

# Defense & Diplomacy

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## Cellphones Go To War

By Sydney J. Freedberg Jr. , NationalJournal.com

Cellphone technology is gearing up to go to war. From defense giants like Lockheed Martin, which rolled out a new militarized mobile network this morning, to the start-up tech firm Berico Tailored Systems and even individuals, a diverse range of players is pursuing an equally wide range of approaches.

The most basic approach is that of “Apps for Army” (A4A), a contest held by the Army to develop new military-specific applications for the personal cellphones that many soldiers already have.

But civilian phones rarely work in a war zone: If you think your reception is bad, try getting a signal in rural Afghanistan. Forward bases in devastated countries don't have access to the billions of dollars in very static infrastructure that civilian mobile devices require, and the Taliban routinely shuts down cell towers with threats and sabotage. Current military network devices require so much power and weight that they are only practical at fixed command posts or on vehicles; soldiers on foot scream into staticky handheld radios the old-fashioned way. So the critical problem in bringing handheld devices to troops in the field is how to get them on the network.

Lockheed's approach is the most ambitious. Its new MONAX system, announced today, allows a soldier to fit an off-the-rack commercial cellphone into a Lockheed adapter, which then connects his phone to a secure private network -- that is, if someone pays Lockheed to build the network in Afghanistan. That's not quite as daunting a proposition as providing conventional cellular coverage over the same area, because unlike commercial networks, which rely on lots of cell towers close together, MONAX is designed to carry broadband signals over long distances from a minimal number of fixed sites. With MONAX base stations installed at forward operating bases and existing surveillance aerostats (Pentagonese for “blimps”) serving as floating cell towers, Lockheed claims that a single fixed site can provide coverage to mobile devices in the hands of soldiers more than 20 miles away, even over rugged Afghan terrain, compared to the 5-10 miles a commercial cell tower can manage over flat terrain.

General Dynamics has taken the opposite approach. The contractor's GD300 is a purpose-built military device that layers cellphone-style utilities onto existing military radios. In and of itself, the eight-ounce GD300 is just an electronic map with an unusually accurate GPS -- itself definitely useful for soldiers patrolling the middle of nowhere -- plus some additional applications such as note-taking. But if you plug the GD300 into a suitable military radio (and not all older radios are suitable), it turns the utilitarian and user-unfriendly military networks into something approximating the range of applications and ease of use that civilians have gotten used to on their smartphones. In fact, the GD300 uses an interface derived from Google's popular Android.

Then there's the under-the-radar approach of BTS, which started just three years ago and originally focused on the shadowy world of specialized military intelligence networks. In contrast to Lockheed's MONAX adapter for civilian cellphones, but like General Dynamics' GD300, BTS' system involves militarized versions of civilian technologies. Unlike General Dynamics' reliance on existing military radio networks, but like MONAX, BTS products create their own cellular network on the battlefield, using hardware boxes small enough to fit into, say, a Humvee that provide cell coverage for nearby troops carrying BTS handhelds. BTS' particular pride and joy is its modestly named “Perfectus” operating system, which BTS claims can link its proprietary handheld devices, other companies' militarized handhelds and existing military radio nets into a seamless whole.

All these approaches have something to offer, and none of them necessarily excludes the others. But the military has only so much money to spend, which means some intense competition and hard choices are ahead.