

[YARN-1151] [Design] Configure auxiliary services from HDFS-based JAR files

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Problem Description

Currently, if the users want to customize their own auxiliary services, they need to put the jar files locally for all the NodeManagers which is very inconvenient and very hard for the management.

Phase 1 Solution overview

In YARN-4577, we already have the solution to load auxiliary services class from NM's local path. To solve current issue, we can

1. Upload the jar files into HDFS.
2. NM needs to download jar files from HDFS into its local path
 - a. Create a separate directory(such as auxServiceCache) under the NM local directory
 - b. Using FSDownload
3. NM can load the auxiliary services class from local path.

Phase 2 Discussion

- Use ResourceLocalizationService to download AuxService jars from HDFS
 - ResourceLocalizationService is used for downloading the resources for containers. To re-use the ResourceLocalizationService, we need to do lots of re-factory.
 - To simplify phase 1 development, we do it on phase 2
- How to do the rolling-upgrade for the AuxServices
 - The AuxService class jars are not expected to be changed very frequently.
 - Simply replace the jar in HDFS and restart NMs
 - To do the online rolling-upgrade, we add a separate AuxService monitor Service. We can do in Phase 2.