

Re: Comments of the Secure World Foundation on the Application for Orbital Data Centers by Starcloud, Inc. (ICFS File No. SAT-LOA-20260202-00073)

April 10, 2026

**Federal Communications Commission
45 L Street NE
Washington, D.C. 20554**

Executive Summary

The application by Starcloud, Inc. ("Starcloud" or "the Applicant") for a non-geostationary orbit ("NGSO") system of up to 88,000 satellites is one of several orbital data center ("ODC") filings recently before the Federal Communications Commission ("FCC" or "the Commission"), each proposing constellations of tens of thousands of satellites or more. The Secure World Foundation ("SWF") has previously submitted comments on similar applications and the same core considerations apply here. These comments summarize those concerns as they bear on the Starcloud application.

SWF recognizes the important role that U.S. commercial innovation has played in advancing space capabilities. The current wave of ODC applications represents a qualitative shift in the scale of proposed satellite constellation operations. It is not an incremental expansion of existing NGSO licensing practice. Rather, it raises novel technical, environmental, and governance considerations that extend beyond the Commission's routine licensing practice and expertise, and it therefore warrants commensurate regulatory scrutiny and system-level evaluation.

From an orbital stewardship perspective, SWF respectfully offers the following recommendations to assist the FCC in ensuring that its decision process both supports innovation and safeguards the long-term sustainability of the space environment.

- a) The Commission should evaluate these applications as **precedent-setting, non-routine** requests. Consequently, **all waivers should be denied or deferred**, until the Applicant(s) provide a sufficiently detailed technical record to enable assessment of risks at full scale.
- b) The Commission should require **system-level analysis and disclosure** from the Applicant(s), including for cumulative collision risks, post-mission disposal ("PMD") performance, and aggregate interference effects.

- c) The Commission should consider a **phased, demonstration-based authorization approach**, with strict reporting, transparency commitments, and clear performance benchmarks prior to any expansion.
- d) Given the expansive nature of the considerations associated with constellation(s) of this magnitude, the Commission should **initiate a parallel Notice of Inquiry** to address externalities and cumulative metrics of very large constellations, drawing upon relevant interagency expertise to ensure that future applications of similar scale are evaluated under clear, updated standards.

A. Responsibility in Precedent Setting

1. Within the span of a few months, the Commission has received multiple applications to deploy ODC constellations ranging from tens of thousands to potentially a million satellites. This is not a continuation of prior NGSO practice. Its scale is qualitatively different from prior filings. At the time of writing, there are around 15,000 active satellites in LEO. Any single ODC application now before the Commission would, if fully deployed, multiply that figure several times over.

2. SWF has submitted comments on prior ODC application(s) before the Commission raising these concerns. The same analysis applies to the Starcloud application. Starcloud has to date launched a single demonstration satellite; the Commission should not assume that operational safety practices will scale automatically alongside the constellation, and should evaluate the application with that in mind.

3. Licensing decisions for these applications will set an international precedent. This is especially pertinent as other nations and commercial entities are also looking to deploy constellations that are orders of magnitude larger than existing authorizations and operations. Hence, the FCC must evaluate these applications as **precedent-setting** and **non-routine**, and apply a proportionate level of attention and evaluation. We thus urge the Commission **to deny or defer all waivers** requested by the Applicant – including processing round bypass, milestones and deployment obligations, surety bond requirements, and any completeness relief with regard to Schedule S information submission – until the Applicant provides a sufficiently detailed technical record to enable assessment of risks at full scale.

B. Safety and System-Level Integrity

4. Authorization requirements should, as a matter of principle, uphold system-level safety beyond individual satellite performance, and ensure that cumulative risks across the constellation remain demonstrably controlled. At the scale of this application, the distinction between per-

satellite compliance and aggregate outcomes becomes critical. A 99% PMD success rate, a 1-in-1,000 per satellite collision risk, and a 1-in-10,000 risk of human casualty from each surviving debris compound quickly over tens of thousands of satellites and may become non-trivial. Existing compliance metrics are not designed for constellations of this size; simply meeting these per-satellite requirements does not entail that the application fulfills the safety objectives these requirements are meant to achieve.

5. We have separately expressed support for FCC’s regulatory streamlining efforts to bolster U.S. competitiveness, on the premise that streamlining should not diminish the integrity of technical and public interest scrutiny. Similar considerations apply here. We thus recommend that the Commission require a **system-level analysis and disclosure** from the Applicant, including for cumulative collision risks, PMD performance, and aggregate interference effects.

C. Sustainable Space Operations and Access

6. FCC public interest considerations should include long-term access implications for future U.S. civil and commercial space operators. There is currently no established benchmark for what constitutes “lightly used orbital altitudes” in physical terms. Existing regulations focus on spectrum interference, and may not adequately address physical congestion or access – especially for systems that intend to rely on optical links and are therefore not completely covered by international satellite spectrum coordination processes. Approving a constellation of this scale without thorough technical analysis and reporting requirements may have unintended implications for U.S. competitiveness by limiting or restricting access for current and future operators.

7. To balance support for commercial innovation with considerations for long-term space sustainability and intergenerational equity, we recommend that FCC consider a **phased, demonstration-based authorization approach**, with strict reporting, transparency commitments, and clear performance benchmarks prior to any expansion.

D. Responsible governance and regulatory stewardship

8. Decisions of this magnitude should reinforce confidence in the integrity, transparency, and durability of the U.S. licensing regime. The current wave of ODC applications raises broader governance issues that need to be given due consideration at the national level. The Commission should work with relevant entities to ensure that any authorization granted at this scale is grounded in a clear, technically robust record that can withstand domestic and international scrutiny.

9. Specifically, large constellations of this scale raise externalities that extend beyond spectrum interference considerations. A non-exhaustive list of such externalities includes:

- a) Governance, coexistence, and transparency considerations associated with systems that intend to rely on optical links;
- b) The limits of typical radio frequency-based coordination mechanisms in managing shared access where physical congestion or interference, rather than spectrum interference, may become the constraining factor;
- c) The impact of increased launch cadence on airspace management, operational disruptions, and closures;
- d) The potential environmental impact of associated launch activities, including whether existing categorical exclusions from NEPA remain appropriate when considering constellations several orders of magnitude larger than those previously licensed;
- e) Aggregate atmospheric and spacecraft ablation effects associated with mass reentry at this scale, which are not yet fully understood; and
- f) Cumulative impacts on dark and quiet skies and long-term implications for optical and radio astronomy.

10. SWF acknowledges that these externalities may not fit squarely within FCC’s scope of authority and areas of expertise. Nevertheless, their potential long-term impact warrants careful examination at the national level. In this regard, the FCC should take into account parallel efforts within the U.S. government that could shape the institutional framework for such applications. For example:

- a) Executive Order 14335 directs the Department of Commerce to develop a mission authorization process for space activities “not clearly or straightforwardly governed by existing regulatory frameworks” – a description that could encompass orbital data centers, operation of which involves aspects that are not clearly within the scope of existing licensing frameworks.
- b) The Office of Space Commerce (“OSC”) is concurrently advancing the Traffic Coordination System for Space (“TraCSS”), which could meet the space situational awareness needs of very large constellations, but the system is still transitioning to full operation.

These efforts may produce considerations, standards, or determinations that support a more informed policy landscape for addressing these externalities. Granting full authorization for these very large constellations before that landscape clarifies risks creating governance gaps and locking

in irreversible outcomes. It is also important to clarify gaps in the U.S. space licensing structure in order to provide commercial space operators a clear and consistent regulatory playing field.

11. In addition, U.S. licensing decisions routinely inform international processes, including ongoing discussions at the United Nations Committee on the Peaceful Uses of Outer Space on long-term sustainability and responsible behaviors. National authorization at an extreme scale should therefore be calibrated to avoid foreclosing or constraining future multilateral outcomes that may better address aggregate safety and sustainability challenges.

12. This series of applications creates an opportunity for relevant agencies – including the FCC, the OSC, the Federal Aviation Authority, and drawing upon the technical expertise of the National Aeronautics and Space Administration – to convene a coordinated national approach to the authorization of very large constellations, so as to ensure that such assessments adequately address the long-term safety, sustainability, and public interest considerations across the breadth of issues at stake.

13. Hence, as we have done in other filing(s) related to ODCs, we recommend that the Commission **initiate a parallel Notice of Inquiry** to address very large constellation externalities and cumulative metrics, drawing upon relevant interagency expertise to ensure that future applications of similar scale are evaluated under clear, updated standards. Doing so would demonstrate that U.S. leadership in commercial space is matched by leadership in responsible governance.

Conclusion

14. The promise of space as a domain for human activity, whether commercial or civil, relies on sustained access to shared spectrum and orbital resources. The Secure World Foundation believes that our recommendations are consistent with the FCC's public interest mandate and will support the continued growth of the U.S. space sector while promoting long-term stability and sustainability in space operations. They will also ensure that U.S. leadership in commercial space continues to be defined by safety, responsible governance, and transparency.