

class and last lecture traditionally we bringing a guest lecturer to tell us of their perspective on complex systems and it is with great pleasure to welcome Hal Albelson. A professor here at MIT for many years, some of you might have already taken classes from him. What he is going to talk about is a topic we've touched upon, but not in particular detail, in the first two

lectures. In particular the attraction of technology and complex systems with law and social issues. Ok, thanks. Okay hi. Hari asked me to talk about complex systems, which is kind of what you've been studying all semester.

Today I want to give you of a hint of another kind of complexity. You have been doing the technical infrastructure for essentially what has become the information age. But the information age has just changed the world immensely over the last 20 years and has run smack into another kind of complexity.

And that is the complexity of how the stuff that we have all built as computer scientists and engineers has created these enormous stressors in the way people think about the legal structures and the regulatory structures, the way people deal with the world.

And [UNINTELLIGIBLE PHRASE], but in order [to make use of that?] you have to understand that suddenly you're dealing with the real world.

It's not just problem sets or it's not just little theoretical issues of [protocol or authorization?].

It is real impact on people's lives.

And you run into people who think differently.

And, in particular, you are going to have to learn to think about how lawmakers and the law and lots of other institutions deal with this.

This lecture, if you like, is partly a bit of an advertisement for 6.805 which, of course, I teach in the fall.

And what 6.805 really is about is empowering you.

What you have to understand is [UNINTELLIGIBLE PHRASE] courses you take like 6.033, you now know more about the information architecture that makes the world work.

And the most miniscule part of humanity.

And that can be a way to have impact, but only if you understand how that impacts the regulatory structure.

Just to give you a tiny example, about two weeks ago the MBTA put out for comments, their new privacy policy which was stimulated by the fact that the MBTA is planning on instituting a new fare system that uses our FID tokens.

And one of the things that went into that policy is a whole bunch of criticism by a student project team in 6.805 last fall who worked with the state senator who was getting on the MBTA's case about not having adequate privacy regulations.

So this bunch of MIT students essentially wrote the privacy regulations that are now being sent out to the public in the State of Massachusetts.

That's a tiny example of the kind of thing that you are now prepared to do better than almost anybody else in the world.

What I am going to talk about today is how these new architectures, the ones you've been studying, as you've already seen, what happens when you have a big complex architecture, you have to think about interactions of protocols and their standards and their enormous unintended consequences of things fitting together.

That's what you've been doing, for lots of the semester, is using understanding that.

But today I want to talk a little bit about how the same thing happens with the legal architecture.

There are protocols, there are standards and there are enormous, enormous unintended consequences of people working on different parts of a complex system.

Well, I am not going to talk about privacy today.

That is a thing that the fall course does.

Today I want to talk about regulating speech, you know, speech, images, sounds, the way that society thinks about that and sort of the mess that the Internet has created around that.

And so we can take like the simplest picture.

There is the Internet and there is a source some place and there is a destination some place and then there is this cloud that is the Internet that they are communicating with.

And that is the stupidest simplest picture.

You guys know infinitely more about this picture.

Just to unpeel the very first level of that.

You know that both the source and destination are probably connected to the Net using an Internet service provider.

And then, of course, inside that cloud that is all sorts of stuff.

There are Cisco switched and hubs and phone companies and all sorts of things translating.

You can fill out the complexity of that picture right now, but let's stay even at the simple one.

Suppose something is happening there that somebody doesn't like.

Somebody is downloading copyrighted music or something and the recording industry hates that.

Somebody is sending threatening letters to somebody else.

Somebody is doing gambling at a place where you're not supposed to gamble.

Something that somebody doesn't like.

And let's think about we, society, would like to figure out how you can stop that or make it happen less by imposing regulation.

And the question is in any of these transactions there are all sorts of places that you can impose regulation.

You can go to the source and you can say, hey, stop sending that pornography.

You could go to the destination and you would say, hey, stop pulling down that copyrighted music.

You could go to the ISPs.

I am sure nobody here has ever downloaded copyrighted music over the Internet.

But you can imagine the [RA?] going to MIT and saying, hey, MIT, you are the ISP for this connection, you put a stop to it.

You can even imagine somebody going to the cloud.

You can imagine congress passing a regulation, or maybe you can imagine it, but unfortunately a lot of congress can imagine passing a regulation that says something like, hey, let's change those Cisco routers so that they won't

pass along copyrighted information without permission.

And everybody here, hopefully you are shrinking in horror because you know about things like the end-to-end principle, and you say oh, my God, that violates the end-to-to principle in a horrible, horrible way.

But you don't think people in congress know about the end-to-end principle.

They need people like you guys to explain it to them.

That is the kind of thing that you can become empowered to do.

Within that context, let's think about controlling what people can say and how people can express themselves in words or music or images or whatever.

Somebody comes down and says, hey, stop doing that, you really shouldn't post that thing, it is bugging somebody to hell.

And you say oh, no, because I've got freedom of speech.

Let's look at freedom of speech.

Where does freedom of speech come from in this country?

The First Amendment.

This country has the First Amendment.

Congress shall make no law respecting the establishment of religion, or abridging the freedom of speech, dot, dot, dot, dot, dot, dot.

So let's spend a little bit thinking about that.

What does it mean when it says congress shall make no law?

Who is Congress?

Congress is congress.

Who else is restricted by the First Amendment?

Is the State of Massachusetts congress?

When the State of Massachusetts passes a law that says you may not post this certain kind of information, you may not post harassing information on the Internet, well, let me be more precise, could they do it within the confines of the First Amendment?

We know that congress is congress.

How about the State of Massachusetts, are they congress?

It actually turns out the State of Massachusetts is congress for the First Amendment.

The Constitution is the law of the land.

The Constitution says what it says.

It says congress cannot do it.

And the Supreme Court has interpreted congress to mean the State of Massachusetts.

How about if the City of Cambridge passes a law that says you cannot send these kinds of things?

Well, it turns out the City of Cambridge is, too.

It turns out the First Amendment covers most governmental things in the US.

How about MIT?

Could MIT, for example, have a rule that says that?

Can there be an MIT regulation that says that?

How many people think there could be?

And, by could, I mean without violating the Constitution.

How many people think MIT could do that?

How many people think MIT cannot?

You go and take them to court and say it is unconstitutional.

How about UMass Boston?

Could UMass Boston have a regulation like that without violating the First Amendment?

What do you think?

How many people think it could?

How many people think it couldn't?

How many people have no idea?

Well, sort of have no idea is the right answer.

But it kind of turns out that this language actually comes exactly from a policy at the University of Michigan ten years ago which was struck down by the court.

That was, whatever we call these things, harassment policy or something.

That was actually struck down by the court.

And what the judge said was, look, this might be a good idea and we might like it, but in this country government institutions like by extension of the State of Michigan and the University of Michigan are constrained by the First Amendment.

MIT is not.

We can argue whether or not it is a good idea, but it is not unconstitutional for MIT to do that.

Now, you might ask do you guys have less solid guarantees of freedom of speech than students at UMass Boston?

Well, yeah, probably.

There are lots of things that congress, and by the extension of congress, cannot prohibit.

But what are some things that congress can prohibit?

What are some kinds of speech or images or things that you actually can have laws against?

What do you think?

Are there any limits to this at all?

What do you think?

Is there any kind of thing that you have limits?

This is about speech.

This is not about actions.

Are there kinds of speech or images of things?

Child pornography.

We cannot actually possess child pornography in this country.

We will get back to that in a second.

Anything that can be defined as interstate commerce?

No, that just means you cannot reregulate it.

I am asking what are some examples of stuff you cannot post on the Internet.

Libel or slander.

There is a whole bit of that copyright infringement we talk about.

How about pornography?

You get in trouble for posting pornography on the Internet.

Can that be prohibited under state law?

It turns out it depends what you mean by pornography.

In fact, if we sort of elevate up from pornography to what is normally called, you know, pornography is bad, but really bad.

The word for really bad in US law is obscenity.

And it turns out, well, let's see if you know.

Do you think there is a legal definition of obscenity or is it like hey, it is really bad stuff?

How many think there is a formal legal definition when the court looks at something and says it is obscene?

And how many think it is like really bad stuff?

The first people are right.

There actually is, in this country, a legal definition of obscenity which was established in a case called Miller v.

California in the `70s. And it says this is the definition of obscenity according to the law.

It is called the Miller Test.

It says something is obscene if it satisfied all of the following three things.

A three have to be true.

The first one is that it depicts sexual activity in a patently offensive way.

So like it is not an anatomy book.

That is sort about what the stuff is.

The second one is how people react to it.

It is a very interesting test.

It says would the average person applying contemporary community standards find that that appeals to the prurient interest?

It is sort of saying it is not the extreme guys that are really sensitive and it is not the guys who will just tolerate everything.

It is the average person applying contemporary community standards.

And then the third one is, what people used to say, utterly devoid of any scientific, literary, artistic or political value.

That is sometimes called the Slap Test in law.

So there is a thing called obscenity.

And, according to the law, the Supreme Court, actually in the Miller case, found it constitutional for there to be laws against transmitting obscene material, and somebody said it, before interstate commerce.

So interstate commerce is not prohibited but it is the hook by which you can prohibit something.

So it is 1994 and Robert and Carlene Thomas have a cute little family business in Milpitas, California.

And what they do is run a thing called the Amateur Action Bulletin Board system.

Back before we had Internet and ISPs, people had these bulletin boards you would dial up.

They ran the Amateur Action Bulletin Board system.

And they distributed from that, well, stuff that you wouldn't show around in polite company.

In fact, their logo was we are the nastiest place on earth in 1994. Well, two years ago, 1992, they got raided by the Milpitas police who said, God, you've got all this smut around.

We are going to close you down.

They protested.

The police looked at it and said, well, it is bad stuff but it is not obscene by the standards of Milpitas, California, we will leave you alone.

Now we are back in 1994. There is a knock on the door and in come the Milpitas police accompanied by the US Postal Inspectors.

And Robert and Carlene are accused of transmitting obscene material using a means of interstate communication, namely a computer and a modem and a phone line, to transmit obscene materials interstate.

And they are accused of transmitting them interstate to David Deremer.

Who is David Deremer?

They don't know who this guy is.

It turns out that David Deremer is a postal inspector in Memphis, Tennessee.

And he gets a complaint from somebody in Western, Tennessee saying there is this awful smut on the Internet, can't the US Postal Authority do anything about it?

He takes his computer and dials up Welcome to Amateur Action Bulletin Board, the nastiest place on earth, and here are some titillating little pieces of stuff that you can get from us.

But, if you really want the good stuff, send in \$55, register and join.

He sends in his phone number, addressed and an assumed name with his \$55. A couple days later he gets a call from Robert Thomas saying hi, thanks for your \$55 bucks.

Here is your password, good to town, have fun, welcome to the nastiest place on earth.

So he downloads some stuff and then files a complaint against them because of this transmission of this material interstate from Milpitas, California to Memphis, Tennessee.

The police come, they arrest the Thomas's, they impound all their stuff and go on trial before a jury in Memphis, Tennessee which convicts them of transmitting material that is obscene by the community standards of Memphis, Tennessee, which are different from the community standards of Milpitas, California.

So what do you think of that?

Do you think that is OK?

[UNINTELLIGIBLE PHRASE] Is Thomas in Tennessee or is he in California, that is the question.

They appeal their conviction and they lose.

And the judge basically says, well, I don't quite want to decide this, but notice dum dum that you had the guy's phone number so you knew where he was when you called him.

So you should have been aware that this stuff was going to Memphis, Tennessee.

Three years in jail under that.

Let's move away from pornography or obscenity for a minute.

Here is another thing that is illegal.

It is illegal to traffic in that stuff.

It is illegal to traffic in that stuff, that is Hitler's something birthday commemorative stamp, in France.

It is OK in the US, but in France it is illegal to traffic a Nazi memorabilia.

And in 2000, this is on the Yahoo Auction, actually this page isn't up anymore, some folks in France filed a lawsuit against Yahoo for allowing people in France to connect to Yahoo in the US and order Nazi memorabilia.

You might want to compare that with the Amateur Action Case, but that case is still going on.

It has gone back and forth.

It is widely complicated because it involves international law and French courts and US courts.

It is still going on since 2000. There is an article that came out two weeks ago that talks about this case being argued in front of the Ninth Circuit in California.

Enormously complex stuff because what does this stuff mean in a world where distance is meaningless?

I mean you guys know there are McDonald's in Missouri where you drive up to this window and you put in your order and there is a camera and you say what your order is.

And then you drive around and you pick up your stuff at the kitchen.

There are McDonald's in Missouri where that transaction from you ordering it goes to a McDonald's call center in Colorado which pieces the thing together, sends it back to the kitchen at the McDonald's you are at in Missouri.

And, by the time you drive around the McDonald's to pick this thing up, your order is ready.

And, because this call center in Colorado does a whole bunch of them and has people who are trained, it is cheaper for McDonald's and faster to route this transaction from Missouri to Colorado in the time you are driving around the building than it would be if they ran the thing through the kitchen.

You have to ask, in a world like that, that's the world that we are all making with the Internet.

And what do these laws mean?

That is a little bit about obscenity and contemporary standards.

In 1995, most people in this country were barely aware that there was an Internet.

And the way most people in the country learned in 1995 that there was a thing called the Internet was this way.

That is Time Magazine from July 1995. You guys think it is funny.

Time Magazine teaching people about the Internet.

Sex is everywhere these days, in books, magazines, films, television, music videos and bus stop perfume ads.

Americans have become so endured to the open display of eroticism and the arguments for why it enjoys special status under the First Amendment that they hardly notice it is there.

But something about the combination of sex and computers seems to make otherwise worldly wide adults a little crazy.

And if you think things are crazy now, still quoting from the article in 1995, wait until the politicians get hold of a report coming out this week.

A research team at Carnegie Mellon University has conducted an exhaustive study of online porn.

Who is downloading?

What turns them on?

And feelings are sure to pour out.

And, low and behold, published a study about online porn where they carefully studied the habits of average Americans, who I think were CMU undergraduates, using Usenet.

And they found out interesting conclusions.

One is they found out that Robert and Carlene were actually doing really well.

They were pulling in over \$1 million a year in their business out in Milpitas.

And the other is 83.5% of all images posted on Usenet are pornographic.

June 26, 1995, Senator Charles Grassley, who is still in the senate, right up on the floor of the senate, Mr.

President, there is an article from Time Magazine and an article that I ask unanimous consent to have printed in the Congressional Record.

Mr.

President, this morning I want to speak on a topic that has received a lot of attention around here lately.

My topic is cyber porn.

Mr.

President, Georgetown University has released a remarkable study conducted by researchers of Carnegie Mellon University.

This study raised important questions about the availability and the nature of cyber porn.

The University surveyed 900,000 computer images.

Of these 900,000, 83.5% of all computerized photographs available on the Internet are pornographic.

I want to repeat that, 83.5%, these are all on the Internet and are pornographic according to the Carnegie Mellon study.

I believe congress must act and do so in a constitutional manner to help parents who are under assault this day and age.

There is a flood of vial pornography and we must act now to stem the growing tide.

And, indeed, congress acted and passed a law the Communications Decency Act.

You want to look at the words of this, they are quite important It basically said that anybody who makes available to someone under the age 18 years things that are patently offensive measured by contemporary community standards, dot, dot, dot, or knowingly allows a telecommunications facility to be used for that purpose shall be fined under title 18 or imprisoned for not more than two years.

This is called the Display Provision of the Communications Decency Act passed into law at the beginning of 1996. And notice what it is doing in terms of our picture.

It is saying there is bad stuff going on.

Who can get hammered?

The person sending it?

The ISP who knowingly makes that stuff available?

Cisco who is building the routers?

Maybe.

This became part of US law.

They also added another thing that was kind of interesting.

They added a thing called the Good Samaritan Provision of the Act which says nobody who is an ISP, that was to

help these poor guys who were feeling very nervous, shall be treated as the publisher of bad stuff if the information came from somewhere else.

And I will come back to that in a minute.

Why did they add that?

Well, it is 1990 and there is a bulletin board system called CompuServe.

Is CompuServe still around?

Does anybody know?

It got bought by AOL?

CompuServe was one of the early ones.

And CompuServe had a bunch of B boards.

And they had a thing called Rumorville or someone was using CompuServe to post a thing called Rumorville which was part of their journalism forum.

Another guy named Robert Blanchard starts up another online publication called Scuttlebutt, and it was designed to compete with Rumorville.

Rumorville then starts publishing defamatory statements about Blanchard and Scuttlebutt.

The whole this is a scam.

They are no good.

They rip off their stories by copying them from Rumorville, dot, dot, dot.

And Blanchard goes and sues CompuServe.

You guys are letting this stuff happen.

It is hurting my business.

Now, what is he suing them for?

He is suing them under a law called defamation.

Another little piece of law.

This is another thing that you can get in trouble for.

Defamation is something, again, all three things, is false, you communicate to somebody else and causes damage.

There are two kinds of defamation.

There is the stuff that you say which is slander and the stuff that you write that is libel.

So Blanchard goes and sues CompuServe for defamation.

And it is one of the basic first rulings on Internet defamation law, Cubby v.

CompuServe.

The judge basically says tough, CompuServe is just like a bookstore and they have some books there and they don't really know what is in those books.

You cannot really hammer them for what is in their books.

They neither knew nor had any reason to know what was in that stuff.

Go sue Rumorville but CompuServe is off the hook.

In terms of our picture of regulation, the court is saying for defamation it is that.

Well, there are some poor innocent people.

You.

You're sitting there, you're logged into CompuServe, you read some awful thing about Rumorville, she is supposed to get hammered for that?

Other people who are just sort of knowing that the source was coming from there.

That was 1990, five years later.

Five years later the Internet is growing.

There is concern about pornography.

It is not only the uber geeks who were using CompuServe, there was a company called Prodigy.

Prodigy still exists.

Prodigy was a bulletin board.

They advertised themselves as a family friendly service.

Hi, guys, there is this Internet.

You can join Prodigy.

It is kind of safe for your kids.

And the way they did that is they had chat rooms and hired people to moderate their chat rooms, and if any bad stuff happened the moderator would cut it off.

So Prodigy is running the family-oriented B board service.

And there is a company that is an investment banking place called Stratton-Oakmont. And somebody on one of the Prodigy bulletin boards starts publishing stuff about Stratton-Oakmont. They don't know who this somebody is.

It is anonymous. Stratton-Oakmont is a bunch of crooks.

The president was in jail.

This offering they are going to do is a fraud.

And Stratton-Oakmont goes and sues Prodigy because whoever was posting it was anonymous.

They go sue Prodigy, and Prodigy says hey, guys, we went through this.

This is Cubby v.

CompuServe all over again.

Go find the people who are doing it, get on their backs, we are clean.

And the New York State Court of Appeals say uh-uh, you're not the same because you are moderating those chat rooms.

You are taking responsibility for what is being said there.

Therefore, you have liability because you are doing the moderation.

You, in fact, are liable as the publisher of that stuff because you are controlling it.

It is quite comforting for freedom of speech to let ISPs get off the hook.

In response to this, every university lawyer at any place that had an Internet went to the administration and said hey, guys, don't control what the students are doing.

Whatever you do don't control it because, as soon as you do, you are liable.

It certainly happened at MIT, and I assume very place else.

But what is it doing in terms of our picture here?

Our poor ISPs who were off the hook now get targeted in a way big-time. Coming back to the Communications Decency Act, why was there that Good Samaritan Provision?

Well, congress was sitting there saying well, gee, not only do we want to regulate pornography and stop that but we really would like the ISPs to help us.

We would like them to filter this stuff out.

So it is the policy, and this is part of the law, of the US that there should be filtering.

And we want to encourage parents and ISPs and everybody to keep this smut off the network.

On the other hand, that was right after the Prodigy decision.

And all the ISPs said hey, wait a minute, that's not going to work.

So they passed this Good Samaritan Provision which was trying to let them get off the hook.

It is actually a little bit more complicated than that because this had to do with the republicans and the democrats and stuff that got worked out in committee and different bills of which pieces were taken from other bills and put together.

Winston Churchill once said that anyone who likes sausages or law should never watch either of them being made.

And the Communications Decency Act is a little bit like that.

Well, the law got passed in February 1996. The whole civil liberties were all going nuts.

Everybody who was looking at Internet law went nuts.

If you take 6.805 there is a long story about what eventually turned out to be a major, major decision in First Amendment law, which I won't go into here, where the net result was the Supreme Court decided that the Display Provision of the Communications Decency Act was unconstitutional.

They said the community standards are too broad.

If you apply that it means the standard of the most restrictive community will start replying across the whole country.

And it turns out the government can pass laws to protect kids access to stuff, but they say in this case, by this desire to protect kids, you are restricting adults from what they should be able to get.

Anyway, a long, very, very important First Amendment decision, Reno v.

ACLU.

The Supreme Court ruling came down and everybody was happy, civil liberty groups, everybody jumped up and down and said the Internet is a zone of free speech, which brings us to Ken.

We are back in 1995. It is April 19, 1995. We just went through the tenth anniversary of a really horrible thing in US history.

Does anybody know what it is, almost exactly ten years ago?

No.

The bombing of the courthouse in Oklahoma City, April 19, 1995. I guess you guys remember that.

About a week later appears on AOL an announcement that says hey, naughty Oklahoma t-shirts, visit Oklahoma, it's a blast and lots of cruder things about referring to the kids who had been killed in that bombing and all sorts of stuff.

Visit Oklahoma, it's a blast, call Ken for naughty Oklahoma t-shirts. And there in the message is the phone number of Ken Zeran who is just a guy who lives in Seattle.

Well, lots of people call Ken.

They call him angry and upset with obscene phone calls, threatening phone calls.

They tell him about this thing he did.

How could you possibly do that, you bastard?

So he calls AOL and says come on, I didn't put this up.

It has this stuff that has got my name on it.

Take it down and publish a retraction.

Mr.

Zeran, we sort of have to look into this.

And you have to understand that we don't actually know who had this account because they are anonymous.

And it is not our policy to publish retractions, but we will sort of do it.

And maybe we will turn off the account and check into it.

The next day more slogans.

Naughty Oklahoma, we have t-shirts, we have bumper stickers.

Visit Oklahoma, it's a blast, call Ken.

And, by the way, there is a real demand for these things so if you call and the line is busy make sure you call back.

By April 30th Ken Zeran is getting an abusive phone call every two minutes.

May 1st, KXRA, a local Oklahoma radio station says you know what is going on in Seattle?

There is this guy who is publishing stuff selling t-shirts making fun of our kids who died in the blast two weeks ago.

His name is Ken Zeran.

Why don't you tell him what you think about him?

Here is phone number.

Here is his address.

The police are guarding Zeran's house now.

Well, Zeran finally gets in touch with KXRA and they publish the announcement that it is a mistake.

They broadcast a retraction of that.

And by the end of May Zeran is down to only 15 threatening phone calls a day.

So over the next months he gets a lawyer and sues AOL.

He says you guys are negligent.

I called you about this thing, it was causing me harm, it was on your thing, you did not take action, it took a real long time for them to shut off these accounts and you guys are guilty of negligence.

And AOL's lawyers go hey, hey.

Actually, the law hadn't been struck down by then.

Look at this provision that congress has passed into law.

I don't care what you said we did.

We didn't provide that information.

We have no liability for it.

And the court agrees with them.

And it turns out, by the way, that when congress struck down the Communications Decency Act, they struck down that Display Provision.

But there is nothing unconstitutional about that.

You can argue whether or not it is a good idea, but there is nothing unconstitutional about it.

This thing is still part of US law.

The lawsuit was actually at the beginning of '96. It sort of went through this whole thing.

I think it was the beginning of 1996 because there was a lot of arguing going back and forth with AOL between when it was done.

It took several months.

So AOL says I don't care if we are negligent, we are free.

It is not our problem.

It gets worse. 2001, Jane Doe, in an anonymous lawsuit, sues AOL on behalf of her teenage son, John Doe.

It is anonymous.

They are protecting him because he is a minor.

And she is suing AOL.

She lives in Florida.

It turns out there was a guy named Richard Russell, who by that time was in prison, as you will see for obvious reasons, who advertised on AOL to find kids who would come to his house.

And he filmed them in pornographic acts, including Jane Doe's son, John Doe.

And sold this stuff over the Internet on AOL.

Jane Doe sues AOL, you guys are making money from trafficking in child pornography, in pornographic pictures of my son.

Now we're talking child pornography.

AOL says hey, hey, the Good Samaritan Provision, title 19, section 230, we are not liable.

This is 2001. This bounced around in the courts for about three years and finally went to the Florida Supreme Court.

And the Florida Supreme Court agreed with AOL.

It ain't the greatest thing, but that is what the law says, you are not liable as an ISP if you are not the provider of that information.

That is a two to one decision in the Florida Supreme Court.

The minority opinion by Judge Lewis, the guy just went ape.

He said this is nuts.

How could it conceivably have been the intent of congress, in a law that was motivated by protecting kids from pornography on the Internet, that a consequence of that law is now that somebody who is trafficking in child pornography is actually immunized?

But that is the current state of the world.

And you see what it comes from.

It comes from looking at this very complex system of regulations and the interaction between First Amendment Law and defamation law and the fact that you can apply regulations.

You want to partly immunize those ISPs, but you don't want to let them off free.

And you end up with exactly the same kinds of unintended consequences that happen whenever you monkey with any complex system.

It is not a whole lot different from the kind of stuff you have seen on the technology side when you are talking about how the technical base of the Internet works.

So where does that leave us?

Well, I guess in terms of the law, it kind of leaves us there in a very, very confused state.

And getting more and more confused because what has happened recently, this whole thing is now mixed in international law.

If you go search on Google for stuff from the Taiwan Ministry of Defense you will find that in the US.

Will you find it in China?

No.

Google China has a different search.

Will you find it if you somehow are able to log into US Google from Beijing?

Yeah, you would see it.

What kind of liability is there?

You're personal liability with the Chinese government, is it Google who is going to get hammered in their trade agreements in terms of China?

We don't know.

What is going to happen with France and Yahoo?

This whole picture has become even much, much more complex as a consequence of all of us engineers making this Internet which has effectively made distance vanish.

So where does that leave us?

It leaves us with you, I guess, and where I started.

You guys have enormous power that comes from the stuff you have learned in this course.

You have the ability to go out and really, really influence the world by making stuff, by explaining to people stuff they don't know, like the end-to-end principal is one.

And it is really a question of would you like to grab that power and take advantage of it?

But, in order to do that, you need to understand this other piece of the world.

OK.

Thank you.