Direct to Device Challenges

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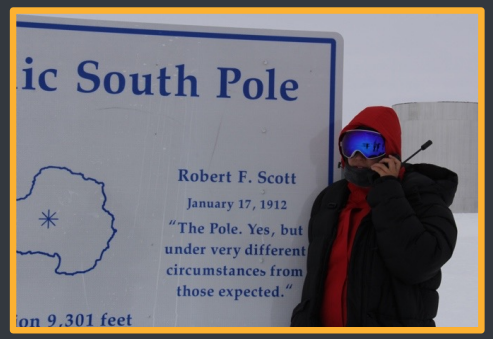
Iridium is a Global Satellite Communications Company








Key Markets: IoT, Maritime, Aviation, Land/Mobile, PNT, Government
540 Partners
2024 Revenue $830M

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Our Network

66 Active Satellites

- 6 orbital planes with 11 satellites each. Plus 14 in-orbit spares
- Regenerative, software programmable satellites

Low-Earth Orbit (LEO)

- Enables reliable communications anywhere in the world
- Overcomes obstructions

L-band System

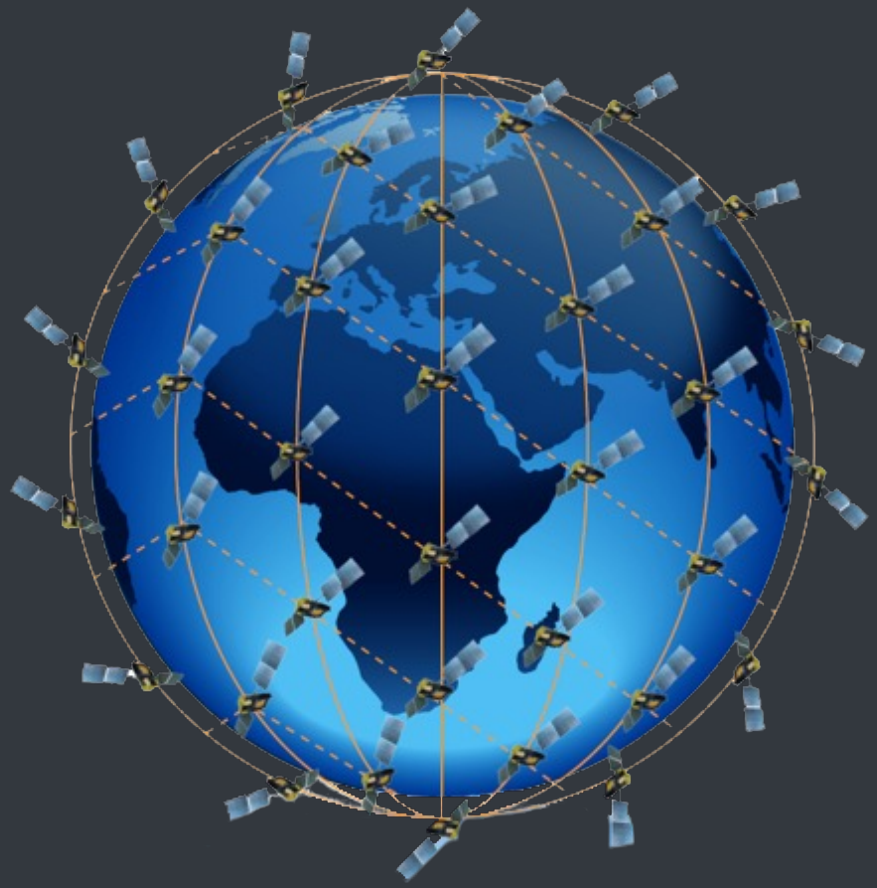
- Allows for transmissions even in adverse weather conditions
- Licensed worldwide

Satellite Crosslinks

- Creates low-latency, resilient, high-quality connections
- No regional ground stations required

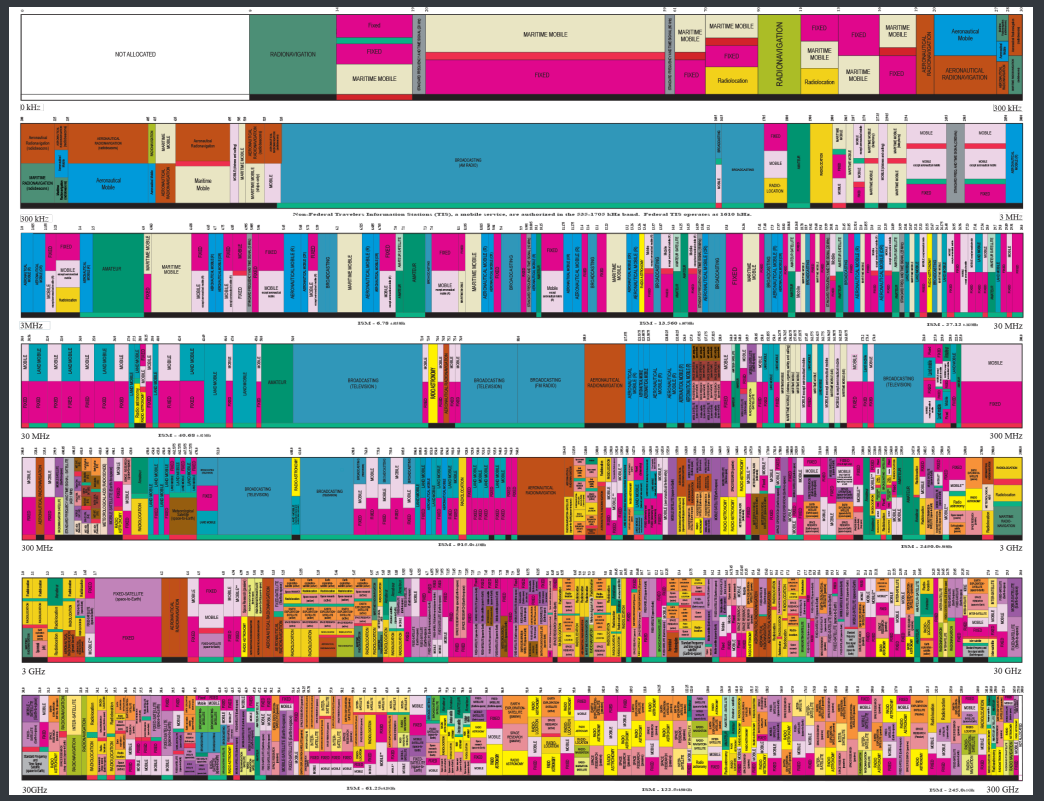
Mission Critical Services

- Communications, PNT and safety of life



A Typical Week

Direct to Device Challenges - Spectrum



US Frequency Allocations

- MSS: Mobile Satellite Service is lower bandwidth but ideal for personal devices (regional or global)
- FSS: Fixed Satellite Service is higher bandwidth but needs big, stationary antennas (regional)
- SCS: Supplemental Coverage from Space reuses terrestrial cellular frequencies (national)
- Frequency: < 3 GHz is best)

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Direct to Device Options – Protocols

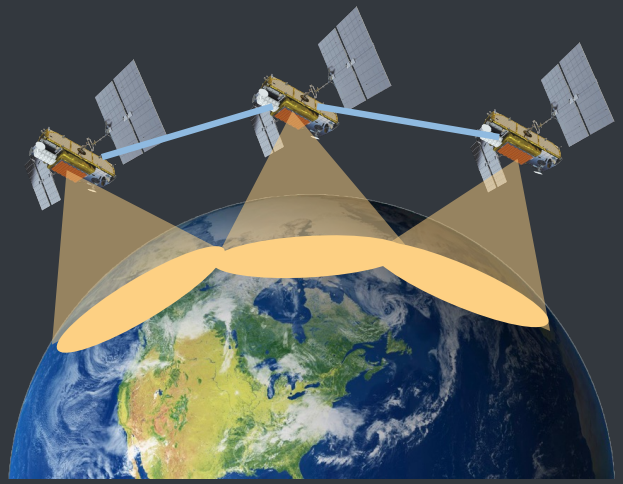
Proprietary
Leverage existing satellite protocols (existing satellites, mature user experience, more costly chips)

4G/5G NTN
Adopt NTN standards as they mature (only supports some new devices, may need new satellites)

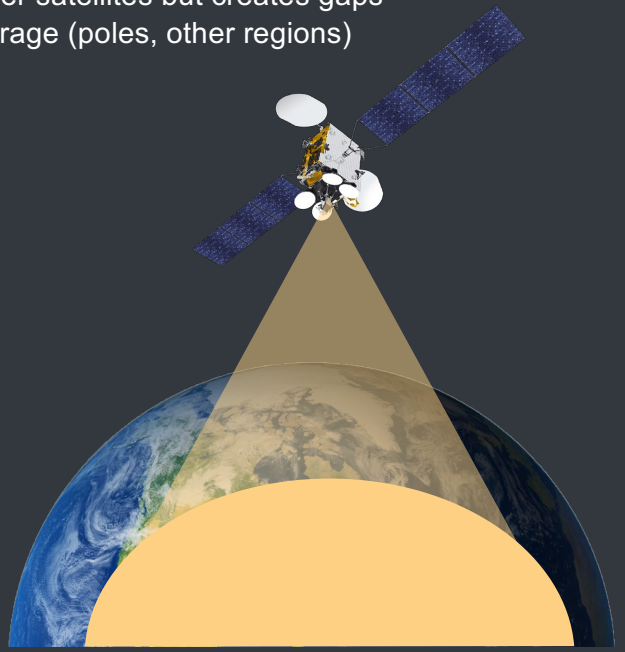
5G
"Cell tower in the sky" extending MNO coverage (new satellites, supports most devices, complex masking of delay and doppler)

Direct to Device Challenges – Satellites / Orbit

LEO
Better coverage and latency, but requires many satellites to provide continuous service



GEO
Much fewer satellites but creates gaps in coverage (poles, other regions)



Programmable
More flexibility to evolve with technology and standards

Direct to Device Challenges – Business Case

Satellites	Spectrum	Coverage	User Experience
Expensive and risky to build new satellites for an early-stage market	Leasing spectrum or revenue sharing impairs profitability and requires very high volumes	Without global spectrum/coverage, LEO satellites have idle/non-revenue periods	Users expect a 5G experience which will not be possible anytime soon


Iridium NTN Direct℠