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BRIEFING PAPER

Defending Your Nation
In A Hostile World

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Defending Your Nation In A Hostile World

It is an indisputable fact that geopolitics today is far more unstable than at any time since the end of World War II. This instability creates economic consequences that ripple across the world, and it creates defence consequences that as yet few nations are addressing with the clarity and urgency the situation requires.

When former allies become at best unreliable and at worst transform into *de facto* adversaries, nations need a way to defend themselves at scale that cannot be nullified by hostile actions from overt adversaries and former partners.

This is a pressing need not merely for European NATO members but also for countries in the Middle East and elsewhere who formerly relied on the USA for critical elements of their defence posture. With that reliance now transformed into an existential weakness, wishful thinking for the return of past conditions is a recipe for insufficient action and fatal vulnerability.

SkyGhost was designed to provide a wide range of capabilities that can help nations mitigate several of the vulnerabilities created by today's highly unfavorable geopolitical situation.

This paper will outline a few such mitigations, but the reader is asked to bear in mind that SkyGhost is designed to be extremely adaptable because it is not always easy to predict precisely what tomorrow's threats will be now that the pace of battlespace innovation and adaptation has become so rapid.

This is why SkyGhost is inherently adaptable for a wide range of mission types, many of which are not even conceived by countries today yet will be essential tomorrow.

To illustrate the utility of SkyGhost let's consider the present situation in Ukraine because it is so extreme. Many features of the war in Ukraine are now unhappily familiar in the Persian Gulf, but as yet the USA has not turned on Gulf nations and become a hostile actor in the way it presently is for Ukraine. It cannot be taken for granted, however, that such a transformation will not occur in the future. Therefore even elements of the scenario that follows which appear to be non-relevant to nations such as the UAE, Kuwait, and Saudi Arabia may in the not-too-distant future become relevant. So having an "insurance policy" in place would be wise.

Ukraine faces daily attack from a mixture of Russian aerial assets. The old propellor-style Geran one-way attack drones are being replaced by turbojet-powered Geran Vs which travel faster and more rapidly and thus cannot be interdicted by Ukrainian interceptor drones of the past. This has forced Ukraine to add various features to its interceptors such as turbojet propulsion and onboard AI modules to augment human control due to the high speed at which the interceptors must now travel. So whereas before the cost-per-kill was highly favorable to Ukraine, with a $1,500 interceptor killing a $25,000 Geran II, the gap between interceptor and target is now shrinking and interceptions are becoming more problematic.

SkyGhost anticipated this development. The SkyGhost autonomous aerial platform solves several problems simultaneously. First of all, it restores utility to low-cost interceptor drones by releasing them high above incoming threats and thereby enabling the interceptor drones to take full advantage of the 9.8 meters per second squared acceleration provided by gravitational energy. Secondly, using its onboard AI-based targeting module that turns radar traces into interception data, SkyGhost can autonomously guide up to 40 interceptor drones simultaneously onto individual targets via fibre-optic thread, requiring no human intervention and being totally immune to electronic warfare attempts. SkyGhost thus dramatically reduces load on human operators while simultaneously enabling far more rapid response, especially to potential evasive actions by the target.

In addition to being capable of interdicting the new Geran V turbojet-powered attack drones, with appropriate munitions in its cargo bay SkyGhost should also be capable of interdicting threats such as the Kh-101 as well as enemy fighter jets.

It is important to realize that every nation now has a large number of vulnerable ground sites: military bases, hospitals, power infrastructure, water infrastructure, transportation infrastructure, and housing are all static easy targets. No matter how wealthy or otherwise a nation may be, there will always be a very limited number of high-end interceptors and these must be conserved for countering high-end threats. Thanks to its low per-unit cost and its extremely low cost per flight hour, SkyGhost permits coverage of *all* potential targets at a fraction of the cost of a single Patriot battery simply by operating a fleet of SkyGhosts that remain on-station above critical infrastructure at all times.

Now let us consider another vital element of defence: communications.

When reliable communications can no longer be dependably supplied by supposed allies either because of political whim or because of cyber-attack by adversaries, nations need to be able to stand up long-range high-bandwidth mesh networks at extremely short notice. SkyGhost enables this to be accomplished quickly at very modest cost and can use line-of-sight microwave transmissions to provide essential bandwidth while simultaneously minimizing the probability of adversary electronic warfare systems jamming the transmissions. By avoiding the use of satellites, which are either subject to the whims of those in the supplier nation or which can be eliminated by space-born anti-satellite weapons, SkyGhost enables reliable communications to be maintained despite adversary actions.

When we consider how essential real-time information is to military operations, the ability to stand up alternatives to conventional communications systems is a vital capability that few nations currently possess at scale. Those that do have some infrastructure have to support significant costs; SkyGhost enables far better solutions at far lower expense.

Now let’s look at ISR.

Today we see multiple Western companies vying to supply cheaper slower lower-flying versions of the US MQ-9 Reaper. The problem with this strategy is that such drones are inherently non-survivable. The USA, despite having expended vast quantities of munitions in order to eliminate Iranian GBADs, admits to having lost at least 45 Reapers over Iranian airspace in less than eight weeks. Now consider the inevitable fate awaiting slower lower-flying Western versions.

SkyGhost, as a flying wing, has an inherently low radar signature. We reduce the radar signature even further by covering the SkyGhost in a 1-mm thick polyester sheath impregnated with cross-hatched carbon fibre micro-strands that absorb and scatter all commercial and military radar frequencies. As the SkyGhost propulsion system is fully internal there's no heat signature to lock onto either. This makes it an extremely effective yet low-cost ISR platform that can operate in contested and even in adversary airspace with a much higher survivability than any alternative uncrewed platform currently available.

This low-observability also permits SkyGhost to be used for various mission types deep into adversary airspace, offering an affordable yet highly effective series of options to battlefield commanders and politicians alike.

And when new capabilities are required, SkyGhost's modular approach to munitions and to the software modules that control them means that rapid adaption to emerging threats can be achieved in days rather than in months or years.

SkyGhost is designed to take advantage of local supply chains and in operations can utilize a wide variety of infrastructure ranging from air bases to stretches of highway, enabling unparalleled flexibility that matches the needs of today's battlespace.

For more information about Multum Aero Systems' SkyGhost multi-role aerial platform please contact

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