Gartner.   Licensed for Distribution

Magic Quadrant for Application Performance Monitoring

Published 9 April 2021 - ID G00733825 - 42 min read

By Josh Chessman, Padraig Byrne, **and 1 more**

APM tools have become powerful analytics platforms that ingest, analyze and build context from traces, metrics and logs. Infrastructure and operations leaders choosing APM software must weigh these functions against core APM capabilities and the automation being provided by new and existing vendors.

Strategic Planning Assumptions

By 2024, 75% of organizations monitoring infrastructure as a service/platform as a service (IaaS/PaaS) environments will consume metrics via cloud providers' APIs.

By 2025, 70% of new cloud-native application monitoring will use open-source instrumentation, rather than vendor-specific agents for improved interoperability.

Market Definition/Description

Gartner's view is focused on transformational technologies or approaches delivering on the future needs of end users. It is not focused on the market as it is today.

Gartner defines the application performance monitoring (APM) market as software that enables the observation of application behavior and its infrastructure dependencies, users and business key performance indicators (KPIs) throughout the application's life cycle. The applications being observed may be developed internally, as packaged applications or as software as a service (SaaS).

The core capabilities of APM software tools include:

- Automated discovery and mapping of application and its infrastructure components.

- Observation of an application's complete HTTP/S transactional behavior.

- Monitoring of applications running on mobile (native and browser) and desktop browser.

- Identification of probable root causes of application performance problems and their impact on business outcomes.

- Integration capabilities with automation and service management tools.

- Analysis of business KPIs and user journeys (for example, login to check-out).

- Domain-agnostic analytics capabilities for integrating data from third-party sources.

Optional capabilities include:

- Endpoint monitoring to understand the user experience and its impact on business outcomes.

- Support for virtual desktop infrastructure (VDI) monitoring.

Magic Quadrant

Figure 1: Magic Quadrant for Application Performance Monitoring

Source: Gartner (April 2021)

Vendor Strengths and Cautions

Alibaba Cloud

Alibaba Cloud (also known as Aliyun in Chinese) is a Niche Player in this Magic Quadrant. Its primary APM product is Application Real-Time Monitoring Service (ARMS), along with its infrastructure-monitoring solution Cloud Monitor and its Log Service product. The products are primarily designed to run as SaaS subscriptions on the Alibaba Cloud platform, although on-premises options are available for large clients. Its operations are mostly focused in China and the Asia/Pacific (APAC) region, with a smaller number of deployments of Alibaba Cloud in Europe and North America. The company plans continued integration of open-source standards and products, continued advancement of Alibaba Cloud outside China and enhancement of its artificial intelligence (AI) capabilities for digital experience monitoring (DEM) and APM.

Strengths

- **Strong China presence**: For clients deploying on Alibaba Cloud, the largest cloud service provider in the region, the native tools on Alibaba Cloud provide many of the core needs of a monitoring solution.

- **Open-source integration**: Driven by trends in the APAC region, Alibaba has a strong emphasis on integrating open-source standards and products, such as Prometheus, into its platform.

- **Pricing**: Implementing Alibaba APM monitoring is cost-effective, when compared with implementing a third-party tool on Alibaba Cloud.

Cautions

- **Support**: Global support options for Alibaba are primarily centered in China and are limited outside the APAC region.

- **Platform**: On-premises deployments exist, but rely on customized implementation efforts. SaaS deployments with native integration are provided to the Alibaba Cloud ecosystem, whereas manual installations are needed for applications from other cloud providers.

- **Political risks**: Nontechnical issues, including political tensions and perceived security concerns, will continue to inhibit the uptake of Alibaba Cloud in some regions. This will limit clients' ability to access the technology.

Aternity

Aternity is a Challenger in this Magic Quadrant. Aternity's Digital Experience Management platform is focused on endpoint visibility, as well as back-end instrumentation. Its operations are mostly focused on North America, with an additional focus on the European and Australia/New Zealand markets. Its clients tend to be midsize-to-large organizations. Aternity's roadmap for APM is focused heavily on DEM and endpoint visibility, with plans to continue to expand functionality in those areas. The company also plans to improve support for open telemetry and related technologies, more automated insights, and improved self-service and remediation functions.

Strengths

- **Extensive endpoint visibility:** Aternity has extensive DEM agent-based capabilities that, when integrated with the company's back-end APM functionality, provide an end-to-end view of application traffic and detailed endpoint visibility.

- **Capture and storage of data:** Aternity captures and stores every transaction seen and makes them available for later analysis and retrieval.

- **DEM focus:** Aternity is a private-equity-backed, independent company focused on the user experience, with a strong emphasis on DEM, while retaining its core APM functionality.

Cautions

- **Lack of presence in DevOps/SRE:** Aternity lacks a strong presence with the DevOps/site reliability engineering (SRE) audiences.

- **Low market awareness in core APM:** Aternity has a significant focus on the DEM aspect of APM, with less market awareness in core APM capabilities.

- **No native STM functionality:** Aternity lacks native synthetic transaction monitoring (STM), which is provided via an integration with Blue Triangle.

Broadcom

Broadcom is a Niche Player in this Magic Quadrant. Its targeted market focus has diminished its competitive presence in the broader APM market. Its DX APM offering is mainly focused on IT operations in its installed base. Its operations are geographically diversified, and its clients tend to be large-enterprise organizations. Broadcom's APM roadmap includes expanding automation capabilities and support for hybrid cloud environments, increasing capabilities into root cause analysis across multiple domains and facilitating customer onboarding based on persona and other criteria.

Strengths

- **Third-party data integration:** Broadcom's APM platform can ingest and analyze data from its agent technology, as well as from third-party sources including OpenTracing and open-source tools, or even other APM providers, including competitors. This is significant, because it treats the data in the same way as the data collected from its agents. This enables customers to leverage existing APM investments.

- **Large enterprise-focused pricing model:** Organizations that have existing investments in Broadcom can leverage subscription-based licensing that allows them to add APM capacity, without necessarily increasing spending.

- **Analytics across domains:** Broadcom's DX APM solution offers artificial intelligence for IT operations (AIOps) functionality across user experience, applications, infrastructure, network and mainframe, including the ability to learn from historical code and configuration changes and to estimate the impact on application performance.

Cautions

- **Primary focus on existing customer base**: Broadcom's strategic sales focuses primarily on large, existing customers and does not compete effectively in the broader market.

- **Challenges in migrating off legacy products**: Broadcom's customers outside the global 2,000 companies running legacy APM products can face challenges in migrating to the latest version of DX APM. This is due, in part, to account management confusion and pressure from alternatives offerings.

- **No FedRAMP certification**: Broadcom's SaaS APM offering is not Federal Risk and Authorization Management Program (FedRAMP)-compliant at the time of this publication. Broadcom is in the process of enabling its federal customers with FedRAMP-certified capabilities in the calendar year 2021.

Cisco (AppDynamics)

Cisco (AppDynamics) is a Leader in this Magic Quadrant. Its APM platform is mainly focused on enterprise IT operations organizations monitoring large, distributed, and complex application and infrastructure environments. Its operations are mostly focused on North America and Western Europe, and its clients tend to be midsize-to-large enterprises in a wide range of vertical industries. Cisco (AppDynamics)'s APM roadmap is focused on expanded support for Kubernetes, OpenTelemetry and cloud providers beyond Amazon Web Services (AWS), as well as support for monitoring platform as a service (PaaS) and database as a service (DBaaS). Cisco (AppDynamics) also continues to modernize data collection agent technology and integration with ThousandEyes, a DEM solution it acquired in 2020.

Strengths

- **Business analysis**: Cisco (AppDynamics) business analysis (Business iQ) and user journey maps (Experience Journey Map) continue to be strong differentiators for the Cisco (AppDynamics) offering, tying technology metrics to business KPIs. The offering makes use of machine learning (ML) technology across user journey maps to understand application performance patterns and user behavior.

- **Regional expansion**: The Cisco (AppDynamics) platform is offered as SaaS in such key emerging markets as India and Brazil, and it continues to expand into Europe, the Middle East and Africa (EMEA). With new FedRAMP certification, Cisco (AppDynamics)'s APM offering becomes a more compelling value proposition for government and other regulated entities across different geographies.

- **Broad monitoring portfolio**: Cisco (AppDynamics) offers customers a broad portfolio of infrastructure software products, including network, infrastructure and workload monitoring, which it is working to integrate.

Cautions

- **Immature log management capability:** Log analytics data is stored in a separate, dedicated database, requiring manual setup and with more-limited, cross-domain analytics capabilities relative to competitors.

- **ThousandEyes is a separate product:** Cisco (AppDynamics) and ThousandEyes products have some overlapping DEM capabilities, in particular in STM for web applications with an unclear path for tighter native integration.

- **Disruption due to change in pricing model:** Cisco (AppDynamics) is introducing a new pricing model based on CPU cores, instead of the number of agents. As with any pricing model transition, clients may experience a period of disruption as they learn the new pricing, conduct comparisons and project costs into the future.

Datadog

Datadog is a Leader in this Magic Quadrant. Its platform is mainly focused on solutions for APM, log management, DEM and related monitoring products, all delivered as SaaS deployments. Its operations are geographically diversified, and its clients range from startups to large enterprises. In recent years, Datadog has deployed new products through the in-house development and integration of acquisitions. These include a infrastructure monitoring, log analysis solution, network monitoring, DEM and, most recently, a security analysis tool. Future areas include enhancements to its AIOps tooling (currently Watchdog), business analytics and further integrations on its server and application monitoring tools.

Strengths
- **Strong product development:** Datadog has demonstrated a sustained ability to bring to market new products that are rapidly adopted by clients. During the past few years, Datadog has moved from an infrastructure monitoring tool to a wide range of solutions.

- **Problem triage:** Datadog collects, prepares and presents the telemetry data by assembling log, metrics and traces into a single context with drill-down capabilities that assist in reducing incident response time. This improves the efficiency of the operator workflow during the time to identify root causes.

- **Transparent pricing:** Datadog has long published prices for its entire portfolio of products on its website, which is helpful in a market where price discovery is difficult. Gartner clients cite this as useful in building business cases and trust.

Cautions
- **Deployment:** No on-premises deployment option is available; clients must use the SaaS version, which may not be suitable for some, especially government agencies where they require FedRAMP Moderate or higher, because this vendor currently has Low impact certification.

- **Pricing for large deals**: Many larger Datadog deals are based on a draw-down contract, with a large committed spend upfront. This poses difficulties for clients uncertain about growth and utilization rates, and can lead to over- or underprovisioning.

- **Business analytics**: Compared with the other Leaders in the space, Datadog is not as mature in its ability to display data in context for business analyst users.

Dynatrace

Dynatrace is a Leader in this Magic Quadrant. Its platform is mainly focused on providing core APM functionality with modularized capabilities for IT infrastructure monitoring (ITIM), DEM, business analytics, AIOps, cloud automation and application security. Its operations are geographically diversified, with particular focus on EMEA, North America and the mature APAC region. Its clients tend to be enterprise organizations. Dynatrace's roadmap includes extending the analytics capabilities of its Davis AI engine to new data sources, including OpenTelemetry, and further expanding its presence in cloud provider marketplaces, such as AWS, Microsoft Azure and Google Cloud Platform (GCP). Dynatrace also looks to expand support for its cloud automation module, based on the Keptn open-source project.

Strengths
- **Modularized platform**: The Dynatrace platform offers modularized capabilities in an integrated platform for different market segments, such as DEM, ITIM, business analysis, and, most recently, cloud automation and application security.

- **Ease of deployment**: Dynatrace's OneAgent architecture allows customers to continuously discover and collect observability data in a relatively fast and automated fashion, and market feedback indicates that this leads to faster time to value.

- **Automation platform**: Dynatrace's event-based automation platform, Keptn, is helping the vendor drive integration with and automation of continuous delivery and closed-loop remediation with the open-source software (OSS) project. The company also recently announced its Cloud Automation offering, based on Keptn, delivered through its SaaS or managed platform for organizations that want an integrated offering.

Cautions
- **Higher pricing, depending on environment**: Dynatrace does not have differentiated pricing for nonproduction environments, and pricing for memory-intensive environments varies.

- **Immature platform marketplace**: Dynatrace's platform marketplace lags behind its competitors in extensibility, which enables customers and partners to build and connect applications to its platform.

- **Awareness of expanding use cases**: Dynatrace's go-to-market strategy and customer support for new use cases, such as application security, and digital workplace is nascent, but developing.

Elastic

Elastic is a Visionary in this Magic Quadrant. Its APM product, also available as a free and open version, is focused on complementing the functionality of its Elasticsearch data analytics product. The company is headquartered in North America, and its clients tend to be large enterprises in worldwide markets. Elastic's product roadmap includes improved support for OpenTelemetry, synthetic and user experience analytics, and support for native mobile applications. Elastic also is planning to improve usability in areas such as root cause analysis and dynamic instrumentation.

Strengths

- **Deployment models**: Elastic offers its products in numerous models, including a free and open version (commonly known as the ELK Stack), which includes common APM features, as well as various paid options.

- **Scalability:** Elastic's highly scalable native database offering provides the ability to store and query against significant quantities of data. This scalability allows Elastic the ability to work across a wide range of environments and organization sizes.

- **Flexible pricing**: Elastic offers a flexible pricing model that minimizes surprise billing by focusing on a combination of tiers and usage.

Cautions

- **Architecture complexity:** The Elastic Stack consists of several components (Elasticsearch, Logstash, Beats and Kibana) and often requires significant manual tuning to support large volumes of data storage.

- **Licensing model:** Although Elastic APM products have not been directly affected by recent changes to Elasticsearch licensing, communicating the nuances of the differences in options has caused confusion among customers and prospects.

- **Immature DEM offering**: Limited and immature synthetic monitoring and auto-instrumentation in the product limits some APM functionality.

IBM (Instana)

IBM is a Niche Player in this Magic Quadrant. IBM acquired Instana in 2020, and its Instana APM product is offered as a SaaS product and a self-hosted option, using a single-agent architecture. (In the last iteration of this research as a stand-alone vendor, Instana was also a Niche Player.) Its operations are mostly focused in North America and Western Europe, with a smaller number of clients in other regions. Its client base is midsize-to-large enterprises in these areas. In the near term, IBM plans to integrate Instana more closely with the IBM portfolio, including IBM Cloud Pak for Watson AIOPs. IBM plans to enhance its native log analytics beyond the current application warn and error message capabilities. In addition, IBM will introduce native synthetic monitoring to complement its offerings.

Strengths

- **Simple pricing model:** IBM Instana's single pricing model is straightforward to understand and is competitively priced in the market.

- **IBM acquisition:** The acquisition of Instana opens new opportunities for the product set. Instana is expected to replace existing IBM APM tools, which have been lagging the market for some time.

- **Strong serverless/container support:** Historically, Instana APM has been focused on monitoring for containerized environments and is suitable for clients that are looking for an APM solution with an emphasis on monitoring modern infrastructure.

Cautions

- **No synthetics:** Instana APM has no integrated synthetic monitoring, relying instead on third-party tools, such as Apica, to provide this functionality.

- **Lack of ServiceNow integration:** Unlike most tools, Instana does not have an out-of-the-box offering to integrate with ServiceNow, the leading IT service management (ITSM) solution on the market. Instead, it relies on custom integration via webhooks.

- **Integration into IBM portfolio:** Clients may see a period of disruption, as Instana APM is integrated into IBM.

ManageEngine

ManageEngine is a Niche Player in this Magic Quadrant. The company is the IT management division of privately held company, Zoho, and its Applications Manager and Site24x7 products focus on on-premises and SaaS deployments, respectively. The company's operations are geographically diversified, and its clients tend to be small-to-midsize businesses (SMBs). ManageEngine's roadmap includes a focus on increasing its capabilities in serverless monitoring, adding support for Alibaba Cloud and Oracle, expanding DEM capabilities, and integration of AIOps for analysis and noise reduction.

Strengths

- **Suitable for SMBs:** ManageEngine products are straightforward to purchase and implement for smaller enterprises that have limited budgets and staff.

- **Pricing:** Both the on-premises and SaaS versions are priced significantly lower than those of its competitors.

- **Broad ecosystem:** ManageEngine's portfolio of products extends the company's capabilities beyond APM to include network monitoring, infrastructure and other IT operations functions, such as ITSM help desk.

Cautions

- **Scalability:** ManageEngine solutions are rarely seen in large organizations. Gartner clients have mentioned issues with scaling the solution for complex environments.

- **Integrations**: ManageEngine has a long list of integrations, but many are limited in scope, making integrations with other areas of IT, such as DevOps toolchains, more complex.

- **Immature analytics**: The lack of integrated AI/ML solutions in ManageEngine's offering was apparent during this research. This is an area in which it noticeably lags the competition.

Microsoft

Microsoft is a Challenger in this Magic Quadrant. Its Azure Monitor incorporates Application Insights functionality and is delivered as a SaaS-only solution. Its operations are geographically diversified, and its clients tend to be midsize-to-large enterprises. Microsoft's APM roadmap focuses on extending support for distributed tracing for native cloud applications. Microsoft's roadmap also includes continued expansion of on-premises, multicloud support to provide customers with monitoring of workloads on-premises and on competitors' clouds. As more customers adopt commercial off-the-shelf (COTS) and SaaS applications, Microsoft Azure Monitor plans to continue to add support for these application environments.

Strengths
- **Broad geographic coverage:** Microsoft continues to expand the number of regions where Azure Monitor is offered. This enables customers that have in-country data residency requirements to deploy their APM solutions and maintain data in their country or region.

- **Unified platform:** Microsoft is integrating the classic Application Insights functionality and capabilities into Azure Monitor via Workspaces. Customers can send application, infrastructure and log data, as well as leverage the functionality in Microsoft Azure Monitor log analytics.

- **Simplified pricing model:** Microsoft Azure Monitor pricing is based primarily on daily ingested data, which customers can manage, depending on the type and amount of data being ingested into the platform, especially for larger deployments.

Cautions
- **Inconsistent distributed tracing coverage:** Microsoft Azure Monitor is integrated into the broader Azure stack, but distributed tracing for native Azure Services does not yet have consistent coverage.

- **Immature language support and instrumentation:** Microsoft Azure does not support Go and, for Ruby and PHP, it provides an open-source software development kit (SDK) that is community supported. The product does not auto-instrument in containers, requiring more manual instrumentation than competitors.

- **Product UI falling behind:** Microsoft Azure Monitor's user interface (UI) has remained similar to previous years, and is falling behind competitive products. Customer feedback states that the UI and the product lack intuitive workflows.

New Relic

New Relic is a Leader in this Magic Quadrant. Its New Relic One product is focused on APM, infrastructure, real user monitoring and synthetics capabilities. Its operations are geographically diversified, and its customers tend to be midsize-to-large enterprise organizations. New Relic's roadmap focuses on improving data exploration and correlation, simplifying the instrumentation process with a common user experience/UI, and improving developer collaboration tools. The company will also continue to enhance its AIOps offerings with deeper ITSM integrations and focus on its partnership with AWS.

Strengths

- **Scalable SaaS platform:** New Relic's SaaS option has successfully supported large deployments analyzing millions of metrics per minute and petabytes of telemetry data.

- **Low pricing for data ingestion:** New Relic's new pricing model has low data ingestion costs, compared with select vendors that offer similar functionality.

- **Open-source collection agents:** New Relic is moving away from proprietary collection agents and toward a standardized, open-source approach.

Cautions

- **Pricing and licensing changes:** New Relic introduced significant pricing changes during the past year that resulted in many customers seeing their spending increase, sometimes significantly, as well as confusion about the new pricing model.

- **Focus on data processing:** New Relic is making a move to become more of a general data analysis option, as opposed to a pure-play APM vendor, which may affect the company's focus on APM functionality.

- **Strategic challenges:** New Relic's shift to the New Relic One platform forced the company to reorganize its product planning and priorities, delaying several key features, including anomaly detection in logs and deeper support for Azure Functions.

Oracle

Oracle is a Niche Player in this Magic Quadrant. Its Oracle Management Cloud (OMC) product is mainly focused on APM services as a SaaS solution in its customer base. Its operations are geographically diversified, and its clients tend to be midsize-to-large organizations, including government agencies. Oracle's APM roadmap is based on the OCI Observability and Management Platform, which will unify in a single platform many of OMC's capabilities, such as log analytics, application and infrastructure monitoring, with native support for open standards.

Strengths

- **Oracle app depth:** OMC is best suited for Oracle applications, particularly for customers looking for deep performance monitoring of Oracle Databases.

- **Well-integrated UI:** Oracle's OMC is a well-integrated platform with core APM capabilities in addition to metrics and log data in an intuitive UI, which is becoming part of Oracle OCI via the new Observability and Management Platform.

- **Broad geographic coverage:** Because of Oracle's broad, worldwide, direct presence, customers and prospects can access OMC and services on a wide geographic basis.

Cautions

- **Limited APM-specific go-to-market:** OCI is the full suite of Oracle cloud infrastructure services. However, its APM product is a small part of a broader platform that does not have a specific go-to-market (GTM) target like other third-party APM providers.

- **Oracle-centric pricing model:** As with other portfolio vendors with vast product offerings, Oracle's pricing model of universal credits is optimized for its customer base, limiting the appeal for non-Oracle customers and prospects looking for stand-alone APM solutions.

- **Not FedRAMP-certified:** Oracle is not yet FedRAMP-certified and is in the process of becoming certified for FedRAMP compliance for OMC.

SolarWinds

SolarWinds is a Niche Player in this Magic Quadrant. Its APM product set is focused on providing service via SaaS and on-premises monitoring. Its operations are geographically diverse, and its clients include small organizations to large global enterprises and governmental organizations. SolarWinds' roadmap includes tighter integration of the APM suite, new AIOps capabilities and the addition of network monitoring capabilities.

Strengths

- **Pricing:** SolarWinds' pricing for APM is straightforward and lower than competitors in the space, making it an attractive option for companies seeking to leverage APM, but with a limited budget.

- **Ease of use:** SolarWinds designed many of its products to be self-service, with simple installation models for smaller deployments.

- **Breadth of coverage:** SolarWinds has a strong complementary suite of products, covering much of the typical IT operations workload. These include products for network, database, security and configuration management.

Cautions

- Security breach: SolarWinds has been the focus of much press due to the SUNBURST hack. The full impact of the hack is still undetermined, but it does not appear to have affected the company's APM suite of products. A breach in any of the company's operations could affect the company's long-term viability.

- **Lack of integration**: SolarWinds APM product suite suffers from a lack of integration among suite offerings, with a noticeable difference in user experience among suite products, as well as with other SolarWinds products, such as Orion.

- **Product overlap**: Due to SolarWinds' wide portfolio of tools, there is significant overlap in capabilities, and it is not always clear which SolarWinds tool is the most suitable.

Splunk

Splunk is a Visionary in this Magic Quadrant. Its APM products are mainly focused on delivering service through various products aggregated in its Splunk Observability Suite offering. Its operations are geographically diverse, and its clients tend to be enterprise organizations. The company continues to invest in its APM functionality through several acquisitions, focusing on enhancing its offerings in areas such as real user monitoring STM and network monitoring. A key aspect of the roadmap is to integrate these products through replatforming and the unification of back ends under a single platform.

Strengths

- **Security and IT monitoring use cases**: The acquisitions of Plumbr, Rigor and Flowmill, combined with previous acquisitions and existing functionality, provide Splunk clients with increased access to multiple monitoring and security products, including monitoring for enterprise applications.

- **AIOps and automation**: In addition to monitoring and security functions, Splunk offerings provide AIOps and automation functionality.

- **Support for the largest environments**: Splunk's experience with massive volumes of data positions the company to handle even the largest enterprise environments.

Cautions

- **High costs**: Pricing remains complex, and multiple acquisitions have brought a variety of different pricing models.

- **Historical on-premises focus**: Despite focusing heavily on on-premises applications in the past, Splunk now has more of the pieces needed to target cloud-native applications. However, the lack of integration and varying degrees of cloud-ready products could be a hindrance for those looking for complete solutions.

- **Immature APM product offering**: Splunk is still working to integrate its entire suite of APM offerings, which limits overall functionality, relative to its competitors.

Tingyun

Tingyun is a Niche Player in this Magic Quadrant. Its APM product consists of Tingyun APM, Tingyun BPI (for business analysis) and Tingyun NeurAlert (for event management and analytics), and is delivered as a SaaS offering. Its operations are mostly focused on China, and its clients

tend to be enterprise and government organizations. Tingyun's roadmap is focused on integrating log monitoring, ML and diagnostics across the various modules within its APM platform. Tingyun also is focusing on increasing support for 5G through DEM capabilities for mobile devices and linking software-testing capabilities into its platform via the APM module.

Strengths

- **Chinese market expertise:** Tingyun is a Chinese vendor with deep knowledge of the local market conditions.

- **Pricing cap:** Tingyun is rolling out a new unlimited pricing model with a fixed cap to allow customers to adopt its products without fear of escalating costs.

- **Open-source technologies:** Tingyun has built many of its components and capabilities using modern open-source technologies, such as Kafka and Elasticsearch. This lowers customer costs.

Cautions

- **Limited direct international presence:** International coverage remains a key challenge for Tingyun, because most of its coverage tends to be through partners, potentially limiting the company's ability to provide service to clients in these regions.

- **Multiple-agent architecture:** Server-side monitoring leverages a single installation. However, all other components require different types of agents, which makes managing them challenging, especially at scale.

- **Limited technology support:** Tingyun lags behind other vendors in areas such as container support, AIOps, serverless functions (only for Alibaba Cloud) and does not support open standards, such as OpenMetrics, which is on its roadmap.

Vendors Added and Dropped

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

The following vendors met the inclusion criteria and have been added to the Magic Quadrant:

- Alibaba Cloud

- Elastic

Dropped

- Micro Focus did not meet the inclusion criteria.

- Instana was acquired by IBM in 2020.

Inclusion and Exclusion Criteria

For Gartner clients, Magic Quadrant research identifies and then analyzes the most relevant providers and their products in a market. Gartner uses, by default, an upper limit of 20 providers to support the identification of the most relevant providers in a market. On some specific occasions, the upper limit may be extended by Methodologies where the intended research value to our clients might otherwise be diminished.

The inclusion criteria represent the specific attributes that analysts believe are necessary for inclusion in this research.

To qualify for inclusion, providers must demonstrate the capability to observe an application's complete HTTP/S transaction behavior, either through proprietary agent technology and/or distributed tracing. The vendor must demonstrate the capability to automatically collect data from at least three modern application frameworks:

- Java Virtual Machines (JVMs)

- .NET CLRs

- PHP

- Ruby

- Node.js

- AngularJS

- Python

- Go

The vendor must show at least three of the following core capabilities:

- The ability to automatically discover and map an application(s) components (including web servers, application servers and microservices), as well as application frameworks and platforms (such as containers, orchestration mechanisms and service mesh) and their relationships. Additionally, demonstrate the capability to automatically discover infrastructure components (such as physical and virtual servers, storage, databases, IaaS, routers and network devices), as described in Gartner's Market Guide for IT Infrastructure Monitoring Tools.

- The capability to support applications running in at least two major mobile (native and mobile web) and desktop browsers (including Google Chrome, Firefox, Apple Safari and Microsoft

Edge).

- The capability to automatically identify the root cause of application performance problems and link problems to business outcomes.

- The capability to bidirectionally exchange data with infrastructure automation (see Market Guide for Infrastructure Automation Tools), ITSM (see Magic Quadrant for IT Service Management Tools) and incident response automation (see Automate Incident Response to Enhance Incident Management) tools.

- The capability to automatically correlate application performance to business KPIs and user journeys.

- The ability to provide domain-agnostic analytics for data from third-party sources (e.g., open-source, cloud provider and/or competitive products). This includes events, traces, metrics, social media and business metrics, in the same manner as data collected from proprietary agent technologies.

Honorable Mention

Gartner is tracking more than 30 vendors in the APM market. This research focuses on 15 vendors that met our inclusion criteria. However, the exclusion of a particular vendor does not necessarily mean that it should not be considered or that it does not have viability capabilities that may be a fit for a customer's unique requirements. Below are several noteworthy vendors that did not meet all of the inclusion criteria but could be appropriate for customers contingent on their specific requirements. We will continue to monitor these vendors:

- **Amazon Web Services (AWS):** AWS offers a native APM solution via Amazon Cloud Watch, which correlates and analyzes logs, metrics and traces (AWS X-ray) to monitor the health and performance of applications running on the AWS stack. AWS X-ray is the company's distributed tracing technology. AWS also offers native monitoring for containers and serverless functions (lambda), as well as digital experience monitoring via synthetic transactions of endpoints and APIs. AWS did not meet the inclusion criteria for this research.

- **Google:** Google provides APM capabilities via its Google Cloud Operations Suite. These capabilities are the result of the acquisition of Stackdriver in 2014, plus additional capabilities, such as traces (Cloud Trace) metrics and logs monitoring, developed over the years. Google did not meet the inclusion criteria for this research.

- **Honeycomb:** Honeycomb is an observability platform that focuses on highly distributed production environments and has support for most languages. The company's single platform supports the correlation of application tracing data, events and metrics. Honeycomb did not meet the inclusion criteria for this research.

- **Lightstep:** Lightstep is an observability platform and one of the key founders in the OpenTelemetry standards for monitoring distributed application architectures. Lightstep uses

data collectors, called Satellites, which ingest instrumented data, process it and then send it to the Lightstep cloud platform for analytics. Lightstep did not meet the inclusion criteria for this research.

- **VMware:** VMware offers observability as a stand-alone product and also as part of its Tanzu portfolio, which includes application development, operations and infrastructure management, among other capabilities. Tanzu Observability, formerly Wavefront, acquired by VMware in 2017, provides analytics-driven application, Kubernetes and cloud infrastructure performance visibility. VMware did not meet the business criteria for inclusion of this research.

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate providers on the quality and efficacy of the processes, systems, methods or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively affect revenue, retention and reputation in Gartner's market view. The criteria are:

- **Product or Service:** Core goods and services that compete in and or serve the defined market. This includes current product and service capabilities, quality, feature sets, skills, etc. This can be offered natively or through OEM agreements/partnerships, as defined in the market definition and detailed in the subcriteria.

- **Overall Viability:** Includes an assessment of the organization's overall financial health, as well as the financial and practical success of the business unit. It views the likelihood of the organization to continue to offer and invest in the product, as well as the product position in the current portfolio.

- **Sales Execution/Pricing:** The organization'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 and Track 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 provider's history of responsiveness to changing market demands.

- **Marketing Execution:** The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand, increase awareness of products and establish a positive identification in the minds of customers. This "mind share" can be driven by a combination of publicity, promotional activity, thought leadership, social media, referrals and sales activities.

- **Customer Experience:** Products and services and/or programs that enable customers to achieve anticipated results with the products evaluated. Specifically, this includes quality

supplier/buyer interactions, technical support or account support. This may also include ancillary tools, customer support programs, availability of user groups, service-level agreements (SLAs), etc.

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	NotRated

Source: Gartner (April 2021)

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 vendor's ability 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. These 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:** This involves the vendor's strategy for directing resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets, which are 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 specific geographic needs outside the "home" or native geography, directly or through partners, channels and subsidiaries, as appropriate for that geography/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	NotRated
Innovation	High

Evaluation Criteria ↓	Weighting ↓
Geographic Strategy	Medium

Source: Gartner (April 2021)

Quadrant Descriptions

Leaders

The APM Leaders quadrant comprises vendors that provide products that are a strong functional match to general market requirements and have been among the most successful in building and expanding their customer base. They have comprehensive portfolios that offer superior application visibility and have broad integration with other IT operations management (ITOM) technologies. Leaders demonstrate evidence of superior vision and execution for emerging and anticipated market requirements, as well as a consistent track record of innovation and customer experience.

Challengers

The APM Challengers quadrant comprises vendors with broad market reach and large deployments. Vendors in this quadrant typically have strong execution capabilities and a significant sales and brand presence garnered from the company as a whole, if not directly from its APM-related activities. Some vendors previously may have been among the top performers in the market and, thus, offer broad product portfolios. Vendors in this quadrant may be transforming their product offerings and market focus. In some cases, 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 comprises 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. This is typically due to a lower ability to respond to market conditions, bring together the necessary product and platform requirements, and effectively gain and expand on market share.

Niche Players

The Niche Players quadrant comprises primarily, but not exclusively, vendors with solutions catering to specific audiences or with limited use-case support. Because they do not demonstrate equal depth across all core capabilities (see the Market Definition section), they typically do not meet the APM needs of the broader market. Or they may do so within specific verticals or market segments or geographic regions only. In addition, vendors in this quadrant may have a more-

limited ability to invest in the necessary functional and 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

The APM market continues to evolve beyond its core root of server-side application monitoring. Organizations are looking to optimize business outcomes and user experience, and improve application performance. Application performance is a key driver in user experience and business outcomes, which organizations are increasingly focusing on: troubleshoot and optimize application performance, user experience and improve business outcomes. To achieve these goals, it is no longer sufficient to monitor one aspect of the technology stack. Nor is it enough to deploy proprietary technologies to collect performance data. This research has helped to reinforce Gartner's view of the future of APM, as outlined by the following trends.

Unified Monitoring

Best-of-breed or point-monitoring solutions will continue to exist for as long as technologies that require new monitoring techniques continue to emerge. However, new application monitoring tools are becoming more unified. This approach requires platforms that share common data models to conduct correlation analysis and other critical functions of APM. These platforms will continue to connect to previously separate technologies and tools, from network infrastructure to security. Infrastructure and operations (I&O) leaders will benefit from lower costs, compared with running multiple point solutions, especially if unified monitoring platforms replace some point solutions. They will also benefit from increased collaboration across teams, within IT and across business units.

Holistic Monitoring

Modern monitoring platforms are becoming more holistic in terms of the types of data they can ingest, analyze and integrate. The continued adoption of new application development and operations technologies requires monitoring teams to constantly test the limits of their monitoring products. At the same time, I&O leaders must also support hybrid architectures, because some workloads will continue to run on-premises for the foreseeable future. APM vendors are using services that ingest telemetry from multiple sources, including cloud, data center and hybrid environments.

Shift-Left Monitoring

Digital business transformation requires operations and development to work together closely. As more workloads and applications are refactored or become entirely cloud native, DevOps teams become leading users of monitoring technologies. Testing in preproduction and integration with continuous integration/continuous delivery (CI/CD) tools becomes the new monitoring, which provides a bridge for application and user information to flow between development, operations and the business. Vendors participating in this research were requested to have demonstrated capabilities to analyze the effect of new code or feature flags on application performance and the ability to integrate with CI/CD tools to take corrective action.

Intelligent Monitoring

The value proposition in application monitoring has now clearly shifted from data collection and toward data connection. What used to be key differentiators among APM tools and providers, namely that proprietary agents could discover and monitor applications, is shifting to analyzing data collected by the tools. Furthermore, the analytics capabilities of APM tools are expanding to include infrastructure, network, user, logs, security and other data sources. Additionally, monitoring platforms are enabling the ingesting and analysis of data collected from open source, cloud providers and even other competitive offerings. This is enabling operations and monitoring teams to analyze the data to find unexpected patterns in high-volume, multidimensional datasets using AIOps technologies.

Business Monitoring

Digital transformation, along with the effects of remote work due to the COVID-19 pandemic, has highlighted the need to monitor technology and the user experience and its impact on business outcomes. Integration between endpoint monitoring and other monitoring tools, such as APM, which monitor customer experience, became more common during 2020, and will continue to do so. For example, when retailers forced to shut their doors moved entirely to digital, monitoring teams found themselves monitoring not only for application performance metrics, but also for business KPIs. The same is true for organizations monitoring the quality of applications used by internal users suddenly forced to work remotely, often using devices not provided by employers and accessing systems outside the corporate networks.

An Expanded View of Observability

Gartner clients are now asking about the evolution in monitoring. In traditional APM monitoring, IT Ops teams instrument their applications to monitor for known metrics of interest to specific teams, organizations and circumstances. Meanwhile, observability provides a different way of monitoring applications, particularly modern and hybrid ones.

Observability is the characteristic of software and systems that allows them to be "seen" and enables questions about their behavior to be answered (see Innovation Insight for Observability). Observability enables organizations to analyze software and systems based on the signals they emit and to ask questions about their behavior and state. The main difference between observability and traditional APM monitoring is that observability gives users more data to work with and allows them to be creative in the types of analysis being conducted. This is because it does not tie the platform to specific data or environments. Although observability is commonly defined as the ability to query multidimensional, high-cardinality data from logs, metrics and traces to learn the answers to questions heretofore unknown, Gartner expands this definition to include:

- The full stack of data from infrastructure to applications, as well as digital experience, business KPIs and even social sentiment

- The relationships and dependencies among these elements

This pragmatic observability should leverage AIOps to detect patterns and make connections to better understand applications and systems and provide insight into the status of the digital business.

Market Overview

The continued growth in mobile, cloud-native applications and workload migrations from traditional data center to cloud architectures continues to fuel the APM market. In 2020, the COVID-19 pandemic forced many organizations to enable and monitor remote workers by adapting their approach to supporting internal users and their experience with corporate applications (see Use DEM to Understand and Enhance Your Employees' Work-From-Home Experience).

The consolidation of domains discussed in the previous section continues. It is further fueling market demand for APM products and adjacent segments, namely DEM and ITIM and, to a lesser extent, network performance monitoring and diagnostics (NPMD). Given the above trends, Gartner expects the market for APM products to reach $6.8 billion by 2024, with a 9.8% compound annual growth rate (CAGR) between 2019 and 2024 (see Forecast: Enterprise Infrastructure Software, Worldwide, 2018-2024, 4Q20 Update).

The APM market will continue to evolve during the next several years, driven by the following key trends:

- Customer demand for more holistic tools, where good-enough functionality (e.g., in log management or infrastructure monitoring) becomes good enough as part of a broader monitoring platform.

- The need to view multiple data types in context, without having to switch context and tooling.

- The need for organizations to monitor modern applications running in hybrid and multicloud environments that generate large volumes of data and are not instrumented by traditional methods. This is referred to as observability, which is becoming more mainstream among Gartner customers.

- With the above increase in the amount and types of data, APM tools will continue to become more aligned with analytics tools, rather than data collection technologies. This will continue to shift the value proposition away from purely proprietary agents for data collection and toward more open and flexible data ingestion platforms.

- The standardization and commoditization of data collection will continue to put downward pressure on pricing. We expect this to have the positive effect of more applications being instrumented for monitoring and observability.

- Use cases for APM will continue to expand beyond core IT operations, which continues to dominate demand. SRE/CloudOps and DevOps are becoming important use cases for customers seeking to understand application performance across the entire stack and across multiple IT teams.

- DEM is becoming more integrated into APM via STM, real user monitoring (RUM) and session replay. At the same time, techniques such as endpoint monitoring are also different in the use cases and the buyers of these technologies, which tend to be end-user computing and digital workplace leaders.

- Regardless of the type of technology used for DEM use cases, the need to monitor SaaS and other cloud services, particularly with distributed users and workforces, is a key capability that many APM vendors are investing in. Point solutions in STM, RUM and endpoint monitoring are being sought out by customers to fill gaps from some of the APM providers.

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.

independence and objectivity. Its research is produced independently by its research organization without input

or influence from any third party. For further information, see "Guiding Principles on Independence and Objectivity."

About Careers Newsroom Policies Site Index IT Glossary Gartner Blog Network Contact Send Feedback