

# Airborne Missile Defense Battery to Defeat Surface-to-Air and Air-to-Air Missile Threats

## Executive Summary

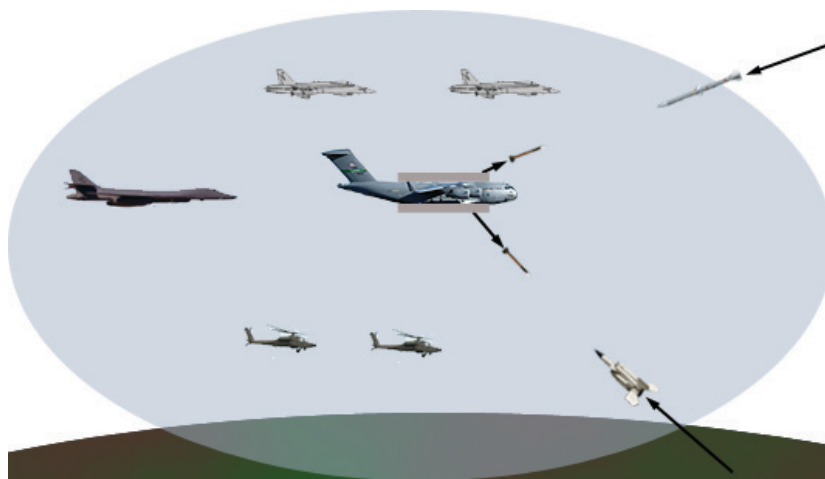
by Andrew G. Watters

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Existing fighter jets, helicopters, and bombers use electronic countermeasures, flares, extreme low-altitude or high altitude flight, and in some cases stealth technology to defeat incoming missile threats. These defenses are not successful in all cases. Therefore, a key milestone in any conventional conflict is disabling the enemy's air defense systems in order to achieve air superiority. By necessity, this involves a preliminary engagement with cruise missiles and anti-radiation missiles, combined with an attack on enemy fighters. If the preliminary engagement is not successful, the attacking force will not achieve air superiority.

The proposed platform eliminates the need to destroy all enemy ground-based and air-based defenses. The proposed platform consists of an aerial missile battery contained in a single or multiple escort aircraft to provide a rolling protective "bubble" for fighters, bombers, and helicopters that accompany the escort. In this way, the attacking force does not have to disable all enemy air defenses and does not have to have superior fighter technology in order to attack objectives behind enemy lines.

A Patriot PAC-3 missile system mounted in a C-130 Hercules or C-17 Globemaster III would achieve the desired result. The Patriot PAC-3 uses an advanced phased array radar to detect, track, and engage air-to-ground missile and aircraft threats from a ground-based control station from up to 100 km away. The proposed platform converts the PAC-3 system to an aerial configuration in order to apply the same response capabilities to surface-to-air and air-to-air missiles fired at the escorted aircraft. The protective "bubble" would be a 100 km sphere in which fighters, bombers, and helicopters could operate with impunity, secure from surface-to-air and air-to-air missiles. The following graphic illustrates the basic concept:



As incoming missiles are detected, the PAC-3 system autonomously detects, tracks, and engages them, protecting the escorted craft.

The missiles and phased array radar would be attached to modular mounting points on the top and bottom of the escort craft to provide 360 degree coverage. Power generation and remaining electronics would be housed internally using existing PAC-3 systems.

The largest cost would be retrofitting the PAC-3 radar and missiles to the top and bottom of the escort craft. Remaining costs would be marginal because existing systems would be used.