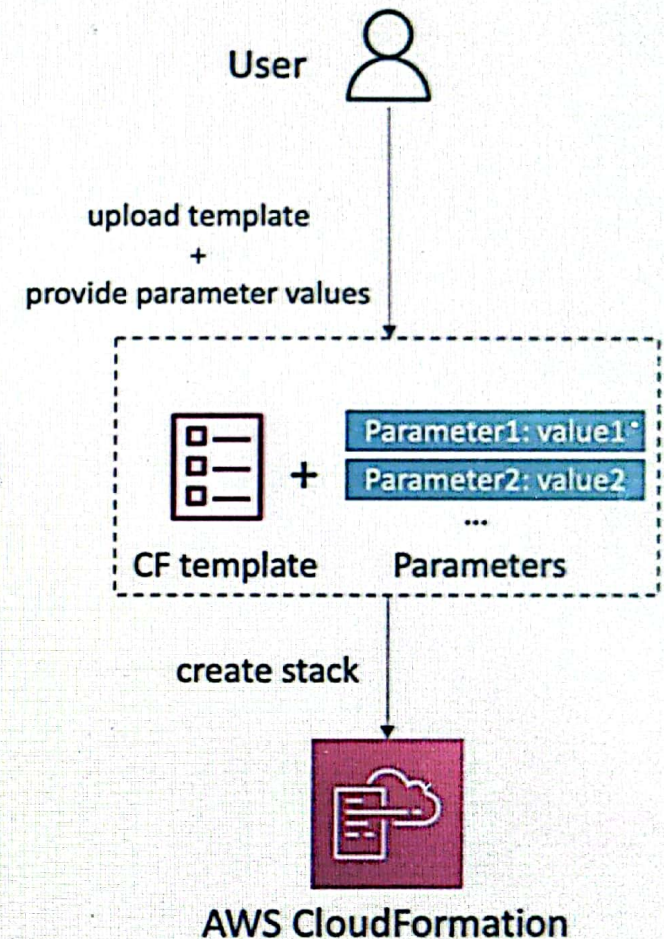


What are parameters?

- Parameters are a way to provide inputs to your AWS CloudFormation template
- They're important to know about if:
 - You want to reuse your templates across the company
 - Some inputs can not be determined ahead of time
- Parameters are extremely powerful, controlled, and can prevent errors from happening in your templates, thanks to types
- Parameters can be cross-validated using Rules (later in the course)



When should you use a parameter?

- Ask yourself this:
 - Is this CloudFormation resource configuration likely to change in the future?
 - If so, make it a parameter
- You won't have to re-upload a template to change its content 😊

```
Parameters:
```

```
  SecurityGroupDescription:
```

```
    Type: String
```

```
    Description: Security Group Description (simple parameter)
```


Parameters Settings

- Parameters can be controlled by all these settings:
 - Type:
 - String
 - Number
 - CommaDelimitedList
 - List<Number>
 - AWS-Specific Parameter (to help catch invalid values – match against existing values in the AWS account)
 - List<AWS-Specific Parameter>
 - SSM Parameter (get parameter value from SSM Parameter store)
 - Description
 - ConstraintDescription (String)
 - Min/MaxLength
 - Min/MaxValue
 - Default
 - AllowedValues (array)
 - AllowedPattern (regex)
 - NoEcho (Boolean)

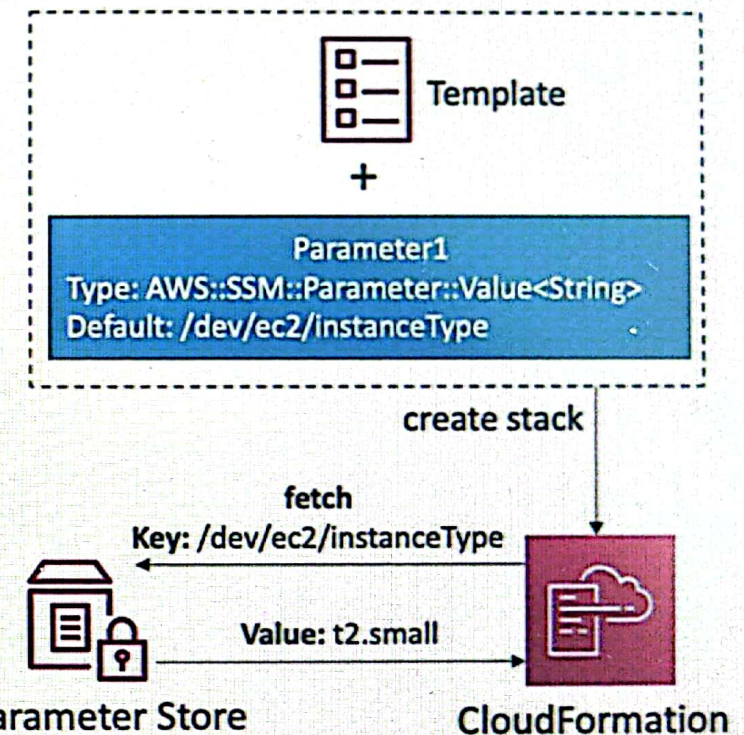
How to Reference a Parameter

- The `Fn::Ref` function can be leveraged to reference parameters
- Parameters can be used anywhere in a template, except:
 - `AWSTemplateFormatVersion`
 - `Description`
 - `Transform`
 - `Mappings`
- The shorthand for this in YAML is `!Ref`
- The function can also reference other elements within the template

```
DBSubnet1:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref MyVPC
```


SSM Parameter Type

- Reference parameters in Systems Manager Parameter Store
- Specify SSM parameter key as the value
- CloudFormation always fetches the latest value (you can't specify parameter version)
- CloudFormation doesn't store Secure String values
- Validation done on SSM parameter keys, but not values
- Supported SSM Parameter Types:
 - `AWS::SSM::Parameter::Name`
 - `AWS::SSM::Parameter::Value<String>`
 - `AWS::SSM::Parameter::Value<List<String>>` or `AWS::SSM::Parameter::Value<CommaDelimitedList>`
 - `AWS::SSM::Parameter::Value<AWS-Specific Parameter>`
 - `AWS::SSM::Parameter::Value<List<AWS-Specific Parameter>>`



Example: Fetch Latest AMI IDs

Fetch Latest AMI IDs from SSM Parameter Store (AWS Public Parameters)

