Sun Microsystems Online Conference

Secure Desktop Virtualization

Questions are Encouraged

You can ask questions during the presentation by using the link provided in the Webcast Viewer.

Desktop Virtualization For Public Sector

Dennis Maher
Sun Microsystems, Inc.

The Network Delivery Continuum

Summary

Abstract

Sun Labs has created a demonstration of a new system architecture that completely changes the rules for how the desktop game is played.

Our Virtual Desktop Architecture delivers a wider variety of computing services to workgroup members at a lower cost than is possible with traditional architectures. The key idea is to repartition the functionality between the desktop and the machine room such that all computation and state are removed from the desktop. The result is a *truly* zero-administration delivery vehicle for a wide range of computing services.

The Virtual Desktop Architecture neutralizes the position of Windows/Intel desktop machines, while providing abundant new opportunities for Sun server and interconnect products.

The major components of the Virtual Desktop Architecture are the *Computational Service Producers* (machines) that provide the desired computational services for the users; the *Interconnection Fabric* that connects the service producers to the desktops; and the *Human Interface Devices*, the desktop units that users interact with in using the computational services offered by the system.

The Virtual Desktop Architecture

What is the Virtual Desktop Architecture?

The system synthesizes a virtualized desktop from the output of a collection of service-producing machines, at whichever physical location the user desires.

What types of computational services can be provided by this system architecture?

Unix/X11/CDE, WindowsNT/95, Java, audio, video, and 3D, etc.

What are the key advantages of this system architecture?

The full workstation experience for the user, desktop mobility, true zero-administration desktop, and scaleable system design.

How do customers benefit from the Virtual Desktop Architecture?

True zero-administration desktops and desktop-to-machine room interconnect; scaleable system; wide range of services delivered to desktop.

How does this affect Microsoft's position on the desktop?

It removes the operating system and applications from the desktop, eliminating Microsoft's desktop upgrade revenue stream.

For further information, send email to:
newt@pastry.eng

The Virtual Desktop Architecture

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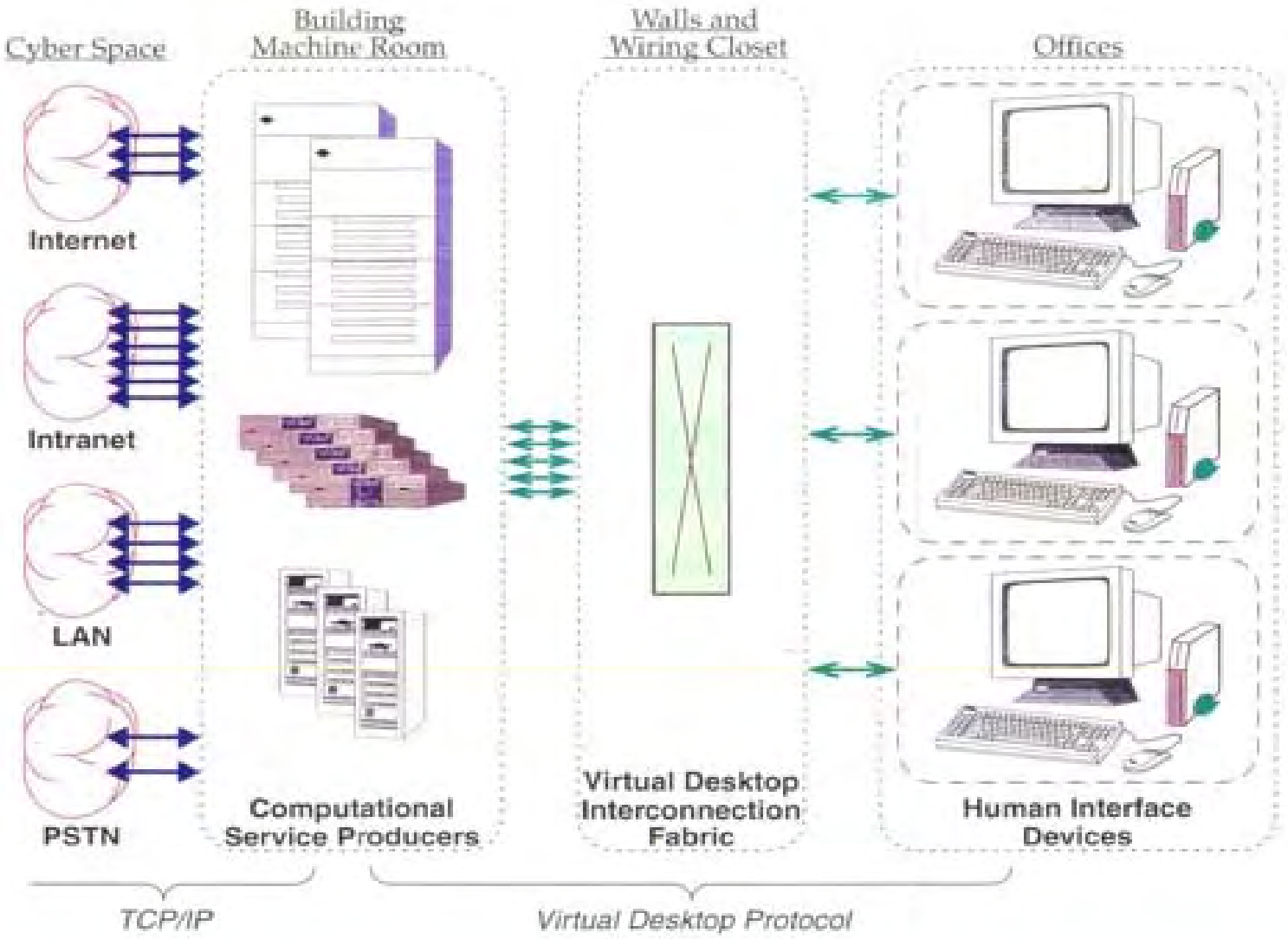

Agenda

- Why Thin Clients Aren't Interesting ...
- What We Learned from TV
- What Customers Ask For
- DoD Case Study
- Other options

Why Thin Clients Aren't Interesting...

- ... because it's not about the client device
- Server Based Computing is about applications and the delivery of applications to devices
  - It's about business continuity
  - It's about physical consolidation of stateful devices
  - It's about information management and protection
  - It's about improving performance across your user base
  - It's about controlling licensing costs
  - It's about effective and fast upgrade capabilities

Why Server Based Computing?

- What do you envision for your workforce in 3 years?
  - > Employee mobility?
  - > Flexible work arrangements?
  - > Work from home?
  - > Increased productivity?
  - > Improved employee satisfaction?
- Brainstorm for a few minutes on the implications if you and your colleagues could work anywhere using multiple devices...

And If You Drop Your Laptop....?

- How much data is stored on laptops and desktops?
- Company secrets, customer lists, project plans, engineering documents, sales forecasts, etc....
- Server Based Computing leads to Information Lifecycle Management (ILM)
- Distributed data turns into consolidated data in the Data Center with Server Based Computing
- Backed up, secure, managed, document management systems, ...

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Audience Participation

- What Do These Things Have in Common?
  - TV
  - Radio
  - Phones
  - iPods

Some Ideas

- They're everywhere
- Many people have more than one
- You can choose brand, size, shape, color
- No one “manages” them
- They all have “servers”
- They're all uninteresting without power and network

Simplify

Display over IP – Just like a TV

Select Your TV (Compute) Channel

Mix and Match Channels

The complete desktop environment, running on the network

JDS Desktop (delivered via Network)

Mozilla Firefox

Microsoft Windows

MS Excel on Windows

MS Word on Windows

solaris™

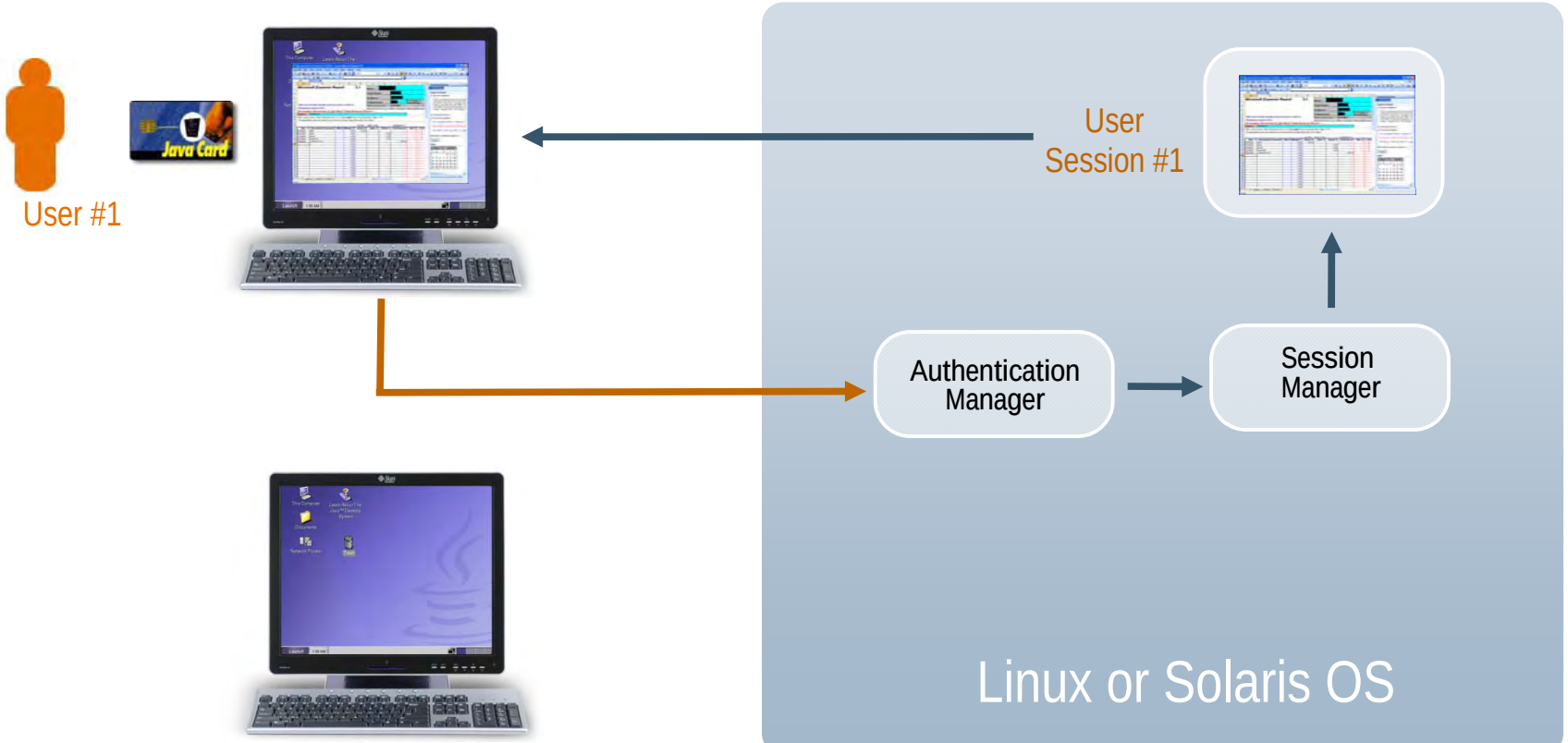
I Want a Big Screen

24” Monitor at 1920 x 1200 Resolution

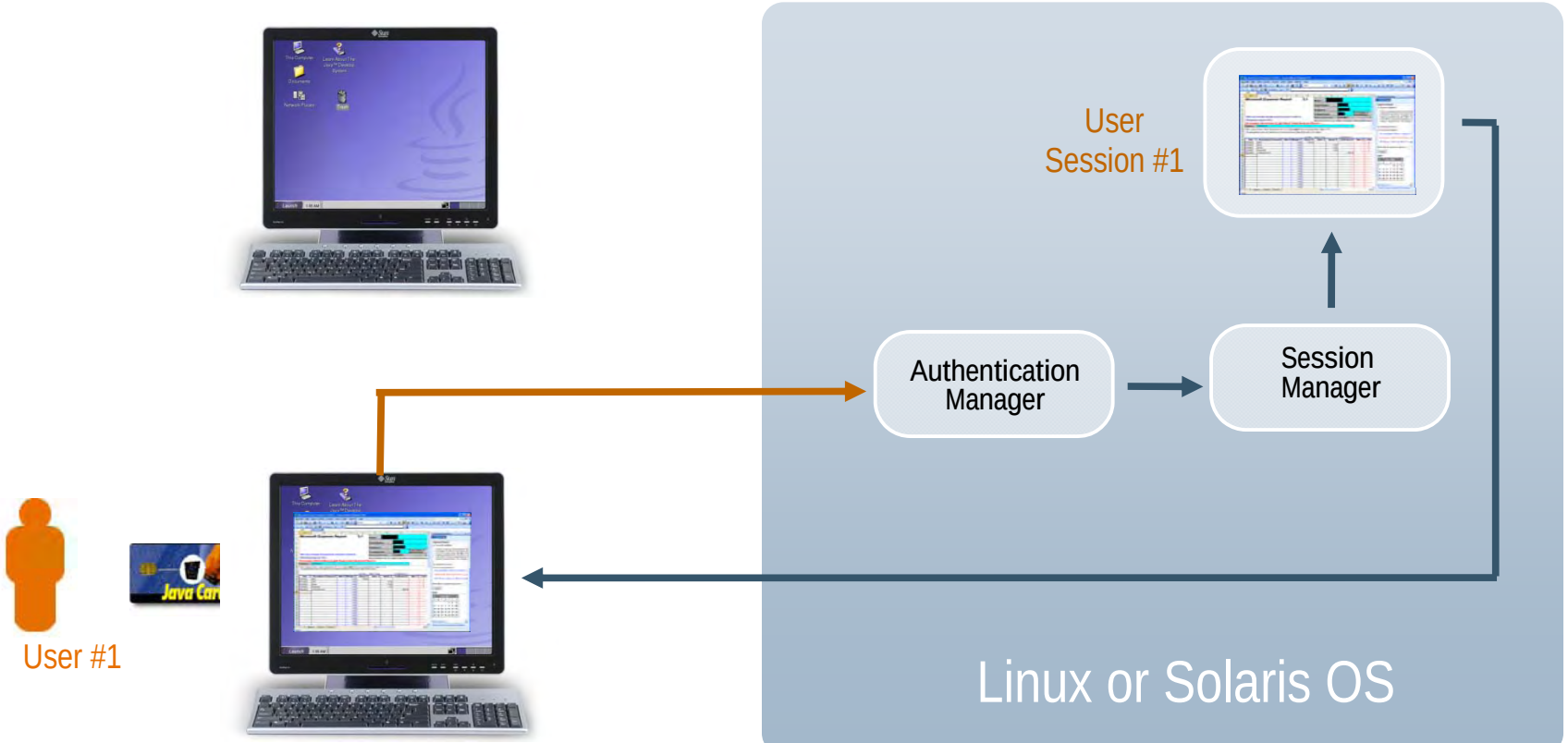
Or Big Screens

Multiple Monitors (up to 16 monitors)

Follow Me


User #1
Java Card
User
Session #1
Authentication
Manager
Session
Manager
Linux or Solaris OS
Sun Ray Clients
Sun Ray Server Software

Follow Me


User
Session #1
Authentication
Manager
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Manager
User #1
Linux or Solaris OS
Sun Ray Clients
Sun Ray Server Software

Multiple Brands, Colors & Styles

- Cryptek

- General Dynamics (was Tadpole Computing)

- NatureTech

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What We Hear from Customers

- I need to eliminate viruses
- I need to lower my IT support cost
- I need to meet regulatory compliance
- I'm tired of upgrade fatigue, new PCs or Windows-based thin clients every 3 years
- I want choice on the desktop
- I need a good disaster recovery plan

Security

- No local data (corporate,intellectual property protection)
- No viruses, spyware, worms
- Enabled for multi-factor authentication

Manageability

- Centrally-deployed applications
- No local install, updates, or patches
- No local OS management
- No local memory upgrades
- Plug-and-go clients

Reliability

- Best desktop client warranty
- Solid state; no moving parts
- Applications and data centrally managed and backed up
- No local memory crashes

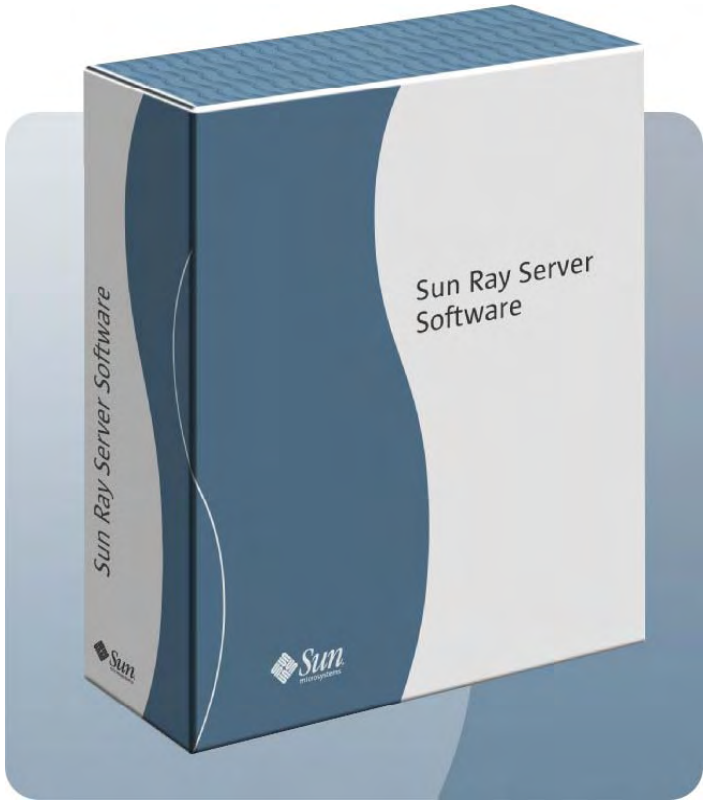
Choice

- SPARC, x86, x64 servers
- Solaris OS, Linux OS
- Clients from Sun or OEMs
- Display Applications from any platform

Value

- Up to 76% ROI vs. other desktop solutions(1)
- Focus IT dollars on new services, not maintenance

(1) Based on Forrester Research, Inc TEI study of Deploying Sun Ray Thin Clients (March 2004) http://wwws.sun.com/sunray/whitepapers/SunRay_Final_040504.pdf



Sun Ray Technology

- Security
- Manageability
- Reliability
- Choice
- Value

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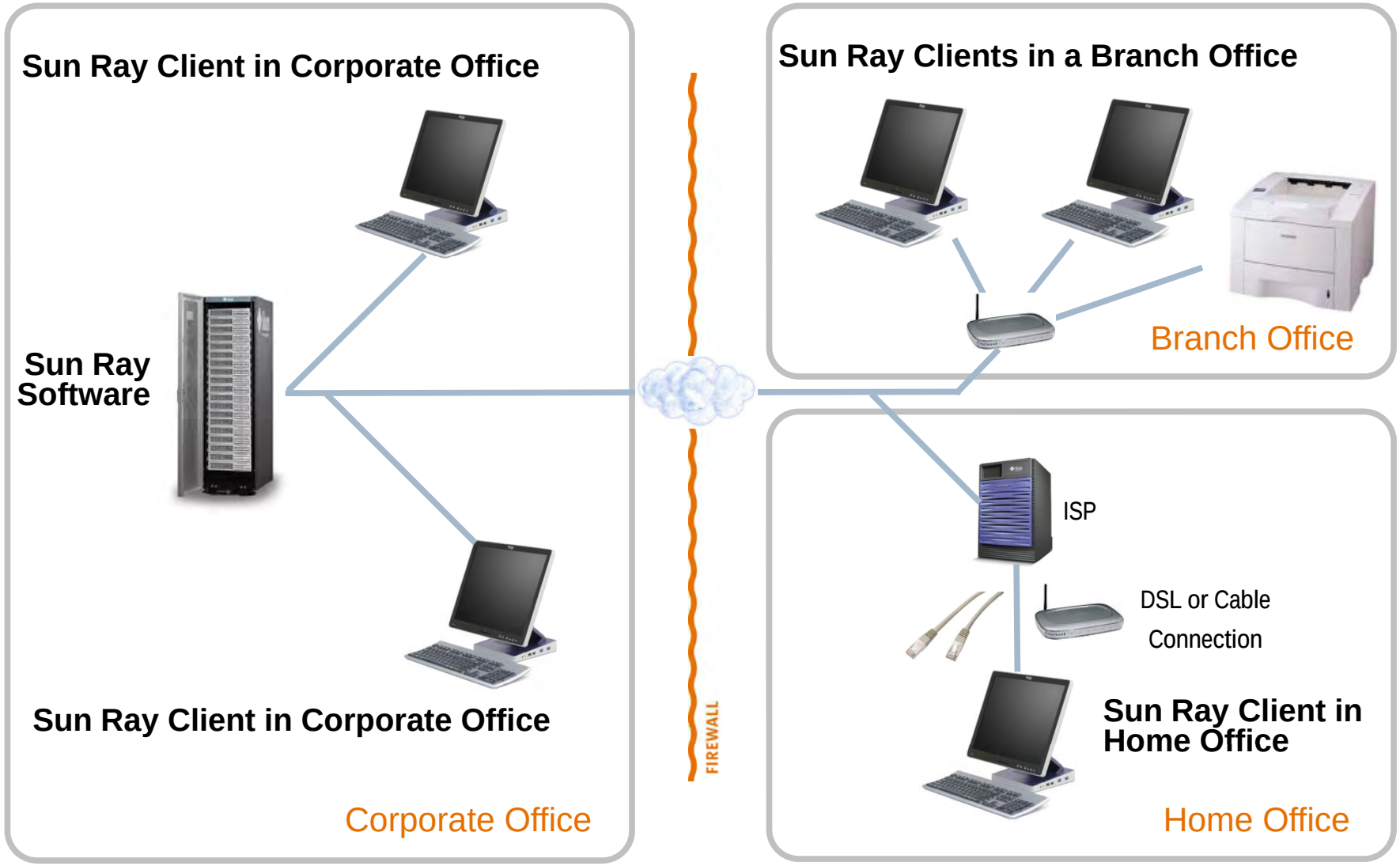
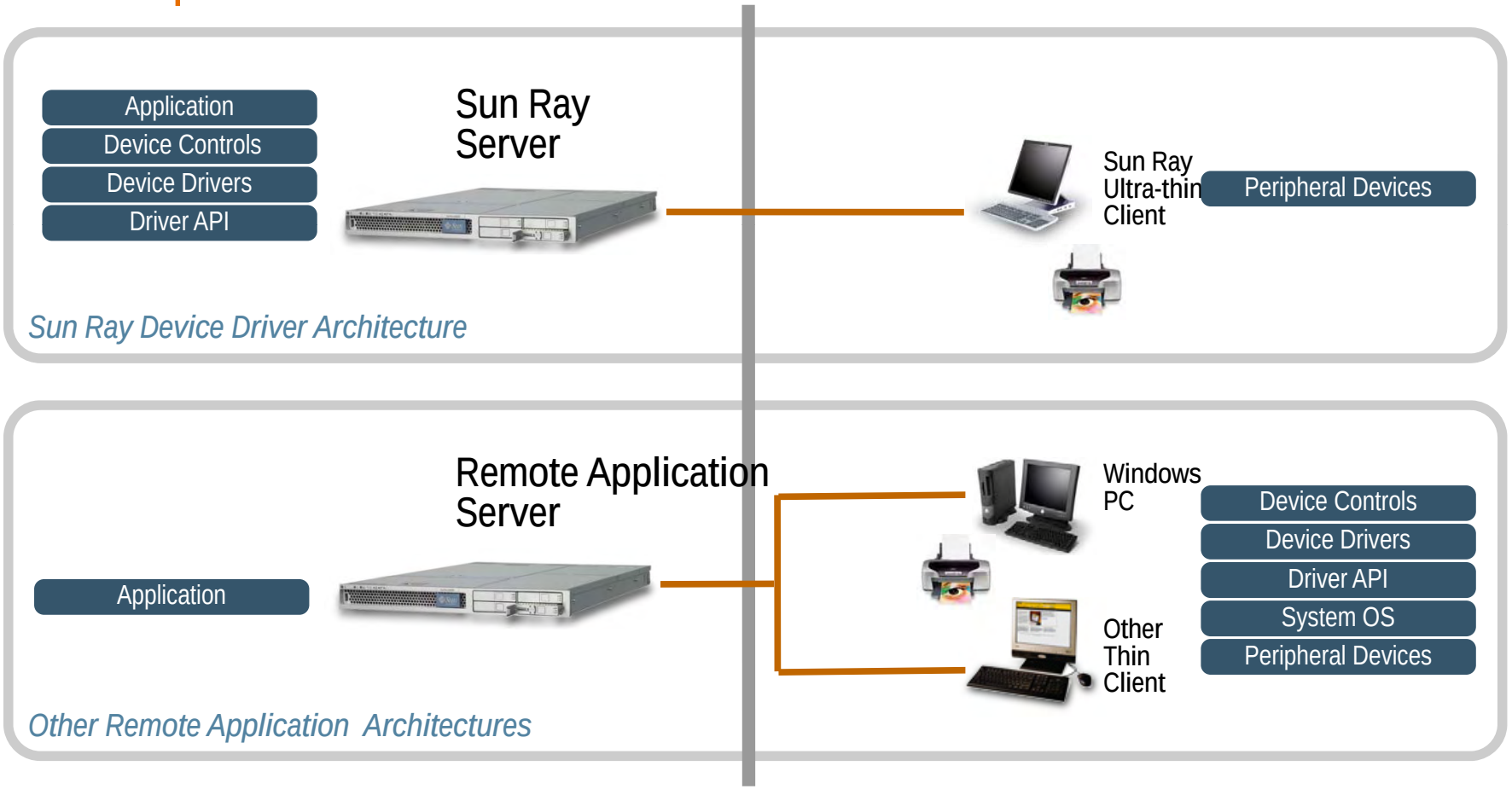
Deployment Options



Remote Driver Architecture

A Comparison



Wide Peripheral Support

- USB HID CLASS
  - **Keyboards**
  - **Mice**
  - **Bar Code Scanners**
  - **Magnetic Stripe Readers**

- VENDOR SPECIFIC DRIVERS
  - **USB Flatbed Scanners (SANE)**
  - **USB Digital Cameras (gPhoto)**
  - **Serial Specialty Printers**
  - **USB Biometric Scanners**
  - **USB/Serial Bank Teller Peripherals**
    - Open Source Drivers Through LIBUSB AF

- USB PRINTER CLASS
  - **USB Printers (Post Script)**
  - **Other Printers through Ghostscript/ Vividata SW**

- USB MASS STORAGE CLASS
  - **Hard Drive**
  - **Zip Drive**
  - **Flash Disk**

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Intelligence / Government Case Study

- Reduced acquisition costs by consolidating multiple PC clients into a single Sun Ray ultra-thin client
- Improved end-user operational efficiencies in the secure information workflow with little incremental training
- Compatible with over 150 existing applications and INFOSEC tools
- Highly scalable, with reduced administration, rock-solid security, and easy deployment
- Provides complete audit trail facilities
- Tested and validated to DIA Accreditation

Sun Ray Solution supporting coalition forces at the Joint Intelligence Center of the Pacific (JICPAC)

Problem:
How to deploy a COTS single desktop that provides secure access to multiple information classifications and applications under gov't accreditation

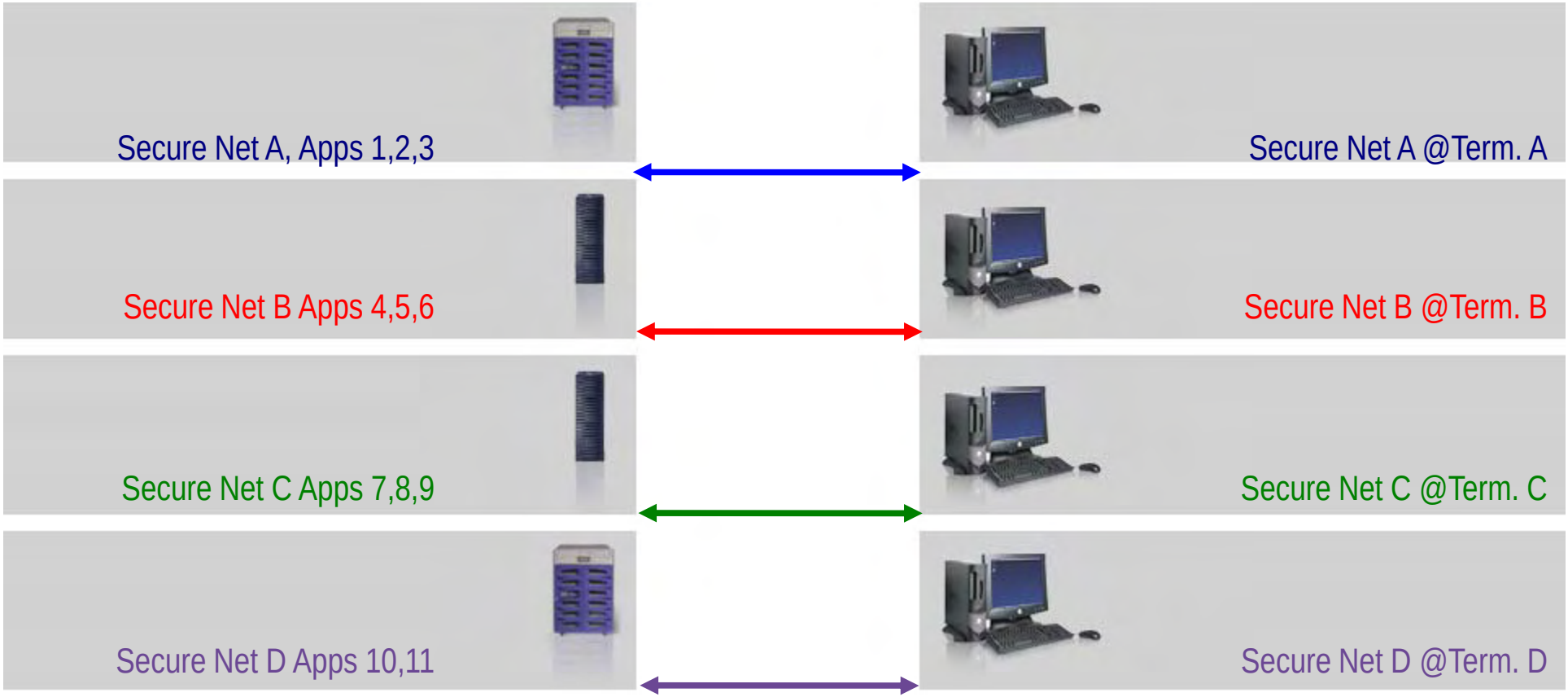
Solution:

- Sun Ray Ultra-Thin Client
- Sun Netra(TM) servers
- Trusted Solaris(TM) Operating System
- TCS Secure Office

Trusted Networking

Trusted Networking

Before: Secure through Physical Isolation



Changing the Game:Single Multi-Tiered Secure Communications

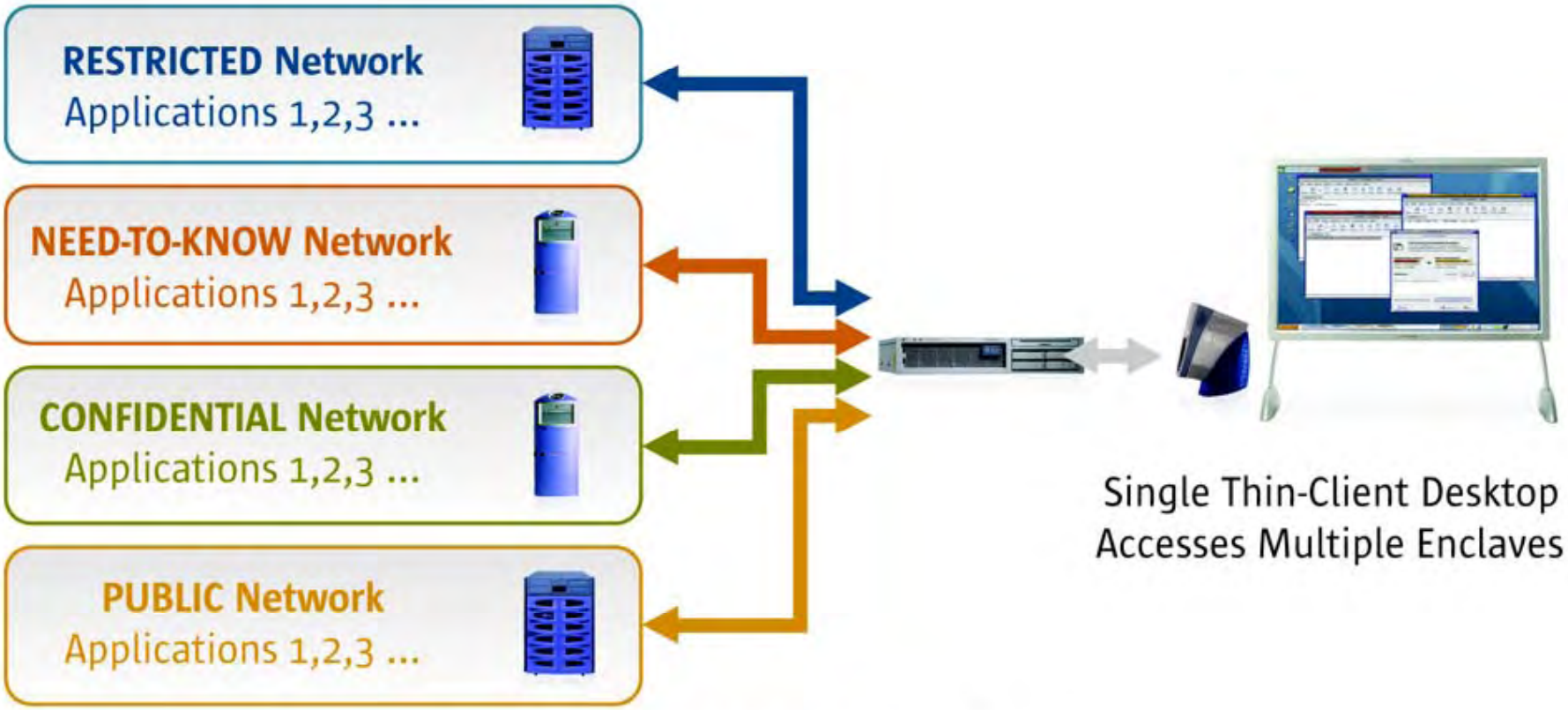


Figure 2. The Secure Network Access Platform –
Providing a single desktop with secure access to multiple security enclaves

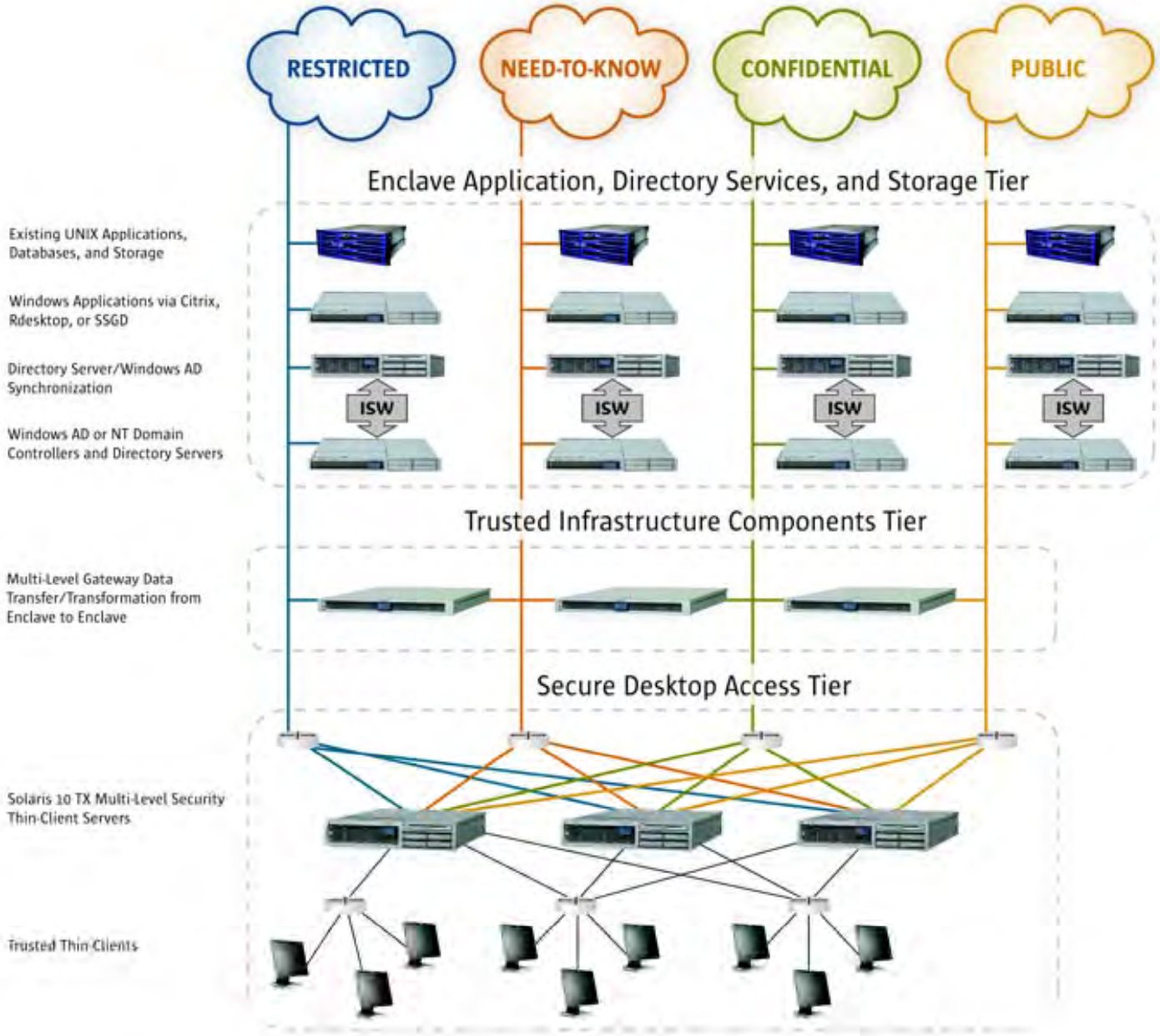


Figure 5. The Next Generation of the Secure Network Access Platform

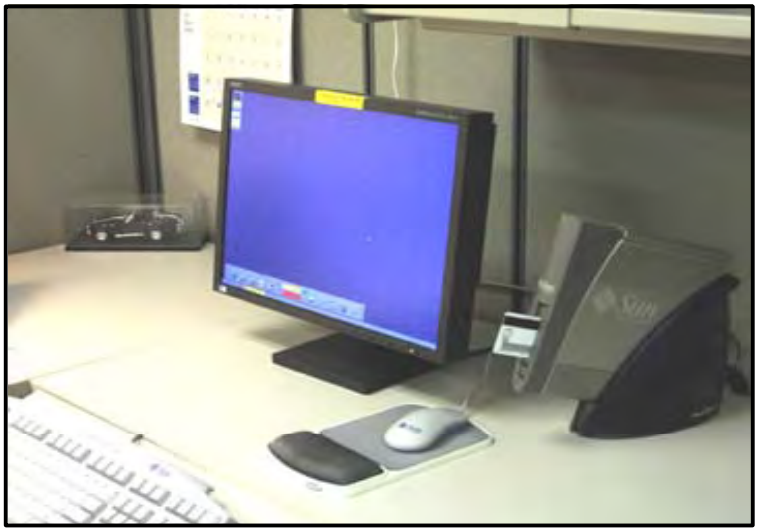
Trusted Networking

Before:

To ensure a high level of security physically isolated clients were deployed often resulting in up to 10 different PCs in a single office.

After:

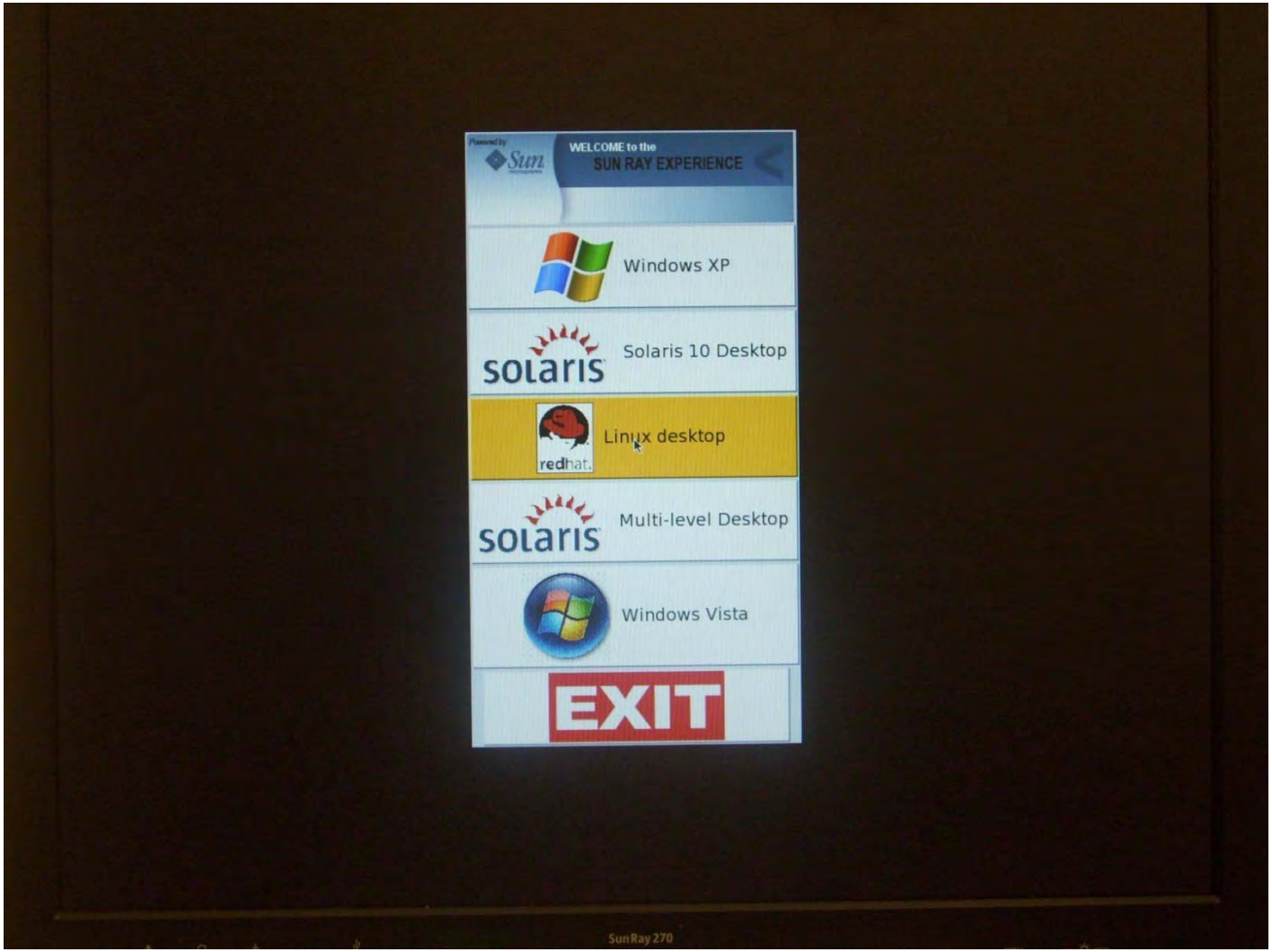
Full Session Mobility enabled by a single stateless Sun Ray front-end and protected by a Trusted Solaris based back-end



Demonstration

- How do you do a live demo without a video feed?

Demonstration



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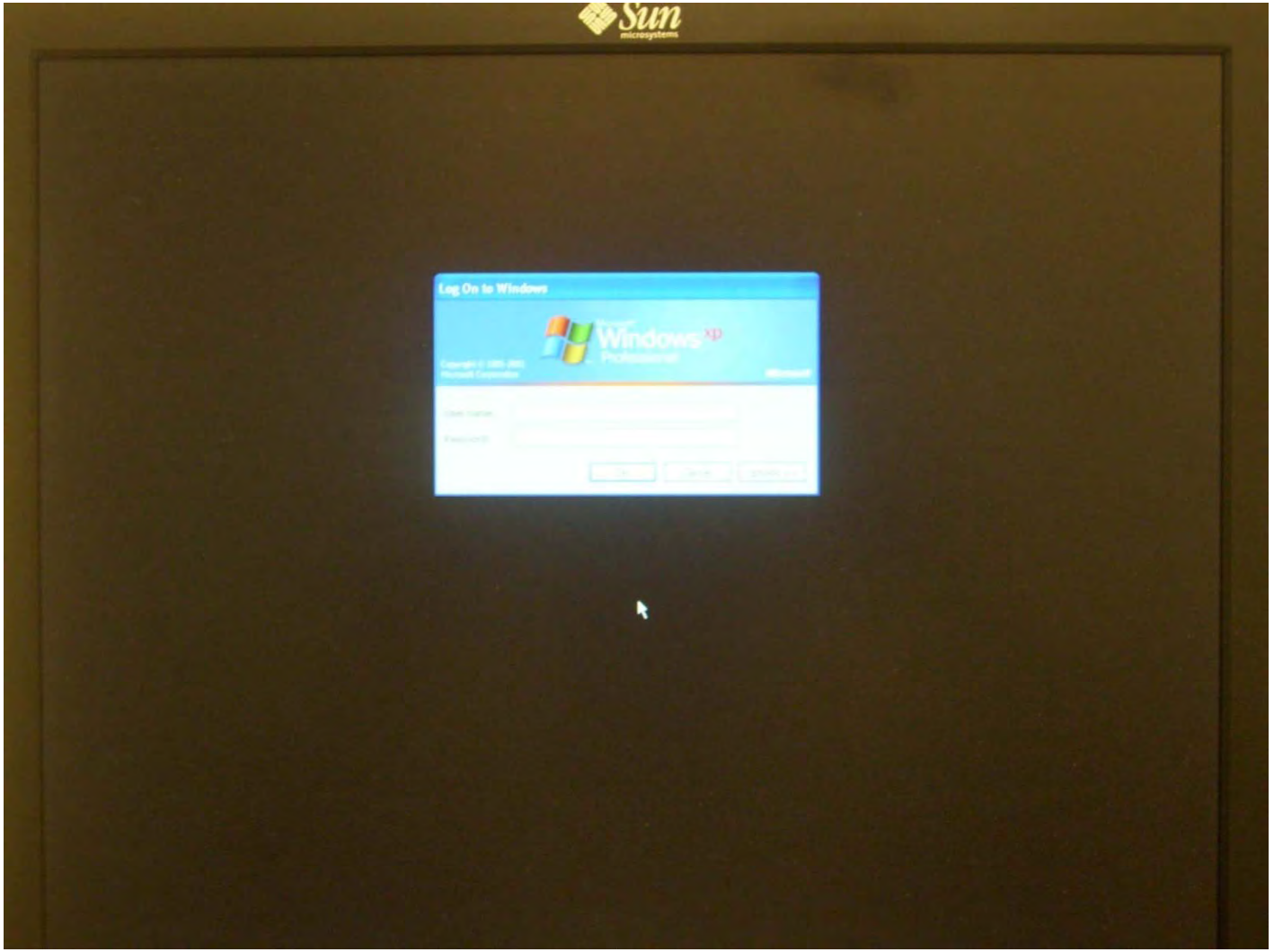

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Sun Virtual Display Computing Offerings

Data Center

Sun Secure Global Desktop Software

Enhance existing devices by providing secure access to applications of any type

Sun Ray™ Software

Deploy virtual display clients for end-users that don't require a PC

Sun Ray Clients

Sun Secure Global Desktop Software

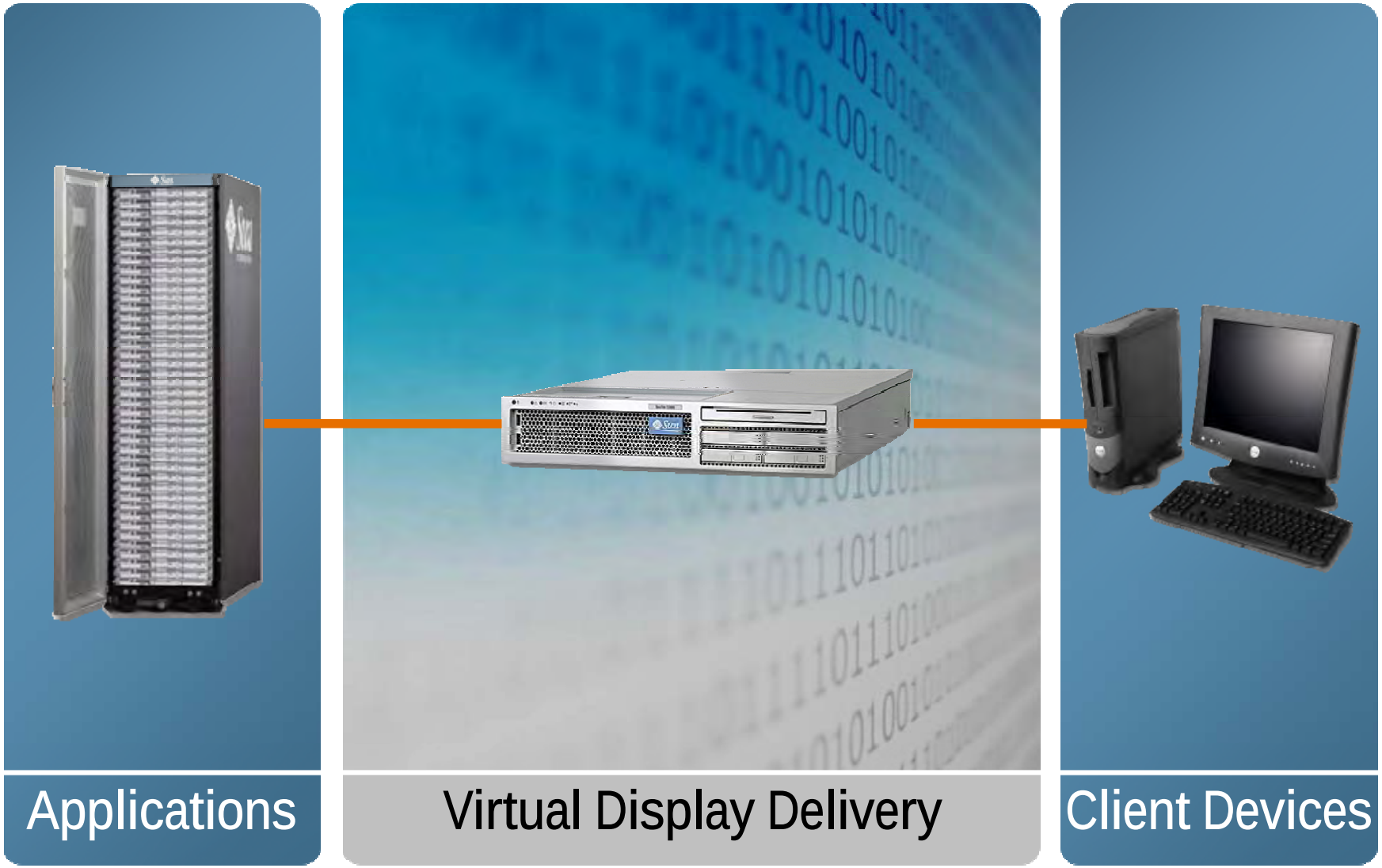
Secured Applications and Data

Business Continuity

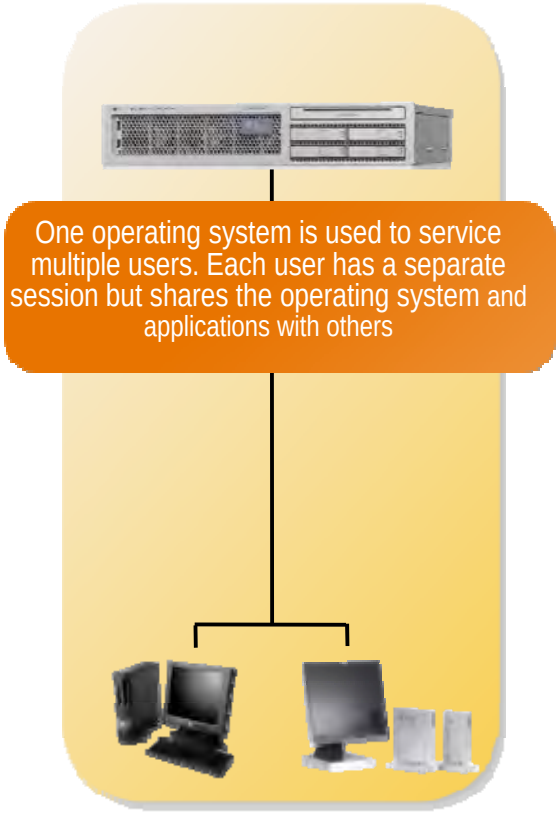
Mobility

Application Choice

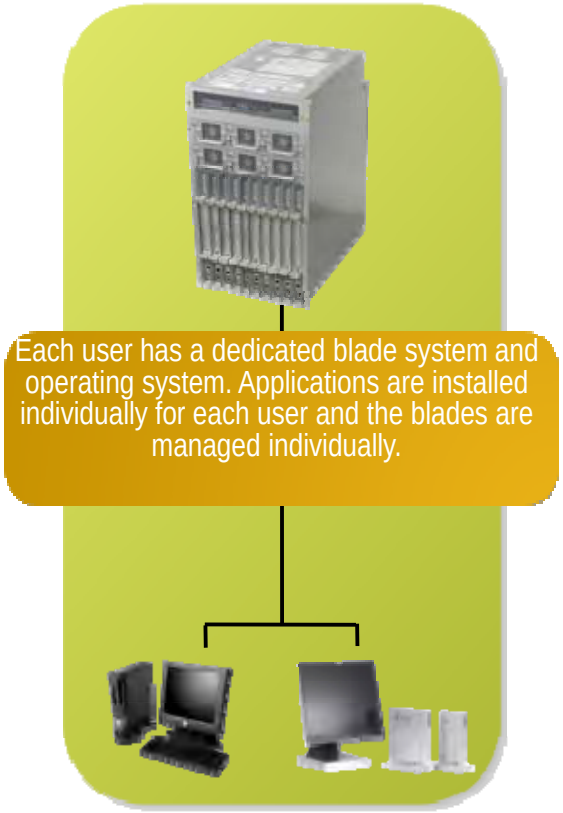
Architecture



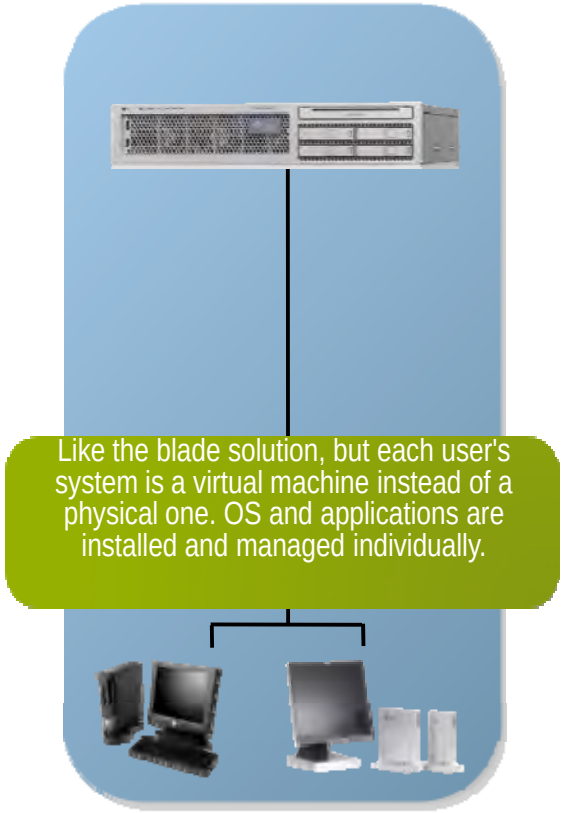
Desktop Virtualization Solutions



Multiple Users
Per Server



Each User With
Dedicated Blade



Each User With
Dedicated VM (VDI)

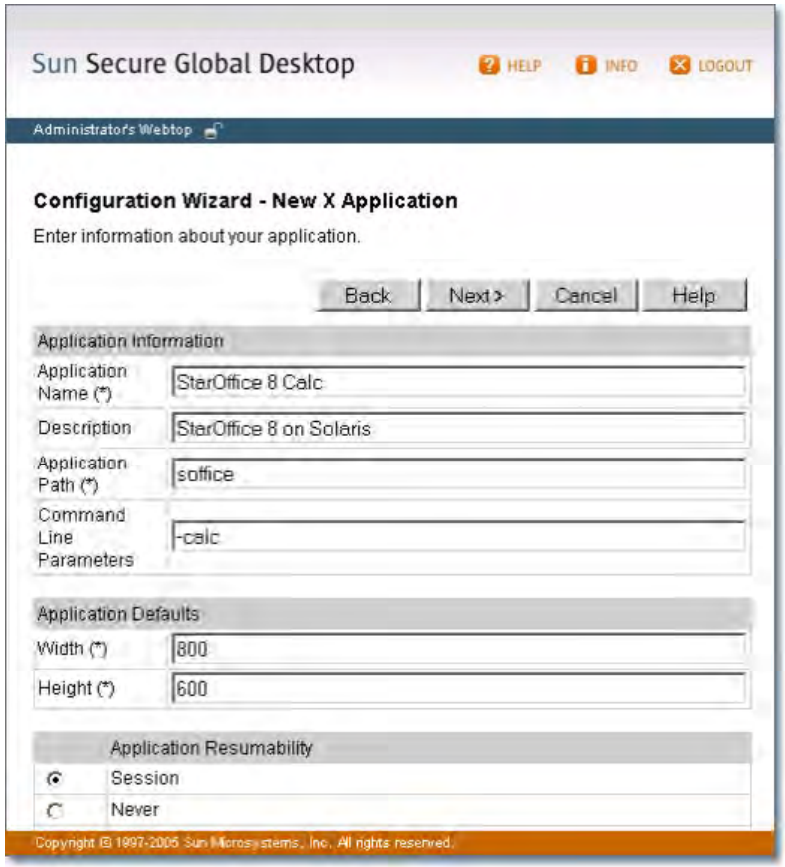
Easy to Use

Seamless Integration with the Client Environment

- Remote applications behave like local applications
- No re-training required, reduces user concerns about using virtualized display applications
  - > Applications launch from user's Start or Launch menu
  - > Remote windows integrate seamlessly with local windows
  - > Open and save local documents with remote applications (if allowed by admin)
  - > Print to local printers (if allowed by admin)

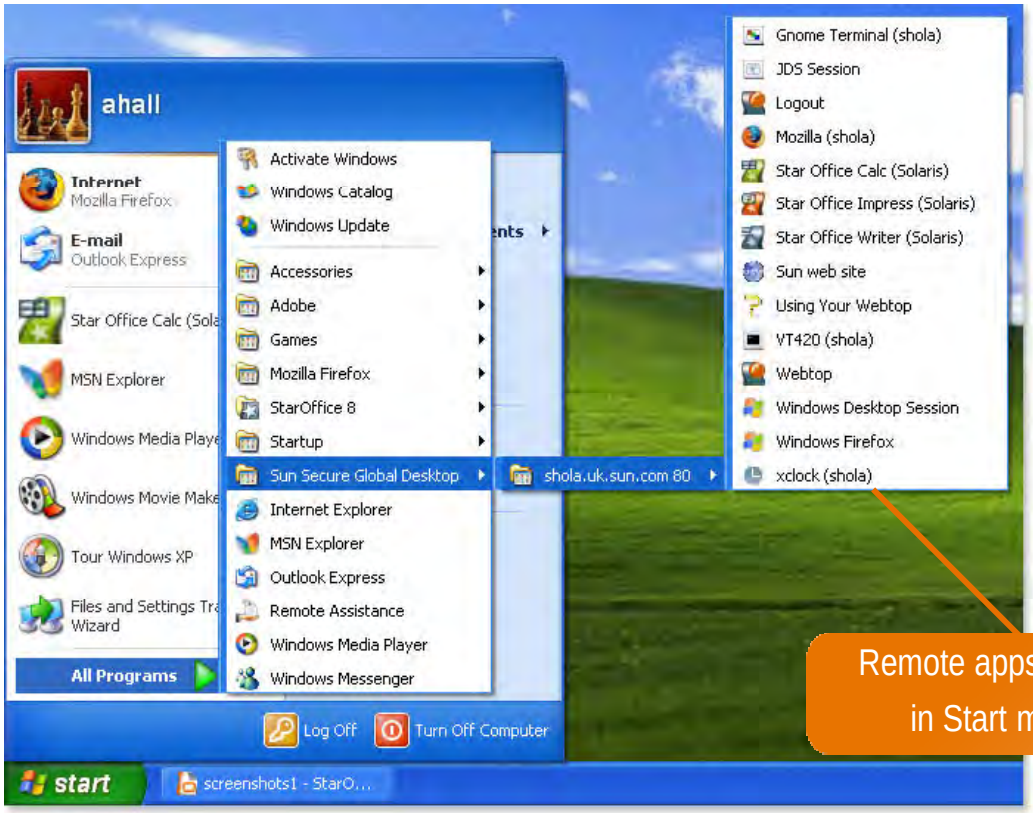
Simple Application Publishing

- New applications can be deployed in minutes
  - > Administrators provide details of the new application in a simple, web-based interface
  - > Access is then granted to specific users or groups of users
  - > Applications are available to users instantly

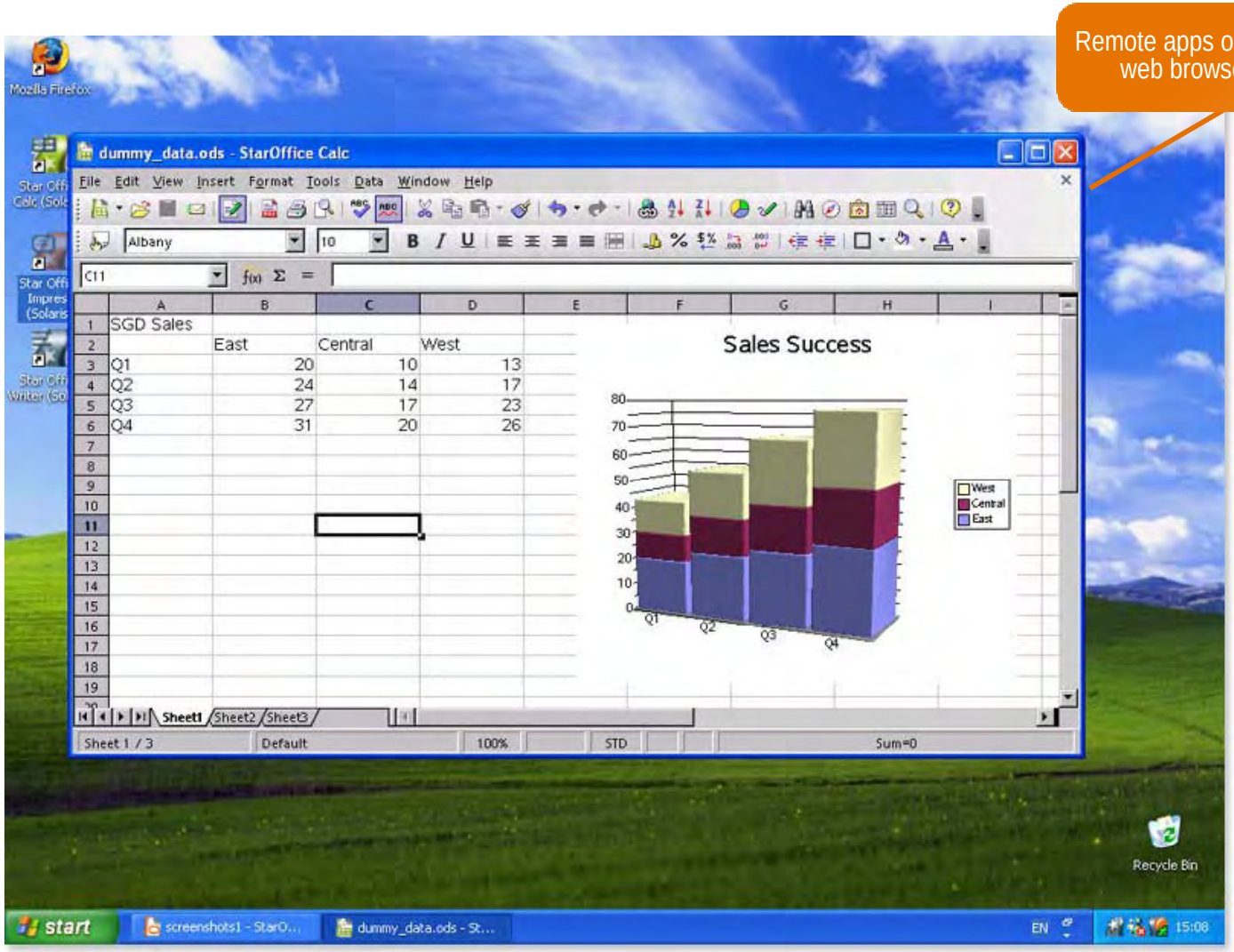


Seamless User Experience

Application Launch Integration



Application Launch Integration



Suspend & Resume

Excel suspended on Windows XP

Excel resumed on Sun Ray

Suspended Session

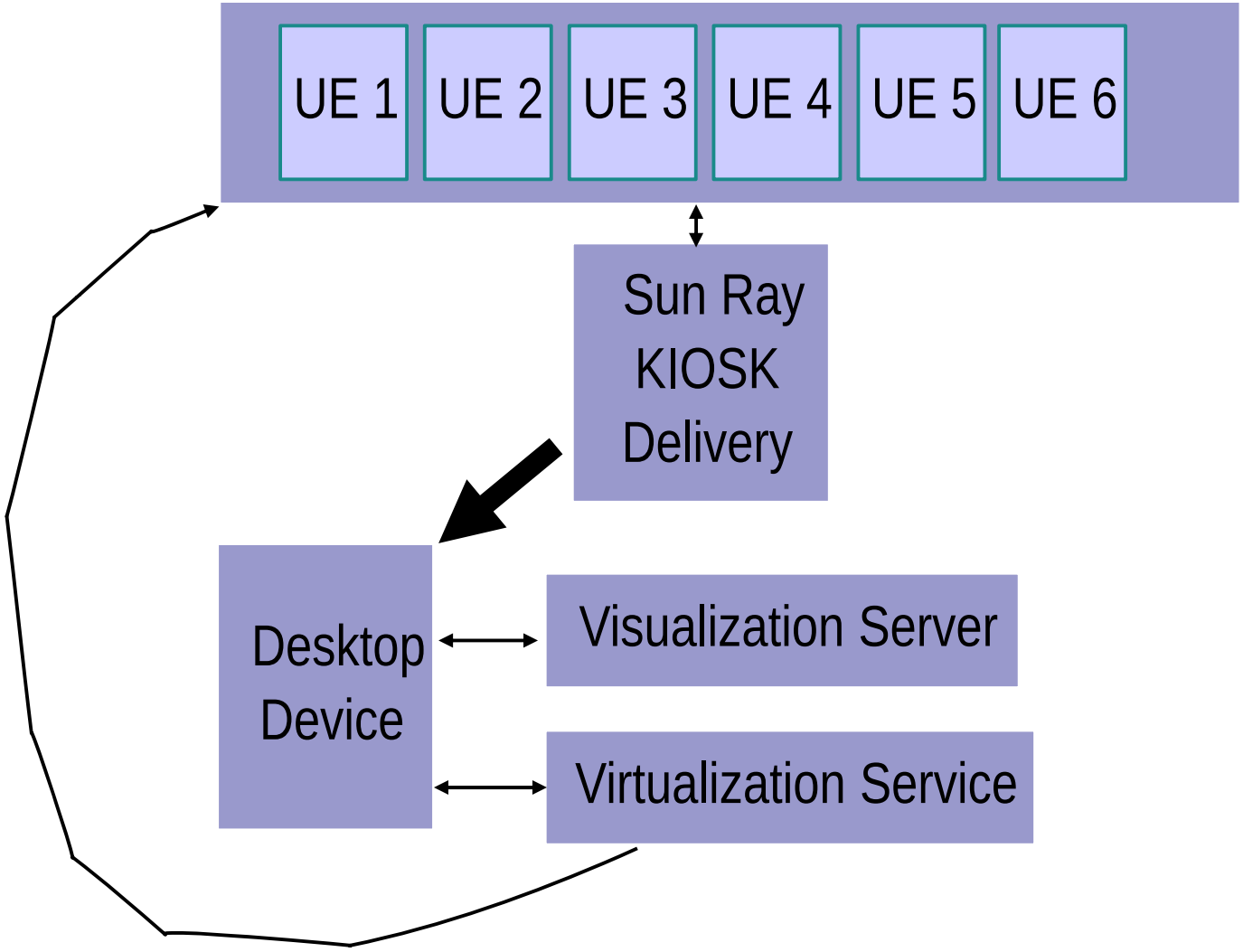
Resumed Session

Access Windows XP Pro Remotely

Simple access from any supported client

Remote Windows XP Pro desktop opens in a window or full screen

Enterprise Desktop Virtualization



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10 Things About SunFed

- We know the meaning of industry leadership.
- Sun gives you platform choice (AMD/Intel, UltraSPARC®, and T2 SPARC).
- We support the best operating systems (OpenSolaris™, Linux, and Windows).
- Sun is a leader in saving space, heat, and power.
- We invented green computing to save you money.
- Sun is the number one leader in open source software.
- We'll protect your identity and help you implement a service-oriented architecture.
- Sun helps you manage and protect your data, not just store it.
- We know you need answers, not more consultants.
- Sun partners with you — and your partners.

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