



Lawrence Livermore
National Laboratory

*Making History
Making a Difference*

1952-2002

Digitizing Legacy Documents

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Agenda



- Library of the Future - 1991
- The Future Is Now
- If We Build It, Will They Come?
- Working Out the Bugs
- What If It's Classified?
- Your place? Or mine?
- What's Next?

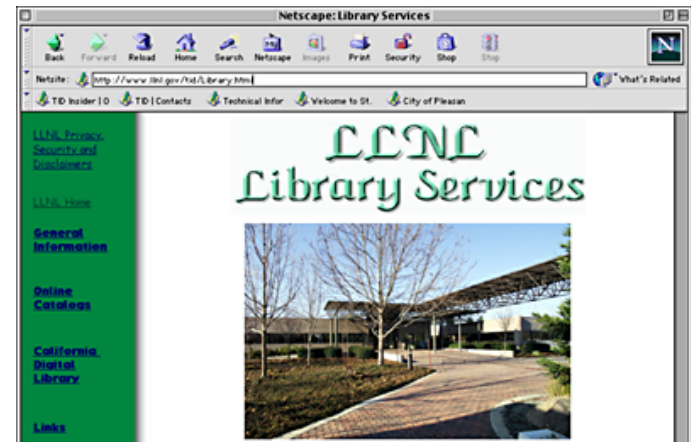


Kodak 5500 Scanner

Library of the Future



- Began in 1991
- Selected PDF as file format
- Set up Documents Online
 - Online request for printing full-text prints
- Identified 890,000 classified and unclassified legacy documents
- Beta tested a 10-page-per-minute, black-and-white scanner



The Future Is Now



- 1995 Decision — Scan 77,000 documents
- Capability — 5,000 per year (15 years?)
- New Decision —
Scan only requested documents as needed

Xerox 620S



Sunrise Microfiche Scanner



If We Build It, Will They Come?



- 1997 - Scanning became a recharge business
- Trained former photo technicians
- Converted ACTI process camera for large format 4'x5'
- Added 35mm and radiograph capability
- Planned as a 3-5 year effort



ACTI Camera

Working Out the Bugs



- Scanners outpaced the customers; they couldn't prepare documents fast enough
- We waited for work
 - Marketed our capability
- Special scanning was requested
 - Color, large format, film, microfiche, topographical maps (1890s)
- Old documents were brittle
 - We scanned from copies



CreoScitex Scanner

What If It's Classified?



- 1999 - Request from Nuclear Weapons Inventory Project to scan over 400,000 documents
 - 35% completed to date
- 2 black-and-white BancTec scanners were added
- Microfiche to CDs

1999:

5 Operators

3 Xerox 620s

1 Kodak b/w 5500

1 ACTI 3'x4'

1 Contex 50"

2 AGFA color

1 Microfiche scanner

2 BancTec b/w



BancTec S Series Color Scanner

Your place? Or mine?



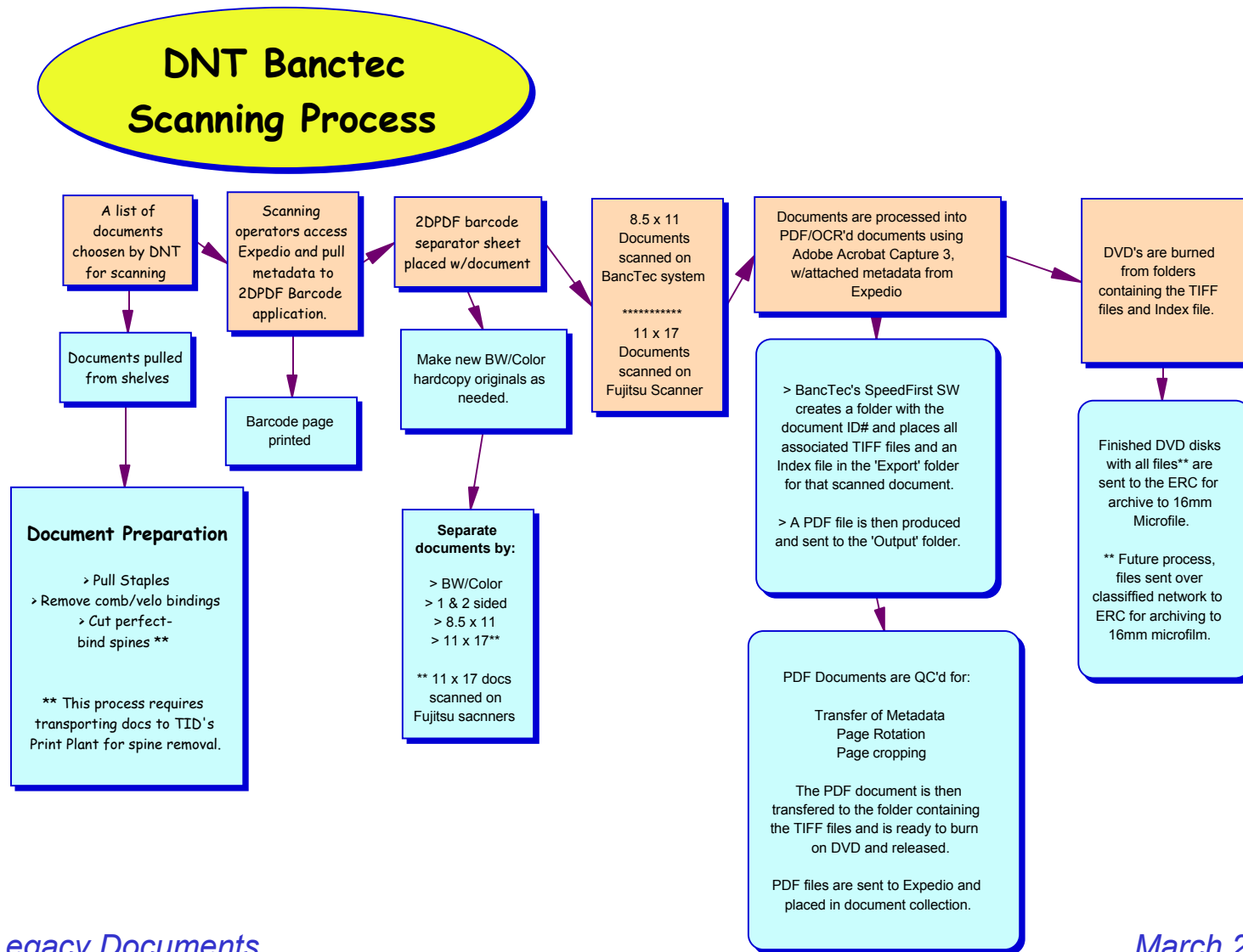
- Classified scanning requires receipting documents out of one area and into another
 - Partner with Program (DNT)
- In 2001, the Lab purchased 5 new BancTec S scanners
- TID provided 4 operators to work in DNT's classified area
- We will need to hire 2 more operators

Personnel skills:

Trained in operating high-speed color scanners and DVD-burning systems

Trained in using databases, metadata, and PDF

Scanning Process



Capability to Date



Equipment – 5 stations

- BancTec S Color 135ppm
- Dell 6300 Server
- Software
 - Windows 2000 Pro
 - BancTec SpeedFirst Color
 - Adobe Acrobat Capture 3.0
 - Adobe Acrobat 5.0
 - Adobe Photoshop 6.0
 - 2DPDF Barcode
- Primera DVR-103 Re-writable
- HP-BN Laser Printer
- Handheld barcode reader

Old Equipment

3 Xerox 620S b/w

Kodak 5500 b/w

ACTI Camera

Microfiche scanner

Contex

Replace 2 AGFAs
with 2 CreoScitex color

Investment (2001):

Equipment: \$1.2 M

Training: 4 @160 hrs= 640 hrs

Three Complete Systems for the Program

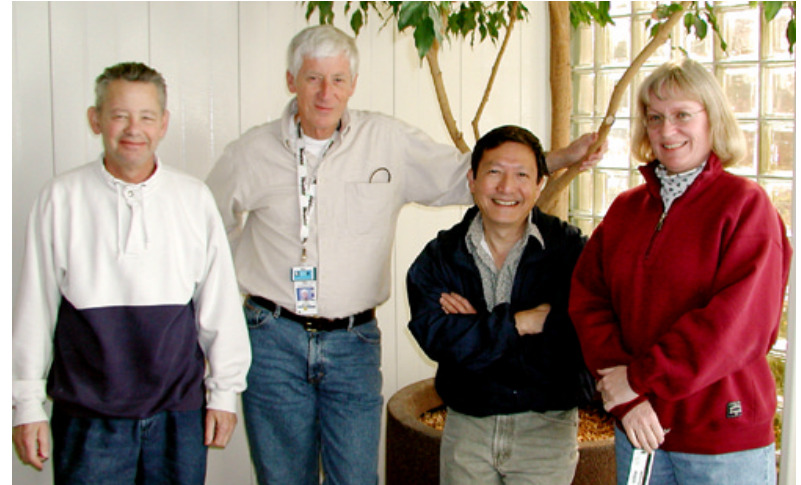


BancTec Scanners

Personnel



- 5 Media Technicians
 - 3 Photo tech experts
 - 1 former print operator
 - 1 former chemist



Four of the five LLNL media technicians

- Issues
 - Retraining former photo techs
 - Computer skills necessary
 - Perception that scanning is easy
 - Q clearances and Sigma 15 required for classified

What's Next?



Xerox 620S

- Faster scanners - 135 pages per minute
- Unstable originals
- Integrated solutions
 - Barcode metadata
 - OCR, color adjustment, duplex
 - PDF

Increased capability leads to additional work.

Scanning Personnel and Equipment



- 1993 Beta Testing
 - **1 person** (print equipment operator)
 - **1 scanner - 10 pages per minute**
- 1995
 - **3 persons** (print equipment operator, photo lab employee, administrator with computer skills)
 - **2 Xerox 620S scanners**
 - **1 Fujitsu 10C color scanner**
- 1997-1999
 - **4 persons** (3 document scanners, 1 film scanner with extensive photo lab and Photoshop skills)
 - **Added 35mm to black-and-white radiograph film scanning**
 - **Betterlight digital camera/scanner**
- 1999-2001
 - **5 persons** (one knowledge of analytical chemical processing; another high-speed photography)
 - **2 black-and-white BancTec scanners**
 - **3 Xerox 620S b/w scanners**
 - **1 Kodak b/w 5500 scanner**
 - **1 ACTI digital process camera**
 - **1 Context 50" scanner**
 - **2 AGFA b/w, color scanners** (being replaced with 2 CreoScitex scanners in 2002)
- 2002
 - **6 persons** (trained operators with skills in operating high-speed color scanners and DVD-burning systems, accessing databases for document metadata)
 - **Each document is quality controlled**
 - **5 BancTec S-series color scanners**