

Orbital Data Centers Change the Geography of AI Infrastructure

The public-interest questions follow the infrastructure.

POTENTIALLY ALLEVIATED

- Terrestrial power demand
- Water use
- Land footprint
- Local siting pressure

TRANSFERRED / NEW

- Thermal management
- Orbital congestion
- Launch and reentry impacts
- Spectrum and gateway capacity

REMAIN

- AI governance
- Workforce disruption
- Market concentration
- Security and who benefits

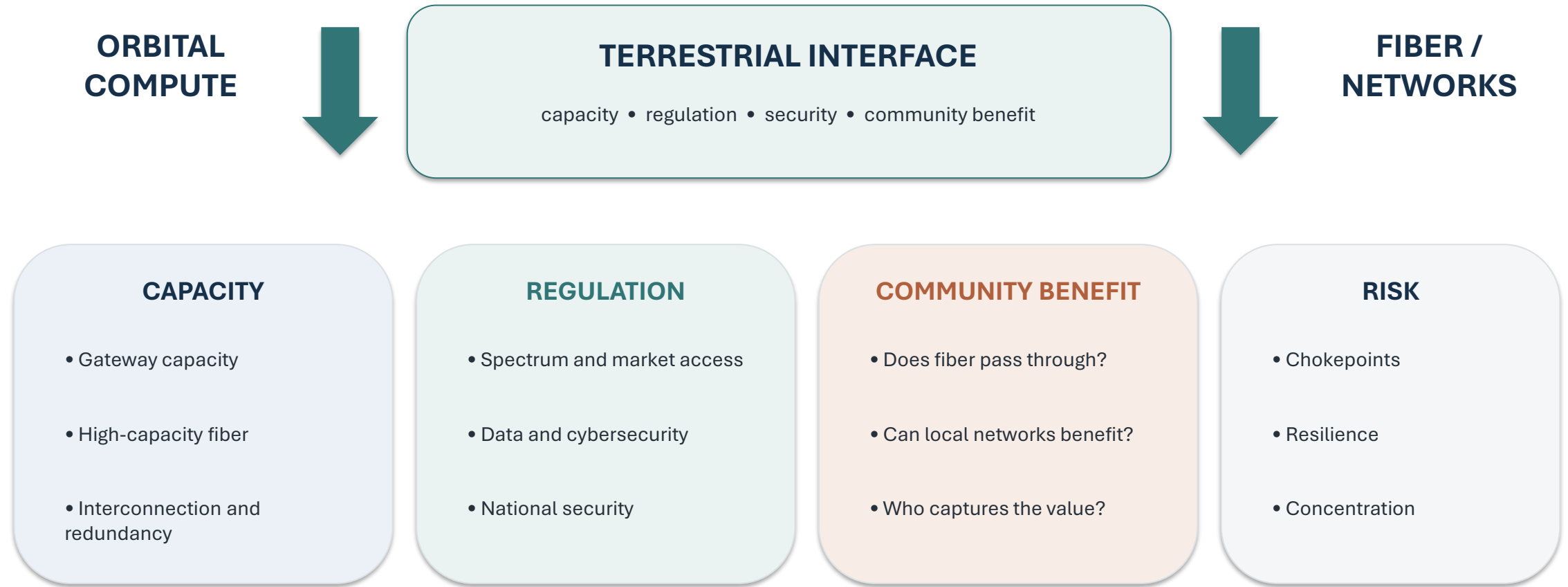
Orbital data centers may reduce some burdens, relocate others, and leave the core public-interest questions unresolved.

What Changes, What Moves, What Remains

ISSUE	TERRESTRIAL DATA CENTER	ORBITAL DATA CENTER
Power	Large local grid demand	Could reduce terrestrial power demand
Water	Cooling can strain local supplies	Terrestrial water burden may fall sharply
Land	Large campuses and transmission footprint	Much smaller terrestrial compute footprint
Cooling	Air/water-based systems	Heat rejection becomes a space engineering constraint
Connectivity	Fiber into the data center	Fiber into/out of terrestrial interfaces becomes critical
Environment	Land, water, emissions, local effects	Launch, debris, reentry, orbital environment
AI governance	Labor, privacy, safety, concentration	Those issues remain

Putting the servers in space does not solve the AI governance problem. It changes the address of the servers.

The Terrestrial Interface Is an Inflection Point



The ground connection brings questions of capacity, national authority, and public benefit back into focus.

Internationally, the debate is already changing

Globally, the debate is shifting from “Should we host data centers?” to “Under what conditions?”

Germany	Expansion ambitions meet efficiency and heat-reuse requirements. Government proposes easing some rules.
Australia	Proposed national standards address infrastructure costs, water, community engagement, and skills.
Ireland	New grid connections require supporting generation or storage and additional renewable electricity.
UK	AI Growth Zones promote development and local benefits. Proposed grid reforms target speculative projects.

WHAT CHANGES WHEN COMPUTE MOVES TO ORBIT?

COULD BROADEN PARTICIPATION

Countries constrained by power, water, or land could gain access through gateways and fiber.

COULD DEEPEN DEPENDENCE

Control of compute, launch, gateways, and networks could concentrate benefits and bargaining power.

**Who bears the costs, who controls the infrastructure,
and who participates in the value it creates?**