

# Sun Java™ Desktop System: Choosing the Right Platform

A Technical White Paper  
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## Chapter 1

# Document Overview

The Sun Java™ Desktop System is an affordable, comprehensive, fully integrated desktop client environment that includes administration and developer tools as well as enterprise-ready support to help reduce the complexity of desktop management and provide a secure computing environment. The Java Desktop System lowers business costs by supporting existing hardware, while offering end users an easy-to-use desktop interface. The components of the desktop are based on open source and open standards, and include the GNOME desktop environment, StarOffice™ productivity suite, Mozilla™ browser, Evolution mail and calendar client, and Java 2 Platform, Standard Edition (J2SE™ platform). The Java Desktop System offers server-side administration tools to enable centralized configuration, deployment, and administration of the user desktop environment. In addition, the Java Desktop System also includes advanced developer tools to assist developers in creating Java technology-based applications for the desktop.

This document provides the IT implementor, such as a CIO, system architect, IT manager, or system administrator, with comparative information and recommendations to use when choosing the optimal operating environment in which to run the Sun Java Desktop Environment. With Release 3 of this award-winning desktop system, Sun delivers choice to customers — offering an integrated desktop environment that is supported in the Solaris 10 SPARC, the Solaris 10 x86, or the SUSE Linux operating environment. In addition to a description of the major differences between, and advantages of, these operating environments, the document also offers specific recommendations for choosing among them based on specific customer IT scenarios.

## Chapter 2

# Three Operating Environments for Greater Choice

### **Release 3 Offers Customer Choice**

With Release 3, the Sun Java Desktop System is supported in any of three operating environments:

- Solaris 10 SPARC
- Solaris 10 x86
- SUSE Linux

With each of the three implementations of the Sun Java Desktop System, the corresponding operating system is included, offering customers a complete and integrated desktop environment.

While choice is always good, customers may be unsure which operating environment implementation to use. Understanding the differences between, and the advantages of, each of these operating environments can help customers make the right choice.

### **Major Features of Sun Java Desktop System Implementations**

The table below describes the major features of the three Sun Java Desktop System operating environments. The differences and advantages of each will be further discussed in the chapters to follow.

<b>Category</b>	<b>Solaris 10 SPARC</b>	<b>Solaris 10 x86</b>	<b>SUSE Linux</b>
<b>License</b>	<p>Open Source Common Development and Distribution License (CDDL)*</p> <ul style="list-style-type: none"> <li>Enhanced Mozilla Public License (MPL) for Better Copyright Infringement and Patent Indemnity Protection</li> <li>Collaboration via OpenSolaris</li> </ul>	Same as JDS Solaris 10 SPARC	<p>Open Source General Public License (GPL) Based on SUSE Linux Enterprise Server 9</p> <ul style="list-style-type: none"> <li>Broad Linux Developer Community</li> <li>Collaboration With Other GPL Projects</li> </ul>
<b>Security</b>	<p>Integrated and Proactive</p> <ul style="list-style-type: none"> <li>Process Rights Management</li> <li>Integrated Role-Based Access Control</li> <li>ZFS File System</li> <li>Solaris Containers</li> <li>Trusted Solaris™</li> </ul>	Same as JDS Solaris 10 SPARC	<p>Community Based</p> <ul style="list-style-type: none"> <li>Security Patches Passed Through Directly from Linux Community</li> </ul>
<b>Availability</b>	<ul style="list-style-type: none"> <li>Solaris Fault Manager</li> <li>Solaris Service Manager</li> <li>Predictive Self-Healing, Self-Management, and Self-Tuning</li> </ul>	Same as JDS Solaris 10 SPARC	<ul style="list-style-type: none"> <li>Based on SUSE Linux Enterprise Server 9 Server Software</li> </ul>
<b>Software Compatibility</b>	<ul style="list-style-type: none"> <li>Solaris Application Guarantee Program</li> <li>Solaris Compliance Assurance Toolkit/Public Application Binary Interface (ABI)</li> </ul>	Same as Solaris 10 SPARC Plus Can Run Native Linux Applications	<ul style="list-style-type: none"> <li>Compatible With Linux Desktop and Server Products, Especially Those Based on SUSE Linux</li> </ul>

\* The Solaris operating environment is also available as a commercial license for customers are not interested in open source software options.

	<ul style="list-style-type: none"> <li>• Linux Standard Base</li> </ul>		
Hardware Compatibility	<p>Works With Sun Servers, Workstations, and Thin Clients</p> <ul style="list-style-type: none"> <li>• Solaris SPARC Workstations</li> <li>• Sun Ray Thin Clients</li> </ul>	<p>Works With Most Fixed-Position Mainstream Hardware</p> <ul style="list-style-type: none"> <li>• x86 Architecture Systems</li> <li>• Hardware Certification Test Suite Adds 250+ Other Hardware Systems</li> <li>• Sun Ray Thin Clients</li> </ul>	<p>Works With Broad Range of Hardware</p> <ul style="list-style-type: none"> <li>• Most Laptops and Wireless Devices</li> <li>• Older, Less Popular, and/or Specialized Hardware</li> <li>• Sun Ray Thin Clients</li> </ul>
Performance	Dynamic Tracing (DTrace)	Same as JDS Solaris 10 SPARC	No DTrace Equivalent
Stability	<p>Integrated, Tested, and Stable</p> <ul style="list-style-type: none"> <li>• Predictable Lifecycles</li> <li>• Consistent</li> <li>• Documented</li> </ul>	Same as JDS Solaris 10 SPARC	<p>Rapid Innovation</p> <ul style="list-style-type: none"> <li>• Faster Adoption Rate</li> <li>• Based on SUSE Linux Enterprise Server 9 Server Software</li> </ul>

Table 1. Comparing major features of Sun Java Desktop System operating environments

## Begin With Desktop Hardware

Because compatibility with existing hardware *directly* affects which Sun Java Desktop System implementation a customer should use (see *Customer Scenarios and Corresponding Operating Environment Recommendations* in Chapter 6), it is important to consider both existing and planned desktop hardware configurations at the very earliest stages of desktop software evaluation.

Customers often want to continue using whatever desktop hardware is currently deployed. If that’s the case — and if little or no hardware configuration standardization is in place — then the Sun Java Desktop System for Linux is the right choice.

However, the question of deploying alternative desktop software system can —and perhaps should — act as a catalyst for evaluating a company’s overall desktop hardware configuration. PCs offer a short lifecycle — typically between one and five years — and are therefore an expensive choice. In contrast, thin clients extend the hardware lifecycle to 10 years or more. Additionally, using thin clients, the Sun Java Desktop System can be cost-effectively managed with thousands of instances, which is far more difficult with fat clients.

Because Sun's overall objective for the Sun Java Desktop System is to lower cost by leveraging both commodity software and hardware (especially when compared with Microsoft Windows implementations), customers are advised to evaluate alternative desktop hardware early on, to further lower acquisition costs and reduce ongoing maintenance and administration.

### **The Networked Services Model**

The networked services model of computing provides customers with an interoperable desktop solution that significantly reduces the maintenance, upgrading, and operational costs associated with most "fat" PC client environments. Customers may want to consider this model of desktop computing to consolidate compute cycles and memory at the server, as well as in compute farms. Sun offers Sun Ray Ultra-Thin clients that are simple "plug-and-work," zero administration devices. As such, they are completely stateless and easily replaceable. Sun Ray Ultra-Thin clients can run all three Sun Java Desktop System implementations and offer not only lower acquisition and maintenance costs but also bring server-class performance, session mobility, improved workflow, and increased data protection to the desktop. Sun Ray building blocks are the simplest way to configure and purchase a Sun Ray Ultra-Thin Client environment and hundreds of technical applications are available now for use as networked services. All of these building blocks may be remotely deployed, managed, and multiplied to create Sun Ray deployments of any size.

### **Workstations for More Processing Power**

Sun also offers a wide array of desktop workstations for users who require more processing power. The Sun Java Desktop System can be deployed on Sun workstations as a standalone desktop application or, using Sun Ray Server Software, as a network service that is centrally managed and administered. The combination of thin clients and PCs at the desktop allows companies to utilize the best of the network services model while still deploying extra processing power where it is needed. This scenario meets the needs of all users while providing low Total Cost of Acquisition (TCA) and even lower Total Cost of Ownership (TCO).

## Chapter 3

# Sun Java Desktop System: Solaris 10 SPARC

### What Is It?

Sun's Solaris 10 Operating System is an industrial-grade UNIX environment that is designed for both performance and reliability and can be scaled and evolved as business needs change. Sun's ability to quickly add support for new processors and maintain feature parity is testimony to the adaptability of the Solaris platform. The Solaris 10 Operating System is built from a single source base and is optimized to run on multiple platforms. It is also easily extensible and can grow in an evolutionary fashion without the major, error-prone rewrites that are typically required from one release of software to the next.

The Solaris 10 SPARC Operating System supports scalability with Sun UltraSPARC 64-bit and Fujitsu SPARC64 servers and workstations as well as Sun Ray Ultra-Thin clients.

### How Does It Differ?

The Solaris 10 Operating System and Linux are both UNIX operating systems and share the same basic structure, using similar (sometimes identical) commands, configuration files, and programming styles.

The major differences between the Solaris 10 Operating System and Linux are:

- The Solaris 10 Operating System is based on the open source Common Development and Distribution License (CDDL).
- It is an integrated, stable operating environment.

### What is the CDDL?

Both the Solaris 10 Operating System and Linux are based on open source licenses, although the license model for each differs. The GPL GNU under which Linux is licensed has been in existence for many years and is well known and highly regarded for its ability to offer an open source software alternative that lowers costs by leveraging commodity software. The CDDL on which the Solaris 10 Operating System is

based is also an open source license, also offers an open source software alternative, and also lowers costs by leveraging commodity software. The CDDL is crafted by Sun with feedback from the open source community and is approved by the Open Source Initiative (OSI). The license is based upon the well-known Mozilla Public License (MPL), which provides that:

- Modifications must be shared
- Licensed source can be combined with source distributed under other compatible licenses
- Executables can be distributed under a different license.

Sun plans to release as much of the Solaris 10 Operating System source code as possible under the CDDL. Parts of the Solaris distribution are already covered by one or more open source licenses and will remain available under the terms of those licenses. Other code, such as drivers, that are contributed and owned by third parties, may be distributed in binary form only.

Sun is proud to be one of the largest contributors of intellectual property — after the University of California, Berkeley — to the open source community, and continues to expand its participation. The use of the CDDL follows Sun's philosophy that healthy competition in an open marketplace fosters superior implementations, higher quality, and lower cost. Even with innovations that originate at Sun, Sun seeks is to make interfaces open and interoperable, and thus to successfully compete with other vendors by providing the best implementation.

The CDDL is quite new and therefore unfamiliar to the open source software community. As a result, developers may regard the new license with apprehension. However, Sun and the CDDL offer significant protections and advantages to customers, developers, and other open source community members.

#### Better Protection for Copyright Infringement and Patent Indemnity

The CDDL for the Solaris Operating System includes important enhancements to the MPL on which it is based. Foremost, the CDDL is enhanced to clearly define modifications, thereby making it easier to create works that mix code covered under different licenses. The CDDL also allows the initial developer to specify choice of law, venue, and jurisdiction and permits licensors to opt out of new versions of the license. Additionally, the CDDL contains strong protections against patent litigation.

#### Collaboration via the OpenSolaris Program

Sun is building an open community around the CDDL with the OpenSolaris Program, which allows developers to closely collaborate with Sun engineers. The result will be a larger developer community, with better applications and a better operating environment. The OpenSolaris Community Advisory Board initially includes five advisors: two Sun staff members, two participants from the pilot community, and one member representing the broader open source community. These members were nominated by external advisors and named in March 2005. To find out more, see [www.opensolaris.org](http://www.opensolaris.org) for a program roadmap as well as FAQs, blogs, event information, news, and community links. Continuing its involvement with the open source community, Sun has also joined the Open Source Development Lab (OSDL) to help further the development of open standards and to lend its expertise in the data center and carrier-grade markets.

## Integration and Stability

Another important way the Solaris 10 Operating System differs is that unlike Linux, which is known for rapid evolution and adoption of innovation, the Solaris operating environment is very stable and offers predictable lifecycles, thorough testing, and complete documentation. Although most software developed for the SUSE Linux environment is also available for the Solaris operating environment, there is undeniably a time lag while new software is tested by Sun for stability, consistency, and integration. This slower approach allows Sun to establish standards for consistency, code review, documentation, and compatibility. Coupled with a compliance assurance toolkit and a binary compatibility guarantee between versions of Solaris, the Solaris Operating System provides a stable platform for innovation that protects software investments.

### Modular Design Principles

The Solaris Operating System is modular, making it possible to provide non-disruptive growth and evolution on top of a stable core. The compact code base of the Solaris kernel is dynamic, composed of a core system that is always resident in memory, with services beyond the core loaded as needed.

### Solaris Compliance Assurance Toolkit

Sun supports a public application binary interface (ABI) that is designed to help applications run on all Sun systems without modification. This helps ensure binary compatibility throughout the SPARC product line as well as for x86 platforms. It enables Sun to make improvements in the Solaris Operating System so long as the improvements conform to the ABI. Because the interface is consistent, regardless of the underlying hardware platform, the ABI enables developers to easily move an application from one architecture to another. Sun provides a set of compatibility-testing tools in the Solaris Compliance Assurance Toolkit. This toolkit includes the new Solaris Application Scanner, which quickly assesses whether software that runs on previous versions of the Solaris Operating System will run on the Solaris 10 Operating System.

### Solaris Application Guarantee Program

Because the Solaris 10 Operating System is built from a common source base, delivering the same programming interfaces on any platform or system, developers can maintain one source base with just a recompile necessary to support both SPARC and x86-based platforms. In addition, to protect software investments, Sun offers the Solaris Application Guarantee program, which guarantees binary compatibility between versions of Solaris on each platform and includes extensions that cover application source code compatibility. This program is particularly valuable to customers who use custom software applications.

## What's Better?

The Solaris 10 Operating System offers more enterprise features and other significant advantages over the Linux operating environment, many of which result in lower costs. Highlights are presented here and many more details are available on the Sun website.

## Significant Security Advantages

The Solaris 10 Operating System adds significant features that can help defend against attacks by preventing unauthorized access to data and applications. Integrated Role-Based Access Control (RBAC) provides strict control over the access rights that both users and applications can exercise. Process Rights Management, a feature that was once available only in the Trusted Solaris™ product, further restricts access by pre-assigning access rights to user processes. This feature significantly limits the damage that can be done if a process is somehow compromised by an attack. It also makes it easy to harden Solaris Operating System environments and provides the security foundation for Solaris Containers. The Solaris Cryptographic Framework brings consistent, transparent use of streamlined cryptographic functions and hardware crypto accelerators to both kernel- and application-level software. And an open source firewall helps lock down systems while minimizing administrator learning curves.

## Optimal Utilization

Solaris Containers technology is a new and better approach to virtualization, offering multiple software partitions on a single operating system instance. Solaris Containers make it simple, safe, and secure to consolidate data center servers. They help organizations to align resource allocation with business goals, increase uptime with partitions that can reboot in only a few seconds, and reduce costs by simplifying and accelerating consolidation efforts while reducing system administration and maintenance overhead.

## Performance Advantages

The Solaris 10 Operating System includes a new TCP/IP stack that brings performance of UltraSPARC processor-based servers on par with x86 architecture servers having double the clock rate. It includes system call performance improvements across the board, including many 15x and some 25x speed-ups. Key to overall data center efficiencies is application performance — and Solaris DTrace is a powerful tool to analyze and diagnose elusive problems in real time. Safe and comprehensive, it provides a virtually unlimited number of probes, simplifying the task of locating failures and performance bottlenecks. Requiring minimal overhead when activated, it uses zero overhead when deactivated. These and other new features can squeeze up to 80 percent utilization out of each of server, improve application performance by as much as 30 times, and automatically configure failing components out of the system.

## Enterprise-Class Availability

The Solaris 10 Operating System helps reduce downtime through Solaris Fault Manager and Solaris Service Manager, designed to work together to not only reduce downtime but also reduce complexity. It helps organizations isolate applications through Solaris Containers, and minimize the risk of data loss with Solaris ZFS. For even greater availability, customers can choose Trusted Solaris for unmatched levels of privacy, increased accountability, and reduced risk of security violations. The latest release of the Trusted Solaris Operating System features Extended Support for x86 platforms and two new editions: Certified and Standard Editions for both SPARC and x86 platforms.

## Linux Interoperability

Sun has made Linux interoperability a high priority and is delivering compatibility between the SUSE Linux and Solaris operating environments through Java technology, common interfaces, and tools. Sun

also helps drive the latest compatibility standards, such as the Linux Standard Base (LSB). All desktop Java technology is available for both the Solaris Operating System and SUSE Linux, including Java 2 Platform, Standard Edition (J2SE platform) and Java Web Start. Sun also delivers an enterprise development platform for the Solaris Operating System and for SUSE Linux: Java Studio Enterprise plus Sun Studio developer tools. In addition, Sun has contributed 150+ staff years of work for NetBeans software, which serves as the foundation for Java Studio Creator and Java Studio Enterprise.

### **Hardware Platform Choice**

The Solaris 10 SPARC Operating System supports the newest UltraSPARC processors, including UltraSPARC IV chips, as well as Sun Ray Ultra-thin clients. Customers can employ these thin clients to further lower costs and to increase desktop hardware lifecycles.

## Chapter 4

# Sun Java Desktop System: Solaris 10 x86

### What Is It?

The Solaris 10 Operating System has been extended to include support for x86 architecture systems. In virtually all other respects, the Sun Java Desktop System for the Solaris 10 x86 Operating System shares the same features, benefits, service, and support characteristics as that of the Solaris 10 SPARC implementation. This brief chapter describes only the characteristics specific to the Sun Java Desktop System for Solaris 10 x86 implementation. Refer to Chapter 3 for a full description of Solaris 10 Operating System.

### How Does It Differ?

The major differences between the Solaris 10 x86 Operating System and the Solaris 10 SPARC Operating System include:

- The Solaris 10 x86 Operating System is designed for x86 hardware.
- The Solaris 10 x86 Operating System can run native Linux applications.

### Designed For x86 Hardware

With the introduction of the Solaris 10 x86 Operating System, Sun has expanded the reach of the Solaris operating environment to include:

- Sun and third party x64 platforms (AMD Opteron-based and Intel EM64T-based systems) for extending customer investment in x86 systems with new, 64-bit functionality
- Sun and third party 32-bit x86 platforms for low-cost performance
- More than 250 (and growing) other hardware components

Sun offers the Hardware Certification Test Suite (HCTS) to advance the growth of supported third-party hardware for the Solaris 10 x86 Operating System, thus giving customers even greater choice of deployment platforms. To date, partners and customers have used the HCTS to self-certify more than 250 additional hardware components. Customers can also purchase software-only support for the Solaris 10 x86 Operating System on Sun and third-party x86-based systems listed in the Sun Certified and HCTS certified sections of the hardware compatibility list. Sun Ray Ultra-thin clients can also be used in the Solaris 10 x86 Operating System environment to implement a networked services model that significantly reduces maintenance, upgrading, and operational costs.

### **Running Native Linux Applications**

The Solaris Linux Application Environment, formerly known as Project Janus, enables customers to run some Linux applications unchanged in the Solaris x86 Operating environment. The Linux Application Environment is designed to make Solaris LSB compliant when operated with an LSB-compliant Linux distribution such as Red Hat Enterprise Linux 3. This is, however, a complex topic. To explore it in more depth, see your Sun sales representative.

## Chapter 5

# Sun Java Desktop System: Linux

### **What Is It?**

Sun has built a comprehensive desktop environment on top of an existing commercial Linux distribution – the SUSE Linux Enterprise Server 9. The Sun Java Desktop System for Linux implementation is distributed with the SUSE Linux Desktop operating system included, offering customers a complete and integrated desktop environment. Sun has altered the packages — the basic building blocks of any UNIX or Linux distribution — normally included with the SUSE Linux Enterprise Server 9 distribution to remove server packages and to add Sun Java Desktop System component packages. All the installer, hardware detection, and hardware compatibility components that make Linux work well with Intel-compatible hardware are included.

### **How Does It Differ?**

As mentioned previously, Linux and the Solaris 10 Operating System are both UNIX operating systems that share the same basic structure and use similar commands, configuration files, and programming styles. Both operating environments are based on open source software licenses, offer an open source software alternative, and lower costs by leveraging commodity software.

Major differences between Linux and the Solaris 10 Operating System include:

- Linux is licensed under the GNU General Public License (GPL).
- It is an operating environment known for its rapid evolution via enthusiastic adoption of software innovation.

### **What is the GPL GNU?**

The term Linux strictly refers to the Linux kernel, but is commonly used to describe an entire UNIX-like operating system based on the Linux kernel. The Linux open source kernel is free under the terms of the

GNU GPL, which has been in existence for many years and is highly regarded for its ability to offer an open source software alternative that lowers costs. In contrast, the Solaris Operating System is based on the open source CDDL, an enhanced version of the Mozilla Public License.

The Linux operating system was initially created by Linus Torvalds at the University of Helsinki in 1991 and released in 1994 as version 1.0 of the Linux Kernel. There are now literally hundreds of companies and organizations and an equal number of individuals that have released their own versions of operating systems based on the Linux kernel. According to a 2003 IDC report, Linux was growing at 14 percent per year, faster than any other platform. Another report from IDC states that Linux growth is expected to generate \$36 Billion in revenue by 2008. Most of this growth will be in the server market.

The functionality, adaptability, and robustness of the SUSE Linux distribution have made it the main alternative for proprietary Unix and Microsoft operating systems. It has had high-profile success in nearly every industry and segment of the economy. To find out more, see [www.linux.org](http://www.linux.org), a central source of Linux information and the voice for the promotion and advocacy of the Linux operating system. This not-for-profit business offers information about the companies, projects, and groups that use Linux.

### **Rapid Innovation**

Linux is the result of fast-paced growth and evolution and is generally quicker to adapt to new trends than is the Solaris Operating System. A broad community of Linux developers is constantly at work, changing and enhancing the environment. Collaboration among other GPL projects — for example, hardware porting projects and projects that explore performance and parallel processing — also increases the rate of Linux innovation. These rapid changes enable customers and developers to quickly respond to market demands.

While most open source software developed for SUSE Linux is also made available for the Solaris operating environment, there is a distinct time lag while Sun establishes standards for consistency, code review, documentation, and compatibility of new software.

Because the Sun Java Desktop System is available in both Solaris and SUSE Linux operating environment implementations, customers can make their own choice: rapid innovation or stability, consistency, and protection of software investments.

### **What's Better?**

#### **Broader Hardware Support**

As Linux has grown in popularity, it has come to support a broad range of hardware configurations. This presents a distinct advantage when customers want run the Sun Java Desktop System on currently deployed desktop hardware that is not yet supported by the Solaris 10 Operating System. Customers will find this to be particularly true if little to no hardware configuration standardization is in place — or if laptops and wireless devices are part of the overall hardware configuration. The Linux operating environment also supports older, less popular, and/or specialized hardware configurations.

Customers should keep in mind that Sun Ray Ultra-thin clients also work with the Sun Java Desktop System for Linux implementation. Thin clients, or a mixed desktop hardware environment of thin clients and PCs, offer customers the opportunity to further lower costs. By leveraging the thin client alternative, customers can increase the typical desktop lifecycle of one to five years for PCs to more than 10 years for thin

clients. Using stateless, zero administration thin clients in a networked services model, customers can consolidate and share compute cycles and memory at the server while significantly reducing maintenance and upgrade cycles as well as operational and administrative costs.

## Chapter 6

# Customer Scenarios and Corresponding Operating Environment Recommendations

Four generalized customer IT scenarios are presented here, with corresponding recommendations from Sun for the optimal operating environment in which to run the Sun Java Desktop System.

### **Assumptions**

In these scenarios, the following assumptions are made:

- The customer is interested in deploying Sun Java Desktop System software on Intel-compatible hardware.
- The customer has no predisposition for either the Solaris or the SUSE Linux operating environment.

### **Key Decision Points**

Many variables become factors when a customer makes a final operating environment choice for running the Sun Java Desktop System. Among them are:

- Software availability
- Hardware compatibility
- Availability of necessary drivers

Software availability is the first—and overriding—decision criteria. If a company's core software requirements cannot be fulfilled using either the Solaris or the SUSE Linux operating environment, then the recommendations presented here are not applicable. However, most leading enterprise software applications are available in both environments. Microsoft Windows applications are also made available using several technologies. One is the use of the Sun Java Desktop System as a Windows Terminal Server client to deliver a presentation layer service that emulates the Microsoft Remote Display (RDP) Protocol. Alternatively, "bridge" software — that is, software like CodeWeavers CrossOver Office

and TransGaming that are based on the Wine open source project — can be used to replicate the Windows application programming interface (API). Another approach is a dual-boot, multipartition deployment or the use of virtualization products like NeTraverse Win4Lin and VMware Workstation.

In many cases, the key decision point will be hardware compatibility and the availability of necessary drivers. Currently, there are a greater number of drivers available for the Linux operating system running on Intel-compatible desktops — especially laptops and wireless devices — than there are for the Solaris operating system.

When hardware components are unknown or highly variable, the Linux operating environment is generally recommended. In addition, in order to reduce the complexity of a customer's deployment, mixed desktop operating environments are not recommended.

Scenario	Hardware Components	Recommended Operating Environment
1	<ul style="list-style-type: none"> <li>• Rolling out new desktop environment, including new <i>fixed-position desktop hardware</i> and servers</li> <li>--Deploy Sun Ray Thin Clients and Sun Ray Server Software. Review bundling and sizing guidelines at: <a href="http://www.sun.com/sunray/buildingblocks/index.xml">http://www.sun.com/sunray/buildingblocks/index.xml</a></li> </ul>	JDS for Solaris 10 x86
2	<ul style="list-style-type: none"> <li>• Support required for existing deployment of fixed position desktops</li> <li>• Specific, limited hardware configurations</li> <li>• Hardware configurations are all supported by Solaris x86</li> </ul>	JDS for Solaris 10 x86
3	<ul style="list-style-type: none"> <li>• Rolling out new desktop environment, including new <i>fixed-position desktop hardware and servers and laptops</i></li> <li>--Deploy Sun Ray Thin Clients and Sun Ray Server Software for fixed position desktops. Review bundling and sizing guidelines at: <a href="http://www.sun.com/sunray/buildingblocks/index.xml">http://www.sun.com/sunray/buildingblocks/index.xml</a></li> <li>-- Deploy laptops as needed.</li> </ul>	JDS for Linux
4	<ul style="list-style-type: none"> <li>• Support required for existing deployment of fixed position and laptops</li> <li>• Little to no hardware configuration standardization or a broad assortment of</li> </ul>	JDS for Linux

	hardware configurations or Specific, limited hardware configurations, all of which are <i>not</i> supported by Solaris x86	
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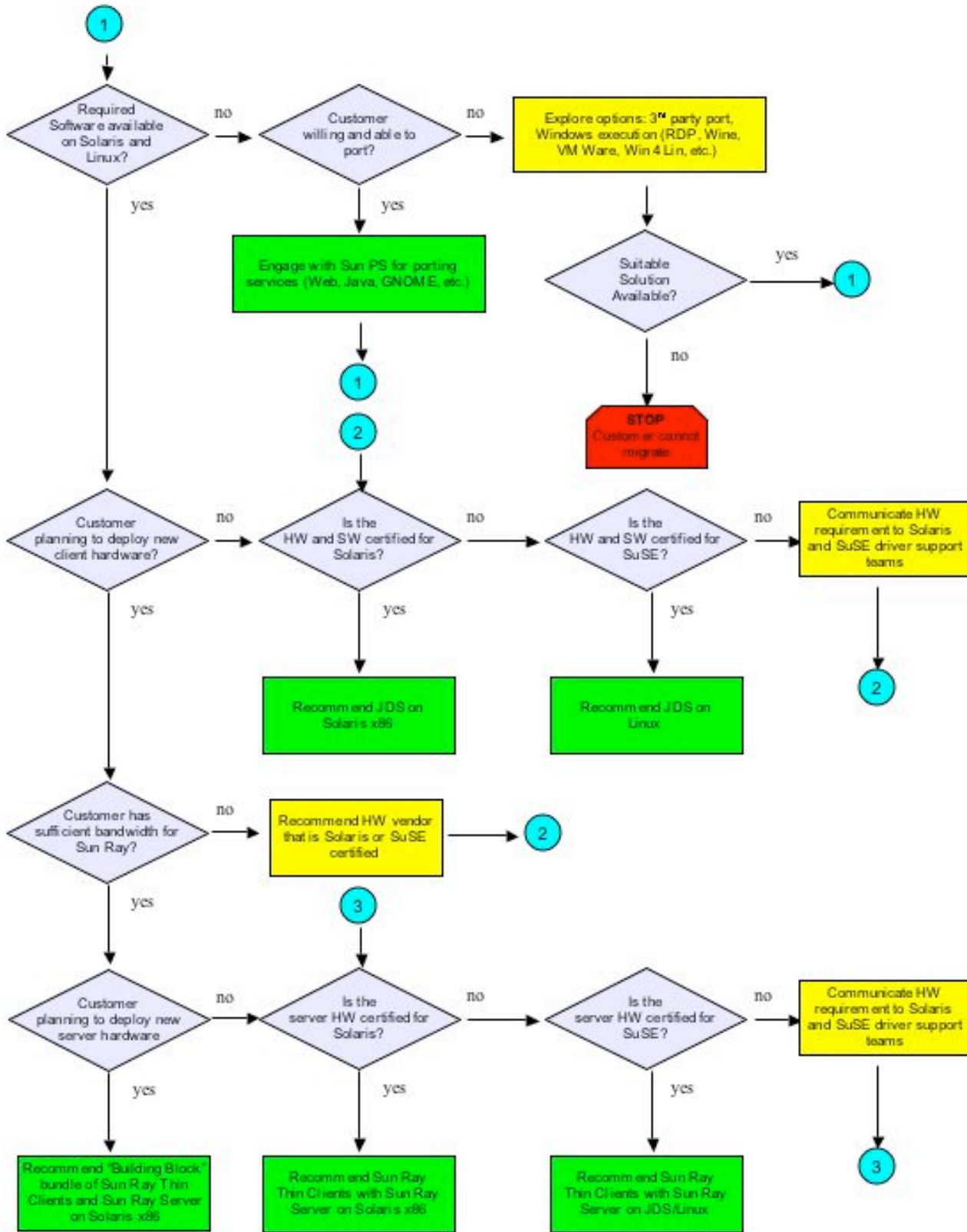
*Table 2. Customer scenarios and corresponding operating environment recommendations*

## Chapter 7

# Operating Environment Decision Tree

The decision tree presented here helps customers explore, in greater detail, the considerations that are involved when assessing and choosing the optimal operating environment in which to run the Sun Java Desktop System. The same assumptions used in the previous chapter for *Customer Scenarios and Corresponding Operating Environment Recommendations* are also used here, they being:

- The customer is interested in deploying Sun Java Desktop System software on Intel-compatible hardware.
- The customer has no predisposition for either the Solaris or the SUSE Linux operating environment.



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## Chapter 8

# Summary

With Release 3, the Sun Java Desktop System is supported in three different operating environments: the Solaris 10 SPARC Operating System, the Solaris 10 x86 Operating System, and SUSE Linux. With each of the three Sun Java Desktop System implementations, the corresponding operating system is included. Understanding the differences between, and the advantages of, each of these operating environments will help customers choose the Sun Java Desktop System implementation that is right for them.

Both the Solaris 10 Operating System and Linux are based on open source licenses, although the license model for each differs. The GPL GNU under which Linux is licensed is familiar to most customers and highly regarded for its ability to offer an open source software alternative that lowers costs by leveraging commodity software. The CDDL on which the Solaris 10 Operating System is based is also an open source license, also offers an open source software alternative, and also lowers costs by leveraging commodity software. The CDDL is crafted by Sun with feedback from the open source community, approved by the OSI, and based on an enhanced version of the Mozilla Public License to provide customers and developers with better copyright infringement and patent indemnity protection.

Because the Sun Java Desktop System implementations are available for both Solaris 10 and Linux operating environment, customers can make their own choice: stability, consistency, and protection of software investments or rapid innovation. The Solaris 10 Operating System offers predictable lifecycles, thorough testing, and complete documentation. It also offers more enterprise features, including advantages in the areas of security, utilization, performance, and availability. In contrast, Linux is faster to adapt to new trends, enabling customers and developers to quickly respond to market demands.

While most open source software developed for SUSE Linux is also made available for the Solaris operating environment, there is a distinct time lag while Sun establishes standards for consistency, code review, documentation, and compatibility of new software. Linux currently enjoys a broader development community but with the OpenSolaris Program, Sun is building and encouraging more and closer collaboration. Through support for the public ABI, Sun helps ensure binary compatibility to help applications run on all Sun systems without modification, enabling developers to maintain a single source base and easily move applications from one architecture to another. Sun also offers the Solaris Application Guarantee Program, which guarantees binary compatibility between Solaris Operating

System versions, including extensions that cover application source code compatibility — an advantage that should be of particular interest to customers who use custom software applications. No equivalent guarantee exists for Linux.

Hardware compatibility *directly* affects which Sun Java Desktop System implementation a customer can use. The Solaris 10 SPARC environment supports SPARC servers and desktops. The Solaris 10 x86 environment supports Sun and third party x64 and 32-bit x86 hardware components and otherwise shares the same features and advantages as that of the Solaris 10 SPARC environment. Linux supports a broad range of hardware configurations that are not currently certified for use in the Solaris 10 operating environment. If little to no hardware configuration standardization is in place — or if laptops and wireless devices are deployed — hardware compatibility will become the deciding factor when choosing which Sun Java Desktop System implementation to use. Recommendations for specific customer scenarios are presented in Chapter 6 of this paper.

Because hardware compatibility is a very important consideration, customers are advised to consider both existing and planned desktop hardware configurations at the very earliest stages of desktop software evaluation. Customers should also explore the thin client desktop hardware alternative, which is supported by all three Sun Java Desktop System implementations, early on in the evaluation process. Thin clients, or a mixed desktop hardware environment of thin clients and PCs, offer customers the opportunity to further lower costs. By leveraging thin clients, customers can increase the typical desktop lifecycle of one to five years for PCs to more than 10 years for thin clients. Using stateless, zero administration Sun Ray Ultra-thin clients in a networked services model, customers can consolidate and share compute cycles and memory at the server while significantly reducing maintenance and upgrade cycles as well as operational and administrative costs.

No matter which implementation of the Sun Java Desktop System is used, customers will gain the advantages of an award-winning alternative desktop system that is affordable, comprehensive, and fully integrated — and that includes administration and developer tools as well as enterprise-ready support.

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