

Cloudformation

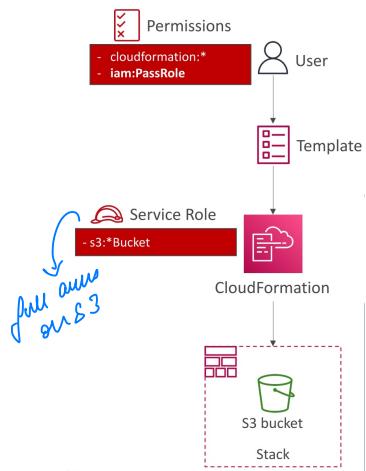
- declarative way of outlining our AWS infrastructure
- infrastructure as code
- free service Layer for the resources created from the Template
- each resource is tagged (for cost estimation)
- create a delete resource template on the go or as a planning strategy
- creates diagrams!, declarative programming.

* Cloudformation + Applications composes

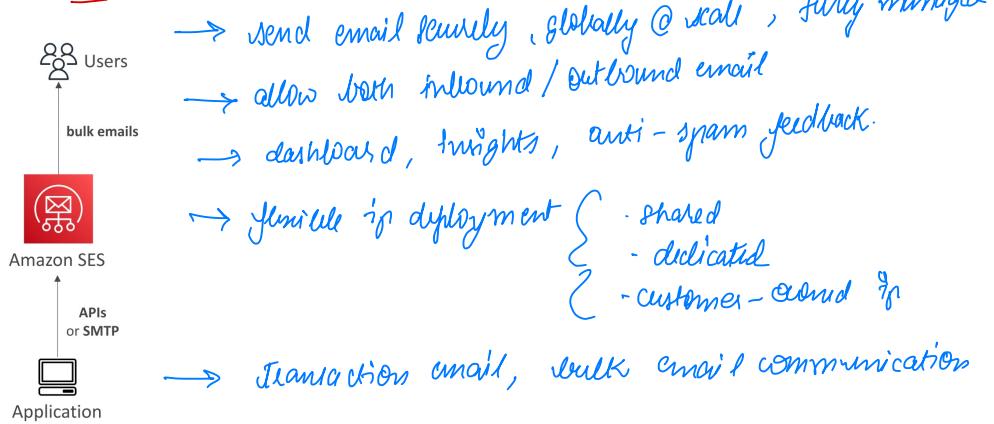
↳ allows to visually compose modern applications on AWS.

Cloudformation Service Role

- IAM role to Cloudformation that allows it to create/update/delete stack resources on our behalf.



Amazon SES (Simple Email Service)



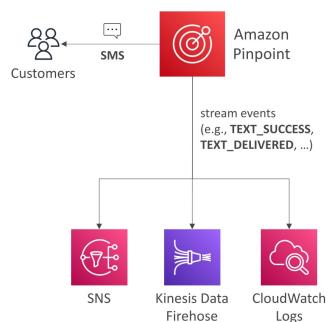
Amazon Pinpoint

→ Scalable 2-way (inbound/outbound) marketing communication
service
→ billions of msgs per day
→ run campaigns by sending marketing, bulk transaction
SMS.
if it is successful & replied then those events can be
streamed into SNS or KDF, Cloudwatch Logs.

• Versus Amazon SNS or Amazon SES

- In SNS & SES you manage each message's audience, content, and delivery schedule
- In Amazon Pinpoint, you create message templates, delivery schedules, highly-targeted segments, and full campaigns

→ *not much scalability*

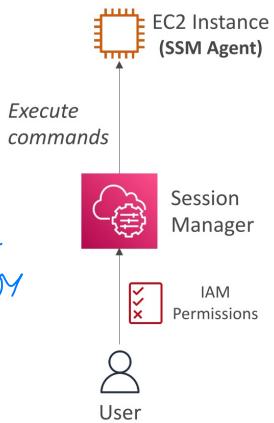


Amazon Systems Manager (SSM) Session Manager

- SSH to EC2 w/o port 22, bastion host or SSH keys.
(better security)
- SSM agent on EC2 instance or on-premises.
- send session logs to S3 or CW logs.

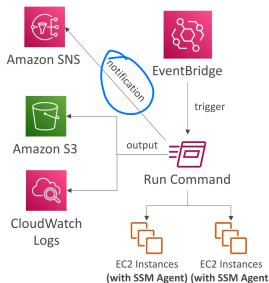
IAM permission => SSM managed instances role

SSM flat manages (this will have all the EC2 instances registered with SSM called managed nodes)



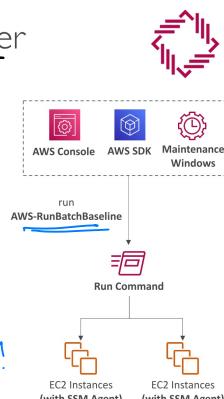
① Systems Manager – Run Command

- Execute a document (= script) or just run a command
- Run command across multiple instances (using resource groups)
- No need for SSH
- Command Output can be shown in the AWS Console, sent to S3 bucket or CloudWatch Logs
- Send notifications to SNS about command status (In progress, Success, Failed, ...)
- Integrated with IAM & CloudTrail (who did what)
- Can be invoked using EventBridge



② Systems Manager – Patch Manager

- Automates the process of patching managed instances
- OS updates, applications updates, security updates
- Supports EC2 instances and on-premises servers
- Supports Linux, macOS, and Windows
- Patch on-demand or on a schedule using Maintenance Windows
- Scan instances and generate patch compliance report (missing patches)



• Systems Manager – Maintenance Windows



- Defines a schedule for when to perform actions on your instances
- Example: OS patching, updating drivers, installing software, ...
- Maintenance Window contains
 - Schedule {when}
 - Duration {for how long?}
 - Set of registered instances {which?}
 - Set of registered tasks {what tasks?}



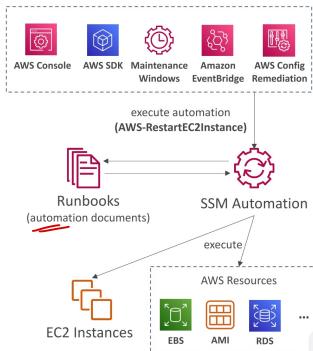
Céline Maarek



Systems Manager - Automation

→ for automation tasks!

- Simplifies common maintenance and deployment tasks of EC2 instances and other AWS resources
 - Examples: restart instances, create an AMI, EBS snapshot
- Automation Runbook** – SSM Documents to define actions performed on your EC2 instances or AWS resources (pre-defined or custom)
- Can be triggered using:
 - Manually using AWS Console, AWS CLI or SDK
 - Amazon EventBridge
 - On a schedule using Maintenance Windows
 - By AWS Config for rules remediations



AWS Cost Explorer

- used to visualize, understand & manage AWS costs over time!
- create custom reports, dashboards for insights.
- high level analysis (hourly, monthly, across all accounts)
- forecast up to 12 months (on prior usage)
- choose optimal savings plan.

AWS Cost Anomaly detection

AWS Cost Anomaly Detection

- Continuously monitor your cost and usage using ML to detect unusual spends
- It learns your unique, historic spend patterns to detect one-time cost spike and/or continuous cost increases (you don't need to define thresholds)
- Monitor AWS services, member accounts, cost allocation tags, or cost categories
- Sends you the anomaly detection report with root-cause analysis
- Get notified with individual alerts or daily/weekly summary (using SNS)



AWS Batch

AWS Batch

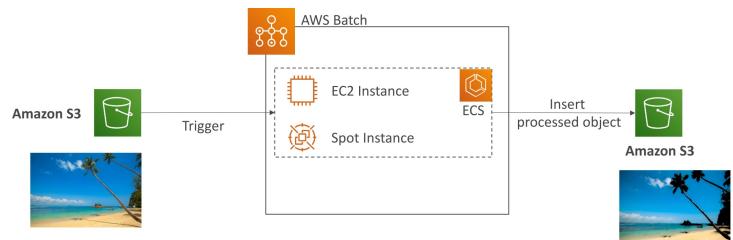


- Fully managed batch processing at any scale
- Efficiently run 100,000s of computing batch jobs on AWS
- A "batch" job is a job with a start and an end (opposed to continuous)
- Batch will dynamically launch EC2 instances or Spot Instances
- AWS Batch provisions the right amount of compute / memory
- You submit or schedule batch jobs and AWS Batch does the rest!
- Batch jobs are defined as Docker images and run on ECS
- Helpful for cost optimizations and focusing less on the infrastructure

Batch job
{ has a start }
 &
 on end

Streaming tasks
{ new ends }

Streaming
jobs can run
on ECS or run on
batch.



Batch vs Lambda

- Lambda:

- Time limit (15 min)
- Limited runtimes
- Limited temporary disk space (4KB env variables)
- Serverless



- Batch:

- No time limit
- Any runtime as long as it's packaged as a Docker image
- Rely on EBS / instance store for disk space
- Relies on EC2 (can be managed by AWS)



Amazon AppFlow

→ fully managed integration service that enables you to securely transfer data between software-as-a-service (SaaS) applications & AWS.

Amazon AppFlow



- Fully managed integration service that enables you to securely transfer data between Software-as-a-Service (SaaS) applications and AWS
- Sources: Salesforce, SAP, Zendesk, Slack, and ServiceNow
- Destinations: AWS services like Amazon S3, Amazon Redshift or non-AWS such as SnowFlake and Salesforce
- Frequency: on a schedule, in response to events, or on demand
- Data transformation capabilities like filtering and validation
- Encrypted over the public internet or privately over AWS PrivateLink
- Don't spend time writing the integrations and leverage APIs immediately

AWS Amplify

AWS Amplify - web and mobile applications



- A set of tools and services that helps you develop and deploy scalable full stack web and mobile applications
- Authentication, Storage, API (REST, GraphQL), CI/CD, PubSub, Analytics, AI/ML Predictions, Monitoring, ...
- Connect your source code from GitHub, AWS CodeCommit, Bitbucket, GitLab, or upload directly

