



Network analytics unleashed

How network analytics improves
business operations



The network is vital to the performance of every organization. It underpins every electronic transaction and communication, connects business locations and is a critical element of cloud and technology transformation.

All this means that when network issues occur, IT teams are under pressure to resolve them – fast – so that business operations can continue uninterrupted and people can carry out productive work. In the past, this would involve – often protracted and stressful – troubleshooting and debugging activities.

Thanks to recent technology advances, what's called 'automated-ops' is introducing a new approach to network management through which IT teams can tackle network issues more quickly and resolve them more effectively.

But there's more to this evolution. Network analytics also gives IT teams the ability to anticipate, detect, and resolve potential problems before they occur through the analysis and correlation of pre-emptive parameters and indicators.

It's important to understand that most network failures don't happen spontaneously – there's usually a timeframe within which degradation builds up. So, if you can recognize the signs as they start to manifest and take action then and there, your reward will be fewer outages and greater uptime.

Network analytics makes it possible for IT teams to view, flag, hone in on, and automatically respond to network issues in real-time, as (or even before) they happen.

What's more, it's also possible to replay and retrospectively observe historical network events and underperformance and implement predictive and self-healing interventions to ensure that those problems don't recur in the future.

Security is another area that benefits from the thoughtful application of the latest network analytics capabilities.

In this article, we'll get under the hood of modern network analytics and understand why it's the sensible and **responsible choice for businesses that demand uncompromising standards of network performance and security.**

Inject agility into network operations

Perhaps the most obvious use case for network analytics is in using network data to optimize the performance of the network itself. This is something that's become increasingly important as more users and devices connect to the network from the edge and into the cloud, using sophisticated applications and services and generating growing volumes of data.

Networks must not only be up and running and high-performing and resilient but also able to swiftly flex and adapt to change. Here's how advances in network analytics can take network operations to a whole new level:



Real-time analytics – stay in the moment

A long-term thorn in the side of network managers has been the need to analyse individual application usage, patterns and flows of network traffic as they're occurring.

The good news is that today, network analytics has evolved to the point where IT teams have at their disposal real-time, interactive dashboards that allow them to continually check the health of their network and applications and continuously monitor traffic flows. This puts them in a strong position to identify and respond to business-impacting events as they happen.

The high level of granularity of these advanced network insights is made possible by multidimensional visualization of application performance, utilization and the end-user experience. The result? Businesses get a clear line of sight into issues at the site level, application layer or even individual-user level in real-time.



Predictive analytics – back to the future

In addition to having immediate, real-time visibility into network performance, advanced network analytics capabilities offer you detailed retrospective analytics such as replay functions as well as forward-looking predictive analytics.

Retrospective network analytics allows you to get a view of how applications are performing across network connectivity at a given time (i.e. at the site). By analyzing and measuring huge amounts of performance data, you can playback the timeline from that point as if it was a DVR recording. This allows IT Operations to determine the exact point in time a degradation occurred, the impacted applications and potential causes that may be affecting it. Predictive analytics on the other hand allows you to learn from past data of performance issues (potentially over many years and involving multiple devices) and the causes that led to them.

You can prevent issues in the future when similar past event data patterns occurred and quickly identify remediation solutions that will prevent them from happening again in the future. How does this work? As opposed to traditional diagnostics, predictive network analytics leverages big data, AI and machine learning to detect conditions where the abnormal behaviour of a network device is likely based on historical events. In some cases, network adjustments or repairs can then be carried out automatically through a self-healing functionality such as an automated equipment reset or traffic rebalancing. Importantly, advanced network analytics also eliminates the potential for 'false positives' – that is, occurrences that are truly one-off events and don't represent any notable trend or pattern.

Enable safe and productive hybrid workplaces

Many businesses in the post-pandemic era are still supporting a distributed workforce. They're accommodating work-from-home arrangements for many employees who are now logging into cloud-based applications and private networks from remote locations. The network is now required to support user demands that no longer originate from their traditional office headquarters.

Consider this scenario: An entire team in a particular region gathers for a quarterly virtual Town Hall meeting using Microsoft Teams or another cloud-based productivity tool. If most employees are joining from home, the demands placed on the network could result in performance or accessibility issues and a suboptimal user experience. If you can preemptively increase network capacity and/or optimize the applications involved, you can side-step these issues.

Support new data-driven demands

In geographies where the pandemic is under control, many businesses are gradually re-opening their physical office locations. This means that links that have been underutilized for a year or so during lockdowns are suddenly being called upon once more to support high volumes of user traffic.

Then there are the new demands on the network to consider brought about by smart/safe building technology. For example, businesses are implementing data-driven initiatives such as location-based tracking to monitor workspace occupancy in office environments. This helps them adhere to physical distancing protocols within their open-plan spaces and ensures that employees book meeting rooms with the right capacity for the number of people attending. There's also a growing emphasis on monitoring other aspects of the physical environment, such as air quality, energy consumption and room temperatures.

All these initiatives require large volumes of data to be collected and processed, which places an additional burden on the network.

Network analytics lets IT leaders keep their finger on the pulse of their network's performance – and the fluctuating and geographically dispersed user and operational demands being placed on it – at any given time. It does this at the application, user, device and location level. In this way, any potential issues, bottlenecks, or application overloads can be anticipated and mitigated before they impact employee or operational productivity.

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Shore up security defences

The lines between security and networking are becoming increasingly blurred, especially given the rise and mainstream appreciation of remote working as an entrenched model. Advances in network analytics capabilities can cut through the complexity and introduce a new level of visibility and awareness into security threats (both present and future) and, even better, automate away much of the effort involved in mitigating them.

Root out malicious patterns

While traditional security analytics uses specific tools to monitor features such as firewall logs, network analytics goes a step further by identifying malicious patterns and potential attacks. If you can proactively anticipate security threats, you're in a stronger position to protect against them and avoid the disruption they typically leave in their wake.

Unmask behavioural-based threats

Network analytics is particularly useful in identifying behavioural-based threats. A baseline model of the network can be created over time, and alerts raised when abnormal behaviour is detected. Alerts can trigger an incident for the cybersecurity team to respond to, or for a security control to automatically mitigate the threat and significantly decrease the time to respond. Network analytics can also help demonstrate compliance and can be used in a forensics process if there's a need to get into the detail of an incident.

Four requirements for operationalizing the network analytics opportunity

Getting the most out of network analytics goes beyond technology alone. It requires a mindset, cultural and behavioural shift. We believe that unleashing the true potential inherent in network analytics requires a four-pronged approach:

- 1 A clear vision and ambition: Start with a clear, well-articulated vision of the future and then translate this into an actionable ambition.
- 2 The correct balance of skills and capabilities: This includes domain expertise, data science and computer vision. Also consider what additional skills, partners and capabilities are needed.
- 3 Appropriate infrastructure. Put in place the right platforms to enable data exploration and ensure the quality of data sets collected.
- 4 An insight-to-action mindset: Embrace new ways of working. This includes an agile approach to development that allows models and processes to be continually tested and improved upon.

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