Since Teams doesn't provide visibility into the user's collaborative experience, you have two options: Agent-based monitoring, which often only monitors browser-based interactions with Teams, and only indicates a problem when it happens. And Synthetic transaction-based monitoring, which proactively simulates what a user is experiencing and can identify a problem before users even start their day. Consider not just what is monitored when selecting a solution, but also how to ensure you have full visibility.

Network Performance Monitoring

Teams performance doesn't exist without connectivity between the end user and the Teams services. To properly isolate the source of a problem – particularly if the problem is related to connectivity – visibility into network performance is a necessary component to monitoring Teams. This criteria section will outline the features needed to provide you with the needed visibility.

Required Features

- **Integration with Network Monitoring and Diagnostic Tools:** Most organizations already have a solution in place that watches the performance of the network and it is rich with performance data. Solutions should be able to leverage the very same monitoring data to ensure consistency in monitoring, issue identification, and response.
- **Measurement of Leading Performance Indicators:** Core metrices used to determine network latency issues, such as jitter, packet loss, and TCP Ping Connection time should be readily presented in both a high-level "green/yellow/red"-type dashboard, as well as within useful views based on geography, ISP, office locations, and more.
- **Meaningful Views and Drilldown Capabilities:** As with Voice monitoring, collaboration requires a flexible and useful dashboard, capable of narrowing the scope and source of a problem using service heat maps, views by location, network, client type, and more.

Optional Features

- **Monitoring of Network Paths:** The healthy and fast connectivity use of Teams requires doesn't span a single network; it consists of the user's home network, the VPN they use to connect to the office, the corporate network, the organization's ISP, the Internet, and the network infrastructure within the Microsoft cloud. And not every user takes the same path. Solutions that have visibility into the specific path taken by each user provide hop-by-hop insight into network performance metrics along the way from the user's endpoint all the way to Teams.

Why Monitor Network Performance?

If you stick with just monitoring the various types of user interactions with Teams, you lack context around how the network path taken impacts Teams performance.

- **Visibility into Network Infrastructure and Services:** Teams traffic may be routed through the corporate network, following an internal path that spans networking hardware, security scanners, proxy services, and more. Having an ability to see whether the managed parts of your internal network are performing aides in determining root cause outside of the Teams sphere of influence.
- **Connectivity Visibility:** Understanding how an impacted user connects to Teams is important. Solutions having visibility into the existence (and use of) a VPN or cloud proxy provide additional context to solving issues.
- **DNS-Specific Metrics:** It's not often that DNS is the problem, but some solutions provide visibility into the DNS configuration for a given user, and the DNS resolution time to offer insight into whether DNS is the source of an issue.

Integrations

The real value in a monitoring solution comes from its ability to provide a greater view of more than just the symptom, as well as its ability to help resolve the identified problem. And with organizations heavily relying on Teams to act (in many cases) as a digital version of the workplace, it's necessary to ensure the solution chosen does much more than just notify there's a specific problem. This section will cover four key types of integrations a Teams performance monitoring solution should incorporate – *Microsoft 365*, *Data Sources*, *Ticketing*, *and Automation*. Some of the selection criteria may overlap with previous criteria sections, while most found here are completely new.

Microsoft 365

Realizing there's a problem with Teams could merely be the leading indicator of a much greater problem impacting, say, an entire office in London that is having problems authenticating. So, it's necessary to have as great a visibility into all of Microsoft 365 as you do Teams.

Required Features

- **Monitoring of User Actions:** As with Teams, Microsoft does no provide any of this data, so it's necessary that the solution provide synthetic transaction monitoring to simulate user transactions within the organization. This includes activity at a minimum with Exchange Online, SharePoint Online, OneDrive for Business, Azure AD, and ADFS. The activity data should be centrally available to be monitored alongside the monitoring of Teams.

Going Beyond Just Monitoring

Any monitoring solution on its own only provide so much value. It's necessary for monitoring solutions to access (or be accessible to) an ecosystem of 3rd party solutions to add value around better detection, investigation, identification, and response.

- **Monitoring of All Services:** Having visibility into both the availability of Microsoft 365 services within your tenant, as well as their response time to user actions provides valuable context into what the actual problem is and who it impacts.

Data Sources

Think about the value of seeing beyond just Teams and how understanding the state of the greater set of Microsoft 365 services and interactions can help better define a performance problem. Now take this and apply the same concept to data sources completely outside the world of Microsoft 365 that may provide similar value to your monitoring efforts.

Optional Features

- **Cloud Provider Integration:** Monitoring interaction with other clouds, such as AWS or GCP, helps to identify when the issue is internal.
- **SaaS App Monitoring Integration:** It's far more likely that the team responsible for monitoring Teams is going to be responsible for ensuring users are productive on every application. Many cloud-based applications provide monitoring metrics that can be used to detect problems.
- **Network Monitoring Integration:** Leading network monitoring solutions will likely have far better visibility than any Teams and/or Microsoft 365 performance monitoring solution.
- **Vendor-Specific Monitoring:** Should you have an ability to pull metrics from vendor-specific infrastructure, you will have a much better idea when the specific issue stems from within your network.
- **Multiple-Instance Support:** This is a technicality, but an important one. It is helpful if any data integrations aren't limited to a single instance. For example, you may have two implementations of a network monitoring solution, each monitoring a different location; you should be able to incorporate both of them to have far greater visibility.

Ticketing

Modern-day monitoring assumes some degree of integration with helpdesk or service desk solutions to open tickets that ensure identified issues get resolved according to SLAs.

Required Features

- **Integration with Leading Ticketing Solutions:** This includes helpdesk, service desk, and project tracking solutions and should include (at a minimum) the creation of tickets.

Teams is Just the Beginning

Once you begin monitoring Teams for its performance, you'll quickly see the value in monitoring the performance all of your other cloud solutions-and, perhaps some of your on-prem services as well. Each of the data sources you add into your monitoring augment the visibility you have into how well all of your operations (including those cloud apps and environment you don't own) are functioning.

Automation

Some issues can be easily fixed with a reboot or a reconfiguration, so the use of automation can make sense so that you can not only be made aware of the issue, but also rectify it.

Required Features

- **Email / Text Notification:** There should be a number of ways to inform those affected in the field and those responsible in IT of a problem. Some solutions have this functionality built-in while others integrate with feature-rich solutions designed to establish notification and escalation processes.

Optional Features

- **Execute Scripts:** Some solutions support the execution of PowerShell scripts and even pass parameters (e.g., computer name) to the scripts from alerts.
- **Generate Reports:** Some solutions integrate with third-party reporting solutions designed to create custom dashboards, SLA reports, and more far better than any internal solution reporting.

Evaluation Worksheets

Please feel free to print out the following evaluation worksheet pages, filling in a copy for each of the shortlisted vendors your organization is considering.

The online version of this worksheet can be found at:
goto.cg/3oSAzSQ

Voice Quality Monitoring

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Integration with Teams Call Analytics Data		Meaningful Summary Views			
Measurement of Key Performance Indicators		Upload Building Data			
Graphical Dashboard View		Use of Monitoring Sources			
Filtered Views		Client-Based Metrics			
Granular Visibility		Reporting			
Alerting					
				Total Optional Score	

PSTN Monitoring

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Visibility Into Teams PSTN Connectivity					
Visibility into PSTN-specific Call Details					
				Total Optional Score	

Collaboration Monitoring

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Monitoring of Collaboration Actions		Client-Based Exp. Metrics			
Monitoring of All Underlying Teams Services					
Meaningful Views and Drilldown Capabilities					
				Total Optional Score	

Network Performance Monitoring

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Integration w/ Network Monitoring & Diag. Tools		Monitoring of Network Paths			
Measurement of Leading Performance Indicators		Vis. into Network Infra & Svcs			
Meaningful Views and Drilldown Capabilities		Connectivity Visibility			
		DNS-Specific Metrics			
				Total Optional Score	

Integrations – Microsoft 365

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Monitoring of User Actions					
Monitoring of All Services					
				Total Optional Score	

Integrations – Data Sources

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
		Cloud Provider Integration			
		SaaS App Monitoring Integration			
		Network Monitoring Integration			
		Vendor-Specific Monitoring			
		Multiple-Instance Support			
				Total Optional Score	

Integrations – Ticketing

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Integration with Leading Ticketing Solutions					
				Total Optional Score	

Integrations – Automation

Required Features		Optional Features			
Capability	Avail.	Capability	Imp.	Score	Calc.
Email / Text Notification		Execute Scripts			
		Generate Reports			
				Total Optional Score	

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About the Sponsor

Martello Technologies (TSXV: MTLO) is a technology company that provides digital experience monitoring (DEM) solutions. The company's products provide monitoring and analytics on the performance and user experience of critical cloud business applications, while giving IT teams and service providers control and visibility of their entire IT infrastructure. Martello's software products include Microsoft 365 end user experience monitoring and analytics and unified communications performance analytics. Martello is a public company headquartered in Ottawa, Canada with employees in Europe, North America, and the Asia Pacific region.

About the Author

Brien Posey is a 20-time Microsoft MVP, a published author and conference speaker with 20+ years of IT experience, and a Commercial Scientist Astronaut candidate.