

# Cyber Breaching

by Jonathan Bratten

Combat Engineer Operations in a Cyber World

They say that battles are planned by generals but won by lieutenants and sergeants. This ran through Lieutenant Nicole Hafford's head as she heard her squad leader ask over the radio, "Ma'am, what's the plan?"

A kilometer away, Staff Sergeant Justin Albertson glanced back at his squad of sappers taking cover in a gully that provided cover from the periodic strafing of the enemy's autonomous sentry guns to their front. He checked the heads-up display (HUD) attached to his helmet to see if his voice message went through to Lieutenant Hafford. The display showed comms as GREEN, and a few seconds later he heard his lieutenant's voice in his ear via their secure comms link.

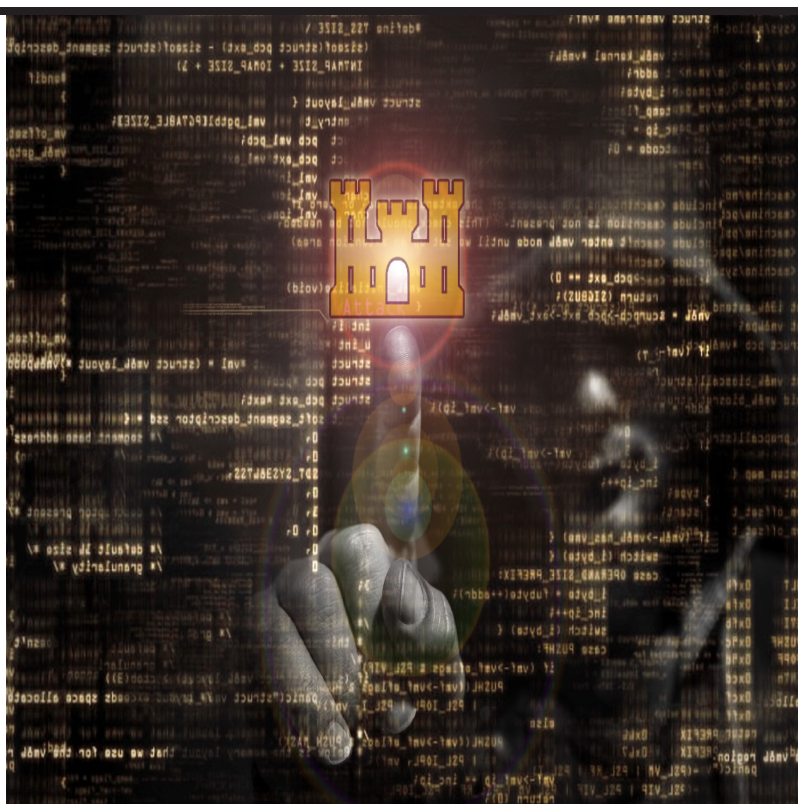
"We've got one anti-armor obstacle to our front, about fifty meters across, and anchored into some pretty nasty rock outcroppings in the valley. It's flanked by two guns which sound like they're at least .50 cal," crackled Lieutenant Hafford's voice over the periodic thumping of the enemy guns. "No personnel visible, doesn't mean they don't have drone over-watch or live feed of this area."

"Roger, ma'am," replied Albertson. "We've got the explosive breaching assets here, but we're going to need to take out those—" His transmission cut off; his HUD went completely black.

"Hacked!" he exclaimed. "Sergeant Wise, you got comms?" In the gully behind him, Sergeant Wise shook her head followed by the rest of the sappers. The whole squad was down. Albertson gritted his teeth; modern warfare sure wasn't all it was cracked up to be.

The platoon was forward of their company and spearheading a brigade-sized, armored push against the enemy's front. This in turn would relieve pressure on the main Coalition force attempting to wrestle Istanbul from the Russian forces holding it since 2028, over ten years ago. This new armored strike through Serbia aimed at the relatively undefended Russian defenses in Romania, where an assault force could then push straight through to the Black Sea and cut the Russian lines of supply and communication. If this breach proved successful, the brigade planned to be plussed up to division strength to open a new front.

But their brigade couldn't do that because intel hadn't noticed this part of Serbia was one giant obstacle. And boy



did it have overwatch. Intelligence had correctly predicted that they would see no ground forces in the area; what they hadn't counted on was the sophisticated area defense that the Russians had erected, with autonomous weapons systems and drone swarms providing overwatch. As if that wasn't bad enough, hackers hundreds of miles away had continuously struck Coalition communications and targeting systems, causing no end of trouble.

The squad had been subsisting on half an MRE a day for almost two weeks. Enemy forces had diverted one of the self-driving LOGPACs into a nearby river. This and the current comms outage had just been more examples of enemy cyber fires.

Albertson glanced at his watch, an analog, a gift from his father: 0410. *H-hour is 0500*, he thought bleakly. They had to move fast.

One kilometer away, Lieutenant Hafford worked on a fix. *This, she thought, was not what grandpa talked about when he told stories of being a sapper in Iraq and Afghanistan.*

She joined the Army despite the protests of her vehemently anti-war father. Being the first female in her family to join the military—into a combat role, no less—was a matter of pride to her. Even though combat roles opened to women decades ago, she still felt the intense pressure to succeed. Now, comms failed, H-hour approached, and they sat strafed by enemy guns. She felt the same panic in her gut she felt in ROTC training exercises.

She closed her eyes and took a breath. *You've got time*, she told herself. *This is why you joined the engineers: to solve problems.*

Hefting her rifle, she clambered down a low creek bed where she and her squad sheltered. Leaves and branches fell overhead as the enemy's sensors occasionally caught movement or heat signatures and unleashed a fusillade of fire. She moved past a heavy weapons squad borrowed from the local infantry company and nodded to the squad leader from a sapper squad she had on loan from 1st Platoon before she arrived at the location of her support-by-fire squad. This squad had two teams: one provided direct kinetic fire while the other provided direct cyber support to break enemy cyber obstacles. Hafford grabbed the shoulder of her cyber sapper team leader Sergeant Jones.

"Jones, I need comms back online," she said.

"Roger, ma'am, already working on finding the node of the network attack," said Jones. He nodded to two sappers typing away at portable laptops connected to small manpack servers they carried. This type of platform would be doomed against a larger enemy force, but was perfect for low-level operations such as this. After a few minutes, comms came back online.

"Just a simple denial of access attack," explained Jones. "Suppressive fire from the enemy, so to speak. We're all set."

"Nice work, Sergeant," said Hafford. "I guess they know we're here."

"Yes, ma'am," Jones replied, "but they don't know how many of us there are or what we're doing."

Coalition made elaborate efforts to conceal operations through brigade cyber and scout assets.

Lieutenant Hafford checked her handheld device for any updates from the company. Six missed messages via the blue force tracker (BFT), all from her commander: all asking if they were in place to breach. She sighed. "Temporary halt due to enemy fire taking comms down," she typed, pausing only briefly to consider that she had referred to a cyber attack as enemy fire. "Moving up now."

"Albertson, you read me?" she queried. Brief pause.

"Lima charlie, ma'am."

"Roger." She cued her HUD so she could communicate with the whole platoon. "We've got to assume we've been compromised," she said. "But that obstacle has got to come down."

*Attack the enemy's obstacles and deny their intent*, she heard her officer basic course instructor in her head as she briefed. *But I assumed there would actually BE an enemy in sight, not some vague enemy that can kill you from another continent.*

“SSG Albertson, you will announce breach clear by voice, HUD, and visual signal,” she said, concluding the mission brief.

“Star clusters, ma’am?” grinned Albertson. It had been a joke when he had packed some old green star clusters in his kit when they deployed. With the recent failures of their high-tech equipment, his flares, protractors, compasses, and maps had already gotten them out of quite a few predicaments. As had Hafford’s quick adaptation to changing situations.

“Green star clusters it is,” agreed Hafford. She too smiled.

It was a weird war, stranger than anything she could have ever predicted after commissioning through ROTC a year and a half ago. A blend of the old and the new.

“Let’s get at it, sappers,” she said. “Out.”

The platoon huddled down behind their cover, rounds from the enemy’s guns passed over their heads as the sensors detected human movement. At 0445, the cyber team began their support by fire in an effort to halt the two enemy guns by taking them offline. Heads down and furiously typing away, the two sappers began their assault. Nearby, the infantry grunts waited, poised to move into their overwatch position as soon as the guns were down. Once, they called the cyber sappers nerds--not anymore. The team’s cyber capabilities saved them from death multiple times in this campaign.

Hafford waited just below the crest of the creek bed. She went through this scenario dozens of times in her head. *I’ve got to trust my troops, she thought. I’ve got to trust my equipment. I’ve got to trust myself.*

0445. Enemy guns still fired.

0448. Still firing.

0450. Still firing. Hafford began to sweat, thinking of the masses of main battle tanks sitting behind them, masked by screening cyber cav scouts that prevented enemy ISR (intelligence, surveillance, and reconnaissance) assets from detecting their position. The guns shredded the trees overhead into splinters. Rocks and dirt splashed up in her face as the sensors detected her slight shift upwards to try to get a visual on the objective. Dropping down, she cursed these robotic enemies that seemed more fearsome than human adversaries.

*My God, if this doesn’t work, a whole brigade is going to be a sitting duck out here in the middle of nowhere and it will be my fault, she thought.*

Then the guns stopped.

Hafford glanced back. Sergeant Jones gave her a thumbs up.

Now it was a matter of trusting that their cyber suppressive fire would hold long enough. She heard the infantry move out, leaves rustling and boots scraping as they moved their heavy weapons into position and got a clear line of site to the far side of the obstacle.

“SET.” The signal showed on her HUD.

Albertson saw it as well. He motioned to the squad’s grenadier to fire an airburst 30mm pulse grenade over the target. If mines were present, the pulse would either short the fuse or cause them to detonate, depending on their age. The grenadier paused to ensure her XM25 counter defilade target engagement system was programmed for proper distance and munition, then poked the barrel over the lip of the gully and fired.

The round sailed over the objective and detonated, emitting its electromagnetic pulse. As the squad tried to get even lower into the earth, a series of explosions tore the earth in front of them, leading all the way up and into the series of crossed metal pylons between that had been driven into the earth to form the anti-tank obstacle that was their objective.

Albertson gauged the obstacle from a distance, and calculated what he thought was the best explosive charge needed. He entered the calculations into the LGDEC’s (Linear Ground Deployed Explosive Charge: twice the power of a MICLIC in a manpack) fire controls, checked the line of sight to the target, switched the control to

ARM, and motioned the rest of the squad back. He alone would stay during the breach, and he alone would proof it.

He checked his watch. 0455. Time to go.

“Stand by for breach,” he radioed to his platoon leader.

“Breach confirmed,” she replied. Everyone got low. Especially Albertson.

“Fire in the hole!” he muttered into the dirt. The line charge shot up and out of the LGDEC, guided by pre-plotted laser guidance to GPS coordinates. In a deafening roar, the obstacle vanished in clouds of smoke, fire, debris, and shattered steel as Albertson felt the overpressure from the blast wash over him. He waited for the shock wave to pass and the debris to fall, and then jumped up and sprinted through the smoke. Engaging the thermal vision on his HUD as he ran, he saw the glowing hot chunks of metal marking the base of the pylons were all that remained of the obstacle. He smiled, breathing in the smell of the blast. I love being a sapper, he thought, as he fired off a green star cluster.

BREACH CLEAR flashed green over Hafford’s HUD as she heard the pop of the flair. She breathed a sigh of relief and hammered out, “Breach clear, moving into security,” on her BFT to her commander.

“Nice work, LT,” came back the reply.

Hafford slowly got to her feet, heart hammering, as the ground began to shake with the thunder of the oncoming armor.