Specialized Topics

Deployment Automation

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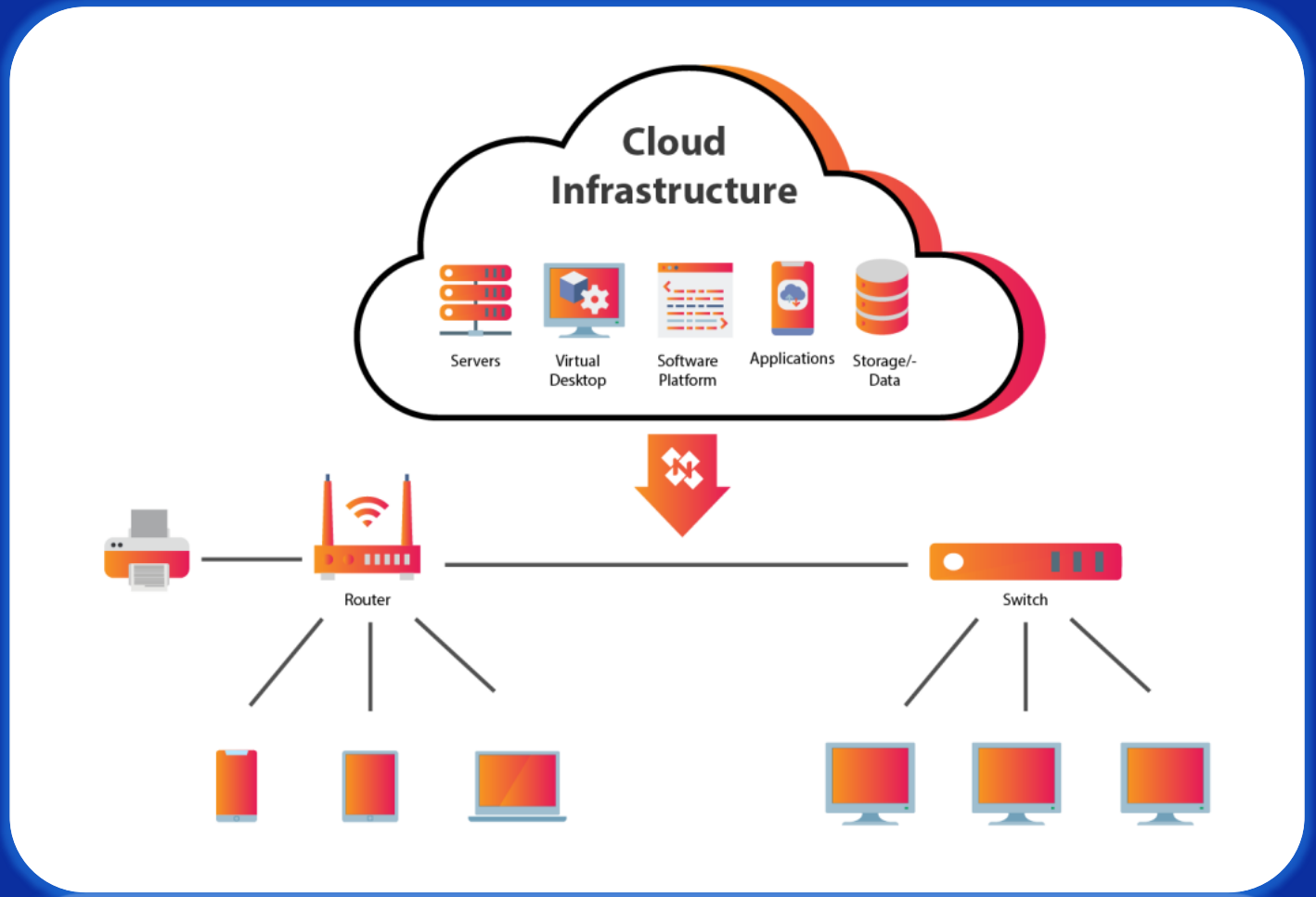
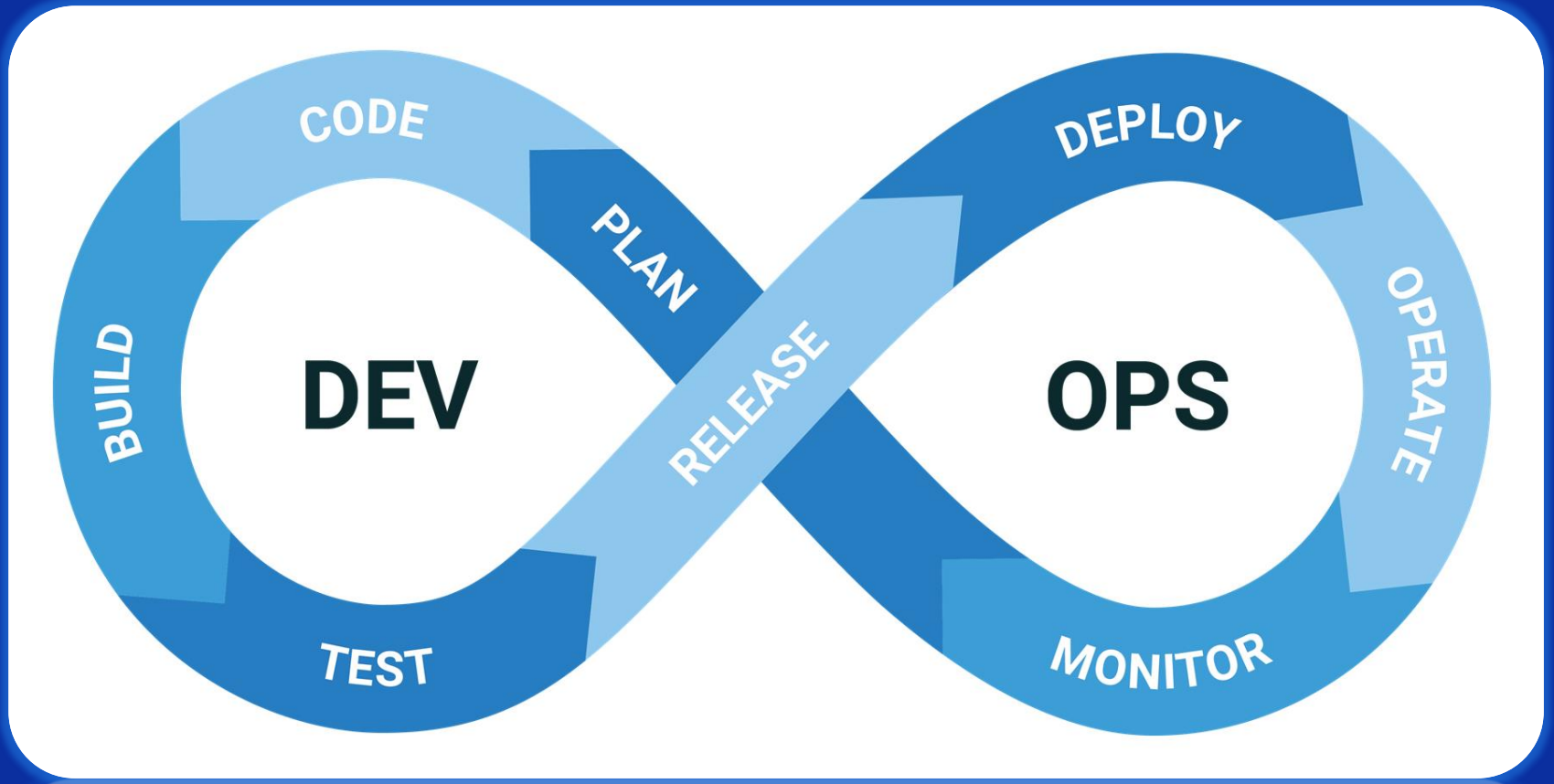
Cloud Computing



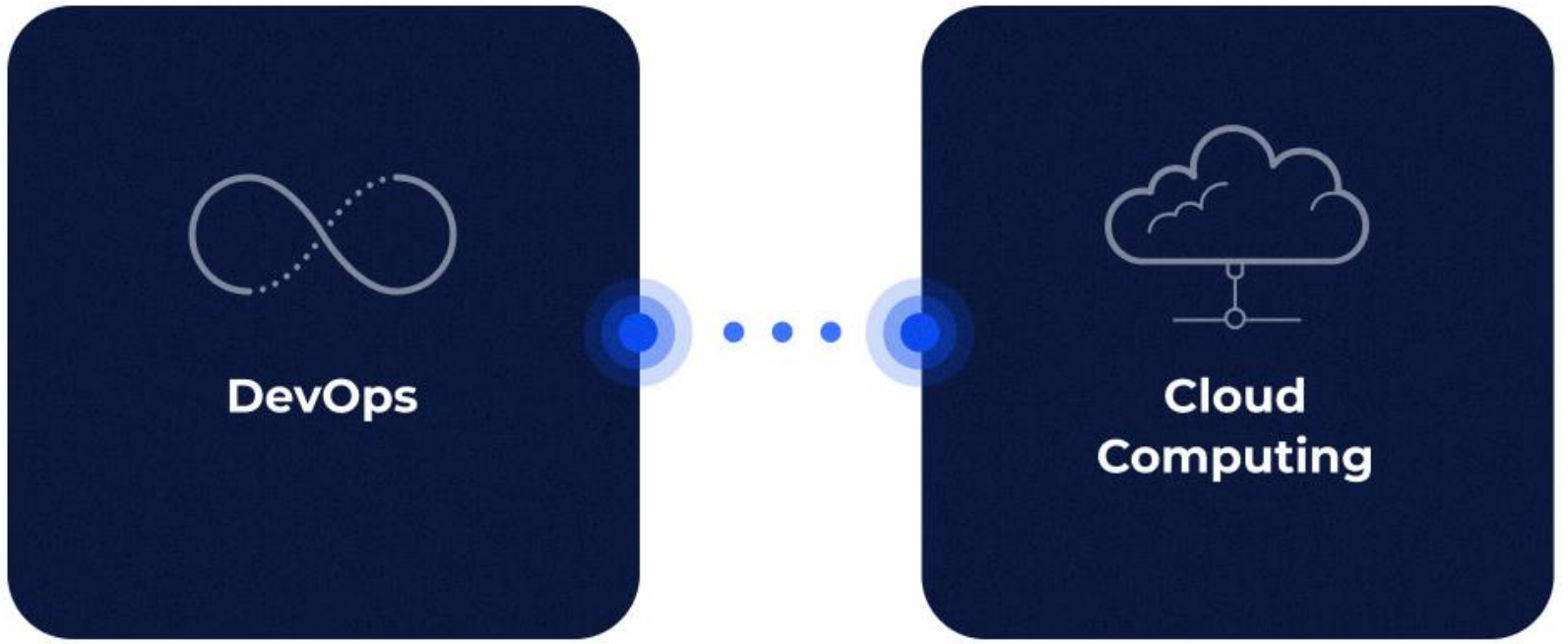
Source: NioyaTech IT/AI Solutions (Linkedin)

DevOps



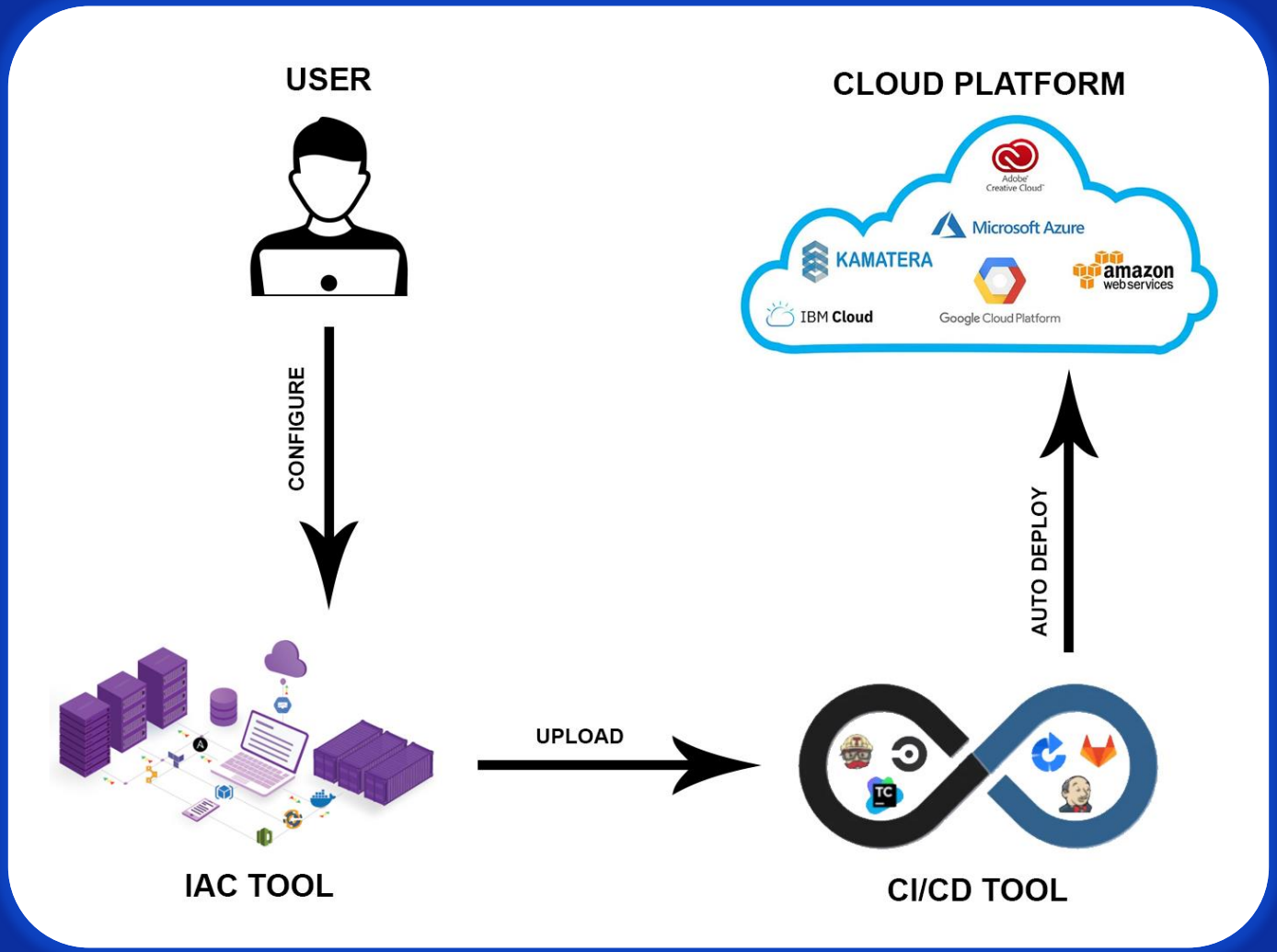
Source: csc.edu.vn

Deployment Automation

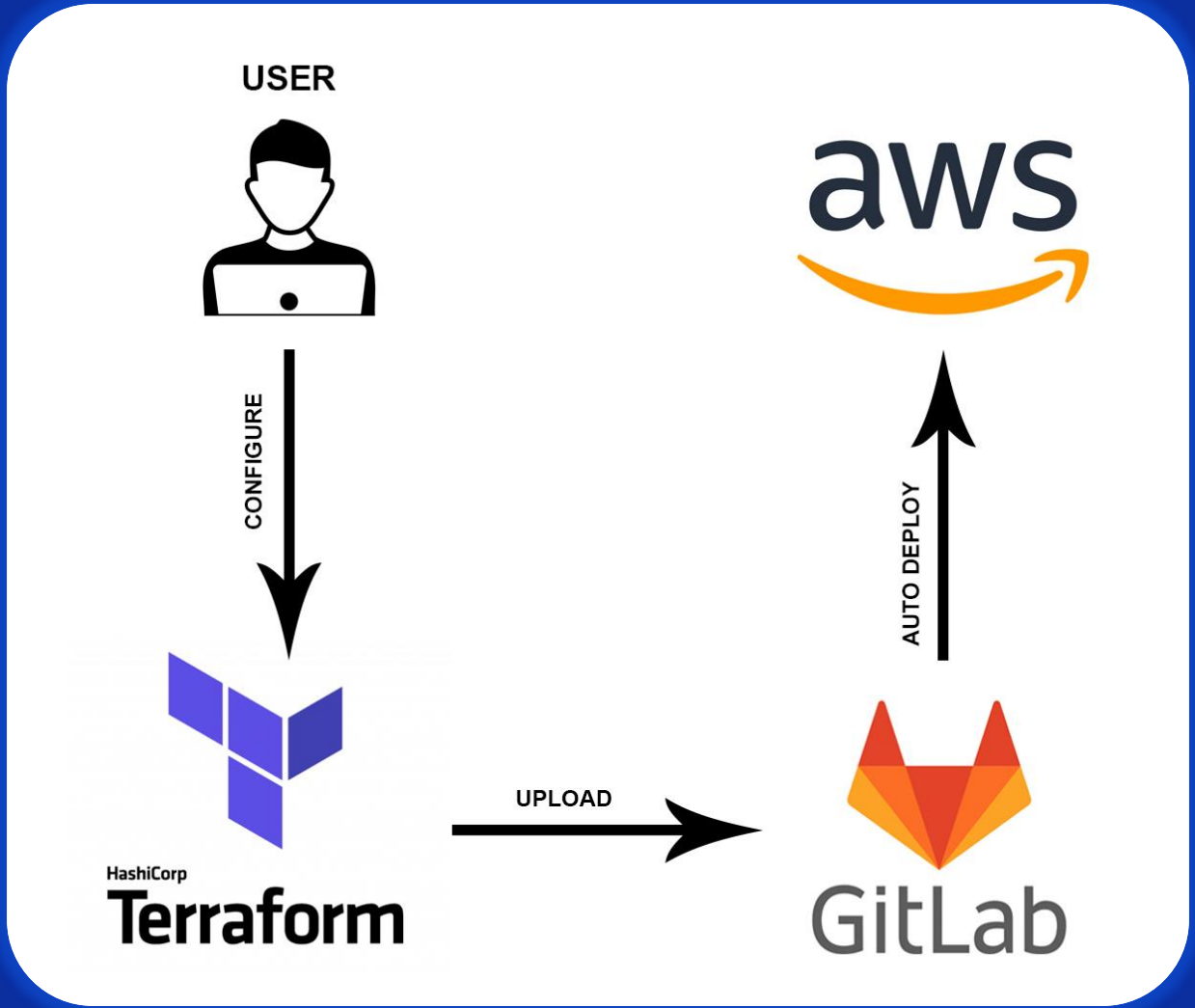


Source: sam-solutions.us

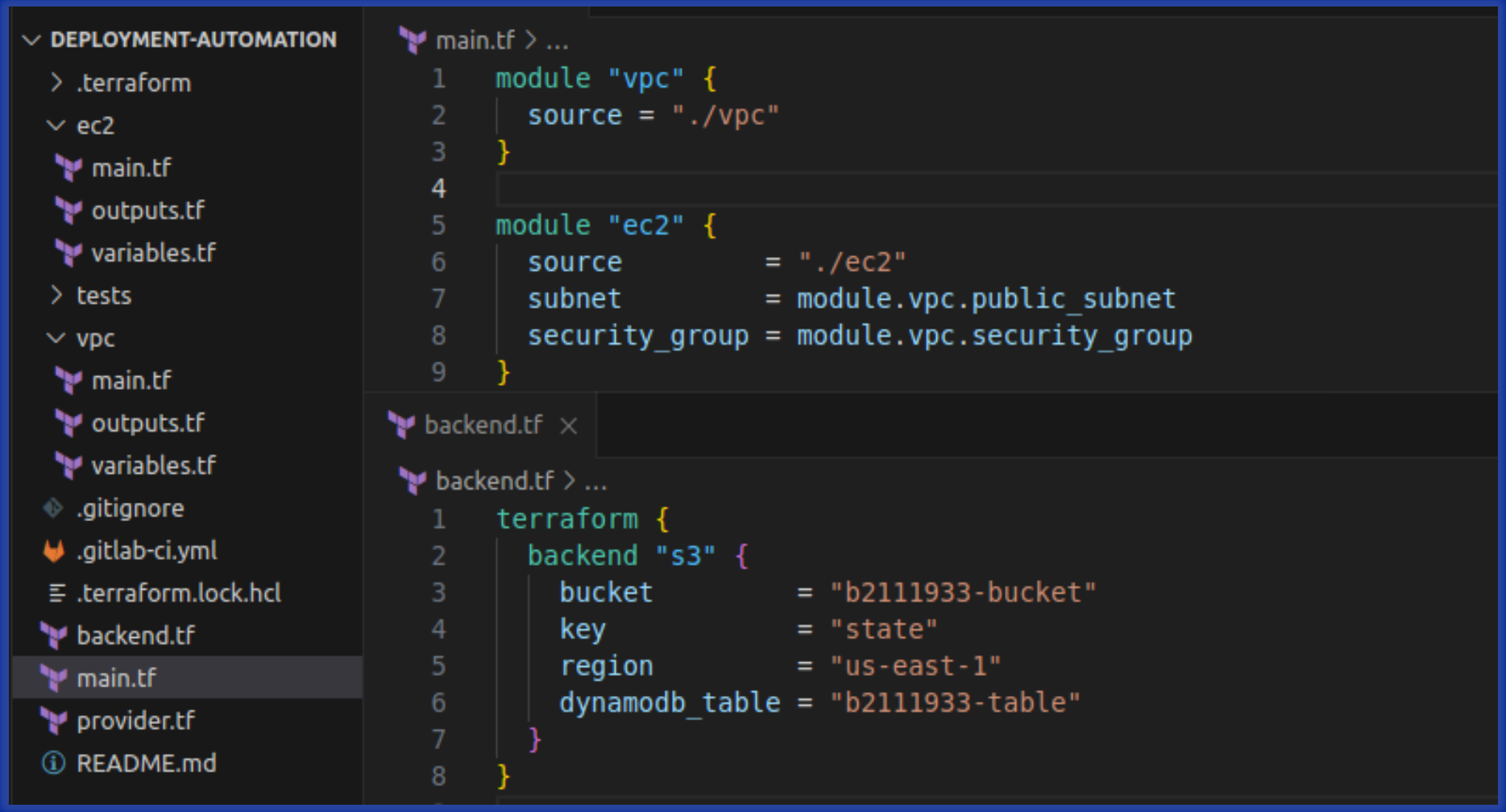
Conceptual Architecture



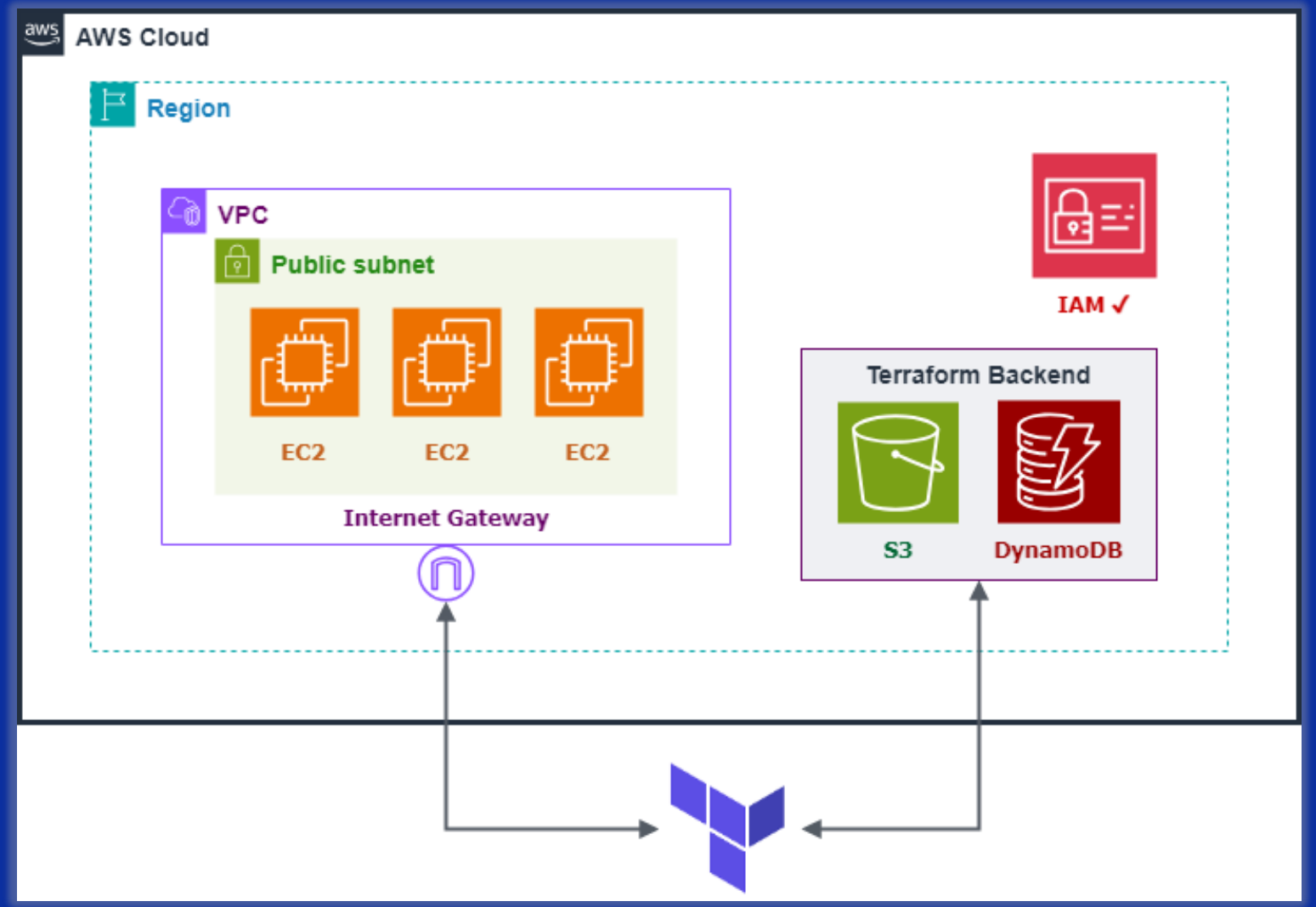
Detailed Architecture



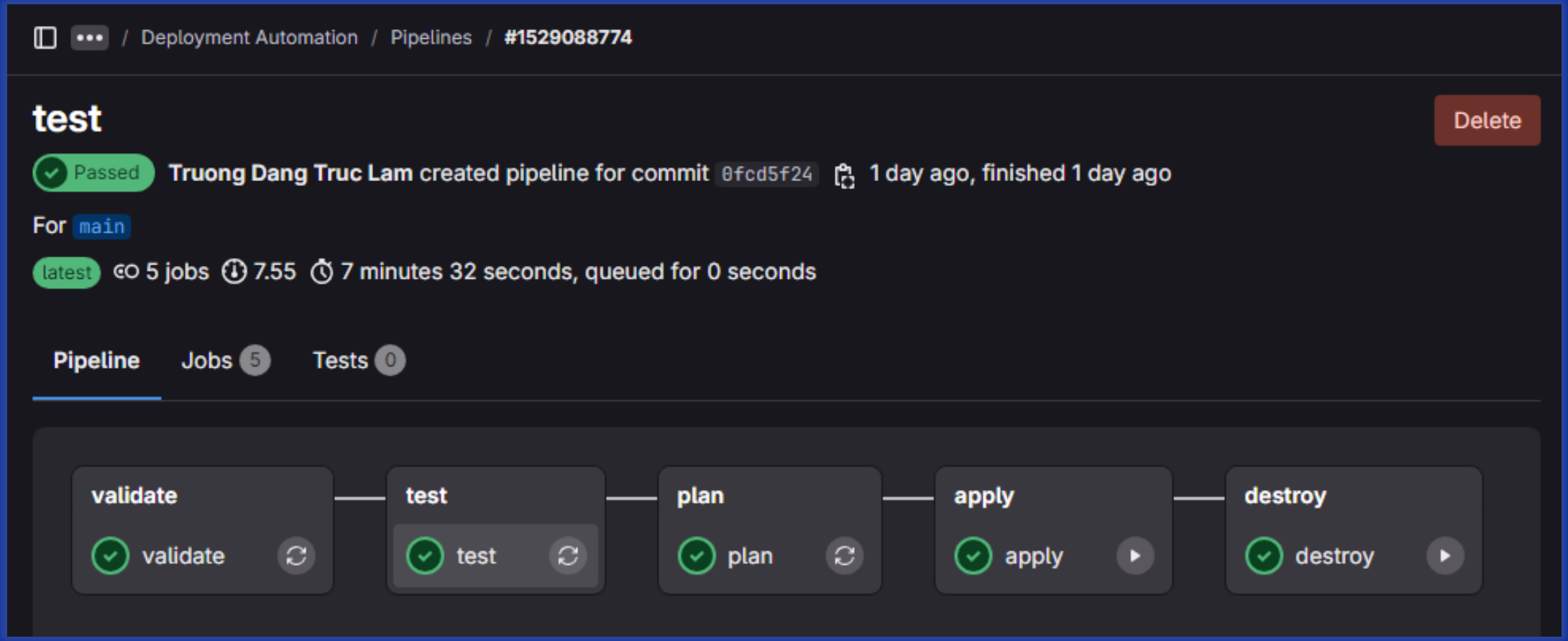
Terraform Configuration



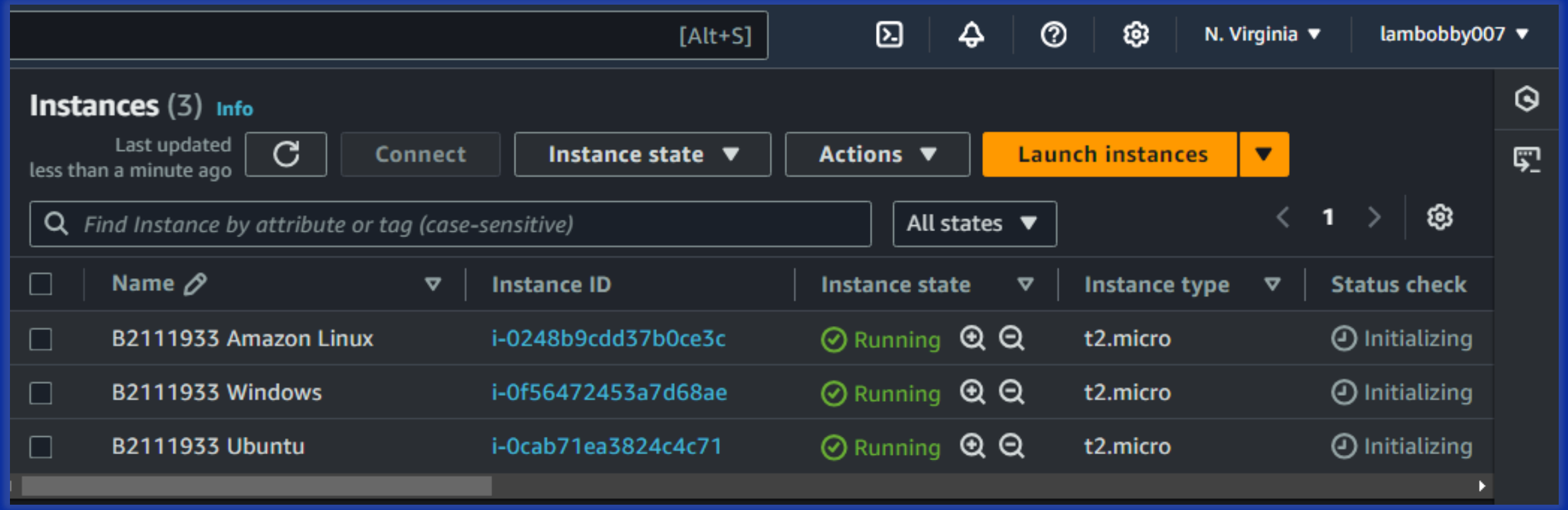
AWS Resources



GitLab CI/CD Pipeline



The Result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lambobby007
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Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
1
Name
Instance ID
Instance state
Instance type
Status check
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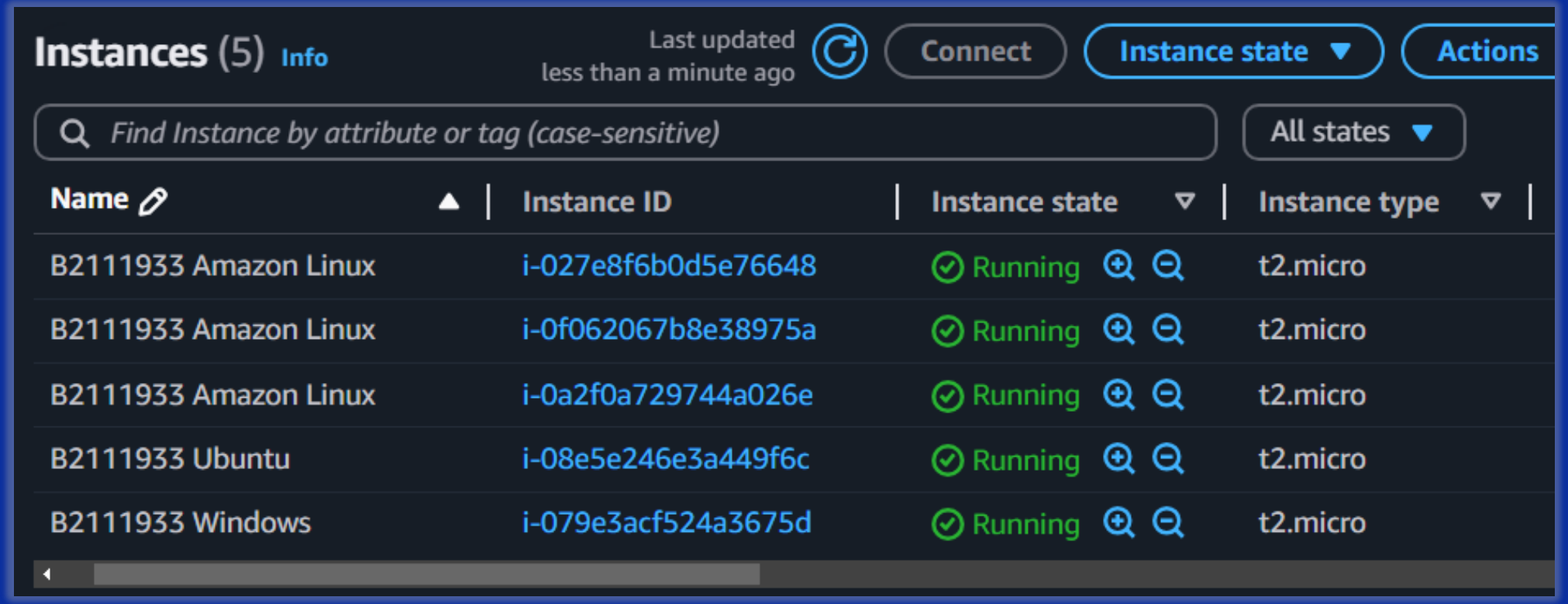
Easy For Upscaling



Comparison

Method	Manual Deployment AWS	Automated Deployment AWS
Process	Infrastructure is provisioned and configured manually using AWS Management Console or CLI	Infrastructure is defined as code in Terraform and deployment is automated using GitLab CI/CD
Advantages	• Manually control each step of the process • Easier to diagnose and resolve issues for small-scale projects	• Significantly reduce deployment time by automating repetitive tasks • Automated testing integrated into the CI/CD pipeline can guarantee reliability • Promote standardization to ensure consistent configurations across environments
Disadvantages	• Manual processes are slow and repetitive • Human error can lead to misconfigurations • Difficult to scale infrastructure efficiently • Lack of standardization can lead to inconsistencies across environments	• Require knowledge of IaC and CI/CD tools • Initial setup can be time-consuming

Thank you for watching