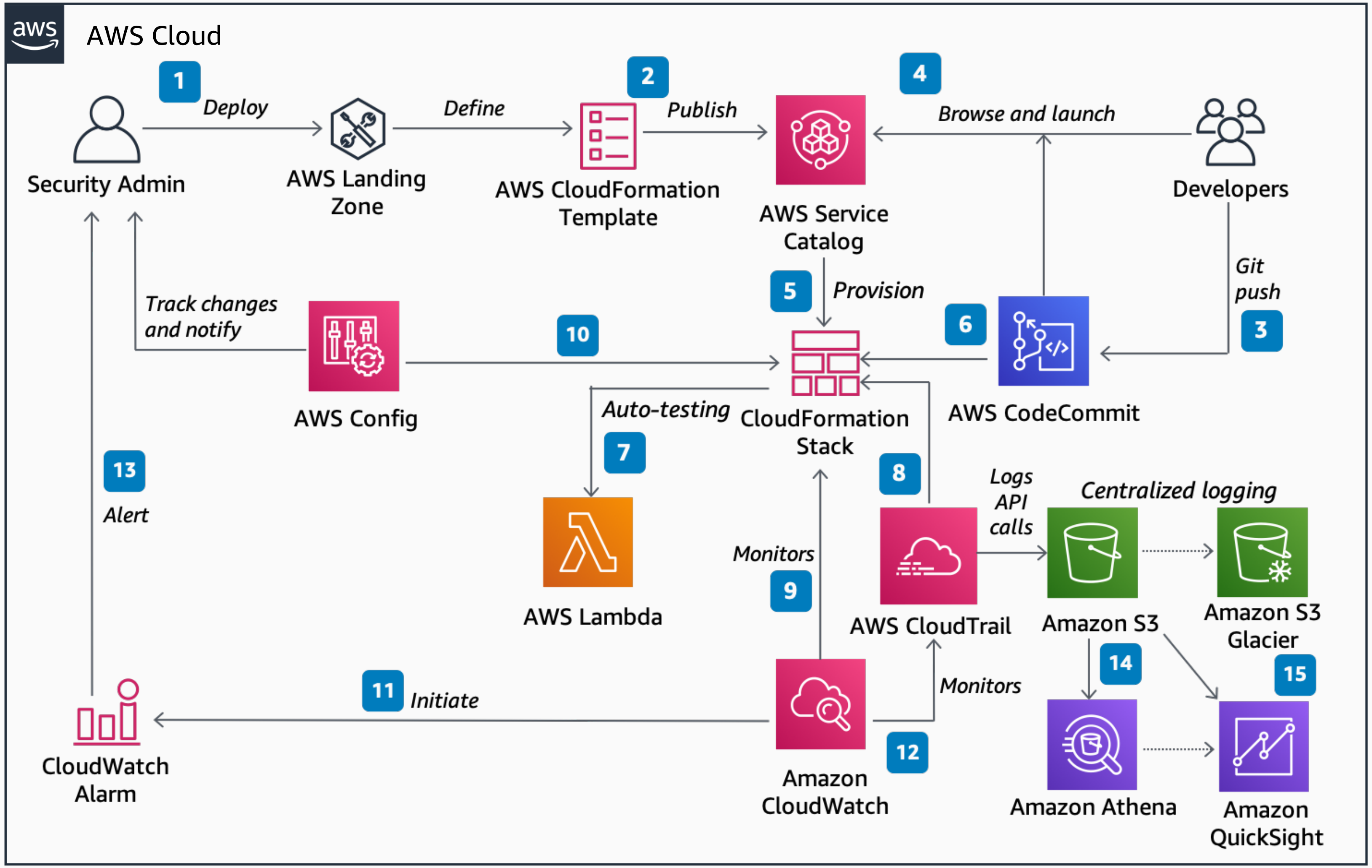
GxP Compliance Automation

Building a secure and compliant GxP workload on AWS



1 **AWS Landing Zone** allows the security administrator to automate the set-up of an environment for running secure and scalable workloads. The security admin defines an **AWS Service Catalog** product (for example, a GxP application) using **AWS CloudFormation** templates.

2 Security admin publishes the template for developers in the **AWS Service Catalog**. Developers use this framework to further enhance the template based upon the application requirements.

3 Developers take the framework and modify applications to further enhance it under GitHub source control and use **AWS CodeCommit** to fully manage the private code repository.

4 The developer deploys the modified code from **CodeCommit** to their GxP infrastructure, using **AWS Service Catalog** to launch the product they need as an **AWS CloudFormation stack**.

5 The stack automatically provisions the necessary AWS resources based on what has been committed to the code repository as specified by the developer.

6 **AWS Service Catalog** is at the center of this architecture, so developers can release their source code without needing to access to any underlying resources or go through security administrators.

7 Automate the testing/installation qualification process using **AWS Lambda** or Python and create a test summary/ qualification report automatically in an **Amazon S3** bucket.

8 All individual **CloudTrail** logs, VPC flow logs, and **AWS Config** changes are aggregated into a centralized **Amazon S3** bucket in a separate AWS account.

9 The security administrator configures, monitors, and sets up automated alerts on changes and on the health of the stack via **Amazon CloudWatch**.

10 When the stack is changed, change events are recorded and tracked through **AWS Config**. Out of compliance events are displayed in dashboard.

11 To indicate that something may be out of compliance, **CloudWatch** can initiate alarms based on rules that you design.

12/13 **CloudTrail** monitors API calls made against the AWS environment. The administrator is alerted by **CloudWatch Events** when something changes that could cause the system to be non-compliant.

14/15 Log data is queried and converted into a human readable format like CSV using **Amazon Athena**, for any audit purpose. Visualize **CloudTrail Logs** using **Amazon QuickSight**.

Reviewed for technical accuracy May 6, 2021

AWS Reference Architecture