CASE STUDY – Enlyte

PROBLEM STATEMENT

Enlyte has over 100 AWS accounts and more than 1000 servers across multiple AWS Regions. The servers are managed using AWS Systems Manager. Enlyte wanted to configure and execute scheduled patching for instances across multiple accounts and region. The challenge faced by the operations team was to be able to visualize the patching status, attributes, parameters, metrics etc. about the servers in one single pane using advanced visualizations. They needed a dashboard which would give them the ability to filter data and get a clear idea about the status of each server in each account and region across the organization.

SOLUTION HIGHLIGHTS

Enlyte was looking to schedule a multi-account and multi-Region patching centrally and visualize the status of the patching across the organization.

We at ScaleCapacity chose to operate using AWS Systems Manager Automation for this use-case.

The architecture uses a centralized management approach to perform patching on target accounts in an organization from a single location.

AWS Systems Manager Inventory was collected from multiple regions and accounts using AWS Systems Manager Resource Data Sync and the Data was visualized in a central account using Amazon Quicksight.

Systems Manager Resource Data Sync was used to send inventory, patching, and the compliance data. This data was collected from the managed instances to a single Amazon Simple Storage Service (Amazon S3) bucket in the management account, which served as a source for the visualization. Resource Data Sync then automatically updated the centralized data when new inventory data was collected. With all inventory data stored in a target S3 bucket, used Amazon Athena and Amazon QuickSight to query and analyze the aggregated data.

About Enlyte

Industry:

Enlyte is the parent brand of Mitchell | Genex | Coventry, a leader in cost-containment technology, independent medical exams (IME), provider and specialty networks, case management services, pharmacy benefit and disability management. The three businesses have recently aligned their joint industry expertise and advanced technology solutions into a combined organization of nearly 6,000 associates committed to simplifying and optimizing property, casualty and disability claims processes and services.

Here is how the process works:

1. In the management account, the EventBridge rule is triggered based on the cron or rate-based expression specified.
2. The EventBridge rule then invokes a Lambda function, which, in turn, initiates a multi-account and multi-Region Automation workflow.
3. The Systems Manager administration role assumes the execution role in each target account and Region.
4. The execution role initiates a Run Command task for AWS-RunPatchBaseline. This command scans for, or install missing updates on target managed instances based on membership in the provided AWS Resource Group.
5. Aggregation of patching, compliance, and inventory data into a single location is done by creating a Systems manager Resource Data Sync, which syncs this data with a centralized S3 bucket of your choosing.
6. Amazon Athena provides us the ability to easily write SQL queries on top of raw S3 data, that is stored in Amazon S3. We created SQL queries based on use case requirements of Enlyte and then visualized the server information from multiple AWS accounts and regions by leveraging Amazon QuickSight dashboards.The Quicksight Dashboard facilitates the visualization of the patching status and other attributes of the servers in multiple accounts and regions in one single pane making the operations team's work easier to monitor them.

Challenges:

The challenge was to be able to

- Observe the patching status of instances across multiple accounts and regions in one place
- Get deeper insights on some targeted data, which is of interest like the inventory, health checks, applications deployed etc.
- Manage the resources using near real-time-data
- Visualize the patching status and other inventory information about the servers.
- Generate a detailed CSV report for any timeline of their interest.

WHY AWS

AWS Systems manager helps you easily understand and control the current state of your EC2 instance and OS configurations. With systems manager you can collect software configuration and inventory information about your fleet of instances and the software installed on them. You can track detailed system configuration, OS patch levels, application configurations and other details about your deployment. Integration with Amazon systems manager lets you easily view changes as they occur overtime. Amazon QuickSight enables us to easily create and publish interactive dashboards that can include ML Insights. Dashboards can be accessed from any device and can be embedded into the applications, portals, and websites. By storing the AWS Systems Manager data

in S3, Amazon Quicksight can be leveraged to visualize this data. Business analysts can seamlessly create serverless, pixel-perfect dashboards in minutes–securely connecting to petabytes of data in Amazon S3 and querying using Amazon Athena, while sharing with 10s of 1000s of users in Amazon QuickSight, all without any client software or server infrastructure. QuickSight is also the first BI service to offer pay-per-session pricing, making it cost-effective for large scale deployments.

WHY customer selected ScaleCapacity, Inc

Enlyte chose ScaleCapacity, Inc. as a solution provider for this use case because of the Company's competency in developing highly scalable and robust applications. Company's expertise is working with serverless components like like AWS Lambda, Amazon Athena, Amazon S3 and Amazon Quick sight was an edge for the trust shown by Enlyte. Past experiences on working with analytics and monitoring, ScaleCapacity, Inc proves its expertise in developing such solution with AWS Services and also help reducing the Cost of Ownership of the application.
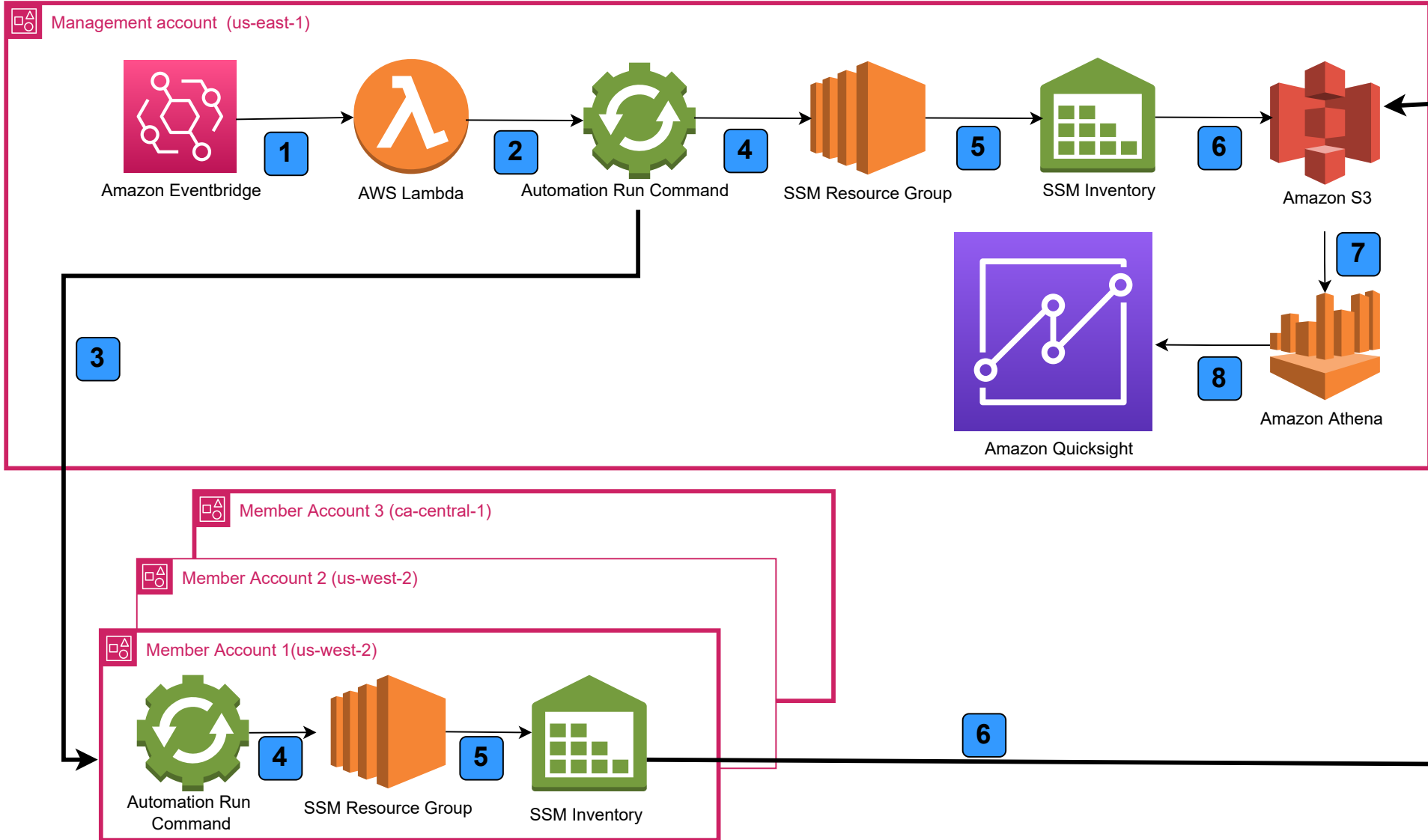

RESULTS

- Automated Visualization of the patching status and other inventory about the servers in one single pane using advanced visualizations facilitating the operations teams to get quicker insights.
- Cost effective analytics solution on the AWS Platform
- Visibility into various server data like applications, drivers, files, network configurations, OS updates, Tags and custom inventory.
- A simplified solution was provided to manage infrastructure, thereby enabling customer to create visualization dashboards from the data recorded by AWS Systems Manager across their organization.

About Partner	ScaleCapacity, Inc is AWS Advanced Consulting Partner and experienced in providing AWS consulting services related to various client needs, which includes (but not limited to) setting up AWS environments, migrating to AWS, provide well-architected AWS solutions. ScaleCapacity, Inc has well defined processes to carry out client's strategy for delivering solutions on AWS cloud.

Enlyte Server patching and Viualization

Management account (us-east-1)

Amazon Eventbridge → 1 → AWS Lambda → 2 → Automation Run Command → 4 → SSM Resource Group → 5 → SSM Inventory → 6 → Amazon S3

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7 → Amazon Athena → 8 → Amazon Quicksight

Member Account 3 (ca-central-1)

Member Account 2 (us-west-2)

Member Account 1(us-west-2)

Automation Run Command → 4 → SSM Resource Group → 5 → SSM Inventory → 6

1	In the Management account, an Eventbridge rule is triggered based on cron or rate based expression specified.
2	EventBridge rule then invokes a Lambda function, which, in turn, initiates a multi-account and multi-Region Automation workflow
3	Systems Manager administration role assumes the execution role in each target account and Region
4	Execution role initiates a Run Command task for AWS-RunPatchBaseline. This command scans for, or install missing updates on target managed instances on in the provided AWS ResourceGroup
5	AWS **Systems Manager Inventory** provides visibility into the AWS computing environment. You can use Inventory to collect metadata from your managed nodes
6	Systems Manager Resource Data sync aggregates patching, compliance, and inventory data into a single location , which syncs this data with a centralized S3 bucket
7	After creating the Systems Manager Resource Data Sync, Amazon Athena is used to query the data in Amazon S3 buckets using simple SQL queries.
8	SQL queries based on use-case requirements are created and data was visualized by leveraging Amazon **Quicksight Dashboards.**