CommunicationTiming

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OVERVIEW

I want a way to analyze the timing of Wireshark collected data for a specific network command between a device and its driver. In the example here I'm evaluating the AWRT response from a device. I collected the data with Wireshark through a testing sequence and I want to export the packet dissections from the command transmissions and receptions so that I can:

```
1. Evaluate the timing between the transmitted request for new data with with A
WRT K0 command
2. Evaluate the response time of the device between the perception of the trans
mitted AWRT K0
   commad and the receipt of the online data from the device
```

PREREQUISITES

```
1. Using packet dissections from WireShark version 2.2.6 (but I don't expect ch
ange from different verions)
2. Column names in the packet dissections are expected to be: {
     "No.",
     "Time",
     "Source",
     "Destination",
     "Protocol",
     "Length",
     "Info"}
3. I have filtered the packets to provide packet dissections for the transmitte
d and received commands as:
     Transmission of "AWRT K0" using "data.data contains 02:20:41:57:52:54:20:4
B"
     Reception of "AWRT e" using "data.data contains 02:20:41:57:52:54:20:3
0" (expecting error to be zero (0))
```

INPUT BEING ANALYZED

The transmit result file is ./AWRT_Transmit_PacketDissections_ManyTests.csv and the receive result file is ./AWRT_Receive_PacketDissections_ManyTests.csv

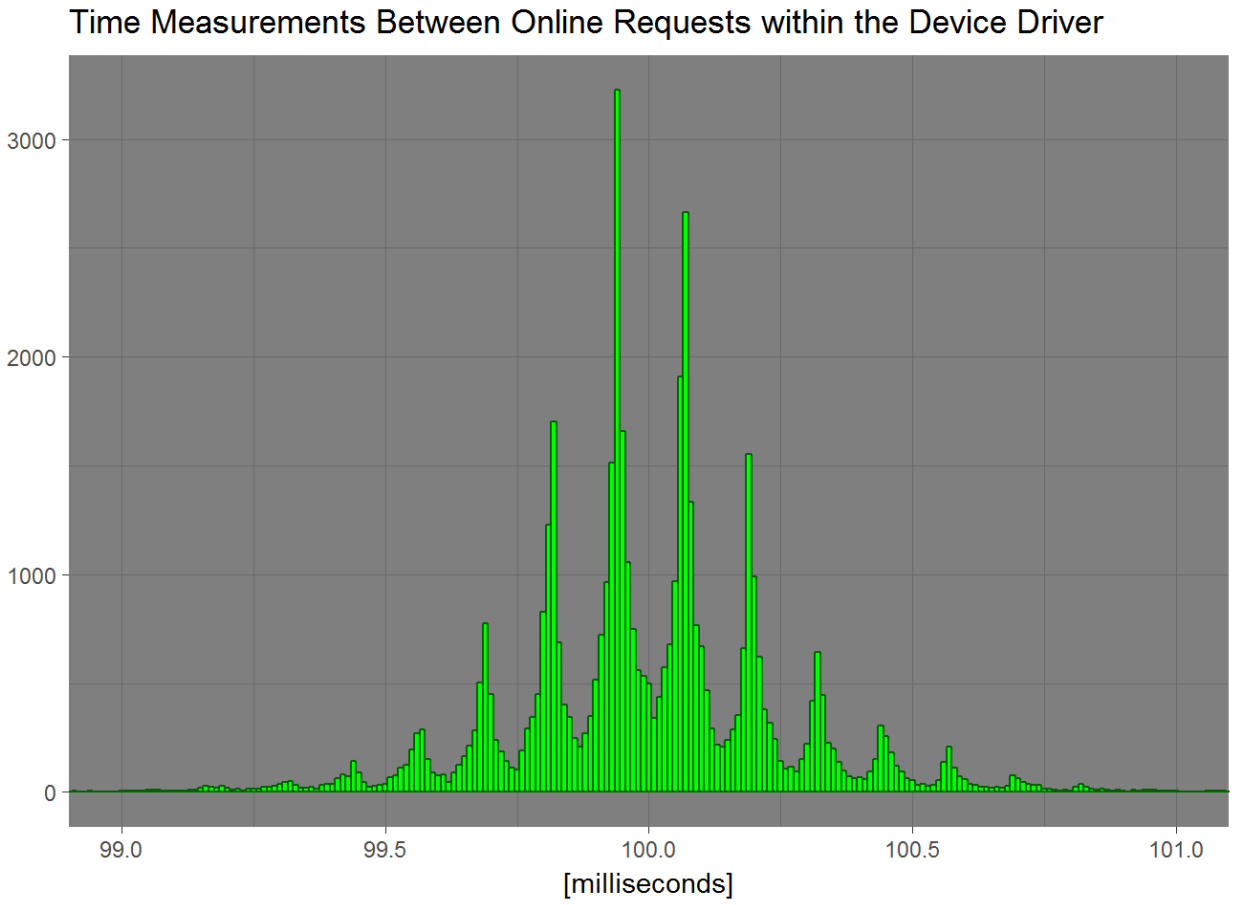
Now clean up the data so that they can be joined. I've assumed that each transmit line will match to a subsequent response line, so I plan to join the data based on that online 'transaction.'

With this resulting table I can calculate the time different (deltaT) between the transmitted command and the response from the device.

I first needed to know how reliable the requests for online data were to the device. I collected 49347 measurements and found only 10 were greater than 102 milliseconds. Here are the summary results for all measurements that were less than or equal to 102 milliseconds:

```
   XmitTimeMs
Min.   : 77.27
1st Qu.: 99.84
Median : 99.98
Mean   :100.00
3rd Qu.:100.12
Max.   :101.73
```

Here is the distribution of the measurement data that I collected and analyzed for time between online requests:



I also wanted to know how responsive the device was to the request of the online command. I collected 49368 measurements and found only 1 that were larger than 20 milliseconds! Here are the summary results for all measurements that were collected:

```
   deltaTms
Min.   : 0.005627
1st Qu.: 0.605650
Median : 0.627911
Mean   : 0.632682
3rd Qu.: 0.660694
Max.   :26.037460
```

Here is the distribution of the measurement data that I collected and analyzed for the online response times: