

Working with CloudWatch Events and Amazon EventBridge



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Overview



Introduce CloudWatch events and Amazon EventBridge

Discuss event structures

Demonstrate events

Monitor CloudWatch events with CloudWatch logs



Introducing CloudWatch Events and Amazon EventBridge





GLOBOMANTICS

Globomantics

- Automate the deployment of new application code
- Schedule a Lambda function to run every 5 minutes
- Notified when Amazon GuardDuty records a new finding



Advise Globomantics to use
CloudWatch events or
Amazon EventBridge



CloudWatch Events

Event Driven

Respond to operational changes and take action

Schedule

Self trigger events using cron or rate expressions



Amazon EventBridge

Integrate

With your own applications,
AWS services and 3rd parties

Real time

Delivers a real time stream
from event sources and routes
data targets



CloudWatch Events Concepts

Events

A change in your AWS environment

Rules

Match incoming events
and routes them to a
target

Targets

Targets process events



EventBridge Concepts

Events

A change in an environment

Rules

Match incoming events and routes them to a target

Targets

Process events

Event buses

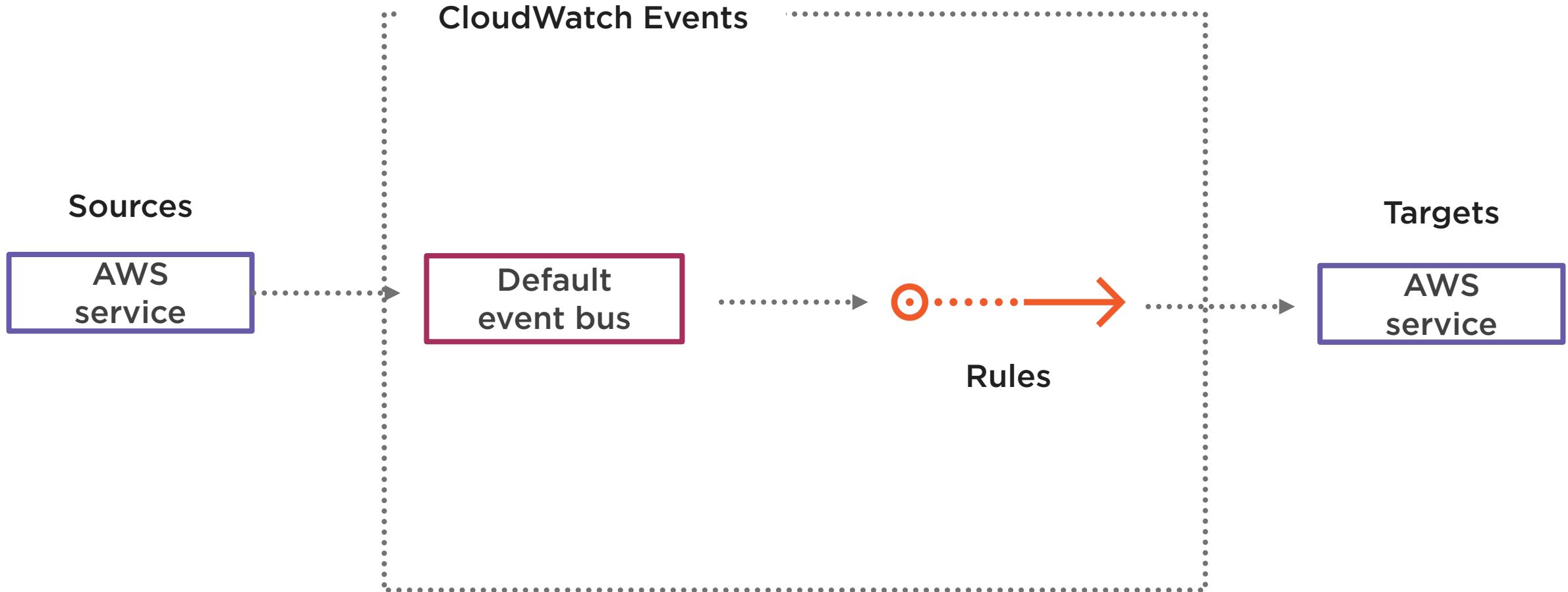
Receives events

Partner event sources

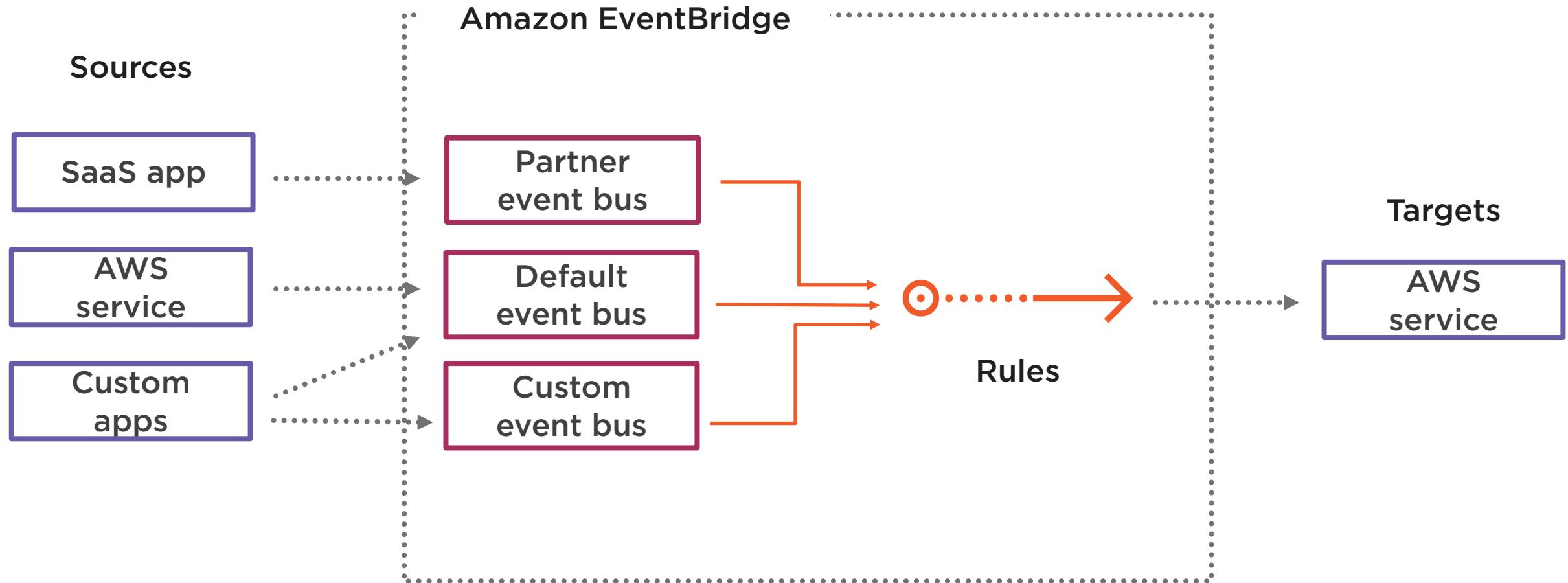
Sends events to an AWS account



Event Workflow



Event Workflow



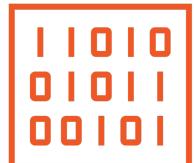
Event Use Cases



Integrate with AWS Config to monitor for and react to configuration changes



Collect application metrics and use these to scale your applications compute



Write data to Kinesis Firehose for transformation and processing



Discussing Event Structures





GLOBOMANTICS

Globomantics

**EC2 administrators need to be informed
when an EBS snapshot is created**



**For event sources
choose event pattern**

**Select EC2 for service
name**

**Select EBS snapshot
notification for event
type**

**Select createSnapshot
for specific event**

Step 1: Create a Rule



```
{  
  "source": [ "aws.ec2" ],  
  "detail-type": [ "EBS Snapshot Notification" ],  
  "detail": { "event": [ "createSnapshot" ] }  
}
```

Event Pattern

Written in JSON



Select add target

**Select SNS topic as
the target**

**Select the appropriate
SNS topic**

**Configure details such
as rule name**

Step 2: Select a Target



```
{"version":"0","id":"0039bce7-ebb2-ef55-47da-de1b97ee2466","detail-type":"EBS Snapshot Notification","source":"aws.ec2","account":"027585546708","time":"2020-09-18T19:17:03Z","region":"eu-west-2","resources":["arn:aws:ec2::eu-west-2:snapshot/snap-06993be2b590bfca1"],"detail":{"event":"createSnapshot","result":"succeeded","cause":"","request-id":"","snapshot_id":"arn:aws:ec2::eu-west-2:snapshot/snap-06993be2b590bfca1","source":"arn:aws:ec2::eu-west-2:volume/vol-00b335d9a82e1801f","start Time":"2020-09-18T19:17:03.077Z","end Time":"2020-09-18T19:17:03.628Z"}}
```

JSON Object

When a snapshot is created the above JSON object is returned





GLOBOMANTICS

Globomantics

Globomantics would like to run a Lambda function every 5 minutes



**For event sources
choose Schedule**

**Select fixed rate and 5
minutes as the
interval**

**Select Lambda
function as the target**

**Select the appropriate
function**

**Configure details such
as rule name**

Steps Required



Schedule Expressions for Rules

Rate expressions

Start when the rule is created
and then runs on the defined
schedule

Cron expressions

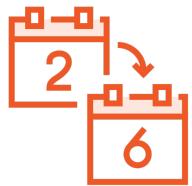
Configure fine-grained
schedules not supported by
rate expressions



Schedule Expression Examples



```
aws events put-rule --schedule-expression "rate(5 minutes)" --name  
rulename
```



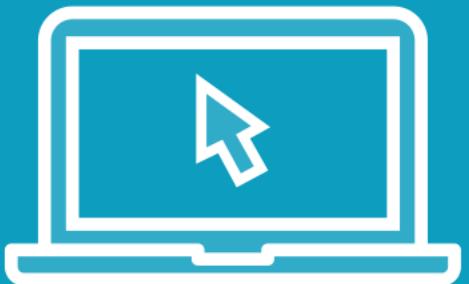
```
aws events put-rule --schedule-expression "cron(0 12 * * ? *)" --name  
rulename
```



Cron expressions have 6 required fields. Minutes, hours, day-of-month, month, day-of-week, and year.



Demo



Implementing CloudWatch Events

Working with

- AWS Console

To follow along you will need an AWS Account



Monitoring CloudWatch Events



Tools Used to Monitor CloudWatch Events



Event metrics



CloudTrail events



CloudWatch logs



CloudWatch Events Metrics

Failed Invocations

Invocations

Matched Events

Triggered Rules



Other Monitoring Options

CloudTrail

CloudWatch event API activity
is registered in CloudTrail

Logs

Can be created with Lambda
functions or CloudTrail



Summary



Learned the power of CloudWatch events

Discussed CloudWatch event structures

Learned how to monitor CloudWatch events

In the next module

- Working with Tags in AWS

