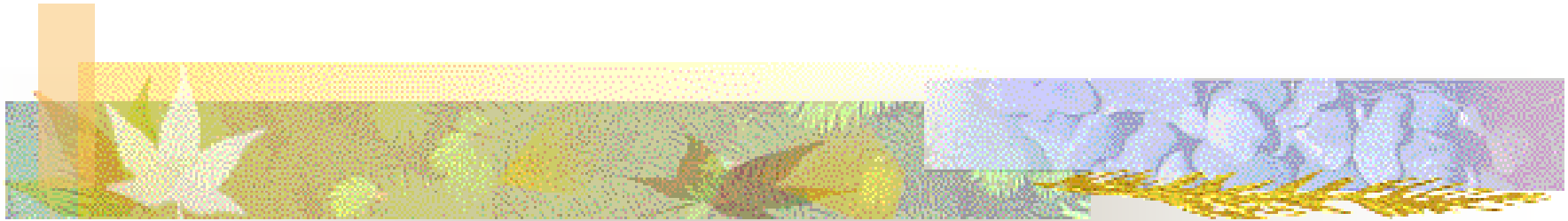# Change is a Constant: Ten Years of Digital Archive Creation and Use

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Introduction: Outline

- **Digital archival repositories as evolving virtual spaces**
- **Pacer at ten years**
  - **Hardware and software evolution**
  - **DSpace changes over time**
  - **Emerging digital archives practice**
  - **Pacer content changes over time**
- **Projects of evaluation: 2006, 2013**
- **Reconsidering repository categories**
- **Reconsidering change in all archives**

Digital repository reality

- A Stack of Technologies
  - Hardware base
  - Software infrastructure
    - File system
    - Operating system
    - Support environment
    - Repository software + "plugin" services
- Independent changes in all of these over time

Pacer's avatars

- **Software and its updates**
    - **Linux operating environment**
    - **Versions of DSpace**
    - **Versions of support software (Apache, Tomcat, PostgreSQL, Java)**
    - **Versions of "plugin" services (Lucene->Solr, SWORD, METS)**
- **Hardware**
    - **Physical: individual server**
    - **Virtual: virtualized (shared) server**
    - **Dark avatar: ford**
    - **Sandbox/processing: vauxhall**

DSpace changes over time

- **Additions to data and administration model**
    - **Inclusion of Subcommunity between Community and Collection (1.2)**
- **Additions to authentication system**
    - **Addition of Collection administrator (1.2), Community administrator (1.6)**
- **Other changes**
    - **Addition of checksum checker**
    - **Addition of new "skin": Manakin**
    - **Generation of statistics**

Authentication anomalies

- **2009: anomalies noticed with Austin History Center 2003 collection**
  - **2003: DSpace 1.1: no collection manager, no subcommunities**
  - **2004-2005: DSpace wiki saw multiple discussions about problems with need for more delegaton of management**
  - **2009: DSpace 1.4: subcommunities, collection manager**
  - **Collection manager permission granted on 2003 collection gave management access to entire repository**

DSpace year at School of Information

- Primary work in spring: INF 392K
- Secondary work during rest of year
  - Deposits from individual studies, theses, capstones
  - Summer, fall as times of repository revision
    - Summer 2005 use of community filiator to restructure
    - Fall 2012 additional restructure

Changing digital archives practice over time

- 2005: Mirroring a finding aid: functions as subject order
- 2009: Forensic capture: virtual orders
    - Orders as offered by operating system
    - Orders as offered by applications
    - Orders as managed by file system
- Mirroring original order: bundles plus operators
- Seeing time and activity, not freezing it

Reordering virtual shelves

- Initial communities
- Addition of communities with new functions
- Changes in shape of overall collection
- Virtual reorganization: DSpace interface
  - Everything is ordered by metadata recording the moment of entry or creation
  - Thus everything can be ordered in multiple ways (without moving anything)

Evaluations of Pacer

- **2003: Recommendation for iSchool repository (392K class)**
- **2005: Study of DSpace permissions by M. Esteva (v. 1.1-1.2)**
- **2006: Evaluation of work so far (ALA-Ingenta grant)**
  - **ALA-Ingenta paper**
  - **TRAC**
- **2009: Vision Plan proposal (addition of digital forensics)**
- **2011: DAL and Frankenstein II project (392K project)**
- **2013: DAL and repository evaluation (392K project)**
  - **TRAC, DRAMBORA, Inventory**

Pacer as iSchool archival repository

- **Archival permanence and security**
- **Usefulness to stakeholders**
    - **Faculty: cloud, fame**
    - **Students: source of stored information**
    - **Staff: safe place to put preserved materials**

Pacer as a site of teaching and research

- **Provision of OAIS standard**
- **Supportive environment for students**
- **Opportunities for processing and administration of digital records**
- **Environment for actual work**
- **Site for research in digital archiving**

Pacer as incubator (for HRC, Briscoe, Alexander)

- **Archival permanence and security**
- **Responsible administration**
- **Secure environment for closed collections**
- **Experience with digital archiving**

Evaluating a digital repository: missing values

- Constant change in characteristics of digital objects to be preserved

- Constant change to underlying hardware and software of repository

- Permanent need for monitoring of repository behavior and digital object stability

- Permanent need for research and experimentation

Final messages:

- All archives are alive, not dead
- All archives must be sites of change, learning, and research, for archivists as well as patrons
- Digital archives raise more advanced questions; all archives must answer them