Ken Peterman, President of Government Systems at Viasat

GMC
Q&A

Adapt and integrate new technologies ● ●

Viasat is a provider of high-speed satellite broadband and secure networking systems delivering services to both military and commercial verticals. The company has been working closely with western militaries to modernise infrastructure and to embrace new solutions. Ken Peterman, President of Government Systems at Viasat, discusses new technologies currently in the works.

Laurence Russell, News and Social Media Editor, Global Military Communications

GMC: Before addressing solutions and goals, could you substantiate the concurrent challenges around technology in the defence sector?

Ken Peterman: This is something I can say connects to my 40 years in the defence sector. The first two decades of which, when I was working as an engineer, was a particularly exciting time. We were inventing solutions that'd never existed before: GPS, blue force tracking, mobile networking, satcom, cybersecurity, and so on. These weren't new iterations of existing technology; they were entirely new. The UK and US defence forces trailblazed these together to improve mission effectiveness and personnel safety.

In the second twenty years of my career, we started to see the private sector begin to embrace these technologies to keep them effective, investing faster and with greater agility than federal groups were. We saw mobile networking, cloud technologies, artificial intelligence, and vastly more powerful military satcom. Technology got smaller, lighter, and more efficient, and networks richer and more wide-ranging.

I think the challenge is for our acquisition process to adapt with the times and integrate new technologies, which are advancing faster than we've ever seen before. We used to invent all our tools in house, but the start-up mentality has

● ● *Photo courtesy of Viasat*

2019 STATE OF MILITARY COMMUNICATIONS SURVEY HIGHLIGHTS

COMMISSIONED BY VIASAT AND GOVERNMENT BUSINESS COUNCIL

OVER TWO-THIRDS
OF RESPONDENTS

said they expect the same level of connectivity and access to trusted and timely information on the battlefield as they receive in the civilian world.

#NATIONALASSET   Viasat

Image courtesy of Viasat

2019 STATE OF MILITARY COMMUNICATIONS SURVEY HIGHLIGHTS

COMMISSIONED BY VIASAT AND GOVERNMENT BUSINESS COUNCIL

81%
OF RESPONDENTS

agree that it's critical for U.S. Military forces to have access to a modernized end-to-end satellite and terrestrial network that will enable ubiquitous, secure, resilient, and high-speed connectivity in order to make cloud-enabled technologies and the internet of battlefield things (iobt) a reality.

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Image courtesy of Viasat

2019 STATE OF MILITARY COMMUNICATIONS SURVEY HIGHLIGHTS

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OVER 60%
OF RESPONDENTS

agree cloud-enabled technologies will play an increasingly significant role in enhancing the U.S. military's decision making capabilities.

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changed that. We have to learn to go to innovative providers to assess, adopt, and evolve the kinds of solutions they offer. This allows for a new approach to development where we have a much greater plurality and agility, with a wide market of options to choose from and that we can rapidly switch between.

There's a certain culture to this modality that we're still embracing, which may have led to some oversights. I believe we've seen our men and women in uniform move from the cutting edge to starting to fall behind in terms of some of the technologies they have deployed. Whether that's because others are moving faster, or we've started to stumble, is another conversation, but Viasat is aware of the ways we could more quickly move our forces forward which we're working to incorporate better.

GMC: What can younger, digital-native personnel offer compared to the expertise of prior generations?
Ken Peterman: We have an enormous opportunity in countries like the UK to gain a human advantage, because our young people are growing up in a connected world. Children of very young ages are coming online the minute they wake up. Talking to friends, hearing news, or consuming media. They leverage connectivity every day, moment to moment, on an almost cognitive level.

Their real time decisions are informed by data. When they go to lunch, they're not wondering what'll be on the menu, because they've already looked it up hours before. When they go somewhere new, they've already seen the route and street-viewed the area. This is made possible by incredible technologies that we wouldn't have thought possible twenty years before but are now practically taken for granted.

Everyday consumer applications have allowed young people to reflexively stay two steps ahead of their day. Viasat is already working closely with leading cloud-technology providers to deliver these same AI and machine learning capabilities to enlisted forces so they can stay two ahead of their objectives. We want the kind of technical agility they've come to expect to be ready and waiting for them in the defence sector.

Military satellites and other emergent technologies can stay ahead of threat profiles, facial recognition, and routing. Many of these applications are the same kinds of solutions they're already used to in a consumer space that have been optimised for tactical purposes.

Perhaps most relevant are the machine learning technologies predicting our movements and making decisions to assist our commute to work. Imagine how powerful a smart system like that could be if optimised for everchanging, high risk parameters, networked across any number of allied persons.

With this kind of real time intelligence, we couldn't only expect a warfighter to gain efficiency, we could also greatly minimise civilian injuries and casualties, which are most often caused by intelligence not recent enough to perfectly inform a strike.

I don't think it's merely our job to bring those technologies into force, but rather our obligation. Our military, and the technical, conscientious personnel serving in it should not be deprived of the razor-sharp systems that they can so naturally interface with. That's why Viasat is so passionate about adapting those innovations for tactical applications. There is a degree of effectiveness and precaution that we're currently missing out on, and we have to do everything we can to close that gap.

GMC: You've observed that a MV-22 Osprey aircraft has less data connectivity than a low-cost home broadband connection. How does this shortcoming affect capability?
Ken Peterman: This is one of the things creating significant growth for us here at Viasat. We have about 6,000 employees, 3,000 of which are engineers and 1,000 of which are veterans. I have a story about one of them quite pertinent to this; we had a former marine with us who we sent on a business trip. On the flight, he had access to Viasat connectivity which offered a broadband connection comparable to the kind you'd be able to get in a home office.

This young marine found that simple connection quite astounding, because he'd never seen anything like it while serving on an MV22 aircraft. He saw a young child streaming cartoons in the seat behind him, and it made him proud to have contributed to bringing a service like that to the public. He called

a meeting when he landed and spoke to us to ask why it had been so simple to deliver reliable connections to everyone on board a commercial flight, including young children, when servicemen had no such thing.

He spoke about times during his service when he and his team had been in the air for up to three hours at a time moving into a potentially hostile situation without any real connectivity, and he shared that those were some of the most terrifying moments of his career. He had been waiting for hours, without access to any new information, with nothing but the dread that the situation he'd been briefed about could have completely changed. Threat profiles could have updated, civilians or friendly units could have moved into the area, there's no end to the possibilities he couldn't verify. An awful lot can change in military terms over just three hours.

If a few meetings, a contract and a quick hardware upgrade was what it took to set up a commercial airliner to connect every single passenger, what's stopping us doing the same for our servicemen whose job it is to maintain peace on our planet?

And our engineers and designers responded, "well, we can!" So, we started working more closely with Air Force Special Operations Command (AFSOC) who helped us upgrade four different models of deployed aircraft, which ran missions in the middle east, and within a very short window, we'd seen dramatic reports of the value those refits has driven. Servicemen were live-streaming ISR video and up to the minute news or contacting any number of networked personnel around them. Telemedicine was leveraged in the case of injuries, so medics or even doctors across continents could be made aware of a case of trauma and advise nearby personnel on the best possible course of action.

This happened to break ground and got some powerful military decision makers talking. The exact scale of that movement is a bit too vast to quote specific numbers on, but Viasat has found itself on a very steady path on integrating connectivity to new fleets.

We fit A-kits for permanent connectivity, and fit B-kits for more interchangeable solutions which can be rolled on to or off of aircraft fairly quickly.

These are affordable, rapid refits borne out of capabilities from the private sector. Defence groups don't have to reinvent the technology or develop it, they just adopt and adapt an existing solution and get it running to their specifications.

The Institute for Defense Analyses (IDA) did a study that revealed that it takes about 8-14 years for internal defence entities to move from a validated requirement to an instance in which the solution to that problem is issued to an active servicemen who is able to actually use it in the field. That amount of time spans perhaps four technological generations in our modern world. With those kinds of limitations, your equipment is bound to roll out behind the curve.

These are some of the reasons why we so strongly believe the existing culture needs to be transformed to better accommodate the innovation and agility of the private sector.

GMC: What new trends, technological or otherwise do you foresee millennial and gen Z personnel trailblazing in the years ahead?
Ken Peterman: I think that once we establish assured connectivity at the tactical edge, as we're doing with mobile networking, satellite applications, and cybersecurity, we're going to start to see two channels in which young personnel thrive. The first is the one I've been illustrating, bringing high-spec, disruptive private sector technologies to defence networks. The raw applications of the innovations themselves.

The second possibility is in the unforeseen applications not advertised by companies, but more actively discovered in the field. Methods of hybridising separate applications to gain advantages we can't quite imagine yet, trailblazed by those who understand the technology reflexively enough that unforeseen, symbiotic tactics start to emerge. We're talking about defence specific developments driven by military arms themselves irrespective of a commercial utility, pioneered by digital native personnel, both active and technical, who possess intimate understanding of them and the requirements of their objectives.

When some of the most successful apps we use today were launched, they were solutions no one could have predicted would exist five years previously. Those were truly disruptive inventions, so much so they left the industry stunned and struggling to keep up.

Just to name one possibility; what if every serviceman wore a body monitor? Command could use that data to tell when a soldier needed support without them needing to be stable enough to radio for such a request. The power of this sort of ubiquitous connectivity can be rather alarming, and that's simply with the cases we can imagine.

The possibilities are seemingly endless and present a new frontier that we can certainly expect to result in fundamentally safer, more responsible, and more effective defence forces worldwide. **GMC**

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