



TADpole

Comet

Next Generation
Compute Platform

TADpole

Presentation Outline

- Sun Ray Introduction
- Comet – mobile, wireless Sun Ray
- Java Desktop System (JDS)
Introduction
- Comet markets

Please Note: Portions of this presentation have been borrowed from a slide show by Kevin Strohmeier, Sr.
Product Manager, Desktop Solutions of Sun Microsystems



Sun Ray

Introduction

Sun Ray Introduction

From Sun:



Sun Ray 1



Sun Ray 100



Sun Ray 150

From Tadpole: Comet

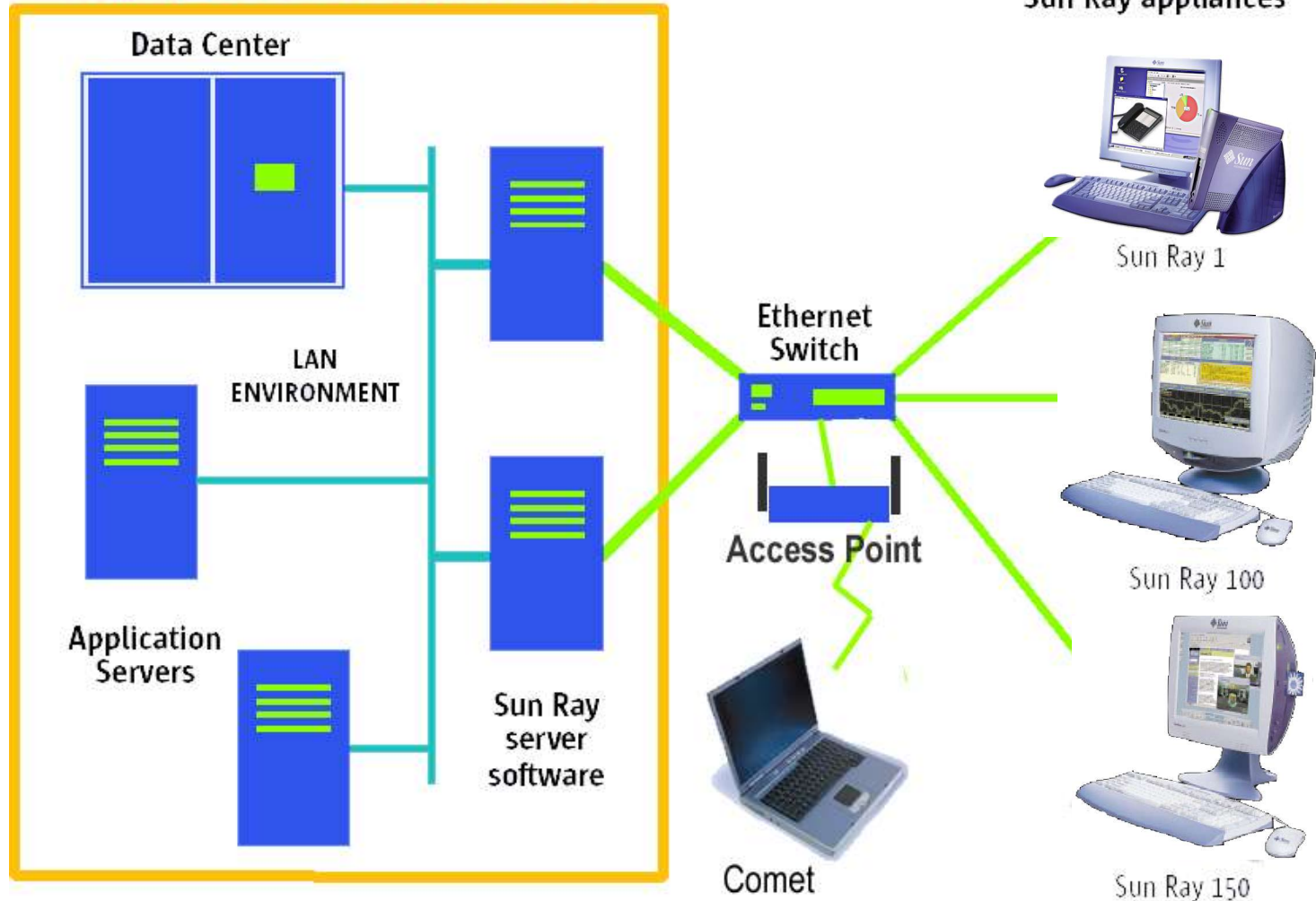


What is a Sun Ray?

- Network-attached “Terminal”
- No intelligence – just protocol processing and graphics
- No state – state is kept on the server
- No storage – information is kept on the server
- No personalization – Sun Ray devices are interchangeable parts, like a telephone

Sun Ray Environment

MANAGED ENVIRONMENT



Sun Ray Data Center

- Sun Ray Server software
 - Runs on SPARC/Solaris – scalable SMP up to 128-way
 - Runs on Linux small SMP systems
- Fail-over to backup servers
- Each session is one job
- Applications may run on the Sun Ray server or on other servers
- Application servers may be Solaris, Linux, HP-UX, AIX, IRIX, Windows, etc.

Sun Ray Gestalt

- Plug in smart card for the first time & log in once – never log out!
- Set up working environment with multiple “context” screens; for example:
 - First screen for email, calendar & web
 - Second screen for programming tools
 - Third screen for documentation & presentation
- Unplugging smart card disconnects session
- Plug card in *anywhere* to return to session

Advantages

- No boot-up, login, logout, shut-down time
- Environment (context) is immediately available
- No local data at desktop to lose
- No information can be stolen – no way to write/save data at a Sun Ray
- No viruses – server software easier to protect
- No end-user software or hardware management – IT does it all
- User storage is scalable and managed (backed up)
- Very large numbers of desktops can be managed by a small IT staff
- Applications support across all operating systems

Improved ROI

- Initial deployment costs at or below standard desktop PCs & notebooks
- Initial deployment much faster – no per seat setup
- Fewer IT staff to manage systems
- No desktop upgrades
- No moving parts at desktop – very long life expectancy

Sun Ray Summary

- Next generation compute environment
- Enabled by high-speed networking
- Secure, reliable, flexible, scalable
- Lower TCO, improved ROI
- Flexible

Comet

Introduction

What is a Comet?

- Comet is a Sun Ray
- Comet has a notebook chassis (LCD, keyboard, touchpad, battery, etc.)
- Comet's battery will last more than 8 hours of continuous use
- Comet supports wireless (802.11) and wired (10/100) connections

COMET



- Portable Sun Ray™
- Sun Java Card
- 15" SXGA+ Display
- WiFi – 802.11a,b,g Wireless
- One 10/100 Ethernet Port
- Lightweight (~5 lbs)
- 8+ hour battery life
- No moving parts
- No fan, ~10 watts

Sun Ray Limitations

- Sun Rays must be pre-installed everywhere that a user might want one
- Sun Rays don't work well in conference rooms
- Sun Rays require both Ethernet and power plumbing

Comets on the other hand...

- Comets do not need to be pre-installed – they can be used wherever needed
- Comets work well in conference rooms
- Comets work well in homes
- Comets can be used without plumbing using a central pool of charging stations since a battery lasts a whole shift
- Fewer Comets are required with less IT involvement
- Comets and Sun Rays peacefully coexist

Comet Summary

- Binary compatible with all Sun Ray products
- 12.2-15" high-res notebook form-factor
- 1-2 Kilos in weight
- Wireless (802.11ABG) and Ethernet interfaces
- Long battery life
- Untethered from power and network

Java Desktop System (JDS)

Introduction

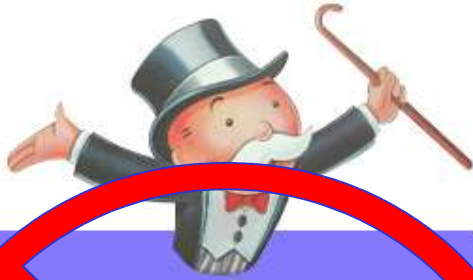
What is JDS?

- Sun's alternative to Microsoft Windows plus Microsoft Office
- Compatible with Microsoft file formats & protocols:
 - Word
 - Excel
 - Powerpoint
 - Exchange
- Licensed on a per seat per year model: \$100 per seat per year, or \$50 per seat per year if bundled with Java Enterprise System (JES)

JDS Environment

- Operating Systems
 - SUSE Linux today – Red Hat coming
 - Solaris on SPARC and X86 (including Opteron) coming
- Desktop Metaphor
 - GNOME (Windows Desktop)
- Office tools
 - Star Office
 - Text (Microsoft Word)
 - Spreadsheet (Microsoft Excel)
 - Presentation (Microsoft PowerPoint)
 - Evolution Mail + Calendar + Contacts (Outlook)
 - GAIM instant messenger (AIM)
- Internet
 - Mozilla (Internet Explorer)

Tadpole Notebooks with JDS



Windows Desktop

Internet Explorer

Outlook

Microsoft Office

MSN Instant

Messenger

.NET

DHS Warnings



MS Windows/Office



GNOME

Mozilla

Evolution

Star Office™

GAIM

Java



Java

Java Card

Sun's Java Desktop



Comet(Sun



SPARCLE



TADPOLE

JDS additions

- Built in support for Acrobat (.pdf files) – export directly from office tools without Distiller from Adobe
- Support for Macromedia Flash
- Network file sharing with all UNIX (NFS) and Windows (CIFS) partitions
- Network printing to all UNIX, Windows and HP Jetdirect printers

- Yearly license fee includes updates and support
- Lower initial cost and lower year-to-year costs
- Open formats & tools – no lock-in to one vendor
- All files may be accessed with open source applications (e.g., Open Office)

Comet + JDS

- Comet and JDS go together
- Shifting from Microsoft on the desktop to Sun Ray goes along naturally with shifting from Windows+Office to JDS
- Comet+JDS is the ultimate thin client
 - Stateless with smart card security – nothing to lose, nothing to steal
 - Mobile & wireless for flexibility and ease of use, installation & support
 - Reliable with predictable costs including updates and maintenance
 - Backwards & forwards compatible

Sun + Tadpole



- Tadpole expands & enhances the value of Sun with the Customer
- Tadpole tracks Sun's Strategy and delivers products that fit in:
 - Java Desktop SPARC Notebooks, Comet - Wireless Sun Ray's
- Tadpole helps Sun shift the battle for the Datacenter:
 - from the Datacenter door to the client
- Tadpole helps Sun with customer retention/Account control
 - Keep out Windows®
 - Every Tadpole sale displaces a Windows sale
- Tadpole gives Sun incremental Sun Server, Software and Services Sales
- Tadpole allows for greater customer penetration & expanded Market Opportunity
 - For the 1st time, last quarter, Notebook Revenue exceeded Desktop PC revenues
 - Notebook FY 2003 Forecast: 40M units worldwide¹

¹ IDC, Sep 2003



Tadpole assists in Sun Core Values



- Reduce Complexity
 - Tadpole wireless solutions makes it easier to implement and deploy
 - Allow a few system administrators to manage thousands of desktops
 - Manage Services not Desktops
 - Reduce Desktop Productivity Licensing by a factor of 10
 - **Tadpole's Notebooks run Sun's Java Desktop**
- Improve Security
 - Centralize data and applications
 - Ease backup, Make redundant, Secure against theft and attack
 - Eliminate data theft from insecure PC storage
 - **Tadpole's Comet Notebooks have no Disk Drives**
- Promote Mobility
 - Centralization permits a work from anywhere Environment
 - Work any time from any desktop
 - **Tadpole's Portability and Wireless solutions take this one step further**
 - Enable user access of individual computing sessions
 - Exactly where they left off
 - Any desktop via login or Java Card™
 - **Tadpole's thin client Comet uses Java Cards**



Global Persistent Session/Thin Client



Tadpole's Comet (Sun Ray) makes the session truly mobile!

User Starts Session on Home Sun Ray Server with Smart Card

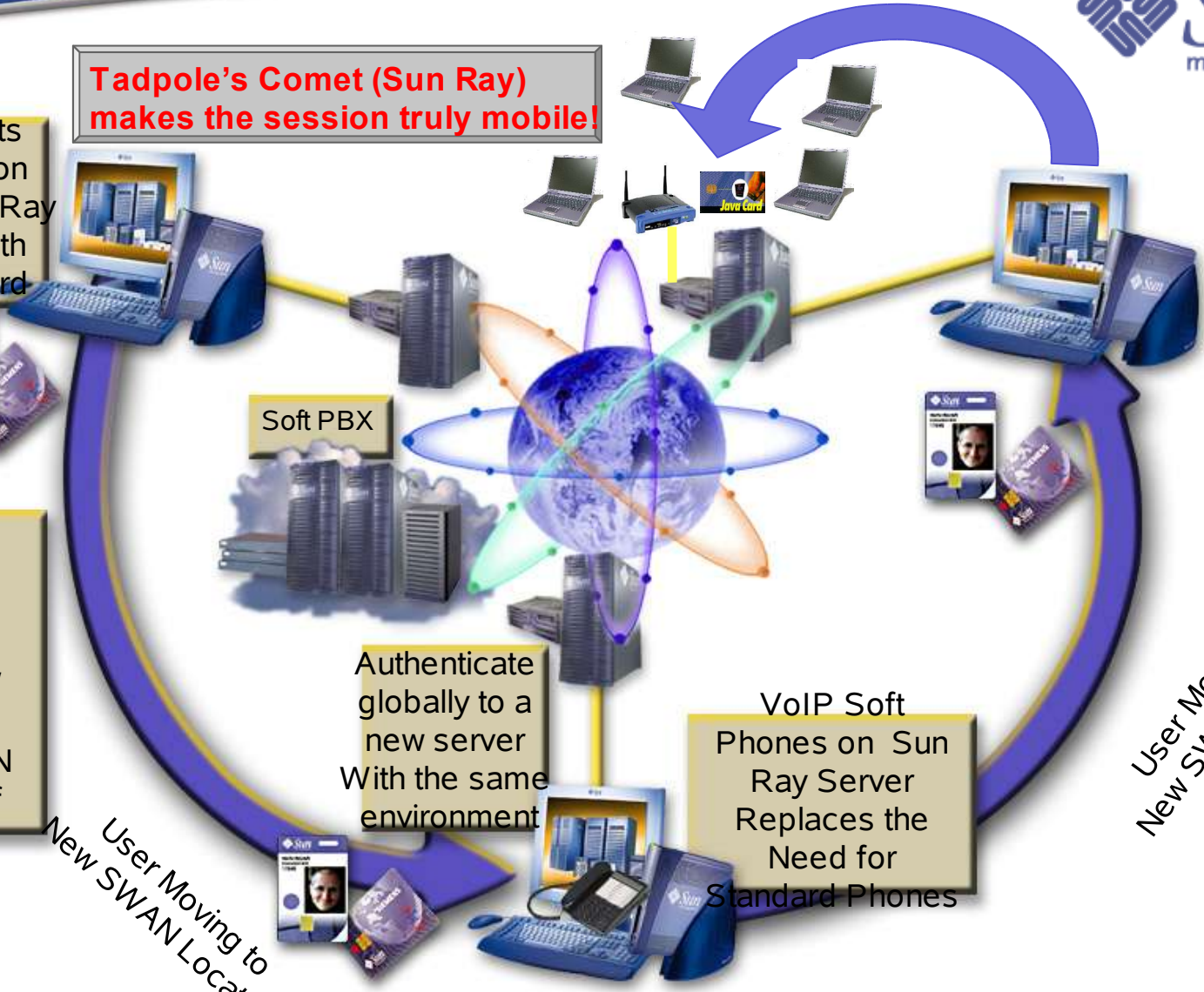
User may keep the same session within campus / region given WAN Quality of Service

User Moving to New SWAN Location

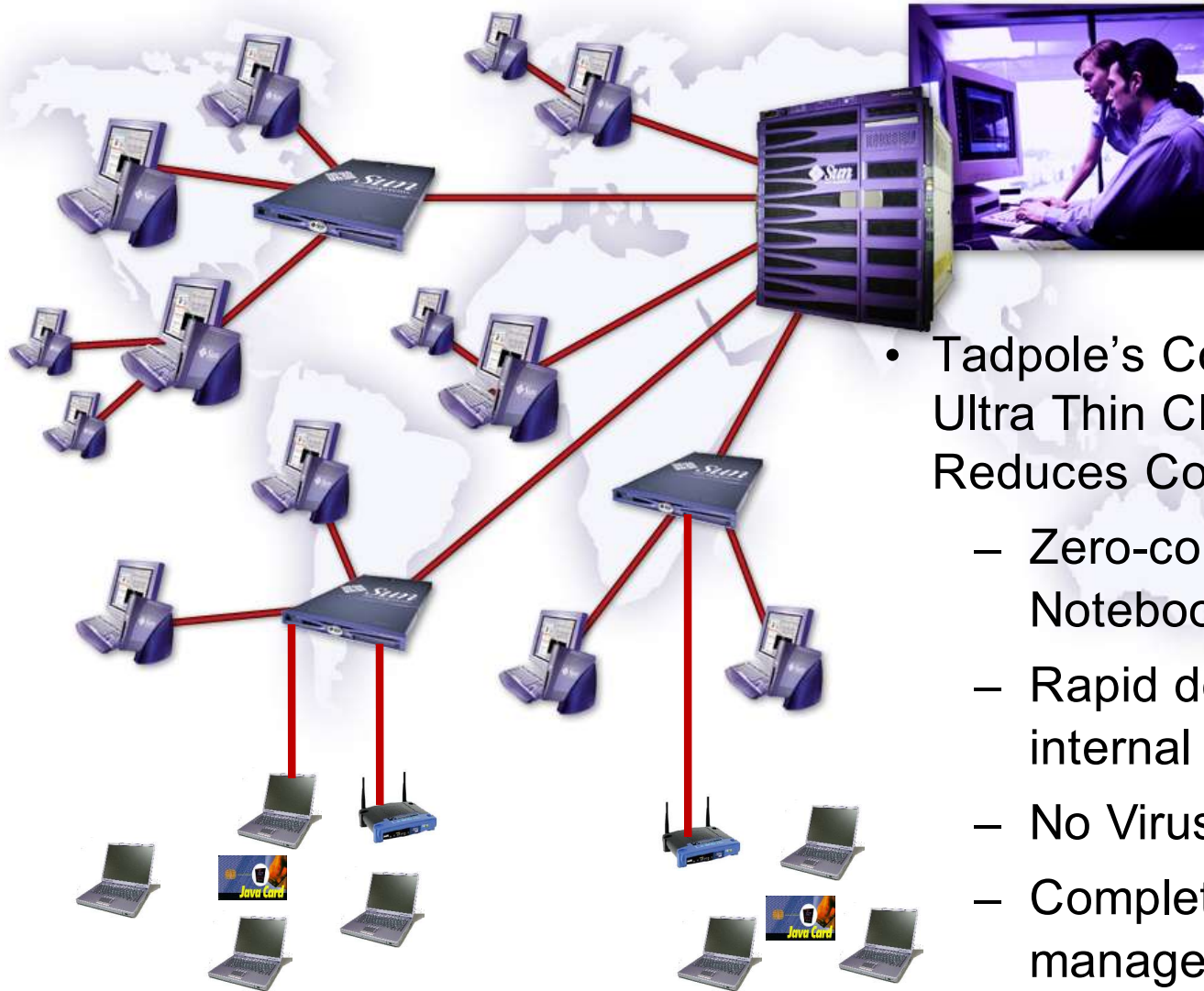
Authenticate globally to a new server With the same environment

VoIP Soft Phones on Sun Ray Server Replaces the Need for Standard Phones

User Moving to New SWAN Location



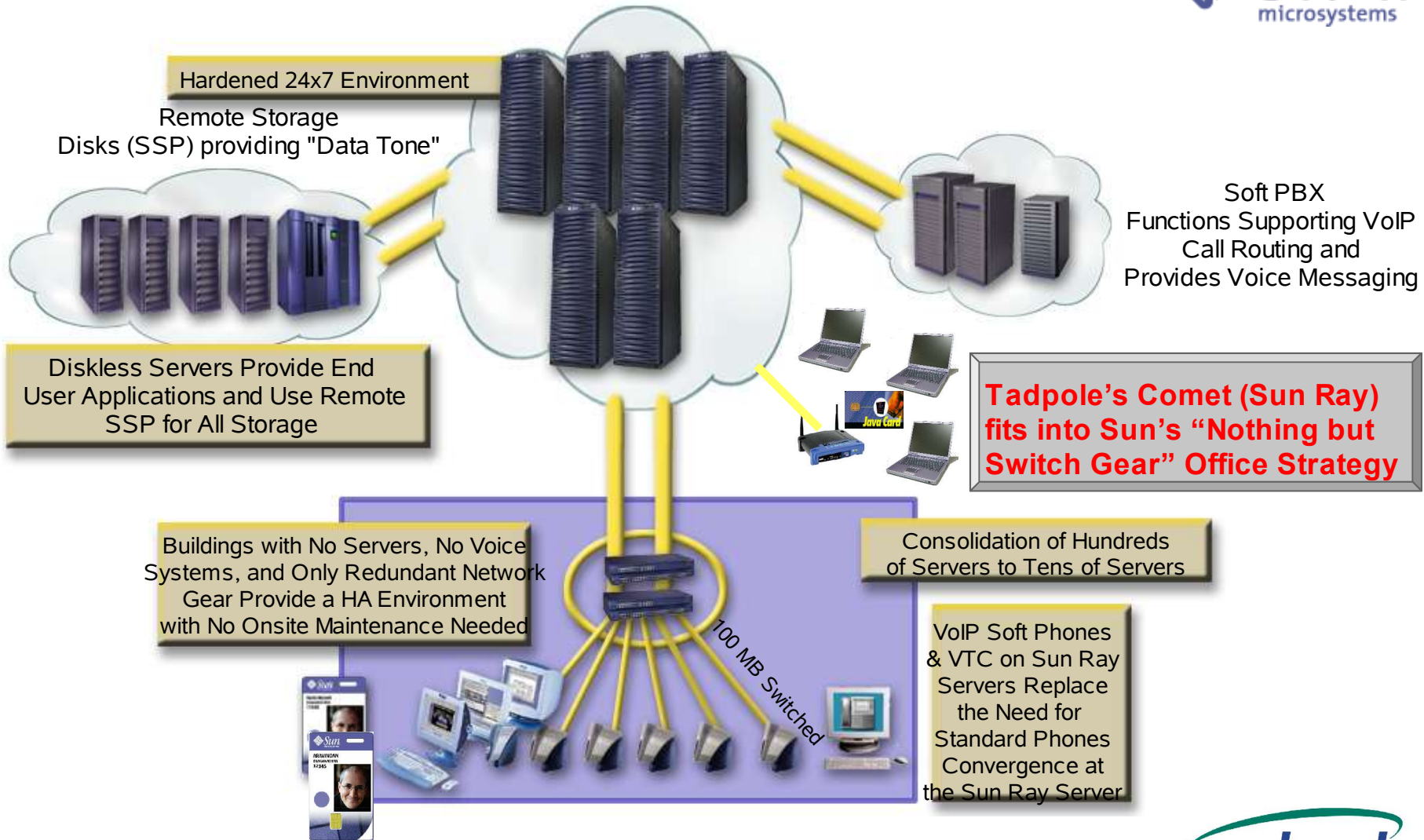
Remote Office Management Scalability



- Tadpole's Comet (Sun Ray™) Ultra Thin Client Further Reduces Cost of Administration
 - Zero-configuration Notebooks
 - Rapid deployments (no internal Cat 5/6 wiring)
 - No Virus updates
 - Complete “lights out” management



“Nothing But Switch Gear” Offices



Tadpole Helps Sun meet Customer Needs

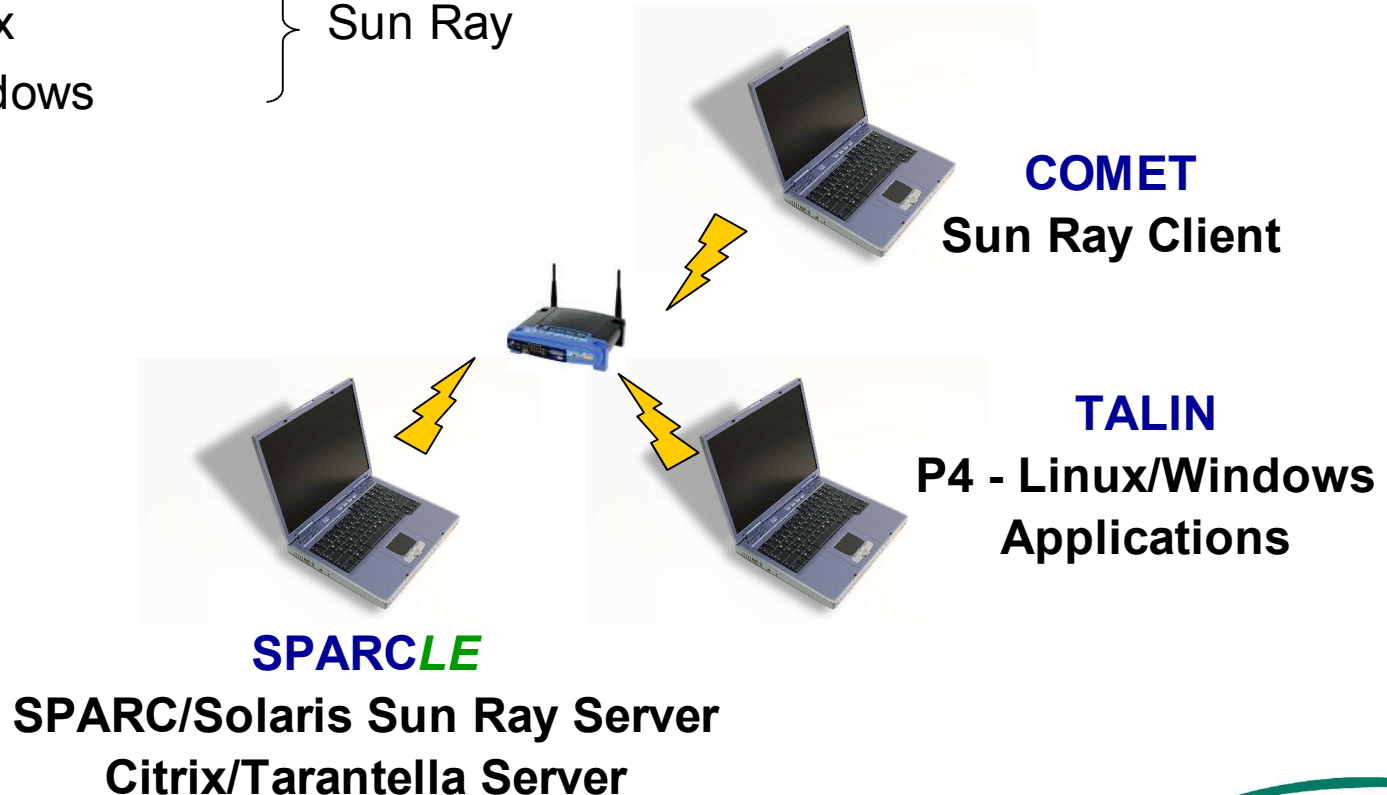


- Customers want portability
- Tadpole lowers cost of acquisition & TCO
- Maximize utilization of capital expenditures
- Comet is an easier desktop solution to manage (no wires)
- Comet is an easier mobile solution to manage (no state)



Tadpole Java Desktop Starter Kit

- Complete JDS/Sun Ray Starter / Demo Kit
 - Complete Sun Ray + Datacenter demo in a box
 - SPARC/Solaris
 - Linux
 - Windows



Comet Markets

Next Generation Compute
Platform



- Opportunity today with DSL to host consumer sessions
- Sell / Lease Comets for home use
- Charge for advanced applications (e.g., Photoshop, CAD/CAM, etc.)
- Charge for storage beyond base amount
- Charge for service level agreements (SLAs)

- Opportunity tomorrow with 3G wireless
- Same as DSL but untethers the consumer from their home access point
- Opens the door to vast array of commercial customers

Education

- Air Force Base rolling out a pilot in January – opportunity for 4,000 to 18,000 units
- Prep school in Australia wants to equip each of 900 students with Comet

Commercial

- Many large companies have been hit by viruses in the past year
- Comets and Sun Rays are relatively virus immune & lower cost to own
- Trials going into dozens of companies from Broadcom to Telstra to EDS

Military

- The Military loves the security and mobility of Comet
- Opportunities for tens of thousands at places like the Pentagon and other security conscious locations

Tadpole JDS Notebook Family

JDS Notebooks from Tadpole compliment Sun's Strategy and offer clients a portable alternative solution to Microsoft



COMET
Notebook Sun Ray™
Ultra Thin Client
Wireless
15" High Resolution
All Day Battery
Available December



TALIN
Linux/Intel
Java™ Desktop System
2.4 or 3GHz Pentium 4
Wireless
Up to 1GB Memory
Up to 80GB Disk
15" High Resolution
\$1,995
Available Now



SPARCLE
SPARC®/Solaris™
Java™ Desktop System
UltraSPARC® IIe/IIi
Wireless
Up to 2GB Memory
Up to 80GB Disk
15" High Resolution
Starting at \$2,995
Available Now



VIPER
SPARC®/Solaris™
Java™ Desktop System
UltraSPARC® IIIi
Wireless
Up to 2GB Memory
Up to 80GB Disk
15" High Resolution
Starting at \$5,995
Available November



SPARC/Solaris Notebook

SPARCLE

You run Solaris, so why does your Notebook run Windows?



- 500 MHz Sun 64 bit UltraSPARC IIe CPU
- 650 MHz Sun 64 bit UltraSPARC III CPU
- 1.28 Ghz Sun 64 bit UltraSPARC IIIi CPU
- Dual CPU versions
- Solaris 8 or Solaris 9
- Runs Sun Java Desktop System
- Up to 16GB DRAM
- 15" or 17" SXGA+ Display
- WiFi – 802.11b Wireless
- One 10/100 Ethernet Port
- 3 USB Ports
- Integrated CD, DVD/CD-RW or DVD-RW
- 20, 40, 60 or 80GB Disk Drive
- Lightweight



Tadpole Linux Notebook

TALIN

You run Linux , so why does your Notebook run Windows?

- 2.4 & 3.0 GHz 32-bit Intel Processor
- Runs Sun Java Desktop System
 - SuSE™ Linux Desktop
 - StarOffice 7.0
 - Mozilla 1.4
 - Evolution 1.4
- Up to 1GB DRAM
- 15" SXGA+ Display
- WiFi – 802.11b Wireless
- One 10/100 Ethernet Port
- Integrated CD, DVD/CD-RW or DVD-RW
- 20, 40, 60 or 80GB Disk Drive
- Lightweight (~7 lbs)
- \$1.995 to \$3,495



Backup Slides

Tadpole Computer



New Competitive Sun Ray Information

Features	Description	Product 1	Product 2
LCD Panel	12" to 15" – 1024 x 768 60 Hz	None	15"
PCB	Uses low power Copernicus CPU with M7 graphics chip and miniPCI connector – 15 Watts	✓	✓
Case	2 USB ports, 1 VGA out port, 1 headphone, 1 mic, 1 RJ45, 1 smart card connector	✓	✓
Battery	Total capacity requirement 15 Watts	None	None
Carrying case	Shipped with every system	None	None
Keyboard	Standard keyboard	✓	✓
Shipping box	Single system or multiple systems	Yes	Yes
Manual	Shipped in CDROM	Yes	Yes
Wireless Card	Needs to support 802.11a/g	None	None
AC adapter	Standard – 15 Watts	None	Yes

The US Market Opportunity

• Sun Ray

- Thin Client Market forecast¹
 - 1.5M units 2003, \$1.5B @ ASP of \$1,000
 - 3.4M units by 2007, \$3.4B @ASP of \$1,000
- Unit Sales CAGR of 22%
- ***We believe the opportunity for Sun Ray and Comet far exceeds this.***



• Notebooks

- Total US Market forecast¹
 - 13.8M units, 2003 (\$21.4B)
 - 26.7M units by 2007 (\$29.1B)
 - Unit Sales CAGR of 35%

¹ IDC, Sep 2003