*** NOTICE OF PUBLIC MEETING ***

INFORMATION TECHNOLOGY ADVISORY BOARD

LOCATIONS: Legislative Counsel Bureau Grant Sawyer Building
401 S. Carson Street 555 E. Washington Avenue
Room 2135 Room 4401
Carson City, Nevada 89701 Las Vegas, Nevada 89101

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DATE AND TIME: December 2, 2013, 1:00 p.m. - 4:36 p.m.

Below is an agenda of all items to be considered. **Action will be taken on items preceded by an asterisk (*).** Items on the agenda may be taken out of the order presented**,** items may be combined for consideration by the public body; and items may be pulled or removed from the agenda at any time at the discretion of the Chairperson.

AGENDA

1. CALL TO ORDER

Joe Marcella: Okay, can we call the meeting to order?

2. ROLL CALL

Lenora Mueller: Roll call. Assemblyman Paul Anderson?

Paul Anderson: Here in the south.

Joe Marcella: Welcome, Assemblyman.

Lenora Mueller: Thank you. Mr. Rudy Malfabon?

No response heard.

Lenora Mueller: Ms. Laura Schmidt?

Laura Schmidt: Here.

Lenora Mueller: Senator Mo Denis?

No response heard.

Lenora Mueller: Mr. Paul Diflo?

Paul Diflo: Here.

Lenora Mueller: Mr. Kevin Farrell?

Kevin Ferrell: Here.

Lenora Mueller: Ms. Laura Fucci?

No response heard.

Lenora Mueller: Mr. Joseph Marcella?

Joseph Marcella: Here.

Lenora Mueller: Mr. Jeff Mohlenkamp?

Jeff Mohlenkamp: Here.

Lenora Mueller: Ms. Carrie Parker?

Carrie Parker: Here.

Lenora Mueller: Mr. Mike Willden?

Mike Willden: Here.

Lenora Mueller: That constitutes a quorum, Chairman.

Joe Marcella: Thank you.

3. PUBLIC COMMENTS

Joe Marcella: Next Agenda item would be public comments. Does anyone want to speak? We seem to have a fairly full room. It's good to see this many citizens and folks in this room. So this might be getting interesting, I guess. Anybody down south? Hearing none, seeing none.

Paul Anderson: There's no one in the audience down here, so…

Joe Marcella: Well, thank you.

* 4. APPROVAL OF MINUTES: September 16, 2013

Joe Marcella: Then let's move on to approval of the minutes.

Carrie Parker: Mr. Chair? Carrie Parker, for the record. I have some comments to Page 3, Unidentified Male Voice. It's my recollection that was Rudy Malfabon who was asking about whether he should abstain from voting on the minutes since he hadn't been present. And then the next Unidentified Male Voice, I believe, was our counsel, Jeff Menicucci. And then the third was, I think, Rudy Malfabon in answer. And at the bottom, it's my memory that Lenora Mueller and I were the only females present. So I do not remember making that comment. So I'd offer that Unidentified Female Voice was Lenora. Those are my suggested corrections to the minutes.

Joe Marcella: With those changes, can I get a motion to approve the minutes?

Unidentified Male Voice: I move approval with the changes recommended.

Joe Marcella: Second?

Carrie Parker: Carrie Parker, second.

Joe Marcella: Any discussion? All in favor?

Group: Aye.

Joe Marcella: Thank you. It's approved.

5. WELCOME NEW MEMBERS

Joe Marcella: Lenora, can I turn this over to you for welcoming the new members and the list of folks that we now have onboard?

Lenora Mueller: Would you like a -- well, of course, we just took roll call, so we don't need a current roster, correct? Okay. We would like to welcome Assemblyman Paul Anderson in the south to the Information Technology Advisory Board. And also Ms. Laura Schmidt, Washoe County CIO. Welcome aboard.

Laura Schmidt: Thank you.

Joe Marcella: Would either new member like to say anything? Laura?

Laura Schmidt: Well, obviously, I do now. Laura Schmidt, for the record. I'm the CIO with Washoe County. And I'm honored to be able to serve the State of Nevada, and look forward to getting to know all of you.

Joe Marcella: Assemblyman Anderson?

Paul Anderson: Sure. If you're going to give a politician an open mic, I'll be happy to jump in.

Joe Marcella: I am.

Paul Anderson: I'm privileged to be on the Committee with you folks. I look forward to what we have to discuss. I come from the industry. So I speak zeroes and ones as well as the management techniques and those things as well. I'm a life-long Nevadan and first time Assemblyman. So I'm happy to serve in this capacity and look forward to working with you folks.

Joe Marcella: Welcome Assemblyman. I added one additional item within this Agenda item. We lost our Co-Chair. So what I'd like to do is see if we get any recommendations or volunteers from the Board. And then we can vote on it at our next meeting. So is anyone interested in co-chairing the ITAB Advisory Board? Don't all rush to the mic. Paul?

Paul Diflo: (Inaudible) forced to, I guess.

Joe Marcella: Anyone else? We'll have to discuss it behind closed doors. Okay, thank you all.

6. CERTIFIED PUBLIC MANAGER'S PRESENTATION
   CPM Consulting Team

Joe Marcella: Let's go ahead and move on to Agenda Item, sorry, Agenda Item 6. Some folks consulting from CPM? Who's representing CPM? Who is speaking? All of you? Please introduce yourselves. Please?

Kelleen Preston: Kelleen Preston. I'm a supervisor for DETR, for voc-rehab.

Harriet Cummings: Good afternoon. Harriet Cummings with the Nevada Supreme Court.

Dale Rutherford: Dale Rutherford, Department of Corrections.

Srini Boca: Good afternoon. Srini Boca (sp?), DMV Information Technology.

Joe Marcella: Welcome. Please proceed.

Kelleen Preston: Okay. Good afternoon. We're the class 10 of CPM. And we had a team project, and it was the EITS billing system. So the name of our project is Perspectives: Opportunities for Improving EITS Billing Process and Customer Service. EITS requested consulting services from the Nevada Certified Public Manager program, CPM to seek input regarding EITS billing process improvements. The consulting team consists of the following

team members, which we just identified ourselves. The only one that's missing is Teresa Presley, and she was very instrumental in this presentation as well.

Harriet Cummings: Thank you. For the record, Harriet Cummings. The problem presented to us as the consulting team was as follows. EITS has over 40 cost pools for services. And the billing rates are established for these services each biennium based on projected service utilization. Customers are billed for the services by the established rates through a process that involves multiple agencies. The current process is a readjustment of an earlier process that was predominately internal to do it, before it became a division in the Department of Administration. Centralized billing operations became dispersed at this time, and the billing application previously used by DOIT (sp?) was replaced with data collection spreadsheets used by EITS service groups.

While services are explained well on the EITS website, the use of service level agreements, otherwise known as SLAs, is sporadic and customers' bills are not intended as explanatory tools. The attachments to the bill are often confusing to the customer, who may not know who to turn to for answers to their billing questions. And so EITS asked the CPM consulting team to assist with streamlining its billing processes and improving customer satisfaction.

The consultation took place Thursday, January 30 of 2013. All members of the team interviewed representative employees within EITS, within the Department of Administration and State Purchasing as a representative customer of EITS. And the consultation team also reviewed sample billing statements, both the prior billing system and the current billing system, did online research, reviewed organizational charts, and relied on our collective professional expertise and experience in conducting the assessment.

The team faced some challenges in doing the consult. One challenge was that we did all of this in a very short timeframe. Our data collection and preparation of the report and PowerPoint presentation, which you see today, our agency liaison scheduled us to interview ten employees in three locations. And so we were presented with an overwhelming amount of information with little time to digest it, because we did all of this basically in about 24 hours.

Another challenge the team faced was, the three members of the team, myself included, do not have training, experience or expertise when it comes to IT or billing. I'm a wordsmith. I don't speak ones and zeros. But getting up to the speed, therefore, was more challenging for those members of the team that don't speak IT.

Dale Rutherford: Dale Rutherford, for the record. To give you a little historical background, prior to FY 2012, the Department of Information Technology existed in a separate and standalone department within the State of Nevada Executive Branch. It encompassed all aspects of information technology for virtually all state agencies. Pursuant to Senate Bill 427, the 2011 Legislature eliminated DOIT and replaced it with a division entitled Enterprise Information

Technology Service or EITS. NRS 242.080 is the enabling statute by which EITS was created. This change occurred as a result of consolidation of state entities.

As a result of the merger, fiscal and human resources were separated out of DOIT and incorporated into the Department of Administration, whose functions that DOIT previously provided were reassigned to the Department of Administration and combined with DOA's existing fiscal and HR structure. One of the processes affected by this change was the billing process. EITS is an internal service funded organization. Each agency using EITS services shall pay a fee for the use of services to the fund, pursuant to NRS 242.211.

EITS does not receive its own appropriation of funds. In other words, it's not funded using general fund monies, highway funds, federal grants or any other funding sources. EITS is funded solely by its customers, which includes state agencies and a few external agencies such as Washoe County and City of Reno. Therefore, business service fees fund the entire EITS operation.

EITS does not have a separate budget allocation to fund its own internal operating services. Because of this, the ability of EITS to timely and efficiently bill for its services is the lifeblood of the organization. Yet EITS has to project two years in the future to determine its funding, which limits its ability to respond to current demand and changing circumstances.

Srini Boca: For the record, Srini Boca. The current billing system provides around 38 cost pools. When I refer to the cost pools, if you look at the slide here, starting from the IT level, the programming dollar per database administrator, or the computing services such as the mainframe, batch or the customer information control system, which is the CICS or the DB2 and other tape storage, or when it comes to the telecommunication, whether it could be a 1-800 phone line or a regular phone line, all these services are being billed by EITS to different departments and external entities as well.

When it comes to the billing, there are three billing models; the area billing which is based on the actual usage, the assessment billing based on the budget, and the tier billing. The tier billing -- again they have like three different complex levels. It's all based on the historical base year plus the future projections. EITS, they enter into a service level agreement with each and every customer, such as DMV is a customer. At the end of the fiscal year they meet with the departments, they try to look at the usage for the prior year and they do the projection for the future year. Based on that they'll come up with the service level agreements.

However, the service level agreements are not turned in on time. We were told that only 25 percent of the service level agreements were turned in, which is going to be a problem for the Billing Department. The Controller's Office, once the service level agreements are turned in, the Controller's Office dispenses the funds. The EITS now bills based on the agency-budgeted

amounts. The billing is constrained by what each agency has budgeted. (Inaudible) are not reconciled until the next biennium.

It is critical to EITS that the bills will be timely and accurate. If a customer disputes a bill, even if it is just a small portion of the bill, payment of the entire bill is delayed. This is a problem for EITS because it needs fees to operate. EITS is not permitted to operate in red. What that means is, with the exception of making the payroll. So timely payment of bills is essential to proper functioning of EITS.

Prior to summer 2012 the billing process relied on a program called Tivoli Usage and Accounts Manager, ITUAM. This program had a high startup cost and high annual licensing fees. EITS found that ITUAM included services EITS don't need, but failed to provide all the services it did need. Consequently, a decision was made to discontinue the product. Guess what? They went back to a manual complex process based on the spreadsheets.

The current manual billing process is very complex in nature. In a nutshell, EITS obtains data from numerous sources, provides the data to the Billing Department, who (inaudible) the data in the form before sending it out to the customers. But this is actually -- this accomplishment is quite convoluted, depending on the service. Bills are sent via snail mail, via interdepartmental mail, and paper copies are kept for the duration of the retention schedule, that is current plus three years. Hard copies of the bills consumes amounts of paper, as you guys know.

Kelleen Preston: All of the employees the consulting team interviewed appeared to be hardworking, diligent, caring individuals who are truly committed to the mission of their organizations. They have a solid understanding of their individual aspects of the process and share a frustrated desire to make the overall process better. However, it seems that the current billing process structure prevents them from working to their best and most efficient capacity, collectively and individually.

Dale Rutherford: There appears to be a number of problems in the billing process. These include an increased number of customer complaints. A shared view of all stakeholders is that the customer complaints increased as a result of the change that occurred. Previously, the organization had a positive reputation for accurate billing.

Lack of coordination. Problems in the billing process include the lack of coordination between various components involved in the process, including a lack of coordination between agencies involved in the flow of information.

Lack of communication between areas. There is a lack of effective communication between the various components involved in the billing process. This appears to be the result of differing organizational cultures.

Inaccurate information. In some instances, inaccurate information is being provided by one or more links in the billing chain. This leads to errors in the bill which is ultimately produced, with a resultant decrease in customer satisfaction.

Information provided in an inaccurate format with coding errors. The information being provided from the open-systems group to billing staff is often in a format that is unusable or contains inaccurate coding. This creates a delay in processing agency bills and ultimately leads to customer complaints and a loss of customer confidence in the accuracy of the bills.

Lack of communication regarding rates. Currently there appears to be a lack of communication between EITS and customers regarding applicable rates. This, in turn, leads to customer confusion regarding the billing statements.

Harriet Cummings: For the record, Harriet Cummings. Another area of perceived problems has to do with the SLAs. The SLAs are critical documents because they are the contract between the customer and EITS regarding services to be provided by EITS to the customer each year and the applicable rates for each service.

However, it would appear that the customers do not understand the SLAs nor the SLA's importance to the overall billing process. In addition, SLAs are sent to customer contacts on an annual basis for review and/or to make changes to contracted services with EITS. However, approximately 75 percent of these agreements are not signed, reviewed or returned to EITS. Failure to return the SLAs creates an understandable disconnect between open systems group billing personnel and the customer. The customers do not appear to appreciate the connection between the SLAs and the billing process. Yet the SLAs form the underlying basis for the bill. This disconnect leads to numerous potential problems and inaccuracies in the billing process.

In addition, customers complained that they were not notified in advance of the changes made to the billing system in the summer of 2012. They simply received bills in what had been a familiar format one month, and then the next month it was in a completely new format, which the customers find to be less user-friendly than the format that they had previously become accustomed to.

Customer complaints include being billed for services that were not utilized. Sometimes these complaints were valid, sometimes they stem from a lack of understanding of the SLA. But whenever a complaint is made, staff time is consumed, requiring them to research the issue in an attempt to come to a resolution regarding the customer's complaint. And so this is an inefficiency in the system.

Kelleen Preston: So customers being billed incorrectly for services utilized by other customers. Customer complaints also include being billed for services utilized by other customers. Again, sometimes these complaints are valid, sometimes they are not. But regardless of their validity,

they must be researched and resolved, which can be a time-consuming process for DOA, EITS and the customer.

Bills not having correct customer address. Another complaint is that bills are not sent to the correct address. This leads to untimely delivery or a failure of delivery.

Customers not receiving bills. Currently bills are sent via snail mail, through the state mailroom. A common customer complaint is that they never received the bill via the state mail system.

Contact list constantly changing. Billing staff complained that their customer contact lists are constantly changing, making it difficult to maintain up-to-date billing lists.

High employee turnover rate. The down economy, the merger and the budget constraints have resulted in a higher than usual turnover rate among DOA and EITS staff, leading to a loss of historical knowledge. The high rate of state employees reaching retirement age has also contributed to this problem.

Srini Boca: For the record, Srini Boca. (Inaudible) but still problems has been created by the training and new staff is statewide drain. Due to pay freezes, reduction in pay, mandatory furloughs, cutbacks in employment benefits, the employees are leaving the state and going elsewhere. The frequent change of staff and point of contact for billing and service (inaudible) has led to delay in customers receiving hard copies of their bills, further hampering EITS goal of timely and accurate billing.

Delays in usage versus documentation of usage via the billing process. Under the previous system, EITS billing staff had the ability to make adjustments to customers' billing statements based on the actual usage. Under the current system, which is complex in nature, EITS has no way of determining actual usage and so must bill based on amounts contracted with or via the SLAs rather than on the actual usage. Variance between the actual usage and contractor usage cannot be reconciled until the next biennium.

Disconnect between the current EITS funding and future demands. The current EITS funding levels are inadequate to meet future demands for EITS users. Moreover, EITS current funding structure fails to take into account that EITS has its own independent funding needs, separate and apart from the services EITS provides to other state agencies.

So let's look at the goal behind the EITS billing system. The bills are timely and accurate. Reduce the errors in billing. Need to standardize and automate billing process. Automate report generation. Reduction customer calls and complaints. Proper routing of held desk tickets. Regular invoices for external entities. Keeping history of utilization and bill for the budget process. Accuracy in recommending cost pool service rates. Improve cash flow. Stakeholder understand the entire billing process. Automate the usage data collection and fixed-storage

utilization report. Improve customer communication, inventory and process. EITS provides the data collection in the desired format to the DOA, billing and claims. Manual intervention is reduced and development of a dashboard for real-time comparisons. Highest and best use of the resources, EITS billing claims.

Harriet Cummings: There have been some actions already initiated to address problems in the billing process. Stop-gap solutions that have been taken by managers to meet critical and immediate needs include writing IGOR, a visual basic application, and tweaking the access databases. However, this is not the best use of the managers' time, nor do these measures provide a long-term solution to the problem.

Management recognizes that increased customer satisfaction is needed, and so a customer-satisfaction survey has been developed at the time that we did this consult. Although the survey had been developed, it had not yet been implemented. And so the consult team has a number of recommendations regarding the problem presented.

First, we would recommend creating a flowchart of the entire billing process, to allow the process to be assessed for inefficiencies and structural problems. Although we were able to recognize a number of these types of problems during our brief consultation, it would be better to document this more completely. Also, creation of a flowchart would facilitate lines of communication amongst all participants in the billing process and would also help further the ultimate goal of attaining timely and accurate billing.

Srini Boca: One other recommendation is to create a process implement team. Creating a process implement team to focus on the billing process will enable them to discover ways to automate and standardize the billing process.

Harriet Cummings: Another recommendation that we have is to develop and implement written standards, policies and procedures. Currently there is no documentation that outlines the billing standards, policies and procedures. Creating and implementing such manuals would expedite the training process, mitigate the harmful effects that we are experiencing as a result of the brain drain, and also help to reduce overall billing errors.

Kelleen Preston: And to establish email contact groups. The establishment of email contact groups will allow for appropriate dissemination of bills and other communication such as SLAs and notification of billing process changes. This would further facilitate communications between EITS and its customers' fiscal units. It would further reduce the problems associated with having a single customer contact.

Srini Boca: Another recommendation is compile, deliver and store bills electronically. Electronic compilation, delivery and storage of bills would promote timeliness in preparation, improve accuracy in delivery and allow for electronic searching of bills. It would ultimately

reduce the number of accounts receivable days and reduce costs associated with printing and mailing.

Dale Rutherford: Dale Rutherford, for the record. Set time limits in SLAs. Language should be added to the SLAs to set a time limit for customers to dispute bills and for billing errors to be corrected. Currently, there is no time limit in the SLAs. Adding that time limit will ensure the customers promptly review their bills and submit timely payments, thereby improving cash flow.

Srini Boca: For the record, Srini Boca again. Another recommendation is utilize electronic signatures for payment. The consulting team was informed that the State Administrative Manual requires a valid signature for payment. If this is true, a proposal should be submitted to the Board of Examiners to allow electronic signatures for payment. This will allow for efficient and timely process of payments.

Harriet Cummings: Another recommendation that the team has is that EITS establish a customer services representative to act as a liaison between EITS and its customers to address customer concerns. Having a single point of contact would improve customer relations.

Kelleen Preston: And to utilize the existing Board. EITS should utilize the existing governor-appointed Information Technology Advisory Board created by NRS 242.122 to address policy concerns, assist EITS in accomplishing its mission and strategic plan, and further communication with the Governor's Office regarding IT issues. ITAB's diverse membership may help stimulate creative solutions to pressing IT problems.

Dale Rutherford: Another recommendation is to disseminate customer satisfaction survey. The consulting team was informed that a customer satisfaction survey has already been developed and was awaiting dissemination. This would be critical in the process of addressing and improving overall customer satisfaction, and a starting point for the work of a customer services representative.

Srini Boca: For the record, Srini Boca. Our major recommendation is one-stop shopping center for the web portal application. This application can be either developed in-house, or it can be a third-party tool. There are various advantages with this application. Let's start with one. EITS billing claims division, they can develop, maintain the accuracy of the service level agreement, and which can be agreed between the EITS and the customers.

Automate the process to collect accurate and real-time information and update the database accordingly. So if the customer, such as DMV, they wanted to find out what is their actual data usage, they can go online onto the web portal application and take a look at it, instead of calling anyone at EITS.

The system then generates the bills and updates the one-stop shopping center application. Email notification is sent out to the customers informing the availability of the bills in the web-portal application, so there is no need of the snail mail or no need of the interdepartmental mail when it comes to the application.

And weekly email notification is sent out to the customers for their unpaid bills. We don't want -- who wants to receive the cause for the payment. Well, if there's an email out there, if there are reminders out there, which is always good for the department to make sure that they make the bills on time.

Now, when it comes to the customer, such as DMV, service level agreements, the online application can give them all the information they need, data stuff. They don't need to call anybody at EITS. The bills, you can have -- you can see the current bills, as well as you can have a -- take a look at the historical information as well. And when it comes to the description of the bills, like click on the portal and you can see the different usage of the bills and the detail. And you can also confirm the payment online. Say that it is, and when the state department confirms the payment, an email is sent out to the Controller's Office to complete the GAV (sp?). And when the Controller's Office completes the GAV, it will automatically update the database. In turn, will also report to the EITS.

When it comes to the non-state entities, it provides online payment options, which includes the credit card, debit card, e-check or the mail-in process.

State of Nevada's Controller's Office, who will do the actual -- the funding transactions. Upon receiving the confirmation from the customer's agency, can complete the general (inaudible) and as well as update the application with the payment information through an automated process.

Now, when it comes to, who wants to see the papers here? We don't want to see the papers, right? We have all the information online on the computer. So let's go green. Nevada can go green, saving more (inaudible) and go green.

Harriet Cummings: So you've just heard a number of specific recommendations that the consulting team had based on its brief time spent with the entities involved. However, we do have some more broad ranging recommendations, looking further down the road to the future. Ideally, passage of legislation would occur to allow EITS to have its own separate budget appropriation. This would provide adequate funding for its operating expenses, infrastructure and implementing enterprise solutions.

We were informed that EITS is expected to operate like a business, yet it is not funded like a business. And so this is a fundamental problem that requires a fee change in EITS basic funding structure so that EITS can not only meet its current needs, but also to address and anticipate

future IT concerns for the State of Nevada. Fees that EITS collects could then be used not just to survive, but to thrive in our ever-changing IT environment.

Finally, as a final alternative, it could be considered to outsource the billing functions altogether.

Kelleen Preston: In conclusion, the consultation team would like to thank ITAB, EITS, DOA, State Purchasing and Pat Hoppe, with the CPM program, for the opportunity to study and propose solutions to problems associated with EITS billing process. We hope that our proposed recommendations prove useful and that they promote further consideration of additional solutions to streamline the billing process and improve customer service. Thank you.

Joe Marcella: Joe Marcella, for the record. One, I'd like to thank you for the report. And I'd like to open up or give the Board the opportunity for some discussion. David, you might have some -- a response to everything that you've heard today. And what our intent -- what your intent is for it. And, Jeff, I don't know if I can open it up to you to begin the conversation.

Jeff Mohlenkamp: Thank you, Mr. Chairman. Jeff Mohlenkamp, for the record. So thank you. You know, this is something that we've been wanting to kind of focus in on. And it's kind of nice, I mean, this validates a lot of the things that we're actually trying to move down a path to get done. And so it was very helpful to have this as a validation tool for us, because, you know, you're outsiders looking in. And that's always very helpful to have that perspective.

I guess, a couple questions for you. First of all, did you have a chance to look at any other states or cities or municipalities and see how they're doing their billing? I know there's some federal requirements that we have, the OMB requirements, that require us to do things a certain way when we're using federal funds. And I was curious if you had a chance to look at that. And if so, what kind of roadblocks that might paint for us.

Harriet Cummings: Given the short timeframe that we had to do this project, we were not able to consult outside jurisdictions.

Jeff Mohlenkamp: Mr. Chairman, if I might, just a comment then. I think that these -- most of these suggestions are really good. I like the web-portal concept a lot. Actually, I should know more about this. I was surprised to hear that we're doing mailings for bills. That was a little shocking to me and something that I just found out today. And so that obviously needs to change.

We do have some challenges, you know, trying to operate like a business, because of the federal funds that we have and some of those restrictions that come in place. Having said that, you know, I fully embrace the idea of moving forward to a more logical, certainly more streamlined, and certainly -- one of the things I was even less aware of is the concerns from our customers.

I've heard some of them. But what you're bringing out today is a little bit more than I'd been hearing. So I really appreciate that.

And while we do a survey, it doesn't focus very intently on the billing process. There's a couple questions in there on the billing, but not enough to really get this type of information. So I want to thank you again.

Joe Marcella: Joe Marcella, for the record. David, I had a quick question for you. So I'm going to have to ask you to come up. And you don't all have to leave. It's just to let David have a quick microphone. Are you working in a deficit based on your fact that there's issues in billing?

David Gustafson: David Gustafson, for the record. I told them they didn't have to leave. They could just scoot over. I'd be fine up here with the rest of them.

Joe Marcella: You're a bigger person than you think.

David Gustafson: Yeah, perhaps. I want to thank them, first of all. Let me answer that in sort of the long way. I really want to thank them for the time they spent on this. We've known that billing has been a problem for quite a while. And going back to when we were a department, probably a decade or more, our billings were not so great. And one of the things that previous CIOs wanted to do was to clean up that process. And so we implemented a lot of manual processes at the time, and also bought this product called, to them, the Tivoli Usage and Accounting Manager software, that's an IBM tool for you guys that don't know that, and spent a lot of time and energy putting this thing in.

And we never quite got it right. And everything's expensive at IBM, you know, it was $200,000 every time we wanted to make changes or implement something new. And so we finally pulled the plug on it when we moved into administration because we are no longer responsible for the billing of our services and said that's sort of handled by another division now in the department.

So we've always struggled with this. We're a complex organization. We have internal service (inaudible). We're 100 percent chargeback recovery model. And we, you know, they said earlier, we live and we die based on our billings. And that's just the way we work. I don't know that it's ever going to be able to change, but that's sort of the complex model that we work under. And it is what it is.

So having said that, we have recognized this. We've been looking at it. In fact, the Director was asking us, internally, maybe about a month ago or so, for some suggestions moving forward. And I put together a nice little paper saying billing system is one of those things I've known has been broken for a while. Based on the recommendations from the CPM class, that was

something that I wanted to certainly look at for next session as well. So, Mr. Chairman, did I answer your question?

Joe Marcella: Yes, you did. I have one additional question. Are all of the agencies for the state paying into your internal service fund, or some are independent and are not using your services at all?

David Gustafson: David Gustafson, for the record. Every customer pays into the -- largely through either one of our services -- your…

Joe Marcella: So every agency is one of your customers?

David Gustafson: Correct.

Joe Marcella: Okay.

David Gustafson: All of them.

Joe Marcella: So that, obviously, some consolidation, standardization and cleaning this up would not only to be your benefit, but theirs as well?

David Gustafson: Yes.

Joe Marcella: As to helping you fund the next generation and the next level of service delivery.

David Gustafson: Yes, absolutely.

Joe Marcella: Yeah. So, again, I would like to thank you folks for your report. It's really enlightening. I think what's really important, and I'm going to echo what Jeff had said, Mr. Mohlenkamp had said, I think it's extremely important to know what's wrong before we have an opportunity to fix it. I also think it's incredible that you were able to garner this much information in a 24-hour period. I imagine that's five or six days. But the truth is, is that's exceptional. So thank you very much. I appreciate it.

Joe Marcella: I'd like to move on to the next Agenda item, Alcatel/Lucent.

Paul Anderson: Mr. Chairman?

Joe Marcella: Yes.

Paul Anderson: Paul Anderson, down south here.

Joe Marcella: Oh, Paul?

Paul Anderson: Thank you. You mind if I chime in here?

Joe Marcella: No, please do.

Paul Anderson: Okay. Thank you for that. As I was reading over those recommendations, it gave me some comfort to know that my business isn't the only one that struggles with some of these issues. But they are mirrored quite well in some of the things that we have had to overcome or put into place. There's a lot of great applications. And I certainly would extend my -- an offer and willingness to help and overcome some of these opportunities here.

You know, my business, as well does -- is outsourced IT department. So we function a lot like EITS does and how Mr. Gustafson functioned in his department. And so many of the obstacles are similar to what we face, whether it's contract management, SLA management, putting in ITEL (sp?) processes and restrictions, our time and expense project management. We have a professional service automation tool that we utilize and it is very effective keeping us on track. And I'd be happy to bring that up with our state CIO and anybody else who would like to discuss it. Thanks.

Joe Marcella: Thank you. Joe Marcella, for the record. Thank you, Assemblyman Anderson. David, I would like to make this a follow-up Agenda item for ITAB as we go forward, so that we can get a status. And we'll use some of what the recommendation is here as a guideline as to what things get accomplished, what things get compromised. I don't want an audit or an assessment to drive your process. But I would like, as the process matures, and you can back into the assessment to find out if you've cured those problems.

I think a survey particular to the financial issues might give you some additional insight, since I do understand that there wasn't a whole lot of time to get that information. And one additional item might be a national peer analysis. I understand that you have Gartner as an agent. They may be able to provide that information. Thank you.

7. ALCATEL/LUCENT PRESENTATION
-Mr. Steve Jennings, Representative
-Mr. David Fein, Representative

Joe Marcella: Let's move on to the next Agenda item. Can I introduce Alcatel/Lucent, Mr. Steve Jennings. And you have with you David Fine.

Steve Jennings: He's my technical expert, when it comes down to just about everything you want him to do.

Joe Marcella: Did you break it already, Steve?

Steve Jennings: Yeah. Actually, I just put the numbers here again in the window.

Joe Marcella: Steve, if you would introduce yourself, and a little bit of your background, please?

Steve Jennings: Well, first of all, thank you, Mr. Chairman and members of the Board. My name is Stephen Jennings. Basically what I am is the executive director of critical industries for Alcatel/Lucent. Primarily, what we deal is -- I deal in is government, government as a specialty. And prior to joining Alcatel/Lucent three years ago, I was the Chief Information Officer for Harris County, Texas. Harris County is the largest county in the State of Texas and the third largest county in the nation. We deal with a very large geographic area, a population of 4.3 million people, and I was the Chief Information Officer or the Director of Rural Technology for Harris County for the last 25 years before I retired.

Joe Marcella: Is that a record for any CIO being in any one particular place?

Steve Jennings: Actually, I was called a dinosaur a lot of times. Usually a CIO longevity is about 24 months in private industry. If you're -- if you can count in government, either, I had to be able to count to three. I had a five-member board. So as long as I could count to three, you know, you had longevity. Some boards are different. You go to Michigan, it's 26. So as long as you can count, you know, sometimes you last longer than the 24 months in private industry. But usually a CIO's longevity in government is around ten years.

Joe Marcella: You also have some national notoriety. When Harris County was hit by several -- they were tornadoes?

Steve Jennings: We're in -- Texas is in Tornado Alley. But Harris County is 60 miles north of the Gulf of Mexico. So, consequently, we are -- calamities are more in the flooding area, the water damage, hurricanes. And then because of our -- we operate a regional public safety communication system, which comes under the CIO, we get into other areas of involvement. Like, when the Shuttle Columbia went down, literally we set up the communications for recovery and basically like that.

So we travel in that area. But we had hurricane -- when Katrina came, we had to literally create a city out of the Astro Dome and its complex to handle all of the evacuees that come over and actually all the disbursement of the evacuees throughout the state. Then we had Rita right after that. And then the following year we had Ike, which was a phenomenal amount of damage, and primarily all due to water. We had a storm surge of over 22 feet, which makes Hurricane Sandy look like it was nothing.

Joe Marcella: The ITAB Board, through its recommendations last year, indicated a communication standardization across the board.   And a look at both our emergency communications and our standard communications were important to the overall community as well as -- to the state as well as the community it serves.   So I thought that the Acatel/Lucent folks had that broad perspective.   And I would ask Mr. Jennings to give us an overview.

Steve Jennings: Well, basically, thank you again, Mr. Chairman, and Board Members.   What I'd like to do today is keep it at an executive level so we can kind of address all of the points.   But in order to get into, really, your mission and objective as far as getting the most benefit from the resources you have, be it the resources of your communications system, your people, your funding stream, the reality is, I best looked at it from what we've been seeing across the nation and what really is the environment of government today.   And you heard a little bit about it in the prior presentation.

Then get into, you have to start understanding and looking at the new playing field. Communications is basically causing a new dynamic and a dynamic of change.   And the change is going implement new capabilities for not only your departments and your citizens, but they're going to have dramatic impacts on the way you develop your networks and the way you implement your networks.

And then I -- really more for the point three and four, what I'd like to do is go into, how do we get there from today to where we're going to tomorrow and really bring in a concept that David and I start talking about, which is primarily what we call Network Nevada.

So if you'll bear with me, let's take a good look at what's going on in government today.   I think, a couple of them, most of the points you started looking at -- I go, the nice part about it is having been in government and literally, with my job now, I visit states, I visit local governments, you know, and we start talking about multiple different impact areas.   And one of them would have to be budget constraints.   When we had the, really, the downturn in 2008, the reality is, is a lot of the governments -- governments lag financially behind private industry about 12 to 18 months, primarily because the budget cycles in governments, you get one primary influx of money a year, where private industry literally goes on more of a monthly or an active budget basis.

So what we've been seeing in the downturn in 2008 really impacted government more in 2009 and the future budgets.   And as they were going down into the trough following industry, the reality is, is industry has been coming out.   Industry has been coming out, actually doing very well, as a matter of fact.   And what we've been seeing, especially in 2013, with all the stocks, is we're seeing industry really creeping up.   Well, government's still not there.   We have tremendous budget constraints in all levels of government, not only state, but local. In addition to the restraints that we have from financial bases, what we see is, we see a whole new area of

application need and application development and legacy applications. We're facing that old legacy application, you know, trough again.

And really what we need is we have new demands for services that are coming around every day. We're basically dealing with new information and we're trying to address it through shared services. We're trying to address it in government by moving more things out to the e-government perspective. And the reality is, the e-government perspective is basically one of the cornerstones for the future, but it also requires a new concept for networking. And you're building your digital foundation and your network.

When we look at networks across the nation in the government area, what we're seeing is we're seeing aging infrastructure. We're seeing primarily copper. We're seeing networks of 20 years plus in their environment. They're channelized. They really impede you in flexible growth and bringing in new provision, because they're not dynamic in their approach.

In addition, one of the key points that I was listening to in the prior presentation has to do with loss of local knowledge. We're seeing government workers, be it the baby boomers finally figuring they've got enough money to start looking at retirement and moving out, we're seeing that government has not come up with the pay scales for key particular industries, primarily because a lot of governments are civil service and it's very difficult to start changing your civil service -- start changing and bringing in a new position with new criteria that will allow you to demand new salary caps for that individual, and then put them in a structured organization. We're seeing loss of government workers over to private industry, because private industry now is hiring. It's not hiring like it used to. But basically for different skill sets, it's still bringing them over.

And last but not least, in the government arena, what we're seeing is more demands for services and primarily security as a service. Governments are transmitting and keeping more information -- information is the asset in government, and that's financial information, that's land record information, that's criminal history information. That's all types of information that government not only keeps, stores and transports all throughout its systems. And one of the things that keeps coming up is, do we have enough security and the right security on our systems?

So these are the issues that, you know, to capsulize, that we put in place of what's happening to government. So if we have them over in the left, let's see what basically some of the solutions that have been coming out. Well, what the dynamic leaders have been doing is saying, I, A, we need to optimize our use of assets. And they start relooking at all of their assets, be it their people assets and/or their physical assets, be it anything in inventory and/or your systems.

Knowing that they're losing people, what they're trying to do is they're trying to bring in new technology to complement the resources they have to provide the existing services and enhance services. They're also looking at collaboration and interoperability. What we're seeing with the

loss of funding, is we're seeing silos of particular expertise and silos of particular financial stability. When they lose that stability, look in more of, what I used to call it when I was on your side of the table, the survival mode. And basically they'll start making agreements and being more objective in agreement development, because of survival. Where if they have the funding, they have the staffing, the reality is they're less likely to start looking at working in collaborative approaches.

And the other thing that's coming up, and we've heard it a couple of times today from the prior presentation, is looking for either public-private partnerships or looking to the outside for, you know, basically solution sets that you can either rent from them, you can pay them and they will actually do it for the government. So from the solutions and addressing the events and moving over to the solutions, what we see is we see a major development in extending and converged networks.

We also see mobile broadband with 4G out there. And basically, for the first time in history, wireless is now giving you the capabilities, functions and speeds that basically a cabled function or a wired system would give you with fiber optics and/or high-speed copper.

We're also seeing more applications moving toward the e-government, basically getting out of the buildings, being online all the time, 24 hours, and basically having and putting your services from the government on the same footing as industry, and getting all of your constituents, customers, even your internal customers, basically providing a 24-hour platform for them to do business. Do business on their schedule versus your schedule.

And last but not least, we're seeing the integration of intelligent video into various different solutions. Solutions where you can't afford to have a full-time employee out at a particular area. Security becomes an issue where you can start utilizing video for security. You can start utilizing video in various different applications. Putting video in public safety, where you can start bringing your eyes to the ground for command and control. So we're seeing a lot of new applications with video in that regard.

As you know, public sector communications and challenges, when we start looking at them, are your increases in security, your complexity of management, your digital traffic growth, your new needs for interoperability bandwidth efficiency, multi-modal information, and I'm going to go back, and also reliability. At least, you know, when we put it in there, if you start addressing it all, we also have to do it, and we have the mandate to do it, at a lower total operating cost. I mean, your job and your recommendations are not easy. But the reality is you have to tie a lot of things into the mix to present a good recommendation.

And, realistically, when we start looking at it, here is primarily what we're facing today. We face a collection of silos. And usually networks are really funny. Networks were either developed by an organization to do a job or they were based on an application to provide a

function; i.e., I have a video network. Guess what I do? I do video. I have a telephone network and I do voice communications. I have a data network, you know. But they were all specialized. And what you ended up with is three networks.

And primarily it had to do with the technology of the time being what we call channelized. Everything had a channel. Either you had a wire for a channel or basically even if you had a big wire, you channelized the function. Even in your circuit mode with Sonnet, which is synchronous optical networks, embedded in Sonnet is very high speed, it's still a channelized network. So literally if one channel gets overloaded, it doesn't automatically spillover to the next channel. It basically means that you have to go in there and manually basically reroute information.

This -- and I have to go back to the left side, as the left side is a realistic picture of Broadway in 1900. And those big poles that you see there, going down Broadway, are telephone poles. And all of the horizontal bars that you see with the little nubs on them are wires that come in from all of the different offices going down Broadway, because this was their telephone system. They were truly the forerunner of siloed networks. And they're very expensive. They were built for a special purpose. In your siloed old-school mentality, you would be surprised when I start going around the United States looking at governments, how prevalent siloed networks are. And, really, here 100-plus years before, was the same concept.

It's the highest cost for bit traffic from point A to point Z. It's the highest cost for implementing new applications, when you really start looking at it and you go outside your bounds. It's limited in its resiliency, recovery and security. So, because I love Joseph very much, and he has that Italian flavor to him, when you really look at, really, you know, what networks are -- you know, I used to call them spaghetti warehouses, but realistically your network mismatch, because they're so siloed, it's more like a bowl of spaghetti versus a good plate of manicotti, where everything, you can know it and it looks simple.

But more realistically, what you have is that siloed approach is past its prime. You have multiple discrete networks that are physical. And that's really difficult to work with. They're limited in scalability. They're limited in security. And the quality of services is not configurable across the enterprise.

Another point that's not in there is security can't be applied across the enterprise. And the movement is to look toward enterprise and enterprise basically a common transport. Look for standardized approaches. Multiple discrete networks can still be built. But they're now logical off of a whole -- they're literally software driven and they're very logical in to the overall enterprise approach. There's high scalability, high security. They're configurable for various different levels of quality of service. They are very reliable. The technology is well proven. All of the technology that we'll talk about are what your telephone companies and communications organizations utilize today. But we, in government, don't.

And, more importantly, these networks are flexible and can allow you to provision new services rapidly. And when I talk about rapidly, I talk within a day, not weeks or months, potentially, when you look at it. This is one of our customers. I'm not going to tell you where, but he's a little bit further north of you. And the reality is this was their network. This was their network two years ago. You'll see multiple, you know, coming out of their data centers, multiple different independent lines going to different locations.

And what, after we brought in Bell Labs and we did an analysis of their network, what they determined was this concept is totally unsustainable. It's unsustainable not only from an overall state perspective -- when you look at communications on a state perspective, you usually look at it from an enterprise approach. However, your budgeting schemes gets it down into a siloed approach. And the reality is, is most of your different economics don't apply to a silo. If you keep it and can keep it in to an overall enterprise approach, then you can utilize not only your lower cost, you can start really looking at adequate staffing of the whole network, standardization across the network, security, and basically become sustainable.

So you get a little bit of flavor of what government's facing. And in all reality, sometimes this is when I say I'm really glad I'm now on this side of the table and not fighting those same problems from that side of the table, because the next thing that's happening is the understanding of what's really happening in the communication world. And, in a word, this is probably the most dynamically changing world and has been, if you've been looking over for about the last five years, and start seeing not only all of your commercials -- what you're going to be seeing is everybody's life is changing. And it's being built more around communications.

Like it or not, you know, the reality is -- even if you were at a PC, if you're -- think about how you're now -- interfacing with your TV has changed, with Netflix and everything else that's coming down, think about your new capabilities of communications as far as your mobility is concerned, what you're able to pick up, how it's impacting music, memories, TV, basically all of your games, your education, your productivity, your communications in general, the whole world that we live in with the communications capability is changing. And what it's changing from, it's changing from an industry-provided service and content delivery done on industry's directive to a new customer-centric, citizen-centric, demanding different capabilities, and they now have the financial wherewithal to start impacting the industry.

What the citizens and what the general public is now demanding on their intelligent devices -- and I left my intelligent device turned off in my backpack, but I was going to hold it up. And on your intelligent device, what they want is any media type, basically on any screen that you can get wherever, be it your TV, be it a movie, they don't care. They want it anywhere, totally mobile. I was over in Italy a couple of weeks ago and literally I was, you know, communicating back to the United States and getting data back and forth when you really look at it. So any -- really your location doesn't count anymore. They always want it always on. They always want

to be in synch with their systems. There is no I have to sign in all over the place. They always want to be in touch, which is the new capabilities.

And the reality is, is the location now becomes irrelevant. The mode of transportation becomes irrelevant. Basically the type of media that you're getting is irrelevant. And primarily all of your new browsers and everything start feeding you. And so this is the new dynamic. And the really reason that it's being, you know, pushed out that way is that we have the now -- the mobile data explosion.

And primarily our Bell Labs studies have shown, and they've been tracking this, is literally what we're getting is between a 45 and 85 percent growth over a five-year period between 2010 and 2015 -- primarily going up to an area 7,000 petabytes of information worldwide on a monthly basis. Now a petabyte is basically 1,000 terabytes, you know, you can start bringing down -- it's a boatload of information. And it's just the bottom rung, when you really look at it, because the next one, when you go into 10,000, starts getting into exabytes, zettabytes and then yottabytes, which, you know, just starts going crazy, when you start taking, you know, 10 to the 28th. And it's a phenomenal amount of information.

But, more importantly, what we're seeing is we're seeing a dynamic growth in smartphone density. We plot smartphones by how concentrated impact they are in density of area. So we're seeing about a 32 times growth per square kilometer. That's how we can use universal standard. We're saying by 2015 there'll be over 2.5 billion connections on these devices. And, more importantly, from a bandwidth perspective, we're also seeing and projecting that 70 percent of your mobile traffic by 2015 will be video.

Video is going to be the new communication medium. It's going to be the communication medium of how a citizen may report a 911 call, by sending video. How they are going to interface with other people where I can now have a video conference with Joe on my -- from the smartphone. Start looking about the new capabilities and the functionality. But, more importantly, start looking at how it's going to impact your communication systems. And are you going to be ready for it?

Because when you start looking at about 8 billion people carrying the smartphone devices in 2015, you start looking about those lovely, lovely children from the 11 to 25 year olds, which are called millennials, that know no other way of communicating than digital. And basically they're already into the workforce. We're already seeing little changes. Bring your own device to work, telecommuting, you know, looking for virtual work spaces and primarily getting away and changing the way we do business, primarily because of the way they communicate.

And it's going to have an impact not only on you in a management perspective, but also you from a communications perspective. We're seeing, you know, the use of social media. Whereas before we were seeing social media and social-media communication being integrated into

multiple different things, and with the new, rich ecosystems that are being created on a daily basis from our manufacturers, from our subscriber use, we're seeing more capabilities being put into the smartphone. And as I like to say it, if I lose my smartphone, you know, the reality is, is I have my life in my smartphone. You start looking at the dynamics of the smartphone.

As a matter of fact, one of the smart-community security firms actually had a device into -- built -- they were prototyping in a smartphone, where if your smartphone gets x-amount of meters away from your body, which is another port it has in its holster, literally, it incapacitates the phone. It also incapacitates it that if there is more than a, like, a three to a five multiple attempt to try and get into it, you can't remember it, it wipes the phone. So you start looking at it. And these are all of the new things that are coming out.

More importantly, our Bell Labs are looking at video. And I think video, if you look at video, video's probably one of the largest bandwidth utilizers when you start looking at it and it's going to look at over your network. But what it provides is basically it's going to start improving the efficiency. It's going to reduce the cognitive load. It's going to allow such things as your command and control to be with your first responder. You're going to see more video integration in different areas.

You're going to be seeing video, you know, overflies. You're going to be seeing video as far as into different areas. You're going to see ten times growth in video. You're going to see video used to, just like you're using it here with our elected official in the south. The reality is you're going to start looking at more coordination, collaboration and integration of literally working together in more collaborative forums utilizing video as the means. Two areas of video, not only does it take bandwidth, it also takes lots of memory if you have to keep storing on video. But video is going to be it.

So now you have -- what's the picture of government? Now you have literally what's going on a little bit in the industry. Let's see what's going on to take us from today to tomorrow. Well, the first thing I can tell you is here are the four major trends -- trend areas that we see in the communications world.

Number one, we see demands and definite increases in traffic growth, traffic growth from all different media, be it data, video and voice. And they're going to be exponential in their -- basically their growth through now and through the future. We're seeing not only in industry, but we're also seeing in government, the move away from siloed networks. We're seeing more shared-services networks. Actually, we're seeing more shared-services applications in government. Primarily if the financial downturn did anything, it allowed for government to start looking at, how can we share services? How can we virtualize and literally bring into one center and make that one center a service center for multiple other areas.

And the other thing that we're seeing is we're seeing broadband wireless. We're seeing your 4G, your exponential 5G. That means it'll -- every generation of communications has a ten-year life frame. Your 1G, which is analog, had ten years starting in 1980. Your 2G was 1990 to 2000. Your 3G really was 2000 to 2010. And 4G really came about, when you start looking at true 4G, in 2011 and will run to 2020. It's going to give you the capability in approximately around 2020 of a gigabit speed on wireless, when you start really looking at it from a smartphone to a smartphone. And really broadband is allowing us to do multiple areas of integration where we can integrate data, video and voice and basically put it into one singular end-subscriber device. And that's going to be really a major area.

It's also going to impact your backhaul. You've been hearing a lot of things about LTE, long-term evolution, which is primarily going to be, in the public safety world, FirstNet. And FirstNet is going to provide a national broadband public safety system for all public safety responders. And basically they're -- the federal government's in control of it now, with the FirstNet. And they'll be looking for more waivers and primarily coming up with the architecture for FirstNet, so everyone can see how they're going to play, be it the State of Nevada's networks with carriers, be it even with potentially an Acatel/Lucent, depending upon how the architecture is defined. But one thing we can tell you is backhaul is the foundation for your networks. And the reality is backhaul, regardless of the last mile being LTE, is at gigabit speed now. So you're getting 100-fold to a 1,000-fold increase in your backbeat speed -- your backhaul speeds regardless of what you're going to see. You're going to see a major growth in that area.

You're going to see a new evolution cycle for communications. And I don't care where you start. Usually I like to start at new technologies. New technologies allow for new applications. New application approaches allow you to provide new functionality or new operational needs, which increases the growth. And really the underlying factor is the growth in traffic has to be at a lower or a manageable cost.

So really it's a vicious cycle. I don't care if you start off with new informational needs, that's going to impact. It goes around this way. And this is a new dynamic of what's happening in your communications capabilities. And really, again, as I was saying, is we're moving toward shared multi-service networks. We're moving to -- from your Sonnet, which is your synchronous optical networks, to your IPMPLS, or internet protocol multiple packet label switching, which allows you to integrate data, video and voice on the same infrastructure. And what it also allows you to do is when you have high traffic growth, because high traffic growth -- it allows you to literally transmit a bit of information on the lowest possible cost. It allows you to bring in new applications regardless of their mode, be it data, video or voice, and integrate them very, very economically. And it also is the lowest cost network because it also provides you a new resiliency that primarily your old silo networks don't provide for you.

Joe Marcella: I have a quick question for you.

Steve Jennings: Sure.

Joe Marcella: Joe Marcella, for the record. When you talk about MPLS, and I don't mean to get too technical, but is that somewhat of a silver bullet for convergence, the unified messaging interoperability?

Steve Jennings: Yes.

Joe Marcella: And the ability for vertical communication environments that are particular to vertical communication environments that need to be separate, for instance, police departments and the like, allows for emergency and contingency response where they couldn't do that before and multiple agencies can talk?

Steve Jennings: Yes.

Joe Marcella: Is that the direction it's going?

Steve Jennings: That's the direction. What it allows you to provide is an enterprise information architecture. It allows you on -- to integrate all of your existing resources, add new resources and basically be able to communicate, because now you're in a packet mode, literally voice, data, video, and integrate them all and utilize all of your resources to load balance. And basically the nice part about it is you can also, because it provides via logical partitioning throughout the network, yes, you can logically partition amount of resource for dedicated -- be it public safety, start looking at various different health functionality and information there, anything that needs a vertical criteria.

And you can also, not only from enterprise security, but also partition and allow and direct where they can have departmental security in addition to the enterprise security. So they can do adds, moves, changes, deletes and control of the network operation.

Joe Marcella: So, Joe Marcella, for the record. So simply stated, we don't have to rip and replace our networks. There's an ability within our umbrella application that multiple agencies can talk?

Steve Jennings: Yes. And it's not a forklift approach. It's basically, you know, the nice part about integrating an IPMPLS or an enterprise approach is it allows you to merge in silos and bring them into an integrated solution and not rip and replace. Really, it's very economic in its growth capabilities.

One of the areas where we're looking into and you can start seeing -- I don't want to bring it up because when you look at convergence and consolidation, it's more than just saving money. Convergence and consolidations allow you to do multiple different things besides getting a lower

total cost of ownership. When you start looking at converging operations, some of the things you heard in the prior thing, the reality is you know you can do it at a lower cost. You know you can do it with less people. You know you can do it with less facility. You know you can do it literally do what you want to do is keep the same equipment. So you as a manager now have the capability to start relooking at your pool of professionals.

You can start, you know, basically, you know, looking at what you need. And I don't know how difficult it is in Nevada. In Texas they had -- working with the civil service system -- it was difficult to try and bring in new salary structures for new titles, et cetera, et cetera. But now what you can start looking at is you start looking at a pool of resources. You literally can start looking at qualified different professionals, start looking at potentially the resources available, you know, for funding needs to fund these positions and also, you know, still look at the benefit that you're going to get from saving money.

When we looked at Oklahoma and we brought in Bell Labs to analyze it, Oklahoma was, literally, they had multiple fiber all over the state. They had microwaves. They had routers. They had networks that were very siloed. And, literally, coming in with really analyzing their networks and finding even lease lines that they never knew they had before and they were paying for them. The reality is, is we saw a $29 million over five-year just savings on just kind of moving to that. And that's not really even getting to the more flexible network they had that they could put in a foundation not only for the state services and integration with local, but really what the Governor was looking at there was showing and hopefully for new business and professionals to start bringing in new economic development into the state, but they were a forerunner in communications capability.

Up in Calgary, what they did is they started looking at putting in their own fiber versus going to an outside. And, literally, this is a unique story because their outside utility was a government-owned utility that the city owned. And, literally, the IT function, by putting in their own fiber, could do it cheaper. And actually through, from 2003 to 2011, it saved over $52 million in costs.

Getting back to your question earlier, Joe, about being able to integrate it all together, and I keep coming back to IPMPLS being the digital foundation. Literally, because you're doing data, video and voice over this whole network and you can integrate new functionality, you can get into virtualization. Now, you and I have been in this business too long, you remember clouds were just shared computers a long, long time ago. The reality is, I don't care what you call them, it allows you to provide a foundation between multiple different data centers, if you're still going to run them. And I would say that the lowest hanging fruit in the overall IT industry is, number one, networks, number two, looking at data center. It gets more dicey when you go up and start looking at application and definitely you don't want to mess with the interface between that application and the customer.

So really your low-hanging fruit is convergence and consolidation on your networks and more looking into your data center conversion. And realistically IPMPLS builds the foundation and allows you to do that.

So when we look at network transformation, really what -- the only thing we're talking about is taking independent siloed approaches to networks and networks of different types, be it your P25 for public safety. You know, you should start looking at scada data which is really on-off switching. You know, various different signaling data if you're into traffic, traffic management. You start looking at voice. You start looking at all sorts of data types. And you integrate them and put them into one enterprise infrastructure running under IPMPLS, microwave, optics. And really IPMPLS is there because it runs over all of them. And it reduces your operational costs. More importantly, it increases your functionality and flexibility, your efficiency and your total lower costs of ownership.

How does it do it? Now, if you remember anything about IPMPLS, just remember one thing. It's agnostic to any underlying technology, that's technologies and communications. They have layer one, which is your physical layer. Then you go layer two, it's ethernet. Then layer three, IP. The reality is it doesn't care about what layer it is. It also doesn't care if it's point-to-point, multipoint, a ring, a star, a hybrid, these types things. It applies and allies on top of it. It's resilient in its features, its functionality. It doesn't care about media type, as I said. It can handle data, video and voice on the same network. You can provide both vertical and horizontal capabilities not only for management, for security, and it uses standardized operations, administration and management tools across all functionality.

This is kind of what a government network would look like. Basically, you get end-to-end service management. But more importantly what you've done by integrating all these different types -- and I am terribly sorry I didn't, you know, each have -- give you a presentation where you could go through it. You can also optimize your operations. You can provide universal connectivity. And that's key, too, as far as integrating different departments, be it state to local, local to local, any way you want to configure it. You provide new and enhanced citizen services, i.e., the 24-hour always on, always online, not inline. And you also, because of its capabilities for collaboration, can provide an overall safer State of Nevada, City of Las Vegas, City of Reno or wherever.

So what's the business case? We're kind of drawing down to the end. The business case is, is we want to move away from proprietary systems, redundant costs and operations and capital expenditures. We want to move away from primarily specialist technical support to a more open support characteristic. We want to look at not having local control by dedicated staffs. Literally, we want to look at more enterprise approaches. And we want to get away from being application specific in our network design; i.e., move away from silos, start looking at convergence because this approach is really, over the long term, not sustainable.

And we want to move into open architecture, which is IPMPLS; resilient and redundant networks, because you build in redundancy when you start looking at your enterprise approaches; flexible bandwidths, not only -- this is really critical as far as the different criteria. When you bring and you develop your service-level agreements, different types of transmissions have different levels of service that they need to meet. And you can build them into the network. You can get local control by flexible staffing through VPN connectivity. Hardware is agnostic. I can go on and on. It's a lower cost to implement, and there's no control line individual specialists. But more importantly, this approach is sustainable. And this is the approach in the market that we're looking.

And when I looked over the Governor and where the Governor is approaching and literally direct up to you and one of your jobs in the areas of communication, I looked at why a connected Nevada? Why looking at this, you know, and this approach? And basically what I saw was I saw the carrots of not only what I think your Governor was looking for, but I think what you're looking for overall total cost of ownership with new flexibility, functionality and basically how to bring Nevada primarily and keep Nevada into the future. And that's by a converged network support, where you can support multiple different agencies and disparate applications, unified management, service provisioning across multiple different technology, where you can literally bring in new functionality and new services, like I said, you know, literally working from behind a computer screen and start connecting, rerouting.

Just think about the resiliencies and when you start getting reroute capabilities, when you start getting networks that are cut for lack of -- lots of reasons, you know, a construction cut, someone cuts an industry and -- or get automatic dynamic reroutes, where you can start rerouting to milliseconds and capabilities. Start looking at, for once, and I know one of the things that I had and used to pull my hair out, that's why I'm like this, you know, when I had Joe's job, primarily is convincing people why standardization made money. I mean, it saves you money on training. It saves you money on how you do things. And start looking at how you can standardize, how you can provision your services, quantifiable returns on investments. These are the reasons that I just came up with. And the reality, you as an information technology board can add to these of why build a case for a connected Nevada.

So the wrap-up is this, it's primarily the drivers for a network, Nevada, as I see it is, is you're going to get exploding bandwidth demand. There's no ifs ands and buts about it. If you're not getting it today, it is going to happen. That's just like tomorrow's going to happen. We need to look at how to reduce operating costs and get the best return on our investment. No matter what recommendation you make, it's got to have a positive return on investment. And return on investment, and I keep telling you this, is more than just saving money. Return on investment is how to enhance all of your functionality and your capabilities.

You need a more resilient architecture to deal with emergency operations and provide redundancy and that involves you and your Department of Emergency Management, your

Department of Homeland Security, your Public Safety, in working with and collaborating with all of the local governments and providing that capability and that connectivity and to deal with the necessary capabilities, and also to provide new services and deliver existing services more efficiently. That's kind of one of the basic things that we used to have.

So where is communications going? Well, communications is going to small cells. And I don't know if you can get up and I'll give it to you, hopefully. Literally, small cells…

Joe Marcella: Way too close to the (inaudible). Oh, I'm kidding.

Steve Jennings: …small cells -- yeah, they shoot you. Small cells, literally, are becoming part and parcel of how communication is. That, what you're holding in your hand, is the whole top of a cell tower. You can put 4G into it, 3 and 4G into it. And, literally, you can put them in an array and do multiple different capabilities by putting them on a wall, a side of a building. But what you're going to be seeing with small cells -- small cells capabilities, that's low intensity electricity, one strand of fiber. And what you're going to see is you're going to see them integrated into new construction schemes. You're going to see everything. Now, where it works is it works in high density areas. So you're going to still need an active backhaul for your rural and remote areas. But that's where communications is going.

Where I believe your future is, is how to take and get the most value out of your people, your network, your knowledge and your processes. And basically that's trying to meet all of the expectations that you know of now and literally that you don't know that are coming tomorrow, and I'll guarantee they are coming, provide a utility-like infrastructure instead of the siloed, special-purpose type infrastructure, optimize your costs, see your returns on investment, more than just dollars, but also in your capabilities, and, finally, to start looking at how you can start collaborating more, sharing more and basically having the infrastructure to allow you to do that.

So with that, I'll open it up for any questions you have. Thank you so much for allowing me to talk to you. I can't tell you how nervous I was. I haven't gone speaking before a board since I retired. So this is -- usually I like standing up and walking around, you know. Anybody that speaks, it's a lot easier. But thank you very much.

Joe Marcella: Mr. Jennings, Joe Marcella, for the record, thank you for your report. This was wonderful. I do have -- I'd like to start the discussion.

Steve Jennings: Sure.

Joe Marcella: And then, by the way, Lenora, do we have -- depending on the Board, right after this discussion and in deference to your -- is it okay to take a 10-minute break?

Lenora Mueller: Yes, absolutely.

Joe Marcella: Okay. Well, all right. A couple of things. One, is I read an article this morning that said the only government that folks are going to know by 2016 or 2018 would be dot government. So I think that's kind of important to realize that the community is being changed and that we're going to have to facilitate that.

The other question I would have is, you mentioned Nevada a couple of times. I know that, Mr. Fein, you've had a lot of time in the seat and in Nevada analyzing our current state. So I would like to know how ready the State of Nevada is to move to the next generation of communication. And then maybe you would like to step up and answer that question. And then the last question would be MPLS is just another communications channel and mechanism umbrella to facilitate a need. How long -- how much sustainability does that have if everything else has been changing as rapidly as within every ten years?

Steve Jennings: Let's start with, yes, I totally agree with you.

Joe Marcella: Well, I'm so old that I can't remember all of those things.

Steve Jennings: I can. But see I'm younger than you are, so that's the -- I got something on you.

Number one, yes. As far as dot gov is concerned, that's the movement, where it's going and primarily the only thing I'd probably say that could be wrong with the article this morning is it primarily may not be dot gov. It could be dot something else by the time that we get there, because what they're doing is they're opening up all of your URLs to new and more dynamic approaches where you can get more of them, so…

Joe Marcella: We just adopted dot (inaudible).

Steve Jennings: You may go. As to the question number two, about how ready is the State of Nevada, and David and I can both talk about it. I believe that you -- because I see a bunch of different states. I believe that, number one, from a resource perspective, the raw resources that you have not only in the state that's throughout the state, but also in your major local jurisdictions, if utilized as an enterprise, start thinking enterprise converge capability, provides a really good foundation for the state, where the state can jump off to. I see also some other really good states, like the State of Michigan, when you really look at it. They're government structure -- and I have to really commend you on your -- well, I look at you as a recommending government structure. What do you say about the state, David?

David Fein: David Fein. Do you need a little bit of background, maybe, because I just dropped in from nowhere?

So prior to coming to Acatel/Lucent, I was the project manager in the statewide, excuse me, interoperable communications coordinator, so working with the Division of Emergency Management in getting the Land Mobile Radio Voice Communications for Public Safety interoperable. So the cross-band repeater system, the Nevada core radio system and what we call the end-term system and the end-dip system, the dispatch interconnect project, were all under my watch. So I had an introduction, abrupt as it was, to what worked and what didn't work in the state from the public safety point of view.

And then dealing with a whole bunch of different constituents, I'll call them, stakeholders from the major sheriffs and chiefs all the way down to, you know, the remote sheriffs that were -- didn't even have an internet connection to their sheriff's office. So how are they going to connect to the rest of the state? And that's where the federal money came in to find network resources, apply them and then get voice communications interoperable for everyone in the state. So we're millimeters away from having all of that happen. And, admittedly, it's lost a little bit of steam over the last year. But everything is in place to make that happen.

So, and not taking anything from David, but the state, comparably to other states around, is in pretty good shape. And, as Steve said, using the resources we have wisely is what's on the table next. You don't have to put in a whole 'nother fiber infrastructure. There is one. We're just not using it wisely. The microwave network is -- okay, it's old, but it's functional. We're just not using it wisely. So implementing simple things like IPMPLS and looking at it holistically instead of from a silo would move the state forward to an enterprise configuration using things much more wisely and much more efficiently.

Steve Jennings: And answer number three is how far is IPMPLS going? The reality is we've seen technologies, at this level, when you start looking at channelized -- channelized technologies was in place for over 40 years. So, you know, when you start looking at this is the evolution up from channelized, you know, you can -- I could go out on a real safe limb and say at least 20. You know, but it could be more than that. And I don't think that the replacements, when you start looking at it -- when you start getting at this level, the replacements will be dramatic. I would think you'll see more like evolutions because MPLS is more software based. So you'll see evolutions in software.

Joe Marcella: Now I'd like to open it up for some additional discussion from the Board.

Paul Diflo: For the record, this is Paul Diflo. Very interesting. My question to you is do you feel this is going to require any new talent from the Nevada -- from David's staff to manage an infrastructure that now has converged traffic on it? In other words, I think it's appealing to be able to have the flexible bandwidth. But you do have to put a limit on that, right? You want to have predictable costs.

Steve Jennings: You'll build -- yes, you want to build in predictable costs. You want to build in quality levels of service. You want to build in, you know, return on investment. But if you start looking at it from an enterprise approach, will it require new staff? No. Will it require a dramatic education of existing staff? There's multiple ways to get there. Primarily, I don't know the talent levels of the staff that you have. I know you probably have some crackerjack professionals, you know.

It's really utilizing the staff that you have and getting the proper training. The training is not that difficult. A lot of nice things about IPMPLS is that they have management software that literally requires not a lot of training. And there's also a lot of support behind it for the implementation to it. So with your level of expertise and David's staff, considering you'd be looking at enterprise, so you could basically garner and take the best of the best. And you could start building a core cadre of the best of the best to take this approach into the future.

Paul Diflo: Okay. Appreciate it.

Joe Marcella: Again, I'd like to thank you for the report. I certainly appreciated it. I have one more question. It's almost as if it's my nature to consistently ask questions. If you were to give David in EITS and the state some advice as to what to do next, you know, to look into some of the opportunities, what would you recommend?

Steve Jennings: A small pilot project, something that I've already mentioned to David. Use your existing fiber, but in a two-point IPMPLS system between City of Las Vegas, where the fiber terminates, and the Capitol. And start running data, video, voice and everything over it and see what it can do for you and how it can open up your eyes for new capabilities. And it's very low cost.

Joe Marcella: Well, Mr. Jennings, I really don't want to do that because David would start to use all of my servers and bandwidth and the rest. I certainly appreciate it. Thank you, gentlemen. Can I ask if we can adjourn for about five, ten minutes? Thank you. Chris, are you okay with that? I appreciate it.

Lenora Mueller: Calling roll. Assemblyman Paul Anderson?

Paul Anderson: Here.

Lenora Mueller: Mr. Rudy Malfabon?

No response heard.

Lenora Mueller: Ms. Laura Schmidt?

Laura Schmidt: Here.

Lenora Mueller: Senator Mo Denis?

No response heard.

Lenora Mueller: Mr. Paul Diflo?

Paul Diflo: Here.

Lenora Mueller: Mr. Kevin Ferrell?

Kevin Ferrell: Here.

Lenora Mueller: Ms. Laura Fucci?

No response heard.

Lenora Mueller: Mr. Joseph Marcella?

Joe Marcella: Here.

Lenora Mueller: Mr. Jeff Mohlenkamp?

Jeff Mohlenkamp: Here.

Lenora Mueller: Ms. Carrie Parker?

Carrie Parker: Here.

Lenora Mueller: And Mr. Mike Willden?

Mike Willden: Here.

* 8. STATUS OF SECURITY GRANTS THAT INVOLVE STATE & LOCAL AGENCIES
-Chris Ipsen

Joe Marcella: Continuing with the Agenda. Last ITAB meeting we were going to get a report from Chris and I think you were out of town. I think you were in Washington. I'm so sorry you

had to do that. So we re-agendaed it. And I wanted to ask you to give us an overview of what the state's doing and some of the involvement with the locals. So I appreciate it. Thank you.

Chris Ipsen: First of all, I want to say thank you. It's always an honor to be in front of so many civil servants, working both in the private and the public sector. And it's always a great opportunity to talk about cyber security. Usually, when I'm before the legislature, people start running for the doors when they start talking about -- well, can I talk about cyber for a second? Actually you're very fortunate today. I was going to bring my original presentation on my Mac, which is my mind-map of the projects that we have working. Each of these branches out into other ideas. Instead, I think, I'll keep to the common theme, and that is that the complexity is the enemy of security. So I'll keep it simple today. And hopefully there's a lot of questions at the end.

Two of the things we've already heard today, I think they're really relevant and they particularly translate into the cyber security, is that we have opportunity here. The state works well together. We have 3 million miles worth of communication infrastructure. We have data centers. We have capable people. The challenge that we have is how do we put it all together and make sense of complexity. The state's been not particularly successful in the past, usually in simplifying things. And hopefully my presentation today will bring out the simplicity of some of the solutions that we're looking at and also quantify some of the real savings and opportunities that we have before us. So hopefully it's the beginning of a success story.

As I've already stated, I'm a civil servant. I've worked for the state for 12 years, maybe 13 now. And I've been the Chief Information Security Officer for five. My job used to be a lot easier. Now, it's really complicated. And each time I take on a new project, it becomes more complicated. So under the guise of what has happened, where we are and where we're going, I'd like to give you a brief overview of where we were.

Before we -- five years ago we were in a very ad hoc environment. We had loose coordination between agencies. Most of the cyber security was agency based and most of it was unstructured. What I mean by that is, there was some real shining examples of success stories. And there was some abysmal examples of failures. And one of the challenges of my job is that I have to be all things to all people. We have to be all things to all people in the state. As a civil servant, we have to get the job done. So we sought out to begin an incremental process. And that started with legislation, with very little authority, very little capabilities and a much easier job. We set out to look to the legislature and the Governor to build capacities and capabilities for us. And we received universal approval, 100 percent approval from the Governor and the legislature to do security validation, to do testing, to do continuous monitoring. Nevada was the first state to coin the term continuous monitoring in state legislation. Today it's a commonplace term. Four years ago it had not been heard of. So we were way ahead of the curve.

Pen testing. When I first started, agencies were threatening to have me arrested if I did pen testing on their environments in order to protect it. Now there's legislative authority that allows me to do it, really allows me to do my job. And there's also been a quantified legislative effort to have agencies at least report or that there be some reporting of suspected security incidents. If we can't quantify it, we can't measure it, we can't improve it. So all of these things did not exist. And last -- second to last, the authority to investigate by the Office of Information Security.

And then this one relates to all of you. We gained the authority to talk about cyber security with key legislators. You say, "Well, that's obvious. You should be able to talk." Well, in the politics of government that wasn't always obvious. And when things are sensitive, and we know we have deficiencies, one of the challenges I faced was, how is it that I could know about a security vulnerability, that I could have a solution, I could have no money, and I could sit here and sleep at night knowing that we were unprotected and that I had no ability to resolve problems. Well, it became very important for me to distill ideas down into business decisions and to have the ability to speak with key legislators and to the Governor and to make this a business decision.

One of those entities that I can speak with is the ITAB. So before you I sit. You'll notice ITAB Homeland Security and the Technological Crime Advisory Board are the three boards, each of which have two legislators that I can talk to about sensitive security issues. Very important because if I know that there's a problem, I should be able to communicate that there is a problem and we need to have a solution.

Where were some of the success stories going to come -- from where? Statewide Cyber Security Committee. Historically, Nevada has collaborated well, probably because we didn't have a lot of resources. And we realized that if we didn't band together a circle of wagons or create a castle that we could all circle around that we would fail. We have a State Cyber Security Committee. We meet every month. We talk. We don't always agree. But we have some great Information Security Officers who come. And we have a vehicle to communicate.

We have Homeland Security monitoring. Through a process of a lottery, we won a monitoring service, a very simple feed that is translated into actionable metrics. And we've built close collaborations with Emergency Management. I heard Mr. Jennings talking about working with Public Safety and Emergency Management going forward, key public and private sector. This has been a story of active collaboration. Not always getting things done, but building the possibilities for success moving forward. Those are the things that began to work towards the solution.

Then compromises began to happen, some of which have been very recent, some of which have been extremely costly. The State of Utah, I know, has spent over $50 million in rectifying security breaches, the State of South Carolina, $30 million. Cyber security costs money now. It costs money not to resolve. It costs a little bit of money to address. Before when I was speaking

to the wind, you couldn't quantify what this cost. Now that we know, we realize that we need to do something about it, outside of what I believe is the greater and more compelling reason, and I think seeing Director Willden here sitting before me, is that we have the ability to compel citizens to give us information. We have an authority that no one else has. By law, we can require people to give us information. I believe that we have a fiduciary responsibility to protect that information. If we require people to give it to us, we should have an equal requirement to protect it.

With that, we have two really compelling sentences before you that were -- this is from a memorandum that the Governor issued to the directors of the state. He says, "Therefore I have directed the Enterprise IT Services -- Enterprise IT Technology Division to move forward with a consolidated and integrated approach to cyber security. When fully implemented, this standardized and unified effort will provide improved capabilities to monitor, manage and respond to threats against our data and IT systems. That is a significant statement for a Governor to make. And I applaud the Governor for making it. It's someone saying that we're going to do something about this.

And what we have to do is, once we're presented with a challenge, we have to have an acceptable methodology. And is the methodology perfect? No. But there has to be a reasoned approach to this. So thinking it through, we wanted to map to specific controls, controls that make sense. If there are examples in society, private sector, public sector, where we can reduce risk, then it's important for us to do that. So set about looking at the types of controls that exist. The Sans Point controls were one of them. The Australian AS -- this is the Australian Signal -- what is it? ASD is the Australian Signal Defense Services. They have 35 strategies that they were able to quantify a reduction in risk if you implement these controls. We also have new state 153, which HIPAA and high tech are based on. We have Criminal Justice Information Standards that we have to map to. We have payment card industry. And we also have the ISO.

So we have all of these standard-setting bodies and we have examples. Well, what the state has done, is we have taken all of these and we've said, what are the important ones? What makes sense? What can -- how can we reduce complexity? And I'm going to try something and I hope it works here. And if it doesn't, we'll -- this is a hyperlink to the Australian DSD 35 controls. And if this has Wi-Fi connectivity, then it'll come up. If it doesn't, then we won't. I scroll down here. I think this is really one of the great examples in our -- that exists for us right now. And, before you, what you see are the first 4 of those 35 controls. And it's estimated that 80 percent of the risk to any system can be reduced if you point to these 4 controls, not 35, but 4 controls.

One is application white listing. That's the number one control. How do we control what applications do on systems? That also happens to be the most complex of the four controls.

Two, patch applications, so third-party applications, and I include antivirus in this, because recently even Symantec says that antivirus support only covers 49 percent of the known threats

out there. That means that over half of the threats are not protected by antivirus. Defense in depth should be our goal. We also have to patch Microsoft Office. We have to patch Adobe Readers. We have to patch everything. And we have to have a systematic way to evaluate, A, if the system exists or an application exists, and, B, is it patched?

The third control is patch operating systems. Now, those of you who have computers are saying, "Well, isn't that a no-brainer? Shouldn't you patch the operating system? And shouldn't that be really easy?" Well, believe it or not, many systems were going unpatched. And very simple vulnerabilities like unpatched operating systems or unsupported operating systems were running in the state environment creating significant security holes.

And fourth, we want to minimize what a user can do on a computer in terms of their administrative privileges. Now, this doesn't limit their ability to use Office or to look at devices. What it does is it limits their ability to download applications and to install applications. And what it also does is it limits hackers' ability to download systems onto -- or applications onto your computer.

So we look at all of the threats that exist, phishing attacks, malware that's present, 80 percent of the risks can be reduced by doing these four things. As part of the process we brought out experts. We discussed this. Alan Paller of the Sans Institute came here. I think he sat -- well, he sat in the room right above this one. And I asked him a very simple question. I said, "Mr. Paller, what would you recommend as Sans is the premier organization in terms of developing these controls and training?" I said, "What would you recommend that our senior leadership do in the State of Nevada going forward, knowing that we know that these four controls work well?"

And he said to me, "Chris, you're not going to like the answer that I'm going to give you." I didn't ask him the question before I asked him the question. He said, "It's not about them, it's about you. So you have to do something. Not them. You have to build the business case. You have to deploy this. And you have to take it upon yourself to deploy these four controls. And if you do that, you'll be the first state to do it. And if you do it, you'll be a good civil servant. And if you do it, you'll save the state money. So why wouldn't you do it?" I said, "Well, it's not as easy as that, but I'll take that responsibility."

Let me go back to my presentation here. So we know we've got -- we've got some really good standards. And we've got a mandate. And we've got a requirement. So let's get back on the current slide. We know what to do. How do we go about doing it? Oops. We develop a risk-based approach. First of all, if 80 percent of the risk can be mitigated through deploying those four controls and/or doing the simple things, then we need to invest 80 percent of our energy in those -- that's what I call simple hygiene. We've got to patch our operating systems. We're going to patch our third-party applications. We're going to do application white-listing. And I said that with a pause. And we're also going to limit administrative privileges. We're going to go after senior leadership and we're going to gain that support, which the Governor did.

What's the other 20 percent? Well, we have advanced persistent threats. So what we need to do is we need a monitor. One of the interesting things that happens, when you focus in on the 80 percent, then you begin to -- and you take care of that problem, then you can begin to focus in on the millions of attacks an hour that happen in the state. If I had to summarize my job in simple terms, it is taking something that is extremely complex and making it -- and distilling it down into human-readable format, and then do something about it.

The State of Nevada receives one million shuns per hour in the north and in the south every hour of every day. That is beyond what I can do. I can't do anything about that. I have to reduce the complexity of that. So by deploying the four controls and reducing risk by 80 percent, we can focus on the other 20 percent. And that's something we can do something about. So the advanced persistent threats, we've set up a series of monitoring stations. We're looking to expand it. One of the grants I'm going to talk about in a little bit also includes the counties and cities; coordinating, monitoring what's happening. And creatively sourcing our security to true, you know, to highly trained, highly specialized, highly focused entities and/or services. Also do the things that we can do. We know our environment better than anybody else. So build on our context and monitor them.

The other 10 percent that we're going to focus in on is disaster recovery. And I actually saw -- I heard a term coined at Black Cat that I love, so I steal it all the time. It's called graceful failure. It's not disaster recovery. If we have a disaster and we fail, then we might as well all go home, because if our systems go away, we can't function. The key is, how do we gracefully fail? And I equate this to motocross. You know, I'm a simple guy. When I learned to ride a motorcycle as a kid, the first thing I learned to do is fall. Why? Because I didn't want to break my back. If I broke my back, I couldn't walk, I couldn't do anything. But if I fell on my shoulder, I might break my arm and I might be able to get up and ride my motorcycle. Well, what I -- I think, given the limited resources that we have, we need to focus in on failing gracefully and understanding what our threat is.

So this is how I approach this very complex problem, with the four controls. We've already talked about those four controls, so I'm not going to belabor them. We're doing that. And what we did is we approached senior leadership within the state and we said, "If we could save money and we could improve security and we could deploy those four controls, wouldn't it be a good thing? And I remember sitting with Director Mohlenkamp in his office. It was about a year ago. I remember it was winter time. And I said, "We've got to -- we've been working on this solution for a number of years. It's time to pull the trigger. It's time to do something about the problem. So the only way we can afford it is to take the money that we already use and develop an enterprise approach to it. So let's look at our existing spend. Let's come up with -- let's engage best of breed solutions and let's come up with a solution."

And we did. We actually got the biggest security vendor in the world, Symantec, to bite. And I say that intentionally, because we had been bishing with many vendors for many years. And they finally said, "If you're willing to do something about this, we'll give you pricing that doesn't exist anywhere else. And we will give you the tools to finish the job." That's one of my favorite Winston Churchill lines. I heard his granddaughter give a speech once, and she said, "This is my -- this is my grandfather's greatest quote. 'Give me the tools and I'll finish the job.'" Well, I challenged all of the vendors who do business in the state to come up with a solution to reduce our costs and to give us the tools to finish the job. And Symantec bid. And they did it for a price that was less than we were currently spending on an antivirus alone. So they gave us the tools to do active desktop management, best of breed. If you know something about Gartner, Gartner has presented here, it was the Magic Quadrant. The best tool that exists, upper right-hand corner, Magic Quadrant Altiris.

We will give you endpoint protection. And that's not just antivirus, but it's endpoint protection. We'll give you gateways to monitor what's coming in and out of your network. We'll give you email antivirus. We'll give you analytics to analyze what's happening, so you tie everything together. And we'll give you workflow, so that you have the tool to connect this. So you've got a clear vision. You've got forward controls. We'll give you a product suite that will allow you to patch your third-party applications and your systems. And all of that -- and we'll give it to you at a cost that you're -- that's less than you're currently paying for antivirus. That was significant.

Well, what were the results? Well, first of all, LCB said to us, "We looked at this." And I think, Jeff, Mr. Mohlenkamp, correct me if I'm wrong, when I first presented it to Mr. Mohlenkamp, he said, "Let me get this straight. You're going to reduce cost and you're going to increase security? And where's the catch?" And I believe the catch is, we've got to do it and we've got to all do it together. If we don't do it together and if we don't have leadership around this, then they're not going to give us the deal. So either we do it or we don't do it.

Joe Marcella: Chris, I'm going to interrupt your presentation just for a second. And it's particular to what you're talking about. Consolidation and the opportunities that this Board has been asking about since its inception, or at least when we started to meet again. Director Mohlenkamp, I know you have to leave in about -- well, now. And what I was going to do at the end is talk about some of the things that we're -- we have been meeting about from a consolidation perspective. And now we're talking about consolidation being a dirty word. But I thought maybe we would interject that, because it runs parallel to what you're saying.

Chris Ipsen: Sure.

Joe Marcella: And then, Director Mohlenkamp, because you leave, and then we'll talk about it a little bit more at the end of the meeting, so…

Jeff Mohlenkamp: No, thank you, Mr. Chairman. I appreciate the opportunity and I think it is definitely related. You know, when Chris and I had that conversation, I think it was around a year ago, something close to that, the idea was that we needed to have a standardized process and that we needed to move to be able to be more responsive to the threats and the challenges. And I fully embrace that. What I didn't understand is that we could is that we could do that for the cost that we could get. And sometimes it's nice to be first because you get that pricing. They want to prove -- proof of concept. And we're certainly trying to be that. And so I think that was a great thing. When David and I started talking a couple of years ago about where we needed to go with IT, one of his strongest focuses was on security and the fact that we needed to do something to better secure our environment. And I think that's driven by maybe wanting to be employed, you know. Because we know that when IT goes south, the first person they look at is the CIO. And then the second one is probably me, since he works with me.

So I think that this is a success story in the making. And once it's fully deployed and we're seeing all that it can do, then I think that, obviously, then we'll be on to the next phase. Because one thing I've learned is IT does not stop. I'm an accountant by trade, and you still have the same accounting entries that they had 30 years ago when I started my career. Some of it's changed, but not -- if you look about 30 years ago and see what's happening in IT and, okay, so big, different story.

So just a couple things where we've been focusing, because I just wanted to give a brief summary and then I will, Mr. Chairman, have to leave. We've been looking at a multi-pronged approach with regard to trying to change our IT environment. And the strategic planning that we're looking at, part of that is certainly looking at where we can consolidate and where we can get the benefits of that. There is, I think, a general acceptance among state managers, senior managers, that we need to continue to move in that direction. There's also a certain level of resistance, because of, you know, what we've heard earlier in the meeting. There is -- some of that is a need to have the ability to be flexible and adaptive and to be -- have those IT systems responsive to their needs, and a little concern, quite honestly, that if it's taken out of their direct control that they'll lose some of that.

So one of the things we're trying to work on, and David and I have had several conversations, is working on the changes in EITS that are necessary to allay some of those fears, to better prepare that division to be -- that manager, that central structural manager. That's a process we're working on. We're looking at Ichange (sp?). I see later on you're going to be talking about the budget. And those are some of the discussions we've been having is, what does the ITS need to look like, what does it need to be -- how does it need to be shaped, and what resources does it need to be that successful party to where I think things can consolidate.

One of the key things we're looking at came out at a meeting we had with many of the directors, is a focus on understanding our IT spend. It frustrates me to no end that, as the Budget Director for the state, I could not tell you accurately how much we spend on IT. I have a reasonable

baseline of what I think we spend. But if you ask me how much we're spending on servers, how much we're spending on multiple data centers, how much we're spending on the several different web portals that we operate at the state, and how much of that is redundant wasteful spending, I couldn't tell you today. And that's a problem for me, because one of the primary drivers of moving towards a consolidated model, as we heard earlier, is towards those cost efficiencies, and using those cost efficiencies to improve our technology to reinvest in better technology.

So we're working on that. And I would really like anybody here in this committee who has a good feel for how you diagnose and quantify IT spend to please reach out to either the Chair or myself, because we're going down the path of trying to get that done. Not only to quantify it overall, but to compartmentalize it in such a way that it's usable and that we can make that actionable.

Another thing we're working on is trying to find new and incremental ways of spending on IT money. Not only do I think that we can save money, I don't know how much it is, but I also know that whatever we save is probably not going to be enough to meet the IT needs of our state going forward. We heard a discussion of Legacy systems and we have many old very antiquated Legacy systems that are either starting to fail or will in the very near future. And many of those are not tens of millions, but hundreds of millions of dollars to replace, reinvest and to improve that. So I'm looking for new ways of financing that. Because the traditional old operating systems, I believe, will be inadequate to meet our needs going forward.

And then the last thing is, in addition to consolidation as a strategy to try to achieve some of these economies of scale and to move towards a more standardized system, we talked a lot, Friday before last, we talked a lot about collaboration in governance structures that might be part of also where we go. And I'm also really interested in that, because I think that the directors in the state were very willing to go down a collaboration framework of, let's work together better on how we're going to replace our systems. I think the word governance just scares people a little bit, because they think it's big brother telling them what you can and can't do. But I think there might be some elements where governance is needed as well.

And so, Mr. Chair, I think that we've had a lot of cross-discussions over the last year within state government, certainly between my group and David's and now with some of the department directors. But we're rapidly getting to the point where we need to make some critical decisions and get an action plan going forward, because, as the speaker earlier mentioned, we work on a biennial budget. And if it's not ready to go, it doesn't get in. And so we're rapidly getting to the point of having to take action, make decisions. And so I'm really interested in feedback we can get from this group as to, you know, how we can move down some of these aisles. And I know David will be talking later. And I appreciate the opportunity.

Joe Marcella: Joe Marcella, for the record. I know, Director Mohlenkamp has to leave. But one of the recommendations, we think, a strategic get-together of the technology leadership in the State of Nevada on a periodic basis to have some of these discussions based on information that comes out of ITAB, information that comes out of some of the agencies that you're using, the use of Gartner today and others, that has a Chair and then it's a lively, real discussion on a consistent basis to start to find opportunities, and more of a taskforce than what we would call a subcommittee, with the ability then to come back with some of those recommendations. And then if they catch fire, then actually make those recommendations to the Board. Does that sum it up fairly well?

Jeff Mohlenkamp: Yeah. Thank you. I think that there was a real appetite amongst the state managers to having that robust discussion. And I'll just finalize my comments by saying that, for a long time, as a state manager myself, I viewed IT as a tool to help us get the work done. And I still do to some degree. But I'll be honest with you, it's far more than that. Chris is right. If our IT systems don't work, it's not like we can just start going manual. We are absolutely married to the IT environment we live in. It's going to be more and more.

The discussion about where the people that are going to be the, you know, receiving our services going forward, where they need to be, what their expectations of government is. It's going to grow more and more. And IT manager -- state managers absolutely need to invest their time and energy in understanding the IT arena. Mike knows that better than anybody because of all the systems he has. That if you're not understanding what your IT environment is, you are not managing your business effectively. And so I think there's a real growing acceptance of that fact. So appreciate it.

Joe Marcella: Thank you. Mike, did you have any quick comments? So that I'll just -- or I'll save it for the end.

Mike Willden: Are we coming back to this discussion?

Joe Marcella: We will a little bit, just to see if there's any discussion afterward, so…

Mike Willden: Yeah, because I would, you know, I would like to comment. But if we're going to have the Agenda item come back, I'll wait until then.

Joe Marcella: Okay. Chris. Yeah. Well, then maybe for the continuity, maybe a quick statement?

Mike Willden: Thank you. For the record, Mike Willden. Just to follow up on what Jeff said, because I was one of the directors that was in the -- kind of the mini-cabinet meeting that we had to talk about IT issues. From my perspective, as I guess a major user, I think we're somewhere around two-thirds of the DOIT -- or not DOIT, that's how old school I am, EITS user. I think

there is quite a bit of agreement over certain things. But there's also some pretty passionate disagreement on some things. And so from my perspective I think we really need to come at it from two angles.

I think it's going to be important for IT professionals to be pretty declarative to us users as to what they think tools, resources, expertise, things that they have that are going to make our lives better, cost us less money, that are going to make us more efficient, that are going to make us feel safe, those kinds of things. I don't think you're going to find disagreement on things like, you know, again, this is my terminology, I know you all say this is old school, but mainframe and my shop, you know, everybody ought to be in the facility. But I know there's agencies that aren't. And so it ain't me. I believe in that. We should go there.

And so when I say it ain't me, you know, we really need to get specific about who is it that's in the corral and who's outside the corral. And so make an argument about we all should be in the corral or people should be left outside the corral, that's when I say the facility. You know, servers. We've been arguing about servers, you know. Are they in the facility, not in the facility, protected, not protected? Again, we need to be deliberate. What servers have to be inside, whatever inside means, inside the corral. Or this is what you can have outside. Or we're not going to get there. We have to -- because it's too big just to say we're going to consolidate or we're going to do whatever. You have to be deliberate and specific.

And when I say come from it from both angles, you guys as IT, us as IT experts -- I don't consider myself as an expert, but many people on this Board are. You have great ideas. But selling them to people that feel they're going to lose control or not going to be able to run their shops the way they believe they need to run their shops, that's the sales job from one angle. And then listen to us from the bottom up, saying, but if you take this away from us, is it really going to be better?

So I'm just going to -- so things like mainframes, servers, security, communications, standards, I think everybody's onboard. You know, so just make it happen. I mean, that's kind of how I -- be deliberate. Make it happen. Issue an order. Things like, you know, the earlier gentleman that talked, you know, it's like once you get the applications, we get (inaudible). Guys that are out there, you know, running the applications -- I don't want to have to -- when I get the call at two o'clock in the morning that my system's down, I have to react. And I want to know that I'm in charge and it's going to get fixed.

And so those are where we start getting grayer. You know, if I'm going to be fired for not having a system that runs, I want to know that I was in control, or Dave needs to be fired for not having the system run. It wasn't my fault, you know. Desktop support, helpdesks are really questionable to us. So I think as we continue to have that debate either in the committees that we've been having or more going forward, I think, again, I can't say it enough -- be deliberate from the IT perspective of, you tell us what you think is best for us, and why, and then listen to

us. We don't think this should be consolidated, because we don't think it'll work better. And hopefully you can find the middle ground. It just sometimes seems like we talk about things that are -- I don't think we'll lose any sleep over. Security, Chris is the man. Run the damn thing. That's my opinion, and other kinds of things. But we have to find the differences rather than just talking about the whole pie. We just keep talking about the whole pie rather than the differences.

Joe Marcella: I appreciate your commenting.

Mike Willden: That was a long story.

Joe Marcella: No, that was well stated. Thank you, Director Willden. We'll go ahead and -- the special magic here is that the dialogue has started. And I'm not so sure that it's always been an honest conversation. So that's kind of special. Chris, could you continue?

Mike Willden: Thank you.

Chris Ipsen: I will. If I can, I'll just deviate for 30 seconds on the comments that I heard. I started out in Health and Human Services. And actually I had a great job then. And when I left it, I left it to a harder job.   And each time we take on these projects and we make recommendations, the job gets harder. The pay doesn't get any better. Actually it gets worse. And I'm not preaching to the choir -- I know I'm preaching to the choir here. So I -- it's not self interest. And actually it's a lot more work. But what's imperative, if I can convey one thing from my personal perspective, and I think I saw Amy Davies, she's a Deputy CIO, in the audience, we had this discussion just this morning. If I can't make it a business decision, then I haven't done a very good job. It should be business leaders saying, "Here are my risks. Here is the cost. What risk am I willing to assume? What am I not willing to assume? And let's go forth and conquer." It's as simple as that. And I think that's what I heard you say, Mr. Willden.

And if I can't do that, then I've not done my job very well. So taking something complex and making it very simple is my job. So I'm willing to accept that for as long as people will allow me to accept the job. And when they don't, then I'll go have an easier job going forward.

So anyways, in terms of our projected responses, and Director Mohlenkamp said this, this is a work in process. And it's a lot of hard work in process. We're building the infrastructure to make this happen, to standardize work -- desktop configurations. Around what? Around the forward controls. Everything else, I don't care what application. If you've got a secure application, I don't care. Run it. If it's not secure, then I want to tell you that it's not secure. And this is your risk. And as a business leader, you need to be able to say, "Well, I'm willing -- I have to use this because, for example, CDC says I have to run it." Okay. Well, then we'll build mitigating controls around it.

Standardized remediation. So if I can't just say, well, you've got a problem. But you don't have a tool to remediate it, so I'm going to beat you up in the public. And I don't give you a tool to finish the job. You have to have a way of solving the problem. I can't come to you and say, "It's unpatched, it's XP, you can't have it anymore," and then walk away. I have to say, "Well, I'll work with you to get the correct operating system or to come up with a standardized patching system.

How about standardized reporting? One of the things the Governor said to me at one of the Homeland Security Commission meetings is, "How are we doing, Chris?" And my answer was, "I don't know." This was a long time ago. It's getting better now. And he says, "That's a really bad answer." I said, "I know it's a really bad answer." But if we don't have standardized reporting, if we can't measure it, we can't improve it. So that's one of the things we focus in on.

How do we focus in on it? Well, we went after grants. We didn't have any money. People kept saying, "It's not in the budget. We don't have money for it. We can't do it. You're going to fail." And that's a bad answer. So I said, "Well, can I ask for free money?" And then this administration answers, "Yes."

And so the first grant that we went after was a continuous-monitoring grant. It's a national term. Homeland Security. We competed with the firemen, the police, to say, "Cyber security is as important as bombs going off and fires and all of those other things." And I believe that. And I think we see that that's true now. We are under attack constantly, pervasively. I almost got thrown out of a Homeland Security Commission meeting as I sat there. They go, "Cyber security? What, are you crazy? You know, what does that --" Well, I'm not going to overstate it. This is a public meeting that's being recorded, so I shouldn't overstate it. But my point is, is that there wasn't a lot of acceptance. Now, it's the number one priority of the Commission.

Actually, if you combine the top two, cyber security, number -- Governor has stated, number one priority, cyber security. Why? Because we can be attacked from any person anywhere. There are no geographic boundaries. The tools are pervasive. They're freely accessible. And in some cases, we're ill prepared to defend ourselves. We're a good target.

We also went after a security logging grant. This was a good one because it was unencumbered funds that were available. We said, hey, if we could put together a system in 30 days or less, put together some hardware and software, we could actually look and start correlating events and have some data so that business leaders could understand it. We did it. We've deployed it. It's not big enough yet, but it's a start.

Continuous monitoring. It's ongoing. We've deployed the centralized database. We've got a methodology that also incorporates our ulterior solutions, so we've got a database of our vulnerabilities that we're seeing. We've got live feeds coming in. We're aggregating all of this

data, so that we can pick the needle in the haystack. We get multiple feeds and we look for anomalous behavior, which leads us to our third grant, which is ongoing right now.

We just -- I believe David Gustafson's going to be talking to the Interim Finance Committee next go round. And what we're trying to do is take these feeds, which have been very effective in telling us you have 100 live incidents going this month in your environment. Last year you had 10. Now you have 100. Whatever those things are, you've got 100 this month. And if you wait till next year, you're going to have 1,000. And you can't manage it. And we've been able to take those. We need to accelerate, target our efforts, focus our energies. And it's been successful. So what we look to do, what we ask for is the ability to take it up one level, to take feeds from the counties and cities, because we're all interconnected. We're interconnected -- we get 12 million attacks a month from our trusted intranets. So the counties and cities, and they get them probably from us, too. So we are all in this together. So elevate it one step. Use fusion center and their communication infrastructure. Take these live feeds. Aggregate them. And we should be able to track these events across networks. So we're trying to go a little bit bigger within the sovereign boundaries of the state. And we went after a grant and we got it.

So that was a great thing, especially when we knew that Homeland Security was thinking of eliminating our free monitoring -- remember the lottery thing I talked about? They were going to take it away. So we said we're going to have to take care of Nevada ourselves. We can't expect the federal government -- federal government doesn't know Nevada exists as far as I'm -- well, they do know we exist, but oftentimes their focus is not Nevada first. We, in Nevada, see Nevada first. So we've got to -- we have to address it.

Going forward, what I'm seeking -- so, I mean, if I come to you and I just give you all this stuff and walk away, then I think I've failed. So I've come to you and I've told you what we've done. And hopefully what you're -- you've been able to garner from this is that we're being wildly successful, given the very limited, nonexistent resources that we have. We're leading in some areas. And I'm going to ask for some favors from all of you. I need guidance. I need help. First of all, I need help with the statewide cyber security strategic plan. Are we on the right track? Are we doing the right things from a business standpoint? If I'm doing something for the counties and cities, do they want it? Because I don't want to do something they don't want. Disaster recovery, graceful failure.

I think this is a huge opportunity. If we learn -- or let me rephrase that. If we can focus on the successes and the collaboration we've already manifest, and we share resources for this graceful -- we will fail more gracefully. We will utilize Joe's servers in the south, and he'll let us use them, because he knows that he's dependent on us. And if they can use our data center and our communications infrastructure, why can't we do that? Just because there were laws previously that don't exist now, because we can't offer services -- that's one of the things I didn't put on there, we can offer services to counties and cities, if they ask, and that's a huge one, my fault.

We should be doing that. So let's come up with a consolidated approach. That's a collaborative approach.

Incident response. When we know we've got something in our environments, it may be bigger than us. So how do we work together? How do I help Pershing County? How does Pershing County help me? How does Washoe and Clark and City of Las Vegas, how do we all work together on incident response? I've got active commitment from the Guard. They want to help. They can help. It's under the Governor. Counties and cities want to participate, and we've got some funding. So we're going to do some incident-response training. We're also working with Carnegie-Mellon University, which is the number one cyber-security university, to help us do a gap analysis using grant funds to see where we can do it. But I need some guidance from you. Is this the right thing?

Statewide Cyber Security Committee, where should it be? I think it should be under the Homeland Security Commission. We're talking about it. All the ISOs, information security officers, and I and Laura Fucci, who co-chairs it, she's the CIO from Henderson, former CIO from Clark County. She and I co-chair this. We're trying to look for our proper place so that we can be most impactful, but be respectful. So I think I know where it is, but I need some guidance from you all.

And strategic sourcing. How do we have effective public-private collaboration? So the things that we can't do, well, how do we outsource it to people who can and still maintain control so that we can determine our own outcomes? We don't have to be beholding to someone else for the information.

And with that, that's the end of my presentation. I actually think I stayed within 30 minutes, if you account for the extra 10 minutes that's going on. And then I'm open for questions. So I'm here as a resource to you.

Joe Marcella: Yeah, Chris, you can blame me for that. But I just wanted to make sure that Director Mohlenkamp didn't get out of here without kind of recapping the meeting we had two Fridays ago. So I think it was important and I think it was relative to what you were presenting. I'd like to open up to the Board for discussion.

Paul Diflo: For the record, Paul Diflo. Chris, knowing that IT security is a job that's never finished, it's kind of a journey, do you -- are there any other tools that you need to do the job? I noticed that there was nothing about data-loss prevention up there, for example.

Chris Ipsen: Well, I do believe that we need tools in that arena. There are tools, and that's one of them. But I also think it's important for us to maximize the efficacy of the tools that we currently have. So we've got two current pilots going. One is the standardized desktop configuration. The other one is monitoring service, so security validation. So it's a validation

tool that we're looking to deploy globally. From that, we're going to know where our data is. And I don't want to take on more work than I can be successful with. So if I took on DLP, which I think -- well, I don't think, I know we need it. I also know it's very expensive. I also know that in order to understand how to protect the data we have to define where the data is and classify the data and assess our posture relative to it. So there are some easy quick wins in that arena, but there's also some long, you know, trudges that we need to go through.

So, yes. Thank you. And if it's your recommendation, I can put together a list of those types of tools that I see in this gap analysis. And perhaps you could comment or make recommendations going forward. And maybe that's an opportunity for the creative sourcing. We can bring in contractors to help us fill the gaps where we don't have people. Thank you.

Mike Willden: Chris, Mike Willden, for the record, you made a statement that you needed our help. Or maybe not this Board, but needed help with the statewide cyber-security strategic plan.

Chris Ipsen: Yes.

Mike Willden: So I'm just curious. I didn't really get the, what help do you want? So is that part of the guidance thing? Or what, specifically, do you need us to do, or not maybe this Board but Directors, or what?

Chris Ipsen: Well, we have good communication. I'd like to start with that. And the Governor's onboard. But I want to be respectful to the boundaries and also be effective. So I need to know, and you've said some of it already, tell me where it is and we'll give you a thumbs up or thumbs down. I need those types of guidance to go forth and make sure that I'm not overstepping, that I'm being respectful of -- that I'm not being too respectful, but I'm being respectful enough. So if we develop a cyber plan, I need your involvement to say that will work or that won't work. I also need the active engagement of your agencies. So when we deploy the desktop solution, that we have an active discourse. And I know you've been really great with that. But other directors, going forward, if we have this body saying, "Yes, the state does need a cyber-security strategic plan, Chris, you should be the guy doing it," then I'll do it. If I'm not the guy who should be doing it, then we need to find out who that person is or who those entities are and go forth.

So organizational issues and key strategic, what do I want to say, initiatives in terms of cyber security I think are important. And I think, Joe, you can be helpful. There's a lot of great minds up here, so I'm throwing it out there. I'm reaching for opportunities. Does one -- does one need exist? And if so, am I the right person to do it? And if I am, then what resources can you provide to help me do that effectively? I guess…

Joe Marcella: Joe Marcella, for the record. Just to sum this up, from what I understand, in most of IT, and we're usually driven by business need, and then we find technology solutions. With

security, it seems to be the reverse. It's we don't always know where we're vulnerable. And it takes a security professional to go ahead and identify those needs and then propose. So I'm thinking that you're the source of the information. You're the one that identifies the risk. I also realize, and if it was missed, you're having a great deal of conversation with the entire State of Nevada and all of the organizations that are providing services to citizens, and you're getting a lot of that input. So I think not only would this Board welcome that kind of information, so that we could hear what the issues are, assess the risk and then help you move forward, I think that's probably the best place to start. And we applaud you for at least taking the effort.

Chris Ipsen: Great. Thank you. I'll do that.

Joe Marcella: Thank you.

Paul Diflo: For the record, Paul Diflo. If I can just augment that question. I think the statewide cyber-security plan, being defined by you, was illustrated, probably with my last question of, do you have a plan for DLP? With a strategic plan, you could put a multiyear horizon together and say, all right, I'm going to classify my data. I'm going to understand where it is. And then I'm going to implement DLP solution and I'm going to prevent PCI and PII or HIPAA or whatever type of data it is from being lost. So I think it's a great suggestion. And I do think that it belongs to you.

Chris Ipsen: Very good. Thank you.

Joe Marcella: Any more discussion? Thank you, Chris. And thank you for the report.

Paul Anderson: Mr. Chair, down…

Joe Marcella: Oh, I'm sorry.

Paul Anderson: …down here in the south. Could I ask a question?

Joe Marcella: Please.

Paul Anderson: I'm the stepchild down here, so appreciate the time.

Joe Marcella: We just need a bigger screen, Assemblyman. A bigger screen, more (inaudible).

Paul Anderson: I used to take more of it. So, Chris, great job on the presentation. You did a great job as far as making something very complex into simple bullet points. And I appreciate that. I also am curious about the end-user component of it. Obviously, we can take tools so far. We can put in parameters and put up, sort of, thresholds, only to a point. What type of user training do we do; whether it's opening certain types of attachments, letting them know of

certain threats that are out there? Can you tell me a little bit about how that works into the security equation for you?

Chris Ipsen: I can. Awareness training is important. It is -- how do I -- we actually had a position a couple of years ago that was specifically defined for that role. And in the cutback of the state, that position was eliminated within my group. So what we did is we decided to go to technology. We have some online training. The state uses it. There's still an executive order that requires a certain level of it. I think my staff has done a yeoman's job, given that it's not within, you know, it was an eliminated scope. However, I think there's a lot more work to be done. And, I believe, there's some, in terms of opportunities moving forward.

I have an engagement with the Securing the Human Project. It's one of those Sans -- it's kind of a catchy name. But it's a community of probably about 200 senior cyber professionals in the private and public sector looking at this social media, how do we develop a plan. I think we could probably deploy some of those solutions a little bit better. I'm severely resource constrained. So I think that's an opportunity. And, yes, we do need to do more of it. And we do some of it, but we don't do enough of it.

Paul Anderson: On the resource side, I'd be happy to go to bat for you. So I'm happy to do what I can on that end of it. Do we track -- obviously we can see kind of the source of where this -- whether it's a virus or malware or whatever the intrusion happened, do we track how many came from user inaction versus some other method of coming into the network? And is there kind of a percentage you know off the top of your head?

Chris Ipsen: Well, we are -- first of all, we have metrics. And I'm surprised that most entities don't. We actually track how many incidents. And I spoke to the legislation previously where agencies are required to report into the Office of Information Security within 48 hours, suspected or known security incidents. The reality is we see it before they do. We report it back and then we say, okay, you got to send us a form saying you acknowledge that it exists. So it's been a really difficult process to communicate, and also to get an effective response. And the good news is, is after a year, our Information Security Officers are actually doing a great job now, of engaging with my staff and saying, "Okay, we know you're not here to embarrass us. You're here to solve the problem." So we work with them.

And now that the process is once we identify it, to trace where it comes from. So that's the stepped approach. First, you've got to identify what you've got. And then you've got to identify where it came from. And I think, statistically, without getting -- I try not to get into the weeds because it opens up vectors, threat vectors. I believe that our threat vectors are very consistent with the industry's threat vectors. So some generalized things. Phishing attacks work. So sending a malware in an email attachment, if it's without our four-hour update window, some of them get through. When you get 600,000 in a day, and you have a four-hour window, a few of them are going to get through. So we have to get the users not to click on the things.

But then this is where that hygiene approach comes into play. If I rely on end users to be the successful component of the system, and I include myself in that, we're going to fail, because the attacks are so sophisticated. If it comes from the Governor and it says your pay is being reduced, I guarantee you 99 percent of the state employees are going to click on it. And so therefore what we have to do is improve the hygiene of their end workstations so that if they do click on it, it doesn't do anything. It doesn't allow itself to be downloaded onto the computer. It doesn't open up. And it doesn't do what it's -- it doesn't pivot to other systems so that our -- so I'm focusing, first of all, on the hygiene part of it.

If we had an epidemic, that's where I think the key is, is to get everyone vaccinated. And then let's work on, okay, what are the risky behaviors. So the awareness is the risky behaviors, and the hygiene on the desktop is the immunization type thing. So I think that would be very helpful. And our statistics are very consistent. Most people -- over 50 percent of the people will click on an attachment if it exists there. If we could get that down to 30 to 20, I would happy. I'm sorry, did I…

Paul Anderson: That's always the most difficult part, for sure. And I'll just be brief on this component. You know, we have the tools that you've already talked about and they're generating tremendous metrics. If there was some way to generate, or maybe we already do, an executive summary report, for example, to our agency heads or whoever was appropriate in those departments so they knew that, internally, where my most susceptible folks were or threats were or PCs were, that would empower them to help us with the solution. And maybe even empower them to make a decision to rely on EITS for that greater solution and, in general, the consolidation of what we need to do there. Just a comment. Thank you.

Chris Ipsen: Well, thank you very much for that recommendation. And actually I do have a little bit on that. How I intend to deploy this is, that is continuous monitoring and reporting. So the goal is, A, to get us standardized so that we're looking at apples-to-apples, oranges-to-oranges, to have a system that reports back in. Secondly, to report it to the people who can remediate it. So don't embarrass -- no offense to the directors in the room, as they exist.

Mike Willden: I'm the only one here.

Chris Ipsen: Well, that's right. Well, I don't want to -- I'm not here to embarrass the IT people, because they've got a really hard job and they're doing the best that they can. I want to give them some insight on how to be successful first. And then if they choose not to be successful, then I want to develop a report that has a gradient that says, you're getting better, you're getting worse, this is where you sit relative to everyone else.

But at the risk of sounding like no child left behind, I want to develop a culture of trust to where the IT people want to compete to be the best rather than try to run away from being the worst.

Because then they hide and they, you know, it makes it difficult to deploy solutions moving forward. I want to empower them to be successful. And, quite frankly, I can't be successful unless they're successful. We can't be successful unless they're successful. So I'm trying to develop a culture of wanting to be successful in education moving forward. And that takes a lot of work and a lot of discussions, and a lot of push-back sometimes. Some people, there are islands that say, "Don't even look at me. I don't even want to talk to you. I don't even --" and so I have -- we have to overcome that. And at some point we need to make it…

Paul Anderson: I get that at home, too, Chris. So don't feel bad about it.

Chris Ipsen: I learn a lot from my wife.

Paul Anderson: Thank you, Chris. I appreciate your time and, Mr. Chair, thanks for the extended time.

Chris Ipsen: Thank you.

Joe Marcella: Chris, thank you very much. Not only was this informative, but it was right in line with much of what we've been talking about for the last year and a half. So not only do I appreciate it, and I know you're not feeling well, so this was a herculean effort and that's appreciated by the Board. So if you would. Go eat something.

Unidentified Male Voice: Go out and get immunized.

Joe Marcella: Yeah. David?

Chris Ipsen: I got my shot. It didn't work yet.

Joe Marcella: Well, I was yelling at you for not getting a flu shot. And you actually got one.

Chris Ipsen: I did.

Joe Marcella: That's what caused it. David?

9. **STRATEGIC ISSUES -- THE CIO PERSPECTIVE**
   -David Gustafson - CIO, Enterprise IT Services
   A. **Enabling ITAB to review the Division's proposed budget before submission to the Budget Division (NRS 242.124)**
   B. **Enabling ITAB to advise the Division concerning the development and acquisition of information technology (NRS 242.124)**

C. **Meeting the challenges posed by an aging and non-adaptive IT workforce**

D. **Should IT statutory requirements be changed to reflect actual state operations or should operations be change to reflect existing statutes? (NRS 242)**

Joe Marcella: Agenda Item No. 9. And I know you wanted to rapidly go through a couple of items on the legislature, budgeting and strategic planning.

David Gustafson: David Gustafson, for the record. I know this is going to sound really weird, but these chairs are much more comfortable to be up here than those back there.

Joe Marcella: Not after I start questioning you.

David Gustafson: Oh, hello. Okay. I had a few things I wanted to discuss with you all today. And it sort of came up with a meeting that we were having over at the Budget Office. And now we're asked to put in our bill draft request earlier than previously -- about a month earlier. And, essentially, I need to have any bill draft requests, changes to statutes, into the Budget Office, I think it was May timeframe kind of thing for us, internally. And that got me thinking a lot about sort of the statute changes that we wanted to make last time. We had quite a few changes that we wanted to implement that were not moved forward. And so they're kind of queuing up along with other changes that we'd like to make. And I really wanted to run through a couple of these with you guys and tell you a little bit about what's going on. Some of these are going to be little side-barred, but we'll just go through them here.

The first one, the statute requires -- I should say, I shouldn't say requires because I'm not sure if it's a "shall" or "may," but for the IT Advisory Board to review the Division's budget before I submit it to the Budget Office. And, currently, that's a condition that would be very difficult, at best, to adhere to. And I'm not really sure how I would do that. That's the way the statute's written right now. And I just wanted you guys to know that, that it's a very difficult condition to do that. And if we want to change that or leave it in -- just kind of I'll throw it out there for you guys. It's hard for you guys to comply.

Joe Marcella: And I wanted to clarify. I believe it's a "may." Is that a "may"?

Unidentified Male Voice: It's a "shall." "Shall."

Joe Marcella: It's a "shall"?

Unidentified Male Voice: "Shall" review the budget.

David Gustafson: So if it's a "shall," then and, you know, the Director's not here, Jeff, the Budget Officer. But we would need to somehow modify certainly my budget, how we develop, and submit our budget at least for enterprise IT, because then we'd need to give it to the IT Advisory Board -- well, since you're technically only meeting quarterly, I'm not sure when we'd have to have it done -- but the quarter before I have to submit it, so that you guys could review it and then have a meeting and provide feedback. And I just wanted you guys to know that. And if you guys want to talk about it, that's certainly fine as well, but the "shall" in there may be challenging.

Joe Marcella: Well, I think it needs to be discussed. I think it's -- what I'm understanding, it's a policy issue and it's a process and procedural issue. And that's what gets -- and you have barriers to getting the kind of information upfront so that you can actually get legislation that will help you based on your strategic objectives…

David Gustafson: Right.

Joe Marcella: …from a budgeting perspective.

David Gustafson: This is Dave Gustafson, for the record. Let me say that there's a sort of a, kind of a woven thread here. And it kind of goes with the second part as well. And let me just give you guys the really high level of how the budgeting process works. And then you'll understand why it's kind of complicated. Agencies, we all submit our budgets on August 31 at 5:00 p.m. I think it's August 31, 5:00 p.m. everybody hits the submit button, the virtual submit button. And then it goes into the Governor -- the Budget Office for Governor's recommended review and then sometime in January at the state of the state, the Governor, in this particular case, on election years, would then release his budget to the legislature. The legislature comes in on February 3 or 5 or whatever it is and then they begin the process.

So for us all to submit at the same time requires -- all my friends are leaving me. I guess they say budget talk, everybody leaves. All the IT guys leave when there's talk about budgets.

Joe Marcella: So much for that free dinner.

David Gustafson: Yeah, I think so. So in order for me to provide you a budget or some semblance of a budget months ahead of time would require me to back up my budgeting process probably three months as well and guessing at what a lot of my customers are going to be requesting for our services, because typically, and Mr. Willden's here, he can tell you, we're changing that thing all the way up to the last minute. And so that would be really a difficult situation for me to give you guys something and enough time for you guys to review it and provide some feedback, I presume. That's what the point of it is. And then make any changes. And all hit the submit button at August 31 would be a challenge.

Joe Marcella: David, I understand that the process is cumbersome, that I would almost say it's not broken, bent. I think that's a song that's out there right now. Do you have recommendations? Or will you be providing recommendations on how we should go forward to Director Mohlenkamp?

David Gustafson: I think, and we've been having some of these discussions around the Budget Office now, and, I think, I am not unique. But now that I am in the Department of Administration, I share -- I bring greater light to the problem, let's say, because as a department head before, when we would all hit the submit button, it was a different relationship I had with the Budget Office. Now, what I'm bringing to them more is a situation of, I need to know what's exactly in, say, Mr. Willden's budget, so that I can properly prepare my expenses or my delivery of services in accordance with what he's requesting because that's what I'm charged by statute to do is to provide IT services. So I need to understand what the demand is before I can provide a solution. And if I'm guessing as to what our customers are asking for, and we're all hitting the submit button at the same time, and there's no fluff in the budget, well, then we end up at IFC and that's where we see Mr. Anderson, you know, more often than he'd like to see us.

And so, I think, if I had my magic want, I would probably give us a 30-day window after agencies submitted their budgets to then go through and review what the demands are of our services, or not, you know, increase or decrease. And then to properly source those IT solutions and then make that part of our official budget. So a 30-day window would probably better.

Joe Marcella: That would be a change to the legislation 242?

David Gustafson: No, no, no. That would be a change to Jeff, the budgeting process.

Joe Marcella: Policy and process, okay.

David Gustafson: Yeah.

Joe Marcella: So it doesn't require a BDR.

David Gustafson: No, I don't believe so.

Joe Marcella: All right. So that's…

Paul Anderson: Mr. Chair, could I jump in on that one?

Joe Marcella: Please.

Paul Anderson: So I'm wondering how the performance -- Paul Anderson, for the record. I'm wondering how the performance-based budgeting that, David, your boss is heading and chairing

for us. We have a subcommittee for performance-based budgeting for the Ways and Means Committee, how that may impact giving silos and objectives versus line-item budgets?

David Gustafson: Dave Gustafson, for the record. I think the performance-based budgeting is absolutely going to be a move in the right direction. I don't know -- think you're still going to have the same problem when it comes to the internal service funds, because we don't know the demand on our services. Let me say this. Let me give you an example of that. It's almost the same as nobody's calling motor pool or fleet services now and saying, "Hey, oh, I forgot to tell you I need an extra 100 cars." But now that our budgets are all in there, so then what we have to do is we have to try and fix it in this Governor's recommended process, and that's not appropriate.

What if a customer comes out of the blue and says, "Hey, by the way, I need an extra 100 servers," or we don't find out about it until it goes through the Governor's recommended process, where, no offense to the accounting people, but they're just -- the budget people are the only ones looking at these things. And things get missed and millions of dollars get lost. And this is what, you know, the risk that we run by not knowing what the demand on our services is before we actually finalize a two-year budget.

Paul Anderson: So I guess a bigger problem, too, is certainly that -- as you were kind of explaining that, it came to mind that a lot of times you don't know what your demand is until after we're completely done with session and have essentially closed out and approved the budget, because we may approve things that certainly weren't on your radar. Is that correct?

David Gustafson: That is correct. Absolutely. And, well, I don't want to say. I'm in an open meeting here. But, you know, when adjustments aren't made after legislative session, then we get into a real box. And in years prior when the state was a little bit more flush, we didn't have this problem because we had a little slush in the budgets and we could absorb some of these minor changes. But now that the slush is all gone and we're not running on muscle only, and when we see these kinds of changes coming through, we have no way to be flexible to meet our customer needs for two years. And that's a great challenge for our agency -- our customers because, you know, as everybody knows, the world of IT changes so frequently that you can't wait two more years to talk about it again.

Anyway, I didn't mean to talk about the whole budgeting process. But it's -- it's great that you guys need to understand how that works.

Joe Marcella: We'll be looking forward to some of the recommendations in policy changes. And I do believe that some correction in the internal service fund will actually break the back of some of those issues.

David Gustafson: Dave Gustafson. I think that, I mean, I'm a logical kind of guy, you know, and I kind of like to keep things simple. I think agencies should submit their budgets. Then the internal service funds probably get a 30-day window to go ahead and adjust appropriately. Whether you're adding or subtracting, we need to know that because our costs are a full cost-recovery business. So we have to be able to adjust our expenses up and down.

Joe Marcella: Which brings us back to one of the original questions, Paul?

Paul Diflo: Paul Diflo, for the record. Yeah, one of the questions I had earlier, I didn't get a chance to ask, with the billing presentation that was given to us. I'm curious, if you're leaving money on the table because SOA agreements aren't being signed -- in other words, are you missing revenue because of that?

David Gustafson: Do I have to answer this question?

Joe Marcella: As gracefully as you can.

David Gustafson: As easy as I can, huh, without getting myself in trouble.

Paul Diflo: And I say that in the spirit of that gives you an ROI to get something implemented.

David Gustafson: No. Dave Gustafson. I have to say, it -- for anybody, it would be a challenge to send proper bills if you're not exactly sure exactly what you have. And that's where some of these systems come in to really help us out -- is to help define and to ensure that there's data integrity in the billing process.

Joe Marcella: Part of what, I believe, Mr. Diflo is referring to is that one would pay for the other.

David Gustafson: Mm-hmm.

Joe Marcella: If, in fact, you knew that you were missing revenue. And simply by adding a little bit of resource of $10, $15 to collect $25, makes perfect sense.

David Gustafson: Right. Dave Gustafson. In fact, what I've submitted for consideration this year is an enterprise billing system for the whole Department of Administration to -- that would encompass all of the internal service funds, whether you are motor pool, purchasing, whoever you might be, that will allow us to have a central billing system for the entire Department of Administration, not unlike what we had when we were the Department of IT.

Joe Marcella: Thank you, David. Can we move on to the next item?

David Gustafson: Sure.

Mike Willden: Mr. Chairman, could I just comment on that one first?

Joe Marcella: Please.

Mike Willden: Just from the peanut gallery here, I mean, how do I say this? Again, I've got to be careful, too. So this is an Advisory Board. And so I always have a hard time with my advisory boards in HHS, where we use language that says review and approve budgets and things like that. So my recommendation to the group is when we look at BDRs, I think there's three "shalls" that we're supposed to do, you know, advise the division on a whole bunch of stuff, periodically review strategic plans and standards, and then review the budget.

I don't think the review the budget's appropriate in that "shall" list. But I think that C-line item in the budget should be stricken and that it should be incorporated in the, we should advise the division on, you know, the things that we have listed here; development, acquisition, consolidation, integration, policy plans, standards. You could add, and budgets. You can advise on the budget development. But the review and approval just doesn't make sense to me for an advisory board. Because what are you reviewing and approving? He's already said that. You know, you don't even know what you're reviewing and approving until all the agency budgets are submitted, processed and you exist based on what we ask for.

David Gustafson: Right. And, Dave Gustafson, for the record. Let me answer that by saying, the statute is written dating back to 1965 where it envisions a centralized consolidated IT environment. And I'm going to say it and I'm probably going to get in trouble. I know the lawyers are all, you know, I got the superman stare over here. Because we have moved away from statute, probably over the last, you know, 10 or 20 years or so, we are a shadow of what the statute actually says for us to do.

So one of the changes I want to talk about, I wasn't going to talk about, but since, you know, Mike, you brought it up, is making some sweeping changes to NRS 242, because it is not reflective of what we are doing now. It is not reflective of the budgeting process. It's not reflective of executive policy or legislative policy. And I think it was -- when we take some of these things out of context and we just look at them and we say "shall" something or other. Well, it's in the context of a fully consolidated, centralized IT organization. That doesn't exist anymore. Or I don't know if it ever did, but it doesn't exist now. So we need to go back and look at all this. And what I really wanted to do with you guys was just to sprinkle a little ideas out there for you to really start looking through. And if there's some of these things that come up that, you know, if you want to make a recommendation, otherwise I'm going to be doing whatever I think is, you know, appropriate. But if you have an opinion on that, I'd like to hear it.

Mike Willden: Mr. Chair, just one more comment and then I'll be quiet on this issue. Because I think if we're looking at, you know, one of the frustrations that I think Director Mohlenkamp talked about is just how much does the state spend on IT? I've heard numbers $300 million. Somebody said, "No, that ain't the right number. It's $180 million." Well, David's budget's just actually one piece of the IT spend. You know, some of my money never goes to David's budget. We buy other IT things that aren't any part of EITS. And so when you're really approving the state's IT budget, well, we'd see David's piece, but you aren't going to see the other pieces that are money that I don't send to David to use to procure IT stuff. And so that's my problem with -- you don't ever see the whole picture until it gets to the Budget Office and it gets all rolled up.

David Gustafson: David Gustafson. And that, exactly, what was my second point here and that is, does ITAB have an opinion on this, or a recommendation, or nothing? You guys don't have to do anything. But the way we -- the way the budgeting process works, there are a lot of -- I'm trying to be careful how I say this -- there's a lot of requirements for me, as an oversight or watchdog or whatever you want to call it to ensure that, you know, that there's no proliferation of equipment and that the highest and best use and the most efficient use of resources and all this kind of great stuff.

But if an agency requests something in IT in their budget, I don't know what it is. It goes in as a regular budgeting process. And I don't review everybody's budget, obviously. It goes to the Governor's recommended process. And the Governor says, yeah, it sounds like a legitimate process, purchase, go ahead. It goes over to the legislature. Agency makes a presentation at the legislature. The legislature says, yeah, it sounds like a legitimate request. They approve it. Now, all of a sudden I have to come in at the backend of this and play watchdog and say, wait a minute, you're asking for something that's completely out of the box. Or, wait a minute, we've already got five of those things over here. We don't need any more of them. I've got one for you. Or let's share it together.

It's kind of a broken process in the government. And I think it's something that clearly needs to be looked at. And if you guys don't have an opinion on it, that's certainly fine. I just think it's broken from an execution perspective. And I'll be looking to make some changes to the statute that would sort of remove some of that, at least off of my shoulders. But I think it's something that's clearly broken and it needs to be addressed.

Paul Diflo: Sorry to (inaudible).

David Gustafson: Go ahead.

Paul Diflo: Paul Diflo, for the record. I look at my role on this Board as someone I want to help you provide better service to the state. And part of that is reducing the costs as well. So I agree with Mike. I don't know how much value we would add in approving a budget. But certainly

visibility, maybe once it's approved, would help me. Now, I'm speaking for myself. But, you know, I think I'd be a better Advisory Board member if I knew what the spend was about.

David Gustafson: Dave Gustafson. I agree with that. But you also need to understand the context that it's built into. And that's what's hard about our world is that you may see, for example, "Hey, you're spending $1 million in routers this year. What in the world are you doing over there, son?" Well, that's because we're running 100 gigabit links all over, you know. I mean, that -- and so you kind of need to understand the context of which these things are derived. And it's difficult when you're only looking at, as Mike says, "My budget's only $40 million." So when you look at a $40 million budget, it's hard to understand the context of the other spend which may be as much as $300 million more somewhere else.

And so I can't disagree with you. I think it'd be interesting to see, at least, if nothing else, you know, look at it. But it says right now in the statute, "shall." And, you know, if we want to leave it as a "shall," then we should probably comply and, you know, we have to change process in order to do that. And if we don't, then we should strike out the "shall" and make it a "may" or something like that. So it's just a -- not as strong.

Joe Marcella: Joe Marcella, for the record. I suspect there'll be some continuing dialogue with Jeff Mohlenkamp. And then you'll be looking at the statute and make some recommendations to the Board?

David Gustafson: Dave Gustafson. Absolutely. And what I was looking for -- and I really wasn't looking for any action today or anything. I just want you guys to start thinking about some of these things. I'm going to go through a few more. And if there are things that you want to see or that you want to look at -- I'm just trying to start the engine here, because we have to do BDR, bill draft submissions here, you know, really within the next few months. And if we require drafting and, you know, legislature changes and things like that, we need to get on with the process, so…

Joe Marcella: So, see, it is a BDR.

David Gustafson: It is a BDR. Well, I'm going to put in a BDR anyway. So it's just a matter if you want these kinds of changes in there. And if you do, you might want to make some recommendations there.

Joe Marcella: David, can we go to the next item?

David Gustafson: Sure.

Paul Anderson: Mr. Chair?

Joe Marcella: Please. Assemblyman.

Paul Anderson: One quick second. Paul Anderson, for the record. So those numbers are correct. I mean, we spend well over $300 million in the state on IT. And part of the issue, I think, that even at this Board level, trying to figure out where we spend that money is very difficult. We had, during session, we had LCB, Legislative Counsel Bureau, do some research on it. And the number was quite surprising compared to what we, you know, see going through the EITS budget. And so I would suggest to Mr. Gustafson as well that, you know, we talk about how we can implement a better -- not necessarily a better budgeting solution, but a better idea.

We can't manage what we can't measure. And so if we're just guessing at how much we're spending in IT, it's hard to say consolidation will help or not help or how much it may or may not save us, which is not entirely the purpose of that. But, you know, as we're thinking about BDR drafts and ideas that we need to come together here, certainly that transparency as another colleague had already mentioned, before and after, would be tremendous in being able to actually be an Advisory group, so…

Joe Marcella: Thank you.

David Gustafson: Dave Gustafson. And that's really something that, you know, Director Mohlenkamp has a lot more authority over than any of us. But if the Board wanted to make any recommendations, you could certainly do that.

I want to talk to you a little bit about an aging workforce. And I hadn't quite thought about this that much until, I was just in Philadelphia at the National Association of CIOs Conference, and we were all just biding some time, waiting for some airplanes. And we had a little meeting. And one of the guys stands up and he goes, "Hey, next time can we talk about this human resource problem we have here?" What is he talking about? Exactly what is he talking about? So he says, "You know, we ran a report." I can't remember what state. He was a Deputy CIO of some state. And he says, "And 3 percent of our workforce is less than 30 years old." And I always thought IT was a young man's sport. I look around, and I, you know, maybe it's not. But, you know, I see on Facebook and Instagram and Yahoo and all this (inaudible) these great ideas. These massive, huge companies are all, you know, guys under 20 years old just dropping out of Stanford or whatever they are. So I kind of stuck at this mindset here. And I come back and I go, "Wow, that's really interesting, you know."

So we ran a report on our crew, on the guys who just report to me, about a sample of 190 or so. And the average age for folks that work for me is 50 years old. And we have less than 10 people who are less than 35 years of age. And maybe only about a dozen or so who are less than 40. And I started thinking, why is that? And so it was funny, since Jeff's not here, I'm going to share a funny story. So I go into Jeff's office and I said, "Jeff, you're not going to believe this. You're not going to believe what I found. This guy," and I gave him the story, this guy, you

know. Then I come out and we ran a report. And Jeff goes, "Wow." He's, "That's really interesting."

He says, "Now that I'm thinking about it," he's looking around his office and he sort of said the same thing. He goes, "Wow, there's not a whole lot of young folks that are running around here." And he says, "You know, well, why is that?" I said, "Well, I've got my opinion and one of them is," I said, "The generation that follows the X-generation, and I'm an X-generation," I said, "The millenials that come after me are a completely different animal." I said, "You know, I learned how to type on an electric typewriter in junior high. There was no computers. That was on a typewriter. And these guys, you know, I've got kids that are young. And I remember my kids, at two years old, they couldn't speak, but they could sure as hell use an iPad, you know."

And I said, "These -- this is a generation that is very different than what the generation I come from. And if you're a baby boomer, then certainly a different generation than they are." And I said, "Government is no longer sexy." I said, "You can't --" this is just my opinion. And so I'm sort of bringing this up as a human resource challenge that we have. And I said, "You can't take a guy," I said, "You know, Jeff, you've got two girls in high school, or college." And he goes, "Yeah." And he starts laughing. And I said, "So if you said to them, how about, you know, daughter, I got this chair over here, I got this phone and this computer. Why don't you come work for the state for 30 years and you sit right here at this desk right here and we're going to -- you retire at 30 years and you got this little pension thing going on and you can do whatever you want after that." They're going to look at him like he had three eyeballs, because that's just not something that's very interesting. They're a generation of, "No, no, no. Wait a minute. Look, I'm connected. I can call my friend in Tokyo. No, you don't understand. I can -- we're a global society." Then he goes like, "No, no. This work station right here." "No, no. You don't understand. I can FaceTime with someone in Bangkok or pick your favorite faraway country."

It's a completely different mindset. And we, the state government, cannot continue to have policies and procedures and a mindset that is a desk, a computer and a telephone. Because the workforce of today -- it is not tomorrow's workforce, it is the workforce of today -- is not that way. And so we, fundamentally, have to change. And I'm afraid that unfortunately the government, again, is slow to change and it's not going to happen, you know. And that's why we have people -- the average age of folks that work for me is 50 years old.

Joe Marcella: For the record, Joe Marcella. I just wanted to do a follow-up comment to what you just mentioned -- what you just said. This is the first time in U.S. history there are four generations in the workforce. By the way, as you stated, this is the first time in history that it's been totally mismatched. That means that the ratio of baby boomers in government is much higher than even the citizens that we have to service. So not only are we mismatched in the workforce, but we're not providing the citizens the services that they're really asking for and need based on another generation. So that's a bigger problem than just at the IT level. Also, there's evidence that we, as a community, and as well as the university system, isn't getting it.

The University of Nevada, UNLV, discontinued the MIS degree last year, has also discontinued, as a money-saving issue, the School of Informatics. So they're not even coming out of the University so that you can actually put them to work.

So, yes, I appreciate that you brought that up as an issue. But it's a bigger issue than just from an IT perspective. The entire workforce and services being provided, whether you're in the retail industry, IT or anywhere else is being affected. By the way, the average age in the City of Las Vegas is 49.

David Gustafson: Dave Gustafson. I have to comment on the MIS degree from UNLV. So I have an MIS degree from UNLV. And so if there was a…

Joe Marcella: That was the last one (inaudible).

David Gustafson: Yeah. Apparently I was the last guy, you know. And if there was a shining star or example they could, you know, put on the billboards, it would have been mine. But it's a sad truth about the society that we live in. And I just think that, what's important as we look forward as an employer, you know, the state is, you know, 18,000 employees, as the average age continues to increase and there's not enough people to replace them, you have the real brain drain. We haven't even seen the pain yet. I predict, you know, you got zero to five years, we're going to get pain. And then five to ten, we're going to get -- we're going to have to reinvent government because you're not going to be able to find people who want to sit there for 30 years at the same desk. It's just not going to happen.

And I -- another little sidebar, I did tell Jeff. I said, "Jeff, you got to understand something. In the IT business, four to five years in a job is about right. You go over five years, people start thinking there's something wrong with you. And you go ten or something and people think there's something wrong -- you did something wrong. You just, you shouldn't be doing that in the IT world." And we kind of like this natural turnover all the time. And so to think that you're going to get an IT guy who's really good at what he does and sit in that chair for 30 years to magically stay up on all the brand new technologies and he's always going to be on top of his game, is just simply not a reality of what today is -- today's workforce. So anyway, my two cents.

Mike Willden: Mr. Chair. Throwing my two cents. I've been talking too much. You know, I'm interested to see, you know, that kind of data. Because I think, in my organization, you know, the -- you know, averages are averages, I think we're going to a bimodal distribution in the workforce in our organization. What I mean by that is the older folks are staying longer and the young kids just keep turning over. They don't want to spend any time -- three, five years is a long time for them. So the key is going to be bridging the gap between the young techie, really smart, can get it done quickly and efficiently stuff, with old goats like me who still know how the ropes are done; the policy, the procedures, the institutional knowledge. That's the bridging that

we need to work on. I don't -- I think that middle group is gone. Nobody stays in government any more unless you're captured and need to be or you're going to be gone in five years.

David Gustafson: Dave Gustafson. I want to tell you -- now I will tell you. My actual discussion I had with Jeff was I said, "The pension system needs to change, and let me tell you why. We don't pay Social Security. And if tomorrow -- if the workforce of today -- I keep saying tomorrow is today -- is a two to five-year job turnover, it is quite possible that the entire government will be turning over at a rate that nobody's vesting in the five-year plan and retirement." And I said, "We just need a better model."

And because it's unattractive to people, to young folks especially to say, you got to sit in that chair for five years. It's just unattractive to them. That's not the world that they live in. They live in a mobile connected world. It's just not going to work. So anyway, my whole speech was, PERS needs to change and we need to find a different way of doing this because we don't pay Social Security and we're never going to be able to, you know, I think we're going to have real challenges finding people who are going to take those jobs because it takes five years to even vest in the state system. So anyway…

Joe Marcella: There are other issues on top of that called a classified environment and getting rid of the youngest and the brightest as well when the economy turns south. So that's part of the reason that there's such a mismatch, at least in my business. So, David, can we go on to the next item? I understand that -- I think we've already discussed D? And that you're going to come back after some discussion and have a conversation with us about what the opportunities might be.

David Gustafson: Yeah. Dave Gustafson. I really wanted to just get the wheels greased up a little bit and get you guys to start thinking about some of these because it's BDR season and I've been spending a little time over the holidays thinking about these things. And there are quite a few changes I would like to make. And, you know, you know, just want people to know it's not empire building, it's about efficiencies for me. And it's about efficiencies and, as a tax payer, just knowing that my government's as productive and as efficient as it can be. And so I'll be looking at making some of my own changes. And if there any changes you guys would like to make, certainly now is good time to start thinking about them and start bringing them up, because if you guys want to make recommendations or at least even tell me and I'll put them in as well, is fine. But we need to start talking about them now, to do them. So it's the season.

Joe Marcella: Thank you. Any further discussion from the Board? I'd like to move on to the next Agenda item. Thank you, David.

10. BOARD MEMBER DISCUSSION

Joe Marcella: Actually, what I had agendaed was some additional discussion and the purpose for that was for Mr. Mohlenkamp to give us an overview of what the strategic planning meeting was about. I wonder if there's any other discussions that anyone on the Board would like to bring up. Terry? Assemblyman Anderson?

Paul Anderson: I'm good down here. Thank you.

Joe Marcella: Thank you. Okay.

11. PUBLIC COMMENTS

Joe Marcella: Well, let me open the meeting up for public comment. Do we have anybody down south?

Paul Anderson: There's no one in the audience here.

Joe Marcella: And up here? No, we only have one citizen that's looking at us. So hearing none and seeing none, I'd like to have someone move for adjournment.

* 12. ADJOURNMENT

Unidentified Male Voice: I move for adjournment.

Joe Marcella: Second?

Unidentified Male Voice: Second.

Joe Marcella: All in favor?

Group: Aye.

Joe Marcella: We're adjourned. Thank you.

Notice of this meeting was posted before 9:00 a.m. three working days prior in the following Carson City, Nevada locations:
Blasdel Building, 209 E. Musser St., Carson City, NV 89701
Legislative Building, 401 N. Carson St., Carson City, NV 89701
Nevada State Library and Archives, 100 Stewart Street, Carson City, NV 89701

Notice of this meeting was posted before 9:00 a.m. three working days prior in the following Las Vegas, Nevada location:

Capitol Police, Grant Sawyer Office Building, 555 E. Washington Ave, Las Vegas, NV 89101
Brad Carson: bcarson@dps.state.nv.us

Notice of this meeting was posted on the internet via the it.nv.gov website:
http://it.nv.gov/Governance/dtls/ITAB/Information_Technology_Advisory_Board_(ITAB)/

We are pleased to make reasonable accommodations for members of the public who are disabled and would like to attend the meeting. If special arrangements for the meeting are required, please notify Lenora Mueller in advance at (775) 684-5849 or you may email your request to lmueller@admin.nv.gov.