



Alcatel-Lucent Enterprise Live Reference Exchange

Nick Zepp, State College Area School District

Robert Goff, Christina School District



Carine (organizer): Good morning, good afternoon, good evening everyone

My name is Carine Bowen from the global customer reference program at Alcatel-Lucent Enterprise and I'd like to welcome you to this Live Reference Exchange.

We're delighted and honored today to welcome our distinguished guests from the United States:

Nick Zepp - Network Systems Manager - State College Area School District

Robert Goff - Infrastructure Team Lead - Christina School District

Robert Goff is responsible for Christina School District day to day IT operations. He manages a team of 10 people who support a network of approximately 24,000 nodes. He is an Information Security Officer for the state of Delaware and a member of the IRM council which develops and oversees the policy and topologies of IT in Delaware.

Nick Zepp is the Network & Systems Manager at the State College Area School District. In his current role at the district, he oversees a team of six members responsible for daily operations and management of all network, VoIP, collaboration, virtualization, hosted services, and other district systems.

About our customers



Our Moderator today will be **Robert Hemmerich**. Rob is Director of North America Business Development at Alcatel-Lucent Enterprise.

In this session we'll discuss what benefits our 2 panelists identified out of their unified access strategy.



Unified Access

One student experience: wired and wireless



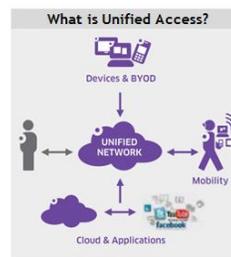
Rob (moderator): This is Rob Hemmerich, and I wanted to introduce to you the solution that we are going to be talking about today that here at Alcatel-Lucent Enterprise, we call *Unified Access*.

I think what is important to understand about Unified Access is that it really addresses the needs of two audiences:

- On the one hand you have your user community who benefits
- and on the other hand you have your IT community who benefits.

From a user perspective, they get a unified experience regardless of application or device across the wired and wireless network, and from an IT perspective you get to manage the network as one network both wired and wireless. This improves policy enhancement and security for all of your users.

Alcatel-Lucent Enterprise Unified Access Solution Benefits Students, Faculty, and IT Staff



- What are the benefits?**
- MORE APPLICATIONS & MORE MULTIMEDIA
 - FROM ANY DEVICE
 - CONNECTIVITY ANYWHERE, WIRED OR WIRELESS
 - EASY INTERNET ACCESS FOR GUESTS



And of course the Unified Access solution is based on Alcatel-Lucent Enterprise's products, the OmniSwitch and the OmniAccess wireless portfolio.

We are going to move now to a round table with Bob Goff and Nick Zepp with the first question and I will start with you Bob,

Rob: What does a day in a life look for you today as an IT professional and how has it changed over the last 5-10 years?

Bob (Christina School District): Over the last 10 years we have seen the most dramatic change obviously. So 10 years ago, a typical day for us would be installing wireless in one of our buildings. We would have a request for wireless. We would have

A Day in the Life



- You're both IT professionals, what does a typical workday look like for you?



- ...and how has it changed from 5 years ago? From 10 years ago?



gone with a single type access point that would have its own power supply, and we would have plugged it directly into the network and we would set up a SSID (Service Set Identifier) for that user and those worked ok. But the problem with those at the time was, if we would have to setup another one of those in another room with the same SSID, you would have to reconnect to the next one. They didn't have that continuous connection at that time and they didn't have mesh, wireless network.

In our particular environment we had a very large staff lay-off and we were reduced to a small amount of people so we needed to start learning how to centrally manage things and that's when Alcatel-Lucent Enterprise came in. So back then, where I would have sent a team of people out to take care of every single problem, that doesn't exist today. We have to be able to take care of those problems in-house from our desk most of the time. Alcatel-Lucent Enterprise with the Omniswitches, allowing us to do remote connections, allowing us to do multi-cast for imaging, have made it so that a lot of the work we do today actually happens from our desk and it has cut down the travel dramatically and has actually improved performance and overall efficiency.

Rob: Right, so as your users have become more mobile your staff has become less so, is that fair to say?

Bob: Absolutely yes!

Rob to Nick (State College Area School District): How has a day in a life looks for you as an IT professional and how it has changed over the last 5-10 years?

Nick: I think 10 years ago much like Bob; we were working towards a ubiquitous wireless network however we were doing that with FAT access points, individually managed access points. So what we quickly found was when you start to build that ubiquitous wireless network, where you are providing complete coverage to a building, the network just was not able to handle that and we spent more time troubleshooting problems and we didn't have enough time to move forward in our deployment.

So about 5 years ago now, we looked at the Alcatel-Lucent Enterprise wireless solution and that has been very successful for us. We installed it in our first building and had no problems and now we have that installed to the point where we have wireless coverage in every educational space within our district. That has given our users a great user experience because it doesn't matter whether they are wired or wireless or even mobile outside the district. They can access district resources in the network they are provided.

Rob: How big is the district you are talking about, Nick?

Nick: We have 14 campuses and around 10,000 users.

Rob: Bob, Is that comparable to what you have at Christina school district?

Bob: We have 40 locations and 1 campus consisting of about 5 buildings. We have 20,000 users and a network of approximately 24,000 nodes.

Rob: So they are all using that ubiquitous wireless network that you have installed now?

Bob: 2,500 access points.

Rob: Both of you have recently made some investments in your network infrastructure and, let's start with you Nick, what was the reason you decided it was time to invest in your network, was it because of new expectations from your user community, were there new requirements from regulators or maybe there was a new application that was coming online that dictated the need?

Compelling Event

What was the reason you decided to invest in your network?

1. New expectations from staff and students?
2. New requirements from regulators?
3. New applications?

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Nick: I think it's fair to say the compelling event would have been a combination of those three items as well as some other things. In the state of Pennsylvania, we are doing online testing for benchmark assessments.

In general internet traffic, we are seeing an upward trend and that's continuing. So we are sort of trying to stay ahead of the curve on students being able to access the internet as well as we are seeing a lot of BYOD students - students who are more comfortable with the device that they already own. They are bringing that device on, and we are also deploying 1 to 1, so the additional nodes on the network are really causing us to look at our capacity and figure out how we can handle all of the application demands from the additional nodes we are putting on the network.

Rob: Let me ask you a follow up question there Nick, you used two terms here and because we have a global audience I want to make sure everyone understands what they mean. First of all you said 1-to-1. Can you explain what that means to the audience please?

Nick: Students are receiving a device as a part of their education in our school district. So they have 24x7 access and in some cases they can take that device at home as well. That way they have 24x7, 365 access to that technology so that they can engage in learning at any point.

Rob: So that's a school issued device then?

Nick: Yes. That's correct.

Rob: And you also talked about online testing, what kind of testing and how taxing is that for your network?

Nick: The state has implemented this online testing application which connects back to data centers at the state and it pulls all the questions and answers, images and videos - you name it, they have included it. Roughly they estimate it requires about 1 megabyte per student per session. The way the state has implemented those tests: you have to test all students in a building at one particular time. So if you figure we have 4,000 students on a particular campus, that's a lot of bandwidth requirements for the

students to all complete the test in that time frame. It's a timed test, so if the connection drops that takes away the time from a student has to complete the assessment.

Rob: So it's really a critical asset to you.

Nick: Yes, it really is.

Rob: So, Bob, let me ask you the same question. You also undertook an investment in your school district's network. Can you tell the audience a little bit about why now and why didn't you just wait?

Bob: I want to echo some of the statements that Nick made. We are also bound by the state testing regulations. That's pretty much a country-wide requirement at this point or will be at some point. We had to bring our network up to speed to be able to test 16,000 students on any given day. But at the same time, one of the things we started noticing - so you go back 5 years ago - all of our buildings would use programs, and in education we use a ton of programs. And a lot of those programs we used to house in-building. So we would put a server in the building if they were using Discovery Education or Plato or something like that involved in education, we would put the server in the building, install the application on the PC and they would have a direct link to the server. One of the trends we are seeing is all of those programs are moving to hosted services now. So our internet traffic has seen almost a 10 to 20 fold increase. We had to start building a network towards that and then of course with the invention of the iPad, that didn't help either.

Rob: So that's a very commonly used device in your school district Bob?

Bob: Absolutely. We don't do a 1 to 1 initiative, as Nick was saying, but one of the things we have seen is 5 years ago our wireless devices probably numbered about 700 to 800, whereas now we have around 3000 wireless devices.

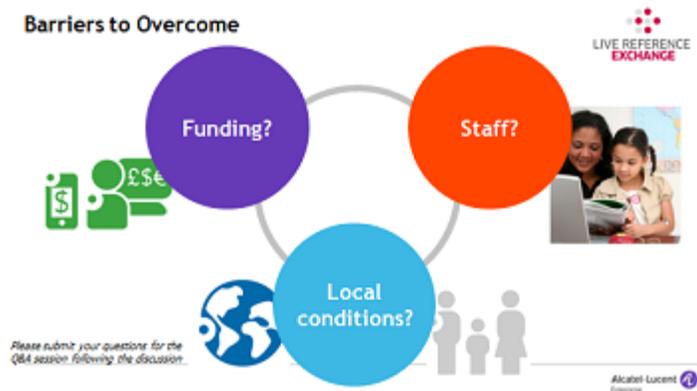
Rob: Connected at any one time?

Bob: Yes, on a daily basis about 2,650 connected at one time.

Rob: Wow, that's some serious wireless traffic you're talking about! A good reason to invest then.

Bob: Absolutely, yes.

Rob: You invested in your network, but surely you had some barriers you needed to overcome. Maybe funding was a challenge or maybe there was a staff gap, either staff resisting the change or your staff not being trained to cope with the change and then of course there's always local conditions? I'll start with you Bob, what kind of barriers did you have to overcome to get a successful project underway?



Bob: All three of these areas affect us. Staffing is one, especially in education where things don't change much. You have people that have been using the same method or methodology for 20 years. So when you come to them and say you want to change things, it doesn't go over very well. And local conditions can tend to be a lot of it; and funding as well particularly in my state of Delaware where, when we want to fund large projects we have to go to the public and ask them for money. And they vote on it and it doesn't always come across. They don't always see the ideas that we have. Our vision is a little different from theirs sometimes. And that's where always Alcatel-Lucent Enterprise is very good with us. They have always come around with some amazing quotes for us.

Rob: Ok. And Nick what about you? Did you have any of these issues to overcome in the building of your modern network?

Nick: Our story is a little bit different from Bob's. We had a very supportive Board. They came to us and said that they wanted to enable anytime, anywhere learning, which means essentially that each student has access to a device to enable them to learn at any point in their day, whether that's at home or in school. So we looked at ways to accomplish that, unfortunately the economy here in the US has been a little difficult recently and that occurred at the start of the economic downturn so there was no more money or staffing to go along with that request. It was just an idea that we wanted to enable anytime anywhere access. So what we had to do is to look at how we could support that request without additional resources or with very strategically placed resources. The centralized management for the wireless and the wired network has been key to this, because we have not increased our network staff at all, and we have tripled the number of devices on our network. Support staffing is always a concern, I mentioned that we didn't increase our network staff, however you increase the number of devices, you need additional support for that and that's a challenge. So we had to get a little bit creative to support those devices. But the one sort of unforeseen thing we had to overcome was as people have these devices, students are pretty innovative and they find new and exciting ways to use devices once they have access to them and some of those additional desires or needs have proven to be a challenge sometimes in bandwidth concerns other times in access concerns. That has also been a challenge that we have seen where students find new and interesting ways to use existing devices.

Rob: Nick, your comment reminded me of a question I didn't ask earlier I am going to start with Bob, because you also touched on it Bob with respect to centralized management being so critical. Can both of you let the audience know how many staff you have to manage the number of users that you have?

Bob: We have 40 locations. These are spread over an area of approximately 48 square miles. We have 24,000 nodes, about 20,000 support users with various little buildings and projects all over the place and my entire networking staff is 2 engineers and 3 desktop support people.

Nick: Geographically we are spread across about 150 square miles, 10,000 users on our network, and we have about that number of nodes as well, we are mostly 1 to 1. We have 1 network technician, 2 server administrators and 6 user support technicians within our district.

Rob: So I can really understand how centralized management is absolutely critical to succeeding to support a network of that size, that complexity and that many individual sites. That's impressive.

Rob: I want to understand, starting with you Nick, the impact of the network on learning. Students clearly are getting a benefit. Educators I assume are getting benefits, maybe the administration of your school district is also seeing benefits. Are you able to comment on that?

Impact of Network on Learning

For students?



For educators?

For administrators?



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Alkamel Lecture: 13

Nick: Yeah! I think each individual user community in our district is certainly

benefiting from it. We have an online student information system, administrators have access to students' schedules, demographic information on their cell phones or anywhere they need it. And that is provided through our ubiquitous Wi-Fi network. Educators are able to innovate in the class room, come up with new assignments and streamline their workflows. Students are really engaged by technology and it's a way to meet the student at their interest. But from our standpoint, as far as the network's impact on learning, my goal is to make the network transparent to the user - so that they won't realize it's there. And we have done that really by unifying our wired and wireless networks, so that it doesn't matter where the user is, what building or campus they are on, even if they are home they have access to the same resources. And we can do that securely and the result of that is we don't hear about it unless there is a problem. Users just don't call helpdesk about the things they are happy with! We've been very successful with that model.

Rob: The best possible network is the invisible network. How about you Bob, how have you seen the network you build for the district impact learning?

Bob: Well as I said earlier, removing ourselves more to a portal-type world where we are going back almost to the dummy type stations we had from the 80s and 90s, where you had a keyboard and a monitor, we have done the same exact thing. Everything is becoming hosted. Everything is becoming cloud-based and what that does is that it enables anytime anywhere learning. So for administrators, between their Mydocs, which is cloud based, their 24x7 emails, SharePoint where they put all their collaborative work, we are able to keep the network running 24x7 and put it on the cloud no matter where they are. They can be in Dubai on vacation and they can still work which I am sure doesn't thrill them! But they can. As far as student go, we are moving to an area where the students are having the BYOD-type atmosphere. So students can bring whatever device they have (phone, iPad, laptop..), and they will have that continuous learning experience, no matter what they are doing or where they are. And the educators as well: with the educators we have collaborative workshops we can do, we also have distance learning labs, which is amazing stuff where educators can work between schools, and you can have shared classrooms between schools or other parts around the country. We did interviews this year for some positions for language classes and we interviewed the people using Skype right from our building so that they don't have to travel from Spain, Germany, Japan etc...

Rob: So your network is now transcending even national borders because you are using it to bring in those remote educators from other parts of the world.

Rob: We talked about this one earlier about securing your network. I think from an education perspective it can be a very challenging environment to secure your network, is it not?

Bob: It can be because as administrators we have a very large network and a very small staff. We don't have all day to track down people trying to crack into the network or do things that are nefarious. But the

students, they have all day and there is thousands of them out there with plenty of time to try to access things they shouldn't and occasionally a staff member who tries to get around the network going to YouTube and seeing things he shouldn't be seeing. So, one of the things that we leveraged this past year with Alcatel-Lucent Enterprise's help was a program called Cyber Gatekeeper. It attaches to our Alcatel-Lucent Enterprise network, it's a client based product and hardware and it's the front door: You get in, you become segregated from the network until you meet certain criteria. And if you've met those criteria, you are let on to the network under certain security credentials. You can set those credentials at various levels: students, staffs, administrators. So that has really been a life saver for us. We also get a report anytime someone has done something that is outside of the scope what he should be doing. At that point we can then look at it and decide what we need to do. We can secure them off the network and within seconds we can do it. We can lock their machines and anything to that area.

Rob: How about you Nick, I think you have some additional challenges in your environment?

Nick: In my environment, we offer as part of our current technical program an ethical hacking course where students learn to become network administrators and security administrators. And they do that by learning about the attacks in order to figure out how to defend themselves from those attacks. It's a very valuable program for the students, however it puts some very sophisticated attacks on the inside of my network, because they are students and they will occasionally stray from working on a test network to try and get into something on the production network. We've really done a pretty good job by implementing user based policies, so the user authenticates and joins the network, and from that point in time, we applied policies based on who that user is. Whether that's ACLs (Access Control List) or assigning them to particular VLAN, we accomplished that in a number of different ways throughout the network. But it's really all focused on the user, so an administrator has access to our grading system but students are in a separate network. They don't have an access because there is no conceivable reason for them to need access to that.

Rob: The concept that Alcatel-Lucent Enterprise has been promoting is one called *User network profile* where the users' own credentials are used to identify them and to provide that kind of fine grained policy control that you are talking about Nick.

What steps have you taken to secure the network?

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From the outside?



From within?

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Rob: Are there new or unexpected uses of the network that you've seen?

Nick: I have already mentioned State Testing and that provides a significant amount of traffic that's very high priority traffic on our network. Some of the interesting projects in which teachers are engaged in, one is called *Flip Classroom* period where the teachers will record themselves in a video giving lectures that

would typically, in a traditional classroom, be given during the school day and then when the students are at home their homework is to watch the lectures. When they come back in the school, what would traditionally be done as homework is then done in the classroom with the teacher so that if the students are having trouble or struggling or have a question, they really have the content area expert right in front of them to answer their question, help them getting a better understanding of the knowledge. For that video traffic we had to provide space and a method to host and stream those videos so that teachers can produce a 20 minute-lecture and assign it to their students to stream it from home and that's been a bit of an unexpected challenge although we are able to overcome it very easily. In addition we have a world language teacher. For the purpose of this conversation let us assume that the class is learning French. They will find a teacher who is teaching English in France and do video chats with the students so that they can practice with one another their language skills. That's also a very on demand-type traffic and with any video chat-type traffic, there is 2-way audio and 2-way video is associated with it. But we are able to handle that on our network and on our Internet connections without any issues.

Rob: That's pretty fantastic. Again an example of your network expanding your school's perimeter outside your district, and even outside the country, that's pretty remarkable. How about you Bob, have you seen some unexpected uses of the network that you have built?

Bob: I have. One in particular doesn't necessarily focus around students or teachers but more from an administrative stand point. We have a person in our district who is a climate control administrator. So he is responsible if there is an incident within a school, he would be the one who would go to the school, come survey the incident, look at the camera system to find evidence for a particular incident. He was travelling to every single school. So what we did was we set up a thing in his office where from his desktop he could see every single camera system in the 40 buildings we have, and pull the data as he needs it. So this is live video and of course then he's exploring the archive video which can be 1-2 gigabytes sometimes per incident. Now I did a cut down in his travel time and it's centralized management.

Rob: It provided a secure and safe environment for everybody as result.

Bob: Absolutely, and it also increased the recovery time and the investigation of those incidences.

What new or unexpected uses of the network are you seeing?

By students?

By teachers?



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Alcatel-Lucent
Education

Rob: What type of technology will the class of 2030 be using?

Bob: Obviously we're moving to a more mobile future. We will probably see the desktops go away completely. Many companies are working on technologies where your phone will become your entire computer. You will walk in you will have a Bluetooth connection to a monitor. The minute you walk within a certain proximity

your entire phone transfers to that monitor and you can simply use it. We saw the same for the students and teachers as well. Teachers will have some type of smart board type device, walking to the classroom and everything will immediately transfer to the smart board. Data will be instantly transferable I would like to think. Teachers will have classroom assignments and be able to project those to all the devices in the classroom at one time as opposed to using emails, SharePoint or Dropbox. Definitely a more mobile and wireless world.

Nick: I think my vision is a little bit different than what Bob has shared. I see the future of education moving to more of an on-demand learning style. I think that's going to involve the tele-commute mentality and I think technology is going to be the backbone to that. I think that's going to enable a year round education. It's going to allow student to learn at their pace and it's going to increase the availability for individualized or differentiated education. I think the brick and mortar schools then become tangible learning centers really, makerspaces¹ and areas where students can engage in specialized activities or get individualized support 1 on 1 from the teacher of the class; more of a meeting in a facilitation space. Ultimately I think it ends up being less about students using technology to gather information and more about using technology to demonstrate the proficiency and understanding of the topics that they are learning.

What's next? What does the future hold?



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Please submit your questions for the Q&A session following the discussion

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¹ A community operated workspace where people with common interests can meet socialize and collaborate



Alcatel-Lucent Enterprise Live Reference Exchange

Questions and Answers

Question 1

Carine: What devices are being issued to students?

Nick: In the kindergarden through 2nd grade levels, we are issuing tablet devices. From 3rd grade through 5th grade, we have a shared Apple laptop cart, as we found out that Mac platform is really great for making videos and things like that. There is a lot less overhead associated with it. And then from 5th to 12th grade we are 1-1 with Chromebooks. We are working towards a model where each student from grade 3 to 12 will have a Chromebook but financially we had to balance those capital purchases over a number of years in order to make it feasible.

Bob: We don't have a 1-1 initiative yet. We have done extensive study on 1-1 and ours was more focused around the lower grades. We have a school in our district that is from 2nd grade to 5th grade and those students are using iPads which have been a phenomenal success with them. When you start moving to the 'K' devices, so the K-2 they are using Kindles and things of that nature and then we went with laptops for the higher grades. So we have spotted 1-1 but we don't have an entire district 1-1 yet, which focuses around finance as usual and for those devices we went with Lenovo. We are using different kind of devices so that when they move out they are familiar with multiple kinds of technology.

Question 2

Carine: How important will the role of SDN (Software defined networking) be in our future network?

Rob: Bob, have you spent anytime time thinking about how SDN will impact the way you deliver applications in the future?

Bob: To be honest with you, no we have not! In Delaware the problem with us is we are a child domain of the state of Delaware so everything we do is a portal or funnel to the main hubs in Delaware. Obviously if Delaware would move in that direction we would as well but it's not something we are really looking at this time.

Nick: We have done a little bit of investigation around it. I think ultimately the ability to tailor the network for the software that has been used even on a particular day is going to be a very powerful thing. For instance we were able to allocate the bandwidth to state testing and reduce traffic to YouTube which we can do somewhat now, but the ability to really have finer grained control over that will be really helpful.

Rob: I see a lot of interest in SDN and the type of control it can bring. Our product team has thought the same way, given that the OmniSwitch and the OmniAccess portfolio all support the necessary protocols, openflow, to support SDN but we haven't seen any massive uptake of that capability quite yet but I think its coming.

Question 3

Rob: Why did you pick Alcatel-Lucent Enterprise as your technology provider?

Nick: From a technology standpoint, we are working with Alcatel-Lucent Enterprise on voice, data and wireless. Part of the reason that we have been with them and chosen them as a consistent technology provider for us is the integration between the products. One of the other advantages is that it also integrates with the other products. Its products don't only work with the proprietary protocols but also support the other open protocols and that has been very helpful for us.

Bob: The Christina School District as I mentioned earlier is a child domain of Delaware. Delaware manages all the networks in the state of Delaware with the exception of one and that is ours. We manage our own network, every switch (260 Alcatel-Lucent Enterprise switches as of current). About 15 years ago the state was on 3Com and we were looking to move into something more robust, something that could handle the foreseeable changes that were happening and the state was not ready to move on those things, so we broke off and we started buying our own. We looked at several companies, we looked at HP at that time, we looked at Cisco and I would be lying if I didn't say that cost point was one of the reasons for which we moved towards Alcatel-Lucent Enterprise. But at the same time we found that our people already had some knowledge in Cisco and we thought that the language was not that

far-off, it was very easy. We thought the integration was exceptional. You guys had stacking and all of those technologies, link aggregation and all of those things. Few others were the multicasting with imaging and all of those things. That's everything we were looking for at the time and it's been exceptional for us. It worked out very well.

Question 4

Carine: How important is it that you as K12 IT professionals get involved and familiar with curriculum and teaching methods?

Bob: I would like to stress that we are here to support education. We are not here to dictate policies. We are not here to show off the ideas of what I believe a network should look like. So I want to know the customer we are working for. I want to understand their ideas so that I can better support them when I understand what it is that they want. So when people come to us and they want something, I don't tell them 'No' or I don't say 'You can't have that.' I say 'according to my experience, it's not going to work in the environment what we currently have, but I am more than willing to sit down with you and discuss an option that would work'. The reliable product that you can use and the better way to do that is to understand the educational side. So I have a very in-depth approach towards the educational side. I go to all the board meetings. I am on many committees and I have always tried to integrate myself in the education business.

Nick: I think my experience is very similar to Bob's. We are heavily involved in the curriculum design and planning processes. We work hand in hand with the curriculum staff. As I said, my goal is to have the technology be transparent. So part of that is that I don't want the technology to appear to be an afterthought.

We don't want people using technology just because it's technology, we want that to be integrated into the curriculum and I think it's imperative that we are working regularly not just with the curriculum staff but also with the administrative staff. We work heavily with the principals and district administration to ensure that we have a consistent vision and we are moving with all of our arrows pointing in the right direction and, as Bob shared it's not just technology for technology's sake, we are here to redefine solutions and the only way to do that is to work with the stakeholders.

Question 5

Carine: You talked about cyber security but have you linked IT services to your physical security procedures? Ex: Stopping social media and wireless access during a lockdown.

Nick: As far as a direct link, no there is not. However procedurally, we have identified that depending on what the incident is, we are able to remove social media access or anything like that. Our staff is all part of the events team so that if an incident were to occur in our buildings, we are part of that team, we

are making those decisions as a team and if we need to restrict the social media access or something like that, we have methods to do so.

Rob: Yes, because you want to dedicate your resources to the most critical communications at that point of time, I guess.

Nick: Absolutely. And one thing that we've found was no two incidents were ever the same. So creating a hard and fast rule that as soon as something happens we turn off 'Facebook' just doesn't work for every incident, so we are looking at really being dynamic in how we handle that.

Bob: We can do remote isolation of devices once we recognize a problem. Most all the staff members are forensics certified, along with they have all taken 'HIPAA', 'FERPA' and all those federal required programs and a lot of them have taken classes with Homeland security for building intrusion and things like that. Also we have Maglocks on all the doors in every building that can be remotely closed and locked from the centralized point here in my building and that's handled by a security person in our facilities department along with access camera systems and things of that nature.

Question 6

Carine: Do you see any difference in the use and adoption of technology between more senior educators and those just recently joining the profession?

Nick: Certainly, more senior educators have experience in the classroom and they have had success in educating students with methods that didn't involve technology. The rate of adoption is certainly higher for technology with teachers who are newer to the profession because they have grown up with it. It's always been a part of their lives. I mentioned earlier about implementing technology for technology's sake, my sense is that many of the educators who have been in the profession for a long time don't see the value in adding technology to the portfolio because they have had success without technology. The rate of adoption varies. Certainly there are some more senior educators that are very excited to pick up new technologies and try new things and there are also some newer educators that are more fearful of the technology, because "what if something goes wrong?". So it varies but I think there is an adoption gap.

Rob: So I want to thank very much our two panelists today, Bob Goff from Cristina School District and Nick Zepp from State college area school district. Thank you so much for sharing your insights today and our audience. And to our audience, I would like to invite you to learn more.