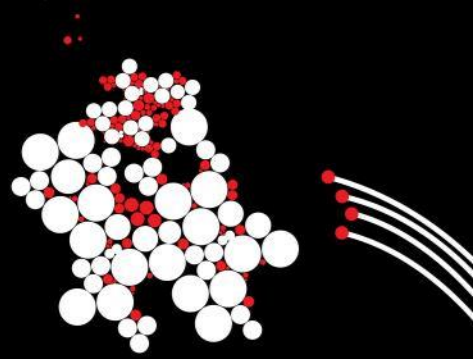
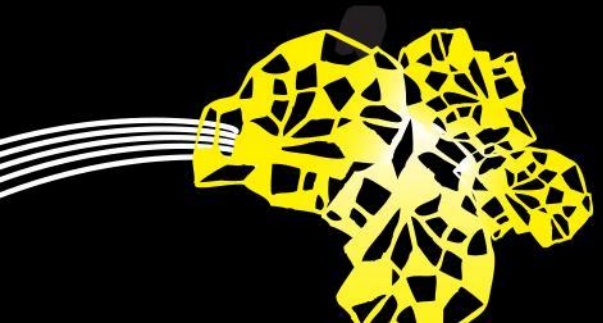
UNIVERSITY OF TWENTE.



P4 Lab

Advanced Networking

Rodrigo Bazo



P4 Lab

Teaching Assistant

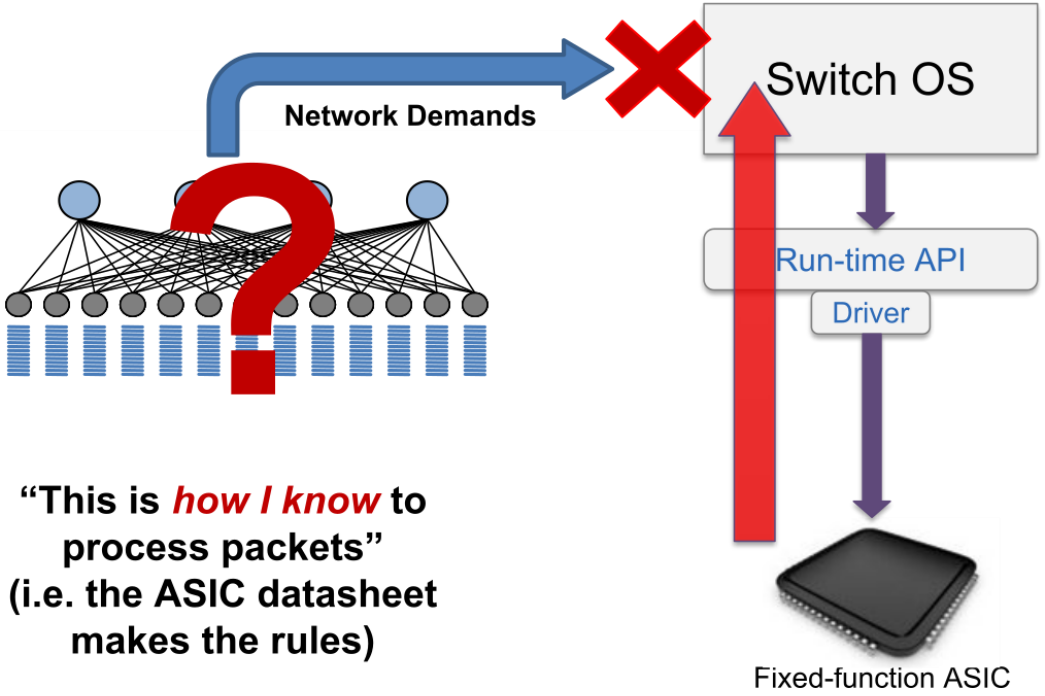
Rodrigo Bazo

r.bazo@utwente.nl

Overview

- Today: Short Introduction on P4 and Assignments
- 20th September: Extended Introduction and Lab Assignments

Introduction
Bottom-up



"This is *how I know* to process packets" (i.e. the ASIC datasheet makes the rules)

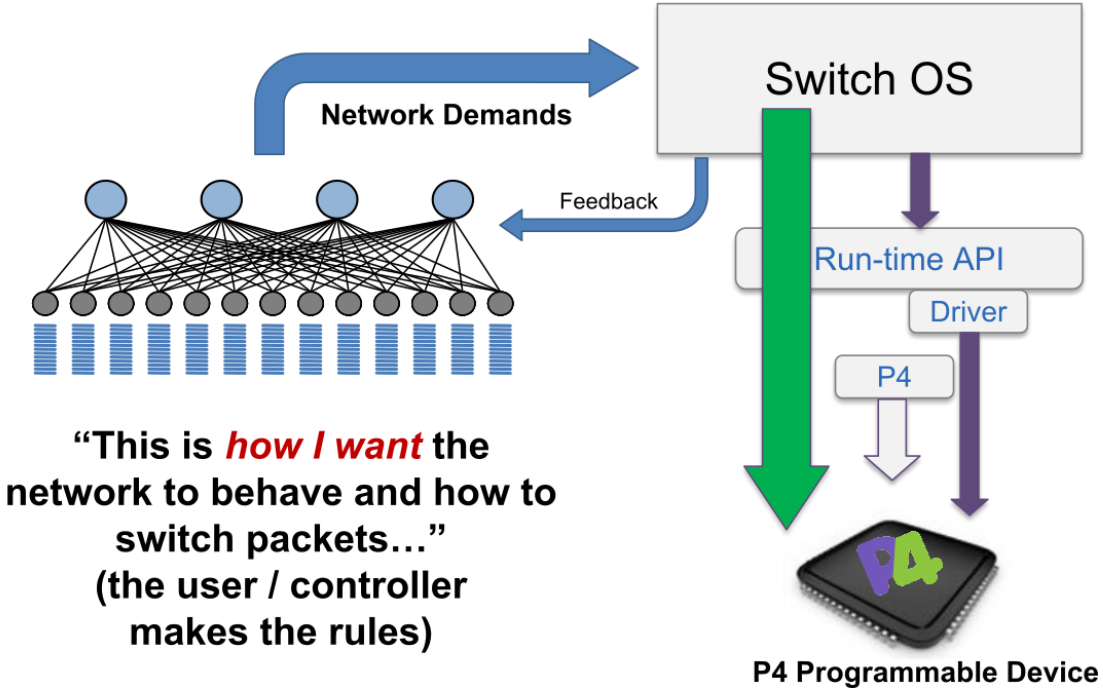
Introduction

What is P4?

- P4 stands for **P**rogramming **P**rotocol-Independent **P**acket **P**rocessor

- Target Independence (CPU, FPGA, etc.)
- Protocol Independence
- Reconfigurability

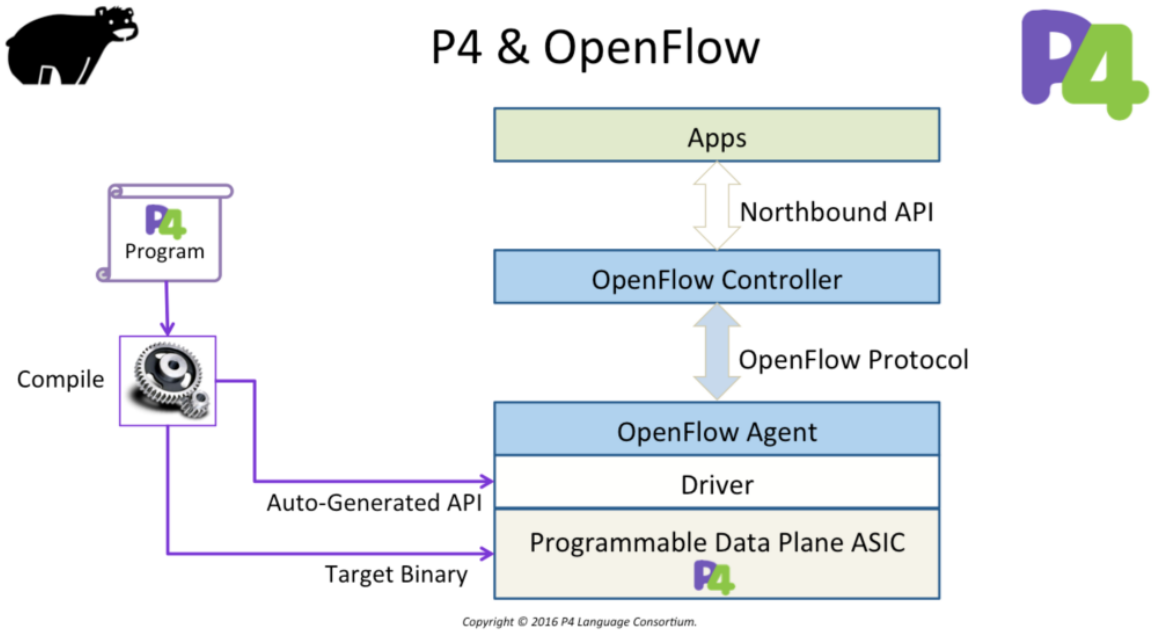
Introduction
Top-down



"This is *how I want* the network to behave and how to switch packets…" (the user / controller makes the rules)

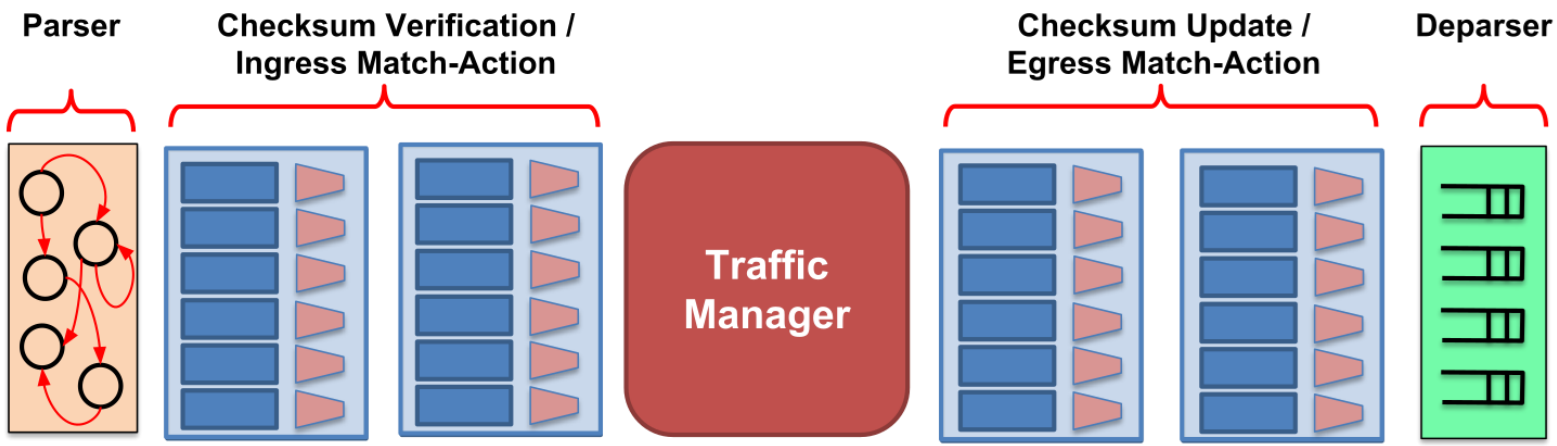
Architectural Overview

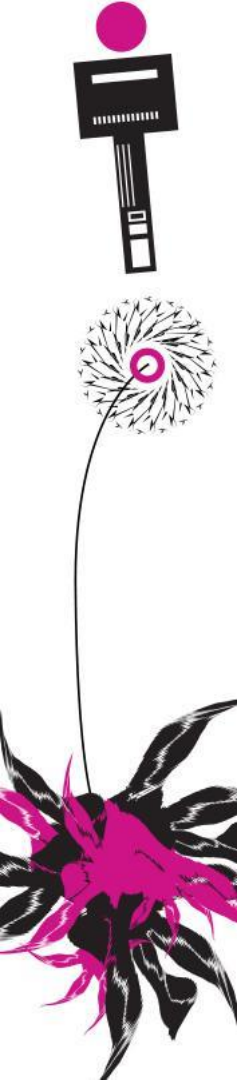
Control Plane & Data Plane



Architectural Overview

Stages



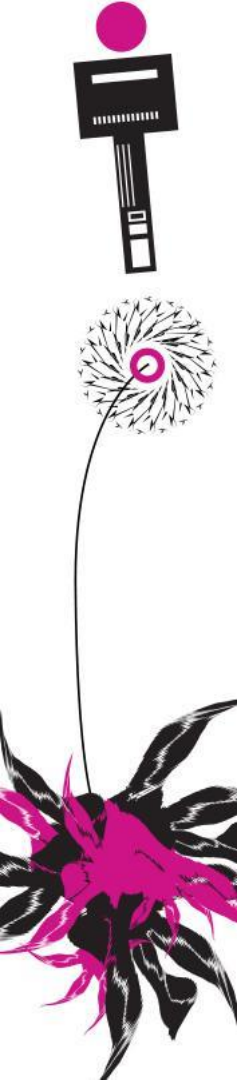


What can you do with P4?

Some cool functionalities

- Congestion control
- In-band Network Telemetry
- Fine-grained notifications of network events
- Network-wide Advertisement “Management”

- And much more



P4 lab assignment

BMV2 Switch

- For the ANET labs, we will use a software switch to code with P4
  - https://github.com/p4lang/behavioral-model

P4 lab assignment

BMV2 Switch

- Virtual Machine with necessary tools on Canvas
- OS: Ubuntu 18.04

Lab Assignments

- Four assignments: Manipulate packets according to the specification
  - Assignment grading: Pass/Fail

Lab Assignments

Sessions

- 20th September: Extended Introduction to P4 and Assignments
- 11th October: P4 lab session 1
- 25th October: P4 lab session 2