Developing Software Preservation and Emulation Practice at the University Library

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Digital Preservation @ University Library

- Preservation Service unit
- Most often work with special collections units
- Born-digital media reformatting lab
- Collections content recovery from fragile, obsolete computer media
- Wide variety of content recovered - each requiring respective rendering software
Fostering a Community of Practice

- Guggenheim Museum
- University of Arizona
- Living Computers Museum & Labs
- Georgia Tech
- University of Illinois at Urbana Champaign
- University of Virginia
Scaling Emulation and Software Preservation Infrastructure (EaaSI)

- concurrent grant project under the Software Preservation Network administrative umbrella
- scaling the technological framework necessary for multiple institutions to configure, share, and access software and configured environments
- includes access to configured software environments

FCoP Cohort Role
- “kicking the tires” and providing feedback
- Making decisions and establishing workflows
- Requesting features and testing them
What is Emulation?

“Emulation – combines software and hardware to reproduce in all essential characteristics the performance of another computer of a different design, allowing programs or media designed for a particular environment to operate in a different, usually newer environment”

https://dpworkshop.org/dpm-eng/terminology/strategies.html
(Digital Preservation Management - Digital Preservation Strategies)
Emulation Benefits

- good choice when the look and feel of digital content is important to retain
  - Digital artworks, complex digital objects, games, etc.
- Allows users to engage with a closer representation of the original environment
  - Maintaining some use context
- May facilitate access for appraisal
Illinois’ FCoP Project

Contemporary music composers in Sousa Archives and Center for American Music (SACAM) collections

Project Goals:
- Piloting and prioritizing emulation research
- Improving preservation of and access to composers' collections
- Developing workflows
Local FCoP Activities

• Lots of activities happening concurrently
• Currently:
  – core work of the project
  – Intensive collection curation work on Manion collection
  – emulated environment generated from an .E01 forensic disk image
About the Emulated Environment

• Important milestone, but only tip of workload iceberg
• At this point the environment is most useful for appraisal
• Content has not been processed
• Technical issues

Manion EaaSI environment – error due to missing external hardware
EaaSI in Action
Scaling and Documenting Curation

- Digital Content Format Registry
  Local effort to record knowledge about challenging file formats with the goal of improving access

- Built as part of the Medusa Digital Preservation Repository Collection Registry

- Publicly viewable: https://medusa.library.illinois.edu/file_formats

Example file format registry entry

https://medusa.library.illinois.edu/file_formats/271
Engaging Archivists and Curators

• Emphasize need for archivists and curators to:
  – Gather as much information as possible
    • about the creation context and files of interest
    • document the creator or donor walking through the software interface if possible
    • Identify content of value
  – Engage early with digital preservation specialists
    • Don’t necessarily want to encourage transfer to a secondary storage medium
  – Get clear permissions on use and access
Making the Work Visible and Sharing Experiences

• Making the work scalable includes
  – Engagement and training
  – Articulating and documenting the work and processes
  – Identifying responsibility
  – Outreach is important for information sharing and building support!
  – Creating documents to share as part of FCoP project
Future Work

- Creating migration pathways
- Developing a more formalized software preservation practice
- Determining if we will have continued access to EaaSi
- User testing of the EaaSi environment
- Outreach and building capacity
- Continue working with the Software Preservation Network
Select Resources

- **About EaaSI:** [https://www.softwarepreservationnetwork.org/eaasi/](https://www.softwarepreservationnetwork.org/eaasi/) (accessed 11/19/19)
- **About FCoP:** [https://www.softwarepreservationnetwork.org/fcop/](https://www.softwarepreservationnetwork.org/fcop/) (accessed 11/19/19)
- **EaaSI Handbook:** [https://eaasi.gitlab.io/eaasi_user_handbook/](https://eaasi.gitlab.io/eaasi_user_handbook/) (accessed 11/19/19)
- **EaaSI Sandbox:** [https://www.softwarepreservationnetwork.org/eaasi-sandbox/](https://www.softwarepreservationnetwork.org/eaasi-sandbox/) (accessed 11/19/19)
- **On the Rushdie project** from Personal Digital Archiving 2017: “one of the biggest lessons learned noted by Waugh was the need to document everything the software engineers do as their work is just as ephemeral as the born digital information they wished to preserve”: [https://ws-dl.blogspot.com/2017/04/2017-04-17-personal-digital-archiving.html](https://ws-dl.blogspot.com/2017/04/2017-04-17-personal-digital-archiving.html) (accessed 11/19/19)
- **Software Preservation Network:** [https://www.softwarepreservationnetwork.org/](https://www.softwarepreservationnetwork.org/) (accessed 11/19/19)
- **SPN EaaSI SAA 2019 Multithreading Software Preservation Workshop notes:** bit.ly/swpres-emulation (accessed 11/19/19)
Thank You!

Questions?

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