**PUB/SUB MIDDLEWARE REPORTS**

1. **Establishing time distribution**
2. **Discovery time distribution**
3. **Total time to send 1k-packages to all the devices**

In this test, I will start sending packages from the Asus phone to 1-4 nearby devices: BLU, G4, Galaxy S3 and Moto G4. The results based on data summary on these 4 devices.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Average | 116 | 154 | 157 | 146 |

Notice: Time for sending 1k-packages to 1-4 nearby devices are almost the same. (Interesting)

1. **Total time to send 10k-packages to all the devices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Average | 123 | 161 | 123 | 164 |

1. **Total time to send 100k-packages to all the devices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Average | 144 | 272 | 167 | 188 |

1. **Total time to send 500k-packages to all the devices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Average | 232 | 552 | 632 | 638 |

1. **Total time to send 1M-packages to all the devices**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Average | 335 | 1245 | 1097 | 1330 |

Notice: sending 1M packages takes a lot of time when there are 2-4 devices joining the network (which is up to 1.3s). The reason is the LG G4 always takes a lot of time for receiving messages. In the network with 1 device which is BLU phone, the connection is really fast so that it only takes around 300-400ms for dispatching.

1. **Comparisons**

Compare time when sending different package sizes to nearby devices. These below results based on above comparisons.

According to the test results, there is not much different when sending any package with size less than 100k bytes, but when increase package size to 500k and more, time for distribute them inside the network really does matter.

1. **Compare time sending multiple size messages between remote station server and 1 mobile device**

When sending multiple size messages

Compare with such results when sending between devices. The below charts show the differences of average time between the two models. Remarkably, the differences are small.

1. **Using RabbitMQ**

In this test, we connected a mobile client (used RabbitMQ client library) to a remote server.

When compare with the other test results from Section 9. The results show that the performance of our implementation using ZeroMQ is very similar to RabbitMQ which is one of the fastest Message Oriented Middleware these days.

1. **Using ActiveMQ**

To be continued…