

# Security – A Big Question for Big Data

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## Abstract

Big data implies performing computation and database operations for massive amounts of data, remotely from the data owner's enterprise. Since a key value proposition of big data is access to data from multiple and diverse domains, security and privacy will play a very important role in big data research and technology. The limitations of standard IT security practices are well-known, making the ability of attackers to use software subversion to insert malicious software into applications and operating systems a serious and growing threat whose adverse impact is intensified by big data. So, **a big question is what security and privacy technology is adequate** for controlled assured sharing for efficient direct access to big data. Making effective use of big data requires access from any domain to data in that domain, or any other domain it is authorized to access. Several decades of trusted systems developments have produced a rich set of proven concepts for verifiable protection to substantially cope with determined adversaries, but this technology has largely been marginalized as "overkill" and vendors do not widely offer it. This talk will discuss pivotal choices for big data to leverage this mature security and privacy technology, while identifying remaining research challenges.

## Biography

Dr. Roger R. Schell recently joined USC/ISI supporting their Masters of Cyber Security degree program. He is internationally recognized for originating several key modern security design and evaluation techniques, and he holds patents in cryptography, authentication and trusted workstation. For more than decade he has been co-founder and President of Aesec Corporation, a start-up company providing verifiably secure platforms. Previously Dr. Schell was co-founder and vice president for Gemini Computers, Inc., where he directed development of their highly secure (what NSA called "Class A1") commercial product, the Gemini Multiprocessing Secure Operating System (GEMSOS). He was also the founding Deputy Director of NSA's National Computer Security Center. He has been referred to as the "father" of the Trusted Computer System Evaluation Criteria (the "Orange Book"). Dr. Schell is a retired USAF Colonel. He received a Ph.D. in Computer Science from the MIT, an M.S.E.E. from Washington State, and a B.S.E.E. from Montana State. The NIST and NSA have recognized Dr. Schell with the National Computer System Security Award. In 2012 he was inducted into the inaugural class of the National Cyber Security Hall of Fame.