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U.S. ELECTION ASSISTANCE COMMISSION TECHNICAL GUIDELINES DEVELOPMENT COMMITTEE

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>> Walter: Thank you so much. It's great to join you and good to see you again, Ben and all the colleagues from TGDC.

Good afternoon to all of our members of the technical guidelines development committee as well as to our guests who are joining us today via Livestream.

I'm Walter Copan, the undercommerce secretary for standards and technology and the director of the U.S.

national Institute of Standards of technology or NIST.

I'm delighted to be with you once again, and in accordance with the help America voted act I'm honored to serve of the technical guidelines development committee or TGDC.

On behalf of the election assistance commission our EAC designated federal officer for the TGDC and our good friend Commissioner Ben Hovland and NIST, welcome to this web meeting where we'll touch base on the voting system guidelines of the VVSB, and we'll discuss the potential paths forward to discuss guidelines.

This is an exciting team -- following the advice of this committee. All the comments are now publicly available and NIST EAC staff have been meeting to review and to address the submitted comments.

On our agenda today, we will hear first from Mona Harrington, the executive director of our EAC, and she'll provide an overview of the public comments received and will be joined by NIST staff to answer questions.

As you might imagine the comments are wide and varied ranging from suggested wording changes to improved ability on perceived restrictions on wireless communications or on common data formats. Manufacturers and test laboratories submitted a series of comments as well on whether the requirements are sufficient to test voting systems. These comments are a result of moving specific requirements of the technical data pack the

TDP to the EAC manuals, which are not yet complete.

There's also frankly some tension from the desire from the testing laboratories to be proscriptive and from the manufactures to remain flexible. This tradeoff was demonstrated in comments against requirements for programming language and coding conventions as well.

Others pointed out potential issues in testing commercial off the shelf components, particularly for stringent and accuracy requirements and the power and temperature-testing required due to the military standards.

And finally, a number of commenters said that the requirements emphasize security over accessibility. They said paper ballots add complexity to the accessible ballot-marking devices and that fully accessible paper-based voting is not yet available. The commenters suggest that the addition to the VVSG be expanded to describe how remote digital ballot-marking must be provided on the paper-based vote by mail systems.

We'll also be focusing today on best practices for guidance, testing and verification of the election systems that are actually beyond the current scope of the VVSG we'll start we'll start with Aaron Wilson senior director of the election security center for internet security. He'll discuss RABET-V that discuss rehabilitate changes using a risk-based approach.

In the last half of today's session, I'd like to hear your thoughts on potential approaches for ensuring the accuracy and

integrity of these critical components of our election infrastructure.

I look forward once again, to fruitful discussions this afternoon, and I'm grateful again for your time and dedication in securing our nation's election systems.

So next I'd like to turn it over to my colleague, Commissioner Ben Hovland for his introductory remarks for today's session. Thank you. Commissioner Hovland over to you.

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>> Ben: I'm a Commissioner with the election assistance commission and the designated federal officer for the technical guidelines development committee or TGDC.

The TGDC is a 15-member advisory committee established by the help America vote act to assist the election assistance commission in developing the voluntary voting system guidelines. Pursuant to HAVA the director of the national direction technology or NIST serves as the chair of the TGDC, and I'd like to thank Dr. Copan for joining us today and for his introductory remarks.

This meeting, which is called pursuant to the Federal Advisory Committee Act has been noticed in the federal register and published on the EAC's website for today's meeting.

The meeting is open to the public. Again, I appreciate you all joining this call. I know it's a very busy time particularly for the election officials who are able to join us.

Based on our previous meetings and our conversations, we wanted to provide you all with updates on the progress of the VVSG since our last meeting in February.

Again, being conscious of your time demands, I wanted to flag that we don't anticipate there being anything today that would require a vote and additionally this is being recorded and will be available on our website for her demands require your attention as we go through the agenda.

Again, I just appreciate your participation. I have gone through the roll on the side and think I have everyone I see that David Wagner has joined us.

Dan Wallach, have you joined in as a call-in as well?

Lynn Kelly and Linda Ramon send their regarding. They got pulled into election-related matters, and so with that I believe we have the attendance, and I will turn it over to the NIST team, thank you.

>> Walter: Thank you so much, Ben, it's ever a pleasure and an important partnership that we enjoy in the TGDC.

I'd like to turn it over now to my colleague Mary Brady, who's the voting program manager of the national Institute of Standards and technology for her remarks and also for an announcement that she'd like to share with this group.

Mary?

>> Mary: Thank you all.

Many of you have already heard, but for those of you who

have not, I'm retiring at the end of August, and we're currently in the process of transitioning the NIST voting program to Lisa Carnahan. I'd like to take a minute to thank Dr. Copan, the EAC commissioners, Tom Hicks, Don Palmer and Ben Hovland the members of the EAC and NIST staff and all the members who participate in all our working groups and the members of the TGDC for your dedication and the support you've given me over the last decade.

I've learned so much about elections and the importance of useable, accessible and secure elections from our interactions. It's truly been a pleasure working with all of you. The degree of professionalism with which you all approach your jobs and the ability to manage all aspects of elections gives me great confidence in our upcoming election. I will miss our daily interactions.

I'd like take the opportunity to introduce you to my friend and colleague Lisa Carnahan. I had a pleasure working with Lisa perhaps far longer than we're willing to admit. Sometimes back in the organization in the '90s Lisa, and I ended up here in the organization with NIST she came from the security division, and I came from the networking division, and we shared many conversations how to become trusted partners in our respective efforts. I was working with the worldwide web consortium in the early days of the commercial, and she was working on HL7 in establishing NIST standards and health testing. I know Lisa shares the same passion for better

understanding how NIST can engage and work side-by-side with community stakeholders. She brings a wealth of expertise in cybersecurity, privacy, standards, testing and certification to the table. I'm quite certain that together with the other members of the team, Sharon, Ben, John, Gemma, Andy, Jeff and Patricia, that I'm leaving you all in hands. One of with that I'll turn you over to Lisa. Lisa, would you like to say a few words.

>> Lisa: Thank you for your leadership. You'll truly be a very hard act to follow, and I didn't in any way imagine it had been 10 years.

(Laugh.)

>> Lisa: So on behalf of the members, I'm really excited about this effort, this opportunity to lead this opportunity at NIST as Mary alluded to, she, and I have been around a very long time, and I have always been around the voting effort because of the organizations we both work in, so I'm really excited to be part of it, and to be part of the team that continues to demonstrate great technical competence and a really deep understanding of the voting and elections systems as we have in the almost 2 decades now at NIST, so I'm very excited about that and the team.

I'm excited to see the impacts of a lot of the current efforts we have going on at NIST and to be part of the team in advancing our program in ways that can contribute to the trust

and confidence of our voting systems and our elections systems, so I look forward to meeting all of you and starting to work through maybe the text 10 years.

(Laugh.)

>> Lisa: Great, thank you.

>> Walter: That's great.

Lisa, thank you so much. Mary is an incredible hard acted to follow, but if there's anyone who can do it, we know that you provide the and the tremendous leadership in this important field for our nation.

So once again, thank you -- a heartfelt thank you, Mary, to you and to your service, and we know you're not going far, so we look forward remaining engaged with you and your wisdom may help us.

With that I'd like to turn it over to one of the key portions of our program to Mona Harrington, executive director of the U.S. on the VVSG public comments and any updates from the group.

Mona? Mona, you're still on mute, so if you would, please.

>> Mona: Oh, dear. I'm unmuted now. All right.

Thank you, I apologize.

Good afternoon everyone I'm EAC's director Mona Harrington. I'll be updating you on our progress. We're committed to moving the process of adopting the VVSG 2.0 afford.

As you're aware we offered numerous hearings and the VVSG annual -- excuse me, the annual abort meetings were focused on VVSG. After receiving the requirements from the TGDC March 11th we forwarded the requirements to the executive committees of the boards and simultaneously opened the comment period up. After the May 20th that included test laboratories and manufacturers the EAC in partnership with NIST had discussions with the manufacturers to better understand issues raised at the May 20thir. The manufacturers raised concerns regarding a lack of clarity, feasibility and substantially increased cost to build and test the new voting machines to the requirements. The EAC and NIST obtained technical clarification on some of the major issues during these discussions. The EAC will continue to reach out to the vistles, manufacturers and other stakeholders as needed to clarify technical comments throughout the process to ensure the success of the VVSG 2.0.

We received 77 sets of comments and a total of 1,660 comments. Overall, the majority of the comments focused on ambiguity, vagueness of requirements, inconsistent terminology, additions and changes to the glossary and requirements that are not measurable in the current form. The later requirements would need to be revised or deleted or have test assertions associated with them.

We also received and coordinated comments regarding accessibility requirements or lack thereof. The commentators

can be roughly organized into four groups: The EAC registered voting systems manufacturers, EAC accredited test labs, accessibility rights groups and other.

Manufacturers included in the comments included Voting Works, Dominion, Heart, ESNA, Microvote, Clear Ballot and unison. Test labs included in the comments were SLA-like comments and. The accessibility right groups included were Accessible Voting Group, National Independent Living, Center For Independence, Disability Law Center, Disability Rights New Jersey, Disability Rights Maine, Indiana Disability Rights, Disability Rights Ohio, Disability Rights California, Arizona Center For Disability Law, Disability Rights Tennessee, Disability Law Colorado, Disability Rights New Hampshire.

Other state audit working groups such as Brennan Center for Justice, NYU School of Law, National Association State Election Directors, Free Speech for People Electronic Privacy Information Center, Voting Methods and Tabulation Public Workgroup, Citizens Oversight, League of Women Voters Boulder, Colorado and Computing Machinery U.S. Technology Policies Committee were also a number of individual commenters.

Examples of vagueness, requirement 3.1.4-D, election-specific software identification. The manufacturer must identify election-specific software in the user documentation. There was a consensus of comments that stated how confusing this requirement is. Requirement 2.1.1-C

high-quality parts, all manufacturers must ensure that components provided by external suppliers are free from damage or defect that could make them unsatisfactory or hazardous when used for their intended purpose commenters questioned how this was measurable and how the criteria was testing this. Samples of inconsistency, the VVSG uses the word "cast," inconsistently and sometimes used in place -- in place of approved for counting while at other times it is used to denote the final action of a voter irrevocably has his or her voter -- selection of glossary changes, audit device, voting device verifying or assessing the voting performance. Comments highlighted that a voting device cannot audit itself, therefore, a voting device cannot be an audit device.

Accessibility, accessibility groups and others made specific comments on requirements as well as general comments on the VVSG 2.0 itself. For the accessibility group many comments were received pointing out that the VVSG 2.0 seems to be more focused on security rather than accessibility when accessibility is specifically mandated in HAVA and security is not.

Additionally, many expressed concerns about the ability for accessible voters to vote privately and independently especially in an environment where most voting is conducted by mail such as the COVID-19 pandemic.

Lastly, many commenters in this category expressed their eagerness to have the EAC sunset the VVSG 1.0 requirements to

speed up the timeframe when more accessible 2.0 systems would be available.

Specific comments surrounding accessibility on the overall concern that security trumps accessibility in their requirements HAVA by accessibility, voter independence, and they cited Title II the ADA in Section 504.

They also mentioned segregated ballots using separate machines and the impacts of voter privacy as they may only have one or a few votes cast on each machine since most voters are hand marking paper ballots.

Accessibility groups overall are concerned that there isn't a sunset date to previous requirements that would require jurisdictions to update 2.0 in a timely manner.

As far as summarizing the other comments received, most comments received supported the rapid adoption of the VVSG 2.0 principles and guidelines as well as the requirements. Some frustration was expressed at the speed of the process at the original separation of principles and guidelines where the requirements was not maintained. Holsom commenters expressed that a year update cycle is a good compromise. Sunsetting the VVSG 2.0 requirements was also noted by many of the commenters of this group were seen as necessary to move VVSG 2.0 forward.

Finally, many also submitted substantive changes to specific requirements.

For the sake of time I want to wrap-up details surrounding

the comments, and I have a few other updates, and I'll promise I'll stop.

The EAC is working on several parallel paths in order to submit the following documents to the EAC commissioners by the end of the calendar. The VVSG 2.0 requirements, the testing assertions, the EAC testing and certification program manual and the EAC voting system test laboratory program manual. EAC's testing and certification and cyberprograms are meeting twice per week with the NIST voting system program to evaluate and resolve the comments on their comments. All the comments related to the introduction section and principles 1 and 2 have been evaluated to date.

EAC testing and certification voting system test laboratory program manuals are being updated to include input from the common evaluation and the working group. Two other changes that will be included in the program manuals are component-level testing and penetration testing. One major change from VVSG 1.1 to VVSG 2.0 was taking testing and certification guidance from VVSG to the testing and certification program manual.

We are committed to continue to move this forward working numerous parallel path toss submit the VVSG 2.0 requirements and the other program manuals for adoption by the commissioners by the end of the calendar. Thank you.

>> Walter: Thank you so much, Mona, for that very helpful

series of insights from the many, many comments that have been received, and so we're grateful for your report.

I'd like to open it now for the -- for the group for the NIST and EAC staff to address any questions about the public comments and the updates report that we've received from Mona Harrington today.

Let me open it up for this discussion, please. Thank you.

(Pause.)

>> Walter: Mary Brady, may I ask you to add any additional comments to average fly what has been reported and also on the steps that are already underway in addition to what has been mentioned by Mona Harrington? Mary?

>> Mary: Sure, absolutely, Walt.

As Mona mentioned we are meeting twice weekly with EAC staff. We've gone over principle 1 and 2. A largely part of the comments that we just dealt with really have to do with some of the comments from the manufacturers. Mona alluded to this but let me just reiterate it, that there's some issues with the requirements for accuracy and integrity. And again, the environmental requirements that Walt alluded to and the overlap with the -- or the requirement for the use of the mail standards.

You know, we discussed this at some length inside the TGDC, but I think a point that's come across loud and clear in the comments is that in the past voting systems have been around

for, you know -- we figured the lifespan for typical voting systems for 10 years or more, but as there's more and more introduction of these commercial off-the-shelf components, these are more consumables so oftentimes tablets, laptops, desktops that you would go out and purchase have a lifespan of 2 to three years, 5 if you're lucky, so -- I think there is a need to go back and look some of those requirements and to be sure that -- that we do have the right -- the right tradeoff there, that they are as robust that we need them to be but still allow for costs if that's a path forward that we can find.

The one -- one of the other areas that we were just dealing with had to do with programming languages and good coding practices, and so forth, and that's another area where much of the documentation indicating how manufacturers gone about building their system is encompassed in the technical data package of the TGDC or the quality assurance or manufacturing requirements.

So many of those are in the process of being moved over to the EAC certification manuals and as a result of that move that they're not as stringent in terms of requirements. That they're more broad-based inside the VVSG so there were a number of questions from both the, you know, the manufacturers, you know, how do we prove that we built it right and from the testing lab's perspective, how -- how do we also prove that they built it right? And I think there's, you know -- there was a

suspicion that perhaps there were increased requirements here. They weren't necessarily increased. They were updated from the older style, but the idea is that they're being updated and the old requirements used to be the TGDC in the CIM.

Are there any questions there?

I think one area that -- that would be great to get some feedback from the TGDC members is on the accessibility front. There are a number of comments that indicate that -- that security has -- has been favored over accessibility and some of the suggestions -- I think there is an understanding that remote ballot-marking is outside of the scope of the VVSG, but there's a number of suggestions of beefing up the instructions in the VVSG to indicate that remote ballot-marking is -- is essential for accessible voters.

So I would -- you know, I know we spent some time on it at the last TGDC meeting, but I would certainly appreciate any feedback you all have in that space.

>> Walter: Mary, thanks so much. The floor is open for any comments, in particular on the commentary regarding the accessibility requirements within VVSG 2.0. The floor is open for TGDC members to comment or ask questions.

>> Bob: Hi. This is Bob Giles, can you hear me Walt?

>> Walter: Yes, thanks.

>> Bob: A couple things. First I want to start by congratulating Mary on her retirement and apologizing that we

spent the last five years, and we couldn't get this passed prior to you earlier so -- but your effort will not go unnoticed when we eventually pass this.

I have two questions concerning -- Mona made a comment that in the public comments there was something about legal concerns that the vendors raised, I was just curious what they were is my first question, and I have a follow-up if she could raise that.

>> Walter: Yeah, great, thanks so much.

Mona.

>> Hey, Bob, this is Jerome?

>> Bob: Yes.

>> Jerome: One was in patents. That was one of the concerns was in regard to patented technology, and I can pull up the exact comment. It'll just take me a minute if you want the exact language.

>> Bob: And did you say -- was there another one?

>> Jerome: That was the one that stood out as far as the ones we reviewed. Where there was a concern of patented technology, so I can pull up the exact language here?

>> Bob: Yeah --

>> Mona: That's what we had intellectual rights, patents surrounding that potential legal issue, so we need to look into that. I don't believe there was another referenced outside of that.

>> Bob: Okay. Great.

My other question -- there was a comment about the yearly review was a good compromise, so I was just wondering where we are with the three resolutions that we passed last year at our September meeting? Do you have an update on those since one of them was mentioned in the comments?

>> Ben: I'll jump in and say one of those was transparency, and I hope through this meeting, and this comment process, you know, you've seen a reflection of us hearing that and doing a better job. You know, I think as for, obviously, you know, in relation to your question on the annual update, you know, I don't think that is something that has been broadly discussed in any way that we have public -- we have public rules around our deliberation, but I think as we create all of the various products that you heard discussed, you know, I think that's when the appropriate time for us to have those conversations in a deliberative way are. And again, that's something that I think we'll eventually need to do publicly but as far as progress on those, I certainly heard that -- I also heard that from the standards board. And again, that is part of the process of building out all of the documents that make up not only the VVSG, but the testing and certification program as a whole.

>> Bob: So there's no actual document -- there's -- it's just conceptual still? Is that what you're saying?

>> Ben: I'm saying there isn't anything that has been written

or proposed in a way to be adopted, but it is -- it is on the, if you will, the calendar. We are aware of the recommendation. We appreciate the recommendation, and we will certainly visit it.

>> Bob: Do you have a timeframe at all?

>> Ben: You know, again, the goal as stated earlier was to try to get all of this done, you know -- a goal at the he found the year to have all these things in place, obviously, that is ambitious considering what was mentioned, but I am hopeful that we will be able to do it.

>> Bob: Thank you so much, Walt.

>> Walter: Thank you so much benefit and Bob for the comments and a third of the resolutions was in the event that there's not a quorum of commissioners. That the standards and requirements process be permitted to continue in a provisional process to ensure that that this group can continue to make progress, and I know that was -- was an area of broad interest to the member of the TGDC as well as to the commission.

And so we've seen tremendous progress already.

And, Ben, as you've stated, this very clear commitment by the commission to ensure that transparency as well as the momentum that we built on the TGDC and the issuance of the -- of the draft of VVSG 2.0 is moving forward, and that the group is very clearly active in telling those very constructive comments on board to ensure clarity and the full operability of VVSG 2.0

as adopted.

Any other comments or questions for the group of Mona, our NIST team or the commissioners?

>> David: Yes, this is Dave Wagner. Would this be an appropriate time?

>> Walter: Yes, please.

>> David: This is Dave Wagner. Thank you for the very helpful summary, Mona Harrington. It was very fantastic. I believe I heard you supporting component certification, and I was wondering if you could share any more about your plans about that, for instance, are there particular components that you're looking to --

>> Mona: I think it's a little bit early to say exactly what that would look like, but the hope would be that it allows for more efficient and secure process. There seems to be a gap right now and something we can't really turn a blind eye to, and I think with this huge advanced forward with implementing VVSG 2.0 we wouldn't want to leave something that critical out, so more information on that coming soon. I think it's definitely going to be a very good part of a new VVSG, and we'll share details as we move forward on that.

>> David: Thank you.

>> Walter: Thanks so much. The floor is open for other comments.

>> Diane: Hi this is Diane Golden. Can you provide a little

more detail about the review process for the comments. It sounds like that's being done exclusively with EAC and NIST staff and if that's the case, what's the end product going to be? Just a: This is the final VVSG 2.0 or is it going to be more like when you do proposed rules, and then you do final rules, and the final rules identify the comments and say we considered this and rejected it. We considered that and decided to change this because of that comment? What's the end product actually going to look like?

>> Jerome: Diane, this is Jerome.

What we're doing now -- as Mona stated, we meet twice a week with NIST -- EAC and NIST, and we're evaluating the comments, and then providing, you know, collaboratively resolving the comments whether things need to be shifted or removed or wording changed or more context around discussion, and the ultimate goal for us is to present our material to Mona, executive director, and she'll do the final review on that before -- as she stated with all these other documents associated with VVSG 2.0 before submitting them to the commissioners, so that's -- that's the process now is just walking through line-by-line through all 1,660 comments and, you know, resolving them accordingly.

Some don't need any resolution and others we identified do based off -- off of the comments that were submitted

>> Mona: Diane, this is Mona, I just want to clarify. You

know, we're committed to full transparency in the process, and I think what we'd really like to do is try and to make this VVSG 2.0 as robust and coherent and secure and useable as possible but also respond in some comprehensive way, what the compromise was or what we did, so that's clear for every single comment, so we'll be incredible transparent with what the end result is, and I don't think there'll be any confusion, and we'll work very closely with NIST on that and, you know, reach a comfort level with what we're submitting for commissioners to adopt.

>> Walter: Diane, did you have any comment in response?

>> Diane: No, that's helpful.

>> Walter: Good, thanks so much.

It's very clear to me from the close work between the NIST team and the EAC colleagues that there's a very diligent effort underway to take all the commentary into account appropriately and quite clearly there's -- clears a lot of work ahead, but the goal here is quite clearly a shared goal to have the most effective, most robust and balanced VVSG 2.0 to meet the needs of the American people in our election system.

When I was listening to the commentary, Mona, that you had shared, what was raised in my mind was questions about the scope of the election system as defined and quite clearly we have been working within the -- the legal framework, if you will, of HAVA but also with the -- with the understanding that since HAVA was enacted that there were a number of interest and concern that

we've been addressing effectively in the preamble sections of VVSG 2.0. I was just wondering there have been discussions by the TGDC colleagues with regard to these further clarifying changes and scope of the election system?

Comments?

I'm not hearing comments from Mona, perhaps from the NIST team, Mary, was there --

>> Mona: Oh, I'm sorry. I thought that was directed to the TGDC, so I --

>> Walter: All right.

>> Ben: Doctor, I'll be happy to jump in having thought about that a lot.

>> Walter: Go ahead.

>> Ben: You know what stands out to me, obviously, there were several people on this call who were part of this effort before Dr. Copan, and I showed up, but, you know, I think one of the things, you know, in some of our final meetings, you know, some of the scope issues came back up. And again, some of those seemed like they had been solved years before but maybe not, and in my mind I think there's an element of this that is -- that is getting 2.0 across the finish line, getting the update to equipment but then I think there are real conversations that could and should be had about the scope. I think those intertwine with some of the things, though, that are on the agenda later, you know, certainly Aaron Wilson is on, a lot of

you are familiar with him, conversations that he, and I had earlier in the year really helped my thinking about e-poll books and whether or not they would be incorporated, and so I think while it is important to get 2.0 across the finish line and update that sort of benchmark, I think as we go forward I think absolutely that should be on the table, and I think the conversation later in the agenda is really in some ways a starting piece of that, to have that broader understanding of -- of more election technology than what is incorporated in the VVSG but then to also think about the limitations of that, whether that's e-poll books that, you know, are often connected to the internet or statewide voter registration databases that are -- that tend to be more one-offs and don't necessarily have the same type of market maybe that voting polls have. I think having the conversation is important for the clearing houses but a part a conversation as part of the scope to identify what is and isn't appropriate. Thank you.

>> Mary: If I could just add something there. I do look forward to that conversation, but I think specifically what Dr. Copan and let them let me not put words in your word searching for there were conversations coming up primarily from the accessibility community that suggested and, in fact, they even offered up suggested wording for revising the introduction to more strongly indicate support for remote ballot-marking.

Sharon, if you're on the line, perhaps you could

characterize the comments and suggested changes for us, and I think we're looking for some feedback there.

>> Sharon: Yes, can you hear me?

>> Ben: Yes.

>> Sharon: Thank you. Let's take the easiest to the hardest. There were some comments on the requirements themselves but nothing major, small two weeks, clarification to the discussion, some minor two weeks, some typos people caught, so it's easy edits at the same time.

With respect to the second easiest, some question about deployment and the requirements -- you know, if you get a new system, it was not clear to the people who commented -- the groups who commented the accessible -- the electronic system would have to be upgraded too and the fear is that the old 1.0 or earlier systems would continue to be in place even though the overall general system would be upgraded, so that's not something that we can fix directly in the requirements or we can't put a date in, so that'll have to be discussed with the EAC to -- to make clear what the grandfathering is for the new accessibility requirements.

And lastly discussions about emphasizing, making it very clear that the remote ballot-marking needs to be accessible as one route for voters who need accessibility. Again, that's not something we can put directly into the requirements in the VVSG. We are looking carefully over the wording that was recommended,

and we'll make a decision what to include in that, again, very useful, and so we're deliberating on that.

And also we're thinking about doing a guidance paper that would outline what one should do with a remote ballot-marking system to make -- ensure that it's accessible as a complement to that introduction, so that's the thumbnail sketch of where we are with the comments.

>> Walter: Thanks so much, Sharon, that's very, very helpful insight, and I know that our accessibility community are critically interested on the progress that will be made on those recommendations, thank you very much.

The floor is open for any additional comments or questions for the NIST and EAC staff in response to Mona Harrington's report?

(Pause.)

>> Walter: Well, hearing none, we're delighted to have Aaron Wilson with us here today to provide a report on RABET-V and nonvoting technology. I'm very excited to hear from you today, Aaron, and you've been a tremendous contributor to the entire system of election security and, so the floor is yours. Thank you so much for joining us today.

>> Aaron: Absolutely, thank you, Dr. Copan.

I am going to share my screen if someone can confirm that's coming across that'd be great.

>> Walter: Yes indeed, it's coming across. Thank you so much,

Aaron.

>> Aaron: Excellent.

So as you mentioned I'm going to be talking about the RABET-V program, RABET-V stands for rapid architecture-based election technology verification, so you can see why we shortened that up. My name is Aaron Wilson I'm senior director of election security. We've been focused now for some time on nonvoting election technology, and that's really where this process has come together. RABET-V is both a process and pilot. I'm going to be speaking about both of those today. The scope on both of our efforts are focused on nonvoting election technology, which is a definition by exclusion. It's, basically, an umbrella term that refers to everything that is not a voting system, and so in that -- I kind of break it down into two years. My top Year is electronic voting technology, and it also includes voter registration systems and online voter registration as well as the voter registration back ends, polling place lookups, ballot on demand, other types of technology that really assists with the election and administration process.

And what we know is that there isn't a way to test and verify the security of these systems across the nation there are some states doing great work in this and have programs that that do test them, but there is no nationwide program or process.

And so what we set out to do was to identify a way to test

these systems that would allow for rapid product changes. What we didn't want in predominately internet-connected systems was a process slow-down in particular security patches or products that need to get in the systems quickly because the environment around them is changing, we don't want those systems to be stuck going through, you know -- link the processes to approve them for use.

So what we tried to do with the RABET-V is create a change-tolerant process that is risk-based, and I'll talk about how we how we measure risk and what is high risk and low risk as I go through my presentation.

And the other thing we wanted to consider how much is possible in modern software development and testing process practices in how do we make small incremental changes to software and get it out quickly? And, of course, there's many motivations for that but security is one of those motivations so what can we take from those modern software development and testing practices and employ in a -- in a what we call a verification process?

The other thing we have adopted the requirements that we put out at CIS put out a security best practices for nonvoting election technology in 2019. We've adopted those best practices into requirements. They focus heavily on security and security requirements and internet-connected systems.

The other thing is -- so we've developed this process, and

I'll talk about that, and we've taken on the role of piloting the process, and the goal is to vet the process that now exists on paper but do we know it's effective? Do we know that it accomplishes our goals both in terms of its speed but also its effectiveness, and then ultimately to be able to provide data from the pilot to decision-makers that will ultimately determine its adoption in various states or in some sort of central program.

We launched the pilot in February of 2020, earlier this year. We expect some final reports from that by the end of the year. In our pilot, we have two active technology providers. They've contributed a lot of time at their own expense, so they are VR systems and no wink. Between the two of them they provide three products for us to test, two electronic poll books and one election night reporting product.

The process -- the pilot itself -- that'll make more sense includes the initial submission and at least one revision submission, and then we're guided in our pilot by two committees. The first is what we call our steering committee on our steering committee we have NASED, the state of Ohio, Maryland, Texas, Pennsylvania, Indiana, and we also have the EAC federal living system and CIS is on our steering committee with the goal of understanding all the constraints that these various stakeholders bring to the table and try to accommodate them in our RABET-V.

On our technical committee we have NIST including folks on this call. We have software engineering institute we have OROS and faculty from the Carnegie Mellon university and others on a technical advisory committee, and they advise us on more technical matters, you know, in their various subject matter expertise.

The reporting at the end of the year will include three things: First, it's a program description, which is essentially the final version of RABET-V so, you know, how we run it, what's the process, what are the rules and the like? It'll include actual, you know, RABET-V artifacts so what are the reports that we generated along the way as we tested these systems, and then one particularly interesting piece is that what we call an economic and operations model paper and essentially RABET-V is a testing process. It is not policy. It is not, you know, anything broader than the process itself and the requirements that we're using, so it can be compatible with many different operational models: Who does what, you know? It could also be compatible with many different financial models and who pays for what, and so it's been a really, you know, promoting one of those or of another what we intend to do is capture all the different ways that RABET-V could be compatible one of those models and, so that'll come out in our econ and operations model paper which were -- which we're working heavily with our steering committee to construct.

So RABET-V is a process. This is the diagram of the process. It's an eight-activity process that has a lot of tins because what we wanted to create was something that was flexible to the product itself, that it was testing, so that we could be as efficient as possible.

In order to be as efficient as possible, every product goes through what we call the initial iteration. The initial iteration goes through all the activities, and you can see some of these activities are more -- as we get into them, you'll understand that some of them are more intense than others particularly the ones there in the middle, the process assessment looks at the actual software development processes of the provider. The architecture review, which is where the process gets its name, looks at the actual construction of the product from an architectural perspective. What are the primary building blocks? How are things built, where are the subsystems, where are the trust boundaries? You know, big concepts how this thing is built, so that we can understand its security controls but also understand the risk of future changes to the security controls.

The security claims validation looks at the actual security claims the provider is making, and then the testing rules determination ski because what we -- is key because what we do with the initial iteration we build out, basically, a custom testing regime based on that process because those two

things we submit, you know, are leading indicators of the risk of future changes and how those future changes will affect the security of the system.

And, so the architectural systems build with mature, secure software development processes, you know, its future changes will be less risky than a not-well architected systems using ad hoc processes that don't have security built in. Those are the two extremes to illustrate the point but, basically, by learning their internal processes and learning their architecture, we build these custom testing rules.

The custom testing rules then inform the testing verification. As we use it here is just the actual testing so, you know, in our testing in RABET-V includes both conformance testing as well as penetration testing to really look at the requirements and evaluate if the program is meeting those requirements.

So we hope if we're successful in the initial iteration in the testing rules, the future iteration particularly small changes that are being made to the product can go straight from the initial submission to product verification without regoing through any of the process in architectural reviews, which is more lengthy pieces which we submit will yield, you know, much quicker reverification times because the product -- because not only are we skipping the steps that are the more lengthy steps but also that product verification step is -- as efficient as we

can make it given the architecture of the product itself and the processes that they're using.

And so I'm going to dive real quick into three of the more critical ones. The first one is the process assessment, so RABET-V is unique as far as we know looking at the actual internal processes of the -- of the providers themselves when I say "unique," unique to the election space because we also took the idea of the medical device precertification program where they were looking predominately at the providers in order to inform their streamlined reviews, so what we've done here is we've created a software development maturity index, which is based heavily on the OWAS software maturity model which looks at a number of models around mature software development. We also include usability and accessibility in this, so we call it SAM plus we expanded the assurance model to include usability and accessibility because we want to be able to score the provider on how well that they're taking user feedback and adopting it.

We also wanted to score them on how well they were incorporating accessibility testing into their internal processes. So that's the process assessment.

The architecture review is something that, you know -- we weren't able to take something out of the box like the OWAS SAM model we do for process management we had to build an architecture review -- not quite from scratch but with a little bit less of an out of the box approach. Essentially, what we do

here is use a threat modeling approach to identify the system-level components. We then use -- we have some tooling that we've adopted to pick apart the software architecture itself, and we've developed a rubric for architectural maturity that's purchased in our program description in order to create what we call the security service architectural maturity index, and so these maturity scores that come out of this process inform that testing approach that I talked about.

So the product verification, as I mentioned, the actual testing of the system from the testing of the system we create the security service capability maturity index and have -- I have a whole slide on the indexes. Let me introduce that in just a moment, but as I mentioned the techniques vary here from the product verification based on the actual product that's submitted and the changes that they've submitted, so in theory, right, you have a product that has a good architecturing and good external processes, and they submit a nonsecurity impacting change.

And how do we know it's nonsecurity impacting because we know it's architecture, and we can tell from what they submitted that it was outside of the security-providing pieces of the software? Those are going to be low risk changes in our mind, and, so those will yield more streamlined-efficient testing getting that streamlined through as quick as possible.

A product change on the other hand that does impact the

security of the system, particularly for systems that are not well-architected could in theory, you know, lead to, you know, significantly more testing potentially at its maximum, you know, redoing everything that has been done before and that obviously would not be ideal for anyone.

So I want to talk about these indexes because they're the outputs of RABET-V, so every iteration of RABET-V produces updated indexes around that product and that product variant version.

The first one I mentioned was the software development maturity index, and, so there's an overall score here. All of these are on the range of 0 to 3. The six supplements of the software development maturity index, 5 of which come from the OWAS model and the 6th one we added, and those average up to the overall, and, so that's essentially, you know -- what are the providers' internal processes related to these aspects, governance, design, implementation, verification, operations. What I particularly liked about it not only how that they're building it but monitoring it. When we talk about internet-connected systems we understand how that they're going to understand human response and their situational awareness around those systems when they're connected to the internet. Are they going to be aware in the event of a security attack, you know, and how are they going to be prepared to respond? And, so all of that is covered in this process assessment.

The next index is the security service architectural maturity index, and this speaks to the architecture of this system. We provided 10 security systems. These are essentially the scope of RABET-V. These are the 10 security -- the aspects of security that we are looking at both from a requirements and process perspective. I won't read them off for you here, but they cover a broad spectrum of the security. We don't think we left anything out as I should say, so each one of those are scored independently on their architectural -- how their system was scripted to provide that security and the -- constructed to provide that security. The architecture maturity speaks to the reliability of that system over time so when you talk about authentication, the higher the architectural maturity for authentication, the less likely that changes will break that system's authentication mechanisms.

The lower the score, the more likely that changes will break the authentication. As you can imagine, the lower the score here the higher the testing that we will do -- the higher the score here, the lower the testing that we do will do and both of these, you know, essentially look at risk so if the architecture is a low score, then we need to do more testing to buy that risk down. If that architecture is a high scorer, then we want -- need to do as much testing to buy that risk down because potentially that's what verification does; right? It says well, if it passes, then the risk it uses is low, but

that's different than capability. The capability actual effectiveness of the security service, and you may have in some cases a high capability but a low architecture score. What that means is this version of the software does it well, but we're not really saying that the next version will or won't because the architecture doesn't necessarily support it in the way that's reliable.

So capability is super important. It's the one that will probably change the most from -- you know, from version to version but architecture is, you know, obviously what is the more long-term important number, and I would argue the software development maturity is the even more sort of sort of long-term you're going to yield better results from that.

So, you know, overall we think RABET-V provides an alignment of security assessments to modern software development. One of the things that I didn't quite cover in detail here is that if a provider can demonstrate that they have internal capabilities, you know, robust internal capabilities to do things like configuration, you know, assessments, vulnerability assessments, security assessments -- if that they're doing those particularly automated versions of those, you know, those will be also accounted for in the testing, and we won't redo anything that we have previously found to be, you know, reliable.

You know, we believe obviously we'll yield rapid product

provisions, rapid testing of those as well as innovation of rapid testing practices, and we hope reverification will be accomplished at minimum cost, obviously, this is what we're trying to figure out within our pilot program, but I want to sit on this next bullet for a second.

One of the nice consequences we think of this process is that there's built-in incentives for better architecture and better processes because the vendors will -- will be incentivized to go through quicker testing, right, to go get their products out quicker at lower cost. The only way you do that if you can demonstrate that your architecture is robust and that your processes are robust, and, so there's this built-in incentive to continually improve those maturity skills in order to minimize the amount of repeated testing that's done every version, and so that applies both to the architecture and the processes, and then, of course, the real goal of all of us is to give a consistent basis for which approval authorities, namely states, can draw information and make decisions about certification and use in their states and in their jurisdictions.

I can talk all day about this, so I've limited my slides and hopefully you have some questions, so I can get maybe into some other details that I left out.

>> Walter: Erin, thanks so much, that was an outstanding overview for the group. The floor is now open for questions and

for discussion with Aaron on nonvoting technology approaches that have been outlined.

>> David: This is David Wagner, I had two questions, first one is about transparency. What kind of commitments are you prepared to make about publicly releasing documents and technical details of the results of your evaluation you do? Can you tell us what will be released and what will not be released?

>> Aaron: Yeah, so we've identified two years of recipients one we call subscribers so RABET-V subscribers will be states, locals and other stakeholders, you know, government entities and that type of things they will have access to internal detail in terms of our reporting, what we found, what was remedied through the process, what wasn't, what was submitted and all those details.

There'll also be a public reporting level that will show those index scores but without I don't have the nitty-gritty details, and that's how we envisioned it now. I think as we look at our reports that we're generating through the pilot we'll make a more informed decision based on how sensitive, really, are those -- the assumption we're making is that some of those reports will have some sensitive details and not be made public and better that it not made public, and that may not be true when we get to that phase, but that's the approach right now.

>> David: Okay. Thank you.

I would raise questions about whether that will adequately support public trust in the ratings.

I guess my second question has to do with these indexes. Can you tell us more about where the indexes come from and how we know that numbers that come out of this index are going to be predictive of whether the system will experience a security breach? Have they been validated? Have these particular criteria indexes have been used in other industries? Maybe if you could share just a little bit more about that.

>> Aaron: Yes, so essentially -- I mean, the rubric if you will, right, for what it is that we're using to come up with the scores is all public. It's all transparent. In fact, we actually have everything of our initial description program published. We have a GitHub site that we can give a link we could give the whole TGDC a link to. All that's going to be transparent; right? So we have published -- both the OWAS SAM model is published by them, and we just link to that. The architecture rubric is published, you know, we established, basically, level 1 criteria, level 2 criteria, level 3 criteria, and then we essentially average which of those criteria they hit with the architecture, and the capability index is based on a set of requirements.

We set all the requirements to level 1, level 2, and level 3, and this is all published and will continue to be published as we update it, and so essentially they hit, you know -- which

of these requirements do they do claim to actually accomplish, and then which ones did we verify that they hit and will all go into the score? You know, it can entirely possible they release which requirements they claimed and which requirements they hit because the level of transparency needs to be there so folks aren't looking at raw numbers and ask to trust them, and they need to be had how we got there, but we also have a goal to keep some of the sensitive information, you know, undisclosed, so we'll -- I think we'll be able to strike that balance.

>> Walter: Thanks very much for those comments. Any other comments on the RABET-V presentation from Aaron?

(Talking Simultaneously.)

(Talking Simultaneously.)

>> Lori: While I -- thank you, Paul.

While I appreciate this endeavor, I'm concerned that the EAC is taking this work on before you finished your statutory required work on the VVSG. I think election officials need the VVSG. Citizens need the VVSG, so I would urge you to focus on that work before taking on this work although I do appreciate the presentation and the information shared today.

>> Walter: Thanks so much. I don't believe that there's any intention take the foot off the accelerator for VVSG 2.0. For anyone on the committee I think this is an important complement to that work and Aaron, we're grateful for the update.

Other comments or questions, please?

(Talking Simultaneously.)

>> Paul: This is Paul -- I just want to echo back about the transparency. I definitely agree with the need for a better -- for a more agile system and do talked about VVSG and, you know -- we have things that, you know, potentially can go unpatched because the certification has to come back around and go through whatever and there has to be a more agile system in place particularly as it relates to nonvoting election technology versus election technology.

Just to give the public a better comfort level with it but also re-enforce what Lori said. I know that the main topic of today's conversation is nonvoting technology which, of course, does not involve the VVSG at all or shouldn't at this point anyway scope, creed and all that other stuff notwithstanding, but I believe the way the technology is growing in leaps and bounds, you know, whether this could be somehow brought into the VVSG eventually at some point in the future release, you know, as a system for a more agile set of standards that could change as technology changes rapidly --

(Inaudible.)

>> Paul: In the environment that we find ourselves operating in, and that's always been a concern for me at the end user level, you know, making sure I'm using systems that are secure as possible.

>> Walter: Absolutely. Thanks so much for those important

comments.

Other questions or comments on this topic with Erin?

>> Diane: Hi, this is Diane Golden, so, Aaron, I was originally thinking that as you were just describing this process that there would need to be something parallel complementary for accessibility which seems to be the case. One side's security and one side's accessibility. Then you mentioned the human factors thing, and I saw that in that one section, but I'm thinking you really are talking human factors not accessibility in a technical sense because then you'd need a ratings for accessibility just like you have security so help me understand exactly what that human factors piece in that kind of broad section is.

>> Aaron: Yeah, there's two aspects to that. Thank you for the question, Diane, and I think we have room for improvement, and I'll start with that. Certainly our goal, our primary goal has been security, but we do look at both accessibility and usability to the extent that we can look at the -- look at accessibility from an automation perspective and there are tools that I know that have capabilities are limited at the end of the day, those are incorporated into the testing but what -- what I specifically showed on the process element was a look at how the vendor is handling usability and accessibility in their own internal processes and do have a rubric on this as well so there are three two years of, you know, what we think or what we

submit are three different levels of maturity; right? One is essentially an ad hoc process, and then all the way to 3, which is: You are getting -- periodic formal reviews of both usability and accessibility from independent experts, and so, you know, we view that as something that the provider should be doing on an ongoing basis both with experts in accessibility and usability but also with their customers on the usability side, you know, how are they accommodating their customers' feedback and how mature is that process?

We don't feel like we can do usability through RABET-V nearly as well as the end users can do usability testing and what RABET-V hopes to accomplish is a quick turn on the security verification, so that more robust usability testing can be done at the end user so if usability is done -- if something takes six months to get certified, and you wait until the end of six months for your user to test it and say, well, this doesn't work right -- and it has usability issues, you have to wait another six months to get -- to get the improvements there. What we want to accomplish in RABET-V in days or weeks, you know, not months or longer, so there's more opportunity iterative improvements for usability. I'm separating away from accessibility because there are some things we could do -- accessibility has some global things we can do; whereas, we feel usability is down to the states and the end users, and so what we hope to do is just to make a quicker turn, so that those end

users have more opportunities to iteratively improve and address that.

>> Walter: Thanks so much, Aaron --

>> Sharon: This is Sharon I if I may make a comment on this.

>> Walter: Yes, Sharon.

>> Sharon: We do have as part of our requirements for the VVSG -- a requirement to report on a developers user set or design process, and we have some drafts of the actual templates based on the isostandard on the user centered-design process for voting as well as on reporting for the usability of the he end product and -- of the end product, and that's been in the VVSG since the beginning, so there are ways to report on that and by usability, I mean, usability for everyone including accessibility for people with disabilities, and that's all specified in the templates, so I'll just -- I'll just point that out and also --

>> Diane: I appreciate that.

>> Sharon: And one needs to design usability and accessibility from the very beginning; right? If you're submitting some sort of certification at the end, and you haven't thought about it, it's like trying to add the sugar in the cake after the cake's made so -- but there are methods of reporting on this.

>> Diane: Yeah, this is Diane, and I'm just going to follow up 'cause I understand setting end users -- usability aside, I'm really thinking about true software accessibility and the

inherent conflicts between security and accessibility just in program code itself. Everything you lock down, because it needs to be secure, tends to create an accessibility problem, so I really am talking about not end user but -- and I'm sure you got some automated checks, but my experienced in having worked with folks doing app development stuff -- they have no -- there is just such a lack of understanding about accessibility in programming itself that we have a rubric that's really strong -- I'm not sure you're going to be getting -- and expecting the vendors to know what's accessibility in coding -- yeah, so I would just hope -- there either needs to be a complementary set of rubrics and standards, so that you're getting equitably accessibility and security within the software code itself or you need to acknowledge you're not and -- anyway, so --

>> Aaron: Great points, and I opened up I believe we have room for improvements and both of your comments are very helpful, and I'll take a look at those templates Sharon and Diane. We'd love to have more engagement with you on this, so that we can make sure there's a proper balance in there and that we're not -- we're not promoting products that produces a secure but nonaccessible end result.

>> Walter: Thanks very much, Aaron, any questions or comments while we're in this topic with Aaron?

Well, hearing none, thank you, Aaron objects behalf of the TGDC and all the participants today. This is a very exciting

progress. We're pleased in the approach that you're utilizing to provide the kind of transparency and accountability and clearly it's an evolving process as you've also been describing, seeking to define that appropriate balance as well that brings together the security needs and requirements with the accessibility requirements and appropriate balance. So again, thank you for a very exciting presentation and the great progress you and your team have made to -- to really support the acceleration of product development and the verification cycles, so thank you once again, Aaron, on behalf of us all.

The floor is now open for discussion of nonvoting technology approaches, building upon the conversation today as well as the feedback that's been provided as shared by Mona Harrington today, so the floor is open for discussion, questions and comments.

>> Ben: And Dr. Copan, I'd love to jump in real quick, you know, certainly I think part of the reason that we wanted to have this conversation or that it's useful and certainly to Lori's point earlier, you know, absolutely VVSG is our first and foremost priority in the technology space, but I think, you know, obviously since 2016, we're in a changed world in this space and in election technology. We all know that a lot of the risk involved is in the nonvoting election technology and, you know, and putting my old hat at the Senate, you know, while election legislation, better election legislation, doesn't

happen very often, you know, you have seen -- you have seen bills in both chambers, you know, led by members of the both parties around doing something with nonvoting election technology, and so I think, you know, having these conversations, you know, having these conversations with a group like this is going to, you know, both, 1, help us inform our interactions, whether it's the VVSG and the testing and cert program whether it improves future scope conversations, whether that, you know -- we see things through these efforts that could maybe improve that and certainly we have heard loud and clear for that program to be more agile and searching those avenues.

And again, last but not least, you know, nonvoting technology and the role it plays is crucial and whether -- whether that is something that gets created congressionally or we just do it under the clearinghouse function, you know, as far as best practices or, otherwise -- having these conversations now, you know, can lay the groundwork -- you know, having these conversations that is more thoughtful and informed by people like the experts on TGDC, you know, we think is useful to do and certainly a valuable resource, and, so we appreciate you all again jumping on today and any thoughts or feedback you have on how it would be most appropriate to look at these technologies that are currently outside of the scope of the VVSG. Thank you.

>> Walter: Great thanks so much, Ben.

>> David: This is Dave Wagner. I can share a few immediate

recognitions. I'm encouraged, and it's important to see serious evaluation in nonvoting technology, and I think that's a great direction. I've certainly heard concerns about systems, like, voter registration databases and e-poll books and to be able to provide some support to election officials to help inform them and help protect their systems, that sounds like a great goal.

And there were several things in this presentation that I thought were quite encouraging to see to focus on enabling rapid change and not having this program prevent updates or changes. The inclusion of both the architectural review as well as evaluation implementation I thought that's quite positive in an industry we see the combination of both of those is important to have, that architectural review will highlight some important findings, and then testing and evaluation of the code and the implementation is also -- has value as well.

I think if I was going to point to one concern that I would raise would be -- this is a pilot program, and I think kind of the proof of this will be how useful it works when tried on the future few systems, and I'm looking at how that evaluation is going to be done, and the way that jumps to me for me how to evaluate it would be at the end of the pilot, after a few systems have been analyzed would be two ways: First to look at the detailed technical reports. That they're describing the technical details what testing was done, what the findings were to try to get a feeling of how comprehensive and how quality --

how quality that analysis would be.

And second I would be interested to see if there were any other independent teams that have looked at those same systems and have compared the findings?

And so it sounds to me like the way the program is being described is that it may be difficult for members who are not part of this very limited consortium to evaluate at the end of the pilot whether this was effective, whether the analysis was high quality because that detailed technical analysis is not going to be available so where normally what I would do to look at -- form a perception of how good a firm that does security analysis I would go through at a few other reports, a few technical reports where they analyzed a few systems, and I would try to use that to get some feeling for the technical capability of them. It looks like that will not be open to members of the public or to interested independent experts or third-party advocacy organizations, but it will be limited to just the members of the consortium, so that may pose a challenge for figuring out whether this is a program that EAC in its role of serving the nation's needs wants to move forward on because it won't be able to benefit from that kind of perspective from anyone who's not a member of the consortium.

Thank you for the chance to come.

>> Walter: Thanks so much, David.

Aaron, would you comment?

>> Aaron: Yeah, I mean, I think David's goal is the right goal, and we'll support it, and we'll do whatever we need to do to give him and the others the information necessary to evaluate the program itself and the capabilities of the program.

I want to point out what we really are piloting here is the overall process, not the particular capabilities of the people executing it right now because it isn't necessarily the same people that are going to be executing if and when it becomes an operational unit, so what I think is most important is the architecture review: You know, did we find in the architecture -- things like the rubrics are they the right things? I don't want to get caught up in the who. We feel like we brought in a quality team to run this pilot, certainly, but I don't want to get caught up too much in the particulars like who is actually executing it right now because what CIS is trying to produce data produce essentially a research product on the process itself, so that the decision-makers and others can -- can look at that, but there will be some things that will be consistent if and when it becomes an operational piece.

>> Ben: One other thing I'd like to jump back in to quickly, you know, I certainly appreciate, David, those thoughts and Aaron and, obviously, we have Aaron so, you know, I would welcome any other questions or thoughts people have on RABET-V, but I also think our hope is the conversation, you know, certainly doesn't need to be limited to that, you know, again, I

look at, you know, some of the examples I wrote up earlier, you know, e-poll books, that they're absolutely been bills that say e-poll books will be included in the VVSG, you know, does that make sense for e-poll books hooked up online and be updated with security patches more quickly or is that not necessarily the best route.

You know, similarly voter registration databases, obviously, one of the, you know, biggest focus since 2016 from a security standpoint, but they don't have a market like voting machines or e-poll books do, you know, and so is -- is the best course of the action simply sets of best practices, you know, or recommendations? And, you know. So again, I think we would welcome sort of wide-ranging conversation beyond RABET-V. But again, thinking about the nature of these nonvoting election technologies and by that, you know, statewide voter registration databases, poll books, remote blank ballot delivery systems and election nights reporting, you know, any of those for example I think -- thinking about that technology and how it works and if there are, you know, obviously, we have a wide range of experts here. If there are other industry or other things that we could point to that would inform sort of the best way to look at or approach those technologies that are not currently statutorily envisioned for how -- how we would approach them.

>> Paul: Ben, if I could add on because the VVSG is about voting systems, so what -- tying to the voting system is a

bifurcated system, and you're talking about a different audience of people so there are places where you have voter registrars, and they do this over here, and that's all they do, and then you have the people over here who run the elections with the voting -- with the actual voting process, and that's what they do, and so clearly I don't know how representative most of the folks on the current TGDC are -- which process model are we talking about? So is there a need for this type of process to be put through for nonvoting technology? Absolutely, unquestionable. The need for it, but, you know, as far as input goes, you know, it's going to be a slightly different animal than the actual VVSG process that we just went through.

>> Bob: Hi this is Bob Johnson. Just to follow up what Paul was signature.

Ben, how would you envision if you guys were to take something on, you know, critics will say you haven't passed a VVSG in five years, why would we want to give you more standards to oversee? I mean, I think that's a fair question.

>> Ben: Well, I mean, I don't think, you know -- I think twofold: One, you know, if you want Congress to write standards on this that nobody's had a conversation about, they can do that.

(Laugh.)

>> Ben: We're trying to provide a forum to have -- to have an informed conversation, so it may not be up to us that is always

something we're aware of.

And then I think the other part of it is, again, recognizing the breadth of the clearinghouse function that this is a need, certainly recognize, you know, the concerns about getting the VVSG done, I hope that we have, you know, adequately addressed our commitment earlier in the conversation, but I don't think you can talk about election technology or, frankly, elections right now -- I mean, without talking about nonvoting election technology, and so certainly I think it's an important part of the conversation. I know preCOVID-19 we certainly envisioned having, you know, round tables and more of an agenda on this year certainly some of that's been back-burnered with responding to the pandemic, but certainly I wanted to use, you know, the experts on TGDC, and this forum to -- to at least, you know, keep moving the ball forward in this regard, too, and informing our efforts or thoughts in this space.

>> Bob: And I appreciate that, and I'm not rolling stones. I'm seriously, like -- how would you envision that because if you're going to on additional standards, how do you prevent it from getting bogged down? Like if we said, okay, you're going to gives us some e-poll book, gives us some voter registration system standards or guidelines, how do you envision -- do you envision the same process where it's going to take years or --

>> Ben: Well, I mean, I think that was slightly -- VVSG is a statutory creation. That's -- so we're not in those parameters

right now, you know, for people that don't want, you know, federal mandates, you know, us doing best practices and taking some of these on administratively I would think is your friend, but, you know, even if there are, you know, future legislation, something that would consider that, you know, again, in my mind this could inform that, and I think in this conversation what is most useful for states, for election officials? You know, is it -- is it simply compiling a best practice list and saying, hey, you know, these are things you want to make sure you do with your statewide voter registration database and things like RABET-V that Aaron talked about, obviously, for a while and seeing what can be done with these technologies that can address you know, the time and space that we're in.

>> Bob: And I guess that's what I'm getting at, is this a best practices that you're looking to do 'cause states are --

(Talking Simultaneously.)

>> Bob: But states do want to point to something like the VVSG and that -- there's no doubt, and I understand that's statutory framework on how to get there but if we're going to talk about non, you know -- nonequipment like nonvoting machine equipment that we're discussing here today, I guess that's the question: What does that look like?

>> Ben: We are -- we are not a legislative body? We cannot create anything that's mandated on you, anything that we would be doing is, obviously, voluntary. But again, to the degree

that we have the ability to create a resource to potentially -- you know, I know a lot of states have testing and requirements around e-poll books. Certainly we heard from NAS a lot that's something that, you know, they'd like to see more involvement in this space, and so again, I think the time we blocked out for this conversation is what does that look like? Two election officials like yourself and for the technology experts, you know, are there examples, you know, that people would point to as saying, oh, you know what? This happens over here and may really be applicable to this nonvoting election technology.

>> Bob: Thanks. That's a fair conversation. Thank you.

>> Mary: Bob, let me sort of jump in here. Part of what we're trying to get to is what would be most helpful to you as election officials and to the technology folks that are part of the TGDC. What kinds of resources might we be able to generate that would help you in evaluating voter registration databases or electronic poll books?

>> Walter: I think Ben, to the comments that you made earlier we're moving really into an era where we have to bring more systems-wide thinking rather than the current sort of legislative constraints that we have that sort of define the charter of the TGDC and, so I think it's a very fair series of questions as well as not only resources but specific tools such as described in the RABET-V presentation from Aaron that I'm sure we're going to all find illuminating as we study goes

forward, and we've heard from Aaron the desire make sure that it winds up delivering the kind of relevance as well as transparency that the voting community and the provider community demands, so thanks very much for those comments.

Other -- other comments in response to Ben's comments or any other questions?

(Pause.)

>> Walter: Well, again let me say thank you to all of our participants today. This has been absolutely wonderful. And let me first -- as we're getting ready to wrap up our session today, which I found very I eliminating, Ben, let me turn it over to you for any comments that you would like to share beyond what you --

>> Ben: You know I would just add, I again appreciate everyone's time today. You know, we're going to continue to obviously power through on the VVSG but also think about these other areas of election technology, and so, you know, from no way this is the end of the conversation. I'm actually surprised so much of this group is silent, but this is a busies time. If things come to you or if you have thoughts that you want to share, you know, we would welcome that. Again, this is an area where all the answers are not out there and there are real things that we can do under the clearinghouse umbrella to help states, to help election officials, you know, in an ideal world, you know, there are these cost-savings that can be realized by

federal work in this space and e-poll books look like e-poll books look the same whatever state you're in, and I'm happy to explore this in the clearinghouse function and just thank you for taking the time out of your day to participate today.

>> Walter: Ben thanks so much, and we're just so happy you are our designated federal officer and that your services are continued in that capacity you bring just a tremendous passion as well as a strong background to move this forward, and I'd just like to thank once again, Mary for her tremendous service and dedication to the efforts of the TGDC, the close partnership. Also, with this body as well as with the election and assistance commission on behalf of NIST so let me just begin a round of applause for Mary with saying thanks to you.

(Applause.)

>> Walter: And we have a virtual standing ovation here from all of the participants on the call today, so, Mary, once again, from the bottom of my heart, thank you so much for your -- for your service, for your leadership and for your great efforts and Lisa, I'm really looking forward to your stepping in.

This has been a very important conversation today, and I'm just so pleased that the progress that we're making as mentioned at the very outset and at the closing of our call today we're going to move forward very aggressively towards the completion of VVSG 2.0 and the integration and the appropriate dealing with public comments in an open and a transparent way.

We're also looking forward to the -- to the full adoption of that in its final form.

We have a commitment to move forward on an ongoing basis to see VVSG as a living document and as something that can be adapted very systematically over time, and that's I know our shared goal.

And -- and then thank you all so to Aaron and also to Ben and all who participated in the discussion about the nonvoting technology approaches. It's important for the benefit of the nation that we take a systems approach and that we look at the interconnections between all of these elements that -- that comprise operability, security and accessibility, and so I thank all the members of the TGDC. You represent a great aspect to the nation. Thank you to your commitment to this important effort, and we look forward to the future consideration about how we address and integrate the nonvoting technology approaches with what's considered currently in scope for voting -- voting systems and in the charter of HAVA for the work of this important committee.

So before I close out let me give Mary Brady a chance to say whatever she wants to say before we close.

Mary?

>> Mary: Well, thanks, everybody. Thanks for all the kind wishes. I sincerely, I have enjoyed working with you all. It's been stressful at times, as there's no doubt about it as we

handled a lot of very touchy subjects but through it all I've had great people to work with. You've been great partners in this endeavor, and I look forward to seeing you get the VVSG across the finish line and hopefully I won't be a stranger. I'll be there to help you -- help see it through, so thanks, everybody.

>> Walter: Okay. Mary, thanks so much. Truly -- truly appreciated, and I know a heartfelt thanks from each of us.

We have a commitment to meet regularly as a TGDC, sort of our minimum pace has been 6 monthly, but these last couple of years we've had a lot of meetings and a lot of -- of team meetings in between our formal gatherings, so I'd just like to thank this entire group for your -- for your efforts to your commitment. I'm looking forward to that pace continuing. We heard today the report that the subcommittee on VVSG 2.0 is meeting twice a week. That's a great pace, and we are just grateful for the commitment as part of getting TGDC's efforts on the VVSG 2.0 across -- across the goal line and fully in place.

And so at least for myself I'm good looking forward to our next formal meeting to take place after the elections. I think we'll have a lot to process then, but we know there's a lot going on between now, and then, so I encourage your continued engagement with -- with Ben and with me with the other members of the -- of the TGDC in the interim and let's get VVSG across the goal line as quickly as we can.

So thank you all. Wishing you health and to success in your ongoing endeavors and to a great election season as we look forward to November of this year. Thank you all for your service to the nation in this important effort.

So with that, Ben, any final comments before we wrap up?

>> Ben: I'm hoping for all that, and I would say this official concludes this meeting of the technical guidelines meeting. Thank you all.

>> Walter: Thank you so much.

>> OPERATOR: The recording has stopped.