Lab 4: Using IP and Ethernet
Assigned: Monday 10/23; Due **Monday 11/6** (midnight)

Instructor: James E. Stine, Jr.

1.   Introduction

Ethernet was developed at Xerox PARC between 1970s as a method to allow Alto computers to communicate with each other. It was inspired by the ALOHAnet, which Robert Metcalfe had studied as part of his PhD dissertation and was originally called the Alto Aloha Network. Just like many engineering advancements, Robert Metcalfe and his colleagues were in the right place at the right time in addition to trying an idea that is practical and easy to implement. I guess the adage is the rest is history. A really great YouTube video documenting the ideas of Ethernet can be found here `https://youtu.be/g5MezxMcRmk?si=UomwAQHmMgY6cvh4`.

Personally, I think the idea is quite efficient and straight forward, but it is so vital to today's society that I firmly believe its something you should know about. This laboratory will be about using Ethernet from some pre-built Hardware Descriptive Language (HDL) or sometimes called Intellectual Property (IP). In many digital areas, IP is essential to many products both commercially and in research that you have to just add it to your design and try it. This laboratory will be about that very idea – that is, to use specific IP and understand how to use it.

1.1   Ethernet Packets

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