

Riki:

So, I'm excited about today. We have the great privilege to be able to assess what has happened since the January 17th announcement by the President of the United States to put forward his six national security objectives for missile defense under the realm of being able to defend the United States from any place, anywhere, at any time. There has been eight months that have passed. There has been a prolific threat that has developed, continued to develop, and if we can look briefly at North Korea – who's had ten ballistic missile tests since that timeframe, that have continued production of their ICBM capability, [and] that we have not seen progress in the denuclearization of that country.

You have Iran that has had three failed missile tests, rocket tests. You have Iran that has continued to support Syria, Lebanon, and the Houthi with missile development, with missiles and drones there. We've seen, as you know, this weekend with the Houthi and Yemen – who have launched a 360 [degree] attack on the oil fields with drones, but that's not the first time they have done this. They've struck at airports in other areas over the last past eight months, and they have continued to fire ballistic missiles into Saudi Arabia.

You have Russia – who on the INF treaty is continuing to build outside of those limitations and the reaction of the United States from getting out of that treaty, and you're seeing a ramp up of that. You've seen a nuclear powered cruise missile that's being developed. You've seen hypersonics that are being developed. You've seen the Russians with their air platforms pushing on our borders in Alaska. You've seen the Russians with the Chinese in their air platforms pushing in the South Korean air zones.

You have China, that is continuing to be strong and A2/AD capabilities, [and] developing their ballistic missiles in quantity and quality for the first and second island chains. Their hypersonics are probably the best in the world at this point in terms of testing, so we've got an accelerated threat, and I think with the drones coming out, you're going to see even more of that proliferation at that level.

In response, our country has done some good things over the last eight months. I think we start off with the March 25th GBI salvo test, which validated our current system today – not just with the newest GBI interceptor, but with two different types of generation [of] interceptors that made a successful intercept, but also leveraged the cross domain capabilities of other sensors and fusing information from space, from the air, and from the sea to make that. We also saw that our country made the decision to cancel the RKV program, and that was a huge decision, and we've seen now an introduction of a next-generation interceptor to replace that capability, but it looks to be not deployable until 2030 – at the minimum – so we do have a gap of capability right now with the 44 GBIs in place until that new generation interceptor comes in place.

We've had THAAD and the deployments just this year, in the last eight months, mobile deployment to Israel and a mobile deployment to Romania has been very successful and the THAAD just recently tested in Kwajalein Islands, the JEON application, which means the integration between the THAAD and the Patriot that they are putting forward to put in Korea to be able to prove out a greater capability where the THAAD can leverage engage-on-remote on the Patriot radars, which can now – I think – be able to place their launchers over 100 kilometers away from the radar; thus giving you a much greater defended area and much more battle space for the THAAD capability so the THAAD has really done well with, with the testing.

We've seen we continue to test our AEGIS capabilities with SM-3s over the last eight months that transition from the SPY-1 into the AMDR and moving that forward, it's been positive.

We've introduced the F-35 with their capability as a sensor and we just recently had a test validating, I think September 16, that validated their ability to passively pick up a missile launch and transfer that information through a U-2 back down to, to the ground. And this also – I think – was used for the ballistic missile salvo shot so we now have a capability that's being proven out that we can leverage the sensors on the F-35 to help use the best effectors that we can do.

The F-35 also this year, did exercise with the Patriot missile in our IBCS so that they proved that out a little bit as well. Our Patriot units around the world are all now PDB-8, which means they're the latest generation of capability, and the MSE missile, so all of our foreign, forward based Patriots are completely layered now so there's a seamless layer from THAAD all the way down to Patriot. We've had great success in White Sands on IBCS, where we've engaged the longest distance cruise missile that we've done in history with the Sentinel radar using engage-on-remote with the Patriot that just happened last month.

We've seen the electronic jamming of the [drone from the] ship that we did in the Persian Gulf, that we were able to down those Iranian drones. So there has been some really solid movement in the technology build-up that we've been doing. So it's now an opportunity to have really the founder of the MDR with us today, that when he first got in office in January of 2018 and his first decision in the Office of Under Secretary of Defense for Policy, was to stop the Ballistic Missile Defense Review and move on to a much broader Missile Defense Review that captures hypersonic, cruise, and ballistic missiles. So the Under Secretary made that happen, and this January, he was with the President, in the Pentagon on January 17th when the President – with his National Security Council – made the six national policy statements that reflect his position on the change of, really, a change of environment that we were previously just focused on Iran and North Korea, and now we've expanded our capabilities and intent and policy to be able to defend the United States much better than we have in the past.

With that presidential initiatives, the Department of Defense's policy now had to implement those initiatives and they implemented them in the form of the MDR. So the MDR came forward with its implementation of that and in that MDR, there were twelve studies that were done, and we're in the middle of the process, only eight months moving. I think you know a lot of us in Washington measure things on how much money goes toward the problem and that's really not the way to measure missile defense right now, because it's about getting much more efficient at what we're doing and developing new capabilities and bringing the space layer in and doing things better, cheaper, faster, and rapidly deploying those systems.

So it's an exciting time, and certainly, there is some things that were not done or have not been achieved as of yet. There's some things that they're in progress and there's some things that have that have been done, and I want to congratulate you on one of the big things that have been done, which is the increased burden sharing of the allies around the world. So that is the foreign military sales of missile defenses [are] the highest it has ever been. So that's where we're at this morning and it's a great honor to introduce John, our Under Secretary, and I think it's only important that, 2001, 9/11 and we met prior to that, but that was a shift for missile defense. Prior to 2001, we were a Patriot based, division based, air defense capability that moved in an old Cold War concept, and we were abiding by the ABM Treaty, that allow[ed] us to protect just one site, and we canceled that site. So the air attack

[on] 9/11 changed the trajectory, and that changed the policy of our country, with which he was part of in that decision-making process to withdraw from the ABM Treaty, and we have now shifted in that direction. But during that time prepared right after we were focused on Iraq and Afghanistan, and as a cost saver, we eliminated our air defense capabilities from our Army. Now you know after those wars are settling down and finishing up, we now have to readdress getting air defense back into the Army, which we are doing to be able to compete against the near peer threats of Russia and China. So you're seeing another transition that's happening today. I also want to say that the Navy, the United States Navy, is ahead of everybody because the U.S. Navy never took their eye off the ball. Their ball was China, so the AEGIS ship platform is a 360-degree, a layered missile defense capability that goes from the sea, from Sea-RAM all the way up to space. It is the best capability we've got, and it's able to be mobilized, and it can do, launch-on-remote, engage-on-remote because that's what they've focused on. Now we're trying to get the Army into that, and that's where the IBCS is coming from and not going bigger than that. So, ladies and gentlemen, I'm going pass it over to the Under Secretary John Rood. Thanks John.

Rood:

Well thank you Riki for the opportunity to be here today. I have to say it's fantastic to be up here on the hill again. I started my career in the federal government at CIA but then after I'd been there for a little while they sent me on a fellowship here to work for a senator and I worked for Senator John Kyl from Arizona and every time I come up I have very fond memories of those times as a Senate staffer. Now at that time missile defense was a huge political issue, very much a defining political issue in a lot of ways between the parties, still kind of laboring in the hangover of the fight during the Reagan years over Star Wars or successor systems to missile defense and we still were in the ABM Treaty, which prohibited a defense of the United States from long-range missile attack.

So here we are now quite some time since then, I hate to admit how many years, and in the intervening period I had the opportunity to meet Riki Ellison as he was just starting he had the idea for this missile defense advocacy alliance and you should just be so proud Riki of how far the MDAA has come since that time and how many events and state resolutions and impactful activities in the Congress or in other countries that you've done and it's really terrific. I see some a number of friends here from our allies in Europe and in Asia and thank you for coming out.

Now, in terms of what I thought I would cover is talk about where we stand on missile defense and a lot of you know when the administration first began there were a number of major reviews conducted beginning in 2017 things like the construction of a new national defense strategy, a review of our strategic programs such as in the nuclear posture review and then another one as Riki mentioned that we completed at the end of 2018 and rolled out in January of this year was the Missile Defense Review and President Trump came to the Pentagon rolled it out; had the pleasure to be there the couple of key things from this is that first it was called the Missile Defense Review on purpose as Riki mentioned because I really wanted and others to signal that we were moving beyond a period where there was just ballistic missiles that threatened the United States or our allies, but rather other forms of missiles; things like hypersonic missiles cruise missiles and so in the Missile Defense Review, it's purposely titled that way and the coverage in it for what the Defense Department and the US government and indeed what we would love for our allies to do is be more focused on a broader set of missile threat capabilities.

We are strengthening our current missile defenses while moving toward new missile defense concepts and innovative capabilities to address the evolving threats that we face, and I'd say that dynamism in the security environment is really remarkable. I've said this before and I don't think it's an overstatement to say that in my lifetime this is the most complex and dynamic security environment I've ever seen and I'm not alone in that regard; in the sense that a number of other very learning people have pointed that out with longer lifespans than mine, thankfully, but in that dynamic environment the missile threat and the evolving nature of it and the rapidity of the changes to it is noteworthy and it's one of the things that we're focused on as we kind of look across the spectrum at all the types of threats and the challenges that the United States or our allies face, what are some of the ones?

We're going to focus on well missile defense is noteworthy, so this year you saw the president request in his budget request 12 billion dollars for missile defense, that included \$9.4 billion for the Missile Defense Agency and about \$2.5 billion for the US Army and we produced a National Defense Strategy that talked about the reemergence of strategic competition amongst the great powers and talked about the great concern that we have about China's growing ambitions coupled with a desire to challenge the international order and the international rules-based order in a way that poses a threat not only to the United States but to our partners and those that have worked so hard to develop that system. We also see Russia conducting a range of destabilizing activities around the world, a malign influence, things such as interfering in the elections of other parties, political assassinations of opponents using chemical weapons, violation of international arms control agreements and the like. So, we see China and Russia promoting an authoritarian model that challenges freedom that challenges this international rules-based order. We've also seen as Riki talked about Iran with the largest ballistic missile force in the Middle East, they continue to modernize and expand their arsenal. We also see North Korea continuing their missile program of pace including some of the recent launches of shorter-range systems. So, the Missile Defense Review said in order to address this evolving challenge to our security we needed a comprehensive approach and the roles for missile defense are things like the importance of protecting our homeland our forces and our friends and allies that we needed to diminish the value of coercive capabilities, one of the things that we see our adversaries or potential adversaries developing missiles for is in order to exercise a coercive element to their policy.

Having effective missile defenses allows you to address that coercive element and those threats. We are able to assure our partners and our allies of our capabilities in ally and our ability to stand by them with our security commitments. We can preserve freedom of action from military operations and we can hedge against future unanticipated missile threats. A number of key policy priorities shape our missile defense capability and posture and one of the key findings from the Missile Defense Review was that we would size and feel the US missile defense force to stay ahead of the projected missile threats from North Korea and Iran.

Our missile defenses will defend US forces deployed abroad and support the security of allies and partners against the full range of missile threats from any source to include regional threats from countries like Russia and China that will work with allies and partners to help better defend themselves and we're going to pursue new missile defense concepts and advanced technologies including capabilities like spaced based sensors directed-energy and boost phase intercept to address these evolving threat. Now, as we look at the priorities our defense of the U.S. homeland is our highest priority of course and we need a layered defense. U.S. missile defenses for the homeland are designed to defend against an ICBM attack, but our homeland defense could also be used, I should say to defend

against, we also have a homeland defense to defend against other types of threats cruise missile threats and we are developing capabilities in the hypersonic spectrum we're going to of course continue to modernize our nuclear triad and rely on it to deter a Russian and Chinese strategic attack against the homeland or to deter other states who may Harbor such thoughts. The United States today is protected by the GMD system which consists of 44 ground-based interceptors supported by a globally integrated network of sensors and command and control we are taking steps to improve this system you've seen us improve the performance of existing sensors but also deploy new missile tracking and discrimination sensors in both Alaska and Hawaii or feel that we have fielded a new space-based kill assessment capability. These will both enhance the effectiveness of the current GBI force against missile attack. We're also investing in the expansion and modernization of that system one component of that is the deployment is uh of 20 additional ground-based interceptors now there were issues encountered with recent testing of what was called the Redesigned Kill Vehicle in the R&D; phase that led the Defense Department to conclude that the current design would not meet the rigorous standards of performance that we had and so after a detailed review of that program my colleague undersecretary Mike Griffin terminated that program. Instead, in order, to effectively meet future threats the nation DoD has initiated a new effort to develop 2x20 new next-generation interceptors and that includes a new kill vehicle this will lead to a total of 64 interceptors. The MDR of course recognizes that we've got to improve our capability to detect and defend against emerging threats including increasingly sophisticated cruise missile threats to the homeland. In response, we are bolstering our efforts against such threats this includes a phased effort to enhance our ability to warn and defend against air breezing threats and cue our missile defense systems against these threats. Funds for homeland cruise missile defense were included in the president's FY 20 budget request which includes 301 million dollars for what's called the wide area surveillance system to support this effort. Regional missile threats to US forces abroad and allies and partners are growing in scope and scale potential adversaries are developing more sophisticated offensive missile systems with greater speed, range, and accuracy. These offensive missile threats seek to complicate the defense of U.S deployed forces and allies and erode US and allied will to respond, to address that we're focused against strengthening our regional missile defense posture, we're procuring additional Patriot, THAAD, and Aegis interceptors for that purpose. We're fielding mobile and relocatable missile defense capabilities to provide the flexibility to respond to different crises and as Rikki mentioned we're exercising that mobility such as the deployment of THAAD to Romania in an unplanned way to take over for the defense of that area, when we were doing some upgrades to the Aegis Ashore site there. We're improving the integration of regional ballistic and cruise missile defenses with offensive operations because you have to have a link between your offense and defense against respective threats to really be effective and we're trying to take that to the next level and we're enhancing the interoperability and we're feasible the integration of systems that's producing substantial improvements and capabilities through things such as our ability to link THAAD and Patriot capabilities to substantially improve the effectiveness and the coverage of those systems. Now, looking to the future we are investing in new areas and some of our priorities for more advanced capabilities are coming to the fore, where the Missile Defense Review talks about pursuing a range of new capabilities things like additional space based sensors integrating that space-based skill assessment more fully into the ballistic missile defense system. We're going to operate and sustain for instance the space-based tracking and surveillance system. We're developing defenses against hypersonic missiles including near-term sensor and command and control upgrades, I'm pleased to note that Congress has been very supportive in the various marks and the four committees in that area either funding or increasing the

amount of money requested by the administration for the hypersonic threat tracking that we would like to do. We're examining a kinetic boost phase intercept using tactical air platforms now the MDR in addition to new technologies stresses the importance of working with friends and allies and encouraging their invest in their own air and missile defense capabilities; for example we're committed to bringing to full fruition the European phased adaptive approach. Phases one and two of that are complete with ships stationed in Rota Spain in a TPY2 radar deployed in Turkey, we've also deployed the first operational Aegis ashore system in Romania and, as I said, brought it down for some upgrades had the Thad come and cover for its protection and we're in the process of completing in Poland another Aegis Ashore site which should be completed within the year within a year. In the Middle East, we're working with Gulf partners who are acquiring a range of missile defense systems including Pac-3 and THAAD missile defenses. We're also supporting Israel's missile defense program at about 500 million dollars per year. In in the Indo Pacific Japan is perhaps the best example of the strong cooperation we've had where we've co-developed the SM-3 block 2A interceptor with Japan and Japan is planning to deploy two Aegis ashore systems in addition to the numerous Patriot systems Japan has deployed but they also produce under license in Nagoya and elsewhere in Japan. The system let me just give you a few highlights on some of the programmatic advancements we've made one of the follow-on things from the MDR was again hypersonic tracking and we're very pleased that the hypersonic and ballistic tracking sensor system that is part of the DoD space development architecture is something that Congress has been very supportive of and MDAA is moving out very quickly to reach an on-orbit demonstration of this capability. Another area that we took as a follow-on tasks from the Missile Defense Review was to look very seriously about analysis of alternatives and those are an AOA as it's called looks at different systems different particular capabilities and does comparative analysis the Cape or cost analysis cost analysis and program evaluation team in the Pentagon has is just wrapping up the sufficiency review of that analysis of alternatives so you do the analysis of alternatives than an independent group does a sufficiency review to examine, that's expected to be completed in the next two weeks. As I mentioned because of some of the technical issues that were uncovered with the Redesigned Kill Vehicle that program was terminated but we've moved out smartly the Missile Defense Agency has released the next generation interceptor draft RFP they received comments from industry and they're on track to put out a second draft or what we hope will be the final request for proposals in October or next month so that's moving quickly we are positioned I think for near-term responses then from industry and the Missile Defense Agency advises me they'll they're poised to try to rapidly move to award. Now, considering homeland defense is a layered defense we are looking at leveraging the SM-3 block 2A the initial production decision is on track and we have plans for sm-3 to a to be tested against an ICBM next year as I mentioned Aegis Ashore in Poland though the construction has been delayed are we think we're going to be able to complete that construction within a year and then of course Aegis Ashore for Japan that FMS system or Foreign Military Sales contracting system is in place our terrestrial sensor architecture is progressing with the long-range discrimination radar in Alaska and we've received strong support for the Homeland Defense Radar in Hawaii from the Congress. We're continuing support to the Army and as I mentioned employing this dynamic force employment concept through the deployment of THAAD in Romania, but we're also applying dynamic force employment increasingly to more parts of the US military force. There are 38 ballistic missile defense capable ships that are on patrol now, the US Navy operates that's a substantial increase from years past and then I'll close and mentioning in our support for allies we went through a noteworthy test earlier this year with Aero-3, testing for Israel, that was launched from Kodiak Japan where we supported the certification and production decisions. We also

had a THAAD remote launcher tests in the Pacific that helped us validate US forces Korea's JEON or Joint Emerging Operational Needs statement that substantially improves that capability. So, let me just wrap up by saying there's an awful lot going on in the missile defense world right now. We are making significant progress in seeing our missile defense investments and priorities come to greater maturity when you look at the force structure and the Missile Defense Review includes some charts that lay that out from the time I worked in the Congress where we talked about it starting all these programs to now seeing them feel that in substantial numbers that's the growth and capability we really want to continue to see and this will help us strengthen our ability to protect the homeland, enhance deterrence provide stability in crisis situations, and better control escalation, so that we can protect not only Americans but our friends and allies against this growing threat. So, thank you Riki for the chance to come and thank you all for turning out early on a Tuesday morning.

Riki:

Thank you, John that was awesome. What I'd like to do now is if I can John, go with you through those six presidential statements and get a little bit more in depth from your perspective on the success of them or where they're going. So, let's just start off with the first one which is: "We will prioritize the defense of the American people above all else" and with that, which I think, you've already gotten over the new radars and sensors but to review for the 20 additional GBIs. So, if we get a little bit deeper in it and if in fact North Korea continues to increase its production of numbers and Iran possibly gets a capability to strike the United States of America before the next generation killed the next generation GBI comes forward, there has to be some capability that we need to be able to deter or defend our people from and whether that is the under layer which seems more like leakage for the SM-3 Block IIA on Aegis ships or is it a boost phase interceptor or is it possibly a THAAD capability at some point because you've got five of them in the country as it is as we speak or is it a combination now offense/defense to be able to do capability left of launch with that. So, that's that first statement by the president and then the, you know, the movement of the RKV not coming forward and that's a delay causes some concern, I would assume, I believe, from the American public that that first date was pretty critical between now and 2030.

Rood:

Well first of all the prioritization of the defense the American people in the American homeland is our highest priority, remains our policy, and it's something that we talk about very regularly, for instance this is one of the exchanges general O'Shaughnessy our capable NORTHCOM commander and I had yesterday in a meeting where we were talking about how we take that further forward. The defense of the American people is enhanced firstly by noting there is not just ballistic missile threats the United States, we are seeing emerging cruise and hypersonic threats, so the additional emphasis we are placing on those admittedly are earlier stage programs they're less mature than our ballistic missile defense efforts but it is important to get started on those earlier phases and I'm gratified that Congress has been so supportive particularly of hypersonic defense, you know for instance one of the committees in the Senate side has added nearly 250 million dollars to our request for that area so that are funded it at about 250 million dollars which is significantly over our request but in other areas we have continued the construction of a new discrimination radar in Alaska, the long-range discrimination radar, that will provide a substantial improvement in our sensor capability. The Homeland Defense Radar that we are also getting funding for to enhance protection in places like Hawaii the better linkage of the space-based

kill assessment the series of space based sensors we've put in place with the ground-based radars to add all of those capabilities together to in as a whole give you a much better picture of what threats are coming, how well you can track them, increasing your probability of successful intercept, and then determining the results of your defense efforts. We have continued to work through the issues that were uncovered with RKV my colleague Mike Griffin undersecretary for research and engineering takes the lead in that and we're very lucky that you know I'm always amazed when I'm in the Pentagon or elsewhere that we've attracted some remarkable talent to serve our country and they're not doing it for the great pay or a terrific dental program, but in Mike's case a former director of NASA, we couldn't have had a more capable person doing a TED leading a technical review of a system that operates in space and how it will need to operate and some of the issues. So, Mike terminated that program but again we're moving rapidly for a next-generation interceptor. The funding is going to be a part of the President's budget request next year. There is some perturbation to the program but we're moving rapidly through the next phase of that and the Missile Defense Agency is doing that, but the plan is still to mount that defense to increase from 44 ground-based interceptors to 64 ground-based interceptors. We're, in fact, continuing the construction of the silos at Fort Greely Alaska for that purpose to be ready to house those interceptors there will also be as noted in SM-3 2A test next year against an ICBM. So, this will bring an additional class of capabilities assuming the test validates what our analysis and our models tell us to be true, that we can use that capability for defense against an ICBM then I'll give us another capability. The Missile Defense Review talked about adding and combining some existing parts of the US defense arsenal for example the F-35 is a very capable sense system. Those aircraft are being going to be operated they are being operated today by the Air Force Marine Corps and Navy. Those systems then can with their sensors plug in to the ballistic missile defense system and provide additional sensor capability and then I think one of the areas that we have always talked about a missile defense but now that we've gotten to a level of maturity we're starting to get to the phase to implement it more is the important linkage between offense and defense. You never have in any other phase of our military lives offense and defense operating compete completely independently well here when you're talking about being in a potential conflict with significant numbers of missiles being launched your ability to have offensive force is tied in to your defensive capabilities so that you're attributing the attacker while you're also dealing with missiles that have been launched your way and defending against them is very important and it gives you options where you can look at if even before missiles are fired if you're able to locate them on the ground and address them with your offenses this is even more effective it strengthens deterrence and improves the capability of your defenses. So, all of those things combined I think to a very robust commitment that still exists for prioritizing the defense the American people.

Riki:

Thank you, John. This second statement is that we will focus on developing new technology not just investing more money into the existing systems. I think you've talked about the next-generation GBI, you've talked about boost phase intercept capability, you've talked about you haven't talked about developing hyper sonic missile defense capability by then we step back a little bit and look at the whole architecture because when you start talking offensive defense you're also talking about artificial intelligence with the decisions being made being able to coordinate all your new space assets up there into it into a command control environment that you can best efficiently use your best shooters or you defectors with the best sensors so if you can where are we at on the president's second statement?

Rood:

We have come forward with a number of new proposals and I'm pleased that Congress is being supportive of pursuing new defense technologies. One of the ones as I mentioned as we talk about the greater focus on space-based sensor capabilities, not only for ballistic missile defense but for hypersonic defense. The hypersonic and ballistic tracking sensor system or HBTSS, we could use a little work on the marketing that's a little hard to say but that's what the name of the system is. You do see the Congress being very supportive of that and that is something that the Space Development Agency that we've proposed to the Congress and indeed the Space Force that the president has come forward to create a new sixth branch of the United States military focused on space this is the type of work that we want to see that Space Force used operationally and the Space Development Agency rapidly bring to the fore in this particular case that Congress has given the mission to the Missile Defense Agency, which is our legacy agency and that's also very workable MDA has this a substantial amount of experience in these areas, but that defense against hypersonics, using space-based technology, integrating this space-based skill assessment layer. We did come forward to the Congress with other proposals for space-based tracking. That whole area is going to be something where we're spending more time and effort in the space domain because space is a warfighting domain no. There was a time where we hope we had a more hopeful view that that could be preserved as a sanctuary, but frankly we've seen what our adversaries are doing in the space environs and we've got to take steps to treat it as a serious war fighting domain. So, where we are also prioritizing things is in development of directed energy technologies pursuit of boost face technologies and in both the boost phase area as well as in the hypersonics and cruise missile area. If you can't see it, you can't shoot it and so we're placing priority initially on the sensor capability and the ability to port that into the ballistic missile defense system for a strong command and control so that you've got a sensor capability linked with your command and control and then the evolution being utilizing your shooters to close the to close the chain. So, that's just a few of the things we're doing in the new technology area.

Riki:

Thank You, John. The third point, I think you've already addressed this, but I want to say it again to you, "we will protect the American people from all types ballistic, cruise and hypersonic of missile attacks". Is there now an entity that that has that whole all three of them together? Is MDA now that entity that's going to acquire that or we still it looks like we're still split up with MDA ballistic, your services at cruise and new development on the hyper or do you visualize vision that being separate or they all going to come together under one authority or

Rood:

Well the Missile Defense Agency has the mission for ballistic missile defense and then we have also given MDA the executive agent authority or given them the mission for hypersonic defense as well. Cruise missile defense because cruise missiles bear a lot of similarity to aircraft and air defense, air defense has traditionally been the lead responsibility of the military services, the Army, Navy, Air Force and so that's still the case although we are putting more emphasis on integrated ways to look at cruise missile defense, particularly cruise missile defense of the homeland as opposed to deployed forces.

Riki:

And we do have today, in this National Capital Region, a cruise missile defense capability, but looking at those intrusions that we're seeing in the Arctic, in Alaska, that that movement which is not a regional defense capability but is that, are we looking at beefing that up and addressing that that issue?

Rood:

We do have a phased program to expand on the defense of the Capital Region to cover though the other parts of the country the whole country against cruise missiles attack and that that defense is planned to expand in a phased way and then there is a desire to improve our capabilities elsewhere for deployed forces in that area, just because we're seeing the growth that capabilities that other countries have whether it's cruise missiles or the separation between what's called a cruise missile in a UAV or unmet so called unmanned aircraft vehicle is getting very close. In the past UAVs traditionally maintained a person controlling them, but today and in some cases, they're programmed to fly to a certain target which in a lot of ways is very similar, if not the same, as a cruise missile so definitionally that's a little harder.

Riki:

And you know, as you talk about UAVs and cruise missiles, it seems to be very challenging to be able to track them because there's small cross section. And if you're going over the horizon it's very hard to do it with land-based radar so where are we going is that space-based or is it some sort of persistent UAV up in the air or how do you address an over-the-horizon threat that's coming that's small?

Rood:

Smaller stealthier cruise missiles and UASs are a growing challenge and so what Riki's mentioning is ground-based defenses have some inherent limitation there in the sense that, if you think about if you put a sensor if you will here on earth, there's a lot of other things that create clutter in that radar environments so typically we orient them a little bit up and when you take that angle and if you will sort of propagate it outward that creates a certain gap under which the radar is in this area and you can fly if you're the incoming below the radar coverage if you can stay very low and so there's an advantage to having elevated or airborne sensors or space-based sensors can look down that's there's a technical challenge that comes from that and separating the moving aircraft from the clutter of the earth below. I mean one of the things when you're normally looking in the air is there aren't very many things that cause a radar reflection up there and so it's easier to identify the targets then against the background of Earth, but there have been substantial advances in this area so what are we looking at? Both networking and linking ground-based sensors but also this airborne sensor capability for instance I mentioned just linking in the capability provided by the F-35 radar suite which is excellent it's a tremendous advancement the capability of that radar and most importantly the ability to share that sensor to be a node for C2 in the sky and then space-based capabilities as well. So, having a suite of those things that and most importantly the network capability and the ability to do something with the data not just providing warning, but the quality of the data such that a defense can be used by other capabilities other shooters other systems.

Riki:

I'll give a shout out to the Navy on that E3-Hawkeye which does capable does cruise missile defense capability tracking again because the Navy was focused on China they're ahead of the game a little bit but that that is a big as you said a big challenge that we're going to get through. His forth statement is we will recognize you've already dressed this that space is a new war fighting domain with the Space Force leading the way, if you could sort of help us understand the difference between the Space Development Agency and the Missile Defense Agency in terms of their roles and responsibilities because it gets a little confusing on who's got what and what the future is with that and with this architecture space interceptors sensors etc. so I'll pass it on to you on that.

Rood:

Well as Riki mentioned, the president has put forward this vision of a Space Force which be the first new branch of the military since the Air Force was created right after World War Two. Of course prior to that time we had the Army and Navy, in this country, really operating our aircraft, but people like Lieutenant Colonel Gleason, wearing the Air Force uniform, they came into being after World War Two. So, the president recognizing that we're in a new period of time now where space is a war fighting domain and space is just increasingly contested and congested and important to our way of life and we could play a game here almost like six degrees of Kevin Bacon or something about how many things come from space and how many ways can we link everything that we like to space capabilities it's just amazing the role that it plays in our way of life and so befitting that focus the president's come forward this idea for a Space Force. Space Force would be a branch of the service but we've there are some other portions of it that we've also proposed establishing one of which we've gotten strong support and started to establish which is the Space Command and so the way the United States military works is you have a branch of the service which does the mission of organized train-and-equip, they recruit the people, they organize the force, they train them, and they give the equipment to go perform their mission so if you were the Air Force you do that with Airmen and aircraft and the like. The operator of those forces is one of our combatant commanders so for instance in the Middle East it's Central Command and in the same way here space is its own domain so we will have a space command. They will operate the space capabilities that are provided in a focused way because this is a domain above earth, it's defined as a geographic area. So, we have a space command leader and General Raymond who's been named and we're standing up that new command and these will be the people that will operate the space base capabilities. So, you have a trained and organized force that the Space Force will provide, missing portion of course then is developing the capabilities and that's where the proposal for Space Development Agency came forward to more rapidly develop space capabilities to be placed in orbit or to be used here on earth and if you stop and think about it space is a very equipment intensive area and so the ability for you to rapidly develop and deploy capabilities will play a bigger role in space because there's you know me very few humans in space involved in that it's going to be very Hardware intensive. So, we've made a proposal to the Congress and there is right now some overlap in the sense that we didn't have a Space Development Agency before and so the Congress, correctly, asked last year the Missile Defense Agency handled these space based sensors, last year the Missile Defense Agency was doing the development of them and dozens the Missile Defense Agency have a lot of capability in this area and the answer to that is yes and yes, they do, we're starting a new proposal. We'll see whether the Congress fully supports that certainly right now most of the congressional marks provide that space-

based funding and capabilities to our existing organization Missile Defense Agency and obviously that's the way it was last year you could do it that way but we've argued that in favor of a very focused Space Development Agency would be an improvement and the results of that all await the finishing of the bills, which probably will happen this fall here in the Congress.

Riki:

So John, so the space has the ability to link offense and defense together much more than MDA is just a defensive capability that C2BMC is basically defense, so the space development looks like it's a much more broader perspective and leveraging AI and with all the capability that you may get with low-earth orbit satellites that you may be putting up or medium Earth orbit and putting all that together, it just seems that that may be too big for MDA to handle because there are defensive oriented group. Is that one of the reasons why we're going that direction or?

Rood:

Well as you mentioned the space domain and what we want the Space Development Agency to do is much broader than just missile defense. There will be a number of capabilities that we would like to see. Well take for example situational awareness about what's occurring in space that's not strictly speaking missile defense, but we want to know what's going on in that domain and have the ability to track it and monitor it. So that sort of work would be work that Space Development Agency would do. As you mentioned, enabling offensive forces has been something our space-based capabilities have done for some time for example we all get GPS signals on our phones and on our devices GPS is based in space of course and it provides a lot of the precision navigation and timing used by our weapons dropped from aircraft, launched from ships, launched from soldiers on the ground to enable those capabilities that's a space-based enablement of offense that's already occurring, but clearly there's more much more that could be done using the space realm.

Riki:

Thank you. His fifth point, "We will remove bureaucratic obstacles to dramatically speed up the acquisition and deployment of new technology", I want you know Dr. Griffin's been really big on this because he's saying the average time for wrap for deployment is 14 years most of our systems, but it and he draws back in the 1960s and 70s on the fast pace that we did three-year deployments of the U-2 etc. but it's interesting because you're part of it, that President Bush made a decision to operationalize and deploy a ground-based interceptor and you did it in three years is that correct? In 2003 to 2006 yeah or earlier. So, there has been a precedent but we but again what that rapid we've had some technical issues with it, but it did was in place to have some defensive for the United States of America during this time. So, if you can accept that and how you going to be able to speed a 14 year process and maybe not go all the way down to what happened with GBI is to get it more efficient more capable.

Rood:

Well rapidly developing and fielding capabilities it's just very important in this area and the example Riki was mentioning is when the Missile Defense Agency was created in 2001, it was given special authorities special authorities to set requirements and to rapidly develop capabilities in ways that followed the basic processes the department, but allowed you to do it faster without quite all of the number of process steps I guess is the best way to explain it and the results have been very good. Allowed us to

rapidly field the initial system. It allowed us to field successive generations of the system all in significantly less time periods than you've seen elsewhere in the department. Now that's not to say in any high technology engineering effort if you are not encountering any issues, you're not actually doing new things. I mean frankly, having worked for technology companies, even when you try to restart old things you used to do before and you're doing the engineering and testing it's very natural that there are issues along the way so here there have been some programs that have experienced issues we just talked about one that was cancelled due to the performance issues so you can you we have had those but we've had those also in the traditional DoD development system which is longer much more deliberate and doesn't move as fast so I think all in all we're very pleased at that but one you've got to give people a clear mission, you've got to give them clear authorities, and that those authorities have to be a match towards the responsibility area that you're giving them. So, when we talk about removing bureaucratic obstacles we try in the department discussions with participating some just in the last two weeks which we've reviewed the authorities that we vest in the Missile Defense Agency to try to keep those as something that can move quickly and rapidly I mentioned the effort to create the Space Development Agency was similar very rapid capabilities, rapid prototyping, rapid deploying capabilities and authorities within the department, you have to have the right authorities otherwise everything breaks down. There are other rapid development organizations inside the Pentagon that are established, but I think those are the two most critical ones for the missile defense mission.

Riki:

Thank you. In his last point "We will insist on fair burdens sharing with our allies". I think you've broken the record you had 49 proposed FMS sales to 25 countries on that alone which is you know nobody's done that before but let's I mean in Korea's giving 2.2 percent you know 2.23 percent of their GNP to it but let's talk about the struggles we're having with NATO or the challenges were having with NATO that we only have I think six countries contributing at that 2% level and how missile defense which seems to be a pretty politically safe, if you would say, investment by these countries that are certainly going to benefit from this capability, especially what we're seeing with the 360 drone stuff that's coming forward so I mean I think you've done a great job with getting this moving, but there seems to be a still resistance from big countries like Germany and so forth that could add a lot to the game.

Rood:

Well what Riki's mentioning is at NATO the 29 nations that are part of NATO reached an agreement that they would all devote 2 percent of their gross domestic product to defense. Now, as mentioned, we're at about eight of eight countries today that are at the two percent level, but they agreed to be at 2 percent in 2024 not in 2019 and 2024 for so as we project forward to 2024 there's been a lot of towards countries have incredible plans that will allow them to get to that 2% level by 2024 and even some of those that are falling a little bit short of that level have substantially increased spending and so just to cite a couple of statistics when the president took office until today nations have increased defense spending in that first two years of the administration by 41 billion dollars at NATO. They've made commitments over the next two years to increase that level to a hundred billion dollars at NATO versus when the president took office. That's real money for real capabilities there's a another component of this spending which is 20% of your defense spending or more needs to be devoted to procuring new capabilities and so that's the other part that goes with this that it's not just spending in general, but it's spending on capability improvements and NATO has set certain capability targets in a variety of areas

and the Alliance is doing better at each and every one of those not in not in making progress on every metric but overall the trend is excellent on those specific metrics to see the improvement and improvement in readiness - we have an initiative called the 430's which is to have within 30 days 30 combat air squadrons, 30 surface combatants, and 30 mechanized infantry battalions all ready for deployment at NATO and we've made substantial progress towards having that become a reality. So, it's real capabilities real money towards real readiness.

Riki:

Ok, can you just briefly talk about Intelligence Sharing or it seems to be the common and it's also the biggest challenge for my GCC to NATO and across between Japan and Korea and where we have to go to be able to fight all together the same at the same team at the same time and that's a lot of disclosure issues that are there with it as well but how do you how do you is it the architecture how do you start us with a problem like that and how we working because we're never going to fight by ourselves we got to fight with our friends.

Rood:

We are going to fight in a coalition. It's one of the core strengths of America's way of conducting itself in its foreign policy and our way of war if you will is the strength of this coalition warfare and there are difficulties in doing that and Riki mentioned one of them which is nations all have their own ways of gathering intelligence and sensitivities about revealing the sources and especially across broad coalition's, but also then the ability to not just simply take pieces of paper and read them, but data to be shared amongst sensors and others things more quickly requires a degree of integration in those areas and different countries have different suppliers and companies and technical approaches there's not always the same standards. So, one of the magic points of NATO has been interoperability in common standards common ways so that you literally can have 29 countries show up and plug right in I mean I remember one of the overseas trips I was coming back from we stopped to refuel in Iceland and naturally there was a NATO exercise ongoing and spent some time with the different NATO nations and their militaries there. So, the first place he went to is an Icelandic aircraft shelter and there's an Italian Air Squadron in there and naturally I'm teasing these Italian guys about being in the cold arctic and having Montblanc pens and so on in their air flight suits, but all the Italian equipment all plugged in all working very seamlessly with the Icelandic capabilities and they went to fly with the Truman Carrier battle group from the United States it's nearby all the standards all the data protocols all the command signals everything working flawlessly in fact then go to another part of the island Iceland you've got nearly 20 countries doing explosive ordnance disablement exercises again. All these different countries all these different approaches you look at the equipment in the room it's all very different made by different manufacturers, but they can all get it to work together they can't speak the same language but they all know the right commands processes procedures that all these countries to work as a team an, integrated team, and this is without any advanced preparation this is showing up with many years of hard work data protocols, interoperability training exercising standards where you now have this most successful military alliance in history actually able to pass data fly work operate successfully those are the kind of things that you have to do in advance and some of that requires these tedious legal agreements and understandings and ratifications by Parliament's and all of those things to put in place the foundation, but you have to have all that well in advance of the fight. If you're trying to do things at the last minute this is not going to work this is a very exacting science and the toll is paid in lives so you

must do this in advance and you have to have a commitment to making all those things work you know months and years ideally in advance.

Riki:

Thank you, John. That covers the six points by the president. I think you're doing great progress man. Going through this um I would like to open up the room for about five minutes or so for questions if anybody has any questions of the undersecretary please, we got a microphone and Richard if you could just pass that over to him.

Justin Doubleday (Inside Defense):

Hey sir, Justin Doubleday with Inside Defense. I just wanted to ask he talked about space and space-based sensing. The Missile Defense Review mentioned the potential for space-based intercept and how you guys would be studying that, I wanted to just ask about the results of that study and will DoD pursue development deployment of space-based interceptors here in the near term

Rood:

Well as the Missile Defense Review talked about, it talked about looking at space both for sensing capability improvements as well as potentially for interceptors and it been quite some number of years and since that had been studied in a significant way. So, we have in fact been doing that analysis. The results show that there's been a substantial improvement in the technology and a lot of changes over the years since this was last studied effectively I think we're getting the to the phase beyond feasibility to looking at things like cost-effectiveness and alternative solutions and so no decisions made yet we're still in the phase of studying it and analyzing what the possibilities are but it's one of the areas that we're discussing right now. *[inaudible question asked]* We'll have at least a decision what if any money to include in that budget request by that time which obviously if you back that up then you need to make some decisions on whether you want to proceed with a program in that area and what that might look like but that's all pre-decisional at this phase.

Tony Kim (Voice America Korean Service):

Ah, my name is Tony Kim from Voice America Korean Service. I have question you mentioned about the effects and linkage between offense and defense and regarding North Korea recently they are really developing on solid propelled missile which is very difficult to have time enough time to detect. Now, how are you addressing the offense side on this issue and second is on July the United States Force Korea announced that they are having a common research with the South Korean government on the direct energy field how are you like sharing with developing with this capability with the allies? thank you.

Rood:

On the linkage between offense and defense and some of what you mentioned is that certainly having the capability to detect quickly offensive missiles after launched and solid propellant missiles are one of the things that we've architected for and have capabilities to sense and track throughout their flight, obviously having that capability to warn of it both for use of the missile defense system to defend against it, but also to share that information rapidly with the offense in a closer linkage between for

instance if you were executing a missile defense from an Aegis ship they have both onboard the capability on those 38 ships I mentioned to do missile defense, but at the same time without reconfiguration the ship is also armed with a great deal of offensive armament that it can place and so what the sensing of that capability tells you is also the origin of where the missile is lifting off and coming towards you and so having the ability to link both executing a defense of that capability providing offense against the attacker and then sharing that across a network with other aircraft with other ground-based systems so that you can have an integrated offense defense situation is ideal depending on what phase of the conflict you're in is this the first day of a conflict are you on day ten and there have been a number of exchanges can make a big difference in how the force will comport itself, but certainly that that capability to have offense and defense apply together is very important but as a minimum thinking of missile defense you still you're never going to have the point where offenses replace defenses. I mean you need to have both, and defensive capabilities provide a stabilizing effect as well. It says to an attacker even if you were to launch first even if you were to preemptively strike us we have the capacity to deal with that defense and to deter that attack therefore that they face retaliation in and have not accomplished the aims of their attack that's stabilizing and in a crisis where people and militaries often posture to threaten each other having the ability to have an effective defense gives you other options for instance with North Korea, it's given us time for diplomacy it's created space and efforts where we don't have to react by posturing the offensive force at the hair-trigger, we don't have to reposition forces, it gives us time and space for stabilizing effects and for pursuit of diplomacy.

Riki:

I would add that you've got you have F-35 you getting 40 of those and that is a fifth-generation Air penetration that North Korea cannot stop and consents and can deliver both offense of capability, so you have a weapon that's yours that can definitely have an effect.

[inaudible statement]

Rood:

Oh, we are pursuing directed energy research and development efforts in the United States, it's a significant focus for us. The efforts haven't matured enough to where we have really much in the way of International Programs, but certainly while that isn't an area, I personally lead I can see us evolving to that stage at some point in the future. she wanted to ask a question.

Renata Janney (TV Asahi):

Thank you very much, I'm Renata Janney with a TV Asahi it's a Japanese TV station. So, with the Saudi Aramco strike this past weekend does that strike sort of changed the calculus for missile defense in the Middle East in that region and I know you're probably going to be in the meeting today with the Bahraini Crown Prince with Bahrain or Saudi Arabia or any of the countries in the Middle East will you be encouraging them to consider looking at acquiring more counter drone missile capabilities thank you.

Rood:

Well the I would say just globally we've seen a growth in capabilities for cruise missiles and UAVs or unmanned aerial vehicles. It's a little bit of a misnomer to describe these by the ways unmanned in the sense that people still control them people still launch them it's not as though they're you know

autonomous in their operation, but nonetheless those kinds of threats we see in many regions of the world growing and that has been an area that we're prioritizing more not only in the Missile Defense Review for things like cruise missiles, but separately in the department we are talking a lot more about countering these UAV threats and how we can we've deployed many systems in recent years and there's a variety of systems as you know everything from quadcopters to very large essentially aircraft that would fit in the size of this room that are in operation and so I think we we've recognized that that's a substantial and growing threat. We are giving more time and attention to it and it measured in dollars spending additional funding in the department and then we put together a task force that our undersecretary for acquisition and sustainment, Ellen Lord, has been leading with the different military services as a matter of fact we had a discussion yesterday in the Pentagon with the Secretary of Defense about our progress in that regard. So, I think the short answer your question is we've already recognized we're in a different situation in that threat area we're trying to rapidly come up to speed where we've put a lot of time and effort and money into this we're not where we would like to be and so we're trying to take our efforts to the next level if you will inside the department sure and one more it'd be great.

Mihaly (RIA Novosti):

Thank you, my name is, Mihaly OG if I am with the Russian news agency RIA Novosti. You probably heard that Turkey and Russia are now discussing possible purchased by Ankara Russian fighter jets su-35 and as you 57 the newest ones so keeping in mind the situation with S/400 what do you think about that possible purchase by Turkey how can it affect us Turkey military cooperation or anything else thank you.

Rood:

Sure, well Turkey's a long-standing ally of the United States and a member in good standing in NATO we have very regular conversations with them for instance I stay in regular contact with my counterpart there in Ankara. So, it's an area where our defense establishments have a lot of years of history together including in our air forces and so my initial reaction is, I'm aware of some of those reports. Obviously we're very proud of the U.S. systems that we develop and operate in this country and that's where we would encourage our Turkish partners to head is in favor of American produced equipment that comes with the interoperability we like and so that's where we encourage them to go but obviously Turkey is a sovereign country they make decisions for themselves but we stand ready to partner with them in this regard. Well thank you very much everyone.

Riki:

Thanks John. Great for you to sacrifice your time to come out here and I thought it was great being able to go through each of the of the six presidential guidelines for missile defense. Excited for you. You know our organization is built solely to educate and advocate for most missile defense we are for the deployment and evolution of missile offense globally we believe it makes the world safer place and is making the world safer place we are safer today with our missile defense capabilities and the more of this we can do the safer this world is going to be. I'm head and we're heading out to the GCC this week to host our 55th defender of the year event, where we've recognized 647 missile defense champions from 18 countries, so this continues that and we'll be in our 568th base visit on missile defense site so I'm catching up to you

Rood:

I think a little bit ahead of me

Riki:

It was great it was also cool because we also were able to cast John and the MDA director right after the MDR announcement, so we're now caught up to date today with where we're at in the gaps and what's been done since then. So, thank you very much for joining us this morning. Thank you.

Rood:

Thank you

[Applause]