Enterprise Strategy Group™ by TechTarget

TECHNICAL VALIDATION

BMC Helix Observability and AIOps

Using AI to Accelerate Issue Resolution and Increase Service Reliability

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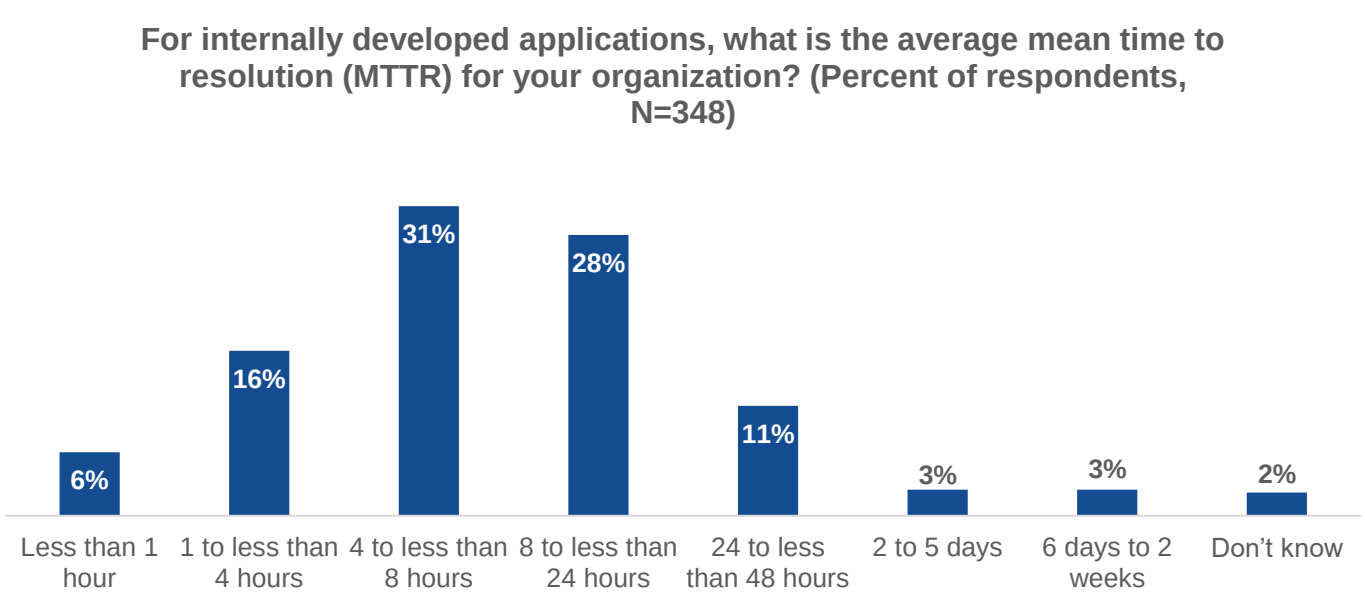
Introduction

This Technical Validation from TechTarget's Enterprise Strategy Group documents our evaluation of the BMC Helix Observability and AIOps solution. We reviewed how the platform uses artificial intelligence (AI) to decrease IT and service downtime. Specifically, we looked at how BMC Helix AIOps and Observability uses AI to improve service reliability, accelerate time to resolution, prevent IT-related incidents, and improve efficiency.

Background

As organizations support both legacy and cloud-native applications deployed across on-premises and public cloud infrastructure, service-affecting issues are bound to arise. The inherent complexity of such environments needs to be managed and monitored closely to detect issues as quickly as possible. Yet, organizations find that they need multiple observability tools to manage this complexity and ensure that issues are raised as quickly as possible. In fact, 66% of respondents to a recent survey by TechTarget's Enterprise Strategy Group reported using between 6 and 15 observability tools to monitor their IT environment.[1] However, using multiple observability tools has not helped with resolving issues quickly, as 59% report that the average mean time to resolution (MTTR) can range from 4 to 24 hours (see Figure 1). Experiencing such long MTTRs can easily result in losses in revenue, customers, and brand equity.

Figure 1. Average Mean Time to Resolution



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

If organizations have more visibility into their IT environments, why is reducing MTTR still problematic? Unfortunately, today's IT teams—including ITOps, DevOps, site reliability engineers (SREs), and platform engineers—still work in silos. Individuals on these teams continue to focus their attention on IT components such as servers, storage, databases, cloud, or network. When working to resolve an issue, attention is focused on eliminating those components, not contributing to the problem. While this approach may eventually arrive at the root cause, it is certainly not efficient, as the focus is not on how to resolve the issue and minimize the business impact.

[1] Source: Enterprise Strategy Group Research Report, *Distributed Cloud Series: Observability and Demystifying AIOps*, August 2023. All Enterprise Strategy Group research references and charts in this Technical Validation have been taken from this report.

Reducing MTTR is also hampered by the lack of a unified view into the IT environment. While organizations have worked to increase and improve the visibility into their IT operations, IT teams are left to deal with multiple tools, each with its own perspective into what occurred. Unfortunately, IT teams must resort to manually correlating events detected with these tools in order to identify the root cause.

Using multiple tools also does not help in prioritizing those issues to be resolved first. IT teams face multiple alerts simultaneously across tools, making it difficult to pinpoint the root cause among the symptoms of the issue being raised.

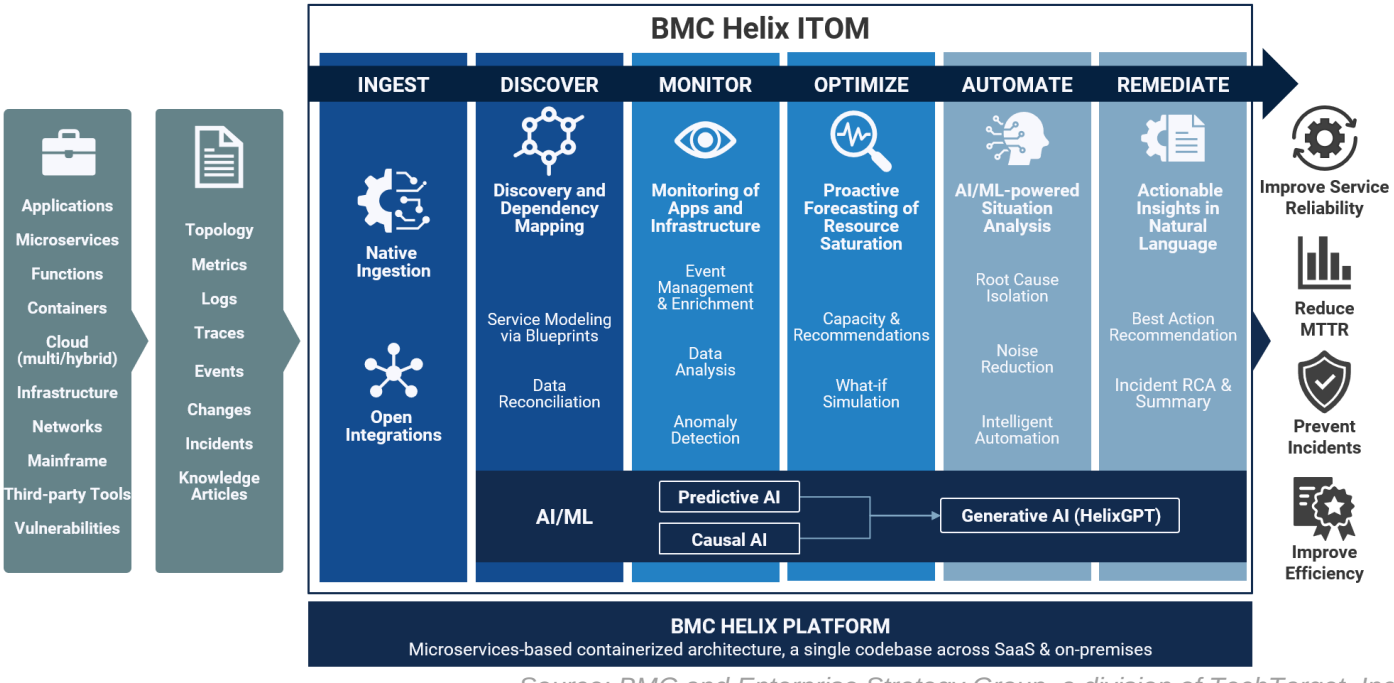
BMC Helix Observability and AIOps

Part of the BMC Helix platform, the BMC Helix Observability and AIOPs solution is designed to help organizations decrease the overall MTTR of issues encountered by IT teams (see Figure 2). Using built-in, AI-driven processes, the solution can accelerate identifying, resolving, and preventing the recurrence of issues, with a focus on how issues affect the business if left unaddressed.

BMC Helix AIOps and Observability helps in identifying and prioritizing issues for resolution via:

- **Causal AI:** learning cause-and-effect relationships for root cause isolation.
- **Predictive AI:** with machine learning techniques, predicting likely events to occur within the proper context of the issue identified and potential business impacts.
- **Generative AI:** outlining actions to perform in order to prevent issues from occurring again and producing automation code recommendations. (BMC's implementation of generative AI supports other services across the BMC Helix platform.)

Figure 2. BMC Helix Observability and AIOps



Source: BMC and Enterprise Strategy Group, a division of TechTarget, Inc.

The solution's AI-driven processes use data collected from multiple sources within the customer environment, including the IT environment topology, events, logs, traces, incidents, changes, defects, and knowledge archives. Once the data are normalized and reconciled, BMC Helix Observability and AIOps can surface those insights

organizations need to resolve business-affecting issues. Organizations can also take advantage of all services available on the BMC Helix platform to enhance how IT teams can improve issue identification, resolution, and prevention.

With BMC Helix Observability and AIOps, organizations can "reduce the noise" encountered when attempting to prioritize and resolve IT issues. Instead of using data from multiple systems that provide visibility into an organization's applications and IT infrastructure (multi-cloud, hybrid cloud, on-premises) to determine the root cause via a "process of elimination," the solution examines all available customer data to derive the most likely root causes and prioritizes those causes based on their potential business impact. By focusing on business drivers, the solution further reduces noise, as IT teams know which issues need immediate attention.

Enterprise Strategy Group Technical Validation

Enterprise Strategy Group validated how the BMC Helix Observability and AIOps solution helps organizations decrease the time needed to identify and resolve the root causes of IT issues that are negatively affecting business processes, then prevent similar issues from occurring again via optimization and automation.

To observe the solution in action, Enterprise Strategy Group used a test environment consisting of a retail website named Apex-watches.com, running in Microsoft Azure. Its key business application, Apex-CRM, was deployed on premises. Networking and storage resources were also deployed to ensure that the website could receive invoices, process orders, and store customer data.

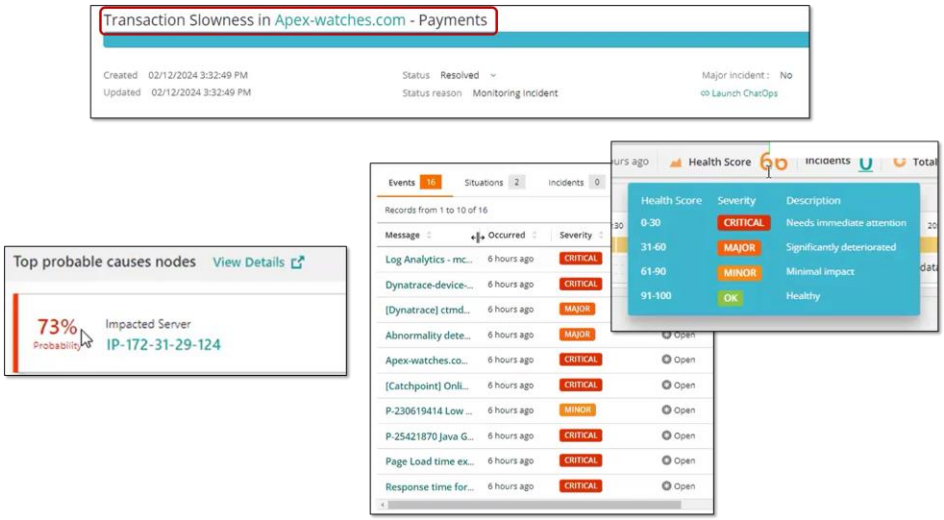
Improve Service Reliability

With the number of alerts and alarms that can occur on any given day, identifying IT issues to prioritize can be daunting. Ideally, organizations would prioritize attention on issues with significant business impact. With the BMC Helix Observability and AIOps solution, organizations can improve their ability to view the impact of issues on business processes in order to prioritize time and resources for resolution.

Enterprise Strategy Group Testing

Enterprise Strategy Group first navigated to the IT service management interface and saw that a ticket was created to address "Transaction Slowness" related to the payments process on the Apex-watches.com webpage (see Figure 3). This ticket already flagged the most probable root cause. We clicked on the related tile to view the overall health score of this issue (66) as well as other related issues detected from multiple customer data sources.

Figure 3. Created Trouble Ticket With the Most Likely Cause Identified



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

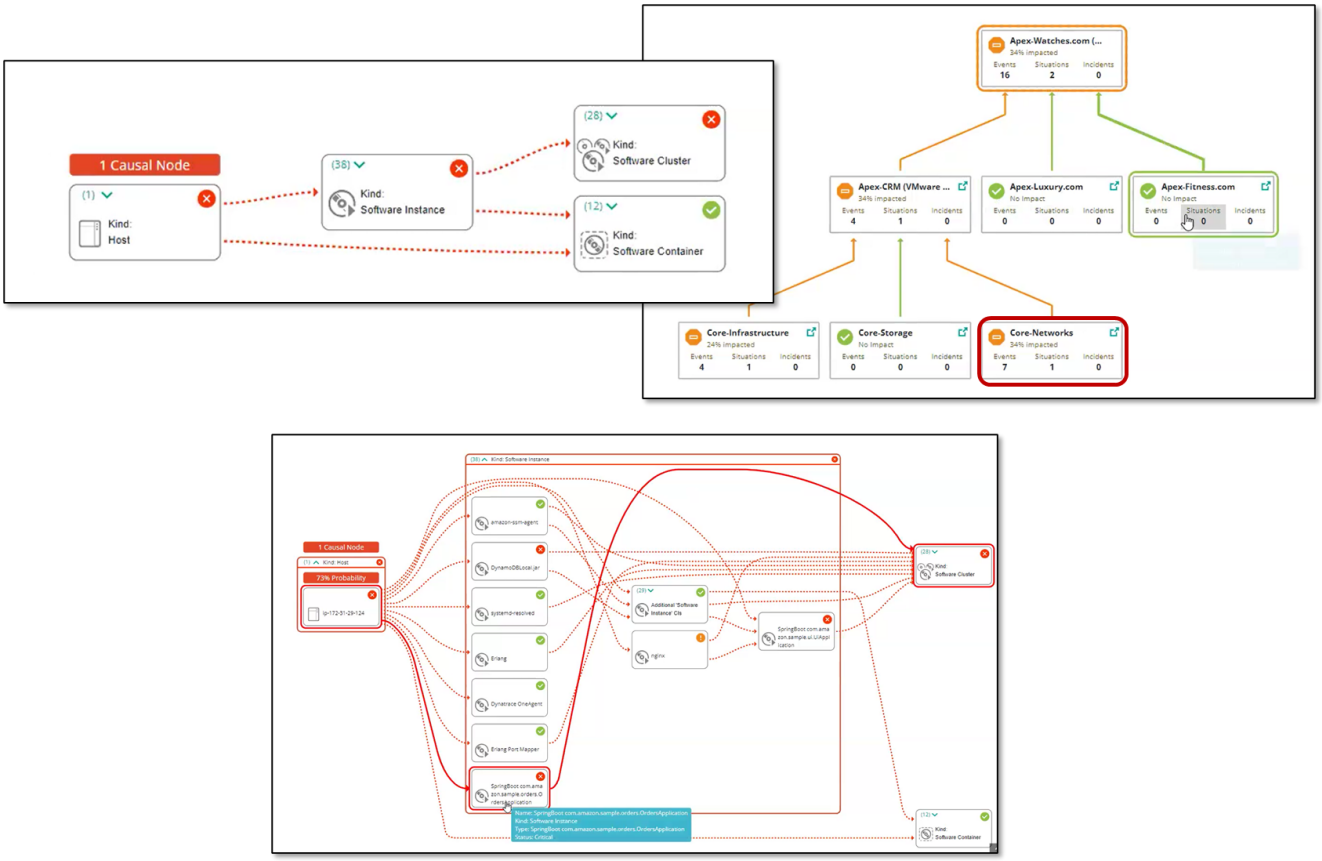
By viewing how BMC Helix Observability and AIOps already noted a possible root cause for the service-affecting event, Enterprise Strategy Group saw how the solution can eliminate the efforts that IT teams traditionally spend to review all possible related problems detected to determine a root cause via process of elimination.

Enterprise Strategy Group then observed how the "Transaction Slowness" problem was approached from a service point of view. We generated a service map of the payments process and its underlying IT topology. BMC Helix Observability and AIOps used a combination of ongoing observability data and service blueprinting to create these maps. In Figure 4, the top two maps represent the service blueprint, while the bottom map illustrates the IT infrastructure supporting the mapped services.

Using these maps, we found a possible root cause related to "Core Networks" events. While another possible root cause was related to "Core Infrastructure" events, we eliminated that choice, as only 24% of transactions were affected versus 34% of transactions affected by "Core Networks."

We should note that BMC Helix Observability and AIOps provides its own discovery tool, BMC Helix Discovery, which can help in creating the service and infrastructure models. (These same models are used by the machine learning capabilities in the solution to forecast service-affecting events and the recommended actions for preventing similar events from occurring in the future.)

Figure 4. Service Map and Underlying Topology



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

By viewing issues from a service blueprint perspective, Enterprise Strategy Group observed how IT teams can better identify the issues that are most relevant to service downtime, instead of spending time on narrowing down issues that need attention or focusing on false positives.

Why This Matters

As IT environments remain complex, determining those IT issues to resolve becomes more difficult. On any given day, organizations are dealing with multiple alerts and alarms that need to be prioritized. Unfortunately, the challenge is to identify those issues that, if not resolved quickly enough, can negatively affect how the business achieves its objectives.

Enterprise Strategy Group validated that the BMC Helix Observability and AIOps solution can help organizations to identify service-affecting issues and pinpoint possible root causes quickly and effectively. We observed how the solution presented the most probable cause for a reported service-affecting issue. We also reviewed how organizations can drill down to the root cause of the issue by viewing service blueprints. By placing the focus on service-affecting issues, organizations can properly allocate the time and resources needed for resolution. Organizations no longer need to waste effort in resolving issues that are not relevant to service delivery.

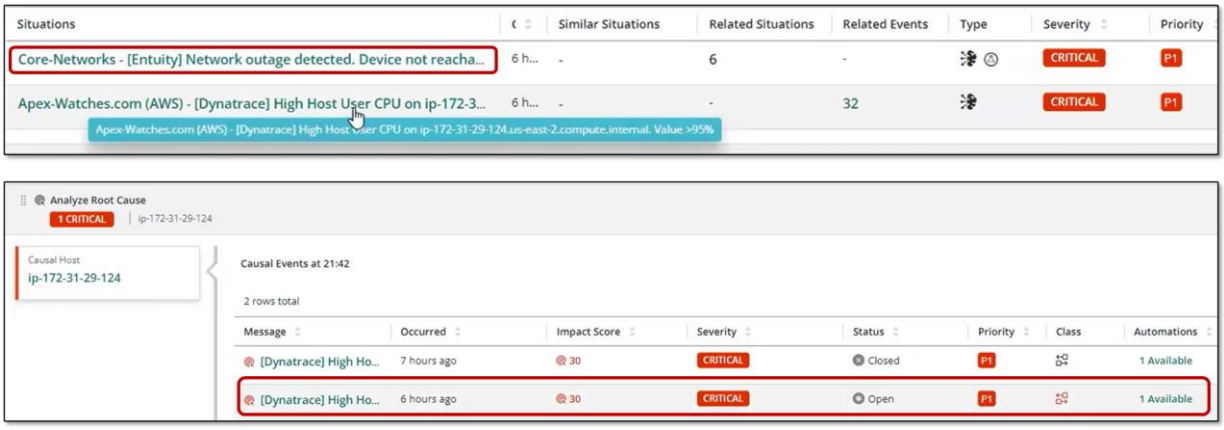
Accelerate MTTR

Once the service has been mapped and the interactions between application and infrastructure components are understood, BMC Helix Observability and AIOps can help organizations focus attention on issues raised that will identify the most likely root cause, thus helping to reduce MTTR.

Enterprise Strategy Group Testing

In the previous section, Enterprise Strategy Group identified that a "*Core Network*" event could most likely indicate a root cause of the "*Transaction Slowness*" issue. We proceeded to view two issues that were most likely causing the core network event and focused on the item, detected by Dynatrace, that remained unresolved (see Figure 5).

Figure 5. Possible Root Causes of the "Core Network" Issue

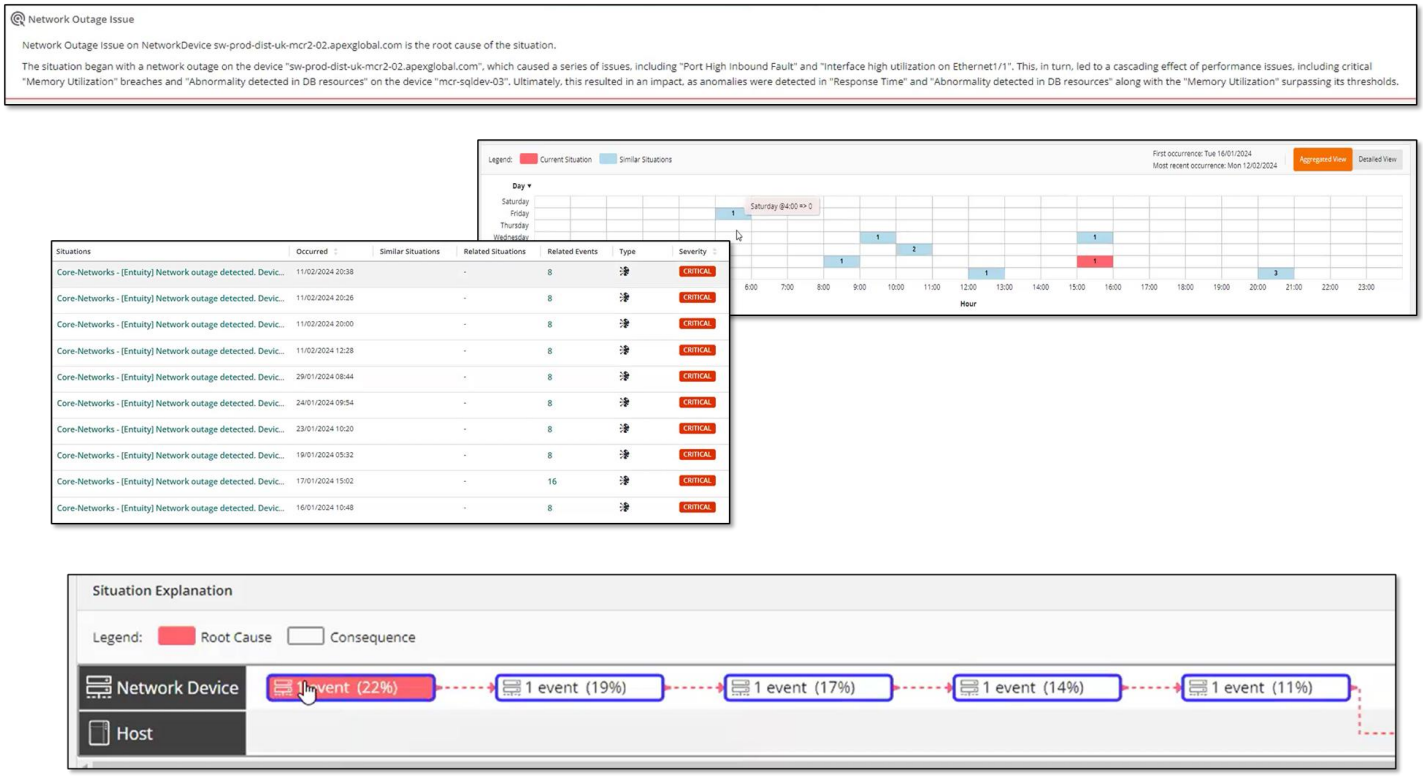


Source: Enterprise Strategy Group, a division of TechTarget, Inc.

We proceeded to drill down further into the issue detected by Dynatrace and found a human-readable, machine-generated explanation of the root cause of the core network outage (see top of Figure 6). Along with this explanation, similar issues that have occurred were presented on a timeline so that IT teams could investigate how those issues were resolved and leverage what has worked in the past. IT teams could use these past actions to decrease MTTR of similar issues, should they occur going forward.

Enterprise Strategy Group could also view the machine-generated explanation expressed as a causality chain (see bottom of Figure 6). With this diagram, we saw those event(s) that would be the most likely root cause. By using this causality chain, IT teams could easily identify the event that, when fixed, would resolve the "Transaction Slowness" issue raised earlier, again helping to reduce MTTR.

Figure 6. Explanation of Root Cause and Causality Chain



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Why This Matters

When an application performance issue or outage is detected, 83% of respondents to an Enterprise Strategy Group survey usually, if not always, conduct a root cause analysis. However, completing this analysis is typically not efficient. Unfortunately, siloed teams spend more effort on eliminating possible causes rather than identifying the actual root cause. Reducing the time spent on root cause analysis can go a long way in reducing MTTR.

Enterprise Strategy Group validated that the BMC Helix Observability and AIOps solution can help organizations reduce MTTR. Instead of manually correlating and interpreting data obtained from multiple observability tools, organizations can use this solution to explain the root cause in human-readable language and verify its business impact if not addressed. We could also visualize similar and/or related issues that have occurred, then replicate how those problems were resolved, thus increasing IT operational efficiency.

Prevent Incidents and Improve IT Efficiency

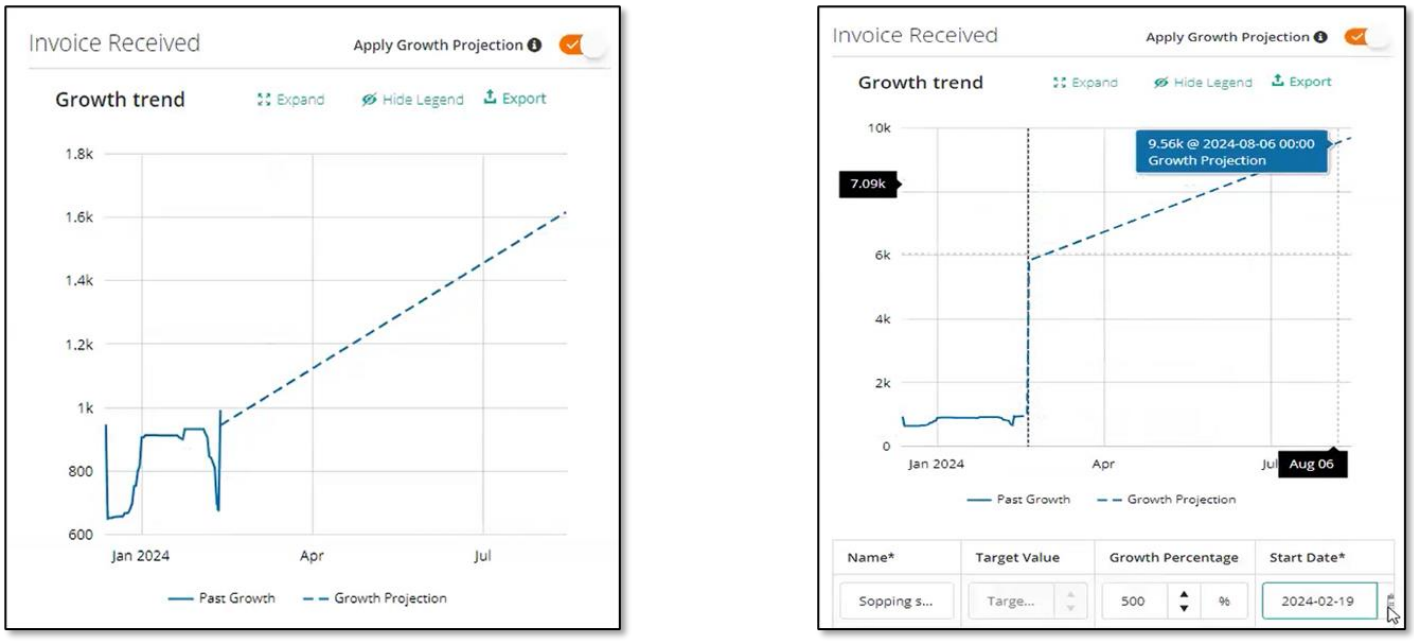
Instead of only resolving the root cause of an isolated service-affecting event, the BMS Helix Observability and AIOps solution can help prevent similar issues from occurring in the future. Organizations can use this solution to simulate events with varying input parameters of applicable business drivers, then receive recommended actions through BMC Continuous Optimization. To prevent any delay in resolving similar issues encountered in the future, organizations can use the Best Action Recommendation (BAR) capability that uses BMC Helix ChatGPT, part of the overall BMC Helix platform.

Enterprise Strategy Group Testing

Enterprise Strategy Group considered how to prevent an IT operational issue should future business conditions change. We focused on preventing bottlenecks in the billing process associated with Apex-watches.com. Specifically, we wanted to ensure that sufficient IT resources (such as compute and storage) were available given certain changes in key business drivers, such as the number of invoices received or bills produced.

Using BMC Helix Observability and AIOps, Enterprise Strategy Group performed "what-if" simulations to vary the number of billing invoices and see the impact on the underlying IT infrastructure (see Figure 7). As we increased the number of invoices, we saw that the billing process could handle up to 234% more invoices than usual. The growth forecast is shown on the left of Figure 7. However, when changing the percentage to 500%, we saw the impact on the business, as shown on the right of Figure 7.

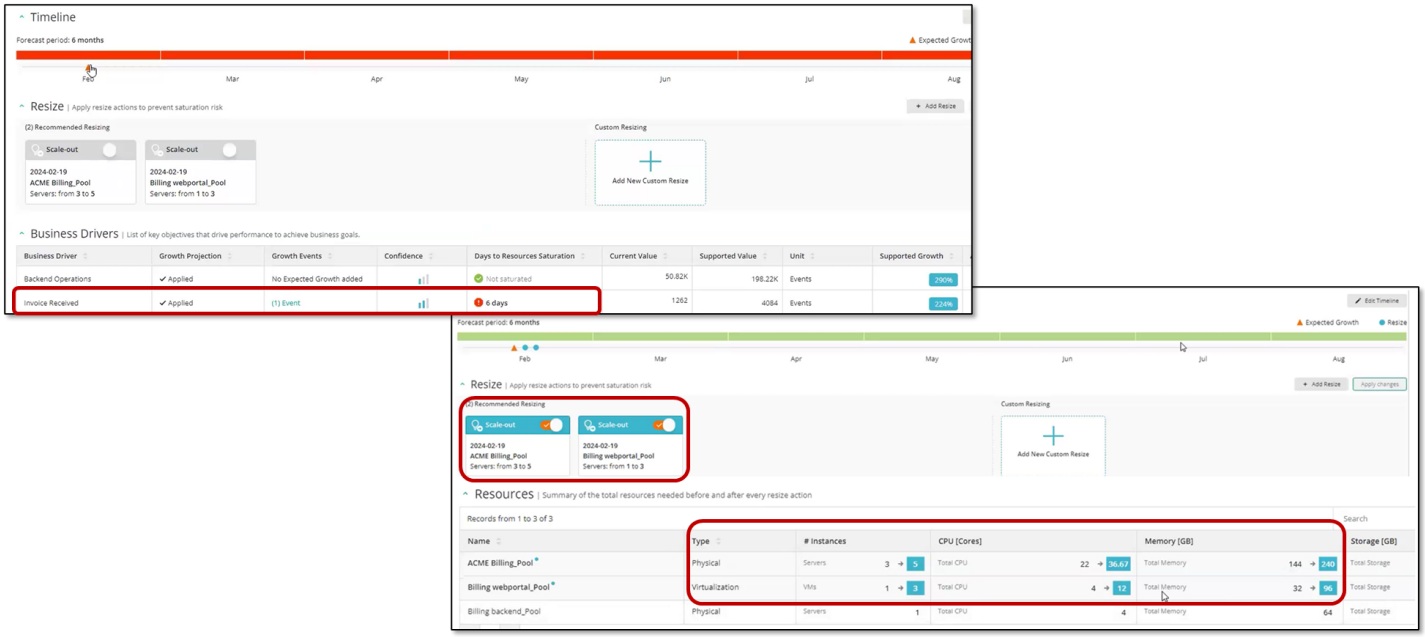
Figure 7. Simulations of Billing Service When Incoming Invoices Vary



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

We then navigated to the BMC Continuous Optimization interface to find out how to manage the service to accommodate the increase in billing invoices. We saw that the billing service was at critical levels (i.e., insufficient IT resources are deployed to ensure that the billing service remains operational), as shown by the timeline in red (see the top left of Figure 8).

Figure 8. Applying Suggested Changes When Billing Invoices Increase



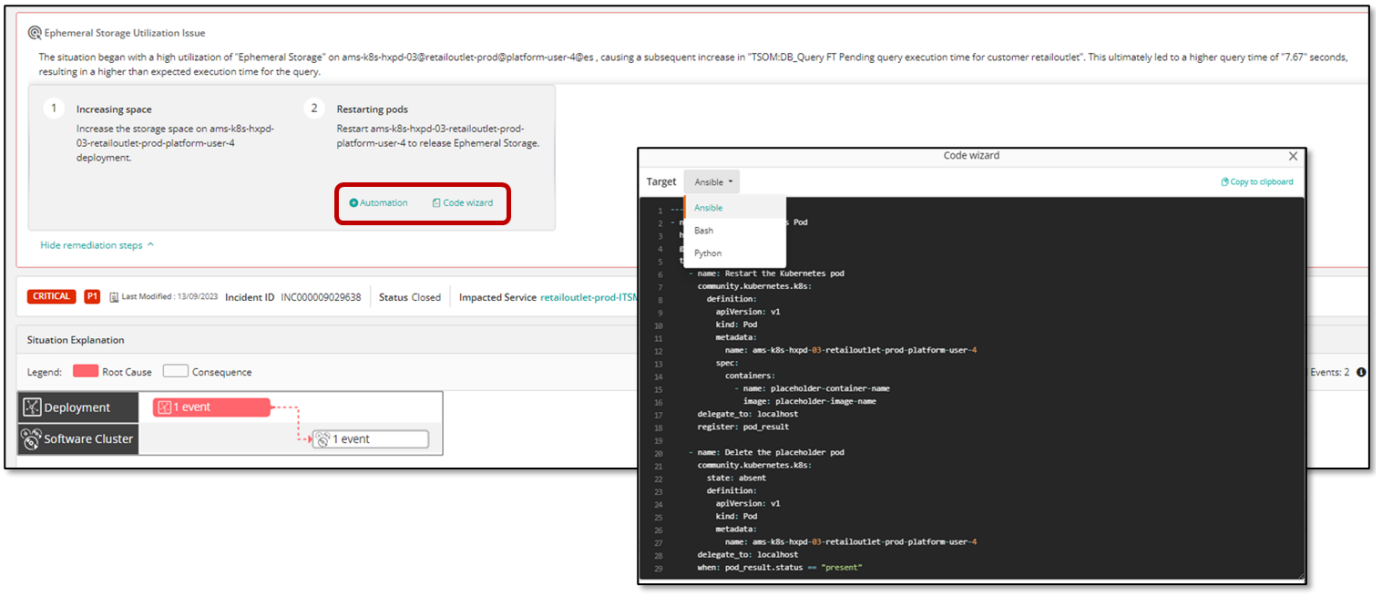
Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Instead of manually determining the resources to be scaled out, we noted that BMC Helix Observability and AIOps provided recommended actions using the knowledge base of past IT issues and resolutions within the customer environment. After enabling these suggested actions, we saw that the billing service was set up to operate normally, indicated by the green timeline (see bottom right of Figure 8). To clarify how those actions were implemented, changes in the compute infrastructure were highlighted, increasing the total number of physical servers and VMs, along with the increased CPU capacity and memory.

To increase IT efficiency, IT teams can set up automated responses to similar issues that arise in the future via the solution's BAR capability (see Figure 9). We dealt with an issue that required two remediation steps: increase storage and restore the Kubernetes pod. To write the automation code, we could either send a coding request to the SRE or DevOps team by clicking **Automation**, located under the stated remediation steps, or use the code wizard to generate code samples.

By using BAR, we noted how MTTR can be further reduced, as IT teams no longer need to address similar issues one at a time. Instead, the automated response would resolve these issues as they occur.

Figure 9. Using Best Action Recommendations to Automate IT Issue Resolution



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Why This Matters

While organizations strive to decrease the MTTR of issues encountered on a daily basis, mechanisms are rarely in place to prevent similar issues from occurring. Building a "self-healing" IT environment requires preventing issues from occurring in the first place, as well as implementing recommended actions to resolve similar issues that arise.

Enterprise Strategy Group validated that the BMC Helix Observability and AIOps solution can help organizations prevent service-affecting issues from occurring, either by optimizing the IT environment or automating resolutions. We saw how the solution can recommend proactive actions to take based on how business processes are forecasted to change when business drivers change. For service-affecting issues that exhibit similar root causes, we also found that the solution can generate code to automate resolution, either by submitting coding requests to SRE/DevOps teams or using wizards to produce code recommendations.

Conclusion

Dealing with IT issues is unavoidable, especially when these issues affect applications needed to achieve business objectives. Unfortunately, identifying, resolving, and preventing the recurrence of IT issues typically consume more time and effort than desired. Thus, according to Enterprise Strategy Group research, when it comes to organizations implementing their monitoring and observability strategies, the most important priority is to provide insights into application and/or infrastructure environments to assist with tracing, accelerated fault isolation, root cause analysis, and resolution. Preventing the recurrence of IT issues exhibiting similar root causes is also important to prioritize, not only to reduce overall MTTR but also to increase IT operational efficiency.

With the BMC Helix Observability and AIOps solution, organizations are equipped with the necessary capabilities to reduce MTTR of service-affecting issues and prevent their recurrence. Using data such as the knowledge base of past IT events and the details of the organization's IT infrastructure and supported applications, the solution's built-in, AI-driven processes learn cause-and-effect relationships between IT events that occurred, prioritize resolution of issues based on their business impact, predict likely events to occur when business drivers change, and recommend automation code to resolve issues exhibiting similar root causes. With BMC Helix Observability and AIOps, not only can organizations reduce the MTTR of identified issues, but they can also increase IT efficiency via the automation of resolutions to similar issues.

Throughout our review of BMC Helix Observability and AIOps, Enterprise Strategy Group validated that the solution can help organizations:

- Increase service reliability by identifying and prioritizing focus on issues that, if not addressed, could have the most negative impact on ongoing business operations.
- Accelerate MTTR by isolating the root cause of a service-affecting issue and explaining why the issue occurred, without the need to manually investigate, interpret, and correlate events raised by multiple tools.
- Prevent IT incidents from recurring by implementing recommended actions resulting from "what-if" simulations.
- Increase IT efficiency by using BM HelixGPT to generate code recommendations to automate resolution of issues encountered repeatedly.

The complexity in organizations' IT environments—as both legacy and cloud-native applications are supported by on-premises and public cloud infrastructure—will always produce issues that affect how well business is conducted. How effectively and quickly IT issues can be prioritized and resolved is a constant challenge. Any organization desiring to overcome this challenge should take a closer look at BMC Helix Observability and AIOps.

About Enterprise Strategy Group
TechTarget's Enterprise Strategy Group provides focused and actionable market intelligence, demand-side research, analyst advisory services, GTM strategy guidance, solution validations, and custom content supporting enterprise technology buying and selling.

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