There are only ugly budget choices ahead.

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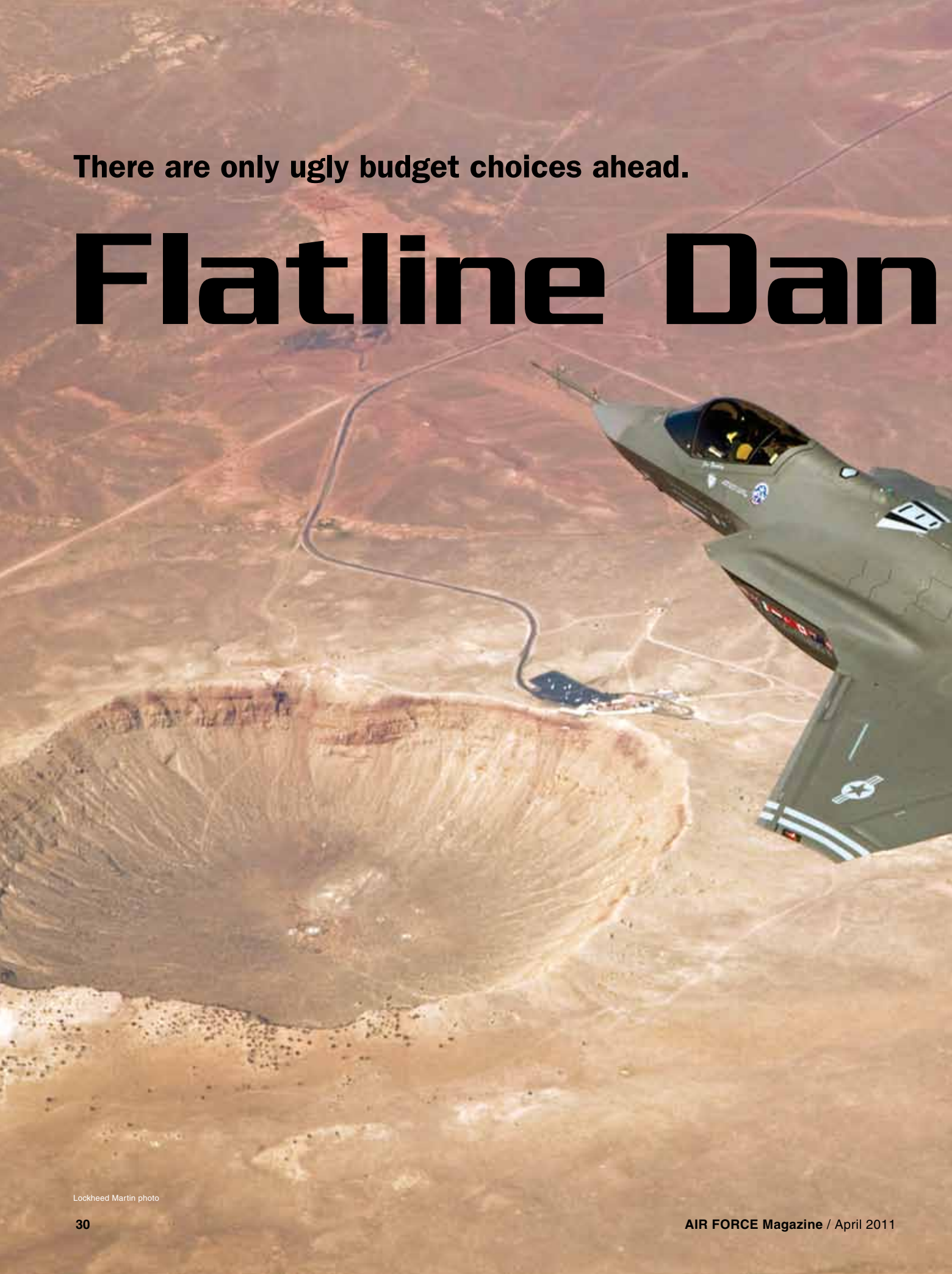

Lockheed Martin photo

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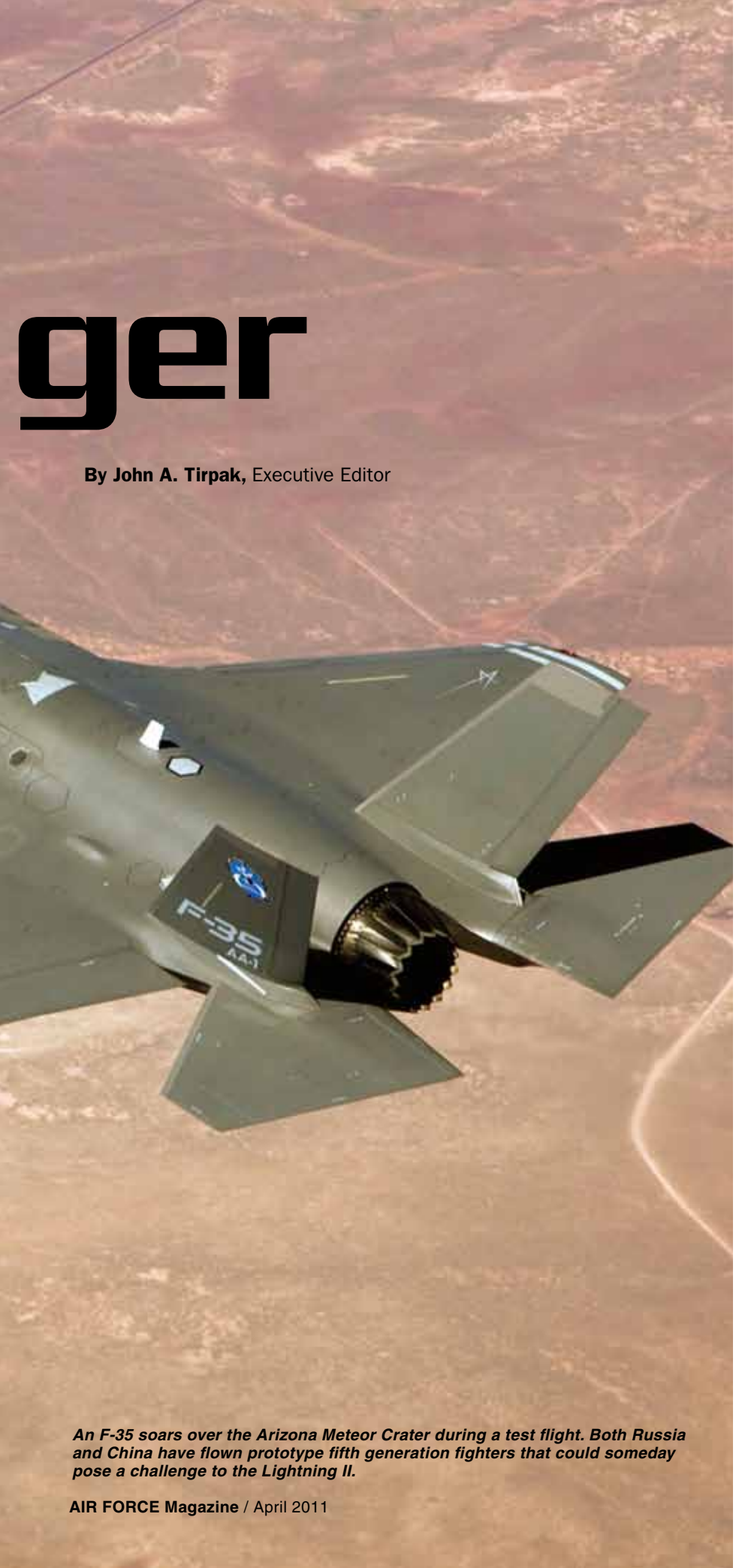
By John A. Tirpak, Executive Editor



An F-35 soars over the Arizona Meteor Crater during a test flight. Both Russia and China have flown prototype fifth generation fighters that could someday pose a challenge to the Lightning II.

The message from top Air Force leaders at AFA's Air Warfare Symposium in February was straightforward: Flat or declining budgets are conspiring with escalating costs to sharply narrow the Air Force's financial options over the coming years. Excellent management will therefore be needed to get through a protracted period of financial austerity.

Air Force Secretary Michael B. Donley said he and Chief of Staff Gen. Norton A. Schwartz "have noted a distinctly different budget climate this year," so Pentagon wishes to grow the defense budget in real terms for a few years—before leveling off—are probably unrealistic.

"We're living with flat budgets," Donley told reporters. "They may go down a little bit. We don't know if or when those budgets will increase." The money expected to be available is already spoken for, Donley asserted: With the KC-X tanker to build, a new-start bomber, a backlog of satellites, and large upcoming buys of the F-35 fighter, "we have a very full plate of acquisition priorities."

Moreover, several urgently needed programs "are not funded," he said, such as the T-X program to replace the T-38 trainer, a Minuteman ICBM successor, and other, "niche, smaller fleet kinds of assets that will eventually need to be replaced."

The austerity could persist for a decade or more, and may not improve until the "out-years [or] beyond the out-years." As a result, new starts will be few and far between, and even critical needs—such as extending the service lives of F-16s to accommodate delays in the F-35 program—will be done highly selectively, so as not to spend any more money on obsolescing systems than is absolutely necessary.

The Air Force recently conducted a drill to find savings from overhead and structural costs, and identified $33 billion Pentagon leaders will allow the service to plow back into combat capability. Donley said the drill would not be "a one-time event" but one step in a continuum of efforts to find greater efficiency.

The list of immediate needs is so great, next generation capabilities are on the back burner. Although Russia and China have flown prototype fifth generation fighters to challenge the F-22 and F-35, USAF has not yet begun a sixth generation program. Asked about this, Donley said, "I don't think you're going to see a sixth generation fighter program anytime soon. We do not have the resources available

USN photo by Mass Comm. Spc. 3rd Class Leonard Adams

Sailors inspect an EA-18 Growler aboard an aircraft carrier. Burgeoning threats are compelling USAF and the Navy to collaborate in new and intensive ways, such as through the AirSea Battle concept of operations.

to ramp up and begin a sixth generation fighter. We're still working on the fifth."

The Air Force is conducting research and development on technologies to apply to a sixth generation fighter—"advanced components, avionics, weapons," Donley said—but this work will be conducted "at a relatively low level on an extended timeline."

Nevertheless, the Air Force cannot take air superiority for granted, Air Combat Command chief Gen. William M. Fraser III said. In his remarks at the symposium, Fraser said USAF is taking seriously the appearance of China's J-20 fifth generation fighter prototype, and ACC is exploring a mix of capabilities to maintain air superiority in the future. One method will be to fully develop all the capabilities resident in the F-22, he said, insisting, "we must complete the planned upgrades" to the Raptor. Other ideas include a mix of "kinetic [and] nonkinetic" approaches, manned and unmanned, standoff and direct-attack methods, he reported.

In the meantime, Fraser said it is essential USAF equip its F-15s and F-16s with active electronically scanned array (AESA) radars and vigorously pursue the new Dual-Role Air Dominance Missile.

For the immediate future, the Air Force's top priority is winning the war in Afghanistan. The Air Force will put its full strength behind the war effort, but "we have had several platforms and career fields that are so critical to the current fight that they have been kept at surge rate for years and years," said Gen. Philip M. Breedlove, vice chief of staff. "Obviously, this is not sustainable for the long term."

Operators of remotely piloted aircraft, for instance, have had their "assignments extended, leaves canceled, test and training sorties foregone" in order to fulfill "never-ending" combat needs, Breedlove said. Eventually, he explained, such capabilities will have to be incorporated into a "normalized" rotational structure, to give airmen a modicum of predictability in their lives.

Stressing Our Airplanes

Fraser agreed the pace of RPA deployments is unsustainable.

"This pace has got to slow down," Fraser insisted. The only thing that will help is building up to the mandated level of 65 combat air patrols as fast as possible and increasing crew ratios.

Getting more airmen into these overstressed career fields is easier said than done, and it comes with a financial cost. "Our airmen are becoming more and more expensive day by day," Breedlove observed. "And we do not see a topline increase for any of our services in the future, so the purchasing power of our Air Force is going to shrink."

Breedlove said wartime operations are "stressing our airplanes." The Air Force is "flying them hard—and flying them hard in some very tough environments and at much higher rates than we had ever thought or dreamed." Sustainment costs are up across the board, especially for legacy fighters showing an increasing number of age-related problems. Delays in fielding the F-35 mean legacy fighters will have to be retained, which means spending money to extend their service lives and add capabilities such as new radars to keep them relevant.

Gen. Donald A. Hoffman, head of Air Force Materiel Command, said aircraft sustainment is one of the two things he's working hardest on, the other being nuclear weapons sustainment. The Air Force's fleet, he said, is "going to continue to get older, no matter how many Predators and Reapers and trainers we add." The average age of the combat force is masked by the acquisition of the RPAs and trainers, which lowers the overall fleet average to about 25 years. Hoffman said fleet age won't decline to a "more reasonable number" until "the last" KC-135 tanker and the current bombers retire, around 2040.

Still, the Air Force could conceivably get more combat-coded F-22s into service by fielding a new trainer to replace the T-38, Air Education and Training

USAF photo by Scott M. Ash

Air Force Secretary Michael Donley speaks at the Air Force Association's Air Warfare Symposium in February. The budget has flatlined, he said, and USAF has a full plate of acquisition demands.

Command chief Gen. Edward A. Rice Jr. reported. He wants a trainer relevant to the most sophisticated USAF types.

"If we do this right, we'll be able to free up additional fifth generation assets from the training environment and put them back in the hands of the operators," Rice told reporters at the symposium, and this "should be one of the objectives of the T-X" program. Air Force plans now call for as much as a third of the ultimate 186-aircraft F-22 fleet to be devoted to training.

The Air Force will buy 48 new MQ-9 Reaper RPAs every year for the next few years, but Breedlove said the service must diversify its portfolio of capabilities to be able to operate not only in benign airspace, but against "other ... higher-end threats."

Donley said the Air Force is conducting a sweeping review of its intelligence-surveillance-reconnaissance capabilities, the better to understand what will be needed for the long term. He said it should be completed this month.

Living Within the Budget

"We're thinking a little bit past Afghanistan," he said, about how much of the massive ISR force developed for this war will be applicable to future needs. While Predator and Reaper vehicles work well in a "permissive" environment such as Afghanistan, he said, they won't be appropriate in areas with "sophisticated IADS," or integrated air defense systems.

Service officials acknowledged there is heavy demand from other regional commanders for assets such as the MQ-9, but these have been held in abeyance in order to keep as much capability in combat as possible. Likely, the assets will be reallocated rather than retired.

Donley said the Air Force is trying to decide what the future "steady state" of ISR demand will be.

Room for Improvement in Space and Cyberspace

The Air Force needs to get control of skyrocketing acquisition costs for space and use lessons learned to normalize cyber operations quickly and efficiently, said Gen. William L. Shelton, Air Force Space Command boss.

Shelton outlined his top three strategic priorities in February at the Air Force Association's Air Warfare Symposium in Orlando, Fla. He said although space programs are not the only programs that go over budget and are delivered late, they "certainly ... have become the poster child for things that are late and expensive."

To tackle the problem, USAF needs to develop better requirements, be willing to trade requirements, and know when to say enough is enough, he said.

"[If] we've got a requirement that is gold plated that causes the program cost to go up astronomically, we've got to get rid of that requirement," Shelton said. "If it's good enough to win, we ought to go with the good enough to win."

The Air Force also needs to execute its programs better and write contracts that hold contractors responsible for performance, said Shelton. "We have a tough time finding ways to hold our contractors accountable right now because of the kinds of contracts we're writing."

The contract with Lockheed Martin for the Advanced Extremely High Frequency satellite, which suffered a propulsion system malfunction that significantly delayed the first AEHF military communications satellite from reaching its intended orbit, is the perfect example. Shelton told reporters at the conference that the Air Force is still in negotiations with Lockheed and the anomaly remains under review, but it's not yet clear who will pick up the tab for the extra costs.

Similarly, the Air Force is going to have to come up with an acquisition strategy that is unique to cyber.

Brig. Gen. Charles K. Shugg, vice commander of 24th Air Force at Lackland AFB, Tex., said things "happen in seconds, minutes, hours" in the cyber domain, and the normal acquisition process just isn't going to work if the Air Force needs to make changes.

"When we have to make changes, ... it has to be done at that kind of speed," Shugg said during a cyber operations panel at the conference. The goal should be to discover a game-changing cyber war technology, which Shugg compared to stealth technology for the air domain.

In the cyber domain, Shelton said he wants to see cyber tasking orders carry the same weight as air or space tasking orders.

"Normally our cyber tasking orders are meant to plug holes in our network, to get our defenses up to the level that they need to be. So if a commander out there decides, well, that cyber tasking order is kind of optional, ... that leaves a vulnerability in our network, and unfortunately, ... that's a vulnerability that everybody gets to share because it just leaves a hole in our network that can be penetrated," said Shelton.

The cyber domain is "ripe for research and development," and the service needs to make "huge strides forward in order to stay up with our adversaries and to get to the point where we can neutralize them with [our] strategies," Shugg concluded.

—Amy McCullough

USAF photo by SSgt. Andy M. Kin

Maintainers perform a preflight inspection of an RQ-4 Global Hawk. Donley says the planned fleet of 66 RQ-4 aircraft should remain sufficient.

Another aspect of the ISR review is future ground moving target indicator capability. Some of it is resident in E-8 JSTARS and RQ-4 aircraft, but the unmanned Global Hawk's chronic cost issues have persuaded the Air Force to reduce the planned inventory.

"We had not been satisfied with … the attention to technical and maintenance challenges across the [RQ-4] fleet, and so we made a decision to pay those bills by truncating the Block 40 procurement to 11 instead of 22," Donley told reporters. The overall Global Hawk fleet will

USAF photo by SrA. Michael Means

Gen. Donald Hoffman, AFMC commander, climbs into a QF-4 Phantom during a visit to Holloman AFB, N.M. Hoffman said aircraft sustainment is one of the two hardest things he is working on.

still number about 66 aircraft, he said, which should be sufficient.

"At some point, … you have to live within the budget … and you make the appropriate adjustments inside it," Donley said. The extra operating costs will be paid for with money that would have bought more of the airplanes.

Legacy aircraft, both new and old, are coming into depot "with more and more problems," noted AFMC's Hoffman. Many of the problems haven't been seen before because USAF hasn't operated such old aircraft before.

Hoffman said his command "in many cases" gets "a no-bid" when it advertises work available on the old aircraft. Many parts are no longer made, or because the run of parts is so small, it is not economical for vendors to produce them. "Parts are still our single biggest limitation on meeting our depot output and the expectations of our customers."

A useful new approach is the idea of a "leading indicator," Hoffman said, which tracks aircraft in smaller batches, or even by tail number, anticipating whether they'll be in a rough or benign operating environment and adjusting planned work accordingly. There were about 10 engines in the "red" on charts inventorying war reserves just half a year ago; now, by tracking usage in a more detailed way, the number is down to three, Hoffman reported. Nevertheless, "we've been surprised, over and over again" by how things are breaking, he said, and sustainment costs overall continue to rise.

Given the worsening condition of its fleet, tighter funds, and no expected relief from any of its missions, the Air Force is seeking new ways of doing business, Breedlove said. One approach will be an unprecedented level of interdependence with the Navy.

For over a year, the two services have been exploring a concept called AirSea Battle, in which USAF and the Navy will aim not only to better coordinate their wartime operations, but align their procurement, R&D, and other efforts to reduce duplication and exploit each other's capabilities.

"We can no longer invest in single-purpose, expensive, or service-centric capabilities," Breedlove said. Every new system will be acquired with an eye for how it can help the other service perform its air and sea missions.

Stark Contrast

The interdependence will go beyond simply the combat air forces, he said, involving doctrine, investment strategies, tactics, training, and procedures. A year's worth of effort produced more than 200 initiatives on ways the services can cooperate, Breedlove noted, even to the point of granting a select group of officers from each service access to the other's most secret projects, "to find out where the redundancies were, where the gaps were, etc."

Lt. Gen. Herbert J. Carlisle, deputy chief of staff for operations, plans, and requirements, said AirSea Battle is focused on defeating anti-access threats, and as a result, "a lot of the meat" of the construct "is in the classified network." Even so, Carlisle said a book-sized paper on the concept would be issued imminently, and would explain as much as possible about what the Navy and Air Force have in mind.

The subject comes into sharp focus, he said, in light of Iran's and Venezuela's intention to buy state-of-the-art air defense missile systems from Russia. In Venezuela's case, such missiles could "range Miami," meaning aircraft flying above Miami could be targeted by the system. Proliferation is making the issue of anti-access an urgent one, Carlisle said.

There are certainly cultural barriers to overcome in AirSea Battle, Carlisle said.

"There is a blue-water Navy mentality," he said. Sea-service doctrine states that "from the bottom of the ocean to as far up in space as you can go, they are in charge. That's their mentality, that's the way they were raised, and that's the way they work."

This stands in stark contrast with the "culture of the 500-knot Air Force," which has its own view of things.

"We provide speed, range, and flexibility. We go anywhere. We do it fast. We cover vast areas. We have not always

USAF photo by SrA. Giang Nguyen

An F-16 is put through its every-400-hours phase inspection. The service lives of some F-16s will have to be extended to accommodate delays in F-35 delivery.

Sukhoi photo

The second prototype of the new Russian T-50 fifth generation fighter takes off on March 3, 2011. Despite such challenges, USAF won't be fielding a sixth generation fighter anytime soon.

spent a lot of time worrying about something [going] 20 knots," Carlisle said.

AirSea Battle is not an operations plan, he explained, but is oriented to working inside an enemy's decision loop.

"Whether it's kinetic or nonkinetic, they don't know where the next blow is going to come from, and they can't react to it because we're already there," he said. The concept has the "thumbs up" from Schwartz, the Chief of Naval Operations, and the Marine Corps Commandant, he added.

There was no pressing need for an AirSea Battle concept in the various wars the US fought after the Cold War. Now, however, there is the "pacing threat" of China at a time of profound austerity, compelling the Air Force and Navy to collaborate intensively.

USAF's new long-range strike family of systems will interlock with Navy capabilities, Breedlove said. "Both rely on unprecedented integration to capitalize on our unique strengths … over a wide range of scenarios."

He gave the most detailed picture yet offered of what the new family of systems will involve. The centerpiece will be a penetrating bomber, a "maintainable and affordable" stealth aircraft with global range and the ability to be "tactically relevant" in a variety of scenarios. It will be able to operate alone against lesser threats, or as part of a system against the worst anti-access threats. It will initially be designed for conventional operations, but later made nuclear-capable.

The new bomber is to be delivered and "become relevant" in the mid-2020s, Breedlove said. Importantly, the airplane will have to be adaptable, able to incorporate new technologies and capability for new missions as they emerge.

The Air Force is hard at work on the Massive Ordnance Penetrator, a 30,000-pound behemoth of a bomb meant to provide a quick solution to the problem of hardened and deeply buried targets, Breedlove noted. However, the next generation bomber will not be designed to deliver it.

"Why would we build that aircraft to carry the weaponry of today?" Breedlove asked. "If we try to drive a future bomber to carry weapons the size of the MOP," it would require a huge and cost-prohibitive aircraft. He asked industry to explore weapons "smaller, lighter, but [with] the same tactical effect" as the MOP.

USAF photo by SrA. Kenny Holston

Aircrews ready T-38 Talons at Whiteman AFB, Mo. A program to replace the T-38 trainer remains unfunded.

Realistic Expectations

Breedlove expects another element will be a conventionally armed silo- or submarine-based ballistic missile able to strike anywhere in the world within 30 to 40 minutes of a launch order.

Yet another piece of the LRS family will be a "longer range air-to-surface attack missile," able to hit deeply buried targets with great precision. He did not say whether this would be the same system as a new air-launched cruise missile to replace today's aging inventory of AGM-86s, or something like the Joint Air-to-Surface Standoff Missile-Extended Range, or JASSM-ER.

Breedlove said the family of long-range strike systems will include "one or two enablers, … very stealthy aircraft that will do any number of missions." He called these aircraft "utility infielders" available for electronic attack, intelligence-surveillance-reconnaissance, or target designation for other aircraft.

ACC's Fraser said it is important to recognize that the need for global precision attack "has not diminished." It is therefore important to get the new bomber going, because existing bombers are getting old and are "increasingly at risk" from adversary IADS, making them more and more reliant on standoff weapons. He echoed Breedlove's description of the new aircraft, adding it will likely make use of the JASSM, the Small Diameter Bomb, and in a later iteration, directed energy weapons.

Asked what message he might have for industry, Breedlove said it is critical USAF get reliable cost and schedule information in order to devise workable plans.

"Give us realistic expectations," he said. "Deliver what you've said you're going to deliver" and at the quoted price. "Those are the programs that will continue to be funded and the ones that don't are going to ... face the squeeze when the squeeze comes."

Still, service officials agreed more hard requirements will go unanswered if future budgets decline as expected.

A senior Air Force official privately summed up the situation, saying, "There are only ugly choices ahead." ■