# ISEC 325 Homework 06

Answer the following questions based on your reading of the text books, the module key points, and the instructor’s presentation this week.

1. [2 points] How is local authentication different from centralized authentication? How are they similar?

Local authentication and centralized authentication are used to gather user information that can be accessed later by a trusted system. The local authentication is set up to collect this information and have it stored in a single computer meaning it can be accessed and used locally. Centralized authentication will gather the user information and store it into a single repository that can be accessed by different computers.

1. [3 points] Pick two of the three AAA services (Kerberos, TACACS+, RADIUS) and research their features. Construct a comparison table based on the major characteristics of AAA for them.

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| --- | --- |
| Kerberos | RADIUS |
| Used to manage user credentials | Used for authentication, accounting, and authorization of user’s information |
| Open-source software | Not Open-source software |
| Two-factor authentication | Two levels of privileges |

1. [4 points] What is meant by “two factor authentication?” Describe three real-world (i.e. not related specifically to IT although IT may be involved) examples of two-factor authentication.

Two factor authentication means that to be able to gain access a person must pass two areas of authentications. The first factor is usually a login with a username and password. The second varies as it can be ones such as a code sent to a person’s phone, a question that a person set up with the account usually like what is your mother’s maiden name or the name of your first pet, and there is also email authentications where they will provide a code to enter or a link to provide access.

1. [2 points] In the context of VPNs, how can the term “tunnel” be misleading?

The term tunnel can be misleading as it indicates that there is a large section that lets other areas go through it while in reality, the tunnel is a path that includes a block which is comprised of multiple parts.

1. [3 points] What are the advantages and disadvantages of hub-and-spoke VPN configurations?

The advantages are that the single router can contain all of the SAs records in the VPN, communication goes through a central router, and can be used in a hybrid configuration. The disadvantages are that since it goes through a single central router, the router needs to have double the bandwidth compared to other connections, and that the records are contained in a single place so it something happens it could be a bad loss.

1. [3 points] What are the advantages and disadvantages of mesh VPN configurations?

An advantage of the mesh configuration is that every participant has a relationship with everyone else called security association. It also has the advantage of being hard to take down and that new devices do not affect the network as a whole. The disadvantages would be that the structure is very complex and costly. Setting it up can be a challenge and there is a higher chance of redundant connections.

1. [8 points] A common “work from home” scenario lets remote users install VPN software on their personal computers and connect to corporate resources. As a security professional, what kinds of additional concerns would you have when allowing employees to connect via VPN? How would you address those concerns? Frame your answer in terms of the McCumber cube.

There are many different concerns when it comes to VPNs and connecting to the work place for instance, the vpn could show a worker’s location being another country while in reality they have not changed their location. This would make it easier for international hackers who wont have to hide their location as the company would not be able to fully tell who is a worker and who is not based on location. A vpn is also not as secure which could lead to an increase in threats like malware and spoofing. A vpn also takes a lot of performance as it bounces around a person’s location so this could lead to the slowing of the person’s computer. Some computers may not be able to run with a vpn as it takes more memory and processing than the person can afford. If we are looking at the McCumber cube then we can see that the affected areas would lean towards processing, human factors, technology, and availability to name a few. Human factor plays in as well since not everyone knows how vpns work and may have to spend more time messing with it then the work they need to complete. The processing speed can lower as it has to now account for the vpn.

1. [5 points] In two to three paragraphs of prose (i.e. sentences, not bullet lists) using APA style citations if needed, summarize and interact with the content that was covered in the class session this week. In your summary, you should highlight the major topics, theories, practices, and knowledge that were covered. Your summary should also interact with the material through personal observations, reflections, and applications to the field of study. In particular, highlight what surprised, enlightened, or otherwise engaged you. Make sure to include at least one thing that you’re still confused about.  In other words, you should think and write critically not just about what was presented but also what you have learned through the session. Feel free to ask questions in this as well since it will be returned to you with answers.

This week we looked at more on authentication and vpns. I am used to authentication as we see an increase in the two-factor authentication as everyone tries to add more security to their systems. I found that there is an increase of people from websites who will have apps for your phone where you can use the app for authentication as it will send a message to accept or decline without having to get sent a code. VPNs are something that I hear a lot more people are using these days. I can see the appeal of them as they can change your location but there are so many different ones that people need to be careful as some are not as protected as people assume. The only time I used a VPN was when I wanted to change my location to a specific country so I could access their content like how Netflix has some shows and movies that are only available in the UK.