

**National Convergence Technology Center  
National BILT Meeting  
August 8, 2017**

**Next BILT Meeting: Tuesday, Nov. 14, 2017  
8:30am – 10:00 am, Central**

[Mercedes Adams, NetApp, Inc.](#)

Nisheeth Agrawal, Calhoun CC

Patricia Anderson, Volunteer State CC

Garfield Anderson, Gwinnett Technical

[Phillip Andrews, BizSmarter](#)

Ericka Bernhardt, Gateway Technical College

Laura Berry, North Arkansas College

Pamela Betts, San Jacinto College – South  
Campus

Ronda Black, Gallatin College

[Chelsea Bray, Catalyst Corp FCU](#)

Greg Burgess, Volunteer State CC

Bruce Caraway, Lone Star College

Craig Cates, North Arkansas College

Trevor Chandler, Houston CC

Michael Coffman, Collin College

Cope Crisson, Collin College

Jimmy Crum, Gwinnett Technical College

[Vincente D’Ingianni, Binary Systems \(Raytheon\)](#)

Mike Eilerman, Rhodes State College

Kathy Fant, Collin College

Andrew Fischer, Lake Washington Institute

Joselle Gatrell, Ann Arundel

[Matt Glover, Le-Vel](#)

Stephanie Gray, Gallatin College

Elizabeth Halweg, Fox Valley

Mike Harsh, Collin College

Danis Heighton, Clark State CC

Scott Hillman, Houston CC

Jim Howe, LWTech

Jason Huebner, Waukesha County Technical

[Tu Huynh, Comerica Bank](#)

Jimme Joseph, Ferris State Univ.

David Keathly, UNT

Manzarul Khan, Houston CC

[Brian Kitchen, VMware, Inc.](#)

Elizabeth Klinzing, Gateway Technical College

Xin Tao Liu, Herzing Univ.

Patrick Logue, South Plains College

Rajiv Malkan, Lone Star College – Montgomery

Amelia Maretka, WCJC

Dale McCormick, Renton Technical College

Jim Meeks, San Jacinto College

Mike Miller, Wisconsin Indianhead

Belicia Miraval Albornoz, El Centro College

Ron Monroig, Scottsdale CC

[Lynn Mortensen, Retired](#)

Brian Nelson, Lansing

Catherine Oleksiw, Measured Transitions, LLC

David Pope, Ozarks Technical CC

Lenny Portelli, Seminole State College

Susan Randall, Cleveland CC

Andrew Rozema, Grand Rapids CC

Rebekah Samain

William Sanderson, Renton Technical College

Jim Simpson, Scottsdale CC

Mike Sitte, Milwaukee Area Tech

Gordon Snyder, Consultant

Hal Spiegel, El Centro

Martha Taylor, Sinclair CC

Greg Teets, Clark State CC

Dan Tuuri, Kirkwood

[Scott Veibell, Cisco](#)

Mike Vickers, Tallahassee CC

[Kurt Wall](#)

Dwight Watt, Georgia Northwest

Donnie Willis, North Central Texas College

[Kim Yohannan, Dell EMC](#)

## Rules of Engagement



BILT meeting Aug  
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## Agenda Overview, Welcome, and Roll Call

### Trends

**Matt** – My goal here is to discuss one to three different trends hitting the marketplace today that will have an impact on our colleges and students. Some of the trends we’re looking at are workforce trends. Trends we see in the world around us that are going to start transforming the workforce soon.

The first trend I would like to discuss is artificial intelligence (AI). We talked about this last quarter. We’re seeing more and more AI transforming the way business operates. In the corporate world we call it “business Intelligence.” We collate all of this data and then figure out what the trends are. Then, the business leadership can pivot based on what they see happening in the field; if there is a depression in market of one state or one country, business leaders can quickly pivot their marketing plan and adjust to those needs. It’s a fascinating way of working. It’s similar to the ENIAC, a computer that was used in the military. ENIAC was built specifically to help Navy ships calculate artillery trajectory in a stormy sea so that they could hit their targets accurately. That has really transformed the computer industry to where we see it today. In the same sense, we’re starting to see AI moving out from the back offices of industry and moving more to the forefront of the way we work. You see artificial intelligence being built into cars and into apps on your phone. There are many new applications outside the corporate veil and moving fully into the world around us.

I’m going to open the floor to the BILT members. Is there anyone else that would like to weigh in on the trend of AI?

**Mercedes (NetApp)** – Matt, I will jump in briefly. While you were speaking, I was thinking of a presentation I saw last week from one of our summer college interns. We had a student come in and work on an IBM Watson\* project. You mentioned bringing artificial intelligence to the forefront. Her project for the summer was to train a customer support tool on natural language response. She was working with the IBM Watson software. It was a very interesting project when you think about how we took a student straight out of school and she spent her time working on a project that will touch all of her customers. I just wanted to give a brief example of how we’re implementing AI and connecting it to student impact.

*\* Watson is an IBM supercomputer that combines artificial intelligence (AI) and sophisticated analytical software for optimal performance as a “question answering” machine.*

**Matt** – Other examples are smart cars. Tesla already has a self-driving car. Three to five years prior to Tesla, everyone was thinking we would have to build devices into the streets to allow a car to drive itself. They were putting in sensor arrays and transforming the streets into a world in which the car could operate using a sensor grid. Nevertheless, Tesla developed a technology that allows the car to drive without any of that. Ford has a car coming out that’s very similar. There are a lot of interesting things happening. I have kids that are almost at the driving age, and I am concerned that they will need to learn how to drive manual cars with a gear shift to be equipped to drive anything in the years to

come. But, they may not be driving at all in the years to come. It's a fascinating world we live in. So, let's move from AI to VR.

Virtual reality – or augmented reality – is also adding a new way of working. Millions and millions of devices are being sold at market every year. There is a gaming aspect to it. A lot of these companies (like Facebook, Valve's Vive VR headset, GoPro, Microsoft) are focused on the gaming space. What we've seen in the past is that gaming is a leading indicator of what will also happen in the business. So, as the gaming industry spends money developing and enhancing virtual reality, you start to see businesses stand up and take notice. They say "Wow, there is some really cool technology here. I could actually go into a virtual library and get the data I need by putting on some glasses and taking a virtual tour." There's many new and interesting ways of working that can be unleashed through VR, and I think that is going to be something that we keep an eye on as time goes on.

**Kurt Wall** – The connections of converging technologies are happening. We've pushed a lot of sensors in the last couple years with engineers. We've got a company called Foxconn in Wisconsin that's going to go after those sensors. They're spending \$10 billion. Part of that is going toward sensors. They believe you eventually won't use your cell phones as much; instead, you will be using all the senses of your body like your brain would. We're following that with smart cities too, of course. It's expanding so fast and we must stay involved to retrain the way schools teach, which the BILT is doing. We've got to stay on top of it.

**Ann Beheler** – I'm not that familiar with VR, but I have a college in Washington that is.

**Matt Glover** – The next trend is drones. We're seeing a transformation both with sales in the marketplace and with industry use of drones. Drones have been around since the 1960s flying off of Navy destroyers. They have grown in intelligence and capability so that now they can be flown from Arizona over Afghanistan and Iraq – completely on the other side of the world. And now, going from the military application to today's market application, we're starting to see drones more and more impacting our everyday life. They're making movies, they're transforming the way people inspect homes, they're doing an immense amount of work. It's now evolving into driving sensors and data collection. For example, drones can fly over bridges and electrical lines to identify damage and wear and tear. All the data is collected and brought back in so the technicians and the experts can go out to those areas and fix the problem. If you combine this with AI, the business intelligence mantra that I spoke about earlier, then you have the ability for autonomous drones to fly daily or weekly routes collecting data. The reason drones is on the list this quarter and we didn't really talk about it in any of the other previous quarters, is, again, the sheer sales volume – millions of devices are being sold. The applications of those devices are transforming the way we work. So, I think that's another big trend that's going to be hitting us soon.

**Vincente** – This is a good time for me to point out the emphasis that I believe we need to take in the future on cybersecurity. We should align the KSAs [the knowledge, skills, and abilities an entry-level IT worker should have] in the future around some of the standards of cybersecurity domains that the government recognizes. I think that's a good way to incorporate an emphasis on cybersecurity in all KSAs created in the future. Security needs to be taken into account in everything that we do.

**Matt** – This is in relationship to the NIST framework\* dialogue we had earlier.

*\* NIST's Cybersecurity Workforce Framework:  
<http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-181.pdf>*

**Vincente** – Exactly. That's more for a future discussion.

**Matt** – Cybersecurity is multi-faceted. It includes things like block chains, distributed ledgers, and digital fingerprinting. It's the capability to secure the world around us. The government put out a cybersecurity NIST framework that was immediately adopted by business organizations worldwide (not just in America). It's a great framework of understanding for us to build within our degree programs. In previous BILT meetings, we discussed that we had to have security and soft skills built in to almost every program that we offer within our colleges. If soft skills are not there, the student may be able to get the job but not keep the job. They need to be able to communicate with others, have a warm and friendly engagement, show up for work on time if that is required, communicate respectfully, and engage one-on-one. I've hired people who became upset in a meeting and, without saying anything, returned to their cubicle to instant message their negative retorts. So that was a person who could not handle person-to-person engagements and could only communicate through texts. Needless to say, that person didn't keep their job. Those kinds of behaviors we have to address. There is a real and meaningful need for understanding security: "Okay here's how you build it, but then, here's also how you secure it." This needs to be added into the classes, and then the second piece is definitely the soft skills. Thank you, Vincente, for that.

**Vincente** – The other thing you may want to emphasize is the concept of stackable certificates. By building in and organizing future KSAs around the cybersecurity domains recommended by NIST, students can work towards entry-level – and then eventually higher-level – cybersecurity certifications.

**Matt** – What trend do you think would help us transform how we're working right now into what we need to be focusing on over the coming months or years?

**Vincente** – For a long time now, I think we've been talking about cybersecurity and mentioning it, but we haven't done anything specifically towards organizing for it. In the industry, it seems like cybersecurity is becoming more and more of a requirement in everything we do. That's even truer than it was two or three years ago when we were talking about this.

**Matt** – I agree. Okay, Ms. Bray, you went through the CTC course work at Collin College, got your degree, and then went into industry using the course work that was developed. Can you please talk about how cybersecurity was laid into the course work that you had? Help us have a better understanding of your experience.

**Chelsea** – Cybersecurity was mentioned a lot. I did take a firewall course. And, when I started taking the CCNA classes, I remember one of things my Collin College instructor Mike Harsh brought up was that security depends on what you're protecting and how much you want to protect it. We talked about it in terms of owning a brand new Corvette. You could leave the doors unlocked and hopefully no one touches it. Or, you can lock the doors but someone can still break a window. You could lock the doors and install a security system that would contact you if something happened to the car. Or, you could lock the doors, install a security system, and put some well-trained Dobermans in your front seat. It depends on the extent that you need the security. There are so many different levels and so many different things you can do. You have to consider what can happen. You need to understand what and why you're locking down and how much you need to lock it down.

**Matt** – So cybersecurity was integrated into your course work?

**Chelsea** – Yes.

**Matt** – And did that equip you for when you started working in the industry?

**Chelsea** – Yes, I think it actually helped a lot. I remember when I first started my job my coworkers talked about the “DMZ,” the Demilitarized Zone. That’s all the external networks that have to be secure. I understood that. Walking into that job, I knew what they were talking about when they mentioned the DMZ. I knew how it needed to be separate from the internal network. It definitely did help.

**Matt** – What do you think we could have improved in the process so that you were more equipped than you already were?

**Chelsea** – Something that probably would have been an added bonus would be going over what security can you implement at each of the different layers. Different firewalls have different capabilities. That is probably what I would have liked to have known more about. What devices are capable of different things?

**Matt** – And where did you find information once you got hired? Was it on-the-job training or was it just tribal knowledge within the teams that you’ve been a part of?

**Chelsea** – It was as I was working on the job, especially when I was working with Palo Alto. That helped me understand a lot of things like core switches and locking those down with MAC addresses and DHCP snooping. It was all of those extra things in addition to online training. I gain a lot of information from working and studying.

**Matt** – Anybody else wants to weigh in on the security conversation regarding cybersecurity? By the way, from a trend perspective, we’re starting to see adaptive security architecture being put in place that we’ve never seen before. The criminals keep getting smarter. Now that we’ve gotten the hackers out of their mom’s basement eating pizza, it’s transformed over the last decade to organized state-sponsored hacking. Hacking that is specifically designed to interrupt business and steal information from companies. Billions of dollars in information and intellectual property are being harvested from American companies every day. In my opinion, there’s not as much attention in that area as there needs to be. When you think about an IT budget, the budget is typically three percent the overall budget of the company. And then, when you think about the cybersecurity budget, it’s about three percent of the IT budget. That’s a national average. Our money is not necessarily going into the spaces to transform the way cybersecurity works. There is an impetus and a focus on trying to do it through education and training to try and stop losing all that intelligence every day.

**Christina** – We have one question on the chat box from Gateway Technical College. What skills are needed for security with the opportunity of Foxconn coming to their area?

**Matt** – We have a framework already established in our current KSAs for security needs we would like faculty to incorporate within curriculum. We also talk about stackable certificates. What Vincente was discussing is that within the next year we’re going to be refreshing the list. We will start placing all of our KSAs in the NIST framework so that there is a comprehensive understanding on how the technologies incorporate within the security layers. There is a lot of work being done and we’re now taking it to the next level.

**Mark** – We will make sure CCN educators have last year’s KSA list and also the KSA revision for 2017.

**Ann** – There are at least two national centers across focused specifically on cybersecurity. I’m also working with several colleges on modifying their networking program to get a security specialization involved. What we have run into so far is there is too much curriculum to fit. I really appreciate our BILT helping us figure out how to integrate cybersecurity concepts along the way. In terms of the specific

skills that are needed, the NIST framework is very good. I actually talked with a person from Gateway Technical last week and understand that Foxconn coming to your area is a huge plus and a huge challenge as well. I just wanted to point out that you should cover the fundamental skills so that the workers can function in the cybersecurity arena. Without the essential foundational skills, it's pretty tough.

**Matt** – I agree.

**Christina** – I have a chat box question. Can the BILT return to AI and distinguish between AI and machine learning? Also, how is edge computing related to driverless cars?

**Matt** – Artificial Intelligence is the ability for the device or application to be able to understand, interpret, and make decisions by itself and also provide some outcome. “Here’s what we found using all the data algorithms you’ve given me. I’ve gone through the data and now I have 10 million data points. You asked me for a subset of information, so I’ve decreased that 10 million down to these five or ten 10 different things. Of the five or ten different things, here are the recommended high-priority items.” That’s artificial intelligence. Helping businesses make decisions faster.

Machine learning is now taking it one step beyond the programmatic artificial intelligence that was built in under specific parameters. You can think of machine learning in the form of your Nest thermostat. It knows when you come home. It knows what temperature at which you keep your house and at what times. It’s constantly changing itself based on the dynamics of how you interface with it. Those would be the differentiators I see.

**Kurt** – We do sensors all over. We know cybersecurity is very important, but I see each company hiding the security in their sensors so that people can’t tap into them. If I can break into a sensor in a car, I might be able to break into all the sensors in the car and all the ways the car works. I could do it through my handset in Turkey. So security is very important, and I believe they’re going to teach it inside the company themselves. And so, they’re going to ask the local colleges to come in and teach a special security class inside each company for themselves. It would be a class not offered on the outside.

**Matt** – Read for me please the second part of the question again.

**Christina** – How does edge computing relate to driverless cars?

**Gordon** – I can talk a little bit about that from a wireless perspective. As 5G rolls out - and we’re looking at 2020 with the major providers like AT&T and Verizon - we’re going to see towers. They call them “small cells.” They’re located every 100 feet or so along highways in cities as the sensor technology merges. Regarding edge computing, there’s some very interesting technology going on with the cell tower radios. You’re seeing some of the radios actually pushed back into the equivalent of a central office that a Verizon or an AT&T would have, for example, with a landline telephone technology. We’re also seeing the edge pushed back with some of this radio technology. They’re actually delivering some of this radio technology over fiber optic connections. It’s happening very fast.

*\* Additional information on radio access networks (RANs):*

<https://www.rcrwireless.com/20151222/featured/what-is-c-ran-tag4>

**Matt** – I agree. It also moves into the device mesh and the “internet of everything.” Sensors and wearables and smart cities are all incorporated into that as well. It’s the transformation of that technology into usable, real world capabilities that we’ve never seen before. We talked earlier about how your phone now has “geo sensors” in it. So, when you pass by a clothing store and you have the clothing store’s app, it alerts you and says “Hey, you’re within 500 meters of our store, I will give you 20 percent off just by coming over here.” There’s this complete transformation about how marketing, intelligence, and device mesh all start to come together. When we talk about device mesh, we’re talking about instead of your traditional computers or mobile devices having some kind of traditional way of communicating, now we’re incorporating other human interactions. That involves things like your watches, your jackets, wearable clothes, your eyeglasses, your GoPro. These things start to blend together and give you data points that you never had before. It’s fascinating new technology that we need to be mindful is coming. We need to be able to pivot what we’re teaching our students so that when they hit the market they’re not so far behind that they’ll never be able to catch up with the way the world is bouncing. It’s coming faster and faster.

We didn’t get a chance to talk today about block chain, smart cities, the wearables, the “Internet of Everything,” some of the other trends that I wanted to discuss. We ran out of time, but I really appreciate everybody’s time and attention.

#### **“Tiger Team” KSA update (please see PowerPoint for details)**

**Mark** – We wanted to update everyone on the KSAs (knowledge, skills, and abilities) list. We took the Fall 2016 KSA list and met this past May for about four and a half hours to revise and update it. We also had a follow-up meeting last week – with some of same BILT members from the May meeting – to further refine and finalize the KSAs.

The KSA list is not quite finalized, but in the next two or three weeks they will be ready to send out to the CCN member schools. *(Please see Power Point for KSA highlights and changes in detail.)* We want to go over the highlights and discuss the big changes from 2016 to 2017.

#### **1. Emphasize that the OSI model is the framework for all problem-solving (K4)**

**Matt** – This goes back to when Chelsea Bray was discussing how she had a basic understanding and could figure things out because of her coursework. She could talk about security and the different layers. The OSI model establishes the basic understanding of how technologies operate and what layers those technologies exist in. So, it’s a foundational component. It’s critically important for trouble-shooting.

#### **2. “Wireless Infrastructure and WLANs” (K8) should focus on enterprise not carrier**

**Matt** – We want to give our students the best chance to obtain a job. If we market just to carriers, then we’re limiting the job market for them. But, if we focus on enterprise wireless then we expand from 70,000 jobs in the nation to 3.4 million jobs in the nation. So, make sure your curriculum is focused there and not on carrier wireless.

**Gordon** – That could possibly change with 5G roll-out. We’re looking at three years out with 5G. It could possibly change also with all the remote sensors.

3. **“Troubleshooting” (K9)** – Students need to know how to understand the scope of a problem, how to use correct data for decision-making, and how to use soft-skills to resolve them.
4. **“Cloud and Cloud Services” (K14)** – We will develop a hybrid cloud solution as a capstone project. Three BILT members have volunteered to work together to propose a sample project the CCN educators could use and adapt for their program.
5. **Thread soft skills through every course**
6. **Certifications can help job applicants get past HR gatekeepers**

**Matt** – One of the challenges for the professors on the call is making sure in the world of “A-type” characters and “B-type” characters that you structure the classwork when it comes to soft skills. The “B-type” type people need to spend some time in the social learning. Often times, the “B-type” type people will not say anything in your classroom. It’s really important to equip them so they will not run back to their cubicle and start texting because they don’t understand how to communicate person-to-person. Being cognizant of that to make sure it’s not the same people who are speaking all the time.

Going back to the trends topic of machine learning and AI, HR companies are now buying software that helps them go through the 2,000 people who have submitted their resumes. Then, the HR software filters those results and only the top 50 or so are forwarded to the staff to review and vet before reaching the hiring manager. When we talk about these HR gatekeepers, we’re not necessarily talking about a person. We’re talking about technologies that are looking for your certification to be in a resume before it makes the “cut list” to be forwarded to HR staff and then to the hiring manager. Be cognizant of this process. This is why we’re trying to focus on certifications. Resumes need to get through the gatekeepers in this process. Let your students know that this is a real problem that is really happening in the world today. Some students may not think they need a certification. But, if you get the certification, you’re 1,000 percent more likely to get a job when you first apply.

**Chelsea** – Matt, you were talking about “A-type” and “B-type” personalities in the classrooms. For the capstone project, I definitely would consider the personalities that you place in groups. I am very strong-willed. I have a tendency to take over everything. I need someone in my group that can deal with that personality, but can also say “No, you do this, I will do this” and meet me in the middle. You have other personalities that say, “No, you go ahead and take it. I’ll just sit here and watch.” So keep those things in mind for soft skills capstone projects.

**Christina** – One of the faculty on the chat box shared that Gateway uses service learning to help with social skills. It has been extremely useful.

**Matt** – Service learning. Can you explain what that means?

**Ann** – It refers to students working within the community at no cost. Sometimes the projects could be for a nonprofit within the community.

I want to make a comment about the certifications. We had 15 or 16 certifications listed and clearly an entry-level person is not going to have all 15 or 16. So, we started having a discussion about which handful are the top certifications. We didn't finish that discussion, but we're in the process.

**7. "Enterprise Mobility Collaboration" (K5) – renamed from "Collaboration Technologies" and now emphasizing two sub-categories (understanding the building blocks, applying the technologies to solve business problems)**

**Matt** – We discussed how these technologies are starting to blend together. Mark, could you go over the components within the categories? You will hear all of the technologies that were grouped together in that one box. The challenge was that they had different needs. Some were enterprise mobility items and some were technologies that equipped enterprise mobility. The collaboration technologies are the pieces that allow the mobility devices to solve problems. So you have to have basic building blocks first and these four or five things need to be included. And, then that equips the application layer. So we had to organize it in that way which will make more sense as Mark explains.

**Mark** – For "collaboration technologies" we had PSTN, messaging, VOIP, video conferencing, Bluetooth, and presence. Again, this is the basic understanding of the building blocks for how enterprise mobility operates.

And for "enterprise mobility," which is the application part of it, we have messaging, using VOIP, Skype-like, videoconferencing, Bluetooth, presence, and MDM. That's where things are as of right now.

**Matt** – Perfect. So again, that's reinforcing the fact that as a student, you need to understand the basic layer of technology and how they communicate. Once you understand those components, then you can say, "Here's how they are applied. Here's how business applications like Skype and messaging are using these foundational technologies to equip some business purpose." It helps students understand that these are the basic building blocks and how they are applied. Then, if there's a problem with it, they will be able to troubleshoot effectively because they understand the basic principles and the layer the technology is put on.

**Ann** – There was also a discussion about there being tools businesses would expect an entry-level employee to know how to use, such as messaging and Skype. But, sometimes knowing how to use the technologies may not require a depth of understanding of how it works, but rather how to use the technology to be productive in the business environment. In fact, one person compared this to Microsoft Office. Some of us still teach Office in our colleges, but many do not because it's assumed people know those set of tools. However, there are a set of other tools that it would be nice for people to at least understand how to use when they start a job.

**HI-TEC Conference (please see PowerPoint for details)**

170 seats were filled for six CTC presentations - two workshops and four breakout sessions

Supported 19 CCN faculty – assisted with travel and arranged for pre-registration



High Impact Tech -  
Glover flyer.pdf

Matt Glover won “Industry Recognition Award”

**Ann** – There were approximately 600 people in attendance at the conference and numerous nominees for the “Industry Recognition Award.” I was very pleased that Matt won. He exemplifies a person that helps the BILT, CTC, and CCN above and beyond the call of duty. That’s not to say we do not have many people on the BILT that do that. We do. But, it is amazing to me that I can ask Matt what are you doing on – let’s pick a date – November 5, 2018. He will look and see if his calendar is open and if it is he will say, “Where are we going?” That’s the kind of support not everybody can give and not everybody will give. We’re very, very proud of Matt in terms of all that he has contributed to our work, which ultimately – let’s not lose sight of the focus – makes life better for the students that we serve so they can have a family-sustaining wage for generations to come. So, thank you, Matt, we appreciate it very, very much.

**Note:** *If you would like to see pictures of Matt giving his speech and receiving the Industry Recognition Award, please go to <http://connectedtech.org/blog/congratulations-to-our-tireless-bilt-chairman/>*

### **CTC grant update**

**Ann** –

- We have two new partners for the renewal grant: Lone Star College in Texas, represented by Bruce Caraway and Rajiv Malkan. Rajiv held a workshop at this year’s HI-TEC, which was great. And also Sinclair Community College in Ohio, represented by Kyle Jones. We were working with Jerry Snyder at Sinclair, but he has since retired.
- As for the partner MOUs, we’re hoping we get them all signed soon. Sometimes there is a lot of bureaucracy on the backside that you have to do, but we’re looking forward to getting that started as soon as possible.
- The “Diversity Summit” pilot program is ongoing. We’re working with ten colleges who brought a group of three staff members to attend our “Diversity Summit” training in February. They’re now actively working on their action plan to improve – in most cases – their enrollment in populations such as women and ethnic minorities. We will be giving you more information on that as we go along.
- Our three Summer Working Connections are now complete. This is really important. The reason we train faculty is because they educate students. Lansing Community College and Brian Nelson, thank you for hosting Working Connections there. It was a smaller event; there were 17 attendees. There were 43 attendees at Working Connections in Florida – Ernie Friend at Florida State College Jacksonville – at the end of June. Seventy-three attendees came to us in Frisco this year. There was a decrease in number possibly because we lowered the amount of travel reimbursement provided to people not actively involved in the work of the grant. Previously, we were providing \$600 dollars for a person from a community college even if they were not involved in the work of the grant other than just for Working Connections. And, given that the new grant is a bit tight in terms of our ability to do that, we started to decrease the amount.

### “Employability Skills” discussion

**Ann** – “Employability” refers to soft skills, critical thinking, showing up on time, dressing and acting professionally. I wanted to place this on the horizon for the BILT. I’m working with Stanford Institute on a research grant under the ATE program that focuses specifically on employability skills in two industries: IT and manufacturing. We will probably be calling some of our BILT members to be involved in this and may be calling some of the community colleges as well. It’s a survey. We all talk about employability skills, but what exactly do we mean by it? We have a list that I will argue has so many things on it that we’re not going to be able to cover all of them. But, what are the actual top things that we need to make sure we cover with our students? And how do we best cover them? This is just to bring to your attention. I don’t do anything that does not coincide with CTC goals. I also found another group that is working on this as well; therefore, I think we need to get this organized.

### “Texas Skills Standards” discussion

**Ann** – The NWCET, National Workforce Center for Emerging Technologies, was a National Science Foundation center that went out of business in the early 2000s. However, they had been working on the National Skills Standards Board for IT. There were eight different sub-areas that were under consideration. This document was published in 2003, not 2013. I’ve been asked by Texas Skills Standards group, which is out of the Governor’s Office, to look at this and see if it still applies. This particular framework is used right now for recognizing IT programs and other programs across the United States.

I’m going to scroll down to the networking area by way of discussion. You’ll see they list what a “Network Design and Administration” program would address and provide some of the sample job titles. Those may not be up to date. There are pages and pages of tasks a worker would do and how you might describe them.

For example,

- If you’re going to gather data to identify customer requirements on the design side, you’re going to participate in the design reviews.
- If you’re configuring and deploying, you’re going to plan and document system configuration.
- If you’re testing, you’re going to define and document test specs.
- If you’re managing the network, you’re going to set up and maintain user accounts.
- If you’re maintaining the network or growing it, you’re going to develop maintenance plans and upgrade plans.
- And then there will be some security administration.

There are many, many items that are listed. I would say there were probably ten pages of this, but it’s all very high level. What they’re asking us to do is look at this and determine if the “Network Design and Administration” framework is even reasonable anymore since it was created in 2003. And, we need to discuss whether we can actually use this to create curriculum. What I want to do is take this document and send it out to you, especially the BILT members. Look at it from page 77 to 90 – the “Network Design and Administration,” which is one of eight different areas in this report. Then, I would like to send it out to those of you that are in the CCN to look it over. At this level of detail, if this was all you knew, could faculty design a curriculum using this information? Now, I understand that they were looking to make it general so it was not time-sensitive, but I question if there was enough detail here to design curriculum. Does that make sense?

**Matt** – I’m going to hold my comments until I’ve had the ability to read through it, but what you’re asking for us to do completely makes sense.

**Ann** – Do we need to update this? Or, can we use this but need to update it with some specific technology? These are options we must consider. I do not have funding in the current grant to do this. However, I probably have means to attain additional funding.

**Matt** – I think, in general, the challenge that I’m having is any technical document that’s was put out more than 14 years ago is dated. In the world I live in, six-month-old documents are dated. It’s fascinating and I’m eager to read through this and figure out how far off we are and how much updating there will need to be.

**Ann** – Matt, I will agree with that anything that’s that old, we will have to seriously look at.

**Matt** – I believe we have three or four BILT members who have already signed up to support the review of this.

**Ann** – Yes, we do. I also wanted to get some of the educators involved. This is all very general and may still apply. I’m not sure if it does, but it may. However, I personally could not define curriculum using this framework. Community colleges place people that have some conceptual knowledge. But, I believe some of our people get hired because they have applied skills as well so that they can hit the ground running. The applied skills portion I’m sure is going to change frequently. That’s what we’re addressing in our KSAs. I don’t know how to meld the two (KSAs and the Texas Skills Standard list) or if we should meld the two. I just wanted to introduce this, because I wanted you to know that we were going to ask you to weigh in on this. And again, these were the National Skill Standards. It happens to be the Governor’s Office of Texas asking about them, but they were the national skill standards of 2003. NWCET was the first national IT center through ATE. We’re going to be the only IT center within the ATE program for at least the next five years. And, with that being the case, we are the right people to take on the task.

**Matt** – Once we get through this, is there going to be a layer behind it on how to develop the curriculum to meet these standards? What are the KSAs associated with each of these different elements?

**Ann** – I suppose you’re reading between the lines of what I said, because that was not really there in 2003. Having developed a lot of curricula in my time, this to me is a little bit general to be able to do that curriculum. I suspect that could be one thing that could come out of it. Maybe this is still okay to be so general, but we still need the KSAs.

**Matt** – The reason I was bringing it up is that if that’s the goal, then the work that Vincente mentioned earlier in the call regarding security is when we start to redesign the BILT’s work. We have to continuously change and modify our own curriculum. It’s really interesting that we could probably blend the three of those together: the review of this, the change to NIST, and the update of our BILT’s KSAs.

**Ann** – We possibly could. There is a college in Texas that wants to renew the recognition of their curriculum as aligning with this document and they specifically asked us to meet and talk about it. And then to also conduct an initial check within the next couple of weeks as to how much change we think

we're facing. They do recognize that something 14 years old potentially needs updating. So we will send that out to you.

**Tu** – How soon do you think there will be a kick off on this project?

**Ann** – I mentioned that we don't have funding to do this project. The state may come up with funding or I may have to go back to the NSF to obtain funding. I don't know, but I think we have to do some of it whether we have funding or not. I don't think we can do the detail analysis that is necessary without more funding.

#### **CCN question: value of teaching legacy OS**

**Mark** – These BILT meetings offer an opportunity for the CCN faculty to send questions that we can present to the BILT for discussion and feedback. One CCN school asked this question: Is there any value in teaching legacy OS (i.e. Novell, Windows 2000/2003/2008)?

**Matt** – No. The problem is that companies do not support these applications security-wise any more. If a business company buys Windows 2000, 2003, or 2008, it's already at risk to cybersecurity attacks and you haven't even started yet. If you build a computer and then you connect it to the internet, you're vulnerable. The last time I built a computer was just a few months ago. I was showing my son how to do it, and as soon as we connected to the internet, the system was already being attacked. There are a lot of bots out there that are looking for open ports and open vulnerabilities. When these operating systems come online it says, "Here I am! Here I am!" and then all these bots come and start hacking it to take it over. That's before you can even put your cybersecurity technology on. It's a fascinating answer, but the short answer is absolutely not. There is no value in teaching this.

#### **Conclusion**

**Mark** - We're still doing Tricider polls as part of the relaunch of our BILT LinkedIn page. This was a response to the BILT request for a way to communicate between meetings. We did two polls on Friday and will do one more probably after this meeting to get the conversation going. Just be aware of that and please participate.

**Ann** – I appreciate everyone's involvement and attention. I look forward to your feedback on the skill standards and see where we go with that.