6.033 Spring 2017
Lecture #26
The Importance of Policy
or
Miscellaneous topics that you should know about and that we couldn’t fit into the syllabus this semester.
net neutrality

2015 FCC ruling prohibits three things:

1. Blocking
   ISPs can’t block access to legal content, applications, services, or non-harmful devices

2. Throttling
   ISPs can’t impair or degrade traffic on the basis of content, applications, services, or non-harmful devices

3. Paid prioritization
   ISPs cannot favorite some lawful traffic over other lawful traffic in exchange for “consideration of any kind”

ISP can regulate the flow of traffic to and from directly connected networks

(Comcast can charge you more money for a faster connection to their network)
compilers: can we trust them?

```c
int main() {
    x++;
    ...
}
```

C Compiler source code

C Compiler machine code

Program machine code

011001101001
compilers: can we trust them?
compilers: can we trust them?

UNIX source code → C Compiler machine code → UNIX machine code
compilers: can we trust them?

This backdoor is easily discovered in the hacked UNIX source code.
compilers: can we trust them?

The hacked C compiler has code that *inserts* a backdoor into UNIX

This backdoor *does not exist* in the UNIX source…
compilers: can we trust them?

The hacked C compiler has code that inserts a backdoor into UNIX

This backdoor *does not exist* in the UNIX source... but it does exist in the hacked C Compiler source
compilers: can we trust them?

The hacked C compiler has code that *inserts* a backdoor into UNIX

What if I just lie, and tell you that the hacked C compiler was generated from the clean C compiler source? Can you check?
The hacked C compiler has code that inserts a backdoor into UNIX.
compilers: can we trust them?

The hacked C compiler has code that inserts a backdoor into UNIX.

What if I just lie, and tell you that the hacked C compiler was generated from the clean C compiler source? Can you check?

Yes. By recompiling the compiler, and then compiling the UNIX source.
compilers: can we trust them?

The hacked v. 2 C compiler has code that *inserts* a backdoor into UNIX and code to insert backdoor-inserting code into C compilers.
The hacked C compiler has code that inserts a backdoor into UNIX and code to insert backdoor-inserting code into C compilers.
where to go from here

6.828 - Operating Systems
6.829 - Computer Networks
6.830/6.814 - Database Systems

6.858 - Computer Systems Security
6.857 - Network and Computer Security
6.875 - Cryptography and Cryptanalysis
6.892 - Shared Public Ledgers

6.824 - Distributed Systems
6.826 - Principles of Computer Systems
6.852 - Distributed Algorithms

6.903 - Intellectual Property
6.904 - Ethics for Engineers