EDUCATION EVENTS

Sun Tech Days
Mar. 16-17, 04 • Mexico City, Mexico
Mar. 25, 04 • East Rutherford, NJ
Developers conference on Sun technology, solutions, and tools.

SCT Summit
Mar 28-31, 04 • Philadelphia, PA
Learn about SCT Banner and SCT Campus Pipeline, and attend a wide range of breakout sessions.

Datatel User Group
Mar 13-17, 04 • Washington D.C.
Datatel users can promote best practices, network with other users, and develop their professional skills.

The National High Performance Computing and Communications Council
Mar 30, 04 • Newport, RI
High-End Computing in the Wireless World.

SUPerG 2004
May 3, 04 • Phoenix, AZ
Sun Users Performance Group.

JavaOne Conference
Jun 28 – Jul 1, 04 • San Francisco,CA
A week long celebration of Java technology, innovation, community, and education.

EDU RESOURCES

Sun's Worldwide Education Website Information, resources, tools, communities of interest, and special offers.

Storage Network Industry Association Forum for worldwide collaboration on storage technology and standards, including materials, programs, and services to inform and educate professionals.

Digital Library Federation Information about developing digital collections and managing networked information for the benefit of scholarship, education, and cultural progress.

How Much Information UC Berkeley research site on the amount and types of information produced in the world each year, including print material, images, and digitally stored content.

Open Archives Initiative News, tools, and community forums to develop and promote interoperability standards to facilitate the efficient dissemination of scholarly content and communication.

California Digital Library Resource site promoting assembly and creative use of the world's scholarship and knowledge, including partnering programs with publishers and educational institutions to host specific digital collections and services.

Get Involved. If there are topics you'd like to see in future issues of EduConnection or you would like to submit an article, we want to hear from you. Click here to e-mail us.

Please have Sun Sales contact me.

Kim's Notebook:

By Kim Jones, Vice President, Global Education and Research, Sun Microsystems, Inc.

"At Sun, we think of storage as an integral element needed to make the end-to-end IT infrastructure platform work for our customers."

It is said that in the last 50 years, society has created more information than in all of recorded history. And it's only going to increase. Universities, libraries, and research institutions are experiencing phenomenal growth in their storage needs, often doubling capacity each year. Storage and data management issues are occupying a larger part of education IT budgets.

We create digital content as fast as we can type, record, scan, or compute. In addition to the information we produce, we must also maintain, archive, and preserve past data. Several factors are contributing to the explosion in digital content:

- Applications continue to generate data that needs to be stored, managed, and backed up.
- The growth of areas like medical imaging, life sciences, and genomics have a relatively higher ratio of data stored and manipulated to the amount of computational power.
- Government and regulatory bodies like the SEC and Sarbanes-Oxley are forcing organizations to store all sorts of information and retain it for longer periods of time than was required just a few years ago.

When we have such large amounts of content it becomes difficult to manage and difficult to store. With the advent of network-attached storage and storage-area networks, storage is getting much more centralized as a concept. Architectures are evolving from an application-centric world to a data and network-centric world, where applications are designed to provide services to the network. It's much more important today to have a more organized, planned storage and data management environment than it was a few years ago.

Sun is investing heavily in the development of new storage technologies and data management solutions. We don't consider ourselves a stand-alone storage company that just happens to be owned by a computer company. At Sun, we think of storage as an integral element needed to make the end-to-end IT infrastructure platform work for our customers. Many education and research institutions such as Aachen University, Stanford Linear Accelerator Center, University of Houston, and the San Diego Super Computer Center rely on Sun to help solve their big mission-critical business problems. It's storage, servers, operating systems, and middleware working together that makes that happen.

Sincerely Yours,
Kim Jones
Vice President, Global Education and Research

Managing Information Lifecycles in Education

IN THIS ARTICLE:

"Explosion" of Fixed Content

The rapid growth of fixed content (data that is written once and never altered) and new regulations on the retention and protection of this information require a new approach to information management.

Fixed or static data comprises any form of digitized information assets retained for reference. By contrast, dynamic content needs to be accessed regularly or is transactional in nature. According to a recent Yankee Group study, fixed content represents 308,000 terabytes of stored data in 2003, growing to 1,251,900 terabytes in 2006. Fixed content or reference information will represent 54% of all data by 2005 and will grow faster than that of transaction-based or file oriented storage, according to Sun's Enterprise Storage Group. Fixed content is also characterized by the growth of larger-sized data objects—from 50 KB to 1 GB—and by longer data retention periods.

Information Lifecycle Management

As the amount of information educational institutions need to archive, manage, and use continues to grow, Information Lifecycle Management (ILM) solutions have emerged. The principle behind ILM is to seamlessly and automatically migrate information to less costly media, based on data relevance, via policies. At the same time, all important data is retained, protecting content and maintaining continuous access, independent of the data location.

ILM allows institutions to migrate and store data where it makes the most sense from a cost, speed, and recency of retrieval perspective, based on the most appropriate devices, providing huge benefits to storage and management budgets.

ILM Solutions for Education & Research

Nothing is more critical to the success of Fixed Content applications than effective ILM solutions. There are a number of areas where education and research institutions benefit from ILM solutions. For example:

University libraries are shifting from physical to digital collections to enhance access and aid preservation. Digital libraries need fixed content management technologies to:

- Convert content from physical to digital form.
- Extract or create metadata or indexing information describing the content to facilitate searching and discovery.
- Store digital content and metadata in an appropriate multimedia repository.
- Deliver content via file transfer or streaming media.

As users increasingly rely on e-mail as their file management system, on-demand access to the message store is essential for productivity. The number and size of e-mails (including presentations and video attachments) is growing continuously, and there is risk associated with forcing users to delete files or forward messages to private accounts. Infinite Mailbox solutions provide e-mail archiving that leverages existing storage environment and on-demand access, automatic backup, and fast, easy recovery of message data to reduce complexity and increase user productivity.

The increasing proportion of medical imaging techniques that generate images in digital form, such as functional Magnetic Resonance Imaging (fMRI), has lead to the development of digital image management systems. Such systems, often referred to as Picture Archiving and Communication Systems (PACS), are emerging in clinical and radiological environments.

Key Requirements of a Fixed Content Data Management System

- Protect records on non-erasable, non-rewritable media or file systems.
- Copy or transition data to a variety of "Quality of Service" level media to facilitate storage costs while maintaining convenient data access in real time.
- Verify record written is accurate and complete.
- Provide media choices that support storage and retrieval of data as much as 20-30 years out.
- Control access to files using access rules and management guidelines.

Imperatives for Compliance Storage

University hospitals and departments conducting life science research need to be compliant with regulations governing patient records and clinical trials. In the United States, for example, HIPAA, the Health Insurance Portability and Accountability Act, requires that images such as X-rays be retained for seven years, longer for children.

Administrative requirements call for the retention of traditional business documents such as student records and transcripts. Despite the difficulties of retaining, indexing, and accessing legally important e-mails, courts, legislators, and regulators require e-mail documents to be treated with the same care as other business records.

Compliance storage architecture is different from traditional storage architecture. In addition to simply storing data, the system must also be able to implement a variety of data management policies. Content integrity must be insured. Content must keep for years often on WORM (write once, read many) or WORM-like media, but may need to be accessed or referenced quickly.

Planning for Attractive Return on Investment

As IT administrators develop plans for Information Lifecycle Management, they will face a plethora of solutions to meet their fixed content management needs. Achieving an attractive Return on Investment will depend to a large extent on successfully executing on mission critical objectives to:

1. Increase storage resource utilization and reduce management costs through secure provisioning of multiple applications on the same virtual storage device.

2. Extend the life-span of existing storage devices through seamless use of legacy storage technology.

3. Simplify Information Lifecycle Management and reduce data storage costs through application-aware storage policies and secure storage domains.

Take Aways — What to Look for in a Fixed Content Management Solution

- Long term scalability without the need to upgrade or switch platforms.
- Flexible choice of media for storing data.
- Appropriate and affordable storage based on data relevance to ensure efficient life cycle data management.
- Support for market leading applications for content creation and management.
- Open vs. Locking to APIs or non-standard formats.
- Familiar file system interface for applications based on public domain data formatting standards.
- Proven implementations with measurable results.

Digital Archive Provides Public Access to Tobacco Industry Data

IN THIS ARTICLE:

Tobacco Master Settlement Mandates Data Preservation

The 1998 Master Settlement Agreement between the National Association of Attorneys General (NAAG) and 5 major tobacco companies and 2 industry organizations required millions of documents be made available to the public in electronic format via the companies' Web sites until 2010.

To ensure a lasting public record of this information on tobacco industry research, manufacturing, marketing, advertising, and sales of cigarettes, the American Legacy Foundation established a grant to create a permanent electronic archive and unified search interface. When the University of California San Francisco (UCSF) Library, Center for Knowledge Management was awarded the project in 2001, work began to build its impressive Legacy Tobacco Documents Library (LTDL) using 40 tapes from the NAAG containing tobacco company image and document index files.

Building a massive digital archive with public access to over 40 million pages of tobacco industry data from the largest civil settlement in history required creativity and commitment. After achieving its objective by going live in January 2002, the UCSF Library has normalized and indexed a total of 4 gigabytes of metadata and warehoused over 6.8 million documents. The result is open, free, searchable, worldwide public access 24x7 to extensive tobacco industry and health related information.

> "From the beginning, the Library was committed to two almost contradictory goals: to preserve the original material as received from the tobacco companies, and to provide searching across all document sets. Achieving both goals was difficult because document records were inconsistent in format, range of fields, field names, and formats for dates and other information."
>
> Heidi Schmidt
> Director, Academic Information Systems
> Library & Center for Knowledge Management, UCSF

Functional Requirements Pose Data Management Challenge

The demanding functional requirements for the archive and unpredictable data issues posed significant technical challenges for the UCSF Library team. Top priorities for managing the data included:

- Reading 24 million image files from the tapes and transferring these to the target system and directories running on Sun servers and storage devices.

- Identifying data errors, non-standard fields and other inconsistencies and data issues in disparate files from multiple sources.
- Normalizing data by changing file name cases, generating XML, and creating an index for the search engine.
- Building a search engine that integrates and manages 7 different metadata schemas delivered in files from different sources so that searches can be performed across collections with an easy to use interface.
- Automating interrogation of 7 major tobacco companies' Web sites to harvest the latest documents to add to the archives, including error handling and interpreting nonstandard fields.

"Users of the archive indicate its real value is in having one place for easy and fast searches across all of the document collections. Little do they know how huge and complex an IT challenge we've faced in integrating the databases, performing monthly updates with new documents harvested from 7 industry Web sites, and maintaining data integrity."

Kirsten Neilsen
Project Manager
Library & Center for Knowledge Management, UCSF

It's difficult to calibrate the challenge posed by the constantly changing data issues faced by the UCSF library team. For example, they discovered over 700 different names for document types (e.g., memo, letter, interview, fax, etc.), 50 different spellings for the word "cigarette," and numerous conventions for document dates. As explained by UCSF Library Programmer Analyst Bob Mason, "No one anticipated the huge scale of this project in terms of harvesting and processing the data, and dealing with so many data errors and inconsistencies. This challenge required ongoing human effort and problem solving by our team beyond just the technology involved."

Combining Open Source Software with Infrastructure Investments

In public projects like the LTDL, operating within a tight budget is the norm. UCSF Library looked to open source software to find the functionality and tools required to build and maintain the archive while conserving cash. Other than the Xpat indexing tool, part of the Digital Library Extension Service (DLXS) from the University of Michigan, and the Solaris operating system from Sun, all key software components selected were open source.

To keep the archive current, LTDL invested considerable effort in adapting a "Spider" written in the Java™ programming language by a programmer at the University of Sydney in Australia to look up records related to Asia on the Phillip Morris Web site. Explains UCSF Library Programmer Bob Mason, "We generalized the spider to work against all the records on 7

Legacy Tobacco Documents Library Software

Operating System	Sun Solaris™
Database	PostgreSQL
Scripting Language	Perl
Search Engine	Xpat
Digital Library Tool Kit	DLXS
Indexing Tool	Xpat
Web Server	Apache
Statistics Package	Analog
Firewall	IP Filters

industry sites, which involved 5 entirely different web interfaces and 6 different database structures. Adapting and refining the program has been a challenge because the behavior of the industry sites is unpredictable and new issues are always arising."

The key hardware selected for LTDL includes Sun production and Web servers, Sun data storage devices, and Sun technical workstations used by programmers. To improve system performance, a dedicated development server and Storage Area Network (SAN), also from Sun, are being deployed.

LTDL Infrastructure from Sun Microsystems

Operating System	Sun Solaris™ 9
Storage Area Network	Sun SAN 4.2 Sun StorEdge™ 2Gb Network FC Switch
Data Storage Devices	6 x Sun StorEdge T3 Pairs (1 TB each) Sun StorEdge T3 Array, 1 Gb cache, RAID
Servers	Sun Fire™ V480, 4 x 1.2 GHz CPUs 2 x Sun Enterprise™ 450, 4 x 250 MHz CPUs
Technical Workstations	2 x Sun Ultra™ 5 2 x Sun Blade™ 150

Effective Planning and Development Deliver Tangible Results

The Legacy Tobacco Documents Library delivers a permanent, online archive of tobacco documents released through the Master Settlement Agreement. Efficient and effective planning, software, and systems development by LTDL extends important benefits to the public through the archive:

- Project completed on-time and within budget, delivering tobacco archive to the public one year from start-up.
- Searchable data repository houses over 6.8 million documents, 40 million pages of tobacco industry documents, 4 gigabytes of metadata, and 1.5 terabytes of image data.
- Technology and process in place for constantly updating the archive with the latest documents (note 1.4 million new documents were added in 2003 alone).
- Impressive system uptime of .99999 ensures 24x7 public access.
- One convenient, coherent archive federates disparate data from multiple document collections using XML.
- Positive Web user experience features intuitive site design and easy to use search functionality and display of data as tif, gif, and pdf files.

> "The system uptime, which I'd put safely at .99999, is a real strength of LTDL. And when we migrated from Solaris 8 to 9 to improve performance, Sun's live upgrade feature was a big plus, allowing us to manage downtime using our standard outage windows."
>
> Albert Jew
> Systems Manager
> UCSF Library

> "Although the archive preserves information from the past, it really lives in the present, continually searched and used for policy, medical, legal, and teaching purposes."
>
> Bob Manson
> Programmer Analyst
> UCSF Library

Since the LTDL launch in January 31, 2002, there have been over 4 million page views of the archive and almost 1.5 million documents served to the public. Users of the archive include public health and policy makers, educators, students, lawyers, scientists, and medical professionals from over 100 nations.

Key Tobacco Archive Learnings

- Largest IT challenge was unpredictability in terms of new and changing issues related to processing documents and normalizing the data.
- Preservation of documents as fixed content (i.e., stored once in a digital format and never changed) can be problematic when objectives include error checking and normalizing data for integrity and integration with data from other sources.
- Incremental indexing is important to efficiently update archives when new data is being sourced and integrated on a regular basis.
- Multi-threaded software can significantly improve system performance by allowing the software to use multiple CPU's concurrently.
- Writing software in Java speeds development work and adds important flexibility.

For more information on the UCSF Legacy Tobacco Documents Library and related resources, visit www.legacy.library.ucsf.edu

University of Hawaii Speeds Deployment with Customer Ready Systems

IN THIS ARTICLE:

U of Hawaii: Ten Campuses, Six Islands, 45,000 Students

The University of Hawaii system comprises ten campuses and five educational centers on six Hawaiian islands, serving the educational needs of over 45,000 students. The university's student information system needs were served by four disparate systems with ten different databases, creating inefficiencies and posing problems when students transferred from one campus to another. Some of the systems were based on aging technology that fell short of the service requirements. Software licenses were up for renewal on some of the old systems, and they no longer met the university's needs. The need to replace the existing systems with a single, modern, comprehensive student information system solution became urgent.

Five Months to Define and Deploy Massive Student Information System

With the new academic year approaching, the university's Information Technology Services group had only five months to design, purchase, acquire, deploy, and test the hardware necessary for the new student information system. A representative team from all parts of the University system conducted thorough research into the options for student information systems that could be quickly and reliably implemented in a university as large and complex as the University of Hawaii system. SCT Banner Student Information and Student Financial Aid applications were selected, along with the Campus Pipeline Luminis portal based on the JA-SIG uPortal framework.

Experts from SCT and Sun's Education and Research Group worked closely with the university to define the new system. The configuration they determined, powerful enough to satisfy the needs of all 45,000 students in the university network, emerged as one of the most complex computer system purchases at the University of Hawaii. Four Sun Fire™ 4800 servers, three Sun Fire 3800 servers, eleven Sun Fire 280R servers, and twelve Netra™ t1 servers manage the student database and run the Banner 2000 and Luminis applications along with the many associated software products. Data is stored on a 3.2 terabyte Sun StorEdge™ 9960 system, which also provides the possibility of further consolidations in the university's data center.

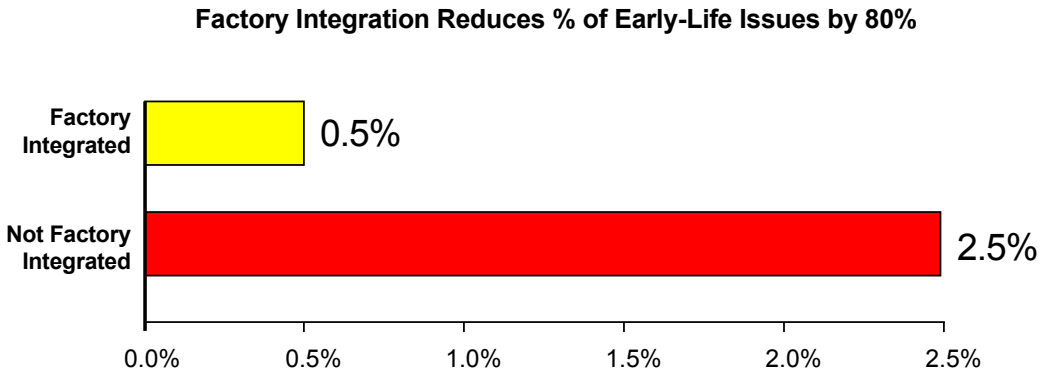
Fast-track Implementation Using Customer Ready Systems

According to conventional practices, the equipment required for the new system would have been shipped in over 200 separate crates. In the university's crowded data center, the staff would have had to unpack all the crates individually and then rack-mount and cable up the components within them. Then each component would have had to be individually installed and tested. Dealing with the two hundred boxes alone represented a logistical nightmare, not to mention the time and risk it would entail for staff to manage the installation of such a large, complex system, including some unfamiliar equipment.

Key Business Challenges for University of Hawaii

- Implement system in time to meet tight schedule.
- Minimize impact of configuring system on personnel and facilities.
- Unite entire university system under a single, comprehensive student information system.
- Provide user access via Web browsers and the Internet.

The University decided to take advantage of the Sun Customer Ready Systems (CRS) program, under which Sun pre-configured, rack-mounted, and pre-tested the 30 servers along with the 3.2 terabytes of storage and system software that were required for the new information system. The system was tailored to the University of Hawaii's exact requirements, and pre-tested as a unit in Sun's own factory by its technology experts. To help the University plan for delivery, Sun sent pictures of the filled racks along with schematics ahead of time. This approach saved weeks of time and hundreds of person-hours of the University's internal resources while adhering to the aggressive project timetable.



Factory Integration Reduces % of Early-Life Issues by 80%

"We estimated that installation would have taken two weeks with two full-timers on the project and a lot of part-timers, and that's only if everything went smoothly," said Systems Services Manager David Hodges. Once we learned what the Sun Customer Ready Systems program would do for us, it was an easy decision."

Hundreds of Hours Saved

The University of Hawaii's new student information system is the industry's first single, shared database to integrate two-year community colleges and four-year universities. The new system provides improved integration across the system, improved functionality in almost every area of student information services, and improved access to management information. Centralized access to a single database will also reduce the management costs and concerns associated with ten different systems. Unlike the current systems, all customer access will be via Web browsers and the Internet.

"I'd absolutely recommend the Sun CRS program to anyone on a very tight schedule. It's a tremendous time saver and can greatly reduce risk," Hodges concluded. "I'd also recommend it as a way of alleviating bottlenecks to anyone with facility or staffing constraints. CRS saved us a couple hundred hours of labor, potentially an immediate return on the investment. Assembling and installing the systems for this project presented significant exposure to risk. Sun's CRS made this phase of the project a unqualified success."

Key Business Results for University of Hawaii

- Hardware deployed ahead of schedule and on budget.
- Saved at least two calendar weeks and 200 person-hours.
- Avoided need to deal with over 200 equipment crates.
- Complex project on track to centralize information for all 45,000 students in a single database.

Benefits of Customer Ready Systems

- Reduces deployment times
- Reduces payback timeframe
- Reduces early life system failures
- Minimizes customer deployment resources
- Delivers systems in one box, not a pallet full of systems
- Reduces the amount of packaging materials of individually packaged un-integrated systems
- Provides a single point of contact for the complete integration
- Integrates systems in ISO 9002 certified factory integration centers
- Simplifies system standardization and reordering

About Sun's Customer Ready Systems (CRS) Program

CRS integrates Sun and third-party hardware and software products into ready-to-deploy solutions that are based on customers' specifications and built in Sun factories. Visit Sun Customer Ready Systems (CRS) for more information.

The Sun Java™ Desktop System — A Perfect Fit for Education

IN THIS ARTICLE:

Built on open source components and offering performance, reliability, and security at very low cost, the Java Desktop System may be the ideal desktop for education. This article provides an overview of the product, how it can benefit educational institutions, and plans for future releases.

Open Source Components

Sun has a lot of products today with "Java" somewhere in their name, so at first glance you might not grasp the significance of the Java Desktop System. It's a comprehensive, secure, highly affordable desktop solution based on open source components and industry standards, including GNOME desktop environment, StarOffice™ Productivity Suite, Mozilla browser, Evolution mail and calendar client, and Java 2 Platform Standard Edition, all running on a Linux operating system. For more details on the components, click here.

Lower Costs

Educational institutions often have to do "more with less" when it comes to IT budgets, and software license fees can be a substantial drain. At U.S. $50 for a media kit and U.S. $25 for additional licenses (per desktop), the Java Desktop System is a fraction of the cost of Microsoft's desktop (Windows XP and Office XP). The CD-ROM media kit includes 60-day installation support and the license includes one year of software maintenance.

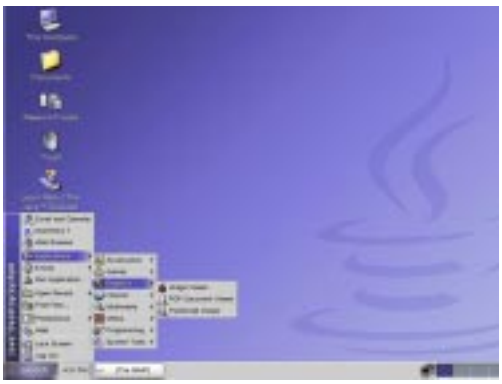
> "Most casual users who see the Java Desktop System are surprised when they learn that it isn't Windows."
>
> Dr. Raymond Toal
> Professor of Computer Science
> Loyola Marymount University

The less demanding hardware requirements of the Java Desktop System extend the life of older systems and save money on new purchases, since it doesn't require additional memory or a faster CPU to run. The minimum supported system is a Pentium II compatible processor with just 266 MHz, 128-MB of RAM, and an 800x600 screen. Many institutions might have previously considered retiring such systems or even those with several times that capability. The minimal hardware requirements are a boon for primary and secondary (K12) schools where children need speedy access to reliable computers for web access, word processing, and e-mail.

Better Security

Although most modern viruses are designed to attack Windows systems and none have been recorded on a Java Desktop System to date, one cannot discount the threat of viruses to Linux. The Java Desktop System relies on the strict access controls built into Linux, which prevents viruses from modifying files and infecting the system environment. For Java applets and applications, the Java sandbox security infrastructure provides another means of preventing viruses.

Familiar Interface



The Java Desktop System graphical user interface and StarOffice file compatibility with Microsoft Office means users can be immediately productive. According to Dr. Raymond Toal, Professor of Computer Science at Loyola Marymount University, "Most of my computer science students already use Linux. Other students don't like all the security and virus problems with Windows, but in the past they continued to use it because it was familiar to them and they didn't want to take the time to learn a new user interface. The Java Desktop System solves that problem. Its simplified user interface with familiar desktop themes and file manager views requires no training for anyone who has ever used Windows XP."

Access to Source Code

Early users adopted Linux because they wanted access to the source code of the operating system and applications, and didn't want to be held hostage to any single vendor. Education and government institutions around the world also recognize this benefit. The People's Republic of China, through an agreement between Sun Microsystems and the China Standard Software Company, has agreed to use the Java Desktop System as the foundation for the standard desktop environment in China, starting with one million desktops this year and growing to 200 million copies in the future.

Nanyang Technological University (NTU) in Singapore especially appreciates the fact that the Java Desktop System is based on the open source Linux operating system. NTU's "BioBox" initiative packages 20 common open source life science applications available for Linux and Solaris™ into a ready-to-use package for life science researchers. According to Dr. Simon See, Adjunct Professor at NTU, "Our BioBox initiative lets a life science researcher create a fully functional life science research desktop, starting with our BioBox CD-ROM, in less than 20 minutes. We were able to move the BioBox application to a Java Desktop System with no porting. Now life science researchers can take advantage of all the BioBox applications on a platform that is both immediately familiar in look and feel and fully interoperable with Microsoft Windows. We could have never done this on Windows because most of BioBox's life science applications simply aren't available on that platform".

Future Plans for the Java Desktop System

The Java Desktop System already works "out of the box" with e-mail and calendar products like those included in the Java Enterprise System. The next release will add enterprise management

functionality to provide a perfect platform for large scale campus deployments. Sun will also continue to add important new GNOME, Linux, and accessibility features to the Java Desktop System as they become available. Future versions of the Java Desktop System will run on Solaris as well as Linux, delivering a standard desktop across the widest possible choice of platforms, including Sun Ray™ thin clients.

Sun is working with a number of computer manufacturers on Java Desktop System laptops and desktops. The Talin laptop from Tadpole Computer already ships with the Java Desktop System pre-installed. Tadpole is also planning a wireless laptop that is a fully compatible Sun Ray thin client.

Special Offers for Education

1) Special Pricing:
The Java Desktop System Education license is available to qualified education and research institutions for U.S. $25 per desktop, for any number of desktops. The license includes:

- Client and server software (server software will be available with the next update)
- Web-based support (get details)
- One year maintenance
- Upgrades via electronic software delivery
- Part # JDSSL-LCDCDE2S

Customers must purchase at least one Java Desktop System Media Kit at U.S. $50.
The Media kit includes:

- CD-ROM Media kit and documentation
- 60-day installation support
- Part # JDSZL-999CD9YS

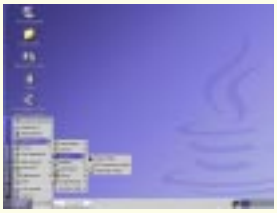
2) Free Evaluation CD:
To obtain an evaluation copy of the Java Desktop System, just click here.

3) Free Linux Laptop:
As a special promotion, only available to EduConnection readers, qualified educational institutions who purchase a minimum of 1000 Java Desktop System licenses will receive a free Tadpole laptop courtesy of Tadpole and Sun Microsystems. Restrictions apply. Click here to have a Sun rep contact you with more information.

All prices are for U.S.-based education customers. Please contact your local Sun office for pricing in your locale.

Components of the Java Desktop System

GNOME Desktop
The desktop, derived from the open source GNOME project, provides an intuitive user interface that allows users to quickly and easily launch applications, locate documents, organize their files, and personalize their work environment. An extensive set of utilities and accessories is included.



Mozilla Browser
The browser is based on the popular Mozilla distribution. In addition to providing advanced Web browsing capabilities, it also includes an e-mail client, an IRC chat client, address book, and an HTML composer. The browser features the Macromedia® Flash™ Player, and plug-ins for Adobe Acrobat Reader, RealPlayer from RealNetworks, and Sun's Java 2 Platform.

StarOffice 7 Productivity Suite
The centerpiece of the office productivity suite is the award-winning StarOffice 7. This premium suite includes advanced applications for word processing, spreadsheet creation, presentations, graphics creation, photo editing, Web publishing, and managing data from relational databases.

Evolution Mail and Calendar
This useful application, based on Evolution, combines e-mail, calendaring, contact management, and task lists in one convenient package. It has been enhanced to work seamlessly with the Sun Java System Calendar and Messaging Servers (formerly Sun ONE Calendar and Messaging Servers).

Java Applications
The Java runtime environment is an integral part of the Java Desktop System. This award-winning cross-platform technology for building desktop applications allows users to run thousands of Java technology-based solutions.

Plenty of Applications
The Java Desktop System is loaded with additional applications designed to enhance desktop usability and productivity. A few examples: Text Editor, Calculator, CD Player, Media Player, Image Viewer, as well as many system configuration tools.