



## Transcript

### FirstNet Board of Directors Webcast, Washington, DC, March 24-25, 2015

#### *Part 2 - Technology Committee*

BARRY BONIFACE: All right, then, well, we'll try to be efficient here in the Technology Committee. I want to first of all thank those of you in the audience, as well as those of you that are on the webcast. We're delighted to have you participate in this process and look forward to the healthy discussion. With that, I'd like to have the Board Secretary read the conflicts notification, which he did in the Governance Committee as well. For the Board members here on this committee, and then, Uzoma, if you'd kind of walk us through the meeting logistics so people can know what to expect.

UZOMA ONYEIJE: In advance of this committee meeting, the Board was provided with an agenda that was circulated to the Board so they could take a close look at it prior to the conduct of the meeting, and what we did was we provided not only that, but we gave them a conflicts of interest assessment, and that conflicts assessment was produced jointly by the Commerce Department Office of General Counsel and FirstNet's Chief Counsel. Providing these documents in advance to the Board members allows them to identify potential conflicts of interest and recuse themselves from consideration if required. If any Board member believes that they must now recuse themselves from this meeting, please let us know, otherwise we are prepared to proceed.

BARRY BONIFACE: It doesn't look like it. Okay, let's move on.

UZOMA ONYEIJE: And just quickly, as it relates to the meeting, we are anticipating this meeting to be approximately 80 minutes in length. Again, for those viewing or in the audience, we'll try to give you some estimate of when we will close the session and when we'll come back.. But with that, we're prepared to proceed.

BARRY BONIFACE: All right, so should we call the roll?

UZOMA ONYEIJE: Barry Boniface?

BARRY BONIFACE: I'm here.

UZOMA ONYEIJE: Kevin McGinnis?

KEVIN MCGINNIS: Present.

UZOMA ONYEIJE: Ed Reynolds? Suzanne Spaulding?

ED REYNOLDS: Here.

UZOMA ONYEIJE: Chris Burbank?

CHRIS BURBANK: Here.

UZOMA ONYEIJE: And Frank Plastina?

FRANK PLASTINA: Here.

UZOMA ONYEIJE: We have a quorum.

BARRY BONIFACE: Excellent. So with that, I guess we need to move to the minutes. So each of you has seen a copy of the minutes from the last meeting. With that, I'd like to accept a motion with respect to those minutes in approving them.

TIM BRYAN: So moved.

JEFFREY JOHNSON: Second.

BARRY BONIFACE: All in favor?

ALL: Aye

BARRY BONIFACE: Any abstentions? The minutes pass. So with that, I'd like to move on the next order of business, which is to get an update from our acting CTO, Jeff Bratcher, who is here on our left. Jeff is going to give us a brief update on the activities of the CTO group and kind of some of the things that we've been up to, and, actually, some of the key learnings that we've garnered for the past several months. Jeff?

JEFF BRATCHER: Great. Thank you, Mr. Chairman, happy to be here, and committee members. I'd like to provide a quick update on what's happened within the vision of the CTO over the last three months since our last meeting. I'll be discussing technical activities, some staffing updates, PSCR testing, modeling, and standards updates, and some early builder project updates. I'll wait for the slides and the cell phone. So the next slide, please.

So starting on our focus areas, again, key focus areas across FirstNet are the Request For Proposal and the consultation. Within the CTO division, we've been extremely focused on developing a lot of the technical materials that are needed for the RFP and the documents for those. You will hear more about those in the closed session as we move forward today. In conjunction with that, we're also supporting the PSAC on three tasking items that they're working on -- the Public Safety Advisory Committee -- and those are related to developing a framework for quality of service, priority and preemption on the FirstNet network. We're also supporting the public safety grade hardening task work that they're doing, as well as they've also taken on a recent task, regarding device ergonomics, so we have our technical team focused on supporting those groups within the PSAC as well.

As far as a staffing update, on the next slide, the green bar indicates where we're at today. This is a continuation of the update I provided at the last Board meeting. Definitely been focused on the planning and design, and as we move forward in the source selection and post-RFP awards, we'll be filling out the organization to focus on those activities moving forward. I'm happy to report we now have the majority of the CTO managers in place, and we're now focused on adding additional technical federal staff to fill out the division. I'll move to the next slide. I'll give some updates on some of our new managers that we've hired.

Four additional senior managers, Director of Network Operations is Lynn Bashaw, and he comes to us from Reliance Globalcom where he was the Vice President of Network Engineering and Operations. He began his communications career over 30 years ago as an officer within the U.S. Air Force and has been responsible for architecture, design, procurement, launch, and operations for numerous communications networks around the world. He also holds a patent on one of the first carrier Ethernet network developments and previously worked at companies such as Formus, Gipes, and CARL Corporation. Lynn's ramping up quickly on managing the support of our early building projects, as well as RFP contributions relating to network operations.

We've also recently hired our Director of Labs, Michael Van Zuiden. He comes to us from Motorola Solutions, where he was a public safety LTE system test engineering manager, and he has a career spanning over 30 years, also starting with the U.S. Air Force, working at the Geophysics Lab at the Hanscom Air Force Base. He's assisted in research with rocket and balloon payloads and also at the Rome Air Development Center on antenna research. Mike's currently planning out our Boulder Laboratory facilities and working closely with the PSCR group to get up to speed on our funded testing efforts at PSCR.

Mark Golaszewski is our new Director of Applications. He was previously a consultant for us at IRMI, and has over 35 years of work, where he began at AT&T Bell Laboratories as a designer for one of the first secure communication systems for the U.S. Government. He's been responsible for architecture, design, development and delivery in support of applications and networking equipment worldwide, and he holds a patent on an algorithm for the integration of voice and data services. Mark has stints including Light Squared, Veracloud, and Acuvent and is currently focused on developing and refining the FirstNet application strategy and supporting the RFP development.

Last but not least, we've just recently brought on board our Director of Devices, Joe Martinet, and he was also a former consultant with us from IMRI. He has over 15 years experience in the cellular and satellite telecommunications field. He was the Technical Director at LightSquared for the first data devices that combine terrestrial LTE and standard satellite technologies. He was also the Test Director at TerreStar during the successful completion of the first-ever satellite voice-over IP call using GSM-based technologies. He has also worked at Sprint and Nextel, managing development and launch of the first-ever handsets combining IDEN Push-to-Talk and Qualcomm's CDMA data and voice. Joe is ramping up quickly on development of the FirstNet device ecosystem strategy and RFP development.

We're also onboarding now an additional 11 contractors that are focused on RFP development across the RAN, core, and device areas, as well as the network operations as well. We're also in the final stages of posting an additional 17 federal positions that we'll bring on board through the rest of the fiscal year, and we should be soon announcing our senior security architect that we're excited to have on board, focused on cyber research. And, Suzanne, we had tremendous help in interviewing this candidate from your organization and appreciate that help.

BARRY BONIFACE: So, Jeff, before you move on

JEFF BRATCHER: Sure.

BARRY BONIFACE: So on that last slide, the last time we got together, getting people through the hiring process and getting your organization ramped up was something that we were struggling with. It looks like we've made a little bit of progress in that regard. How would you say we're doing on that score?

JEFF BRATCHER: So I pulled a few metrics. The shortest timeframe it's taken to take on a federal employee has been about 80 days, which has been about two-and-a-half months. The longest timeframe has been 235 days. So it varies depending on what is going on as far as once offers are presented and negotiations happen from that aspect. I would like to report we do now have a limited direct hire authority for some of our key technical electronics engineer series, so we're leveraging that, and I've just recently posted for our Director of Core Network under this new limited direct hire authority that we envision will shorten those timeframes and hopefully bring them more into speed.

We've lost to several during this process, we've lost several candidates, honestly, because of the length of time it took for getting those on board.

BARRY BONIFACE: Thanks.

JEFF BRATCHER: Next slide, I'll give a quick update what's happening on PSCR and some of the test and evaluation, modeling and simulation and standards development. So the next slide is kind of a busy slide, has several charts -- a couple of charts on it that I'd like to describe. So what the team has been

doing within the testing and evaluation aspects of PSCR are testing the cell sites in congested environments. So that's when we know the first responders on the FirstNet network will need access to the system to be able to do their mission-critical data needs.

So, to date, they've run more than 625 test cases that have been focused on priority and preemption and quality of service. And it's generated upwards of 500 gigabytes of data, which is used to generate the charts, as you see here. So the first chart on the left is what is described as radio resource allocation priority. So this is actually the ability to get on the radio resources when you need them in a congested environment. There's really three main factors or three main network settings that allow this. Part of that is called "establishment cause," and that alerts the system that you are a priority user and you need to get onto the system.

There's three of those causes; normal, emergency, and high priority. The team has been focused on the high priority causes, and what you can see in the upper half of this chart is there is really no distinction between any of the users currently on getting on that radio resource. The vendors have stated this is in their roadmap, but more testing is going to be required as they flesh out some of these key features within the roadmap. And just a reminder, these are not currently used in commercial networks today, so we expect this type of behavior.

The second chart I'd like to describe is actual data bearer allocation priority. So once they're on the system with the radio resource, this chart describes when they have their data sessions going and they have different allocation and retention priorities, which means they have priority within the system, how the system behaves. In the top half of the chart you see three different colors of dots, red, orange, and green. The red and orange are the higher priority users on the system, the green are the lower priorities, and this is all set by ARP (Address Resolution Protocol) values within the LTE system. So what we're seeing is the higher priority ARP values do get the resources when they need them once they're on the radio resource. So that's a positive direction that we're seeing from the vendors, and I think spurring this development within the community is going to benefit us long term once we go to the RFP. And we're also leveraging this into our RFP development so we know specifically what to ask for and make sure this is covered within the technical merits.

We're also in the final edit process of a video that we're going to be posting to YouTube for the public safety community and others to understand how these parameters and different functions within LTE actually work. This is based on a presentation that was given at the PSAC back in December. It was very well received. The PSCR team, Tracey McElvaney specifically, did a great process of making this understandable. So look for that on our YouTube channel coming out, hopefully, in the next month or so.

And I'd also give a tee up for the PSCR conference. They'll be going into a lot more specifics on the data and research they've been doing, not only on our behalf but other programs that they have sponsors with as well. And that will be co-located with our next board meeting as well in San Diego.

FRANK PLASTINA: Jeff?

JEFF BRATCHER: Yes, sir.

FRANK PLASTINA: Just a question on the data bearer allocation priority. Are you also testing video applications on that?

JEFF BRATCHER: So currently they're using just generic data streams so they have what's called a load simulator that can generate the load in a congested mode on the EnodeB. They haven't dropped down to the actual application specific for the data bearers.

FRANK PLASTINA: But they're testing a data rate that would be applicable to real-time video?

JEFF BRATCHER: Yes.

BARRY BONIFACE: Hey, Jeff, when I look at that left chart, where we didn't get the outcome we expected, vis-à-vis, being able to establish somebody as a high priority on the network, does that concern you? Does that -- you know, obviously that's going to be a critical element to what we're trying to achieve here. How do you feel about that?

JEFF BRATCHER: Yes, concerning, but the vendors have all stated it's in their roadmaps for development in their software releases, so that's what the back and forth with the vendors and the labs, and they're working on the three different causes and how they actually trigger based on the causes. So they've all stated they will support this and work to ensure that as part of their systems.

SUZANNE SPAULDING: Hey, Jeff, on the roadmap, but when? I mean, is it, you know, roadmaps go out a ways sometimes. I mean, is it in the relatively near future?

JEFF BRATCHER: Yes. That's what they've informed the PSCR team, yes.

SUZANNE SPAULDING: Okay, great.

BARRY BONIFACE: Now I think that's -- I mean it's an important item, so I think it's very relevant.

JEFF BRATCHER: Great. So moving on to the modeling and simulation. So I'd like to describe some efforts that we're doing with the team as well on modeling some different type of scenarios, outage-type scenarios for a broadband network, and what we can do with some of the unique parameters within our frequency band with regards to high-powered devices, you know, building in resiliency to the network during outages that can leverage not only the high-powered devices but some of the different power settings within the network. So what we've been provided is the actual sites, and we're leveraging some of the early builder information out of LA-RICS on how we can model different outages and changing the power of the devices immediately to support those outages. So we think this is a unique approach that we can leverage with some of the Part 90 rules our spectrum is under, and we're working through some of these different modeling scenarios and look to move those into some of the field-type applications as well.

And then finally, for a standards update from PSCR. So what you see in the three boxes on the upper left are really those key features for mission critical push-to-talk within 3GPP, and that's the proximity services, which is really the direct-mode-type capability and the group communications. So within the bodies, they've been focused on releasing 12 and 13 on finalizing these features, which will ultimately feed into the mission critical push-to-talk feature, and that's slated for Release 13.

So, on the bottom you can see the different release schedules are all in overlapping modes. So the way you interpret this, Release 12 is coming up on its stage-three freeze later this month, which means it's done and then they'll move on to product based on Release 12. Release 13 started back in December, as I updated the last committee meeting, and they're scheduled to go to their freeze in March, about a year from now. So after that point, we expect to have all of the hooks within the standards for the mission critical push-to-talk application, but it will take another 18 months to 24 months after that to start seeing any type of products that incorporate that functionality.

And, as indicated here, Release 14 has already started, so it's a never-ending process. We've got some of the key features that I feel FirstNet needs on our network within the more immediate release(s) that are coming out of the bodies.

And we've also added some additional international support. We now have Canada, in addition to the United Kingdom, South Korea, Australia, and Canada, France, Germany, and the Netherlands have also signed on within the international body supporting these features. They're all looking to implement public safety broadband LTE technologies in their respective countries.

Next slide. I'd like to give a brief update on our early builder projects that we're providing technical support to. As indicated in green, we now have all of the spectrum management lease agreements in the key

learning condition plan signed and in place. So that's a big milestone. We have those done. I know, Chairwoman, you've been anxiously waiting for that update. So we have those and we're moving forward with all of the projects.

So I thought I'd describe briefly some of what we -- moving to the next slide -- some of the lessons we've already learned out of these respective projects. These are not necessarily some of the key learning conditions. There's only two of the systems that are on the air now. So the other three are still in various stages of putting their systems in place. But what we've already learned so far, first one is, you know, a lot of the public safety agencies use managed mobile virtual private networks, VPNs, within their systems.

There are unique aspects on these applications that need to be developed into them now to leverage the key LTE features for quality of service, priority, and preemption. So there will be a redevelopment phase needed of these applications. So working with the early builders, we've already spurred the development with some of the vendors now so that they're starting to configure their products to support those moving forward.

The next one I'd like to describe are, in talking in the planning with some of the early builder projects, a lot of the states and public safety entities aren't familiar with the relationship of per gigabyte pricing or how you charge for the rates you're using on your systems, and the need for pre-pay and some of the charging-based systems that are needed to support this type of tracking of your data users. It's not just a phone call anymore. It's actually monitoring the data usage out of the system. The LMR and IT systems and services are typically based on cost reimbursement, cost sharing, or a per-user-based pricing model. So billing systems and other data systems may need to be upgraded and/or added to support this.

Moving on, another lesson, use of state and local infrastructure is more complex, time consuming, and potentially costly than expected, so we're learning this lesson in some of the areas, not wanting to add new towers due to aesthetics within neighborhoods, especially on existing government sites. So this is, I think, a critical lesson in understanding how that does add delay to the process when you're wanting to leverage those type of facilities.

Moving on to the next one, the early builder networks initially are not going to have the robust network performance device. Service reporting are OA&M platforms -- operations, administration, and maintenance platforms -- needed to really understand what's happening within the network. These are small networks, so those functionalities are limited initially. We definitely know, for a nationwide type of network, we'll need much more rigorous and involved systems to monitor the health of the system moving forward. And then finally, the relatively short lifecycle of LTE equipment. A couple of the projects procured their equipment several years ago, and it's now time for the technology refresh, and the funding is not quite there to do that. So we've already built that into our planning and process within the FirstNet nationwide network, capitalizing reinvestment as technologies mature moving forward is part of our RFP development as we roll out the network.

**BARRY BONIFACE:** So, clearly, all these things are important as we begin to construct this RFP, ultimately, and then, you know, the network that results from that RFP. Talk a little bit about how your team -- I mean you've got -- went out and met your team out there with a bunch of very experienced people who built nationwide networks, and just to give some people some comfort around that, a very experienced group of people, both with the consultants and the folks that you're bringing on board.

How have you taken this data or have you taken this output and sort of made sure it's in, first, this draft RFP, how involved has your team been in that whole process? Maybe give us a little color on that integration.

**JEFF BRATCHER:** Sure thing. So, great question. So we have dedicated resources supporting each of the projects, each of the early-builder projects. We've also put in place some standard operating procedures on how we're leveraging not only formal lessons that come out of the projects moving forward but also these informal lessons into our RFP development process. So they're also not just focused on the early builder project they're supporting, they're also part of the team developing all the documentation

and the technical documents needed for the RFP. So as they learn these lessons, we're, like I said, they're all integrated together and rolling those in as we learn them in the development of the RFP. So [I'm] comfortable that that's happening now. I've seen it in the technical documents coming out so far.

BARRY BONIFACE: Great.

KEVIN MCGINNIS: Jeff, you mentioned that one effort is aimed as public safety's not being accustomed to per-gigabyte charging for services.

JEFF BRATCHER: Right.

KEVIN MCGINNIS: I think most of us are getting very used to per-gigabyte charging in our personal lives. But that aside, it seems like that's going to -- we're going to need to make that something of a two-way street. I mean it's not just pushing it down and making them per gigabyte consumers, we may also want to think about, you know, how public safety does think about that today and, you know, are there -- given the sort of distinct activities that public safety is going to be doing, are there proxies that we can do to make it more comfortable for, you know, our public out there that we want to get onto the system, to understand how to use the system, what it's going to cost?

JEFF BRATCHER: Yeah, absolutely. And I think the real meat of the lesson learned are having those systems in place to show what's being used on the network. So some of the early builder networks don't have some of those down in the detail, which application, for example, if you're using a video-type application and what the relative usage of that is moving forward. So, I agree that it will be a two-way street, learning it's much different from LMR where you just have a voice channel, and it's either there or it's not. So, great comment.

SUE SWENSON: Hey, Jeff, you talked about you made great progress on the hiring. So great to see the talent you're bringing in. I'm trying to get a picture of the whole organization in terms of the key positions that you would like to have now but you don't have. So how would you characterize, boy, I wish I had ten more people to do X, Y, and Z? Where is the gap for you on resources?

JEFF BRATCHER: The current gap, as I mentioned we have the Director of Core out and Director of Standards should be on, and that will really fill out what I see as a senior level management. And then the next is really the more junior engineers under the respective lanes. We've got a good plan in place to hopefully have that done before the end of the fiscal year, and with this direct hire authority, again, we have some limited direct hire that will help with most of those positions. But I think once we have those in place, we're set, along with our consultants that are on the team now to be at a staff of about 60 by the end the fiscal year, and that will move us into the final RFP and evaluation, the stages coming up next year. So, I don't see any big gaps at this point.

SUE SWENSON: Good. Then one question about the PSAC work. The projects that we have with the PSAC now are pretty significant. I mean in terms of what we're asking them to do. I would think that they would be a little bit longer term. I mean some of the work they did early on and also pretty intense projects. I mean this is not trivial undertakings, devices, hardening, and the preemption.

JEFF BRATCHER: Well if there's one thing I can say, Chief McEwen is up to the task. But we're providing as much technical support as needed, and Amanda Hilliard and her team are providing project management support for that. We're really just trying to focus on what we need from public safety to answer some of these key questions and make sure we're leveraging their input on this as we move forward. So I have my resources committed to that. TJ, you want to add?

TJ KENNEDY: Yeah. I think just one thing, from talking to Chief McEwen and Amanda, is also, they've gotten some great volunteers from the PSAC that are digging into this work, because it is more substantial. And I think there's more time commitment, or course, associated with that.

SUE SWENSON: Right.

TJ KENNEDY: And so, one, we want to thank those volunteers that are part of the PSAC that are really stepping forward and doing that work. It's fairly time consuming. We're supporting them with the technical resource to be successful. But these are larger than the previous projects, and we really can't thank them enough for doing that.

SUE SWENSON: And I'm sure that we can count on Chief McEwen to tell us if we're not giving him the support that he needs, right?

TJ KENNEDY: Absolutely.

JEFF BRATCHER: So last slide -- yes, sir.

FRANK PLASTINA: Just a general question, Jeff. As we get input for the RFP, the "what have we learned" slides, I think, are very useful, but they also define today's environment. One of the big advantages and one of the reasons that FirstNet was created is that dedicated spectrum makes a lot of these problems go away, especially some of the applications within VPN and a shared environment kind of, you know, kludgy stuff. Are we encouraging people to at least help redefine what public safety applications look like, given that we're going to have this piece of the spectrum that we've never had historically? And to the extent that we do, I'd really like us to think in those terms and not be limited by some of the work that we've done, because that sounds like just incremental improvements of what we're doing today.

JEFF BRATCHER: Fantastic comment. And as I mentioned, our new Director of Applications has definitely taken that on, and we're developing a strategy now. But that's a great comment. Dedicated spectrum. Some of the demos I've already seen, the Vail ski championships. It was amazing to see just the use of the unfettered spectrum. When everything else was congested, all the public was on the commercial systems for that ski championship. When the Band 14 was unencumbered and everything was operating, they had very high data rate, fixed cameras, which I wouldn't recommend on a wireless network, but they were leveraging that for some of their situational awareness, and it worked really well on the system.

But totally agree, some of the applications ecosystem will need to be upgraded to accommodate some of the key features within LTE, so that when we get in the different priority levels, as mentioned in the testing for the public safety first responders, those are adequately used within the system so that you don't have someone else taking over all of the spectrum with their usage that may not be mission critical for that event.

SUE SWENSON: Hey, Frank, can I just add to your comment, and, Jeff, just to ask you. Last year, I believe, PSCR had a conference, and I want to say it was maybe in November, where I think people came together as a public safety entity, where there was a lot of discussion about the future of public safety, thinking about, you know, getting out of the present mode. And talking to Dereck Orr, he was really pretty excited about what he saw, the interaction looking at a horizontal level versus a vertical, you know, not thinking about just fire, you know, law enforcement and EMS, they were really thinking -- and he was really pretty excited about that if I recall.

JEFF BRATCHER: Absolutely. And that was the R&D Roadmapping Conference that they held, and I believe TJ might have actually kicked that off. And there's a lot of output. And in this next upcoming conference, they're going to share a lot of what is happening in that space. Again, this is tied to the \$300 million that's going to NIST out of the same legislation that we have, that they'll be focused on supporting these type of technologies and development moving forward.

TJ KENNEDY: And to Sue's point, I think one of the keys, and to Frank's, is it's about redefining that paradigm that now with LTE and having the ubiquitous access to that across public safety is that you can do things differently with the technology as well, so it's not just looking at using past applications to work, it's actually coming up with a whole new paradigm.

STUART KUPINSKY: Yeah, I was just going to add, similarly, to your question Frank. You know, the RFP documents are going to be designed to elicit innovation on behalf of the offerors to take advantage of the new APIs and functionality in the app environment that aren't available from a commercial standpoint. And it's one of the things we're counting on to be a prime differentiator, and I think I hear you saying, you know, make sure not to forget that.

JEFF BRATCHER: Right.

STUART KUPINSKY: And that's exactly our approach, because if you think about it, the applications for public safety are going to be able to take advantage of functionality that's not necessarily made available to app designers today, and that should spark more innovation on behalf of public safety than current commercial applications would provide, and that's a key differentiator.

JEFF BRATCHER: So, point well taken. I believe that concludes my presentation.

KEVIN MCGINNIS: Actually, I have one more question.

JEFF BRATCHER: Yes, sir.

KEVIN MCGINNIS: Sort of out of left field, but given my experience at IWCE last week, if I was asked once, I was asked 20 times, so what about -- what's FirstNet's plans for integration with NG 9-1-1? And I was on the panel for that, so that helped but...

JEFF BRATCHER: What did you say?

KEVIN MCGINNIS: I won't be sharing it here. and I don't think it was recorded. So, you know, clearly, this is something not only from the funding point of view and the legislation but something that we really need to keep close to us, and I'm sure it's on your mind, as well as everything else. But, you know, how we get information in through the PSAP and then out onto our network in one piece is going to require some nice choreography.

JEFF BRATCHER: Absolutely agree.

TJ KENNEDY: Jeff, I'm happy to jump in on that.

JEFF BRATCHER: How about TJ jump in on that.

TJ KENNEDY: So, it's a complex issue, because there's a funding mechanism to this that I think is part of the issue on not enough necessary funding to Next Gen 9-1-1 to do all the things that they're looking to do as they move forward. The good news is, in our legislation there is funding that will go to NHTSA (National Highway Traffic Safety Administration) to help push that along, and certainly that's very helpful. But I agree with you, I think when you start looking at texts or video coming into a 9-1-1 PSAP and having that ability to seamlessly work with FirstNet to get data to the field and from the field back to the dispatch center. That choreography as we move forward in our planning and our RFP, as well as what's happening in all the PSAPs, I think there's a lot of synergy on both the improvements, and the speed of which that data can flow. So we'll watch it very closely. We're in lots of communication, and there's a lot of cross fertilization of discussions on how to make that happen over time.

JEFF BRATCHER: All right, I have just one final picture I wanted to show Chairwoman Swenson, based on her testimony. So TJ asked me to create some T-shirts with -- it says "FirstNet 2022" with a bull's-eye on the T-shirt, so...

SUE SWENSON: [Inaudible].

JEFF BRATCHER: We will have it in the mail soon.

SUE SWENSON: I want to make sure everybody has one.

JEFF BRATCHER: Absolutely. It's our uniform moving forward.

BARRY BONIFACE: Thanks, Jeff.

JEFF BRATCHER: Thank you.

BARRY BONIFACE: Thanks to you and your team. You've also made a lot of good progress, including designing a T-shirt, which is critical to the mission here.

JEFF BRATCHER: Absolutely.

BARRY BONIFACE: And we certainly appreciate the team you've built and are building and the efforts to date. With that, I think we are at a point where we need to conclude this discussion, and we're prepared to enter into a closed session again. As a reminder, we're closing a portion of each committee meeting today to discuss the sensitive acquisition matters. And, as you know, these sessions are being closed consistent with our obligations to ensure that we remain in compliance to keep the procurement process and its sensitive information confidential.

So I think, given that the Technology Committee hits a pretty large swath of what this RFP is all about, it might take us a little bit longer to get through this than Governance, which was also longer than anticipated, so we'll try and be efficient. But I think we had slated an hour here, Uzoma, to be away. If it's going to be longer than that, we'll have somebody come back and report out. But I see 11:00 o'clock on my watch, so I guess around noon we'll be looking to reconvene. And with that, I will take a motion to close the session.

FRANK PLASTINA: So moved.

CHRIS BURBANK: Second.

BARRY BONIFACE: All in favor?

ALL: Aye

BARRY BONIFACE: Opposed? Session is closed. Thank you.

[Break]

BARRY BONIFACE: All right, should we get cranked up here? I guess it would be good to go ahead and reestablish the webcast. So are we back on? We're back online. Terrific. Well, listen, apologize for -- we're 15 minutes off our stated time, so apologies. Yeah, a little better than Governance, and I'm sure it will be better than Finance.

But at any rate, we did have a very robust discussion around the sensitive items associated with the acquisition process, and the associated legal, commercial, and financial elements that relate to that. That discussion was led by James Mitchell who is the Senior Program Manager for Operations, and John Quinlan, the Deputy CFO for Strategic Planning, and we went over in detail the RFP matters that are associated with the Technology Committee, and given the nature of this RFP, you can imagine quite a few things are associated with the Technology Committee.

Some of the key areas that we talked about, and you'll learn more about this tomorrow, as we get into the Board meeting, first and foremost, we talked about the number of functional partners and some of the implications associated with that. We talked about the geographic scope of the various coverage

solutions, and, frankly, how that interrelates with the number of partners, functional partners that we might expect.

We also talked about how we might implement an opt-out state, should a state elect to ultimately opt -out of the process. And then we talked about our rationale for using an objectives based approach in our measurement of the responses associated with the RFP. So, suffice it to say, it's a lot of material. It's a very complex matter. And there was a lot of really good debate on those matters. And ultimately we're all in this to, you know, achieve the high quality public safety broadband network in the most efficient and cost effective manner we can deliver.

We then discussed the fact that we will likely be voting on whether to recommend to the full Board to adopt a resolution authorizing management to move forward on the draft RFP, and the matters in that draft RFP that are relevant to the Technology Committee. The assumption being that the Board will then get all the feedback from these various committees tomorrow and we'll have another debate around those matters and provide some more detailed information with respect to how the Board came out on these issues.

As Sue mentioned in the Governance Committee, I think it's important to mention here, this is a draft RFP, and, you know, we are looking for the feedback of the key stakeholders as it relates to these positions that we're taking here and look forward to the same active participation that you've given us in other instances when we've reached out to the community. So, with that, I guess we need to go ahead and move forward on the resolution.

UZOMA ONYEIJE: Absolutely. And before we take our vote, I just wanted to make it clear for the record that Ed Reynolds joined us during our closed session, and he is present at this subcommittee meeting. So with that, I'll turn to the resolution, and I'll read the operative language. It says, "Now therefore be it resolved that the Technology Committee recommends that the Board approve for release and comment the material terms of management's proposed acquisition approach presented to the committee and delegates authority to management to release the appropriate draft acquisition documents substantially reflecting such terms for public comment."

BARRY BONIFACE: So can we have a motion to vote on that resolution from the Technology Committee.

FRANK PLASTINA: So moved.

BARRY BONIFACE: Second?

SUZANNE SPAULDING: I second.

BARRY BONIFACE: All in favor.

ALL: Aye

BARRY BONIFACE: Any opposed? Any abstentions? With that, the motion passes. And with that, I want to thank you for participating in this Technology Committee, and I think Uzoma's got a couple of announcements on logistics moving forward from here.

UZOMA ONYEIJE: So, quickly, before we take a vote to adjourn, what we're going to be doing is we're going to break now and have a lunch session for an hour, and then we're going to come back and start with the Consultation and Outreach Committee, followed by the Finance Committee. So I think probably the best way we can approach this for everyone who is tuning is to say at 1:30, we'll be back here to get started with the Consultation Committee. With that, we just need a motion to close the meeting.

FRANK PLASTINA: So moved.

KEVIN MCGINNIS: Second.

BARRY BONIFACE: All in favor?

ALL: Aye

BARRY BONIFACE: Any opposed? The meeting is closed. Thank you.