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Second Century

Future-Proofing ARES®

In my July 2025 column, I focused on being personally prepared and resilient, highlighting some of the organizations and resources that ready us to provide emergency communications. ARRL leads one of those national organizations, the Amateur Radio Emergency Service® (ARES®).

ARES exists to help us meet the *expectation* that we use the amateur radio spectrum to serve "the public as a voluntary noncommercial communications service, particularly with respect to providing emergency communications" (from FCC Part 97.1[a]).

There are two very important things to take note of. The first is that this is not *exclusively* for emergency communications. I often hear ARES members disparage the notion that providing public service communications is in some way a black eye to the program because it dilutes the focus on emergency communications. It does not. It enhances it.

The second is that communications during the time of a disaster are not strictly constrained to RF. The reliance on internet-based services and specialized apps has become commonplace among first responders and local authorities. The image of ARES and its members is greatly enhanced when there is both awareness of, and demonstrated expertise in, using these technologies.

At the July ARRL Board meeting I mentioned that no one has ever shown me how ARES has integrated Starlink capabilities into their deployment strategy. During the break, one Director walked out to his car and brought in a beautiful Starlink mobile case, ready to bring instant internet access to any situation with a clear view to the sky! The conversation continued after the Board meeting, looking at smartphone apps that EmComm groups are using to communicate and coordinate. Yes, using amateur radio spectrum has its place, but these teams are using other methods and techniques to enhance their capabilities.

To future-proof ARES, a radical yet constructive shift in perspective will be required. ARES can be (re)designed to leverage the entire assortment of communication solutions available today, including:

- **Traditional Radio Frequency (RF) Communications:** This remains the core strength. This includes HF for long-distance, redundant communications, VHF/UHF for local tactical links, and increasingly, digital modes like Winlink for email over radio, DMR/D-STAR/Fusion for digital voice and data, and APRS for situational awareness, and tracking. The focus should be on optimizing these capabilities for data throughput, interoperability, and redundancy.
- **Satellite Communications:** The advent of accessible satellite internet services like Starlink revolutionizes remote connectivity. A future-proofed ARES must not only understand but actively integrate such capabilities into its deployment strategies, providing instant internet access for incident command posts or remote disaster sites. This could involve direct deployment or providing expertise in setting up and managing such systems for served agencies.
- **Internet-Based Services:** Beyond satellite, ARES must become proficient in leveraging terrestrial internet (where available or rapidly restorable) and cellular networks. This includes understanding IP networking, secure VPN connections, and various Voice over IP (VoIP) solutions.
- **Modern Applications and Software:** Emergency management agencies and first responders increasingly rely on sophisticated software for coordination, mapping, messaging, and data sharing. Smartphone applications for incident management, secure chat applications, and common operating picture (COP) platforms are now standard. ARES members must be trained not only to use these tools but to understand their underlying architecture, security protocols, and how to integrate amateur radio data into these systems. This will enhance ARES's value by making its communications directly usable and digestible by partner agencies.
- **Mesh Networking and Alternative Data Pathways:** Exploring technologies like goTenna Mesh, LoRaWAN, or other localized ad-hoc networks can provide resilient data communication layers in environments where traditional infrastructure is down, complementing both RF and IP-based solutions.

In my July report to the Board, I included that "ARES is broken." I know it is from the hundreds of in-person discussions I have had with ARES members who passionately challenge ARRL to do more to make ARES relevant. It often leads to a dialogue pitting ARES against AUXCOMM, which is a fruitless exercise.

How do we ensure that our 90-year-old ARES program is future-proofed to continue to serve amateurs for the public's benefit? What does it mean to do a "greenfield exercise" for ARES? Not tearing down the program, but rather to plan from a clean sheet of paper, a green field, and see what providing emergency communications might look like given the full assortment of radio, satellite, internet, and applications solutions available today. Once we have created this model, plans for future-proofing ARES should jump off the page. And not all of them will be popular! During 2026 we'll be focusing on canvassing ARES groups across the country to contribute their modernized capabilities to the discussion about future-proofing ARES.

So please, be radio active. If you have an interest in EmComm, seek out your local ARES group using our online tool at **www.arrl.org/find-an-ares-group**. Be a connector. Share the great ideas you encounter. And contest season is here! See you on the air.

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