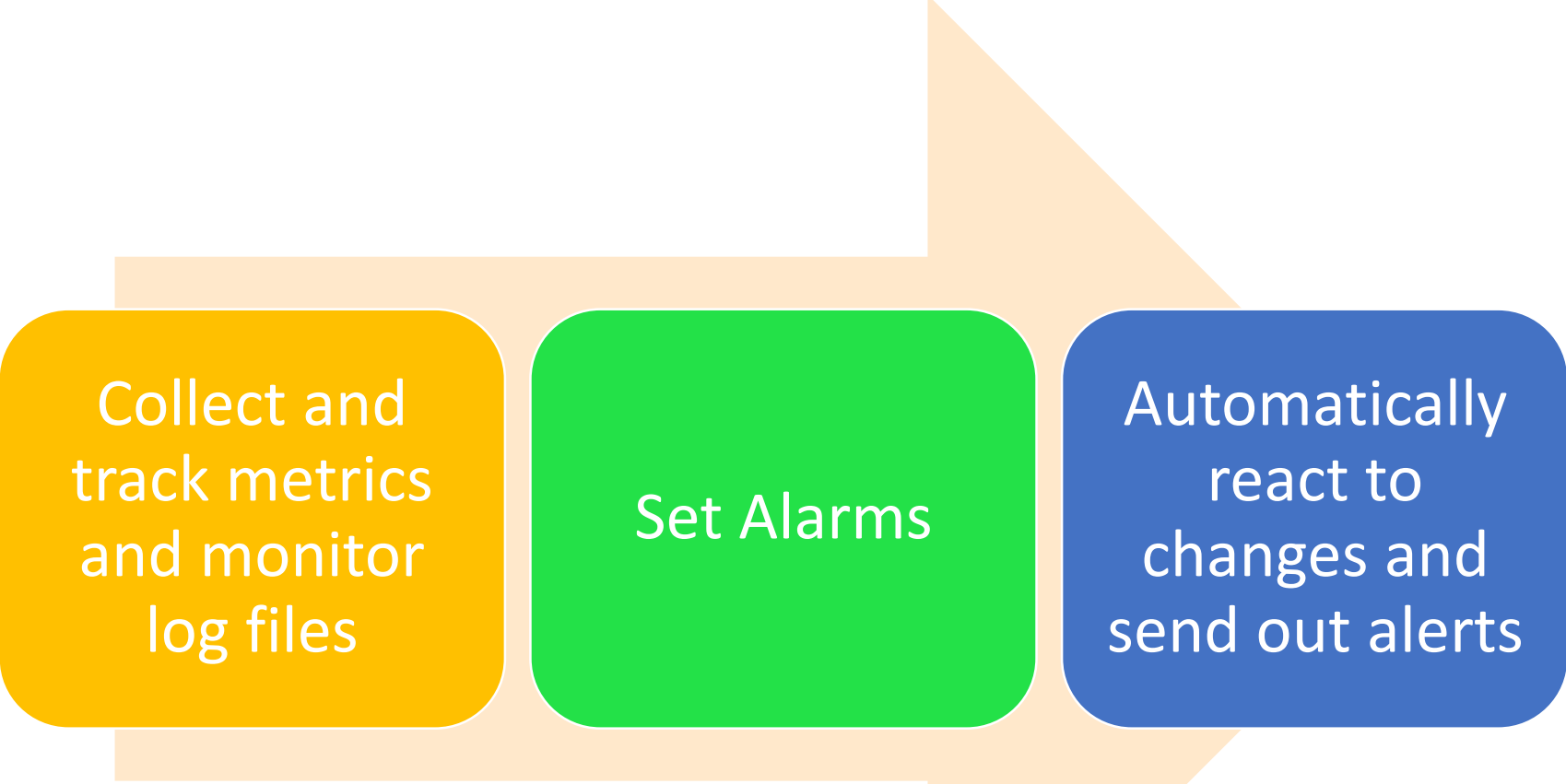# Amazon CloudWatch

Amazon Web Services

# Amazon CloudWatch

Amazon CloudWatch is a monitoring and management service which provides you with data and actionable insights to monitor your applications, understand and respond to system-wide performance changes, optimize resource utilization.

You can use CloudWatch to set high resolution alarms, visualize logs and metrics side by side, take automated actions, troubleshoot issues, and discover insights to optimize your applications, and ensure they are running smoothly.
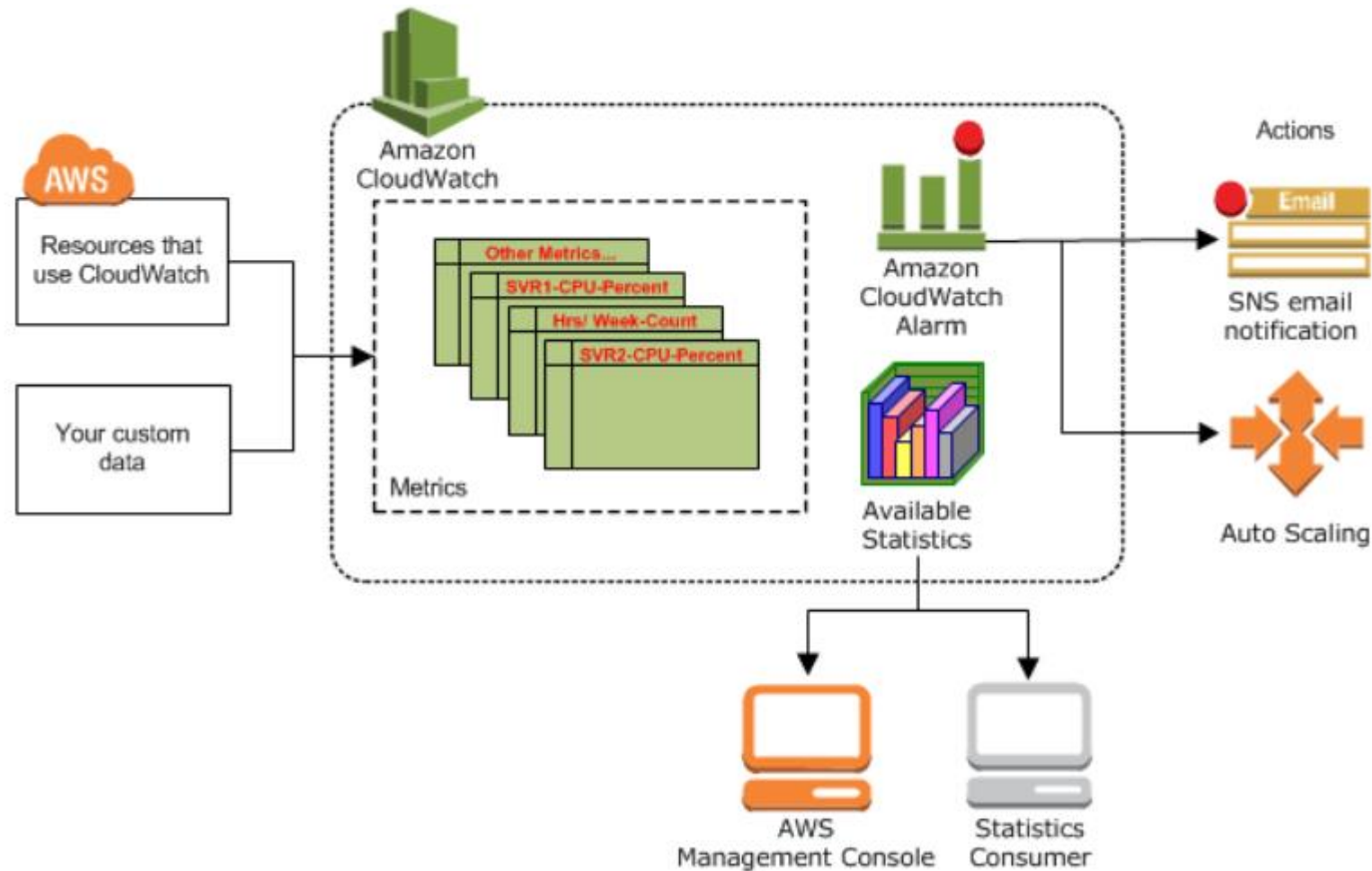
Amazon CloudWatch

# Amazon CloudWatch

Collect and track metrics and monitor log files

Set Alarms

Automatically react to changes and send out alerts

# Amazon CloudWatch – Metrics & Custom Metrics

# Amazon CloudWatch

## Services used with CloudWatch

- Amazon Simple Notification Service (SNS) - to send out messages to subscribing end points.  For example to get email alerts when the CPU for your instances goes over 80% for a duration of time

- Auto Scaling - automatically launch or terminate EC2 instances based on policies, health checks and schedules

- AWS CloudTrail - Monitor and audit calls made to the CloudWatch API for your account - CloudTrail can be used to enable CloudWatch to write log files to an S3 buckets for example

- Take snapshot of an EBS volumes on schedule

- Log S3 Object Level Operation using CloudWatch Events

# Amazon CloudWatch Components

Metrics

Alarms

Events

Logs

Dashboards

# Amazon CloudWatch - Metrics

- Data about the performance of your resources deployed on AWS
- Time-ordered series of data points published to CloudWatch
- Basic Monitoring vs. Detailed Monitoring
- Custom Metrics

# Amazon CloudWatch - Alarms

CloudWatch Alarms can be setup to send Amazon SNS messages when an alarm is active.  Each alarm will monitor a metric over a period of time and perform one or more actions depending on the value of the metric and when it crosses a threshold for a period of time specified.  A notification can then be sent to an SNS topic or another endpoint

Alarms can be in the following states



| OK | Insufficient Data | Alarm |

# Amazon CloudWatch - Alarms

Alarm Actions can be:

- An Amazon EC2 Action

- An Auto Scaling Action

- Notification to an SNS Topic

Note: An alarm will invoke an action if the state of change exist for a period of time specified.

- E.g. If CPU utilization is >80% for 5 minutes.

# Amazon CloudWatch - Events

- Amazon CloudWatch Events delivers a near real-time stream of system events

- You can configure rules so that you can match events and route them to one or more target functions or streams.

- CloudWatch Events becomes aware of operational changes as they occur. CloudWatch Events responds to these operational changes and takes corrective action as necessary

- CloudWatch Events can be used to schedule automated actions that self-trigger at certain times using cron or rate expressions.

# Amazon CloudWatch - Logs

CloudWatch Logs enables you to centralize the logs from all of your systems, applications, and AWS services that you use, in a single, highly scalable service. You can then easily view them, search them for specific error codes or patterns, filter them based on specific fields, or archive them securely for future analysis. CloudWatch Logs enables you to see all of your logs, regardless of their source, as a single and consistent flow of events ordered by time, and you can query them and sort them based on other dimensions, group them by specific fields, create custom computations with a powerful query language, and visualize log data in dashboards.

# Amazon CloudWatch - Logs

- **Monitor Logs from Amazon EC2 Instances**
- **Monitor AWS CloudTrail Logged Events**
- **Archive Log Data**
- **Stream Logs to other AWS services such Amazon Kinesis or Lambda**

# Next Video

Build A CloudWatch Dashboard