Wireless & The IoT

Homework 2: A Global Perspective on Cellular

# Introduction

The purpose of this assignment is to gain some understanding of how connectivity differs around the world. We are going to crowdsource information on cellular data plans from different countries. 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?](https://danluu.com/web-bloat/)) 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.](https://docs.google.com/spreadsheets/d/1EBL6bnylH6LFagepc7f75bOqNbGDM7AxCohlZp1rmII/edit#gid=0)

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 10 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. When you are finished, update the [carrier claim Google Document](https://docs.google.com/spreadsheets/d/1EBL6bnylH6LFagepc7f75bOqNbGDM7AxCohlZp1rmII/edit#gid=0) with a summary of your results so that we can compare results across the globe.

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(your name here) (your ID here)

# Q1: Country 1.

# Q2: Country 2.

# Q3: Report Out Results

Paste a screenshot your rows in [the carrier-claim spreadsheet](https://docs.google.com/spreadsheets/d/1EBL6bnylH6LFagepc7f75bOqNbGDM7AxCohlZp1rmII/edit#gid=0) that includes your filled out summary columns.