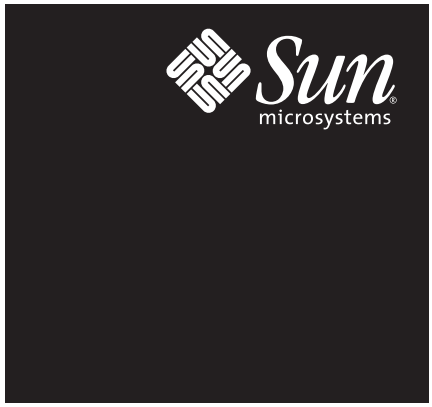
Sun Ray™ At Home Solution



A Sun IT Project Case Study
April 2005

Sun Ray™ At Home Solution

Introduction

Sun Ray™ ultra-thin clients are an affordable, secure, and simple solution for organizations that want PC functionality without the complexity and vulnerability of PCs. Sun Ray ultra-thin clients provide customers with an interoperable desktop computing solution that reduces the maintenance, upgrade, and operational costs associated with most "fat" PC client environments.

Unlike complex PCs and other thin clients, Sun Ray ultra-thin clients have no local operating system to manage and administer. They process only keyboard input and screen output, leaving all of the application processing and storage to the server. Sun Ray ultra-thin clients are simple "plug-and-work," zero-administration devices, much like the telephone. And as such, they are completely stateless, meaning they are always on, readily accessible, and easily replaceable.

The Sun Ray At Home program is an exciting new realization of Sun's vision *The Network is the Computer*™, extending the Sun Ray experience into users' homes. Through this program, employees using Sun Ray ultra-thin clients at home can hot desk to the same session they use at their Sun office. Delivering the zero-maintenance, no OS, low power consumption, silent Sun Ray ultra-thin client into the home is a major step forward in computing.

The Problem

Sun currently provides a significant portion of its employees with the option to work from home or from other remote locations for all or part of each week. Providing employees with this option on at least a part-time basis provides several important benefits to Sun, such as:

- Reduced real estate costs
- Increased employee satisfaction and productivity
- Concrete proof of Sun's technology and philosophies
- A more flexible workforce
- Encourages top talent to work at Sun globally

To better support remote employees, Sun currently supplies each employee with either a workstation or a PC-based solution that connects into Sun's corporate network via a virtual private network (VPN). Providing its workforce — more than 30,000 employees worldwide — with this type of a work environment can be cost prohibitive. The following factors contribute to these costs:

- Remote hardware and software support
- Secure access to Sun's corporate networks
- Timely upgrades for virus protection
- Integration of internal systems and various computing platforms
- Efficient access to users' work environments

The Proposed Solution

Sun IT currently has a large internal infrastructure built around the concept of thin-client workstations — called Sun Ray ultra-thin clients — deployed worldwide. A Sun Ray is a stateless client that uses the resources of a server (CPU, memory, storage) over the network. Sun IT has deployed several hundred servers globally to support the tens of thousands of Sun Ray ultra-thin clients located worldwide, and found that this architecture has greatly reduced Sun's support and maintenance costs for office employees. With such an overwhelming success, a proposal was made to expand the Sun Ray architecture to include remote employees.

A solution was developed to provide remote employees with a Sun Ray environment at home. Briefly, the solution consists of a Sun Ray ultra-thin client coupled with a Cisco VPN router and an existing broadband connection. Employees connect through Sun's existing VPN into its secure corporate network. This enables them to access the exact same work environment that they would normally use in their office at Sun.

The Sun Ray client and Cisco VPN router solution is currently being deployed and tested by Sun IT worldwide. Rollout to 350 extended-trial users is now complete, and to date, users have been extremely satisfied with the solution thus far. This project has been given the name *Sun Ray At Home*.

Advantages of the Proposed Solution

The Sun Ray At Home solution provides the following advantages over the current workstation or PC-based solution:

- Sun Ray ultra-thin clients are comparatively low cost.
- Security risks are limited due to the Sun Ray client's stateless environment and use of an encrypted VPN connection.
- Access control and virus protection occur on shared Sun Ray servers inside the secured corporate network.
- One set of applications and tools supports all users.
- Maintenance and support costs are reduced due to the shared server resources and stateless clients.
- Training costs are reduced with the use of a single, consistent work environment.
- Session mobility allows employees to "lockscreen" their current work session at Sun and retrieve it at home using their Sun badge, which has a Java Card™ smart chip on it. The same badge can be used for moving between work sites within Sun.

The Sun Ray At Home Project

The Sun Ray At Home project is being deployed in phases, with expected deliverables outlined below. The project is currently in the Pilot phase, with a user population of 1350 test users worldwide.

- **Phase 1** — Trial (5 months; started in October 2003)
  - Limited to 50 users; primarily the project team
  - Test the proposed hardware and software configuration
  - Limited support for users
  - Develop best practices and documentation
  - Dedicated Sun Ray servers for the project
- **Phase 2** — Extended Trial (3 to 6 months; started in July 2004)
  - 300 additional users worldwide (200 U.S., 100 non-U.S.)
  - Expanded support for users
  - Testing of remote printing solutions
  - Test documentation and support practices
  - Use of current production Sun Ray servers
- **Phase 3** — Pilot (6 months; started in January 2005)
  - 1000 additional users worldwide
  - Ordering of solution via normal capital processes
  - Printing solution defined and available
  - Full support available via normal support structure
  - Use of production Sun Ray server infrastructure worldwide
- **Phase 4** — Production (start date TBD)
  - Solution becomes a standard offering for work-from-home employees

The current Sun Ray At Home end-user package consists of several hardware components, some supplied by Sun and some already existing at the user's home office. Figure 1 depicts a typical Sun Ray At Home package.

A. Sun Ray ultra-thin client (provided by Sun)

B. Cisco VPN router (currently the Cisco 831 or SOHO91 models; provided by Sun)

C. Home router (optional; provided by end user)

D. Cable/DSL modem (provided by end user)

E. Print server for USB printer (optional; provided by Sun)

F. USB printer (optional; provided by Sun or end user)

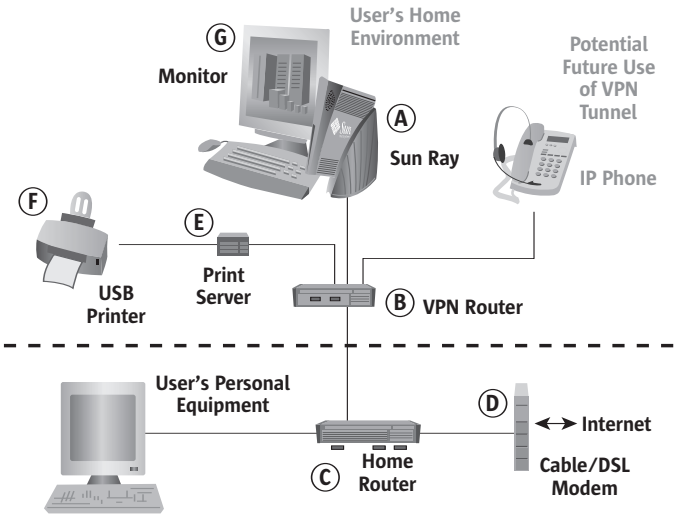


Figure 1: Sun Ray At Home Package

The combination of these components provides home-office employees with a complete solution that delivers the same work environment at home as that available in their office at Sun: The same e-mail, calendar, office tools, internal Sun applications, and complete access to all of their work files — with no change in the access method or the tools used. This solution allows home-based employees to initiate work at their Sun office and then go home and continue where they left off, seamlessly and without downloading or converting any additional files for use with other tools.

Figure 2 displays the architecture of the Sun Ray At Home project for Phase 2, the Extended Trial. Trial users connect via dedicated VPN routers into Sun's wide-area network (SWAN) using their Cisco routers from home. Once validated by the VPN routers, they are directed to a geographically local Sun Ray server that provides them with their complete office environment. This office environment is the exact same Sun Ray session they were using when they left their Sun office.

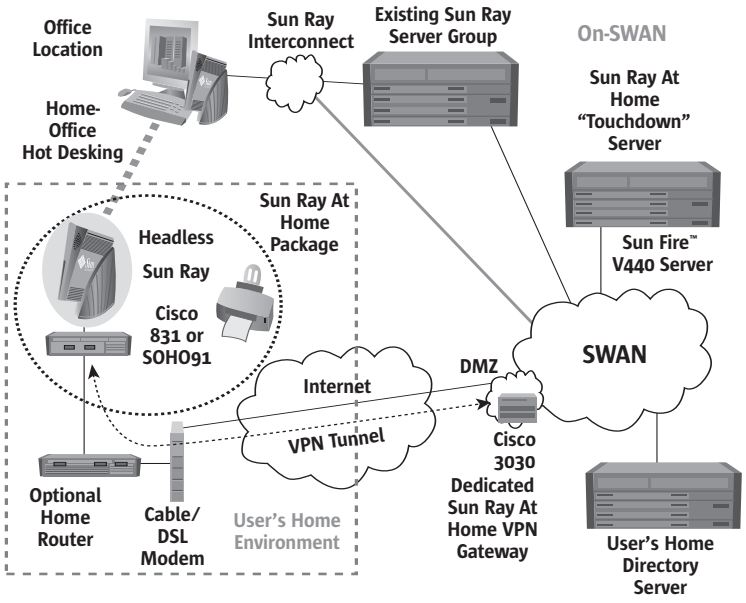


Figure 2: Current Deployment Architecture

A Sun Ray At Home Snapshot

Thus far, feedback from the trial users has been very favorable. Most users have reported performance equivalent — or almost equivalent — to the performance of their Sun Ray desktop at their Sun office. The installation process is simple; it takes under 30 minutes for most users to unpack their equipment and have it up and running. Because the extended-trial users range from very technical users (the project team) to everyday users (executives and their administrators), the Sun Ray At Home team expects to receive excellent feedback on features and processes that work as well as those which need to be improved. At this point in the trial, the Sun Ray At Home trial users are very excited about having a consistent desktop environment to use at work and at home.

With the completion of the Extended Trial phase, the Sun Ray At Home team has finalized the end-user package and mapped out all of the support procedures required for the next phase of the project. All documentation has been completed, and the final printing solution has been identified. Standards and procedures for ordering the Sun Ray At Home package and for returning existing workstations and PC solutions have been put into place as well.

Future Directions

During the first two phases of this project, several suggestions for enhancements to the Sun Ray ultra-thin clients and supporting software have been provided by trial users, as have potential future services to be offered by the Sun Ray At Home project. The suggestions include:

- Build the VPN router into the Sun Ray ultra-thin client itself.
- Build support for USB printers into the Sun Ray ultra-thin client and include the necessary printer drivers.
- Enhance security to support Sun Ray users from non-Sun sites.
- Provide the ability to connect to any Sun Ray server worldwide and allow users' sessions to follow them.
- Support larger deployments as the program grows.

As with any such implementation, suggestions are encouraged from all users and will be reviewed and evaluated by Sun's IT and engineering organizations. While all suggestions may not be implemented, it is this type of collaborative, ongoing effort between IT and end users that helps identify just what works and what can be improved.

Summary

Providing Sun employees with the Sun Ray At Home option is a win for Sun in terms of cost savings and increased employee satisfaction. And it is also a win for the employees, with ease of use and increased flexibility for work environments. Sun IT and Sun's remote workforce are looking forward to the continuation and expansion of this project to enhance the quality of life at Sun.

Learn More

For more information about the Sun Ray ultra-thin client, visit sun.com/sunray. Or, talk with your local Sun sales team to learn more about the Sun Ray ultra-thin client and how it can help enhance your existing work experience.

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