Constellations Podcast

Episode 24 – Balance, Certainty and Sharing the Spectrum

Speaker: Tom Stroup, President, SIA – 24 minutes

John Gilroy: Welcome to Constellations, the podcast from Kratos. My name is John Gilroy and I'll be your moderator today. Our guest today is Tom Stroup, president of the Satellite Industry Association. Tom, how are you?

Tom Stroup: I'm doing very well, thank you.

John Gilroy: Satellite Industry Association in Washington, DC. We call that the SIA, so tell me what does the SIA do?

Tom Stroup: We represent the US satellite industry. We're comprised of satellite operators, manufacturers, launch companies and ground equipment providers. We service an advocate for the industry. We compile information to help educate policy makers. And then when we establish consensus positions, argue them before the government.

John Gilroy: So satellite operators, service providers, manufacturers, pretty wide range of folks there, isn't it?

Tom Stroup: It is indeed.

John Gilroy: You're almost like a traffic cop. You've got all these people you're representing, and you got Capitol Hill up the road from you, and there's a lot to negotiate these days, isn't there?

Tom Stroup: There is, even within our organization because we operate on a consensus and sometimes it takes a lot of effort to try and establish a common ground.

John Gilroy: My, my, my. Washington, DC. Well here we are in Washington, DC. I guess we've got to talk about policy. There's news out of the FCC just in July 2018, the FCC is thinking about a proposal to open up a large band of satellite spectrum for mobile and fixed wireless broadband. I imagine someone like you could go on for hours and hours about that, but why did the FCC even consider doing this?

Tom Stroup: The commission continues to look for more spectrum for the terrestrial mobile industry. They also look for spectrum for unlicensed uses. Because most of the spectrum has already been allocated, they're at the point now where they need to identify whether there are bands that are currently used for other purposes that might be shared or otherwise made available. The characteristics of that

band, what we call the C band, are such that they are very good for terrestrial purposes as well as satellite purposes. There are some efforts around the world to look at whether that spectrum can be used for 5G, or next generation wireless services. So that's one of the drivers. They started this process with the notice of inquiry last year. And the notice of proposed rulemaking that came out yesterday would provide the specific rules under which this would happen.

John Gilroy: So this is really getting a lot of interest for the terrestrial people. And the satellite people as well.

Tom Stroup: Yes. Interestingly enough, a couple of the major satellite operators, SES and Intelsat, have identified how they might be able to make some of that spectrum available. Essentially by moving to other portions of the band, clearing 100 megahertz of the 500 megahertz, and putting their users into the remaining portion of the band.

John Gilroy: You tossed out a phrase that some listeners really know and some don't. This concept of 5G. Now I think it's more about marketing concept than the technical, so it's not a specification from this, it's a marketing concept isn't it?

Tom Stroup: Well, that depends on to whom you speak. So we've seen this within the wireless industry before, because 4G was considered to be a marketing concept at one point. I think that for many people, 5G just involves a higher capacity, higher speed than 4G of any existing services.

John Gilroy: What happens, people are thinking about autonomous cars, there's IOT everywhere, people are on their phones all the time. They want to be on a train and have phone access. And so there's more and more demands on the spectrum, isn't there?

Tom Stroup: There is. People expect to be connected no matter where they are. You mentioned trains. There's certainly an expectation that that's true on airplanes as well. That's been one of the big growth areas for the satellite industry as we transition to satellite provided service. But that's one of the major drivers.

John Gilroy: Well from the SIA, we're going to go to the NTIA. The National Telecommunications and Information Administration, which is a federal agency I think.

Tom Stroup: Yes, it is.

John Gilroy: And there are all kinds of policy forums in this town. They hosted a Spectrum Policy Symposium just here in the last couple months. They're trying to come up

with something called strategy. A spectrum strategy. So what's your role in that and what's your idea of this whole spectrum strategy?

Tom Stroup: Well the NTIA's role is to coordinate policy for the Secretary of Commerce and for the Administration. They're also responsible for the allocation of spectrum for federal government use. But they are working on developing a policy. They held the symposium recently as you mentioned and we've been working with them on how they might address the issue of a national spectrum policy. The things that we've emphasized have been that whatever they adopt, it be balanced. There are a lot of interests that need to be taken into consideration. Certainly the defense department and other federal government users have their needs. Various industries and users of commercial spectrum have their needs. And what we've emphasized is that needs to be balanced. Because there are some industries that have a great deal of resources. The wireless industry is a good example. But that doesn't mean that they should be given all of the spectrum. There needs to be a balanced approach.

Tom Stroup: The second is that we've noted that there needs to be certainty. The satellite industry, like many other industries have a very long lead time. Ours is especially long because the assets that we put are put into space. So we need to go through the design testing for circumstances that are not typical of those that are found here on Earth. And then we need to go through the launch process. Once there, assets typically are expected to last about 15 years. So there's a long lead time to recovery of those expenses. Certainty is one of the other important factors that we've emphasized. That they do not change rules midway through the allocation process or after assets have been deployed.

Tom Stroup: And then the final is flexibility. Technology changes very quickly. Just in the last couple of years we've seen a change in how 5G is defined and how it's expected to be deployed. Initially it was identified it was going to be used in the higher frequency bands. Now the wireless industry has indicated that they have needs for additional bands to be able to provide coverage. And more importantly from our industry's perspective there's now an understanding that the satellite industry is going to play an important role in deployment of 5G services.

John Gilroy: The number I've read is 15 years. You put a satellite up there you want to get at least a decade, a decade and a half of use out of it. This is an expensive item. It's an expensive bet putting all that information up in the sky, isn't it?

Tom Stroup: Absolutely, yeah. Our traditional satellites cost over 100 million dollars. As I mentioned the cost of getting it into space is expensive. The prospect of losing the revenues that are generated from that service because of the rule change is very substantial for the industry.

John Gilroy: So we have to have some kind of policy that is adaptable and flexible for a new technology or people taking existing technology and modifying it and making it better or more of an impact, I think this is this millimeter wave. Is that something that someone, maybe a scientist is taking a look at and modifying it to make it more productive?

Tom Stroup: Yeah, I think that that's a good example of how the technology has allowed the use of frequency bands that otherwise been considered unusable. Certainly for many purposes. The millimeter wave bands have been considered to just have propagation characteristics. They don't travel very far, the don't penetrate buildings very well. So it's something that had not been identified as useful for the terrestrial industry until just the last few years. And it is a band that has been used within the satellite industry. We called a portion of that band the KA band. That's being deployed for broadband services via satellite. The physics haven't changed but the technology has in order to make it useful for different purposes.

John Gilroy: We talked about a symposium earlier. One of the groups at the symposium were the FCC. Right downtown. I think they were adapting this flexible term that you used, and they're trying to be flexible as well. And they're trying to streamline some processes where businesses can make some kind of a plan in order to make an investment for improving services to customers, to citizens, to the defense department. They have to have some kind of certainty as what the plan is, but have some flexibility. Proving some non-geostationary orbit market access. Is that one of the variations?

Tom Stroup: It is. So the NGSO constellations that have been announced is a big change in the industry. Certainly there are companies like Iridium that have been operating non-geographic. Which means they operate in a different orbit that's not synchronized traveling around the Earth. So the dish is pointed at one spot in the sky. But rather there are multiple satellites that are providing coverage. There have been applications filed for over 10 constellations comprising over 18,000 satellites. Given that drastic change in the industry, the commission has noted that the approach that they've taken to processing applications needs to change. And also the rules under which satellite operators and other industries as well, need to be more flexible because of the rapid changes in technology, and the growth that's taking place.

John Gilroy: 18,000 satellites? So from your perspective, and you're kind of in the catbird seat here, what approach do you think they should take to this spectrum planning and strategy?

Tom Stroup: The FCC? Certainly they are a key player because they're responsible for allocation of spectrum for the commercial industry. And again, I would note that the same things that I emphasized the NTA are applicable here. They need to be

balanced in the approach that they take. So when we went through the what was called the Spectrum Frontiers Proceeding, there were rules established that allow for the sharing of satellite spectrum with terrestrial operators. That created a lot of issues for our membership. I think that the current FCC administration has made an attempt to make a more balanced approach. And this whole process has been going on to create additional spectrum for all industries to grow. But certainly the satellite industry. And I think that they've reached a balance, some spectrum is allocated specifically for the satellite industry. Some for the terrestrial industry. But that's an example of the balance that I talked about.

Flexibility, they've noted that it is something that is going to have to occur because we just don't have mores spectrum that's available. So I think that they've looked at a flexible approach. Different ways that the industries can share the spectrum.

John Gilroy: SIA is a U.S. organization but I assume that you keep abreast of satellite activity outside the U.S. as well.

Tom Stroup: Absolutely. So the satellite industry is definitely a global industry. There are a number of satellite operators headquartered in Europe. They certainly use our satellite services. But also it's heavily used throughout the world. Especially in areas where it's harder to provide service via any kind of terrestrial system. So satellite may very well be the primary means of communication for a lot of the world.

John Gilroy: (00:10:59) Let’s talk about the section 706 analysis. What is it and why should people in the satellite industry even care about it?

Tom Stroup: Well the 706 analysis is a requirement of congress for the FCC to determine whether there is broadband service deployed to all Americans. The relevance of the satellite industry is that satellite based broadband is a very rapidly growing segment of the industry. And in the report that was just released by the FCC for the first time, they included satellite broadband in its definition of broadband services for 706 purposes. The relevance happens to play out in terms of whether may be subsidies that are offered to be able to provide broadband services into rural America or areas where they don't have service. So that the inclusion of satellite is important to make sure they're eligible for those kinds of services or those kinds of subsidies.

John Gilroy: Okay, I'm going to get some trouble with this question. Do you think the FCC is biased in favor of the wireless carriers?

Tom Stroup: So there are certainly instances where we feel that there's been an improper balance.

John Gilroy: Oh, there's a correct word. He is a Georgetown lawyer.

Tom Stroup: And a good example of that would be in the preparation for the World Radio Conference. That we're going through the process right now. This is done under the auspices of the ITU, under the United Nations, it's an effort to make sure that we have a global harmonization of spectrum use so that we don't have one use in the United States and another use in Canada that end up conflicting with each other. The way the system operates is each country has a vote and each country puts together its recommendations. And there are times that we feel that the FCC has not had a completely balanced approach. And we also felt that same thing a couple years ago when we were going through the Spectrum Frontier's proceeding where the chairman of the FCC spoke at a satellite leadership dinner and essentially told us we either needed to get on board with the spectrum sharing or we were going to get run over by the train. That's not something one typically hears from the head of an administrative agency.

But I think that the current administration, the current leadership has made much more of an effort to ensure that the industry's interests are balanced. They've recognized the role of satellite industry, the need for spectrum allocation. So it changes over time, but it is an ongoing concern of ours.

John Gilroy: In February, you spoke before the National Space Council. What is the National Space Council and what did you speak to them about?

Tom Stroup: The National Space Council is comprised of several representatives of the administration. Several cabinet level members. It's headed up by the Vice President. And the presentation that I made related to ensuring that there is a regulatory environment that postures innovation. That was one of the topics of that session of The National Space Council.

The other two topics that I mentioned were the need for Spectrum's certainty and sustainable space operations. But the Space Council is in a position to help coordinate the activities of the government to help promote the commercial space industry. But also I think that they recognize the importance, not just the commercial industry, but also for purposes of defense and their activities spread around different agencies within the government. And this provides the opportunity to coordinate those activities.

John Gilroy: A "Sustainable space environment" seems to be one of the new buzzwords – what makes a sustainable space environment? Is that important?

Tom Stroup: It is. It's a very important issue. Again the industry is growing at such a rapid pace that we need to ensure that we don't have incidents in space that can create a hostile environment. There are issues with orbital debris. If there's an occurrence where two satellites are, or a satellite and some object collide, there's debris that's created. Once there, it can be very difficult to maneuver around it. And some instances they're low enough that they come into the Earth's atmosphere and burn up.

Given the increase in the number of satellites that I mentioned, we currently have about 1800 satellites. I told you that there are applications pending for over 18,000. Just to give you a sense of the tremendous increase in the number of satellites that are going to be operational, we need to make sure that we have policies in place and that the industry and government are doing what they can to ensure the safety, as well as the utility for all of the generations in the future. It's a shared resource. It's not just an asset of the United States. It's a global resource, but one that we need to make sure continues to be safe in which to operate.

John Gilroy: Earlier we talked about reviving The National Space Council. But there's interest in other aspects of the federal government too. For example the commerce department announced their elevating the Office of Space Commerce. So this is getting attention on Capitol Hill here and all throughout the government isn't it?

Tom Stroup: It is. We are delighted to see the Commerce Department and the Secretary of Commerce taking the interest that they have in the space industry. I think that there's an opportunity to be able to cut through some of the regulatory processes that hindered aspects of the industry. A good example of one that is before the Commerce Department already relates to the Earth observation industry. So that's something that I think we can all envision having used Google Earth, but it's been very important to the intelligence community.

But as the industry has evolved there are many more different sources of information. Different companies that are providing Earth observation services. In order to deal with national security issues, there'd been a process by which several different agencies needed to sign off on an application to be able to provide these services. It could take years before that approval process was resolved. And this allows them to address it much more quickly.

I think that having the attention of the Commerce Department who's role is to facilitate US businesses, I think will ensure that we have a much speedier process and a much more streamlined process. So it's a very positive development.

John Gilroy: Is it possible to create a regulatory environment that fosters continued innovation and leadership?

Tom Stroup: Absolutely. And traditionally the tracking of assets in space has been done by the defense department. Certainly they had a very good reason to do so because of the assets that they have. But they provided warnings to different satellite companies of potential conjunctions, potential collisions. And they're at the point where 90 percent of the conjunction warnings that they provide are for the commercial industry. So that's not really something that they feel that they should be doing on a going forward basis. And, there's not an organization that has been identified previously to take on that role. To serve as any kind of management function. So once a satellite is in place, if there's a need to move it, no one can force them to go ahead and maneuver to avoid a collision.

That's one of the reasons we're having this discussion. It's not just tracking the assets, but also should there be a management function and where should that take place? Some have suggested that it be at the FAA, others have suggested, according to the space policy directive recently signed by the president, have expected it to be at the commerce department.

John Gilroy: Can you give a general picture of 5G right now? Where are we in terms of policies and standards, especially as they relate to satellites?

Tom Stroup: So we're going through the standard setting process. It's been interesting to see this unfold because there have been different visions as to what 5G is. Or what it will be I guess may be a better way to put it. From the satellite's perspective, we've been pushing to ensure that there is a role for satellite. And I think that one of the best ways to characterize this is today, any of us that have used cell phones, if we get into rural areas, very often we don't have service. I was at the town of Little Washington in Virginia just a few weeks ago. There was no service.

John Gilroy: Did you go to the restaurant there?

Tom Stroup: There was no service in the restaurant; there was no service outside the restaurant. And that is only 70 miles outside of Washington. I live in Great Falls, Virginia which is 16 miles outside of Washington and I continue to have calls drop. And I'm not attacking the wireless industry by any means, because a bulk my career was spent in the wireless industry. So I know the challenges. But I think it highlights how if we're going to be able to provide the services with the capabilities that are promised by 5G, it would be important that they recognize upfront the role of the satellite industry.

When I was at the NTIA symposium I gave some examples of the role of satellite. And one example would be communications on the move. You mentioned before trains. I mentioned airplanes, boats, anything that is moving is much more easily served, many instances more easily served with a satellite than with the terrestrial communications.

Another is being able to provide service to homes or businesses in rural areas that don't have terrestrial coverage. That's another example of where 5G services will be provided by the satellite industry and then of course connecting cell site trunking. There'll be millions of site that are deployed as part of the 5G deployment. There's not going to be fiber to all of those sites. And the satellite industry is expected to play an important role in connecting them.

John Gilroy: You spoke at so many conferences here in 2018. I'm going to pull a quote from you at a conference and you explain it for us. Here's the quote, from you. "I think building to share is definitely a policy that should be examined closely as we move into a greater sharing environment." And this is what we're talking about mostly here, isn't it? Sharing and some regulations around it.

Tom Stroup: It is. So, we have services that are deployed in most of the bands that are usable. What I was seeking to drive there is that, once deployed, if there is a new entrant coming in and they know that they're going to have to share, whether it's with the satellite industry, whether it's with a microwave system, whether it's a mobile system, they can design their system in order to detect the signals of that service that is already there. This has been especially important to the satellite industry. As we've been through a discussion about sharing the KA band with mobile users. Because we've already deployed assets, and my point is that it's easier for the new entrants to determine how they're going to share with the satellite industry. But it's not just sharing with satellite systems, there are other industries that end up sharing spectrum. And the point is if you design your system to share with what's already there, it's far easier than for the incumbents to try and go back and design their system or make modifications to their system.

And we're dealing with those issues in the C band, the rule making that you mentioned. Ultimately I think that the satellite operators may actually clear a portion of that band because of the challenges of sharing with the mobile wireless industry.

John Gilroy: And if we just look at your previous career, you were dealing with industries that had sensing-base sharing technology. So this is nothing new for you, maybe other people, not for you.

Tom Stroup: Yeah, it's interesting because I've been dealing with spectrum issues for a good portion of my career, including starting a company that cleared spectrum for the wireless industry. And then most recently have been running a company that develops sensing-based sharing technology. Originally for the military but with the idea that it ultimately will be applicable in cases like the ones we're talking about.

John Gilroy: I'm trying to come up with a snappy phrase or something that summarizes 5G. I'll toss this out and you can tell me if it's a good idea or not. Is 5G a network of networks? Is that how to describe it to someone walking down the street? Is that what 5G is?

Tom Stroup: Well I think for someone walking down the street, that would be considered gobbledygook.

John Gilroy: Faster. They'd understand that wouldn't they?

Tom Stroup: I think faster, greater capacity. From the consumer's perception I think that what they want is service anytime, anywhere with the capabilities that they've gotten used to. Whether it's in their home using fiber optics, or whether it's on a wireless system, or cellular system, especially when they're on planes or otherwise inaccessible.

John Gilroy: Good, good, good. Well Tom, unfortunately here we're running out of time. I'd like to thank Tom Stroup, president of The Satellite Industry Association. If you liked the interview give us a rating and a review on iTunes and don't forget to subscribe.