

Integrating Flexible Support for Security Policies into the Linux Operating System

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Abstract

The protection mechanisms of current mainstream operating systems are inadequate to support confidentiality and integrity requirements for end systems. Mandatory access control (MAC) is needed to address such requirements, but the limitations of traditional MAC have inhibited its adoption into mainstream operating systems. NSA worked with Secure Computing Corporation (SCC) to develop a flexible MAC architecture called Flask to overcome the limitations of traditional MAC. NSA has implemented this architecture in the Linux operating system, producing a Security-enhanced Linux (SELinux) prototype, to make the technology available to a wider community and to enable further research into secure operating systems. NAI Labs has developed an example security policy configuration to demonstrate the benefits of the architecture and to provide a foundation for others to use. This paper describes the security architecture, security mechanisms, application programming interface, security policy configuration, and performance of SELinux.

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