(Big) Data Engineering In Depth

From Beginner to Professional

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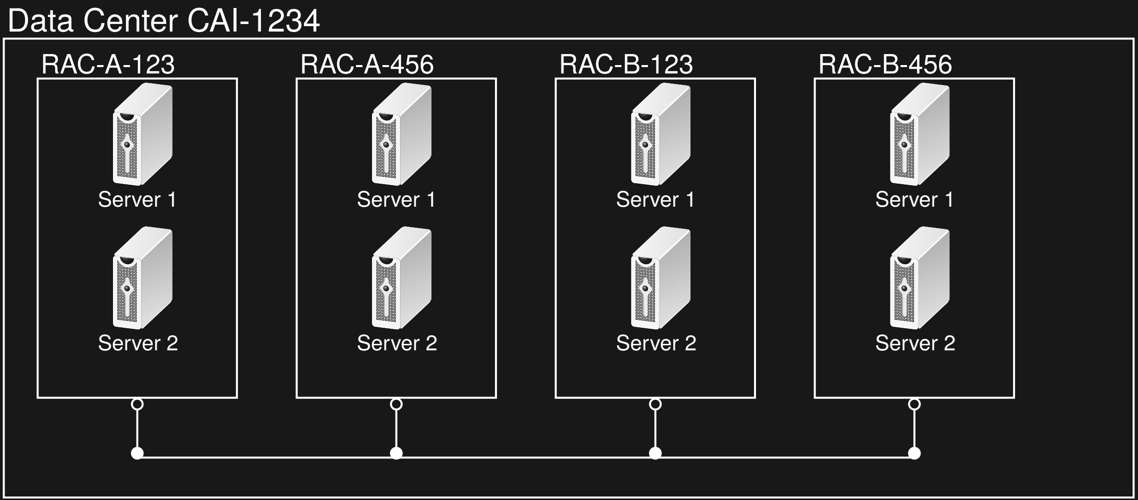
The Definitive Guide to Big Data Engineering Tasks

Previous video recap!

Core Hadoop Concepts

Hadoop Core Components

Data Center Components



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- An application is either a single job or a DAG of jobs.

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- Impala, Mahoot, and other engines.

YARN

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- These APIs are not typically used directly by user code.
- Users write to higher-level APIs provided by distributed computing frameworks, Ex: (Map-reduce or Spark on yarn), which themselves are built on YARN and hide the resource management details from the user..

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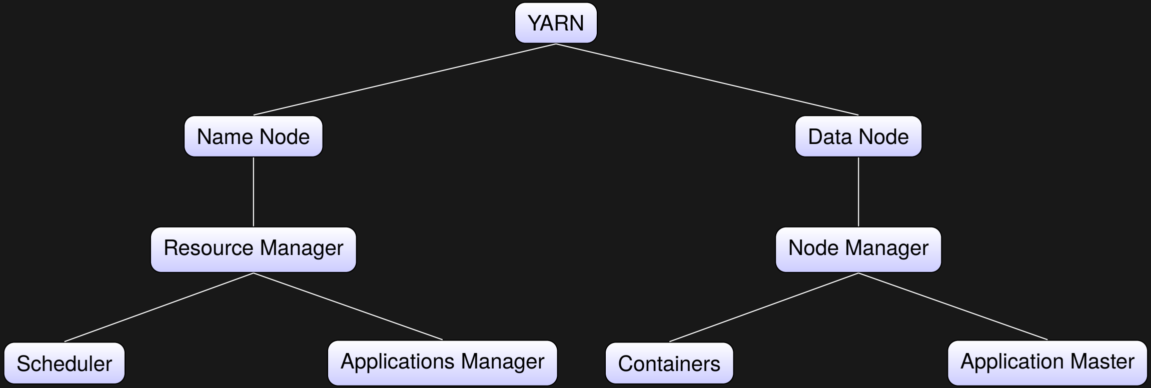
- Data Node(s): the Node Manager.

YARN Components Hierarchy



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- Node Manager: It is running on all the nodes in the cluster to launch and monitor **containers**

Resource Manager

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- Scheduler.

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- It is a single point of failure in YARN. We can acheive HA with an active-standby configuration.

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  - It forwards the admitted application to the scheduler.

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- It places an ApplicationSummary in the daemon’s log file after the application finishes.
- Finally, the ApplicationsManager keeps a cache of completed applications long after applications finish to support users’ requests for application data

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- The current schedulers such as the **CapacityScheduler** and the **FairScheduler** would be some examples of plug-ins.

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- Its primary goal is to manage application containers assigned to it by the ResourceManager.

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- Log Handler: keeping the containers' logs, and uploading them onto a file-system.

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- Container requests (and releases) can take place in a dynamic fashion at run time. For instance, a MapReduce job may request a certain amount of mapper containers; as they finish their tasks, it may release them and request more reducer containers to be started.

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- It is framework/applicaIon specific.

Running an Application on YARN

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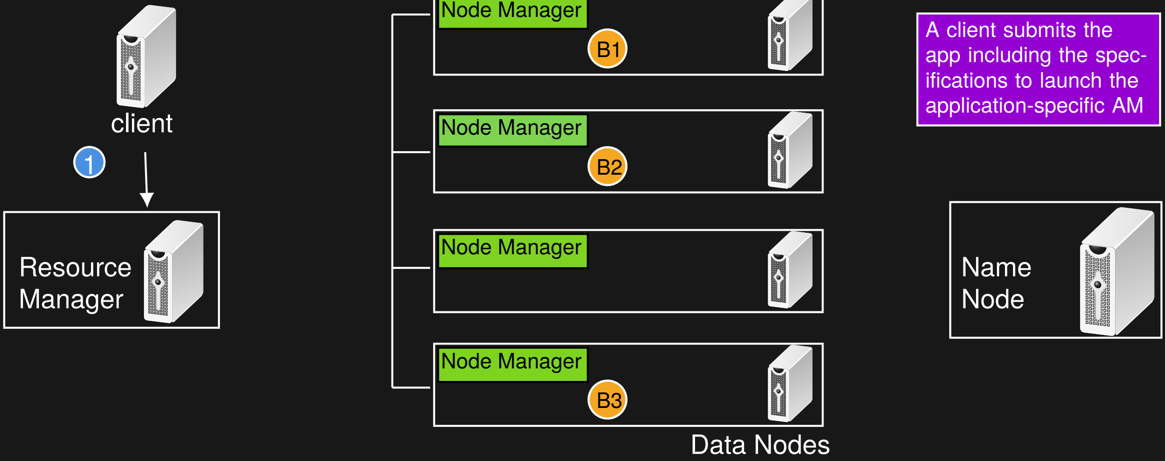

A client submits the app including the specifications to launch the application-specific AM

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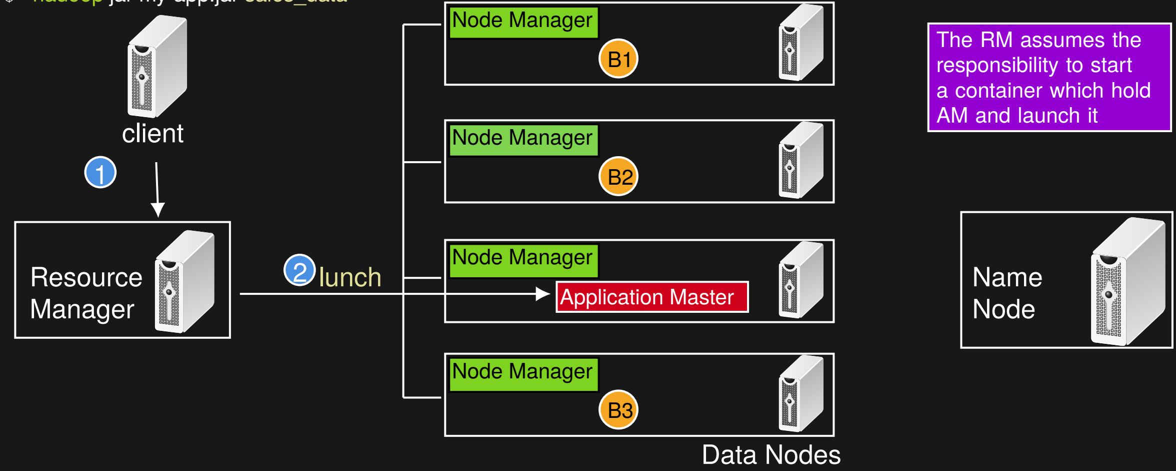

The RM assumes the responsibility to start a container which hold AM and launch it

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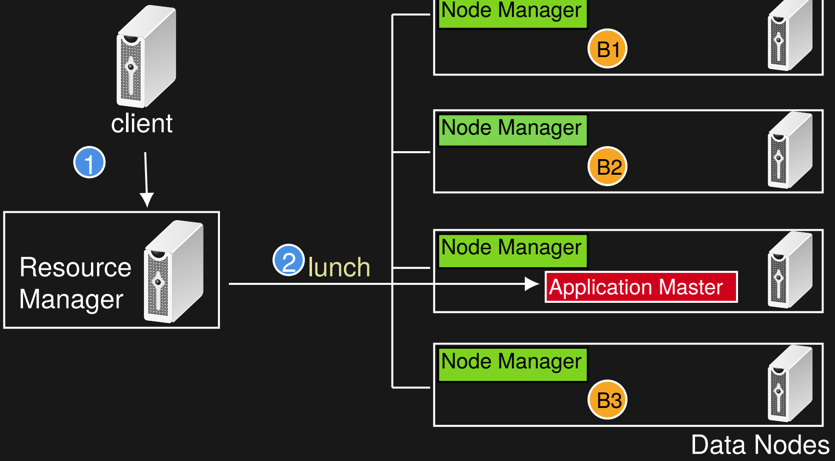

On The AM boot up, it registers with the RM. This registration allows the client program to query the RM for details

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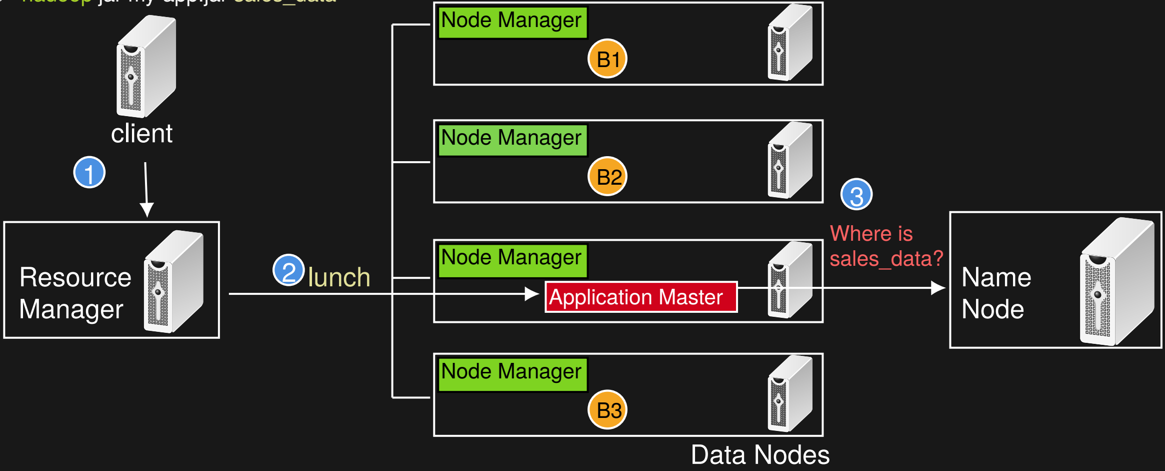

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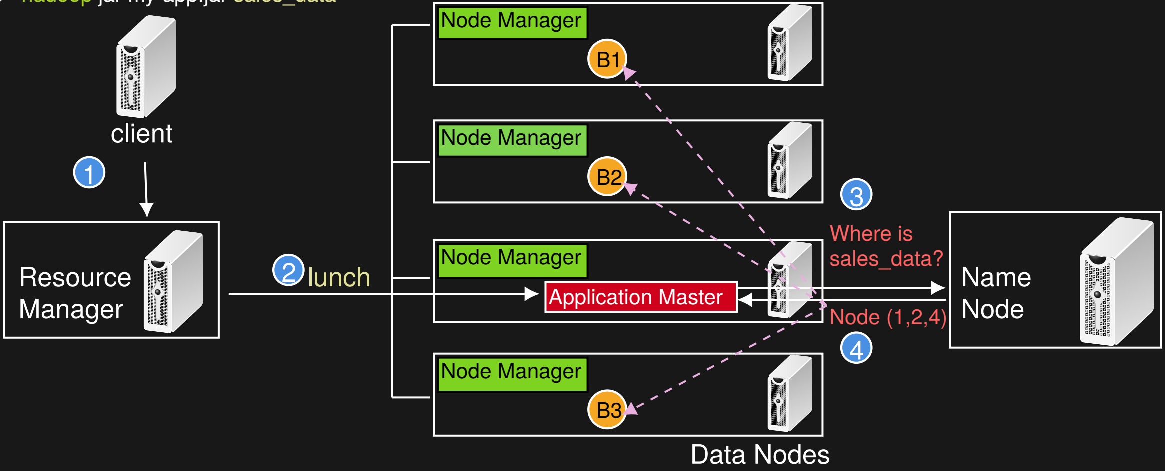

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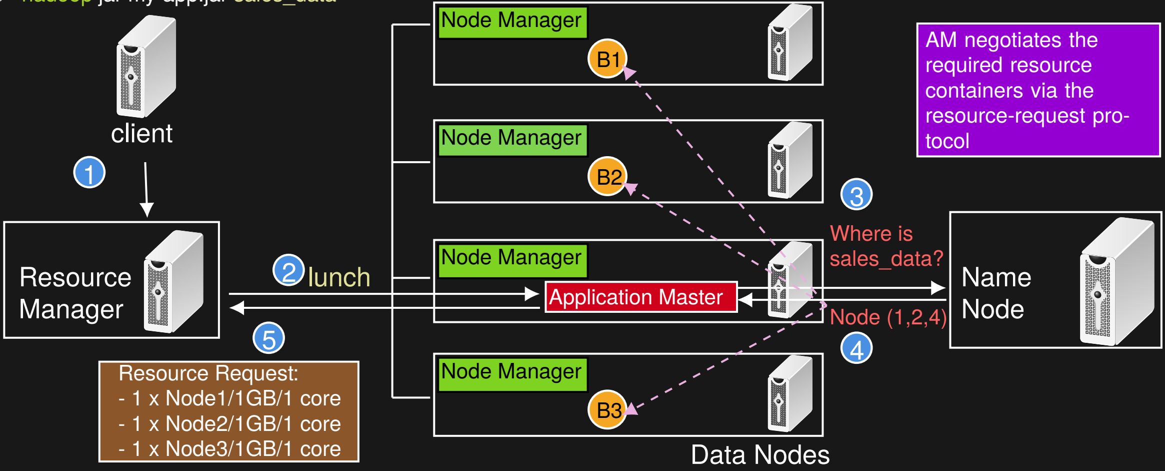

AM negotiates the required resource containers via the resource-request protocol

Resource Request:
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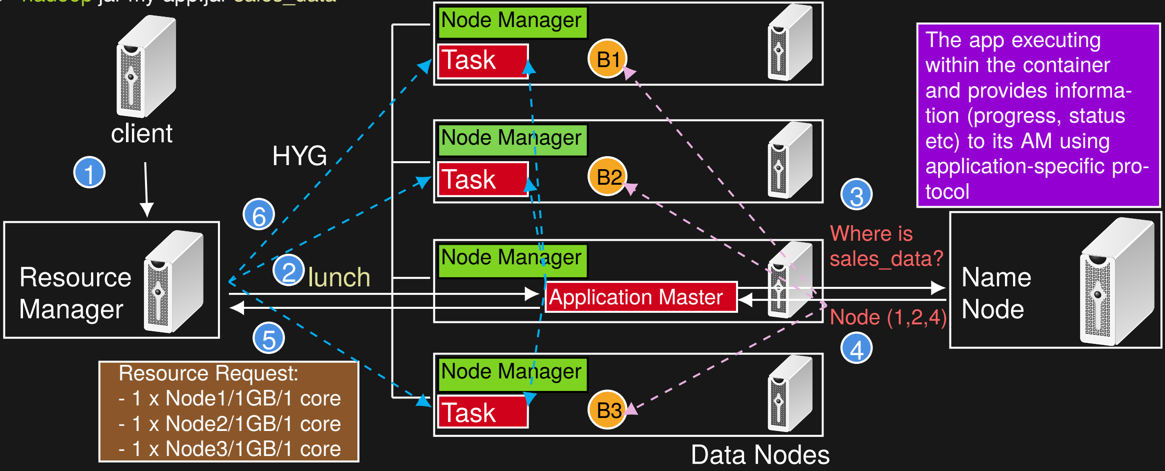

The app executing within the container and provides information (progress, status etc) to its AM using application-specific protocol

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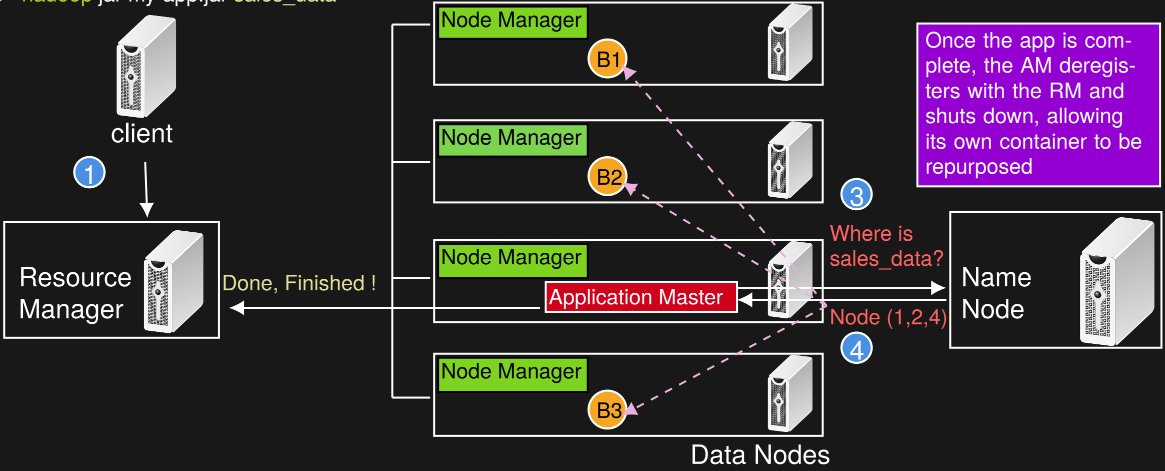

Once the app is complete, the AM deregisters with the RM and shuts down, allowing its own container to be repurposed

Thank you for watching!

See you in the next video ☺