



PROXIMITY ORBITAL

# **Ion-Beam Deorbit** **of defunct satellites and** **space debris**

Deorbit-as-a-Service (DaaS) without ever touching the target.

# Constellations fail. Capture does not scale.

Operators are launching tens of thousands of satellites under FCC's five-year disposal requirement. A predictable share of these units will fail before they can safely self-dispose. A dead satellite may tumble out of control. Robotic capture cannot safely grab a non-cooperative target.

**3–9%**

LEO satellites fail before self-disposal. This rate tracks from mature constellations up to the industry-wide average.

**~4,500**

Large debris already orbit Earth. This includes roughly 2,400 dead satellites and 2,000 spent rocket bodies.

**Decades**

Failed satellites at altitudes above ~700 km cannot decay naturally for decades.

# Deorbit became mandatory in 2024.

~~25~~ → 5

YEARS ALLOWED FOR POST-MISSION DISPOSAL

The FCC's five-year rule replaced a 25-year guideline that had stood since 2004: an 80% cut in the disposal window, and the first binding federal deorbit requirement.

## IN FORCE

Applies to every new US-licensed LEO satellite and any operator seeking access to the US market.

## FORCING FUNCTION

Tens of thousands of constellation satellites are now launched under a hard disposal obligation they cannot all meet on their own. Planned orbital data centers will also increase disposal needs.

## FIRST ENFORCEMENT TEST

~2029, when the earliest satellites licensed under the rule reach their deadlines. Demand is structural and foreseeable.

The industry is racing to build a better gripper.

The physics says you never need to **touch the target at all**.

A focused ion beam transfers momentum across open space. Aim it at a defunct satellite and you can drag it down: no docking, no robotics, no grappling a tumbling object.



OUR COMPETITORS' DEORBIT CONCEPTS:  
ROBOTIC GRIPPERS, ONE TARGET AT A TIME

Balanced thrust holds formation.

# We deorbit with an ion beam — no contact required.

## STEP 01

### Stand off

The servicer holds a safe standoff distance: no docking, no contact.

## STEP 02

### Aim

A collimated ion beam is pointed at the target, whatever its shape or spin.

## STEP 03

### Apply force

Momentum transfer lowers the orbit to re-entry: 88 days for a 300 kg target from 1000 km.

# Capture vs. non-contact.

## THE INCUMBENT APPROACH

### Capture

DOCK · GRAB ·  
DEORBIT ONE

- Requires compliant hardware on both servicer and target
- Depends on complex, failure-prone robotics
- Demands dangerous close-contact rendezvous & proximity ops
- One deorbit campaign per servicer, then the asset is gone

## ION-BEAM DEORBIT

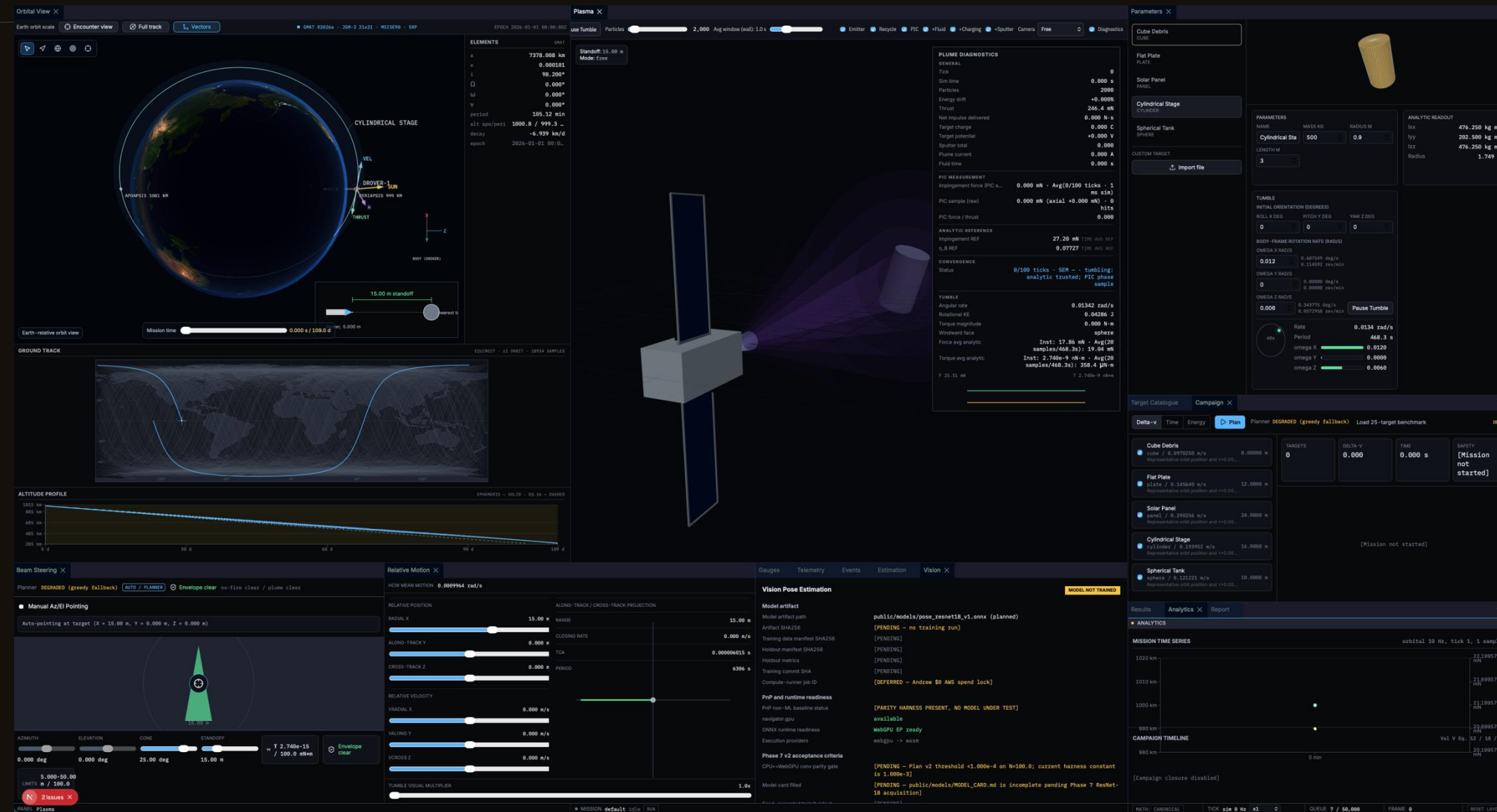
### Non-contact

STAND OFF · AIM ·  
APPLY FORCE

- + **No target hardware required**: no docking, no grappling.
- + Works on **tumbling, non-cooperative** targets.
- + Operates at a **safe** standoff distance: no contact risk
- + **Multiple** deorbit campaigns per servicer

# The only end-to-end **IBD mission planner**; we will be the first to anchor it with ground testing data.<sup>†</sup>

## IBD SIMULATOR — PROXIMITY IP



We developed our own **physics models and software** that models the ion-beam plume interaction on any target geometry. It is an end-to-end mission planner with a particle simulator.

**88** days

To deorbit a 300kg target.

**15 m**

Standoff distance from the target.

<sup>†</sup> We are the **only company** commercializing IBD as a dedicated deorbit service and **the first US company** taking it to ground validation.

# The only approach that is both scalable and low-cost.



# Government demand is already there.

JAN 2026 · SDA

**\$52.5M**

First LEO Deorbit-as-a-Service contract award.

FEB 2026 · SPACE FORCE APFIT

**\$54.5M**

Awarded for an orbital servicing vehicle.

SEP 2024 · NASA SSPICY

**\$15M**

Contract for end-of-life satellite inspection.

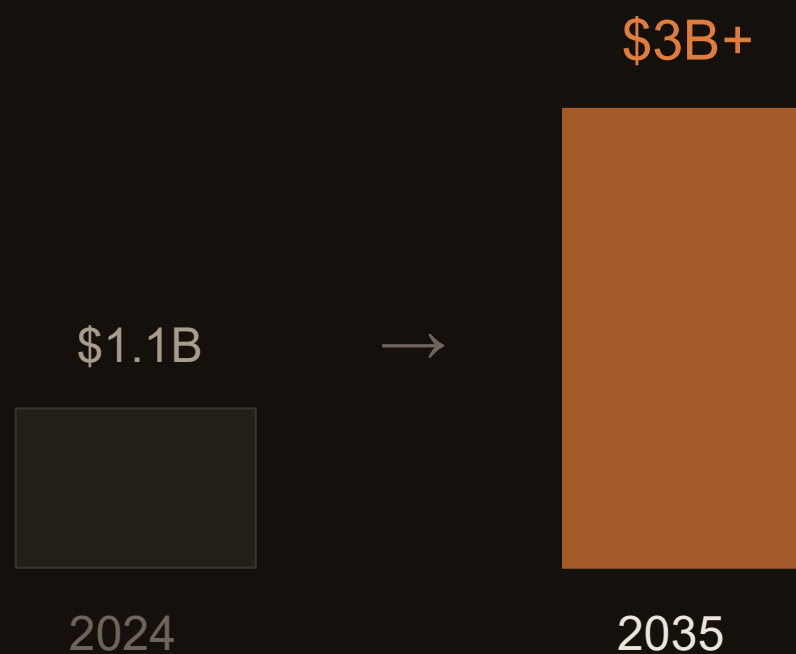
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The same architecture serves the commercial backup market created by the FCC's five-year disposal rule: every constellation operator is now a potential customer.

All three contracts awarded to our competitor Starfish.

# A compliance-driven market, growing fast.

## DEBRIS-REMOVAL MARKET



Deorbit / active-debris-removal is a distinct slice of the broader in-space servicing (ISAM) market. Demand is created by federal regulation (FCC 5-year rule).

**>\$950M**

government risk capital committed to debris remediation, 2022–2025 (NASA · ESA · JAXA · UKSA).

**\$50–145M**

price of a single competitor deorbit mission today (ClearSpace-1, Astroscale CRD2) for **one** target.

**Tens of thousands**

of LEO satellites now licensed under a hard disposal obligation, creating an addressable backlog for DaaS providers.

# A Constellation of IBD Servicers. One Physics. Two Purposes

CIVIL · COMMERCIAL

## Clean the commons

RECURRING COMMERCIAL REVENUE

Satellite operators pay a recurring fee to Proximity or the Government for disposal. Just like urban businesses do not worry about disposal infrastructure and just pay fees/taxes, satellite operators should not plan, budget, or design for disposal. A constellation of IBD servicers will form a disposal infrastructure of the orbital economy.

DEFENSE · NATIONAL SECURITY

## Deny the commons

NON-KINETIC KILL AND DEORBIT (NKKAD)

IBD servicers can function a non-kinetic on-orbit offensive engagement layer for the US military. The fleet will deny, perturb, degrade, or deorbit an adversary's asset. Because it is non-kinetic, debris-free, the military can control escalation—something missile-based or capture-based engagement cannot provide.

# One servicer, four revenue streams.

Government funding drives our near-term business. The commercial DaaS demand is in the near-future.

## PER-MISSION DEORBIT

~\$50M / target

One target removal at ~\$50M currently (SDA mission awarded to Starfish). But with Proximity's multitarget capability price down to \$15–25M. 50–65% gross margin.

## REMOVAL PREMIUM (ARR)

~\$250–500K / satellite / year

Operators pre-pay across a fleet on a **retainer**. Or, the government requires a mandatory debris-removal **bond**, paid out to Proximity. We guarantee to remove any unit to comply with the FCC 5-year deorbit.

## MISSION-LIFE EXTENSION (ARR)

~\$13M / satellite / year

**Outsource regulatory deorbit compliance. Extend GEO satellite mission life.** Allows satellite operators to use fuel reserved for deorbit for mission life extension. Northrop's MEV proves the willingness to pay at ~\$13M/sat/yr.

## STRATEGIC CONSTELLATION

\$0.5–3.5B

A long-term vision. Proximity will offer a constellation of **non-kinetic kill and deorbit (NKKAD)** satellites to the US military.

# Four stages from pre-seed to operational revenue.

2026	2027	2028–29	2030
<b>Pre-Seed</b>	<b>Seed</b>	<b>Series A</b>	<b>Operational</b>
●	●	●	●
<b>\$2M</b>	<b>\$20M</b>	<b>\$100M</b>	<b>~\$100M yearly revenue target</b>
Mission architecture and the IBD software stack.	IBD servicer satellite integration.	Win and fly an USSF DaaS mission (\$50M)	Regular military and commercial DaaS missions.

# \$2M buys a 12-month path to seed or IP-sale offramp

We conduct the first-ever ground campaign with flight-representative hardware at NASA Glenn. With the data, we anchor our IBD simulation software and IBD subsystem parameters. These milestones open seed path for full IBD service satellite development and integration.

No flight-representative ion-beam impingement dataset exists anywhere. We will produce it. NASA ground testing therefore provides a potential 12-month off-ramp for investors: acquisition of Proximity Orbital by incumbents working on deorbit technology.

## 12-MONTH PRE-SEED WINDOW

**M3 NASA ground test planning complete**

**M6 NASA ground testing begins**

**M9 Ground testing completed**

**M12 IBD software completed**

## USE OF THE \$2M PRE-SEED

NASA Glenn ground-test campaign (~\$308K)

Headquarters & lab setup (~\$500K)

Operations, overhead, hires & runway (~\$1M)

# Two Founders: The Right Team

## Richard Polignone

### Engineering

M.S., Mechanical Engineering, Thermofluids, and Design-for-Manufacturing, University of Massachusetts (also B.S.).

Senior engineer at Blue Origin who led testing and flight qualification of New Glenn second-stage across its mechanical and propulsion subsystems. Previously at Axcelis, working on ion beam. He owns NASA Glenn ground testing end-to-end.

## Andrew Lee

### Legal & Business

J.D., cum laude, Northwestern Law; B.A., Georgetown. Space attorney who worked at a big law firm (AmLaw 20) representing HawkEye 360, AST SpaceMobile, Astroscale, and countless smaller startups in commercial contracting, FAA/FCC licensing, and litigation. He runs all contracting, licensing, compliance, and legal strategy in-house.

Letters of intent for ground testing from: [NASA Glenn](#) · [University of Michigan](#) · [Georgia Tech](#)



# \$2M pre-seed

12 MONTHS · THEN SEED PATH OPENS

Ground testing at NASA Glenn.  
(Letter of Intent already secured)

Proprietary ion-beam deorbit  
software completed.