Amazon ElasticSearch Service

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# Amazon ElasticSearch Service

## Definition

* It is a service that allows one to deploy and scale ElasticSearch clusters to search and visualize one’s data.
  + The clusters use ElasticSearch, an open-source search engine.
* One can integrate the service with other AWS offerings such as IAM, VPC, Security Groups, CloudWatch, CloudTrail, etc.

## RDBMS vs ElasticSearch

* Database : Domain/Cluster
* Table : Index
* Row : Document
* Column : Field
* Value : Value
* SQL : Query API
* Data Inserts : Data Indexing

## Security

There are a variety of ways to control access to ElasticSearch clusters.

* Resource-based policies
  + Attached to ElasticSearch Service domain.
  + Determines which Principals can take what action on ElasticSearch APIs or indices.
* Identity-based policies
  + They are traditional IAM polices assigned to users, groups or roles.
* IP-based policies
  + Technically a special kind of resource-based policies.
  + Restricts access to a resource using special conditions i.e. specific IPs or CIDR blocks.
* Request Signing
  + All requests to ElasticSearch Service must be signed.
  + AWS Signature Version 4 is used to sign requests to ElasticSearch.

## Miscellaneous

* Amazon ElasticSearch automatically includes integrations like:
  + Kibana (for visualization of data).
  + Logstash (for data ingestion).
  + Kinesis (to ingest stream data with Data Firehose)
  + Other AWS services like S3 and DynamoDB.
* Offers up to 1.5 PB of instance storage.
* Offers numerous configuration options for CPU, memory and storage capacity in the form of instance types.