

The North Star of Bandwidth Abundance

*Blair Levin
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Today's topic is accounting.

Are you asleep yet?

I don't mean that in a numbers sense.

I mean it in the sense of the Book of Numbers; admittedly, the most boring book in the Old Testament.

But it contained an idea, relevant here, that communities must periodically undergo an accounting, with clear eyes, to better allocate assignments and resources.

We are at such a moment with broadband policy.

We are about to have a new FCC Chair.

He will have little time to do more than react to the cards on the table. We who care about communications policy should not hide the cards. If we have an idea of how to play them, the time to say so is now.

Otherwise, it waits, at best, for the 2017 agenda.

We can't afford to wait as we are at point cogently described by the new Chair's favorite historic figure, Lincoln: "The dogmas of the quiet past are inadequate to the stormy present... As our case is new, so we must think anew and act anew."

No, we are not facing guns firing on Ft. Sumter. Still, Lincoln's words describe our fundamental issue. The social contracts that led to the build out of the traditional voice and video networks—the networks on which we now rely to transport terabytes of data—are obsolete and will not deliver the public benefits we need.

While the current regulatory framework is inadequate for the new IP era, the simple dogma of deregulation also will not and cannot address a number of needs that we as a country agree must be met: getting networks everywhere, getting everyone on, using broadband to improve public services, assuring access to facilities that all competitors need and driving innovation.

Now is the moment to be candid about where we are and to put forth the ideas we believe will get us to where we think we should be going.

I want to lay out several ideas for how the people in this room can play a part in the next American broadband upgrade.

This is the third speech I have given in the last month about how we can upgrade broadband networks in the United States.

I have suggested, and I hope the new Chair of the FCC agrees, the North Star for policy ought to be faster, cheaper, better broadband.

Technology cost curves inherently drive us towards bandwidth abundance; if we are not reaching what the current Chair has referred to a psychology of bandwidth abundance, then, as Cassius said to Brutus, the fault is not in the stars but in ourselves.

There are three basic approaches for meeting that goal: from below, from above and from the inside.

From below means upgrading those networks that are least advanced.

This is the providence of the Universal Service Fund.

A month ago I set out an analysis demonstrating that, despite some positive elements in the USF reform package, an honest accounting suggests the reforms to are designed to shift billions of dollars but have not yet resulted in significant deployments in the areas targeted by the National Broadband Plan, nor in any material drops in consumer prices or increase in adoption.

Moreover, the FCC punted on the critical issue of contribution reform and ignored several transformational events we know are coming that may make the current efforts even more problematic.

This is a complicated issue, and we should all wish the next FCC Chair the best, but we also have to recognize that the current FCC's inability to candidly account for and monitor what it did is evidence of a deeper problem. D.C. political institutions—and sadly, the FCC is becoming more a political institution and less an expert agency—are increasingly caught up in a one-note narrative. In this case, the Commission is caught up in a note of self-praise rather than focusing on providing the expertise and analytic agility necessary to adjust programs to provide bandwidth abundance to constituencies it is meant to serve.

We need that upgrade from below, but my experience of the last several years suggests that municipalities are far more capable than federal leadership in analyzing and adjusting to the new realities.

I hope the new Chair proves me wrong; he certainly has the talent to do so. But whether or not I am right about the FCC's proclivities, we will have to finally make

the fundamental changes in how we approach USF in light of new wireless options—LTE and satellite—and new institutional needs for much bigger bandwidth, in rural America.

And we will have to confront the largest area of need—broadband adoption. Most analysis suggests that we need broadband, like water and electricity, to serve every home in order to more effectively deliver essential public services such as education, health information and public safety to all.

Some, like NTIA, are responding to that analysis, and we should all welcome Larry Strickling's announcement of an adoption best practices manual. I had a chance to read through it last night and it is a great piece of work, one I know will be welcomed in many communities.

But NTIA does not have an ongoing revenue stream to scale up its efforts to meet the magnitude of the problem.

The only program that does, the Lifeline and Link Up Telephone Assistance Program, has become a political football.

Sadly, the recent Congressional hearing, instead of focusing on how to solve the adoption problem, focused solely on how to cut even more from the only ongoing federal program.

I don't object to Congressional efforts to make sure program dollars are spent efficiently, but it is hard to believe there is a real commitment by the federal government to solving the problem when one side only wants to talk about cuts and the other does not send a Presidential appointee to defend the program and relies on voluntary efforts which show no sign of having the scale to solve the problem.

In short, we need a serious effort to push from below on the agenda.

The second approach is to stimulate an upgrade from above. This means upgrading some communities to world-leading bandwidth assuming that pulling from above will stimulate market forces to upgrade other communities.

As some of us working on the Plan in 2009 could see from the data, then-existing market forces were not going to drive existing players—who had built their business models around the concept of allocating scarce bandwidth—to upgrade their networks and create a new business model around the concept of bandwidth abundance.

Two weeks ago, I spoke about the tension between the business models of scarcity and abundance and laid out a strategy for moving towards abundance.

Basically it's this:

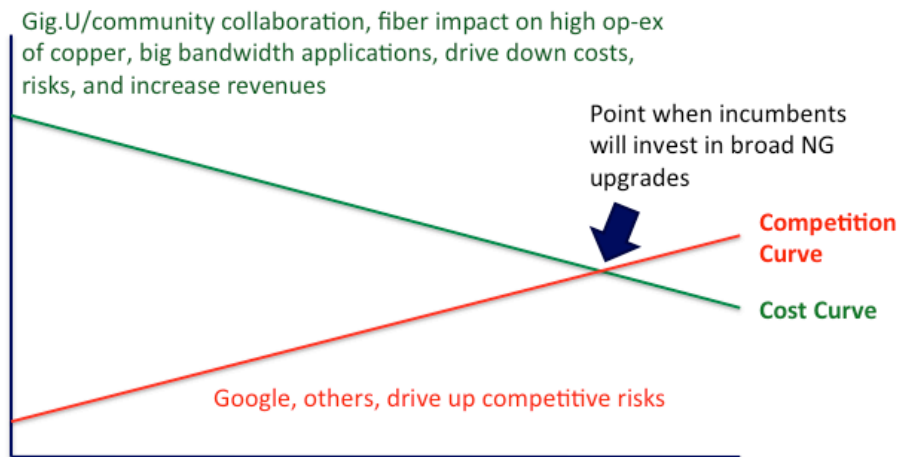
Certain actions, like those taken by Google Fiber, Gig.U communities, and others in both the public and private sectors, lower the cost and risk of an upgrade, while also creating an opportunity for more revenues.

Think of this as the cost curve (though it reflects the relationship of costs to revenues), illustrated by the green line, going down and to the right.

In addition, some, most notably Google, raise the level of competition, as illustrated by the red line--the competition curve--going up.

The Gig.U thesis is that when the two lines meet—when incumbents have both financial model and the financial motive—then incumbents will begin broadly building such networks.

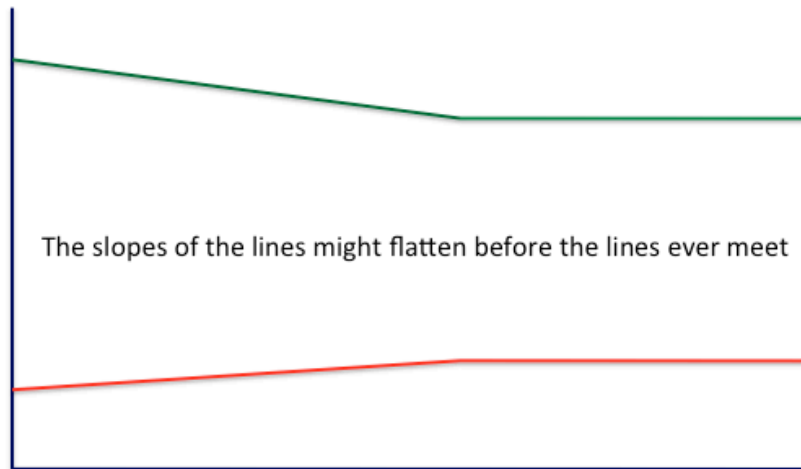
Chart 1: National gigabit build out when cost curve drops enough to meet rising competition curve



Of course, we don't know that the two lines will ever meet.

The cost curve and the competition curve might flatten before they meet.

Chart 2: From a national perspective, it is not clear the curves will ever meet



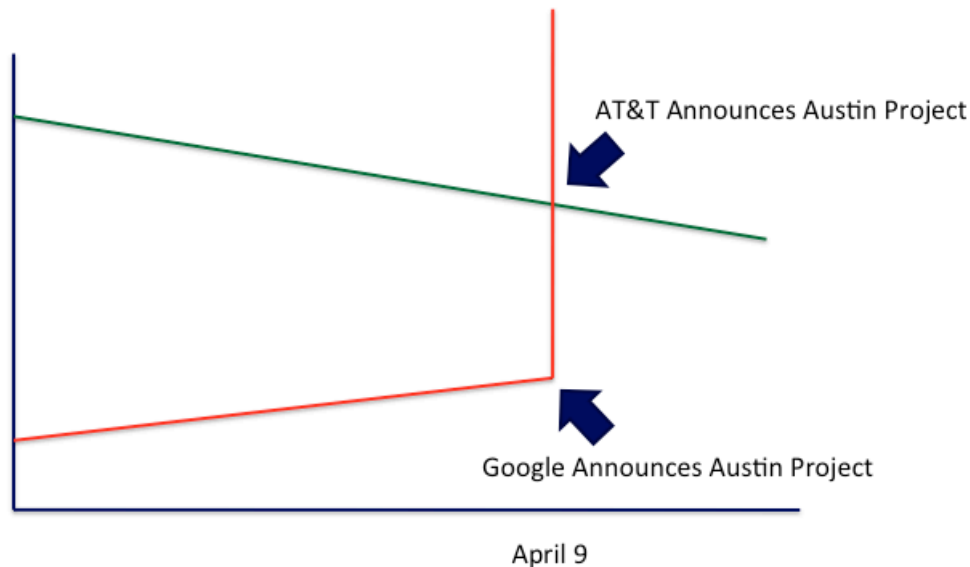
Gig.U communities and others are working hard to bend the cost curve but there are limits.

Moreover, while Google is expanding its fiber footprint, no one knows if and when it will expand further, and if it does, whether it will do so enough to cause the curves to meet.

But we know the strategy works, at least in individual communities.

Within hours of Google announcing it was building a gigabit network in Austin, AT&T announced it was at least considering doing the same.

Chart 3: In Austin, the lines may have already met



Shortly thereafter, Time Warner Cable announced a citywide Wi-Fi project, saying, “Google’s recent announcement encouraged us to deploy our network more aggressively now.”

And now CenturyLink, threatened in Provo, is moving forward with a gig network in Omaha.

The actions by incumbents should not surprise anyone nor is it criticism of the incumbents to note that in every Gig.U community that gets active, incumbents engage in, shall we say, a more robust dialogue with community leaders, about how to meet community broadband needs.

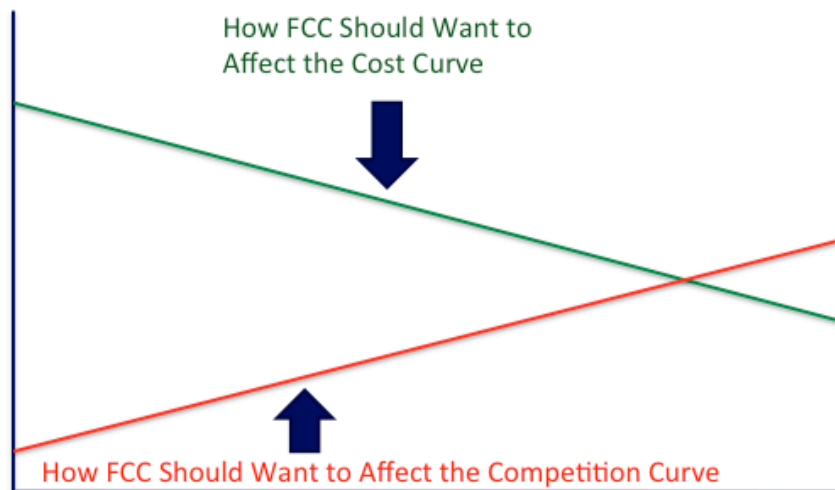
I used to kid my friend Milo Medin, who runs the Google Fiber project, that the two of us could cause an upgrade throughout the United States by leaking our travel schedules.

More seriously, what we see in communities where Google or Gig.U have announced projects is what we saw when MCI started to compete with AT&T, when DBS started to compete with cable, when wireless grew from two national providers to seven, and when cable started to compete with telcos in the ISP market. The incumbents all become better companies, consumers benefit, innovation explodes and our economy grows.

In this sense, Google and Gig.U have now run a pretty convincing experiment that gives clear guidance to policy makers.

That is, if the next Chair of the FCC wants to deliver a privately funded stimulus, massive job creation, and global leadership in the bandwidth delivered economy, a way to do that would be to take the necessary steps to bend those curves to accelerate their intersection.

Chart 4: If FCC wants US to lead in NG Networks, policy direction is clear; bend the slope of the curves

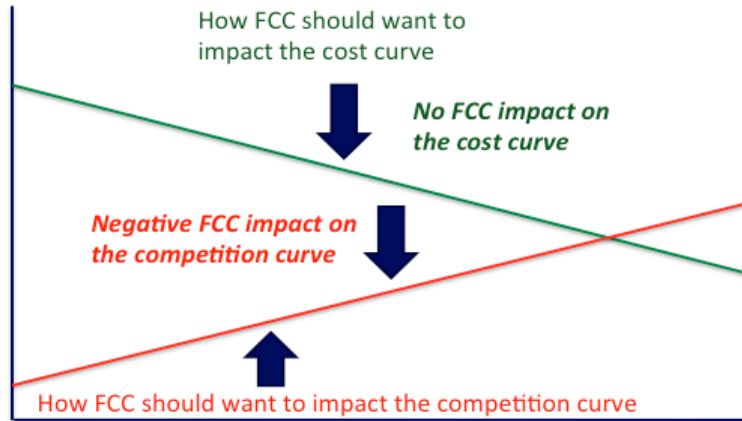


The FCC has provided rhetorical support for these efforts specifically and bandwidth abundance generally. But again, a proper accounting reveals that the actions have not matched the words.

As we saw at the workshop on gigabit communities, in the three years since the National Broadband Plan recommended a critical mass of communities with world leading networks, the Commission has not taken any action to reach that goal.

On the other hand, several actions, including actions taken on pole attachments and program access, are at best neutral and probably negative.

Chart 5: How the FCC has affected the slope of the curves



Further, it was clear that the Commission missed an opportunity in restructuring the Universal Service Fund to show the kind of vision Sen. Rockefeller recently demonstrated.

Building on the great work he, Sen. Snowe, then Representative, soon Senator Markey, and so many others did in creating the E-rate Program, Sen. Rockefeller recently called on the commission to fund gigabit networks to the classroom, an idea whose time is overdue and one that could be leveraged to help stimulate a broader community upgrade.

Fortunately, it appears that Commissioner Rosenworcel, who has great expertise on this issue, is taking up the charge. I have faith that she will make sure the next Commission will not miss this opportunity.

Indeed, she has already laid out the parameters of an E-rate 2.0 and I hope that the Commission moves quickly ahead with a Notice of Proposed Rulemaking based on her ideas.

I know we all look forward to hearing from her next. I hope she asks for your support in getting E-rate 2.0 done and I hope you give it to her.

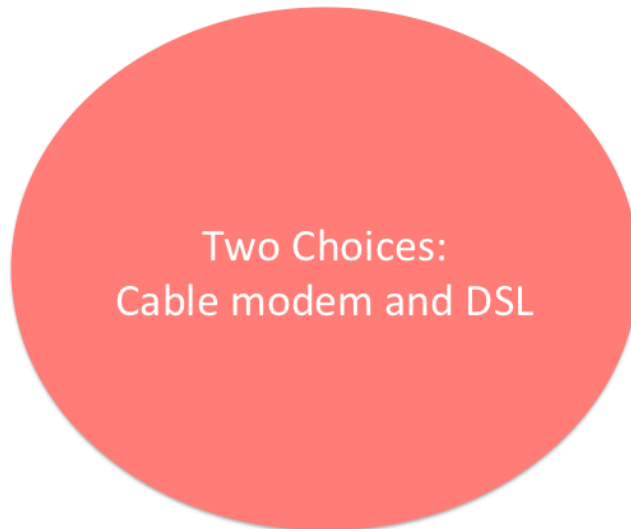
So those two strategies—from above and from below--should be on the table.

Now lets look at the third strategy. This requires building faster, cheaper better from the inside and then relies on anchor institutions, such as those represented here to spread out from there.

Think of it this way.

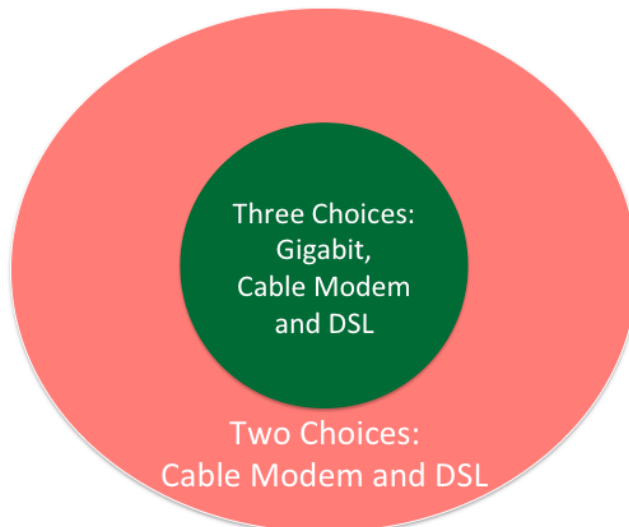
Today, most areas look like this.

Chart 6: Current Market



If Google, Gig.U and similar efforts succeed, some areas will look like this.

Chart 7: Market post-Gig.U, Google or other effort

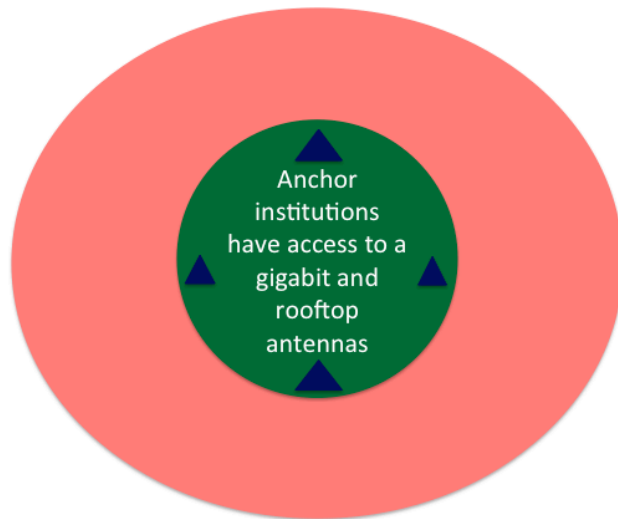


The question is how do we extend the benefits of the upgrade in green area into the pink area.

I would like to propose two complementary ideas, both of which depend on members of this audience.

The first focuses on the anchor institutions closest to the edge of the gigabit area.

Chart 8: Focus on anchor institutions near edge of Gigabit Community

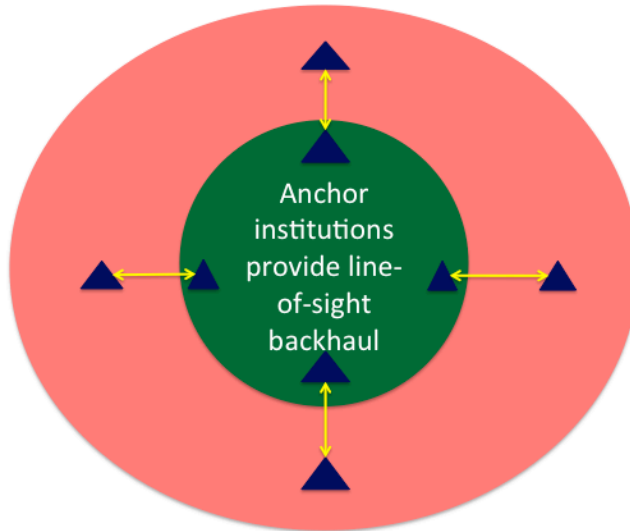


The genesis of this idea rests with Don Means, Director of the Fiber to the Library project and the Gigabit Libraries Network.

Presumably, a number of libraries and other anchor institutions would then have both a large wire-based conduit coming into the facility and a rooftop that would enable some kind of antenna. Or as Don put it, "Fiber TO the Library and Wireless FROM the Library. "

Don has suggested, and I think it is clearly worth trying, that we use those facilities for delivering high bandwidth backhaul connectivity, point to point or point to multipoint, to anchor institutions and other public spaces in the red area.

Chart 9: Opportunity to provide gigabit backhaul

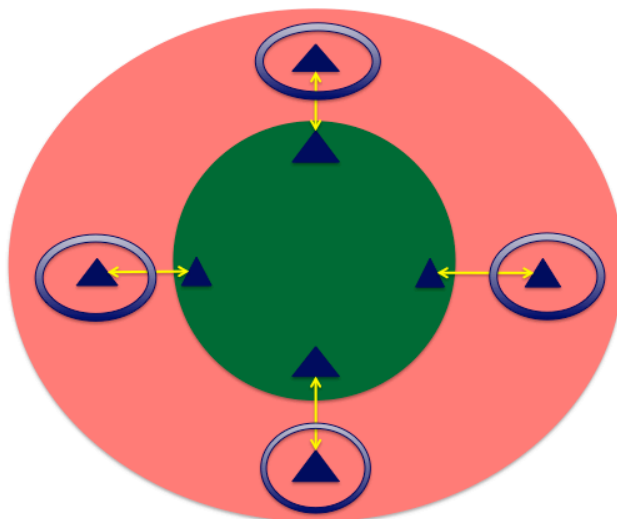


This can be done in a number of low-cost ways, including through the white spaces or other unlicensed spectrum. As we heard earlier, there will be some tests soon.

Indeed, this is one idea the Air.U project is exploring as part of its mission to bring upgrades to areas that are spectrum rich but lack the density necessary for a fiber upgrade. Gig.U is proud to be a part of that effort which Mike Calabrese and Bob Nichols, working out of the New America Foundation, are doing a brilliant job of pushing forward.

In this way, those gigabit-enabled anchor facilities could serve to extended the bigger bandwidth to a broader area.

Chart 10: Opportunity to provide upgrade to greater number of communities



There are a variety of ways to organize this that do not require federal participation; we could accelerate the experimentation, however, if a small portion of the federal funds designed to serve the same purpose were allocated to extending big bandwidth coverage.

Indeed, the question at the federal level should not be how do we reallocate funds among competing constituencies but rather, how do we use the funds to drive faster, better, cheaper bandwidth into unserved and underserved areas. Thought about that way, technology is providing new options and those—including any ideas that cost effectively leverage upgrades to extend their reach-- should be on the table for support and acceleration.

And anchor institutions should be thinking about making their facilities—and indeed their broader communities—next generation network ready. This includes building into all planning making all rights of ways and buildings fiber ready and advocating for the efficient use of federal dollars to deploy bigger bandwidth.

That leads to the second idea.

Let's call it the race to bandwidth abundance.

Certainly, one successful domestic program in the first Obama term was the Department of Education's "Race to the Top." With relatively little money – \$4.35 billion, which is, in federal government terms, a small sum – the competition created a dynamic through which 48 states reorganized themselves in ways that reform how our country, largely through state and local action, deliver education.

But imagine this.

What if Secretary Duncan had issued the same challenge but did not put any money on the table? What if he had just said to the states, you all race to the top, with your money and your effort, and as to the federal role, our job is just to be a cheerleader?

What Duncan understood is that the challenge of the job is not simply to challenge others; it is to accept the challenge of leading our country, through both word and actions, to a policy of bandwidth abundance.

One way the next FCC Chair could do this would be to take a small portion of each of the current subsidy programs and create a "Race to the Top," modeled on that successful Department of Education program. The program would offer block grants, matched by state and private investments, to communities who develop the best way of delivering connectivity in unserved or underserved areas, providing world-leading bandwidth at affordable rates, increasing adoption and connecting

public facilities, thus demonstrating new models for how we can drive more investment into communications infrastructure.

The idea mimics the core genius of Duncan's program—that the federal government can play a critical role in defining and funding an outcome but it should allow local creativity to chart the most effective path to the mountaintop.

The idea also reflects what we have seen in Kansas City and in some Gig.U communities; that the process of the upgrade can drive a virtuous cycle in which all the public needs are addressed. In other words, instead of looking at the different silos of the Universal Service Fund as addressing different, unrelated problems, let's devote a small portion of the fund to the proposition that these issues are actually related issues that can be dealt with holistically.

Let me close by noting that the three speeches share three core ideas.

First, that instead of focusing on the allocation of scarcity, we ought to be delivering abundance, particularly abundance that enables knowledge exchange.

If we do so, America will lead the world from an economic perspective, in that bandwidth delivered goods and services will drive the lion's share of the growth, and job growth, in the global economy.

We will also lead in solving some of our biggest challenges, such as delivering high quality education and health services to everyone, both here in the United States and around the world.

But to deliver that abundance, we need more than an aspiration; we need a strategy that will cause an upgrade.

Second, that local efforts are more likely to develop and implement that strategy. Local efforts are more agile, more analytic, and focused on working in the trenches.

Moreover, the most effective levers to can lower the costs and raise the revenues—the essential tools for changing the math for upgrades—are found at the local level. As we have found in every community in which we work, the barrier to the upgrade is not technology or even economics. It is organization. Any community that organizes itself to obtain an upgrade can obtain an upgrade.

Of course, federal efforts affect, and if done right, could dramatically accelerate that upgrade. I hope that federal efforts start to reflect the 'let's get it done' attitude I see in local communities but hope is not strategy.

Third, we need an honest accounting of where we are, because only through an honest accounting can we hold leadership accountable for taking the steps necessary to deliver.

The question for all of us here—a question that needs to be answered quickly—is, for what do you believe the next FCC should be held accountable?

If the ideas laid out in this set of speeches are worthy, great. If not, let's get better ones. And let's get them fast. But let's make sure we have a clear answer to the question of accountability.

Because only by answering that question can we then point the next FCC Chair to the North Star of next generation communications policy, and the acceptance of that accountability for delivering bandwidth abundance to America.

Thank you.