

Trusted thin client solution for secure cross-domain access



Highlights

- ***Provides cross-domain access across multiple security networks at different classification levels from a single desktop or mobile device***
- ***Enables access to video and broadband applications in secure environments***
- ***Leverages open technology for lower cost of ownership***
- ***Enhances security by keeping data off local devices***
- ***Designed to meet or exceed the most rigorous certification and accreditation standards***

Moving to a state-of-the-art cross-domain solution

For decades, government agencies that needed to access data across different security domains at various classification levels were often compelled to use redundant hardware and cumbersome processes. In addition, the available cross-domain solutions have been based on expensive, proprietary technologies that lagged far behind state-of-the-art technologies. There was no choice; those solutions were the only available technology that had met the requisite certification and accreditation standards for cross-domain access.

This limitation created a number of issues. The performance of existing proprietary solutions was often not sufficient to handle today's high-bandwidth applications, such as streaming video and graphics. Further, the purchase and maintenance of redundant hardware drives up the total cost of ownership.

About Trusted Computer Solutions

Trusted Computer Solutions (TCS) is an industry leader in cross-domain solutions. The company's SecureOffice Suite of software products enables government and industry to securely share information, striking the right balance between information protection and information sharing, a vital component to national security. All SecureOffice products adhere to the most stringent security standards set by U.S. Government Agencies such as the Defense Intelligence Agency and the National Security Agency. SecureOffice products, which run on trusted versions of Linux and UNIX®, are installed and accredited in operational systems around the world today, protecting our nation's most sensitive digital information.

About Red Hat

Red Hat is the premier Linux and open-source provider. Red Hat maintains the highest value and reliability rankings among its customers, and is the most recognized Linux brand in the world. The company serves global enterprises through technology and services made possible by the open-source model.

Now IBM, Red Hat and Trusted Computer Solutions (TCS) have collaborated to bring to the market a set of Linux®-based cross-domain solutions that offers lower total cost of ownership and improved performance compared to existing legacy alternatives.

Trusted thin client solution

The IBM/TCS/Red Hat trusted thin client cross-domain solution simplifies the working environment by providing a single point of access to multiple secure networks. This eliminates the need for redundant, dedicated desktop workstations devoted to each network connection. The user, with a single workstation based on a thin client appliance running the TCS SecureOffice NetTop2–Thin Client application, has access to all authorized security domains. These separate domains are accessed via different application windows within the NetTop2 application; network separation is provided by a centralized distribution console running a trusted Linux operating system. Since these thin clients are also running a trusted Linux operating system and have no local storage of data, the security of the solution is further enhanced.

The solution consists of four basic components: an IBM Distribution Console (an IBM System x™ server), the Red Hat Enterprise Linux operating system, the thin client “appliance” hardware and the TCS SecureOffice NetTop2–Thin Client application. The solution is supported by installation, certification and accreditation and implementation services from IBM and TCS.

The TCS NetTop2–Thin Client application is part of the TCS SecureOffice suite of cross-domain communications products. The technology underlying it is based on NSA-developed security mechanisms, making it an ideal match for the IBM and Red Hat technology platform.

The combination of the industry-leading TCS NetTop2–Thin Client application and the IBM and Red Hat technology platform yields a number of important ownership benefits beyond secure single-point, cross-domain network access.

Since the solution is based on a leading open-source operating system and standard hardware, it can evolve as future technologies emerge and thereby avoid technological dead ends.



What's important about the platform for secure environments, and also entirely new, is that the secure capabilities have been integrated into the main kernel of the Red Hat Enterprise Linux operating system—the same Red Hat used by enterprises worldwide. Because it is a mainstream operating system, it will support all the same applications, drivers and extensions that are used by any organization running Red Hat.

Also, since Linux is not tied to a particular hardware platform, the potential exists for a variety of secure solutions to be created, based on certified, accredited hardware such as IBM System servers. The use of mainstream, open technology also means a lower total cost of ownership, thanks in part to a more readily available skill base—a skill base not so readily available when managing proprietary solutions.

Finally, the use of thin clients reduces management costs. Since all applications and data are stored centrally, it is rarely necessary to perform maintenance on individual workstations.

Ready for full certification and accreditation

The Common Criteria Evaluation Validation Scheme (CCEVS) and the Certification and Accreditation (C&A) processes are “sister” processes that address risk. The CCEVS process focuses on “evaluating” a product independent of its environment, and the C&A process focuses on “accrediting” a whole system in a particular environment (for example, when deployed at a particular agency—each implementation of the solution requires a separate accreditation). All government agencies and divisions implementing cross-domain solutions are required to complete the C&A process before a system can be made operational.

The IBM System server platform running Red Hat Linux meets the National Information Assurance Partnership (NIAP) Common Criteria security certification standards: Red Hat Enterprise Linux 5 on IBM System servers is the Targeted Operating Environment (TOE) that has been evaluated under these certification standards (see sidebar). This IBM-initiated submission is the first Linux platform to be accepted for “trusted” platform evaluation.

Certification details

IBM was the first vendor to certify Linux against the Common Criteria security standards on its IBM System servers. Linux on IBM server platforms has successfully completed EAL2, EAL3 and EAL4 evaluations for the Controlled Access Protection Profile (CAPP). IBM is currently sponsoring the certification of Red Hat Enterprise Linux 5, which has entered the National Information Assurance Partnership (NIAP)-approved Common Criteria Evaluation and Validation Scheme (CCEVS) at Evaluation Assurance Level 4 (EAL4+) and will include the security functionality defined in three protection profiles recognized by the Common Criteria: Labeled Security Protection Profile (LSPP), Controlled Access Protection Profile (CAPP) and Role-Based Access Control Protection Profile (RBAC).

These profiles support the requirements of Director of Central Intelligence Directive (DCID) 6/3 at Protection Level 4, which specifies security intelligence-related information and systems measures, including those necessary for Top Secret and Below Interoperability (TSABI). This CCEVS evaluation means Red Hat Enterprise Linux running on IBM servers will reach a level of security previously achieved by only a handful of proprietary trusted operating systems.

TCS NetTop2—Thin Client was the first Linux-based thin client application to be part of an accredited system at the TSABI level.

The platform, combined with the TCS NetTop2–Thin Client's secure attributes, creates a solution that is prepared to meet or exceed the rigorous, agency-level individual solution certification and accreditation process. Indeed, an implementation based on an IBM technology platform and the NetTop2–Thin Client application was the first Linux-based cross-domain thin client solution cleared for Top Secret and Below Interoperability (TSABI) operational use.

Leveraging the best from three industry leaders

The close working relationship between IBM, Red Hat and TCS delivers outstanding value. TCS is a leading supplier of cross-domain solutions to the Department of Defense, the intelligence community and civilian agencies. TCS is recognized for its deep expertise working with government to certify cross-domain implementations.

Red Hat is the world's leading provider of the Linux open-source operating system, and IBM has long been a technology leader, with industry-leading server technology, a strong presence in the open-source community, and a growing presence in the cross-domain applications space.

IBM continues to lead the open-source community, sponsoring numerous development and certification efforts. IBM's own development and evaluation work has been released into the community and is in wide use by the industry.

The integration of secure capabilities into the Linux operating system that makes the trusted thin client solution possible is the direct result of an open community development effort led by IBM. It incorporates Security Enhanced Linux (SELinux) policy enhancements as well as multi-level security capabilities, developed by IBM, Red Hat, TCS and the Linux community.

The ongoing commitment to open source is evidenced by the IBM Linux Technology Center, which employs more than 600 professionals who are focused on enhancing Linux to meet robust enterprise computing requirements.

For more information

For more information, contact your IBM representative, or go to:

ibm.com/government/crossdomain



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