1. Introduction of project

Diagram

Description automatically generated

该项目实现了向LTEServer同时异步地发送start session 和 end session请求，并通过日志将server的返回报文，以及请求报文中sessionId，发送时间，发送url，body记录下来

1. 设计思路

将关于session的所有信息封装在DeliverySession类中，使用jaxb将java class转换成xml文件。

调用CloseableHttpClient的相关API向server发出body中携带着有关session信息的xml的post request。

在SessionUtils的execute()中，首先记录发送start session request时的系统时间，再用startTime+aliveTime得到发送 end session request的系统时间，再使用timer.schedule()延时发送end session request。

最后，在SessionClient类中，使用Executors提供的API，以及调用SessionUtils的execute（），完成多线程的异步调用。

1. 执行程序的过程

使用 python LTEServer.py 命令启动服务器，在SessionClient类中，执行@Test notation下的Test（）， 启动client端。

1. 日志记录
2. 20:32:35.990 [pool-1-thread-1] INFO SessionUtils - Current sessionId: 389
3. Send time: 39850976
4. url: http://127.0.0.1:8081/nbi/deliverysession?id=389
5. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
6. <deliverySession>
7. <actionType>Start</actionType>
8. <deliverySessionId>389</deliverySessionId>
9. <endTime>39853976</endTime>
10. <startTime>39850976</startTime>
11. </deliverySession>
12. Response: 200 OK
13. 20:32:37.017 [pool-1-thread-10] INFO SessionUtils - Current sessionId: 573
14. Send time: 39852702
15. url: http://127.0.0.1:8081/nbi/deliverysession?id=573
16. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
17. <deliverySession>
18. <actionType>Start</actionType>
19. <deliverySessionId>573</deliverySessionId>
20. <endTime>39855702</endTime>
21. <startTime>39852702</startTime>
22. </deliverySession>
23. Response: 200 OK
24. 20:32:38.038 [pool-1-thread-9] INFO SessionUtils - Current sessionId: 909
25. Send time: 39853725
26. url: http://127.0.0.1:8081/nbi/deliverysession?id=909
27. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
28. <deliverySession>
29. <actionType>Start</actionType>
30. <deliverySessionId>909</deliverySessionId>
31. <endTime>39856725</endTime>
32. <startTime>39853725</startTime>
33. </deliverySession>
34. Response: 200 OK
35. 20:32:39.066 [pool-1-thread-8] INFO SessionUtils - Current sessionId: 888
36. Send time: 39854747
37. url: http://127.0.0.1:8081/nbi/deliverysession?id=888
38. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
39. <deliverySession>
40. <actionType>Start</actionType>
41. <deliverySessionId>888</deliverySessionId>
42. <endTime>39857747</endTime>
43. <startTime>39854747</startTime>
44. </deliverySession>
45. Response: 200 OK
46. 20:32:40.068 [Timer-0] INFO SessionUtils - Current sessionId: 389
47. Send time: 39853976
48. url: http://127.0.0.1:8081/nbi/deliverysession?id=389
49. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
50. <deliverySession>
51. <actionType>stop</actionType>
52. <deliverySessionId>389</deliverySessionId>
53. <endTime>39853976</endTime>
54. <startTime>39850976</startTime>
55. </deliverySession>
56. Response: 200 OK
57. 20:32:41.071 [pool-1-thread-7] INFO SessionUtils - Current sessionId: 285
58. Send time: 39855775
59. url: http://127.0.0.1:8081/nbi/deliverysession?id=285
60. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
61. <deliverySession>
62. <actionType>Start</actionType>
63. <deliverySessionId>285</deliverySessionId>
64. <endTime>39858775</endTime>
65. <startTime>39855775</startTime>
66. </deliverySession>
67. Response: 200 OK
68. 20:32:42.072 [Timer-1] INFO SessionUtils - Current sessionId: 573
69. Send time: 39855702
70. url: http://127.0.0.1:8081/nbi/deliverysession?id=573
71. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
72. <deliverySession>
73. <actionType>stop</actionType>
74. <deliverySessionId>573</deliverySessionId>
75. <endTime>39855702</endTime>
76. <startTime>39852702</startTime>
77. </deliverySession>
78. Response: 200 OK
79. 20:32:43.072 [Timer-2] INFO SessionUtils - Current sessionId: 909
80. Send time: 39856725
81. url: http://127.0.0.1:8081/nbi/deliverysession?id=909
82. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
83. <deliverySession>
84. <actionType>stop</actionType>
85. <deliverySessionId>909</deliverySessionId>
86. <endTime>39856725</endTime>
87. <startTime>39853725</startTime>
88. </deliverySession>
89. Response: 200 OK
90. 20:32:44.075 [pool-1-thread-6] INFO SessionUtils - Current sessionId: 780
91. Send time: 39857779
92. url: http://127.0.0.1:8081/nbi/deliverysession?id=780
93. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
94. <deliverySession>
95. <actionType>Start</actionType>
96. <deliverySessionId>780</deliverySessionId>
97. <endTime>39860779</endTime>
98. <startTime>39857779</startTime>
99. </deliverySession>
100. Response: 200 OK
101. 20:32:45.082 [Timer-3] INFO SessionUtils - Current sessionId: 888
102. Send time: 39857747
103. url: http://127.0.0.1:8081/nbi/deliverysession?id=888
104. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
105. <deliverySession>
106. <actionType>stop</actionType>
107. <deliverySessionId>888</deliverySessionId>
108. <endTime>39857747</endTime>
109. <startTime>39854747</startTime>
110. </deliverySession>
111. Response: 200 OK
112. 20:32:46.080 [Timer-4] INFO SessionUtils - Current sessionId: 285
113. Send time: 39858775
114. url: http://127.0.0.1:8081/nbi/deliverysession?id=285
115. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
116. <deliverySession>
117. <actionType>stop</actionType>
118. <deliverySessionId>285</deliverySessionId>
119. <endTime>39858775</endTime>
120. <startTime>39855775</startTime>
121. </deliverySession>
122. Response: 200 OK
123. 20:32:47.084 [pool-1-thread-5] INFO SessionUtils - Current sessionId: 723
124. Send time: 39860786
125. url: http://127.0.0.1:8081/nbi/deliverysession?id=723
126. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
127. <deliverySession>
128. <actionType>Start</actionType>
129. <deliverySessionId>723</deliverySessionId>
130. <endTime>39863786</endTime>
131. <startTime>39860786</startTime>
132. </deliverySession>
133. Response: 200 OK
134. 20:32:48.098 [Timer-5] INFO SessionUtils - Current sessionId: 780
135. Send time: 39860779
136. url: http://127.0.0.1:8081/nbi/deliverysession?id=780
137. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
138. <deliverySession>
139. <actionType>stop</actionType>
140. <deliverySessionId>780</deliverySessionId>
141. <endTime>39860779</endTime>
142. <startTime>39857779</startTime>
143. </deliverySession>
144. Response: 200 OK
145. 20:32:49.100 [pool-1-thread-4] INFO SessionUtils - Current sessionId: 184
146. Send time: 39863794
147. url: http://127.0.0.1:8081/nbi/deliverysession?id=184
148. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
149. <deliverySession>
150. <actionType>Start</actionType>
151. <deliverySessionId>184</deliverySessionId>
152. <endTime>39866794</endTime>
153. <startTime>39863794</startTime>
154. </deliverySession>
155. Response: 200 OK
156. 20:32:50.127 [pool-1-thread-3] INFO SessionUtils - Current sessionId: 980
157. Send time: 39865809
158. url: http://127.0.0.1:8081/nbi/deliverysession?id=980
159. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
160. <deliverySession>
161. <actionType>Start</actionType>
162. <deliverySessionId>980</deliverySessionId>
163. <endTime>39868809</endTime>
164. <startTime>39865809</startTime>
165. </deliverySession>
166. Response: 200 OK
167. 20:32:51.130 [Timer-6] INFO SessionUtils - Current sessionId: 723
168. Send time: 39863786
169. url: http://127.0.0.1:8081/nbi/deliverysession?id=723
170. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
171. <deliverySession>
172. <actionType>stop</actionType>
173. <deliverySessionId>723</deliverySessionId>
174. <endTime>39863786</endTime>
175. <startTime>39860786</startTime>
176. </deliverySession>
177. Response: 200 OK
178. 20:32:52.133 [pool-1-thread-2] INFO SessionUtils - Current sessionId: 504
179. Send time: 39866837
180. url: http://127.0.0.1:8081/nbi/deliverysession?id=504
181. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
182. <deliverySession>
183. <actionType>Start</actionType>
184. <deliverySessionId>504</deliverySessionId>
185. <endTime>39869837</endTime>
186. <startTime>39866837</startTime>
187. </deliverySession>
188. Response: 200 OK
189. 20:32:53.134 [Timer-7] INFO SessionUtils - Current sessionId: 184
190. Send time: 39866794
191. url: http://127.0.0.1:8081/nbi/deliverysession?id=184
192. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
193. <deliverySession>
194. <actionType>stop</actionType>
195. <deliverySessionId>184</deliverySessionId>
196. <endTime>39866794</endTime>
197. <startTime>39863794</startTime>
198. </deliverySession>
199. Response: 200 OK
200. 20:32:54.147 [Timer-8] INFO SessionUtils - Current sessionId: 980
201. Send time: 39868809
202. url: http://127.0.0.1:8081/nbi/deliverysession?id=980
203. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
204. <deliverySession>
205. <actionType>stop</actionType>
206. <deliverySessionId>980</deliverySessionId>
207. <endTime>39868809</endTime>
208. <startTime>39865809</startTime>
209. </deliverySession>
210. Response: 200 OK
211. 20:32:56.150 [Timer-9] INFO SessionUtils - Current sessionId: 504
212. Send time: 39869837
213. url: http://127.0.0.1:8081/nbi/deliverysession?id=504
214. Request body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
215. <deliverySession>
216. <actionType>stop</actionType>
217. <deliverySessionId>504</deliverySessionId>
218. <endTime>39869837</endTime>
219. <startTime>39866837</startTime>
220. </deliverySession>
221. Response: 200 OK