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Retail Banking How Edge Networking Can Help Accelerate Innovation

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PRESENTATION

Moderator

Welcome, everyone, to the Intel Network Builders webinar program. Thank you for taking the time to join us today for our presentation titled Retail Banking: How Edge Networking Can Help Accelerate Innovation.

Before we get started, I want to point out some of the features of the BrightTALK tool that may improve your experience. There's a Questions tab below your viewer. I encourage our live audience to please ask questions at any time. Our presenters will hold answering them until the end of the presentation. Below your viewing screen, you will also find an Attachments tab with additional documentation and reference materials, including a number of websites and documents mentioned in this presentation. Finally, at the end of the presentation, please take the time to provide feedback using the Rating tab. We value your thoughts and will use the information to improve our future webinars.

Intel Network Builders Webinar Series takes place live twice a month, so check the channel to see what's upcoming and access our growing library of recorded content. In addition to the resources you see here from our partners, you'll also find a link to our comprehensive NFV and SDN training program through Intel Network Builders University.

Today, we are pleased to welcome Saleem Muhammad from Dell Technologies, Bob Laliberte from ESG, and Kathy Crumley from Intel. Saleem Muhammad is Product Management Leader of Emerging Technologies at Dell Technologies. In this role, he's responsible for product and solutions strategy for data center fabrics and infrastructure. Saleem holds a Master's Degree in Engineering and Business Administration, as well as a Bachelor's Degree in Electrical Engineering. ESG Practice Director and Senior Analyst, Bob Laliberte focuses on existing and emerging network technologies. He's particularly interested in modern architectures that are driving the next wave of network and management investments. Kathy currently holds the position of Global Banking Lead and Payment Enablement Strategies for Intel's Retail, Banking, Hospitality, Education team, focusing on growing Intel's partners' ecosystem that fortifies the banking vertical with end-to-end solutions. With a healthy career of over 25 years in payments and secure transactions, Kathy has held impactful management positions at well-known marquis companies, driving market adoption for payment solutions and technologies.

Welcome everyone, and thank you for taking the time to join us today. Bob, over to you.

Bob Laliberte

Hey everyone, thank you very much. Appreciate you joining this webinar on retail banking. We've got a great session coming through for you today.

The agenda, we just heard who the speakers are, so Kathy and Saleem joining me to discuss how organizations in the retail banking space can accelerate their digital transformation and some of the technologies that will enable that.

So, what, today, we're going to go through is a little bit of a discussion around what's happening in the retail banking space around digital transformation. I'm going to kick things off and I'm going to talk a little bit about the research that we have. And then also, we're going to have Kathy come in and talk specifically about what retail banks are doing in the transformation space. I'll talk about some of the challenges and what we see is holding these retail banks back, especially at those remote locations, what's required of that. And then we'll have a discussion around how a Universal Edge Services Platform can help organizations with that. And then we'll discuss some of those use cases, perhaps, as well as how those platforms can.

So, I'm going to get things started and talk about what ESG research sees in the banking industry. So, this is a survey that we do every year and we collect data from across all industries. This is a specific cut for the banking industry. And as you can see, digital transformation is absolutely accelerating in this industry, with 18% citing mature digital transformation initiatives, and another almost 70% are in process or beginning the process. So, a huge ramp-up and a huge acceleration of banking industries looking at this saying, "How can we digitally transform?" And of course, we all want to figure out, you know, why organizations are transforming. And so, you can see on the right hand side the reasons why. And this is number one across all industries, and that is to become more operationally efficient.

So, as applications get distributed across data centers, multiple clouds, edge locations, and even as workers sometimes become distributed to remote locations, it becomes a lot more complex in those IT environments. And so, the goal of the transformation is how do we make things more operationally efficient. Because most-- like you, most organizations aren't adding more people.

The interesting part where this deviates from a lot of other industries, the banking industry is looking at-- their next part of their transformation goals is really around how do they develop mainly these new data-centric and innovative products and services to help their customers. So, a lot of change happening right now in the banking industry. And as you can see from your peers, what they're reporting, they want to become more operationally efficient. But right after that, it's how do we drive new products and data-centric products and services to help engage with our customers.

So, to walk you through with that, walk you through some of the changes going on in the digital transformation space for retail banking, especially at the branch location, I'm going to turn it over to Kathy to walk you through this graphic and a few examples of how these branches are transforming.

Kathy, take it away.

Kathy Crumley

Thank you so much, Bob. So, I know this can be potentially viewed as a busy slide, but this is to showcase the vast extension of digital transformation that's truly happening in the branch of the future.

On the left side of the page from a legends' perspective, you will see some of the specific use cases that are more paramount of what we're hearing globally that is happening from a bank strategy perspective. Starting from the minute that the consumer or customer walks into the bank from a proximity acknowledgement perspective, where you've got the bank app downloaded, potentially, on your mobile device, they acknowledge you and they can then start to service that consumer or customer from the perspective of being a valued, loyal customer.

A couple of specific use cases I would love to talk about here is-- that we're seeing a tremendous growth, opportunity, and ramp in is the AI-enabled chatbot. So, the consumer or customer walks into the bank branch, it's a self-serve type of AI-enabled chatbot. So, instead of having to wait in a long line or wait for the next available teller, the consumer walks up to the self-serve kiosk, can voice speak, because it's voice-enabled, into the kiosk and the kiosk will respond back with the trained algorithm that the bank has allocated on the use cases and intents that are supported on that kiosk, as an example.

Maybe they need to get a replacement card. Maybe they want to understand their loyalty card balance for their branded card from the bank. Maybe they need to schedule an appointment with their personal banker to review their portfolio. Maybe they wanted to take out a new mortgage. All of that capability can take place in a self-serve type of environment right at the kiosk.

The options and the ability, at that point, is to really measure the consumer and the customer engagement with the kiosk and then it's a great platform for possible upsell opportunities as well.

Specifically in the APAC region, we have seen the kiosk usage when an AI-enabled chatbot is deployed in a bank branch from a self-serve kiosk perspective, the usage is up, roughly, 50%. And the lead generation-- which I find this number so incredibly fascinating-- the lead generation is up 150% from an ROI perspective. Lead generation meaning maybe you've provided targeted and detailed content on a new car loan, or a refi, or some type of new product or service that the bank is starting to push or wants to push, you have a captured audience and a captured consumer that you can do that with, front and center.

The second use case that I would really like to talk about is still utilizing all these various screens that you see in this 3D image model, whether it is a digital sign, whether it is a video wall, or whether it is that AI-enabled chatbot display, the audience measurement that's taking place almost in the background. So, the consumer is not impacted, or the consumer is not necessarily even aware, but from a dwell time perspective, the AI capability is inherently in the solutions where they can capture that consumer's dwell time if they're focused on a specific promotion, or content that's being displayed on a digital screen. And then they can dynamically shoot down and serve up on those screens the digital promotion, the new type of marketing campaign or service that they would like to promote.

Again, going back to an ROI where this is deployed in the-- it's actually a bank in India that we worked with heavily, they have seen 80% increase in that campaign engagement when they are focused on serving up specific and very targeted content for the audience as they are capturing the dwell time from an AI perspective.

So, in whole, this is an overarching image of what a bank, we believe, is going to look like in the future, specifically a retail bank branch. It doesn't mean that everything on this screen will be implemented or even rolled out into production. Because as you heard Bob talk, there's almost 70% of banks that are in that ramp phase. So, there's going to be different components that will be supported, depending upon the consumers and the customers that are currently holding accounts at those banks. But this is just an overarching view. It can be one, it can be many that's adopted, and there's probably many more that we've not even identified yet as key use cases. But where we are today, these are the top 15 or so key use cases that we're seeing from the future of the bank branch, and what we will start to hear much more about.

I'll turn it back to you, Bob.

Bob Laliberte

Excellent. That's great, Kathy. Yes, and it's amazing to see how far the banking industry has come. I remember walking in with my little passport savings book that had to run through the typewriter to make changes in it. So-- and I know I'm dating myself, but the reason I bring that up is that this really paints a great picture—

Kathy Crumley

Bob.

Bob Laliberte

Hello. All right, hold on. Hello, can you hear me now? So, yes, like I said, I think we just really wanted to paint the picture of what innovation is available today for this-- for the branch infrastructure. And more importantly is, is how do you enable that? Because with all of this great technology that's happening and being able to be deployed into these branch locations, you know, there's also going to be a lot of complexity.

And so, that was something that was pulled out. Again, when I go back to that research and we asked those banking industries, specifically, you know, what does it look like today versus two years ago? And here, you're seeing that, you know, 83% of organizations cite that their IT environment is either more or significantly more complex than it was.

So, again, think back to, "I want to drive operational efficiency, but I've got all this complexity, how do I solve that?" When we asked them why their environments were getting more complex, you can see a number of the reasons. And I've switched up the numbers there to make sure you're paying attention, but you can see the top reason was around increasing remote workers, right. So, as we all realized the impact of the last year, there were a lot of organizations that required their workers to go home. In this case, I think in the banking industry, a lot of the call centers had a shift to remote. Obviously, a lot more data and digital transformation initiatives, those new services that Kathy was just talking about really having an impact on these organizations' IT complexity. And then obviously, there's a lot of security aspects as well that need to be accounted for.

So, these are all things that-- while the transformation is great, it also creates complexity, right. You're distributing some of these applications out to the edge, you're distributing some to the cloud. If you think about some of those examples that Kathy shared, especially if organizations need to or those applications need to go back to a cloud environment to select what promotion it wants to send, you've got to have adequate connectivity there in place as well.

So, ultimately, what we're talking about is how do you put together and install a platform that can enable this innovation. Because in many cases, the legacy environments just aren't going to help you get there.

And so, this basically, you know, reminiscent of the old hub-and-spoke network architecture, and castle-and-moat security architectures that were put in place in a highly consolidated environment, right, where all your applications were stored in the data center, and then all of your retail bank locations had to connect back into those applications. And if you wanted to deploy any services at that retail bank, it required you deploying an appliance, and the storage, and the security all there at each and every location, which of course you don't have IT resources there to be able to install and troubleshoot and things like that, so you'd have to roll trucks every time there was an issue.

And then even worse, from an innovation perspective, with everything coming through the data center, once those cloud based applications actually took hold, it required all of these organizations, all of these retail bank and branch locations to be hair-pinned back through the data center. So, if they need to speak to a cloud based app, it would be up through the data center into the cloud and then back out again. And so, that hair-pinning, obviously, created a lot of latency and poor experience. So, you can imagine someone trying to stand at a kiosk hitting buttons and having to wait, right. Clearly, we all know that's not going to work. So, organizations, you know, need to make sure they've got the right technology in place so that it delivers the proper experience as well. So, installing all of those technologies that Kathy was talking about is great, but you need to have that underpinning technology platform that will enable it.

And so, what are we talking about? Well, we're talking about shifting and getting rid of that hub-and-spoke architecture and that castle-and-moat security architecture and being able to deploy a platform that can go across both your retail branch organizations, it can go across your individual remote users, if you need them for call center et cetera, and that will enable you to connect directly to cloud based applications to minimize the latency, as well as back to your data center and to each other. So, this really is talking about, you know, how you need to deploy innovative technology and innovative platforms to help you drive all of this technology innovation to those branch locations as well.

All right, and then to give you a better idea about what those platforms look like, I'm going to turn this over to Saleem who's going to walk you through the technology innovations that Dell Technologies is bringing to bear that can help these organizations, help the retail banks drive that innovation into their branch locations as well.

Saleem, do you want to take it away?

Saleem Muhammad

Sure, Bob. Thank you so much.

So, digital transformation initiatives are driving more edge processing at retail banking branch locations to provide better services and products to customers. We know that existing approaches to providing IT services at branch locations are complex and expensive. Currently, they require lots of functions at branch locations. IT shops have to deploy lots of appliances, including routers, firewalls, IPS/IDS et cetera, and the end result is that there is a lot of time and resource that is spent by organizations today to manage the current way of deploying IT at branch locations.

Alternative, that is required by digital transformation is to have simplified operations, which require reliance on more automation. Digital transformation initiatives also require simplified architecture, which really depends on-- heavily on standardized software. And it also requires scalable and secure applications.

But Dell and Intel, what we provide is a universal edge services platform to address these requirements. This platform is provided by Dell as Virtual Edge Platform. It is built on Intel hardware and software technology, which is a well-known approach to build standard applications in data centers and cloud. This application offers an NFVI layer with qualified hypervisors as shown here from ADVA, from VMware, the software called ESXi, and Linux KVM.

Customers have a choice then to either use some of the prepackaged and qualified applications from Dell, such as SD-WAN and SASE offered by Versa and VMware Velo, which are very close partners of Dell. Or customers can actually customize the type of software and applications that they want to run on this platform, combining some of the virtual networking functions that are qualified to run on this platform, but offered by our partners, along with the business applications they know how to bring at the branch locations using the VEP platform.

Let’s go to the next slide, Bob.

Bob Laliberte

Real quick, Saleem, I was just going to point out, though, that what you just covered is really important, right, because all of those solutions that you're talking about are pre-certified. So, the banks don’t have to go through and wonder about, “Will this work? Is it integrated? Is it interoperable?” All the solutions that you're bringing to bear are turnkey when you deploy the platform.

Saleem Muhammad

Yes, absolutely.

Bob Laliberte

Yes, that’s great.

Saleem Muhammad

And that, you know, is a very good segment because this explorer view shows how the components are layered to form this universal edge services platform on Dell VEP.

At the foundational layer, we have white box or cost forms of hardware infrastructure layer. On top of it, we have middleware layer or solution. As I was highlighting in the previous slide, it can be from ADVA, ESXi, KVM et cetera. The function of this layer is to provide NFVI hypervisors and service chaining functions to host and connect various virtual networking function workloads.

Customers who want Dockers are also covered here. Docker works very well here as well to run containerized workloads. ADVA, which is one of the middleware, supports Docker, OpenStack, and KVM, you know, applications there.

And beyond these two layers, which is standardized hardware infrastructure layer and the middleware layer, we have some additional enhancements in this platform as well, such as Intel’s support of QAT and DPDK. QAT, which is Quick Assist Technology is a hardware

offload engine that assists crypto processing and compression of networking applications. DPDK, which is Data Plane Development Kit is an open source project to offer packet processing from OS kernel to user plane resulting in improved packet processing performance.

What is the result of both of these technologies? Faster applications, faster transfer of data from applications to other networking functions within the platform itself, or all the way into the cloud or on-prem data center locations.

With virtualized application network functions, service chaining can then be done in software. The end result can be thought of as a cloud in a box, because everything is being managed through the software as opposed to multiple appliances, which are point solutions in the current way of deploying of IT in branch locations. Let's go to the next slide, Bob.

So, there are three main advantages that I want to talk about with respect to Dell VEP platform. From simplicity and agility perspective, the first thing that I want to highlight is VEP is a purpose-built platform for edge use cases. It's an all-in-one solution to drive digital transformation for any of the banking branch locations. Second is the architectural consistency, which allows the same software to be leveraged by the IT team at edge location, data center, or cloud. The second part with respect to performance and efficiency is that the software defined approach creates another layer of simplicity for the customers. Modern branch locations need application performance, which depend on software defined features to dramatically change the application experience, and better utilize a wide variety of internet connections.

There are three different scales to choose from. On the very low end, we have VEP1400, which is based on Intel Atom processor, and this kind of box is suitable for thin edge locations. Second is VEP4600, which is based on Intel's Xeon D processor, and this is suitable for medium edge locations, such as a typical branch-- banking branch location. And the third one is XE2420, which is based on Intel Xeon SD processor. This is really suitable for thick edge locations. Think of it as a large branch with-- which requires a lot more of compute processing power at the location itself.

Bob Laliberte

And so, Saleem, sorry, that thin edge you were talking about, that would probably be something like a home location that someone could use that.

Saleem Muhammad

Absolutely, yes.

Bob Laliberte

Where you've got the thin edge. Yes, so you've got it covered from the home to the retail-- typical retail branch, to maybe a larger more intensive, service intensive focused branch.

Saleem Muhammad

Absolutely, yes. VEP1400, which is for thin edge location, it's just for SOHO as well, small-office/home-office kind of deployments as well.

Bob Laliberte

Got it.

Saleem Muhammad

And then going on from trust and scale perspective, many banks operate at broad geographical locations. And here, Dell's global supply chain support and services become a major component of success, because it simplifies everything from ordering, to deployment, to certifications that may be required for different regional deployments, and finally, to support as well.

And then the last piece is a large, or access to a large partner ecosystem from Intel and Dell, because that provides another layer of trust and scale, because we offer many prequalified applications from many vendors who are our trusted partners.

Now, let's go to the next slide, Bob, and—

Bob Laliberte

Yes.

Saleem Muhammad

—together.

Bob Laliberte

Yes, absolutely. So, now, I think this is when we want to talk about how this overall solution can fit in and can enable some of those use cases that Kathy was talking about at the beginning of the presentation.

Saleem Muhammad

Yes, absolutely. So, here, we know that in the banking industry, the introduction of AI powered virtual assistance, building on the concept that Kathy introduced, such as, you know, AI chatbots and digital signage, it has enriched the customer experience for banking services, which may be delivered across various different channels. It could be a physical banking branch location, or it could be virtual. In the case of virtual, it could be website and mobile, and it could be a combination of these experiences as well.

From AI chatbots' perspective, within a branch, the chatbots enable a richer user experience and interaction by running various types of applications and technologies that include AI vision technology to identify and interact with the human. We have reinforcement learning. We have digital human interface to make this digital persona more human-like for the user. We have recommendation system, which processes what type of information should be recommended to the user who's interacting with this AI chatbot. And then, very importantly, we require security to store and process and transport data as required by the application.

Now, from a deployment perspective, this application could be deployed locally, which requires local compute power. Because the application does require, you know, to run some speech processing algorithms to convert audio into text. It then requires AI functions to understand the question. It then may need to process that information to find the answer, which could happen locally or it may require access into a remote location in cloud or on-prem data center. And finally, when the answer has come back, it needs to perform a speech processing algorithm again to convert text into speech for the user. So, that is the AI chatbot part of it.

From a digital signage perspective, we need to have AI vision technology to detect the customer. It also needs to perform some level of analysis, demographics, age, gender et cetera, perhaps need to recognize what type of mood the person is in, what kinds of gestures a person is making, how engaged the person is. And collection and processing of all of this information allows this application to present the most appropriate content for the specific user.

This application, once again, needs to access content for playback. The content can be hosted locally or it can be at a remote location, once again, in cloud or on-prem data center. It needs to aggregate that information. It needs to process that information and then a result needs to be shown to the user. Plus, the analytics that it is gathering, it needs to be transferred back to a central location, so that central location can process data coming from various branch locations, drive more insights, and then push it back towards the branch location to enhance the engagement even further.

So, how does it all fit in, you know, the concept that we previously introduced? First of all, you know, Intel's DPDK and QAT technology, coupled with SD-WAN and various other security virtual networking functions that are provided on VEP, they offer fast and secure processing of data, either locally or with remote locations. Now, customers have the flexibility, because it is a standardized architecture, customers have the flexibility to choose which parts of the application they want to run locally or remote, depending upon

their need for performance. And then, you know, the application performance and engagement can be enhanced but all the while, it simplifies IT operations, because the entire stack is built on software defined approaches that are providing extreme level of automation capabilities to the IT shop.

With that said, Bob, let's go to the next slide and try to bring the message back home.

Bob Laliberte

Sure, absolutely. Yes, no, I think, like I said, having these examples are great to be able to show how it helps. I know from my own personal experience, I've seen retail branches that have actually leveraged the platform to deploy video tellers. So, in really remote rural areas where they couldn't staff it, they now have the ability for people to come in and have, basically, a face to face conversation because they've enabled this technology to deliver the additional bandwidth to support that video. So, all great stuff coming in and helping out these banks.

But there's obviously a lot more information that organizations might want to gather. So, we would strongly encourage everyone to make sure if you're interested and you want to find out more, there's a couple of websites that you can click on here about the Virtual Edge Platform and the future of banking from Intel. There's also some whitepapers that you're welcome to read as well that you can click on and download and solution briefs. And of course, you can always talk to any of your Dell account representatives to work on getting started with your transition here.

But for now, what I'd like to do is-- and we'll put this back up-- but for now, I would like to go over to Q&A and ask some of the questions, see what we've got for some questions.

So, here's-- one of the-- this is always a good one, Saleem. I think this is, you know, maybe for you, and Kathy, you can feel free to join in as well. But it's, "What are the benefits of an open platform? Why is it important for me to deploy an open platform?"

Saleem Muhammad

Yes, so, there are a couple of areas that I can touch to respond to this. First of all, you know, open platform approach, you know, which is standardized on a hardware layer and the middleware layer allows customers to build the applications that are then transportable to the on-prem data center or branch location or cloud, which simplifies the operation. They don't have to build and rebuild the application multiple times.

The second part of the response is because open hardware or open platforms are very well understood, we do not necessarily have to build our own applications. There is a large ecosystem of partners who are building the applications that can be readily deployed to meet, you know, your specific requirements. So, access to a large partner ecosystem, access to a large number of applications that are already developed and ready to be used, and then, you know, enhanced usability of applications that are used multiple times at multiple locations.

Bob Laliberte

Got it, absolutely. So, we've got-- and so, I would encourage everyone that's on, if you want to ask questions, please go ahead, and submit them today, or submit them now so we can get to them.

A few more that have come in. So, one of the viewers is asking, "What's the biggest pain point that retail banks and these branches are looking for Dell and Intel to solve today?" I don't know, Saleem or Kathy.

Saleem Muhammad

So, I can definitely start and then Kathy can chime in.

So, one of the-- there are a couple of areas that come to mind. One is from a branch modernization perspective, one of the biggest problems for them is how do they convert or go from the current model of deployment, which is very much hardware appliance based, to this more integrated and consolidated model where, you know, all of the appliances and functions become virtualized and software defined. It is-- you know, the digital transformation path requires that customers go through this process, but, you know, the path may not be that easy or straightforward.

So, many of these branch locations and the IT shops that are running these branch locations require a path or a roadmap of this transition. So, they're looking for flexibility as well as the, you know, consultative guidance so that they can build this roadmap and transition from the current model, which is more monolithic appliance based to this more modern digitally-aware branch location at the pace that fits their requirement.

Bob Laliberte

Got it.

Kathy Crumley

And I would like to jump in here and also finish out the question by saying, one of the key pain points that we consistently hear at Intel is, “I don’t want to rip and replace all of my existing infrastructure, archaic or not, I still don’t want to rip and replace it, but how do I start the engagement process to that bank branch modernization?”

So, we work very closely with our ecosystem partners, such as Dell, and open banking, open banking platforms are paramount in that scenario, because it’s based on standardization. And so, we go in with a holistic approach to understand, and more importantly, to listen to what the pain points in the bank branch are, where their key factors are of how do they grow their bottom line, how do they start to see ROI more quickly, and how are they going to retain and grow their consumer base of accountholders.

So, it really, fundamentally, boils down to having a great ecosystem that can address the key pain points from a standardization perspective, but if I had to hone in on specifics, the-- if COVID has leaned into the banking industry on anything, it’s all about touchless, it’s all about contactless capabilities. So, AI and AI capabilities such as voice activation, whether it’s at a kiosk, an ATM, or elsewhere is absolutely key for one of the first use cases and to address the pain points that the banks are experiencing today.

Bob Laliberte

Excellent. Very good, very good. So, here's a-- one of the questions that just came in is asking about availability. And so, with all of the slides we put up there, it showed that we are now connecting to applications that may be in the cloud or may be back in the data center. So, this one person is asking, “What happens if I lose connectivity or how do we ensure for high availability between those locations?” Between the cloud and that branch, or between the data center and that branch.

Saleem Muhammad

Yes, Bob, I can get started with this question. So, we need to architect the topology or the deployment to meet the requirement at that branch location. There are multiple ways in which high availability can be provided. Many customers have multiple appliances that are deployed, they may have multiple connections going from the same appliances. They may leverage different, you know, service providers. They may continue to maintain one MPLS function and have an SD-WAN. SD-WAN may become primary for a cost saving perspective, and then MPLS may become a backup. Or they may choose to have certain applications be routed through MPLS versus SD-WAN. Customers can choose to go have, you know, 4G and 5G kind of access as back up as well.

So, there are multiple ways in which, you know, this HA kind of framework can be deployed, leveraging the, you know, various technologies that are currently available within the platform itself, and then as I said, you know, from a service provider perspective as well.

Bob Laliberte

Yes, absolutely, no, that's a great answer. And I've heard a lot of organizations also talk about, with anticipation, you know, 5G coming out. Because a lot of organizations I've talked to have said, "We'll either have multiple broadband or a combination of broadband and MPLS for, you know, running in an active-active mode, and then we'll have that cellular backup and it's typically been 4G." And now, obviously, as 5G starts emerging, a lot of organizations trying to think about, you know, could I use this as a primary link.

And so, to me, that really starts to redefine what a branch is and when you think about popup banking and being able to have kiosks deployed to, you know, temporary locations and being connected over 5G, it really starts, you know, thinking-- driving that innovation cycle for these retail banks and not being necessarily confined to a brick and mortar location anymore, and being able to have that activity that's required but be in any location.

Saleem Muhammad

Absolutely, yes.

Bob Laliberte

All right. So, here's a-- and I think we're running out of time, so I just want to get this last question in and just want to let everyone know who submitted questions, if we didn't get to your question, we will answer it and try and get back to you as best as we can after the webinar is over. But for this last question, it's around security and they're asking, "Can the use of key security technology be used to give peace of mind for consumers against fraud et cetera, and even just, you know, access to data breaches and so forth?"

So, do you want to take that, Saleem, or Kathy?

Saleem Muhammad

Yes, I think it's a two-part answer. So, I'll start from the security functions perspective and then Intel-- sorry, Kathy can chime in from Intel Secure Guard Extension and Trusted Platform Module 2.0.

So, from the perspective of security-- securely transferring data and ensuring that the branch location is protected, it is very important to select your, you know, firewall, your IPS/IDS, you know, various, you know, well known secure functions that are currently well known. One thing that is emerging in the industry is SASE, Secure Access Service Edge. It is a combination of networking or connectivity functions and the security functions. The ultimate goal of this technology is to provide a secure SD-WAN function to these branch locations, protecting the data that is being transferred through these branch locations and the branch location itself.

So, I would encourage the audience to, you know, do a little bit more investigation on SASE and, basically, learn more about it, because there is a lot of development, a lot of enhancements being introduced by different vendors in that space.

With that said, Kathy, would you like to provide the Intel perspective on Secure Guard Extension?

Kathy Crumley

Sorry, I was speaking and was on mute.

So, from an SGX perspective, we view that as our, obviously, our trusted edge execute-- excuse me, trusted environment-- trusted environment-- trusted execution environment, let me get that right, and that is paramount to everything that Intel and all our platform from a hardware perspective that we rollout in all of our solutions from a server perspective.

So, SGX has-- it's not new, it's been around a long time. It's something that many of the developers and technologists out there deem as a very secure and proven cornerstone for the Intel platforms that they are supporting today.

So, from my perspective, and more importantly from Intel's perspective, we know that we're delivering a TEE into the marketplace that our partners, specifically in this scenario with Dell, that they can take, enhance, and deliver and showcase their solutions on from an SD-WAN as well as a remote retail banking perspective.

Bob Laliberte

Awesome. That's great. Well, thank you very much. And we said, unfortunately, that's all the time we have today, so I'm going to turn it back over to Lillian to wrap this up.

Moderator

Thank you, Bob. Thank you all for this great presentation. Thank you live audience for joining us today. Please do not forget to give our team a rating for the live recording and join us next time. This will conclude our webcast today. Thank you all.

Kathy Crumley

Thank you everyone.

Saleem Muhammad

Thank you.

Bob Laliberte

Thanks.