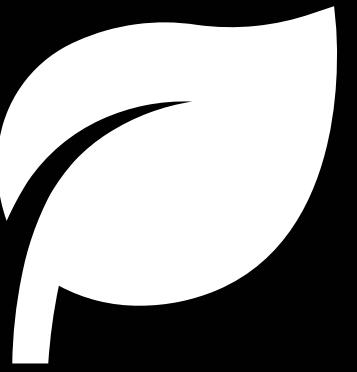


Cloud Foundations

Session 04

≈

Presented by Vansh Sood





From hackathons to the Startup Residency program,
ShiftKey Labs makes sure students have the skills & support
they need to pursue their most innovative ideas!



HIGHLIGHTS

**NASA Space Apps
Challenge**

Global Game Jam

**Generative AI
Hackathon**

Workshops & Talks

REACT
Blockchain
Prototyping
Startups
Freelancing
Cybersecurity

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info@shiftkeylabs.ca

About Me

- Third-year BCS, Researching in AI, TA at Dalhousie University
- Tech coordinator for Shiftkey Labs and Faculty of Health
- Freelancing for over 6 years
- Worked with 25+ startups and small businesses
- Helped startups raise over \$100,000 in funding
- Founder of a 6 figure web and mobile development agency
- Building a food tech startup Bean
- AWS Solutions Architect
- Google Code-In Grand Prize Winner (Global Top 50)



Course Overview



NEXT LECTURE IS MARCH 4th 6pm Kenneth C Rowe 1014

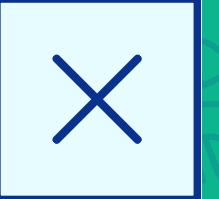
Over these 4 weeks, you'll learn about cloud computing and AWS services.

By the end of the course, you'll have the knowledge needed for the AWS Cloud Practitioner certification.

You will get knowledge to practice AWS and I highly recommend giving the AWS Certification and get Reimbursed by ShiftKey



HEY DAL STUDENTS!

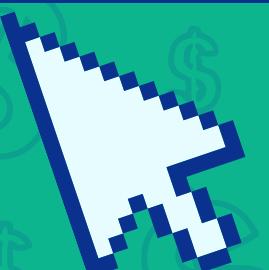


**ShiftKey's Reimbursement
Program can put MONEY
BACK IN YOUR POCKET!**

SCAN HERE



Questions? Email Or Denemark at Or@dal.ca or check our website for more
****This program is only eligible for Dalhousie students****



How is this going to help?

Development Skills

Learn the necessary tools and techniques in cloud, specifically focused on AWS.

Certification Completion

Walk away with a certificate you've completed from start to finish, demonstrating your ability to turn ideas into workable applications.

Career Boost

Reliable, practical skills, and a polished certificate to showcase to potential employers, will be a highlight on your resume.

What are you taking away from this?



Apart from the food? A whole lot of knowledge.

You can choose to just listen, or you can choose to actually work on an application that will teach you more than two development courses in university will.

Work on this for four days, and I guarantee you will have an amazing project with a whole lot of skills up your sleeve.

And even though I'm not a big fan of resumes, this will be an excellent addition to your resume.

Getting the Certificate



What is absolutely necessary?

- Join 3/4 sessions
- Go home and practice!!!
- Give the final exam (date to be announced)
 - Can be replaced with AWS CCP
- Submit 1 min video solution (mock interview)

What can be done?

- Use Cloud regularly
- Give AWS CCP / Other Foundational exams
- Have fun

Which AWS service enables you to run code without provisioning or managing servers?

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- C. Amazon RDS
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- B. Patching the underlying hypervisor
- C. Managing customer data
- D. Setting up IAM users and permissions

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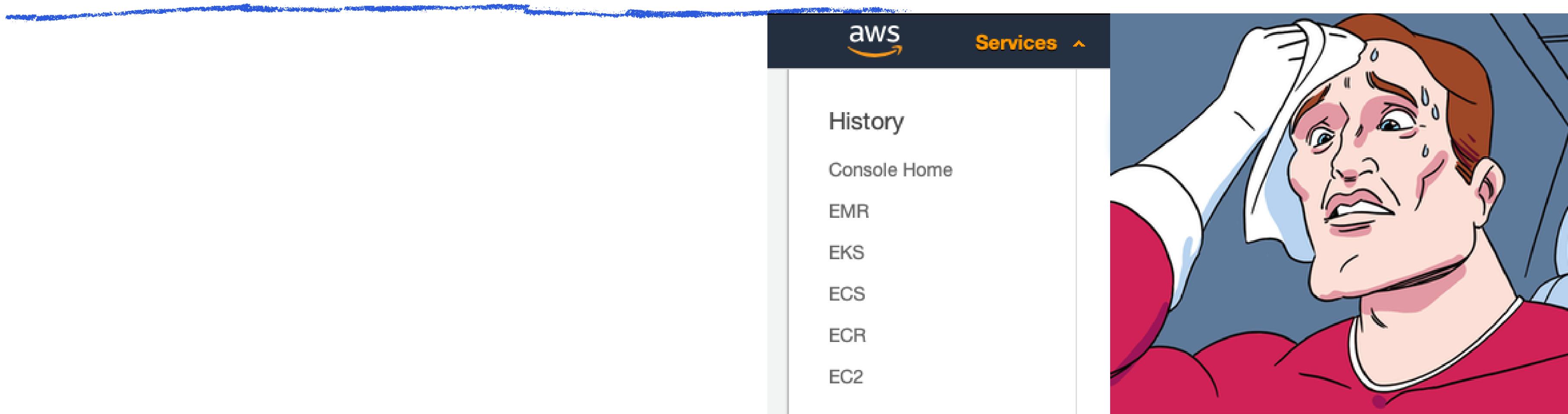
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AWS Pricing Models



Compute

AWS provides multiple pricing models to optimize cost efficiency:

- On-Demand Instances – Pay for compute capacity per hour/second with no long-term commitment.
- Reserved Instances (RI) – Up to 72% savings for long-term (1-3 years) usage commitments.
- Spot Instances – Up to 90% discount compared to On-Demand, best for flexible, fault-tolerant workloads.

Compute

- Savings Plans – Flexible pricing model with discounts for consistent usage (Compute or EC2 Instances).
- Dedicated Hosts & Instances – Physical servers for compliance or specific licensing requirements.
- Capacity Reservations – Reserve capacity in a specific AZ, useful for predictable workloads.

Storage Pricing & Tiers

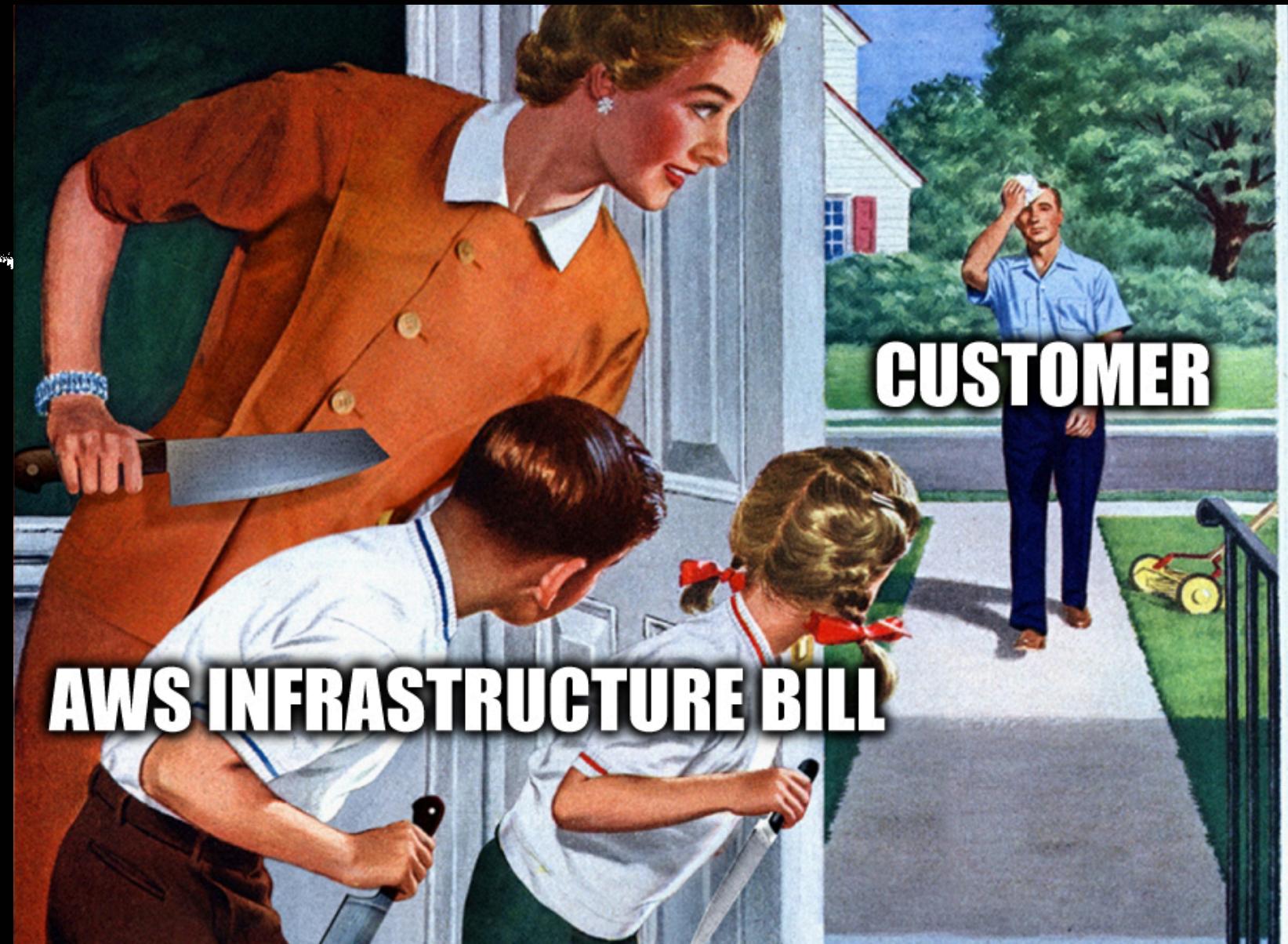
AWS provides multiple storage classes with different pricing models:

- Amazon S3 Standard – General-purpose storage.
- S3 Intelligent-Tiering – Automated cost optimization based on access patterns.
- S3 Glacier & Glacier Deep Archive – Low-cost archival storage with retrieval time trade-offs.
- EBS & EFS Pricing – Varies by provisioned capacity, IOPS, and throughput.

Data Transfer Charges

- Incoming Data Transfer - Free in most cases (e.g., data uploaded to AWS).
- Outgoing Data Transfer - Charged based on:
 - Between AWS services in the same Region (often free or discounted).
 - Between different AWS Regions (cost varies).
 - From AWS to the internet (can be costly).

Billing, Budget, and Cost Management



AWS INFRASTRUCTURE BILL

Billing & Pricing Tools



AWS Billing Dashboard



View invoices, payment history, and account charges.

AWS Pricing Calculator



Estimate AWS service costs based on expected usage.

AWS Organizations & Cost Allocation

Consolidated Billing

Combine multiple accounts under AWS Organizations for volume discounts.

Cost Allocation Tags

Label resources for cost tracking (e.g., by project or department).

AWS Cost and Usage Report

Detailed breakdown of usage and spending.

AWS Support and Technical Resources



AWS Support Plans



- Basic Support - Free, includes AWS documentation, whitepapers, and forums.
- Developer Support - Email support during business hours.
- Business Support - 24/7 support with phone, chat, and Trusted Advisor access.
- Enterprise & Enterprise On-Ramp Support - Personalized support, TAM (Technical Account Manager), and faster response times.

Technical Resources for Learning & Troubleshooting

- AWS Documentation & Whitepapers – Official guides on AWS services.
- AWS re:Post & Knowledge Center – Community-driven Q&A and troubleshooting.
- AWS Prescriptive Guidance – Best practices and reference architectures.

Monitoring & Security Assistance

- AWS Trusted Advisor - Helps optimize cost, security, performance, and fault tolerance.
- AWS Health Dashboard & Health API - Provides real-time service status and personalized alerts.
- AWS Trust and Safety Team - Reports and prevents abuse of AWS resources.

AWS Partner Network & Marketplace

- AWS Partner Network (APN) - Includes ISVs (Independent Software Vendors) and System Integrators.
- AWS Marketplace - Offers third-party tools for cost management, governance, and software solutions.
- Benefits of Being an AWS Partner - Access to training, certification, events, and partner discounts.

Questions



Services we did not cover, yet



AI/ML

Amazon SageMaker

Build, train, and deploy
ML models

Amazon Lex

Conversational AI for
chatbots

Amazon Kendra

Intelligent search

Analytics

Amazon Athena

Serverless SQL querying

Amazon Kinesis

Real-time data streaming

AWS Glue

ETL (Extract, Transform, Load)

Amazon QuickSight

Business Intelligence (BI)

Integration Services

**Amazon
EventBridge**

Serverless event bus for
event-driven
architectures.

**Simple
Notification
Service (SNS)**

Pub/Sub messaging
service for notifications.

**Simple Queue
Service (SQS)**

Fully managed message
queuing for decoupling
microservices.

Business Application Services

Amazon Connect

Cloud-based contact center solution for customer support.

SES (Simple Email Service)

Scalable, cost-effective email sending for marketing and transactional emails.

End-User Computing Services

Amazon AppStream 2.0

Streams desktop apps to users from AWS securely.

Amazon WorkSpaces

Managed virtual desktop infrastructure (VDI) for secure remote work.

Amazon WorkSpaces Web

Secure browser-based access to internal web applications.

Web & App Services

AWS Amplify

Full-stack development framework for building scalable web and mobile apps.

AWS AppSync

GraphQL API service for real-time data syncing and offline capabilities.

IoT

AWS IoT Core

Securely connects and
manages IoT devices at
scale.

AWS IoT Greengrass

Brings AWS compute and
analytics capabilities to
edge devices.

Customer Engagement

AWS Activate for Startups

Provides credits, training, and resources for startups.

AWS IQ

Connects customers with AWS-certified experts for consulting and development.

AWS Managed Services (AMS)

Automates infrastructure management to improve security and compliance.

AWS Support

Offers different tiers of customer support, from basic troubleshooting to enterprise-level guidance.

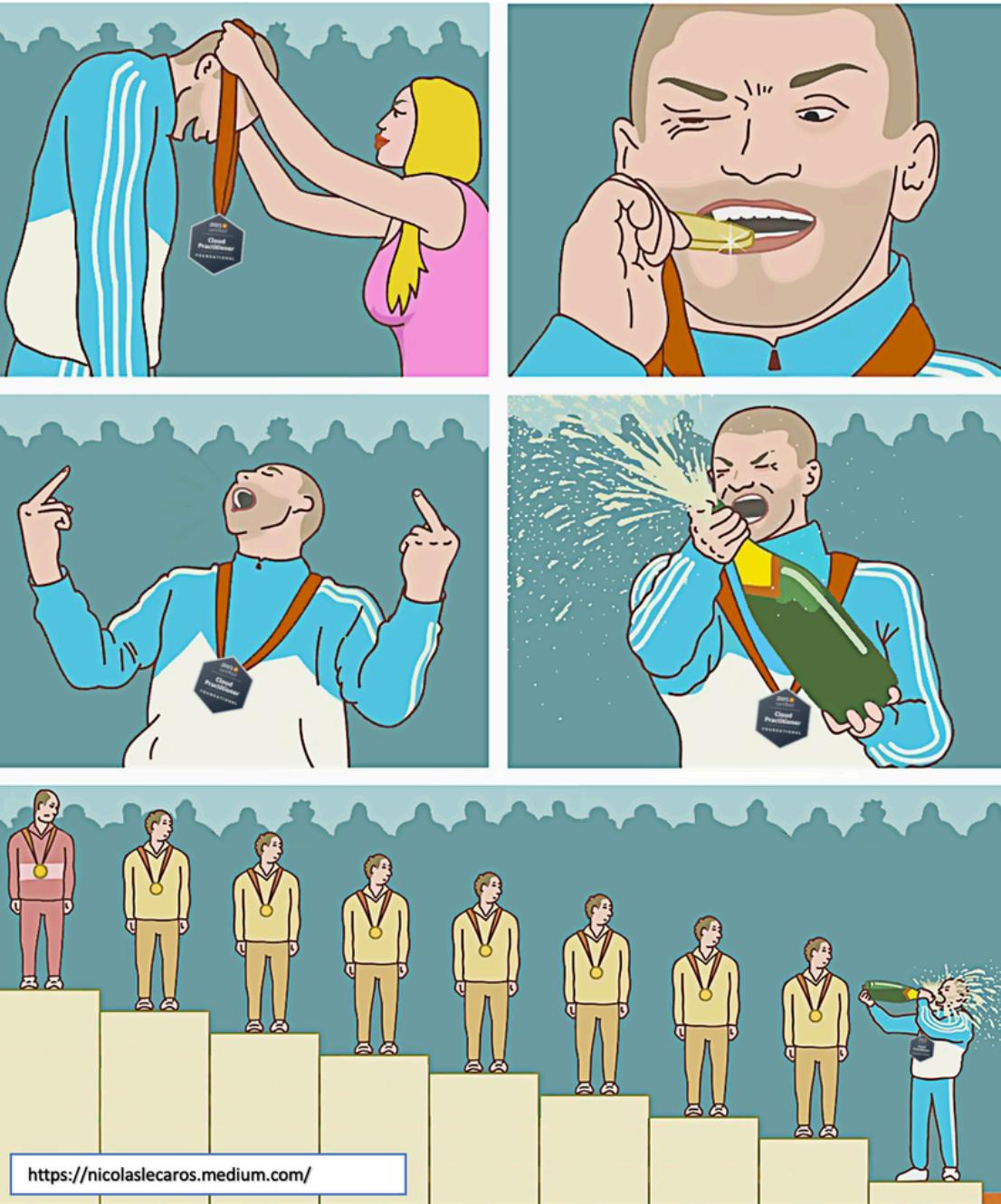
Dev Tools

- AWS AppConfig – Manages application configurations for quick, safe updates.
- AWS Cloud9 – Cloud-based IDE for coding and debugging in a browser.
- AWS CloudShell – Secure, browser-based shell for AWS CLI access.
- AWS CodeArtifact – Artifact repository for securely storing and sharing software packages.
- AWS CodeBuild – Fully managed CI/CD service for building and testing code.

Dev Tools

- AWS CodeCommit – Secure, scalable Git repository hosting.
- AWS CodeDeploy – Automates deployments across EC2, Lambda, and on-premises servers.
- AWS CodePipeline – Orchestrates CI/CD workflows for automated deployments.
- AWS CodeStar – Manages end-to-end software development projects on AWS.
- AWS X-Ray – Provides application tracing for debugging and optimizing performance.

Questions



A few more questions



An organization has a large number of technical employees who operate their AWS Cloud infrastructure. What does AWS provide to help organize them into teams and then assign the appropriate permissions for each team?

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(Choose TWO)

- A. Regularly update firmware on EBS devices.
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- D. Store a backup daily in an external drive.
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Thank you

Reach out to me:

<https://www.linkedin.com/in/vanshsood/>

