Lab 1-1 Heatmap Site Survey

An important part of wireless design is being familiar with the physical environment where access points are installed. Many companies, as part of their delivery services, will complete a pre deployment walk through or site survey that provides them information about the current Deployment.

Mobility Engineers will often create a “HeatMap” that visually represents the signal strength and coverage boundaries of a given area. This “Heat Map” provides additional data points and allows engineers to install access points in the best location to achieve full coverage and the best performance given the environment.

There are many tools that can create a heatmap, for this lab **NetSpot** is recommended as it is a free to use phone. You are welcome to use any tool that you have access to.

NOTE: If you want to use a Windows tool on your laptop try Ekahau Heat Map:
https://drive.google.com/file/d/1Bjm4TNquRJ2eTlBsJZ1lQc01pJbcakJy/view?usp=sharing

Step 1: Use Draw.IO or a similar tool to build a floorplan of the floor that you will survey. Do your best to make it as accurate as possible, but perfection is not necessary as this is a demo lab. Walk through the location as you build the floorplan to increase accuracy. If you do not have access to certain rooms, do your best to guess.

Make sure to take a highly accurate measurement of one wall in the floorplan because that will be needed later to calibrate the tool!

NOTE: You may be able to find floorplans of dorms/other campus buildings hung up on the wall, so keep an eye out for that to help with accuracy.

Step 2: Install **NetSpot (mobile)**, **Ekahau (Windows laptop)** or a heatmapper software of your choice.

- For NetSpot, start a new “WiFi Heatmaps” project, and import your floorplan image.
- For Ekahau reference the “Quick Help” section for details on how to complete the survey

NOTE: With Ekahau, make sure to take a screenshot once you have completed the heatmap. There are some known issues with exporting your finished file.

The following steps are for NetSpot:

Step 3: Choose two points on the map and enter the actual distance between them for proper calibration. Use the highly accurate measurement of one wall that you took during Step 1 and calibrate the tool.

Step 4: Using the description “sector size”, select the size of space that is most accurate to you. Use your discretion to choose the size, if you select a size that is too big the map will not be very useful, if you select a size too small you are going to do an unnecessary amount of scans.

Step 5: Using the scan tool, walk from sector to sector and take scans. Each scan should take no more than 30-45 seconds to complete. Walk to every sector and scan it until the map is complete. To visualize the results better, you may need to adjust the “Max Download/Upload Speed” in the settings. A successful heatmap will have a nice color gradient showing the stronger and weaker WiFi signals (unless the area you scan is incredibly consistent).

Deliverable 1: Please share an exported image of your heatmap

Deliverable 2: Please write **two** paragraphs analyzing your results. Some questions to think about:

- What do you notice about the heatmap?
- Are the results surprising at all?
- If you were to take another heatmap survey what would you do differently?
- Do you notice any areas of weak signal?
- If you were the network administrator for this network, what changes would you make to ensure all users have a good signal from any location in your map?