



Building solutions using Secure Global Desktop

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(Presentation stolen from Mr. Steve Taylor)

Sun Microsystems Inc.

Introduction

- Tarantella, Inc. acquired by Sun in July '05
- “Secure Global Desktop Enterprise Edition”
 - > Provides secure access to *any* application from a browser on a wide variety of devices.
- New name: “*Sun Secure Global Desktop*”
 - > Abbreviates to “SGD”

Any application?

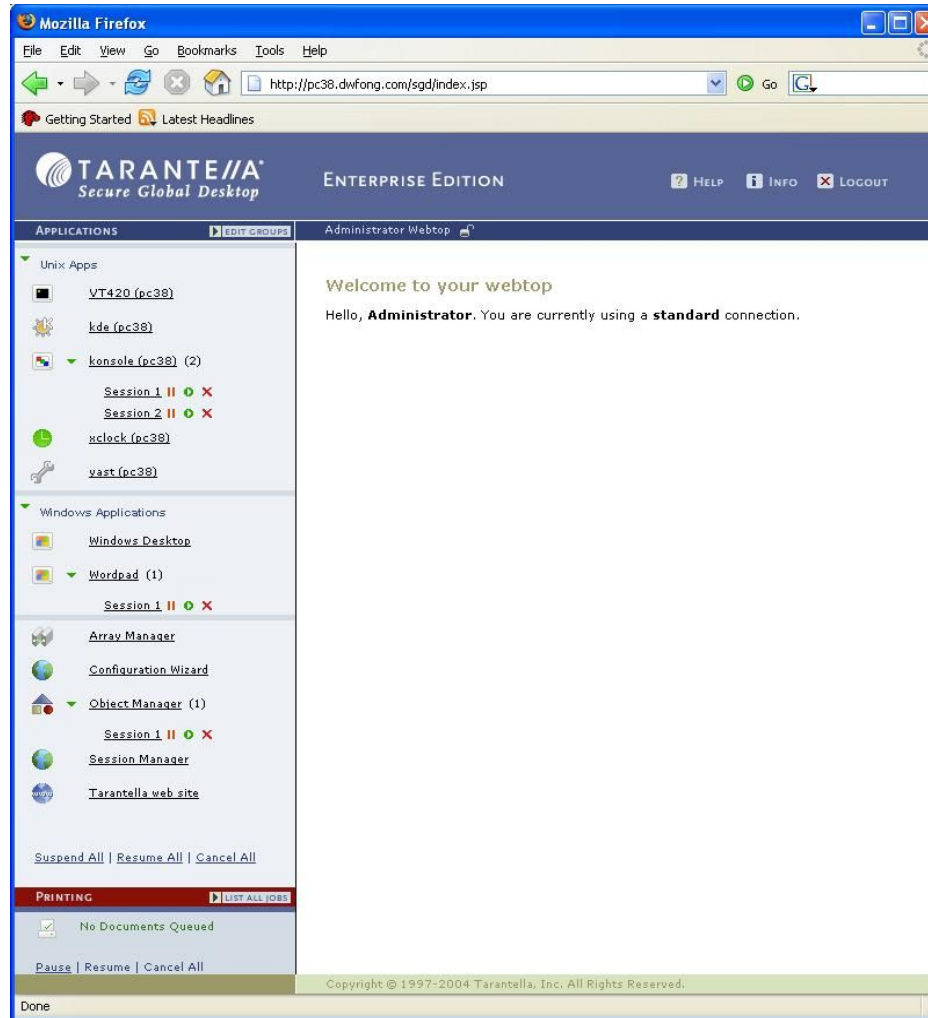
- Windows desktop applications
- Solaris, Linux and other Unixes
- Character apps (e.g. VT420)
- Midrange apps (TN5250)
- Mainframe apps (TN3270)

USER'S PERSPECTIVE

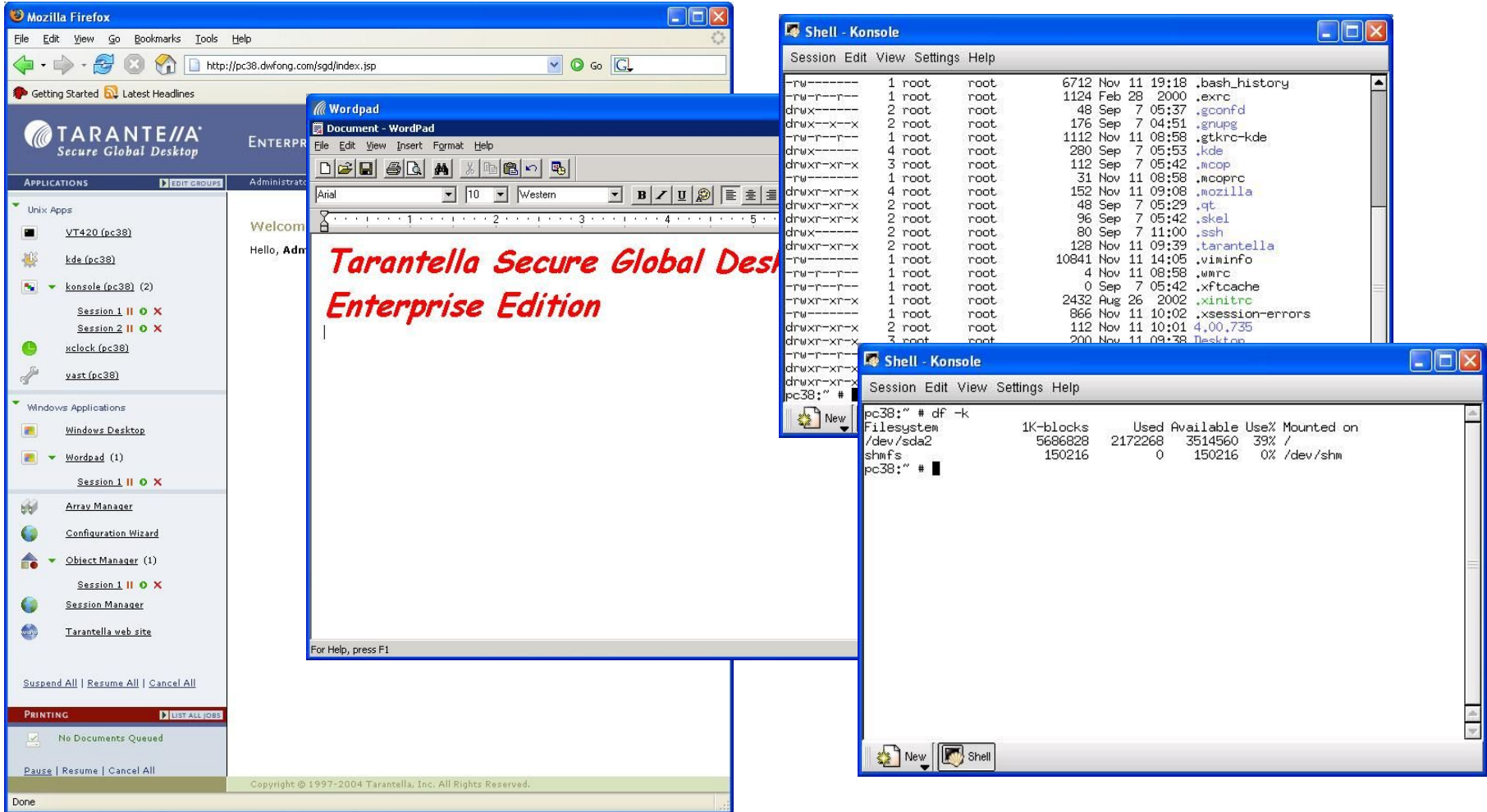
Login



The Webtop



Launching Applications



The screenshot displays the Tarantella Secure Global Desktop Enterprise Edition interface. The main window shows a sidebar with application categories: Unix Apps (VT420, kde, konsole, xclock, vnc) and Windows Applications (Windows Desktop, Wordpad, Array Manager, Configuration Wizard, Object Manager, Session Manager, Tarantella web site). A central window shows a Wordpad document with the text "Tarantella Secure Global Desktop Enterprise Edition". Two terminal windows are open, showing system logs and disk usage information.

Terminal 1 (Shell - Konsole):

```

-rw-r--r-- 1 root root 6712 Nov 11 19:18 .bash_history
-rw-r--r-- 1 root root 1124 Feb 28 2000 .exrc
drwxr-xr-x 2 root root 48 Sep 7 05:37 .gconfd
drwxr-xr-x 2 root root 176 Sep 7 04:51 .gnupg
-rw-r--r-- 1 root root 1112 Nov 11 08:58 .gtkrc-kde
drwxr-xr-x 4 root root 280 Sep 7 05:53 .kde
-rw-r--r-- 1 root root 112 Sep 7 05:42 .mcomp
drwxr-xr-x 1 root root 31 Nov 11 08:58 .mcomprc
drwxr-xr-x 4 root root 152 Nov 11 09:08 .mozilla
drwxr-xr-x 2 root root 48 Sep 7 05:29 .qt
drwxr-xr-x 2 root root 96 Sep 7 05:42 .skel
drwxr-xr-x 2 root root 80 Sep 7 11:00 .ssh
drwxr-xr-x 2 root root 128 Nov 11 09:39 .tarantella
-rw-r--r-- 1 root root 10841 Nov 11 14:05 .viminfo
-rw-r--r-- 1 root root 4 Nov 11 08:58 .wmpc
-rw-r--r-- 1 root root 0 Sep 7 05:42 .xftcache
-rw-r--r-- 1 root root 2432 Aug 26 2002 .xinitrc
-rw-r--r-- 1 root root 866 Nov 11 10:02 .xsession-errors
drwxr-xr-x 2 root root 112 Nov 11 10:01 4,001,735
drwxr-xr-x 3 root root 200 Nov 11 09:38 Desktop
  
```

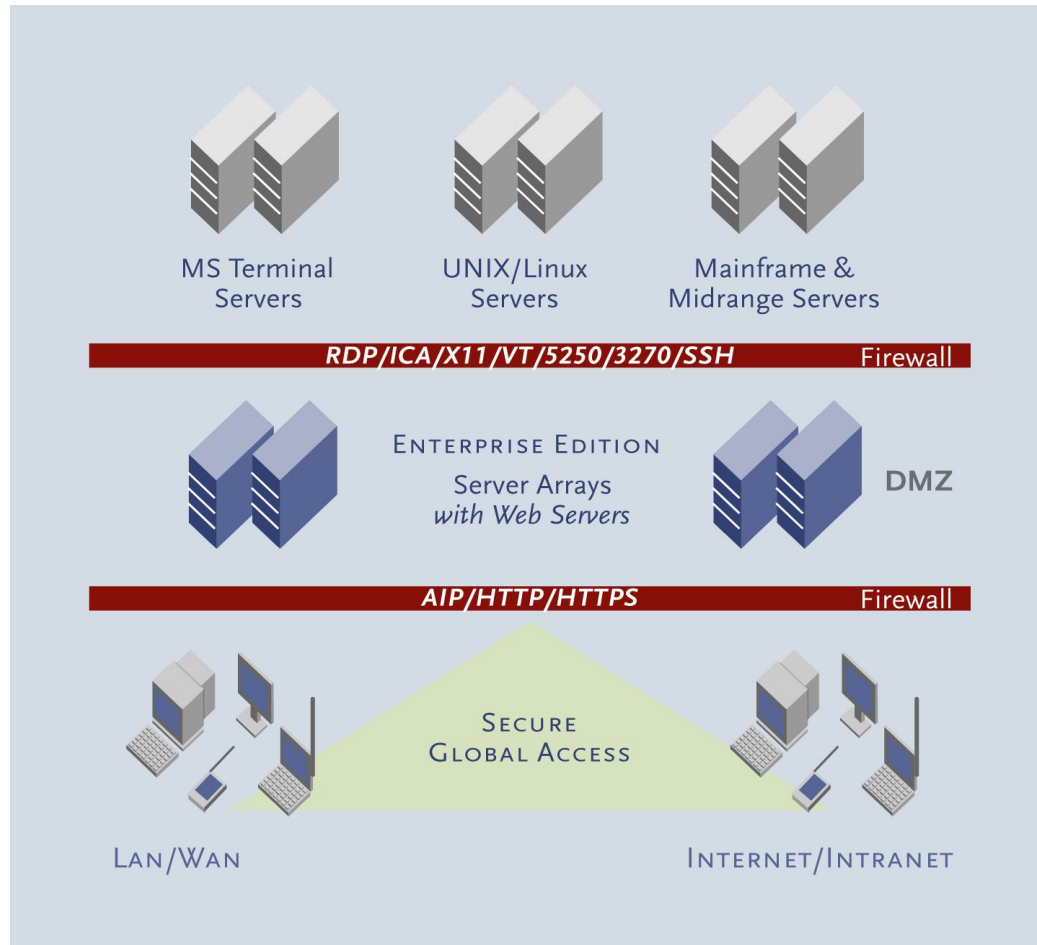
Terminal 2 (Shell - Konsole):

```

pc38:~ # df -k
Filesystem            1K-blocks      Used Available Use% Mounted on
/dev/sda2              5686828    2172268   3514560   39% /
shmfs                  150216         0    150216    0% /dev/shm
pc38:~ #
  
```

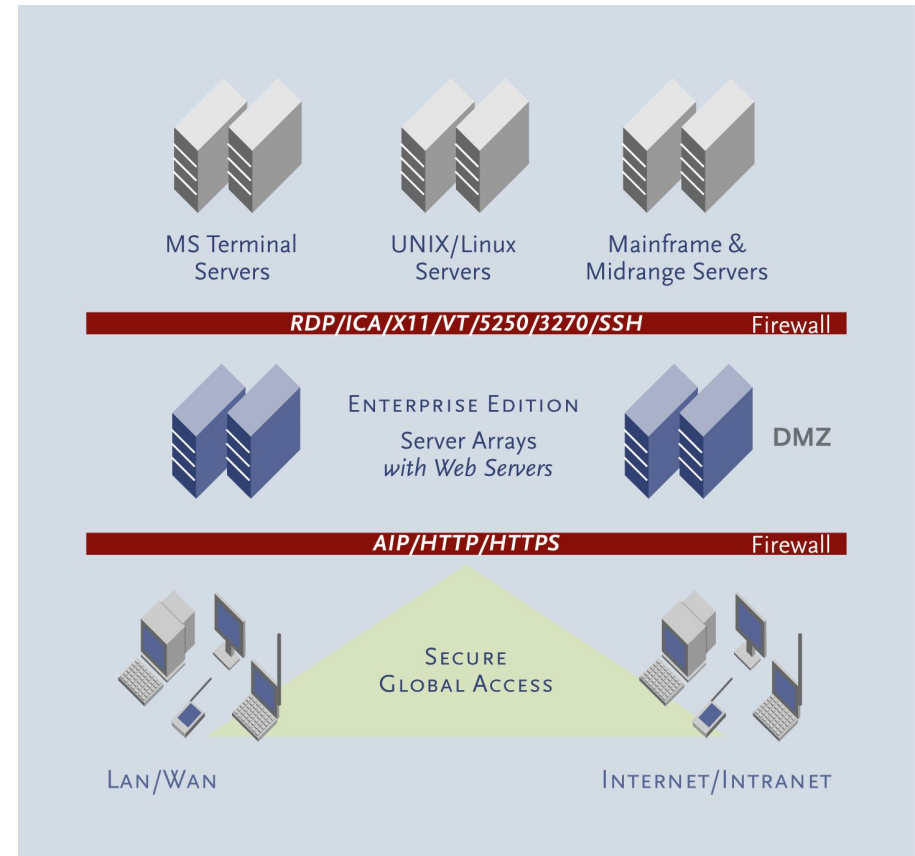
ARCHITECTURE

Three-Tier Architecture



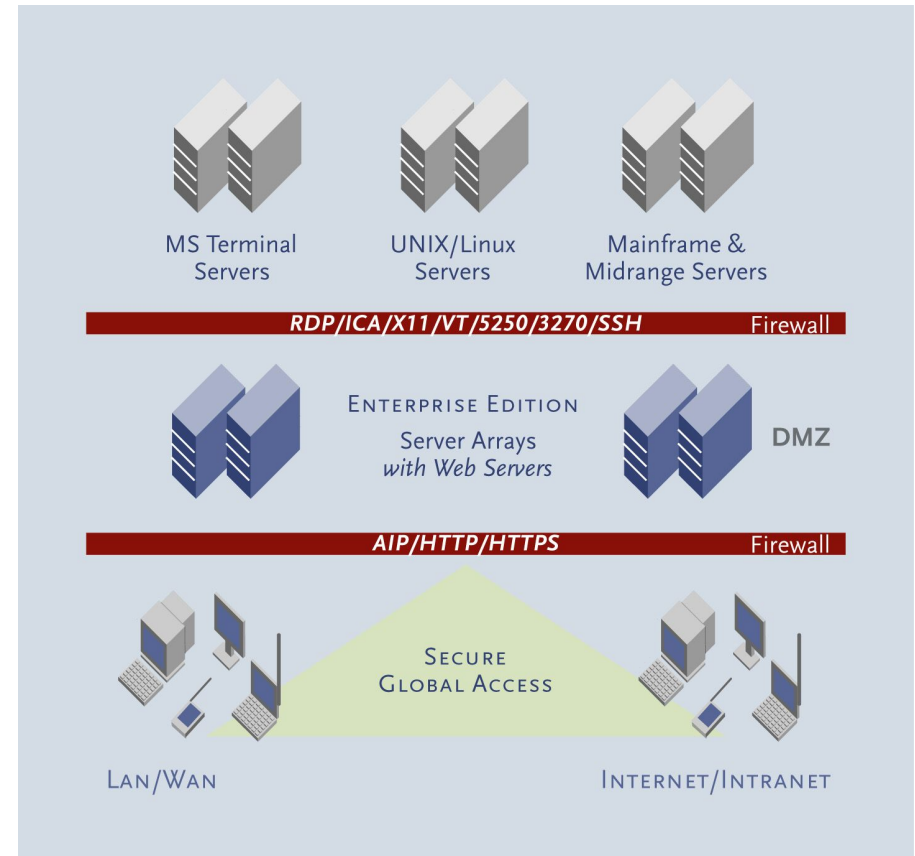
Tier 1 – Clients

- Windows XP/2000
- Windows CE Terminal
- Pocket PC
- Linux
- MAC OS X 10.2
- Solaris (SPARC/x86)
- ***Sunray via Linux/Solaris***



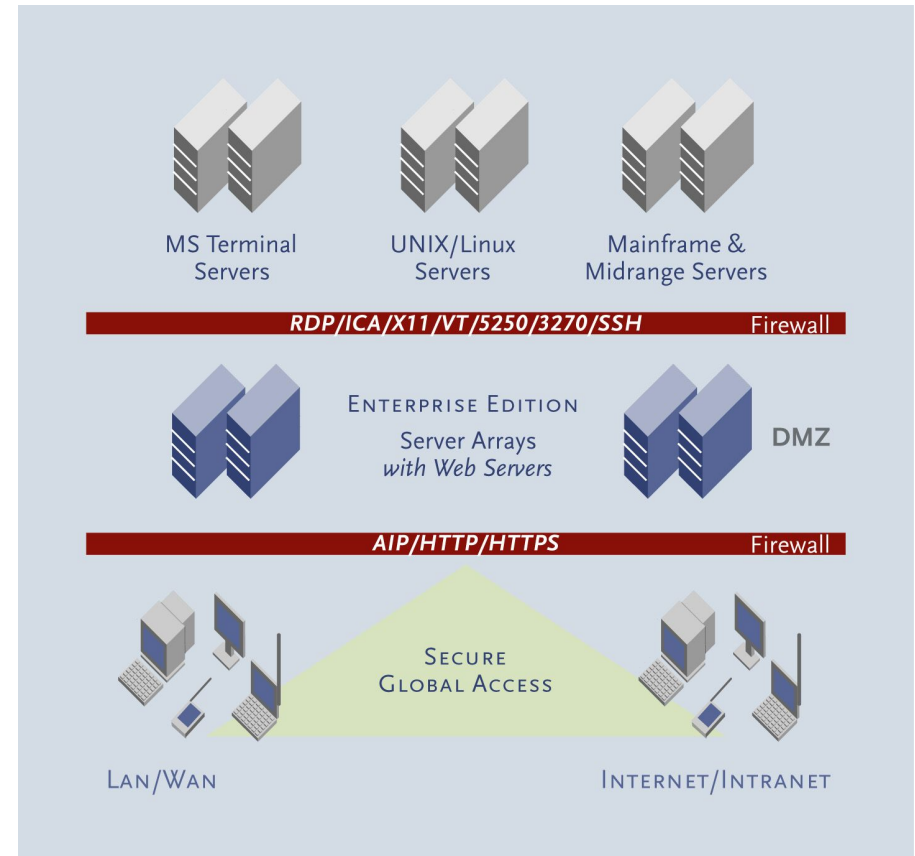
Tier 2 – Tarantella Servers

- Solaris: Sparc & x86
- Linux: x86
- Multiple servers can be deployed in an “array”



Tier 3 – Application Servers

- Windows Terminal (RDP)
- Citrix Metaframe (ICA)
- Unix/VMS (X11R6)
- Unix/VMS (ANSI/VT)
- Mainframe (TN3270)
- AS/400 (TN5250)



Protocol Engines

- Guts of the software is a Protocol Engine for each network protocol:
 - > X PE for X11R6
 - > Windows PE for RDP
 - > Character PE for VTxxx/ ANSI/ SCO etc.
 - > Print PE for lpr
 - > File PE for SMB/CIFS
 - > Audio PE for audio streams
 - > *etc...*

AIP

- Tier 1 clients run Display Engines
- Use proprietary protocol: AIP
 - > *Adaptive Internet Protocol*
- Connection-oriented, initiated by the Display Engine
- Dynamically optimizes for network capabilities

Architectural Benefits

- Non intrusive
 - > No installation required on tier 1 or tier 3
- Security
 - > AIP protocol translation provides a layer 5 firewall
- Convenience
 - > Drop in the SGD server to provide immediate access

Strengths

- Heterogenous environments
- Security
- Session resumption/ hotdesking

WEBTOP

Application publishing

- Sophisticated rules
 - > Organizational hierarchy
 - > Inheritance
 - > Groups
 - > Roles
- Provides access control

Web interface

- Built using HTML/JSP
- Customizable
- Provides interface for:
 - > Application launch/ resumption/ termination
 - > Control server-side print queue
 - > Embedded applications
- Includes web-based admin tools
 - > Session Manager
 - > Configuration Wizard

MAIN SGD FEATURES

General features

- Advanced load balancing
- Universal, follow-me printing
- Web UI
- Desktops or individual applications
- Session shadowing
 - > Various options: Read/Write/Many-to-one etc.
 - > Use for help-desk, classroom etc.

X applications features

- 24-bit color (*Smartcolor*)
- Client-side window management
- Follow-me, driverless, printing
 - > Print to client-side printers using PDF

Windows applications features

- Drive mapping
- Audio
- Smartcard
- Universal/PDF printing
- Seamless windows

MORE ABOUT WINDOWS APPLICATIONS

rdesktop Comparison

- Application server load balancing
- Seamless windows
- Security
- Enhanced Printing
- **Note:** *Sun RDP client for Sun Ray now available in beta!*

Citrix comparison

- Unique three-tier architecture
 - > SGD Software installed on Solaris server
 - > Windows Terminal Server on tier 3
- Non-invasive
 - > Small (optional) enhancement module for app server
 - > Web installed client.
- Protocol translation to AIP
 - > Enhanced security

SUN RAY STUFF

Sun Ray: Good fits

- Windows application access
 - > Alternative to Citrix
- Flexible network architecture
 - > Distribute application servers (tier 3) from Sun Ray server (tier 1)
 - > Alternative to global Sun Ray groups
- Include other client devices
 - > e.g. Hot desk sessions between Sun Ray and laptop
- Mixed application set publishing

Sun Ray: Poor fits

- Full JDS desktop, 100% Sun Ray
- Full Windows TS desktop (no JDS)
 - > Should use SR Connector for Windows
- Performance not optimal
 - > Additional protocol translation:
(X11 <--> AIP <--> ALP)
 - > Some SGD server tuning can help

Sun Ray: Rules of thumb

- Use SGD for a mixed apps and/or mixed clients.
- Use SR Connector for Windows for full screen WTS, or single WTS apps

WAYS SGD INTEGRATES

Authentication Options

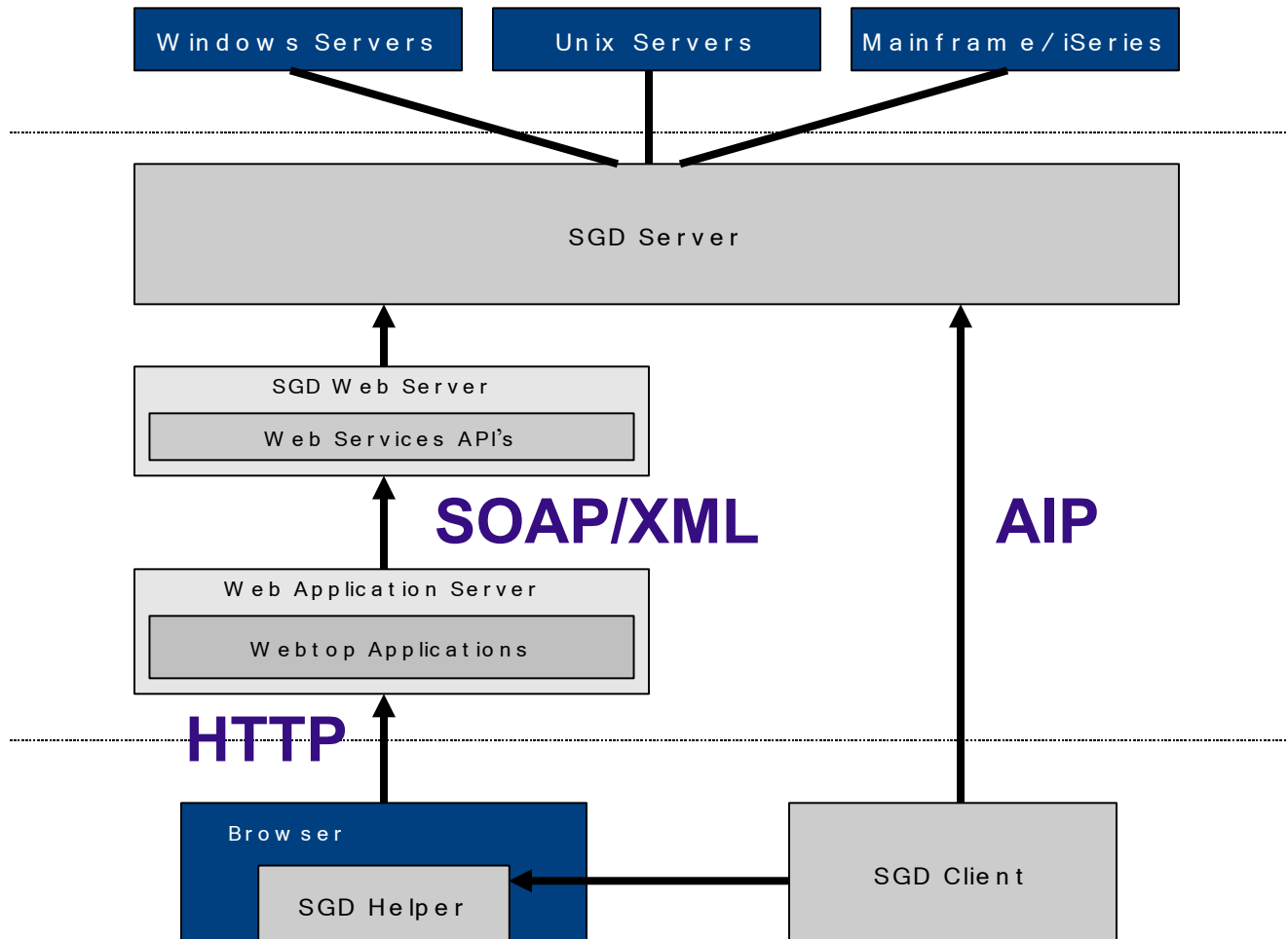
- Login Authorities
 - > Authentication code runs in the SGD server
 - > Implementations for NIS, LDAP, Active Directory, Secure ID, NT Domains, etc.
- Web Server module
 - > Trust delegated to web server
 - > Hundreds of modules available for Apache
 - > e.g. Safeword, Site Minder, client certificates
- Web application
 - > Trust delegated to webtop application
 - > e.g. Portal Single Sign On

Directory Services Integration

- Tie in with LDAP/ Active Directory
- Application publishing via LDAP rules
- Solves management/ scalability issues
- Authentication can be done using any method
 - > e.g. Possible integration with Access Manager etc.

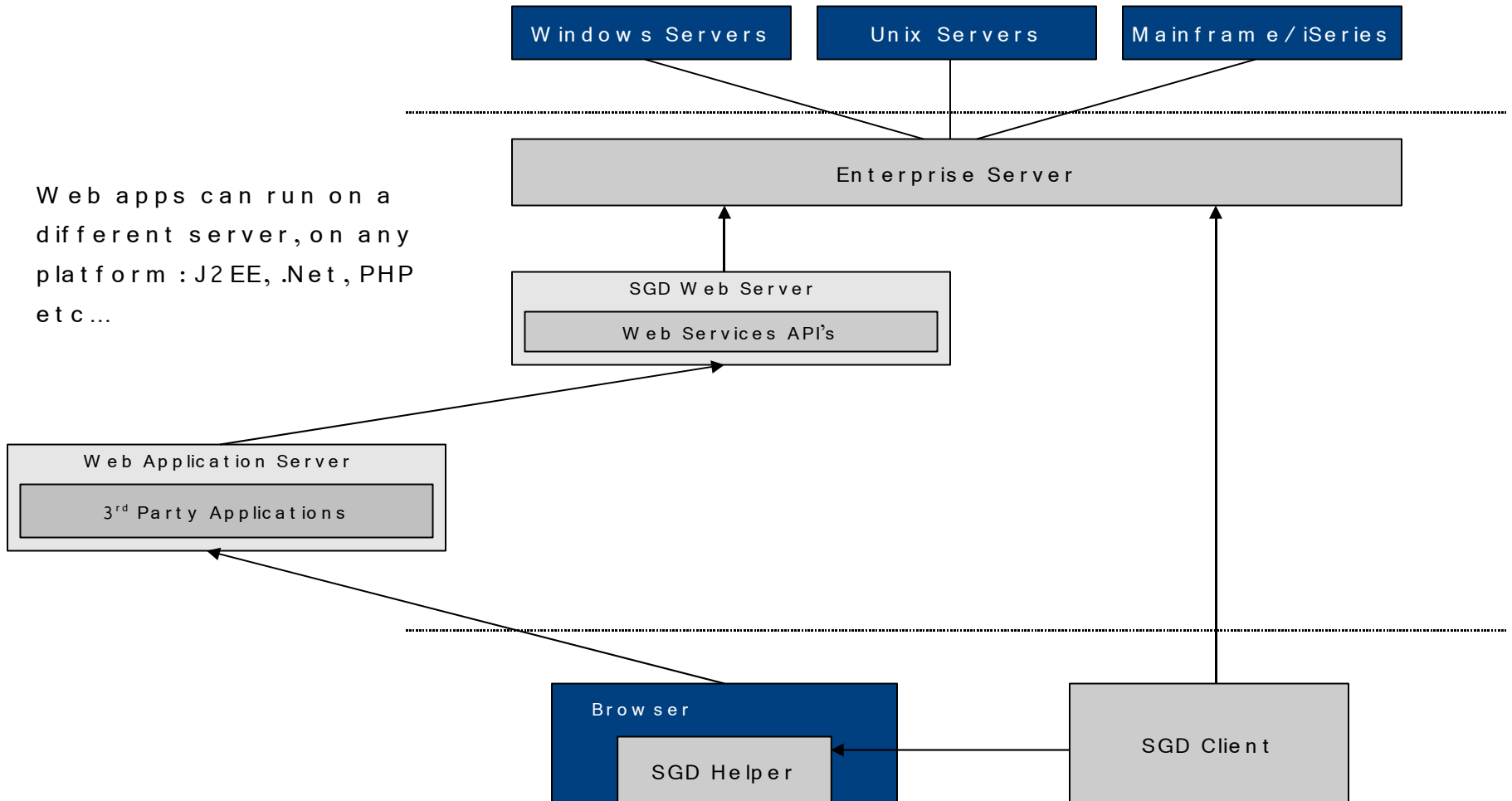
WEB SERVICES ARCHITECTURE

Web Services Interface



Web application integration

Web apps can run on a different server, on any platform : J2EE, .Net, PHP etc...



Example Web Services Solutions

- Portal integration
 - > We have a JSR-168 portlet in beta
- Administration tools
 - > We wrote the Session Manager and Configuration Wizard

Web Services APIs

- Public “Webtop” and “Administration” APIs (depends who authenticated in SGD as)
- Defined in WSDL
- Higher level Java library for WS clients
 - > Used by our webtop, portlet, admin tools
- Advantage is that it's not tied to Java

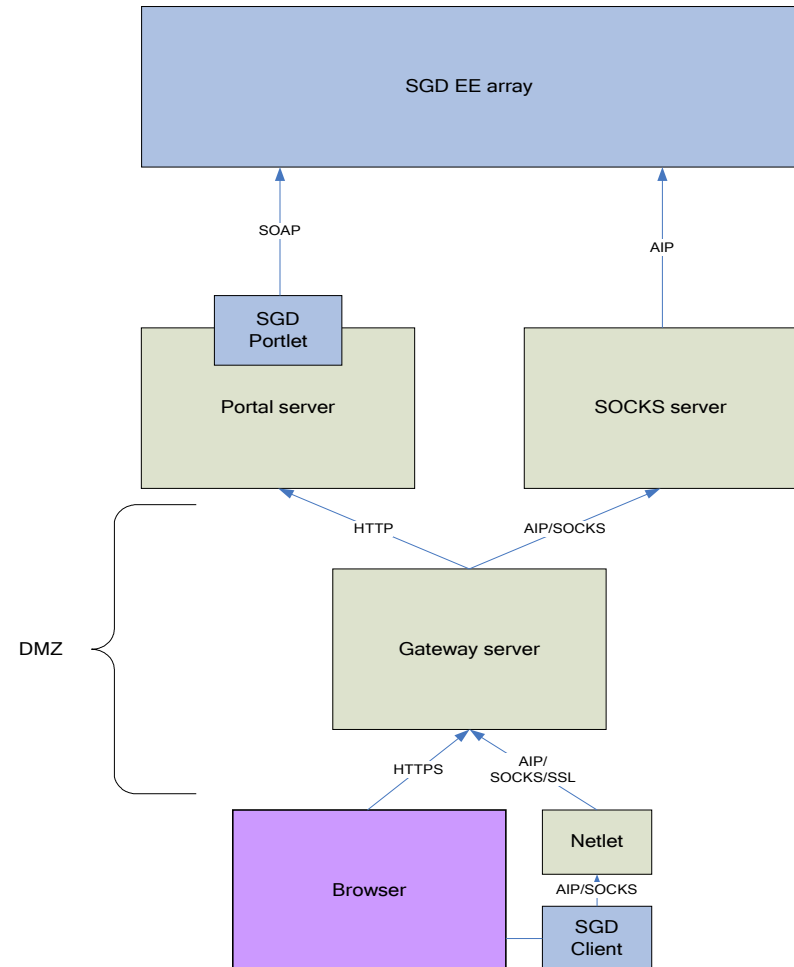
EXAMPLE SOLUTIONS

1. Integration with Portal

- Portal as gateway to web and legacy apps
 - > Implement using our beta JSR-168 portlet
- Can work with SRA/ netlet
 - > Implement using network topology rulesets
 - > Can simplify firewall management

Netlet integration

- Use Sun Web Proxy
 - > Provides SOCKS v5
- Single netlet rule
 - > SSL tunnel to proxy
- Portal gateway server in DMZ
- SGD config
 - > Adds SOCKS headers
 - > Tunnels through netlet



2. Web-enable a legacy app

- Customize the webtop with an embedded session
- Can use classic or new webtop

3. Thin client computing

- Windows CE/ embedded XP terminals
 - > Citrix alternative or Unix apps
- Sun Ray
 - > Citrix alternative for mixed windows/ unix apps.

4. PC X Server replacement

- e.g. save Exceed licensing costs
- Network flexibility: AIP versus X11

5. Remote access

- Mobile users
- Teleworkers
- VPN alternative

Thank you!

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(See next slide for acquiring software)

Want to play with this stuff?

- SGD
 - > Download, doc, etc:
<http://www.sun.com/software/products/sgd/>
 - > Get full license by emailing:
sgds-license-request@sun.com
- Sun Ray
 - > SR Connector for Windows:
http://www.sun.com/software/products/sr_connector/
 - > White Papers:
<http://www.sun.com/sunray/whitepapers.xml>
 - > Cool SR hints:
<http://blogs.sun.com/roller/page/ThinkThin>