Protocol Design Activity

# Instructions

Design a set of communication protocols for a network of weather stations, weather-data servers, and foresting servers. Image that there are several thousand weather stations throughout the region and there are always at least 10 servers online at any given moment.

Every station must be able to discover the addresses of operational severs. Weather servers also must be able to discover each other.

The weather stations gather readings, like temperature, wind direction and speed, barometric pressure, perception, and visibility every couple of minutes. Each station tries to send that data to at least two different weather-data server every 30 minutes.

The weather-data servers share their weather data with other weather servers, so most of the servers have most of the data most of the time and all the data is replicated in at least two places.

Authorized weather forecasting servers can download weather data, in bulk, from weather-data servers at any time. They can grab slices of data based on geographically regions and date ranges.

Make sure your protocols are efficiency. Are make sure the protocols can handle stations and servers going offline and coming back online.

Ignore details about the transmission media (i.e. type of physical network). Assume that each station has an Internet connection through some kind of communication medium, e.g. radio, cell, WiFi, or satellite signal.