

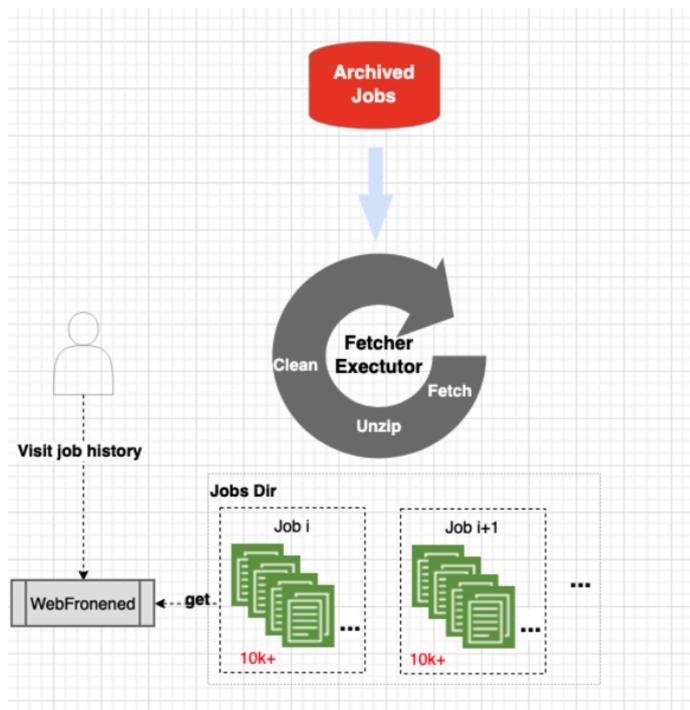
# History Server support lazy unzip

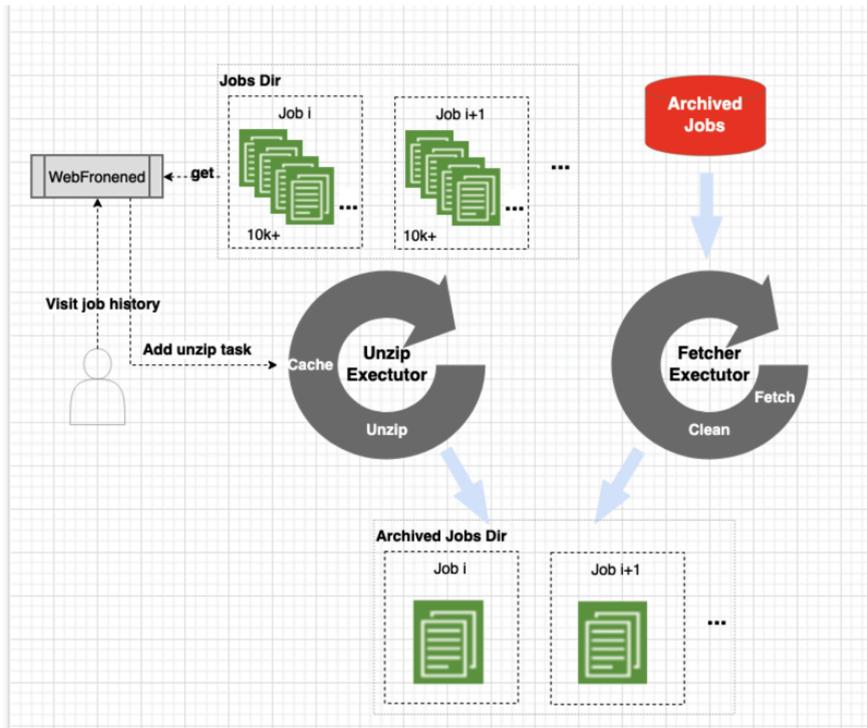
## Background

- [FLINK-28643:Job archive file contains too much Job json file on Flink HistoryServer](#)

## Related configuration

## History Server thread model





## 文件存储结构

Remote archived dir (historyserver.archive.fs.dir)	WebFronend dirs (historyserver.web.tmpdir)
Comma separated list of directories to fetch archived jobs from. The history server will monitor these directories for archived jobs. You can configure the JobManager to archive jobs to a directory via `jobmanager.archive.fs.dir`.	Local directory that is used by the history server REST API for temporary files.
Historical jobs is archived and zipped into a file in this dir  Demo:	<pre>         /{historyserver.web.tmpdir}         -- ---/jobs [Store unzipped job files]         -- ---/overviews [Store unzipped job files]         -- ---/archivedJobs [new dir added in this feature. Store downloaded archived file]     </pre> Demo:

```

01:06:11 [root@hadoop-fs-15 hdfs:~]# ls -l /history-server/completed-jobs-0 | head -10
total 266218 items
-rw-r--r-- 1 supergroup 274870 2023-02-02 18:26 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba
-rw-r--r-- 1 supergroup 181897 2023-02-02 22:28 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba73107
-rw-r--r-- 1 supergroup 223386 2023-02-02 04:48 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1 supergroup 12794 2023-02-02 21:22 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba48320737
-rw-r--r-- 1 supergroup 20404 2023-02-02 21:48 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1 supergroup 29739 2023-02-02 18:28 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1 supergroup 29418 2023-02-02 04:05:21 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1 supergroup 186208 2023-02-02 08:03:38 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1 supergroup 114704 2023-02-02 23:38 hdfs://hary-server/completed-jobs-0-0000465266334675c4f798ba06486ca09a033
-rw-r--r-- 1
    
```

```

[~]# cd /d history-server
[~]# ll
total 26888
-rw-r--r-- 1 flink flink 59631 Oct 31 14:30 126.bc93e2bd69237096.js
-rw-r--r-- 1 flink flink 16798 Oct 31 14:30 153.55ce5d88e66b86d2.js
-rw-r--r-- 1 flink flink 12606 Oct 31 14:30 242.3ec27748182afBdc.js
-rw-r--r-- 1 flink flink 10039 Oct 31 14:30 25.1f48e007ce63540b.js
-rw-r--r-- 1 flink flink 270357 Oct 31 14:30 342.4723aaecea0b63b.js
-rw-r--r-- 1 flink flink 414182 Oct 31 14:30 44.30b9a7c6d41de094.js
-rw-r--r-- 1 flink flink 36505 Oct 31 14:30 445.761e27d9d87aef22.js
-rw-r--r-- 1 flink flink 411276 Oct 20 10:25 44.ef3ac078f8d09d80.js
-rw-r--r-- 1 flink flink 1603 Oct 31 14:30 471.3dd5370ebc9c4b48.js
-rw-r--r-- 1 flink flink 12185 Oct 31 14:30 474.005bcc078f094006.js
-rw-r--r-- 1 flink flink 10866 Oct 20 10:25 476.04b2e8cf73a447e3.js
-rw-r--r-- 1 flink flink 23721 Oct 20 10:25 494.38e964d37ccb76c6.js
-rw-r--r-- 1 flink flink 11010 Oct 31 14:30 559.8fc4a7e30ea2e424.js
-rw-r--r-- 1 flink flink 181887 Oct 20 10:25 602.268c9709dc719cf2.js
-rw-r--r-- 1 flink flink 8508 Oct 31 14:30 615.bd861c6c467d7b7.js
-rw-r--r-- 1 flink flink 22552 Oct 31 14:30 61.dc244869b3eca0dd.js
-rw-r--r-- 1 flink flink 8664 Oct 31 14:30 675.a9794511837cc469.js
-rw-r--r-- 1 flink flink 658916 Oct 31 14:30 757.876733d87b0639f3.js
-rw-r--r-- 1 flink flink 191226 Oct 31 14:30 80.608b5a8434f380d6.js
-rw-r--r-- 1 flink flink 8039 Oct 20 10:25 874.95cb6808dd3b38fc.js
-rw-r--r-- 1 flink flink 27010 Oct 31 14:30 96.8511a08fa6ffb444.js
drwxr-xr-x 2 flink flink 14151680 Feb 8 10:45 archivedJobs
drwxr-xr-x 5 flink flink 4096 Oct 31 17:22 assets
-rw-r--r-- 1 flink flink 15952 Oct 31 14:30 common.16b6e3f3af8142c0.js
-rw-rw-r-- 1 flink flink 243 Nov 4 11:02 config.json
drwxrwxr-x 2 flink flink 4096 Oct 31 14:22 empty
-rw-r--r-- 1 flink flink 9733 Nov 3 16:00 index.html
drwxrwxr-x 53 flink flink 12288 Feb 8 10:38 jobs
drwxrwxr-x 2 flink flink 6483968 Oct 31 14:22 jobs-bak
-rw-rw-r-- 1 flink flink 3009356 Oct 31 14:16 jobs.list
-rw-r--r-- 1 flink flink 691181 Oct 31 14:30 main.7cc9d65feb1d3cb7.js
-rw-r----- 1 flink flink 0 Oct 31 13:00 nahup.out
drwxr-xr-x 2 flink flink 4096 Feb 8 10:38 overviews
-rw-r--r-- 1 flink flink 33810 Oct 31 14:30 polyfills.1c28d4df3b53b237.js
-rw-r--r-- 1 flink flink 37090 Oct 20 10:25 polyfills.F3a76b3c761051ff.js
-rw-r--r-- 1 flink flink 3233 Oct 31 14:30 runtime.2c7a04a053e9526c.js
-rw-r--r-- 1 flink flink 567534 Oct 31 14:30 styles.a394a4bc27892ab7.css

Dir: jobs
[~]# ls jobs
d4654dc7e9cfe701f28099dc1206.js  472c184ac3e2f370b23e30906000.js  81120b7010111ca0f901d7f07904f  d84654dc7e9cfe701f28099dc1206.js
09af6697d326ad867a0979c3708296.js  4086dfaf64d6e7045f7921f2054f2b3.js  8120b7010111ca0f901d7f07904f  d84654dc7e9cfe701f28099dc1206.js
01d84e2039901f29792a99733015445.js  4086dfaf64d6e7045f7921f2054f2b3.js  8666f832d98c14a0080f5ee1ad6c  d84654dc7e9cfe701f28099dc1206.js
01d84e2039901f29792a99733015445.js  3120b212010262072710c16c210b1  8666f832d98c14a0080f5ee1ad6c  d84654dc7e9cfe701f28099dc1206.js

```

## ProposedChange

### Trigger:

- Fetch: FetcherExecutor is scheduled with FixedDelay(historyserver.archive.fs.refresh-interval) in `HistoryServer`
- Unzip: Process of unzip is triggered by user visit in `HistoryServerStaticFileServerHandler`

### Cleanup strategies:

1. Removes existing archives from these {@link HistoryServerArchiveProcessor#refreshDirs}, and delete `Archived job files` and `Unzipped job files` from the local dirs if configured by `{@link HistoryServerOptions#HISTORY_SERVER_RETAINED_JOBS}`. **[Added deletion of `Archived job files`]**
2. Removes the local cache(including `Archived job files` and `Unzipped job files`) if configured by `{@link HistoryServerOptions#HISTORY_SERVER_CLEANUP_EXPIRED_JOBS}` when job archives have been removed from `{@link HistoryServerArchiveProcessor#refreshDirs}` **[Added deletion of `Archived job files`]**

3. Removes `unzipped job files` in {@link HistoryServerArchiveProcessor#webJobDir} and {@link HistoryServerArchiveProcessor#webOverviewDir} when unzipped job files exceed cache strategies. **[Added in this feature]**

### 前端JS文件的清理

History server stop后为了避免重复拉取archivedfile数据和解压, `webDir`中的这些job数据要保留。

但是前端的js,html, assets目录需要删除,因为

work	Event	trigger	method
清理Unzipped Job files	CLEANED	当local解压的job超过限制  Called by unzippedCacheListener	<code>cleanupUnzippedJobs</code>
清理Unzipped Job files 和 Archived job file	CLEANED DELETED	当remote Archived job file 被其他操作删除	<code>cleanupUnzippedJobsAndArchivedJobs</code>
清理Unzipped Job files 和 Archived job file 和 remote Archived job file	CLEANED DELETED	当超过“historyserver.archive.retained-jobs”限制	<code>cleanupJobsBeyondSizeLimit</code>

## ProposedChange

### History Server Change

- 增加unzipExecutor用来解压archived jobs
- 增加 maxUnzippedJobSize 来指定 local最多保存多少unzipped jobs
- 当HistoryServer stop时保留数据(目前会删除全部数据)
  - 所有local的job数据都保留, 避免重复拉取
    - 作为平台会管理大量的job, 每次重启historyserver都要重新拉取所有的job数据成本过高。
    - 是否可以添加一个参数来决定是否删除所有的local job数据
  - 前端相关数据需要全部删除

### HistoryServerArchiveFetcher Change:

- History Fetcher线程在处理HDFS上的数据时, 直接将压缩包下载下来, 不再进行解压
- 添加一个新的解压线程池UnzipArchivedJsonsExecutor用来unzip archivedFiles

- 在HistoryServer中维护两个cacheMap
  - 一个cacheMap来记录已经download archived jar的jobId(复用 cachedArchivesPerRefreshDirectory)
  - 一个cacheMap来记录已经解压的jobId(unzippedJobCache)
- 初始化时需要将节点上已存在的unzipped job和job archive初始化 到 `cachedArchivesPerRefreshDirectory` 和 `unzippedJobCache`
  - cachedArchivesPerRefreshDirectory 依然用来记录已经下载的作业
  - jobsToRemove依然用来记录remote已经被删除的作业

### WebFrontend Change

- 增加 “enableUnzip” 字段来说明是否支持在HistoryServerStaticFileServerHandler中进行解压操作
- 复用现有的Router的HistoryServerStaticFileServerHandler
  - 拆分解压archivedFiles的功能
- 当用户在HistoryServer访问到某个jobId时, 在Netty的handler线程中向解压线程池 UnzipArchivedJsonsExecutor 提交一个解压任务, 并定时等待;
  - 如果job过大, local存储时间过长, 就返回”正在处理historyServer”
  - 如果job json很快处理好了就直接走后续handler的返回逻辑
- ~~禁掉 “Completed jos” “Running jobs”两个按钮, 避免用户点击后HistoryServer去扫描目前Local存在的所有jobs~~

### Unit Test

case	method	单测	local测试
原有的两个清理逻辑是否还正常		✓	✓
访问触发unzip的逻辑是否正常		✓	✓
新加的清理Unzipped Job archive是否正常		✓	✓
测试cachedjobs初始化逻辑	initUnzippedJobCache	✓	✓
测试unzip response		✓	
测试“Completed jos” “Running jobs”两个按钮是否被禁掉			
验证historyserver stop后是否会保留 arhviedjob,jobs,overviews三个目录			✓

