

NAVSEA Office Seeks to More Rapidly Modernize Ship Technology Through Common Hardware: Official



Damage Controlman Fireman Abigail Alejo performs a maintenance check aboard amphibious assault ship USS Tripoli (LHA 7), April 1. *U.S. NAVY / Mass Communication Specialist 3rd Class Sebastian Minshall*

NATIONAL HARBOR, Md. – A Naval Sea Systems Command office is seeking to more rapidly modernize ships through a common hardware effort that would make software upgrades easier, an official told attendees at the Navy League's annual Sea-Air-Space symposium April 6.

Ryan Moore, deputy major program manager, said in a briefing on integrated combat systems that his team has focused on the

issue of ship hardware and how to ensure commonality across ship classes to better speed technology upgrades to the fleet.

“We’re trying to field hardware on the ships that is common rather than different for each variant,” Moore said. “We want to deliver a common hardware suite that’s a system that can be rapidly updated. We’re doing so by creating a common cabinet and leveraging common software licenses.”

Moore said the Navy is trying to get away from the practice of using major ship availabilities to make hardware upgrades and “cutting holes in the ships.” Instead, his office is working toward a different approach in which the hardware has modules that can be changed.

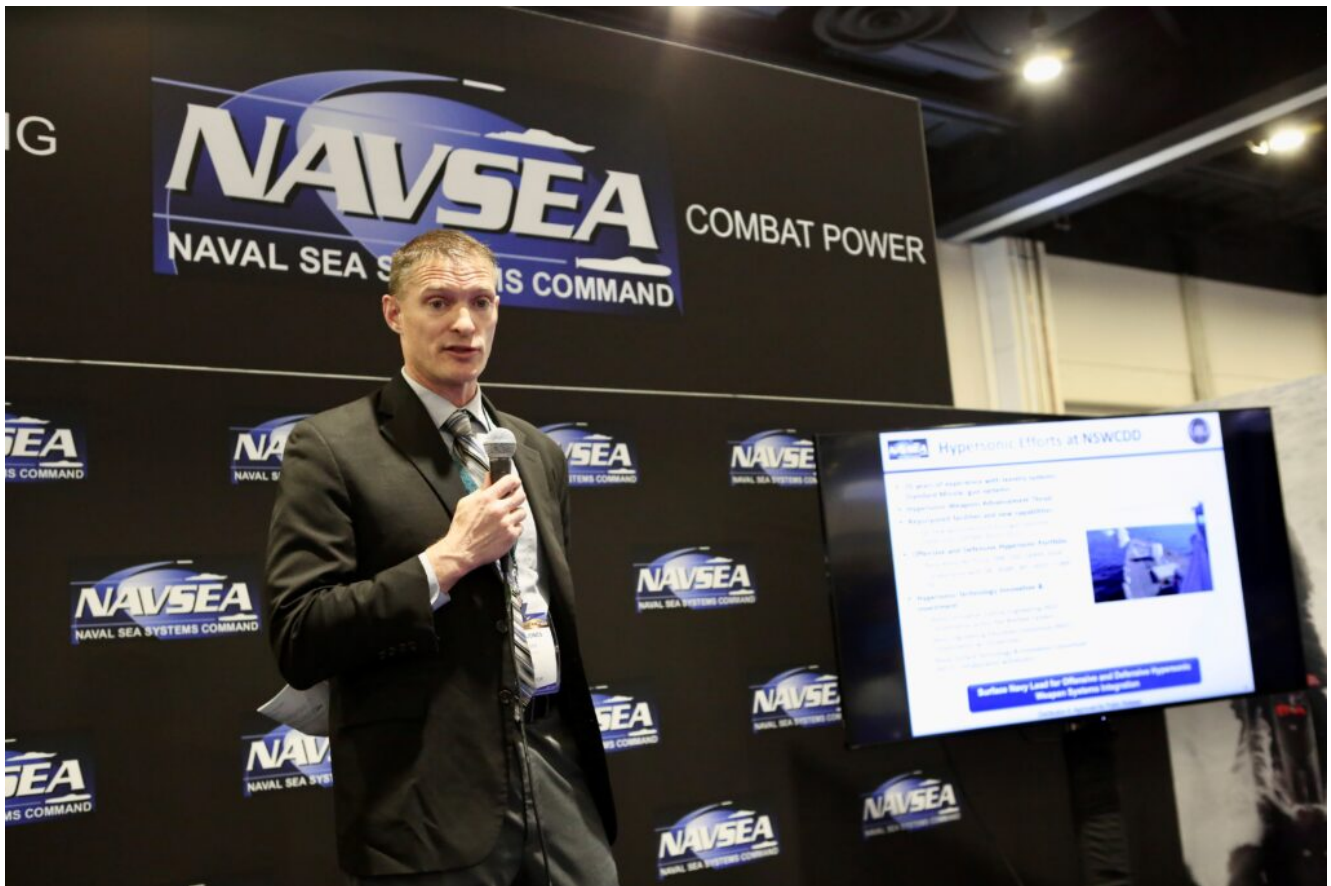
“We’re able to shorten up installation timelines,” he said. “We can rapidly go and update these components. ... It allows us to go off and address any issues that come up from a hardware perspective.”

So, for example, if a ship has an outdated server that became obsolete, and a newer, more advanced server is now available, the team can install the new server because the hardware has been decoupled from the software.

“You don’t have to do a form-fit-function redesign,” Moore said. “That’s the goal here: being able to rapidly modernize respective platforms.”

Official: Dahlgren Recently Tested ‘Hypercone’ Hypersonic

Test Projectile



Aerospace engineer Adam Jones said the Navy wants to use Hypercone to gather data to benchmark Naval Surface Warfare Center Dahlgren Division's modeling and simulation capabilities. *LISA NIPP*

NATIONAL HARBOR, Md. – The Navy continues to work on a conical projectile called Hypercone as it tests hypersonic capabilities, an official told attendees at Sea-Air-Space 2022 on April 6.

Adam Jones, aerospace engineer at Naval Surface Warfare Center Dahlgren Division (NSWCDD), said he couldn't provide any details on the Hypercone firing at White Sands Missile Range in the New Mexico desert.

"Our goal is to provide another opportunity to provide testing," Jones said. "We know that just across the board there are challenges in aero thermal and aero sciences across the board. And we want to use this as a platform to gather the

data that we need to help continue to benchmark our modeling and simulation capabilities.”

The Navy has not revealed much about the Hypercone effort, part of a larger push for advancing hypersonic technology. In an October 2021 statement, NSWCDD described the purpose of the technology.

“Dahlgren is applying its deep knowledge of advanced gun systems, guided projectiles, and telemetry to support hypersonic research and development,” the statement reads. “For example, scientists and engineers are developing advanced guidance and control for future hypersonic systems. NSWCDD recently conducted the first of several planned tests by launching a conical projectile, dubbed Hypercone, to collect aerodynamic and aerothermal data relevant to hypersonic flight conditions.

“Dahlgren also has multiple efforts focused on accurately modeling the flow around a hypersonic vehicle,” the statement adds. “Recently, Dahlgren’s hypersonic efforts have expanded to include roles in the development of offensive missile boost-glide weapons and other collaborative efforts across the DoD.”

Asked whether Hypercone could be turned into an offensive weapon, Jones declined to say.

Leidos PM: Big Vendors Must Do More to Open Electronic

Warfare Interfaces to Developers



Leidos' Ran Hidalgo discusses the software challenges with electronic warfare, stating, "A number of times, there were problems I had never seen until I'm actually in flight." *LISA NIPP*

NATIONAL HARBOR, Md. – In order to push future advancements in the area of electronic warfare, industry must find a way to open their interfaces to software developers, a Leidos program manager said during a panel discussion on electronic warfare at the Navy League's annual Sea-Air-Space symposium here on Tuesday.

One of the key challenges in the EW realm is trying to work out problems with software before sending it back to the vendor, said Ran Hidalgo, a program manager for Leidos, who said he sees this issue in his own experiences with flight.

"A number of times, there were problems I had never seen until

I'm actually in flight," Hidalgo said. "I'm finding that software starts to reset for no reason. Why is that? Well, we've got to figure that out."

The next step is to take it back to the vendor, but that slows down development, he said.

"You're trying to minimize those situations where you have to kick things back to the vendor in order to actually resolve [the issue]," he said.

Hidalgo said that a lot of the future innovation with EW systems won't happen with vendors who are building those systems today, but rather with software companies down the road. He pointed to the iPhone and how it revolutionized technology, but noted that it wasn't the iPhone itself that has had the impact but the apps it hosts.

"I think about EW in this same manner when it comes to this technology," he said. "Allowing third-party developers open access to existing systems and future systems is really changing the game in terms of how EW systems can be handled."

However, bigger vendors are often resistant to this movement, and that is why industry and the government need to rethink things to an extent, Hidalgo argued.

"That is a challenge, because a lot of OEMs [original equipment manufacturers] and the big vendors that build EW systems today don't necessarily like to expose their interfaces," he said. "We get it, it's a business, but I think there needs to be some sort of concerted effort between the services, the government and industry to allow other players to play."

Assistant Commandant: Marines Must Be Ready to Fight China, Other Adversaries Directly



Sgt. Maj. Troy E. Black speaks during a panel discussion at the Marine Corps Force Design session. *SOLARES PHOTOGRAPHY*
NATIONAL HARBOR, Md. – The assistant commandant of the Marine Corps said the service must always be prepared for a direct war with China or any other adversaries during a panel discussion at the Navy League’s Sea-Air-Space symposium here on Tuesday.

In initial comments while moderating a panel including three other top service officials on the subject of Marine Corps force design, Gen. Eric Smith said it is not wise to assume the United States won’t go to war with China.

“The pacing threat is China,” Smith said. “People will say,

‘Well, you’re not going to fight China.’ Hey, that’s not for you to say. That’s not for me to say. There’s a plan required to fight the adversaries who may threaten this country – North Korea, China, Russia, violent extremists. We don’t get to say, ‘Hey, we didn’t think that was going to happen, so we didn’t build a plan.’ You always pace off the fastest runner even if you don’t think that’s who you’re going to beat in the final match. You pace off the faster runner and then you pivot to the runners who may not be that fast, and then you’re good.”

Smith said it is vital the Marines continue to be the nation’s naval expeditionary force. “We are still America’s crisis response force,” he said. “We will seize or defend advance naval bases and conduct land campaigns in the furtherance of fleet operations.”

A naval expeditionary force is vital to provide an alternative to deterrence besides nuclear weapons, Smith argued.

“Our part of the joint warfighting concept [is] we deter,” he said. “When you’re talking about a nuclear-armed peer adversary, you don’t want nuclear deterrence to be your only deterrence. ... You want to deter forward [and] thwart every nefarious action that’s happening. You want to thwart it from its infancy. You have to be forward deployed from a naval expeditionary force to do that.”

**Program Manager: Navy,
Industry Must Change the Way**

It Communicates During Contract Process

NATIONAL HARBOR, Md. – The F/A-18 and EA-18G recently found a way to shrink a complex contract to a 90-day turnaround by changing their approach to contracting entirely, and it's the kind of approach the Navy needs in order to work better and more efficiently with industry, a Navy official said during comments at the Navy League's Sea-Air-Space conference April 4.

Capt. Jason M. Denney, F/A-18 and EA-18G program manager (PMA-265) at Naval Air Systems Command, said that the program had figured out a way to dramatically shrink the contracting process in an experiment, and it involved doing a few things fundamentally different to how they had been done in the past.

"[We asked] can we do a contract with industry, a full-up complex contract from start to finish in 90 days?" Denney said. "Yeah, we can. On the industry and government side at the beginning there was a lot of naysaying, a lot of folks saying it's not possible, we can't do it and here's why. But then you say, 'Well, let's challenge those assumptions.' Instead of saying why you can't, turn those into what barriers need to be removed so that you can."

As the program began to answer those questions, they discovered new processes and a new way of interacting with industry and government that shortens those time frames, he said.

"And this can't be a stunt," he said. "It can't be something we do once, work overtime and weekends, get it across the finish line, and say, 'Oh my God, that was terrible. Let's never do that again.' We need to work on normal working hours per day. It can't be something that completely consumes us

because it's not sustainable."

So what the program did is rather than go back and forth between prime contractors and subcontractors over emails or through contracting letters, they brought everyone in at the beginning of the contracting effort – not just the prime contractor.

"We brought everyone ... to the kickoff meeting to ensure alignment," he said. "So we can ensure everyone had the same mental model of what we are trying to accomplish rather than a telephone game two or three steps down. I told them to bring your concerns and questions.

"For example, one of the things the prime said when we started discussing the timeline for the proposal, they said, 'Well, we have a lot of assumptions,'" Denney continued. "OK, have you discussed those with your sub? 'No.' Well, they're sitting right next to you right now. Talk about assumptions and turn them into facts."

Instead of hashing those things out over email over a period of months, the program believes they were able to accomplish most of what they needed in an afternoon, Denney said.

Improving communication between the government, the prime contractor and the subcontractor also helps to resolve barriers that come up, Denney argued.

"We need to identify the barriers early and ask for that help so that leadership can get engaged and remove the barrier before it stops forward progress on it, so it's not a weakness," he said. "We've been taught our entire professional careers, 'Hey, handle this at your own level and take it to a point where [you can't go any further] and then elevate it.' Well, that's too late."

CVN 78 Quietly Declared IOC in December



USS Gerald R. Ford (CVN 78) transits the James River after leaving Newport News Shipyard during sea and anchor, Feb. 25. *U.S. NAVY / Mass Communication Specialist 3rd Class Jacob Mattingly*

NATIONAL HARBOR, Md. – The lead ship in the Navy's new fleet of aircraft carriers, the USS Gerald R. Ford (CVN 78), has achieved initial operational capability, the program manager revealed at Sea-Air-Space 2022 on April 5.

The ship actually achieved IOC in late December of 2021, but the program did not announce it at the time, said Capt. Brian Metcalf, PMS-378 program manager.

"IOC was just recently declared and set on December of 2021

with the turnover of the last elevator,” Metcalf said. “We didn’t announce it. Some people know what IOC means and some people don’t. It’s an acquisition-specific milestone. The conditions on the ship don’t really change because of IOC. So, we did not make a public announcement on it.”

The Ford is slated for its first operational deployment this fall, Metcalf said. All 11 of the advanced weapons elevators have been turned over to the crew, he said, and a total of 17,000 individual elevator cycles have been completed.

Defense Official: U.S. Needs to Improve Engagement With Industry, International Allies



Gabriel Perez Garces, second from left, makes a point during the Global Maritime Leadership panel on April 4. *LISA NIPP*
NATIONAL HARBOR, Md. – A defense official says the U.S. government needs to improve the way it works with both the defense industry and international allies to ensure U.S. allies are getting the military equipment they need.

Jed Royal, deputy director of the Defense Security Cooperation Agency, said during a panel discussion on global maritime leadership that the defense industry looks to the U.S. military as the primary customer, “as they should,” but that often means that allies and partners of the United States don’t get the prioritization for defense assets that they need.

The United States needs to find a way to take into account an ally’s needs early in the process, rather than waiting for when there’s a specific demand for missiles, aircraft, or some other defense industry product, Royal said.

“We need to think more creatively up front,” he said. “What I’m referring to here is a higher level of conversation both with allies and partners and with industry.”

Royal said it is not ideal for the defense industry to wait for the demand signal, and instead the conversation must be held well in advance of those needs arising – which in turn serves U.S. interests by ensuring strong allies, he said.

Also, while Royal argues that the United States is superior to its adversaries in terms of better systems, “where we are less competitive is how we manage our partners’ finances,” he said. “We are losing some opportunity for collective security interest by not being able to advance better terms and conditions for the purchase of U.S. equipment, so we need to be rethinking that.”

Finally, the United States also needs to think about developing capabilities that are better suited for allies’

"We need to establish investment opportunities and rhythms and habits of making sure the priorities of our allies and partners are at the [right] level," he said.

A man in a U.S. Navy uniform is speaking at a podium. Behind him is a large screen displaying a presentation titled "UAS Overview". The presentation features a central circular diagram with a star and a figure, surrounded by various UAS models and their names. The man has his hands raised in a gesture while speaking. The background of the screen also shows a large image of a UAS with a target symbol on its side.

Rear Adm. Brian Corey, program executive officer for unmanned and weapons, discusses Navy UAS. *SOLARES PHOTOGRAPHY*

NATIONAL HARBOR, Md. – The Navy has been conducting flights between ships as part of an effort to experiment with a cargo unmanned aerial system for maritime use.

Recently, the Navy used an aerial vehicle to transport a part 200 miles between ships, said Rear Adm. Brian Corey, program executive officer for unmanned and weapons (PEO-U&W) at Naval Air Systems Command, during an address at the Navy League's Sea-Air-Space symposium.

"That's going to continue," Corey said of the experiments, while noting that the question of when it could be fielded was up to Navy leadership. "It's not a technology question, but there are some engineering choices and some work left to be done."

The program has partnered with both the Navy and Military Sealift Command on the effort to demonstrate the capability to transport small parts ship to ship.

"We believe we could deliver those 200 miles with a relatively small, very inexpensive vehicle," Corey said. "So that's what we're trying to do to enable that is to get the networks and interoperability down and get a small family of ground systems or maybe a single one – that's unknown at this stage. And then how can we get the autonomous takeoff and landing?"

In a separate effort, the program is experimenting with a cargo UAS for the Marine Corps.

"It's not yet come to a spot where we have decided to go forward with a program and field it," Corey said of the Tactical Resupply Unmanned Aircraft System. "The decision will be coming before long depending on how well it works in the field."

There are some clear advantages to such a system, he said.

"I think that's some of the most innovative thinking we have

going on right now,” he said. “Why drive down a road and potentially get an IED [improvised explosive device] ... when you can fly?”

Lockheed Seeks to Field Aegis Combat System Capabilities Faster Through Baseline 10



The United States Naval Academy's Silent Drill Team performs at the christening ceremony for the future Jack H. Lucas (DDG 125) in Pascagoula, Mississippi, March 26. Lucas is the first Flight III guided-missile destroyer, and will be equipped with the most advanced technology and weapons systems. *U.S. NAVY / Cmdr. Courtney Hillson*

NATIONAL HARBOR, Md. – Lockheed Martin (Booth 1001) is

promoting a new advancement to the Aegis Combat System that aims to increase the speed at which new upgrades can be made to the system.

Lockheed hopes to use this new architecture, known as Baseline 10, to shave months off the typical time frame to deliver a new capability to the fleet. The company says it is automating more tests to rapidly confirm software updates, calling Baseline 10 the “most comprehensive evolution of an Aegis baseline to date.”

Joe DePietro, Lockheed’s vice president and general manager of naval combat and missile defense systems, told *Seapower* in a phone interview that the Aegis Common Source Library makes all of this possible.

“It’s really enabled us to learn how we can transition to an integrated combat system and to deliver our system more quickly with capability to the fleet,” DePietro said.

Baseline 10 is new architecture that allows the team to push new capabilities into the library in three to four weeks instead of in three to four months in some cases.

“That allows us to always work from our most current capability,” DePietro said.

Baseline 10 will operate in much the same way as Baseline 9 did on Aegis Combat System-capable ships – such as cruisers, destroyers and littoral combat ships – it’s just that the latest version will feature a SPY-6 radar instead of a SPY-1. Under this new baseline, the team will continue to create capabilities through integration, push them into the library more quickly and, therefore, field new capabilities faster.

And it’s not just about fielding new technology, DePietro said.

“We’re also taking all of that tech that is fielded and

getting them to work together,” he said, adding that these new developments will benefit not just the Aegis Combat System but related systems like Aegis Ashore.

It’s the speed at which all of this is happening that is particularly valuable, DiPietro said.

“If we keep the development pipeline going, we’re also pulling it all more quickly into the CSL [Common Source Library],” he said. “There’s development going on, and because of how we’ve set up the architecture and the pipeline, we can pull what was developed for Baseline 10 into Baseline 9. We are able to really leverage what’s going on, and you can also deploy it very quickly.”

Looking back at technologies in Baseline 7, it would take a couple of years to develop and field a new capability. Baseline 10 would rapidly accelerate that, he said.

“Recently, there was a critical need identified in operations, and we were able to take that feedback and get something back in basically less than two months,” he said. “I can do a medium-sized capability upgrade in anywhere from three to six months. And a full capability upgrade, like a new sensor or the programming of a missile, I can do that in less than a year.”

It’s not the coding or development that’s the challenge, it is having the architecture in place that allows that capability to be tested, validated and integrated more quickly, he said.

“You’ve got to get all of those pieces lined up,” DePietro said. “If you don’t have that architecture and the environment isn’t there, you’re behind the curve.”

The Arleigh Burke-class destroyer USS Jack H. Lucas (DDG-125), currently inching closer to commissioning, will be the first Baseline 10 ship, which marks a big milestone for the team and the architecture in general. The team has placed a node in

Pascagoula, Mississippi, where the ship is built that can send data back to Lockheed's labs, and then the labs can send data straight to the ship as integration efforts continue. That's a lot easier than the old way of building physical hard drives and carrying them to the shipyard to load them up, DePietro said.

"It's all about going faster," he said.

Admiral on EMALS and AAG Programs: 'It Works'



Chief Aviation Boatswain's Mate (Equipment) Louis Mountain Jr., from Seat Pleasant, Maryland, assigned to USS Gerald R. Ford's (CVN 78) air department, signals the EMALS to launch

during no load testing on the ship's flight deck. *U.S. NAVY / Mass Communication Specialist 3rd Class Zachary Melvin*

A Navy admiral says that despite reports to the contrary, the Electromagnetic Aircraft Launch System and Advanced Arresting Gear systems aboard the USS Gerald R. Ford (CVN-78) are working just fine.

Rear Adm. Shane G. Gahagan, program executive officer for tactical aircraft programs (PEO-T) at Naval Air Systems Command, said Monday, April 4 at Sea-Air-Space that the system had achieved 8,500 "cats and traps" on the Ford over the past two years.

The EMALS system has struggled with reliability issues over the years, but Gahagan insisted that it is performing well today.

"It works," Gahagan said. "I read in the press ... that it doesn't work. It works day in and day out with cats and traps, and now it's like every other program: How are we going to sustain it for the fight we need?"

He said the EMALS and AAG systems have a "lot of great capability" and that Sailors "love it."