e-book

LogicMonitor

Empowering next-gen MSPs with AIOps

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Introduction

To survive and thrive in a competitive space, Managed Service Providers (MSPs) must not only respond to customer needs, but anticipate them. That's not easy in an arena where expectations are higher than ever, and environments are becoming more complex every day. Studies predict that by 2025, more than 80% of public cloud managed and professional services deals will require both hybrid cloud and multi-cloud capabilities from the provider, up from less than 50% in 2020.[1]

To stay ahead of the curve, you need to empower your team with the insight and automation they need to lead customers to where they should be. Many MSPs are discovering that Artificial Intelligence for IT Operations (AIOps) points the way forward. In this book, we will provide an overview of AIOps, and what it can help MSPs achieve today and tomorrow.

We'll start with a short overview of AIOps and how it enables a more observable, agile environment. We'll walk through some of the basic building blocks of the early warning system that powers AIOps, and show how it can help you go from a reactive to a proactive organization. We'll also talk about what to look for if you're putting an AIOps platform in place.

Next, we'll talk about how you can put AIOps into play for common use cases in your environment. We'll take a deeper dive into dynamic thresholds and root cause analysis, and the outcomes they can deliver. We will also show how forecasting can help your team streamline planning and get more out of your limited resources. Finally, we'll discuss some new AIOps capabilities that are just over the horizon.

[1] Gartner, Magic Quadrant for Public Cloud Infrastructure Professional and Managed Services, Worldwide, Craig Lowery, To Chee Eng, Scot MacLellan, Ross Winser, Brandon Medford, 4 May 2020.

Section 1:
What is AIOps for Monitoring?

Chapter #1: Introduction to AIOps

Businesses in every industry are embracing managed services. Clients love the business agility, access to innovative technologies, scalability and flexibility that managed service providers (MSPs) offer. According to Grand View Research, the global managed services market size was valued at $215.14 billion in 2020 and is expected to expand at a compound annual growth rate (CAGR) of 12.7% from 2021 to 2028.[2]

In today's increasingly hybrid world, the managed services marketplace is a compelling opportunity for providers who can deliver the customer experience, consistent performance, and availability their clients demand. But managing increasingly complex, cloud-powered infrastructures is becoming more difficult all the time.

To differentiate, you need to achieve complete visibility across all devices and client environments—whether cloud or on-prem. You must meet fast-changing client needs, deploying new services fast, and automating onboarding for clients. You also need the ability to discover future issues before they impact your customers, with real-time intelligence into your customers' environments. AIOps delivers all these capabilities—and much more.

The IT Landscape is Constantly Evolving

Expectations are changing for MSPs as customers become more demanding, competition grows, and the pace of business accelerates. These challenges are compounded by infrastructures that are becoming more complex, diverse, and dynamic every day. Chances are high that you're already grappling with a mix of on-premises, private cloud, and classic hosting providers. On top of that, you're now managing public cloud, SaaS, and new technologies for remote workplace. This modern stack means more vendors to manage with lots of moving parts that need to be watched.

Increasing Complexity, Labor, and Costs

For MSP professionals on the front lines like systems, network, and monitoring engineers and administrators, mean time to repair (MTTR) is the name of the game. These individuals are relentlessly focused on responding to issues, resolving help desk, break-fix, and customer issues, and closing out tickets fast.

Higher-level individuals like service delivery managers and directors are more focused on overseeing the customer experience, onboarding, and managing multiple issues and escalations.

Whether they are administrators, engineers, or managers and executives, MSP professionals at every level are short of time, with a lot to manage—and time is money.

These professionals manage a wide range of clients, with a wide range of requirements. Every day, they contend with:

- **Complex environments across many customers**
- **Limited clarity and visibility across multiple environments**
- **Escalating alert noise from a growing volume of clients**
- **Tool sprawl, driven by evolving customer needs**

Qualified practitioners are hard to find in a competitive landscape, making the ability to do more with fewer hands increasingly important. And as you add new customers, headcount is likely to increase, limiting your ability to scale and remain profitable.

[2] https://www.grandviewresearch.com/industry-analysis/managed-services-market

AIOps Delivers Real Benefits for MSPs

AIOps delivers the deep observability, advanced AI, and automation that today's MSP professionals need to address their top challenges. It is an infrastructure management approach that applies ML/AI algorithms to automatically detect anomalies in an infrastructure, application, or service, before they become problems, building on observability, automation, and an early warning system.

It delivers the insight required to support more stable, highly available customer-facing services. With AIOps, you can determine which applications and infrastructure issues are most likely to impact the stability of your environment—and the user experience—and take steps to prioritize and eliminate them.

This sets the stage for a wealth of positive outcomes, enabling you to:

- **Apply Automation:** Automation lets you boost your organization's productivity, to free your team from manual, time-consuming tasks to solve more difficult and important problems for clients.
- **Improve Productivity:** AIOps helps you do more with less. It ensures that alerts are sent for anomalies, eliminating the need for manual management of monitoring thresholds, enabling you to increase your monitoring ROI.
- **Faster MTTR**: Alert notifications that identify the root cause and filter alert noise enable your team to zero in on resources that play a key role in outages and more quickly identify and resolve issues.
- **Manage Root Cause Analysis:** AIOps automatically discovers relationships between monitored resources to identify the root cause for triggered alerts, then notifies you of the issue that started the problem, so you can solve issues faster and maximize uptime for clients.
- **Improve SLAs:** Dynamic thresholds enable teams to identify deviations from normal performance in real time. This enables your team to respond to performance issues before they are even reported by an end user.
- **Rapidly Identify Issues:** AIOps excels at filtering out unwanted "noise." Your team is only notified for the root cause issue, allowing them to focus on what's important, without getting overwhelmed by dependent side-effect issues.

The Role of Observability

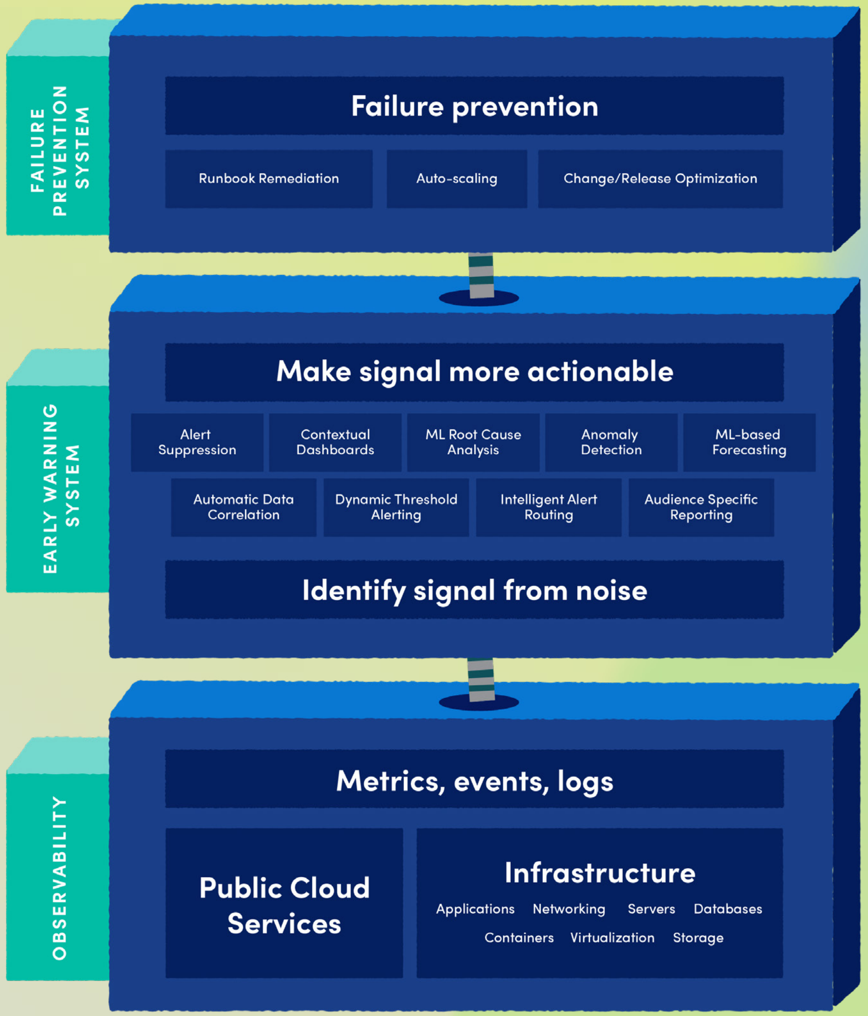
It's more important than ever for MSPs to see more, know more, and do more to deliver a superior customer experience. To meet those expectations, you need:

- Complete insight into your systems, workloads, and processes, including metrics, logs, and tracing
- A deep view across all your environments and services, whether they reside on-premise the cloud, or within microservices
- Timely data to detect performance issues before they escalate into business issues

Observability is a subset of AIOps and monitoring. Simply put, observability is about ensuring that system data is 'observable' from an availability and performance perspective by a monitoring platform.

Enterprise AIOps Platform

An enterprise AIOps platform is composed of three key features: observability, an early warning system, and a failure prevention system.



Chapter #2: AIOps Fundamentals

The strength of AIOps lies in its ability to use AI/ML algorithms to automatically detect anomalies—such as change or capacity issues in an infrastructure, application, or service—before they become problems. It starts with observability as a crucial first step—being able to observe metric, log and application data in context through monitoring. Automation is critical, because it enables AIOps to find anomalies, build insights, and respond to them. An early warning system shows you what is happening, where it is happening, and why it is happening.

Start with an Early Warning System

When your customers depend on you to support their most critical business processes, it's not enough to simply fix problems quickly. You need the ability to see what's coming and respond to issues before they impact your customers.

To deliver these smart, proactive capabilities, an AIOps early warning system requires four key building blocks:

1. Anomaly Detection Spots the Differences

Anomaly detection is what powers the dynamic threshold capabilities in an AIOps early warning system. It gives you:

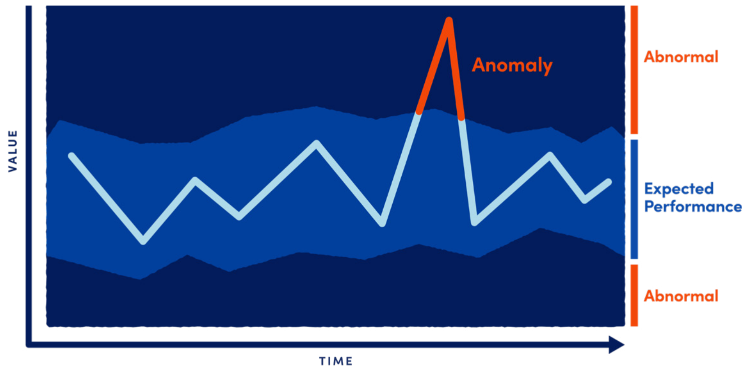
- A holistic view into the health of your resources, and the insight you need to dig deeper and mitigate events that could impact services
- Visibility into deviations that occur within your resources, with the ability to compare anomalies to key historical signals
- The ability to use log information to spot anomalies enrich alerts with context
- Intelligence to understand the expected performance of your resources and know when actual performance is different from those expectations

2. Dynamic Thresholds Reduce Noise

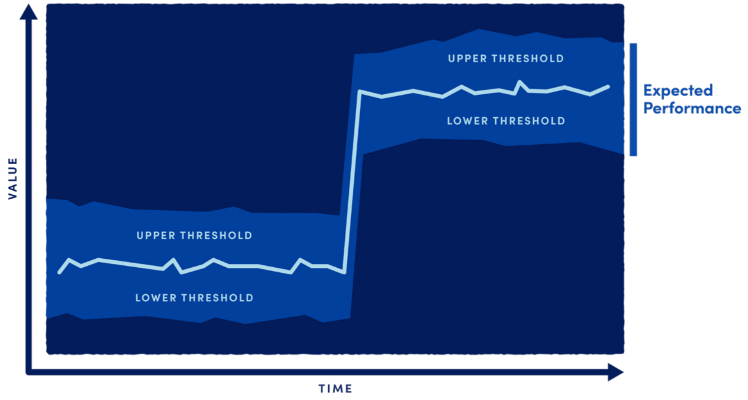
Keeping track of the most relevant issues and events is impossible for service engineers to do manually, especially in large MSP environments. With AIOps, you can set up dynamic alerts that are only sent for anomalies, reducing alert noise, fatigue, and manual threshold tuning. Dynamic thresholds are an AIOps functionality that:

- Use anomaly detection algorithms to detect a resource's expected range based on past performance, and issue alerts for deviations
- Can continue to learn from historical data, and become more accurate, enabling your team to focus better and spot client-impacting issues sooner
- Support seasonal, scheduled events and deliver a superior customer experience to meet requirements of retailers and other vertical clients
- Build on knowledge from previous data to spot anomalies and alert your team about issues, even when thresholds change

Dynamic thresholds are also ideal for supporting disparate environments for multiple clients. Instead of requiring manual thresholds for hundreds or thousands of customer accounts, they can apply automation to easily accommodate customers of all sizes—and reduce manual configuration that takes time and resources.



This graph identifies the anomalous (abnormal) action in red because it exceeds the expected performance range.



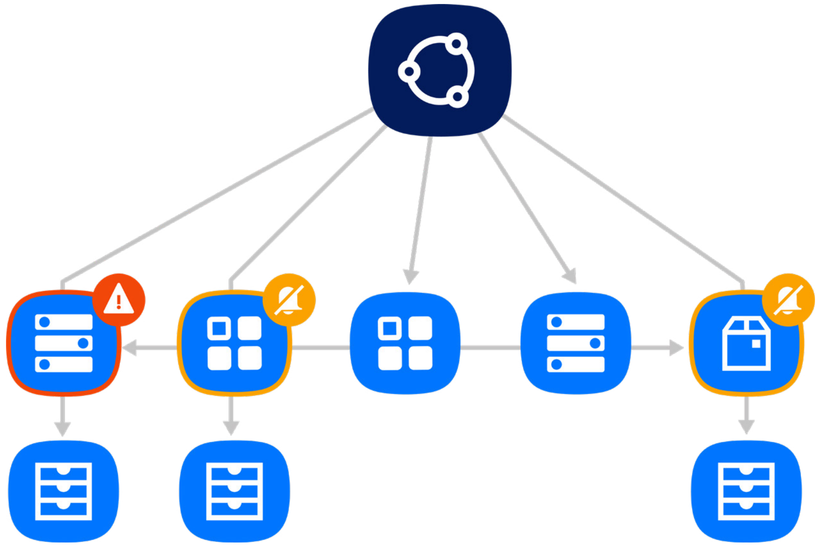
The expected range, or dynamic threshold, is represented in light blue. This range has an upper and lower limit representing normal or expected behavior, anything outside of this range will be considered abnormal or anomalous.

3. Root Cause Analysis Gets to the Source

It's one thing to discover an issue early on, but to be truly proactive in resolving it, a monitoring or service engineer must be able to zoom in and pinpoint the origin of a problem fast, so it won't impact your customers again.

Root Cause Analysis:

- Uses automation to gain insight into relationships and dependencies in your network, informed by topology mapping
- Examines automatically discovered relationships between your monitored resources to identify the root cause for triggered alerts
- Lets you suppress notification routing for alerts dependent on the originating alert, to reduce alert noise and fatigue
- Speeds MTTR by issuing alert notifications that clearly identify an issue's root cause



With root cause analysis users can see their environments visually represented with a topology map. The map reflects what devices are in alert (red error) and the dependent devices where alerts have been silenced (yellow bell).

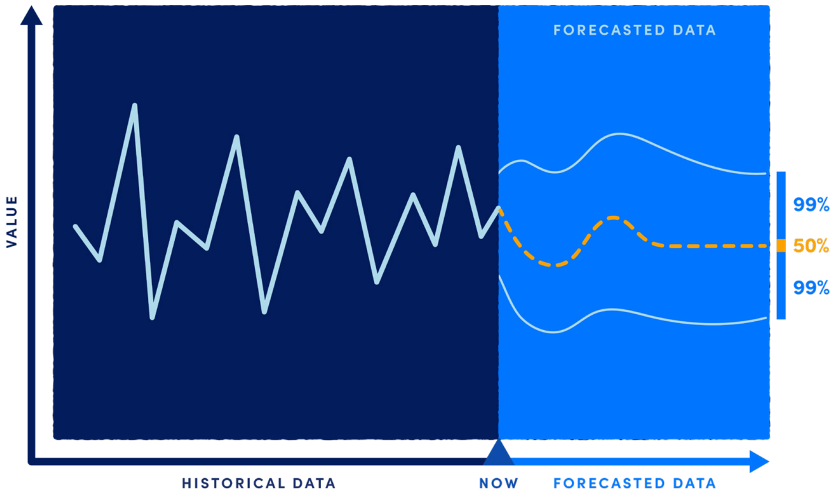
4. Forecasting for Better Planning

Accelerating issue resolution is a compelling benefit of AIOps, but the power of AI really shines when you can use it to get ahead of the curve. Data forecasting lets you:

- Predict future trends for your monitored infrastructure using past performance
- Identify and remove anomalies from the set of data you choose for forecasting
- Apply a capacity trending algorithm to the sample, to find a model that best fits the data you have collected, and calculate future data based on the model
- Work with your alerting system to determine whether an alert represents a one-time anomaly, and requires (or will require) immediate attention

Working Together for a Competitive Edge

AIOps is great for MSPs because it not only helps you solve problems, but continually optimize your environment. It lets you break the endless cycle of reactive monitoring to open up full observability and get out in front of infrastructure issues. That positions you to move from a proactive to a predictive approach, so you can meet changing customer needs faster, and deliver the continuity, performance, and experience your clients expect.



This graph represents a forecasted data range with 99% condifence. Activity represented in the dark blue region is used to understand what future performace looks like and is reflected in the light blue region.

Chapter #3 Implementing Your AIOps Initiative

If you're ready to optimize your Managed Services infrastructure with AIOps, consider some strategic steps before moving forward on your journey. Start by evaluating your business processes, your environment, associated KPIs, and their relationship to how you serve your customers. For example, you may wish to focus on improving MTTR to maximize availability and meet essential SLAs. Determine which KPIs are most relevant, and how you will drive the outcomes you are trying to achieve—and support your customers with theirs.

> *"The first thing I do is log in and look at LogicMonitor because I need to know what the customers are experiencing before they get there"*
>
> **Joeseph O'Daniel,** President and CEO, Unified Connexions

The MSP space is a competitive one, and to stand out from the pack, you will need a monitoring solution that:

- Keeps pace with the speed of business
- Is easy to deploy
- Works seamlessly in hybrid infrastructure environments
- Scales automatically in line with growth
- Extends monitoring to mission-critical applications and devices for clients

A Foundation of Monitoring and Observability

For MSPs, AIOps is all about acquiring insight into the big picture. MSPs cannot afford performance visibility gaps caused by rapid changes to clients' infrastructure. Your monitoring solution should embrace observability by being able to monitor metrics, log, and application data in one platform. The solution should deliver more actionable, fruitful results than a product that is only capable of monitoring discrete cloud, network, or container environments.An effective solution will enable you to:

- Save time and maintain continuity with automation that reduces manual monitoring processes
- Support multi-tenancy and central data collection that are table stakes for MSPs
- Offer pre-built integration with your existing ITSM tools, orchestration and automation, and technology stacks

The Advantages of SaaS vs. On-premises Solutions

Like most technologies, the monitoring and AIOps domain is evolving all the time, with new technologies and better algorithms emerging constantly. At the same time, most IT environments are increasingly hybrid, and cloud is becoming the premier platform to enable global organizations to deliver services and applications.

For MSPs seeking to keep pace with evolving infrastructures and technology enhancements, a software-as-a-service (SaaS) delivery model provides the flexibility and capabilities to fit changing needs. As your clients' business needs continue to change and your infrastructure evolves, your monitoring and AIOps platform should also be able to scale with it.

> *"Most school districts are constrained with budgets, so they are always understaffed and overworked. The ability to have proactive monitoring and alerting really gives them an edge where they don't have to be tied down and watching their environment all the time."*
>
> **Jon Lisenbardt**, Director of Support Services, Unified Connexions

Section 2:

How to use AIOps for monitoring

Chapter #1
Early Warning System

We've talked about some of the challenges that MSPs face, and the infrastructure and market trends that are driving their move toward AIOps. Now we'll take a closer look at some of the ways you can apply AIOps to support today's complex client environments and address your own challenges.

Early Warning System Benefits for Complex Environments

If you're like most MSPs, it's likely you're supporting a variety of different client environments, with some resources in the cloud, and others running on-premises in more traditional data centers. Your clients are less concerned with where these resources are located, and more focused on their ability to deliver the nonstop services they need to run their business—at the performance levels they expect.

Monitoring is key to meeting these expectations, but traditional tools are limited to monitoring just one part of the IT stack. Adding a new cloud service or taking control of a new on-prem infrastructure requires investment in new monitoring tools.

The more you grow, the more complex—and difficult to manage—everything becomes. In a time when so many people are working from home, the management challenges grow if your IT team is working remotely.

75% of MSPs find it challenging to adapt to their new responsibilities of operating large networks with a remote workforce.[1]

[1] https://www.logicmonitor.com/resource/future-of-msp-industry

Uncovering Hidden Issues for Better Operations

AIOps lets you put an early warning system in place to detect signs and symptoms that precede issues, and warn your team about them in advance—before they impact clients.

At the heart of the early warning system are AI and Machine Learning (ML) algorithms that support anomaly detection in any data set, like IT infrastructure metric and log data; dynamic thresholds; root cause analysis; and automatic correlation. Working together, these features sift through massive amounts of monitored data, surface the most important information, then make it more actionable by adding context.

They can also support advanced log analysis, correlating log data to help you understand why issues are occurring. The result is a more informed, proactive IT operations team, shorter mean time to repair (MTTR), and a better customer experience. An early warning system can help:

Prevent downtime: An AIOps early warning system gives IT operations the information they need to proactively prevent problems, instead of reacting to them. It goes beyond traditional monitoring approaches that focus on static alerting and analysis configurations, to support more dynamic environments.

Minimize alert fatigue: According to a recent survey, 47% of organizations experience more than 50,000 alerts per month.[3] When the sheer volume of alerts begins to overwhelm IT professionals, people begin to get burned out. An early warning system surfaces only the most relevant alerts. Using dynamic thresholds, it detects normal performance range and generates alerts based on anomalies, to help you avoid alert fatigue, save time, and surface anomalies sooner.

Open up context and understanding: Providing full insight across the technology stack enables an AIOps early warning system to identify and help prevent issues and let you meet the SLAs your clients expect.

Preventing Problems Instead of Reacting

An AIOps early warning system is the game-changer that lets you break the cycle of constantly chasing down issues after they happen. It makes the flood of data that your managed infrastructure environments are producing more manageable and actionable, and frees your team to focus on the big picture. In our next chapter, we will explore dynamic thresholds, a key element that make up the AIOps early warning system, and illustrate how they benefit your team and your clients.

[3] https://www.bizops.com/blog/how-your-automation-coe-can-help-reduce-alert-fatigue

Chapter #2 Dynamic Thresholds

Much of the real value of an early warning system comes from determining what data is most relevant, separating it from what's less relevant, and notifying your IT team about the issue before it can impact clients. That process starts with improving focus utilizing dynamic thresholds.

Discover the Exceptions with Dynamic Thresholds

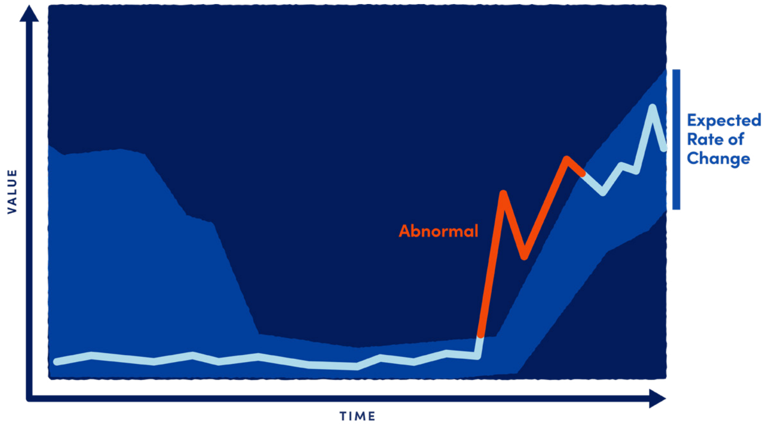
Dynamic thresholds apply AI/ML algorithms to expand on the visual anomaly detection. These algorithms automatically detect the normal performance range for any metric—whether it's a technical or business metric—and accurately alert based on values outside of this range that are considered anomalies.

Since dynamic thresholds and their alerts are automatically determined based on the history of a datapoint, they are excellent for situations where static thresholds are hard to identify, such as monitoring the number of connections, latency, and other criteria in your client's environment.

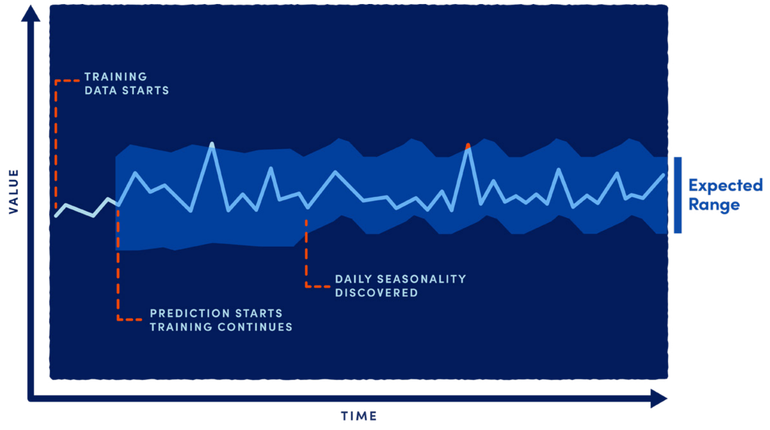
As MSPs increase cloud deployments increase and infrastructures and services become more volatile, dynamic thresholds also give you a more effective way to discover exceptions in these fast-changing environments.

96% of MSPs surveyed say investing in automation is worthwhile because it allows them and their teams to focus on more strategic tasks and initiatives.[4]

[4] https://www.logicmonitor.com/resource/future-of-msp-industry



In this diagram, the light blue shaded area indicates the expected rate of change for a particular metric. This means that an alert will not be generated when the metric is in this range. However, the red line indicates that the monitored metric has moved outside of the expected rate of change and should be investigated.


VALUE
TRAINING DATA STARTS
Expected Range
DAILY SEASONALITY DISCOVERED
PREDICTION STARTS TRAINING CONTINUES
TIME

In this diagram, a daily seasonality pattern has been discovered and learnt by the Dynamic Threshold algorithm. Combining this with rate of change calculations means that alerts are only relevant if the metric deviates from the expected range (light blue area).

Surfacing What's Really Important

AIOps lets you not only trigger alerts by identifying issues that wouldn't be caught by traditional static thresholds, but also helps you eliminate excess alerts from thresholds that haven't been tuned well. This lets you use dynamic thresholds as a filter to reduce alerts to only what is immediately relevant, based on data patterns like anomaly detection, rate of change, and seasonality.

Serving clients better and faster —for less

Combined with other features from an early warning system, dynamic thresholds can help you more proactively prevent problems that result in business impact. They can help MSPs:

Boost productivity: The biggest benefit of dynamic thresholds is their ability to save your engineers time. By detecting a resource's expected range based on past performance, dynamic thresholds reduce alert noise and only send alerts when an anomaly occurs. This means that the alerts that engineers receive are meaningful. They spend less time looking at alerts and can help more customers.

Resolve issues faster: Dynamic thresholds don't make you wait for the static amounts to be hit, which could take hours or days. They quickly detect deviations and determine whether the alert is a warning, an error—or a critical issue that needs attention. As soon as an anomaly is detected, an alert is sent to get human eyes on it. Being able to home in on the exact cause of the alert provides engineers with more context so issues can be resolved faster.

Control costs: Along with saving time and resolving issues faster, dynamic thresholds also allow MSPs to reduce costs. Experienced engineers are expensive, so you need to prioritize where you apply these precious resources at your business. Dynamic thresholds make the task of chasing thresholds easier, so less experienced engineers are empowered to do monitoring and really understand what's going on and where their attention needs to be focused. Less experienced engineers using less time to figure out issues means more money in your pocket.

> *"LogicMonitor's dynamic thresholds save us time and give us peace of mind, because we know we're not going to miss something due to a threshold being slightly too high or too low. LogicMonitor's AIOps capabilities are instrumental to our vision."*
>
> **Wania Konageski,** Global Digital Service Platform Architect, Logicalis[5]

[5] https://www.logicmonitor.com/press/logicmonitor-launches-enhancements-to-aiops-early-warning-system

Chapter #3
Root Cause Analysis

Root cause analysis (RCA) is fundamental to the AIOps early warning system, because it can not only track down the source of issues, but also filter out alerts that aren't related to that source. It takes advantage of the relationships among the resources you are monitoring for clients, to determine the root cause of an incident that is impacting dependent resources. With AIOps, these relationships are discovered with topology mapping.

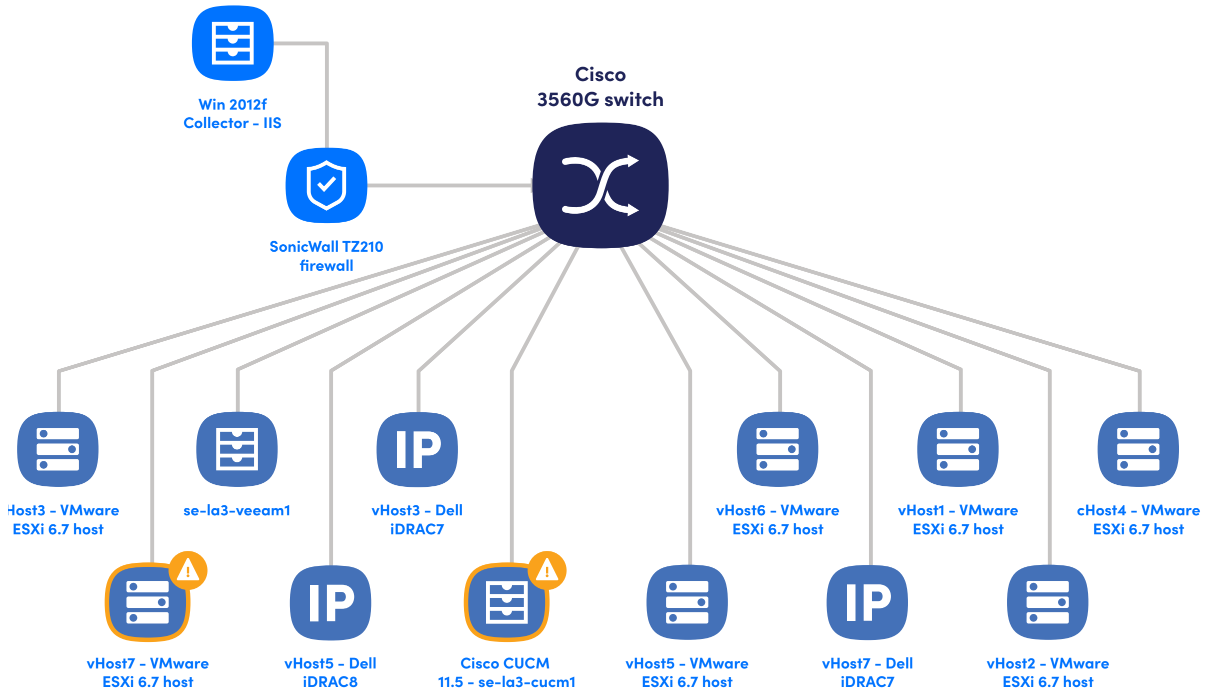
Identifying the True Source of an Issue

For alerting operations, RCA highlights the originating cause of an incident. It also gives you the option to suppress notification routing for alerts that are dependent on the originating alert. This dramatically reduces alert noise for events where a parent resource has gone down or becomes unreachable, creating alerts for dependent resources.

An AIOps failure prevention system can also give you the ability to automate actions that remediate the root cause issue, to save your IT team time and maximize client service availability.

Accelerating MTTR for a Superior Experience

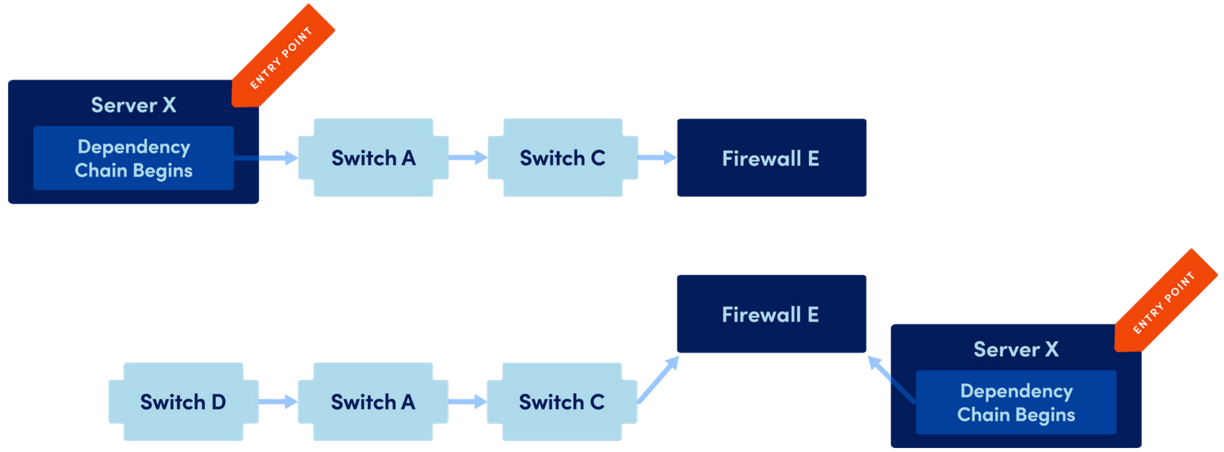
Every day, MSP practitioners and coordinators are responsible for overseeing the customer experience, onboarding new clients, and ensuring that SLAs are consistently met. As your IT team manages complex, hybrid client environments, any relief they can have from putting out fires is more time they can spend on developing new services and planning for growth and improved monetization. As part of an AIOps early warning system, root cause analysis can help you accelerate MTTR to help meet commitments to clients, and stand out in a highly competitive space.



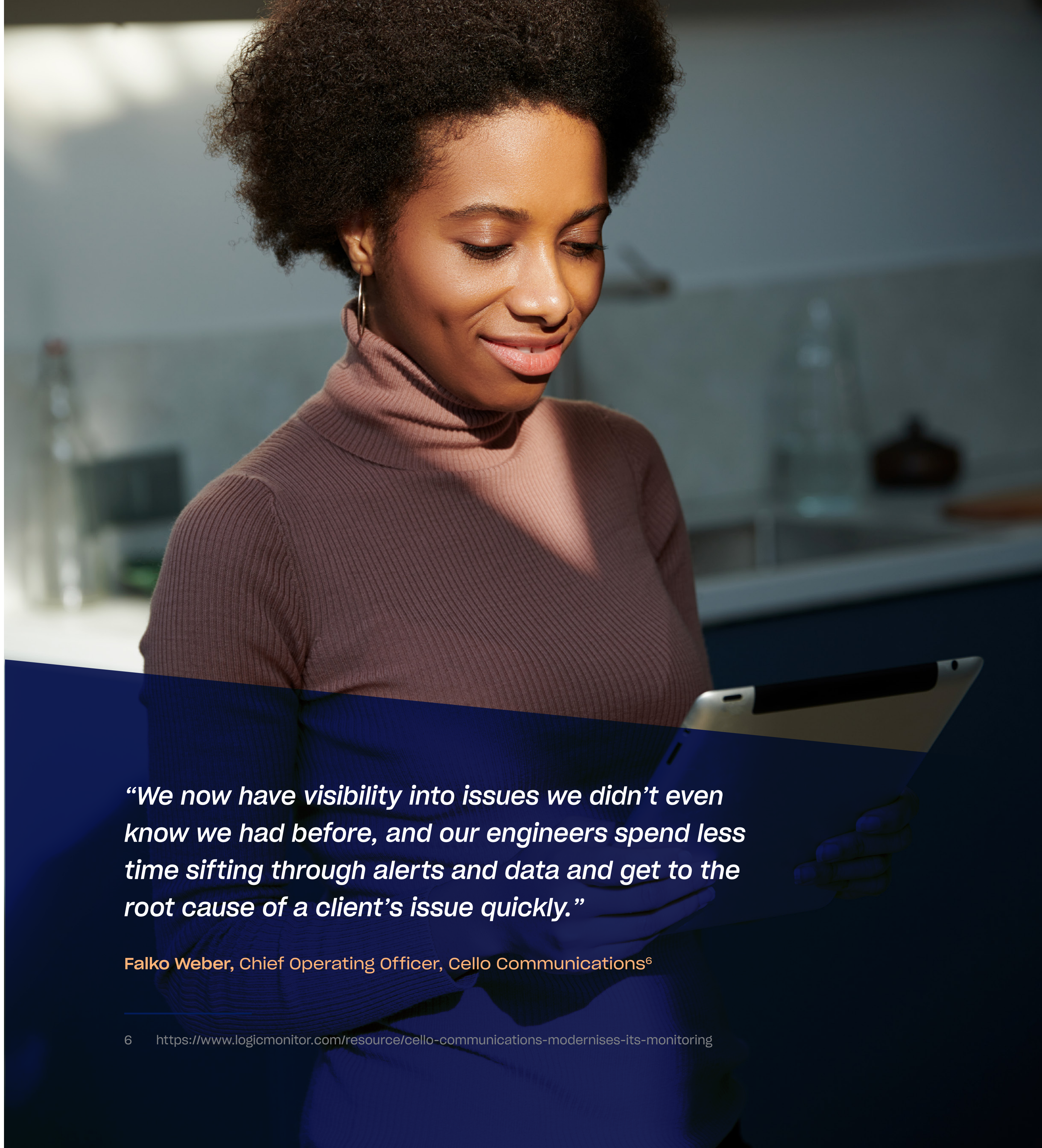
Topology mapping is the visual representation of relationships among elements in your communications network.

Understanding the context of an IT incident can provide the insight needed to greatly reduce the MTTR—and enhance the ability to determine the root cause.

Topology mapping that's part of root cause analysis gives your teams the full context needed to troubleshoot events or incidents that may have occurred, and do it more quickly. Log analysis can also provide valuable insights into how issues are happening, to speed issue resolution. That means more uptime for your clients' most critical business systems and processes, and improved SLA performance to better meet their expectations.



In this diagram, you can see the logical dependency chain starts with Server X. This is the entry point in which RCA configuration should be applied, as it's the start of the dependency relationship. An issue with Server X will cascade to all dependent resources.



"We now have visibility into issues we didn't even know we had before, and our engineers spend less time sifting through alerts and data and get to the root cause of a client's issue quickly."

Falko Weber, Chief Operating Officer, Cello Communications[6]

[6] https://www.logicmonitor.com/resource/cello-communications-modernises-its-monitoring

Chapter #4
Forecasting

For MSPs, strategic planning and anticipating future customer needs is key to staying competitive in a very dynamic marketplace. By taking full advantage of the wealth of data that's in your monitored infrastructure, you will not only respond faster to issues as they're happening; but also predict where you're headed, especially from demand and capacity perspectives.

Demand and Capacity Planning Data Forecasting

When forecasting data, AIOps capabilities first identify and remove anomalies and missing data from the set of data you choose for forecasting. Then they apply a capacity trending algorithm to this sample to find a model of best fit for the collected data which then calculates future data based on these model parameters.

Forecasting is an AIOps feature that is especially helpful for discovering and mitigating issues before they impact services. When you pair it with anomaly detection, it helps you to understand what requires immediate attention, or will require attention in the near future.

Consider what would happen if you received a warning alert indicating that disk usage at a client's environment was at 85%. Your top question will probably be, "how much time until the disk hits 95% usage?" You might have plenty of time to act before disk usage reaches this critical threshold, or it could happen in just a day or two. Forecasting can help you analyze the past rate of rise, so you can predict the future rate.

Improving Resource Management

Forecasting is also helpful to assist service delivery managers and directors with budget planning and resource management. For infrastructure components that have lifetimes associated with them, forecasting based on the predicted health and performance of monitored devices can give you insight into the timeframe and magnitude of recurring events. It can also help you anticipate and plan for upcoming expenses.

AIOps forecast graphs provide several different capabilities that you can use to derive additional context from the data presented. For example, they can enable you to control:

Time range for collected data: You may wish to select a time range for the collected data, such as training data, that will be used as the basis for the forecast. Your solution should enable you to, and one year. You should be able to apply data from the time range you choose to calculate the forecasted data.

Time range for forecasted data: You should also be able to select the duration of the forecast, choosing to forecast out seven days, 14 days, one month, three months, or even a year forward.

Topology mapping is the visual representation of relationships among elements in your communications network.

An effective AIOps solution will also offer different approaches that you can employ to calculate and display your forecast, such as:

- 95% confidence forecast - this method projects lines that represent forecast values as well as upper and lower confidence bounds. These confidence bounds indicate that AIOps is 95% confident that future datapoint values will fall within this range.
- Line of best fit forecast - this method draws a single straight line that best fits forecasted data. This is generally a more useful option if your data points are highly variable.

Streamlining the Planning Process

With its ability to help you spot issues before they trigger alerts, forecasting is an essential tool to minimizing downtime that could impact your clients, your own operations, and your reputation. It can present data in an intuitive graphic format, and also provide insight into future network health issues, to help you plan more efficiently, scale better to anticipate new customers and service requirements, and manage future time and expenses better.

Section 3:
The future of AIOps

Chapter #1

Putting AIOps use cases into action

The power of AIOps lies in its ability to empower your IT team to address increasingly strategic responsibilities and challenges. For MSPs, it delivers the insights and automation needed to discover and resolve issues faster, and make better, more proactive solutions. The result is a superior customer experience, more efficient, agile operations, reduced cost, and better resource utilization.

Let's take a closer look at some use cases that demonstrate how AIOps can enable MSPs to achieve these competitive advantages, and position themselves for continued business growth in the future.

> *"We have a huge infrastructure. Our installed base is in more than 70 locations around the globe...[and] we couldn't see the whole picture... Since deploying LogicMonitor, we have one tool and one location where we can see across all our infrastructure. This is a huge improvement for our efficiency.*
>
> *It helps us to be proactive and catch errors before they start to be a big problem...The fact that we don't need to manage and control 80 dqifferent servers just to monitor all of our infrastructure is a big difference. Now we have only one. The time savings are huge. I can't even calculate them, but I would say hundreds of hours."*
>
> **Idan Lerer**, Senior Director, US Operations at Optimal+ Ltd1

Enhancing the Customer Experience

Delivering a superior customer experience remains top of mind for MSPs. Because they are required to monitor hardware and performance across multiple, diverse, customer environments and services, AIOps can deliver the visibility and insights that today's MSPs require to support customers more effectively.

For example, a growing MSP in the Netherlands provides deployment and management of ICT infrastructure, including networking and Wi-Fi, cloud services, IP telephony, hardware, and software. Its existing management tools lacked performance monitoring, and provided only limited ability to monitor the latest generation of server hardware, and no options for configuration management. Deploying an IT infrastructure monitoring and observability platform, AIOps capabilities, enabled the MSP to gain visibility into its entire environment and take advantage of data collection sets, pre-set activity thresholds, and automated alerts.

The overall result is improved performance and availability for customers, together with improved more agile, efficient IT operations.

Empowering IT Operations with the Big Picture

IT operations professionals know that when an incident occurs and your network or client service is impacted, it's typically the result of a chain of events. From a security breach to a complete system outage, a problem with one service can easily spread to impact another service.Before long, you're facing a problem that's compromising overall availability or performance, which ultimately damages your client's experience.

Because the chain of events for outages often involves a combination of technical and process issues, it can be hard to identify the root cause and understand why the issue occurred in the first place. AIOps connects the dots and develops the context needed to understand the root cause of issues faster, so you can spend less time troubleshooting and more time driving innovation and meeting customer needs.

Driving Innovation and Agility with DevOps

Like most business initiatives, DevOps is increasingly |driven by cloud strategies, which can deliver more value to customers faster. AIOps can provide the full visibility of your IT infrastructure and workloads—whether in the data center or cloud—required to successfully manage a DevOps environment.

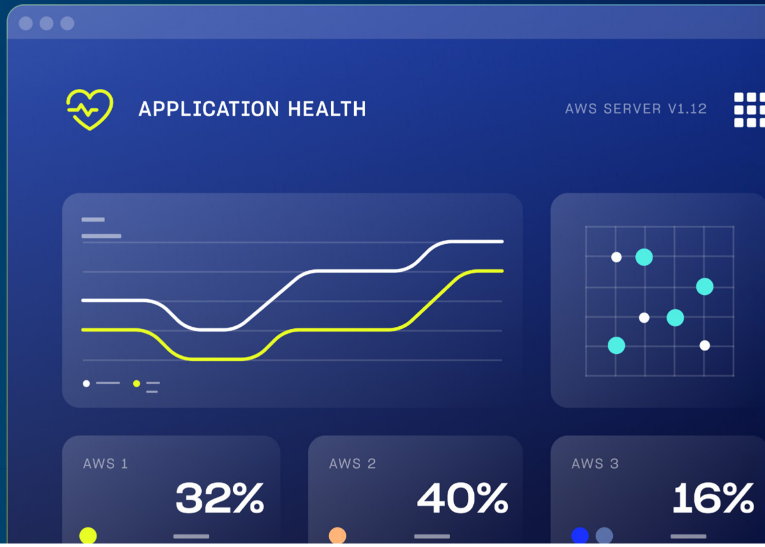
Several anomaly detection techniques are available for anomaly detection, but it's not always clear what's best for each issue. A modern monitoring and observability platform that incorporates AIOps capabilities should process data in a stream, keeping the system agile so it can quickly adjust and use the right algorithm.

[1] https://www.itcentralstation.com/products/logicmonitor-reviews/reviews-container

Chapter #2

Future Directions for AIOps: Automated Issue Remediation

AIOps delivers powerful outcomes for MSPs now, but many more benefits are just over the horizon. As AI algorithms and other technologies continue to mature, the ability of AIOps to augment human intelligence and accelerate action is setting up new possibilities.



Driving Optimization with a Failure Prevention System

Using a failure prevention system, AIOps continually learns about your clients' environments to optimize your technology stack, to put you in a strong position to differentiate with the best customer experiences, and stand out from the also-rans.

Defining and automating action

A failure prevention system builds on the data that is gathered and analyzed by AIOps, and increases the level of automated options, integration with other tools and systems, and proactive capabilities.

For example, if you're an IT practitioner, it could give you the ability to:

- Define a specific action, such as execution of a custom script
- Set up a predefined action in response to an alert
- Automate those predefined actions in response to specific alert using a rules-based engine

Tracking the next wave of AIOps

The technologies that form the basis of AIOps are evolving rapidly, creating new possibilities for future AIOps solutions.

AIOps is moving from one data type to multiple data type algorithms

In the near future, data scientists will be designing AI algorithms for multiple data sets together, instead of just one. It will look at the metric, log, and transaction data, how they correlate, and what signals actually can be filtered out of all that noise to make troubleshooting issues faster. These algorithms for multiple data types will help you save time by enhancing early warning systems and filtering signals from noise more effectively.

Remote work is driving AI adoption

For many companies, remote work remains the new normal, with the workforce generating data from diverse locations. These disparate data streams are difficult to analyze manually due to the sheer volume of the data. AI can automate complex processing of disparate data sources and help you predict problems before they occur at an individual level, by detecting similar patterns in large volumes of data.

AIOps will become more embedded in observability platforms

Observability platforms look at metrics, dependencies, and logs, bringing them together to connect the dots between the different data types. Incorporating AIOps and automation into these platforms reduces the time required to predict and fix problems before they impact your business. The usage of observability platforms in organizations is on the rise, along with the expectation for AIOps to become even more embedded in the near future.

Security and IT operations will be better integrated

To secure your clients' infrastructure and applications, the fundamental data is almost the same as IT operation data sets: the machine and user data flowing through their digital infrastructure. Security algorithms model the historical behavioral patterns and detect anomalies and deviations from those patterns in near real time. Using AI, this process could be further automated towards blocking bad actors in near real-time.

Opening up the potential of business data

As the AI and ML algorithms that support AIOps gain new capabilities, they will enable you to take full advantage of the business intuition that is embedded in your organization's data—whether something's happening in the moment or patterns predicting the future.

With the right strategy and well-planned, strategic investments in AIOps, you can demonstrate to your customers that you are investing in technologies that will propel their businesses forward. Regardless of where you are on your infrastructure evolution journey, an AIOps initiative can position you to achieve compelling business outcomes. To ensure a seamless customer experience and business continuity in an extremely competitive space, it's time for MSPs to take the next step forward on their transformation journey, and lead with AIOps.

Glossary

Artificial Intelligence (AI)

AI applies advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions

AIOps (Artificial Intelligence for IT Operations)

AIOps applies ML/AI algorithms to automatically detect anomalies in an infrastructure, application, or service, before they become problems, building on observability, automation, and an early warning system.

Analytics

Analytics supports a variety of different business intelligence (BI)- and application-related initiatives, analyzing information from a particular domain or applying BI to a specific content area.

Anomaly detection

Anomaly detection utilizes historical performance to generate an expected range for resources and dynamic thresholds, which is used to highlight and alert on anomalies that breach this range.

DevOps

DevOps focuses on rapid IT service delivery through the adoption of agile, lean practices in the context of a system-oriented approach.

Dynamic thresholds

Dynamic thresholds are based on ML-based algorithms that automatically detect the normal performance range for any metric—whether it's a technical or business metric—and accurately alert based on values outside of this range that are considered anomalies.

Early warning system

An early warning system provides alerts about the most relevant issues in an environment, spotting issues and the warning signs that precede them, and triggering actions.

Failure prevention system

A failure prevention system builds on the data that is gathered and analyzed by AIOps, and increases the level of automated options, integration with other tools and systems, and proactive capabilities.

Forecasting

Data forecasting predicts future trends for monitored infrastructure, using past performance as the basis.

IT Operations

IT Operations are the people and management processes associated with IT service management to deliver the right set of services at the right quality and at competitive costs for customers.

Root cause analysis (RCA)

RCA is a systematic process for identifying the fundamental causes of problems or events and an approach for responding to them.

Virtual Machine (VM)

A VM is a software implementation of a hardware-like architecture, which executes predefined instructions in a fashion similar to a physical central processing unit (CPU).

About LogicMonitor®

Monitoring unlocks new pathways to growth. At LogicMonitor®, we expand what's possible for businesses by advancing the technology behind them. LogicMonitor seamlessly monitors infrastructures, empowering companies to focus less on problem solving and more on evolution. We help customers turn on a complete view in minutes, turn the dial from optimization to innovation and turn the corner from sight to vision.

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