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Security and Resilience in the Cyber Ecosystem

Similar to a natural ecosystem, the *cyber ecosystem* consists of a community of entities that interact within an environment. The "ecosystem" metaphor, although not perfect, aptly describes important characteristics of cyberspace. Cyberspace is dynamic, and its diverse participants relate to each other in countless complex—and not always healthy—ways.

Adversaries exploit the rich interconnectivity provided by cyberspace, breaching systems with weaker defenses in order to penetrate systems with stronger defenses. The challenge is to use that same rich interconnectivity to collaboratively safeguard users, networks, and devices. In the DHS vision of a healthy and resilient cyber ecosystem, people and devices work together in real time to anticipate and prevent cyber attacks, limit the spread and consequences of attacks, and recover to trusted states. Security capabilities will be built into cyber devices so that preventive and defensive actions can be coordinated within and among decentralized but cooperating communities. By exchanging trusted information, learning and adapting, and coordinating responses in real time, the cyber ecosystem can be open, robust, and healthy.

No one nation or organization owns or controls the cyber ecosystem and as such, cybersecurity is a shared responsibility. DHS recognizes this reality and the *Blueprint for a Secure Cyber Future* < http://www.dhs.gov/files/publications/blueprint-for-a-secure-cyber-future.shtm> is the first strategy focused on the cybersecurity role of the homeland security enterprise, which includes government, nongovernmental, and private sector entities, as well as individuals, families, and communities. Achieving this vision will require determination and cooperation by all of these stakeholders to address the many technical and policy challenges posed by an undertaking of this magnitude. Ultimately, success will depend on the ability to empower all participants in this ecosystem to collectively detect and react faster than adversaries can act.

How will you make your part of the cyber ecosystem more secure? DHS welcomes your thoughts at <cyberfeedback@dhs.gov>, and looks forward to working together with you to build a safe, secure, and resilient cyber ecosystem.

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