



Are Your Records Safe
in the Cloud?

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ARMA MD May 2015



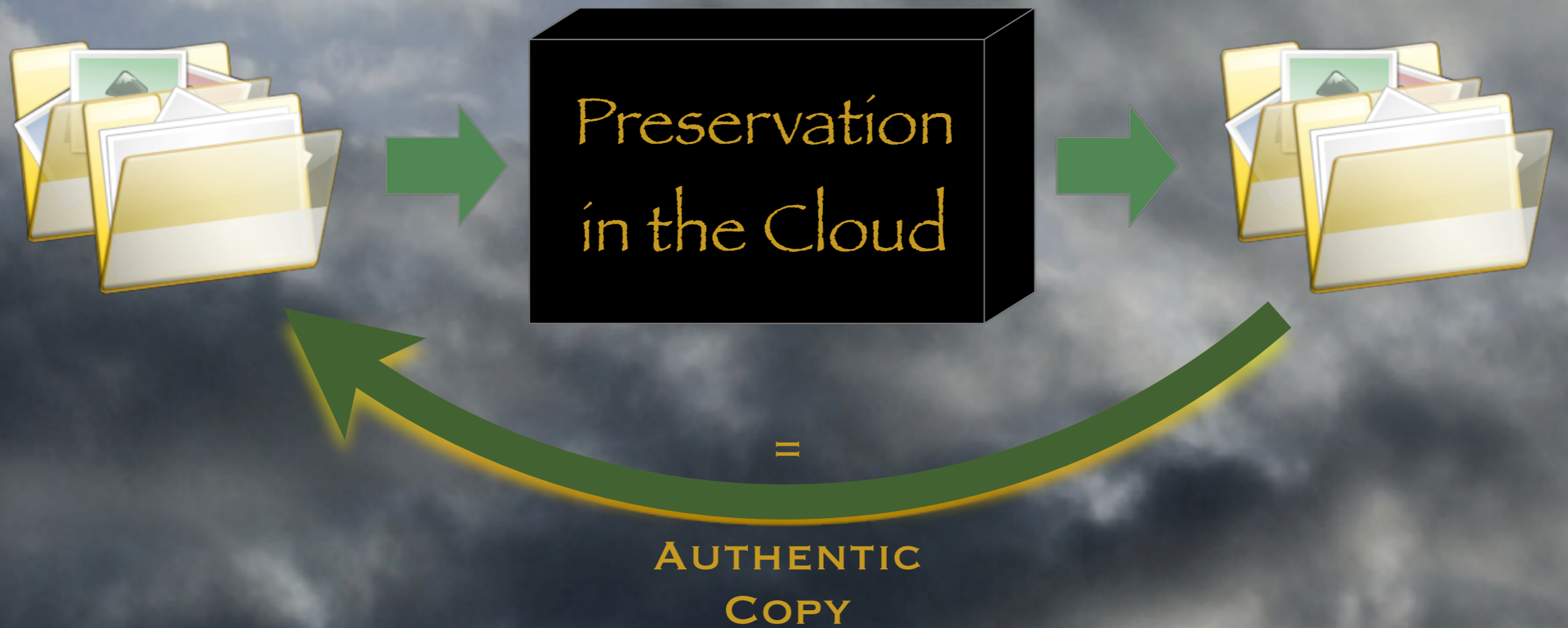
Preservation in
the Cloud



Preservation in the Cloud



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in the Cloud





**TRADITIONAL PRESERVATION
PRACTICE IS HANDS ON**

**TO THE
EXTENT
POSSIBLE**

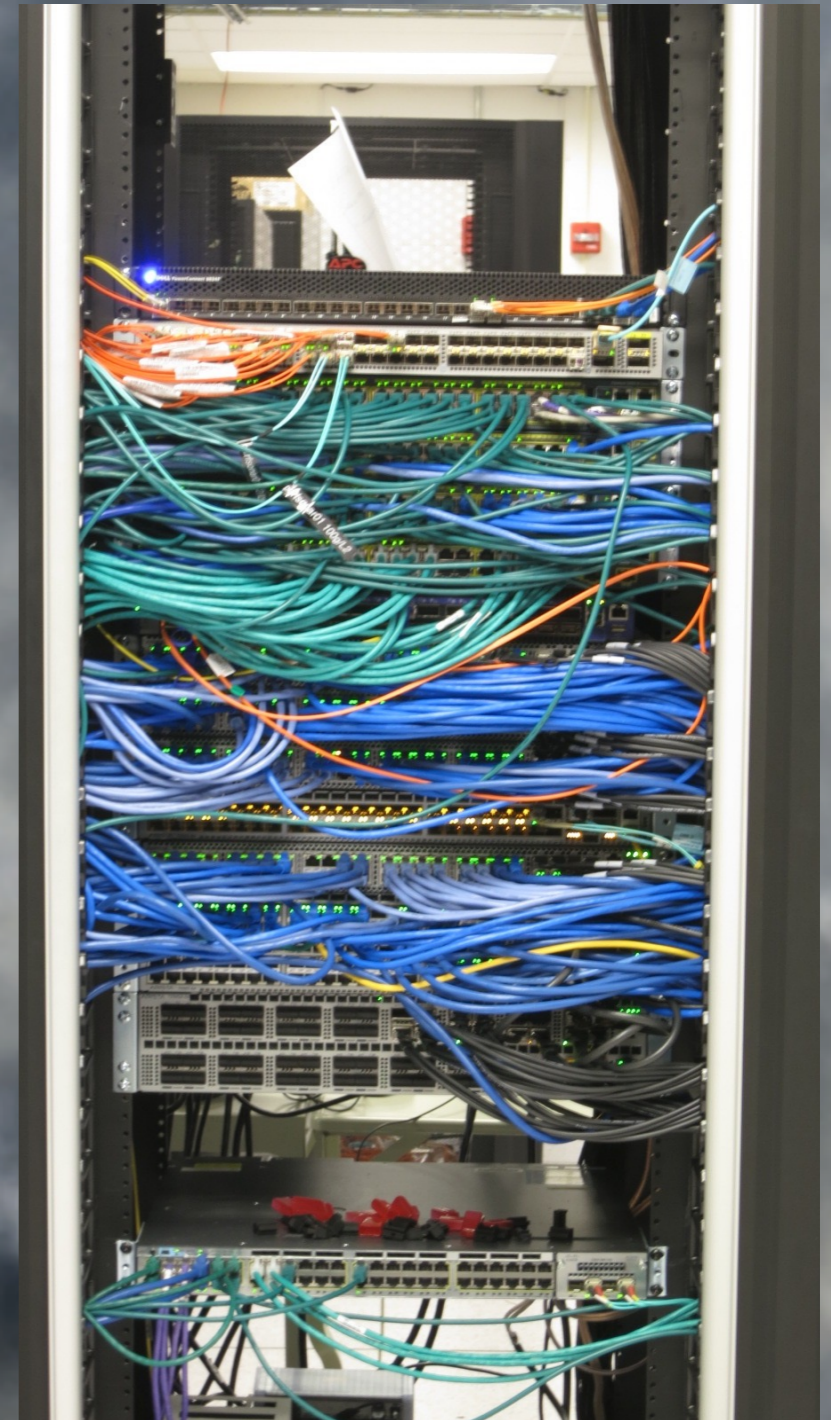




**IN THE PRESERVATION OF DIGITAL INFORMATION,
THERE IS INEVITABLY SOME ELEMENT OF THE
UNKNOWN**

BLACK BOX: DIGITAL PRESERVATION

- **IN HOUSE**, WE MAY HAVE SOME KNOWLEDGE AND POSSIBLY SOME CONTROL OVER THE HARDWARE AND SOFTWARE USED FOR PRESERVATION.
 - **PROBABLY DO NOT KNOW EVERYTHING THAT DOES OR CAN HAPPEN TO THE BITS.**
- **IN THE CLOUD**, WE MAY NOT KNOW WHAT TECHNOLOGIES ARE USED, WHERE THEY ARE, OR WHEN THEY ARE CHANGED.
- **IN ANY CASE**, WE CANNOT KNOW WHAT TECHNOLOGIES WILL BE USED FOR PRESERVATION IN THE FUTURE.



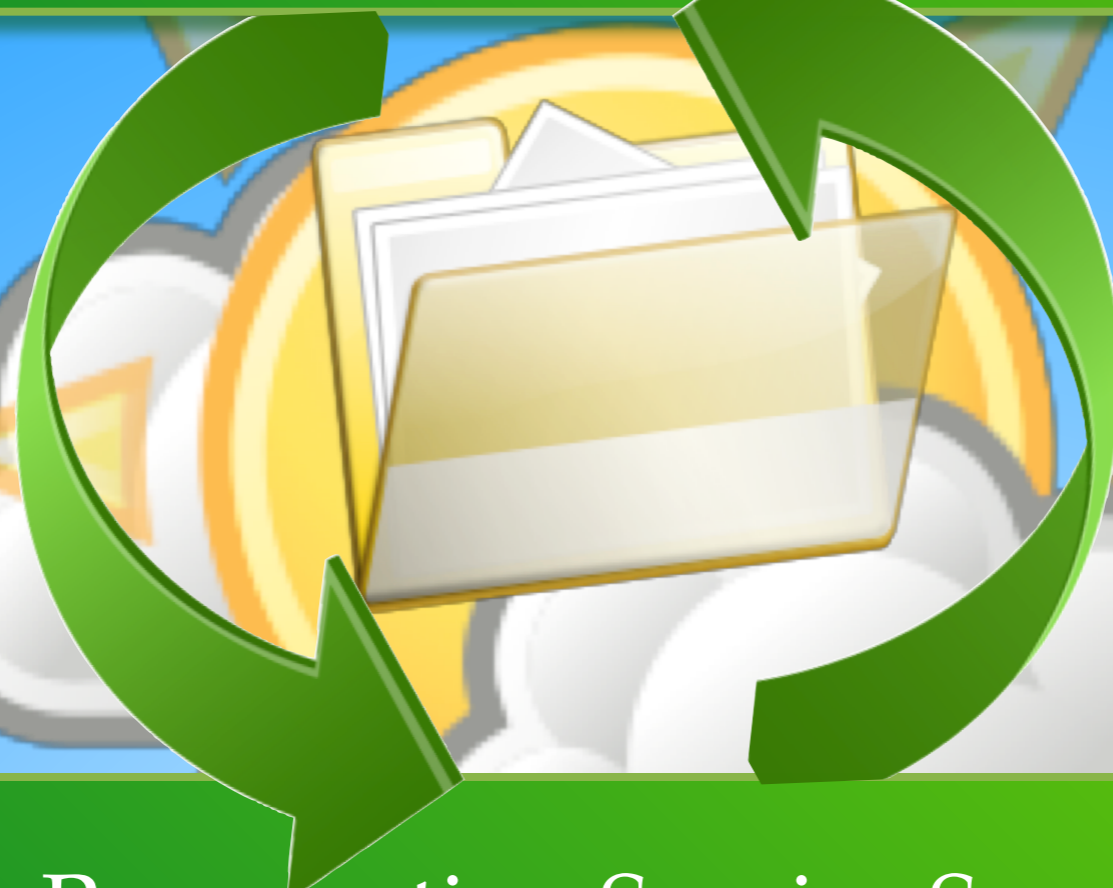
PRESERVATION AS A SERVICE FOR TRUST (PAAST)



InterPARES
Trust



Preservation as a Service for Trust (PaaST)



OBJECT MANAGEMENT GROUP®

Celebrating 25 Years

Preservation Service Specification



InterPARES Trust (ITrust)

2013-2018

a multi-national, interdisciplinary research project exploring issues concerning digital records and data entrusted to the Internet. Its goal is to generate theoretical and methodological frameworks to develop local, national and international policies, procedures, regulations, standards and legislation, in order to ensure public trust grounded on evidence of good governance, a strong digital economy, and a persistent digital memory.

<http://interparestrust.org/trust>



ITrust

- Research teams from North America, Latin America, Europe, Africa , Asia, Australasia
 - Transnational Team: NATO, UNESCO, World Bank, International Monetary Fund, Red Cross, International Centre for the Preservation and Restoration of Cultural Property, Alliance for Permanent Access to the Records of Science, Barrick Gold Corporation
 - Researchers from universities, archives, libraries, think tanks, national, regional and local government, private companies, independent consultants
 - 62 research projects in the areas of law, policy, control, access, infrastructure, security, resources, social / societal issues, education, and terminology
- Experts from archives and records management, information science, information technology, computer security, digital forensics, law, social sciences, engineering, physics and art.



The Object Management Group

- OMG is an international, open membership, not-for-profit technology standards consortium. Founded in 1989, OMG standards are driven by vendors, end-users, academic institutions and government agencies. OMG Task Forces develop enterprise integration standards for a wide range of technologies and an even wider range of industries.
 - Some OMG standards: Unified Modeling Language, Business Process Model and Notation, Common Object Request Broker Architecture, Knowledge Discovery Metamodel, Model Driven Architecture, Records Management Services
- In June 2014, ITrust proposed to the OMG the development of an OMG standard on digital preservation based on the functional requirements being defined in PaaST
 - The proposal was accepted and is going forward under the OMG Government Domain Task Force
- The preservation standard will be aligned with the existing OMG Records Management Services Specification

PARALLEL STREAMS

ITrust PaaS Project	Object Management Group
Articulating requirements for preservation of authentic records in the Cloud	Translating PaaS requirements into a form that supports production of software to implement them.
Applying the knowledge gained from archival science and records management	Generalization to all types of digital information, but including requirements for authentic records
Coordinated with other ITrust Projects	Formulation in a platform-independent model

PAAST SCOPE: WHAT

- Digitally encoded information
 - Primarily records, but potentially all types.
- Preservation only of information objects that are in 'definitive form,' i.e., whose documentary form and content are not subject to any intentional change except for
 - Annotations for the purpose of preservation
 - Changes in the way they are materialized in order to enable their continued existence and usability in the face of technological changes.

PAAST SCOPE: CAPABILITIES

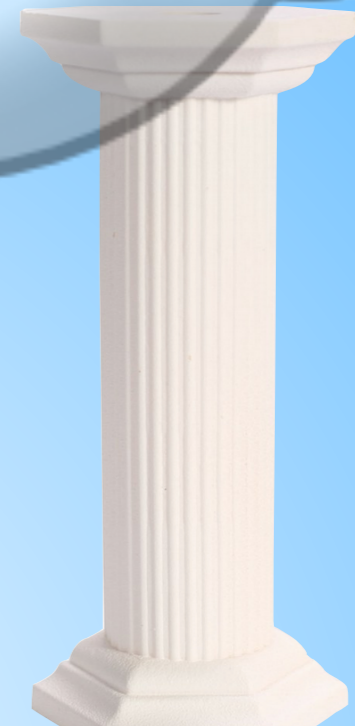
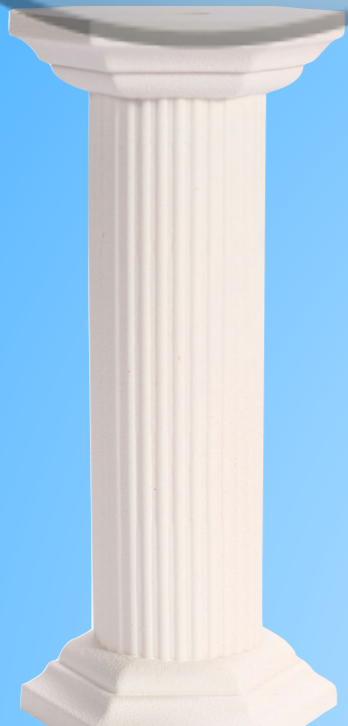
- Does not include the management of current records.
 - Will be compatible and interoperable with the OMG Records Management Services Specification
- OMG Records Management Services:
 - Capture
 - Categorization
 - Provenance
 - Authenticity
 - Disposition
 - Reference
- OMG RMS v. DoD 5015.2 RMA:
 - RMS manages records in business systems
 - RMA removes records from business systems and stores them in virtual filing stations
 - RMS implementations could comply with 5015.2

PAAST SERVICES

- Preservation requirements are being articulated as ‘services;’ i.e., sets of related capabilities such that each service could be executed using different and potentially unrelated technologies and under separate and independent operational control.
- Hence, the overall context in which PaaST preservation activities are carried out is called the “Preservation Environment” rather than a preservation system.



Preservation in the Cloud



Preservation in the Cloud



CONTEXTUAL DECISIONS

- What will be preserved, under what terms and conditions
- Who will perform what service(s)
- Decisions are articulated in business rules.
 - Business rules are expressed in appropriate documents
 - In house: records schedules identify permanent records
 - Service provider: contract specifies what permanent records will be sent to the provider for what purpose.
 - and implemented in PaaS applications

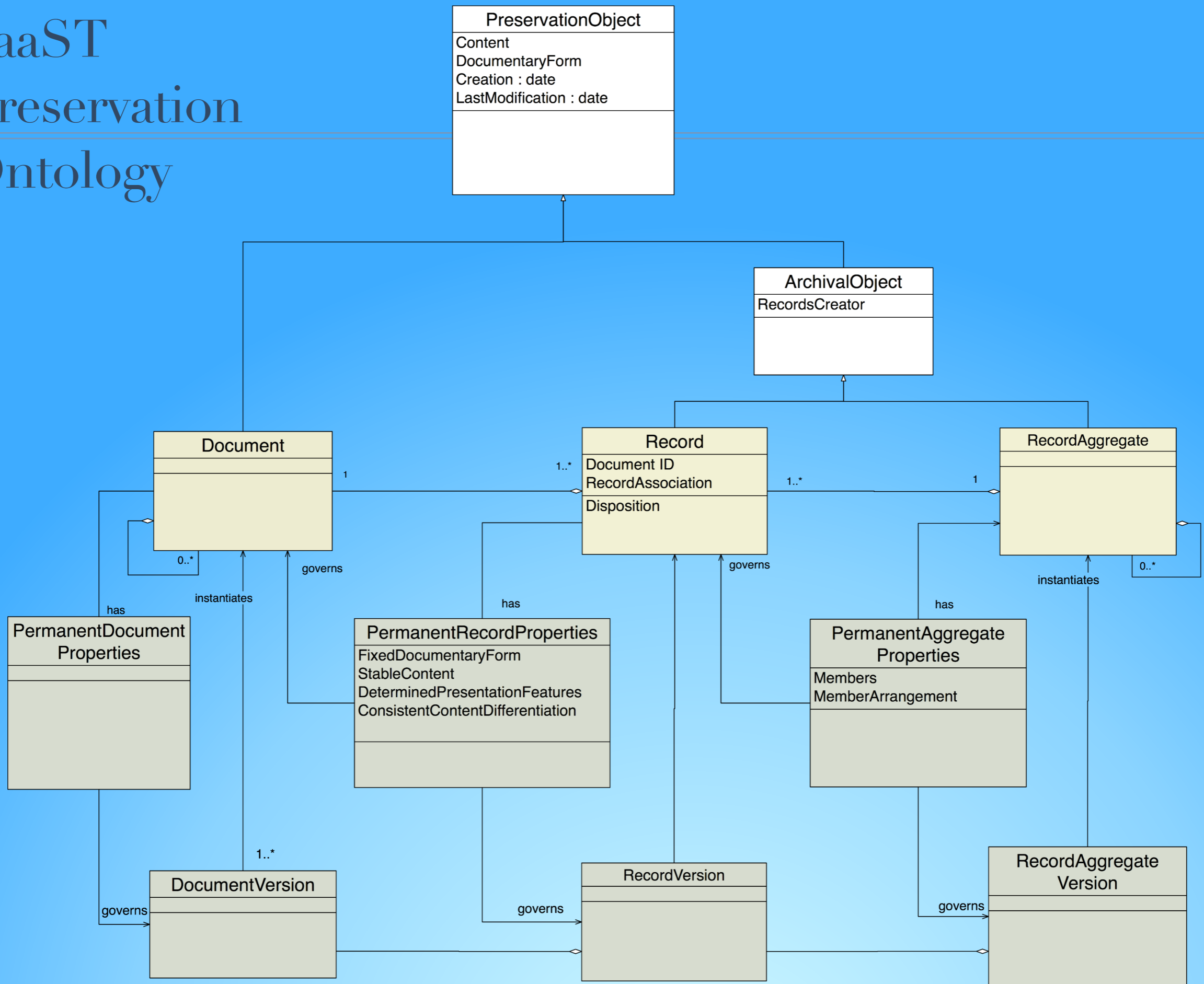


FOUNDATIONS OF TRUST



- ✚ Know what is preserved
- ✚ Specify the properties that must not change
- ✚ Document how it is stored as binary data objects
- ✚ Verify that the data objects do not suffer corruption or loss
- ✚ Assess whether the data objects preserve the properties that must not change
- ✚ Change the data objects or the technology used to process them
- ✚ Being able to output authentic copies.

PaaST Preservation Ontology



SERVICES DESIGNED TO FACILITATE ORCHESTRATION AS NEEDED



Orchestration Scenarios

Comprehensive preservation system



Some services performed in house,
others under contract



Services acquired as needed





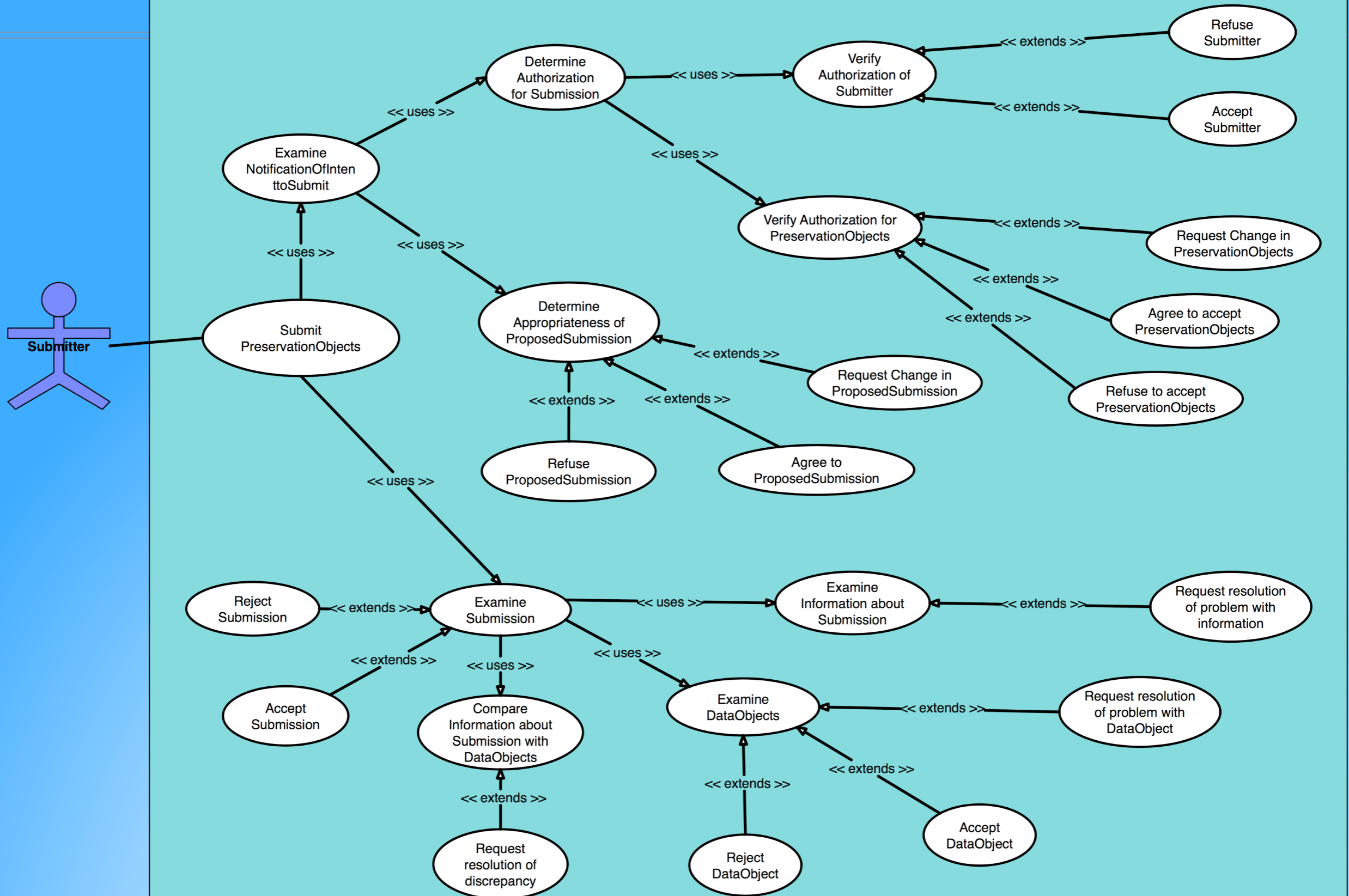
IMPLEMENTATION OF TRUST: PRESERVATION SERVICES



- ✧ Submission: transfer of records into a Preservation Environment
- ✧ Characterization: inspection of the technical, archival and representational properties of the records
 - ✧ Authenticity: capture and reporting of information about authenticity and the application of authentication methods.
- ✧ Preservation Storage: control of storage to maintain identity, prevent corruption and satisfy other preservation requirements.
- ✧ Preservation Change: technological changes to ensure survival and usability
- ✧ Access: focused on delivery of copies of PreservationObjects and support for assessing their authenticity
 - ✧ Does not address search, discovery, or use after delivery.

Submission Service

Submission Service



Thank you

FOR MORE INFORMATION:

3RD ITRUST INTERNATIONAL SYMPOSIUM

WORLD BANK, MAY 15:

<https://tinyurl.com/k75y6dq>

INTERPARES TRUST:

<https://interparestrust.org/>

OR

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