



# Smarten

**Augmented Analytics**

Powered by ElegantJ BI

# Load Balancing and Clustering Architecture

Document Information	
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## **Disclaimer**

This document is intended to support administrators, technology managers or developers using and implementing Smarten. The business needs of each organization will vary and this document is expected to provide guidelines and not rules for making any decisions related to Smarten. The overall performance of Smarten depends on many factors, including but not limited to hardware configuration and network throughput.

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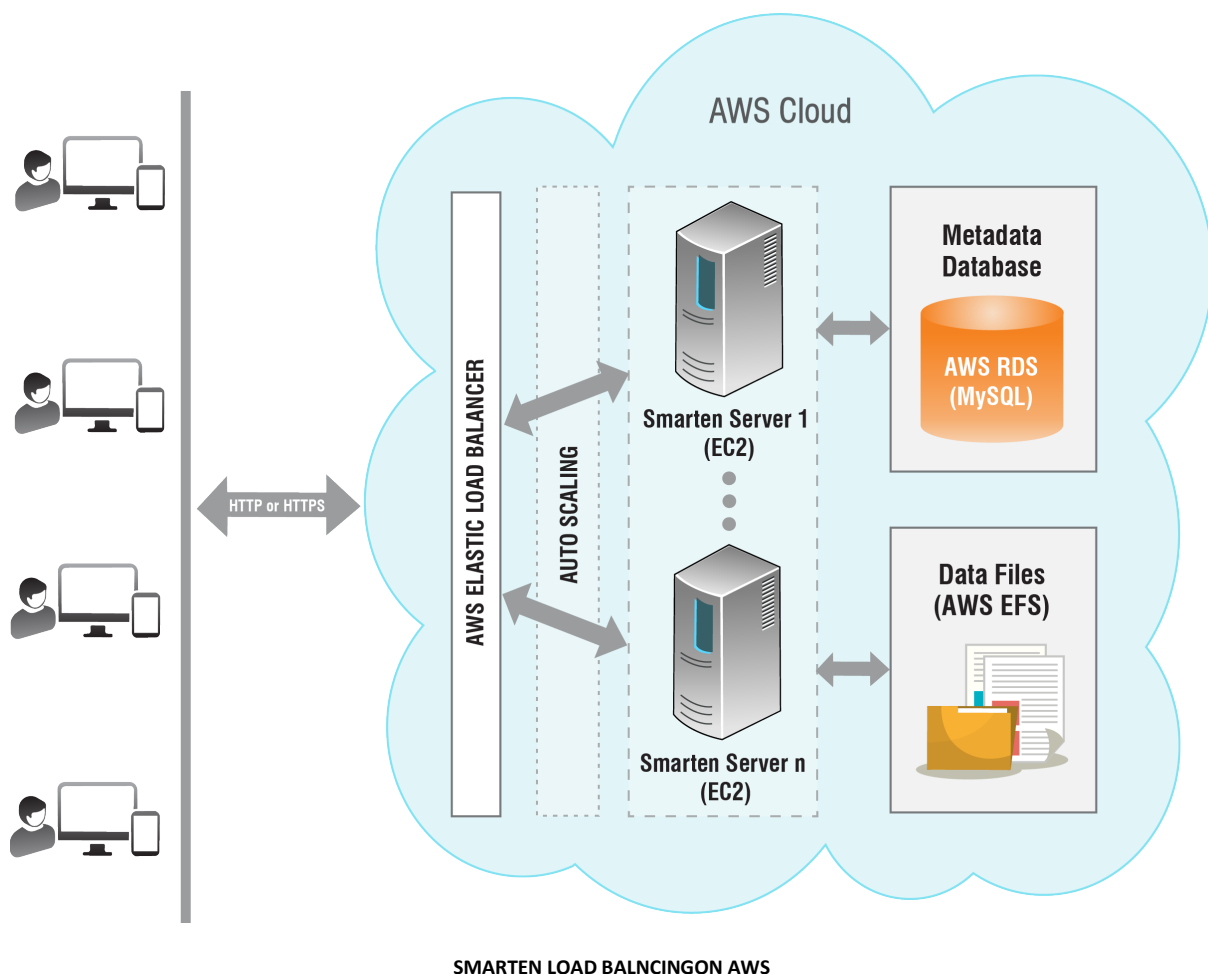
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## 1 Introduction

Load balancing and clustering is supported in Smarten for distributing workloads across multiple computing resources.

Load balancing and clustering will optimize use of resources, increase throughput, minimize response time, and avoid overload. With Managed Memory Computing, and distributed load, response time will reduce and user experience will improve. It will also provide failover mechanism and ensure high availability.

## 2 Smarten Load Balancing on AWS Cloud

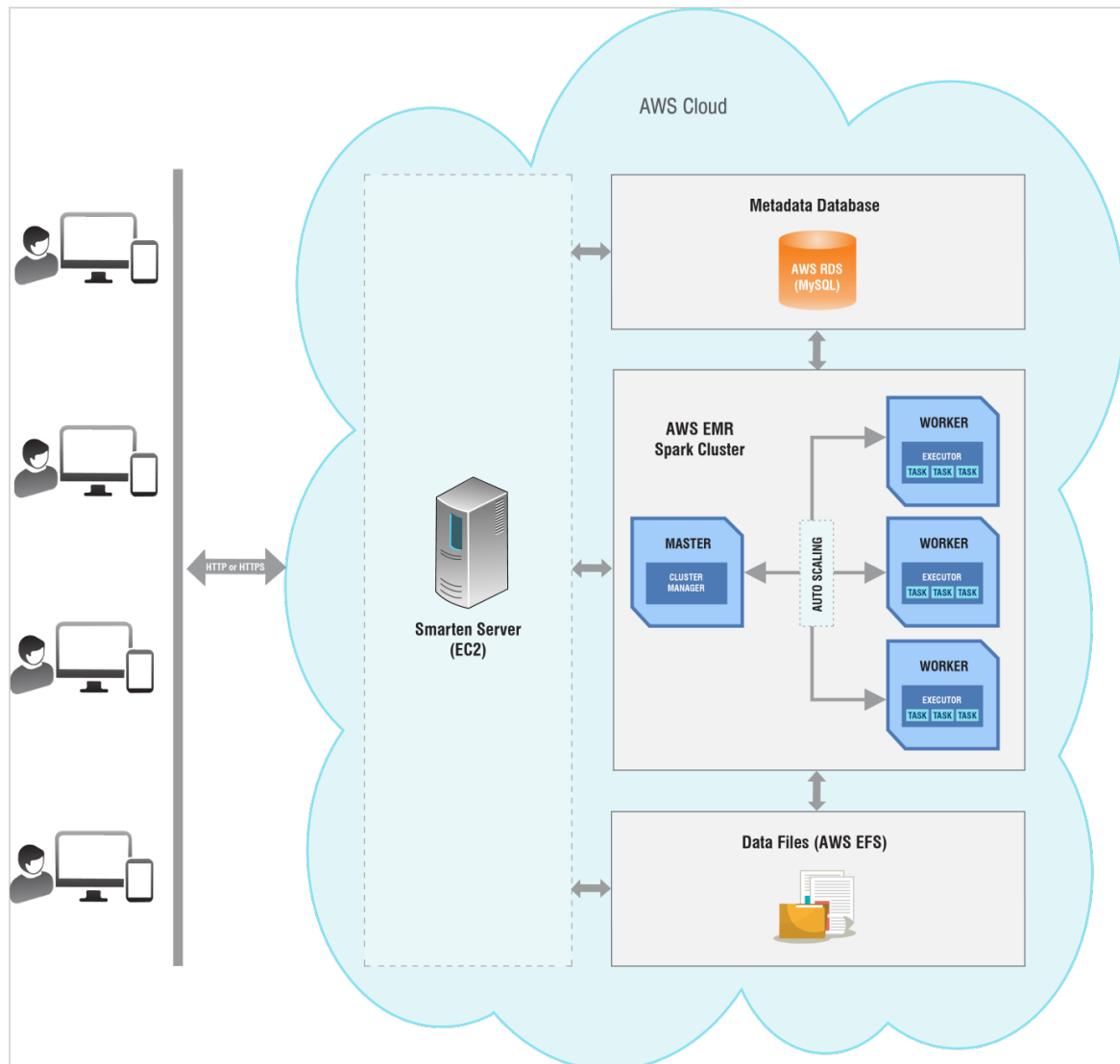


### Key components

- **AWS Elastic Load balancer (ELB)** – Requests from clients will be routed through AWS Elastic Load balancer. You can configure load balancing rules to distribute load on ELB.
- **Auto scaling** – If Auto scaling is enabled, it monitors the load on EC2 instance and based on the defined rules, it will add or remove instance under load balancer.
- **Smarten server nodes** – As per the requirement, multiple Smarten nodes can be configured in EC2 and setup with load balancer. Smarten metadata database and data files will be shared between these server nodes.

- **Smarten metadata database** – Smarten metadata database can be configured in AWS RDS (MySQL) instance. It will be shared across the all Smarten instances under load balancer.
- **Smarten Data files** – Smarten data files folder can be configured in AWS EFS and can be shared across the all Smarten instances under the load balancer.

## 3 Smarten Integration with Spark cluster on AWS Cloud

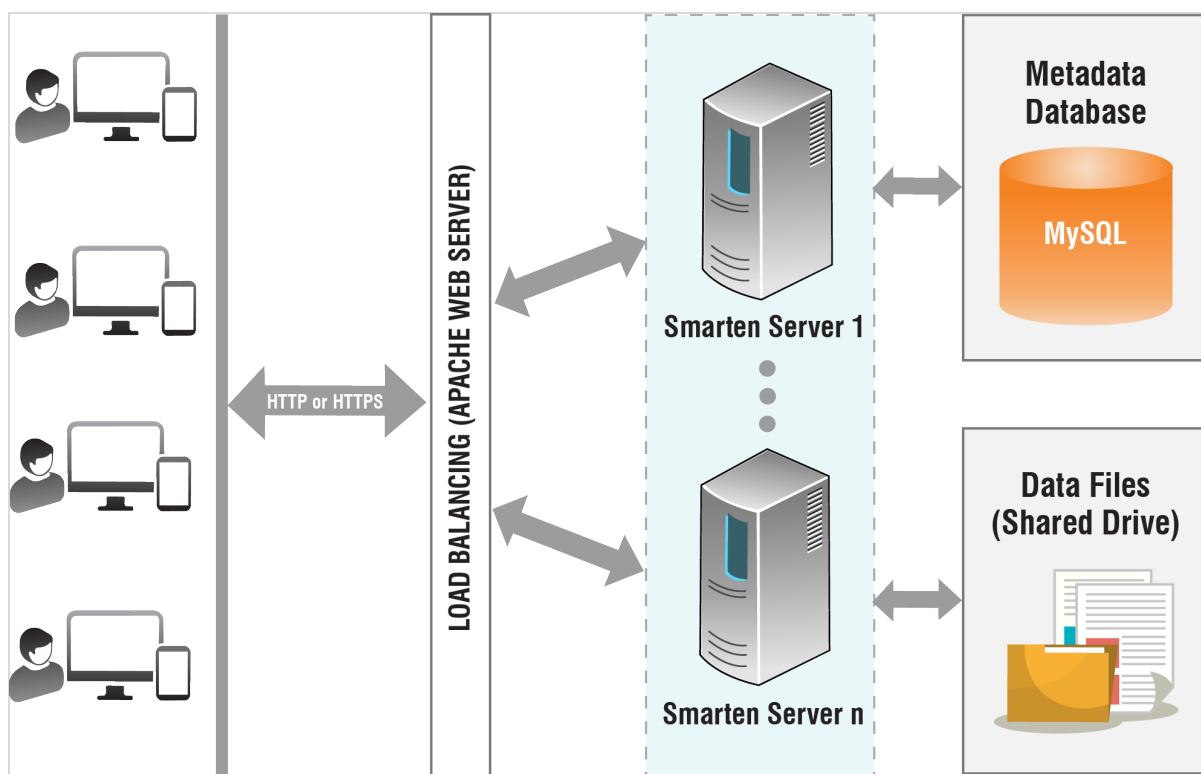


SMARTEN INTEGRATION WITH SPAARK CLUSTER ON AWS

### Key components

- **Smarten server node** – As per the requirement, Smarten node can be configured in EC2. Smarten metadata database and data files are configured with this node. AWS EMR Spark cluster is also integrated with this node and all Smarten application processing will be done on Spark cluster.
- **Smarten metadata database** – Smarten metadata database can be configured in AWS RDS (MySQL) instance. It is shared with the Smarten instance and all nodes of Spark cluster.
- **Smarten Data files** – Smarten data files folder can be configured in AWS EFS and is shared with the Smarten instance and all Spark cluster nodes.
- **Spark Cluster** – AWS EMR provides YARN based Spark cluster. Smarten can be integrated with EMR Spark cluster and it can leverage power of Spark cluster for application data processing. You can enable auto scaling feature on EMR Spark cluster to add or remove worker nodes in cluster.

## 4 Smarten Load Balancing for On-Premises Infrastructure

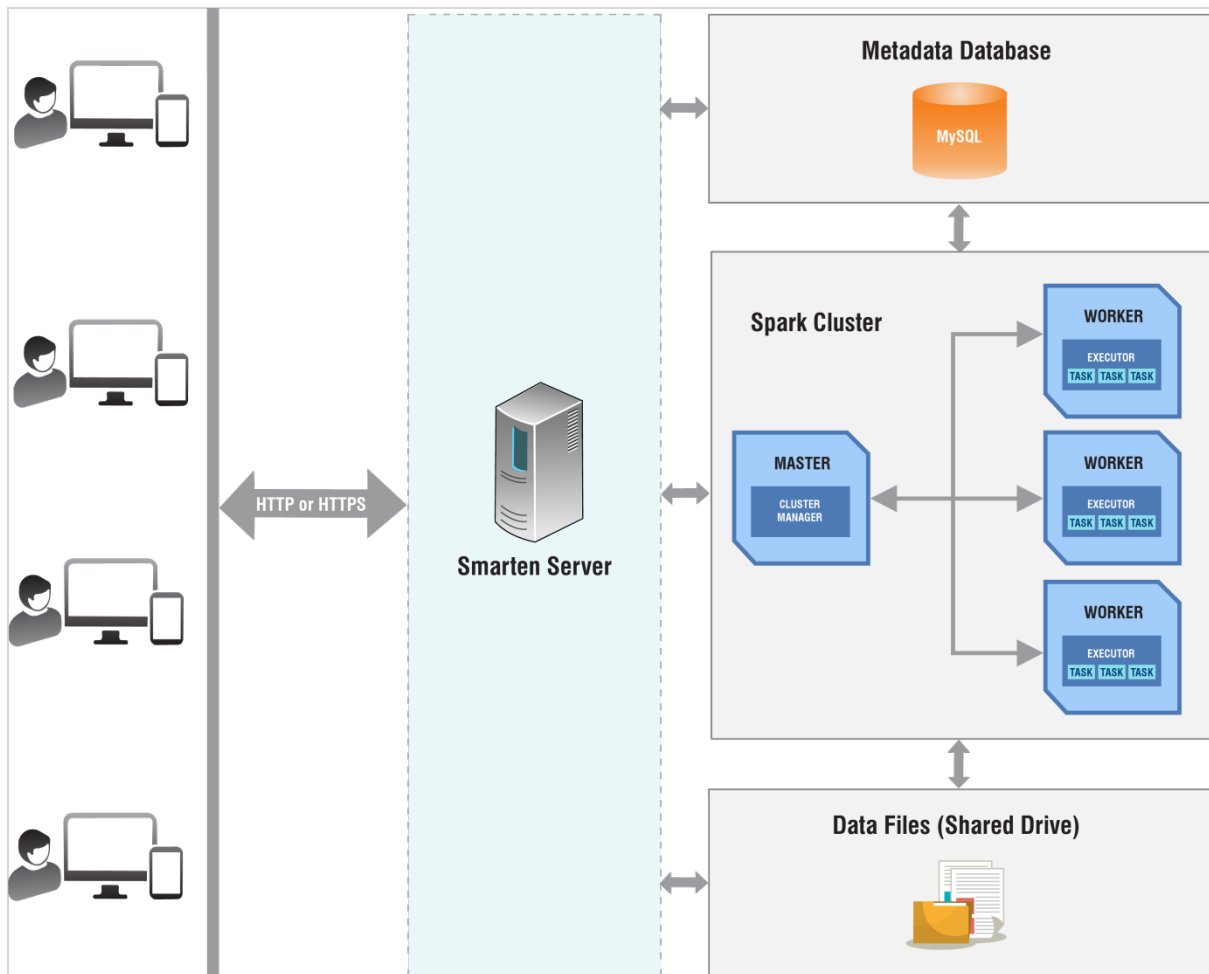


SMARTEN LOAD BALNCING ON PREMISE

### Key components

- **Load balancer** – Requests from clients will be route through Load balancer. There can be software or hardware load balancer which is configured with load balancing rules to distribute load. For software Load balancer, it can be configured using Apache web server which provides load balancing mechanism.
- **Smarten server nodes** – As per the requirement, multiple Smarten nodes can be configured and setup with load balancer. Smarten metadata database and data files will be shared between these server nodes.
- **Smarten metadata database** – Smarten metadata database can be configured in MySQL database. It will be shared across the all Smarten instances under load balancer.
- **Smarten Data files** – Smarten data files folder can be configured as a shared network drive and can be shared across the all Smarten instances under the load balancer.

## 5 Smarten Integration with Spark Cluster for On-Premises Infrastructure



SMARTEN INTEGRATION WITH SPARK CLUSTER ON PREMISE

### Key components

- **Smarten server node** – As per the requirement, Smarten node can be configured. Smarten metadata database and data files are configured with this node. Spark standalone cluster is also integrated with this node and all Smarten application processing will be done on Spark cluster.
- **Smarten metadata database** – Smarten metadata database can be configured in MySQL database. It is shared with the Smarten instance and all nodes of Spark cluster.
- **Smarten Data files** – Smarten data files folder can be configured as shared network drive and is shared with the Smarten instance and all Spark cluster nodes.
- **Spark Cluster** – You can setup Spark standalone cluster in your local environment. Smarten can be integrated with Spark cluster and it can leverage power of Spark cluster for application data processing.



## 6 Product and Support Information

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Find more information about Smarten and its features at [www.smartent.com](http://www.smartent.com)

Support: [support@smartent.com](mailto:support@smartent.com)

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