

# Communications Department

Astrea Project





# Presentation goals

1. Specify the general communication logistics
2. Make a overview of the communication protocols





# Communication logistics

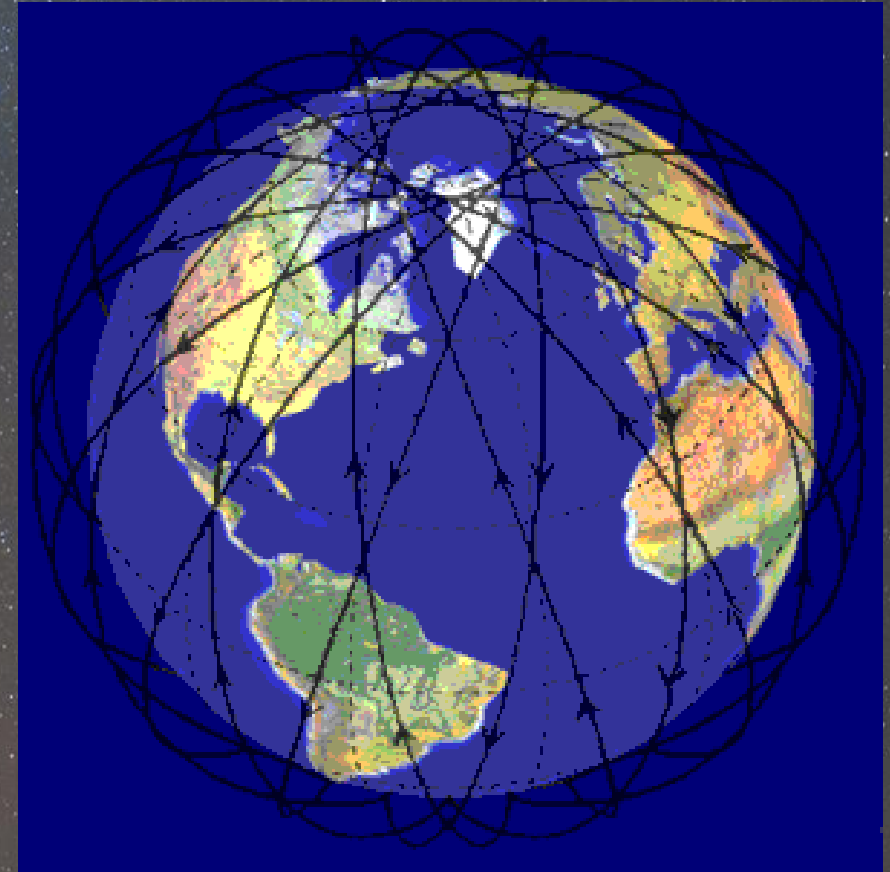
## Sky segment

Walker delta OR  $\frac{1}{2}$  Walker delta

→ *High inclination (near polar)*

→ *Undefined planes & sats*

Client's Satellite





# Communication logistics



## Ground segment

**3 Ground Stations, at least**

→ *Latitude: between  $-80^{\circ}$  &  $+80^{\circ}$*

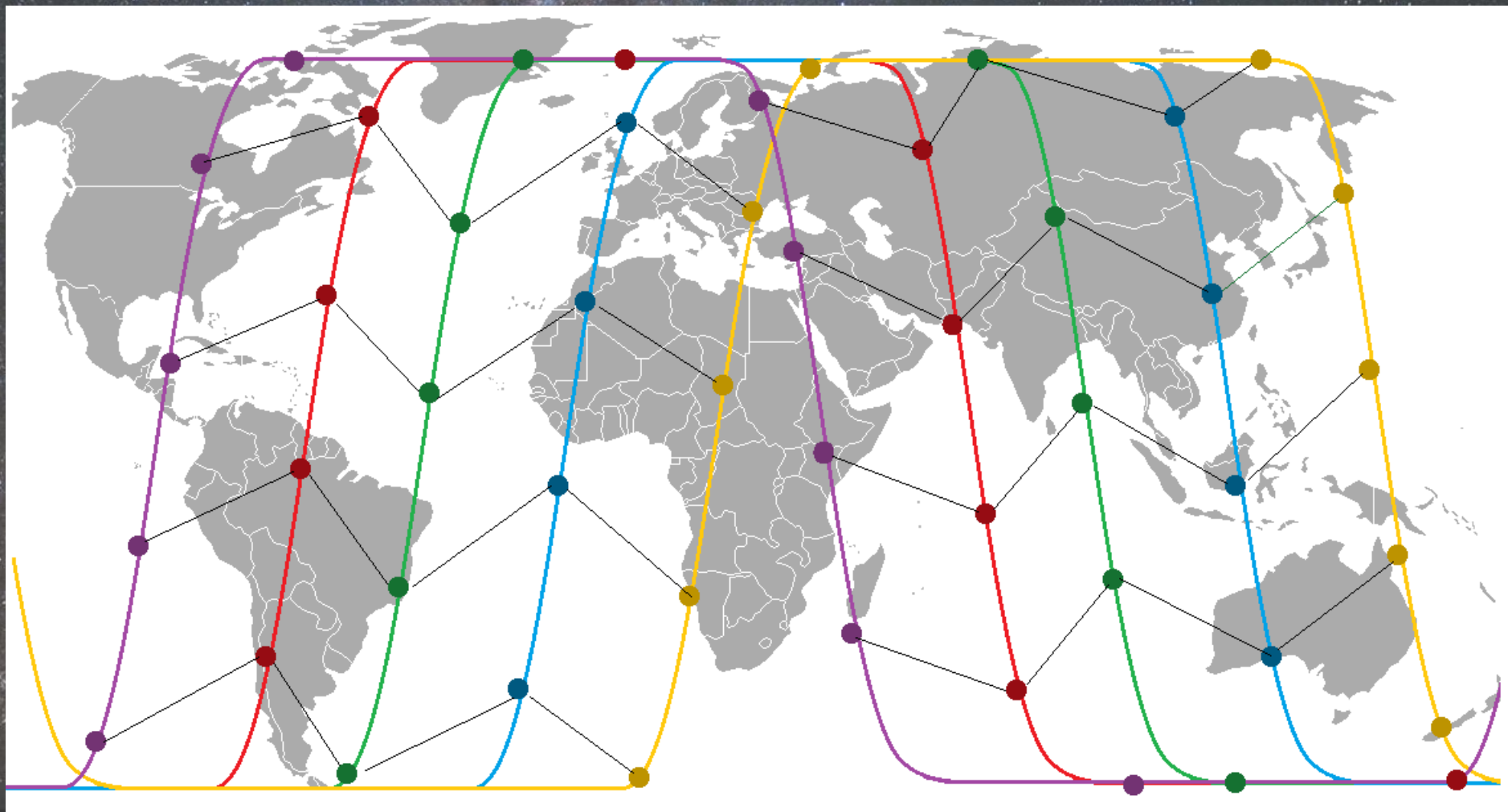
→ *Longitude: spaced*

**Client**

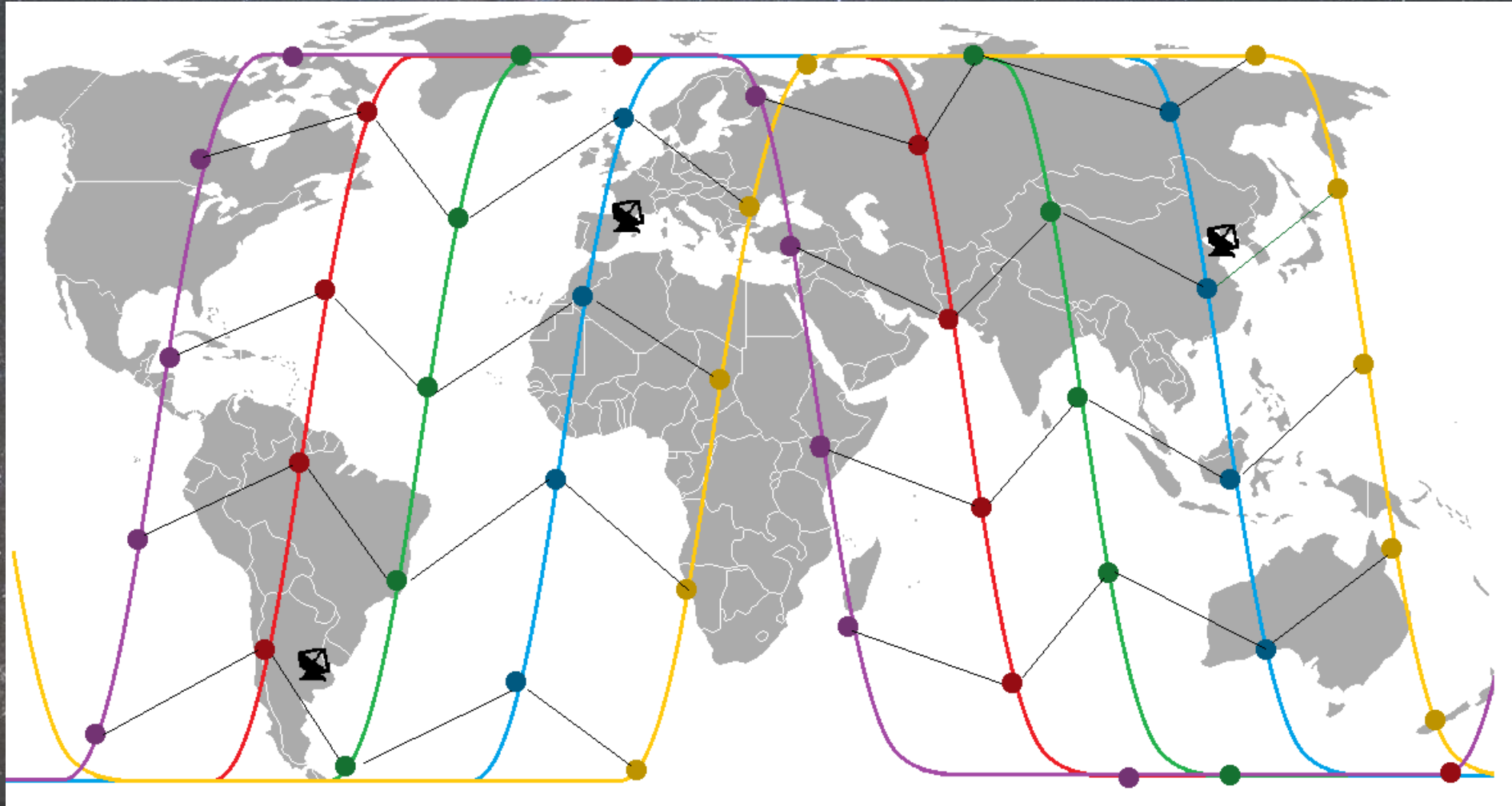




# $\frac{1}{2}$ Walker delta approximation

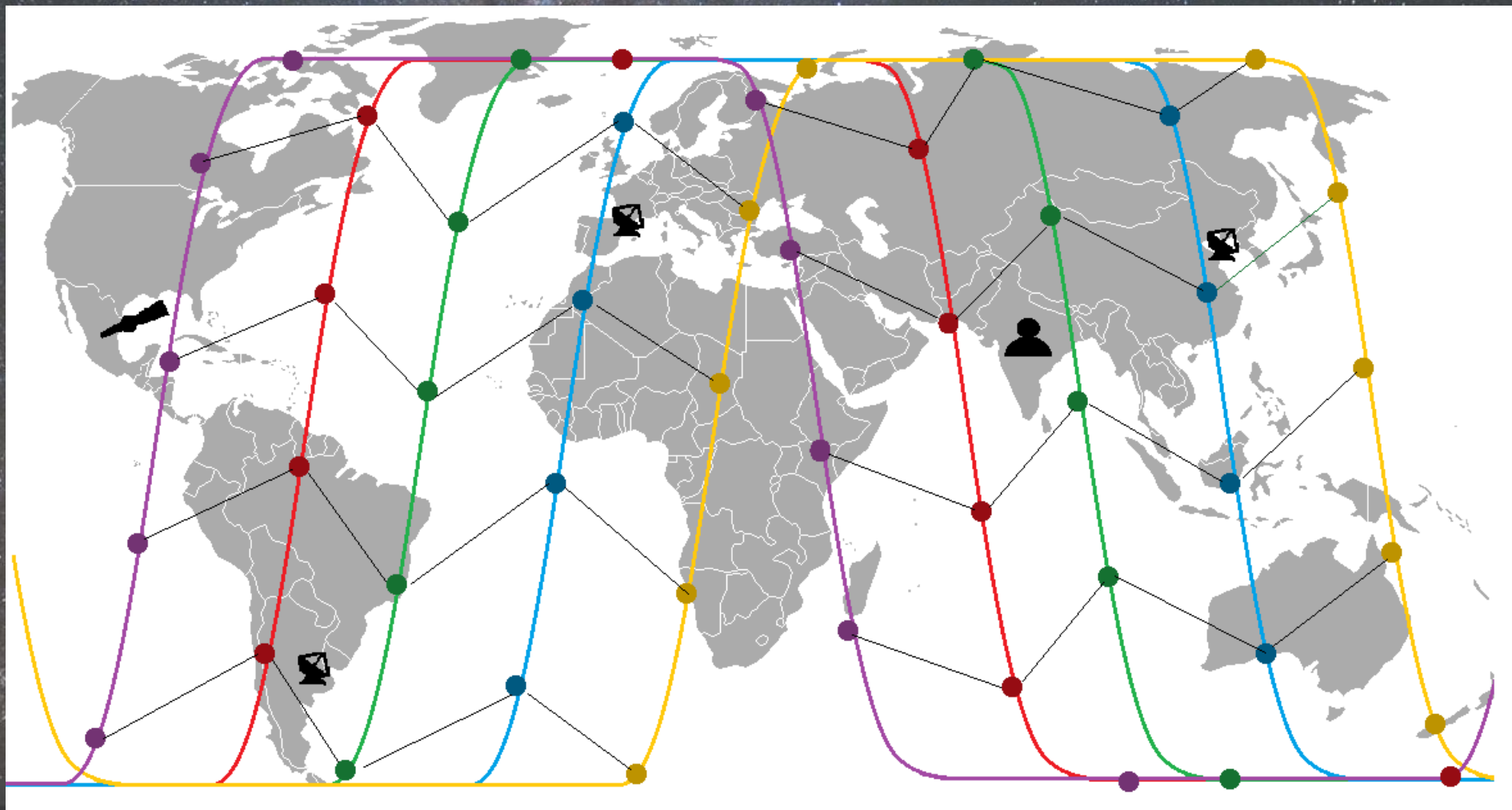


# 3 Ground Stations

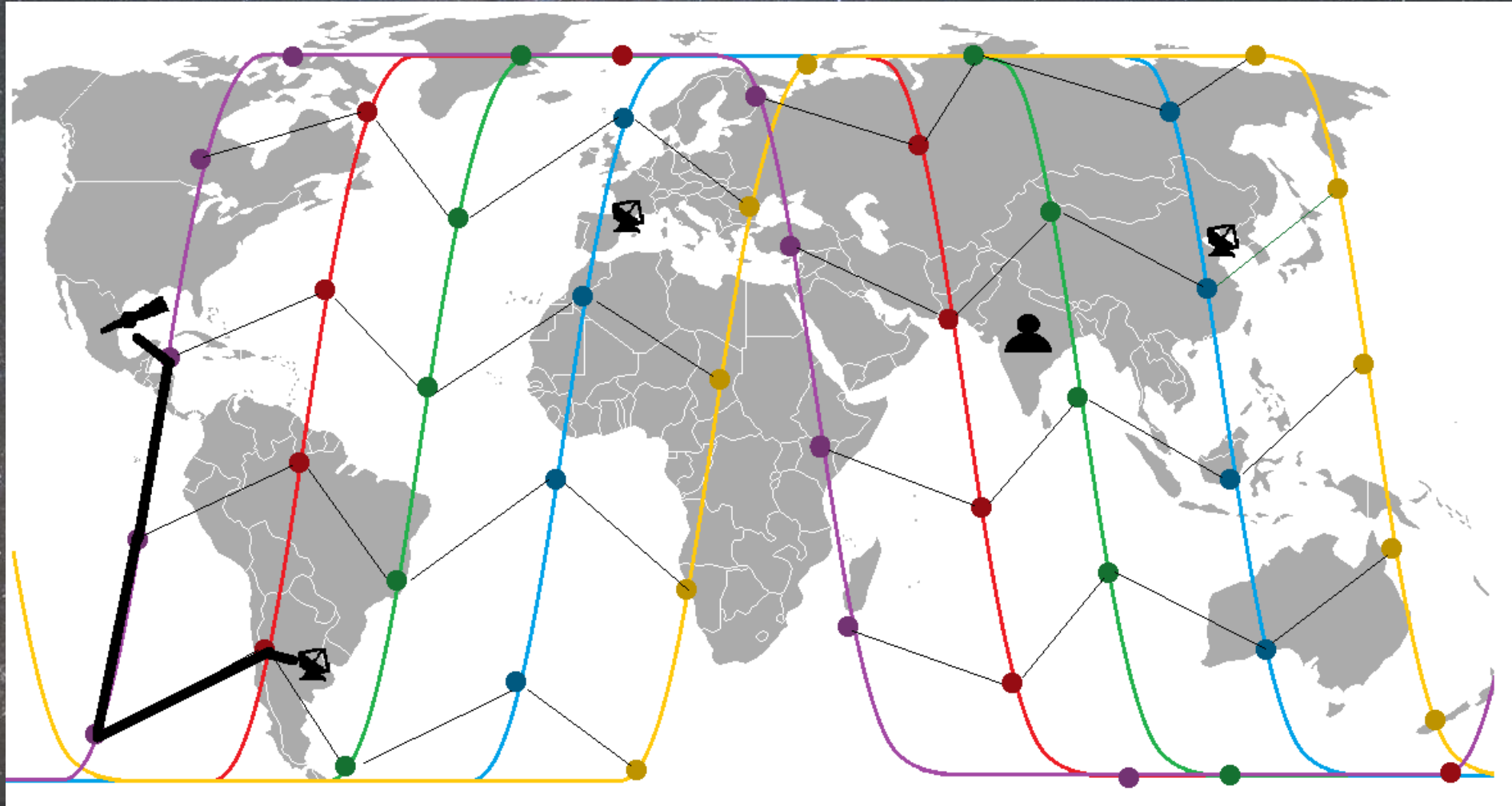




# Client Sat

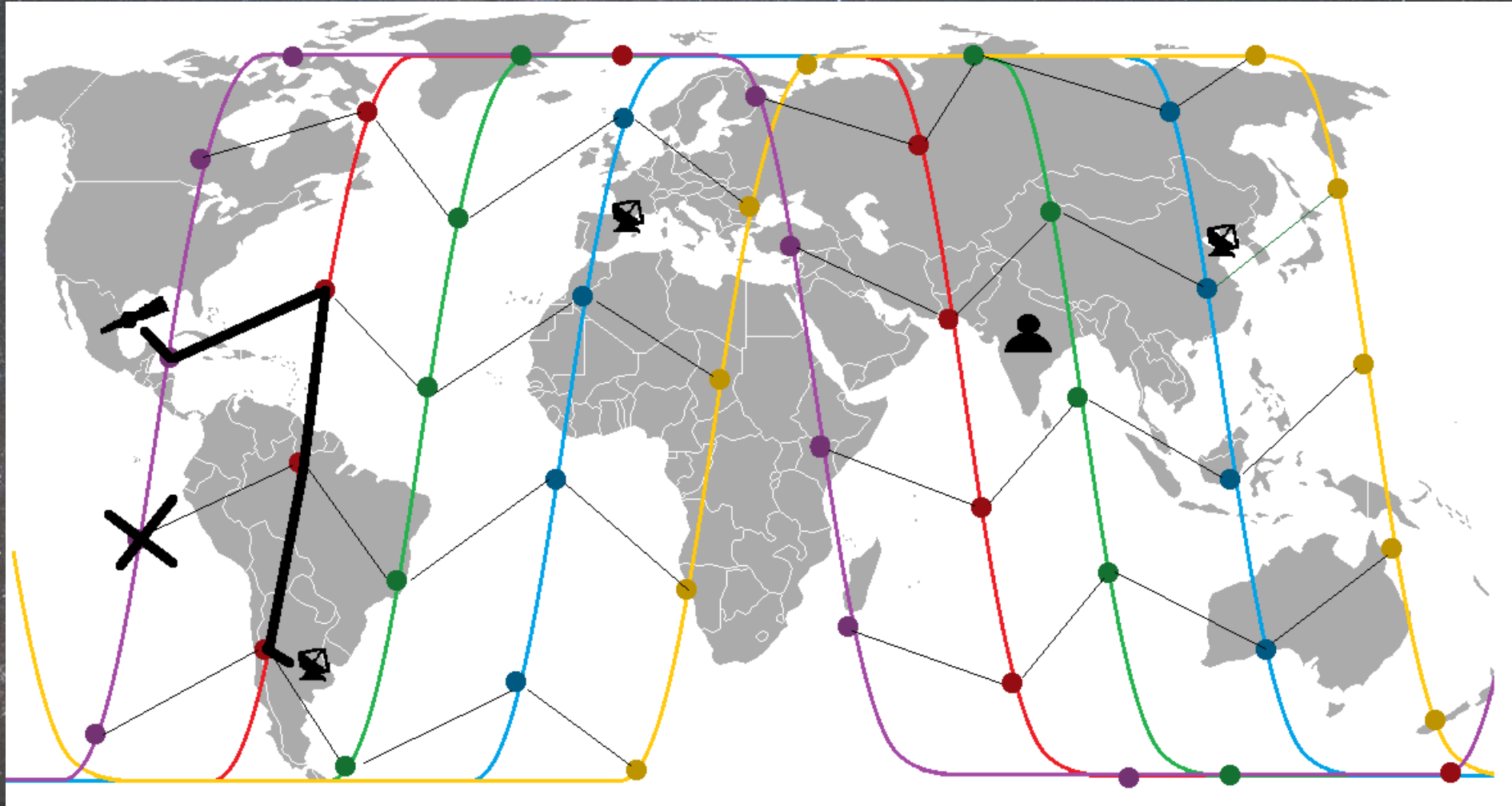


# Fastest path



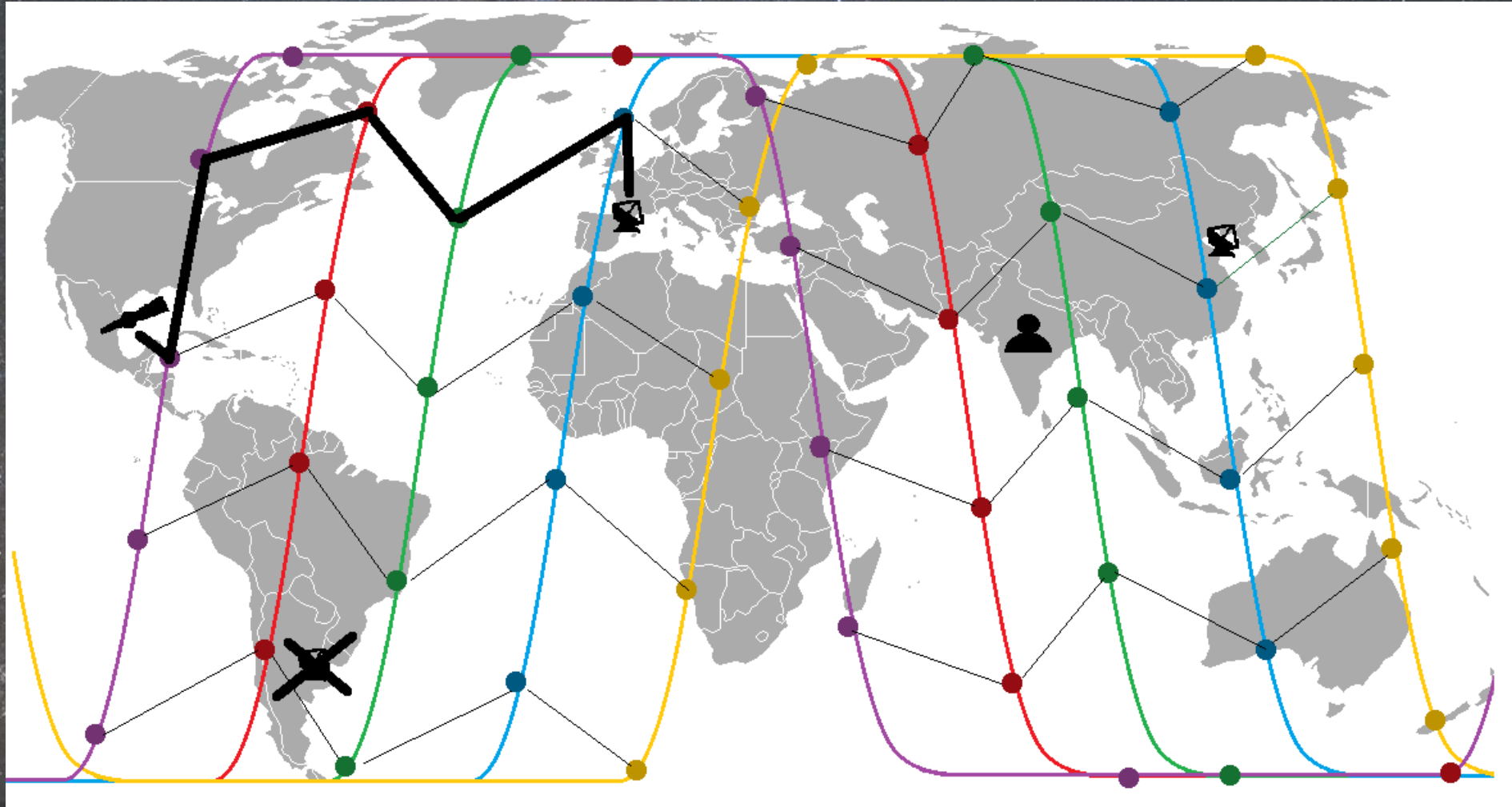


# Sat failure





# GS failure





# Communication protocols

A protocol is a set of rules that enables effective communications to occur.

**Syntax.** Refers to the structure of the presented data.

**Semanics.** Refers to the meaning of each section of bits.

**Timming.** Refers to when data should be sent and how fast





# OSI

## Layers:

7. Application
6. Presentation
5. Session
4. Transport
3. Network
2. Data link
1. Physical

# TCP/IP

## Layers:

4. Application
3. Transport
2. Internet
1. Link

