Episode 333- Could There Have Been an Internet Without the State?
Guest: Richard Bennett
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WOODS: I have invited you on because there's been this question in the back of mind for a long time, and it's been placed there by progressives who hound libertarians all the time with how you can favor limited government or even more limited than limited government? How can you favor anything like that when the fact is that the U.S. government created the Internet, this incredible, revolutionary tool that all of us love and use every day, and surely you would have to be some kind of misanthrope not to recognize the central role played by the state in the creation of the Internet.

I want to know how to separate truth from fiction here, and I have a feeling that as with so many inventions, since the government is so omnipresent, it's hard to disentangle precisely what the government's role is, the extent to which some invention might have been invented anyway even if there hadn't been government involvement. Can you walk us through this and treat me, at least, like I'm 10 years old, because when it comes to topics like this, that's about my level?

BENNETT: Okay, well, whenever we try to examine the government's role in the creation or development of any significant social or economic or technical development, it's wise to bear in mind that the things that government does best our collecting money and spending money, and I think what we'll find as we walk through the details of the Internet's history that those were the primary roles of the government. The fundamental idea that underlies the Internet is something called packet switching that was invented independently by two different people in the mid-'60s; a fellow named Paul Baran who worked for Rand, a think tank in the United States, and a professor, Donald Davies, at the University College London in England about the mid-'60s, and they thought this up as a way to essentially deal with some of the inefficiency that's designed into the telephone network and to give us a network that was more resilient. Certainly one of the issues in that era was a communications system that could survive nuclear attack, and as people sometimes say, the Internet was designed for that purpose. That's not really true. But it is based on some technologies—the packet switching technology that was invented with that as one of the goals in mind. The government—the Nixon Administration specifically—funded a project in 1969 called ARPANET. The initials DARPA comes from the

Defense Advanced Research Projects Administration, which is a research arm of the Defense Department.

They put some contracts out for a research network that they wanted to build in order for people to do some experimentation with this new idea called packet switching and see where that took us. The winning contractor was a company called Bolt, Beranek, and Newman based in Cambridge, Massachusetts that had been an acoustics researcher up to that point, and since this was a brand new network, there weren't exactly a whole lot of firms that were in a good position to bid for the contract on the basis of their track record. So they built this network, and it started limping along in '69. It became fairly usable by 1971, and by '73, some of the limitations in it became apparent, and other researchers in other countries, specifically France and England, were interested in improving on the design of this ARPANET and doing something that was even more resilient, more flexible, and was getting closer to achieving the full potential of this packet switching notion. So there was a project in France called CYCLADES that was organized by a fellow named Louis Pouzin who had been an ARPANET user and was aware of ARPANET's limitations, and he contracted with BBN, the company that had built ARPANET to build this improved network for researchers to use primarily in France, but in other parts of Europe as well, and the ideas that go into—that are present in today's Internet—the two key protocols. You've probably heard the term TCP/IP?

WOODS: Yes.

BENNETT: It's the technical structure of how the Internet actually copies data around. Those came from the CYCLADES Network. CYCLADES didn't have a long history. The French telephone company, which was government-owned at the time, was threatened by it, and the funding for it came from the French government, so they withdrew the funding, and it pretty well dissolved about mid-'70s. But by then, researchers in the U.S. had become aware of the ideas. The BBN folks had spread them around the ARPANET community, and the people that we now give credit for inventing the Internet, Vint Cerf and Bob Kahn, learned about these ideas from BBN, put their own twist on them, and developed the design for the network that we know as the Internet today. But the technical work here on the American side was really done through contractors that were funded by the Defense Department, not so much by actual government employees.

WOODS: Okay, but all the same, what about the objection that were it not for government funding, there is no way that something like this could have gotten started? It's too big.

BENNETT: I think there is—well, this is one of those things where we only know the track that history has taken here. It certainly is the case that government funding was involved in supporting the research and actually building the initial set of equipment and hooking up some research sites at universities to get the ball rolling on this network. But it is also the case that there was an awful lot of private-sector activity that was going on at the same time that in many instances was actually further along than the government activity in TCP/IP was. The big

computer companies of that era—IBM, Digital Equipment Corporation, Xerox, who had an incredibly exciting research lab in Palo Alto, California because they were looking for what to do after the copy machine sort of fizzled out. All three of those firms developed networks that were more advanced than today's Internet. But when you have funding behind—one says—so there were actually four and eventually five competing proposals for what this worldwide packet switch network was going to be. And I think the Internet that we have today was a product of deep pockets and government desire to see to it that their candidate won.

WOODS: Well, is there any technical obstacle or financial obstacle that was so great that it would have made impossible the private development of something like the Internet?

BENNETT: No, in fact, there were private initiatives that were leading in that direction. I think there was a large, international activity called the Open Systems Interconnection Project in the 1980s—that in the early '80s, it was pretty well assumed that the research Internet, the TCP/IP network that we call the Internet today, was not really adequate for the task of connecting all the citizens of the planet to a common network that could serve their needs for the foreseeable future. And so everyone around the world that was involved in networking cooperated on the development of this successor network, OSI. But that effort ultimately became mired in politics because you had government actors from especially in Europe where telephone networks were run by government agencies. They didn't want to relinquish their control. So the squabbling around that activity sort of degenerated to such a point that the Internet that we have today won by default. It didn't win because it was the best designed. It won because it had funding and because the credible alternatives just failed to materialize in a timely manner.

WOODS: I know I have heard somewhere, and again, forgive my lack of knowledge here. As I told you before we went on, I am always pleased that I can try and have an intelligence conversation on the topics that we have on this show, but on this one, it's a little bit beyond my ability just because I have never really studied it. But I know I have come across articles in which tech people have said that the Internet we have now was not initially designed for widespread use of streaming video or Twitter or millions and millions of people using a particular website and sharing all of this information so that it's not really the best setup for that. That in some ways I've read some people that it would be nice if it were possible to go back and scrap the whole thing and redesign it as if this were the Internet for it. Do you have any idea what I am talking about? Have I heard that correctly?

BENNETT: Yeah, I think that is correct. The Internet wasn't designed for any specific purpose. Certainly when the ARPA Network was done, there wasn't even any—there wasn't any such thing as electronic mail. And in the early days of the Internet, its killer app was electronic mail, which is very different in terms of the kind of requirements it has of the network. And the World Wide Web wasn't really devised until the early '90s, and it was also kind of an experiment. But I think the larger issue is that the Internet was designed as a research network. It was designed to be used by people who were highly skilled, that had really advanced knowledge of how to administer a computer system, how to administer a network of computer

systems. And these were people with extraordinary technical skill. They were graduate students in computer science. They were professors. They were defense researchers. They were people that had a completely different set of needs from the network than the average citizen does. So we had this network that was designed as a research tool, as a lab toy, the way technologists like to put it, that was opened up to the public in the mid-'90s when Al Gore was accused of saying he invented the Internet. What he actually did do was he opened the Internet up to the general public, and some people will argue, and I am one of them, that it wasn't really appropriate for that particular network to be opened up to the general public because it's too insecure. The Sony hack that we just saw, which may have come from North Korea, is a kind of indication of that. It's so easy for people to penetrate systems across the Internet that are owned by other people that I don't think anyone really feels completely safe when they use the Internet. There is always some fear in the back of your mind I think every time you put a credit card number in somewhere that that's going to end up in the wrong hands, and it often does.

WOODS: Is there anything that can be done about this on a piecemeal basis? Or would you really have to go back to the drawing board?

BENNETT: Well, I think we have to recognize that even if the Internet had been perfectly designed in 1975 for the needs of the time, it's a technology, and technologies have a limited life span. That's almost the point. And when you design a technical system, you pretty well design it with the expectation that after some period of time, the advancement of all the fundamental technologies that underlie it like semiconductors following Moore's law, and this sort of thing. Just the accumulation of ingenuity, better systems, better applications, better software will lead us to replace it with a more advanced system somewhere down the road.

WOODS: Is that feasible? Again, you are talking to somebody who is like an eight-year-old on issues like this. I can't imagine how could that be feasible? Is it thinkable?

BENNETT: Well, just think of how telephones have changed in the last 20 years. Once upon a time, a telephone was a thing with a rotary dial that sat on your desk, right? And now it's this incredible thing that fits in your hand that goes around wherever you go and runs a variety of applications and it's a little computer, and it happens all the time. It's the question of the Internet lacks some features that should have been designed into it to make it easy to replace it with a better version. There's currently a transition underway to replace the addressing system of the Internet, which is called Internet Protocol version 4, with a newer version that has a much larger address so that we can put more stuff on the Internet—so we can hook up toasters and refrigerators and light switches to the Internet and control that from wherever we are. And it's been incredibly painful. It was over 15 years ago that the Internet Protocol version 6—it's called IPV 6—was invented, and it's still not universally deployed. So it's very difficult to upgrade a network. But it's essential. It has to be done. We have to figure out some way to do it.

WOODS: Do you ever get asked about your forecast with regard to, let's say, increasing government controls over the Internet in the future? Do you think that's the direction of the Internet? Or do you think this is a horse that's left the stable, and there isn't a whole lot governments can do about it?

BENNETT: There's actually a lot of control the governments can exercise over the Internet. We see this in China and Saudi Arabia, where governments censor certain kinds of content. They steer people in the direction of certain kinds of sites that deliver information that the governments of those countries want people to see. And I don't want to really say that the United States is just like China, but some of the efforts in the United States to regulate Internet under the guise of network neutrality are indicative of increasing government micromanagement of the Internet.

WOODS: I had Berin Szoka on the show some time ago to talk about net neutrality, and it's probably not a subject you can dispense with in a few sentences, but I am going to be unfair and ask you to try anyway. If you are talking to the average person with the average level of knowledge about this and he just hears words like liberty and equality when the subject of net neutrality comes up, that person is liable to think it's a pretty good idea. What would be the harm in it? What are they proposing, the net neutrality advocates? And what is the harm in it?

BENNETT: Well, net neutrality is primarily a negative argument. It's an argument that says that certain kinds of practices should forever be banned on the Internet. The most coherent way to put this is that the net neutrality advocates have a belief that throughout the Internet's history, all the information on it has been treated the same as all the other information. So whether you're sending an email or are streaming a video from Netflix or contacting 911, that the information that is behind all those different requests is treated with the same degree of importance. And because the Internet has always worked that way, they believe that it should always work that way in the future—hence the neutrality. The neutrality means that the network operator—the company like Comcast or Verizon, or AT&T that hooks up your home or your mobile device—isn't really aware of what you're doing. They just know that you want to move some information to a certain destination, and they just get it there without any regard for how important that information might be to you or to its recipient.

On its face I think it's a rarely dubious notion, isn't it? We deal with information in our daily lives of all different sorts all day long, and you know, there's a difference between a tax notice from the IRS that says that we have to respond to their request for some more information, or else suffer a huge fine. There's a difference between that kind of information and say a cat video that somebody sends you that thinks that you really like cute cat videos, which I guess a lot of people do. So it's not exactly intuitive on its face that all information should be treated the same, and it's also not really the case that the Internet treats all information the same today. There are companies like Akamai that are in the business of providing certain Internet sites with better service than they could get if they didn't pay Akamai. So one of the bugaboos is that there shouldn't be these things called fast lanes. And I can't for the life of me see how

that makes any sense, because to me, the magic of the Internet is that it allows people to have control over how much money they want to spend for how much service they are going to extract from the system. And that begins with my being able to choose what speed tier I buy for my ISP. I can get something that costs me $45 a month, or I can get something that costs me $100 a month. And there are radical differences in quality between those packages. But it's up to me to make that choice. And business people have the same range of choices.

WOODS: But what do you see as the danger of government intervening here? They claim they are just trying to level the playing field.

BENNETT: Well, I think our playing field is pretty level already, I think. The issue that I have with it is there a lot of—we only know the Internet that we have, right? We don't know what would be different if the Internet did a better job of distinguishing between the information needs of different applications. For example, I would really like for things like this interaction that we're having right now to be high resolution video conferences, and sometimes you can do that on today's consumer Internet, and sometimes you can't. We could turn on Skype video, and it might work for us most of the time, but there's not really any guarantees that it will, because the success of a Skype video stream really depends on other things that are going on that you and I don't have direct control over. I think we should have the choice of maybe pay a little bit more money to have a guaranteed quality stream so that we could have this conversation with video.

WOODS: If I may change the subject a bit: I just can't help noting that one way I can tell you've been involved in the Internet for a long is that your website—your name is Richard Bennett— you have Bennett.com. That would fetch thousands and thousands of dollars today. There are so many Bennetts who would love to have that, and you have Bennett.com. Is that because you were an early entrant into the field?

BENNETT: Yeah, I bought that domain name in about 1993.

WOODS: Well, that would do it.

BENNETT: Yeah. So the Internet was still very much, as a commercial entity, in its infancy, and there just wasn't anybody else that had ever asked for it. So first come, first serve.

WOODS: That's fantastic. The idea of a one-word or one-name domain name these days is just unthinkable, and you're sitting right there with Bennett.com. I mention that not just because of the novelty of it, but to let people know that they can visit you and find about your work there—Bennett.com. Have you done any writing on the subject of what we were talking about today? Specifically the role of government in the creation of the Internet. Anything that you can link us to?

BENNETT: Yeah, I wrote a research report that was funded by a think tank that I worked with about six years ago on—the organization is called the Information Technology and Innovation

Foundation. And I wrote a report that covered the history of the Internet and how we got where we are today and where I'd like to go with that in the future.

WOODS: And can I find that online?

BENNETT: Yes, you can. It's called "Designed for Change," and so if you Google "Designed for Change" and Bennett, you'll find a copy of it on the ITIF.org website.

WOODS: Okay, good, I will put that on the show notes page today. This is episode 333. So it will be TomWoods.com/333. We will link to Bennett.com. We will link to this paper. I appreciate your time today. It's a tricky subject for the layman, but it's an important subject to get a handle on because a lot of people are using it and exploiting it for propaganda purposes, and I wanted to start groping toward the truth, and I appreciate your contribution to that. Thank you.

BENNETT: Well, I hope I have been able to help. It's a very complicated subject, as you say, but it's something we all need to understand a little bit better.

WOODS: No question about it. Thanks so much again.