

# REPORT REPRINT

## Datadog sniffs out opportunity in APM

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Datadog is keeping up a rapid pace of development by adding an APM service, support for Lambda and anomaly detection. These feature additions may be helping it to attract enterprises, but it will need to focus on enterprise-specific needs in order to expand within these customers.

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Datadog continues to add capabilities that its customers demand, with application performance monitoring (APM) among the most significant in the past few months. It has also recently introduced new machine-learning-driven anomaly detection and early support for Lambda monitoring.

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## THE 451 TAKE

By supporting emerging technologies, Datadog has established itself as a monitoring service for businesses on the leading edge of technology adoption. It continues to keep up with demand, adding support for Lambda, application tracing and anomaly detection. The company is also signing up traditional enterprises - typically in order to monitor a targeted app - and should court these users for their growth potential. To expand within those customers, Datadog will need to add the types of capabilities that many enterprises need, like enhanced security capabilities and a proven ability to handle growing volumes of data. It should also step up messaging around its on-premises monitoring capabilities because - despite its reputation as a cloud monitoring vendor - it does support on-premises deployments, a capability that many enterprises require.

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## CONTEXT

Founded in 2010 and headquartered in New York, Datadog's mission is to support early adopters, integrating with new technologies as they emerge. However, it reports that customers now include cutting-edge businesses, large tech companies and mainstream organizations including those in the public sector, Fortune 500 and academia. Customers number in the thousands and include Amtrak, AOL, Disney, Netflix, Warner Bros. Games and Twilio.

Datadog has raised \$147.9m since inception, including a \$94.5m fifth round in January 2016, led by Iconiq Capital. We think that given Datadog's strong position in the market, along with last year's hire of a vice president of finance with IPO experience, that the company could be preparing for a public offering within the next year or so.

## PRODUCTS

Datadog has come out with a few new capabilities in the second half of the year. Notably, it announced code-level application performance monitoring in September. For now, it's offered as an invite-only beta, covering Python, Ruby and Go, with additional languages to come. Datadog based the design of the APM tool on Dapper from a Google research paper, which outlined how the company built the internal tracing system. It also supports Zipkin, the open source Dapper interpretation developed at Twitter. Datadog said it plans to ingest data collected from X-Ray, AWS' recently introduced tracing service. Tracing is particularly useful in complex microservices environments, and we think tracing will become increasingly important as the use of microservices grows.

The APM service displays pre-configured dashboards, but users are able to customize their own. The dashboards include views displaying graphs that integrate data from Datadog's APM and infrastructure monitoring services. A unique visualization displays end-to-end requests in a way that shows where slowdowns might be occurring and the line of code that may be responsible for the problem. Users are able to set the sampling rate for the tracing service.

We think that expanding into APM is a natural step for Datadog. However, the move puts a strain on Datadog's relationship with New Relic, which allowed users to view APM metrics in the Datadog dashboard. But there was already some overlap given New Relic's expansion into infrastructure and server monitoring. Datadog should take care to nurture its relationship with New Relic because while some customers will like collecting APM and infrastructure data from the same vendor, others will prefer to stick with New Relic. We see the vendors that are open to third-party integrations as being the most successful in the future.

Most recently, Datadog rolled out new anomaly detection capabilities that allow users to choose from four different algorithms to analyze metrics. Datadog wrote the algorithms itself because it found that open source algorithms tend to work too slowly or don't work well in instances of spotty data. The four algorithms include: Basic, for analyzing a metric for sudden changes in behavior; Robust, for examining a long history in order to pick up on trends that might happen seasonally; Agile for understanding small, regular trends – e.g., a daily dip around noon – as well as seasonal changes; and Adaptive, for metrics that are too inconsistent to benefit from the Agile or Robust algorithms. Anomaly detection, which examines a single metric and its history, adds to the outlier detection capability that Datadog previously offered (which analyzed several metrics at once without their history).

Users can easily switch between algorithms via a drop-down menu to experiment with what works best for a particular metric. While we see other vendors employ multiple algorithms, they typically apply them simultaneously. Datadog argues that giving users the flexibility to apply specific algorithms to specific data sets is powerful because users best understand the behavior of their data. We suspect the flexibility may end up confusing users that are just beginning to learn how to interpret the results of the algorithms when applied to different types of datasets.

Datadog has also begun to offer monitoring tools for users of AWS Lambda, the serverless compute service. Via Datadog, customers can view Lambda metrics collected by Amazon's CloudWatch monitoring tool in addition to custom metrics. Datadog reports that Lambda users tend to be interested in knowing when a function is being called more often than expected and when functions don't complete. The 'serverless' is concept is quite new. Vendors and end users alike are just beginning to learn about the types of metrics that might be useful to them. We think that allowing users to collect customized metrics will both help Datadog understand what types of metrics are useful to Lambda users and offer it the possibility to emerge as a thought leader in Lambda monitoring. So far, Datadog reports that it has a few customers using Lambda in production.

## COMPETITION

When we talk to other modern cloud and infrastructure monitoring vendors, Datadog is often named as the one to beat. Dataloop, Librato (now owned by SolarWinds), ScienceLogic and ServerDensity are among SaaS cloud and infrastructure monitoring vendors that have told us they see the company as a notable competitor. Datadog is better financed and has more customers than the aforementioned competitors, allowing it to keep its edge as a vendor that is able to monitor technologies its early adopter customers use.

Sumo Logic and Wavefront have also mentioned to us that Datadog is an occasional competitor. Wavefront says it attracts Datadog customers that need to scale and need additional enterprise controls and features. As Datadog begins to attract more traditional enterprises, it should add capabilities that enterprises require, such as flexible admin controls and compliance with important security standards.

Datadog also competes with vendors that offer SaaS services for monitoring applications and infrastructure such as AppDynamics, New Relic and Dynatrace. Because Datadog told us that it is winning more mainstream enterprise customers, many of which may deploy Datadog to monitor specific modern applications, we think legacy vendors including CA Tech and IBM – that typically monitor legacy apps for those enterprises – may be losing this new business to Datadog.

## SWOT ANALYSIS

### STRENGTHS

Datadog has built a reputation as a vendor that is quick to support emerging technologies. As such, it should continue to attract customers on the leading edge of technology adoption.

### WEAKNESSES

Datadog is missing some capabilities that enterprises will demand, which could slow its growth potential in this important segment.

### OPPORTUNITIES

Branching out into APM broadens Datadog's appeal to new end users, making it more competitive with vendors that also offer APM and infrastructure monitoring such as New Relic and AppDynamics.

### THREATS

Now that it has expanded into APM, Datadog will increasingly be compared with other platform monitoring vendors. Because of this, the company will be expected to offer additional services that it doesn't yet deliver. To stay competitive, Datadog will need to expand into services like real-user monitoring and may need to add new types of analytics services aimed at line-of-business users.