## **Event**

In November 2013, ExtraHop announced a new product offering, ExtraHop for AWS, designed to provide direct performance visibility of workloads and applications deployed in Amazon Web Services (AWS) environments. The solution adapts proven performance monitoring capabilities developed for use in dedicated, privately-owned network and data center infrastructures, but has been specifically tuned to the unique characteristics of AWS environments and services.

## Context

The broadening adoption of public cloud services has been both a boon and bane to IT organizations. On the boon side, such services allow greater flexibility and compelling cost alternatives to the use of wholly owned, dedicated infrastructure. On the bane side, public cloud providers cannot and typically will not provide the same degree of access to their service infrastructures as has become the norm in private infrastructures, creating significant gaps in operational visibility. As with all new technology initiatives, a part of the maturation process includes the evolution of proven practices to accommodate the new paradigm. Such is the case with infrastructure and application performance monitoring/ management for public cloud.

The performance management tools sector, whether focused on applications, servers, storage, networks, or some combination thereof, have been grappling with the challenge of monitoring the cloud since early days. In most cases, adaptations have taken the form of retrofitting or repackaging legacy monitoring technology into virtual/software forms so that it can be deployed next to workloads in the cloud. This is clearly better than nothing, and at least provides some degree of a return to normal best practices. But there have still been significant challenges with this approach. Such tools

Simple retrofitting of traditional monitoring technologies into virtual/software packages is not enough to establish public cloud performance visibility and control

represent an additional workload that consumes cloud resources, in terms of CPU, stored data, and data I/O. Also, ensuring complete visibility in a setting where workloads are, by definition, mobile and agile is difficult to ensure technologically. As cloud providers have begun to improve the sophistication of their virtual networking capabilities, this latter problem has eased to some degree; however, deploying third-party monitoring tools in the cloud can require constant feeding and maintenance to ensure that they are delivering the visibility they are intended to provide.

In order to get the full value of performance monitoring within a cloud environment, two things need to happen. First, monitoring tools need to be easily deployed and the risk of losing visibility because of intra-cloud changes must be mitigated. Second, there is a unique opportunity to use the visibility provided by good performance monitoring to provide specific insights into how cloud services are being used, so that opportunities for both cost and performance optimization can be identified. This latter opportunity requires that either the tools vendor or the tool operator create and customize monitoring metrics, console views, and reports that are tuned to the specific services being utilized.



# **ExtraHop for AWS**

As with other network-facing application performance monitoring vendors, ExtraHop began its journey towards supporting the cloud by first establishing a pure software version of its core monitoring appliance. The EH1000v was launched in 2011 and allowed ExtraHop's customers to instrument and restore visibility inside virtual compute environments, where virtual networking connectivity was carrying application and transaction traffic that was no longer visible via external performance instrumentation. The next challenge was to make a solution that could survive and thrive in public cloud settings, where access and configuration is inherently more difficult. ExtraHop's answer involved the creation of a distributed agent, the ExtraHop Packet Forwarder, which is based on open source RPCAP. The Packet Forwarder can be added into standard VM templates for automated deployment along with new workloads, where it monitors the vNIC, creates a copy of all packets being sent to and from that VM, and directs those copies to the ExtraHop EH1000v or EH2000v platform installed in the same cloud environment. ExtraHop Central Manager for AWS is then used to collect and view performance across all ExtraHop platforms, spanning all monitored AWS services. The data can even be collected by on-premises instances of ExtraHop Central Manager, for truly enterprise-wide visibility of performance across hybrid environments.

This effectively re-establishes the same "wire data" monitoring regime as would be possible within a private infrastructure, without requiring virtual taps or accessing the intra-cloud network in any way. The raw wire data never leaves the AWS cloud, protecting privacy and integrity, and the approach can be deployed by organizations using AWS services such as EC2, RDS, S3, and ELB. It complements and enhances performance visibility far beyond what is available from AWS CloudWatch, adding deep performance, experience, and error metrics that are essential for looking beyond mere resource consumption to understand actual effective performance.

While there is innovative value added in the Packet Forwarder technology, what makes the ExtraHop for AWS solution truly unique is that it does not stop at simply providing a means for reestablishing visibility. ExtraHop has worked directly with AWS technology teams to tune the data that is collected and presented to align specifically with the services (i.e. EC2, RDS, S3, ELB) that are being used and consumed. For instance, the solution can reveal performance variations between AWS EC2 availability zones, as well as between AWS regions. In this way, it becomes easy to recognize when deployment changes are needed due to variations in reachability or responsiveness of any particular zone at any point in time. It also quickly reveals any and all activity across all availability zones, so

What is truly unique about the ExtraHop for AWS solution is that it goes beyond reestablishing visibility by also aligning data collection and presentation directly with the specific characteristics of AWS services.

operators can determine at a glance whether current service usage conforms to expectations. This helps AWS subscribers recognize when workloads expected to have completed and been turned down are instead still active and running up the tab.

Another benefit is for recognizing and improving the cost effectiveness of AWS features like Auto-scale. ExtraHop for AWS recognizes Auto-scale events and can automatically add newly deployed workloads into the scope of monitoring. Further, ExtraHop has worked with AWS to allow metrics and health/ performance indicators tracked within or generated by the ExtraHop system to trigger Auto-scale actions directly. This allows administrators to tune Auto-scaling based on application performance and efficiency, rather than the raw resource consumption indicators available via CloudWatch.

ExtraHop has also adapted its solution to reveal specific details of Amazon RDS. By applying existing, advanced transaction visibility into the Amazon database service, organizations can again regain discrete awareness of how each type of database query and transaction is performing in the Amazon cloud. This helps in recognizing and applying specialized Amazon services such as Elasticache to those transaction and query types that are in most need of performance optimization. And there is much, much more.

## **EMA Perspective**

AWS is an increasingly mission-critical resource to IT shops large and small. Those shops should expect the same level of visibility and control over hosted services that they enjoy with their internal, private infrastructure. Further, most AWS use has been initiated specifically to save cost, and secondarily to improve flexibility or agility. This means a close eye must be kept on the way in which AWS services are being consumed, and all prudent and appropriate measures should be taken to avoid unnecessary cost wherever possible. The ExtraHop for AWS solution offers just such an opportunity.

The visibility and empowerment offered by the ExtraHop for AWS solution means that robust management and governance for public cloud have finally arrived

From a technology perspective, the ExtraHop for AWS solution is a relatively small step from where the company had already taken its products to date. But the features ExtraHop included that tune monitoring and presentation to the specific needs of AWS customers represent huge incremental value. By restoring full performance monitoring visibility into native AWS environments, the solution puts operators in position to optimize use of AWS services while also recognizing and eliminating wasteful service usage. Such visibility and empowerment means that robust IT management and governance practices for high-profile public cloud deployments have finally arrived.

#### About EMA

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on Twitter or Facebook. 2742.110813

