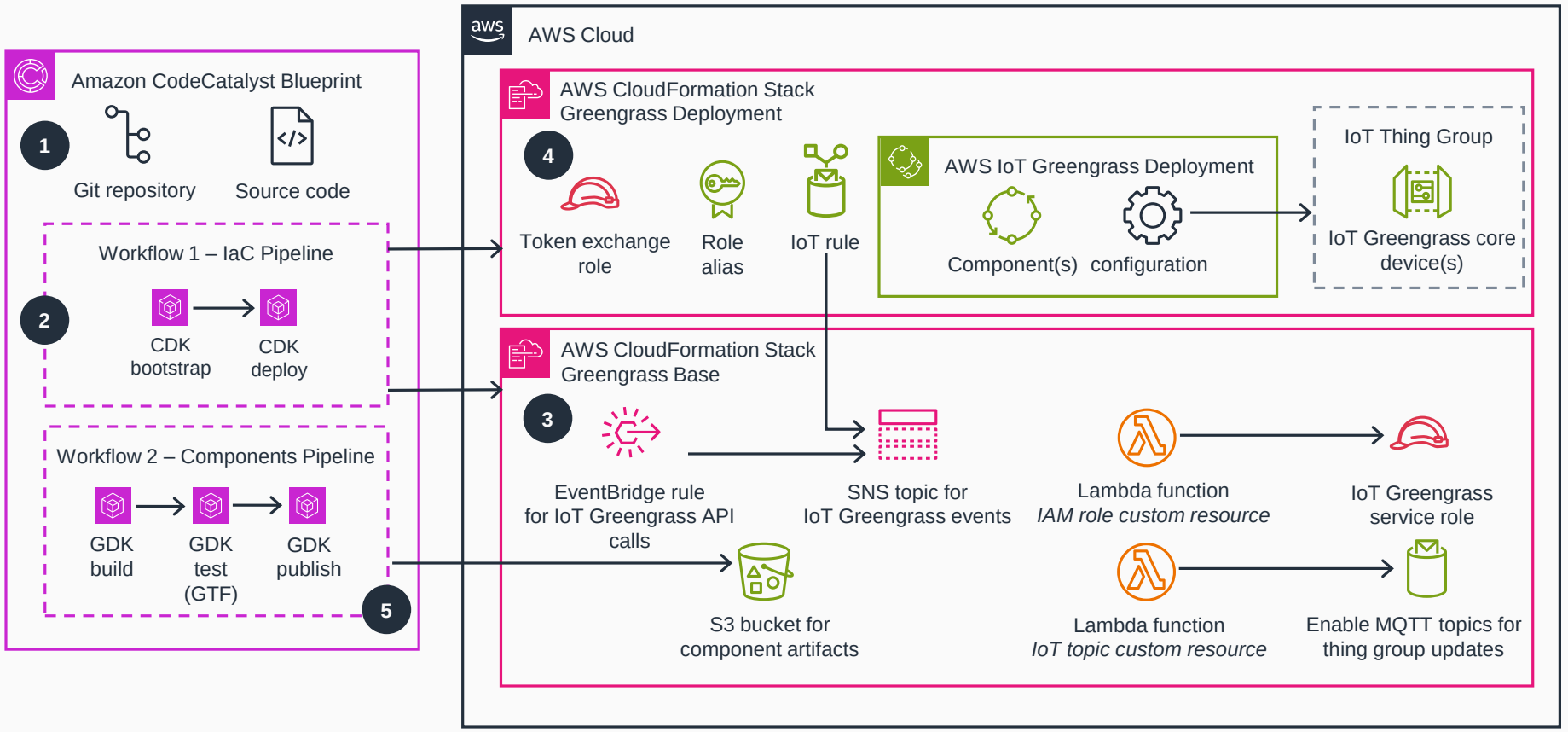
Guidance for AWS IoT Greengrass Foundations

This architecture diagram shows how to accelerate the build of innovative edge applications with AWS IoT Greengrass.



1. Create a new project with the **Amazon CodeCatalyst** blueprint to prompt the creation of a new Git repository, preconfigured with the Guidance sample code and workflows to deploy to a designated AWS account.

2. All changes in the Git repository outside the components directory will trigger Workflow 1, which builds and deploys all infrastructure-as-code (IaC) related to the architecture, using the **AWS Cloud Development Kit (CDK)** command line interface (CLI).

3. Workflow 1 provisions the **AWS IoT Greengrass** Base stack using **AWS CloudFormation**. This stack includes an **Amazon Simple Storage Service (Amazon S3)** bucket for components artifacts, an **Amazon Simple Notification Service (Amazon SNS)** topic for notifications, and an **Amazon EventBridge** rule to subscribe to public **IoT Greengrass**-related API events. It also includes custom resources for creating an **IoT Greengrass** service role and enabling Message Queuing Telemetry Transport (MQTT) topics using **AWS Lambda** functions.

4. Workflow 1 also provisions the **IoT Greengrass** Deployment stack, which includes an IoT Thing Group for **IoT Greengrass** core device(s), an **IoT Greengrass** deployment (including components and other configurations) associated with the Thing Group, a token exchange **AWS Identity and Access Management** (IAM) role and IoT role alias for device authentication, and an IoT rule to publish Thing Group events.

5. Changes committed to the components directory in the Git repository will invoke Workflow 2, which builds, tests, and publishes **IoT Greengrass** new component versions using the **AWS IoT Greengrass Developer Kit (GDK) CLI** and the **AWS IoT Greengrass Testing Framework (GTF)**.

AWS Reference Architecture