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Du and Associates

Du & Associates, Inc. (D&A), is a woman/minority-owned business that provides expertise in all areas of affordable housing. With clients including the Department of Housing and Urban Development (HUD) and State Housing Finance Agencies, D&A needs to be able to provide a broad range of services to effectively help their customers. D&A offers many services that need complex IT solutions to function, including portfolio analysis and planning, asset management, property management transitions and support for public housing authorities.

CHALLENGE

D&A's work with public and private partners requires them to offer services that are reliable and consistent. Due to limited monitoring with the web servers that they were using, D&A connected with Red River looking for a more consistent and stable solution to reduce false positives in alerts and avoid alarm fatigue for their operations staff.

With D&A's experience ranging across a broad spectrum of HUD programs and various FHA Insurance programs, they were in need of a transformative solution that reduces time to remediation and helps achieve total compliance.

Red River recommended AWS in order to:

1. Improve availability & cloud monitoring capabilities

2. Reduce reliance on physical infrastructure

3. Improve stability and flexibility of current infrastructure

4. Reduce web hosting fees by moving to an OpEx model from a CapEx model

SOLUTION

Red River's experts did a lift-and-shift of their existing distributed data center housed infrastructure into an AWS environment, removing any hardware/physical (RDS server) failures to decrease instability associated with the hardware itself and the power supporting it. They also implemented advanced monitoring technology throughout the AWS environment, which allowed Red River to highlight the software instability issues and take immediate action on them.

To help D&A be more proactive, Red River implemented machine learning anomaly detection models using AWS CloudWatch to generate alerts across a broad range of metrics including datapoints, thresholds, infrastructure and application layers (see Fig. 1). This monitoring tool shows deficiencies right away, giving teams the ability to propose which resources to redirect for optimal performance.

Datasource	Datapoints (metrics)	Alert Threshold
HostStatus	idleInterval	Static :> 300 300 300
Ping	recvdpkts	Static :<= 2 2 2
SSLCerts	Expires_In_Days	Static :<= 30 14 7
WinCPU	CPUBusyPercent	Static :>= 98 98
WinOS	MemoryUtilizationPercent	Static := 100 100
WinOS	PercentVirtualMemoryInUse	Static :> 95 95
WinServer	BlockingRequestsRejected	Static :!= 0
WinServer	ErrorsLogon	Static :>= 1
WinServer	ErrorsSystem	Static :!= 0
WinServer	PoolNonPagedFailures	Static :!= 0
WinServer	PoolPagedFailures	Static :!= 0
WinServer	WorkItemShortages	Static :!= 0
WinVolumeUsage	PercentUsed	Static := 90 95 99

Figure 1

TECHNOLOGY DECISIONS AREN'T BLACK AND WHITE. THINK RED.

Reduced Time to Remediation

To reduce time to remediation, Red River implemented advanced monitoring and integration between AWS and LogicMonitor through AWS Workspaces, the modern equivalent of a Relational Database Service (RDS). By monitoring the different instances in D&A's web server activity, Red River could audit and monitor changes at any level, diagnosing the root cause of any issue quickly and prevent future issues.

Figure 2

Automated Alerts & Integrated Ticketing System

Red River set thresholds to receive specific alerts to continuously monitor the health and stability of the solution. (see Fig. 2).

With customized alerting thresholds (see Fig. 3) users receive notifications about capacity, performance and availability in order to prevent downtime and promote the efficient use of resources.

Figure 3

Improved Visibility with AWS CloudWatch

AWS CloudWatch's advanced infrastructure change monitoring gives a greater level of insight into the AWS infrastructure and services that D&A didn't have before. On a 24-hour basis, AWS CloudWatch runs an audit, checking across five key categories – Security, Cost, Availability, Usage, AWS Trusted Advisor – and issues a report (see Fig. 4). Tickets are created as a result of automated alerts, giving D&A more visibility into how their AWS environment is functioning.

Figure 4

Total Compliance with AWS CloudCheckr

Red River provided D&A with an effective strategy around renewing warranties and outdated services by utilizing AWS CloudCheckr, identifying best practices for their AWS environment and helping them cut costs in the process.

AWS CloudCheckr provides proactive alerts on any security issues that could impact compliance through a customizable dashboard (see Fig. 5) with benchmark control metrics supported by the Center for Internet Security (CIS). The CIS Benchmark module provides detailed and actionable data to ensure compliance.
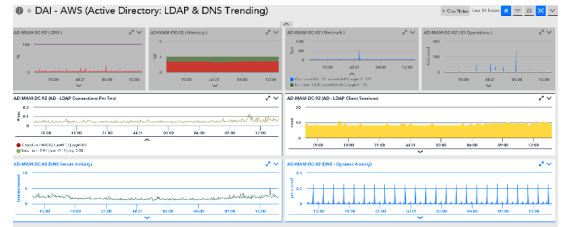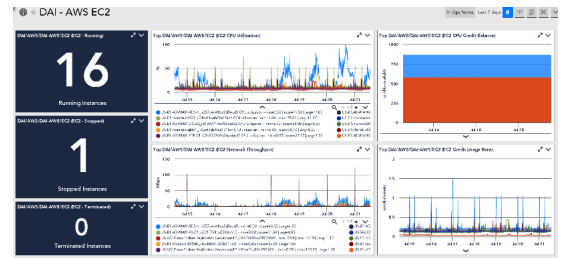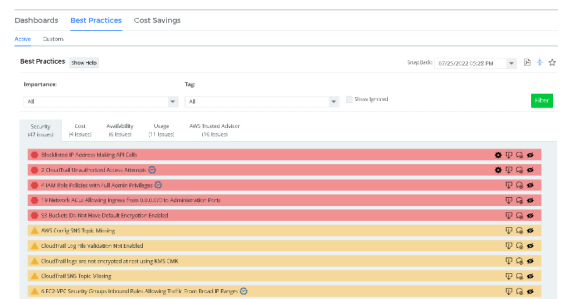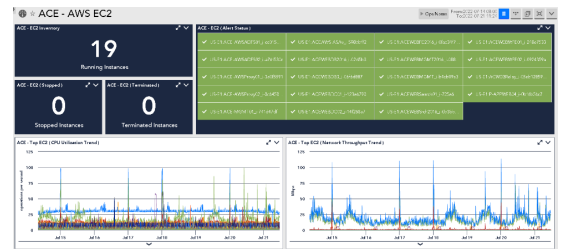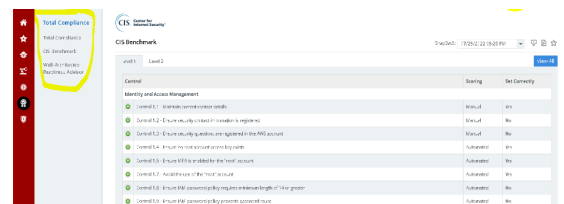

Figure 5

Figure 6

RESULTS

Red River's AWS expertise enabled D&A to improve their AWS environment, providing a unified view of their resources, applications and services running on AWS and on-premises.

D&A saw many immediate results by improving their AWS infrastructure with Red River, including:

• Complete visibility and the ability to rapidly scalable infrastructure and applications

• Continuous compliance in an era of Infrastructure-as-code (IaC)

• Alerting that automatically detects anomalies and abnormalities

• Change monitoring that led to reduced time for remediation

• Ability to analyze historical data to gain insights and prevent future issues

With this successful implementation D&A has greater control and understanding of how their applications can run more seamlessly, efficiently and securely, so they can continue supporting their public and private partners.

Red River