



# Why Space Matters? The Future of Hyperconverged Networking

Buffy Wajvoda

Global Leader of Aerospace & Satellite  
Solutions Architecture  
AWS

# Size of the challenge

- 15B mobile devices worldwide
- Internet growth rate 2-7% YoY
- US, 6%/19M lack highspeed connection.
- India 751M lack internet at all
- 37%/ 2.9 Billion have never used the internet

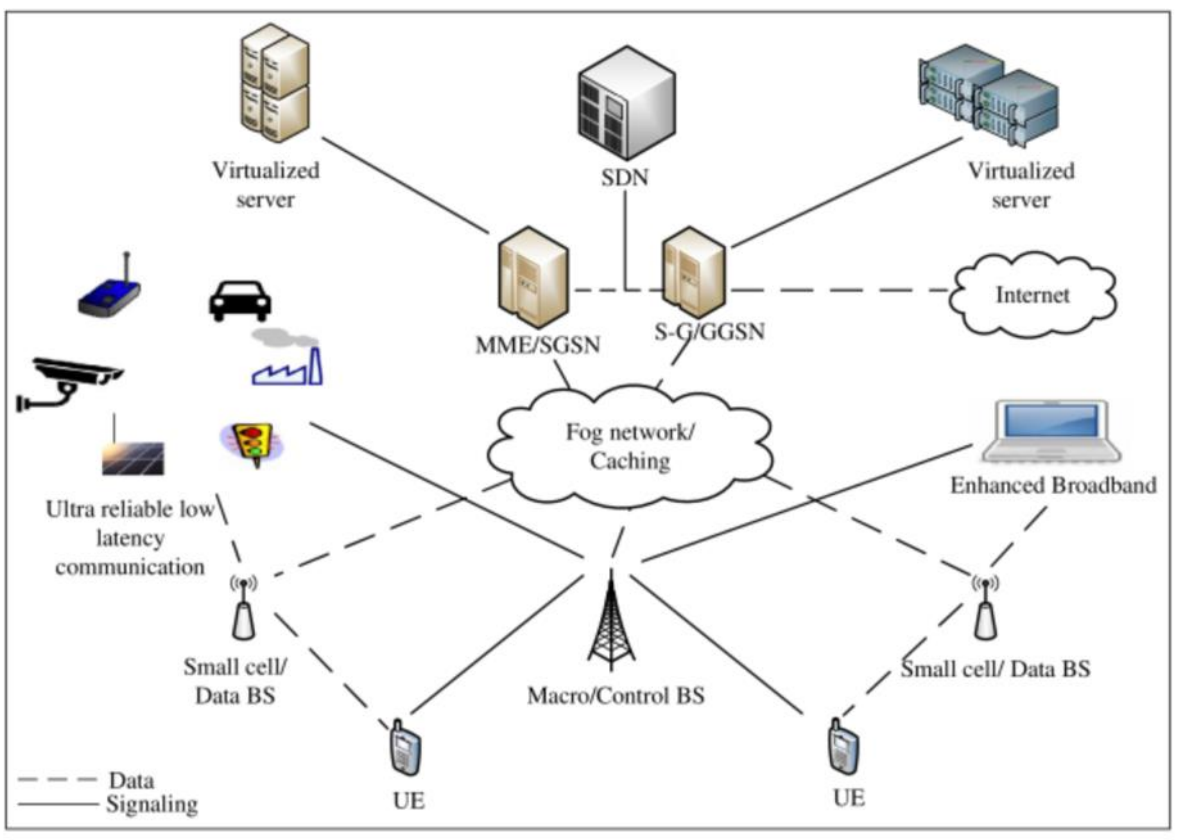
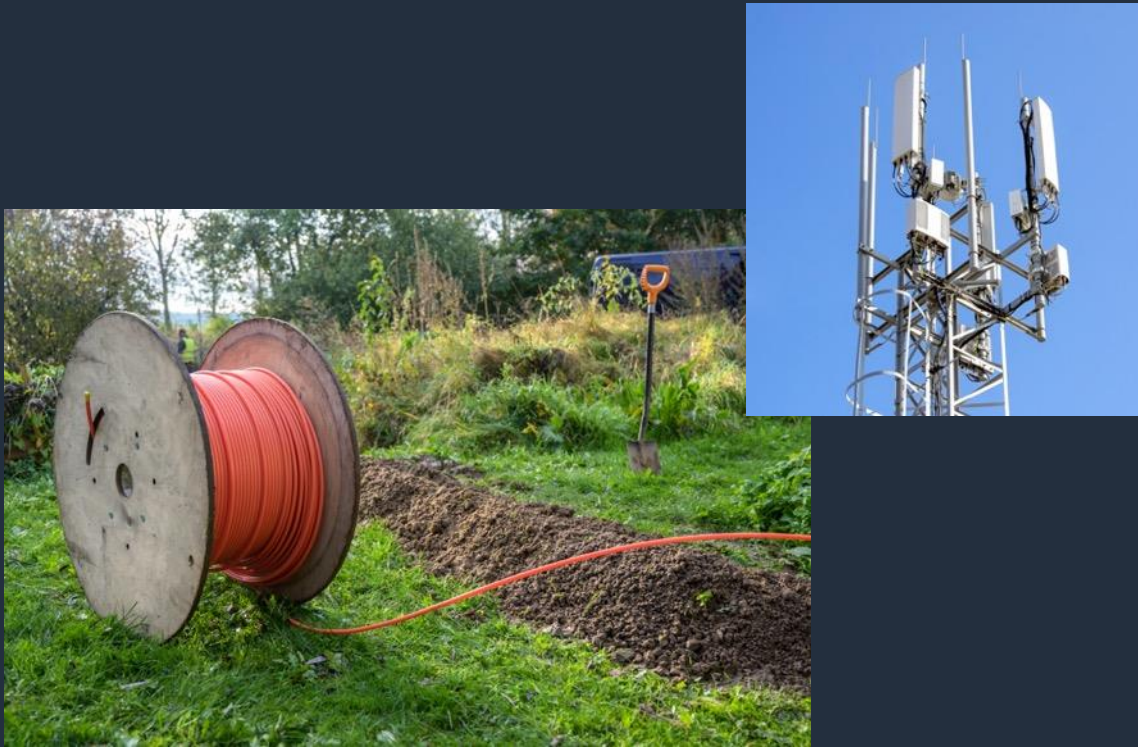


## Use-case: Schools

"Two thirds of the world's school-age children – or 1.3 billion children aged 3 to 17 years old – do not have internet connection in their homes."

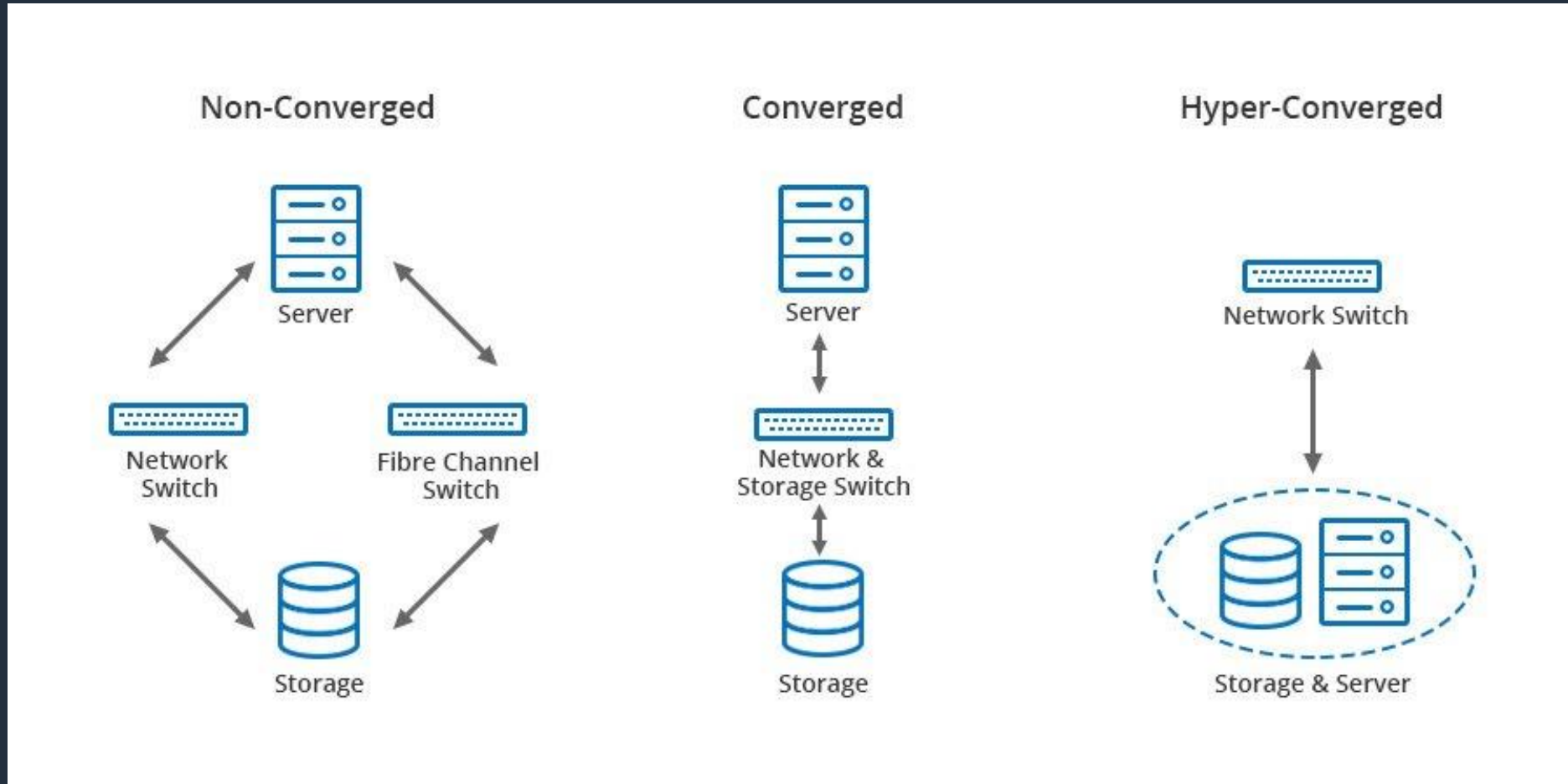
*Joint report from UNICEF and the International Telecommunication Union (ITU) – Nov 2020*

# The Network Buildout Race



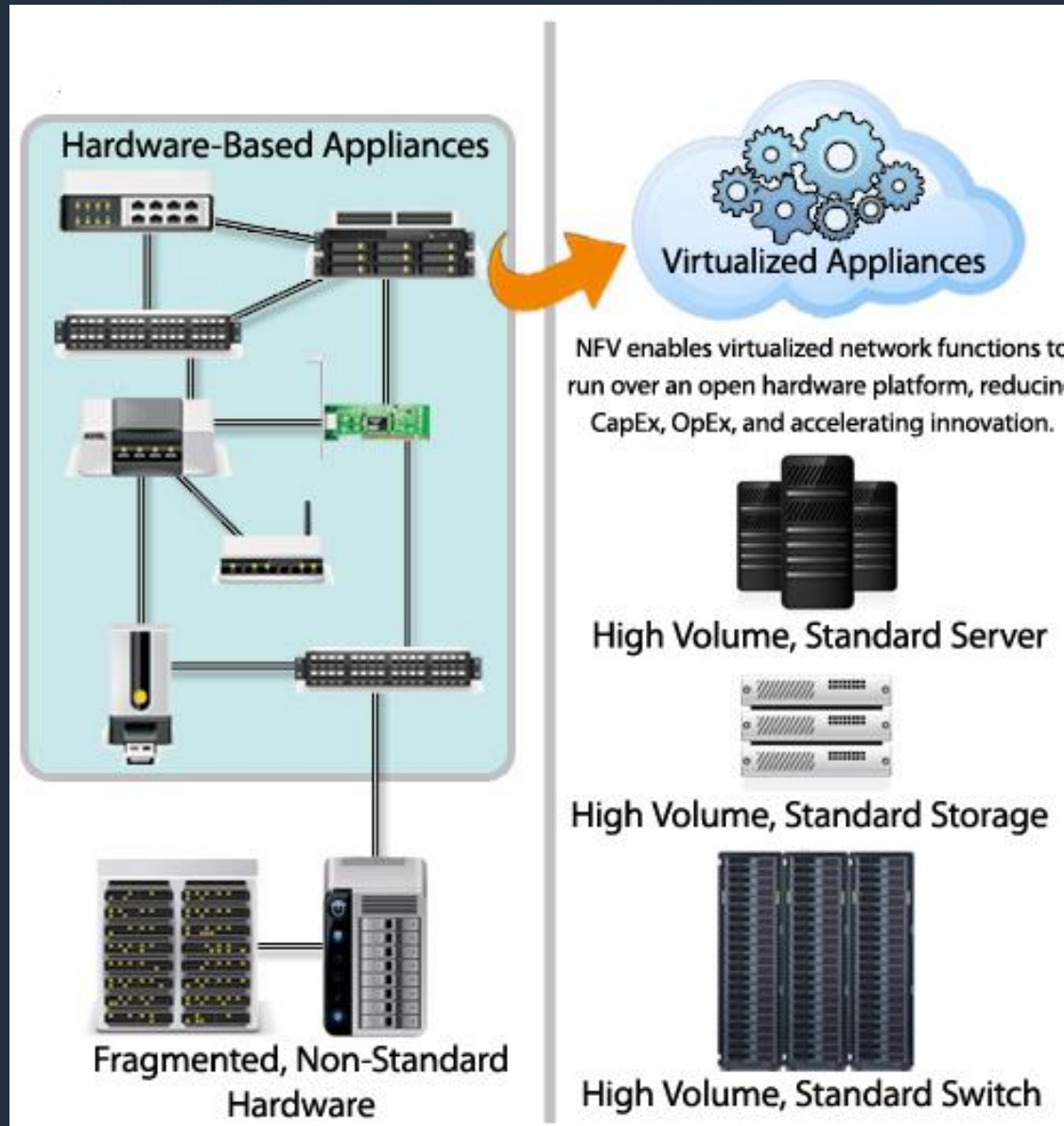
IEEE Communications Surveys and Tutorials/arViv

# Enter Hyperconvergence



Wikipedia





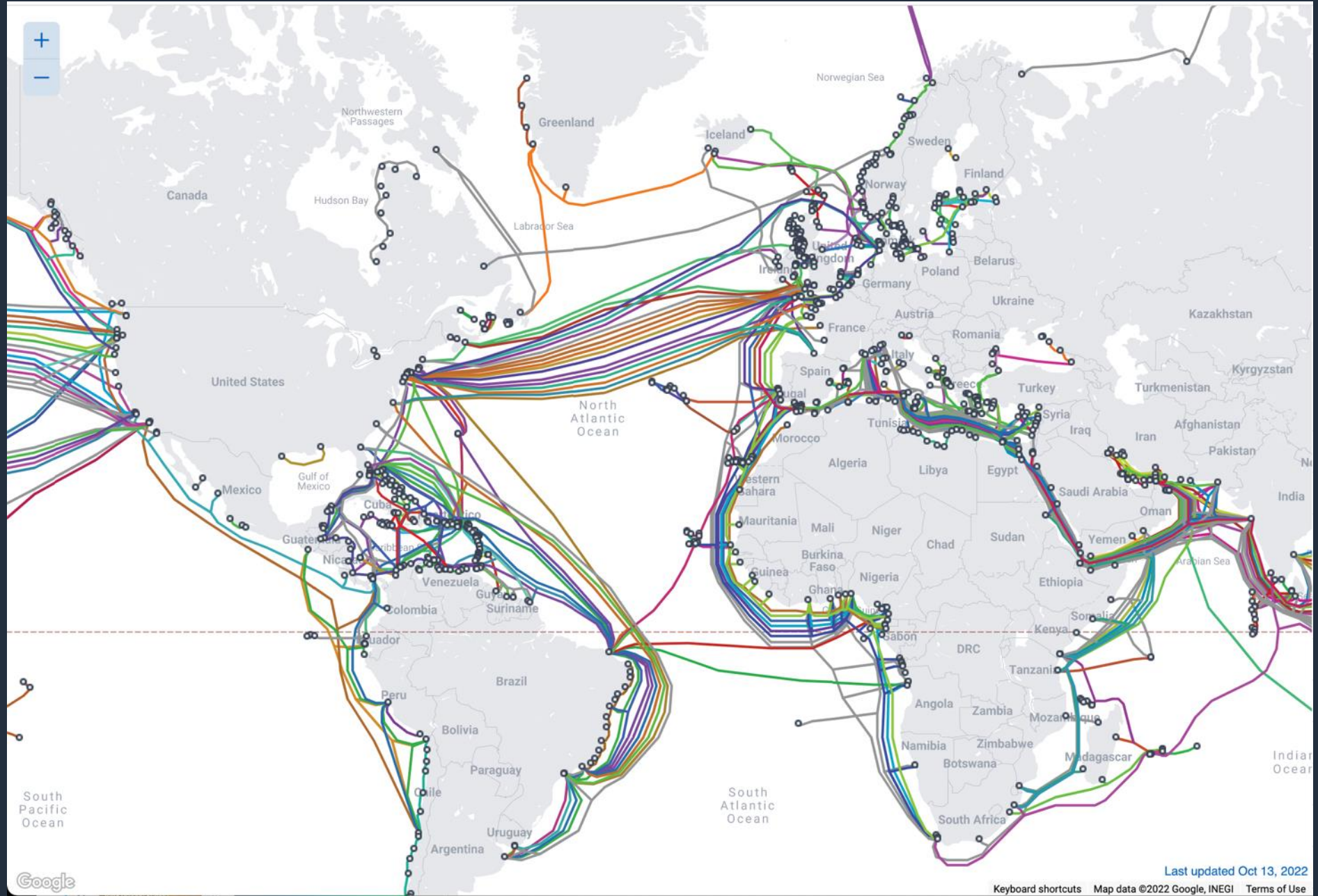
# Living at the edge



## However... Infrastructure is still key

- Range of WiFi is about 50m
- Range of 5G is about 500m unobstructed
- Range of a microwave tower (relay) is about 50km







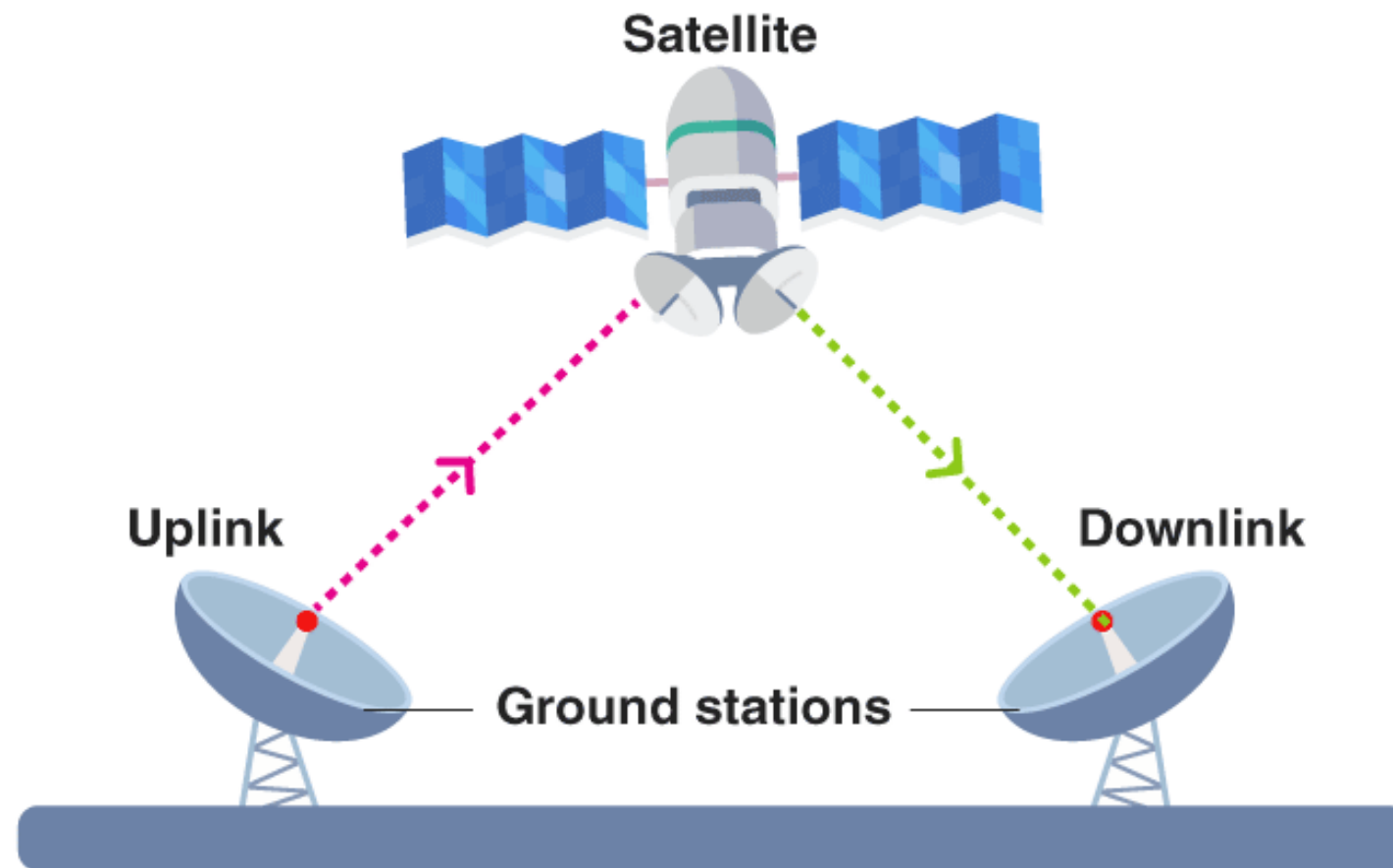
# Satellites



<http://spire.com>

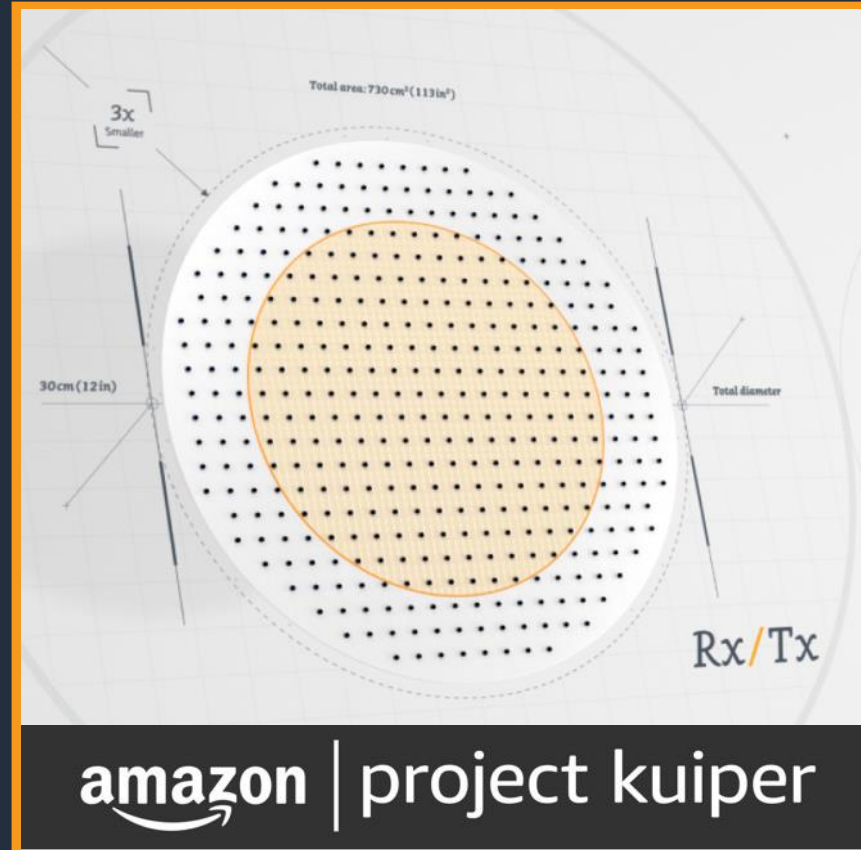


<http://latamsatelital.com/>



# Satellite Swarms like Amazon Project Kuiper

- LEO satellite constellation to offer reliable and affordable broadband to unserved and underserved communities around the world
  - 3,236 satellites planned
  - Operating latitude: 56 degrees north to 56 degrees south
  - \$10 billion investment
- Target broadband use cases
  - Residential users
  - Science/research in remote locations
  - First responders
  - Enterprise
  - LTE/5G backhaul
  - Public/private sector applications



Kuiper customer terminal design

## Key specifications

- ✓ Single aperture phased array antenna
- ✓ Ka-band
- ✓ Up to 400 Mbps
- ✓ 12 inches in width

# Satellite and 5G

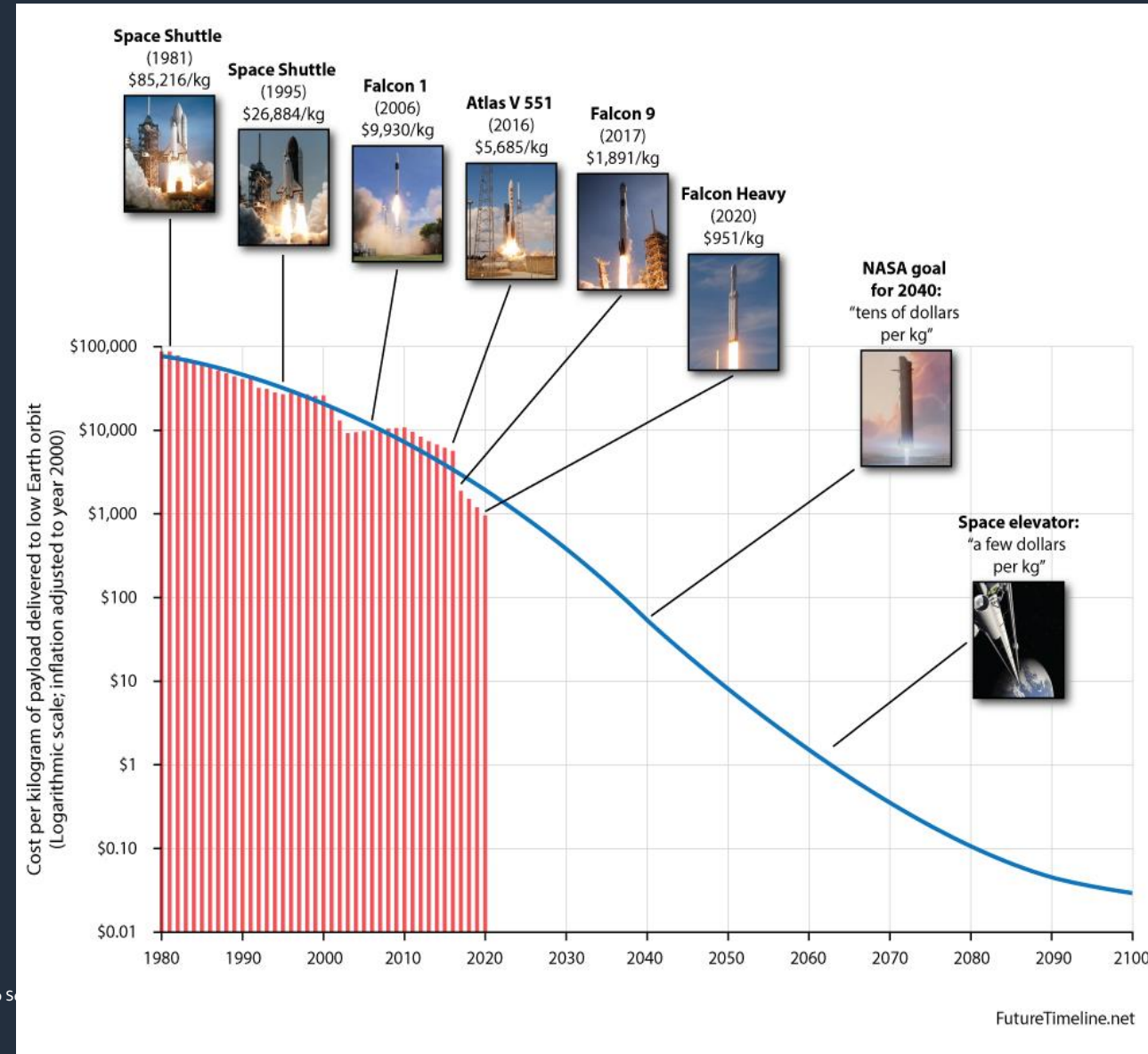
**"LEO Satellites will play a key part in extending cellular 5G networks to air, sea and other remote areas not covered by small cell networks. For the end-user, satellites offer a seamless extension of 5G services from the city to airplanes, cruise liners and other vehicles in remote locations."**

*Nokia.com*



# Why now?

- Satellites are smaller
- Satellites are cheaper
- Launch is cheaper
- Demand for internet
- Smart Cities
- IoT



# How is AWS investing?

- Aerospace & Satellite Team ~150 experts
- Space Solutions Service Team
  - AWS Ground Station
- Industry Events, Marketing
  - reinvent will have 9 sessions dedicated to space





# Thank you!

Buffy Wajvoda  
bwajvoda@amazon.com