

## Building a Trusted Computing Foundation

### Executive Summary:

By now, the commission has concluded that solution to our cyber security challenges are simply not more firewalls, more security software, more cyber intelligence and more training. While these capabilities certainly have their place in the cyber security solution space, they will not stop sophisticated nation-state and cyber criminals intent on penetrating our critical infrastructure, not to mention our economic base.

As the government learned decades ago (1983 to be exact), the only real defense that nation-state and cyber criminal hackers respect and can raise the bar enough to deter their machinations is a sufficiently secure computer system. *The government has learned (and keeps on learning) that a truly secure computer is one in which the system has been designed and developed with a trusted computing foundation.* This is truly what it means to “bake security in,” vice “bolt security on.”

In 1983, the government (with the help of industry) established the requirements for building “provably” secure and trusted systems and industry (e.g., Sun, Digital Equipment Corporation) built systems that were largely resistant to contemporary hacking techniques like the, now famous, buffer overflow.

To truly get to the heart of our cyber security crises and introduce meaningful technical solutions, it is imperative that the commission recommend a government championed research and development effort (in partnership with academia and industry) to establish technical principles and criteria that enable greater security and trust in our computer networks, operating systems and applications.

This paper addresses this challenge and proposes a way forward for the government to make a true leap forward in finally raising the bar on sophisticated hackers, who currently have the upper-hand on our cyber defenders. The approach is truly a “back to the future story” and offers solutions to make the cyber security crises a cyber security nuisance.

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