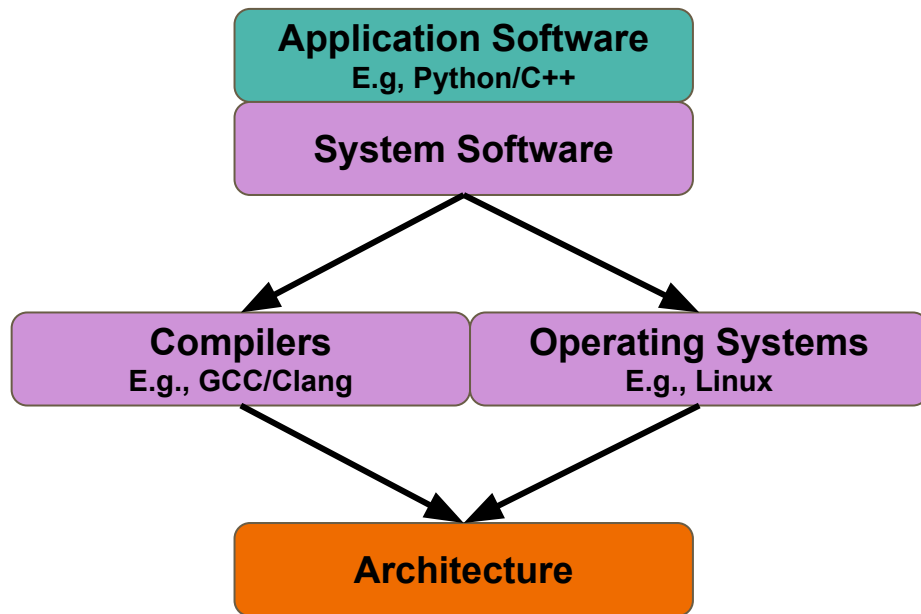# Bits of Architecture

The System Software Abstraction

How High-Level Software is Abstracted from Hardware

Applications Rely on System Software

- What do we rely on compilers for?
    - Translation of high-level code to low-level executables
    - Optimizing applications

- What do we rely on operating systems for?
    - Managing hardware resources
        - Memory
        - I/O
    - Managing resource sharing/security

Some Terminology...

Some Terminology

- **Compiler Driver**
    - A program that coordinates/drives the creation of an executable
    - Often referred to as a "compiler"
- **Assembly**
    - Symbolic representation of machine instructions
- **Machine Code**
    - Binary representation of instructions

How We Generate Executables
The GCC/C++ Edition

How We Generated Executables (GCC/C++)