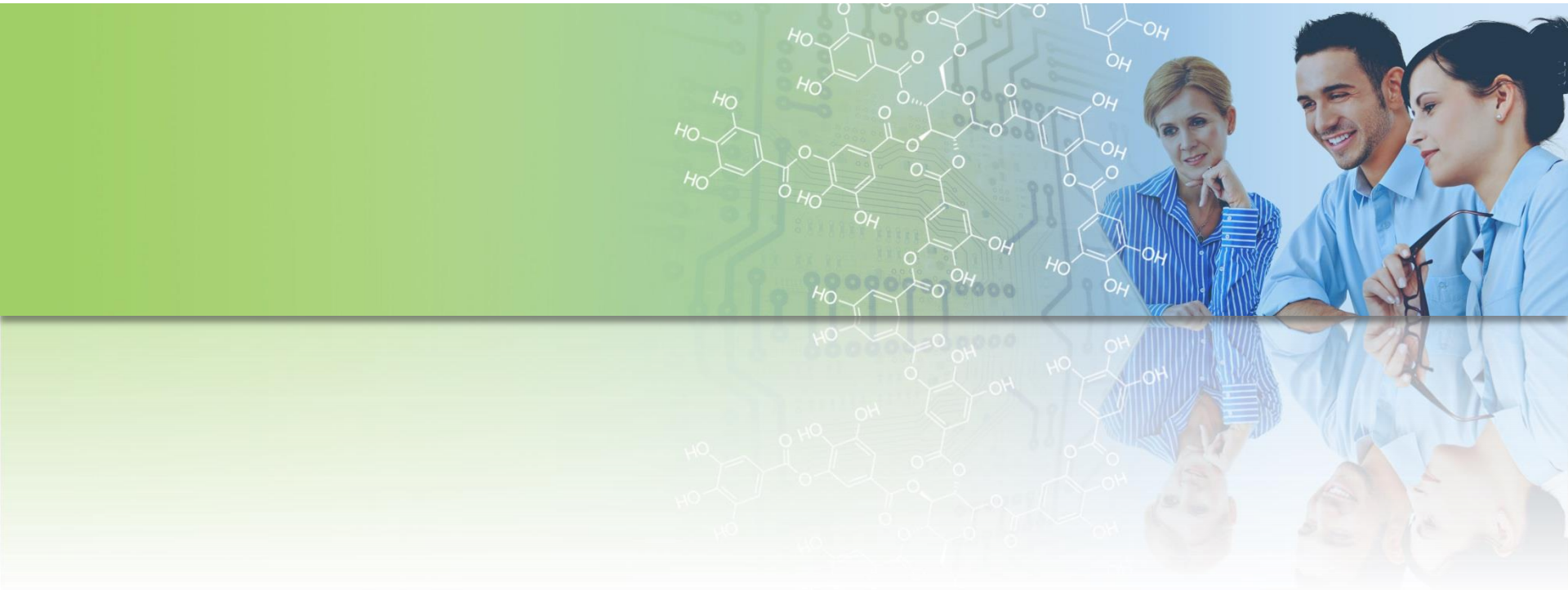


Technology Matters: A personal view

Robert Sharpe

23rd January 2014

Agenda

- Quick introduction to Tessella
- What systems do I need for digital preservation?
- On-site & off-site systems
- How automatic can it be?:
  - Ingest example
- Scalability
- Conclusions

Tessella

SDB: Digital Archiving Systems in 11 Countries across 4 Continents

The National Archives
UK National Archives

wellcome library / wellcome collection
Wellcome Library

HSBC
Corporate Archives

ARKISTOLAITOS ARKIVVERKET
Finnish National Archives

RAHVUSARHIIV
THE NATIONAL ARCHIVES OF ESTONIA
Estonian National Archives

LATVIJAS ARHĪVI
Latvian National Archives

Gemeente Rotterdam
Gemeentearchief
Rotterdam City Archive

Science & Technology Facilities Council

archívum
Magyar Országos Levéltár
BFL
Budapest Főváros Levéltára
National Archives of Hungary
Budapest City Archives

nationaal archief
Dutch National Archives

FAMILYSEARCH

ARKIB NEGARA MALAYSIA
Malaysian Archives

NATIONAL LIBRARY OF AUSTRALIA

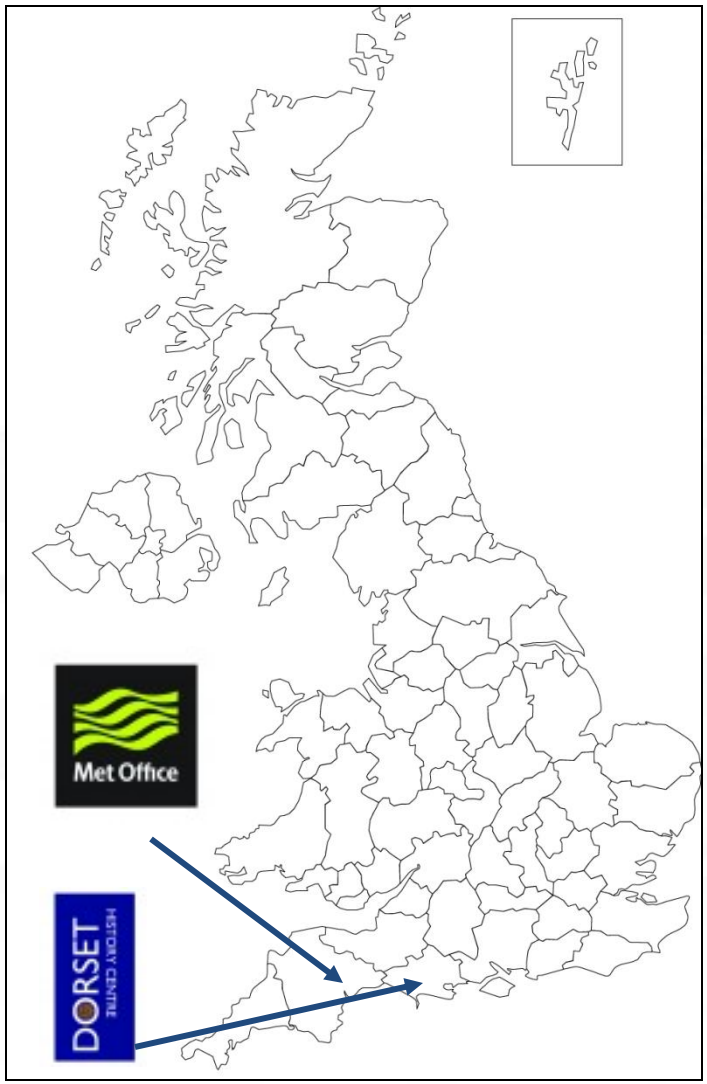
UK Parliament

Schweizerisches Bundesarchiv
Swiss Federal Archives

ÖSTERREICHISCHES STAATSARCHIV
Austrian Archives

Tessella

Preservica : Digital Preservation as a Service



(Kentucky Department for Libraries and Archives)

VERMONT

1880
(Emerson College)

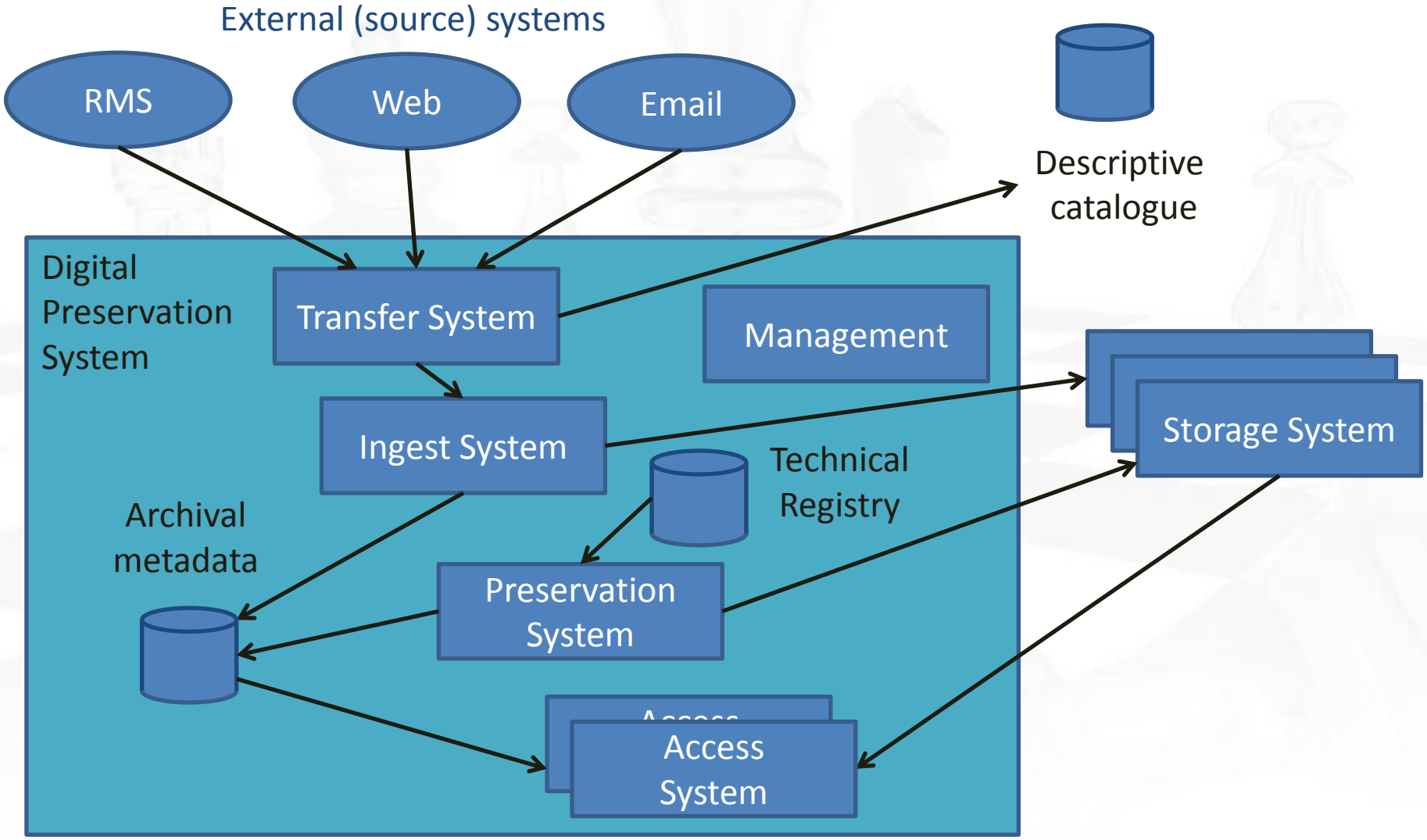
DEPARTMENT OF NATURAL RESOURCES
DNR
MICHIGAN
Archives of Michigan

Hagley
MUSEUM AND LIBRARY

Colby·Sawyer College

Tessella

What systems do I need?



Tessella

On-site Systems

- Pros:
  - Security concerns reduced
  - Have control
  - Easy (easier) to migrate to new system
  - Can customise (can considerably reduce manual overheads)
  - Bandwidth issues reduced
- Cons:
  - Need own hardware
  - Need own support
  - Costs more!
- Conclusion:
  - Good if have budget & bespoke needs
  - Good for large volumes

Off-site Systems (e.g., cloud)

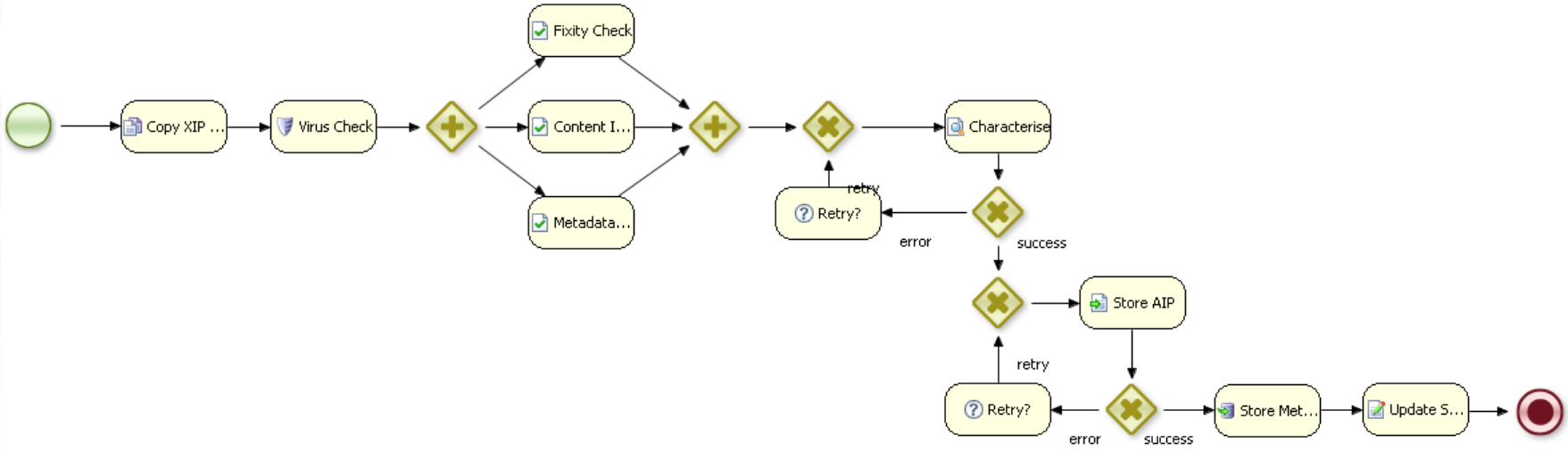
- Pros:
  - Cheaper
  - Low / zero up-front cost:
    - Don’t buy hardware
  - Lower operational costs:
    - Shared support
  - Pay for what you need
- Cons:
  - Harder to customise
  - Possible security concerns
  - Bandwidth for large volumes
  - Harder to migrate
- Conclusion:
  - Good for low budgets
  - Limited ability to be bespoke

How automatic can it be?

- Golden rule:
  - Humans make judgements
  - Let software implement your judgements:
    - Will make less mistakes
    - Can be driven by machine-readable policy
- Sometimes lack of trust:
  - Good to test software
  - Once passed test, use it!
  - If issue occurs in production:
    - Fix it
    - Get your supplier to fix it

How automatic can it be? Ingest

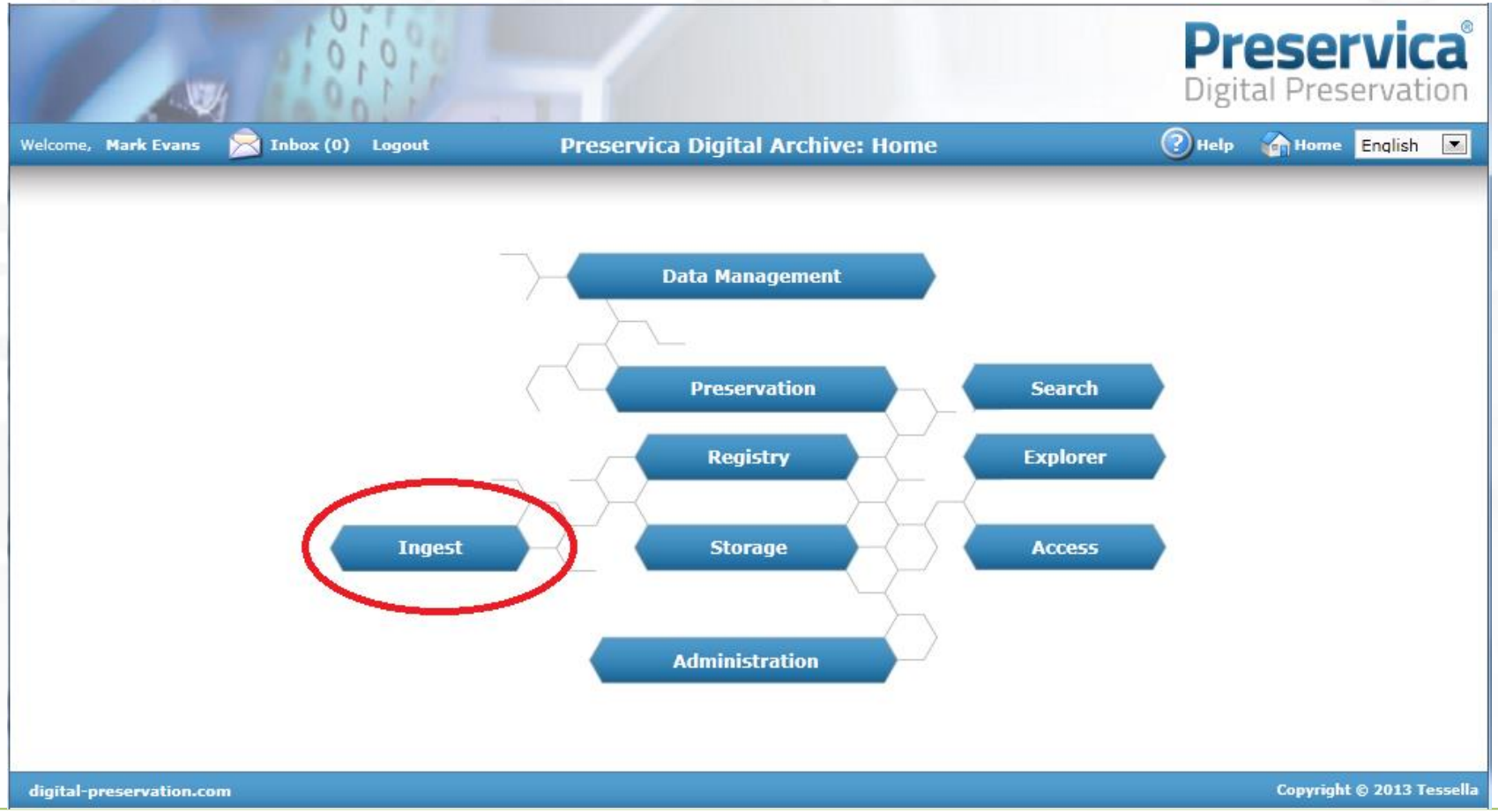
- Capture human judgement as policy up front:
  - Decide what to keep?
  - Decide what to structure / catalogue?
  - Decide storage policy (how many copies to store)?



Tessella

Real system example: Ingest

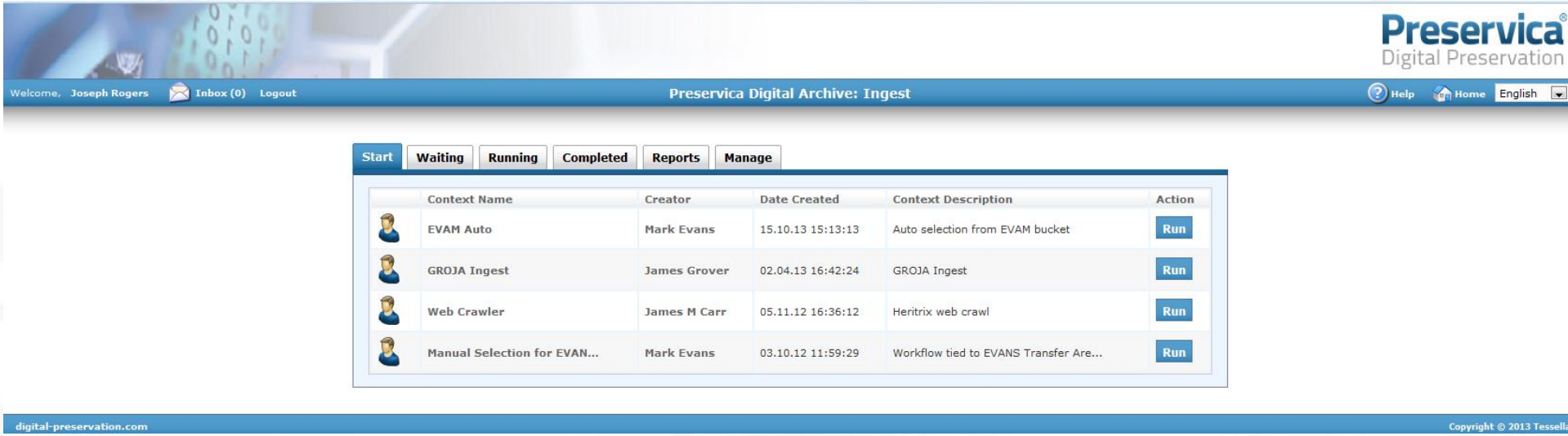
- In operation, let the software do its job:



Tessella

Real system example: Ingest

- Pick workflow to start:

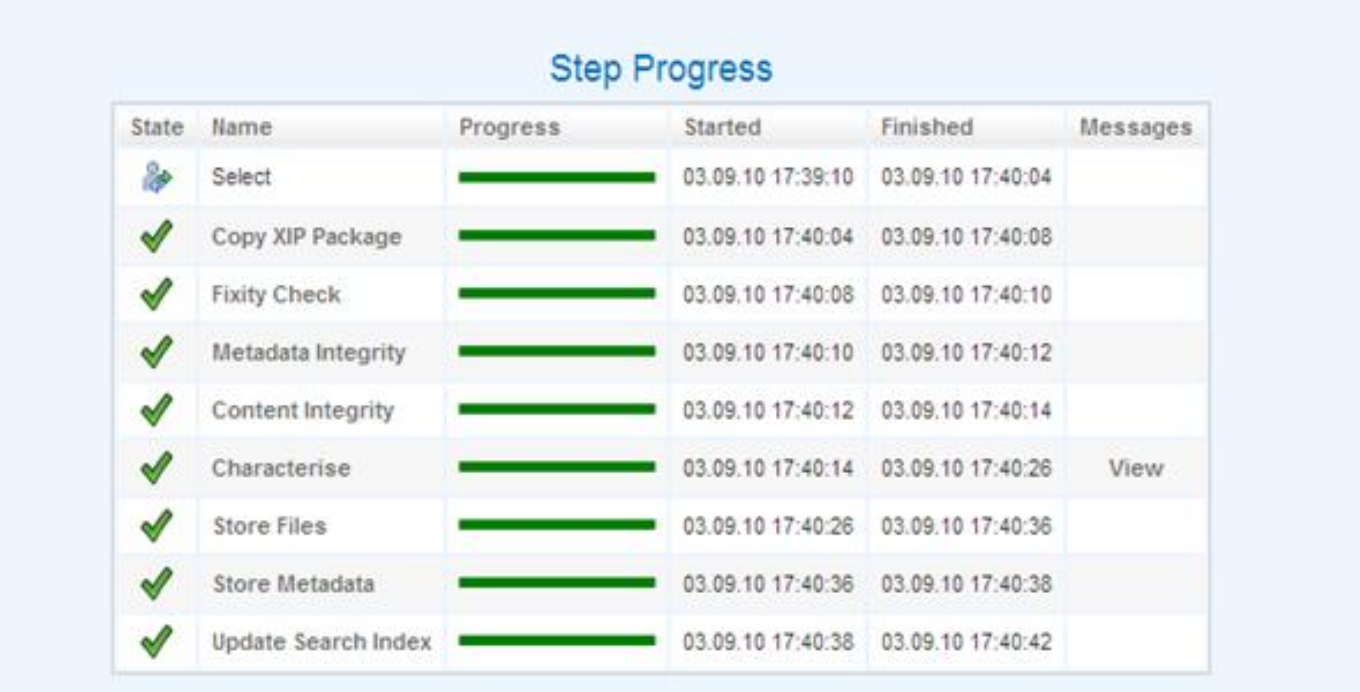


- In fact even this is often automated:
  - Watch for arrival of complete SIPs

Tessella

Real system example: Ingest

- Watch (if you want to):



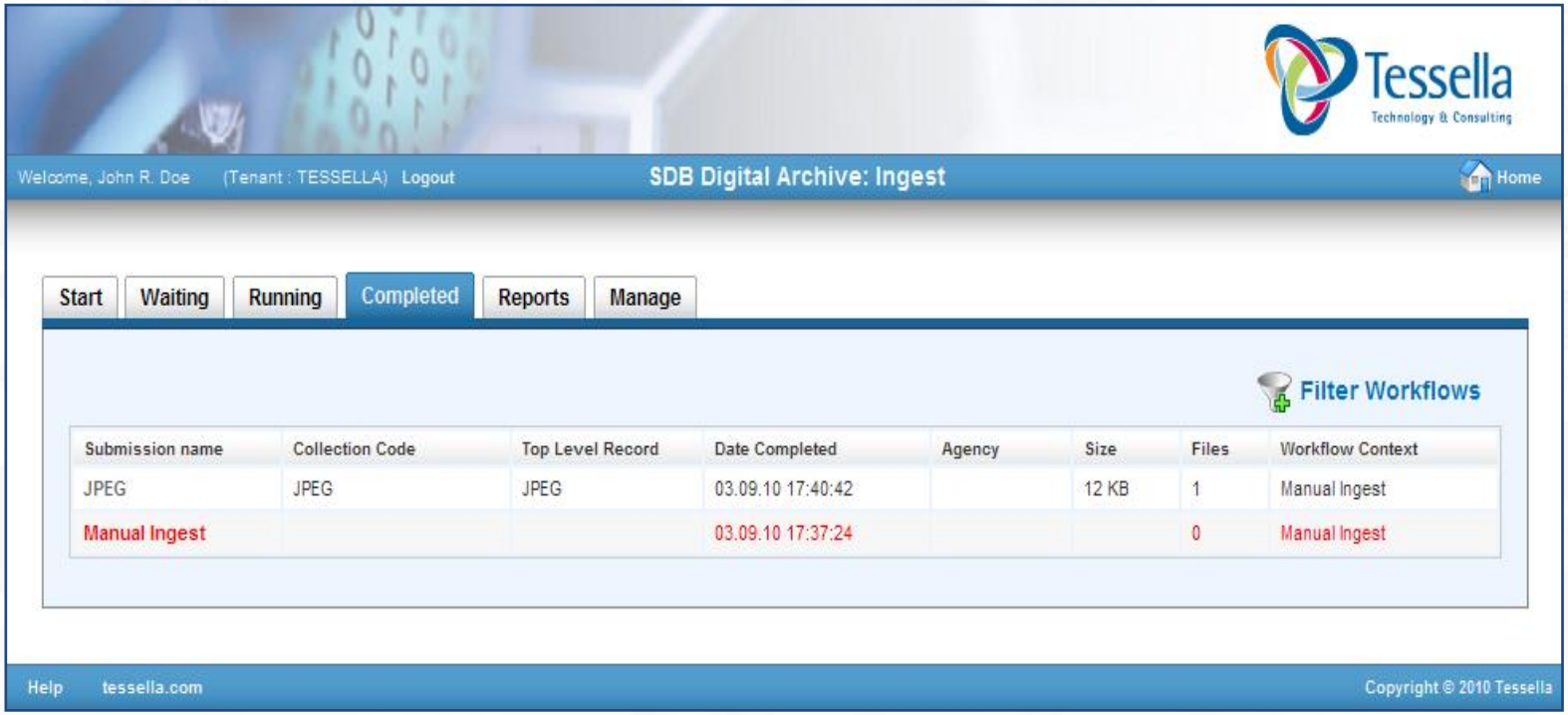
Step Progress

State	Name	Progress	Started	Finished	Messages
	Select		03.09.10 17:39:10	03.09.10 17:40:04	
✓	Copy XIP Package		03.09.10 17:40:04	03.09.10 17:40:08	
✓	Fixity Check		03.09.10 17:40:08	03.09.10 17:40:10	
✓	Metadata Integrity		03.09.10 17:40:10	03.09.10 17:40:12	
✓	Content Integrity		03.09.10 17:40:12	03.09.10 17:40:14	
✓	Characterise		03.09.10 17:40:14	03.09.10 17:40:26	View
✓	Store Files		03.09.10 17:40:26	03.09.10 17:40:36	
✓	Store Metadata		03.09.10 17:40:36	03.09.10 17:40:38	
✓	Update Search Index		03.09.10 17:40:38	03.09.10 17:40:42	

Tessella

Real system example: Ingest

- Deal only with issues that the system can't:



Tessella

How automatic can it be? Ingest

- Example issue: metadata impedance:
  - Source metadata:
    - Info in ERMS , e-mail system
    - Very little (e.g., web crawling)
  - Traditionally:
    - Translate to archival schemas (EAD etc.)
- Could manually map metadata:
  - As part of manual cataloguing
- Can automate:
  - Set up transform
- OR can bypass:
  - Embed original metadata
  - Use technology to view/edit/index/search without transform

Tessella

Scalability

- Ingest: Series sequential steps
- Tool like DROID (format identification) typical time:
  - Small files: ~20s per 1000 files
  - Large files: ~ 8s per GB (c. 10TB per day)
- Large volumes:
  - Throughout more important than individual run speed
  - Need ability to run in parallel (multiple threads)
  - Automation important
  - Resilience important
- It can be done:
  - SDB ingests FamilySearch ingests at 50TB every day
  - Note doesn't need very expensive processing power:
    - 6 Application Servers @ c. $5k each = $30k
    - Ingest disk arrays and network Higher
    - Storage costs Dominant

Tessella

Conclusions

- Try to minimise number of systems:
  - Will cost more in interfaces if you don't
- Choose system:
  - On-site / Off-site
- Archivists / Librarians / Curators are in charge:
  - Do what you are good at
  - Buy software / services to do the rest
- Automate everything that you can:
  - Use software that already does this
- Scale by system engineering:
  - Don't judge by speed of 1 thread on your desktop
- Lots of interesting issues to resolve:
  - But don't reinvent the wheel!