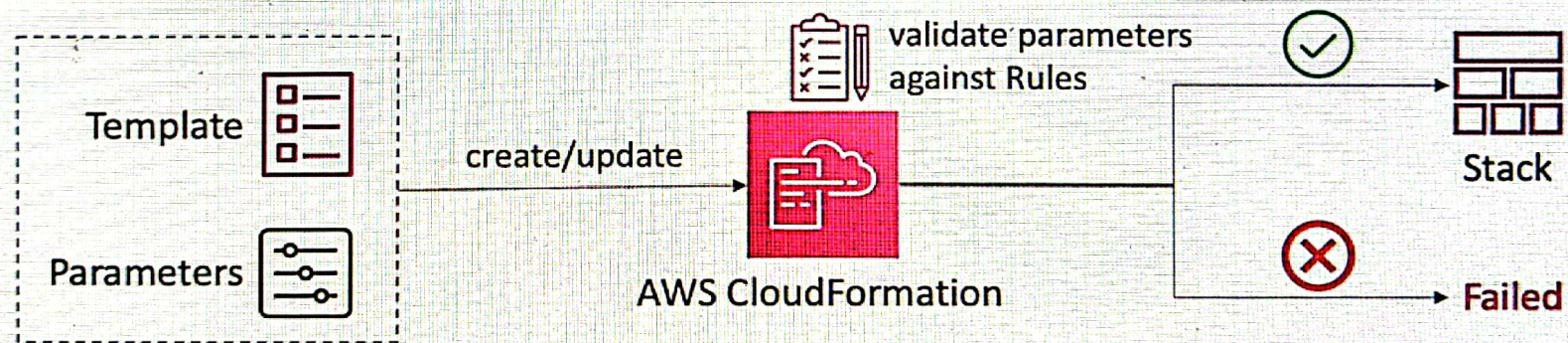# What are Rules used for?

- Parameters section gives us ability to validate within a single parameter (Type, Min/MaxLength, Min/MaxValue, AllowedValues, AllowedPattern)
- **Rules** used to perform parameter validations based on the values of other parameters (cross-parameter validation)
- For example: ensure that all subnets selected are within the same VPC

How to define a Rule?

- Each Rule consists of:
  - Rule Condition (optional): determines when a rule takes effect/assertions applied (only one per rule).
  - Assertions: describes what values are allowed for a particular parameter. Can contain one or more asserts.

- If you don't define a Rule Condition, the rule's assertions will take effect with every create/update operation

```
Rules:
  Rule01:
    Assertions:
      - Assert:
          rule-specific intrinsic function: Value01
          AssertDescription: Information about this assert
  Rule02:
    RuleCondition:
      rule-specific intrinsic function: Value02
    Assertions:
      - Assert:
          rule-specific intrinsic function: Value03
          AssertDescription: Information about this assert
      - Assert:
          rule-specific intrinsic function: Value04
          AssertDescription: Information about this assert
```

Rules example

- Enforce users to provide an ACM certificate ARN if they configure an SSL listener on an Application Load Balancer

```yaml
Rules:
  IsSSLCertificate:
    RuleCondition: !Equals
      - !Ref UseSSL
      - Yes
    Assertions:
      - Assert: !Not
        - !Equals
          - !Ref ALBSSLCertificateARN
          - ''
        AssertDescription: 'ACM certificate value can not be empty if SSL is required'
```

Rule-specific Intrinsic Functions

- Used to define a Rule condition and assertions

- Can only be used in the Rules section

- Functions can be nested, but the result of a rule condition or assertion must be either true or false

- Supported Functions:
  - Fn::And
  - Fn::Contains
  - Fn::EachMemberEquals
  - Fn::EachMemberIn
  - Fn::Equals
  - Fn::If
  - Fn::Not
  - Fn::Or
  - Fn::RefAll
  - Fn::ValueOf
  - Fn::ValueOfAll

Rules Hands-On

- Let's have a look at a CloudFormation template that check the value of an instance type parameter based on the value of environment parameter

- Demo time!