Why Virginia Has A Broadband Gap and How We Can Address It: A Vibrant Virginia Book Webinar

John Provo: My name is John Provo and I'm the Director of Virginia Tech Center for Economic and Community Engagement. We're happy you've joined us here for another of our Vibrant Virginia book chapter webinars.

I'm going to let our host and moderator introduce the panel in just a second, but I'm just very pleased with the turnout, participation, and interest, and I think the discussions about economic and community well-being we've been having across Virginia have been stellar, very energizing and give me a lot of hope for the good work we're all going to get to do together in the future. So I'm going to with that, hand it off to my colleague, Dr. Neda Moayerian, and she's going to lead you into today's session.

Neda Moayerian: Thank you so much, John.

Hello, everyone.

Welcome to Why Virginia Has A Broadband Gap and How we can Address it: A Vibrant Virginia Book Webinar at Virginia Tech, sponsored by the Center for Economic and Community Engagement.

We have planned today's event about the challenges of broadband access in the context of the urban/rural spectrum, as a way to showcase the issue raised in an upcoming edited book called Vibrant Virginia, which we will publish later this year, perhaps in July or August.

The book is focused on looking for ways to bridge the urban-rural divide across Virginia and to think about the ties that bind us in regards to community and economic development and related domains.

Today's webinar features a talk by Vibrant Virginia book authors Mr. Erv Blythe and Dr. James Bohland, followed by an interactive conversation with Ms. Heather Gold, as the panel discussant, and the audience.

The Vibrant Virginia book has been posted in draft form on our Discourse board. We invite audience members to sign up for a free account on Discourse.

There, you will find other working papers from the book project on other related themes.

Please use the chat box to make general comments and specific questions throughout the event. Without further ado, let's get started.

Erv and Jim, the floor is yours.

James Bohland: By prior agreement, Erv and I agreed that I would lead off and in doing so again, I just want to welcome everybody participating in this webinar. It's an excellent opportunity for us, Erv and I, to interact with you on some ideas that are represented in our chapter.

So let me let me start with some introductory points that I think are critical to the whole discussion that we will be having.

First of all, recognize that the problem of broadband access exists for both rural and urban communities. I think the COVID crisis has made that abundantly clear that many of our urban neighbors also suffer from this. When it comes to access to get schooling for our kids, this deficiency became very clear.

Unfortunately, until that time, the deficiencies in our urban community were less visible. But they're still as real as they are in rural communities. So we have to remember that we're talking about urban and rural community.

The second introductory point we would make is that this is not a problem of money. Solely we've spent millions of dollars over the past decade to expand broadband networks. But the problem still exists.

We argue that it's not just money, it's also an idea about, or a concept, related to the vision and the architectural structure that accompanies that vision for broadbroad internet.

Also, I think everyone on this webinar would probably agree that the need for broadband improvement and connectivity is critical in the coming decade if we're going to be competitive and I think that's a critical concept here in terms of Virginia; that what we're seeking are architecture and business models that provide a comparative advantage to the communities within Virginia in the future. A comparative advantage that we really do not have, at the present time, in most of our rural communities and in many of our smaller cities and neighborhoods within larger cities.

As an example, a recent study demonstrated, compared Roanoke with French cities of a comparable size, and found that the French cities had two to three times more providers for access to broadband than currently exist in Roanoke. That's a significant and important figure because basically what it means is Roanoke is at a comparative disadvantage to other cities around the world, and that's in fact who we are competing with. Not just rural/urban communities within Virginia; we're looking at trying to create a comparative advantage, so that our rural communities can compete more broadly within this new modern world.

Another introductory point is that we use the term here: legacy providers. And by that we mean, these are investor owned companies that deploy and manage a vertically integrated system. By that we mean they not only provide the connectivity, but they also link that connectivity to content. And moreover, we argued it is based on a technology commensurate with a fairly dated communications architecture.

In sum, if we want to leapfrog into a new kind of competitive advantage, or comparative advantage, we need a new architecture.

Now, one way to think about this is that there are basically two visions of the Internet. One is a vision that the founders of the internet had, which basically was open access, and where individual end users could be capable of producing and distributing content with technical efficiency and in a cost-effective manner.

That was the original vision of the Internet to disperse both production and consumption via the networks.

The alternative vision is the one that the legacy carriers have, which is a model that basically treats the Internet as analogous to other media; for example, the radio, where private companies have control over both the production and the distribution function. And end users in that model have minimal kind of production capabilities.

The key point that we would make is that each of these visions require a different architecture. Moreover, while a production architecture for the internet will also enable a vibrant consumption future, the reverse is not true.

That is, if you have an architecture fundamentally based on consumption, you're going to limit, in the future, a productive capacity. So what we're advocating is an architecture that allows communities to leap frog if you like, over the existing condition to make themselves more competitive.

What has prevailed in Virginia policies at the state level is the legacy carriers vision of the Internet, a vision that has left many communities in the state not only without access to broadband services, and does not allow a comparative production advantage to those kinds of communities.

A critical consequence of that control has been to create barriers to municipal or local community broadband control that has not been true in some other states. Virginia lags well behind other states in the adoption of municipal community models of broadband control.

For example, a recent study in 2020, indicated that three states, Wisconsin, Alabama, and Virginia, had the greatest number of policy barriers to municipal broadband.

As a result, many communities are unable to create the kind of access they need. Now we argue in the paper that this dominance of the legacy providers is a function of the existence of three broadband coalitions in the state.

One coalition and by a coalition, I mean a group of institutions, individuals, and organizations that basically interact with one another and share a similar kind of policy goal.

One of those coalitions is the legacy coalition. Another is what we call the municipal non-profit coalition, which basically argues for broader engagement of municipalities in creating broadband access.

And a third coalition is basically a technical coalition, one that offers advice on the technologies for and the architecture that is needed for creating access to the broadband.

Of those three, it is the legacy coalition that has had the greatest political power in setting the policy agenda for product within the state.

Now, the consequences of that is what Erv is going to talk about. And he will also outline what are the architectural needs for a production and consumption architecture. And finally he will talk about some of the recommendations we make in the paper.

So Erv, I turn it over to you.

Thank you.

Erv Blythe: Thanks, Jim.

I think just to repeat a little bit of what you emphasized, which was the most important point. I think everybody on this call probably agrees that we're at the beginning of profound change in the way we work and play in health services and medical services and education and security, cybersecurity and physical security services, financial services, everything and even in industries that are not yet extant.

In this environment, most people, most leaders, most organizations, most communities, are going to be thinking incrementally. They're going to be trying to change incrementally to catch up with what they perceive their neighbors or their competitors are doing. But this has been truth forever.

A few people, a few organizations, a few communities are focused on re-inventing the competitive landscape that they face.

Our chapter then is not about catching up. Our chapter is about leaping ahead. And again, Jim and I will both emphasize this over and over: the most important words in the title of our chapter are not broadband, it's competitive advantage.

Relative to -- well, I'll say we had some fun talking and debating Virginia's long history in limiting local initiatives, community initiatives, community anything, whether that's health services, energy systems, communication systems, Virginia has had a long history of prohibiting local activities in this arena.

There are so many examples of how the state policies have limited what localities could do and aspire to do; one of them is frankly just embarrassing to me, with my colleagues across the country, is Virginia's definition of broadband, which is one megabit per second uplink, pushing from the consumer out, and 10 megabits per second download.

I remember when we started the Electronic Villages program in the '93, '94, '95 timeframe, the very first actual stand-alone network projects that we had created -- mostly in a few apartment complexes in Blacksburg, but also in a few other towns around Southwest Virginia -- the standard we used was 10 megabit per second up and down of ethernet service. That was our standard 25 years ago. All of that has changed over time. But it's so ironic to me that 25 years later, I'm hearing key leaders of Virginia basically say that our aspiration, the goal that we need to reach is substantially below what we had 25 years ago.

This asymmetrical and limited definition is a function of the legacy coalition's influence. They are limited to their technology capabilities and they're basically limited according to their business model for growing and developing their business.

Another example that I think is kind of shameful is their restrictions in Virginia on municipal and community owned networks.

For instance, a Virginia community is not allowed to set a price lower than that charged by incumbent providers for the same applications and services, which is kind of crazy in today's, what could be, very competitive environment.

A third example would be localities are prohibited from subsidizing development of locally controlled infrastructure that they would have influence over.

On the other hand, the state has poured millions of dollars, and I would claim subsidizing the legacy providers and extending their out-of-date technological architecture and capabilities for very limited broadband services. Again, with that 1 over 10 standard.

Another sort of [inaudible] example, localities must guarantee -- this was I think in legislation passed in either 2019 or 2020 -- localities must guarantee a locally controlled network will be profitable within one year of installation. This is not standard anywhere in the industry and it's not feasible in the industry. Almost always from the point of installation, it takes several years to reach a profitable position, but the legacy providers managed to get that kind of obnoxious limitation placed on anything communities in Virginia might want to do.

And last, to me, there was a significant handholding on this between state political players and the providers, but the flawed data that was used to determine what communities were served or unserved, and what communities were underserved.

For years, the only data that was acceptable to the state was the data that was coming from the providers, even though we had detailed data directly from consumers that was in gross conflict with the information flowing from the providers. And we've had several documented debates with political leaders about the validity of that information.

But the result is even today, the state has very poor data associated with the capabilities of their network.

We outlined six goals for this production type of network. One is open access. Ideally, the physical infrastructure ideally would be either owned, or the local community would have influence in whoever controls the local infrastructure.

And over that -- if it's an optical infrastructure -- over that infrastructure, the consumer would have access to compete in Internet service providers and compete in Internet entertainment options. And the network would be open to local development of applications, services, and information.

A second goal is it has to be uber reliable. On the consumer side; I mean, we've experienced today the kind of reliability you have for a network that's basically designed for consumption. Even with my friend Jim, there were some breakups of his comments because of the reliability of the service.

Those kinds of interruptions are acceptable perhaps if we're talking about interrupting a download of a movie for entertainment, but if someone actually has plans to develop a business or information service over that network infrastructure, that's intolerable. It's unacceptable.

And they have to have ways of assuring good reliability, and at the very least, ways of interacting with whoever owns that infrastructure to resolve a problem. There are examples in Blacksburg, with both Comcast and Verizon, of people being out of service for weeks, and having humorous kinds of roundabout arguments about what the problem was and what was involved in getting it fixed.

There must be competitive bandwidth advantage in this production network. I would argue that the state ought to be looking at the Federal Communications "Above Baseline" Technology-Neutral Service Tier, which is 100 megabits per second.

But we have lots of examples. We have a few examples in Virginia and lots of examples of across the country of network service providers offering reasonably priced gigabit per second service.

The bandwidth should be symmetrical; if you design with the idea that every access point for consumption is also a potential point of production. If that's the design criteria, then you would have symmetrical bandwidth, the same capacity upstream and downstream.

The network that meets our goals would have to be scalable. If you're running or developing a business and you have a 100 megabit per second service, you need to be able to order up very easily an increase to a gigabit per second or 10 gigabits per second. You need to be able to expand as your business drives that expansion. And again, that means somehow you have to have influence locally over the infrastructure that you use to access the Internet.

And lastly, there needs to be cost-effectiveness in the price and it needs to be reflective of what you would see in a competitive market.

I'm not sure about my time if I've got a little more; am I okay on time?

Neda: Maybe two or three minutes more.

Erv: All right. We said in the paper that no community in Virginia has access to communications capabilities that match all these idealistic goals.

We do believe there are number of projects in Virginia that have the capability of meeting these goals and are actually building infrastructure in a way that makes this feasible. One I would point out is Citizens Telecommunications Cooperative of Floyd County, would be one example.

And there are others. Orange County has started a project that on paper, it will be able to meet these types of goals. And there are other examples in Virginia; there are better examples across the country, across the U.S., of locally controlled and developed community networks that meet these goals.

The push back we get both from the providers and the political players tied to these providers is one, communities lack the will to engage complex projects. Some of us know that's just bullshit; we've dealt with communities all over the country [inaudible] -- there's no great mystery in what's involved in developing this kind of project. And it'd be very easy to set up consulting kind of capabilities that would handhold those communities that didn't have the local expertise.

That communities don't have the sense to know what they need. I would argue that a community desperate to break out of the current lock in terms of the development of its economy, has a better idea of what it needs then someone selling entertainment television, and having that as their total focus.

Their geographic limitations. There are very few places in Virginia where there's geographic limitations to the kind of capability, even for Floyd County, which is one of the more rugged terrains in the State of Virginia. They are pushing fiber to the home to virtually every home in that county. I think they have a goal of reaching 90 % by the end of this year. I don't know exactly where they are on that, but that was their goal and they've had a great track record of meeting their goals. Again, this is community owned; it's a cooperative owned by its customers.

You know, with that, because of the time, I'm just going to focus on two of our recommendations really quick.

One, we believe to the extent possible, Virginia providers of telecommunications services in this state should be free of restrictions on what they provide, who they serve, where they can provide services, and on limits to return on investment.

Again, a lot of this is federally limited and not state limited. But to the extent that the state restricts this, we believe that they should be set free to pursue business where and however they can.

Secondly, Virginia should recognize that communication services that meet the six goals we outlined in the network infrastructure is an essential public good. And therefore local community and municipal roles in the development and employment of the requisite infrastructure should be somehow facilitated. Whether that's they build it themselves or we manage to create good model relationships between private sector players and localities for doing that.

Last, the State should encourage, not discourage, locally driven community business models. That's cooperatives, municipal utilities, non-profit infrastructure service providers, homeowner's associations; any of those entities could be appropriate organizations for developing the kind of community capabilities that we've talked about.

I know my time is up, so I will stop there. Again, we expanded on that in the paper. If people have follow-up questions we're glad to deal with them.

Neda: Thank you so much, Jim and Erv. We learned a lot. It was a great presentation and great examples. We have a few comments about updated broadband standards, which we will discuss after we hear our discussant's thoughts on these issues.

Ms. Heather, we all are ears.

Heather Gold: I'm waiting for my -- Am I on mute? No.

Neda: We can hear you.

Heather: But you can't see me.

Neda: We cannot see you.

Heather: Technology is always a problem. Hold on. Let me just start and maybe we'll figure out how to get me up there. I just want to go to the video view. It says I should be on. Hold on 1 second.

All right, let me just go ahead and then I'll try to find the video, what's going on with it. I had no problem when we were doing this practice.

So let me just go ahead.

First of all, for those of you who are not familiar with my background, I've been in the fiber business for well over 30 years. And the last 12 years of my life, I've spent trying to get the residential market more competitive and to get more fiber deployed.

And my Twitter handle is @FiberMaven. So I think we know where I'm coming from.

Many of the things that both Erv and Jim discussed are very critical, particularly the need to have scalable future-proof networks, as that creates a better investment decision overall for everyone.

I saw when I was at the Fiber Broadband Association, study after study that we put in for the Connect America Fund, now going into the RDOF (Rural Digital Opportunity Fund) in the rural areas, where it was clear that the long-term investment in fiber was preferable to continuing to do incremental investment in copper upgrades, which just enabled you to push fiber a little closer to the customer, but required change out of equipment and the installation of more fiber every four to five years to keep up with changing standards. So it's sort of the idea of "build it once, build it right."

The other thing I really enjoyed in the paper was what I call the "politics of abundance." This is not my term. Blair Levin, who was at the FCC during the initial broadband plan under Reed Hundt came up with it when he discussed fiber to the home and fiber-fed communities; that instead of worrying about are we going to run out of capacity on the given technology that the community currently has, we can

innovate and experiment knowing that the resource is unlimited, which is true of fiber, because you can always get more throughput simply by changing electronics, but without more construction.

So I think that is a very critical point.

Kyle Rosner pointed out that the Virginia standard has changed to reflect the FCC standard of 25 and 3. I will note that is still insufficient. And I think people saw that particularly during the needs that arose during the pandemic, where households had multiple people needing video connectivity for health care education, conducting conversation with their government, finding employment. And when we look at competitive advantage, look at a state like New York, which gave out its funds on a 100 megabits symmetrical.

I think regardless of what the federal standard is, if we want Virginia to continue to be the showcase that it is in technology, you need to consider how to promote more speed, not less and not have to reinvest every couple of years to upgrade the network.

The other thing I would say is yes, we need more community driven investment. We need to give communities the broadband they want, not the broadband some legacy carrier decides they need. And this is critical, particularly as we think about communities implementing applications that go beyond access. I think we get hung up thinking about broadband as an access mechanism and not as an information, sharing intelligence, sharing and creating mechanisms.

I see Jim nodding his head. I think that we really need to think about IOT. We need to think about smart cities, which is applicable no matter how big your community is in terms of monitoring what's going on, in terms of resources. And again, it comes back to the politics of abundance. And also the recognition that broadband is a basic utility. It should not be prescribed by a corporate entity, except as they elect to provide it, under the terms and conditions the community and its citizens need and want.

I spent a lot of time looking at some of the aspects of Virginia. The community flexibility, we have started to implement some of that through the ITA funding, where you require a community partner, but should an entity not provide the services that a community -- should a community go out to look for service and it not be provided at the level they want and feel their citizens need, we need to be prepared to let that community build its own network so that they can offer those advanced services.

We talked about OAN, open access; Jim and Erv talk about that, but they're talking about it in a much broader sense. They're talking about it with community ownership rather than just what we think of as typical open-access networks that are existent in this country today.

And I hate to use this term because it's such a third rail, but they're really talking about community net neutrality, where a community controls all the applications that are permitted on the network, and not a corporate entity.

Is that true, Jim and Erv? Am I interpreting that correctly?

Erv: That's a better way of putting it than we did, yes.

Heather: Community net neutrality.

And lastly, the issues that exist for Virginia, I would like to say are unique, but they are not. Unfortunately, many of these same political powers have existed and contributed at the federal level for

ever since we've had a network, and we continue to see that influence things. For example, the FCC continues, even though they're working to try to upgrade these maps, which are -- I can't even use the language to describe how deficient these maps are.

That in one census block, a single point of service would justify keeping someone from getting better broadband is ridiculous.

So I know that they're working with, particularly NTIA, Virginia is part of that situation to improve those maps. Then they need to get those maps done, and they need not to have locked -- the unfortunate thing is, let's not lock communities into ten years of funding based on bad information. That is truly one of the more terrifying things of the current round of Rural Digital Opportunity Fund, that it continues to be based on bad input. And those communities, that they will then give that money to a provider for 10 years to sort of lock in a community, says that community will be precluded from advancement during that tenure.

So in addition to all these problems, one thing I think and this has to be at Virginia and at the federal level, is we need a better system of tracking, that people deliver the investment that they're claiming to implement. We have not had a good system to date, for following up to make sure that communities get the broadband they were promised when this funding was delivered.

And with that, gentlemen do you have any other -- I'm going to open it up to chat questions. And I will direct them.

Hi, Evan. I see Evan is here. Evan's saying that we are starting to -- the communities that are under construction are far faster than 25/3.

Somebody asked about the politics of abundance. That's when there's no gating factor, like when you turn on your water at home, do you worry that you're going to run -- I mean, you can worry you're going to run out of hot water because of your tank -- but you don't have to worry that the water is not coming in from the street, that you won't have sufficient water. And the same with most electricity.

I think we also need to look at this like we looked at the highway program. Not all communities who need this are sophisticated enough to know they need this. And I think one of the things Erv and Jim argued for was a central broadband assistant organization, which I know should be under DHCD right now, whether or not if we have the resources to do that.

But we also need to identify what communities are the least served and have the most need for broadband upgrades and then go and assist them with that effort rather than waiting for the most sophisticated entity to come to the funding source.

And what that sorry, I will stop talking, and I'll take some questions to direct to the panelists.

We have a question, Erv and Jim: "Please define legacy providers once more for this novice."

Jim: Yeah, I can do that. Basically, legacy providers, as the name suggests, have been [inaudible.] But these are investor owned companies that deploy and manage a vertically integrated system; that is, they both provide the network and the content. And that's important and you're locked in, in many cases, to that combination.

And it's based on a technology, in many cases, that is a bit outdated. The architecture is outdated, still some copper; they have gone to fiber primarily now. But it's basically a vision of the internet or the broadband as a communication, as putting out information rather than as a conversation about generating knowledge across [inaudible] from the Internet.

Erv: The cable TV companies across the state, Comcast, Cox, the telephone companies, Verizon, AT&T, CenturyLink. These are all examples of legacy providers. And I mean, I'll say this; basically, they are all -- as they should be -- they're private full-profit investor owned corporations. They have to be focused on making a profit and return for their owners, their investor owners, in that kind of structure.

The end consumer, especially for the big corporate providers, has virtually no influence over the quality and level of service. Under the old, heavily regulated telephone system, if grandma's telephone went out, she'd probably pick up and make a call to the State Corporation Commission and there'd be the president of the telephone company out at her house fixing it the next day.

We don't have that kind of oversight for broadband services provided by either the cable companies or the telephone companies because it's not their main line business. It's not -- And they get away with not having to do it.

Again, we've got a number of good documented cases of sometimes funny, mostly sad, interactions between customers and the legacy providers on dealing with service problems.

There are the examples.

Jim: One example I would give is a very simple one, but in this part of the country, a fairly meaningful one.

When I say they do both content and connection, is when the ACC Network was formed, some of the providers didn't put the ACC Network on their system, and there was an uproar in parts of the region as to why I can't get the ACC network. You couldn't get it because it was content [inaudible] of your provider. Simple as that, was not open access.

Heather: Somebody is asking, "the politics of abundance, and that goes to your definition of a production model, gentlemen, are you framing this as only a broadband capacity issue or does abundance extend to other values of social and ecological?"

All we're talking about, we're not solving world hunger today. We're just solving, which of course, good broadband maybe could solve, but today we're solving just the broadband issue.

Then someone says, "Do you think eventually the FCC is going to start cracking down on the legacy providers or CAF-II money, and not deliver?"

Well, we haven't seen that to date, so we'll have to see.

"Is anybody on the panel familiar with the Connect Maine approach?"

I am not.

Jim: No. No, I'm not either.

Heather: Okay. Other questions for the panelists on their book? On the chapter?

Erv: Just want, the CAF-II funding issue, maybe someone on the call knows exactly where it landed, but I believe CenturyLink got just under a $100 million for opening up broadband access, delivering broadband access, to communities in Virginia. Am I off base on that? Does anyone want to either confirm or dispute that?

I was thinking it was 90 some million, something approaching 100 million.

But anyway, whatever the number, if you go across the state and talk to people in these communities. CenturyLink received the money to provide this service and it's hard to find people in any of the CenturyLink communities that are getting what they expected. Again, I don't have the latest information on that. I know that at one time there was some threat of legal action related to that, but I don't know, I don't have any idea of where it landed.

But there were definitely issues with the verification and follow-up relative to the CAF-II funding.

Heather: Evan Feinman, who's running the Virginia Tobacco Commission and also the Broadband Czar would like to make a comment.

So I don't know how to turn him on.

Neda: I just allowed him to talk virtually.

Evan Feinman: Can everybody hear me?

Heather: Yes.

Evan: Excellent. Erv, James, thank you all for your attention on this issue and, you've been pushing -- I've only been doing this a couple of years. You all have been trying to push this boulder up the hill for a while and I really appreciate it.

We're going to submit some written thoughts as well. But one of the things that I think you all, in your reliance on that 2020 study about local networks, might've missed, is the Wireless Services Authority Act in Virginia, which is itself a silly hurdle and we agree with you that the restrictions on municipal broadband right now are silly and counterproductive.

But by the creation of an authority, which any locality can do by ordinance, any locality in the Commonwealth can build a network, at any speed they like, using any technology they like, and offer service to any or all of their citizens at any price with no restrictions. The fact of that would seem to kind of belie the idea that one, Virginia's unusually restrictive in local network construction and two, that those restrictions are an operative part of why less dense areas remain difficult to serve or unserved.

Do you guys have a response to that?

Erv: I'm trying to be -- yeah. I want to see, I actually want to see people, some communities exercising that authority and moving ahead. Was the Roanoke Valley Authority created under that legislation?

Evan: Yeah, both the Roanoke Valley Broadband Authority and the Eastern Shore of Virginia Broadband Authority as well as the Wired Road, and back when it was operating, the Bristol Utilities networks; they were all created under that act.

Erv: I mean, the reality; we talk to communities across the state and the reality is that they feel very constrained and limited by the state, in terms of what they can do and how they can compete the restrictions on local subsidies, to the development of a local network, you know, local political entity, subsidizing in some way, that effort. The restrictions on how things might be priced and offered. The requirement that there be legacy provider partnerships in some cases.

But we look at the way in which money was awarded. One of the things that I looked at for two or three years every year when they announced awards would come out. I would look to see how much of that money was flowing through the legacy providers to basically just extend their network infrastructure, and how much was basically flowing directly to any kind of entity that would be from our perspective, customer or community controlled, and the disproportionate amount of the money was flowing to the legacy providers.

Now, I believe, as you point out, I really believe we're seeing a change in Virginia and the attitude towards what needs to be accomplished at the community level.

But again, there's a 400-year-old history that needs to be worked through, to be able to reach the kinds of goals that we were talking about.

Jim: Heather just put her hand up so she must want to talk.

Heather: Yeah. I just wanted to say, Evan, and first of all, I just want to say out loud, the BVU municipally owned network was a case of pure, unmitigated, corporate fraud. It had nothing to do with the fact that it was a municipal network. And I don't think it should be held up as an example of success or failure in municipal owned networks anywhere. We could have seen it with other entities.

Evan: Completely agree.

Erv: And the same people that throw that up there, are the ones that ignore what CenturyLink did. You know, my personal view is that people at CenturyLink should be in prison for what happened there.

Heather: Before we get down this road, I wanted to say to Evan, is one of the things I know they struggled with were the limitations on service expansion and if we're going to loosen up community ownership, that is something we really need to think about because if we're holding ourselves back and saying you can only operate in a legacy service territory, quote unquote, we are precluding communities from around an entity from taking advantage of helping consolidate demand for that new network. And I just think that's something we all need to think about.

You know, is the concept of service territories also extinct?

Jim: I see there's a comment about Orange County, and Orange County is one of those that has gone through a municipal, community owned approach to it with some success in it.

Erv: I think we've mentioned that in our paper, though it might've been the part that was edited out because our paper was too long. But we did have a little blurb about Orange County at one time in the paper; I just can't recall about the latest, but it is a good example.

The Roanoke Valley Authority is another good example. The Floyd Telecommunications Cooperative is another great example of the type of initiatives that we're talking about.

Jim: I do want to also reiterate something we mentioned earlier, at least, I mentioned earlier; a lot of these kind of examples are in rural communities. Local urban neighborhoods now also need to have the authority to do more in terms of their connectivity and they've been locked into a kind of model that didn't serve them well, certainly during the pandemic.

I used to live in Arlington and connected communities in the state, and during the pandemic, the school board literally had to drive around and create hot points where students could, you know, link into it.

So there are those kind of issues within urban communities that are somewhat different but still need to be dealt with.

Neda: Thank you so much, Erv, Heather and Jim for your thoughtful conversation.

And special thanks to all of the participants for joining us today and for your great questions. We have captured all the questions, even those that haven't been answered yet on the Discourse website, and the authors have the opportunity to reply to them, so those who couldn't join us today can refer to them later.

Please save the date for the Vibrant Virginia Virtual Book launch. It's on July 12th, 10-11:30 AM.

Thank you all for joining us. Thank you to all the panelists. It was great.

Jim: Thank you for having us.

Heather: Thank you.

Erv: Thank you.

Jim: Thanks Heather for your input. Appreciate it.

Erv: Yeah, that was great.

Thanks Evan.

Evan: Thanks, guys.