STARFISH SPACE

Starfish Space

Affordable and Available Satellite Servicing

Austin Link, Co-Founder

Commercial Space Lecture Series

July 20, 2022

The Otter Space Tug

Affordable and available satellite servicing.

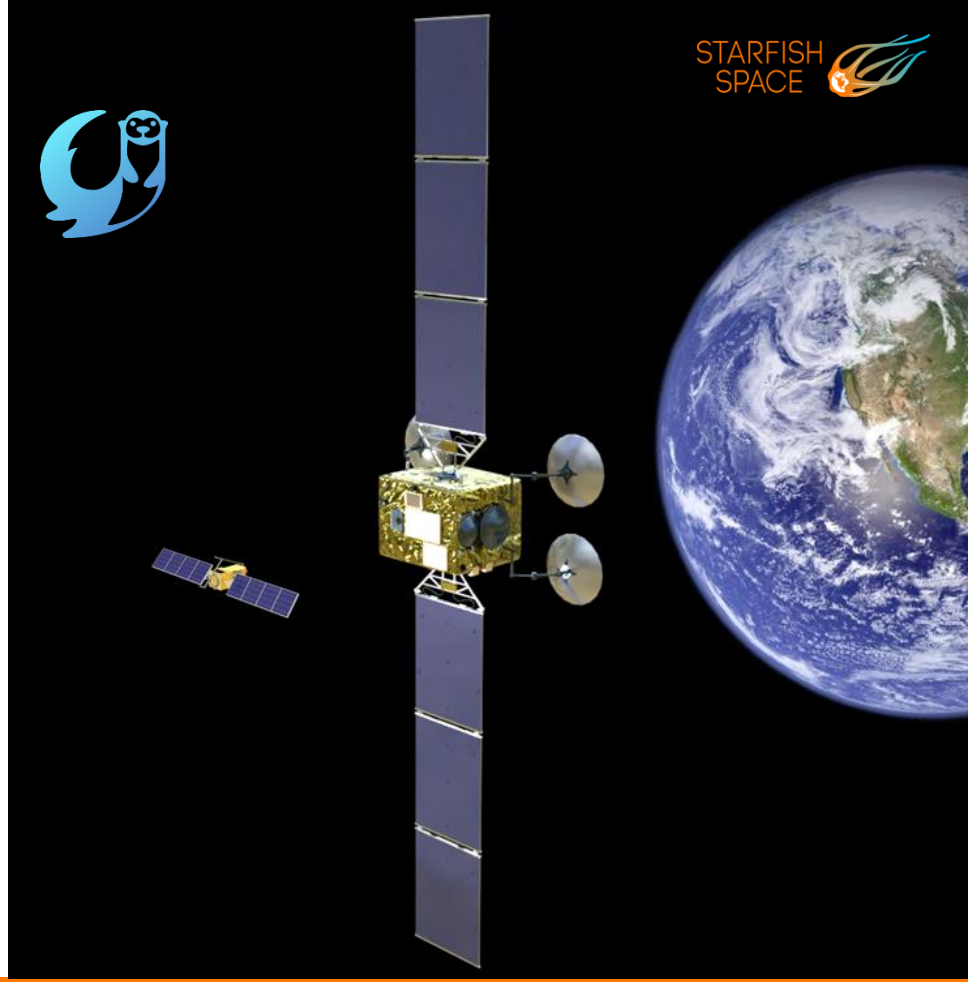
Maintaining LEO constellations.

Maximizing GEO satellites.

Active Life Extension

Space Debris Removal

Autonomous Interaction



Starfish Team

Company Resume

- Founded by former **Blue Origin and NASA** engineers
- Raised **$7.3 Million** in venture capital from NFX, MaC VC, PSL Ventures, Boost VC, and others
- Won a **$1.7 Million** Space Force Pitch Day contract
- Pursuing market valued at **$6.2 Billion** through 2030
- RPOD demonstration scheduled for **2023**

Trevor Bennett, Co-Founder
Blue Origin
NASA (JPL and Goddard)
Colorado (PhD, Aerospace)

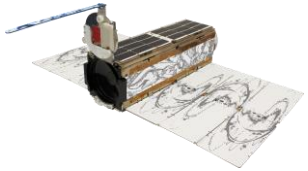
Austin Link, Co-Founder
Blue Origin
Lockheed Martin
Purdue (M.S., Aerospace)
Stanford (B.S., Physics)

21 Team Members:
15 Engineers
14 Graduate Degrees
10 Former Founders
5 Together at Purdue

With Experience At:
Blue Origin
NASA
SpaceX
Lockheed Martin
McKinsey and Co
Morgan Stanley
Honeybee Robotics

Now Is The Time

It Is Now Possible...



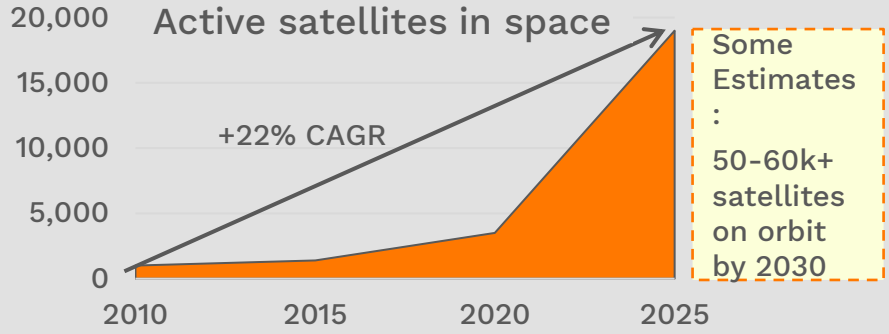
Small Satellites

+

Commercialized Components

Starfish Brings Together for Servicing

And It Is Now Necessary



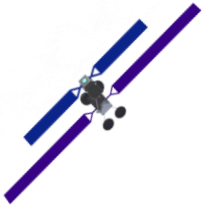
5x more satellites + Strategic interest

This technology is tomorrow's space logistics infrastructure

Otter Missions

“The ability to safely and cooperatively interact with satellites… would immediately revolutionize military and commercial space operations alike”

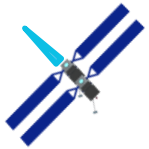
— DARPA



Life Extension

Add 5+ years to healthy satellites

Primarily geostationary satellite operators



Satellite Disposal

Limit space debris and keep orbits clear

Primarily low Earth orbit mega-constellations

And More…

A new paradigm for dynamic in-space operations

The Otter Value Proposition

Get more from your satellite with Starfish Space

Pre-launch
1-3 years
Design & production to prepare a satellite.
*Design better knowing the Otter gives you options on orbit.

Launch
< 1 day
The satellite journey begins by going into orbit!

Positioning
0-3 months
It takes effort to reach your final destination.
*Need help? The Otter can assist in positioning.

Operations
5-15 years
Time to provide service to people below on Earth.
*Have a problem? The Otter can come inspect.

Your satellite's lifecycle today

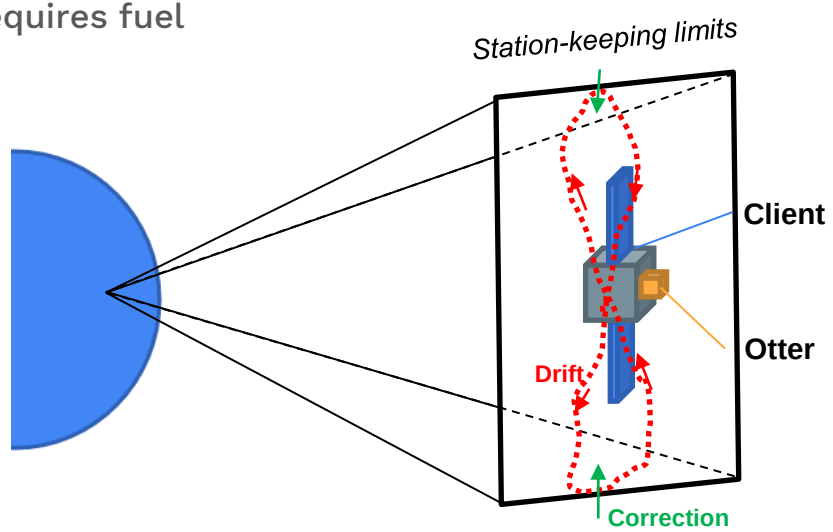
Extension
3-5 years
The Otter space tug holds on to help you continue operating.

Disposal
1-6 months
The Otter space tug keeps your orbit clear for future satellites.

Now available with Starfish Space!

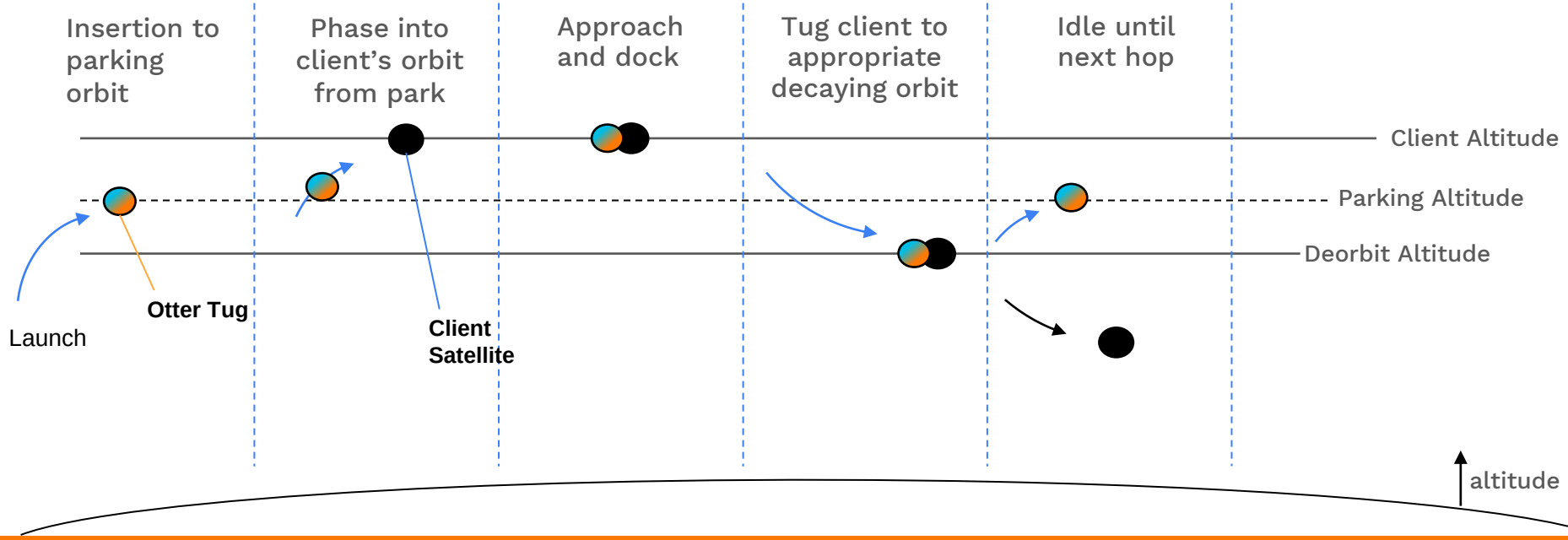
Missions: Life Extension GEO

- Geostationary satellites are desirable because they remain in a fixed position over the Earth
- Gravitational forces and solar radiation pressure tend to push and pull those satellites off this position causing “drift”
- Corrections are made to counteract the drifting, this requires fuel
- Otter’s life extension mission will attach to a client satellite as a booster pack to actively maintain the orbital slot of a satellite
- Otter will provide this station-keeping ability for several years



Missions: Satellite/Debris Disposal LEO

- Dispose of client satellite or debris to clear proliferated orbits
- Otter will relocate them to a graveyard/de-orbit trajectory



A Business Case to Remove Debris?

Active Debris Removal: One solution to troubling space debris… Remove it!

Even if the technology existed, who would pay to remove it?

Our Hypothesis: There are positive economic returns for a business using a space tug to help clean up their constellation of satellites

**Note:* this still leaves other types of space debris unaddressed

Case Study: LEO Constellation

The optimal end-of-life disposal strategy is to take a chance with space tugs

- Otter enables satellites to take the risk of operating longer
- When they fail, Otter can remove and replace them with new satellites

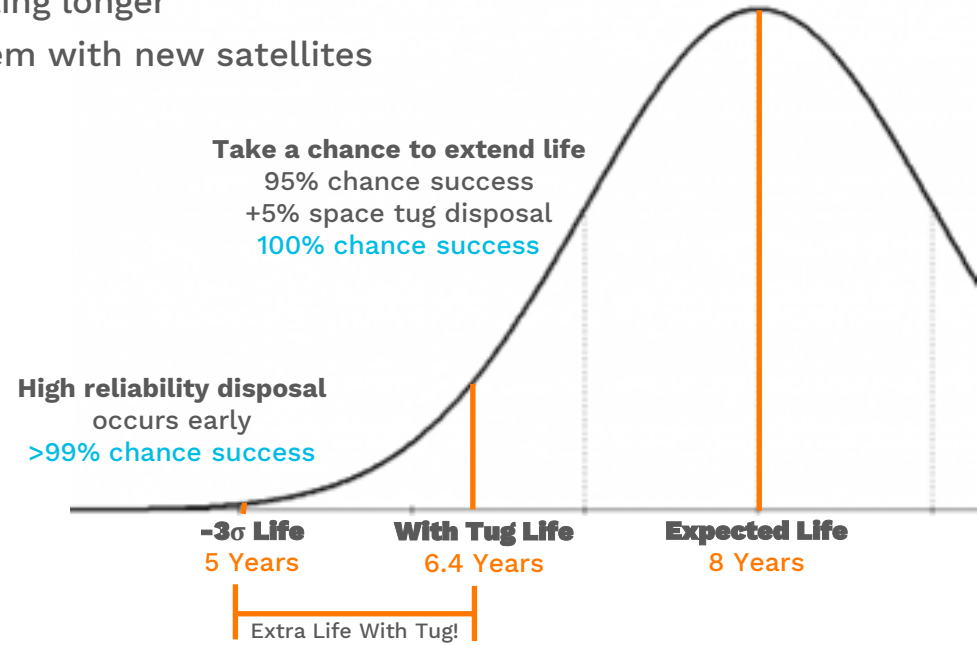
Sample Calculation

Assume:
100 satellite constellation
5-year design life
1-year standard deviation on life end

Take a chance:
Operate until 95% chance of successful self-disposal

Optimal Outcome:
5 satellites need disposal support
95*1.4 extra years

125 extra satellite years



Otter: Affordable and Available Servicing

Servicing in an ESPA-class satellite
Through safe and efficient RPOD

Fast and affordable to build and launch
Enabled by building on small-sat technology

CEPHALOPOD
RPOD Guidance and Control
Testing now!

Nautilus
On-orbit capture
Vacuum chamber testing

CETACEAN
RPOD Navigation
Monte Carlo testing

STARFISH
SPACE

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