Stanford eCorner

GPS, the Net and Stealth in One Swoop

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May 18, 2016

In conversation with entrepreneurship educator Steve Blank, former U.S. Secretary of Defense William Perry discusses the three revolutionary technologies developed for the military during his first four years in Washington as undersecretary for research and engineering: GPS for guiding missiles, stealth aircrafts and the early network that would later become the Internet.

Transcript

- This really gets back to what you observed when you did ESL, that computers were not just a better version of X; that it was a disruption, a offset about back then direction finding another intelligence systems, and now you had a national stage, to kind of play this out on. What technologies did you see and choose, and why and you know, we talk about censors, and stealth, and precision weapons. Were those already ongoing? Did you select them? How did you invest? What did the status quo think? This must have been a heck of a time. - It took us about, took me about three months to come up with what the offset strategy would be, I mean, it's one thing to say, - That's it? - we're going to use technology, - Three months? - But the question is how, how, how we are going to use it. One of the things we decided right off, is we, is we had to make our weapons smart. What do we mean by that? Well, during World War II, and during the Korean War, when we dropped bombs and fired artillery shells, we never knew exactly where the target was, and so we had to drop 20 or 30 bombs, and we couldn't guide them accurately. So, we had to drop 20 or 30 bombs for every target. And so we thought what we wanted was one bomb, one target, which would make a huge difference, not just in the actual work, but in the logistics tail of it, detailed with it, so smart weapons is one part of it, and the technology that was available then led us to focus primarily on laser-guided bombs. So we built tens of thousands of laser, we developed and then built tens of thousands of laser-guided bombs, which was still today a major fact, complement of our weapons. We needed to have a way of guiding things accurately, and the laser turned out to be that.

We also had to have a better way of knowing where we were when we fired. If we were in an airplane. So we thought we'd better have a way of accurately positioning, so we decided develop a global positioning system, which is what we call GPS today, and of course, everybody uses it in an automobile or in a handheld navigator today. At the time, I wasn't thinking about the commercial applications of it, but the military applications of it. - You weren't thinking about Yelp and GPS at that time? - So we developed GPS at that time, and if you use that in your car, then you have me to thank for that. (laughing) - We, ah, also developed something called DARPANET, which later became the Internet. - Wow. - And, all of that was pretty straightforward, and obvious applications of things we had been doing. No great leap forward in imagination, just leap forward technically. What was a leap forward in imagination, was building us airplane that could not be detected by radars.

Airplanes, a key component in military warfare have been since World War II, and because they're so key, every country has developed systems for shooting them down, that involve radars, and missiles to fire at them. So surface-to-air missiles, which are guided by radars. So we wanted to develop an airplane that could not be detected by radars, and therefore they could not be shot down by missiles. And that was became what we call a stealth, it's not stealth in a sense you couldn't see it, if the F-117 to be two floor, why would you look up to it? It be quite obvious to you, but the radars couldn't detect it, and so they had complete impunity at nighttime. They could operate at night without. So the stealth was a third component of the, those were the three major components, but we decided in the first three months. And then pulled out all of our throttles and moved

forward. I wanted to have them done by the end of, I didn't want to stay more than one term in government, so I wanted to have them done in the four-year period. Indeed, we had the first stealth airplane flying, just before I left office in four years later, which is pretty unusual. - You don't get the paperwork then usually - No.

- in four years in government. (laughing)