

Application: 5114

Innovative VPN logging Solution: Reducing Network Downtime and Boosting Revenue

Page: General Information

Provide information about the company to be considered for the award. If you will be nominating an individual, specify the nominee's employer.

Name of Organization/Company

Amazon Web Services, Inc.

Additional Contacts

I would also like to have others receive emails about the disposition of our entries.

Page: Entry Information

Entry Title

Innovative VPN logging Solution: Reducing Network Downtime and Boosting Revenue

Category

Q03. Technical Innovation of the Year - Information Technology

Technical Innovation of the Year Submission Format

Written Answers

a. Briefly describe the organization that achieved the nominated technical innovation: its history and past performance (up to 200 words). Required

Amazon Web Services (AWS), launched in 2006, has revolutionized the cloud computing market over the past two decades by offering scalable, flexible, and cost-efficient infrastructure solutions. AWS's comprehensive service portfolio, global reach, and focus on innovation have driven rapid adoption across various industries, making it a significant revenue generator for Amazon. From an initial revenue of approximately \$500 million in 2010, AWS's revenue soared to around \$80 billion in 2023, reflecting a compound annual growth rate of about 64%. As of late 2023, AWS holds a dominant position in the cloud infrastructure market with an estimated 32-34% market share, outpacing competitors like Microsoft Azure and Google Cloud Platform. This leadership is sustained through continuous service expansion, strategic partnerships, and strong enterprise adoption, despite the increasing trend of hybrid and multi-cloud strategies.

While working with Amazon Web Services, Inc., Narinder Singh works closely with customers to deliver features that add value to the industry for both customers and Amazon Web Services.

AWS has consistently shown its commitment to innovation by launching over 200+ new services and features each year. The platform has drawn millions of customers from 190 countries, significantly contributing to the success of many startups and enterprises.

b. Outline the nominated technical innovation. Be sure to describe it in terms that someone with limited knowledge of the technology can understand and appreciate (up to 250 words). Required

AWS Site-to-Site VPN is fully managed service which enables users to establish secure and encrypted connectivity across different locations and branch offices. These IPsec VPN tunnels are built over the internet, which is an unsecured path. AWS VPN users are mostly private and public enterprise organizations, including financial institutions which require secure data transfer with zero downtime.

Since the launch of AWS site to site VPN 13 years ago, there was no customer accessible feature to fetch and review VPN logs until 2022. Prior to my invention, if a VPN tunnel went down, causing customer production to be impaired, it would take several minutes to understand that it was a VPN issue. Customers then had to contact AWS support to troubleshoot and determine the root cause. This often-caused delays in restoring the production environment due to the involvement of multiple stakeholders, resulting in prolonged network outages that cost enterprises millions of dollars in lost revenue, productivity, and brand trust.

I spearheaded the effort to design and architect AWS Site to Site VPN CloudWatch logs. It is a cumbersome and challenging task to create logging feature on the "AWS Cloud VPN Gateway" and providing access to the AWS customers. There are several security challenges in implementing this feature due to dynamic nature of Cloud VPN Gateway and potential risk of exposing logs among different customer accounts.

c. Explain why the technical innovation you have highlighted is unique or significant (up to 250 words). Required

The secure log feature has been successfully implemented by over 43% of AWS VPN customers, resulting in 25% reduction in escalation rates. This significant improvement has also generated substantial revenue for AWS.

My role in this invention was to design log patterns and underlying architecture to avoid security risks while pushing logs to the CloudWatch service publicly and ensure that sensitive VPN logs do not get shared with untrusted users.

It offers the following benefits to industry:

Expedited recovery from Network Outages - Access to AWS VPN logs speeds up the process of troubleshooting and recovery.

Financial savings from Reduced Network downtime - VPN logs helped in reducing network downtime from outages as customers had easy access to analyze logs, detect network anomaly and implement workaround. As a result, it alleviates the cost of network downtime which comes from lost revenue (53%), lost productivity (47%) and lost brand trust (41%).

Revenue generation - Enabling of VPN CloudWatch logs generate revenue for AWS. Since its inception, 65,000+ AWS customers have enabled this logging feature. This generates ~\$150K revenue quarterly.

With the VPN logging feature in place, I created an automation workflow that simplifies the process of troubleshooting VPN tunnel issues and reduces the effort and time needed to analyze VPN logs. It runs a log Insight query against the VPN CloudWatch log group and displays the root cause on the dashboard, along with steps to fix the underlying issue.

d. Reference any attachments of supporting materials throughout this nomination and how they provide evidence of the claims you have made in this nomination (up to 250 words). Optional

Support letter for feature release ownership: My significant contribution and innovation to the AWS Site-to-Site VPN space and feature are supported by the attached support letter from VPN Service Owner.

Media Articles and Official AWS Announcements:

AWS Site to Site VPN Logs:
<https://aws.amazon.com/vpn/site-to-site-vpn/>

Customer didn't had access to VPN logs: https://www.reddit.com/r/aws/comments/oxuajq/root_causelogs_for_a_site_to_site_vpn_issue/?rdt=41891

Official announcements, now capture AWS Site-to-Site VPN connection logs using Amazon CloudWatch:
<https://aws.amazon.com/about-aws/whats-new/2022/08/aws-site-vpn-connection-logs-amazon-cloudwatch/>

Articles I have authored for AWS Site to Site VPN Logs feature and Automation:

The design patterns for AWS Site-to-Site VPN logs can be found in the documentation I authored: <https://docs.aws.amazon.com/vpn/latest/s2svpn/log-contents.html>

Automation for troubleshooting AWS Site-to-Site VPN detects error logs automatically and provides a step-by-step solution to resolve the issues: <https://repost.aws/articles/ARBy-Sjy4eQQqFT5Ylu2B7mA/troubleshoot-aws-site-to-site-vpn-ikev1-and-ikev2-errors-using-awssupport-troubleshootvpn-runbook>

Revenue generated from AWS VPN Cloud watch logs: <https://aws.amazon.com/cloudwatch/pricing/>

Service Impact Award: https://www.credly.com/badges/eb7e452f-5eff-4f0b-b7c9-7d542d267e8a/public_url

Webpage Link

<https://aws.amazon.com/vpn/site-to-site-vpn/> (<https://aws.amazon.com/vpn/site-to-site-vpn/>)

Would you like to add an additional webpage link?

Yes

Webpage Link 2

https://www.reddit.com/r/aws/comments/oxuajq/root_causelogs_for_a_site_to_site_vpn_issue/?rdt=41891
(https://www.reddit.com/r/aws/comments/oxuajq/root_causelogs_for_a_site_to_site_vpn_issue/?rdt=41891)

Would you like to add an additional webpage link?

Yes

Webpage Link 3

<https://aws.amazon.com/about-aws/whats-new/2022/08/aws-site-vpn-connection-logs-amazon-cloudwatch/> (<https://aws.amazon.com/about-aws/whats-new/2022/08/aws-site-vpn-connection-logs-amazon-cloudwatch/>)

Would you like to add an additional webpage link?

Yes

Web Page Link 4

<https://docs.aws.amazon.com/vpn/latest/s2svpn/log-contents.html> (<https://docs.aws.amazon.com/vpn/latest/s2svpn/log-contents.html>)

Would you like to add an additional webpage link?

Yes

Web Page Link 5

<https://repost.aws/articles/ARBy-Sjy4eQQqFT5Ylu2B7mA/troubleshoot-aws-site-to-site-vpn-ikev1-and-ikev2-errors-using-awssupport-troubleshootvpn-runbook>
(<https://repost.aws/articles/ARBy-Sjy4eQQqFT5Ylu2B7mA/troubleshoot-aws-site-to-site-vpn-ikev1-and-ikev2-errors-using-awssupport-troubleshootvpn-runbook>)

Would you like to add an additional webpage link?

Yes

Web Page Link 6

<https://aws.amazon.com/cloudwatch/pricing/> (<https://aws.amazon.com/cloudwatch/pricing/>)

Would you like to add an additional webpage link?

Yes

Web Page Link 7

https://www.credly.com/badges/eb7e452f-5eff-4f0b-b7c9-7d542d267e8a/public_url (https://www.credly.com/badges/eb7e452f-5eff-4f0b-b7c9-7d542d267e8a/public_url)

Would you like to add an additional webpage link?

Supporting Document

Download File (<https://stevies-tech.secure-platform.com/file/68002/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRRpYUlkIjo2ODAwMiwYXzsb3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6Imlnbm9Bh8R3uXJfy5tzLXy9S1MwIaiRipvFEVxrjE?VPN%20Feature%20Manager%20Support%20Letters.pdf>)

Would you like to add an additional supporting document?

No

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Terms and Conditions

I Agree