Network Interface Buffer Elimination Checkpoint 1

Jiong Xue, Jiabo Li, Qilu Guo, Jing Ji

October 22, 2015

1 Solution

To reduce packet storage burden in a network interface, we propose a solution where the packet delivered on a NoC is preserved on the cache instead of the newtwork interface. In this case, only the head and tail flits of the packet need be stored in the network interface. A high-level architecture design is shown in Figure 1.
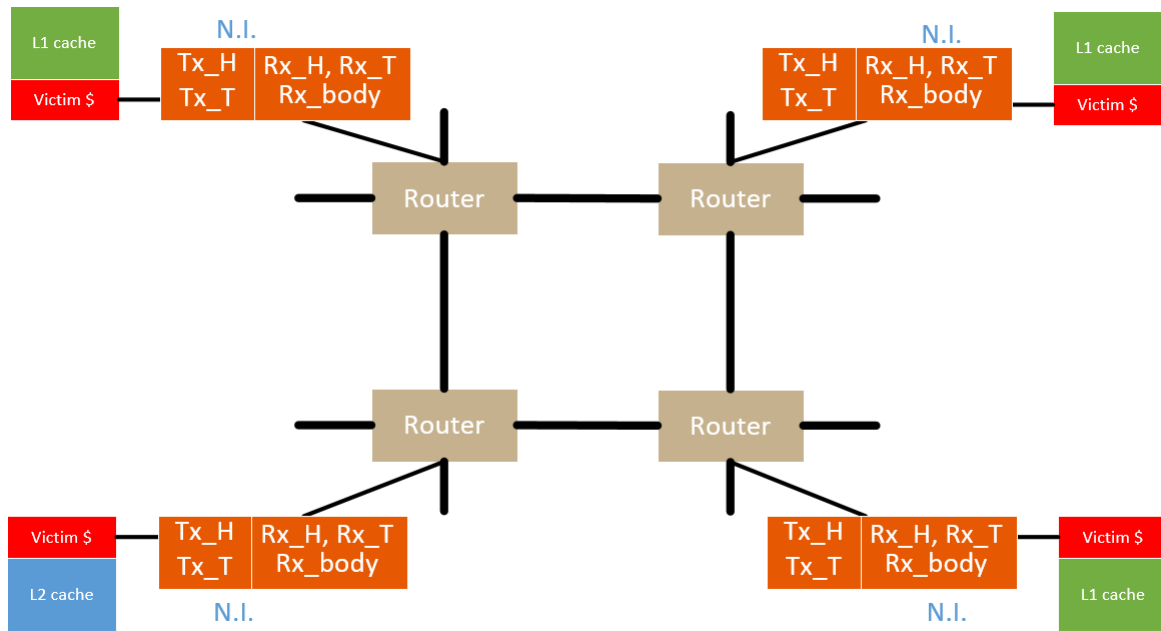

Figure 1. High-level Architecture

For this project, not only are we going to design the network interface and router, but also a new communication protocol between the cache and the network interface. We will not be changing the communication between the network interface and the router.

2 Progress so far

During the past two weeks we have completed the design and coding for a baseline network interface. We modified the cache using what we have previously designed in EECS470 to be compatible with input and output ports of the network interface. Most of the implementation of the router has been completed except sending a package to the network interface and designing the switch allocator. More tests on the network inferface and the cache need to be completed in the following week.

3 Issue

1. Cache coherence problem. For example, do we need to consider the data transmission from L1 to L1 cache?
2. Is there a way to remove receiving data buffer (Rx_body) coming from the router in the network interface?