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Thank you, John Hollar, for that warm welcome. John was kind enough to give me a tour of the museum this morning. What a gem of an institution you have here!

This is my first visit to Silicon Valley as FCC Chairman. There can be no better venue for such an occasion. I am grateful to John and the Commonwealth Club for this invitation.

Nearly 200 years ago, the British mathematician Charles Babbage exclaimed, "I wish to God these calculations had been executed by steam!" He then went on to conceptualize the engine that drives today's network revolution. Although Babbage never built what he called his "Difference Engine," the concept of a machine capable of performing mathematical calculations was so spot-on and his blueprints so precise that over 150 years later what can be called the first computer was assembled here at the Computer History Museum – and it worked as Babbage envisioned.

The computational revolution that Charles Babbage forged has today produced history's fourth great network revolution, following those of the printing press, the railroad, and electronic communications led by the telegraph. This is the network revolution that you, in this place and in our times, have led and will continue to lead.

That's why I am very much honored to be here today for the second of a series of speeches designed to lay out thoughts on the relationship between this fourth network revolution and the American people. The first such exposition was at The Ohio State University in December. There I said that the FCC is the public's representative in the ongoing network revolution. And there I offered two principles.

First, I emphasized the importance of competition. Our competition policy is simple. Where competition does exist, we will protect it. Where competition can exist, we will incent it. And where private markets cannot be expected to deliver what the public needs, then we will proceed in a transparent manner to fill that void. Universal service is a good example.

Second, I talked about the importance of what I call the Network Compact. It has four key elements – universal accessibility, reliable interconnection, consumer protection, and public safety and security.

Today, I want to take the next step in describing my regulatory philosophy. It deals with risk and economic growth.

Risk is what Silicon Valley embraces. It is the lifeblood of innovation and investment. To eliminate risk would be to eliminate growth.

But, at the same time, there are some risks that are so big that they threaten to block competition and innovation, and thus block growth. Markets won't work if these risks aren't mitigated. That's why, for example, we have binding contracts. When government enforces contracts, businesspeople are able to make deals. Without enforceable contracts, business cannot be conducted. Who, for instance, would pay today in order to receive a shipment tomorrow if contracts enjoyed no legal protection?

In the realm of the FCC, the most familiar counterpart is radio interference. Who would have invested in a radio station in the 1920s or 30s if there had been no guarantee that listeners could hear that station's broadcast free from a cacophony of other wireless transmissions?

So I would like to take a few minutes today to talk about three important ways in which the FCC should respond to the kind of pernicious risk that prevents, rather than enhances, market dynamism. Or, to say the same thing in a different way, the steps the FCC can take to remove obstacles and to supply inputs, tangible and intangible, to enable innovators to spur growth.

First, through spectrum policy that eliminates risks stemming from the government-mandated misallocation of spectrum.

Second, by speeding the transition to all-IP networks by preserving the Network Compact.

Finally, through the protection of the Open Internet that is, today, our largest, global channel of commerce.

I know some of you are, no doubt, recalling the old saw, "I'm from Washington, and I'm here to help you" and eyeing the closest exit. Well, please bear with me for a moment.

For most of the last decade I was a venture capitalist. I understand how Sand Hill Road and Pennsylvania Avenue sometime seem to be on separate planets. I'm well aware of the skepticism toward government.

For this discussion, however, let's stipulate two things: government isn't always as smart as it thinks it is – and neither are entrepreneurs and innovators.

What do I mean by this? Simply that because it is by nature risk-averse, government cannot – and should not – micromanage dynamic technology-driven markets. My agency, for instance, sat on the idea of cellular telephony for a decade and a Commission member at the time even warned against using spectrum for the obviously frivolous purpose of making phone calls.

At the same time, however, the individuals who are defining our new network revolution are like the proverbial frog on the fencepost – they didn't get there by themselves. Microprocessors, packet switching, ARPANET, and other innovations all came out of government projects. And the FCC finally got cellular telephony right – including the creation of a marketplace of competitive service providers.

Which brings me back to the first of the three ways the FCC can minimize harmful risk and encourage dynamism and economic growth: the policy governing the use of the electromagnetic spectrum.

The majority of networks of the future will ride on the air. They may be cellular, or Wi-Fi, or satellite, or they may be fiber or copper networks that end in Wi-Fi hotspots. The defining characteristic of our forth network revolution is its untethered nature. The spectrum that enables this untethered connectivity is assigned and allocated by the FCC.

Historically, the government allocated spectrum for specific uses or applications. The realities of analog transmission meant that each application, whether television broadcasting or a walkie-talkie, required its own assigned chunk of spectrum. As the IP revolution has meant that a voice call looks just like a television show – a collection of 0s and 1s – the analog-inspired spectrum silos have become an impediment to advancement. Put another way, one of the revolutions through which we are living is the reworking of analog spectrum concepts to the new digital realities.

Slavishly sticking to analog age concepts of spectrum allocation can become, in the digital age, a government-imposed chokepoint that burdens competition and innovation by creating unnecessary and artificial scarcity of this essential resource. The spectrum allocation chart is chock-full of allocation decisions made on analog concepts that are no longer valid today.

We need to bring more spectrum capacity to market… and fast. We have not had a major spectrum auction since 2008. I am pleased to say that due to years of effort, the spectrum pipeline is reopening. We have one auction scheduled to begin in less than two weeks, on January 22. Two other major auctions will follow, the first in fall 2014 and the second in mid-2015.

It is the 600 MHz incentive auction, now planned for mid-2015 on which we should briefly focus. The incentive auction will repurpose a large swath of spectrum from broadcast-only to more flexible uses, including mobile. It will bring together willing sellers of spectrum rights with willing buyers, through a two-sided auction. Technology makes it practicable. The marketplace makes it profitable. The FCC, through both its rules and auction design, makes it possible.

Let there be no mistake about the degree of difficulty of this undertaking. We are attempting something never done before. But as with our original spectrum auctions twenty years ago, the risks are well worth taking. Congress made the right call when it authorized the agency to conduct an incentive auction in the 600 MHz band. We will get it right.

Allow me to pause here for a commercial message. Change is difficult, especially when your business – in this case the broadcast business – provides a valuable national service, but does so in an environment in which increasingly over-the-air is only one of the platforms available to distribute video.

When Congress created the Broadcast Incentive Auction in 2012, it was recognizing that spectrum allocated on analog technical principles for analog business models may no longer be preferable for businesses in the digital age. The wisdom of its decision (and I don't use that word lightly – it was wise) was to let the market, rather than lawyers and Washington "Wise Men," make spectrum allocation decisions through an incentive auction.

But for an auction to be successful there must be a willing buyer and a willing seller. In this case, it begins with the sellers, those presently holding broadcast licenses. The auction is a huge opportunity for those broadcasters who want to capture the value of their spectrum.

Discussion of the auction has seemed to focus on those broadcasters who may find it attractive to simply sell their spectrum and exit the business. Obviously, such a decision would facilitate the auction process.

But there are other options that are presented by the auction as well. One of these is for broadcasters to bolster their balance sheets, reduce capital expenses, and continue their traditional business by sharing a channel with other broadcasters.

Broadcast licenses are 6 MHz of spectrum – the old amount necessary to transmit an analog waveform. A digital television channel, however, does not require the full 6MHz of spectrum. In the new digital environment that 6MHz of spectrum can deliver 19.4 mbps of throughput – far more than is necessary to transmit a standard definition or even a high definition TV channel. This means that the 6 MHz of spectrum once required for a single analog television channel now provides sufficient capacity for multiple television signals to coexist comfortably. The FCC is changing its rules to allow licensees to share capacity inside that 6 MHz, maintain their broadcast carriage rights on cable (which is 90 percent of their viewing homes anyway), and walk off with a big check from selling their old spectrum.

I cannot remember a point in history when it has been simpler, safer, or more profitable for an incumbent service provider to take advantage of new technology. Typically, new technology plows under the old business models; in this case, however, the FCC is overseeing a once-in-a-lifetime opportunity for profitable repurposing of an important business activity.

That this is a once-in-a-lifetime opportunity is not hyperbole. The rebanding associated with this auction is hard enough; when it is done the ability to do it again will be virtually nil. There will not be another round of broadcast incentive auctions.

Of course, it would be unreasonable to ask broadcasters to make decisions of this magnitude without adequate information about the reverse auction. More information in that regard will be forthcoming in the next few months.

So, why do I pause for this commercial message in the middle of a Silicon Valley speech? One reason is to speak publically to my friends in the broadcasting business about their once-in-a-lifetime opportunity. The other is to highlight for those in this valley who may have designs on using spectrum that their business models depend on helping others to see that digital opportunity for their broadcast business models.

While we're talking about the incentive auction it is also important to emphasize that the accompanying rebanding will include additional allocations for unlicensed use. One of the FCC's great success stories was the creation of unlicensed uses in the 2.4 GHz band in the 1980s. Who would have imagined that WiFi, Bluetooth, and other innovations would result? The rebanding of the broadcasting spectrum for wireless purposes will result in nationwide guard bands available to be used by unlicensed devices. This presumes, of course, that sufficient amounts of broadcast spectrum are put on the market.

The final point I'll make on spectrum – and I will be brief on this point, for now – is that spectrum management needs to evolve. Existing practices have served us well but are often still rooted in analog concepts. More dynamic use of spectrum compels us to innovate in spectrum management. Two groups – the President's Council of Advisors on Science and Technology, led by the Bay Area's own Mark Gorenberg, and the FCC's Technological Advisory Council have been out front on this topic. These groups have made important proposals that go to the FCC's core role as keeper of the master "zoning map" that allows different technologies to coexist in the radio spectrum. We are actively working on these ideas. I am particularly focused on spectrum sharing in the 3.5 GHz band, which I believe can be a launch pad for next generation spectrum policy.

The second policy area in which the FCC addresses risk to technology fueled economic growth concerns the transitions to an all-IP network. This is important in its own right, but it also is important because it demonstrates that the Commission will adapt its regulatory approach to the networks and markets of the 21st century.

The FCC derives its jurisdiction from statutes that were enacted in the analog age. Those laws tend to be organized, understandably enough, in terms of the categories that existed at the time of their origin. But they contain timeless values—encapsulated in what I call the "Network Compact." Preserving those values in new technological circumstances is the work of the IP transitions.

Note the use of the plural "transitions." Circuit switching will be replaced by more efficient networks – made of fiber or copper or wireless. Greater efficiency in networks can translate into greater innovation and greater benefits for network operators and users alike.

Here, too, we can confront risk that could slow technological advances. For instance, would very many people want to rely on networks that fail to connect to 911? I don't believe so. That's why the best way to speed technology transitions is to incent network innovation while preserving the enduring values that consumers and businesses have come to expect. Those values are all familiar: public safety, interconnection, competition, consumer protection and, of course, universal access. They are familiar, and they are fundamental.

The FCC has a responsibility to both speed this transition in order to accelerate economic growth, and to protect those values that network users have a right to expect from their networks. At the January 30 Commission meeting I expect that we will invite proposals for a series of experiments utilizing all-IP networks. We hope and expect that many proposed experiments, wired and wireless, will be forthcoming. Those experiments will allow the networks, their users, the FCC and the public to assess the impact and potential of all-IP networks on consumers, customers and businesses in all parts of our country, including rural America.

The third and final policy topic for our discussion today is the importance of an open Internet.

Broadband networks are essential to our national wellbeing. Last month, I released an eBook called *Net Effects* – available for free on Amazon [and other outlets] – that talks about how broadband networks have the potential to be even more important than their historical antecedents.

Broadband networks are notable for their high fixed costs and very large minimum efficient scale. At least at the local level, that opens the potential that there might not be many competing networks in any given area. Such a situation, of course, raises the distinct possibility that the owners and operators of such networks possess, at the least, some local market power.

The very possibility is sufficient to sustain this conclusion: it is essential in the public interest of our country that the government, and by government I mean the FCC, have the power to oversee the broadband networks and to intervene to forestall their exploitation by unacceptable acts.

What we call the "Internet" is not a singular "thing," but rather a "collection" of wired and wireless networks using a common protocol. The essential component of this collection is that the networks interconnect. In the Internet world, such activity is called "peering," but it is just a new name for an old concept of the benefits of networks connecting with one another.

Just as interconnection is important, so is openness.

It is important to learn from history here as well and to establish a policy construct that says that openness is a desired criterion for our new 21st century networks. Not unlike how the radio stations of 1920s needed to be protected from technical interference, today's entrepreneurs need to have a fair opportunity to reach their customers over the biggest technological channel of them all – the Internet.

Public policy should protect the great driving force of the open Internet: how it allows innovation without permission. This is why it is essential that the FCC continue to maintain an open Internet and maintain the legal ability to intervene promptly and effectively in the event of aggravated circumstances.

No one in the Valley needs to be convinced of the importance for innovation and overall societal welfare of our broadband networks. Keeping them open for any and all lawful uses is a major policy imperative.

I draw from this three obvious implications:

First, I support the Commission's Open Internet decision, which has helped preserve the Internet as an open platform for innovation and expression, and has increased certainty and predictability in the marketplace.

Second, I support common law-like approaches to discerning the difference between appropriate and inappropriate broadband network conduct. In other words, the very general principles found in the Open Internet Order should be reduced to justiciable practices on the basis of facts arising from specific circumstances.

Third, the pursuit of legitimate private gain may not be sufficient to meet the national interest in the creation of robust broadband networks in all parts of America. That is not a failing of business, but it is, I think, a responsibility of government to assure that open access not only means getting on the network, but also getting to the network.

The necessity for these policies and the wisdom of case-specific approaches to implementing them is demonstrated by a coincidental occurrence earlier this week. AT&T announced a mobile service offering that enables subscribing firms to cover the airtime costs of accessing their content. Based in part on the premise that consumers have more choices for mobile wireless service than for fixed, the Open Internet Order did not discourage this type of two-sided market for mobile uses. It also made clear, however, that the Commission would monitor these types of development carefully.

This seems to me to be the right approach. It may well be that the kind of offering AT&T has announced enables increased competition and increased efficiency—both things that benefit consumers. It is not the sort of thing that should be prohibited out of hand. But, again, history instructs us that not all new proposals have been benign. There has to be some ability on the part of government to oversee, to assess, and, if warranted, to intervene.

Let me be clear about this. I am not advocating intervention unless there is an unmistakable warrant for it. I am not interested in protecting competitors from competition, nor am I interested in presiding over a festival of rent seeking. But I am committed to maintaining our networks as conduits for commerce large and small, as factors of production for innovative services and products, and for channels of all of the forms of speech protected by the First Amendment. We should not let these things be impaired.

This is all closely related to competition policy, of course. Competitive markets produce better outcomes than regulated or uncompetitive markets. We must protect competition where it exists. We must promote competition where it may not be fulsome.

But where significant, persistent market power exists or where significant negative externalities exist, FCC intervention may well be warranted. And, of course, we will exercise with care our duty to ensure that new transactions do not create market concentration in regulated industries that would impair the public interest.

Let me conclude with a request. You should think of these remarks as the start of a dialogue. Moving forward, I invite your active participation at the FCC. Tell us what you know. Tell us what you think we should do.

I've discussed today three important areas of policy – spectrum, the IP transitions, and the Open Internet. We want you to be involved. Every action the FCC takes or declines to take has consequences. If you want those consequences to be positive, you should participate, with your insights about technology and the kind of ecosystem most conductive to technological progress and dynamism. It is not too much to say that the future depends on it.

Every day, the tech sector pushes the bounds of what is possible, and yet, I believe that the greatest discoveries still lie ahead. I look forward to working with you to realize the promise of the fourth network revolution to strengthen our economy and improve the lives of the American people.

Thank you.