

Leaders in Advanced IT Analytics (AIA)

A Buyer's Guide for Investing in Innovation



MOOGSOFT

LOOK FOR:
A SITUATION ROOM TO
TRANSFORM OPERATIONS
MANAGEMENT

MOOGSOFT HAS BEEN SELECTED AS A LEADER IN ADVANCED IT ANALYTICS (AIA)

To do achieve this, Moogsoft met the following criteria:

- Support for performance, availability and change impact awareness with both real-time and historical insights.
- Assimilation of data from cross-domain sources in high data volumes for cross-domain insights.
- The ability to access multiple data types, e.g. events, KPIs, logs, flow, configuration data, etc.
- Capabilities for self-learning, to deliver predictive, and/or prescriptive, and/or if/then actionable insights.
- Support for a wide range of advanced heuristics such as multivariate analysis, machine learning, streaming data, tiered analytics, cognitive analytics, etc.
- Potential use as strategic overlay that may assimilate or consolidate multiple monitoring investments.
- Support for private cloud, public cloud, as well as hybrid/legacy environments.
- Successful completion of this unique EMA assessment, including required dialogs with customer deployments.



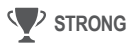
COST ADVANTAGE	Time to value	 STRONG
	Administration and support	 OUTSTANDING
	Toolset consolidation	 STRONG
ENVIRONMENTS	Cloud for performance management	 STRONG
	Cloud for change, capacity/cost optimization	 IN PROCESS
	Core infrastructure (network/data center)	 OUTSTANDING
	Legacy/mainframe	 PRESENT
	Application performance and availability management	 STRONG
	IoT	...
SCENARIOS	Agile/DevOps	 IN PROCESS
	Integrated Security	 PRESENT
	Change Impact Awareness	 STRONG
	Capacity optimization	 PRESENT
	Business impact	 STRONG
	Business alignment	 IN PROCESS
	Unifying IT	 OUTSTANDING

LEGEND



OUTSTANDING

The vendor is exceptional in this arena. As such, it is a core reason for choosing this vendor.



STRONG

The vendor has powerful options associated with this criteria—yet another good reason for selecting a particular solution.



IN PROCESS

This is an area of growing investment for the vendor, and already very real in some deployments—but not yet either fully realized, and/or a main focus.



PRESENT

Some capabilities are present (often driven by unique customer demand), but it is not central to the vendor's current offering



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This is not currently being addressed.

Product:

Moogsoft AIOps



Introduction

Moogsoft AIOps was designed with the single-minded focus to enable IT operations, site reliability, DevOps, and application support teams to industrialize their ability to manage complexity and change by improving operator's signal-to-noise ratio and enabling proactive remediation of customer-impacting incidents.

Moogsoft claims that its AIOps platform is the industry's genius professor of IT events, alarms, and status message reductions, using sophisticated algorithms (15 patents and counting) to aggregate and analyze millions of data points in real time and correlate data into clustered "situations." Moogsoft dramatically reduces the mean time to detect (MTTD) of service-impacting incidents and reduce the mean time to remediate (MTTR) by helping operators identify root causes across otherwise isolated teams with segregated layers of expertise.

Through the use of situations, Moogsoft AIOps demonstrated reductions in service desk tickets by 86 percent in DevOps environments. Situations are analogous to ITIL incidents; however, in Moogsoft they are escalated to a virtual war room ("Situation Room") where the software identifies and assigns situations to experts from across teams to quickly resolve them. This knowledge is then fed back into the algorithms as situational DNA automatically capturing and dynamically managing tribal knowledge, with the goal of helping empower every employee by utilizing past data to inform future actions.

Moogsoft defined a critical industry requirement and went very deep with their solution. AIOps sits on top of existing vendors whose tools extract data from applications and the infrastructure, and extends across automation, service management, log indexing, and notifications. With over 50 official integrations (and a REST API and web-hooks for other integrations), AIOps provides contextual, actionable advanced IT analytics so desperately needed in a sea of rising metrics and complexity.

Company Background

Founded in 2012, Moogsoft is a next-generation Advanced IT Analytics (AIA) company targeting the use of algorithms and automation to dramatically increase the efficiency of IT operations and DevOps. It is a modestly-sized (fewer than 250 employees), private company. The company is well-funded by an investment circle that includes seven venture capital and institutional firms, including Redpoint, Cisco, and HCL.

Market Focus

Moogsoft AIOps targets core issues common to IT organizations across all markets. As such, the company does not limit itself to verticals and sells into a wide range of customers including banking and finance, digital entertainment, MSPs, and government. With strength in high-volume, dynamic environments where the need for automation and rapid problem response is paramount, Moogsoft customers tend to be at the small enterprise level (5,000 employees) and above. AIOps provides value across a broad range of IT technical silos. As such, most sales are made at the CIO or VP of Operations levels.

Stakeholders

The need for clean, relevant, and correlated data is ubiquitous across IT. AIOps serves a wide variety of stakeholders including applications management, development and DevOps, systems and infrastructure management, ITOps, mobile management, configuration and change management, capacity planning, user experience management, and IT executives.

Architecture and Design

Moogsoft's AIOps architecture differs from traditional manager-of-manager solutions. Instead of relying on defining rules, topology, and configuration models, AIOps uses a powerful algorithmic inference drawn from alerts, events, and status messages aggregated across the infrastructure. These are clustered, analyzed, and ranked before being sent to all stakeholders with the contextual information needed for rapid response.

The solution is instrumented across the data center, applications, and the network including public cloud, private cloud, and virtualized environments. It can support all IT domains, applications, devices, and services. Once installed, AIOps learns its environment dynamically without the need for further administrative intervention.

Data Collection

AIOps excels at data collection and aggregation since these are fundamental to the algorithmic inference engine. Data collection is done mostly through tools that already exist in the infrastructure. AIOps reuses the data the customer already gathers rather than attempting to rediscover it natively. For example, event sources such as application performance management (APM) tools already have service maps, so AIOps does not duplicate that discovery process. It can consolidate and simplify data from Splunk, SolarWinds, IBM Tivoli, BMC Event Manager, HP OpenView, etc. Data can even be extracted from unstructured or non-traditional sources such as Excel spreadsheets and Twitter.

Heuristic and Analytic Dimensions

The key to AIOps is the inference engine, which allows concise, actionable situations to be drawn from millions of data points in real time. The inference engine de-duplicates events, analyzes entropy (i.e., prioritizes non-recurring events), breaks messages down into tokens and words for whitelisting and blacklisting analysis, and then correlates events (for instance, a storage unit going down might cause a database failure). This is all done in real time.

AIOps is focused squarely on IT operations. It takes a pragmatic approach to automating many of the pain points of problem resolution, excelling at correlation, anomaly detection, machine learning, and self-learning heuristics. Once a situation is generated, AIOps creates a unified workflow. It identifies the best collaborative team based on algorithms, which automatically align tasks to the most expert employees with previous experience working on similar problems. Finally, it uses enterprise social media-like capabilities to assemble the best team in a "Situation Room" for a virtual NOC-like collaboration.

Discovery, Dependency Mapping, and Visualization

Using the relationship inference through its powerful algorithm, AIOps does not need to do legacy-style discovery.

Application Discovery and Dependency Mapping

Application dependency mapping and service topologies are gathered from existing tools and data stores in the environment. For example, AIOps may use configuration management system (CMS) data or other sources, such as APM monitoring tools.

Visualization

AIOps boasts an extensive collection of visualization tools, including an executive dashboard (Real-Time Situation Dashboard), portal, Kan-ban style scorecards (Situation Boards), templates, widgets, mash-ups, and web and mobile browser-based end-user access. Customers wishing to use alternate big search and analytics tools will find support for Elasticsearch a useful addition.

Supported Environments

Cloud Performance Management

As an AIA solution that does not gather its own metrics and events, AIOps is agnostic to the source of the data. Cloud performance data from third-party sources can be fully analyzed using the software. In addition to performance benefits, AIOps improves efficient use of cloud resources and effective service delivery across the cloud.

Google Cloud, Amazon Web Services (AWS), and Microsoft Azure are currently supported for both performance and capacity optimization. Performance problems with both cloud-native applications such as containers and microservices, as well as issues with virtual infrastructure, are also addressed.

Cloud for Change Management, Capacity Optimization, and Cost-Related Insights

Change management and capacity optimization are not specific targets for Moogsoft. However, the analytic insights provided by AIOps can be used by both processes. For example, it is a best practice for administrators to check for any new situations before pushing changes into production. If a change causes a problem, detection occurs in a few seconds from AIOps instead of ten minutes or more from traditional sources.

Core Infrastructure (Network and Data Center)

Core infrastructure management is central to Moogsoft AIOps, and technical triage and diagnostics are among its most robust features. This results in overall improved OpEx efficiencies within IT (cost reduction).

Problem isolation and triage can occur across the entire IT data center infrastructure. Significant benefits include: faster time to repair problems, proactive ability to prevent problems, optimized capacity, change correlation with performance and incidents, and an improved end-user experience. With no rules to define, and no business logic or configuration and topology models to create and maintain, the administrative impact to data center staff is minimal.

Legacy and Mainframe

Mainframe events are aggregated for use in the algorithmic inference engine and can be used like any other data source.

Application Performance and Optimization

AIOps supports a wide range of applications, essentially requiring only a timestamp and a message that can then be ingested into the aggregated data stream for the inference engine. The solution is agnostic to the type of application. This data can be used for application availability, performance, or optimization needs through APM integrations.

Internet of Things (IoT)

IoT is not a primary focus for AIOps. However, any service or device with an IP address that generates alerts or messages can be integrated into the alert aggregation stream.

Scenarios

Integrated Security

Security has so far not been central to Moogsoft deployments, although AIOps situations can be used to isolate security-related issues.

DevOps

DevOps is a growing use case for AIOps because enterprise IT operations traditionally utilized the software. However, Moogsoft reports that some organizations use the solution to provide rapid feedback to development from production to troubleshoot performance problems and optimize application performance. Small pockets of DevOps teams are also currently using AIOps to support QA/Test environments and directly support the application development process. Moogsoft expects increased adoption by DevOps, Site Reliability Engineering, and Application Support teams as broader trends of IT decentralization occur.

Change Impact Awareness

AIOps is sensitive to any outages across applications and the infrastructure, including those caused by change. An outage correlated to recent changes is consolidated and prioritized into a situation that can be exported to the change management system. Using AIOps to determine whether other situations exist that could possibly impact a change before it is rolled into production is a change management best practice in many AIOps deployments.

Capacity Optimization

Capacity optimization is not among the core AIOps use cases. While the data from AIOps can be used for capacity optimization and planning, the software is not focused on historical trending and optimization requirements.

Business Impact and Business Alignment

With a laser focus on operations, AIOps data primarily supports service-level agreement (SLA) metrics, allowing both IT and non-IT stakeholders to understand the business impact of every incident. Executives, line-of-business VPs, online operations directors, everyone wants to know about their applications – repeated issues, time to resolve, duplicate ServiceNow tickets.

AIOps also helps enable a better alignment between IT service and business service performance. For instance, it can correlate internal issues with user sentiment from social media sources such as Twitter. Business planning, partner management, supply chain management, user experience management, and the digital marketing officer are all potential users of AIOps data. AIOps does not provide historical PDF-style reports for non-IT stakeholders, although limited reporting will become available in September 2017.

Unifying IT and Improving Operational Efficiencies

AIOps is singularly focused on improving the efficiency of IT operations. Once data is correlated and analyzed, intelligent workflows promote discussion between the experts, eliminating common problems with finger pointing and data hoarding. This is particularly true of specialized teams that struggle with maintaining awareness across organizational silos and that carry competing SLAs.

Once resolved, the team in the Situation Room acknowledges, ranks, and closes the incident. Based on the resolving steps, AIOps can be configured to automate future actions based on similar situations (Situation Matching). For example, a script can be executed to restart a process, update a ServiceNow ticket, or trigger a Moogbot (custom JSON or JavaScripts) to automate any action. Native ChatOps integration is also available.

Moogsoft AIOps' algorithms also identify the team members who were instrumental in resolving the issue, creating a roster for future situations with the same characteristics.

Pricing, Deployment, and Time to Value

Pricing is based on per physical (server) or virtual device—Moogsoft refers to these as Managed Entities (MEs). MEs include anything with a unique IP address sending telemetry to AIOps, including edge devices. AIOps is available on-premises, hybrid cloud, and as a software as a service (SaaS) offering with both private or public cloud deployments. Maintenance fees are ten percent for Gold maintenance and fifteen percent for custom maintenance packages.

Time to Value

Initial installation at an enterprise customer takes four to six weeks. This includes setting up the alert aggregation system to pull events into AIOps and calibrating the algorithms. This process needs to be done only once, but it requires some assistance from Moogsoft to complete. An online, self-service trial version is now available for customers to use, although a Moogsoft engineer is still assigned to help customers as needed. The solution will support up to 500,000 entities at standard size scaling. Using horizontal scaling requires a larger hardware footprint, but extends the number of entities managed to 1,000,000.

Once installed, the software typically takes three to seven days to fully “learn” a typical enterprise environment with 5,000 managed entities, utilizing a blend of unsupervised (AI) and supervised (tracking operator feedback) machine-learning techniques. It will aggregate up to 100,000 events in a five-minute period with standard scaling, and up to 500,000 events in five minutes for a horizontally-scaled installation. The largest Moogsoft customers handle over one billion events per day.

Ongoing maintenance (after initial installation and configuration) of AIOps typically requires only one part-time person, even at large enterprise operations.

Longer-Term Value: Toolset Consolidation

Moogsoft AIOps can be an excellent venue for toolset consolidation, since the software sits on top of existing tools, using its powerful algorithms to help operators make sense of the ocean of data generated every second. With more than 50 official integrations, AIOps is positioned as an extensible platform that is developed to play well with others.

One area in which Moogsoft is seeing additional consolidation is in replacing legacy service desk tools in certain IT environments, citing superior granularity in data, next-generation social IT integration through the “Situation Room,” and the ability to automatically cull the mountain of “closed with no action” tickets.

Maintenance Fees and Customer Support

Moogsoft provides online support, 24x7 phone support, and business hours support, based on the support package chosen by the customer. Onsite support is also available.

Professional services are focused on planning and deployment, performance and diagnostics, and service-level management. These are delivered through a 50/50 mix of internal and partner resources in North America and Europe. Professional services will be offered in other territories in the future.

Customer Perspectives

International Bank

“We had our old network monitoring tool and AIOps side by side on the big monitors when an outage took out our trade floor in New York City. On one screen, our old solution turned to a sea of red—it was a massive alert storm that gave us no context for what was happening. On the other screen, Moogsoft showed a single situation with all 6,000 alerts collated and in context. Mean time to repair (MTTR) was drastically reduced. Needless to say, the next week the network team moved to using Moogsoft exclusively.”

“With Moogsoft, there are significantly fewer surprises. AIOps feeds into our automated notification software, and it even helps pull together the right people for incident response management teams, when needed. In addition to a lower MTTR, our P1 incidents have decreased by 60% since Moogsoft was rolled into production.”

Summary

What This Vendor is Not About

Moogsoft's AIOps is not a change or capacity management system, although the information generated by the solution is useful to both. It has limited capabilities for security and SecOps at this time.

What's Most Unique

Moogsoft holds 15 patents (and counting) for algorithms that help filter millions of data points and events that flood IT every minute into a small number of actionable situations. This is done in real time and greatly reduces the signal-to-noise ratio that swamps most IT departments, with impressive results in reducing service tickets by up to 86 percent. A second unique value in the AIOps solution is the "Situation Room," which leverages the full power of modern social media—from Twitter hashtags to Slack and HipChat—in order to quickly assemble an expert, cross-domain team for fast problem resolution. Social ratings of both issues and personnel apply a modern paradigm to increasing IT efficiency and collaboration.

Interview: CTO, Human Capital Management Company

The following interview highlights AIOps, Moogsoft's Advanced IT Analytics (AIA) solution, relevant to a large global SaaS company with 24x7 around-the-world demands.

What pain point are you addressing with Moogsoft?

"We are a large global SaaS software company spread over 10 data centers with 6 million data points (e.g., alerts, events, etc.) generated per month. Our customers demand 24x7 availability for our SaaS solution. Before AIOps we used seven primary monitoring tools, each with their own dashboard, to track performance and availability across the globe. We had tons of data but it was difficult to extract information from the noise.



COMPANY CONTACT INFORMATION

Moogsoft
1265 Battery Street
San Francisco, CA
94111
415 738 2299

www.moogsoft.com

"When a problem occurred, we would notify the line-of-business executive that 'server X went down' without really knowing the impact to end users or being able to estimate how long it would take to resolve the issue. It would take phone calls and 45 to 60 minutes to assemble a tiger team, and then the finger pointing would begin. It was an inefficient and expensive process. We had too many people and tools involved."

How has Moogsoft helped?

"AIOps is the nexus where all our monitoring tools come together. AIOps correlates and normalizes all of our monitoring data, allowing us to focus on the exceptions—and the numbers are staggering. We found 99.6% of all alerts and events are monitoring noise—just normal metrics. AIOps takes the 0.4% that are actually important (e.g., anomalies, metrics trending in the wrong direction, etc.), groups the alerts into *situations* and assembles the tiger team for resolution. The data is now contextualized—every data point gives us some value, information or context."

How does a 99.6% reduction in monitoring noise impact IT and the business?

“As you can imagine, our mean time to detect (MTTD) and mean time to repair (MTTR) have improved significantly. Almost immediately, our MTTR went down by 40%. I’m really excited about the future, however, because the algorithms continue to be tweaked for improved efficiency and the machine learning features allow use to rate resolutions which makes the process better. We are starting to implement automated scripts for common problems like rebalancing loads and restarting services. In time, we hope to have a single click solution for our engineers to eliminate the need to assemble the tiger teams for recurring issues.

“The business is behind AIOps too. Now, when a server goes down, we can report to the line-of-business executive that the impacted customers have already been notified, what the impact is, and we can even provide a meaningful estimated time to repair. Communications is more effective both internally and with customers, and AIOps is helping our lines-of-business build brand trust.”

How has AIOps helped unify IT?

“IT now has a single pane of glass. Our seven monitoring dashboards are being replaced with one—AIOps. With everybody looking at the same data, the traditional IT silo barriers are breaking down. The *situations* are correlated, and the triage results are ranked—so there is a focus to solve the problem.

“In addition to IT and the lines-of-business, DevOps is using Moogsoft to correlate performance and availability impact in our Preview environment. As you can imagine, our development process undergoes rapid and continuous change. The algorithms give great insight into how the application and infrastructure components are interconnected in ways that we couldn’t see with our siloed tools.”

Any last thoughts on Moogsoft and AIOps?

“The Moogsoft staff has been wonderful to work with on this project. Implementation took about 90 days, and we spent another 90 days tuning the algorithms and training. Throughout the process, our urgency was their urgency. They really understood what large enterprise customers need, and they worked efficiently and responsively to insure our success.”

About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on [Twitter](#), [Facebook](#), or [LinkedIn](#).

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Corporate Headquarters:

1995 North 57th Court, Suite 120
Boulder, CO 80301
Phone: +1 303.543.9500
Fax: +1 303.543.7687

www.enterprisemanagement.com

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