Hadoop HDFS / HDFS-6735

A minor optimization to avoid pread() be blocked by read() inside the same DFSInputStream

Details

Type:	⬆ Improvement	Status:	**CLOSED**
Priority:	⬆ Major	Resolution:	Fixed
Affects Version/s:	3.0.0-alpha1	Fix Version/s:	2.7.0
Component/s:	hdfs-client		
Labels:	None		
Hadoop Flags:	Reviewed		

Description

In current DFSInputStream impl, there're a couple of coarser-grained locks in read/pread path, and it has became a HBase read latency pain point so far. In HDFS-6698, i made a minor patch against the first encourtered lock, around getFileLength, in deed, after reading code and testing, it shows still other locks we could improve.
In this jira, i'll make a patch against other locks, and a simple test case to show the issue and the improved result.

This is important for HBase application, since in current HFile read path, we issue all read()/pread() requests in the same DFSInputStream for one HFile. (Multi streams solution is another story i had a plan to do, but probably will take more time than i expected)

Attachments

▤ HDFS-6735.txt	9 kB	23/Jul/14 03:52
▤ HDFS-6735-v2.txt	13 kB	23/Jul/14 06:59
▤ HDFS-6735-v3.txt	11 kB	09/Nov/14 07:29
▤ HDFS-6735-v4.txt	22 kB	23/Nov/14 21:00
▤ HDFS-6735-v5.txt	22 kB	24/Nov/14 05:08
▤ HDFS-6735-v6.txt	23 kB	25/Nov/14 21:10
▤ HDFS-6735-v7.txt	22 kB	27/Nov/14 17:21
▤ HDFS-6735-v8.txt	26 kB	28/Nov/14 20:18

Issue Links

is related to

⬆ HADOOP-15557 CryptoInputStream can't handle concurrent access; inconsistent with HDFS	⬆	**OPEN**

relates to

⬢ HDFS-7494 Checking of closed in DFSInputStream#pread() should be protected by synchronization	⬇	**CLOSED**
⬢ HDFS-7495 Remove updatePosition argument from DFSInputStream#getBlockAt()	⬇	**CLOSED**
⬆ HADOOP-9361 Strictly define the expected behavior of filesystem APIs and write tests to verify compliance	⊖	**CLOSED**

Sub-Tasks

1.	try to optimize DFSInputStream.getFileLength()	🔲	**PATCH AVAIL...**	Liang Xie
2. ✅	Documenting DFSClient#DFSInputStream expectations reading and preading in concurrent context	🔲	**CLOSED**	Michael Stack

Activity

⬆

Liang Xie created issue - 23/Jul/14 03:13

Liang Xie made changes - 23/Jul/14 03:52

Field	Original Value	New Value
Attachment		HDFS-6735.txt [12657271]

Liang Xie made changes - 23/Jul/14 03:52

Status	Open [1]	Patch Available [10002]

Liang Xie made changes - 23/Jul/14 04:03

Description	In current DFSInputStream impl, there're a couple of coarser-grained locks in read/pread path, and it has became a HBase read latency pain point so far. In HDFS-6698, i made a minor patch against the first encourtered lock, around getFileLength, in deed, after reading code and testing, it shows still other locks we could improve. In this jira, i'll make a patch against other locks, and a simple test case to show the issue and the improved result.	In current DFSInputStream impl, there're a couple of coarser-grained locks in read/pread path, and it has became a HBase read latency pain point so far. In HDFS-6698, i made a minor patch against the first encourtered lock, around getFileLength, in deed, after reading code and testing, it shows still other locks we could improve. In this jira, i'll make a patch against other locks, and a simple test case to show the issue and the improved result. This is important for HBase application, since in current HFile read path, we issue all read()/pread() requests in the same DFSInputStream for one HFile. (Multi streams solution is another story i had a plan to do, but probably will take more time than i expected)

Liang Xie made changes - 23/Jul/14 06:59

Attachment		HDFS-6735-v2.txt [12657297]

Steve Loughran made changes - 01/Aug/14 10:08

Link		This issue relates to ~~HADOOP-9361~~ [~~HADOOP-9361~~]

Lars Hofhansl made changes - 09/Nov/14 07:29

Attachment		HDFS-6735-v3.txt [12680470]

Lars Hofhansl made changes - 23/Nov/14 20:57

Attachment		HDFS-6735-v4.txt [12683238]

Lars Hofhansl made changes - 23/Nov/14 20:58

Attachment	~~HDFS-6735~~-v4.txt [12683238]	

Lars Hofhansl made changes - 23/Nov/14 21:00

Attachment		HDFS-6735-v4.txt [12683239]

Lars Hofhansl made changes - 24/Nov/14 05:08

Attachment		HDFS-6735-v5.txt [12683270]

Lars Hofhansl made changes - 25/Nov/14 21:10

Attachment		HDFS-6735-v6.txt [12683657]

Lars Hofhansl made changes - 27/Nov/14 00:30

Attachment   HDFS-6735-v6.txt [12683956]

◉ Lars Hofhansl made changes - 27/Nov/14 02:24

Assignee   Liang Xie [xieliang007]   Lars Hofhansl [lhofhansl]

◉ Lars Hofhansl made changes - 27/Nov/14 17:06

Attachment   HDFS-6735-v6.txt [12684091]

◉ Lars Hofhansl made changes - 27/Nov/14 17:12

Attachment   ~~HDFS-6735~~-v6.txt [12683956]

◉ Lars Hofhansl made changes - 27/Nov/14 17:12

Attachment   ~~HDFS-6735~~-v6.txt [12684091]

◉ Lars Hofhansl made changes - 27/Nov/14 17:21

Attachment   HDFS-6735-v7.txt [12684096]

◉ Lars Hofhansl made changes - 28/Nov/14 20:18

Attachment   HDFS-6735-v8.txt [12684213]

◉ Michael Stack made changes - 03/Dec/14 05:01

Fix Version/s   2.7.0 [12327584]
Hadoop Flags   Reviewed [10343]
Resolution   Fixed [1]
Status   Patch Available [10002]   Resolved [5]

◉ Colin McCabe made changes - 12/Dec/14 21:29

Link   This issue relates to ~~HDFS-7494~~ [~~HDFS-7494~~]

◉ Colin McCabe made changes - 13/Dec/14 00:44

Link   This issue relates to ~~HDFS-7495~~ [~~HDFS-7495~~]

◉ Vinod Kumar Vavilapalli made changes - 24/Apr/15 23:22

Status   Resolved [5]   Closed [6]

◉ Andrew Wang made changes - 12/May/16 18:13

Affects Version/s   3.0.0-alpha1 [12335732]
Affects Version/s   3.0.0 [12320356]

◉ Weiwei Yang made changes - 24/Oct/17 12:42

Link   This issue is related to HDFS-12701 [HDFS-12701]

◉ Weiwei Yang made changes - 24/Oct/17 13:00

Link   This issue is related to HDFS-12701 [HDFS-12701]

◉ Steve Loughran made changes - 25/Jun/18 14:15

Link   This issue is related to HADOOP-15557 [HADOOP-15557]

∨ People

Assignee:

◉ Lars Hofhansl

Reporter:

Liang Xie

Votes:

0 Vote for this issue

Watchers:

17 Start watching this issue

Dates

Created:

23/Jul/14 03:13

Updated:

25/Jun/18 14:15

Resolved:

03/Dec/14 05:01