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Whitepaper

Why You Need to Change the Way You Think About AIOps

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When I lived in Los Angeles, I had a rule: no connecting flights through SFO (San Francisco) during the foggy season — which, let's face it, was most of the year.

The reason was simple. When there was fog, SFO would routinely delay smaller, shorter flights so they could get their big jumbo jets headed for Europe or Asia off-the-ground first. There was always a very high probability that my flight would be told to hold on the ground in LA, often causing me to miss my connecting flight.

As much as I might have grumbled about it, however, I always appreciated both the complexity involved in safely managing so many flights around the world and how they were able to effectively prioritize everything to make things run as smoothly as possible under any circumstance.



It's no mean feat — and one that I believe offers vital lessons for IT operations teams as they adapt for a modern era in which IT complexity and criticality are growing simultaneously. Rising as the savior for IT operations leaders is a new breed of so-called AIOps technologies – but is it that simple?

The problem is that too many organizations are taking far too narrow a view of what it means to adopt AIOps — and as a result, may be leaving themselves ill-equipped to deal with their new reality.



AIOps is About More Than Aggregation

The term, AIOps, was initially meant to stand for *algorithmic IT operations*. But, of course, everyone just assumed that the AI meant *artificial intelligence* (which it now does). For most organizations, however, that 'A' really stood for aggregation.

The technology providers that first adopted the AIOps moniker primarily applied various forms of algorithms and machine learning to the onslaught of event and alert data assaulting IT operations teams. Like having too many planes in the air to make sense of, it was (and still is) a real problem that organizations needed to solve.

As the complexity of the technology stack increased, IT operations teams found that they needed more and more systems to manage the various aspects and elements of that stack. The inevitable result was what operations professionals came to fondly call *alert storms*. As these systems all generated event and alert data, they literally and figuratively flooded IT operations teams until they were drowning in data — and were neither wiser nor better off for it.

The initial adoption of an AIOps initiative was all about aggregating that data, but this application of AIOps remained reactionary in nature, and begged the question: is that really all there is to it?



The initial adoption of an AIOps initiative was all about aggregating that data and applying algorithms to create a clarity-inducing calm in the storm. And these tools have done an admirable job of helping solve this specific problem.



But this application of AIOps remained reactionary in nature, and begged the question: is that really all there is to it?

It's a bit like asking if all there is to effectively and safely managing an airport is knowing where your planes are — in a word, *no*.

The adoption of AIOps is not about creating a point solution or solving one specific problem. Instead, it must represent the wholesale transformation of the IT operational and management model into one that leverages data, analytics, intelligence, and context to unify, simplify, and ultimately, automate, nearly every aspect of IT operations – both reactively and proactively.

While that conceptualization of AIOps is critical to understand (and might be great inside a fortune cookie), it can be a little hard to get your head around.

As an IT Operations leader, how do you pivot the way your organization works to adopt a true AIOps mindset that goes beyond mere aggregation?

It comes down to changing the way you look at IT operations — and that 'A' in AIOps — in four specific ways.

'A' is for Application-centricity

There's an adage that goes, "Nobody *cares* about what you *know* until they *know* that you *care*."

The IT corollary for this adage is that no one cares about the infrastructure until they know what's running on it. For most of IT's existence, however, IT operations has been synonymous with infrastructure.

The job of the IT Operations team was to keep the infrastructure running — and it didn't matter too much what was running on top of it.

But as the technology stack has grown simultaneously more complex and more mission-critical, this is no longer sufficient. Instead, IT operations must understand how the infrastructure and all of the applications that run on top of and through it, are interrelated and connected.



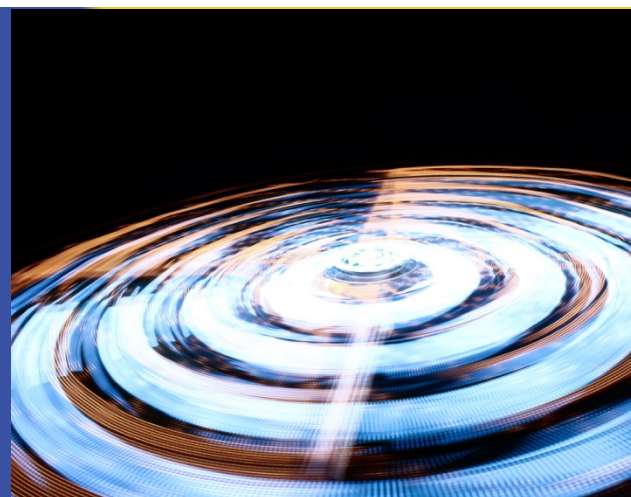
Just as importantly, they must understand how each application affects others and the value that any given application may deliver to the organization at any given point in time.

In short, IT operations teams must become application centric.

This application centricity is a core tenant of the AIOps mindset for two reasons. The first is that without it, all the algorithms in the world will not help you manage operations effectively if you don't have a contextual understanding of the relationship between the infrastructure, the application stack, and the business value they generate together.

When the question is how to apply AI to operations, the answer is always more and better data.

And that starts with application centricity.



Second, the AIOps mindset is all about leveraging data and analytics to create intelligence and insights that enable you to manage the operating environment most effectively. Trying to do this with only infrastructure data is like fighting with one hand tied behind your back.

When the question is how to apply AI to operations, the answer is always more and better data.

And that starts with application centricity, which includes both the automated discovery of both the infrastructure and applications.



'A' is for Access

IT operations teams used to be a sort of high-tech mechanic. When something wasn't working right, you came to them to have it fixed. Throw in a little preventative maintenance here and there, and that was the operational model.

To say that operational approach is no longer sufficient is a gross understatement.

The modern enterprise technology operation more resembles a Formula One race car than it does the family minivan. There is simply no room for a performance hiccup, let alone a breakdown.

This shift means that IT operations needs to function more like a pit crew — there if something breaks, but much more focused on maintaining continuous optimal performance — and making sure nothing breaks in the first place.

And this is where early aggregation-driven approaches to AIOps didn't get it quite right.

Collecting and aggregating alerts is important, but it is also a reactive process in which the focus is on responding to things that have already happened. *That's not enough.*

It's a bit like trying to manage that complex airport by only focusing on when planes break down. Sure that's important, but that won't keep things running smoothly and optimally — it will just mean that you're doing a better job of responding when something goes wrong.

Instead, IT operations teams need to be proactively focused on continually and holistically optimizing performance across all operational dimensions. That will require access to all data sources that can offer insights into the operational state and performance of the entire technology stack. And it's not enough to get access to that data retrospectively. It must be available in real-time, as it happens.

It is only this continuous and real-time access to all operationally-impacting data that will enable IT to apply AI and gain the insights it needs to both proactively respond to potential problems and maintain optimal performance, which is the essence of AIOps.



'A' is for Automation

If an enterprise has managed to embrace application centricity and created a continuous and open-access pipeline to all the operational data it needs, that will undoubtedly move it closer to the real intention of AIOps — but it won't get them all the way there.

It's not enough to have the right application-centric perspective. Nor is it enough to have the *awareness* that access to the right data at the right time will get you.

The reason is that the complexity and rate of change under which the modern IT organization must operate means that it is now virtually impossible for an operations team to manage things on their own. It doesn't matter how smart or large the team, complexity and rate of change will conspire to make the kind of always-on, never-fails expectations placed on them, unachievable.

The very nature of what it means to manage IT operations must shift. It can no longer be about being the best at fixing things. The critical capability has now become the ability to effectively instrument the technology stack, to consistently collect all data necessary, and to proactively manage the systems and automations that will, in turn, control the operating environment.





To keep things running consistently, reliably, and in perpetuity, IT operations teams need it all: the ability to perform full-stack monitoring from an application and business-value perspective, the ability to get access to the right data at the right time to derive analytical insights from it — *and* automation that will enable them to respond continuously and in real-time.

Without the automation, what you end up with is a value-oriented operations team that is acutely aware of what's going on and what's at stake — but which cannot react fast enough to keep things running optimally or, at worst, from breaking down spectacularly.

It's no reflection on any team. We have just reached a point in which the complexity and rate of change have outstripped *any team's* ability to manage things on their own.

The very nature of what it means to manage IT operations, in fact, must shift. It can no longer be about being the best at fixing things or even being the best at managing the performance of the technology. Instead, the critical capability has now become the ability to effectively instrument the technology stack, to consistently collect all data necessary, and to proactively manage the systems and automations that will, in turn, control the operating environment.

The successful adoption of AIOps, therefore, will be one in which IT creates a central nervous system for the data center that continuously consumes data and directs technology-specific management tools to apply fixes and optimizations as needed to maintain the health of the overall environment.

But even here, IT operations teams must move with care. Merely employing automation will not lead to AIOps adoption. The transient and diverse nature of modern workloads will mean that traditional — and often unsophisticated — approaches to automation will crack under the rate and volume of change.

Enterprise leaders must, therefore, ensure that their automation efforts operate at a workload level and can dynamically execute holistically across the entire technology stack — whether it may exist on-premises or in the cloud.



It's a tall order, to be sure, but one that is now mandatory if organizations are to embrace the true spirit of AIOps.

'A' is for Adaptive Operations

The final challenge that enterprises face when attempting to adopt AIOps can actually be found in the term itself.

The moniker AIOps implies that the goal is to infuse AI into the IT operational model. But that goal represents the pursuit of technology for its own sake — and will lead organizations astray.

While data, analytics, machine learning, and other forms of AI are the enablers that will allow enterprise leaders to transform their operational model, they are the means to an end — not the end itself. Merely deploying AI-based technologies, in and of itself, is no guarantee that an organization will either have authentically adopted AIOps, nor have achieved its real aims.

This type of adaptive operating model that will be the essential driver of operational sustainability for the modern enterprise.



The goal is not to somehow embrace AI, but to instead create an adaptive operational model, powered by AI, that enables the organization to rapidly and dynamically adapt to ever-changing business demands, application workload behavior, customer expectations, and shifts in business models — all while maintaining optimal operational performance.



It is this type of adaptive operating model that will be the essential driver of operational sustainability for the modern enterprise.

Creating and sustaining such a model, however, will demand that organizations create an operational capability that enables them to rapidly visualize their environment, create logical maps, be able to explain observed behaviors, and do holistic what-if planning across an integrated technology stack. It is only in doing so that they will be able to optimize application performance, predictively manage operational capacity, balance workloads at both an infrastructure and application level, and improve problem resolution and proactive avoidance.

Consequently, establishing this type of adaptive operating model will be the vital transformation necessary to fully embrace the AIOps ethos.

Doing so, however, will not only require the application-centricity, access to data, and automation that we've explored, but one additional thing: *the application of domain expertise in the form of applied intelligence.*

In a rapidly changing and evolving environment, it will be critical that organizations find and leverage a foundational knowledge base that has a baseline definition of how the infrastructure and applications typically interact.

This intelligence and understanding of typical workload and application behavioral patterns, along with commonly encountered deployment models and issues will enable organizations to more rapidly adapt their own operating models.



The Intellyx Take: The New 'Mission Critical'

The allure of AIOps is powerful.

Buy a newfangled widget, and you will be all caught up — a new, AI-powered IT operation. But, of course, it's never that simple.

The actual adoption of AIOps is a fundamental transformation of the IT operational model that goes far beyond mere aggregation or the deployment of a single tool. It demands the complete reorientation around applications and the business value they deliver.

But there's one additional wrinkle to this story.

It used to be that it was easy to determine which applications were critical and delivered the most business value. Today, there's a new definition of mission-critical: *everything*.

Still, some things are more critical than others, or more important at certain times than at others. And it is now essential that IT operations teams know what is most critical, when it is critical, and how to best optimize the overall operating environment to simultaneously protect criticality, while optimizing performance at any given time.

The new reality is that criticality is now table stakes. For the air traffic controller, criticality is that every plane needs to take off, fly, and land safely. There is no acceptable crash tolerance — whether it's a small private plane or a large jumbo jet. The situation is now the same for IT operations teams.

But that doesn't mean that when it comes to flight priority and on-time departures, that all flights are the same. Those big jumbo jets carrying hundreds of passengers are more critical to the operational state of the airport than the small commuter flights I was often flying.

So while every plane is critical, the airport must continuously and dynamically manage the overall operational state to optimize the airport's overall performance.



Likewise, this is the new IT operational mantra: *Everything* is critical, nothing can fail, but operations must also continuously manage, optimize, and adapt *everything* to deliver the highest value to the organization at all times.

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Everything is critical, nothing can fail, but operations must also continuously manage, optimize, and adapt everything to deliver the highest value to the organization at all times.



Meeting this expectation is only possible when organizations become application-centric, embrace a data-driven mindset, automate anywhere and everywhere possible, and ultimately, transform themselves around an adaptive operational model.

Finding the right combination of these capabilities, however, is difficult when most managements tools built for IT operations are not focused on this holistic, application-centric perspective. That is why leading organizations are turning to AIOps platforms, such as [Virtual Instruments VirtualWisdom](#), to help bring it all together.

It is only by doing so that they are able to embrace the true essence of what it means to adopt AIOps.

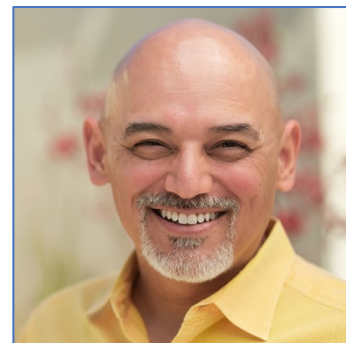


About the Author: Charles Araujo

Charles Araujo is an industry analyst, internationally recognized authority on the Digital Enterprise and author of [*The Quantum Age of IT: Why Everything You Know About IT is About to Change*](#).

As Principal Analyst with Intellyx, he writes, speaks and advises organizations on how to navigate through this time of disruption. He is also the founder of The Institute for Digital Transformation and a sought after keynote speaker.

He is a regular contributor to CIO.com and has been seen in Time, InformationWeek, NetworkWorld, Computerworld, USA Today, and Forbes.



About Virtual Instruments

Virtual Instruments is the leader in AIOps for hybrid IT infrastructure management, providing comprehensive infrastructure monitoring and AI-powered analytics for the hybrid data center. The company's solutions give IT teams deep workload visibility and actionable insights into their end-to-end systems that support mission-critical applications.

Virtual Instruments empowers companies to maximize the performance, availability and utilization of their production IT infrastructure. Virtual Instruments has over 500 customers, including enterprise IT, cloud service providers and federal agencies. The privately-held company is headquartered in San Jose, Calif. For more information, please visit <https://www.virtualinstruments.com>

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