Disconnect the Dots

Maybe We Can't Cut Off Terror's Head, but We Can Take Out Its Nodes

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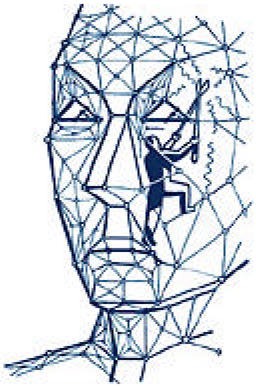
The essence of this first war of the 21st century is that it's not like the old ones.

That's why, as $40 billion is voted for the new war on terrorism, 35,000 reservists are called up and two aircraft carrier battle groups hover near Afghanistan, some warriors and analysts have questions:



The essence of this first war of the 21st century is that it's not like the old ones. (David Suter - for The Washington Post)

In the Information Age, they ask, how do you attack, degrade or destroy a small, shadowy, globally distributed, stateless network of intensely loyal partisans with few fixed assets or addresses?

If bombers are not the right hammer for this nail, what is?

Bombers worked well in wars in which one Industrial Age military threw steel at another. World War II, for instance, was a matchup of roughly symmetrical forces.

This is not true today.

That's why people who think about these things call this new conflict "asymmetric warfare." The terrorist side is different: different organization, different methods of attack -- and of defense.

"It takes a tank to fight a tank. It takes a network to fight a network," says John Arquilla, senior consultant to the international security group Rand and co-author of the forthcoming "Networks and Netwars: The Future of Terror, Crime and Militancy."

He asks: "How do you attack a trust structure -- which is what a network is? You're not going to do this with Tomahawk missiles or strategic bombardment."

"It's a whole new playing field. You're not attacking a nation, but a network," says Karen Stephenson, who studies everything from corporations to the U.S. Navy as if they were tribes. Trained as a chemist and anthropologist, she now teaches at Harvard and the University of London. "You have to understand what holds those networks in place, what makes them strong and where the leverage points are. They're not random connections," she says.

Human networks are distinct from electronic ones. They are not the Internet. They are political and emotional connections among people who must trust each other in order to function, like Colombian drug cartels and Basque separatists and the Irish Republican Army. Not to mention high-seas pirates, smugglers of illegal immigrants, and rogue brokers of weapons of mass destruction.

But how to establish a target list in a network?

The good news is that in the last decade we have developed a whole new set of weapons to figure that out.

An industry has arisen to help corporations build new networks and junk old hierarchical bureaucracies in the age of merging and emerging companies, says Kathleen Carley, director of the Center for Computational Analysis of Social and Organizational Systems at Carnegie Mellon University. New tools have been developed that analyze how an organization interacts, yielding a kind of X-ray that shows where the key links are.

There is a general set of principles to any network, says Stephenson, whose company, NetForm, has developed software that mathematically analyzes networks.

She points out that typically a network is made up of different kinds of nodes -- pivotal people.

The critical ones are "hubs," "gatekeepers" and "pulsetakers," she believes. Hubs are the people who are directly connected to the most people; they know where the best resources are and they act as clearinghouses of information and ideas, although they often are not aware of their own importance. Gatekeepers are those connected to the "right" people. They are the powers around the throne, and often they know their own importance. Pulsetakers are indirectly connected to a lot of people who know the right people. They are "friends of a friend" to vast numbers of people across widely divergent groups and interests.

The classic example of how to use this analysis is "finding the critical employee in the company -- the lone expert who knows how to fix the machine," Carley says. Ironically, without network analysis, managers frequently don't recognize who that is and the nature of his importance.

"But there's no reason it can't be turned around in the opposite way," she says. There's no reason organizational glitches, screw-ups, jealousies and distrust that slow and degrade performance can't be intentionally introduced." A network's ability to adapt to new challenges can be degraded.

Carley says: "One of the things that leads to the ability to adapt is who knows who and who knows what. The higher that is, the better the group's flexibility. But you can reduce the number of times the group can communicate or congregate. Or you can rotate personnel rapidly." And in war, this may have to be done by capturing or killing them. "You can also segregate the things people are doing, so they learn only on a need-to-know basis. The more isolated the tasks are, the more you inhibit their ability to function as a team.

"Imagine in your office if you knew who went to whom for advice," Carley says. "If you found a set of people who gave out more advice than anyone else and then removed them from the network, so they can't communicate with others, you would infringe on the ability of the network to operate."

In the case of terror networks, people are linked by family ties, marriage ties and shared principles, interests and goals. They thus can be all of one mind, even though they are dispersed and devoted to different tasks. They "know what they have to do" without needing a single-central leadership, command or headquarters.

There is no precise heart or head that can be targeted, Arquilla says. Even if you take out an Osama bin Laden, his organization, al Qaeda ("The Base"), still has the resilience of a classic human network. Bin Laden's, for instance, is made up of an estimated two dozen separate militant Islamic groups in the Philippines, Lebanon, Egypt, Kashmir, Algeria, Indonesia and elsewhere, with hundreds of cells, some of them located in Western Europe and even the United States, as we've discovered in the past week.

On the other hand, depending on the structure of the network, removing a few key nodes can sometimes do a lot of good, says Frank Fukuyama, author of the seminal work "Trust: The Social Virtues and the Creation of Prosperity" and now a professor at the School of Advanced International Studies at Johns Hopkins University.

"Some are so tightly bound to each other that they are not embedded in other networks. Kill a few nodes, and the whole thing collapses. Take the case of the Sendero Luminoso [Shining Path] in Peru. It couldn't have been that hierarchical. It was designed for the mountains of Peru. It couldn't have been terribly centralized. It had a scattered cell structure. It was hard to infiltrate. It was dispersed. And yet when you got [Shining Path founder and leader Abimael] Guzman and a few top aides, the entire thing fell apart.

"The idea that there is no end of terorrists, no way to stamp them all out, that if you kill a hundred, another hundred will spring up -- I would be very careful of that assumption. The network of people who are willing to blow themselves up has to be limited. Sure, there are sympathizers and bagmen and drivers. But the actual core network of suicide bombers is probably a much smaller population. It is also tightknit and hard to infiltrate. But it is limited. It is not obvious to me that there is an endless supply."

Another tactic: advancing the cause of the weakest link.

"Suppose I've got a really powerful pulsetaker," says Stephenson, "vying for a position of dominance. But I also know that a member of the blood kin group is moving forward who is weaker. If you arrange an accident to eliminate the pulsetaker, and let the weaker family member come in, you've helped corrupt the network."

The beauty of seeding weakness into an organization is that you can degrade its effectiveness while still monitoring it, and not causing a new and potentially more efficient organization to replace it. "You don't want to blow away the organization. You want to keep some fraudulent activity going on so you can monitor it. If you blow them away, you lose your leads," says Stephenson. "Better the devil you know. Like [Moammar] Gaddafi. Keep him alive, because you know him. Who knows what sort of clever mastermind might replace him."

Intelligence is crucial to analyze the network's weak links so you can destroy it.

"You're talking about what amounts to a clan or a tribe or brotherhood of blood and spilled blood. That is really tough to crack. Trying to infiltrate it -- we're talking years," says David Ronfeldt, a senior social scientist at Rand. However, from outside the network you can also look for patterns that stand out from the norm, like who talks to whom, e-mail exchanges, telephone records, bank records and who uses whose credit card, says Ronfeldt.

"I would attack on the basis of their trust in the command and control structures by which they operate," says Arquilla. "If they believe they are being listened to, they will be inhibited. If we were to reduce their trust in their infrastructure, it would drive them to non-technical means -- force them to keep their heads down more. A courier carrying a disk has a hell of a long way to go to communicate worldwide. If you slow them down, interception is more likely."

Human networks are distinct from electronic networks. But technology is the sea in which they swim.

"What made nets vulnerable historically is their inability to coordinate their purpose," says Manuel Castells, author of "The Rise of the Network Society," the first volume of his trilogy, "The Information Age."

"But at this point," he says, "they have this ability to be both decentralized and highly focused. That's what's new. And that's technology. Not just electronic. It's their ability to travel everywhere. Their ability to be informed everywhere. Their ability to receive money from everywhere."

This is why Arquilla is dubious about some traditional intelligence-gathering techniques, and enthusiastic about new ones. For instance: You can talk about turning one of the network members over to your side, but "that's problematic," he says. "You don't know if they're playing you as a double agent or are simply psychotic." He is also dubious about the value of satellite reconnaissance in determining what we need to know about these networks.

However, Arquilla likes the idea of understanding how the network works by using clandestine technical collection. For instance, he says, when any computer user surfs on the Web -- looking for travel tickets, say -- more often than not a piece of software, called a cookie, is transmitted to his computer. The device monitors his every move and reports back to some database what he's done.

Now, Arquilla says, "think of something much more powerful than cookies." They exist, he says. One way to use them is by creating "honey pots." This involves identifying Web sites used by activists or setting up a Web site that will attract them, and seeding them with these intelligent software agents. When the activists check in, they can't leave without taking with them a piece of software that allows you to backtrack, getting into at least one part of the enemy network. "That likely gives you his/her all-channel connections, and maybe even some hints about hubs or the direction of some links," says Arquilla.

There are other possibilities.

"You know those little cameras that some people have on top of their monitors? Let me just say that it is entirely possible to activate those and operate them and look through them without the machine being turned on," he says.

Software also exists that "allows you to reconstruct every single keystroke. One after the other. Why is that important? If you do find the right machine, you can reconstruct everything that happens. Even with unbreakable encryption, you have all the keystrokes."

Much of this is hardly new, of course. Divide and conquer has worked for a long time. Whenever the police got a Mafia wiseguy -- Joe Valachi, for instance -- to betray the others, no Mafiosi could trust another one as much anymore. Machiavelli, in "The Prince" of 1505, wrote about the strategic deployment of betrayal to undermine trust.

What's different is our technological ability to track groups in real time and see patterns that may be invisible on the surface. "Our technology is sufficient that you can now handle realistic-ized groups. We can deal with 30 to several thousand," says Carley. "You couldn't do that before."

In 1996, Arquilla and Ronfeldt wrote a slim but highly prescient volume called "The Advent of Netwar" for the National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Chiefs of Staff and the defense agencies.

It predicts that in a war between human networks, the side with superior intelligence wins. It also makes some tactical suggestions about countering human networks with counter-networks that actually have been used to combat computer hackers.

They include:

• Find a member of the enemy group who is clearly a harmless idiot; treat him as if he were the most important figure and the only one worthy of being taken seriously.

• Single out competent and genuinely dangerous figures; write them off or call their loyalty to the cause into question.

• Control the stories people tell each other to define their reason for living and acting as they do. The terrorist story, says Ronfeldt, "gives these people common cause -- us versus them. Right now the U.S. would seem to have the edge at the worldwide level. But within the region, there was the dancing in the streets in Palestine. Part of the story is that America's evil, and that America's presence is to blame for so many of the problems in the Middle East. We have to attack that part."

• Find the list of demands extorted by the network; grant some that make no sense and/or disturb and divide their political aims.

• Paint the enemy with PR ugly paint so that they seem beyond the pale, ridiculous, alien, maniacal, inexplicable.

• Destroy their social support networks by using "helpful" but differently valued groups that are not perceived as aggressive.

• Divide and conquer; identify parts of the network that can be pacified and play them against former allies.

• Intensify the human counter-networks in one's own civil society.

Adds Manuel Castells: "We should be organizing our own networks, posing as Islamic terrorist networks. We should then demand to join one of these networks and then destroy the trust structures. Only way to infiltrate. Oldest technique in the world."

Few of these ideas involve flattening Kabul, all of these analysts note.

Stephenson worries that massing the Navy near Afghanistan is "a symbolic show of old-fashioned strength. It's not about that anymore. This whole playing ground has shifted."

"In order to do anything, you cannot be blind," says Castells. "The most extraordinary vulnerability of the American military is it looks like they do not have many informants inside Afghanistan. It also looks like the majority of the components of this network do not relate directly or essentially to nation-states. That is new. Unless we have a fundamental rethinking of strategic matters, it's going to be literally, literally exhausting and impossible. It will be desperate missile attacks at the wrong targets with a lot of suffering. Massive bombardments turn around the opinion in many ways."

"Basically," says Ronfeldt, "you have to find somebody to wipe out."