

MARKET RADAR

GigaOm Radar for AlOps 🚥

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TOPIC: AIOPS



GigaOm Radar for AlOps

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1. Summary

This report explores the nascent AIOps landscape and looks at current, emerging, and future solutions and approaches that will impact enterprises that leverage complex cloud computing architectures, such as multi-cloud. It also provides insight into the emerging providers in this dynamic market space.

There are two major categories of AIOps players. One consists of traditional, on-premises operations tools that have had an AI engine bolted on to enable more proactive and predictive ops automation. These are typically provided by brand name players, such as IBM, CA, and EMC/Dell. The second consists of tools purposely built for AIOps, such as those provided by startups that have emerged in the last several years (Moogsoft, for instance).

As discussed in the <u>AlOps Key Criteria report</u>, it can be difficult to pin down exactly what is meant by an AlOps tool, Upon reviewing the tools listed below, what is apparent is that when it comes to AlOps, there is more than one way to skin a cat. A few solutions have deep Al functions built in, while others are equipped with medium or low functionality. Some products leverage agents to monitor remote systems. while others are agent-less. And some vendors provide static methods of ops monitoring interfaces and can seem overly complex, while others offer streamlined ops monitoring interfaces that can border on being overly simple.

So, how do you choose?

As with any significant IT decision, understanding your requirements is key. You need visibility into your ops environment, including things like the mix of on-premises and cloud-based systems, databases, storage, networking, and the like, and you need to know how the ops team can leverage these AIOPs tools to maximize uptime. Ultimately, IT decision-makers must pick the best tool or tools for the mix of technologies they operate, leveraging core features, such as AI integration and self-healing, that they feel are critical.

2. Market Categories and Segmentation

For a better understanding of the AIOps market and the positioning of vendors in it, we categorized AIOps solutions by the following four target market segments:

- Active
- Passive
- Homogeneous
- Heterogeneous

The detailed definitions of these segments appear in the related GigaOm report, "Key Criteria for <u>AlOps</u>." Active and passive refer to the ability of the tool to take corrective action or not. Homogeneous and heterogeneous refer to solutions that work with a single infrastructure, such as an IaaS public cloud, or a mix of different clouds and on-premises-based infrastructure.

Other distinctions may exist around the degree of use of AI within a tool. Again, these solutions take different approaches, with some leveraging AI deep into the tool, while others seem to provide just enough functionality to call their product an AIOps tool.

There are other ways to separate these tools, such as looking at the number of systems they can natively connect with, without resorting to code, down to the AlOps tool's API meaning you need to develop those connections yourself using a development platform. Another distinction is the ability to customize the views for the purposes of customizing each AlOps user needs to view the systems. These categories are depicted in **Figure 1**.



Figure 1: AIOps Descriptors.

Understanding these categories provides you with the jumping off point to recognize your own requirements for AIOps. In **Figure 1**, you could draw a spider diagram of this chart to depict both your requirements for AIOps and how well a tool meets those requirements. This exercise can be repeated for each tool described below.

Indeed, as we define this space in more specific ways, we can expect to see a few things emerge:

Differentiation: In an effort to gain differentiation, tools will migrate to a category presented in this report. We may have tools that are connectivity oriented, or leverage a type of AI, or are better for

development of custom tools using the APIs of AIOps tools. This tends to happen with ops tools over time, as providers seek to differentiate their tools in crowded markets.

Knowledge sharing: There will be a call to share the knowledge that AlOps tools gather. Imagine the benefit of having a master brain that already possesses vast knowledge from monitoring hundreds of thousands of systems over the course of years. Of course the real question is, will vendors and companies leveraging AlOps allow this information to be shared?

In addition, we assess the potential value of AIOps solutions for different types of organizations, as shown in **Table 1**. These types include the following:

- **Small-medium enterprise:** In this category we find solutions that meet the needs of smaller businesses, while providing headroom to address those of medium-sized infrastructures. This category also addresses departmental use cases within large enterprises, and emphasizes ease of use/deployment and limited feature sets, data mobility and management capabilities.
- Large enterprise: Usually adopted for larger and business critical projects. Solutions in this category have a strong focus on flexibility, performance, data services, and features to improve security and data protection. Scalability is another big differentiator and the possibility to have the same service in different environments is another important characteristic.
- **Specialized:** Designed for specific workloads and use cases, such as big data analytics, high performance computing (HPC) for example.

In addition, we recognize three deployment models for solutions in this report: On-premises, self/cloudhosted, and SaaS. **Table 1** indicates the presence or lack of support for each deployment type for each tool.



Table 1: Vendor Positioning

	MARKET SEGMENT			DEPLOYMENT MODEL			
	Small/Medium Enterprise	Large Enterprise	Speciality Provider	On-Premises	Self/Cloud-Hosted	SaaS	
AppDynamics	++	+	+	X	X		
Big Panda	++	++	++		X	X	
BMC	+	+++	+	X			
Broadcom	+++	+++	+++	X			
Dynatrace	++	+++	+	X	X	X	
IBM	++	+++	+	X			
Micro Focus	++	+++	+	X	X		
Microsoft	+++	+++	++			X	
Moogsoft	++	+	+		X		
New Relic	++	++	+	·j		X	
OpsRamp	++	+++	+	X	X		
Science Logic	+++	+++	+++	X	X		
Splunk	++	++	+	X		X	

X The presence of support for each deployment type for each tool

+++ Strong focus and perfect fit of the solution
++ The solution is good in this area, but there is still room for improvement
+ The solution has limitations and a narrow set of use cases
- Not applicable or absent

Source: GigaOm 2020

3. Key Criteria Comparison

Following the general indications introduced in the GigaOm Report "Key Criteria for AlOps," Table 2 summarizes how each vendor included in our research performs in the areas that we consider differentiating and critical. The objective is to give the reader a snapshot of the technical capabilities of different solutions and define the perimeter of the market landscape.

					(EY CRITERIA				
	COMPONENT MONITORING								ORING
	Proactive Self-Healing	Dashboard Configurability	Learning System	Integration w/	Heterogeneous Monitoring	Connectivity Support	Cost & Usage Monitoring	End-User Monitoring	Application Monitoring
AppDynamics	++	+++	++	+++	++	++	++	+++	+++
Big Panda	+++	++	+++	+++	+++	++	· •	•	
BMC	+++	++	++	+++	+++	++	++	+	++
Broadcom	+++	++	++	+++	+++	++	++	+	++
Dynatrace	+++	++	+++	+++	++	++	++	++	++
IBM	+++	++	++	+++	+++	+++	+	++	++
Micro Focus	+++	++	++	+++	+++	+++	+	++	+++
Microsoft	+	++	++	++	+	++	++	++	++
Moogsoft	++	+++	+++	+++	+++	++			-
New Relic	+++	+++	+++	++	+++	+++	+++	+++	+++
OpsRamp	+++	+++	+++	++	++	+	++	++	+++
Science Logic	++	++	+++	+++	+++	++	++	++	++
Splunk	+++	+++	+++	++	+++	+++	+++	++	+++

Table 2: Key Criteria

++ The solution is good in this area, but there is still room for improvement - Not applicable or absent.

Source: GigaOm 2020

Finally, Table 3 shows how well each solution addresses the top-line characteristics - called evaluation metrics — that help inform a purchase decision.



Table 3: Evaluation Metrics Comparison

	EVALUATION METRICS COMPARISON						
	# of Systems Supported	Management Approaches	Learning Approaches	Overall Ops Impact			
AppDynamics	++	+	++	++			
Big Panda	+++	+++	+++	+++			
BMC	+++	++	++	++			
Broadcom	+++	+++ ++		++			
Dynatrace	+++	+++	+++	++			
IBM	++	+	+++	++			
Micro Focus	++	+	++	++			
Microsoft	+	+++	++	+++			
Moogsoft	++	• ++	++	++			
New Relic	+++	+++	+++	• ++			
OpsRamp	++	++	++	++			
Science Logic	++	+++	++	+++			
Splunk	++	++	+++	+++			
	++ The solution is goo	perfect fit of the solution od in this area, but there i imitations and a narrow s absent		,			

By combining the information provided in **Table 1**, **Table 2**, and **Table 3**, the reader should be able to get a clear idea of the market and the available technical solutions.



4. GigaOm Radar

This report synthesizes the analysis of key criteria and their impact on critical metrics to inform the GigaOm Radar graphic in **Figure 2**. The resulting chart is a forward-looking perspective on all the vendors in this report, based on their products' technical capabilities and feature sets.







The GigaOm Radar plots vendor solutions across a series of concentric rings, with those set closer to center judged to be of higher overall value. The radar chart characterizes each vendor on two axes—Maturity versus Innovation, and Feature Play versus Platform Play—while providing an arrow that projects each solution's evolution over the coming 12 to 18 months.

As you can see in the radar chart in **Figure 2**, what is most notable is that vendors fall into very different sectors that are more scattered than other technologies we've evaluated. This is perhaps due to the newness of this technology pattern.

It is also worthwhile to note that larger players may have AlOps as just one part of many services they offer and are a bit behind those who just focus on AlOps. While this could mean that pure AlOps providers are perhaps able to deliver innovation more quickly than larger players, it's also more likely that the smaller AlOps providers will be purchased by a larger company at some point. In picking tools, you need to consider both the positive and negative aspects of the emerging market and its players.

Giga

INSIDE THE GIGAOM RADAR

The GigaOm Radar focuses on each vendor's technology roadmap, execution, and ability to innovate. It excludes vendor market share as a metric to yield a forward-looking analysis that emphasizes the value of innovation and differentiation over incumbent market position. The resulting graph plots the relative market position and movement of each vendor across three fundamental data points:

- The current position on the chart provides insight into the present state of each solution
- The direction models the impact of ongoing product strategy and development on the solution
- The vector module shows how quickly the vendor is executing on its vision and strategy

The GigaOm Radar aligns solutions along four characteristics, set in the chart as opposing pairs: Maturity and Innovation, and Feature Play and Platform Play. The closer a solution is to the axis line of a characteristic on the Radar chart, the stronger its execution in that regard:

Maturity: Expresses the stability and user acceptance of the solution, and overall ecosystem sustainability. Vendors on this axis may be more conservative in their approach.
Innovation: Indicates the level of differentiation of the solution from others in the market. Technical innovation and an aggressive approach to the market are often implied here.
Feature Play: Represents a focus on differentiating features and technical aspects, often advanced by niche players, point solutions, and new vendors leveraging cutting-edge tech.
Platform Play: Recognizes solutions that provide a broad, horizontal platform, with a comprehensive feature set and extensive ecosystem.

Finally, the GigaOm Radar is organized into three concentric circles around a bullseye. The closer to center, the better the solution. The three levels are:

Leaders: Vendors that are competing for market leadership in the metrics described above, even if they are competing in different market segments.

Challengers: Vendors with the potential to become a leader soon, niche or traditional players with an established market, and other companies that have interesting solutions but are still maturing. **New Entrants**: Usually companies with a limited feature set and too little history to be included in the Leaders or Challengers categories, but with potential to move there soon.

The center-most circle of the GigaOm Radar is almost always empty, reserved for extremely mature and consolidated markets with very few competitors and mature solutions lacking space for further Dim Radar for AlOps v1.0 Dim Radar for AlOps v1.0

5. Vendor Roundup/Overview

What follows is the result of an analysis of information gathered from marketing sources, briefings, and demonstrations. Again, no hands-on testing was performed, and the evaluations are based on the best information available at the time this report was written.

AppDynamics

Now owned by Cisco, AppDynamics focuses on complex multi-cloud deployment with an AlOps monitoring solution. This tool applies machine learning and Al to APM, end-user monitoring, and business performance monitoring, with additional capabilities provided by the App iQ platform. App iQ includes Business iQ capability, which offers intelligent business-centric analytics and dashboards.

The AppDynamics Application Performance Management solution is more business transaction-centric than the other tools reviewed here, focusing on application and end-user monitoring. The tool can proactively identify and fix application performance issues, both passively and actively.

Strengths: Ability to collect and analyze very fine-grained operational data using dynamic dashboards.

Challenges: The collection of products needed to solve the problems is overly complex.

Big Panda

One of the strongest AIOps players reviewed in this report, Big Panda is a leader in terms of impact in the market and innovation. The tool is called BigPanda Autonomous Operations and is defined as a platform for general ops processes, including NOC and DevOps.

Big Panda leverages Open Box Machine Learning, which allows this tool to correlate large amounts of data coming from the systems under management into meaningful information. Another unique feature is the ability to integrate other monitoring tools to use BigPanda as a single-pane-of-glass. Kind of an AlOps for AlOps.

The intelligent correlation of alert data seems to be a uniquely compelling aspect of this technology. Users have noted that they quickly become dependent on this feature, and find that it significantly reduces the noise coming from the systems.

Strengths: The ability to integrate other operations tools, as well as to support DevOps, are key positive differentiators for this tool.

Challenges: Custom integrations are not entirely "out of the box" from a business process standpoint. Some implementations have struggled with this.



BMC

TrueSight Operations Management and TrueSight Orchestration are the tools that enable organizations to monitor the performance of on-premises as well as cloud-based environments. The BMC TrueSight AlOps tool focuses on real-time actionable information coming from the systems under management. There are a few differentiators here to consider, such as the ability to do capacity planning as an integrated feature of an AlOps tool. This is unique, and something that most operations need, but do not yet know it.

More importantly, there are integrated security and governance features that can integrate with SecOps tools and even be leveraged by the SecOps team directly. This tool also supports cost governance, providing cost optimization services that are not as well understood by the ops team.

Strengths: Tight integration with core systems takes this tool to another space that others don't yet occupy, such as providing cost governance. Support for both traditional systems and public clouds.

Challenges: The focus seems to be away from cloud-only deployment, which is rising in popularity.

Broadcom

With its acquisition of CA Technologies, traditional network company Broadcom now has an AlOps technology to sell. Much like the other AlOps stacks from traditional providers, AlOps from Broadcom is clearly an existing infrastructure monitoring platform, with Al capabilities bolted on. However, for most of the enterprises that have leveraged the CA tools in the past, this is one that will work for them.

This tool is more aligned with organizations that have a mix of legacy and modern systems, with onpremises systems as well as in the public cloud. The tool is able to do correlations of monitoring and management data, with a focus on applications, infrastructure, and networks, and works with an automation platform to enable autonomous remediation. It is built using data lake technology, which is coupled with Elasticsearch, Kibana, and Spark.

Strengths: Great enterprise heritage that shows in the ability to deal with the emerging mix of legacy and net-new, cloud-based systems.

Challenges: The tool can be overly complex for some users, and the learning curve is steep.

Dynatrace

The AI capabilities of Davis, the Dynatrace AIOps tool, use a deterministic AI engine. This delivers the precise answers needed to the ops team at the right times. Moreover, this solution works with CI/CD DevOps tools and is able to optimize performance using automated tuning, as well as provide self-healing processes.

This tool is also able to deal with dependencies, analyzing the root causes and reducing alert noise, similar to the other tools reviewed here. It is also a continuous learner, auto-discovering the dynamics of the environment. This automation takes the guesswork out of how to setup and leverage tools such as this.

Dynatrace is able to auto-discover your dynamic environment, and do so in real-time. Davis detects resource relationships at start time, and does not require manual configuration. Moreover, containerized processes leveraging microservices in Kubernetes are mapped automatically. Unlike machine-learning approaches, the deterministic AI engine requires no guessing or time-consuming model learning.

Strengths: Unique feature of dynamic discovery of the environment, as well as evaluating and adapting to changes is a strong feature.

Challenges: The automation may not allow for the degree of custom configuration some enterprises need.

IBM

The IBM Netcool Operations Insight AlOps tool is designed to assist enterprises in running systems pre- and post-digital transformation. This is an older platform that provides an "intuitive" way of doing out-of-the-box integration with all systems under management, providing the ability to ingest events, topologies, and metrics from both traditional and cloud-based systems.

The AI engine in this tool is able to automatically consolidate and group events into logical groups that are easier for the ops teams to deal with. This removes the noise that many ops tools suffer from in getting too much detailed information and has the ability to "bottom line" things for you. Moreover, this tool supports pre-programmed automated responses to provide self-healing capabilities.

IBM's solution is augmented with the portfolio from the Red Hat acquisition.

Strengths: Support for multi-cloud, hybrid cloud, and traditional platforms allows those using the tool to mediate complexity. Ability to reduce the complexity of information coming from the tool and present what is relevant and requires attention.

Challenges: Deployment on premises can be overly complex, certainly more than a SaaS-based solution.

Micro Focus

Micro Focus has several tools in the AIOps space focusing on different aspects of operations, such as networking and CMDB. Its Operations Bridge tools monitor most cloud and on-premises IT resources,

reporting and intelligently correlating alert information coming back from the systems under management. This provides for better understanding of existing or forthcoming issues.

This tool can also automatically launch corrective action processes to fix small issues that don't need human attention. It is able to provide application level monitoring, treating applications as infrastructure devices with specialized alerting. Custom dashboards are supported using standard AlOps analytics and time-series data.

This tool is able to drive automated AlOps with machine learning techniques backed by 50 patents — something Micro Focus considers a proprietary advantage. The technology includes anomaly detection and predictive analytics for all data types, events, and topologies.

Strengths: Great enterprise heritage that shows in the ability to deal with the emerging realities of hybrid IT.

Challenges: The tool can be overly complex for some users, and thus the learning curve is steep.

Microsoft

Microsoft has released Dynamic Thresholds, a new AIOps product for their Azure cloud. This tool, when combined with Microsoft's existing Systems Center Operation Manager (SCOM), forges a solid AIOps beginning for the Azure cloud, and puts Microsoft ahead of both AWS and Google in the AIOps-on-demand space. The other cloud providers depend on third-party tools to provide AIOps around their cloud services.

Dynamic Thresholds are a significant enhancement to the existing and aging Azure Monitor Metric Alerts. When using this tool, you no longer need to manually identify and set thresholds for alerts—they are taken care of by machine learning capabilities to learn metrics' historical behavior. Moreover, the tool can identify patterns that may indicate possible issues with the cloud resources in use, something Microsoft calls "smart metric pattern recognition."

Another feature this tool provides is "scalable alerting," which means no matter how bad things get, you won't saturate the alert process. This is one of the benefits of being on a public cloud, considering the public clouds' ability to scale compared to static on-premises resources. To process the alerts effectively, this tool supports domain knowledge, applying predefined learning data about the monitoring and management of cloud-based resources, such as storage and compute. Finally, it can leverage this domain knowledge to aid in the initial configuration of the AlOps tool and connections with resources to be managed.

Strengths: If you are a Microsoft shop running the Azure public cloud, this is perhaps your best choice due to the native support for Azure built into the tool.

Challenges: Not applicable to organizations that leverage cloud platforms other than Azure, or are

running many applications outside of Azure.

Moogsoft

The Moogsoft AlOps platform assists enterprises in automating service assurance, for both onpremises and cloud-based systems. This tool is able to analyze billions of events each day in and between complex deployments, such as multi and hybrid-cloud.

Moogsoft leverages AI to provide a layer of intelligence for detecting and automating the resolution of ops issues. Unlike other tools evaluated in this report, Moogsoft AIOps takes a workflow approach to ops, by defining how to spot and correct issues within a logical grouping of tasks.

Like other tools reviewed here, users filter data and events coming from the systems under management, and direct data to the appropriate processes and ops staffers. The idea is to establish a system that does not "cry wolf" and instead alerts ops only to critical events that need human intervention.

With this approach, noisy alerting systems are monitored but not acted upon. The tools correlate alerts and groups, and act only on those that need resolution. The approach examines the root causes and prescribes a solution. Notably, the solution works and plays well with others and provides out-of-the-box integration with security systems, as well as DevOps tool chains.

Strengths: Good use of machine learning, as well as root cause analysis. Good integration with other tools that ops depends on, including DevOps and security tools.

Challenges: Lacking some resolution automation services, as reported by Moogsoft users.

New Relic

Just released at the time this report was published, New Relic One AI provides intelligent ops services, including what seems to be an emerging tables stakes feature — the intelligence to consolidate and understand alert noise. Also included is incident tracking with better context, as well as automation to responses.

This tool leverages access to an "NRDB" database (the New Relic Database), a standard telemetry database leveraged by New Relic, as well as to other ops tools it provides. Other features include:

- Proactive detection, leveraging vast amounts of data combined with machine learning to figure out issues with systems under management proactively.
- Incident intelligence to reduce alert noise and diagnose and respond faster, including integration with humans on-call to fix issues.

 Deep integration with existing incident management workflows, which makes many of the problem detections to resolutions easier to integrate, especially those who are already leveraging New Relic tools.

Strengths: Rich use of data from the AIOps tools, as well as previously leveraged New Relic tools, provide a key strategic advantage for AIOps.

Challenges: Lacking native self-healing capabilities. It needs to integrate with third-party systems to correct issues automatically.

OpsRamp

The OpsQ AlOps tool for OpsRamp focuses on event and alert management, again abstracting the operational staffer away from a confusing amount of data. This contextual awareness is the selling point of OpsQ, as is the ability to self-heal through "actionable automation."

OpsRamp provides the ability to do unified analysis of the data it gathers to determine holistic patterns that can be acted upon. This includes the ability to determine the root cause of an issue, and effect instantaneous remediation.

As far as monitoring public clouds go, this AIOps platform does real-time identification of issues in and around the cloud computing deployment. This includes intelligent management allowing enterprises to abstract multi-cloud complexity, as well as to monitor legacy environments at the same time.

Strengths: Ability to collect and analyze very fine-grained operational data using dynamic dashboards.

Challenges: Use of agents to gather data may make deployment more complex.

Science Logic

This tool is the most customizable of all the products assessed here. The ScienceLogic SL1 platform is able to monitor a wide variety of on-premises and off-premises systems, including all public clouds in hybrid or multi-cloud configurations. Its ability to monitor across domains is a core asset, as is its ability to make ops processes consistent during operations.

ScienceLogic is unique in that it provides customized views that are most relevant to each ops team member, across networking, server, database, storage, and other domains. Moreover, these views can be distributed to those inside and outside of the company in support of distributed and inter-company operations.

Strengths: Best customization of all tools reviewed, and thus providing the most flexibility in creating specialized views for each ops role.

Challenges: The many interface elements could get overwhelming at times.

Splunk

There are two flavors of AlOps from Splunk: Splunk Enterprise, and Splunk Cloud, which is simply a cloud version of Splunk Enterprise. The latter provides some advantages, including the choice of using a SaaS-based version or an on-premises version, each of which is purpose-built for its deployed environment. Most of the other tools reviewed here allow for use in the cloud, but really as an on-premises platform analog.

Splunk incorporates an AI-enabled log processing tool. It is able to create a database of information that can be queried via a very usable interface, which means the ops staffer will get answers quickly. This functionality includes access to historical log data and the ability to trace events down to the specific application level. Data abstractions are useful, as is the ability to provide good visualization box integrations.

Strengths: Focused on the pragmatic aspects of operations, providing flexibility that many of the other tools reviewed here don't.

Challenges: Focus on logs can be limited at times.

6. About David Linthicum



David Linthicum is a CTO and internationally renowned thought leader in cloud computing. David has spent the last 25 years leading, showing, and teaching large global enterprise organizations across all industries how to use technology resources more productively and constantly innovate.

David has been a CTO five times for both public and private companies, and a CEO two times in the last 25 years. David has published 13 books on computing and his thought leadership has appeared in Wall Street Journal, NPR, Forbes,

InfoWorld and Lynda.com. He has expanded the vision of both startups and established corporations as to what is possible and achievable.

All of David's opinions are his own.



7. About GigaOm

GigaOm provides technical, operational, and business advice for IT's strategic digital enterprise and business initiatives. Enterprise business leaders, ClOs, and technology organizations partner with GigaOm for practical, actionable, strategic, and visionary advice for modernizing and transforming their business. GigaOm's advice empowers enterprises to successfully compete in an increasingly complicated business atmosphere that requires a solid understanding of constantly changing customer demands.

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