

Mr. Riki Ellison:

... [inaudible 00:00:04] Ellison. I'm the founder and chairman of the Missile Defense Advocacy Alliance that I founded in 2003 with the single purpose of educating and advocating for missile defense capabilities to make our world and our nation a safer place, and it has, as we see today.

Mr. Riki Ellison:

I'm very, very honored to bring you the former under secretary, John Rood, as he has just done two years of phenomenal service for our nation. I think anybody in those positions do unbelievable sacrifice in the hours and time and effort that they do for it. They put on that superman cape for that time, and now it's off you. So we are very honored to have him.

Mr. Riki Ellison:

Obviously in that role of policy, he had over 2000 civilians and military personnel under him, and a lot of those, in fact, most of them or all of them, are there still. You inherited a team and you created the team, and a great team, that you have, and it's still in place and did some remarkable stuff over the last two years besides missile defense. But certainly want to acknowledge that for you, and it doesn't look like there's any time soon there's going to be a replacement for you. They've named him, but that's going to take some time to confirm.

Mr. Riki Ellison:

So we also want to give you a little history of John. John's also been involved in the State Department, served there with the arms control nuclear issues. He's served two times in the White House in an assistant secretary role and defense [inaudible 00:02:06], so he's well breadth across the board.

Mr. Riki Ellison:

Today's session, we're going to basically go through four increments of the reflection and challenges of the Missile Defense Review and where it is today and where it's going to go in the future from John's perspective. So the first one will be the origins of why MDR came into place through the genesis, or the genesis of it, through the National Defense Strategy, the NDS, and look at the big reasons why it was formed, and if those reasons today still apply for that mission.

Mr. Riki Ellison:

Then we would like to go into the [operationalizing 00:02:54] of the MDR on a strategic level and how far we've come in making the MDR operational strategically. Then after that, we would do it, the same thing, on a more tactical basis around the world. Then we would finish with the allied partners and contributions, burden sharing and force multiplying the capabilities. We will then open it up for questions. We're going to keep all the question askers anonymous so it's... for everybody's best interest. If you have questions, please send them to questions@missiledefenseadvocacy.org. Kyle will be asking those questions at that time point.

Mr. Riki Ellison:

So that's the agenda, what we're going to do today. I want to start off with you, John, and thanking you again for this. But as we look at the threats today, two years ago when you created this, can you go forward with us on how it was created and are the threats today as relevant as what you thought they were two years ago when you first came in the office?

Mr. John Rood:

Well, first of all, Riki, let me thank you for putting together this session today. We're all... are remarking about how we're living in a remarkable period of time with the coronavirus pandemic changing our lives in such a substantial way. But regrettably some of the challenges that we face around the world from the missile proliferation, from countries with other intentions who want to challenge the international order, those national security challenges aren't resting. They're not waiting.

Mr. John Rood:

One of the things that we saw as an example in the last couple of weeks was North Korea doing some additional missile launches. We've seen Iran challenging the US Navy in the Gulf, seen China undertaking activities, and I could go on, where the Corona virus clearly having a major impact across the world, but nonetheless, these other challenges persisting. So thank you for continuing to have this and to have me on.

Mr. John Rood:

When I look back at the genesis of the Missile Defense Review, it really starts with the National Defense Strategy. When I started as the Under Secretary of Defense for policy in January of 2018, one of the early tasks that I had was to... We finalized the National Defense Strategy at that time, and then we began rolling it out and explaining it to the American people, to the Congress, to our allies, to our adversaries, as well, around the world.

Mr. John Rood:

The National Defense Strategy, when I look back at it now over two years later, I think it's held up really very well through that time period. One of the things I was very grateful for is that having served in government for a long period of time, more than two decades of government service, I've seen a lot of strategies put forward. The strategies often don't make hard choices. They don't quite take the edgy steps to characterize what truly are the biggest challenges facing the United States that we have to address.

Mr. John Rood:

Then implementation, many times, is a reference implementation where people for programs or activities reference the quadrennial defense review or other things. But it's not truly being implemented in driving behavior. One of the things I was very proud of in the tenure that I had as Under Secretary of Defense for Policy is that across the department, the National Defense Strategy, really to an extent I have never seen before in my government career, was being implemented and was embraced by the leadership.

Mr. John Rood:

There are many components to it, but I was delighted to see a strategy-driven budget, to see a strategy-driven approach to what type and character of the force we had, where we wanted to be in the world, the type of relationships we wanted to have with other countries, the way that we were going to approach defense, trade, security, cooperation. All of those things being driven by the National Defense Strategy and the professional military education and other things being tied back to our strategy.

Mr. John Rood:

Now, for those that aren't as familiar with the National Defense Strategy, I think it heralded a really substantial change in our overall approach to security policy. Recall in September 11th, 2001 we had of course the terrible attacks in New York and Washington DC. We had spent really about two decades very focused on counter-terrorism, for obvious reasons. We had also previously talked about the challenge from perhaps there being two major regional contingencies that the military, the US military, would need to respond to.

Mr. John Rood:

But we hadn't really set forward a vision that, I think, matched the circumstances of today that still persists but certainly over two years ago. The main thrust of the National Defense Strategy is that great power competition has returned. That is to say, the countries with the largest, most capable militaries, with the largest influence in the world, beginning to have other designs and the potential, the specter of conflict, armed conflict, returning, with countries like Russia with China.

Mr. John Rood:

We saw Russia trying to dominate their neighbors, for example, invading parts of Ukraine and occupying Crimea, using violence in places like the UK to assassinate political opponents of President Putin, saw them challenging the international order. So the National Defense Strategy said in many ways Russia is a near-term more lethal threat, but it clearly said China is the longer term challenge and the biggest challenge that we face, because China with the...

Mr. John Rood:

The United States and China are the world's two largest economies. China with over a billion people, a very large military. We've seen them, for example in recent years, just expanding their official military spending, and the unofficial numbers are higher, obviously, by 850% in recent years, over the previous level about the last 10 years. That is a very substantial increase. We see China also beginning to push out in its environs in the South China sea, claiming large territories, challenging the international order, challenging the international rules-based system, whether that be for free trade, free movement of people, ideas, basic human rights of things like free speech, free association.

Mr. John Rood:

So the National Defense Strategy very clearly said those are the biggest challenges, and international terrorism is not the greatest threat to our way of life. It is a substantial threat, but not the largest threat. Then it mentioned that North Korea and Iran are in the next tier. North Korea with a very substantial nuclear program, missile program, that continues to expand, that continues to grow its capabilities, a very large forward deployed military, and a regime with a history of showing hostility to its neighbors and using violence. Then of course it's abysmal human rights record at home.

Mr. John Rood:

In Iran, the NDS talked about the fact that Iran has tried to pursue an expansionist policy, really trying to have an arc of malign influence stretching from Yemen all the way to the Mediterranean through Iraq, through Syria, through Lebanon, challenging Israel, through support for Hamas, doing steps in places like Yemen to support the Houthi militants who are attacking Saudi Arabia and the UAE and others. So that's the environment we were in, and Iran with a very large missile program, but it continues to expand, a nuclear program that remains of a great concern to us. Then its long standing support for terrorism and other activities.

Mr. John Rood:

So in that end environment, the Missile Defense Review fit within it. One of the things that I would say in that National Defense Strategy, we did a review that the Congress mandated at the one year point, and I think it came out very good. But I think today it's even more clear to me that that has charted the right guidepost for the nation and stood up very well to the test of time. The coronavirus pandemic really illustrates that.

Mr. John Rood:

At the time that the National Defense Strategy was put forward, there were some people who questioned, "Does it put too much emphasis on China or perhaps that is a longer term threat." I don't think anyone would say that today, having observed the behavior of the Chinese Communist Party and the government that they lead in China in the way they respond to the coronavirus pandemic.

Mr. Riki Ellison:

So John, as you look back with this strategy, we know you can't just do missile defense by itself. You know we have limited amount of money as a country, and to disperse that money across what you just said, we don't... we can't do it. We can't do it on our own, obviously. We can't do it with our partners.

Mr. Riki Ellison:

So what are the other offsets to the MDR, which I think are cyber, their offensive strike, their space? I think you had the opportunity to put some of those in place today to help that offset.

Mr. Riki Ellison:

I would also say that China's hypersonic capability really, from my perspective, was the tipping point because we didn't have a defense. We don't have a defense for that capability, and the amount of money and resources that we have to invest, which we are, is going to be tremendous. So we would have to offset that capability with offensive capability with cyber [inaudible 00:13:56] left-of-launch. That, to me, cascaded into a strategy that seems to be much more advanced or generationally different than the limited strategy that we had. That was the BMDR, that was really focused primarily on North Korea and Iran.

Mr. Riki Ellison:

So I just wanted to observe that and hear your reaction to that, if that is true or not true, and today, where are we with that?

Mr. John Rood:

Well, when the Missile Defense Review was put out, and recall it's about one year old since that was done. The starting point was it fit within our broader thinking of what is the National Defense Strategy and what does the world look like?

Mr. John Rood:

When I say this, I always think to myself, "This is a traumatic understatement," but it's actually a strong statement to say in my lifetime, I have never seen the national security environment more complex than it is today. That was before a coronavirus and this global pandemic. It has gone up in complexity by an order of magnitude since that period of time, since the pandemic began. But what you start with there is

within that highly complex system, and again, a return of great power competition, some of us became... Some people in this country became too accustomed to a state that I think was, as we said at the time, many of us, this is an unnatural period of time following the fall of the Berlin wall and the end of the Cold War where the United States did not face the largest powers in the world.

Mr. John Rood:

There was not a serious prospect of an armed conflict or a real competition between them. That's highly unusual in history. We've returned to a period which has actually been more the norm where that is the case, and these other types of challenges, then some you mentioned. There's not only the people, the countries, that are actors who have different designs than we in the United States and our allies do, but there's also the complexity introduced by the technological change, the societal change, the social change. It's not just that cyber tools have become very proliferated and ubiquitous. It's also the ways they're changing our lives and the advent of social media, that we live in the information age.

Mr. John Rood:

In the information age, information and the way information is used and managed is transforming our lives. I think we're not conscious enough at this period of time that we are in that information age. During the industrial age, the people leading this country impressed me immensely, looking back on it, that they recognized that. They understood, for example, the leaders of the United States during World War II understood the way that this country was going to prevail in that conflict. In addition to having the right strategy and the right Alliance structure was we were going to harness the industrial capacity of the United States to be superior to that of Japan, superior to that of Nazi Germany and so on.

Mr. John Rood:

In the information age, these tools like cyber have done that. They have also enabled, in a lot of ways, the advances that we see in things like hypersonics that you mentioned, the ability to do modeling, the ability to do design, to do many, many runs of activities like that, have been enabled by that progression in technology. Then of course we see such complexity in other ways, but the reason the Missile Defense Review was done and that stands out in that, is when you look at all of the types of threats and the countries of greatest concern, what is one of the things that really leaps out at you is the way they are featuring missiles as part of their offensive threat capabilities.

Mr. John Rood:

That this is core to their military capabilities. It's core to their doctrine about how they want to use them, to threaten the use of them, to shape the environment, in fact to employ them. Missiles are being used with great regularity in these conflicts around the world. Fortunately, not usually against the United States and our forces. But I would note in January of this year, after the United States conducted a strike that killed Qasem Soleimani, the head of Iran's revolutionary guard Corps Quds force, Iran chose a response. They had the full range of options available to them, but the way that they chose to confront the United States is through a ballistic missile attack on our deployed forces in Iraq. That to me is no accident. This is core to their military capability. It was an area which they thought they had an edge, in which they could deliver that capability effectively, in my opinion.

Mr. John Rood:

So why was the Missile Defense Review done? Because of the missile threat and the prominence of it in the international security environment. But in addition to that, you do see it's important to us in dealing

with great power competition to return and deepen our thinking on things like what does it take to practice effective deterrence in today's world? Missile defense are core to that.

Mr. John Rood:

I get frustrated occasionally. You hear people say, "Well, should deterrence fail, we will have to turn to defenses." Well, part of what deters an adversary from launching a missile at you in the first place is that you have an effective defense and you could defend against it. Offenses and defensive capability are both part of modern day deterrents, and the Missile Defense Review says that very clearly.

Mr. John Rood:

The other thing that to me was noteworthy when we produced the Missile Defense Review and rolled it out a year ago was just that it's called the Missile Defense Review. Let's start right there. Its predecessors were always called the ballistic Missile Defense Review because it focused on the ballistic missile threat. When we looked around the world, we said hypersonics are becoming a major concern of ours and cruise missiles have proliferating very widely.

Mr. John Rood:

By the way, UAVs and UAV strike capabilities have as well. There are purists who would say, and I agree with them, that the type of UAV attacks we're seeing, UAV takes off, flies to target, attacks target by slamming into it, is essentially a cruise missile flying in the atmosphere. That's, I think, true. All of those things caused us to say it's a much broader threat that we face, and we need to call it the Missile Defense Review to take that into account, and we need to have a system, a framework, a guidance framework with policy to guide us, with the core missions of missile defense being one, to deter an attack on the United States. If that is unsuccessful, to have the means to defend against it, to assure our allies that we can meet our commitments to them, by having a cooperative activities to have a defense together.

Mr. John Rood:

In some areas where the United States has made security commitments to our allies, having the means to provide that kind of defense. The ability also where you see countries like Iran, North Korea, China, Russia, trying to deter us from being willing to come to the aid of our allies, or to push us out of what they believe-

Mr. Riki Ellison:

[crosstalk 00:00:21:36].

Mr. John Rood:

... are their regions, through anti-access area denial.

Mr. Riki Ellison:

That's right.

Mr. John Rood:

Missile defenses make that not feasible when they are effective. Then you also have the need to hedge against uncertainties. We always talk about capability, the capability that potential adversaries possess,

but there's also their intentions. Intentions can change very rapidly. The time period required to develop these systems is measured in many years, so therefore having the ability to hedge against that is important.

Mr. John Rood:

Then I think the other role that missile defenses play is they're very stabilizing. One of the things that I've gotten a little concerned about in recent years is you've seen them slide back, some people talking about the need to preserve strategic stability as an overriding goal and worrying that defenses are somehow provocative. Being able to defend yourself might undermine stability. I think the opposite is very clearly true. The Missile Defense Review States that explicitly. Missile defenses have proven to be stabilizing.

Mr. John Rood:

You look at the roughly 20-year periods since we left the anti-ballistic missile treaty of 1972, which prohibited the United States from defending itself against long range missile attack. In that time period, what we've seen is missile defenses play a very stabilizing role. As an example, the first time when I served in the Bush administration in the White House, North Korea went to launch an ICBM class space-launch vehicle. Very clearly at that time, the leader of North Korea, in my view, it appeared he was spoiling for a crisis. He wanted to threaten the United States.

Mr. John Rood:

One of the things that we could do was to bring our missile defense system for the very first time to full alert. It obviated the need for us to take more aggressive steps, like positioning forces for a preemptive strike, being ready to retaliate with overwhelming force. We didn't have to buy into that to create the crisis he was seeking, and there were serious people at the time. For example, Ash Carter and William Perry wrote an op ed in which they advocated... both former Secretaries of Defense. They advocated that the threat was so grave that the United States should preemptively strike North Korea to destroy that missile system on the launchpad. We didn't feel the need to do that because we had an effective defense.

Mr. John Rood:

Today is that missile threat from North Korea has continued to grow, we have improved our missile defense capability, and it's allowed space and time for diplomacy. It's allowed space and time for us to not have a crisis and to not be drawn into a conflict that we didn't seek. So that would not have been possible had we not left the ABM treaty, had we not deployed a system very rapidly that initially had flaws and issues, and over time those have continued to be ironed out and the system has matured. You're never free in any technical environment of an issue-free environment, so that... We're continuing to address new challenges as we put out new capabilities.

Mr. John Rood:

But the Missile Defense Review was very clear eyed about saying that's the roles of missile defense, and then saying we have to do this cooperatively with allies. That has to be a major component of what we're doing. We have to have a larger force structure. You have to integrate the force better.

Mr. John Rood:

You mentioned offense-defense integration. We can't simply have a stove pipe in which defensive capabilities operate on their own. They need to be integrated with all offenses. I'll exaggerate for emphasis. You could construct a war game in which you would say, "Okay, now we're going to fight only with offensive capabilities and strike each other in this pretend war game, but we won't defend each other." Or, "Now we will only use defenses to defend against North Korea attack, but we won't use offenses."

Mr. John Rood:

Now it sounds farcical when you say it out loud, but we have too much of a case, and we felt this in producing the MDR, where that obviously wasn't what people were doing within the defense department. But there's still too much of a stovepipe nature and insufficient integration between how we were going to conduct an offensive and defensive fight simultaneously at scale. Not small scale, not one or two. Large scale, because that's how our adversaries are likely to fight.

Mr. Riki Ellison:

How about the next missile report? Be the missile review. Not defense, the missile review, with the full synergy of the force structure. Now, could you now move into the MDR being operationalized in policy? This is where there is some stickiness of having a regional capability against China and Russia, and a national capability against North Korea and Iran, but not Russia and China. When you've got Russia and Chinese missile systems that can be flown or cross-domain capable to do long distance strikes from aircraft, from ships, from et cetera, that cross that boundary between regional and strategic? Has the MDR moved into this offensive-defense integration and also the joint cross domain capability, which we're still struggling? You pointed out very, very sincerely and rightfully that we are still very much stovepiped in our capabilities in doing that. I know it's a year, but where are we on just that little question, or big question to you, on that synergy, et cetera?

Mr. John Rood:

Well, the Missile Defense Review talks about the synergy between offense and defense, and it prioritizes a missile defense capabilities as an important focus area for the United States going forward. So what you saw in the Missile Defense Review is first of all, a recognition that the missile threat was broader than just North Korea and Iran. Those missile capabilities there in... particularly in North Korea's case, their nuclear weapons capabilities have continued to improve. We need to have the ability to deter and defend and perform the missions of missile defense in that area.

Mr. John Rood:

But the Missile Defense Review clearly said we have to begin by improving our Homeland defense capability to add new layers, new capabilities, and we need to take advantage of the joint force, the full joint force, not just those assets developed and maintained by the Missile Defense Agency. Then it also spoke of regional missile defense being very important. It put forward a sizing construct that said our policy is going to be that we will remain equal to or greater than, that we will stay ahead of, the threat posed by rogue States like North Korea and Iran in-

PART 1 OF 4 ENDS [00:29:04]

Mr. John Rood:

... the threat posed by rogue States like North Korea and Iran in our Homeland Defense capabilities and it talked about plans to expand the number of ground-based interceptors deployed in Alaska and California from 44 to 64. At the time it talked about a redesigned kill vehicle being core to that and we'll talk more later about how some things have changed since the MDR was produced. Another area where it introduced a new layer is the Missile Defense Review said, "In addition to this longer range missile defense capability for the United States, we were going to add a layer of an underlay utilizing the standard missile three block 2A also to defend the United States." And the MDR said, "We will conduct a test in 2020 to demonstrate that capability." A lot of confidence that will demonstrate the results. A lot of confidence in the capability of that system to be a second layer after a ground-based interceptor could attempt and intercept or as an added layer even if you chose not to launch it a ground-based interceptor.

Mr. John Rood:

The Missile Defense Review also said, "We have to improve our sensor capabilities so we can be more efficient in our shot doctrine. We need to complete deployment of the space-based kill assessment layer." Satellites in orbit that can determine whether you successfully intercepted a target with your first shot and whether you needed to launch an additional interceptor against it. Space-based sensors do a better job of birth to death tracking of systems because, as you would expect, adversaries are not sitting still. Our potential adversaries are continuing to improve the complexity of their systems to add countermeasures and make them more difficult to see. This is very normal and occurs in every phase of military competition, air, sea, cyber measure/countermeasure advances are very customary.

Mr. John Rood:

We also said that we had to improve our ground-based sensor capability through things like deployment of the long range discrimination radar in Alaska. I was pleased later in my tenure to visit Alaska and see that construction near in completion. And then we also talked about command and control enhancements and leveraging the full force. So, for example, the largest program in the defense department's history is the F-35 Joint Strike Fighter. We've already purchased that as a department we thought, when I served there. But it's not utilized as a sensor and potentially as a shooter capability as part of the missile defense architecture. And remember this is going to be employed by the Air Force, the Navy and Marine Corps plus many of our allies. That was a very important step to integrate that capability. And then we said we also need to integrate other capabilities and things like attack operations and strike.

Mr. John Rood:

So consider a scenario in which the adversary launches some initial missiles at you and you use the missile defense system to defend against it. Well certainly, if we had a short quiz of the room and we said, "Hey, what's something they might do next?" Well, they might launch more missiles. And how might you deal with that? Well, you could continue to play defense only, but you would employ your offenses as well and attack operations. And remember the context, there's probably some precipitating crisis, there's some reason that this hasn't just happened out of the blue, although we maintain our Missile Defense System on alert for an out of the blue attack, but it's more likely that you're in some crisis scenario. And so those other assets for strike operations need to be very integrated and that drives a demand for a much tighter and improved command and control capability to knit this whole force together.

Mr. John Rood:

And so what we tried to say in the Missile Defense Review or what we did say is that this use of the general purpose force and a reduction in stovepipes and tighter integration between offenses and defense is very important. Now having strike capability and missile capability doesn't replace the need for missile defenses. And occasionally...

Mr. Riki Ellison:

And that's an argument that maybe Cape is putting forward because it's a cheaper argument to put forward a lot of offensive capability instead of defensive capability, at this point, because the cost curve is on the defensive side of being very expensive. And that's a case that I thought the former Acting Secretary of Defense, Pat Shanahan, put forward,

Mr. John Rood:

Pat Shanahan was very good at understanding that the need for defenses was very strong and, of course, we had to add on offensive capabilities as well, they needed to work together. But offense is not a replacement for defenses. And since the time of Robert McNamara, when he was Secretary of Defense, there have been people that argued, "Well, having a missile defense is more expensive than offense is." I've always thought this is a very peculiar argument because what that drives you to, and this was the thought process behind the ABM Treaty, which ultimately turned out to be a failure in history, is that if I simply use an offensive system and I strike the adversary, well, gee, that takes care of the problem. Well, I suppose if you are willing to conduct preemptive operations, if you're willing to be the aggressor.

Mr. John Rood:

And I've always thought it was very strange that this logic is not applied in any other element of military endeavors. For example, a bullet is very inexpensive, typically a few cents, 20 cents to fire. So in theory, we could simply shoot our adversaries in this strange world here, that's cheaper than paying for an armored vehicle, that bullet costs less, right? Or a bullet cost less than the bulletproof vests that we put our soldiers in, or certainly the helmets that they wear or other things. So for that argument, we should just simply buy a massive number of bullets and before anyone might threaten any of our soldiers anywhere in the world, we should just shoot the adversary in this farcical, preposterous argument. I'm exaggerating for emphasis obviously, but this isn't a one or the other. It's having both capabilities and that really makes it more stabilizing.

Mr. John Rood:

And it also makes it, you may have in a mythical example, let's say the United States had 1000 missiles and the adversary had 10 and defenses didn't exist. We might think to say we have a massive advantage, but if you're the person with 10 we say, "Well, I can hold at risk 10 American cities to incinerate them for a small investment of only 10 missiles. I've now put myself on the same playing field with the United States with 1000." Not a smart approach to defenses, to a national security policy. But having both offenses and defenses work together is very important. And this wasn't in the Missile Defense Review, but later one of the evolutions in our thinking was we have to give ourselves more tools in this tool kit and that means improved strike capabilities, but there were also some policy limitations.

Mr. John Rood:

For example, United States was a party to the Intermediate Nuclear Forces Treaty, INF Treaty. INF Treaty, for those that don't recall, Ronald Reagan signed that with the then Soviet Union and the intent

was to eliminate all intermediate range nuclear missiles. The United States adhered to that treaty, Russia did not. And it's really as simple as it wasn't a technical violation, Russia deployed intermediate range nuclear missiles and President Obama and his administration had declared Russia in violation of that treaty and then five years later, during the Trump administration, the United States declared Russia in material breach of the agreement, they've essentially violated the contract and therefore we withdrew. So that gives you the ability to have intermediate range missiles also in the US arsenal and we've spent a time and effort, and the Defense Department has, on hypersonic missiles, new strike capabilities also from aircraft and ships. So you have this integrated approach. You mentioned cyber, cyber can also be employed if you want to in that mix.

Mr. John Rood:

So the Missile Defense Review talked about we must improve our Homeland defense capabilities, we must break down the stovepipes and have a more integrated force, we must do this with allies in a very substantial way, and regional missile defenses are important. Actually, that's where there's a larger number of offensive missiles at shorter ranges. So that must be part of it and we have forces deployed around the world. We also have allies around the world and that has to be a core part of it. For example, in NATO, we have the European Phased Adaptive Approach and we've cooperated with key allies like Romania and Poland to deploy Aegis ashore systems here. The one in Romania has already been completed and that cooperation is going very well and Romania has been a very strong partner of ours.

Mr. John Rood:

In Poland, that cooperation is also going well. We have systems deployed in the UK and on Danish soil in Denmark, in the Greenland rather, for a long range sensing capabilities. In Turkey, another NATO ally, we have a forward deployed radar there TPY-2. So you see all of these elements being very important and that we have systems deployed in the middle East and Asia and so on. Very important element of that broader capability.

Mr. John Rood:

Now back to where you started, you said, "Well, what about dealing with Russia and Chinese missile threats?" And an important distinction that the Missile Defense Review made that its predecessors didn't make and it was a change in our policy was to say, "The United States is going to be prepared to defend against missiles of all ranges from all origins." And when President Trump came to the Pentagon, he emphasized this. Our policy is to defend against any missile from any source regardless of the range. Now as a practical matter, the Missile Defense Review said, "Long range missile attack from Russia and China on the United States that the United States still has to rely on nuclear deterrence as our primary method of deterring those type of attacks." In the regional context, the MDR was very clear in saying, "Those threats, we will do the best we can with the capabilities we have to defend against missiles to include Russian and Chinese threats."

Mr. John Rood:

For example, if China should threaten US Navy ships deployed in the Pacific with ballistic missiles, attempt to sink one of our carriers or use ballistic missiles to attack our forces in US territory in Guam, we will use the missile defense capabilities we have to defend ourselves. And the same applies to Russia. Clearly that's not what we seek, deterrence is the primary aim of missile defenses, but the policy is very clear that there is no prohibition, in fact that's encouraged. Our systems are primarily designed to deal with North Korean and Iranian missiles. That being said, they do have some other capability and they do

the best they could. And over time as technology advances and as we improve our capabilities, we may have more capability in that area.

Mr. Riki Ellison:

So getting a little bit more into implementation of the MDR on this specific subject, we don't have the integration of cruise missile defense with ballistic missile defense on the US Homeland, they're separate. We have a J-Dock here in Washington, DC that protects against cruise missile defense and we have a C2BMC capability that does ballistic missile defense only. We don't have it in the rest of the ORs, because they're stovepiped and each service, Army's working on it, but each service has their own cruise missile defense capabilities that are not coordinated the way they should be. So that seems to be a monstrous problem and who gets that problem? Is it MDA? Who gets the development and integration of that problem? The US Navy has done the best of everybody because they had to defend the carrier against the Chinese and they have a full blown missile defense system that does BMD all the way up in space and cruise missile defense all the way down to small fire C-RAM capabilities. And they're effective with a command control system that they got dialed down. Right?

Mr. Riki Ellison:

So, that's on ships, but it's not anywhere else and I think there's some policy limitations, or seems to be because we haven't emerged out of that to create policy to enable, we haven't enabled land-based cruise and missile BMD opportunity.

Mr. Riki Ellison:

The second thing is the charter of MDA is just missile defense, and they've got a great C2BMC where they're able to collect cross domain sensors and mix the shoot of the... The GMD system is beyond most anything we've got to be able to go across the services to collect everything they can to make the best shot solutions that are there. But we have to do as you said, is the Joint Air Defense overall BMD, the JDC2, which now does the ultimate brings all the sensors and shooters in, but that's still a long ways off. But where is the MDR in implementation of exactly what I'm saying on this stuff? Is it Guam? Where are we? Are we still talking about it or are we now starting to implement it? Because that seems to be, if we don't have it, our deterrent is not good enough in terms of having it separate like that. We need to be able to force multiply our deterrent, especially against the great powers and they got to be all weaved together and connected.

Mr. John Rood:

Well, where we were a year ago when the Missile Defense Review came out is it talked about the need to have a much, as I say, more integrated force and you mentioned that the Missile Defense Agency has developed and deployed the BMC cubed, Battle Management Command and Computing Capability. And I think MDA does not always get the credit they deserve, that was a remarkable advancement to be able to integrate in every region of the world missile defense capabilities across all of those times zones in split-second precision to allow for a very effective defense in space, in the atmosphere, on ships, on land, really substantial.

Mr. John Rood:

Now where we would like to go beyond that and you mentioned there are pockets of excellence where, for instance, the US Navy, the way that they handled this integrated on a ship, on an Aegis vessel to

provide for the defense of the carrier battle group, as well as the Aegis ship itself, Destroyer or Cruiser. A really important capability and the ability there to do both offense and defense integration.

Mr. Riki Ellison:

That's the whole thing, right?

Mr. John Rood:

Really impressive. Now in the Aegis baseline capabilities that have been deployed, some of the early ones that were deployed required an or capability, that is to say doing one or the other at a certain time, but that has been improved and in the later versions that's not present. One of the things that the MDR called for was expanding from 38 Destroyers and Cruisers that were capable of conducting missile defense to the full compliment of 60 Aegis vessels that the Navy has on their program of record to deploy, to have a missile defense capability to do both offense and defense integration.

Mr. John Rood:

But you have these pockets of excellence like at MDA and within the Navy that needed to be further integrated. The MDR began the movement towards a more integrated cruise missile defense. If I was doing another one today, I think that's another area where I would say we have to move from that distance that the MDR traveled to integrate cruise missile defense better, to go even the next level to make that more integrated because I think that...

Mr. Riki Ellison:

Would you take away from the services and give it to MDA or would you pick one service to do this?

Mr. John Rood:

My personal view, and I'm not in the Pentagon anymore obviously, so I can be more free with my views. I think there is an advantage to having a systems' architect and integrator for command and control. And we have to move beyond interoperability to true integration and what I mean by that is interoperability means I can plug something in.

Mr. Riki Ellison:

Right there.

Mr. John Rood:

Yes, I have the appropriate socket that will attach my article. Integrated means you're really operating together and getting the benefit of that true integration. I'm impressed with what the Air Force has put forward with their vision and the work that they're doing on the Joint All Domain Command and Control System, or JADC2. I mean it's not the sexiest name, but the concept to integrate, across the full joint force, those capabilities is something I think shows a lot of promise. I think what we have to be careful about, I mean what I would argue for anyways, is that in doing that you move beyond people protecting their particular prerogatives to set new standards, to change the interface, to essentially, like we all have cell phones, your charger for your Apple phone will not plug in to provide power to your Samsung device. There no reason for that sort of difference and the lack of integration.

Mr. Riki Ellison:

Go back to having an integrator like MDA to be able to work that as purple not a surface [inaudible 00:00:48:17].

Mr. John Rood:

I think MDA has to be the integrator for the Missile Defense Mission and then, if the Air Force concept can go forward and they can work cooperatively with the other services that makes sense to me and I like the Joint All Domain Command and Control concept. And in that process, the Missile Defense Agency I do think enjoys additional authorities that are an advantage here. It's one of the things I've grown a little concerned about is that over time the special authorities that have provided this ability for the Missile Defense Agency since its creation, in under 20 years, to deploy successive generations of missile defense capability. Where as a comparison, the services that have used the other model with the traditional authorities, they haven't achieved as much progress over the last 20 years despite spending an awful lot of money in that area.

Mr. Riki Ellison:

What do you think about the Space Development Agency in this space overseeing the MDA? Should they be separate or should... I mean obviously there's a lot of missile defense in space and they're ahead of the game and putting the hypersonic boost tracking satellite system in play. So just what's your position on those two?

Mr. John Rood:

Well, my personal opinion is that we have to put more emphasis on space and I think the Space Force is really going to play a much larger role in this. Back to the MDR, one of the things they very clearly said a year ago is that, "Space needs to become a larger part of our missile defense capabilities going forward." Space-based sensors have tremendous advantages given the looking down upon the earth, the ability to see a missile over a long period of time in its flight. And the advances in space technology have made this a very attractive area to do this at lower cost with much more proliferated, more resilient, and more robust capabilities.

Mr. John Rood:

The other thing that the Missile Defense Review pointed the direction to was the advantage of space-based interceptors. The United States has not had an active program in that area for a couple of decades.

Mr. Riki Ellison:

But yet, the GMD systems, the SM-3 Block 3 systems intercept in space. So it's interesting that you can throw that, but we actually intercept all of the ballistic missiles in space.

Mr. John Rood:

That's a very good point. And as we make advancements and pursue things like multiple kill vehicles that the Missile Defense Agency has done work on, they're in smaller space vehicles, if you will.

Mr. Riki Ellison:

Who's resisting? What are the challenges that are resisting this?

Mr. John Rood:

Well, I think back to your earlier question and as part of that I'll answer both, space is an area where I like to see us do more and the Space Force, what's happened since the Missile Defense Review was released, we established the sixth branch of the United States military, the Space Force. That is a major muscle movement and I was very pleased to see that come to fruition because our adversaries are competing much more aggressively in space and that is a very contested domain by countries like China and Russia and others and so we needed to bring more focus there.

Mr. John Rood:

Now that is a new activity and as the Space Force matures, the Space Force will take on a larger role in space. And I think the work still to be done and the Missile Defense Agency and the Space Force will have to work cooperatively in this area, that you've got to have a transition where both are working effectively to support their mission needs. But the Space Force is more integrated and initially the Space Development Agency will sit apart but it's going to be integrated into this Space Force and so you got to have the right match in those capabilities. We do this in air, for example, with the Air Force and the Navy, with different aircraft capabilities, the ability to operate, we'll be able to do this, I predict. The people leading the Space Force and the Missile Defense Agency, my expectation is they'll be able to work this out very effectively.

Mr. Riki Ellison:

Let's go to the maybe more challenging question, is the MDR, how are we doing funding it? So I think there was a total of \$20 billion that was put across, not just MDA, across the board for it. MDA's budget has been reduced to some extent. So where are those challenges, especially now with the Coronavirus stimulus funding, with Congress, with Cape, with the administration, what's the status and what are those specific challenges? And how do you beat that or do you accept and play with what you get and do the best of what you can with what you've got? But that seems to be, we've got a great vision, but can we pay for it or what can we pay for out of that vision?

Mr. John Rood:

Right. Well, having the right resources to match your strategy is always a challenge. And again, I think this is an area where I really thought we made a lot of progress to have a strategy driven budget in the National Defense Strategy. When he was the Deputy Secretary of Defense, Pat Shanahan really pushed this effectively from that perch and then when he became the Acting Secretary obviously that that continued. But in the DOD, the Deputy Secretary plays a very large role in these kinds of budget allocation decisions. So you've got to resource it, you have to make the hard decisions. For me, with all these multitude of threats and as the Undersecretary for Policy, I felt like I saw them all coming to a point. When I looked across all the various areas where we needed to spend, make priority decisions, for me, I always felt like missile defense stood out as is in the top tier of those activities.

Mr. John Rood:

And this will sound overly simplistic, but I do think you have to take your highest priorities and get those right and then begin to work down to your next level of priorities. Because the failure mode to me, whether I was in business or in government, I always felt like if my highest priorities get done well and my second and third level priorities get done less well, well that's unfortunately the hard decisions that have to be made. But there are always competing needs for resources. So in the budget that the president submitted the Congress earlier this year, if memory serves about \$12 billion for the Missile

Defense Agency and for the services for missile defense programs, and that's roughly the same amount as a year before. It would be nice if we're able to grow that over time because-

Mr. Riki Ellison:

Do you think that the president matched the funding to what his vision was with MDR? Or...

Mr. John Rood:

Yes, I would say basically yes, but obviously from a personal view, I would've liked to have seen more in that area because it allowed you to do the core program, but remember over time the Missile Defense Agency budget has come to focus much larger percent on sustaining and maintaining the current force as we have a larger force. And the original vision in which systems would be developed by the Missile Defense Agency and then transferred to the service where they would essentially take the child now having been raised under their wing and pay for the sustainment and advancement of that system. That really hasn't been in accordance with the original vision and MDA is paying for a larger percentage of that. So the amount devoted of the budget to new capabilities, things like directed energy, space-based sensors...

Mr. Riki Ellison:

Which was eliminated in the '21 budget.

Mr. John Rood:

These are areas where I think from time now going forward that I, would argue should receive more emphasis is space-based sensing there is money in the president's budget for that. I think I would like to see that go a little faster, be more robustly done.

Mr. Riki Ellison:

Who are the hurdles for that?

Mr. John Rood:

Well again, it comes down to lots of people competing for dollars, competing for capability. And that's always done within the Defense Department program review. Now ultimately, we all learned in school, Congress holds the power of the purse, and so the Congress will do an allocation again in their activities. And so both in the executive branch, you have the Defense Department putting together budget submission, OMB integrating that, and the budgeteers over there who work with the Cape and the building they've got a lot of different needs. To me, it's a tough job, but-

PART 2 OF 4 ENDS [00:58:04]

Mr. John Rood:

They've got a lot of different needs to meet. It's a tough job, but this is an area where I would like to see... I think it stands out as a need across all of our defense needs, and therefore a need of sufficient budget. But in space, I'm a little concerned also. I think we're not taking full advantage in pursuing space-based interceptors sufficiently. I would like to see that'd be a larger focus area, because there are tremendous advantages, inherent advantages, from being in space, and this has not been seriously pursued in a couple of decades. And I think the technological advancements and the cost reductions

that have occurred in the commercial space industry are very impressive, and it's the same sorts of technologies that then get applied for military purposes.

Mr. John Rood:

Directed energy holds the promise of really being very effective, reducing the cost. Again, that's an area where the Missile Defense Agency has the greatest domain knowledge about how to do ballistic missile defense. I think that can also be applied in their role dealing with hypersonic defense, and indeed against cruise missiles.

Mr. Riki Ellison:

I think Army's done a pretty good job on some of the ground-based missile defense at the lower levels, on top of that.

Mr. John Rood:

Yes. And that connects very much to their [crosstalk 00:59:27] defense mission-

Mr. Riki Ellison:

But it doesn't look like in the budget upcoming and they're putting in the HT, the Hypersonic Boost Satellite Constellation is not being funded so it's to where it needs to be to get that first step, because it looks as the first step is to get that space-based persistent capability that may even be able to do not only hyper and boost, but could do possibly cruise globally, and to connect that. So we're struggling with that on it.

Mr. Riki Ellison:

But I would also merit, because of what happened with the virus, and the lack of fast data from multiple sources to our decision-makers, was delayed or offset, that that is really an opportunity for the JDC2 of the joint domain military to be able to... because that's what they're doing. They're doing that, an ability to connect all the sensors around the globe, and getting in there very quickly, have the decision-maker, and they push it out to the [inaudible 01:00:32]. That to me, I think, is in synergy with what we need for anything, for pandemics come in the future, but to be able to collect it. I mean, they do a great job at Wall Street. They've figured that out, because they make money off of it. But we have not been able to do it here yet. But I think that that would be a fascinating thing on that.

Mr. John Rood:

Well, when you talk about all the needs that the United States has in the national security area, and gee, how are we going to afford to meet all of these needs? Well, one of the ways that it can be very cost effective is the various systems you've already paid for that are in the inventory, how do you better integrate those to get the full potential out of them? And when you're leaving a capability unused, that doesn't make sense. And so one of the ways that you can-

Mr. Riki Ellison:

That was in the MDR. That's what you were stating [inaudible 01:01:27].

Mr. John Rood:

That's what we said in the MDR. Now, stating it is one thing, and we began before I left the Pentagon to implement that. I think going forward though, that's the challenge. Can you take that further? And that's where the Air Force vision, for instance, for this joint all domain command and control is very compelling.

Mr. Riki Ellison:

But I would say that too for the underlayer too, because we're going to have to wait another eight years for a more capable system, so we've got that window. And there's a lot of that with cruise missile defense, with the [FPIC 01:01:56] coming, you've got a window, can you wait 10 years? And what do you have in inventory right now? Because you do have it, and people don't want to pay for it, I don't think, because it takes away from their other funding to do that, to happen, but the threat is on us, so you've got to be able to defend that, and that should be the easiest thing we should be dealing with, is the current systems that we have, integrate them. So we get into a little bit of danger just going to one system only to [inaudible 01:02:24].

Mr. John Rood:

And getting the full potential out of the joint force and having it contribute when you need it to, to the missile defense mission, very important. Taking your missile defense assets and getting the full potential out of them. That was the thought process in the MDR around an underlayer. With a ground-based Interceptor being able to operate over a much longer range, and being more capable for long-range missile defense, but this underlayer, we have already developed and deployed SM-3 Block IIAs aboard U.S. Navy ships. The vision and the plan is to deploy them on land in Europe, places like Romania and Poland, in Aegis ashore. And when the Missile Defense Agency looked at this, there are ways that that can be employed in the United States. You could either do that in time of crisis, with ships, that she would need to have to put in the right position off the coast of major American cities. Think New York, or a city like that, that you could add an additional capability. And that's a matter of your existing forces deployed, developing the ways to manage it, to use it in a crisis, which is not simple, but that is very doable.

Mr. John Rood:

And then you can begin to have land-based applications for an underlayer, and that's in the president's budget request, to request money to begin doing that. And that it can give you a more cost effective way to do this, but that doesn't eliminate the need for longer range missile defenses. You to have a core capability that is able to be there 24/7, that you can rapidly cycle up in readiness, cycle down in readiness as conditions allow, that stays permanent. To me, where that gives you great stability is for a potential attack, or to know that is always present, that that is not a heavy lift for the United States to maintain that readiness level. And then if you were in a crisis [inaudible 01:04:26], you could augment that with underlayers, either initially through deployments of things on ships. Later, if you have land-based assets, you can bring those to alert. And something like an Aegis ashore wouldn't merely do ballistic missile defense, what operates on a ship, it's able to do cruise missile defense. It's able to do anti-aircraft, anti-UAV defense. This could be very present.

Mr. Riki Ellison:

But expanding that to land-based Army effectors and missiles, Interceptors, and expand that to the F-35, or A-RAMs or other missiles, that needs to be incorporated, connecting right up on top of that. But let me-

Mr. John Rood:

Yes, that's right. And just to touch on that, the Army systems, the Army's done a lot of progress in things like THAAD and Patriot integration. That vision and the start towards that vision, I would argue, will be very advantageous if we can really fill that out, because you want to get the full potential out of all these systems, out of all these capabilities, and those need to be integrated with the overall force. And the Army has the mission for integrated air missile defense on land. You're going to also have to defend those assets from things like UAV strikes, from rocket attacks. You're going to have to have an integrated defense capability across the range there. And some of the things the Army has traditionally relied upon like maneuver to avoid these threats, that won't be present in all these fixed locations. Our experience has been that we need to be there.

Mr. John Rood:

And for things like Aegis Ashore, I do think that in addition to having a core capability that's there all the time that you can augment, we have to look regionally around the world, like in the Pacific, places like Guam, in Europe, places like Ramstein, where we're going to have to protect certain locations. Now, if this was a blank sheet of paper, you could say, well, in theory if you knew an attacker was going to launch a missile attack, you could disperse your forces. Or maybe we could just use offenses again, to preempt them. Well, let's think about what's required for that. Sort of perfect intelligence that they are about to attack. The ability, in very rapid terms, to precisely strike those things without collateral damage. Or that you have the ability to move everyone off of Guam, and disperse all your aircraft before a country like China or North Korea could attack. I don't think that's really realistic.

Mr. John Rood:

Dispersal has a place in, for instance, when it launched that missile attack that I mentioned, in January, against [Alisat 01:07:05] Air Base. The commanders did a superb job there in dispersing their forces, and so we didn't have any fatalities. We did have quite a few soldiers later who reported issues: traumatic brain injury and headaches, concussion-like symptoms. But it would have been much worse had they not done such a good job in dispersal.

Mr. Riki Ellison:

And they struck on an undefended... To your earlier point, Iran struck on the undefended site.

Mr. John Rood:

Yes.

Mr. Riki Ellison:

And we've got limited, very limited missile defense capability [capacity] in our Patriot systems. So when we move them, they go hit them on... or where we moved them from. And same with our C-RAMs, when we moved them from Afghanistan... So we definitely need more capacity on this.

Mr. Riki Ellison:

But let me go from here, because I think we've covered that pretty good. And besides Congress, which we're very sensitive, that holds the purse strings, the COCOM commanders really have a strong credibility in wanting what they need for what their environments require better than mostly everybody. And they're looking out five years on that capability. And I know that's a struggle for them,

because MDA has a limited budget, and they're all going to MDA for all this stuff, which sometimes is not the same. And MDA has got to make judgements because of its budget, not because of the priority of the war fighters.

Mr. Riki Ellison:

And you, in your position, you brought... the COCOMs reported to you, and you were able to voice that opinion, and so listen to the COCOMs. I'd like to just to go around the world a little bit with you on each COCOM and take a look. Because the other thing, John, it looks like is going on, the frustration of the 10 year acquisition cycle, basically, to get the weapon they want, but they have to wait for it for 10 years. So a lot of them are going [GWAN 01:09:17] that seems to be quicker, but it may not be the best solution, but it's getting quicker to get stuff out there. And we've seen some brilliant uses of the GWAN. But again, that's the acquisition process.

Mr. Riki Ellison:

So let's start with the big one first, STRATCOM. Your thoughts on how the Missile Defense Review fits into our nuclear strategy, if it does. Certainly, we've got Russia knocking on the door, certainly with China. How does the MDR fit, if at all, with STRATCOM?

Mr. John Rood:

The Missile Defense Review fits very well with the STRATCOM mission. STRATCOM has both a offensive mission for a nuclear strike, long-range conventional strike, as well as missile defenses. And they play a role as a synchronizer and an integrator for the operational community. Missile Defense Agency doing development, or in the case of shorter range defenses, like the Army and the Navy have their programs, but once they are deployed that operational fit that the deploy forces around the world, their ability to utilize these systems and to be able, as a missile travels across several combat and command boundaries, how do all these things come into play? Who has the authority to make decisions? How do they operate and be synchronized together, fit very well? That's STRATCOM's mission.

Mr. Riki Ellison:

Are we aligned with General Hyten's position on this STRATCOM, with the Missile Defense Review? Are we starting to push that offense/defense at that high level with ICBMs, or is that still separate issue?

Mr. John Rood:

It's aligned with the vision. I mean, the work needs to be done every day incrementally to accomplish the vision, but I think it's very well integrated with that. The Nuclear Posture Review, which my team oversaw as well, was done in a similar time period, about a year earlier than the Missile Defense Review, and so we made sure that those policies interrelated very well. The nuclear mission is undergoing a recapitalization right now with the triad, new bomber, new air launch cruise missiles, new ground-based strategic defense, to replace systems that are well past their intended design lives. And then missile defense fits within that. So you've got to have those things synchronized. And one of the things that gets more complicated, and this is why I think you have to have people with a mission like a STRATCOM, is as there are more cruise missile threats, as there are more hypersonic threats, ballistic missile threats, having all these things be integrated is a key role that the COCOMs play.

Mr. John Rood:

You're right, the COCOMs perspective, they would like more capability right away, and this is very classic by the way. I'll just take whatever you have now is an exaggeration, but not too far from what the combined commanders are, and so they put in these urgent operational needs statements. It's true the Missile Defense Agency and others work on longer time periods. And one of the things that we've got to address is there is a good long-term vision. In the short run, we're operating with what we have, but in between, in the midterm sort of three to five year period, I think we do need to look at that, and we'll have more capability there.

Mr. Riki Ellison:

We're going to go through this rapidly a little bit now. We've got some time issues here.

Mr. John Rood:

Sure.

Mr. Riki Ellison:

All right. NORTHCOM. In terms of O'Shaughnessy, the COCOM commander, we released the NGI, which is great, and it looks like it's going to be out eight years from now. We have a cruise missile defense problem. We have a [inaudible 01:13:09] problem with the Russians up there, that's becoming more and more invasive to the United States. We have a limited 44 GBIs. We have an issue, possibly, with the defense of Hawaii on inventory. We have a threat from North Korea that is most likely growing in production of capacity of nuclear ICBMs. We've got a threat from Iran that's starting to kick up, and we don't know what the other threats are coming. And we've got three generations of missiles that we created back in 2000, some of them are... I mean, they're different levels, so that's a limited capability. And how, I mean [inaudible 01:13:52] the decision not to do anything until we get the new ones, that leaves a big void there, and now we... How can we do this? Is it the underlayer? Is it the combination of a cruise missile defense integration with ballistic missile defense and all of that? How do we solve that problem?

Mr. John Rood:

Well, my view on that is that... And one of the areas General O'Shaughnessy's has done a good job, and I agree with him, is that the Homeland Defense, and really emphasizing that the importance of that, the essential nature of it. And so start with ballistic missile defense. You mentioned the next generation Interceptor. I saw the missile defense agency publicly released the request for proposals this week that are due later this year for the next generation Interceptor, for a long range Interceptor to defend the United States, and the MDA and others have publicly commented that that will probably be around the 2028 to 2030 timeframe, which is eight to 10 years from now. So what do we have to do in the meantime? Obviously, we can't stand pat, I wouldn't argue, with the growing threat during that time period, until that vision is achieved. So one, we have to look for solutions that could perhaps be implemented earlier that could be improved upon, in addition to that next generation Interceptor, and then utilize other systems, like for the underlay, where the Standard Missile-3 Block IIA is a very effective way to do that. I think that again, we're going to have that demonstration test, as I understand it, the Missile Defense Agency later this year.

Mr. Riki Ellison:

But how do we bring the cruise missile defense into the picture here?

Mr. John Rood:

I think that that-

Mr. Riki Ellison:

And persistent overhead, which is the key thing for cruise missile defense. You don't have enough F-35s to do all that. So how do you do that?

Mr. John Rood:

No. You have to have some... Cruise missiles are difficult to detect. Once you can detect them, and if you can be in the right place, the type of shooters that we presently have either for ground-based or aircraft with air-to-air weapons are effective against them, but you've got to have the detection capability. Space is very advantageous for that. And then at high altitudes, being able to look down. And so that's where we got to have improvements in our capabilities. We've got to put more emphasis-

Mr. Riki Ellison:

Yeah. In MDA right now, I think is what their chief architect has got a layered architect for this problem, that we're dealing with that. I just wanted to bring that up. And the urgency that you're hearing from NORTHCOM, because if you can't protect the United States, you can't protect anything. So that is critical.

Mr. John Rood:

And you have to take an approach where you can add to it. You know that there's some indication, some warning that you can have a system that's flexible enough to add to that.

Mr. Riki Ellison:

So let's go to the... The synergy with the other stuff we talked about earlier. Let's go to Indo-Pacific. Okay. So here's where we're at the edge with China. We're right on the edge. Our furthest western territory is Guam. We've had, and you've been aware of this, a four to five, four to six billion a year European defense initiative that they get. Congress has funded them in addition to everything else. And we have Indo-Pacific, [PCOM 01:17:25], which under President Obama, all of us said, "Shift to the Pacific, shift to the Pacific," and we haven't done it.

Mr. Riki Ellison:

It seems like [SITCOM 01:17:35] comes up and there's fights [inaudible 00:19:37], and the resources get diverted, and now you see for the first time Admiral Davidson asking for that Pacific, Indo-Pacific defense initiative that is timely, because of what's going on with China. I'm getting that forward, and he wants that for Guam, as the first place, and we've had to disperse the B-52s there, as you see, because of defending them first, because we can't do the full cruise missile defense at Guam right now.

Mr. Riki Ellison:

And going back to Hawaii too, of having those headquarters defended best with the radar, the Homeland radar is back in, in this viewpoint, and just more important as has having the ally integration with exercises and so forth, because that's where the buck stops. That COCOM has got to be supported at this level, at this time, to be able to do what he needs to do, or she needs to do, to get this thing the best we can to retain our status. Go ahead on that.

Mr. John Rood:

No, I agree. The national defense strategy says give priority to the Indo-Pacific region, and we need to do that. It's a hard thing to accomplish. I would say looking back over the last two years, to really make that vision come to reality, there've been a variety of contingencies, you mentioned, in the CENTCOM AOR that have come up. There are competing needs for resources elsewhere in the world. But we've just got to be steely-eyed, I would argue, and say this is a matter of triaging our needs, and there are some areas that we're simply going to have to make the hard decisions to prioritize above others.

Mr. John Rood:

And the Pacific really is becoming the center of attention, because when you look at the shift of global influence, the threat process, the movement of trade, wealth, this is a more important area. The United States has been a Pacific power since our inception, but we have to give it even more priority right now, and make those hard decisions. You mentioned Guam, the U.S. Territory there. We need to... It will be expensive, but we've got to, in my view, be able to defend that area, and be able to defend our positions, especially in U.S. territories, forward, and not be driven out of those regions, and that will take some hard-headedness on our part, and some tough decisions, but it is certainly very doable, in my opinion.

Mr. Riki Ellison:

But that to me, seems to be the baseline architecture for IMD on land, right? That connects with the Air Force, that connects the F-35s, that connects with the Aegis ships, and putting some sort of... I think MDA's putting that forward, some sort of Aegis, a short capability, linked in with the THAAD there, and the pagers to make our first attempt with current capability. Because I think both of us, we got all these supplement bills from Senator Cotton, huge amounts of money, but the reality is, he's not going to get all that money. He's going to get limited. I'd love him to get all that, but he's not. So again, going back to your point, we're going to have to fight with what we got to fight with, that we have in place. And if it comes down to having [NASAMS 01:21:09] that's here today to cover that gap for a while, because the [FPIC 01:21:14] is going to take a long time to get in place still.

Mr. Riki Ellison:

And you're still... I don't want to get into the [inaudible 01:21:20] stuff, but I just want to point out that that's why I think we want the golden parachute. We want the whole thing, but I don't think we can get it. But we certainly want whatever we can get out there to help, and to relieve... Because we've got a ship out there doing circles protecting Guam. It's not supposed to be doing that. That's got to go out and do its multi-mission stuff. And we've got a THAAD battery there that can be better used elsewhere in the world. So getting that capability. And I would also argue, mixing... If you keep the THAAD, and you put Aegis Ashore, flight three, your latest IMD capability, put it onshore, with that THAAD, you've got the underlay, basically, in Guam. But this has got to be generated.

Mr. John Rood:

Yes. And there are certain locations, and the Pacific's a great example, where we're going to need to protect those capabilities, and be able to operate from those locations during a conflict. And it's an interesting argument to say, "Well, let's disperse." But the Pacific is where this is more obvious. Start to actually get out a map, and spend some time thinking about, "Well, where would I disperse to? And could the adversary hold that area at risk as well?" And you pretty quickly come to the conclusion,

"Wow, I'm just operating in the middle of nowhere, in ocean areas, and my ships there are not invulnerable either. I'm going to have to protect certain areas."

Mr. John Rood:

And I remember during the Falkland Islands crisis, for example, in the '80s, the Falklands War, anti-ship cruise missiles were first used to effect by the Argentines against a superior force in the British. Sank some of their ships. And the discussion was, "Well, ships are so vulnerable to these anti-ship cruise missiles, particularly larger ones like aircraft carriers, this is the end of those capabilities." The reality is, we found ways to protect the ships. We found ways to defend against very fast cruise missiles skimming the ocean, attacking from above. This is a similar thought process to being able to defend yourself, so you can operate out of Guam, so you can defend yourself to operate out of other key locations.

Mr. Riki Ellison:

But just to interrupt you, because I think, if we look at our great power competition, they've got planners, right?

Mr. John Rood:

Yeah.

Mr. Riki Ellison:

And they've got capability that can overwhelm land-based defense. I mean, they got that. So we have to be multi domain. We have to have F-35s in there. We have to have Reapers in the air that can complicate their ability, and strike, to be able to do our own A2AD of our own property there. And you cannot do it just on one service, one domain only. You can't. And that's going to complicate the other side, provide much stronger deterrent than we have today until these super systems come in 10 years from now, or to fit that. But we've got to fill this gap, man. You got a gap. You got to fill it.

Mr. John Rood:

You got to fill it. And I agree with what you said. You have to do it, and hasten to say, don't try to do it all by yourself. The cornerstone of our defense activities in the Pacific has been our relationships with Japan, relationship with the Republic of Korea and elsewhere, places like Australia and New Zealand, core allies of the United States. They are also developing systems. And one of the areas where it's easy to say we should have more and more and more, but we're going to have to also make choices. And one of the choices that we need to make is to be more willing to do cooperative programs. Let's take a look at our experience with Japan, cooperatively developing SM-3 Block IIA, that has worked very well. It has saved us a tremendous amount of money. And we now have an ally able to operate in a similar fashion to our own, and that's where our forces are based, so that's critical to our defense.

Mr. John Rood:

It always makes it more complex to do these international programs. Some have not succeeded. But we have to be more willing to do that. And in NATO, where the Alliance is sharing the cost, allies are sharing the burden of things like deploying systems in Poland, and Romania, and the UK, and Danish. You have to do more of that activity.

Mr. Riki Ellison:

Let's just touch on Hawaii before we... Because I know you've been a big advocate of the YLRDR radar that looks like we're trying to get it in there, and how important it is for Hawaii, and that capability for a much more complex threat. So I think we're kind of moving down the path of the SM-3 Block IIA because the ICBM would be the capability Interceptor to take some pressure off the 44 to be able to defend Hawaii.

Mr. Riki Ellison:

What your thoughts on that statement?

Mr. John Rood:

Well, I mean, I've mentioned briefly that the issue that arises in defending Hawaii is it's geographically dispersed. It's just substantial distance away from other parts of the United States. And so you got to have the ability to defend Hawaii, in my view, as well as you're defending the other 49 states. And because it's geographically distributed, having a sensor capability, there's a lot of advantage to that, because it allows you to be much more effective at that defense, and maybe utilize assets deployed on island, or on ships near Hawaii, like SM-3 IAs, or THAAD, to defend the islands. And that's very important.

PART 3 OF 4 ENDS [01:27:04]

Mr. John Rood:

... and the islands. And that's very important. Now that's a case where the U.S. needs to be able to do that for a state. But in addition to the Pacific, before we leave the allies too much, I did want to say, we derive tremendous benefit from our cooperation in the Middle East as well. Israel has been our closest and longest serving partner on missile defense. It's very impressive what the Israelis have done and are continuing to do. We need to be open to that kind of collaboration. And then with other allies in the region, they're on the leading edge in many ways of the missile threat right now; Saudi Arabia, UAE.

Mr. Riki Ellison:

Let's go real quick because we have a short window here. I want to test both EUCOM and CENTCOM real quick. Let's start with CENTCOM on top of that. We have great air awareness of everything going on. We have the limited capability. We've got Aegis ships, BMD ships in the Gulf that are not connected to be able to fight with the THAAD, with the Patriots that are there, that are not connected to the multiple number of allied Patriots, THAADs, NASAMS. That area does not look like it has the sufficient need or sufficient capability for the complete IMD capability, which is being tested by Iran on the 360s that they've done, the ballistic missiles they've done, on how we do it. And I think you've talked about how important it is, like Saudi Arabia producing and buying the radars and to make our costs easier, but we've got to not only integrate, we've got to integrate, I'm sorry, to get them the best solutions and how do we do that? That seems to be a monstrous problem because of the distrust between these countries with each other on that aspect of it.

Mr. Riki Ellison:

And also, the Iron Dome, which is a great capability, but you're hearing Congress say that we've got to put those in there right now. They can't go... The Arabs are not going to allow... the [GCC 01:29:05] members are not going to allow a Israeli system in there, A, and it's not connected, it's not integrated to our system. It's not going to be standalone. So some of this stuff is being pushed that is not the best or

not the correct way to do this, and they too, I think, could be the leader of the integrated IMD BMD as well as Guam, or they could follow Guam or Guam could follow them. Just [inaudible 01:29:28].

Mr. John Rood:

Integration is key. The United States needs to be the integrator and we need to have an integrated force. You mentioned between the branches, between U.S. capabilities. Very important. That has to be done both in the missile defense context as well as in the broader force context because remember this is an integrated fight that would occur. Integration with allies, and my firm view is only the United States can do that. Asking the countries in the region to set aside their historical experiences with each other to go to a new level of trust and integration is fine as an objective, but it's unlikely to happen in the near term.

Mr. Riki Ellison:

So it has to be bilateral, right?

Mr. John Rood:

We have to have the ability in the United States to be the hub and to integrate others as the spokes. And that applies with Israel as well, where we can integrate our force with theirs in time of need, should that come into play. So I think that's just very, very important. And we're likely to see that. Again, that's the type of attacks you mentioned that Iran has perpetuated in the region and the [crosstalk 01:30:37].

Mr. Riki Ellison:

And the 360 because we don't have 360. We don't. We're piecemealing a capability to do 360, which is what we got to deal with in future.

Mr. John Rood:

And countries like the UAE have made impressive investments and are moving forward with things like THAAD, the most advanced Patriot capabilities. Saudi Arabia's made decisions, they haven't yet received THAAD, for very substantial capabilities. U.S. forces are going to be in and around all these locations, whether that's Qatar, where they're also making investments, or Kuwait where we have bases, we're going to need to be able to benefit from their defenses, integrate with their defenses where we need to to augment their defenses. Integration is key, and only the United States can really do that, in my view.

Mr. Riki Ellison:

Let's talk about EUCOM and the threat that Russia has directly shown through Ukraine, through its long range strike capabilities, this A2/AD. On that aspect of it, we certainly understand that importance of the hubs there and the importance, and it seems burden sharing is one question, but being able to have a much better integrated air defense because we came in, I think, and promised them that we would do the upper tier which is beaches and shore sites. I think all phases are almost complete. Three of the four are complete. We got a little situation with Poland that's being fixed, but we've got ships [inaudible 01:32:05], we've got a command control system in Germany. So we are moving but we've got to do the 360 missile defense capability, which those partners like Germany, like Netherlands, they have these... they're more advanced or have more advanced in trust wise with us and working Link 16 and working with us to be able to actually integrate their systems with us to make it a much better deterrent. So just passing that over to you on the integrator, our missile defense capability on EPAA and advancement of EPAA.

Mr. John Rood:

The work that we're doing in Europe with the NATO umbrella for European Phased Adaptive Approach for other things beyond that, I think, is critically important. And we've come a long way. Those capabilities have been deployed or are in the process of being finalized, and that provides a substantial Alliance wide capability. We can do more there though. The Alliance has worked to put in place a command and control system that is a NATO system called ACCS, Alliance Command and Control System. That can be improved through the integration we discussed earlier with the U.S. approach. Things like JADC2. So integrating those forces, but we also have to be open to and willing to burden share the costs and the development activities. That again introduces complexity. We have to be willing to be somewhat flexible with our allies to integrate those systems and to show a willingness to meet their needs in addition to ours.

Mr. John Rood:

But whether you're in the Netherlands or Germany or Norway, Denmark, these are countries with substantial capabilities of their own. We talked about space and that's an area, looking forward, I would really like to see us emphasize more. The UK has a vision to do much more in space. There's an opportunity there for us to do things. Other allies have substantial capabilities. The European Space Agency and other things are doing things cooperatively. There's no reason we, and we should be doing more together with them. With Germany, we have opportunities, Italy. There are key allies with industrial capabilities that we can harness and then we can integrate under this integrated system called NATO, the most successful military alliance in history to go forward with that activity.

Mr. Riki Ellison:

And given the green light to them to have effectors, which those missile defense effectors and not putting all the burden cost on us for upper tier and lower tier. And they don't have a lower tier as much as they should to be able to defend themselves and the bases that are there. And I think there's been some frustration because it's taken so long for us to get a land base IMD that the Air Force is making do with what they've got instead of leveraged the big picture. So you've got another entity creating a capability to best defend what they can with what they've got over, and that spreading out around in that trust. And now you've got the virus that's also affecting their budgets on top of that, and the burden share of getting [inaudible 01:35:27], especially Germany.

Mr. John Rood:

We have an opportunity here with the coronavirus pandemic to really renew ourselves with the idea that we've got to have these core Alliance capabilities. That's been a core strength of the United States that no one else has matched in the last century. We can't move away from that in my view. And the virus pandemic is one of the things that can remind us of that. We have shared threats, we have a shared vision, a shared view of who we are as people, freedom-loving democracies that should animate us to do things together. And the virus is a common threat. Whatever nationality you are, you face that threat and there is a value to working together-

Mr. Riki Ellison:

As a team.

Mr. John Rood:

... more efficiently, and that's been really stressed, I would say, over the past couple of months. And I hope that coming out of this, we can recommit ourselves to playing a leadership role, both at home and abroad in that area, and bringing together like-minded countries towards these common aims. It's just essential.

Mr. Riki Ellison:

You've been wonderful. What an experience to listen to this last hour and a half. It's been great. But I know we're at the end of the time. We're going to extend it, hopefully, and open it up for all the questions that we can. And Kyle, if you can just start going down that list and picking the question and rotating through. But that was great. It was a lot to cover and I know we could have gotten into much more depth of it, but hopefully these questions can help.

Mr. Kyle Davis:

Sure. So one of the first questions that we had was how do you recommend overcoming organizational inertia in order to achieve the intent of the [MDR 01:37:16]?

Mr. John Rood:

Organizational dynamics are very important. In some ways navigating the human terrain and humans, the way they behave once they're in organizations, there's a whole school of thought that goes into this. So first of all, that's a critical area. One, you got to have leadership and buy-in amongst the leaders as you tier down throughout an organization to a vision. That's one of the things I was very proud on the National Defense Strategy that we achieved. Whether that was under Secretary Mattis or his successors, and Secretary Esper certainly promoting that National Defense Strategy and commitment to it. And then subordinate leaders, I think, buy into it. They have the vision. It takes longer, organizationally, to get subordinates to buy in, but it's worth it because implementation then can be stronger. So you spend more time at the front end, you save time at the back end.

Mr. John Rood:

Now, there are normal organizational dynamics where people protect their stove pipes, they behave in tribal fashions and almost always your organizational dynamics happen along those scenes between organizations. Here, leadership has to be critical, and it's [successive 01:38:36] layers to breaking down those things. I think there are ways that oversight bodies can contest that, can be asking those hard questions that can be requiring people to justify how they are working together effectively, and hopefully our various systems of governance can produce that.

Mr. John Rood:

Some of the areas where this is going to be more complex, but I think there's value in doing this, is as the operational landscape adds the Space Force, as you see missile defense systems maturing, the cruise missile threat, hypersonics beginning to be part of that. This becomes more complicated, but to me that's where you got to have a systems architect for you. Whether that's the Missile Defense Agency as the developer, or in the case of an operational group, STRATCOM playing a role as a synchronizer, an integrator. And if necessary we have to add authorities for those people to play those roles as integrators, or in Missile Defense Agency's case, protect them or restore them if we think they'd become too eroded.

Mr. Riki Ellison:

Kyle, next question. I'm not sure [inaudible 01:39:47].

Mr. Kyle Davis:

So I've seen a lot of questions coming in regarding NGI and specifically how would you say that we can balance the risk in delaying an increase in our capacity in order to get an increase in capability? And combining some other questions as well, because I assume this will be part of your answer, is that the underlayer then, what is the right mix of underlayer versus overlayer?

Mr. John Rood:

Well, one of the fundamentals here, and that applies in this case, is throughout military history there's always an argument; quality later or quantity now. And quality is always better if you have enough. And so the fundamental challenge we have here is the next generation interceptor's a good concept but a deployment in eight to 10 years, and that's assuming it stays on schedule. And most programs experience some issue somewhere somehow and there is a delay. That could happen here, despite the best of intentions. So I think one we have to explore nearer term alternatives. The underlay provides some near term capability. In terms of the balance between longer range defense and underlay, I think you want to have a core capability that can deal with the anticipated first strike, that can deal with the size of strike you might expect an adversary to mount in their initial attacks without reliance on an underlay.

Mr. John Rood:

And then an underlay can be something that you add to thicken a defense, to be more flexible, if you will. To deploy on one side of the United States or another side, in theater A or theater B to have some reconfigurable capability. But your core doesn't have to be able to deal with all of the anticipated attacks, but it has to be able to deal with the early parts, the first waves, to provide time for offenses to attrit the attacker and time for you to ready a force to do other things.

Mr. Kyle Davis:

So shifting gears a little bit, going more towards the hypersonic part. There's, of course, no question that we're working towards offensive hypersonic capabilities. And we have said that there needs to be hypersonic defense capabilities. Is there enough being done on the defensive side or do you see areas to increase that research and development?

Mr. John Rood:

I think we to give greater priority to defense. Offensive hypersonic capabilities are very attractive. I support that very much. And I think there are lots of good reasons and we should be the world leader in that area. So it's not to detract from offenses, but defenses need to be a part of this, and this is going to be a very challenging area. For those that might throw up their hands and say this is impossible, I don't agree with that. So many things that were seen to be impossible, we just have knocked those down year after year after year in every domain and military area to include missile defense. And so we have to begin with the ability to track it, and here, going to space makes all the sense in the world to me to have the high ground. And we have to have a distributed architecture, survival architecture, resilient architecture to do that, that ideally we can upgrade rapidly because this is not going to be static. But we've got to get started on that.

Mr. John Rood:

And then if we can track it, if we can see it and do command and control through things like JADC2, then we can try to utilize the existing force, things like THAAD as interceptors to deal with the threat. But first you got to be able to detect it, track it, and get the information to the right people in the right location to be an effector to shoot it. Or, I don't rule out in every other domain we use we've looked at things like directed energy, electronic warfare. There's no reason that couldn't be employed here as well.

Mr. Kyle Davis:

So the next question that we selected was how much investment should the U.S. place on defending against lower end missile threats, like the Houthis and Iranian missile attacks, compared to higher end threats from long range nuclear missiles?

Mr. John Rood:

It needs to be a balance. The reality is that we are experiencing the lower end type of attacks. And so we have to have enough capability that when combined with our offensive capability, when combined with our ability to maneuver, to distribute our forces, that it's sufficient to deal with that threat. And I think that's an area where we need some improvement, and I would argue some greater investment because that's what we're seeing our adversaries attack us at locations [inaudible 01:44:44]. I mentioned the Iranian attack, but we also see the Houthis employing this type of warfare against the Saudis, the Emiratis, our allies. And U.S. forces are being called upon to try to assist these allies in their defense.

Mr. John Rood:

So I think that threat is coming soon to a theater near you, so we've got to be able to deal with it. But more advanced threats do need to be a part of this. And I'm a little concerned that over time, through organic reasons, there's less of the Missile Defense Agency budget devoted to new R&D, to new development of substantial improvements in our capability. Just a smaller percentage than there used to be because a larger percentage of the budget being utilized for things like sustainment of the existing forces. And the S&T budget needs to be robust. Some of those things that you're experimenting with, you're demonstrating, will be even further in advance of your most longer term efforts, and there has to be a distribution, if you will, a funding along those lines, so that you're able to produce the technical advancements that are needed.

Mr. Kyle Davis:

So moving back towards the European theater, what do you say NATO and U.S.-European command need to prioritize in order to enhance air and missile defense in Europe, and what are your expectations of our European allies?

Mr. John Rood:

Well, our European allies have stepped forward to increase their defense budgets in recent years. This is one of the things that I was pleased to see, that greater burden sharing, a greater progress at NATO towards meeting their commitments to spend two percent of their GDP on defense. The coronavirus impact will test that. I'm optimistic though that that will continue because the threats haven't gone away and we're going to need to address those together. What do I expect from our allies? In some cases, burden sharing to permit either allied capabilities or U.S. capabilities in certain geographies and locations, hosting them, providing the host nation support, the protection, the support to those bases and localities.

Mr. John Rood:

I'd like to see the allies continue to support at NATO, NATO decisions to have program offices to increase the capability to keep pace with a threat. And then their own capabilities where their organic forces have those. Some are real leaders in this area, others have a potential to do more. For example, the Netherlands has been a real leader in this area. Small country, but they've invested and they have substantial capabilities. I think there is more that can be done in that area, and in Europe it's very important to sustaining support for this, for there to be R&D production, industrial participation. And as they spend more, their industry will be able to contribute more to those areas because they're going to develop the capabilities that are more advanced and more on par with what we see here in the United States.

Mr. Riki Ellison:

Can I just... I want to add two things to that. I would challenge your confidence on the [ACT 01:48:00]. The ACTs, which I think we've had many problems with it. We're not comfortable with the enhancement of the command and control that they're developing. So I think the U.S. has got to lead with the JADC2, and they can bring that back down to them. So I think that's absolutely critical for that aspect of it.

Mr. John Rood:

NATO had a command and control system that they hoped to deploy much earlier than they had, and there are still concerns is it going to keep pace with what is needed? The U.S. concept is more advanced than that. I think you're still going to have to have... The main role that NATO plays as an Alliance is command and control, integrated command and control across all of the nations. Now 30 countries. Therefore, you're going to have to have a command and control system that NATO owns and operates that can support that political military vision. And this is outside my area of expertise, but I think whether that's improvements to ACCS or integration to leverage more advanced capabilities, but the Alliance is going to have to have a capability they can use.

Mr. Riki Ellison:

Let's go to the other aspect of it, which you said the shared platform of F-35 which is by far the best generation air fighter ever [built 01:49:21]. And you're force multiplying with allies having that F-35 because they can communicate and force that whole thing. So they struggle with buying U.S. capability in that realm as well as others, including the SM-2s and so forth on it. And so you have to balance their industry with our industry. But if you're wanting to deter Russia at that level to get those high end platforms that have already been billions and billions of dollars research developed and leveraging that then that's [inaudible 01:49:53].

Mr. John Rood:

Well, you have this aircraft which is far more than a fighter aircraft, with the ability to be this remarkable sensing capability that is mobile, reconfigurable. And then think of the ability to distribute data quickly. Almost like a wifi router in the sky.

Mr. Riki Ellison:

But the Europeans are trying to develop the same thing, but they're a generation behind. They're [crosstalk 01:50:19].

Mr. John Rood:

They're quite some distance behind, but quite a few European countries have procured F-35 and then each one of our services will. So to the earlier question, how do you deal with a lower end threat? Well, you can't afford to do everything, but when you take the largest program in the entire Defense Department budget and the largest in our history, and the largest and all these other countries, and leverage it, that is how you start to get real efficiency. And so think of a case where you have different Air Forces and our services operating, airborne sensors who can see cruise missiles, who can see ballistic missiles, who can be integrated to a command and control. And you can make decisions on what shooters for defense purposes will address the incoming missile, while simultaneously doing things like conducting attack operations from an F-35. Can sense the missile, pass the information off, and prosecute the target on the ground.

Mr. John Rood:

And that doesn't just have to be the U.S. Air Force or Navy. Think of the Marine Corps operating off of amphibious decks, essentially smaller aircraft carriers, F-35s that they can deal with places like Yemen. Or if they're called to the defense of an ally that's integrated with, say, Japan's air and missile defense posture. You got to have that willingness and ability to tie the force together. Doesn't mean buying more of the assets, it just means integrating them better and leveraging.

Mr. Riki Ellison:

Or buying a much cheaper version of a Reaper with a sensor and eventually shoot on that. And we didn't discuss-

Mr. John Rood:

There are a number of combinations.

Mr. Riki Ellison:

... boost phase, but I hope that question will come. Go ahead.

Mr. Kyle Davis:

There was a question on boost phase, I believe. So we can go ahead and dive [crosstalk 01:52:07]...

Mr. Riki Ellison:

Yeah, why don't you because we have avoided that whole thing and it needs to be brought up to the whole boost phase, both kinetic energy wise, DE wise, up in space or not, but that seems to cull the herd very quickly. But go ahead.

Mr. John Rood:

Going forward, the Missile Defense Review talked about the importance of boost phase defenses. From time now, going forward, I would like to see more emphasis there. I don't think enough emphasis has materialized in that area. It's a hard mission to do. That's the reason it hasn't been done to date very effectively, but we've got to do the hard work to get there, to be able to identify and track the targets earlier and then systems like this is where having airborne sensors versus those on land help, or in space, because you can get a quicker detection. I think things like having F-35 with the ability to sense that, and to have other shooters, whether they're on other platforms or on F-35, shooting the target as a boost.

This transcript was exported on May 01, 2020 -

Mr. Riki Ellison:

Or in space.

Mr. John Rood:

Space based boost phase is very attractive, particularly over longer ranges. I like that idea a great deal because you're already in the high ground. Now you're just coming down to address the threat. There are any number of ways. Directed energy solves a lot of that time problem because you're moving at the speed of light. Here you can-

Mr. Riki Ellison:

Do you think we have money going into MDA to seriously look at this, or the Air Force or a Space Force or Space Development Agency?

Mr. John Rood:

The Defense Department has an integrated program for directed energy that they are pursuing. Now, that being said, I think the Missile Defense Agency, really for missile defense, ought to be the ones pursuing this because they've got the domain expertise. They're the ones with the ability to make that happen, in my view. That's my personal opinion.

Mr. Riki Ellison:

I think that's it. What a great session. It was awesome that just to converse on a subject, and deeply, so thank you very much for your candid remarks, your service for our nation, your leadership, and I think it's going to be great, still, beyond your time in the government to lead out. So thank you very much, John Rood, for spending the time with us today. And to the audience, thank you.

Mr. John Rood:

Thank you, Riki. I really appreciate you holding this and having me. Thank you very much.

Mr. Riki Ellison:

Thank you.

PART 4 OF 4 ENDS [01:54:40]