

MARKET NOTE

StackState Applies AI Across Four Dimensions to Drive IT Service Delivery Outcomes

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: StackState Applies AI Across Four Dimensions to Drive IT Service Delivery Outcomes

This IDC Market Note analyzes Dutch IT monitoring technology provider StackState, highlighting how the company uses advanced predictive analytics and artificial intelligence (AI) investments to dramatically improve the productivity of administration teams and IT service delivery outcomes.

Key Takeaways

- StackState's mission is to "help enterprises save money and become more competitive by creating a high-quality and impact-free IT landscape." In other words, with its technology, StackState aims not only to help its customers react more quickly to IT problems, but ultimately, also enable admin teams ensure that impacts of problems are avoided in the first place.
- At the heart of the StackState platform is a novel graph-based monitoring and management database that it calls the 4T Data Model. The database holds configuration information that represents the structure and dynamics of a complete IT landscape, enabling analysis across four dimensions: topology (relationships and dependencies), telemetry (component health and performance metrics), tracing (surfacing code execution paths), and time.
- StackState is particularly interesting because of the AI-powered capabilities it builds on top of its data model. The company makes it straightforward for administrators to explore the structure, performance, and health of a complex IT estate and get predictive insights on issues and impacts. But more than that, it makes it possible to "rewind" visualizations in time, immediately showing graphically how current issues and impacts have propagated across assets and components.

Source: IDC, 2019

IN THIS MARKET NOTE

StackState is a specialist provider of "next generation" IT monitoring and management tools. The company was founded in 2015 as a spin-out from parent company Xebia Group, a Netherlands-headquartered IT services and consulting provider focusing on digital transformation. Xebia Group remains as the parent company and financier of StackState, having provided \$10 million of funding when StackState was first spun out, though StackState operates independent of its parent. At the time of writing, the company has nine customers, including Dutch telecom provider KPN, IBM Global Services, and NS (the Dutch national rail operator). It currently has around 35 employees, of whom around 25 are R&D staff.

StackState's founders first worked on what became the company's product while working with the largest bank in the Netherlands. This bank was struggling to make sense of the large number of technology monitoring and management systems it had in place, and it was finding it very difficult to diagnose the root causes of system problems or connect issues to business impacts, especially within fast-changing, highly complex landscapes.

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Products and Offerings

The StackState platform is designed to do three things: drive visibility of an IT estate across all technologies (across traditional on-premise platforms, microservices environments, and multicloud environments); perform end-to-end monitoring of health and performance across a heterogeneous, widely distributed IT estate; and provide intelligence for quick fault and performance issue diagnosis (to minimize costs, improve business service levels, and enable innovation).

At the heart of the StackState platform is a novel graph-based monitoring and management database. The database holds configuration information that represents the structure and dynamics of a complete IT landscape, drawing on data pulled from any number of third-party monitoring and management tools and sources and providing an integrated "single pane of glass" view of that landscape.

As shown in Figure 1, the data that powers StackState is organized using what the company calls a 4T Data Model that enables the system to interrogate, analyze, and represent the state of an IT estate along four dimensions:

- **Topology.** The data model records and represents information about the connections and dependencies that exist between IT estate components and assets.
- **Telemetry.** The data model records and represents a range of telemetry information (metrics, events, logs) from third-party monitoring and management tools, as well as from source components and assets themselves, to provide a near-real-time picture of estate health and performance.
- **Tracing.** The data model can record and represent code traces from all major programming languages, associating them with the relevant components and assets. It supports distributed tracing and also integrates with AWS' X-Ray and Azure's Monitor tools for cloud-based code deployments.

- **Time.** Most crucially, the 4T Data Model maintains a permanent record of IT estate components and assets, their topology (connections and dependencies), together with component telemetry and tracing, over time. As components and assets are changed or upgraded, their prior states remain held in the data store, and they can be queried from StackState just as easily as can their current states.

FIGURE 2

StackState's 4T Data Model in Action



Source: StackState

StackState uses AI techniques to drive advanced analytics that deliver three capabilities:

- **Anomaly detection.** StackState estimates the parameters of "normal" deviation from current performance using unsupervised learning (based on observed patterns of past performance) and alerts users when performance strays outside of that envelope.
- **Problem clustering.** StackState can automatically identify issues that are likely to be related in cause and cluster them together in the tool's UI, so administrators aren't deluged with cascades of individual alerts when problems occur.
- **Automatic root-cause and impact analysis.** StackState uses graph-based inferencing (specifically, a technique called Loopy Impact Propagation) to reason about the impact that one component can have on others; it uses these inferences to propagate issues both into the future (enabling prediction of future impacts) and into the past (identifying the root causes of a problem).

Typically speaking, on implementing StackState, around four weeks' worth of historical monitoring data is used to create a baseline for analysis.

As mentioned briefly previously, StackState advises its clients to maintain their existing investments in IT operations monitoring and management tools; its platform is designed to connect to existing tools and export or stream relevant data from them into StackState's underlying 4T Data Model.

To help in this regard, StackState provides a wide range of prebuilt connectivity options for popular IT monitoring and management tools, delivered as "StackPacks." These are currently available for over 80 popular monitoring tools (including New Relic, Nagios, AppDynamics, and Google Analytics), provisioning tools (including Chef, Ansible, and Puppet), service management tools (including Jira and ServiceNow), virtualization and container management technologies (including Kubernetes, Mesosphere, and Docker), as well as providing direct connections to technology platforms (including Apache Spark, Couchbase, Java, MongoDB, SQL Server, Memcached, and Kong).

Where a client doesn't already have good IT estate monitoring or discovery coverage with existing tool investments, StackState also provides a flexible agent that offers discovery and monitoring functionality. In addition, it provides a development toolkit that clients (or partners) can use to build custom monitoring data integrations.

The StackState platform is designed to be very scalable, so it can deliver value in highly business-critical, commercial environments. Its largest implementation currently models over 180,000 IT service, application, platform, and infrastructure components; the platform can handle models containing millions of components.

Pricing and Licensing

The StackState platform is licensed via monthly subscription, with tiered pricing based on the number of hosts and the number of components being monitored and analyzed.

Right now, the company makes between 90%-95% of its revenue from product licenses (with the remainder coming from implementation services).

Directions

StackState is currently investing in two areas:

- It's investing significantly in improving AI capabilities in its platform, specifically to enable a set of features that it calls Automatic Pre-Mortem Analysis (APMA). With these features in place, StackState intends that administrators will receive predictions of incidents before they occur – additionally, including information about the probable causes of those incidents, the probable impact of those incidents, and the predicted timeline of events. The company has a dedicated development team working on these features, and it plans to deliver them in phases over the coming 12 months, through 2019 and the first part of 2020.
- It's building a software-as-a-service (SaaS) version of its platform (the platform is available on-premise or hosted, but not as a StackState-managed service).

IDC'S POINT OF VIEW

As operational IT complexity continues to increase and as organizations struggle to keep pace with change without adding headcount, IDC forecasts that spending on IT system and service management software will grow to \$29.3 billion worldwide in 2022 at a CAGR of 8.2%. In this environment, technologies and tools that can help drive automation into IT service delivery will be crucial.

StackState is particularly interesting as an IT monitoring technology vendor because of the AI-powered capabilities it builds on top of its proprietary 4T Data Model. StackState makes it straightforward for administrators to explore the structure, performance, and health of a complex IT estate and get predictive insights into issues and impacts. But more than that, it makes it possible to "rewind" visualizations in time, immediately showing graphically how current issues and impacts have propagated across assets and components. With these capabilities, StackState gives administrators of such environments a productivity tool with major potential to improve outcomes.

StackState has significant potential to provide benefits to large organizations with complex IT estates, including managed service providers (MSPs) and large enterprises, by enabling administration teams to improve outcomes without scaling their resources accordingly.

StackState has a great technology and vision, but as the AIOps field continues to get more crowded, it's crucial that the company continues to communicate clearly how its platform and approach are different from those of other vendors. Taking the company to the next level will also involve StackState developing a business partner network that can help it take its product to market, as well as implement the product in clients' environments.

LEARN MORE

Related Research

- *Worldwide IT System and Service Management Software Forecast Update, 2018-2022* (IDC #US44519018, December 2018)

Synopsis

This IDC Market Note analyzes Dutch IT monitoring technology provider StackState, highlighting how the company uses advanced predictive analytics and AI investments to dramatically improve the productivity of administration teams and IT service delivery outcomes.

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