BA-1112 (Online)
Advanced parsing and checksums in P4$_{16}$/TNA.
L3 Switching and Access Control Lists

Course Prospectus

BA-1112 is an introductory online, instructor-led course module that continues exploration of P416 in Tofino Native Architecture (TNA). This module builds on top of BA-1111 and concentrates on a couple of practical examples: building a 5-tuple ACL and performing L3 switching with header modifications. One of the course goals is to demonstrate how P4 program design affects its efficiency and readability. This course is recommended to anyone who wants to continue learning P4 language and is a required pre-requisite for other online courses.

BA-1112 is a part of [Barefoot Academy Online](#) course series.

Course Goals

Upon the completion of the course, the students will:

1. Formally learn most of the fundamental P4 constructs
2. Learn how to write complex parsers for IPv4 and related protocols
3. Understand the relationship between parser design and the packet processing algorithm
4. Learn how to verify and recompute IPv4 checksums
5. Learn several basic modularization and optimization techniques in P4

Target Audience

This course is most suitable for the data plane designers and architects as well as the engineers who plan to learn P4 programming in detail.

What is included?

The course fee includes the following:

- A 3-hour lecture (with short breaks) conducted online via Zoom (Zoom account associated with your work email address is required)
- Lecture and lab materials in PDF format (we highly recommend printing them before the start of the class)
- Two or five consecutive days of access to a personal, preconfigured lab VM (depending on the ticket)
- Online support by the instructor via a dedicated Slack channel

Pre-requisites

- General understanding of network and telecommunications architecture and protocols
- Understanding of the basic P4 principles and Barefoot Workflow (BA-1111)
- Knowledge of C and C++ languages, especially as it relates to embedded and NOS development
- Knowledge of Python language
- Experience in data or control plane design is extremely helpful
- Good and reliable Internet access for both online lectures and VM access is a must

Logistics

An event-specific link to ticket purchase site will be provided on both Barefoot Academy page as well as on Customer Portal and FASTER Forum. If you do not have an account on the Customer Portal or FASTER Forum, please contact Barefoot Sales representative first to get the password and establish an account.

To attend an online presentation, you will need to create a **free Zoom account, associated with your work email address**. Upon the registration, you will receive a link to the online event. You will also receive an invitation to establish a Slack account for lab support, also **associated with your work email address**.

A high-speed internet connection is required to attend the online presentation. Call-in numbers for higher voice quality might be provided, depending on the region. Please, connect to the online meeting 15 minutes before the start to work out all potential connection problems.

All necessary materials, including the presentation PDFs and lab exercises will be available through the Customer Portal or FASTER Forum a day before the start of the class. We highly recommend that you print the presentation PDFs and use them to take notes. Alternatively, these presentations can be loaded on a tablet, where the notes can be taken with an electronic pen.

The information about the lab Virtual Machines will be provided at the end of the lecture. VMs will be kept running for the next two or five days, depending on the ticket type. This time can be extended through a separate arrangement.

Contact

For more information, please contact academy@barefootnetworks.com.