


DANGER ROOM

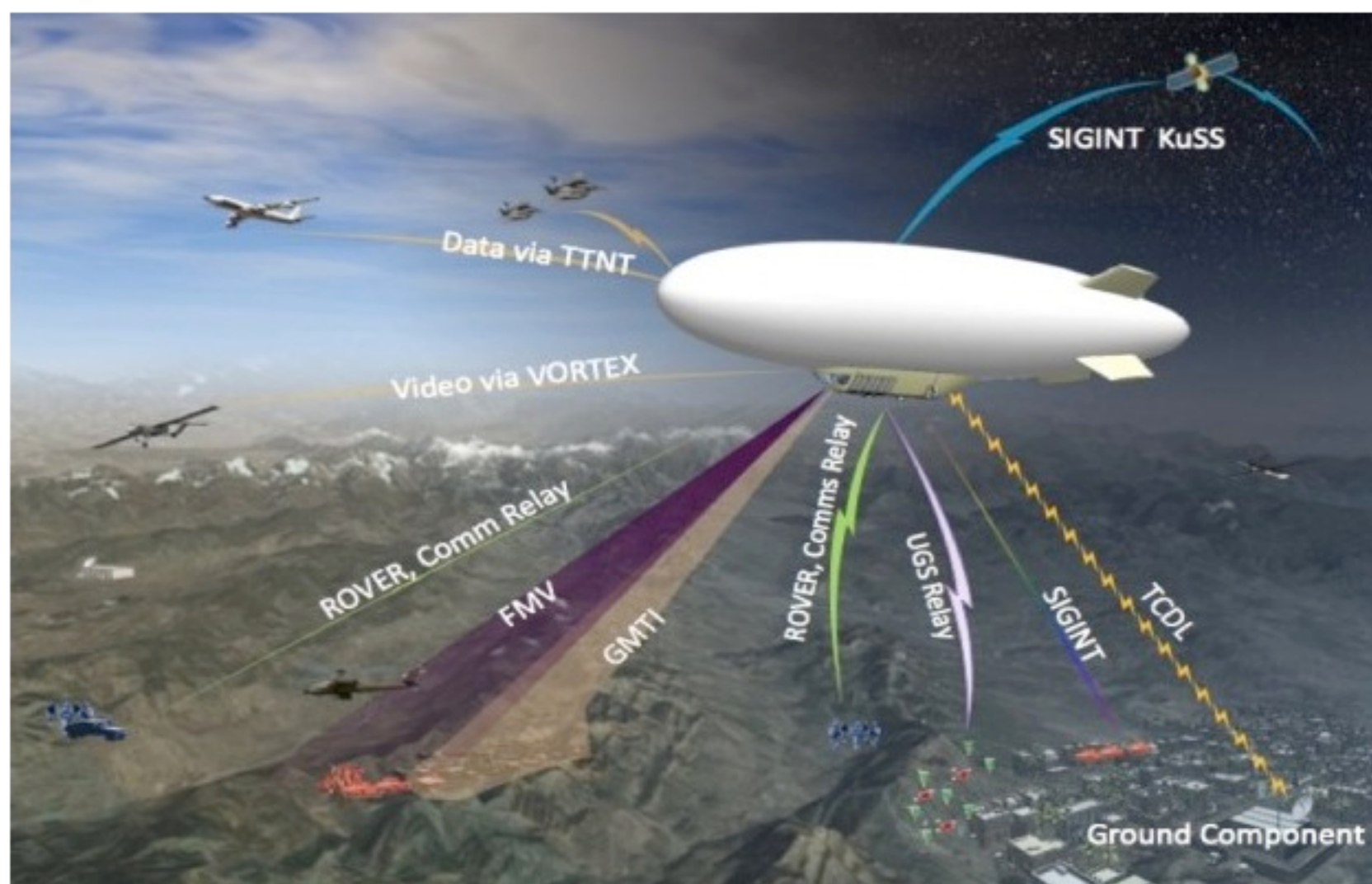
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All-Seeing Blimp Could Be Afghanistan's Biggest Brain

By [Noah Shachtman](#)  January 18, 2011 | 4:00 am | Categories: [Air Force](#)



Come this fall, there will be a new and extremely powerful supercomputer in Afghanistan. But it won't be in Dave Petraeus' headquarters in Kabul or at some three-letter agency's operations center in Kandahar. It'll be floating 20,000 feet above the warzone, aboard a giant spy blimp that watches and listens to everything for miles around.

That is, if an ambitious, \$211 million crash program called "Blue Devil" works out as planned. As of now, the airship's "freakishly large" hull — seven times the size of the Goodyear Blimp's — has yet to be put together.

The Air Force hasn't settled yet on exactly which cameras and radars and listening devices will fly on board. And it's still an open question whether the military can handle all the information that the airship will be collecting from above.

U.S. planes already shoot surveillance video from on high, and listen in on Afghanistan's cellphones and walkie-talkies. But those tasks are ordinarily handled by different aircraft. Coordinating their activities — telling the cameramen where to shoot, or the eavesdroppers where to listen — takes time. And that extra time sometimes allows adversaries to get away.

The idea behind the Blue Devil is to have up to a dozen different sensors, all flying on the same airship and talking to each other constantly. The supercomputer will crunch the data, and automatically slew the sensors in the right direction: pointing a camera at, say, the guy yapping about an upcoming ambush.

The goal is to get that coordinated information down to ground troops in less than 15 seconds.

"It could change the nature of overhead surveillance," says retired [Lt. Gen. David Deptula](#), until recently the head of the Air Force's intelligence efforts. "There's huge potential there."

The first phase of the Blue Devil project is already underway. Late last year, four [modified executive planes](#) were shipped to Afghanistan, and equipped with an array of surveillance gear.

Phase two — the [airship](#) — will be considerably bigger, and more complex. The lighter-than-aircraft, built TCOM LP, will longer than a football field at 350 feet and seven times the size of the Goodyear Blimp at 1.4 million cubic feet.

"It's freakishly large," says a source close to the program. "One of the largest airships produced since World War II."

The Air Force hopes that the extra size should give it enough fuel and helium to stay aloft for as much as a week at a time at nearly four miles up. (Most blimps float at 3,000 feet or less.) Staying up so high for long is all-but-unprecedented. But it's only a third of the proposed flight time for a competing Army airship project.

The Army's "[Long Endurance Multi-Intelligence Vehicle](#)" relies on a more complicated, hybrid hull. Blue Devil's complexity is in the hardware and software it'll carry aboard.

Sensors will be swapped in and out using an on-board rail system that connects pallets of electronics. Defense startup [Mav6](#) is doing the integration work.

In addition to an array of on-board listening devices, day/night video cameras, communications relays and receivers for ground sensors, the Blue Devil airship will also carry a wide-area airborne surveillance system, or WAAS. These sensors — like the [Gorgon Stare](#) package currently being installed on Reaper spy drones — use hives of a dozen different cameras to film areas up to two-and-a-half miles around.

The footage can easily overwhelm the people who have to watch it (not to mention the military's often-fragile battlefield networks). Already, 19 analysts watch a single Predator feed.

Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff, told a conference in November that he'd [need 2,000 analysts](#) to process the footage collected by a single drone fitted with WAAS sensors. And that's before the upgrade to the next-generation WAAS, which uses [96 cameras](#) and generates every hour 274 terabytes of information; it'd take 1,870 of the hard drives I'm using right now to store that much data.

That's where the supercomputer comes in. With the equivalent of 2,000 single-core servers, it can process up to 300 terabytes per hour. So instead of just sending all the footage to the infantrymen, like most of today's sensors, the airship's processors will crunch the information, adding meta tags like location and time. Ground troops will query a server on the airship, which will only broadcast the stuff they're interested in.

"People ask: 'With all these sensors, how're you gonna transmit all that data down to the ground?' Well, we don't necessarily need to send it all down," Deptula says. "A potential solution is to process part of the data on-board, and only send what is of interest. That reduces the bandwidth requirements."

Provided the Air Force can get the blimp in the air, and the gadgets on the blimp. The first flight is scheduled for October 15.

Illustration: USAF