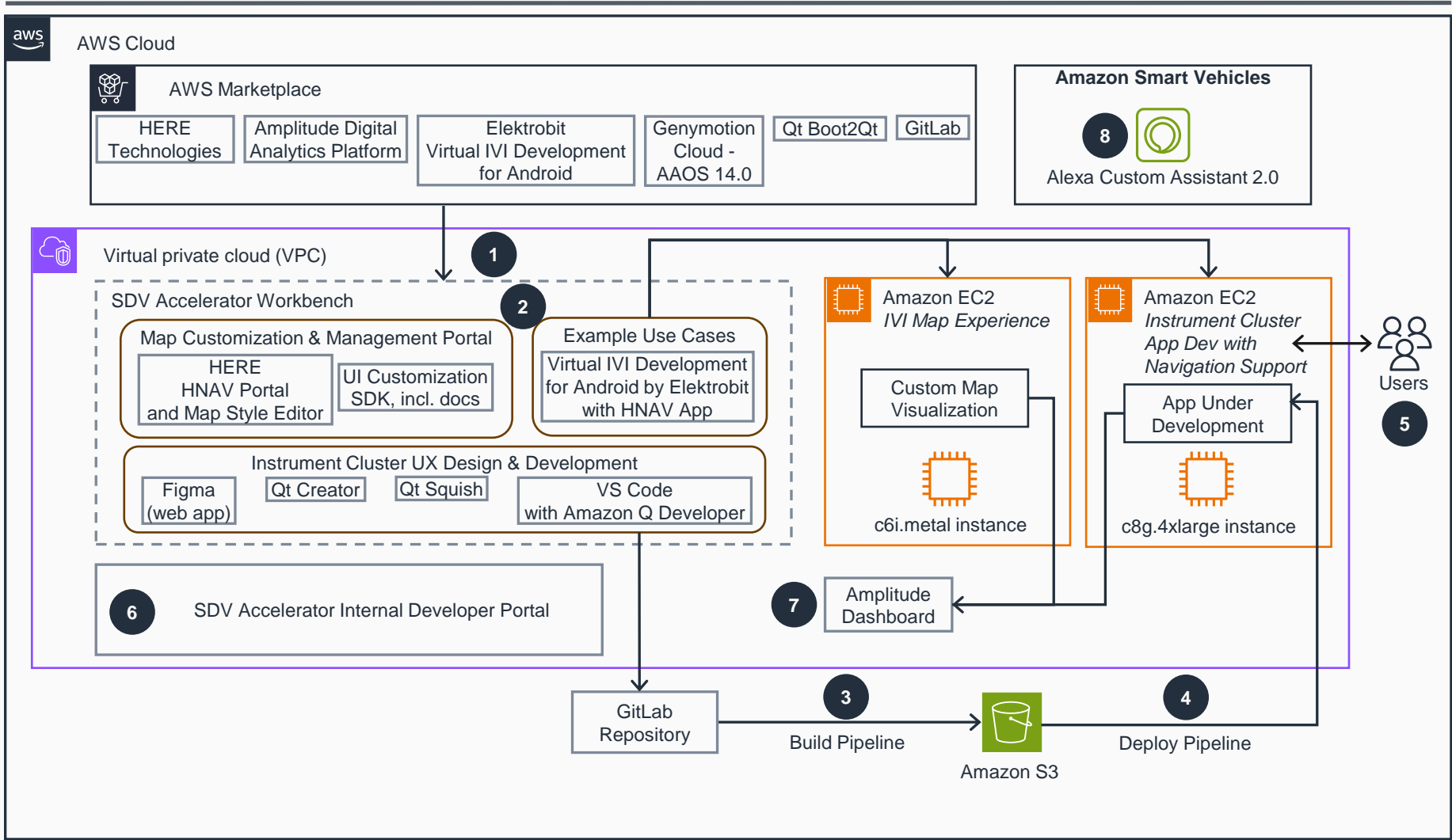


Guidance for Accelerating Automotive Software Development on AWS

SDV Accelerator Overview

This architecture diagram shows a high-level overview of the SDV Accelerator, an initiative that combines AWS Marketplace offerings with validated AWS Partner tools to help automotive OEMs accelerate their SDV development.

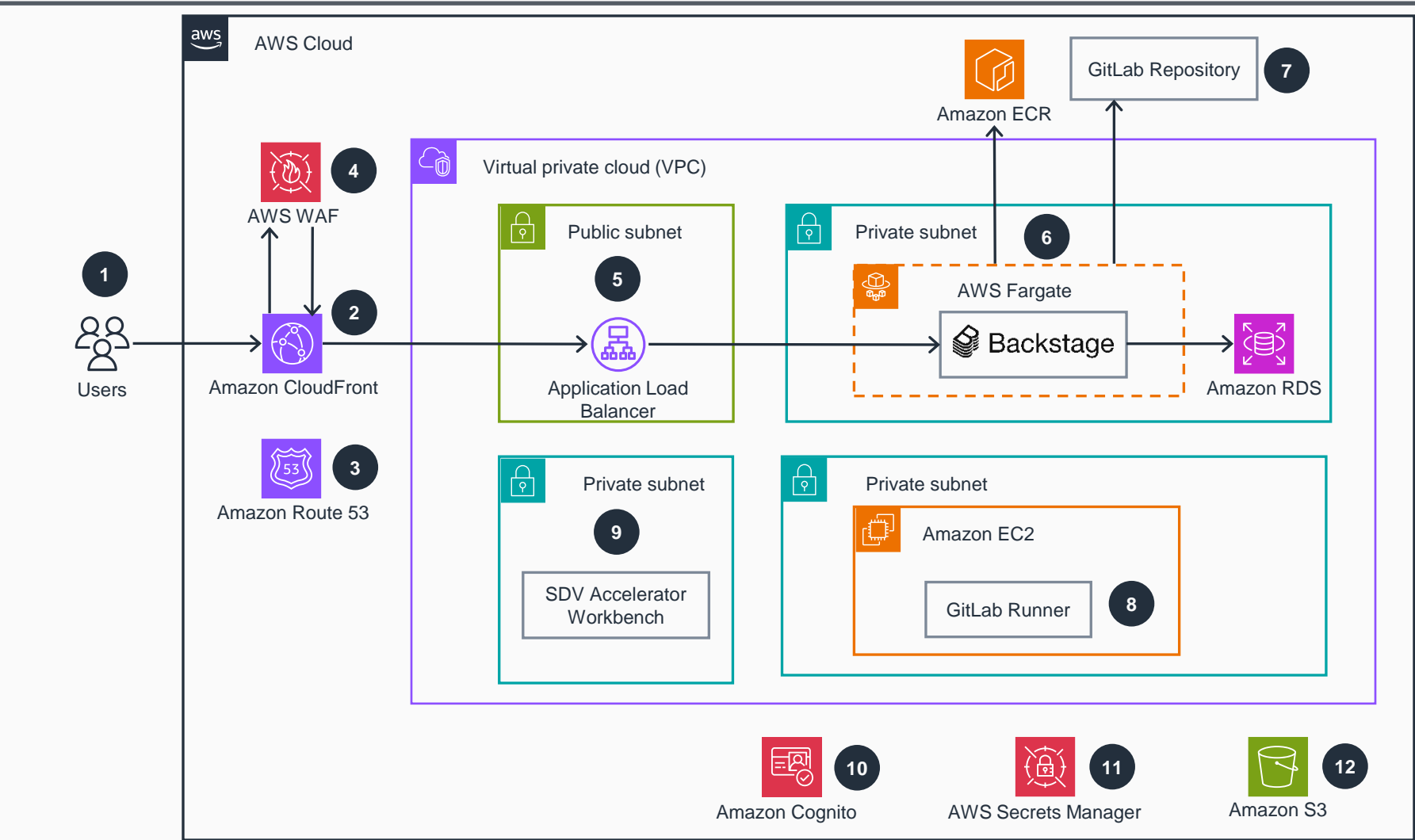


- 1 Access to AWS Partner offerings via **AWS Marketplace**, including trial and evaluation access, to these development tools and virtual targets allowing automotive OEM customers to more easily evaluate and test these offerings before customers engage in full deployment.
- 2 SDV Accelerator Workbench is an integrated development environment with tools and virtual targets running on **Amazon Elastic Compute Cloud (Amazon EC2)** instances designed to help support OEMs develop automotive software.
- 3 Continuous integration and deployment using pre-integrated build pipelines for helping OEMs accelerate their software development workflow.
- 4 Deploy and test software applications in virtual environments that replicate production conditions.
- 5 SDV Accelerator helps automotive OEM developers and testers to speed up their software development cycle, accelerating time-to-market for their vehicle solutions.
- 6 SDV Accelerator Internal Developer Portal based on Backstage.io, providing a single pane of glass to documentation, tools and virtual targets.
- 7 Amplitude tracks user behavior to guide product development decisions.
- 8 Customize in-car voice controls with Alexa Custom Assistant.

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Internal Developer Portal Deployment Overview

This architecture diagram shows the deployment overview of an SDV Accelerator Internal Developer Portal (IDP) using AWS services.



- 1 SDV Accelerator Solution Guidance users access Backstage.io based IDP (Internal Developer Portal).
- 2 **Amazon CloudFront** caches IDP content globally, improving speed and reducing server load.
- 3 **Amazon Route 53** provides DNS services, health checks, and intelligent traffic routing.
- 4 **AWS Web Application Firewall (AWS WAF)** protects CloudFront-distributed content from web attacks and malicious traffic.
- 5 **Application Load Balancer** distributes incoming traffic across **AWS Fargate** containers to ensure high availability and scalability.
- 6 A Backstage-based IDP container runs on **AWS Fargate** using container images stored in **Amazon Elastic Container Registry (Amazon ECR)**. **Amazon Relational Database Service (Amazon RDS)** stores backend data.
- 7 Implement and maintain centralized version control, collaboration features, and CI/CD pipeline integration for software development and deployment with a GitLab repository.
- 8 Configure GitLab Runners to automate workflows triggered by GitLab repository events.
- 9 SDV Accelerator Environments deploy in private subnets.
- 10 **Amazon Cognito** provides secure authentication and authorization for portal access.
- 11 **AWS Secrets Manager** provides sensitive credentials management, such as license keys, for portal services.
- 12 **Amazon Simple Storage Service (Amazon S3)** provides durable data storage for Solution Guidance artifacts.