

Interview of **CONNIE BRAGG**,
Professional Cybersecurity, AT&T

KAREN WETZEL: Hello. My name is Karen Wetzel, and I am manager of the NIST framework at the National Initiative for Cybersecurity Education at NIST. The NICE Cybersecurity Workforce Framework, published as NIST Special Publication 800-181, establishes a taxonomy and common lexicon used to describe cybersecurity work. The NICE framework is intended to be applied in the private, public, and academic sectors. In this edition of the NICE e-newsletter series *Framework in Focus*, it is my pleasure to speak with Connie Bragg, Professional Cybersecurity at AT&T.

Connie, thank you for letting us learn more about your career pathway and understand the NICE Framework from your perspective. So let's start by learning a little bit more about your role and responsibilities as Professional Cybersecurity at AT&T.

CONNIE BRAGG: Well, thank you, Karen, so much. So I'm Connie Bragg, and I work within AT&T's cloud environment to help bring about security architecture in a secure environment, and I joined the team about 18 months ago, having no experience at all in cybersecurity or a technical capacity. So right in the very beginning, it was like drinking from a fire hose, and I was learning, learning, learning so much. And I still am in that fire hose stage on some days, but I support the team to ensure that our workforce is trained in modern technologies and primarily in Azure, which is a Microsoft product. And we work to ensure that as people are migrating to the cloud that they do so using secure practices and best practices to make sure that the cloud applications that are migrating come in, in a secure way, and protect people's data.

Part of that, like I said, is providing training for our workforce, but I also support other initiatives from the administration side of all the Azure accounts within the CSO organization for my VP.

KAREN WETZEL: Wow! It sounds like you're going to have some great stories to tell, and I'm going to ask about your career path in a second. But you did mention your team as well. So can you share a little bit more about what team you work with and what kinds of roles they fill?

CONNIE BRAGG: Absolutely. So I primarily work in a cloud enablement team. That organization is about 120 people, but I support the entire organization. My primary team is a smaller team, and we work primarily for infrastructure as a service for migrating applications, and that team is relatively small, about 10 people. But I am the person that the organization looks to for help with keeping our Azure accounts lined up and subscriptions and the billing accounts organized, so a larger organization as a majority of my work.

KAREN WETZEL: That's great. I think we hear oftentimes about how cybersecurity really does require those personal or professional skills like communication and being able to sort of translate across an organization. It sounds like that would be an important part of your work.

CONNIE BRAGG: Yes. Yes, it is, very much so.

KAREN WETZEL: So I'm eager to hear about your career path. Can you share a little bit about how you got to this role?

CONNIE BRAGG: Absolutely. So I always tell people if you need to watch a zigzag, you can watch my career path. When I talk to people initially, I tell them I was one of the first women studies degree majors at UNC Chapel Hill back in 1995, and so people would say, "Well, I'm not making the connection. Like, you went from women studies, and now you do secure cloud operations in cybersecurity for those clouds?" and people are like, "Huh. I'm not following it." But you have to realize that the time frame, in '95, women studies was just becoming an area to study in academia, and to me, it was just a very natural—and I was very passionate about it.

And how I ended up in this role, I took one computer science class, and I thought, well, I kind of like that class, but it really wasn't a job opportunity for me at the time frame. I was really going to go and save the world, and I became a social worker out of college through AmeriCorps, which is like the domestic Peace Corps. And they had a program that would help you with going back to school in exchange for your service, and I went and got a master's in public administration. And I was thinking like I would be helping out on an operational side within local town and city government, and I thought, well, that's great.

And then in graduate school, I went out for a role within a federal department, and very last minute, the job that I thought I had secured fell through. And I said, well, goodness, hmm, what am I going to do now? I graduate in two weeks. So somebody said, "Have you ever thought about sales for the Yellow Pages?" and I said, "The who? The Yellow Pages?" First of all, the Yellow Pages cost money. I didn't know that. The ads cost money, right? I was very naïve. But I was like, well, I have no job, but, you know, I really like—I'm going to—you know, I'll give it a try like the one year. I'll do it for one year, and that was 19 years ago. So I tell people you never know which direction your path will take you. So what I thought was going to be a sales job for one year turned into a 19-year career, and I do tout AT&T for being a company that allows you to have multiple careers.

And so I say that after doing sales for about five years. AT&T acquires what was then Bell South. Bell South didn't have any affinity ERGs, which are employee resource groups, but AT&T did. And we didn't have a Women of AT&T, which then goes back to that women studies degree you kind of see in the theme here, right? And that allowed me to really take on a leadership role by starting a Women of AT&T chapter for our area of North Carolina, which is where I was at the time, and that allowed me to get introduced to external affairs, which I thought was a great transition opportunity because I had just finished my master's in public administration a few years earlier. And I knew a little bit more about AT&T, so I had a little bit more informational background that I could bring in to that skill. So I used that as an opportunity to transition.

And I really enjoyed that time. I was in External Affairs almost 10 years, and I was able to see the path. I could see there is a big move towards this cybersecurity area and arena, and I think there are going to be some opportunities coming down the pike. So I said, well, let me reach out to the only person I knew in the company in External Affairs who did the work, and he was willing to help me, kind of coach me, and say, you know, "Why don't you look at this certification program?" And I was very fortunate and always acknowledge that I was in a privileged position because I knew how to network, and I utilized by network because it's somebody who can point you in the right direction. And that person became a quasi-mentor to me. So anytime I had a question, I could go to him, and he said, "Why don't you look at the certification program?" And I did that program.

However, I just thought I was going to waltz in and just take the program, and I might be done in 18 months, like it said on the description that I read. Yes. Well, that was for somebody who actually had a technical background. I had to start from the very beginning. So I equate that to like going through your associate's degree to get your foundations of networking, your foundations of HTTPS and developing Web products. I had to go through the whole entire program from the ground up. So it was a little more challenging because I didn't, but I felt like, gosh, you know, I'm kind of getting it. I'm getting the hang of it. So what was supposed to be a year-and-a-half program took me about two and a half. So it was a little bit longer than I thought.

However, I found that—and I had always tried to stay up on things within cyber, finished the program, and I recognized that about six months before I was about to graduate that, hmm, it might be hard for me to get a job when I have no experience in technology. So how am I going to figure this out?

Well, two things happened, kind of in parallel. One was we have an internal program called the Opportunity Marketplace, which allows people who are crowdsourcing to find employees—they have to be internal employees—to take part in the project that they're offering, but you can also post, hey, I'm looking for an opportunity to learn more about quantum. I'll use that as an example. I posted one of those ads saying, "I realize that I'm about to graduate, and I don't have any experience. If there is a project that I could take on with somebody, please let me know."

So, in the course of that, it's now—you know, I'm at the three-month mark before I graduate from school, and I haven't been picked up. Nobody has reached out to me. I also took part in another resource within the company, and that was a continuous educational learning lab. That lab ironically, which has been really instrumental in my life, I feel like that lab had a force called "threat intelligence." And it was two parts. One, you just kind of got the introduction to how to write for cyber intelligence and do a BLUF report, so a bottom-line up-front report, which basically gives like the—tell me your elevator pitch for what happened in this specific article and how is it a threat. The second part of that series was a course that introduced the NICE Cybersecurity Workforce Framework.

So around the same time I was taking that class, I was starting to learn with this NICE Cybersecurity Workforce Framework—I finally did get picked up for a job. It was a project working on industrial control systems policy, and at the time, we didn't have a fully developed policy approach. That project was—it really was very helpful. It was very educational. I had no idea what ICS even stood for when I started the project, much less an idea about how to incorporate that into what I might potentially want to do one day.

It led to me being a part of that team for 18 months, and that team, even though I volunteered for that project, I was in a unique position because the job I was working at the time had very odd hours, and I was fortunate because I could work that project for, say, three hours one morning and, say, two hours at night because of the hours that I had. So I always think of that as a blessing in disguise, even though at the time I was not always happy about having to work those odd hours. But it allowed me to really read up on it and learn and become a part of a team where they could see I would have value to another team eventually. That role, that project, really set me up to be able to say I actually do have experience now.

So I say all that with the intent of after doing that project, I saw that the Cybersecurity at Work board was forming, and that is an internal network group to AT&T with a focus on cybersecurity. And it was in its initial inaugural year, but they had nobody to help with events and logistics and coordinating and detail planning, which the role I was in, not as my project volunteer job but my real role wasn't in that world. So I was considered a SME on how to coordinate all these things and get the information out there and to help build out this. Having done the Women of AT&T, I have an idea of what it took to get this up and running.

So through that combination of seeing that I was going to need to experience, putting out there that I was looking for an opportunity, taking this class that introduced me to some more areas that I might be interested in, and joining a board within an internal employee resource group or network, it was a culmination of everything that kind of led me to, hey, you're now in cloud. And that wasn't in ICS necessarily, and I never say never, but it definitely—it's an advanced technology area, and I felt like ICS was also an advanced technology area. It's just going to continue to allow me to build out what I'm looking for down the road.

KAREN WETZEL: It sounds like it really was a lot of advocating for yourself. I love that you took advantage of your network. Time and again, we hear how important that is in developing one's career and to understanding about the different kinds of jobs that are out there and learning about what's happening. Certainly, the NICE Framework does that as well, but having those people lend a helping hand can be useful. And I know that, for instance, at NICE, we have a number of communities of interest. There are a number of LinkedIn and other online and other individual local groups and chapters of things where having that connection can be so very important.

But, honestly, even like with your coursework, for you to be dedicated enough to continue when it took maybe a little bit longer, it shows that you really were interested and not going to give up easily, which is important, I think, especially if you're considering a shift in career, you

know, maybe just not right out of school. You already had a good career. Being able to see how your skills were translatable and useful in more than one place is great.

So I wonder if maybe—I'm sort of skipping around my questions. I might want to ask then too, you've just gone through this experience and you said 18 months or so ago, but what are your thoughts then on how degrees or certification requirements fit into getting a job in cybersecurity?

CONNIE BRAGG: So I think that it's probably—it's one of hand in hand, right? Employees—employers. Excuse me. Employers want to see that—and this is strictly myself speaking. I'm not speaking on behalf of AT&T but as a whole. Employers want to see, did you take the time to learn some of the areas that we are going to be working in day in and day out? And I always say, like, if you haven't been in school in a while, you definitely need to get up to speed and get at least a certification. So, in my case, that was what was my circumstances.

I hadn't been in school in quite a while, at least 10, maybe 15 years, and really had no background and certification in cybers or awareness in cyber or what the actual network inner workings are. But I think you definitely need to get a certification of some sort. Some people go the route of CompTIA certifications or ISACA certifications or DSA certification. What you want to demonstrate to people is that you can be trained, and to me, a certification demonstrates you are trainable. And, hopefully, people would take on the mentality of hire the character, teach the technology, which if you have the baseline of a certification, that shows your teachable, in my opinion at least.

KAREN WETZEL: Yeah. It could be really useful, as you're pointing out, maybe in lieu of the more traditional maybe undergraduate four-year degree. It does give you—as you point out, you needed a place to get some of those fundamentals too. I could see the value there. That's really great.

So we've touched a little bit on the NICE Framework and how that played a role as you were working with your career path. I wonder if you could maybe share a little bit more about that and how you used it to guide your own career, and I know that you're working a little bit with some of your organizational efforts too. Do you see it playing, being useful for AT&T, or is that something that you're working in within your work role?

CONNIE BRAGG: Oh, yes, absolutely. Like, if you need an evangelizer, I am the evangelizer.

I really took an interest. I was able to dedicate the time. For someone to really go through this—like, I felt like this was a gift because it really—like, there are so many paths. When people say to you, "Well, what area of cyber do you want to go into?" usually the response that I hear is "I don't know. I just know I want to be in cyber." Well, this pool allows you to kind of really sit there and read like, hey, what main categories of work would you be doing if you decided on, say, the field of the government or oversight or management? You can really kind of help narrow down.

I immediately knew I was never going to be the coder person, but what I did have a knack for—and I knew this—was I understood government. I understood the basis of operations, and I understood how to take those skills and transfer them over. Now, I could be taught the networking stuff, but I also felt like this was a tool for me to really look at what would I actually have to be doing, what would be the task, what would be the knowledge requirement for me to succeed in this. And I'm not saying create an easy job for yourself, but create a job that's realistic, right? Like, I will never be a software developer. I could do it, but we don't have three years for me to sit there and write the code.

So I have taken NICE, and I've brought it into within Cybersecurity at Work, which is that employee network group that I referenced earlier. We recently launched a mentoring program for peer-to-peer mentoring, where we have about 150 mentees and we have about 50 mentors. One of the first tools that I reach and talk to them about is use this framework. Give this to your mentees. Have them walk through the exercise of simply going through this, looking at the tools that it provides, so it can help them with narrowing down an area that they're interested in.

And then that also helped me when I was asking the questions to initially place people for this mentoring program. If somebody said to me they were really interested in working in a SOC unit, okay, well, let's look at what SOC falls into, and then let's follow up. How can we help this person with getting to where they want to be? If I had a match for that, I could easily place them. Other times, it took some work, and people have to sometimes have that conversation with themselves, "Am I really going to be a SOC person when I've been in a totally different field my entire career?" So I use it within that mentorship program, but also, we want people to have a broader exposure to this.

So one way that I've really—as soon as I took the class, I also have—I kind of really took a little too much on, but I said, you know what, HR really needs to embrace this. Let me at least share this. I've had a few colleagues that I knew throughout the years that were in HR who were willing to at least look at it. Sometimes they probably were thinking, like, I get so many emails per day, but if you could look at this for me, it's going to help me with your placements. If you know somebody in the recruiting department, this could help you with saying let me look at the résumés to use this as we start to build out, and I know that we're not fully there yet where we hope to be in terms of how do we map these criteria that are outlined in the NICE Framework to our current roles, or is it that we need to revamp our roles? Because if academia is incorporating this, how do we make this a part of where we see ourselves going as we're in our hiring and how we hire people? Because we know that the technology is going to always be changing, but NICE has done a fabulous job of just bringing it to a centralized location where you can kind of say, okay, it's not perfect. No, nothing is, but it's certainly an opportunity to work from and build out. So that's just a few examples of how we've used it, just in my current role and across the board that I support as well.

KAREN WETZEL: Oh, that's great to hear that it's being useful that way, and that's certainly what we hope for, and as you pointed out, it is a starting place. It's a way for us to help build

that common language so that as you are expressing—you know, as AT&T says, look, these are our needs, that we can incorporate that into the NICE Framework and then share that back to the people who are educating or training folks who might go into those careers. It is an ecosystem, and understanding that, even so, it's a starting place. It may be different, slightly different at one's own organization. It sounds like you're understanding that, and that's great to hear.

You touched on the mentoring work, and you touched on some of the different affinity groups you have as well as AT&T. That leads me to ask about work that maybe you've been doing personally or work that you see at AT&T happening to help promote diversity, equity, and inclusion in the community workforce.

CONNIE BRAGG: Sure. This is one area I really love to be a champion for because having come from a women studies background and definitely having to face some challenges over the years, I think AT&T was key and the work that we're doing is really setting the stage for how industry best practices are executed. We've done a good job. We can always improve. I would never say we can't because we can always improve.

One of our internal goals for diversity, equity, and inclusion is to include the recruitment and retention for groups in underrepresented cybersecurity areas. Part of our citizenship and sustainability efforts work within underrepresented populations by providing broadband. That's one example, but they also have outreach programs where they're teaching your people, middle school and high schoolers, about cybersecurity and how to make sure that you're taking on best practices within your home, within your personal life.

We've done a good job. That's one of the programs that we're going to be expanding this year working with our corporate citizenship and sustainability groups. Cybersecurity at Work personally is working on that this year to where we're rolling that out.

We do a lot of college recruitment programs. We're particularly working with HBCUs to try to recruit underrepresented affinity groups to get an interest in cyber.

And another area that we're working with too is our Latinx population, so our local—our internal resource group for the Latinx affinity area is HACEMOS, and we're in talks right now collaborating with them. And we're trying to bring about a high-tech day where there's a capture the flag opportunity. Those talks are in motion right now, but I think that's another mechanism.

Another way that I personally—like, I really try to make sure that anytime we're incorporating new ideas that we look across the board and we say, "Where are we lacking? What are we lacking in this? Are we lacking Latinx? Is it that we're lacking African American? What are we lacking that we're not seeing that I would want to say, wow, we've really set a high bar and we're showing what can be done in this arena and this ecosystem?" So we really try to bring that about in our programming so that—for example, in our mentoring program, the numbers

are showing underrepresented populations are actually in those mentoring relations. We are really excited to see that because it's organic, and it's not like we pushed for it. We didn't come out and say, hey, we want a program specifically dedicated to women in cybersecurity or another affinity group. So I think that's a great outcome from that so far, and I hope it continues to grow.

KAREN WETZEL: That's fabulous. I love that you're looking at it both internally and externally, and that really makes a big difference.

In addition, Connie, you used that language of what's missing, what's lacking in the room. That's really wonderful. I think we oftentimes hear about—with hiring, in particular, about a fit, and I understand the interest in having someone who can come in and obviously pursue the same goals of the organization and to have things like importance in team work and all of that, but fit can also be misconstrued at times as looking like what's already there or bringing in what's already there. I love looking at it from that, what's missing, and how can we bring that in to have a more well-rounded team, to be able to bring in those different perspectives that are going to improve your work products. That's great.

CONNIE BRAGG: Mm-hmm. I'm really excited. Like I said, I get really passionate about it. Probably, people are like, oh, my God, what other program does she have for us now?

KAREN WETZEL: It's good to have people who are excited about these things. It's super important.

We've talked a little bit too about—you've done a lot of work making sure that your skills were able to be translated into this new work role that you have and new position that you have, but as you pointed out, you were already keeping apprised of trends in cybersecurity. Are you still doing that? How are you staying current with what's happening, and how are you continuing to grow your skills?

CONNIE BRAGG: Yes, yes. I mean, I think that's one of the benefits. If you want to stay sharp, your mind to stay sharp, I couldn't think of a better area than cybersecurity because you do have to stay current on things.

How I do that, I mostly read a lot. I typically dedicate at least one hour in the morning and one hour at night to reading current articles, and I don't do them just from a cyber perspective. But I try to hit on an array. So maybe it's geopolitical areas, because you never know where that's going to cross over into your vicinity.

KAREN WETZEL: Right.

CONNIE BRAGG: So not all of my time is dedicated to cyber, but a good hour to an hour and 15 minutes of my day is dedicated to keeping up with current articles, have a list of—I'm on a

listserv, I should say, that gives out the daily rundowns, and it provides you with good context. I can pick and choose what I want to read about. So I feel like that's really helpful.

I also stay—I try to refresh. In case it's been a while since I've reviewed one simple protocol or something, I'm like let me go to LinkedIn and look. AT&T has done a great job of building out its available courses, and we partner with a lot of third-party vendors such as LinkedIn and, of course, CERA, but I also tap into industry area programs. For example, in the last year, I went through a program that I found through my local (ISC)² chapter, and it was risk management for cloud, which I thought would really be applicable and helpful within how do I approach my cloud role.

KAREN WETZEL: Right.

CONNIE BRAGG: So taking advantage of those programs, sometimes you can get lucky. I know that (ISC)² in the D.C. region, we have an entry-level class that some of our members took advantage of for a new certification that they were launching, and so I try to make sure I get at least six to eight CPEs each year so that I'm staying on top of current events and current areas of issues. And I do that mostly, like I said, through (ISC)². But I also do the reading. I like to stay on top of my reading, and I watch various YouTube channels that I found to be helpful with—if it's a concept I'm not as familiar with and particularly as I'm still learning cloud. I find a few different people that I follow that way.

KAREN WETZEL: That's sort of some great suggestions. I think we've heard about some of them in the past, but I like the variety and the dedication of being able to say, you know what, I'm going to spend—I'm going to sit down and spend this time doing it, because it's easy for things to get pushed to the side. As you pointed out, cybersecurity is not a field where things stay the same for very long. So that's great advice.

CONNIE BRAGG: Yeah.

KAREN WETZEL: So just a couple more questions, and then we'll wrap up. You talked very nicely about a lot of the work you do. Could you talk about maybe what is the thing that you really enjoy the most about your new position?

CONNIE BRAGG: Oh, my gracious. What I really love is when somebody comes back to me—well, actually, a couple of different things have happened. So out of this mentoring program last week—and you can hear, I've got a little bit of a scratchy voice. I've been a little under the weather, but one person came back to me late on Friday afternoon. And this has happened twice in the last week, coincidentally, but one person came back and said, "You know, I never thought about a role in this field until I entered this mentoring program, and my mentor has been talking to me about it and really opened my perspective on things." And this was somebody who really when they first come in, maybe they didn't think about that. So that reward of seeing the work that you're doing come to fruition—and I'm not necessarily saying you're changing minds because you're not. They're still doing the work to get them to where

they are thinking about going, but I feel like if I could say like it's just a reward that you get out of "Hey, I helped this person get to where they want to go," to me, I might not be an earth-shattering world changer and I thought I was going to save the world, you know, at one point in my life, and maybe I'm saving it by one company at a time, right, like one small, little area.

KAREN WETZEL: One person at a time.

CONNIE BRAGG: Then, yeah, I think to me that's one of the bigger things, seeing these programs work and seeing people succeed.

KAREN WETZEL: Mm-hmm. That's great. I don't think you could have chosen a better reason for enjoying your job.

CONNIE BRAGG: Yeah.

KAREN WETZEL: That's really wonderful. It's the idea that—I was going to say it's sort of like lowering the bar for entry, but it's not that. It's the bar was to making sure that people understand that the bar was never what was stopping them. It was maybe a fictional bar, let's say.

CONNIE BRAGG: Yes.

KAREN WETZEL: That there are ways to come into this field, and it's not as difficult if you know someone who can help you along the way, maybe, if you can see, for instance, the NICE Framework, all of the variety of different kinds of roles, and yes, maybe you're not going to be someone who does programming. But there's going to be other opportunities. That's really wonderful.

CONNIE BRAGG: Yeah.

KAREN WETZEL: So my last question, then, what's the number one piece of advice you might give to someone who is considering a career in cybersecurity? And that could be someone who's maybe a young person starting off in their career and looking at cybersecurity or maybe someone more like yourself, looking at a switch into cybersecurity after having already developed a career.

CONNIE BRAGG: Okay. This is such a great question because, yeah, you want to come up with something very insightful, and you want it to really resonate with a lot of people. But I always feel like have faith in yourself.

KAREN WETZEL: Yeah.

CONNIE BRAGG: That's the biggest piece of advice, I would say, because no one will be your best advocate outside of yourself, and take advantage of what you've already got. I find that particularly to have confidence in yourself.

I came into this role maybe not having as much confidence as I thought I probably should have had. So, even though you might—and I wish I would have listened to this because a lot of people told me this. I was too afraid to apply for a job within cybersecurity because I kept knocking myself saying I don't have any experience. Nobody is going to hire me. So I feel that in hindsight to say apply for the job. Most of the times when I have talked to employers within our organizations, they say, "I don't want somebody who has 100 percent of the qualifying criteria. I want somebody who has maybe 60 percent or 70 percent." So I wish I would have been more confident. And be confident in yourself and know that you have a lot of skills to offer, and you will do well in a position. Just believe in yourself. So that's what I would say.

KAREN WETZEL: That's a great piece of advice, absolutely, and that advocating for yourself works across the board. That's something we talk about with my nine-year-old all the time even. That's such an important piece of advice. I'm so glad that you are able to share that with our folks here today.

CONNIE BRAGG: Oh, good.

KAREN WETZEL: Thank you so much, Connie.

CONNIE BRAGG: I'm so excited. I'm thankful for you to give me the opportunity, Karen, and NIST for the opportunity as well to continue to advocate their success story, because it is a true success, the tool that everybody should take advantage of.

KAREN WETZEL: Well, you know we will certainly circle back and then have you help to cheerlead our cause. So thank you.

CONNIE BRAGG: Of course.

KAREN WETZEL: And I loved hearing about all the efforts that you're working with and all the different programs. I hope that helps inspire others and see what they can maybe do with their organizations and how the NICE Framework could help somebody.

CONNIE BRAGG: Absolutely. I tell people look me up on LinkedIn. I'm more than happy to help you with getting yourselves on—you know, if you want to start your ERGs or you want to start a program, I'm more than happy to help.

KAREN WETZEL: Sounds great. Well, thank you, Connie. I appreciate it and look forward to—

CONNIE BRAGG: Thank you, Karen. Yes. Thank you so much and appreciate your time this afternoon.

KAREN WETZEL: Likewise.

CONNIE BRAGG: Thank you. Bye-bye.

[End of recorded session.]