WR characterization tools

Report over Ethernet cards

Author: Miguel Jiménez López
Email: klyone@correo.ugr.es
Supervisor: Javier Díaz Alonso
University: University of Granada

Table of contents

1 Introduction

In this document, it will be presented a series of tests were performed to characterize the response of the system. Programs are used **wr-sender** and **wr-receiver** that implement a protocol that sends bursts of data packets to determine certain system characteristics: bandwidth, packet loss and corruption. From the data obtained in the tests, we estimate the optimal parameters that best allow the estimation of system performance (number of packets per burst, packet size, number of bursts, delivery period).

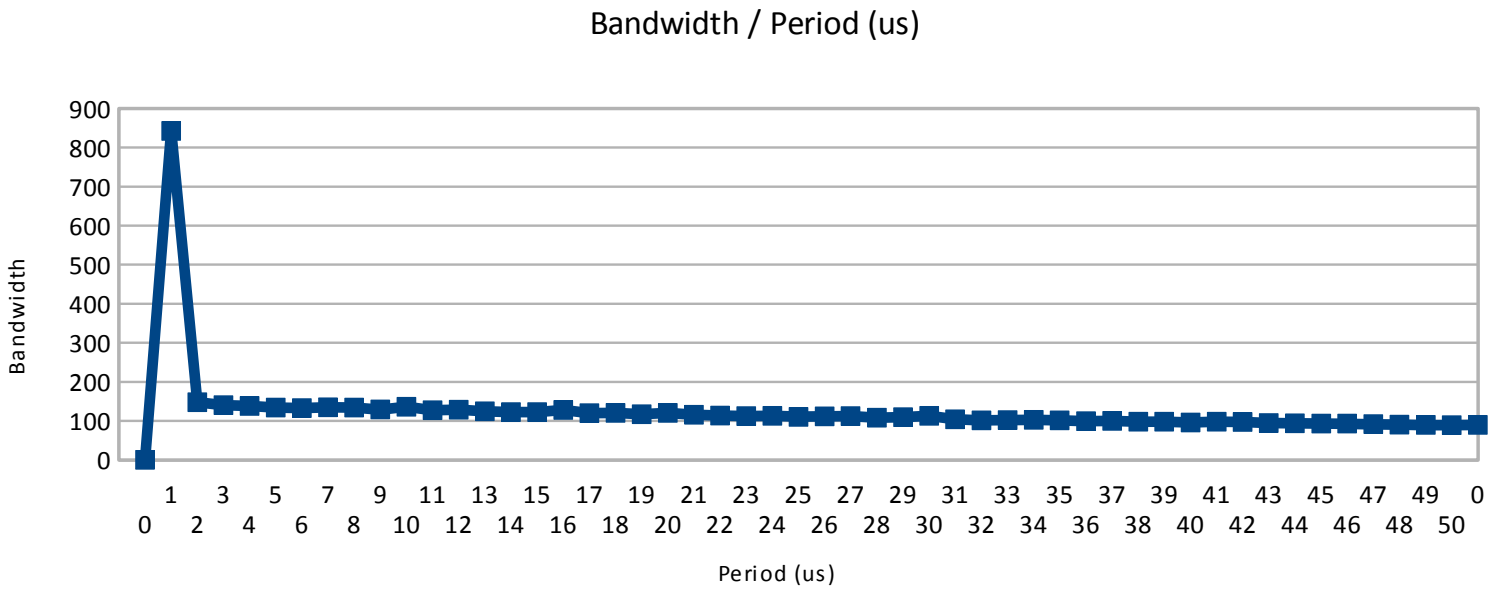
In the following sections, it will present the different tests and explain the results thereof.
Finally, in a concluding section, it will determine the optimal configuration of the various parameters.

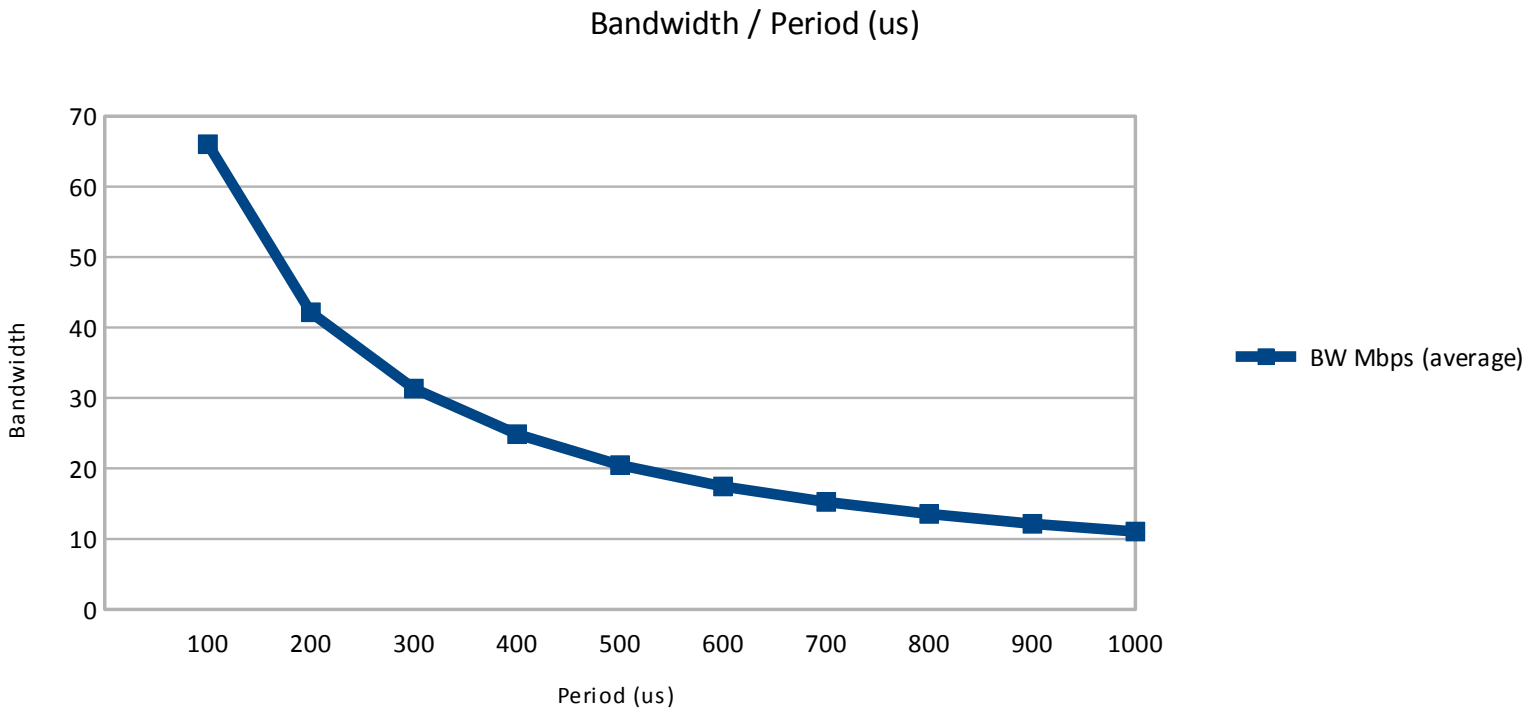
2 Test

This section details the different tests. Each considers the variation of a single parameter and find the value that reaches the most 'stable'.

2.1 Variable sending period

- **Sending period:** Parameter
- **Size of frame:** 1490 B
- **Number of packages:** 1000
- **Number of bursts:** 20

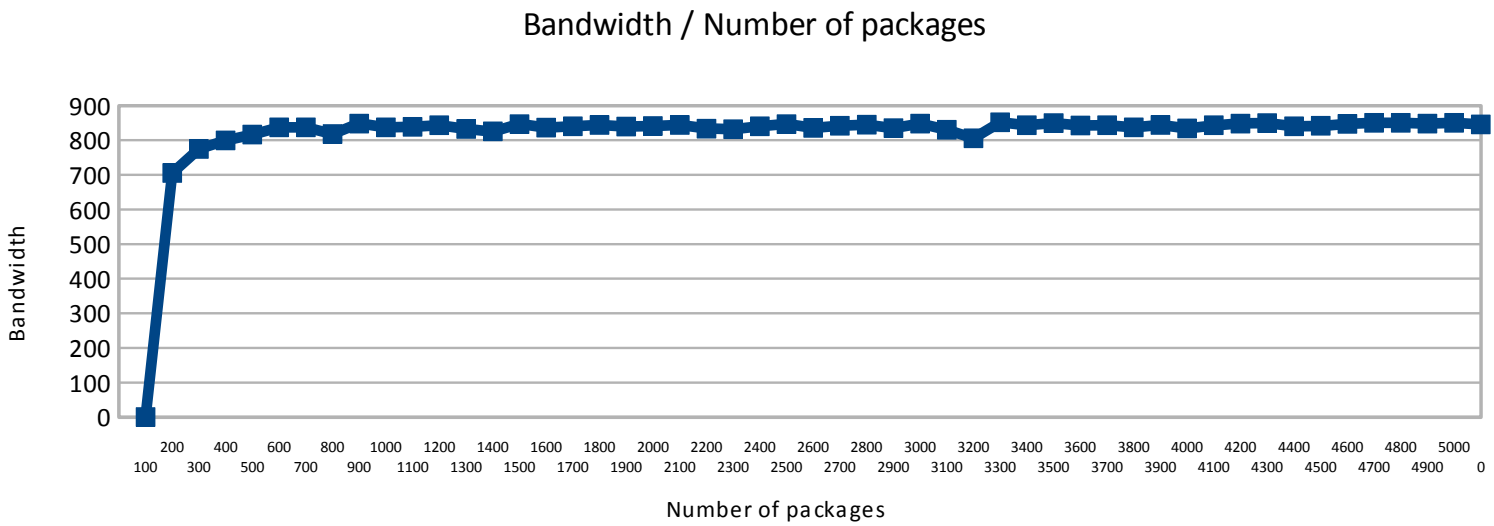




The above graphs show that the larger the package, the greater the bandwidth achieved. This is logical if one considers that more bytes are sent in each shipment period. However, it is possible that if you put a sending speed too great, some packets may be lost

2.2 Variable number of packages of burst

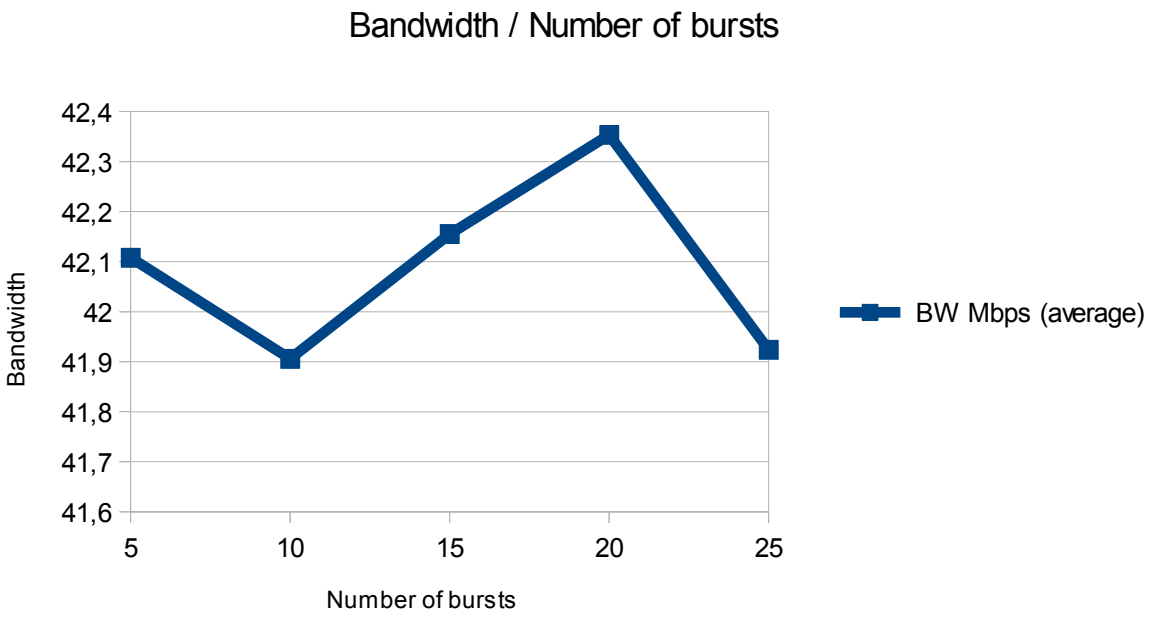
- **Sending period:** 0 (no delay)
- **Size of frame:** 1490 B
- **Number of packages:** Parameter
- **Number of bursts:** 20



The number of packets sent in each burst also influences the quality of the measurement bandwidth. However, if many packets sent, it will increase the work load and hence the performance may deteriorate. In view of the previous figure, we can deduce that from 1000 packets is not improved estimate of bandwidth.

2.3 Variable number of bursts

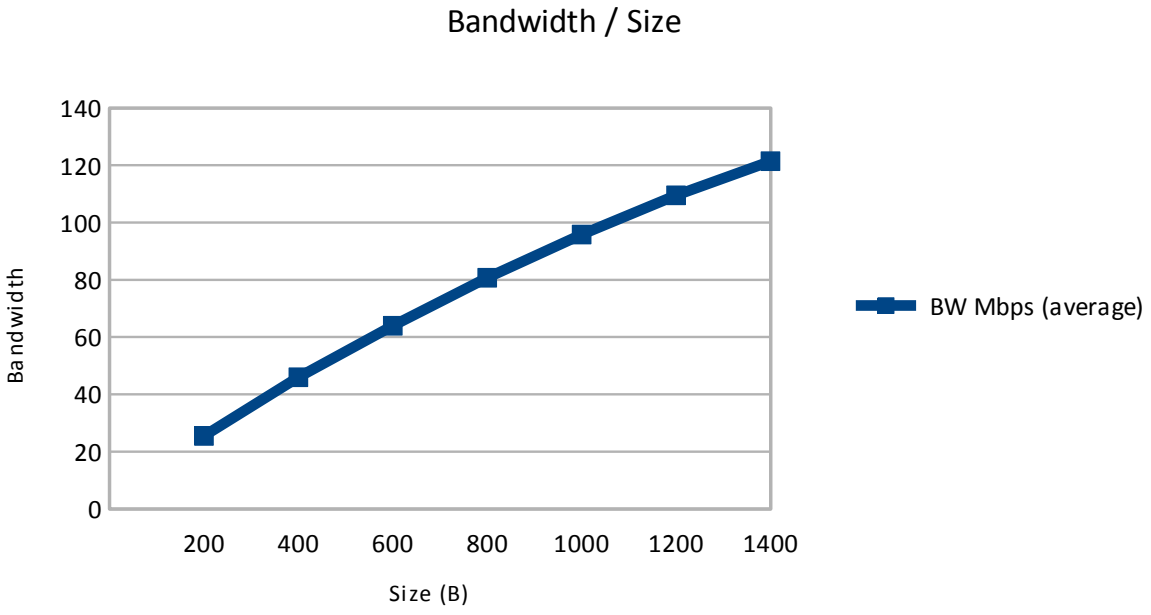
- **Sending period:** 200 us
- **Size of frame:** 1490 B
- **Number of packages:** 1000
- **Number of bursts:** Parameter



As shown in the graph above, number of burst does not affect bandwitdh so much. We have choosen 20 to have more measures.

2.4 Variable size of package

3 **Sending period:** 10 us
4 **Size of frame:** Parameter
5 Number of packages: 1000
6 Number of bursts: 10



The packet size also influences the bandwidth so that the larger, more performance is achieved.

7 Conclusions

Finally and in view of the previous experiments, the most optimal configuration for measuring the bandwidth on the computer under study is:

1. **Size:** Maximum (1490 B)
2. **Number of packets per burst:** 1000
3. **Test burst Number:** 20
4. **Delivery Period:** Maximum Allowed