Wireless & The IoT

Lab 2: A Global Perspective on Cellular

Introduction

The purpose of today's ~~lab~~ research assignment is to gain some understanding of how connectivity differs around the world. It's a bit less lab-y #ThanksCOVID, but hopefully will be an interesting exercise.

We are going to crowdsource information on cellular data plans from around the world. The goal is to get a diverse sampling of what communication options are available, through the lens of an IoT developer.

This is inspired by https://whatdoesmysitecost.com/, which unfortunately seems to be broken for actually running tests as of January, 2021, but if you dig through the results of https://webpagetest.org, you can get some estimate of what types of resources a (your?) site demands. Could be fun to play with, especially once you consider the results of your connectivity survey.

The Assignment

Pick two different countries from two different continents.
- Please choose a different country + carrier from anyone else in class (two people can do the same country, if they choose different wireless carriers). Claim carriers here.

Imagine you are an IoT application developer looking to deploy in this country. Your task is to figure out (a) whether this is feasible, (b) what management tasks you will have to undertake, and (c) how much it will cost.

Concretely, imagine you are setting up a 6-month pilot with 1,000 devices. Each device will send a 1 kB request once every 15 minutes, 24 hours a day. Let us also assume that once per month, you will update device firmware (a 10 MB operation; done 6 times total). Your devices support 2G, 3G, or 4G networks.

For your report for each country, imagine you were writing up a summary to present to your project manager / engineering team on the feasibility and cost to deploy your pilot in this country. Some things to include:
- What is the process (roughly) to get 1,000 SIM cards?
  - What is the activation / per-SIM initial / other one-off startup cost (if any)?
- What is the cheapest way to provide the needed connectivity for your fleet for this pilot?
  - Pre-paid / post-paid? How will you keep devices online?
- What quality-of-service guarantees are available (if any)? [Note: `none` may be likely!]
  - Include things such as advertised speed/performance [even if not SLA contract promise]

What to submit?

Please use this document as a template, add your responses directly, and export it as a PDF to Gradescope. I gave each country two pages, imagining that lots of screenshots might be helpful to report out info. Feel free to use more or less space as appropriate. Additionally, folks are encouraged to add columns and data to the carrier claim Google Document as you work to compare results across the globe.

Reminder: This is **NOT** a formal lab write-up. Do not spend a ton of time making things overly pretty, etc.

(your name here)   (your ID here)

Q1: Country 1.

Q2: Country 2.