IK2220 SDN & NFV
Introduction

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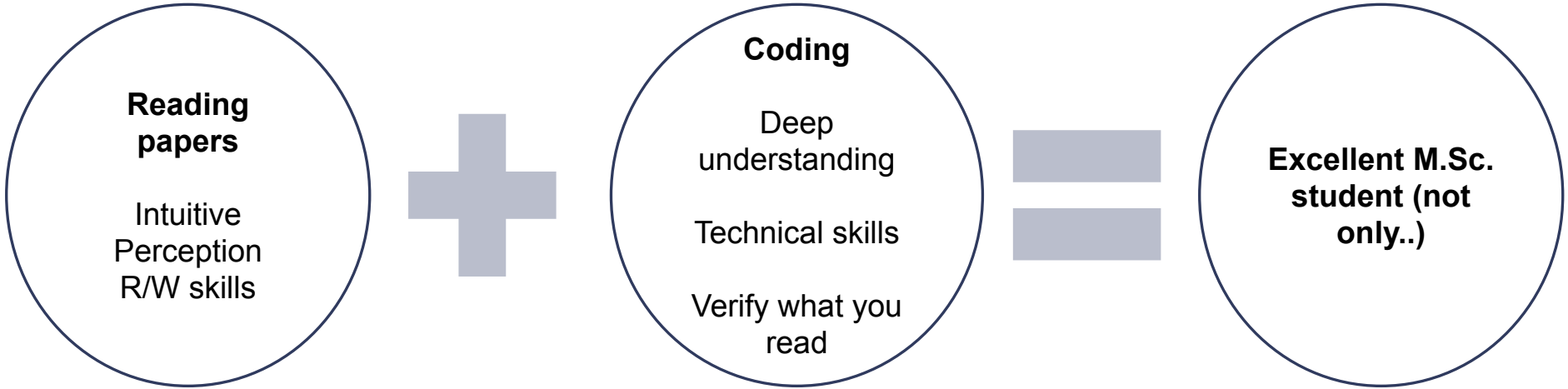
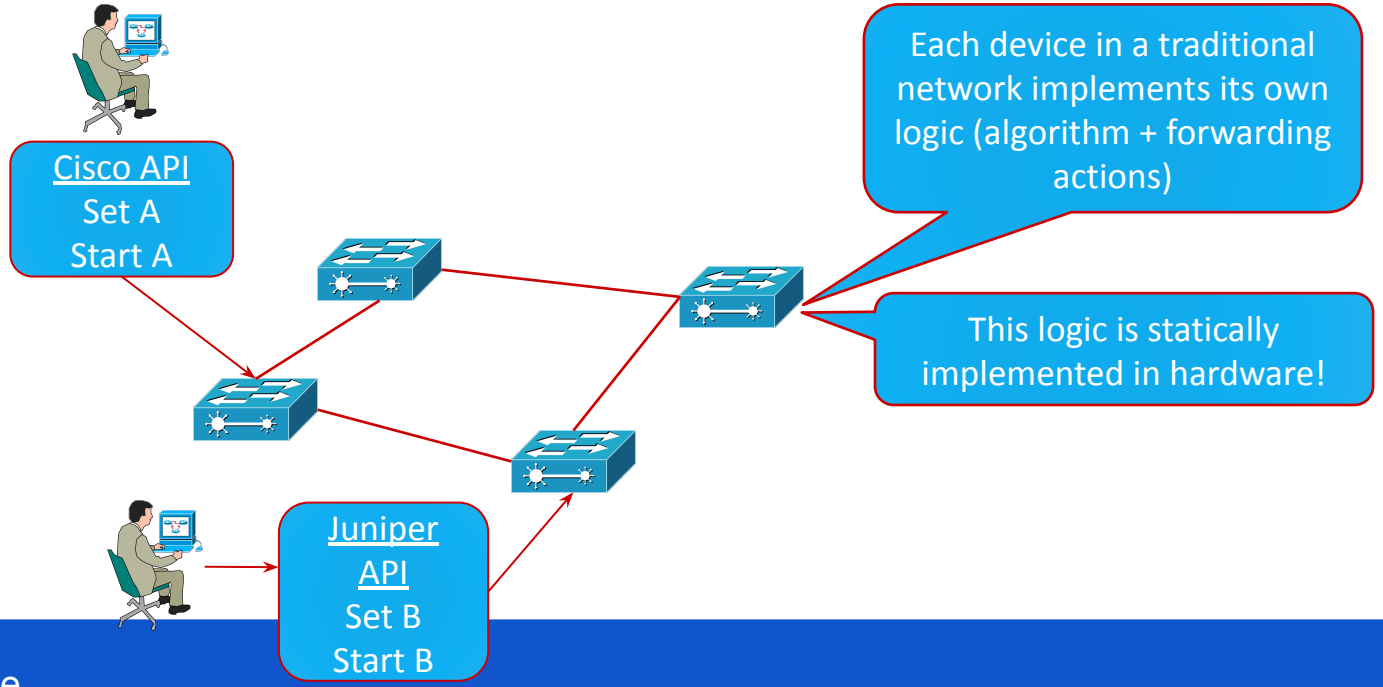
Introduction



SDN in a Nutshell

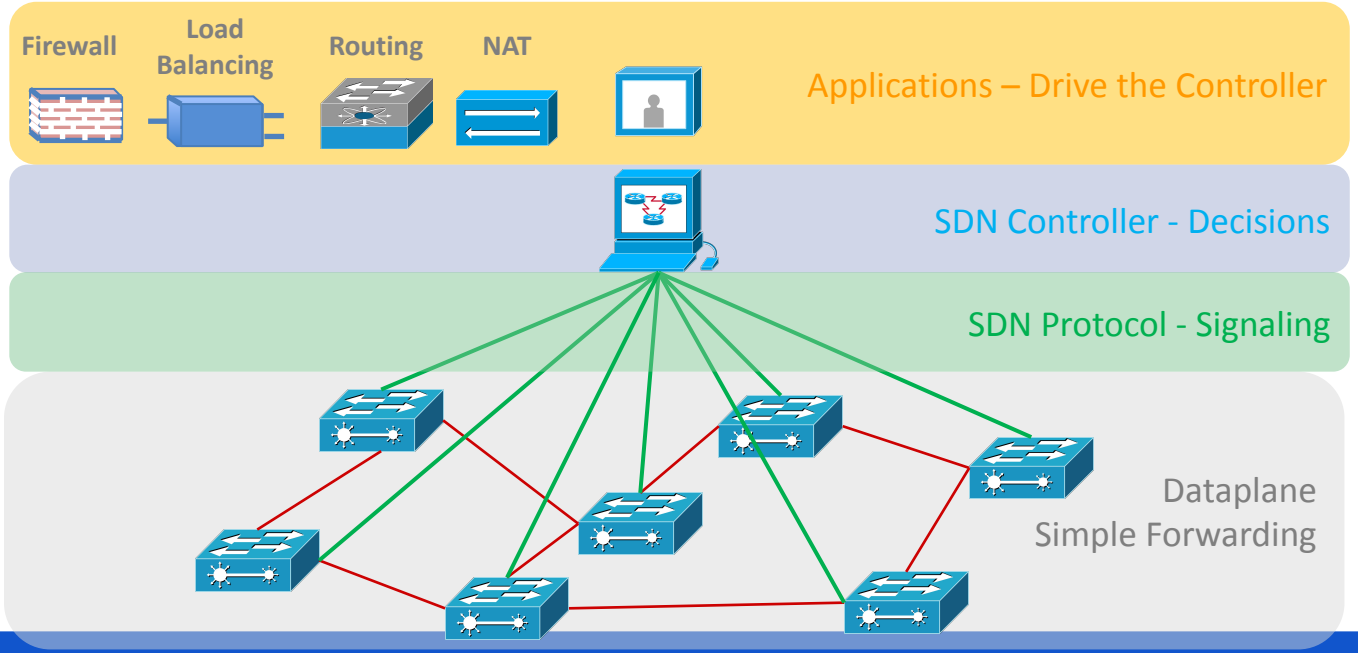
Traditional Network Management



Modern Network Management

Software Defined Networking

- Keep the switch simple.
- Separate control from data plane.
- Controller and switches communicate over a protocol (e.g., OpenFlow).
- Controller makes the decisions.
- Switches install the rules dictated by the controller.



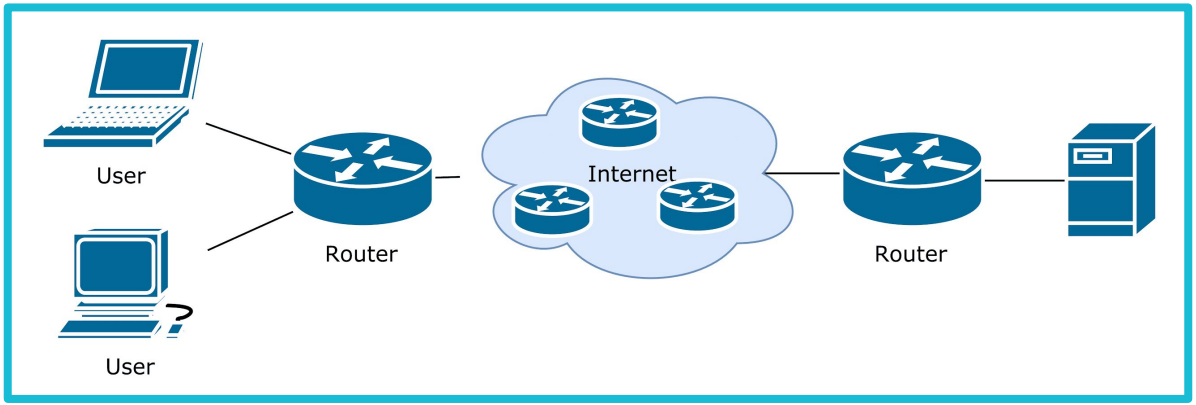
Assignment - Phase I

- Become familiar with SDN
  - Write your own dataplane topology and SDN controller.
- Learn useful tools
  - Mininet, OpenVSwitch, POX Controller, Wireshark, tcpdump, and iperf.
- Deadline: 18th April

NFV in a Nutshell

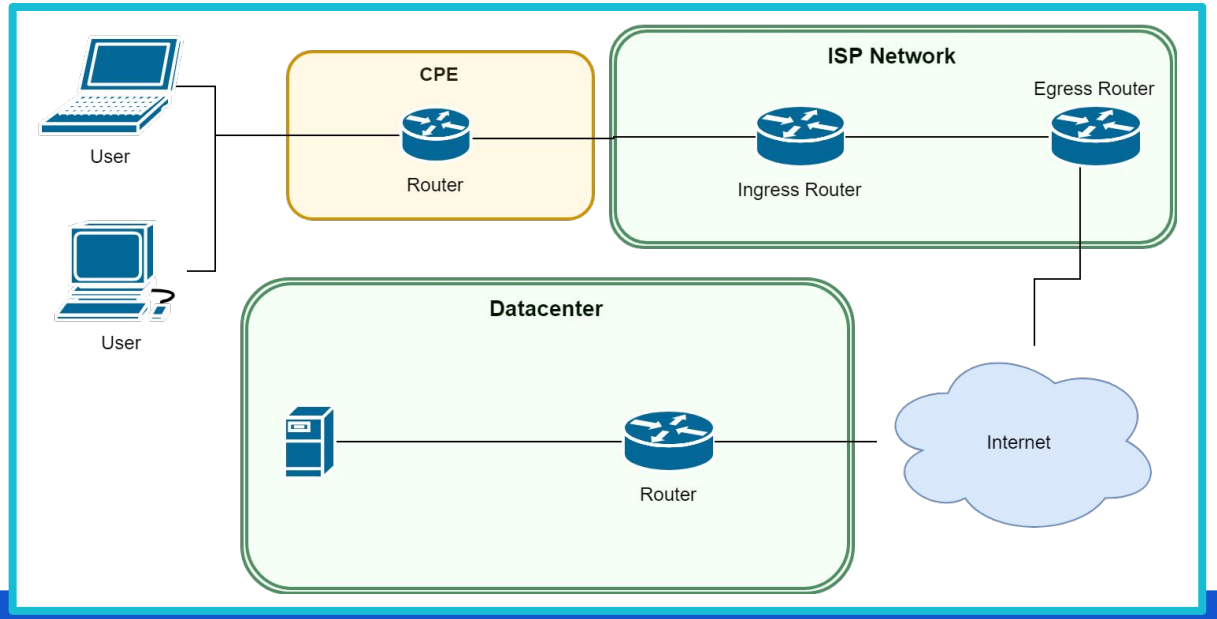
The Internet

- Computers interconnected by router and switches



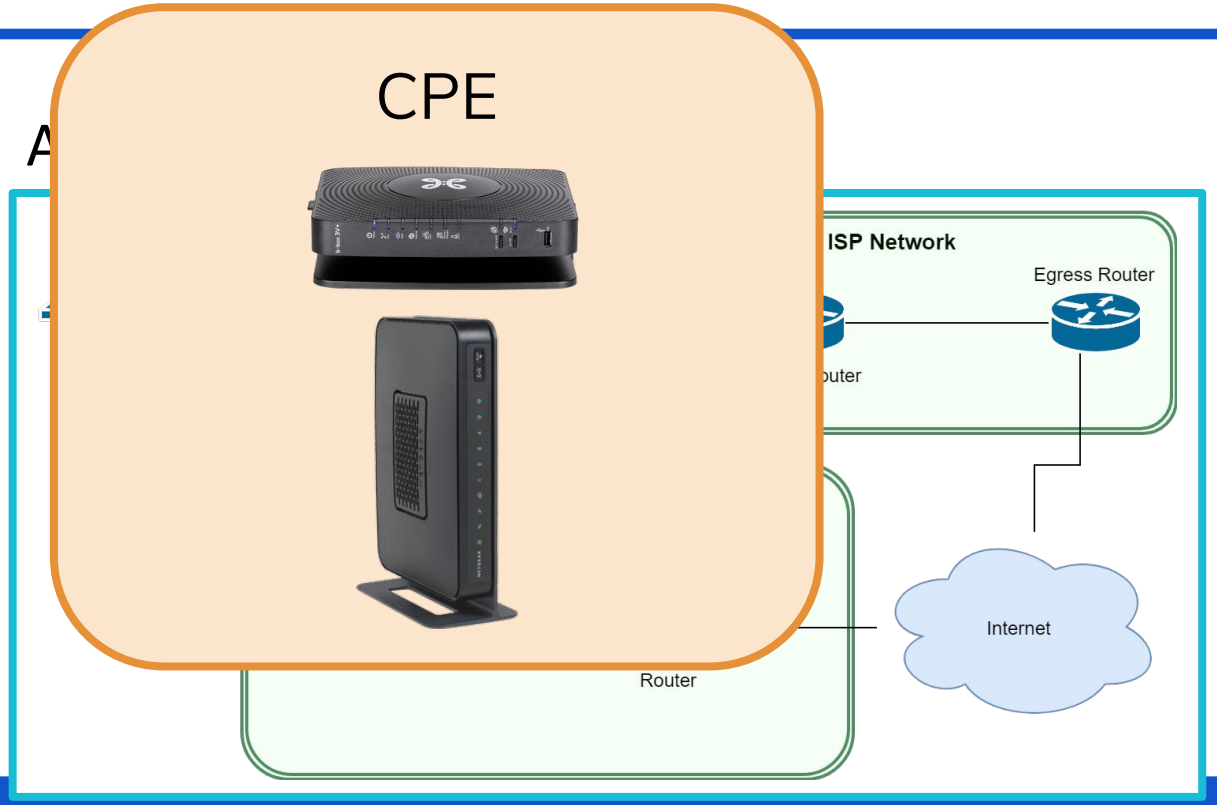
The Internet

- At different places...



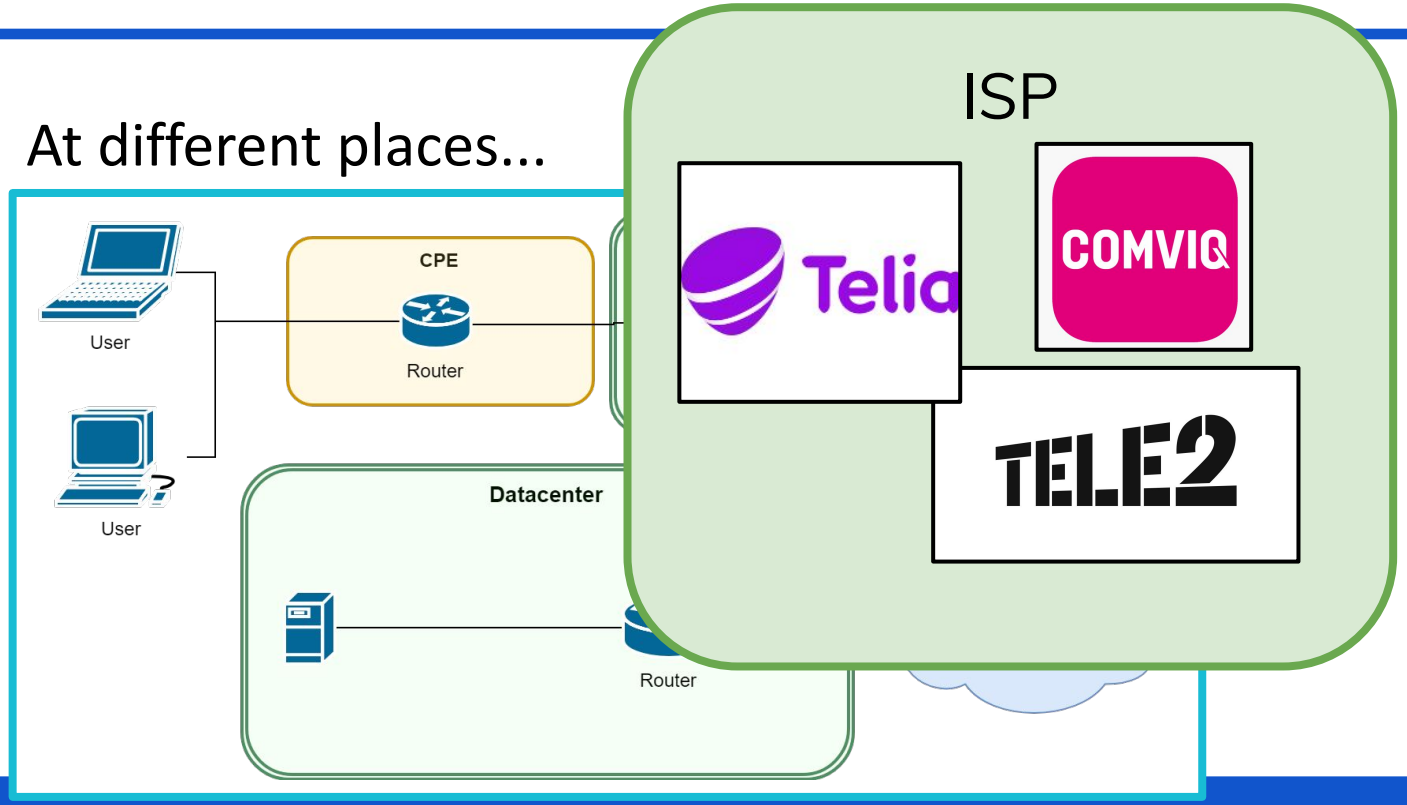
The Internet

- A



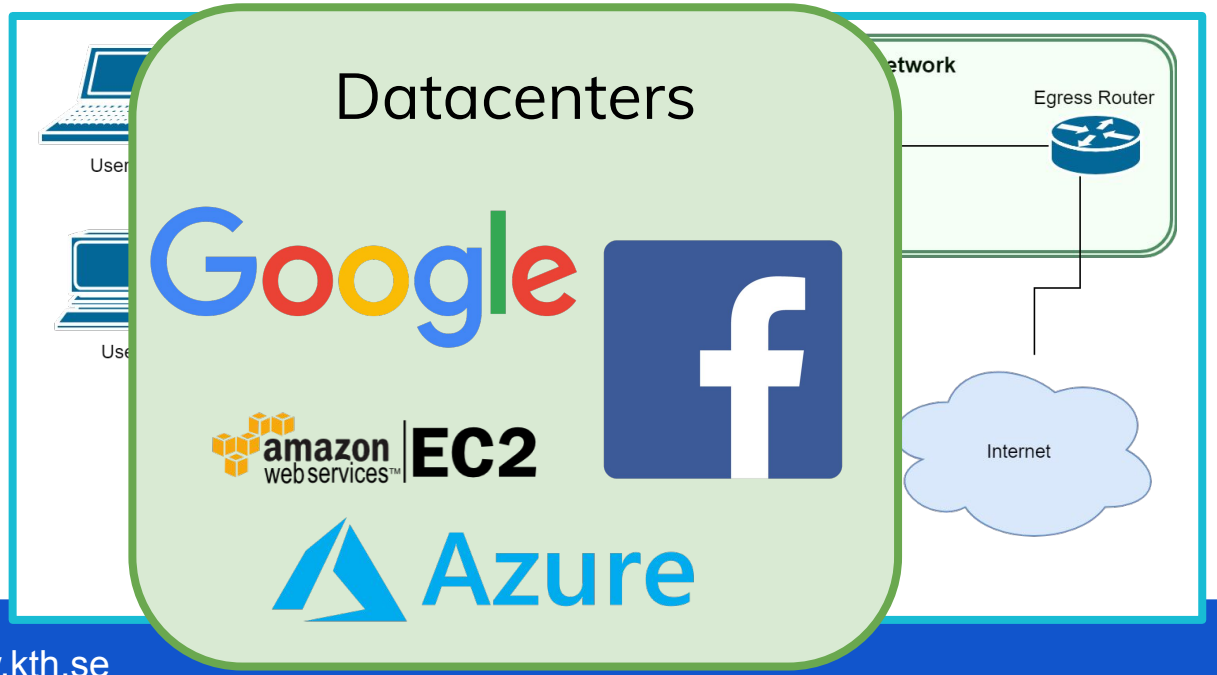
The Internet

- At different places...



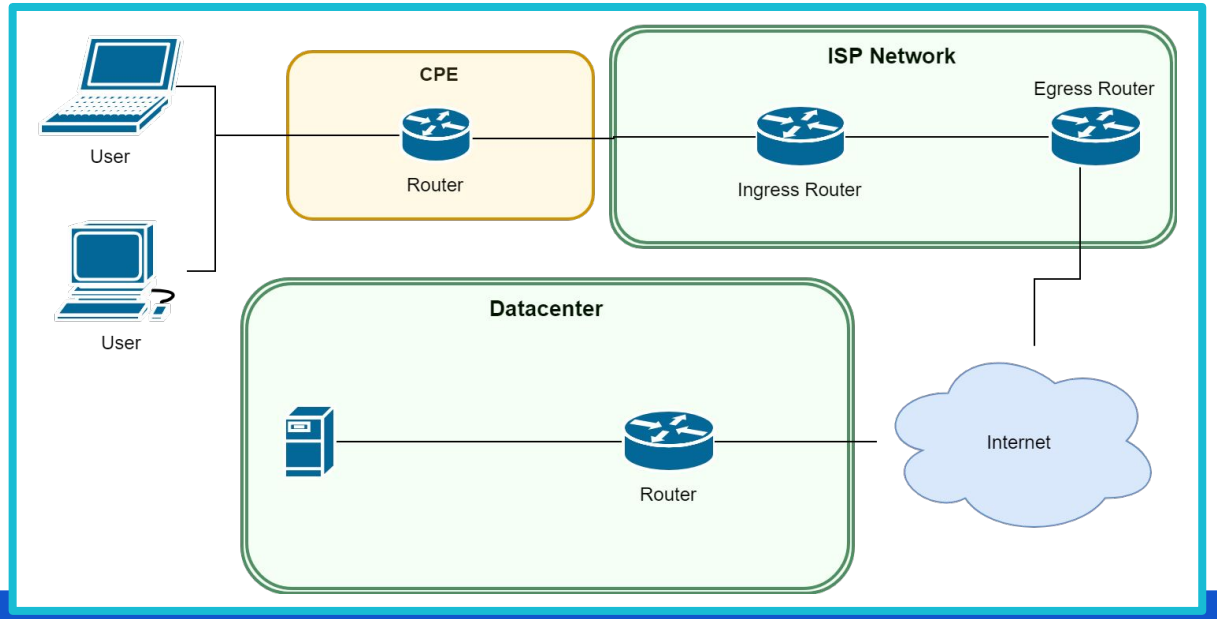
The Internet

- At different places...



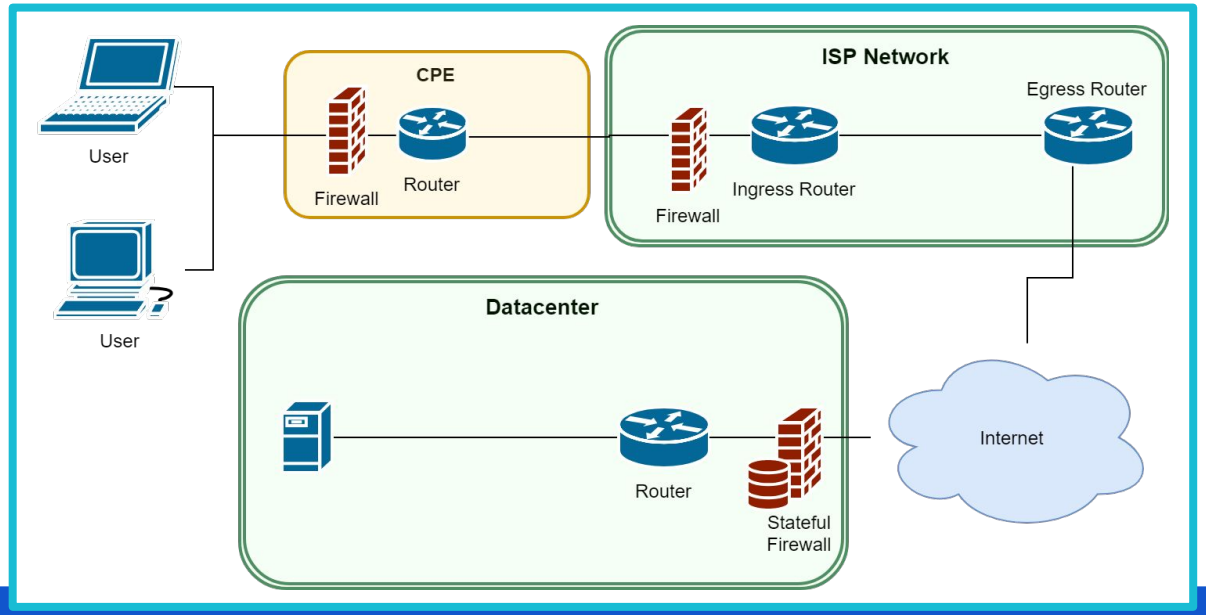
The Internet

- Only router and switches?



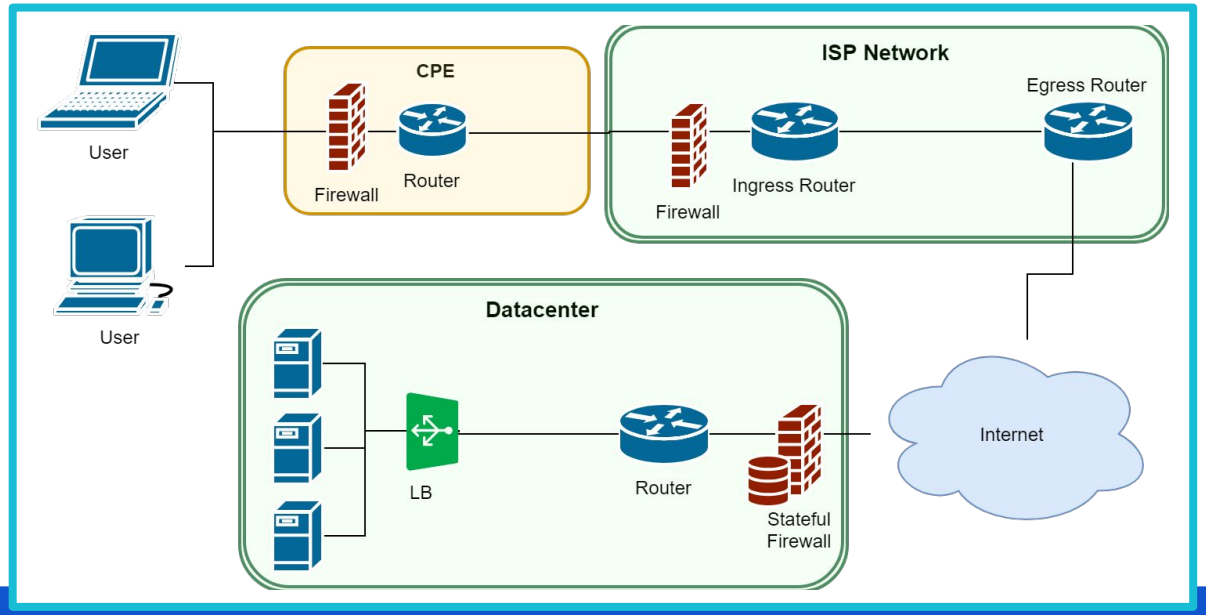
The Internet

- Also firewalls...



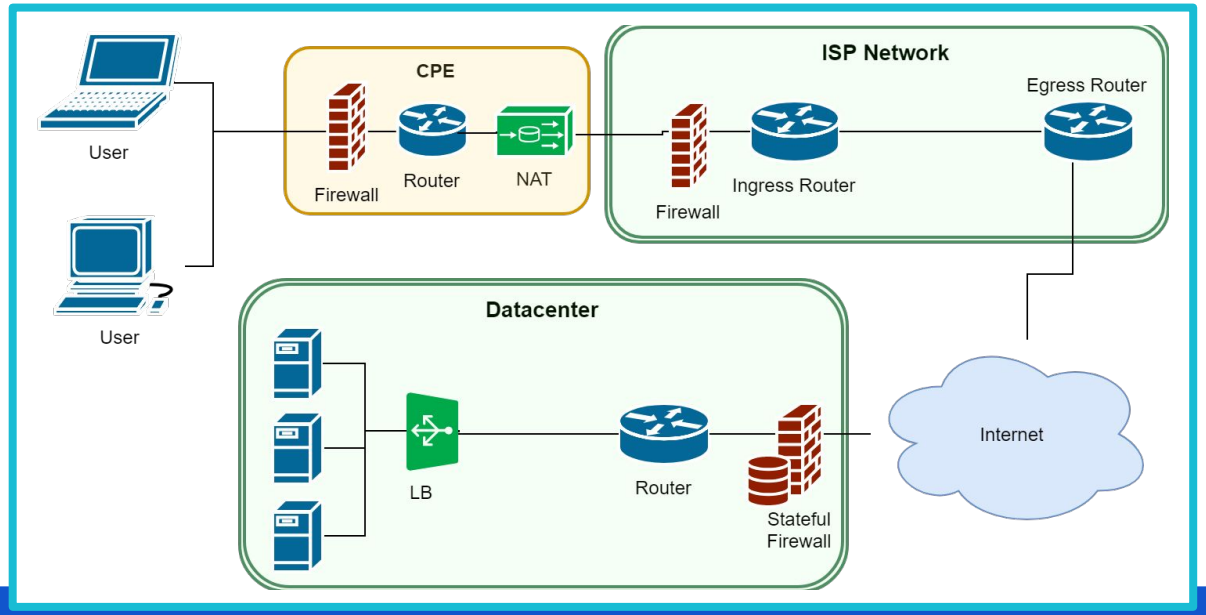
The Internet

- Also load balancers...



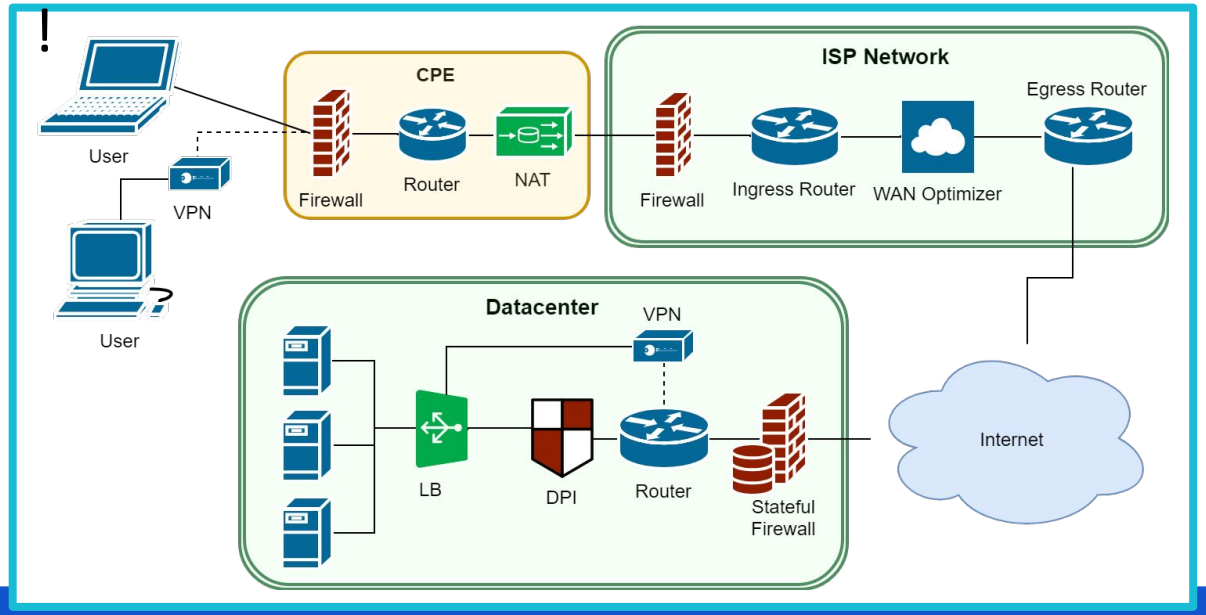
The Internet

- Also NATs...

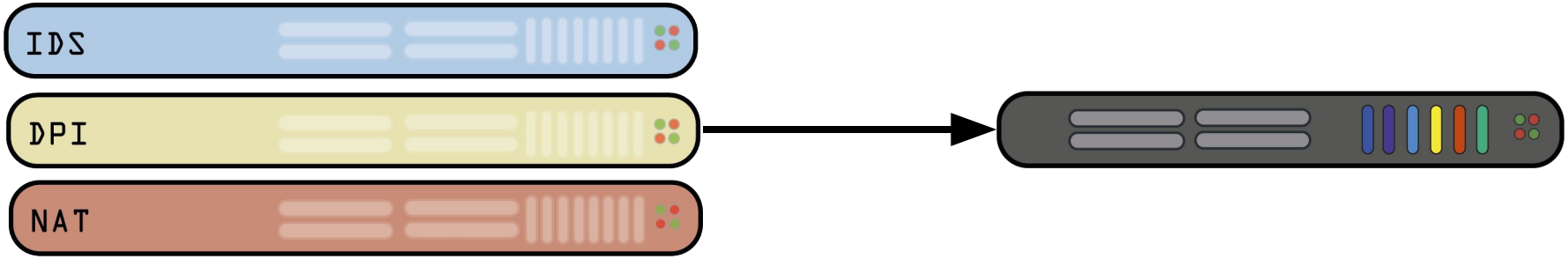


The Internet

- [Sherry12] ⅓ of network equipments are MiddleBoxes !



Network Function Virtualization

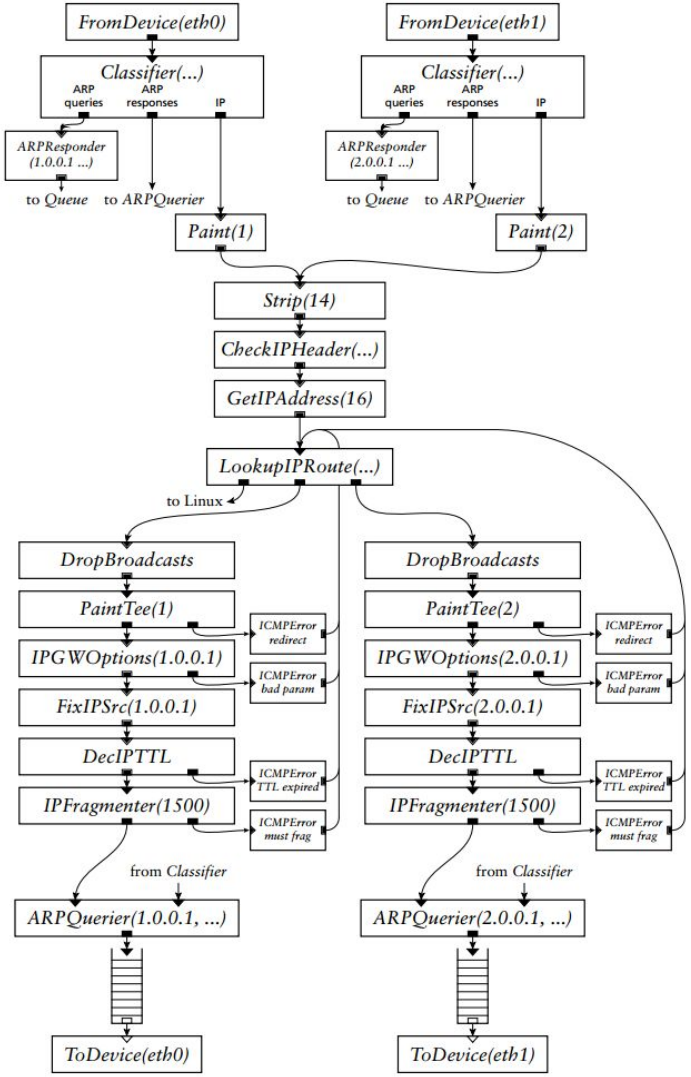


Specialized, inflexible, expensive boxes

General purpose software

The Click Modular Router

- NFV router only at first
- Many more functions over the last decades



Assignment - Phase II

- Become familiar with NFV
  - Implement basic network functions.
- Learn
  - About Click.
  - How the OS networking stack works.

- Deadline: 23th May

Ready?
Make groups of up to 4 students
Until next week (31th March)

Thank you!