

# Magic Quadrant for Application Performance Monitoring

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Along with greater support for cloud infrastructure, digital experience and business journeys, APM vendors are expanding their ability to predict how application performance impacts digital business. I&O leaders selecting APM software must weigh these capabilities against ease of use and automation.

## Strategic Planning Assumption

By 2025, 50% of new cloud-native application monitoring will use open-source instrumentation instead of vendor-specific agents for improved interoperability, up from 5% in 2019.

## Market Definition/Description

Gartner defines application performance monitoring (APM) as software that facilitates application monitoring to meet three main functional dimensions:

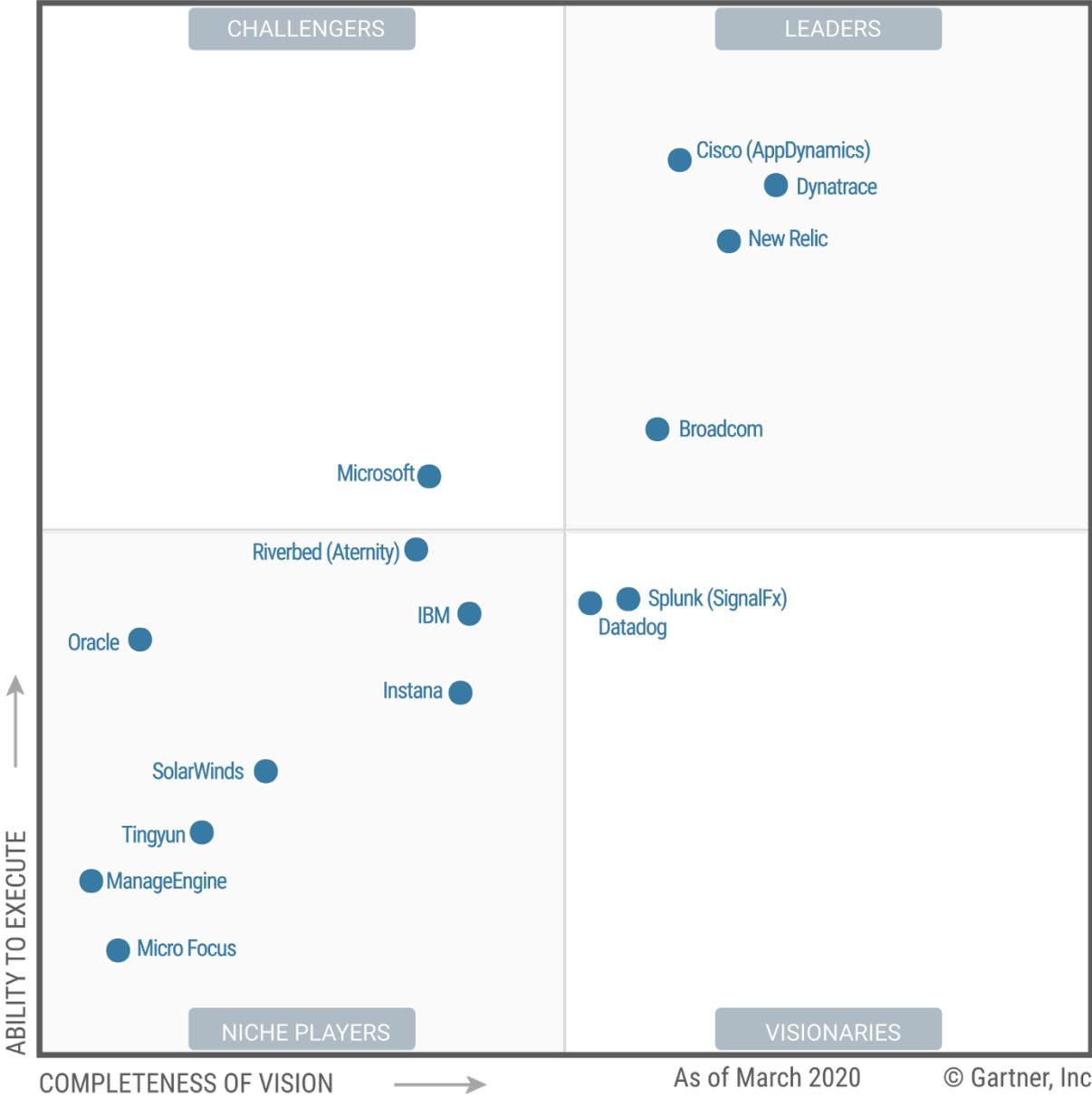
- **Front-end monitoring:** This availability and performance monitoring discipline is an element of digital experience monitoring (DEM; see “Market Guide for Digital Experience Monitoring”). For the purposes of this research, it will include support for real-user monitoring (RUM) and synthetic transaction monitoring for both web- and mobile-based end users. This description of front-end monitoring is an evolution from last year’s Magic Quadrant for Application Performance Monitoring, where it was referred to as digital experience monitoring. DEM contains a larger set of technologies than those used in APM.
- **Application discovery, tracing and diagnostics (ADTD):** This refers to automated discovery of web servers, application servers, and microservices, as well as application frameworks and platforms (such as containers, orchestration mechanisms and service mesh). ADTD determines the relationships between these elements through the observation of an application’s HTTP/S transaction behavior using bytecode instrumentation (BCI) and/or distributed tracing.
- **Analytics:** The APM solution must provide domain-centric artificial intelligence for IT operations (AIOps) functions, using AI/machine learning (ML), here referred to as analytics (see “Market Guide for AIOps Platforms”). To accomplish this, the APM solution will employ event correlation,

anomaly detection and root cause analysis (RCA) algorithms on APM-acquired data within the context of topology. The solution also may provide domain-agnostic capabilities for events acquired from third-party collectors. This description of analytics is an evolution from last year's Magic Quadrant for Application Performance Monitoring, where it was referred to as AIOps. AIOps, itself can address a broader set of use cases beyond those in APM.

Gartner continues to include aspects of DEM (now referred to in the APM Magic Quadrant as front-end monitoring) and aspects of AIOps (now referred to in the APM Magic Quadrant as analytics) as components of our APM software evaluations. We also evaluate them as separate subsegments of the performance analysis market.

# Magic Quadrant

Figure 1. Magic Quadrant for Application Performance Monitoring



Source: Gartner (April 2020)

## Vendor Strengths and Cautions

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### Broadcom

Broadcom, a public company headquartered in San Jose, California, competes in the APM market via the November 2018 acquisition of CA Technologies. The APM offering is a key component of Broadcom's AIOps solutions, under the company's Enterprise Software Division.

Broadcom's core APM offerings are DX Application Performance Management and DX SaaS, for on-premises and SaaS deployments and capabilities. These include infrastructure, network, end-user experience, business transaction, cloud and mainframe monitoring.

Broadcom has focused on supporting cloud-native application and infrastructure environments, open monitoring standards, analytics delivered through AIOps, and data ingestion from other platforms, including competing offerings. Broadcom has invested in support for third-party data, which can be stored in the same model as data collected by the vendor and thus can be utilized in a common root cause analysis.

Recently, the company also introduced its Digital BizOps Starter Edition, which bundles product offerings such as automation, testing, monitoring and agile planning targeted at small and midsize organizations.

Broadcom's roadmap is centered around AIOps as a unifying platform across domains, DevOps automation and predictive analytics of code release impact on application performance. It plans to expand use of its universal agent for improved management and further incorporation of third-party data, including business metrics that can correlate with technology KPIs.

Broadcom introduced a Portfolio Licensing Agreement (PLA) targeted at its top 1,000 global enterprises, which it claims increases adoption of its products. It offers customers contracts ranging from one to five years with unlimited access to products within the entire Enterprise Software Division portfolio or within specific segments. Customers falling outside of the core 1,000 accounts are served directly by inside sales or can purchase Broadcom products through partners around the world. Broadcom's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated at between \$250 million and \$500 million.

### Strengths

- Broadcom provides support for distributed tracing via open-source technologies and ingesting data collected from competing vendor agents.
- Broadcom's PLA model benefits large organizations that want to increase APM capacity as part of a wider investment in infrastructure software or across the broader Digital BizOps portfolio.
- Broadcom's Digital BizOps Starter Edition enables small and midsize organizations to deploy for free APM alongside automation, testing, and project and enterprise agile management product categories, without expiration for a small number of licenses.

## Cautions

- Broadcom's penetration into cloud-native operations and DevOps teams remains behind competitors.
- Broadcom's APM offerings appear on shortlists less frequently than many competitors analyzed in this research, based on survey and inquiry data.
- The PLA pricing model may not be a good fit for customers seeking to reduce their spending with Broadcom.

## Cisco (AppDynamics)

Cisco, a public company headquartered in San Jose, California, offers an APM solution following its acquisition of AppDynamics in 2017. AppDynamics offers both an on-premises and a SaaS-based APM solution, with a common architecture across both deployment models.

The AppDynamics solution suite includes core APM, end-user monitoring, infrastructure visibility and business performance monitoring. Over the current research period, AppDynamics has focused on improving its scalability, with improved agent-to-controller ratios and metric ingestion rates. AppDynamics updated its user interface, enabling more intuitive workflows built around faster time to root cause. Release cycles have accelerated from a six- to nine-month cadence to a one- to two-month cadence to align with fast-changing application environments. This has led to some progress in monitoring ephemeral cloud infrastructure. AppDynamics continues to invest in its Business iQ solution, which allows real-time monitoring and analysis of business performance metrics across transactions and applications.

Recently, the company announced integrations with Cisco Workload Optimization Manager (CWOM) and Cisco Application Centric Infrastructure (ACI).

The AppDynamics roadmap supports its Central Nervous System vision and includes four pillars: (1) an AIOps platform including its Cognition Engine and support for multidomain data; (2) new insights across business data, user journeys, infrastructure and security; (3) better workflows and support for cloud-native environments and DevOps users; and (4) improved usability. The latter includes investing in a zero-friction install process to simplify agent deployment. Cisco sales teams and partners continue to sell AppDynamics Visibility Packs, which have generated customer interest for AppDynamics, particularly in midsize organizations.

AppDynamics historically has sold to midsize to large enterprises, both direct and through independent partners, and more recently, also through Cisco account managers and its partner network. AppDynamics' revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated to range from \$500 million to \$750 million.

## Strengths

- Based on the Magic Quadrant survey and Gartner inquiry data, end users rate AppDynamics business analysis capability, through the Business iQ solution, the highest among all APM vendors surveyed.
- Progress in leveraging Cisco partners and extensive field sales with the AppDynamics Visibility Pack and inclusion as part of Cisco Enterprise Agreements has allowed AppDynamics to expand to new logos.
- AppDynamics Cognition Engine (leveraging AI-powered root cause analysis) has shown improvement and is rivaling its competitors.

## Cautions

- AppDynamics' cloud-native monitoring strategy has lagged in feature cadence compared with leading competitors, including its contribution to the OpenTelemetry standard.
- AppDynamics' position within the broader Cisco technology stack remains unclear to end users, with inconsistent messaging about Central Nervous System.
- End users in the Magic Quadrant survey and in inquiries cite tool expense and pricing/contract inflexibility as inhibitors to broader application adoption.

## Datadog

Datadog, headquartered in New York, New York, became a public company in September 2019. Datadog's SaaS offering initially focused on cloud infrastructure monitoring, but recently expanded to deliver a full-stack monitoring solution that includes APM.

The Datadog solution includes core APM, infrastructure monitoring, elements of network monitoring, log analytics, DEM and AIOps. Datadog recently added DEM capabilities with support for RUM and synthetic monitoring, accelerated by its acquisition of Madumbo in 2018. Datadog's solution is built on a common data model enabling AI/ML analytics, including event correlation, anomaly detection, and RCA across all supported data sources and stacks. The vendor is one of the few offering a single-agent architecture for events, metrics and traces. This aids in ease of deployment. Datadog supports open source, including OpenMetrics and OpenTracing. Its log analytics solution, built upon its 2017 acquisition of Logmatic.io, collects logs via the unified Datadog agent, a Lambda function, and directly via the HTTPS API. The solution supports both client-side and server-side filtering. Datadog is widely deployed for hybrid cloud infrastructure monitoring, but its use as a full APM solution is less proven than that of other leading solutions.

In September 2019, Datadog had an IPO and a significant number of customers. Datadog is ramping up sales investments globally, growing a network of channel partners, and building out a professional services and technical support organization for large enterprises.

Datadog's roadmap includes support for always-on profiling with AIOps, end-to-end tracing from the browser, security analytics, mobile monitoring, synthetic monitoring integration with the

continuous integration/continuous delivery (CI/CD) pipeline, support for querying logs and traces in cold storage, and support for OpenTelemetry when it is available.

Datadog recently increased investments in a high-touch, multichannel enterprise sales model. Datadog's revenue derived from sales of APM suites (excluding professional services) in 2019 was estimated to be less than \$50 million.

### Strengths

- Datadog provides an extensive library of integrations including orchestration, containers, service mesh, public cloud, messaging, DevOps toolchain, Internet of Things (IoT), databases and OpenTracing.
- Datadog provides compelling pricing, offering APM host-based, per-unit pricing lower than some similarly featured competitors.
- End users report that Datadog is fluent in modern application development and delivery, and focused on the areas that are important for newer architectures.

### Cautions

- Datadog's APM solution, launched in 2017, has workflows for problem diagnosis that are less mature than those of its competitors.
- Datadog's professional services for highly custom and complex APM deployments are less mature than the competition.
- Datadog's granularity of call stack tracing is still developing.

### Dynatrace

Dynatrace, headquartered in Waltham, Massachusetts, became a public company in August 2019. Dynatrace's product offering is available on-premises, as a managed service and as SaaS, all using the same architecture.

The Dynatrace solution includes core APM, infrastructure monitoring, elements of network monitoring, log analytics, DEM and AIOps. Unlike some competitors' offerings, Dynatrace's AI/ML is not sold as a separate module. It leverages real-time topology and AI algorithms to analyze events, metrics and traces. It automatically detects anomalies, business impact and root cause across users, applications and infrastructure. Dynatrace has continued its support of open source with participation in standards groups, including the CNCF and the W3C.

In October 2019, Dynatrace released its Digital Business Analytics product, providing understanding of the dependencies between performance, customer experience and business outcomes. The August IPO was a milestone for Dynatrace, with significant recent growth in R&D personnel. The company is using its increased visibility in the market to cross-sell beyond APM to offer customers business analytics, DEM, IT infrastructure monitoring (ITIM) and AIOps as add-ons.

Dynatrace's roadmap includes enhancement to AIOps, support for OpenTelemetry, end-to-end tracing through IBM Information Broker, W3C Trace Context support, distributed tracing for C++, public cloud topology mapping, database instance monitoring and FedRAMP authorization. It also plans to offer the use of session replay for native mobile applications, security monitoring, and additional investment in hybrid multicloud support and automation.

Dynatrace has focused its sales efforts on the largest 15,000 global enterprises and technology-focused small and midsize businesses (SMBs). It works with a global network of partners including system integrators (SIs), software vendors, and cloud and technology providers. Dynatrace's revenue derived from sales of APM suites (excluding professional services) in 2019 was estimated to be between \$250 million and \$500 million.

### Strengths

- Dynatrace's OneAgent architecture continues to provide simplified agent deployment, both natively and in its capability to autoinject itself into containers at runtime.
- The vendor's common data model and platform-embedded AI/ML support consistent analysis across APM, ITIM and DEM, as well as third-party data.
- Dynatrace has a higher rate of new feature introductions than the competition.

### Cautions

- Dynatrace's migration from the prior incarnation of synthetic monitoring to the newer, cloud-based approach can cause challenges in usability and breadth of support, such as only supporting Chrome for synthetic transactions.
- The first release of Dynatrace's Digital Business Analytics had fewer features and automation than some of its competitors.
- End users report that they find Dynatrace's pricing model confusing and that it could be simplified.

### IBM

IBM, a public company since 1911, is headquartered in Armonk, New York, and has participated in the APM market since 2003. Its current APM solution, IBM Cloud App Management, was introduced in 2018. Cloud App Management is delivered as a cloud-native application that can be deployed on-premises or in the cloud.

The simplification of IBM's APM offering represents a shift from its broader APM portfolio, which included numerous products, to one focused on cloud-native architectures. The CAM solution, based on a single web-based UI with configurable dashboards, focuses on using lightweight data collectors (primarily based on Telegraf agents) to harvest metrics and traces from cloud-native application runtimes. This is combined with recently added synthetic monitoring and RUM to provide end-user experience metrics. IBM maintains support for its legacy APM suite by offering a dual-path agent, allowing CAM to ingest data from legacy agents. This ability is also a part of the

Cloud Pak for Multicloud Management that is sold as part of IBM's Cloud Management Platform solution.

IBM's focus on cloud-native environments includes improvements such as trend analysis, complex thresholding for events/metrics, and run book automation by integrating with Red Hat Ansible Automation Platform (IBM acquired Red Hat in July 2019).

IBM's roadmap for Cloud App Management includes automatic performance baselining and deeper Red Hat Ansible integration. It also includes improvements to its synthetic monitoring capability, a focus on business-level objectives (through custom service-level objectives [SLOs]), deeper integration with public cloud environments, log collection integration and analysis, and integration with Watson.

IBM has a worldwide network of business partners. Historically, IBM has sold directly to midsize and large enterprises, but the current incarnation of IBM's APM tool aims to leverage online channels including its IBM Cloud marketplace. IBM's revenue derived from sales of its current and legacy APM suite (excluding professional services) in 2019 is estimated at between \$100 million and \$250 million.

### Strengths

- IBM has simplified its APM offering, messaging and roadmap, focusing on cloud-native environments.
- IBM's legacy APM solutions maintain strong support for monitoring and diagnostics in IBM WebSphere middleware environments.
- IBM's acquisition of Red Hat offers integration opportunities for automation and DevOps, specifically regarding OpenShift.

### Cautions

- IBM's solution is simplified with a focus on cloud application monitoring and CloudOps functions, but a complete APM solution requires many legacy solutions if support for traditional applications like .NET is required.
- Based on inquiry feedback, Gartner clients rarely include IBM on shortlists for stand-alone APM tool procurements that are not part of broader IBM deals.
- IBM Cloud App Management lacks depth in a variety of APM functions, including dashboarding, reporting, predictive insights and root cause analysis.

### Instana

Instana is a privately held provider of APM solutions based in Solingen, Germany (where it was founded in 2016) and Chicago. The company offers a single product, Instana APM, which can be delivered as a SaaS or as an on-premises deployment. While the company initially targeted infrastructure monitoring, APM capabilities were added within the same year of founding.

The Instana APM product core capabilities are APM, end-user and infrastructure monitoring, and analytics. Because these functionalities are part of a single offering, pricing is competitive. Instana has extensive support for all major application languages, databases, and container and orchestration environments. It was one of the first vendors to focus on microservices and containerized applications, with automated instrumentation through code injection at runtime in such environments. The company has played a key role in developing open-monitoring standards. Although Instana has seen adoption of its products among modern operations teams, its lack of broad support for legacy environments has limited the company's reach into enterprises with hybrid infrastructure.

Instana's roadmap includes expanding its support for on-premises, legacy environments, full stack dependency views with context, and function as a service. It also includes making its basic synthetic monitoring capabilities comparable to other vendors in the market, bidirectional integrations with logging products, and expanding support for legacy environments and capabilities for CI/CD. It acquired companies (StackImpact and BeelInstant) and the Signify technology in December 2019 to aid with these new capabilities.

Instana sells primarily to larger enterprises and midsize organizations in North America and Western Europe. Its go-to-market strategy is to land within these accounts, focusing on solving specific customer needs and expanding from there, often competing for replacement opportunities in "brownfield" environments. Instana's revenue derived from sales of APM (excluding professional services) in 2019 is estimated to be less than \$50 million.

### **Strengths**

- Instana's single licensing pricing model provides full-feature APM capabilities at lower cost than many competitors.
- Instana uses a single-agent architecture that facilitates automated instrumentation.
- Instana has strong native support for open-source technologies that span APM, infrastructure and metrics, having played a key role in developing open standards for monitoring modern, distributed environments.

### **Cautions**

- Instana support for legacy environments lags behind traditional APM competitors that can better cater to customers with hybrid environments.
- Instana currently does not have direct bidirectional integration with the leading IT service management (ITSM) solution from ServiceNow, requiring setup via webhooks.
- Instana lacks capabilities beyond APM, such as log management, which it currently does through integrations.

## ManageEngine

ManageEngine is the IT management division of the privately held company Zoho, which is based in India. The company's APM solutions include flagship products Applications Manager, released in 2004, and Site24x7, released in 2008. Applications Manager is the company's on-premises offering; Site24x7 is its SaaS option and is offered through a separately branded site.

The Applications Manager product is part of the larger ManageEngine portfolio of IT operations management (ITOM) products, which includes security and analytics, and is integrated with OpManager Plus. OpManager Plus includes network performance monitoring and diagnostics (NPM) and ITIM. Applications Manager focuses primarily on remote agentless monitoring, but also supports agent-based monitoring through bytecode instrumentation and synthetic monitoring. Site24x7, however, provides performance-agent-based monitoring through bytecode instrumentation, along with support for real-user monitoring through JavaScript injection and synthetic monitoring. An agent installed on the monitored node is used to collect and aggregate BCI data, which is sent to the Site24x7 servers running in the cloud for analytics.

These products have been enhanced with support for monitoring Node.js applications, Oracle and Google Cloud Platform (GCP) cloud environments, Nutanix, Kubernetes and Amazon Web Services (AWS) Billing stats.

ManageEngine's roadmap includes support for autodiscovery of containers and orchestration; collection from logs, endpoint devices and network performance monitoring (NPM); improved support for commercial off-the-shelf (COTS) applications; monitoring of microservices, services mesh and Python; AIOps support; and integration with ManageEngine's configuration management database (CMDB).

ManageEngine has a strong focus on small to midsize enterprises, with offerings for I&O as well as support of COTS applications for ERP. The company is investing in government opportunities in the U.S. and India. ManageEngine's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated to be between \$50 million and \$100 million.

### Strengths

- ManageEngine provides SMBs with an easy-to-use offering that covers a broad range of infrastructure for both legacy and cloud, and is available on-premises and as SaaS.
- ManageEngine's support for monitoring COTS applications and hyperconverged infrastructure is a strong differentiator from its competitors.
- End users report that ManageEngine is simple to deploy, low cost, easy to configure and is an accurate alerting system for the SMB data center environments.

### Cautions

- ManageEngine's ability to scale lags behind competitors.

- Because of ManageEngine's focus on the SMB market, those with complex architectures should ensure ManageEngine can address their needs without adding a high degree of complexity.
- ManageEngine has limited integration within the DevOps toolchain ecosystem, making it difficult to use ManageEngine's APM solution to support CI/CD initiatives.

## Micro Focus

Micro Focus, a public company based in Newbury, U.K., provides mostly on-premises APM products, with some components delivered via SaaS.

Micro Focus' offering includes Business Process Monitoring (BPM), RUM, Diagnostics and SiteScope, each at different levels of maturity and with different deployment requirements. The company offers a broad set of monitoring tools beyond APM as part of its ITOM portfolio, including primary support for legacy environments and modern environments. Micro Focus is providing maintenance-level updates of its APM product, with only minor updates in visualization, OS and database options.

Much of Micro Focus' ITOM effort has shifted to its Operations Bridge (OpsBridge) and Collect Once Store Once (COSO) Data Lake, which is its AIOps capability. The COSO Data Lake ingests data from Micro Focus and third-party monitoring data sources, including its APM suite. It is used in conjunction with OpsBridge, which collects topology, events and metrics into the Data Lake for analysis. OpsBridge performs noise reduction, anomaly detection and automation remediation across the ingested data. Recent updates include Prometheus data ingestion.

Micro Focus' APM product roadmap appears to be maintenance updates only. The OpsBridge roadmap includes improved data exploration and self-remediation workflows, and better support for DEM datasets.

Micro Focus' APM offering is best-suited for midsize to large organizations that manage large, complex legacy application environments. Its revenue derived from APM suite sales (excluding professional services) in 2019 is estimated at between \$50 million and \$100 million.

Micro Focus did not respond to requests for supplemental information or engage in Gartner's standard procedures to address the contents of this research. Hence, Gartner's analysis for this vendor is based on other credible sources, including previous vendor briefings and interactions, the vendor's marketing collateral, public information and discussions with end users who have evaluated or deployed each APM product.

## Strengths

- OpsBridge and the COSO Data Lake represent a potentially powerful data ingestion and analytics platform for maximizing value from existing Micro Focus ITOM products.
- The addition of Prometheus metric support will appeal to buyers concerned about Micro Focus' lack of attention to microservice environments.

- Micro Focus offers its APM solution as part of a broader portfolio of ITOM tools.

### Cautions

- Micro Focus' APM competitiveness has fallen behind the market in recent years, with minimal new APM feature development. This can limit users' ability to keep current with fast-moving application monitoring requirements.
- The complex mix of products in Micro Focus' APM solution requires users to switch between products and inconsistent UIs.
- Micro Focus' strategy of acquiring infrastructure software and maximizing mature offerings sacrifices innovation as it attempts to integrate the broad set of offerings in its portfolio.

### Microsoft

Headquartered in Redmond, Washington, Microsoft, a public company, has provided APM solutions since 2012. Microsoft offers a SaaS-based APM solution called Azure Monitor, which can connect to the System Center Operations Manager (SCOM) on-premises product, and can also ingest data from non-Azure applications directly.

Microsoft Azure Monitor is a multitenant SaaS APM offering that is tightly coupled to the Microsoft cloud environment. It is also integrated into the company's DevOps capabilities with Visual Studio, Visual Studio Code (VS Code) and Azure DevOps. In the current release, the focus is on enhanced support of cloud-native and open-source technologies. To this end, Azure Monitor added native support for microservices on Azure Kubernetes Services (AKS) and service mesh, and expanded support for more granular distributed tracing monitoring. While the offering is optimized for .NET and Windows, it also supports Linux, Java, Node, Python, Go, and other environments and languages.

Microsoft's roadmap includes growing support for hybrid and multicloud environments to support customer cloud strategies; expanding code-level analytics capabilities; and the release of enhanced analytics capabilities for alerting and problem detection, application change analysis, and debugging snapshots with decompiled/deoptimized code. Azure Monitor will further advance the integrations with Azure DevOps to add contextual production of health telemetry data applications and containers as part of the CI/CD pipeline.

Microsoft has a strong worldwide presence and commercial sales organization offering Azure in most countries. Microsoft Azure Marketplace offers additional monitoring solutions from Microsoft and third-party providers. Microsoft's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated at between \$100 million and \$250 million.

### Strengths

- Microsoft Azure Monitor is optimized and well-integrated into Azure DevOps. Out of the box, it comes with third-party tools for alert, incident and service management.

- Microsoft Azure Monitor Smart Groups automatically reduce alerts, noise and false positives using machine learning algorithms.
- Microsoft Azure Monitor customers report high levels of satisfaction with service and support, particularly for Azure Services.

### Cautions

- Microsoft customers that need to run APM on-premises must deploy SCOM.
- Although Microsoft Azure Monitor supports hybrid environments, the offering is optimized for its own technology stack and may challenge users with a diverse technology environment.
- Microsoft Azure Monitor microservices performance visualization lags behind some of its competitors, and some customers state that monitoring a large number of microservices is not optimal within the platform.

### New Relic

New Relic, a publicly held APM provider, is based in San Francisco, California. The company entered the APM market in 2008 and was the first to offer a SaaS-only model.

New Relic APM is complemented by capabilities spanning DEM, infrastructure, logs, metrics and analytics. In September 2019, the company launched the New Relic One platform, which combines all of the product capabilities into a single UI and provides users with context across products and technologies. New Relic now supports logs, metrics and traces independent of data sources.

The New Relic One platform extends capabilities beyond data captured by proprietary agent technologies by allowing customers to ingest data from any source, including competing products. The platform also allows users to develop their own applications, combining data and creating views of customer environments across multiple domains. Following the acquisition of SignifAI in February 2019 to enhance its AIOps capabilities, New Relic expanded support for serverless environments with the acquisition of IOpipe in November 2019. IOpipe adds deeper support for New Relic's AWS Lambda monitoring, with future expansion for other serverless technologies.

New Relic's roadmap includes expanding support for public clouds, modern architectures such as serverless, microservices and Kubernetes, as well as open-source technologies including Istio, OpenTelemetry, Prometheus and Zipkin. The company also plans to expand its cloud and ITSM integrations, as well as DevOps tools for its developer ecosystem. In addition, it plans to grow its data service integration with other ITOM vendors to share data and insights across the application life cycle, targeting modern development and operations teams.

New Relic has made significant inroads in the enterprise segment, from which it now generates more than half of its revenue. The company continues to expand its geographic presence, particularly in Asia/Pacific, Japan, EMEA and Latin America. New Relic's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated at between \$500 million and \$750 million.

## Strengths

- New Relic One is an open and programmable platform that allows customers to ingest data from any source and develop custom applications on top.
- New Relic continues to increase its investment in cloud-native support to monitor serverless functions through the acquisition of IOpipe.
- Customers give New Relic strong ratings for overall experience, contract negotiation, service and support.

## Cautions

- New Relic's architecture uses multiple agents depending on the language and environment being monitored, which adds complexity and differs from single-agent architecture models of competing vendors.
- New Relic has been late to market, relative to competitors, with some capabilities such as log analytics.
- Customer feedback has indicated that New Relic One has created some confusion with regard to overlapping capabilities, particularly among customers who recently purchased products separately.

## Oracle

Oracle, a public company headquartered in Redwood City, California, has offered APM capabilities since 2008 with the addition of functionality as part of Oracle Enterprise Manager (EM). In 2015, the vendor introduced Oracle Management Cloud (OMC). OMC is offered only as a SaaS product, although customers can choose EM for on-premises deployment.

OMC's SaaS platform monitors applications, infrastructure, and digital experience, and can collect logs, metrics and traces from external sources. It can be deployed to monitor some common programming languages and heterogeneous environments; but OMC is optimized for Oracle workloads and environments and is often sold as part of bundled solutions.

In 2019, Oracle added support for a synthetic transaction recorder to complement existing support for Selenium, the ability to add custom instrumentation to non-Oracle technologies, and control over the storage of personally identifiable information (PII). Additional capabilities added include Kafka monitoring, clustering for outlier detection and remediation workflow creation.

OMC is targeted primarily at midsize to large organizations heavily aligned to Oracle products and services. Customers and prospects can purchase OMC as part of their existing Oracle Cloud subscription through universal credits. Oracle's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated to be between \$50 million and \$100 million.

Oracle did not respond to requests for supplemental information or engage in Gartner's standard procedures to address the contents of this research. Hence, Gartner's analysis for this vendor is

based on other credible sources, including previous vendor briefings and interactions, the vendor's marketing collateral, public information and discussions with end users who have evaluated or deployed each APM product.

### Strengths

- Customers with a significant investment in the Oracle stack can extend monitoring capabilities through OMC as part of their existing licensing.
- OMC offers a well-integrated platform delivered via SaaS that includes support for infrastructure monitoring.
- OMC support for monitoring business applications including E-Business Suite, Siebel, PeopleSoft, JD Edwards EnterpriseOne and Fusion Applications is a competitive differentiator.

### Cautions

- Oracle has made some improvements to its APM solution but is rarely seen in competitive bids reviewed by Gartner as a competitor to leading APM vendors other than in Oracle-only environments.
- Enterprises may find Oracle's breadth of language support limiting, as it offers only Java, .NET, Node.js and Ruby agents, and limits detailed server request instance data to Java and .NET agents.
- Oracle APM's product workflows, while powerful, can be complex and require an investment in skills to solve problems.

### Riverbed (Aternity)

Headquartered in San Francisco, California, Riverbed, a privately held company has offered APM products since 2007. Its current portfolio consists of AppInternals, AppResponse, SteelCentral Portal, Aternity and NetIM. However, in January 2020, Riverbed created a wholly owned subsidiary, combining the APM and DEM product lines in a new separate entity called Aternity, based in Cambridge, Massachusetts. This new entity focuses on the AppInternals and the end-user experience products as part of its overall APM product set, which customers can deploy either on-premises or as SaaS.

AppInternals is Aternity's core APM product, offering agent-based, bytecode instrumentation. It is coupled with Aternity's End User Experience Monitoring (EUEM) product, which provides DEM functionality from the vantage point of the end-user device. Additional products, still under the Riverbed brand, include AppResponse for packet-based application visibility and NetIM for infrastructure monitoring. However, Aternity's focus will be on APM and DEM product lines.

Recent enhancements are focused on cloud-native monitoring, with an OpenTracing collector, improved container instrumentation deployment using DaemonSet, and integration with Splunk, Elastic and Grafana.

Aternity's roadmap includes work to unify its DEM and traditional APM capabilities, with improved workflows between EUEM and Aternity APM. This has included a unified agent and a single pricing model; but now that the platforms have been integrated, plans include improved analytics between the datasets and improved topology visualizations. Aternity also plans to provide better topology maps. Over time, additional plans include focusing more on cloud cost optimization and releasing open APIs for third-party plug-in creation.

Aternity's APM solution is suited for midsize to large enterprises. Aternity's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated at between \$100 million and \$250 million.

### Strengths

- Aternity's ability to collect large amounts of fine-grained data supports the needs of monitoring complex application environments.
- Separating from network-focused Riverbed and focusing R&D resources on APM and DEM workflows are likely to help Aternity with its go-to-market strategy.
- Aternity offers flexible pricing options with a single agent, which provides for both APM and DEM, allowing customers to optimize their use-case requirements.

### Cautions

- Aternity, as a stand-alone entity, is moving away from Riverbed's extensive channel network. Buyers who depend on the Riverbed channel for solutions will need to ensure that the new entity's partner network will be able to meet their needs.
- Aternity still lacks integration within the DevOps toolchain ecosystems, providing limited usefulness to DevOps buyers.
- Aternity APM product workflows, while powerful, can be complex and require an investment in skills to solve problems.

### SolarWinds

SolarWinds, headquartered in Austin, Texas, is a public company that offers infrastructure software, including application, network and infrastructure monitoring. SolarWinds' entry into the APM market is based on the acquisition of SaaS-based APM assets from AppNeta, Pingdom and Loggly.

SolarWinds' core capabilities include APM and infrastructure monitoring with AppOptics, synthetics with Pingdom, and log analytics with Loggly. AppOptics is optimized for cloud-native environments and supports code-level instrumentation and infrastructure monitoring, but also supports on-premises and traditional environments. The company is consolidating its APM offering along these three products, unlike past years when Server & Application Monitor (SAM) was its flagship product.

SolarWinds' roadmap includes deeper database monitoring for both on-premises and cloud. Additionally, it continues to work on better integration of the various products in its monitoring

portfolio as they currently are somewhat disjointed, and to improve user experience through integrated UI components. In addition to expanding its support for monitoring of Microsoft Azure services, including code-level troubleshooting for applications running on Azure, SolarWinds will expand its database monitoring for traditional and hybrid environments, as well as improve monitoring of SaaS applications.

SolarWinds' AppOptics solution is well-suited for small and midsize organizations and is sold through inside sales and digital market channels directly to customers. SolarWinds' revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated to be between \$50 million and \$100 million.

### Strengths

- SolarWinds' point solution product approach gives customers strong visibility in specific domains, for example, infrastructure and log monitoring in addition to APM.
- SolarWinds designed many of its products to be self-service, with simple installation models for smaller deployments.
- SolarWinds' APM products are complemented by an array of other solutions spanning network, security and configuration management, among others.

### Cautions

- SolarWinds' overlapping product portfolio has customers confused about which capabilities are in each product, for example, the overlap between AppOptics and SAM.
- SolarWinds lags behind competitors in the use of AI/ML for anomaly detection and other analytics capabilities.
- SolarWinds' roadmap for integration of products in its APM portfolio puts it behind competitors in terms of platform architecture.

### Splunk (SignalFx)

Founded in 2003, Splunk is a public company headquartered in San Francisco, California. Splunk entered the APM Magic Quadrant for the first time following its acquisition of SignalFx in October 2019. SignalFx is a SaaS-only APM and infrastructure monitoring solution focused on cloud-native environments. It joins the Omnicron distributed tracing product, which Splunk acquired in September 2019.

SignalFx extends Splunk's "Data-to-Everything Platform" offering to the DevOps persona and joins its broad set of IT operations solutions, including IT Service Intelligence, VictorOps, Splunk Enterprise, Splunk App for Infrastructure and Phantom for automation. Splunk aims to provide technologies that will help customers modernize monolithic applications to cloud environments, while providing an observability solution for modern cloud-native environments. SignalFx provides the core of the latter with a focus on distributed tracing, offering open-source agents based on

OpenTracing, and soon to be released OpenTelemetry standards. Splunk is also a key contributor to the OpenTelemetry standard.

Splunk's roadmap for APM involves the integration of SignalFx's real-time streaming and analytics platform and Microservices APM product with Omnicore, which together allow topology visualization based on trace data. In addition is planned integration with the broader Splunk ITOM suite, namely IT Service Intelligence (ITSI), Enterprise and Business Flow, although the details of these integrations remain unclear. This aims to capitalize on the ability to correlate microservice behavior with underlying infrastructure, based on correlating metrics and traces from SignalFx with logs from the broader Splunk portfolio. It also includes features to bring it up to par with traditional APM tools, including support for .NET and trace analytics.

Although SignalFx initially targeted cloud-native organizations, Splunk and SignalFx recently increased investments in a high-touch, multichannel enterprise sales model, expanding their combined reach across small, medium and large organizations with modern, cloud-native application architectures. Splunk's revenue derived from sales of APM suites (excluding professional services) in 2019 was between \$250 million and \$500 million.

## Strengths

- Splunk's portfolio that includes SignalFx, ITSI, VictorOps and Splunk Enterprise bridges the gap between traditional and cloud-native IT and resonates with the many enterprises trying to balance the two.
- Splunk is investing in deeper ties with key large, global channels and distributors such as Accenture, CDW and Carahsoft to provide a path to adoption for organizations without the in-house resources to adopt its solution.
- End-user survey results show that SignalFx offers strong support for buyers invested heavily in microservice and containerized environments.

## Cautions

- SignalFx's DEM features and APM-specific workflows lag behind competitors in the market.
- SignalFx provides great scale in trace and metric ingestion, but usability of the solution can be challenging.
- End users from Gartner's reference survey have rated SignalFx's ability to provide business analysis among the lowest of all APM vendors.

## Tingyun

Tingyun, a privately held company headquartered in Beijing, China, provides APM and DEM tools with an expanding set of offerings that includes support for monitoring WeChat miniprograms. The vendor entered the ITOM market in 2007 with a network monitoring solution. The majority of its customers are in the Asia/Pacific and Japan regions, but the company has a small and growing

customer base in North America and EMEA, sold via channel partners. Tingyun offers both an on-premises and a SaaS version of its APM solution, with differing feature sets and architectures.

Tingyun's SaaS APM offering comprises Tingyun APM, Tingyun DEM, Tingyun Business Performance Intelligence (BPI) and Tingyun NeurAlert. The solution provides monitoring for digital experience using RUM and synthetic transactions, plus monitoring for business performance, log files, database, mobile, cloud and containers, as well as language support for Java, .NET, Ruby, Golang, PHP, Python, C/C++ and Node.js. The Tingyun product continues to evolve, but awareness of its abilities is unknown outside of Asia.

In its latest release, Tingyun added support for monitoring, the popular Chinese app environment WeChat, correlation across logs and transactions, database impact analysis, mobile DEM, service topologies, and the use of AI/ML in its new NeurAlert product for event correlation and noise reduction. In 2019, the vendor consolidated its Tingyun App (RUM), Tingyun Browser (RUM) and Tingyun Network (synthetic transactions) into a single product, Tingyun DEM.

Tingyun's roadmap includes an integrated single-agent architecture, support for service mesh, OpenTelemetry, AI/ML for fault identification and full-stack root cause analysis, and the addition of business and user behavior analysis to Tingyun Browser.

Tingyun sells directly and via channel partners in the Asia/Pacific region. Sales in North America, while limited, have been conducted via channel partners. Tingyun's revenue derived from sales of APM suites (excluding professional services) in 2019 is estimated to be less than \$50 million.

## Strengths

- Tingyun has a strong presence in the Chinese market, especially working with government enterprises and via providing its unique support for monitoring WeChat miniprograms.
- Tingyun offers innovative pricing for its business intelligence solution based on the number of business transactions monitored.
- Tingyun offers support for domain-centric AIOps, database and mobile monitoring.

## Cautions

- Tingyun has struggled to expand its footprint outside of China due to security issues, a lack of local support and because user data storage is limited to China.
- Tingyun provides a narrow ecosystem of integration partners.
- Tingyun's process for agent deployment is complex, requiring many manual steps.

## Vendors Added and Dropped

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We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we

have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

### Added

- Datadog
- Instana
- Splunk (SignalFx)

### Dropped

No vendors were dropped from this year's Magic Quadrant.

## Inclusion and Exclusion Criteria

To qualify for inclusion, vendors need to meet all of the following product and business requirements:

### Product Requirements

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The provider must offer an APM software product (on-premises or via SaaS), which must include:

- ADTD as the core functionality

*And* must also include at least one of the two capabilities below:

- Front-end monitoring
- Domain-centric AI/ML

All of these APM functions and characteristics must be commercially available in no more than four separate products (SKUs):

- Application discovery, tracing and diagnostics:
  - Automated discovery of web servers, application servers and microservices, as well as application frameworks and platforms (such as containers, orchestration mechanisms and service mesh) and their relationships through the observation of an application's HTTP/S transaction behavior using BCI and/or distributed tracing
  - Automated tracing of unique, individual synchronous and/or asynchronous HTTP/S transaction execution paths from a web and/or application service to a data source
  - Automated collection of data from three modern application frameworks (Java Virtual Machines [JVMs] and .NET CLR, PHP, Ruby, node.js, AngularJS, Python or Go) to aid in

the detection of issues such as memory leaks, hot spots, and thread and other lock contentions

- Automated diagnostics providing prebuilt workflows aiding in the process of problem detection, correlation of application behavior and performance, and determination of causality
- Front-end monitoring (must include at least one of the two below):
  - RUM of webpages via automatic JavaScript injection performed by server-based agents
  - Synthetic transactions that replay recorded or scripted user interactions on a schedule from multiple geographic locations

Front-end monitoring transactions must be stitched to back-end ADTD transactions:

- Analytics
  - Domain-centric AI/ML linked to ADTD

The APM solution must provide domain-centric AIOps functions (see “Market Guide for AIOps Platforms”), employing event correlation and anomaly detection, as well as root cause analysis on APM-acquired data within the context of topology. The solution may optionally also provide domain-agnostic capabilities for events acquired from third-party collectors.

For more detailed definitions of the markets above, see “Market Definitions and Methodology: Software.”

## Business Requirements

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The business requirements continue to focus on overall software-specific APM revenue (including license — both perpetual and subscription, maintenance and services):

- The APM software vendor must have achieved at least \$50 million in annual generally accepted accounting principles (GAAP) product revenue derived solely from its software-based APM products in the 12 calendar months prior to the receipt of this letter. Alternatively, the vendor must have generated a minimum of \$5 million in annual revenue derived solely from its software-based APM products combined with a growth rate of at least 30% in the 12 calendar months prior to the receipt of this letter, compared to its previously completed 12-month period.
- The vendor must have at least 50 paying, production (non-beta-test) customers in each of two or more major world geographic regions (Asia/Pacific, EMEA, Latin America or North America) and provide documentation supplying the names of these customers.

## Evaluation Criteria

### Ability to Execute

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Gartner analysts evaluate vendors on the quality and efficacy of the processes, systems, methods and/or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively impact revenue, retention and reputation. Ultimately, vendors are judged on their ability and success in capitalizing on their vision. The criteria are:

- **Product or Service:** This criterion refers to core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships as defined in the Market Definition/Description section and detailed in the subcriteria.
- **Overall Viability:** This includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood of the individual business unit to continue to invest in the product, offer the product and advance the state of the art within the organization's portfolio of products.
- **Sales Execution/Pricing:** This refers to the vendor's capabilities in all presales activities and the structure that supports them. It includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.
- **Market Responsiveness/Record:** This criterion includes the ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. It also considers the vendor's history of responsiveness.
- **Marketing Execution:** This refers to the clarity, quality, creativity and efficacy of programs designed to deliver the organization's message in order to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This mind share can be driven by a combination of publicity, promotional, thought leadership, word-of-mouth and sales activities.
- **Customer Experience:** Relationships, products and services/programs that enable clients to be successful with the products evaluated are included in this criterion. Specifically, this includes the ways customers receive technical support or account support. It can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product or Service	High
Overall Viability	Low
Sales Execution/Pricing	Medium
Market Responsiveness/Record	High
Marketing Execution	Medium
Customer Experience	High
Operations	Not Rated

Source: Gartner (April 2020)

## Completeness of Vision

Gartner analysts evaluate vendors on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs, and competitive forces, and how well they map to the Gartner position. Ultimately, vendors are rated on their understanding of how market forces can be exploited to create opportunity for themselves. The criteria are:

- **Market Understanding:** The ability of the vendor to understand buyers' wants and needs, and to translate those into products and services are evaluated. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance them with their added vision.
- **Marketing Strategy:** This criterion refers to a clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.
- **Sales Strategy:** This refers to the strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.
- **Offering (Product) Strategy:** This includes the vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.
- **Business Model:** This criterion includes the soundness and logic of the vendor's underlying business proposition.
- **Vertical/Industry Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets is evaluated.

- **Innovation:** This criterion refers to direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or preemptive purposes.
- **Geographic Strategy:** This includes the vendor’s strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the “home” or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that geography and market.

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	Medium
Sales Strategy	Medium
Offering (Product) Strategy	High
Business Model	High
Vertical/Industry Strategy	Not Rated
Innovation	High
Geographic Strategy	Medium

Source: Gartner (April 2020)

## Quadrant Descriptions

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### Leaders

The APM Leaders quadrant comprises vendors that provide products that are a strong functional match to general market requirements, have been among the most successful in building a loyal customer base, and have a relatively high viability rating due to strong revenue growth and/or high market share. They have comprehensive portfolios that offer superior application visibility and typically do not come with major integration challenges. Leaders also show evidence of superior vision and execution for emerging and anticipated market requirements, as well as a consistent track record of innovation.

### Challengers

The APM Challengers quadrant is composed of vendors with broad market reach and large deployments. Vendors in this quadrant typically have strong execution capabilities, as evidenced by financial resources, and a significant sales and brand presence garnered from the company as a

whole, if not directly from its APM-related activities. Many previously have been among the top performers in the market and thus offer broad product portfolios. However, they are all currently engaged in efforts to more fully modernize and integrate their architectures and feature sets to better compete against those in the Leaders quadrant. It is also important to note that all of this year's Challengers support broad product and service portfolios that cover multiple IT market segments. In addition, their APM offerings are often positioned as elements of a larger solution that may even extend beyond the boundaries of ITOM.

### Visionaries

The APM Visionaries quadrant typically is composed of vendors that provide products and have built a compelling plan to competitively address current and future APM suite market requirements, but whose current product portfolio may still be a work in progress. They have a lower Ability to Execute rating than the Leaders, which is typically due to a lower viability rating as measured by installed base or financial strength.

### Niche Players

The Niche Players quadrant comprises primarily, but not exclusively, vendors with solutions catering to specific audiences or with limited use-case support today. Because they do not demonstrate equal depth across all three dimensions, they typically do not meet the APM needs of larger enterprises, or do so only within specific verticals or market segments. In addition, vendors in this quadrant may have a much more limited ability to invest in the necessary functional, as well as sales and marketing, capabilities to expand beyond their current focus. Inclusion in this quadrant does not reflect negatively on the vendors' value in the markets in which they choose to compete.

## Context

In the course of this research, several key observations emerged from providers' responses, as well as from reference customer feedback, that should be carefully considered during an organization's APM strategy formulation and solution selection.

### Observability

"Observability" has become a popular term recently, and many monitoring vendors claim to offer it as their key differentiator. In fact, observability is more of an attribute of a system or application defining its ability to be monitored or observed, and not an APM solution feature, nor a new software category. Gartner defines "observability" as the characteristic of software and systems that allows them to be "seen" and allows questions about their behavior to be answered (see "Hype Cycle for IT Performance Analysis, 2019"). However, the rise in this term's popularity comes from the real challenges in monitoring the behavior of complex systems and the inability to provide instrumentation that anticipates and then monitors all possible actions, values and outcomes. This is the challenge in attempting to detect or even predict the "unknown unknowns" that often lead to an unexpected disruption in service.

The challenge for I&O is exacerbated by the rapid adoption of highly dynamic, ephemeral architectures such as microservices, containers, orchestration and serverless computing that have a short time to live and resist traditional monitoring methods (see “2020 Planning Guide for Infrastructure and Operations”).

In response to this trend, APM vendors are using the analysis of events (logs), metrics and traces to provide an outside-in view of application behavior. This view is then placed into the context of topology to establish locality, causality and context. The behaviors detected are then aligned to desired business journeys and outcomes to deliver observation, relevance and priority. Today, there is a need for the observer to interactively ask the questions to identify the unknown unknowns via what-if and exploratory pattern analysis. Tomorrow, AI pattern matching may reduce some of the manual activities of the observer, particularly when dealing with very complex and deep-layered architectures. This provides a definition of observability that transcends collection to include relationships and business impact.

## **AI/ML**

AI/ML is one of the key enablers for observability, providing the intelligence to put the signals acquired from monitoring together into an observation of application behavior. Today, many APM vendors are describing themselves as providers of AIOps (see “Market Guide for AIOps Platforms”). Some vendors sell this as a separate SKU, while others have built this into their platform. The APM solutions are providing prebuilt models and features to apply machine learning to reducing event volumes and false alarms, detecting anomalous values in time series data or performing root cause analysis using bytecode instrumentation or distributed tracing data along with graph analysis in an APM context. I&O leaders should leverage the growing AIOps capabilities in these tools to integrate them into their development life cycle to detect, resolve and avoid false alarms from reaching support and service teams (see “Improve Event Management With the DevOps Techniques of Continuous Monitoring and Automation”).

These APM vendors are providing domain-centric AIOps with the key components of AI/ML, but with a restricted set of use cases. They do essentially the same thing they did before, just replacing rules, heuristics and fingerprints with math (algorithms). These vendors are focused on a singular domain, APM, which typically includes infrastructure as well as applications. Some APM vendors providing domain-centric AIOps have tried to hybridize the category and evolve to ingesting data from sources other than their own instrumentation tools and including this data in their analysis.

## **Cloud-Native Applications**

As development of cloud-native applications has become common, APM vendors have continued to evolve their support for applications built using microservices packaged in containers and deployed across elastic, intelligent infrastructures. Typically, the containers are orchestrated using Kubernetes and, as such, the line dividing the application and the intelligent infrastructure becomes blurred. This is especially true as cloud-native applications are isolated or abstracted from server, OS and even traditional network dependencies. These architectures are of enormous value to the application owners and the line of business in terms of cost and agility, but they present new challenges to monitoring tools. The traditional model of deploying agents, capturing their

instrumentation data and looking for problems doesn't always work well. These architectures require API integration to a variety of sources from the public cloud providers, the container solution and the orchestrator. The effort to monitor these architectures benefits from distributed tracing capabilities to capture behavior by tracking the request path across multiple microservices and visualizing the spans that make up the trace.

Public cloud providers offer facilities for monitoring, but they are not competitive with the solutions of leading APM providers and, for the most part, do not provide multicloud monitoring (see “Infrastructure Monitoring With the Native Tools of AWS, Google Cloud Platform and Microsoft Azure”).

APM solutions include network monitoring as a component of their infrastructure monitoring capabilities. However, network monitoring has taken on a new meaning in cloud-native architecture. Instead of the connections, traffic and configurations of physical routers and switches observed by monitoring wire data, this capability monitors the connections between short-lived abstracted services and infrastructure in the cloud. It captures the performance and dependencies of elements such as containers and Kubernetes nodes and pods across multiple clouds.

Most often, the personas managing these applications and responsible for their performance and availability are platform ops engineers (see “Strengthen Your DevOps Capability With Platform Ops”). Their mission is to enable continuous operations, using cloud management platforms (CMPs) for availability and performance and the CI/CD toolchain for software deployment and configuration management. Their skills are a combination of DevOps and traditional IT ops skills, and they work with CMP and monitoring tools such as those from APM vendors.

## Instrumentation

The trend in the APM market will be for agents to shift to open source. By 2025, 50% of new cloud-native application monitoring will use open-source instrumentation instead of vendor-specific agents for improved interoperability up from 5% in 2019. This will simplify the process of monitoring, enable interoperability between monitoring solutions and disrupt the pricing model to be more about customer value (as opposed to today's model which is essentially about counting agents).

## Monitoring the New Remote Workforce

The impact of COVID-19 and the requirement of social distancing forced organizations to immediately move thousands of employees from a structured office environment with secure, high-speed networks to their homes, which use slower, less secure home networks (see “Securing the Fully Remote Workforce”). This change has made it difficult for enterprises to ensure the performance of business-critical applications and the digital experience of their users. I&O leaders are under pressure to ensure business performance while adjusting to the new work realities. It is possible that postpandemic this situation will not reverse itself and all the employees will not all go back to the office. A Gartner survey of 317 CFOs and finance leaders on 30 March 2020 revealed that 74% will move at least 5% of their previously on-site workforce to permanently remote positions post-COVID 19, with nearly 1 in 5 respondents stating that 20% of employees will remain remote. Accommodating this new paradigm will require the usage of endpoint-based DEM tools

deployed where the employees are located in conjunction with data center or cloud-based APM tools in order to provide complete visibility and meet performance goals, objectives and key results. In the future, I&O leaders will need to be better-prepared for the next disruption to normal business processes.

## Conclusion

Selection of APM vendors will always depend on the specifics of each enterprise's infrastructure, applications and business objectives. However, as organizations continue to embrace digital transformation, their need for agility in order to deliver on these transformation initiatives increases. Therefore, APM solutions must support that need for agility, aid in its acceleration and effectiveness, and avoid being perceived as just another performance monitoring tool.

Choose vendors that assist in relating application performance to business objectives and serve not only IT operations, but also DevOps, application owners and lines of business, providing value throughout the life cycle of an application. Select a vendor that provides actionable answers and not just endless drill-downs to more data.

Choose APM vendors based on their abilities to support, among others, the following:

- The mapping and monitoring of customer and business journeys
- Bidirectional integration with the DevOps tool chain
- New emerging standards in instrumentation such as OpenTelemetry as the collection part of APM becomes commoditized and analysis becomes the core value of an APM solution
- Cloud-native monitoring with an API-first approach
- Bidirectional integration with ITSM tools to bridge the gap between APM and ITSM tools (see "Avoid the Unexpected Consequences of IT Change Management With AIOps and CMDB")

## Market Overview

The APM market is one of the largest subsegments of the ITOM market, with forecast spending in 2020 of \$4.48 billion and an 11.1% CAGR through 2023 (see "Forecast: Enterprise Infrastructure Software, Worldwide, 2017-2023, 4Q19 Update").

Given this growth, it is no surprise that Gartner observes heightened activity surrounding this market, with M&As such as the Splunk's acquisition of SignalFx and Omnicore, and New Relic's acquisition of IOpipe and SignifAi; along with IPOs from Datadog, Dynatrace and SolarWinds. Vendors heretofore focused on infrastructure analytics, such as Datadog and Splunk, have moved into the APM market. We expect the move toward consolidation in the APM market to continue in 2020.

Vendors focused on the message of cloud observability are likely to enter the APM market as multicloud platforms for applications continue to be deployed. However, the public cloud providers

— Amazon, Microsoft and Google — have yet to enter this market with a multicloud APM solution, as they are focused on and optimized for their own stacks.

APM vendors continue to add AI/ML to their products, maintaining the trend started in late 2018 to market themselves as AIOps and APM vendors. This is an attempt to broaden their total addressable market (TAM) and increase value for their customers. Many APM vendors have become domain-centric (DC) AIOps (see “Market Guide for AIOps Platforms”) providers, offering AI/ML applied to application performance monitoring. The line between these offerings and broader-scope, domain-agnostic solutions is becoming blurred as some DC AIOps vendors have opened up their offerings to third-party data sources, but are still focusing on the problems of APM. However, APM itself is getting broader with its continued focus on relating performance to business process, outcomes and customer journeys.

APM vendors’ adoption of open standards will continue to expand. Several APM vendors have become active in the group defining a future standard for distributed tracing and collection of metrics, [OpenTelemetry](#). Due to the expense of deploying a commercial APM solution pervasively across all business-critical applications, enterprises often adopt do-it-yourself APM, augmenting their APM solutions with implementations of Prometheus, Grafana, InfluxDB and other tools.

APM vendors have begun implementing bidirectional integration with ITSM tools, building upon the combined capabilities of the toolchain. APM vendors are now sending root cause as well as business impact data to ITSM tool as well as receiving change events for incorporation into APM root cause analysis. This is in addition to prior integrations that share the topology for services maps and autocreation of incidents. The incorporation of ITSM change events into APM RCA is important in that “change” is the most likely suspect of an outage or bottleneck. Thus, APM vendors can now analyze change from ITSM tools as well as those propagated by DevOps continuous configuration automation (CCA; see “Avoid the Unexpected Consequences of IT Change Management With AIOps and CMDB”).

APM vendors are furthering their investments in CloudOps and automation to ease adoption of cloud-native application development. They are providing templates for monitoring, instrumentation, onboarding users, defining dashboards, specifying remediations and creating SLAs.

In the customer reference survey as part of the APM Magic Quadrant research, Gartner observed several interesting items (based on a reference base of 81 respondents):

- Adoption of APM for monitoring microservices in production went up, from 61% to 78% as compared to the prior year.
- 47% of respondents were using Kubernetes in production and monitoring it with their APM tool. (The question wasn’t asked the prior year.)
- 33% of respondents were using serverless computing in production and monitoring it with their APM tool. (The breakdown is 64% AWS Lambda and 48% Azure Functions. The question wasn’t asked the prior year.)
- 49% of respondents deployed their APM-monitored environments in the cloud. This was up from 36% the prior year.

## Gartner Recommended Reading

*Some documents may not be available as part of your current Gartner subscription.*

“Broaden Application Performance Monitoring to Support Digital Business Transformation”

“Monitoring Modern Services and Infrastructure”

“2019 Strategic Roadmap for IT Operations Monitoring”

“Market Guide for Digital Experience Monitoring”

“Market Guide for AIOps Platforms”

“Advance Your Application Performance Monitoring Strategy to Support Microservices”

“Don’t Fail Fast in Production; Embed Monitoring Earlier in Your DevOps Cycle”

“Hype Cycle for IT Performance Analysis, 2019”

“Augment Decision Making in DevOps Using AI Techniques”

“Solution Comparison for Application Performance Monitoring Solutions”

“Use Monitoring for SaaS Despite Its Limitations”

“I&O Leaders Must Use Monitoring Metrics to Optimize Customer Experience”

“Cool Vendors in Performance Analysis”

“How to Optimize Your Investments in IT Monitoring Tools”

“Use Synthetic Monitoring to Enhance User Experience for Hosted and SaaS Applications”

“How Markets and Vendors Are Evaluated in Gartner Magic Quadrants”

### Evidence

The Magic Quadrant is a reflection of a broad-based research effort involving:

- An increase of over 20% in the number of Gartner client interactions about APM tools during 2019, plus numerous one-on-one sessions with clients at Gartner events.
- Many in-person and other interactions with the vendors evaluated in the Magic Quadrant.
- A review of Gartner Peer Insights data responses.
- A survey of organizations using online tools from 5 December through 19 December 2019 as part of the Magic Quadrant process.

Survey participants were customer references nominated by each of the vendors in the Magic Quadrant. These surveyed customers were asked 63 questions about their experiences with their vendors and solutions. The results were used in support of the assessment of the APM suite market. We obtained 81 full responses representing companies headquartered across several different geographic regions.

- A product demonstration video from each of the participating Magic Quadrant vendors, where each was requested to provide insight into its ability to support critical capabilities (specifics are detailed in “Critical Capabilities for Application Performance Monitoring”).

## Evaluation Criteria Definitions

### Ability to Execute

**Product/Service:** Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

**Overall Viability:** Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

**Sales Execution/Pricing:** The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

**Market Responsiveness/Record:** Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

**Marketing Execution:** The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

**Customer Experience:** Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

**Operations:** The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

#### Completeness of Vision

**Market Understanding:** Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

**Marketing Strategy:** A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

**Sales Strategy:** The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

**Offering (Product) Strategy:** The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

**Business Model:** The soundness and logic of the vendor's underlying business proposition.

**Vertical/Industry Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

**Innovation:** Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

**Geographic Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

## GARTNER HEADQUARTERS

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### Regional Headquarters

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For a complete list of worldwide locations,  
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