**IGeLU 2007**

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# Sun Innovative Solutions for the Digital Library

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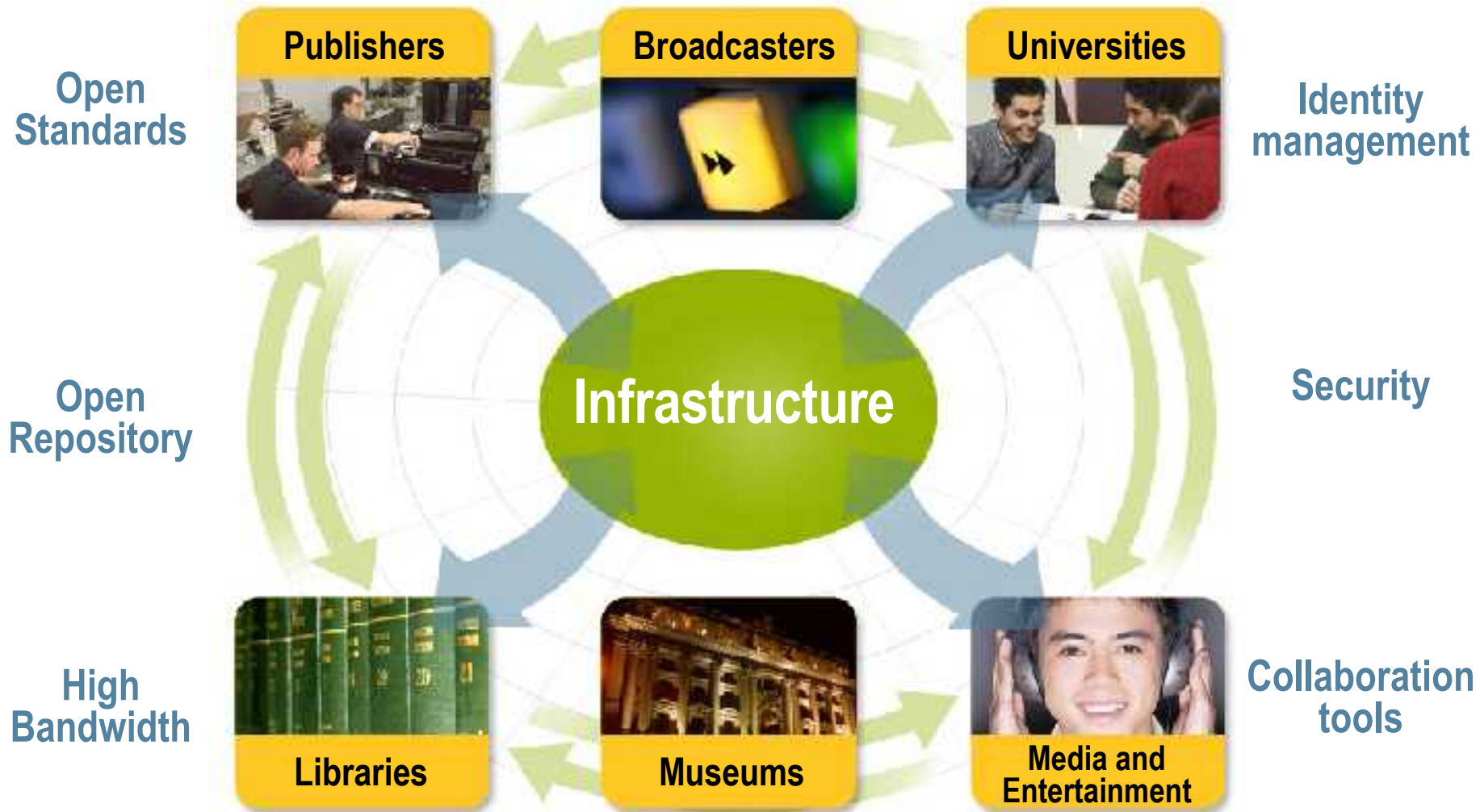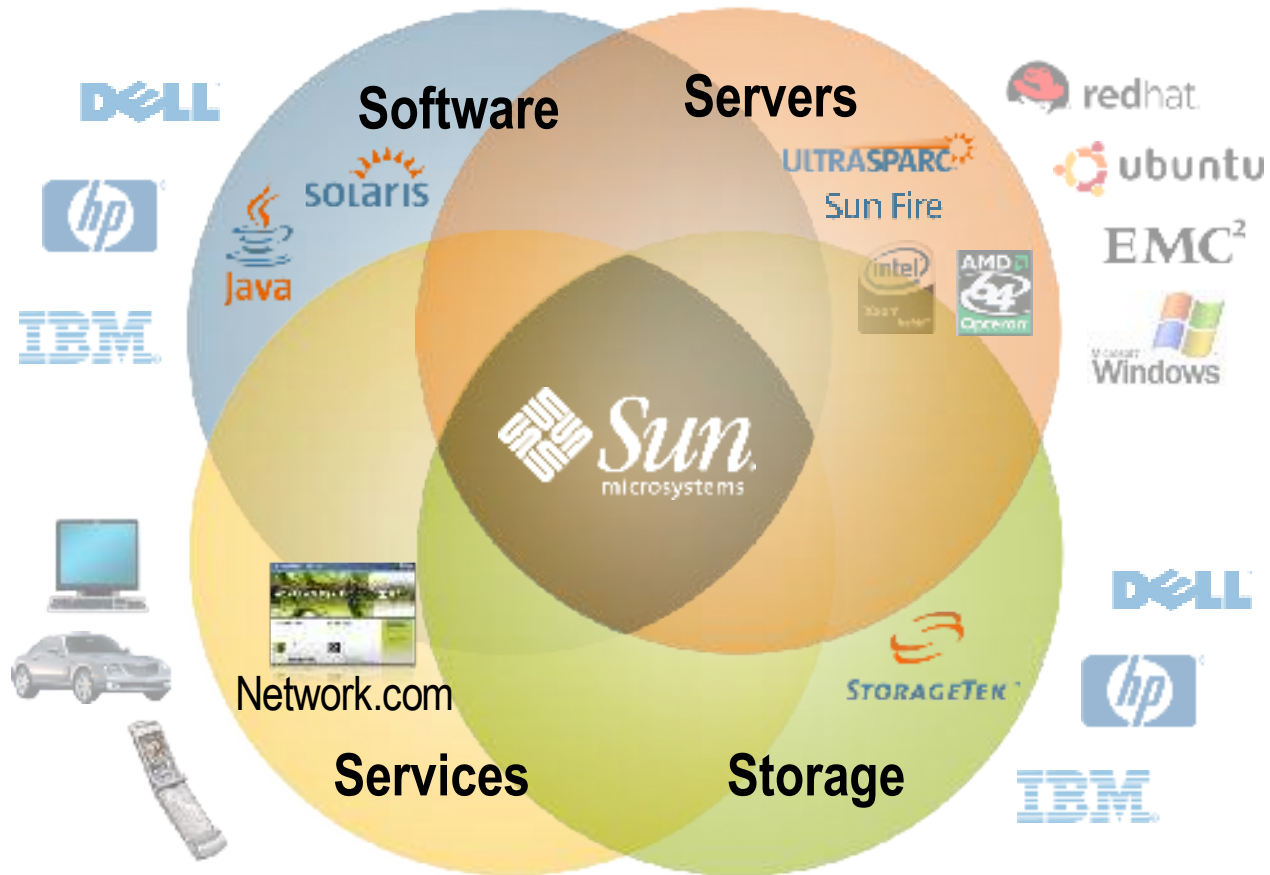Global Education & Research

Sun Microsystems, Inc.

# In a nutshell

- Technological Partner
  - > 100% Open computing
  - > Infrastructure provider for central IT
  - > Co-engineering with most ISV
  - > SOA experts
- Strategic Partner
  - > Long term commitment with the sector
  - > Centers of Excellence across the world
  - > Dedicated Community for Digital Preservation

# Towards the Knowledge marketplace

Open Standards

Open Repository

High Bandwidth

Publishers

Broadcasters

Universities

Infrastructure

Libraries

Museums

Media and Entertainment

Identity management

Security

Collaboration tools

# Sun = 100 % Open Computing

# Active participation in Open communities

# Libraries Do 5 Things

- Select
- Acquire
- Preserve
- Provide Access
- Interpret



**The Digital Age transforms each of these functions. All libraries, but particularly academic libraries, are deeply engaged in adapting their services to this digital shift**

# Some Challenges Libraries Face

- Providing New and Useful Digital Services
- Staff Training
- Re-inventing the Library as Social Space
- Adapting Services to Digital Age
- Integrating with e-Learning Systems

- Google?

# The Digital Library and Repository

**Humans created 161 exabytes of data in 2006, approximately 3 million times the information in all the books ever written, according to IDC.**

Source: "An Inconvenient IT Truth," By Michael Vizard, eWeek, 06/22/07

# Sun's Value Proposition

We Help Institutions Develop Open,Scalable, Secure Environments for Knowledge Discovery, Creation, Delivery, and Collaboration

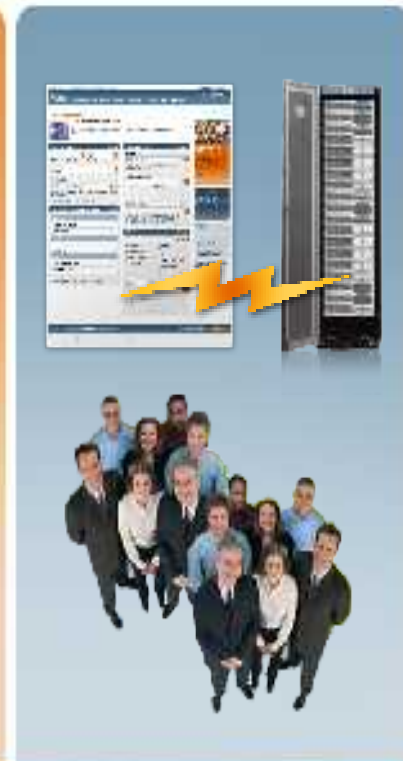# A complete infrastructure portfolio for Libraries



**Systems**   **Storage**   **Software**   **Services**

Partners

Developers

# Some examples of collaboration

- EMEA
  - > Oxford, Humbold, Univ Catholique de Louvain, Alexandrie, INIST, Strathclyde, Univ. Complutense, etc,..
  - > National Libraries: Russia, Scotland, Finland, Wales, The British Library, Croatia, Slovenia, Slovakia, France,Norway,
  - > Consortiums: CBUC, LINNEA, AMKIT, CILEA...

- Rest of the World
  - > Library of Congress, Stanford, Harvard, MIT, UC Berkley, Cornell U., Singapore, National Library of New Zealand, Australia,...

# Sun & ExLibris

- Over 80% of Academic Customers on Sun
  - > Aleph & Voyager
- Definition of Reference Architecture
  - > High Availability, Infinite Scalability
- Performance tuning and Optimization
  - > Menlo Park (US),Tel Aviv
  - > Solaris 10
- Tight integration between DigiTool and Sun STK solutions

# The long term Preservation and Access Challenge

- Digital Preservation is a Global Challenge
  - > Academia, Government, Healthcare, Research,..
  - > Exponential growth, Complexity of content, Instability, dynamic, distributed,..
  - > Crucial importance for cultural and intellectual records
- Need for Standards and International Collaboration
  - > Interoperability, Authenticity, Integrity, IT Obsolescence
- Need to define sustainable economic models

# Sun's contribution

- New dedicated Storage system: STK5800
    - > designed for long term preservation of Data
    - > Optimized for Fedora, D-Space, Eprints
- New dedicated Community of Interest: Sun-PASIG
    - > Stanford, BNF, Alberta Digital Library, Oxford, Royal Library of Sweden, NYU, John Hopkins,..
    - > Comparison of OAIS architectures and use cases
    - > Sharing of best practices and software code
    - > Cooperation on standard, open solutions around repository technologies
    - > Review of storage architectures and trends

# Sun Solutions for Repositories

- **StorageTek 5800 "Honeycomb"**
    - > Digital Repositories for Data and Metadata Storage
    - > Fedora, EPrints, and D-Space Communities
    - > Ex Libris Digitool
- **SAM-FS/QFS**
    - > Large Scale Preservation Projects Needing Policies
- **Thumper ST 4500**
    - > DAM
    - > eResearch Databases
    - > Video Streaming
- **Identity Management and SOA**
    - > Federated Repositories (Longterm)

# Why STK 5800 ("Honeycomb") Came About – Challenges We Heard

**"We need better ways to organize and find data"**

- **File systems have lost meaning**

- Store more than just data

  > Include extra meta data (more than date, time, owner etc)

  > Provide search using this metadata

**"We need to drive down cost"**

- **Acquisition and management over time**

- **RAID 5 insufficient reliability, mirroring too expensive**

- **SAN, SCSI too expensive**

- **Storage management costs need to be contained**

- **Cheap disks desired but they fail and have limited life span**

**Need reliable storage that scales easily to support growing amounts of fixed content**

# What STK 5800 Provides



**STK 5800 storage appliance**

**1** Extreme reliability, availability and load-balanced horizontal scaling
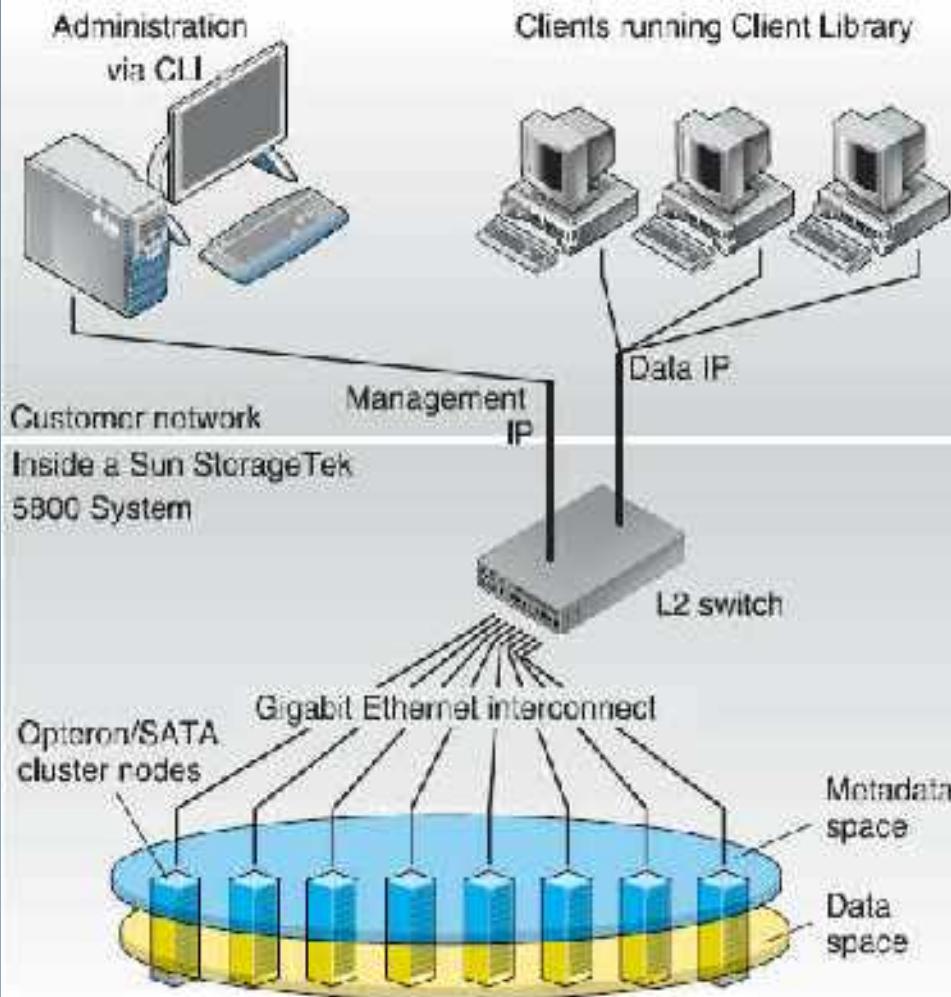
**2** Faster, intelligent retrieval of data with expandable, queryable metadata

**3** Reduced operating and capital costs

# STK 5800 in a Nutshell



- **World's first programmable storage solution**
  - **Off-loads data management tasks to the storage system**
  - **Native metadata and query capability**
  - **Application extensibility**
- **Load-balanced horizontal scaling**
- **Dramatically reduced TCO**
  - **Minimized administrative burden**
  - **Deferred service model**
- **Extreme reliability through self-healing**
- **For large-scale repositories**

# Sun Ray[TM] Virtual Display Client for Libraries

Sun Ray™ 170
Virtual Display Client
All-in-one client with 17" screen

Sun Ray™ 2FS
Virtual Display Client
Ultra-secure, fiber, dual-head

Sun Ray™ 2
Virtual Display Client
Low cost, low power, small footprint

# SunRay Advantages
## A Library with PCs



- High Power Consumption
- High Cost Device
- Administration
- Viruses
- Noise

# SunRay Advantages
## A Library with SunRays



- Low Power Consumption
  - > Environmental benefits
  - > Green credentials
- Low TCO
- 0 Administration
- NO Viruses
- NO Noise
- HW Reliability

# More information online

- Dedicated website

  www.sun.com/edu/commofinterest/libraries/

- Case Studies and White Papers

  www.sun.com/edu/whitepapers

- Sun Education Newsletter

  www.sun.com/edu/optin

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# Thank you!

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