The Arctic is warming at a rate 4x faster than the rest of the globe. As a result, the Arctic's rich resources, efficient shipping routes, and strategic defense location are driving a global race for control of the desolate region.

Russia is now the only non-NATO Arctic state, directly increasing tension in the far north. As Arctic commercialization and defense activity increase, the region is primed to become a geopolitical flashpoint. This is largely flying "under the radar," and NATO members are "doubling down" on Arctic-focused investments across commercial and defense applications.

ALPINEMACRO
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INNOVATION THEMES & STRATEGY

September 4, 2024

Keep Your Eye On The Arctic

The Arctic, a historically frozen and desolate expanse, is emerging as a zone of increasing geopolitical competition and is set to become a flashpoint for future conflict. Global powers are turning their attention to the Arctic for three major reasons: 1) vast reserves of resources such as oil, natural gas, and precious metals; 2) efficient shipping routes and 3) a strategic geographic location as a defense stronghold. Melting sea ice is supercharging the appeal of Arctic control, as it is now more accessible and operable for extended periods.

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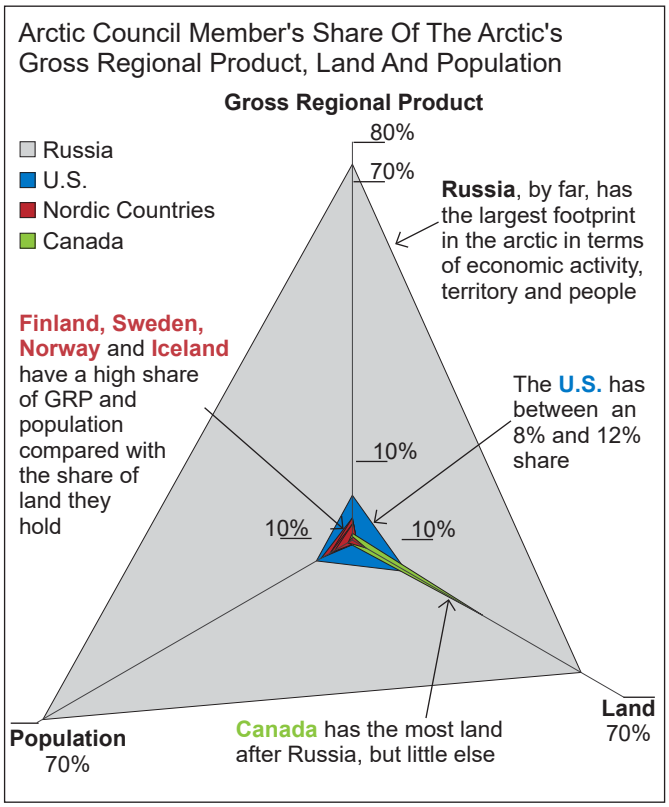
Following Russia's invasion of Ukraine, the Arctic Council (comprised of Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the U.S. and tasked with promoting cooperation and coordination among Arctic countries) ceased to exist. This has resulted in a destabilized Arctic. Sweden and Finland's acceptance into NATO has left Russia as the Arctic's only non-NATO member. Now, just under 50% of all Arctic territory falls under Article 5. As a result, Russia has been proactively strengthening its foothold in the Arctic across both commercial and defense applications and now boasts the region's most robust posture. Moreover, Russia's Arctic alienation has consequently made the region a crucial area of partnership in Sino-Russian relations (Chart 1).

This report will argue that a largely "behind the scenes" race for Arctic supremacy is well underway with massive commercial and defense implications. All NATO Arctic Council members have fallen

Chart 1 Russia's Arctic Dominance



Source: Economy of the North 2020; International Monetary Fund

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behind Russia's Arctic capabilities across virtually all domains. This is causing a scramble to "catch up" to Russia's increasing capabilities to reduce defense vulnerabilities and prevent the potential of being excluded from using the Arctic's shipping routes and resources. Key application areas set to benefit include Arctic-hardened defense equipment across surveillance, advanced sensors, vehicles, communication equipment, and infantry gear.

"The United States is an Arctic nation, and the region is critical to the defense of our homeland, the protection of U.S. national sovereignty and our defense treaty commitments… Major geopolitical changes are driving the need for this new strategic approach to the Arctic."

- Defense Secretary Lloyd Austin

Arctic Accessibility Driven By Climate Change

The Arctic is being impacted by climate change at a faster rate compared to the rest of the globe. In fact, the region is the fastest warming area on the planet, warming at a rate approximately 4x faster than the rest of the world, notes the Queen's Institute for Energy and Environmental Policy. As a result, the annual rate of sea ice loss has more than tripled since the 1990s. Since 1978 specifically, sea ice coverage has shrunk by an average of roughly 78,000 square kilometers yearly. Importantly, ice coverage limits warming by refracting 80% of sunlight back into space instead of dark seawater absorbing heat from the sunlight. As of August 1st, Arctic sea ice coverage is the third lowest on record. Research indicates that by 2040, the Arctic could have its first entirely iceless summer. Sadly, sea ice loss is the catalyst to increasing Arctic accessibility. Not only does receding sea ice support commerce through easing maritime navigation of the treacherous landscape, but it also simplifies access to concealed resources within the region.

Resource "Last Frontier"

A key driver propelling the Arctic race is the region's natural resource richness including oil, natural gas, minerals, and fisheries. In fact, the Arctic is considered the "largest unexplored prospective area for petroleum remaining on Earth". According to estimates from the U.S. Geological Survey, the Arctic Circle contains 160 billion barrels of oil and 30% of the planet's drillable natural gas. In addition, the region houses an estimated $1 trillion worth of metals and minerals. These include both precious metals like gold and silver, in addition to essential metals like lithium, cobalt, and copper. hmmmm we know why the americans are interested now

The Arctic's resources are disproportionally more important to Russia's economy than the RoW. The region generates approximately 10% of Russia's GDP and 20% of its exports. In fact, over 80% of Russia's natural gas production and nearly 20% of its petroleum production comes from the Arctic. While Russia continues to bolster its bread and butter Arctic LNG capabilities, many other nations also want a piece of the Arctic's resource pie.

For example, the recent European Parliament legislation facilitates the construction of new mines, including in the Arctic region. Recently, Sweden's LKAB mining company found Europe's largest known deposit of rare earth metals in the Arctic Circle. Norway's parliament has backed putting 108,000 square miles (an area larger than Britain) of the nation's territory in the Arctic up for deep sea

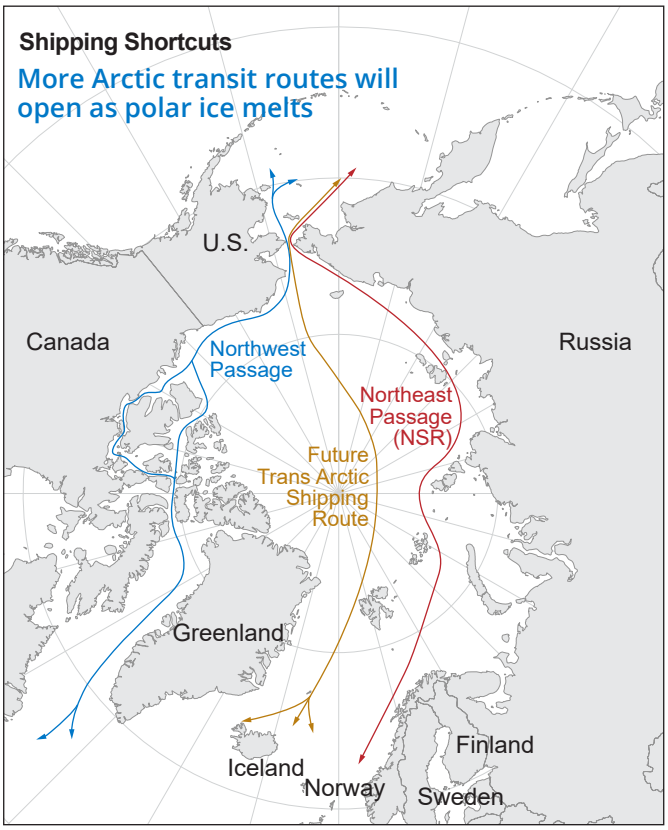
mining exploration. In the U.S., the ConocoPhillips' Willow Project is set to allow the U.S. to tap the region's petroleum reserves. All in all, resource competition in the region is "firing up" geopolitical temperatures.

Trade Route

Shifting geopolitical sands, specifically instability in the Middle East and Western sanctions on Russia have increased the value of Arctic shipping routes. Global maritime shipping continues to be plagued by snarls. For example, earlier this year seven of the world's largest shipping companies suspended the use of the Suez Canal to avoid Red Sea transit. Transit trade volumes were also significantly reduced via the Panama Canal due to persistent drought. As Arctic ice retreats and shipping lanes stay open longer during the summer months, Arctic lanes are becoming viable, cost-effective, and sometimes shorter alternatives.

Arctic shipping volumes are steadily increasing. Over the past 10 years, the number of ships entering the Arctic "Polar Code" has increased by 37%. There are two main navigable routes in the region: the Northwest Passage (NWP), which hugs the Alaskan and Canadian coastline; and the more popular Northern Sea Route (NSR) which tracks the Russian Arctic coastline (**Chart 2**). Already, disputes over legal claims pertaining to the control of these shipping lanes is a point of contention, even amongst allies. Canada considers the NWP as part of its historic internal waters, while Russia is increasingly asserting its "right" to regulate the NSR. Depending on location, both the NSR and NWP can shave 40% off the length of shipping routes made *via* the Suez Canal.

Chart 2 Arctic Shipping Routes



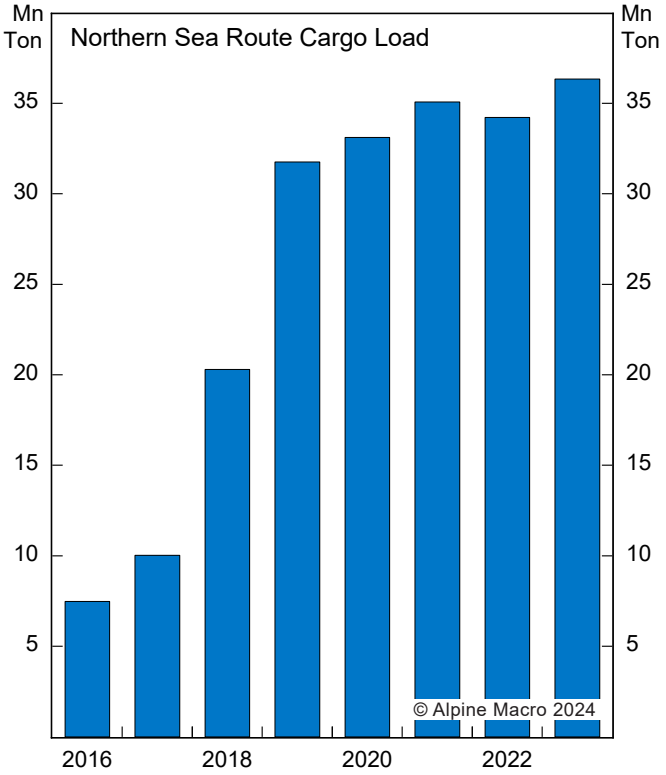
Source: Arctic Portal

The economic and strategic advantages of route control cannot be downplayed, particularly for non-aligned nations. Between 2014 and 2022, trade volumes via the NSR route have increased by 755%. Importantly, Russia is striving to increase traffic to 10x the 2022 levels by 2035. For Russia, when navigable, the NSR is emerging as the preferred route for transporting energy and mineral commodities. Yet, Russia is practically investing to use the NSR year-round through icebreakers and updating shipping supporting infrastructure in partnership with China. By 2030, Moscow hopes to have 13 heavy icebreakers on the NSR.

this is just sad man

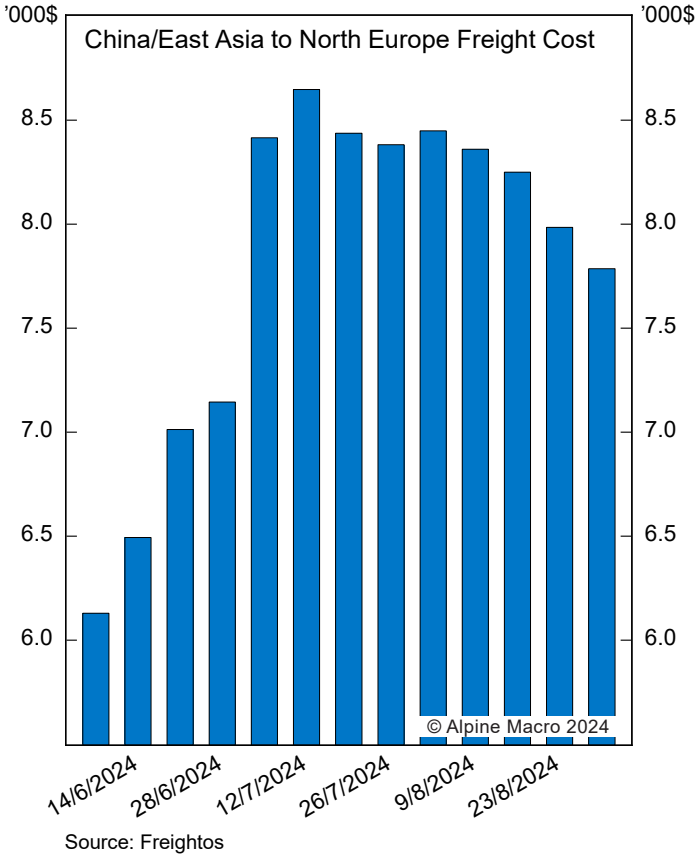
Using the NSR, Russian cargo not only stays within its territory, but it shortens Russian tankers' trips to

Chart 3 NSR Saw Record Cargo Volume In 2023



Source: Russian Federal State Statistics Service & Communications Department of ROSATOM

Chart 4 Sky-High Freight Cost *Via* Conventional Routes



Source: Freightos

China roughly ten days by circumventing the Suez Canal. Last year, 36 million tons of cargo (almost entirely Russian) passed through the NSR, of which more than half was super-chilled liquefied natural gas (**Chart 3**).

The NSR is key to China's 2017 Arctic Silk Road project. For example, shipments from Shanghai to Hamburg via the NSR could take only 18 days compared with about 35 days via the Suez Canal. Melting ice is beginning to allow ships without ice-breaking capabilities to navigate the route. Last fall, Russia completed the first shipment using a conventional oil tanker due to high levels of summer ice melt. Surging spot freight prices from Asia to Europe are also heightening the appeal of Arctic routes. For example, at the writing of this report, the freight cost from Shanghai to Rotterdam exceeds $7,204, a 346% annual increase (**Chart 4**).

A relatively nascent third sea route, named the Transpolar Sea Route (TSR), offers unparalleled efficiency. The route, which cuts directly over the North Pole, was pioneered in 2012 and currently requires high-level icebreaking ships. Yet, as sea ice dissipates especially in warm summer months, the 2,000 mile TSR is becoming more navigable. Control of the TSR is a geopolitical quandary and is positioned as a key flashpoint in the region. The Arctic is arguably the first location on Earth to fall victim to climate change driven militarization.

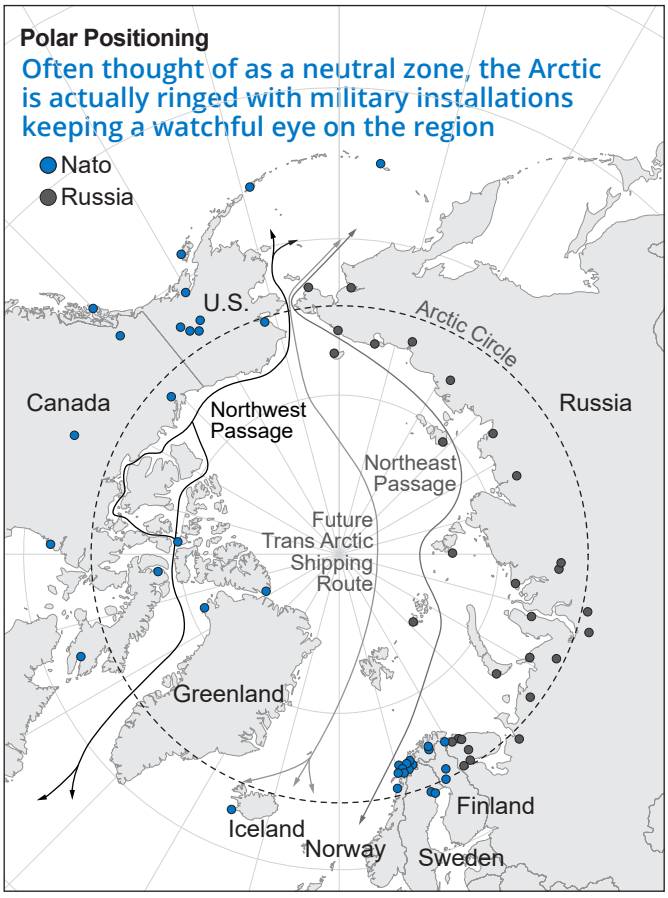
Arctic Militarization

Aside from the Arctic's resources and shipping routes, its location as a key defense hub is driving a global defense capability renaissance in the region (Chart 5).

By geography, the Arctic is arguably more important to Russia than any other nation. Russia comprises over 53% of the global Arctic Ocean coastline and houses approximately half of the global Arctic population (2.4 million Russians). The region is viewed as critical to its sovereignty, as evidenced by Putin's 2023 launch of a new national-security naval strategy that will protect Arctic waters "by all means". As a result, Russia remains the monolithic Arctic power. Consider the following:

- Over the past 12 years, Moscow has revamped over 50 Cold War-era bases and airfields along its Arctic coastline. Russia operates 33% more military bases in the Arctic Circle than all NATO members combined. A large share of these are in the Kola Peninsula, sitting in proximity to NATO allies Finland, Sweden, and Norway. Kola is home to much of Russia's Northern Fleet that reportedly holds 20 percent of Russia's precision strike capability in peacetime, and possesses the launch platforms for Kinzhal (hypersonic) ballistic missiles (Chart 6).
- Russia's strategic submarine base at Gadzhiyevo is under 200 kilometers away from a NATO boarder. Of the Kremlin's 11 submarines capable of launching long-range nuclear weapons, eight of them are based in the Arctic Kola Peninsula.
- Nearly half of the icebreakers in the world are controlled by the Kremlin, totaling a fleet of over 50.

Chart 5 Arctic Defense Footprint



Source: International Institute for Strategic Studies; Arctic Portal

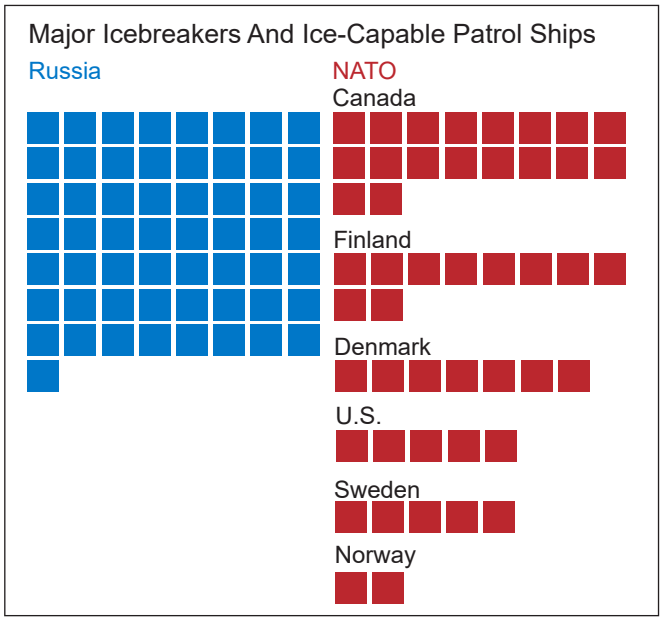
Furthermore, in the past few years, Russia has put three new nuclear-powered icebreakers into service, with at least another trio under construction. New Russia combat icebreakers weigh in at comparable sizes to the U.S. Arleigh Burke-class guided missile destroyers, and are equipped with anti-ship and land-attack cruise missiles (Chart 7).

- Russia has 16 deep-water ports in the Arctic, including Murmansk, the largest deep-water port north of the Arctic Circle. It is of high strategic importance, as it is the only port that remains ice-free all year.

Chart 6 Russian Installations Are Strategically Positioned

Source: CSIS Research and Analysis

Chart 7 Arctic Russian Maritime Capabilities



- Moscow is also developing next-generation Arctic weaponry and defense systems. For example, Poseidon is a nuclear-armed hyperspecialized torpedo, capable of triggering a radioactive tsunami. In addition, Moscow has developed specialized Arctic drones that can fly for four days and navigate using an alternative system to GPS.

The U.S., Canada, and Arctic NATO members have finally woken up to climate-driven Arctic accessibility and Russia's dominance in the region. Yet, these nations have minimal Arctic experience and capabilities compared to Russia. For example, the U.S. has only one Arctic deep-water port, two outdated icebreakers, and six "contingency" Arctic bases intended only as a staging ground for expeditions into the region. Although, a recent trilateral arrangement, dubbed ICE, between the U.S., Canada, and Finland, is poised to accelerate the production of polar icebreakers and other capabilities for the allies. Nevertheless, Arctic

council members are investing to revitalize capabilities and improve surveillance. Yet, efforts to "catch up" could be too little too late.

Recently, the U.S. Department of Defense released its 2024 Arctic Strategy (the first since 2019), arguing for urgent improvement "to ensure the Arctic does not become a strategic blind spot". It calls for America's Arctic posture to reflect a "monitor-and-respond" approach. In addition, the report ensures the DOD will remain a partner in the U.S. Coastguard's long-term acquisition of at least eight polar icebreakers. America's lack of icebreaking capabilities is currently a massive vulnerability. Key priorities outlined in the report include:

- Improving Arctic surveillance through advanced sensing technologies.
- Hardening space-based missile warning systems, particularly focusing on early detection.
- Ensuring proper access to sufficient Arctic-capable equipment for soldiers and vehicles.
- Building out satellite, data, and communication infrastructure to function in the challenging climate.
- Modeling and forecasting of changing environmental conditions to prepare for potential combat in the far north.

For Canada, ensuring a secure Arctic is growing more paramount daily. The Arctic comprises 40% of the country's territory and 75% of its coastline. This spring, Canada unveiled an updated defense, including the allocation of $73 billion over 20 years that includes substantial Arctic funding. As stated by the Minister of National Defense Bill Blair, *"The most urgent and important task we face is asserting Canada's sovereignty in our Arctic and Northern regions, where the changing physical and geopolitical landscapes have created new threats and vulnerabilities to Canada and Canadians."* Key priority areas of defense spending will be:

- Specialized maritime sensors to conduct ocean surveillance ($1.4B allocation).
- Establishing Arctic "operational support hubs" to facilitate a year-round presence in the region. These hubs will be comprised of airstrips, logistics facilities, military equipment, and stockpiles of spare parts ($218mn allocation).
- Constructing a new Arctic satellite ground station ($5.5bn allocation).
- Creating an airborne early-warning aircraft to contribute to NORAD ($307mn allocation).

This year, the U.S. and Canada have led several collaborative military training operations in the Arctic. For example, operation NANOOK is the largest naval exercise in the region that drew participation from the Royal Canadian Navy, the U.S. Coast Guard, the U.S. Navy, and the Royal Danish Navy.

Investment Considerations

The Arctic is yet another driver for accelerating global re-armament. Specifically, the Arctic race is a key tailwind for NATO nations to increase defense spending. This year, a record twenty-three out of thirty-two NATO countries will reach the Alliance's

defense spending target of 2% of gross GDP. While the region is a general boon for the defense industry, its harsh environment requires specialized combat equipment for the land, sea, and air. In addition, communication and sensing equipment that is optimized to function at northern latitudes in extreme cold is an essential puzzle piece to NATO's increasing presence in the region.

We are in the camp that large U.S. defense contractors will benefit broadly from Arctic militarization, but they are trading at/near all-time highs and in overbought territory. We recommend investors interested in our Arctic theme to seek exposure to Arctic militarization to accumulate positions on any large pullbacks. In our view, European equities with defense exposure to the Arctic have elevated "skin in the game" due to NATO involvement, regional proximity, and experience in developing products specialized for northern applications.

Aside from defense-specific solutions, icebreaker demand and associated components are primed to benefit as well. Specifically, shipyards focused on building polar icebreakers will realize a demand boost, especially in the U.S., Canada, and Finland because of the ICE pact in the medium term.

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