Ed Jones: I actually have the pleasure of introducing our keynote speaker for this evening, Cindy Cassill. Cindy is the director of systems integration in the office of the CIO for the US Department of State. And in this role, Cindy provides, among other things, executive leadership for the Department of State's datacenter consolidation initiative as well as overseeing all the enterprise applications and integration in the Department of State.

So the Department of State, interesting enough, is quite a ways down the road around datacenter consolidation. They actually started the journey in 2005. When Cindy joined in 2007 she picked up the ball and the Department of State is now down to a couple major datacenters. Of course the more we inventory things, the more datacenters we find. But I'll stop the story there, because I'll let Cindy talk to you about the rest of it.

Prior to her current position at the Department of State, Cindy has over 30 years of federal IT experience. She was the CIO at the FAA Regions & Centers. She also was the CIO at the US Army Test and Evaluation Command. And finally, she was the director of IT at the deputy assistant secretary of the army for civilian personnel. Please welcome our keynote speaker, Ms. Cindy Cassill.

Cindy Cassill: Okay. Thank you very much for that kind introduction. And also thank you to Tom for inviting me here to speak with you today. When Tom originally asked me to speak, I thought, well, how should I present this? And the first thing I'd like to do is – I took the tack that if you hadn't started datacenter consolidation, what were the key factors that I thought you should know? So I'm gonna give you that sort of story from the State Department's view. Many people may be in the middle of datacenter consolidation or at the beginning or at the end. And I always go to presentations and think, gosh if I can just walk away with one thing that somebody's doing that's better or would make our datacenter consolidation center more efficient, then that's worthwhile going to. So hopefully you'll be able to take away a nugget today.

Okay. So first of all, when I came in 2007, we had already started datacenter consolidation. They had taken old mainframe computer rooms, started building the platform to bring in datacenter consolidation, but it was very much a consensus driven sort of event. And when I walked in the door, what was happening is that we were out of power-space and cooling, which was a really big deal. I mean, we were really out to the point where we were juggling where we were gonna put the next system.

We had a very large customer who had come onboard and come into our datacenters with us and we were not able to keep up with the demand that they had – Consular Affairs, very big in the State Department, the 800-pound gorilla for the State Department. So we knew we had to do something and they were pushing us really, really hard.

So we knew looking ahead that these old datacenters, you know, they weren't scalable, they weren't Tier 3 and they weren't gonna carry us. So we knew we had to have new datacenters. And so we put together our plan and then we took it to our leadership. And we knew that we had to get this leadership support before we could go any further. And so in doing that, what we did before we went to the leadership is we developed our business case analysis. We brought in a company – we brought in a consultant, because for some reason, in government, everybody believes the consultant knows better than the FTEs do.

So anyway, we brought in a company, they helped us do a business case analysis. And we looked at all the datacenters that we had across the department. And even though we had been consolidating, and using these big mainframe computer rooms that we had, like I said, it was still very consensus driven. So people still had these datacenters all over the place. So we did a survey and we found out that we had over 77,000 feet of computing space that if we really condensed and consolidated and racked things property, we would only need 10,000 square feet of datacenter space.

So when we took this to the undersecretary for management and said, you know, we're using expensive office space in Washington D.C. for datacenters. So here's the 77,000 that we're doing and if you take those servers and you rack them and you consolidate them properly, we'd only need about 10,000 square feet. I mean he was ready to sign on the dotted line right there in that session, which he doesn't normally do. He really likes to take his time and contemplate. But first of all, we were out of power-space and cooling and we were gonna save him money.

So we offered him the carrot that we're gonna give him back expensive space and of course that's gonna save money in addition to that. So we walked out of there – we walked in with a four, sort of pronged plan for an immediate datacenter, and then also a redundant datacenter in the future and then also how we would do our development networks and also how we would handle our top secret networks.

We walked out of there and he approved the esock east, which was a datacenter that we went out and we needed it so urgently that we went to a commercial facility. So that's the very beginning of our consolidation story.

So with that good news in hand, we knew we had a funding issue, right? So we go to the funding people and say, okay, the undersecretary said we're gonna do this. And they said, did he happen to tell you where the money was going to come from? You know those stories. We all have that. So we said, well, no. He said you would find that for us. So they were very happy to hear from us. But so we've actually been very lucky in our datacenter consolidation. And I think this is one of the factors that's made us the most successful.

First of all, for our east datacenter, we were centrally funded. We were given the funding to do that centrally. And we had planned to start our second datacenter, our redundant, west coast on the west power grid datacenter in the year 2012.

Well, so what happened was that around, I want to say six or seven months after we started building out the east, even though we went to a commercial facility, we had to build a secure SCIF within that facility because of our security requirements. We actually have to have our own guard these posted, even though this commercial facility has their own security. There were a lot of hurdles that we had to go through. But we got this site stood up in a relatively short period of time given all those obstacles.

But anyway, so about six or seven months or so down the line, the whole stimulus funding issue comes up in government. And our undersecretary said, you know, I think we need to get RF funding and we need to build the second datacenter now while we're still building out the first datacenter.

So lo and behold, that did happen for us. We did get the money to build the second one. And it was decided that this was going to be a government owned facility, and we were gonna build it from the ground up. That is going on right now. We've broken ground. It's out in the west. And that's very successful, but challenging at the same time, because now we're building two datacenters, one of them a lot easier than the other. But we're building two at the same time.

I say this is really a very good success story because we were given the money centrally upfront to be able to fund our infrastructure, to be able to fund not only the facilities but to fund the IT infrastructure, the virtualization and we can put that in without fighting with everybody about chargeback models and cost. And I've heard other people talk about this and they've struggled with it and that's why I think we've been so fortunate that we've had that happen.

Now we are going to have a chargeback model. We are targeting FY14. We're looking at that chargeback cost model now. We've got some really smart MBAs who are helping us work on that at the moment. And we're planning to have that cost model completed somewhere in the middle of this FY. But it we have it in this FY, before we can really effect everyone's budgets, we'll probably be looking at the FY14 timeframe.

But there may be fights yet to come, but for right now, it's kind of – I hate to say this, but a little bit of bait and switch thing. You know, we get them in and then we worry about the funding later. But it does make it easier and it makes it more efficient to consolidate that way.

Okay. So the next thing that I have to say is that building the right team is really very important. And again, I'm fortunate. I walked in and had a datacenter manager that had great vision and he still has great vision. And he has great technical skills to make things happen. And what we decided was that we would separate him out from the operations part of it. It shouldn't be a collateral duty, consolidating datacenters. And so we made him the datacenter lead for the design/build part of it and the consolidation. And then I have a separate ops lead, which I think has been really good. But the two of them together work so hand-

in-hand – and it couldn't work any other way. If there wasn't a great relationship there, that wouldn't work well. But that's working for us greatly.

Experienced project managers – and I'll talk about this a little bit later on about how we did our project management approach and what we do with that. But having knowledgeable project managers who can go out to the customers and talk to them about what they need, and plus have the technical skills to be able to do the virtualization and to have the net-app engineers and that sort of thing, has been really great. And then the team has to be very cohesive.

So with that, communicating the vision – once we decided we were gonna consolidate, we have the funding set aside, we've built our team. Telling our customers what we're doing was also, and still is, a vital part of our process. And so what we've done is we put together a briefing and I'm just kinda giving you some of the slides that we show them. We tell them about our east facility, when it will be open and what it will look like. It will be a Tier-3 datacenter. It will be on the eastern power grid. We'll have the west, which will be government owned, it will be on the western power grid and it will be a pod design. We're gonna build the first pod. It's gonna be a two pod datacenter. We're gonna build the first pod out and as Gardner recommends that you don't build out your infrastructure for the second pod until you're ready for that technology.

So we think a couple years down the road we'll be building out the second pod. But both will be lights-out facilities. I have the east stood up right now and we have four shifts that work, but we only have a very minimal number of people. We have three to four people per shift. And they're really the guys who will go and reboot a server if you need to. We do monitoring centrally. But we can do monitoring at each of the centers as well. So it's a very efficient process that we've built out here.

All right. Also one of the things that our customers came back and said, you know, you're building out production datacenters and east and west coast redundant datacenters, but I can't give up any space, because I still have my development networks. So we also had our facilities people come to us and go, you know they're saying I can't have that space because you know, they still need it.

So what we've decided to do is, we have a very large datacenter that is one of our legacy datacenters. And if was still going to be needed – it actually houses like our IT help desk and some other things. It's a very large building out in Beltsville. And so we decided, well you know, it's great for development land. Let's consolidate all the department's development lands in that old legacy facility.

It doesn't need to be Tier-3 and we do have to make some infrastructure modifications to it, but it will still work and provide the capability that we need for development lands. So what we're doing is, what that scheduled for FY12, I already have a team of engineers that we have set to doing the whole planning out

of that development land, and how we're going to network to get there. So that's underway but we're planning to implement some of the first systems in the FY12 timeframe.

Okay. Then also key in this is you have to make sure that your customers know you have the right connectivity when you're putting datacenters on the west coast, not on the west coast, but on the western power grid, we're taking the eastern datacenter is away from Washington. It's about 70 miles out, so that's away from us. And everybody's going, how do I know I'm gonna get the right performance? So we had to show them all the infrastructure that we're putting in from the network perspective. And this shows the circle for the east with our two legacy datacenters. And then the west will go in there as well.

Now one of the other things, I don't own the network guys. So what we did was we funded three full-time people to go work on the network side to support our project so that we made sure that we got the right attention that we needed to do the job.

So okay, as far as our service model's concerned, what we're doing is we do offer managed kind of co-managed, but we're really trying to get everybody in the datacenter. So we're trying to keep it as simple as we can. And we're primarily focused on co-location. But with co-location, we do the monitoring and we do the backups and we help them migrate to the datacenter. But as I said, we do manage, if we have to, but we're trying to keep that to a minimum so that it doesn't distract us from our datacenter consolidation.

We feel that later on down the road, we'll take that on as a next phase in our project. And so we are – that one – so we are doing infrastructure as a service if you look at GSA's cloud computing infrastructure as a service. So that's where we're focused on at the moment. But we'll expand later.

Okay. I threw this slide in here. Virtualization is key. Don't get me wrong. And I have another slide in here to talk about that a little bit more. But I threw this one in here. I mean, we get so many questions, I don't know if you all are getting all of the data calls on how green are you and what are you doing and so we just have one of thee slides in here that we threw in.

But as far as virtualization, if you'll go to the next slide – this is what I call, is what's in it for me slide, to my customers. And that is that we want of course to push virtualization. And we look at – what we tell our customers is that we will help you assess whether a system needs to be – can be virtualized or not, because everybody thinks theirs can't be virtualized, any mainly because of the evils. You know, I'm gonna suffer in performance and space and all that sort of thing. And then also you have to look at their life-cycle times. If they've just bought new life cycle equipment, they're not gonna want to virtualize.

But anyway, so you have to take all those things into consideration. But what we said, is okay, we'll guarantee that if we tell you your application is appropriate for virtualization, and we're wrong, then we'll buy your physical machines. Right now we buy virtual infrastructure. If you virtualize, you come on our platform, if you want physical machines, you have to bring your own physical machines to the datacenter. And then a lot of people are doing – if they stay with physical machines they're doing it on a life cycle basis as well. Nobody's moving old equipment around and that's a good thing.

But the benefits of the virtualization, like I said, is that it is centrally funded, it reduces the acquisition time, because we've already bought that infrastructure, so we can just migrate them over and bring them in. It gives you high availability. I mean, I don't know that I have to sell virtualization to this group, but that's really what we're trying to do is to offer them this carrot that if we're wrong we'll move them and we'll buy them physical machines.

Okay. One more. So key stakeholder buy-in. This is the only slide I have on key stakeholder buy-in. But my point here to make to you is that if you look across the slide, there are so many stakeholders that don't forget who your stakeholders are, and that you have to coordinate and coordinate and coordinate with them. And all the way from the vendor, if you've leased the facility like we have in one datacenter to the facilities managers if you have other datacenters that the government owns, your security.

We have a lot of other IT stakeholders within the State Department. I do the datacenters and I have some enterprise applications. But people who own the networks and the messaging and all that stuff, they're still my peers, but there's a lot of coordination that needs to go a long with them, but don't leave any of them out, because they get really – they don't play very well in the sandbox if they feel like they've been left out. So you need to do that.

And then as far as your customers are concerned, they're datacenter owners right now. So you have to coordinate and try to figure out how you're going to close those rooms down and how you're going to have them demolished and repurposed as office space. We deal a lot with people who just don't want to give up that space.

But now – we started consolidation and now the OMB mandate came down. So it helped with most of our customers. But we still have those few that think this doesn't apply to me, still. And some of them can be very powerful and decide they don't want to do it, so we're dealing with all that. I don't know if you all have seen the numbers that came out in the OMB datacenter consolidation. I think – what was it – like two thousand and some odd datacenters across government. I mean, I personally feel that that's a really low number. I think that number is not good. But we'll see. We'll see what happens when we get down into it.

Okay. Project management. Project management I mean, I know we're all dealing with project management and how important that all is to a job, but one thing that we did do and I've got one slide that will talk about that, and that is that we developed three different kinds of plans. We developed our overall datacenter transition plan, which gave us our view of all the things that we needed to do for the datacenter consolidation. We also shared this with our customers. Then we also had our customer transition plans. So a customer has to have – we actually have some customers that dedicated their own PM to their customer transition plans that work with us. So you know, CA for – Consular Affairs for example, they have many, many systems. So their full time PMs work with us on how we move those systems and how we migrate them and consolidate them.

So that was really key, to make sure you have that plan. Some people were dragging their feet, thinking they didn't need to do that, and they do. They have to do that planning. And then we have the individual systems plan. You have to make sure that when you're getting ready to migrate a system, especially to a new datacenter, that you've already migrated all the infrastructure that supports that and that you've migrated everything that that system owner owes that they think they know about to get that system over that, because there's so many moving pieces and parts that they don't always know all of those if the documentation isn't there. So those three things in our project management approach I think were really very instrumental in helping us. Okay.

So from a consolidation standpoint, I'm not gonna go through too much here on telling you how to consolidate, but what we did is that, like I said, if you are coming into [inaudible 00:20:41] infrastructure, we have the storage, we have the monitoring, we have the backups. And we pay for all that. But as far as the customer's migration of their Apps, over, they pay for that. So even if it's on our VM infrastructure they're still responsible for making sure the migration – we'll help them with it, but they pay for that.

Okay. These are just some milestones. It's interesting that we have signed a contract in January of 2008 with a datacenter vendor that we were gonna move into. By April we had the room built out for the datacenter that we were moving into, the SCIF area. And then by the summer we had put in all the IT infrastructure and by July, we were moving customers in, in a testing and production environment.

But that's so quick for a leased facility – I mean, it's so quick for any kind of facility. Now the one that we're building, we are building – let's see, we started out with the stimulus funding in '09 and we had to locate the land. And it is on federal land so we really lucked out and that made the process a little bit more expeditious. And then we had to go through the contract for the design/build for the construction, for everything.

So we have all of those in place now. And we had to spend all of the stimulus funding by the end of September this year in order to be able to have the RF funding. So we've

done all of hat and the construction is underway. We think we will move in, in May of 2012. So that just – and I think everything went right with that project. I mean, everything clicked, even though it sounds like a long time, I'm just comparing the time to build versus the time to go out and lease space.

Our business case analysis showed us that one might be cheaper than the other. From a State Department investment and infrastructure perspective, they decided to lease one and to build another. So that's the direction we went. I'm sorry. So back one.

This is just a slide – I'm sorry. That's good. I'm just telling you how many servers that we've transitioned. Everybody can have their own schedule. Like I said, we are very consensus driven in the State Department, so it's difficult to get systems over and to look at the life cycle and the timing of that. But I'm just giving you some example of where we have been – where we are.

Moving our DMZ infrastructure and our Internet connections and that sort of thing, that has taken a long time for the east, and we're gonna go through that for the west again. But don't underestimate the length of time that it takes to do that. And that is a huge coordination effort in the State Department because we have our networks, our firewalls are in a different organization. It was coordinating with a lot of people, a weekly meeting where everybody had their project plan and they knew what to do. So I would strongly suggest that everyone – you have to bring everyone to the table.

Okay. This is just a picture of our row infrastructure – the point I want to make here is that we wanted really redundant – a really redundant datacenter at the end of the time. So I'm just showing here, we have redundancy in every part of the process that we have. And right now we don't have that – I don't know if I mentioned this. But we were dealing with outages. We still deal with outages in our legacy datacenters, because they don't have the infrastructure to support what we need.

Okay. This is just another slide just showing you that – how much we're moving from nine – nine – 2009 was just a little bit – we were really working on two datacenters at the same time. And then in 2010 we're really kicking things off and moving faster. But the amount of data-calls, I think I'm trying to say in there is that everybody wants to say oh, you know, I've got the facilities management people telling me can you virtualize a few more machines? I mean, they're telling us what to do just to get our floor space down.

But on this particular slide, this is like the last slide I have, I believe, but what I'm showing you here is that we're – our consolidation, we're looking at consolidating like 500 systems a year. And going out to the 2013 timeframe and then we start looking at how we upgrade and refresh. And initially our design/build for the west was going to start in '12 as I said. And as you can see it's running parallel with that system. But until we get that western datacenter completely stood up,

we're using an old legacy datacenter for our redundancy, because we don't have anything else to do until we get that done.

I am missing line five here on this slide, but it tells you in the D.C. area we have ten legacy datacenters that we're shutting down at the end four years. And that is line five that's missing.

And so we were leaving the OCONUS overseas posts alone until the OMB datacenter call came in. And what happened is they said, no you're gonna include the overseas posts, which are our embassies. We can't really do anything with the embassies, because an embassy may be shut down tomorrow. If something happens in that country you don't know about and if you've regionalized or done something like that in that country than you're out. So what we are doing is we're vitalizing as much of the footprint at the embassies as we can. And we're doing that right now. We're already started and planned for that before the OMB data-call. So we're gonna continue with that effort and we're looking at how we can – can we regionalize? Are their countries that are very stable that we can do that in?

Most of the time we've gotta leave some sort of footprint there, we can't bring everything back here domestically. So that's really the approach. So when I look at my OMB numbers, it looks like I have 361 datacenters and I'm only going down to 200-something, that's because I have 280 posts around the world that we're probably gonna leave some sort of footprint in place.

So and then the last – this is one of our big – our big data-calls right now. And that is you know, what are you doing with virtualization? Give me your numbers. We're doing as much as we can with virtualization, trying to do hot and cold aisle containment and that sort of thing, but it's not easy being green. And that's for sure and I'm sure you all know about that.

So with that, David? Any questions? Yes.

Participant: You mentioned the OMB datacenter call. It sounds some type of mandate. Can you give the details on that?

Cindy Cassill: Okay. The OMB is a mandate. It did come out – I think it was April of this year. All federal agencies received a mandate to say okay, we're going to consolidate datacenters across the federal government. Or maybe it came out in January or something like that, and said, by April, you've got to give us your initial plan. And then by July – or June or July you have to give us your next version of the plan and then I think by the end of July, this past July, I might have these dates wrong, I can't remember. But anyway, by the end of July or end of August, we had to have what they consider sort of our final plan. But there's gonna be more planning and funding impacts to go along.

But what they're saying is that they gave us all the stipulations on what – how to look at a datacenter and to give – to turn in our plan on how we're going to consolidate. At each one of those steps, each one of those due dates, they brought in – I know our agency put two people in the review teams – you know, the agencies all went in, they reviewed everyone else's plan and gave comments and OMB came back with feedback. And so just about – I think about two weeks ago – there are X number of datacenters in the federal government, and we're gonna get these down to – here are the numbers. Some of them, some agencies only had two datacenters. I mean, either they've done a great job of consolidating or they're not coming to the table with everything they have.

So we'll see where that goes with what – it's even been on WTOP. I heard that on WTOP about a week ago. Anybody hear that too? Talked about the report and how many datacenters – they got the number wrong. They said there was only like 1200 datacenters across the federal government. And then the report came out and said over 2000. So –

Participant: [inaudible 00:29:20]

Cindy Cassill: Well each agency's come back with their plan. And either OMB's approving it or they're not approving it. And this review panel that they have, all the agencies come together and look at and are I guess giving feedback on that. I don't think – I think –

Participant: [inaudible 00:29:38]

Cindy Cassill: For the federal government. I mean, no – they put this number out there, but each agency has different numbers. I mean, you can look at the report. I'm sure it's probably on the web or something.

Participant: It is on the web. [inaudible 00:29:52] last – I don't know, May or June. [inaudible 00:29:58].

Cindy Cassill: Right. So, okay. Yes?

Participant: [inaudible 00:30:02] what's the definition of the datacenter [inaudible 00:30:09].

Cindy Cassill: They said – what was it? Was it a Tier 1 – any Tier 1 centers I think it was. They talked about –

Participant: They give a square foot?

Cindy Cassill: They had guidelines. I can't remember what the guidelines were exactly. But they did define it. They did define it.

Participant: The embassies, you can't consider them as datacenters –

Cindy Cassill: Well, I think ours all did fall at the Tier 1 level, believe it or not, they did. So that was our problem. Right. So, okay. Yes?

Participant: Are you trying to consolidate [inaudible 00:30:45] certain technologies or pretty much leaving it open that you'll support whatever is out there?

Cindy Cassill: Well, okay, so right now we're trying to consolidate. We are standardizing on trying to virtualize. But some will stay physical. We are trying to standardize on the storage that we bring in. But as far as the applications, we haven't hit that yet. We don't feel that we could take that on at this point and be successful. But we do want to do that.

You know I've looked at datacenters that are successful – like Oracle, if anybody's been to Oracle's datacenter. What they've done is they've standardized on the stack. And that's very attractive. But at this point in a consensus driven organization we haven't been able to drive that – okay you're gonna – your database is gonna be Oracle, all your Apps are gonna be here. And from that perspective it's hard to manage all those different platforms and infrastructure that they can come across with. So we're taking this step first.

Participant: Are you also trying to [inaudible 00:31:42].

Cindy Cassill: Yes.

Participant: In the sense of [inaudible 00:31:46] recovery time.

Cindy Cassill: Well, that's an interesting question. I mean, what we are doing right now is we're leaving it up to the application owner. So if the application owner, if they're physical, definitely they're gonna have to put the infrastructure in both places. If they want to be virtual then they have to come to us and we'll do that virtualization and make them redundant. But that's up to them. But that'll be a problem if one datacenter goes down and all of a sudden somebody didn't make their application redundant, then they'll blame it on us of course, you know that.

The other thing that we're doing is we're looking very closely at our storage solution and we're looking to make sure that we don't have the same thing that happened to the DMV happen. And so we have a study that's about to kick off to look at all that to see what more we can do. And I would highly encourage that for anybody to do that as well.

Yes?

Participant: [inaudible 00:32:45] on either one of the datacenters –

Cindy Cassill: Yes.

Participant: —was it feasible for you to consider non-federal partnerships either with the state, the county the city or a large university perhaps to get some [inaudible 00:32:56]?

Cindy Cassill: Not in the state department.

Participant: [inaudible 00:32:57]

Cindy Cassill: No. I mean, that brings up the whole cloud computing issue, right? And that right now we consider ourselves a private cloud that we're building and we're also inviting in other foreign affairs agencies that USAID will be in one of our datacenters. And we'll offer other foreign affairs agencies to come in. But we – you know, a datacenter that has a lot of guards already and we have to put our own guards there. I mean, that kind of tells you what I have to deal with. So it's pretty stringent. So we're – not yet. Not yet.

Our CIO is very, very interested in doing as much as we can with cloud computing, but the whole security thing, I have to echo what you said a little bit ago. I mean, who's the DAA? If we put system in another facility and they do something that changes that infrastructure, then DAA is still gonna be the CIO and she's still the one who's had to go up on the hill and say why there's been a breech in security and she will be the one that has to go again. So until that nut is cracked, I just don't see that happening.

Yes?

Participant: I wanted to say thank you and Hillary for making my job easier and I love the three buttons when I switch from [inaudible 00:34:17] to classified to my database and I love the fact that I don't have all this extra hardware beneath my desk, and for a faster system. I mean, it's faster.

Cindy Cassill: Oh, good. I'm glad. I'll take that back. Thank you. Okay. Yes?

Participant: What are the COOP planning [inaudible 00:34:40]?

Cindy Cassill: Well, we do COOP right now, we do offsite backups and things like that. But what we're really planning is that our redundant datacenters will be – will really be instrumental in our whole redundant capability.

Participant: Did you take a look at certain things like having 20 percent of your users available with a five minute outage or how to have [inaudible 00:35:05]?

Cindy Cassill: I mean that kind of planning we think we have right now with the infrastructure we have in place in our different datacenters. And that's what we will continue when we go to the west. But we will still do offsite backups just in case we will still have that capability. Okay. Yes?

Participant: You said you use a commercial datacenter because you were in a big hurry.

Cindy Cassill: Yes.

Participant: And now that you've got both of them being built you've looked at both models, if you didn't have the time pressure and you could do it all over again would you go and build the first datacenter yourself or would you go commercial?

Cindy Cassill: That's a great question, and it's a political one, I will tell you. There are people who, once we stood at the first one, said, oh, let's try to change this model and go with this the second time. But there were others who said, no, we need to own at least one of our datacenters, regardless of the factors. I'm – the O & M for a datacenter, which I don't have with east, I do with the legacy systems and we meet monthly with our facilities managers that are doing the O & M on that facility that we have that is still our redundant center. It takes a lot of horsepower to get – keep that thing operational, and I know that in a few years down the road we're gonna have that out west too. So it's a big responsibility. Yes?

Participant: I wanted to applaud you for your efforts. This was an excellent presentation.

Cindy Cassill: Thank you.

Participant: And what your agency has done is excellent. I did have a question with regards to SANs virtualization. [inaudible 00:37:03] is it a combination?

Cindy Cassill: I think most everything is tied into the SAN. I mean, we may have some customers that – well, we have some customers that are tied into their own SAN, some of our big customers. And you know, we have a few dogs and cats out there. But our model is we want you to come into our virtualization and our SANs that are connected to the VMs. That's what we're really pushing.

Okay. Any other questions? Okay. Well thank you so much and I hope everyone enjoys the hockey game. Thank you.

End of Audio

Duration 38 minutes