Maritime Internet Data Consumption Trends

Satellite connectivity usage at sea has been growing explosively in recent years. Inmarsat reports that the average merchant ship's data use reached roughly 270 GB per month by mid-2019 (up from ~5 GB five years earlier)[1]. Usage has continued to climb sharply: industry data show container fleets doubled their data usage year-on-year (a +108% jump) by mid-2022, with oil tanker operators up +70% and bulk carriers +47% over the same period[2]. (In absolute terms, container ships now lead consumption by a wide margin, driven by advanced digital operations and large crews.) The advent of LEO services like Starlink – offering hundreds of Mbps instead of the sub-1 Mbps typical of legacy VSAT[3] – has enabled very high data rates. For example, one offshore vessel reported Starlink speeds of 250+ Mbps and struggling to keep total monthly usage below ~5 TB[4]. In the era of unlimited plans (e.g. Starlink's new merchant-fleet package), data volumes on ships can easily enter the terabyte range.

Container Ships

Container vessels (including feeder and trans-Pacific/Atlantic ships) are among the heaviest data users in shipping. Modern container ships often carry 20–30+ crew and extensive on-board IT systems, and major carriers (Maersk, CMA CGM, etc.) are installing LEO terminals fleetwide. Typical monthly usage on large container ships today is hundreds of gigabytes up to several terabytes. For example, one multinational fleet limits each ship's Starlink usage to ~650 GB/month (50 GB per crew member)[5]; others have reported using multiple terabytes when uncapped. This far exceeds the 2019 merchant-ship average of ~270 GB[1]. Container operators saw the fastest growth in data demand: usage among container shipping companies more than doubled (108%) from mid-2021 to mid-2022[2].

- Usage drivers: High crew count (20–30+) and strict welfare standards (video calls, streaming, social media) mean crew connectivity is a major driver. Corporate functions also consume bandwidth – e.g. automated cargo tracking/EDI, port logistics data, e-reports and crew compliance apps. Vessel operations (navigation, weather routing, engine monitoring and IoT sensors) use steady bandwidth. New regulations (e.g. electronic logbooks, emission monitoring) add routine data exchange. Customer-support use (e.g. remote diagnostics, fleet management) and even limited guest/carpool Wi-Fi (on some feeder routes) further raise demand. In all, container ships on global routes (including Bosporus/Black Sea and Med corridors) routinely consume on the order of 0.5–3 TB per month.

Bulk Carriers

Bulkers (ore, coal, grain ships) generally use less internet than container vessels, but usage is rising. These ships have moderate crews (often <30) and mainly use connectivity for navigation, weather, and routine ship-to-shore reporting. Inmarsat data show bulk-carrier usage grew +47% year-on-year in 2022[2], though absolute levels remain below container lines. A typical bulk carrier might consume on the order of tens to a few hundred gigabytes per month.

- Usage drivers: Crew welfare (phone/Internet access during long voyages) remains a key driver. Operational use includes ECDIS/navigation charts, satellite weather updates, and bunker/fuel management tools. Some bulk cargoes (e.g. grain) require periodic condition reporting, while general ship maintenance now relies on remote diagnostics and software updates. Regulatory compliance (safety inspections, emissions reporting) also requires data exchange. Overall, bulkers often bill l limited data plans (100–500 GB/mo), with occasional spikes when updating voyage plans or shipping manifests. Because these ships frequently operate on major trade lanes (e.g. Australia-East Asia iron ore runs), stable coverage via LEO/GEO is critical even if total volume is modest.

Tankers

Oil, chemical, and gas tankers are high-demand users, often comparable to container ships in data load. According to industry reports, tanker data usage rose +70% year-on-year in 2022[2]. Larger tankers (with crews of ~20–30) now routinely use hundreds of gigabytes to ~1–2 TB per month. In some cases (especially with new unlimited plans), usage can exceed 1 TB as crews stream media and shore offices upload large sensor logs.

- Usage drivers: Tankers carry sensitive/liquid cargo and must continuously monitor tank conditions, so both operational and compliance data are significant. Real-time instrumentation (for leak detection, temperature/pressure sensors) can generate background data, though much is processed on-board. Crew welfare is important (video calls, entertainment). Like all vessels, route planning, weather info, and remote maintenance use bandwidth. Chemical/fuel carriers also exchange large technical documents (batch records, oil movement manifests) digitally. The combination of relatively modern fleets and high regulatory scrutiny makes tankers heavy datalink users – hence Starlink's recent unlimited-plan focus on cargo and tanker ships.

RoRo/Vehicle Carriers

Roll-on/roll-off cargo vessels (including car carriers and livestock ferries) occupy a middle ground. These ships often have medium crew sizes (perhaps 15–25) and carry trucks or vehicles on fixed short-sea routes (e.g. Turkey–Europe, Iran–Turkey). Estimated monthly usage is tens to several hundred gigabytes, depending on route and crew Internet habits.

- Usage drivers: Crew Internet and communications needs (video calls, news, social media) drive basic usage. Logistic systems (vehicle booking confirmations, customs/port notifications) consume data, as does navigation/weather info. Many RoRo services also transport commercial drivers or passengers, so some ships offer limited Wi-Fi to truckers or mini-cab services, adding to demand. Entertainment use (crew streaming, etc.) can spike data use. Since RoRo's typically sail busy regional routes (e.g. Marmara/Aegean Sea), they often blend satellite with nearshore cellular/5G when possible, but still maintain VSAT/LEO backup for full connectivity.

Passenger (Cruise Ships and Ferries)

Passenger vessels are by far the largest consumers of satellite data. Modern cruise ships may host 3,000–6,000+ passengers plus crew, and total usage is typically measured in multi-terabytes per month. For example, Royal Caribbean's new Star of the Seas is equipped with Starlink gateways capable of 10 Gbps throughput[6] – a system size implying capacity on the order of 10–30 TB per month if fully used. (Starlink notes its Community Gateway runs about $75k per Gbps per month, underscoring that cruise ships can easily need tens of Gbps to satisfy demand[7].) Even smaller cruise ferries (hundreds of passengers) can use multiple terabytes monthly, while large international ferries might use several hundred GB to a few TB.

- Usage drivers: Passenger demand dominates: guests expect fast Internet for streaming video, social media, video calls, and gaming throughout the voyage. Even with user throttling, total throughput is enormous. Crew use is similar to cargo ships (calls, updates, etc.), and onboard operations (reservation systems, entertainment streaming, navigation) run on the same networks. Regulatory and safety systems on cruises (e.g. CCTV, emergency communications, large restaurant POS systems) also rely on robust connectivity. In Turkish waters, popular Aegean ferry lines and Bosporus cruise routes push heavy traffic during peak seasons. Overall, passenger vessels may burn through tens to hundreds of TB per month on busy itineraries, dwarfing the data needs of cargo ships.

General Cargo Ships

General cargo or multi-purpose ships (carrying mixed goods, breakbulk, containers, etc.) tend to be smaller and older. Their data usage is relatively low – often just tens of gigabytes per month in practice.

- Usage drivers: As with bulkers, the main uses are crew Internet (email, calls, limited streaming) and operational data (navigation, weather, and basic fleet communications). These vessels usually have small crews and older systems, so they often use minimal data plans. Some carry containers or special cargo requiring EDI reports, but overall bandwidth budgets are typically low (e.g. 10–100 GB/mo). However, welfare rules (MLC 2022) mean that crew Internet access is mandatory, so even general cargo ships allocate part of their satcom for crew emails and entertainment.

Livestock Carriers

Livestock carriers (ships transporting animals) have unique monitoring needs, but data use is moderate. These ships typically use satellite links for crew communications plus IoT animal-health monitoring, totaling on the order of tens to low hundreds of gigabytes per month.

- Usage drivers: Crew welfare (calls and online communication) is as usual a core driver. In addition, many modern livestock carriers use IoT sensors and cameras to monitor animal conditions (temperature, ventilation, feed levels) in real time. Those data streams (often relayed periodically to shore) add to bandwidth consumption. Telemedicine or emergency alerts for animal welfare can consume additional MBs.

However, voyages are often short or routinized, so total usage generally remains under a few hundred GB, mostly for mandatory reporting and crew needs.

Reefer Ships

Reefer (refrigerated cargo) ships carry perishable goods under continuous temperature control. Their connectivity needs include both crew services and extensive sensor data. Monthly usage is typically tens to several hundred gigabytes.

- Usage drivers: A fleet of sensors continuously monitors the hundreds of reefer containers' temperature, humidity and power status. Alarms and periodic reports from these sensors (often via satellite) represent a steady data stream. Crew communications (especially on long Atlantic/Pacific reefers) also consume bandwidth for welfare and operational use. In addition, reefers often transmit cargo condition data and shipment updates to shippers in real time. For example, companies like *Nordic RFID* and *Traxens* use cellular and satellite telemetry on reefers. Combined with navigation/weather data and compliance (food-safety logs, customs filings), these factors push usage into the 0.1–0.5 TB per month range on large reefers.

Sources: Commercial data and industry reports consistently show that connectivity demand is highest on vessels with many users (e.g. cruise ships) and sophisticated operations (e.g. major container and tanker fleets). Inmarsat and Viasat studies report exponential data-growth trends[1][2]. Early user testimonials highlight multi-terabit monthly consumption when using Starlink Maritime[4][5]. These findings underscore that modern vessels – especially with LEO internet – can easily consume hundreds of GB to multiple TB per month, depending on vessel type, crew size, and service offerings. Each ship's actual usage varies widely with its mission, voyage length, and onboard policies (e.g. per-user caps).

Vessel type	Typical monthly internet use (per vessel)	Suggested Starlink Maritime plan
Container	0.5–3 TB	IMO Unlimited for cargo. If not eligible, GP 2TB, add extra priority as needed
Tanker (oil LNG chem)	0.5–2 TB	IMO Unlimited for cargo. If not eligible, GP 2TB
Bulk carrier	100–500 GB	GP 1TB baseline. Upgrade to GP 2TB on high-usage trades
General cargo	10–100 GB	GP 500 baseline. Upgrade to GP 1TB if welfare usage grows
RoRo or vehicle carrier	100–500 GB	GP 1TB baseline. Large deep-sea RoRo can use GP 2TB or IMO Unlimited if eligible
Reefer	100–500 GB	GP 500 to GP 1TB depending on telemetry load
Livestock carrier	50–300 GB	GP 500 baseline
Passenger ferry	0.2–2 TB	GP 1TB to GP 2TB, multiple terminals on busy routes
Cruise expedition or small luxury	2–10 TB	Multiple GP 2TB terminals per ship. Enterprise arrangements when needed
Cruise mid-size	10–30 TB	Multiple GP 2TB terminals per ship. Enterprise arrangements when needed
Cruise large or mega	30–100+ TB	Multiple GP 2TB terminals per ship. Enterprise or bespoke multi-terminal setups

[1] Digital Lift-Off - Marinelink

https://www.marinelink.com/news/digital-liftoff-478452

[2] Inmarsat study reveals surge in maritime data usage as shipping industry seeks increased connectivity | Viasat

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[3] [4] Experience with Starlink Maritime : r/Starlink

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[5] Starlink maritime user experience : r/Starlink

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[6] [7] The biggest cruise ship in the world also has the fastest satellite internet ever | Royal Caribbean Blog

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