

Yifan Zhu: As we mentioned on the EMAIL, we made a network emulation through the Mininet. Would you like to see it? Let me share my screen. It is called the mini edit. Last night I made the model. Network emulation models for lab two and lab three in ECE 444/544. And this is lab two. I saw the lab instruction, too. It has six controllers and six switches. And actually, in the lab, it also has 2 physical equipment connected to the controller. But here you just see the emulation. Start, I so we can run it. Here is algorithm started, so let's check it. We press nodes. There's six controllers and six switches are available. Let's check the net. That also reflects the connection between the switches. If you want to check the connection, we press the world 'link' . It shows that every single connection among the six switches is okay, and it means it was connected correctly. And also, let me show you this one. This one is lab 3. I think I made the ladder topology in the lab 3, also I can run it. This algorithm is also successful in the Mininet. These are of six available nodes. All of them are switches and the controllers. I remember the ladder topology, it means when we disconnect one of this connection, the system will automatically make a new loop. Is that correct?

Doctor Johnson: Yeah and. That's part of the idea of this lab. We're looking at the spanning tree protocol is seeing how it responds to how you prioritize connections by putting in costs, I'm having it. Evaluate a habit about see how it responds to. You haven't connections get opened.

Yifan Zhu: We think that's right but we think the network simulator, it doesn't represent all we do you for the EXPO presentation, we still need to see the equipment they to control the lab remotely.

Doctor Johnson: You mean? I mean for these labs, if you should be able to do all of these in many that if you can program this which is to implement the spanning tree protocol.

Yifan Zhu: But we still think if we have the tools like Anydesk to control the UIIdaho lab remotely. We can perform it.

Doctor Johnson: Oh, I mean, that is an option that's run on a different, computer than the one you have remote access to right now. And that one may be a little harder to get remote access, too. But so, I'd have to see that's a network that we normally treated as isolated.

Yifan Zhu: So is everything prepared in the uidaho lab?

Doctor Johnson: For the labs that do, for the equipment that does labs, the ECE444/544 labs. We have, I have not even tried to get those, can be configured for remote access. Like this lab 3 or lab 2. I thought you were gonna be doing those in mininet so that you didn't want to have remote access for those.

Yifan Zhu: Yeah, but still like lab one and the. Last year, senior design teams. They designed four labs. I think we can use anydesk to perform it remotely.

Doctor Johnson: As long as it's as long as it can be installed, as long as ITS approves that software on the computer. Because they have the administrator password. I do not, nor the Hari and Abdallah.

Yifan Zhu: I see.

Doctor Johnson: So, part of it is, if there are specific software, you need to install in that computer uh, we need to know and we need to get it installed.

Yifan Zhu: Currently, for this period, for this stage, we need to focus more on the simulation, right?

Doctor Johnson: For the existing ECE444/544 labs. That was what I thought you were going to do.

Yifan Zhu: Yes. The emulation. Yeah okay, I see.

Doctor Johnson: Now, if it turns out Mininet can't reproduce the things that are done in those labs, like lab one actually has six switches. And it adds another switch that broadcast noise package. Basically.

Yifan Zhu: So, the problem is, the all three labs are also connected to the equipment which can grab the package and call the data. I don't think Mininet can do that.

Doctor Johnson: I thought Mininet could work with had a packet capture engine that was part of it. So that would even it was something similar to wire shark.

Yifan Zhu: I think I would I think I will do more researches on that. And also, I remember that lab 1 required to log in some equipment with some IP address, name, and password.

Doctor Johnson: All right, you're talking about lab one from the senior design team last year, or a lab one from the ECE 444?

Yifan Zhu: Actually, both of them, no matter, the ECE444/544 of the senior design teams last year. The two lab 1 also required students to look in some kind of SEL, hardware equipment.

Doctor Johnson: Right? And so, by using the emulator, you don't need that. The first part of like the first page of lab 1. Basically, that must be common for all three labs until that's just giving some of the basic setup until the lab has as the networks switches, plus it also has some raspberry pi. Basically, there are little computers that are connected to the network. So, they're writing, the network devices, one is just a basically doing uh network monitoring. One is injecting ethernet packets into the network to create, to simulate congestion. That's one that the part of the reason is doing that is we want to demonstrate if you have an unmanaged switch versus a managed switch that you can remove that noise with a managed switch. No, it would be possible to do this lab remotely. It would be possible to do all three of these remotely. It's just we have we have to be careful how we do that, because we are basically generating something that's equivalent to a denial-of-service attack. We don't want to have any risk of that.

Spreads out of that as bad influence on the campus network.
That's why we had been doing it in the past on a computer that wasn't connected. There was no external network connection on it.

Yifan Zhu: So, do you think we have a chance to remote controller's labs?

Doctor Johnson: I can talk to Hari about it, but I the whole idea when those was that you were gonna emulate these three labs instead of doing them. Remote control.

Yifan Zhu: Hold on, please. In our opinions, the network accumulator is kind of assistance tools to help students have a better understanding of these protocols or network topologies. But we still think by connecting collecting those devices remotely, the students have a deeper understanding of how to use these tools to record this package data. So that's why we think we still need to have the access to the remote control. This emulation is only a kind of assistance tool. It doesn't represent all the labs, all the principles.

Doctor Johnson: I need to take a Hari and a Abdallah about that, maybe that you just can't do those labs if you can't do them with the emulator.

Yifan Zhu: I see. I'm done. I don't have any questions. Let me ask. That's my image. Yuhao and Yi Ding. Do you have any questions to ask?

Yuhao Li: I don't have any question.

Yifan Zhu: How about you? Yi Ding?

Yi Ding: I still don't understand why we need the information of the device in the lab. When we do the introduction, to do the, lab one, the students last year that they had done.

Doctor Johnson: You're talking about the lab one from the senior design team last year?

Yi Ding: Yeah.

Doctor Johnson: Lab one is basically just a first step with learning to communicate with the equipment. That before you do the other labs, we wanted to give AA simple introduction. So, you could see how the software tools were told to log in. And then just some simple things that prove you can communicate, rather than... if you don't write into the second lab without having done the first lab, then that would make the second lab last longer than we wanted it to by having the first lab be one that was just introduction introducing the equipment. We were able to keep each of the labs shorter.

Yi Ding: We will try that.

Yifan Zhu: Since we don't have any questions. I think that's it. That's all for today's meeting. Thank you for your coming. I'm sorry, doctor Li, would you have a moment? Please? I have something to talk to you privately.

Doctor Johnson: Yeah, so one question before you go. So, you sent an EMAIL this morning to Joe Stanley, Abdallah, Harry and I that is probably more of a question for Harry. Did he answer it?

Yifan Zhu: No, sir, actually. No.

Doctor Johnson: Okay. I will follow up with him on that. I know he has another project that has a tight deadline that he's trying to get done. Also, the IT people. They gave you our remote access to the computer, but they haven't actually told in which physical computer is. He can't connect the other equipment to it until he knows which physical computer it is.

Yifan Zhu: I see.

Doctor Li: I have another meeting going on. So, Yifan, let's discuss, maybe I think I will be done at 5 o'clock, for your 5 o'clock about so we get in touch at five?

Yifan Zhu: It's okay. Thank you, okay.

Doctor Li: So let's meet at five. Good day, see you.

Yifan Zhu: Thank you. Doctor Johnson. Doctor Li, Smadi, Hari. Let's see next week.

Doctor Li: I won't be able to join next week. I have a college engineering meeting and I need to take that.

Abdallah: Thank you.

Yifan Zhu: Okay.