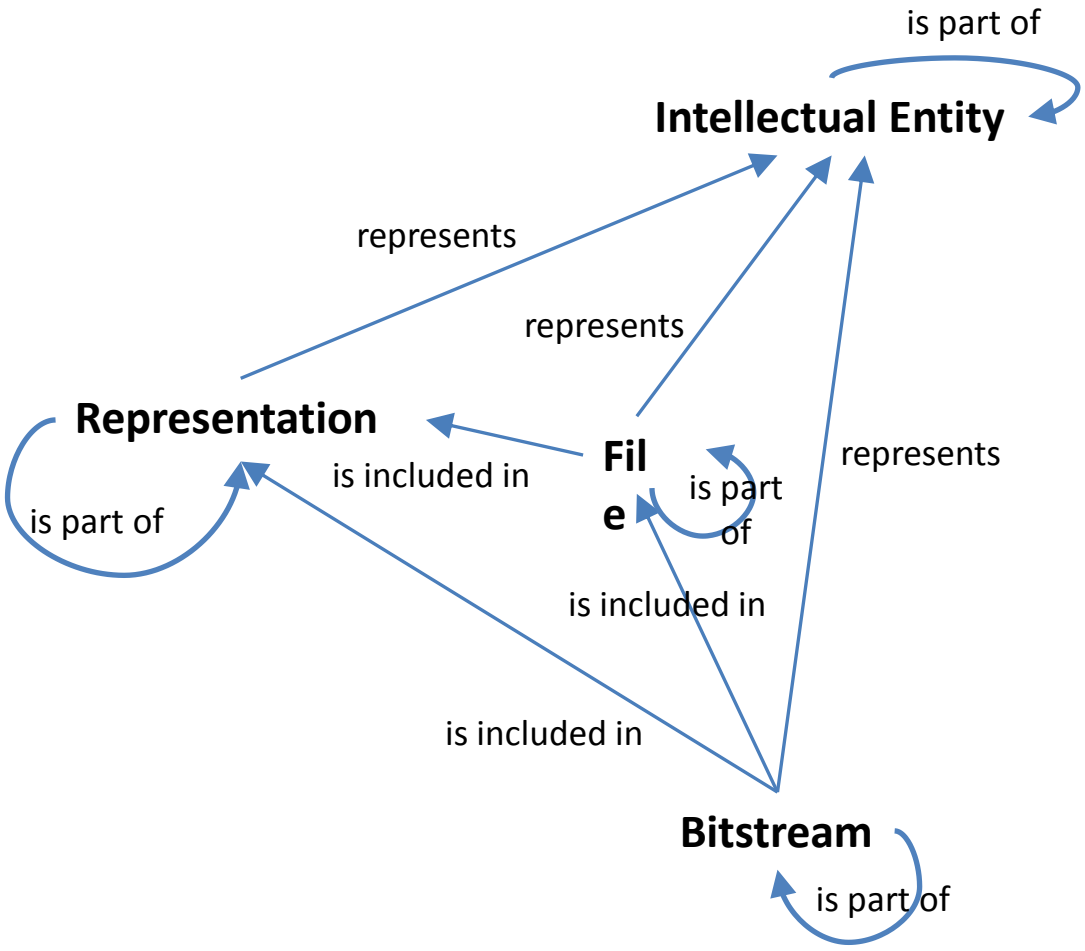
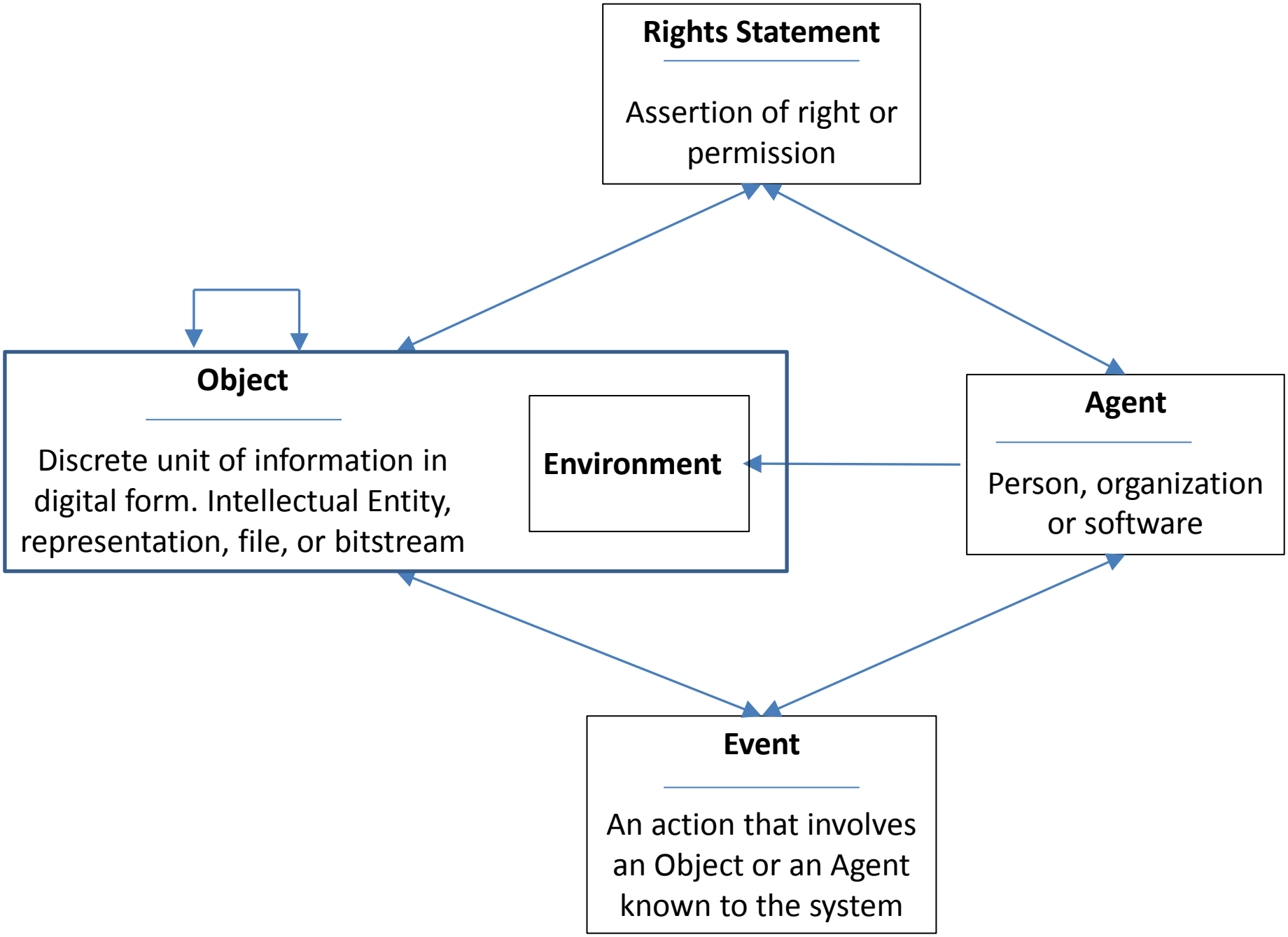
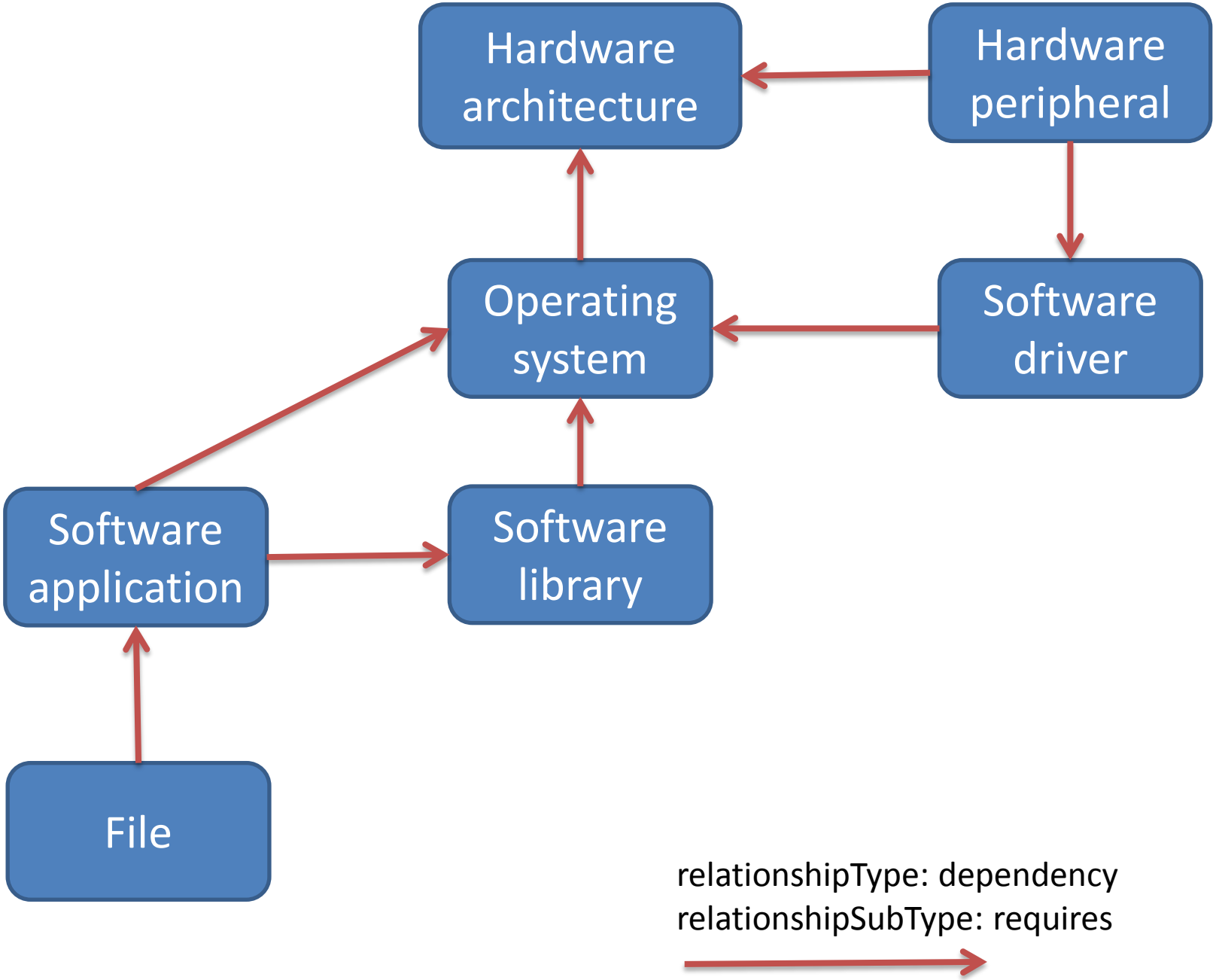
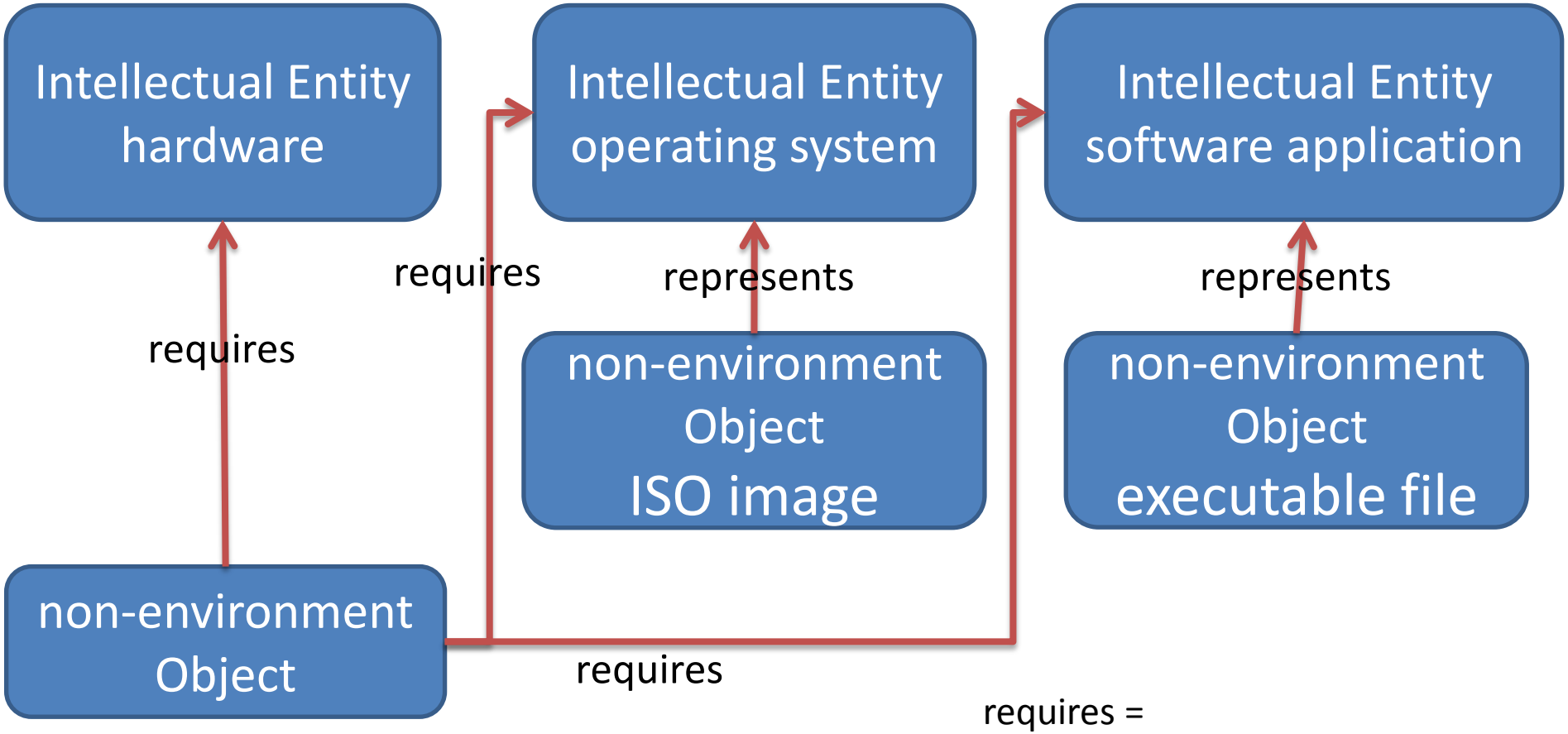
DATA DICTIONARY SLIDES


is part of
Intellectual Entity
represents
represents
Representation
is included in
File
is part of
represents
is part of
is included in
is included in
Bitstream
is part of

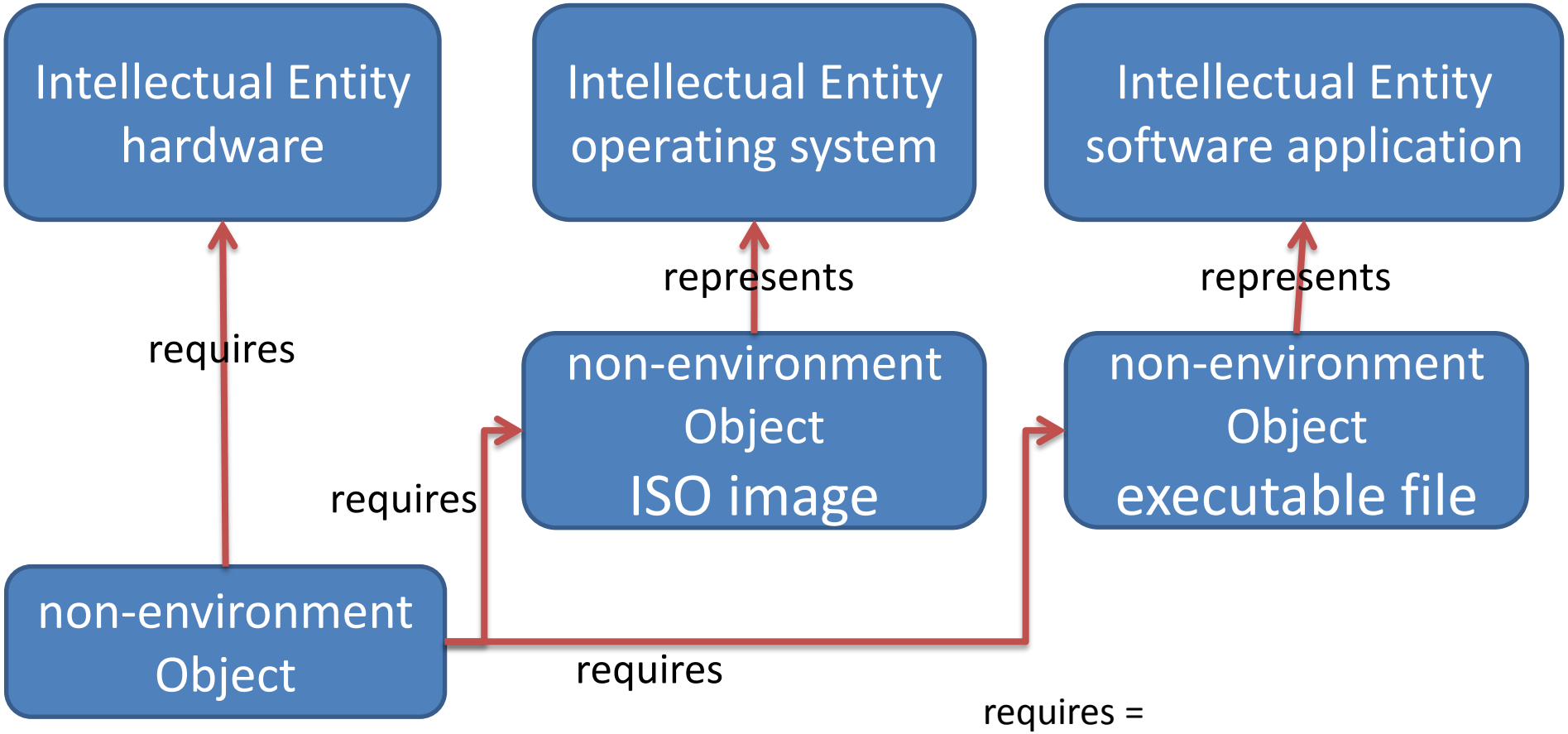

Rights Statement
Assertion of right or permission
Object
Discrete unit of information in digital form. Intellectual Entity, representation, file, or bitstream
Environment
Agent
Person, organization or software
Event
An action that involves an Object or an Agent known to the system


Hardware architecture
Hardware peripheral
Operating system
Software driver
Software application
Software library
File
relationshipType: dependency
relationshipSubType: requires



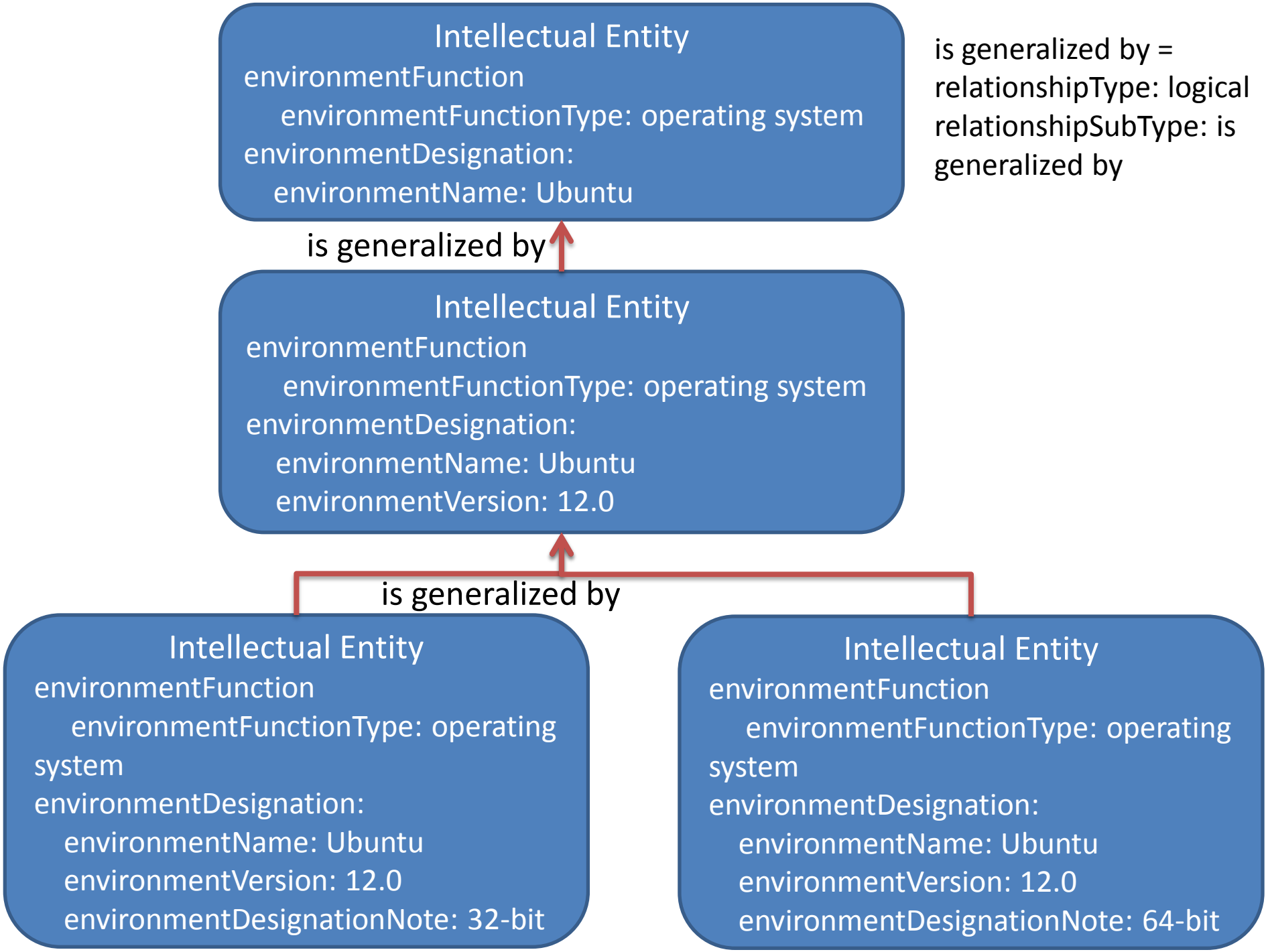
requires =
relationshipType: dependency
relationshipSubType: requires

represents =
relationshipType: structural
relationshipSubType: represents

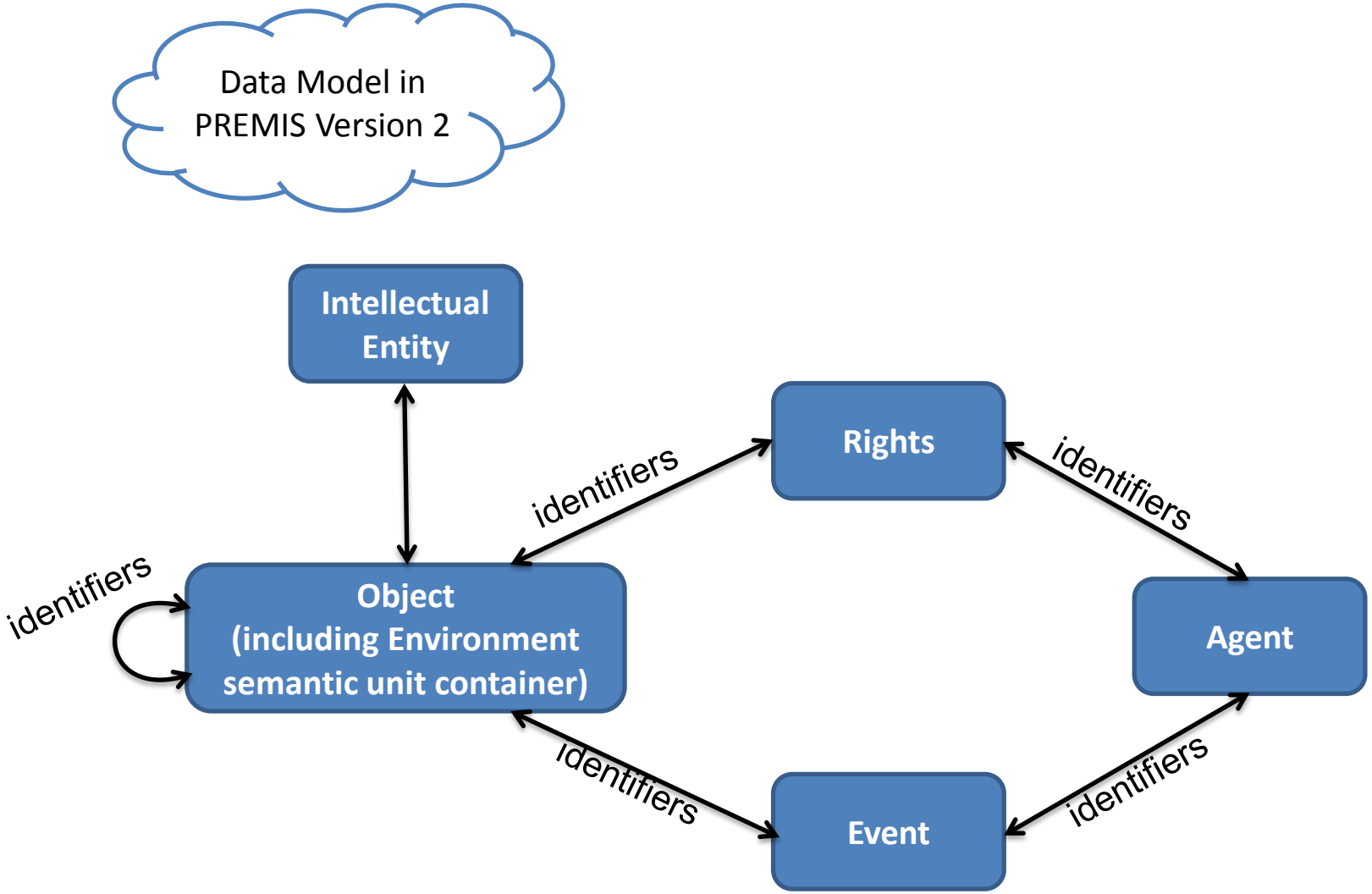


requires =
relationshipType: dependency
relationshipSubType: requires

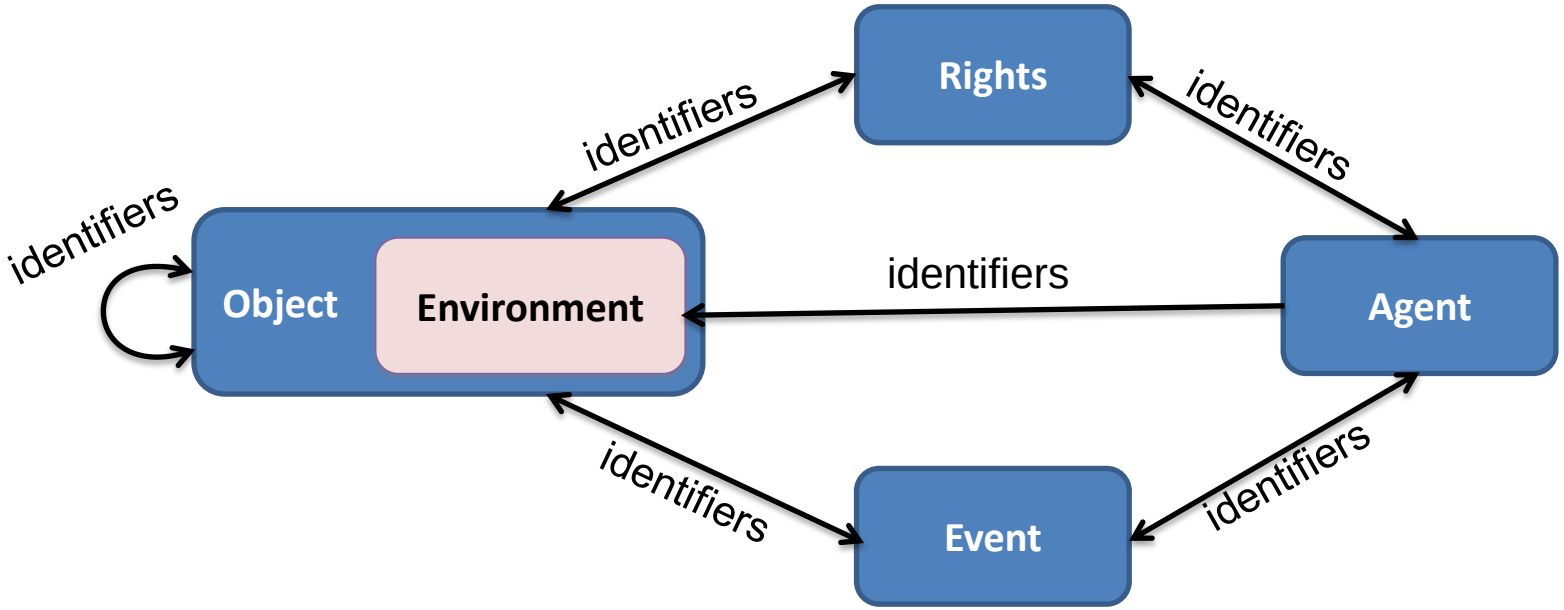
represents =
relationshipType: structural
relationshipSubType: represents

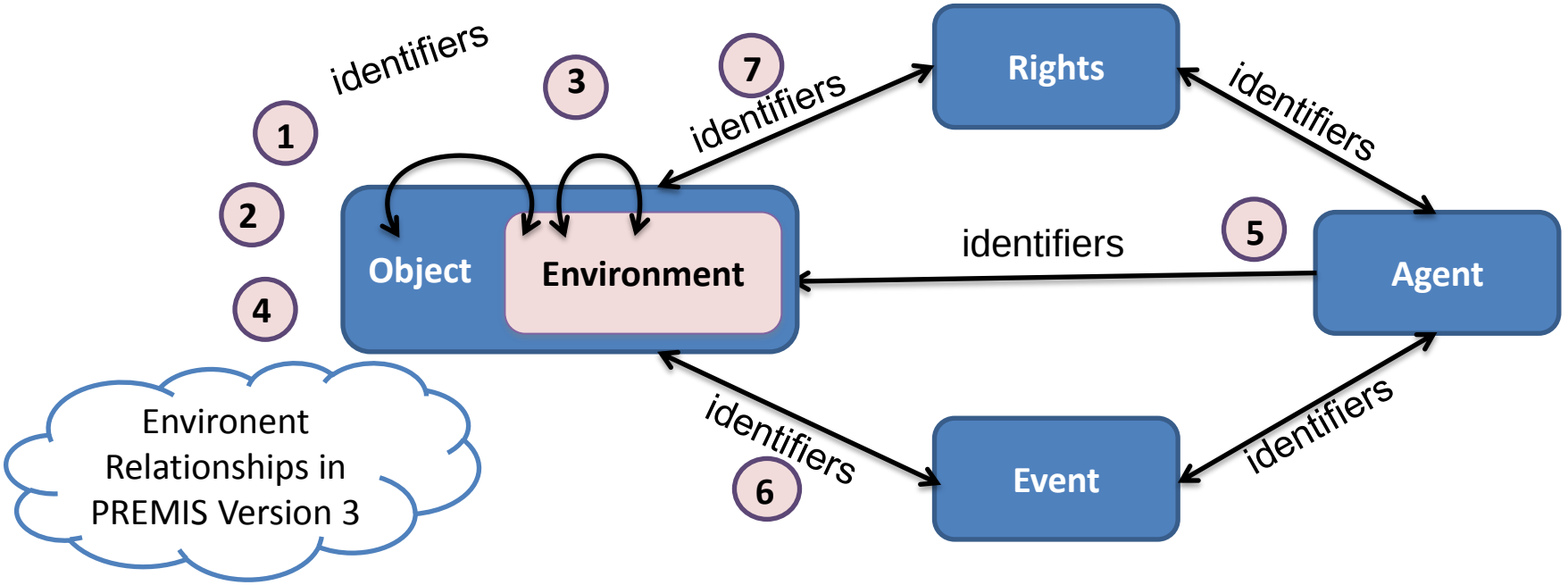

Intellectual Entity
environmentFunction
environmentFunctionType: operating system
environmentDesignation:
environmentName: Ubuntu
is generalized by
Intellectual Entity
environmentFunction
environmentFunctionType: operating system
environmentDesignation:
environmentName: Ubuntu
environmentVersion: 12.0
is generalized by
Intellectual Entity
environmentFunction
environmentFunctionType: operating system
environmentDesignation:
environmentName: Ubuntu
environmentVersion: 12.0
environmentDesignationNote: 32-bit
Intellectual Entity
environmentFunction
environmentFunctionType: operating system
environmentDesignation:
environmentName: Ubuntu
environmentVersion: 12.0
environmentDesignationNote: 64-bit
is generalized by =
relationshipType: logical
relationshipSubType: is generalized by

DATA MODEL CHANGES


Data Model in
PREMIS Version 2
Intellectual Entity
Rights
identifiers
identifiers
identifiers
Object
(including Environment
semantic unit container)
Agent
identifiers
identifiers
Event

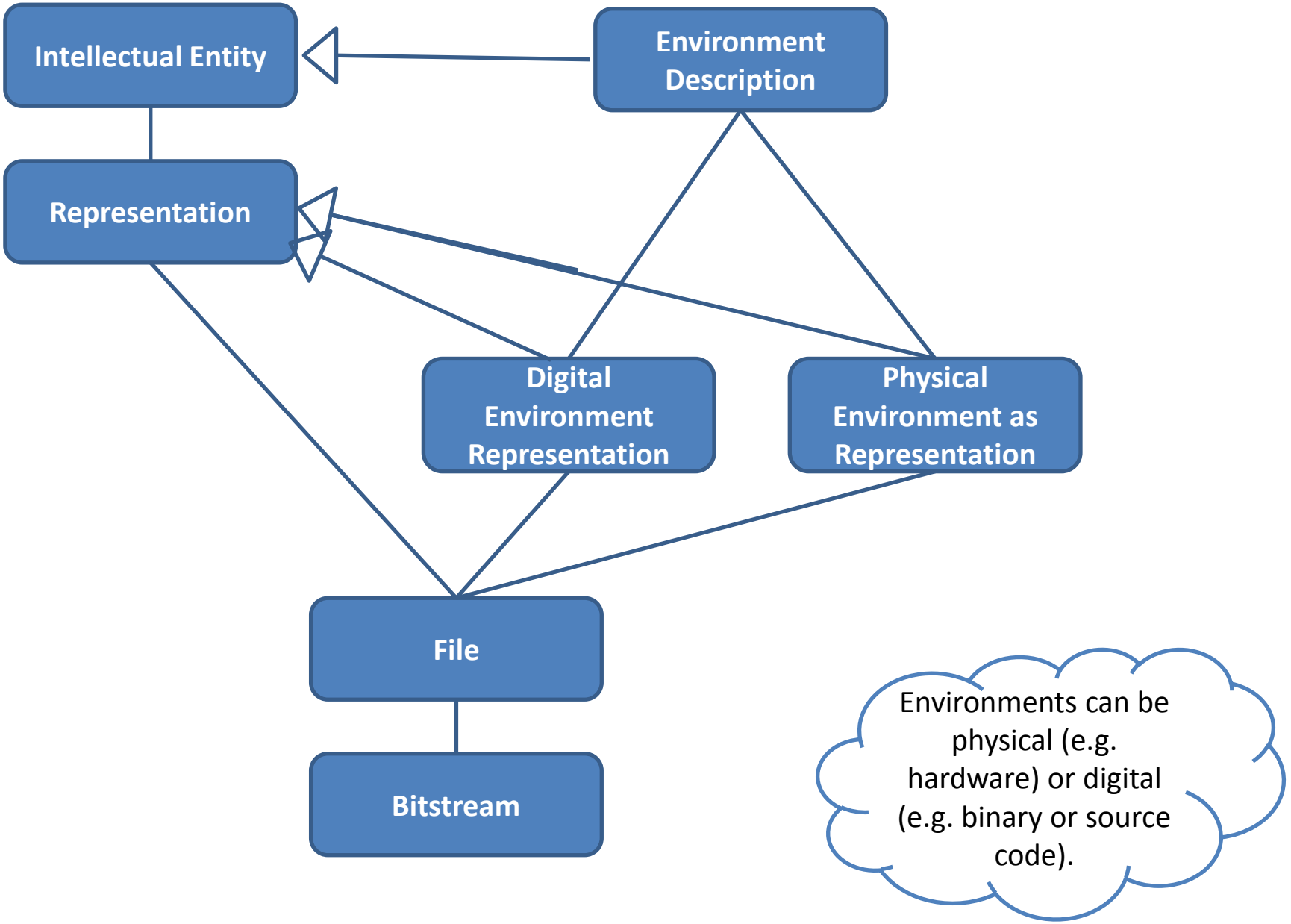
Data Model in
PREMIS Version 3

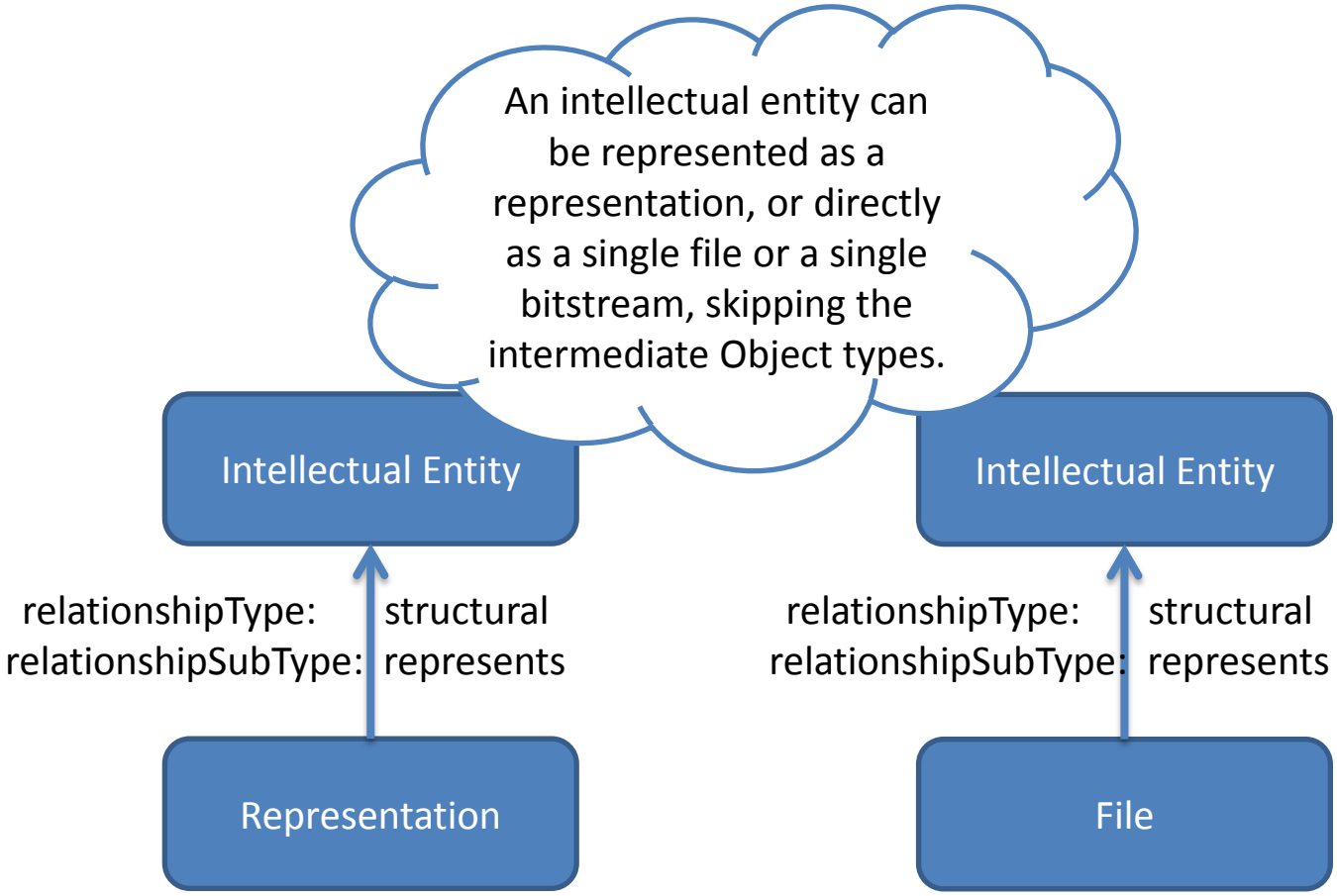


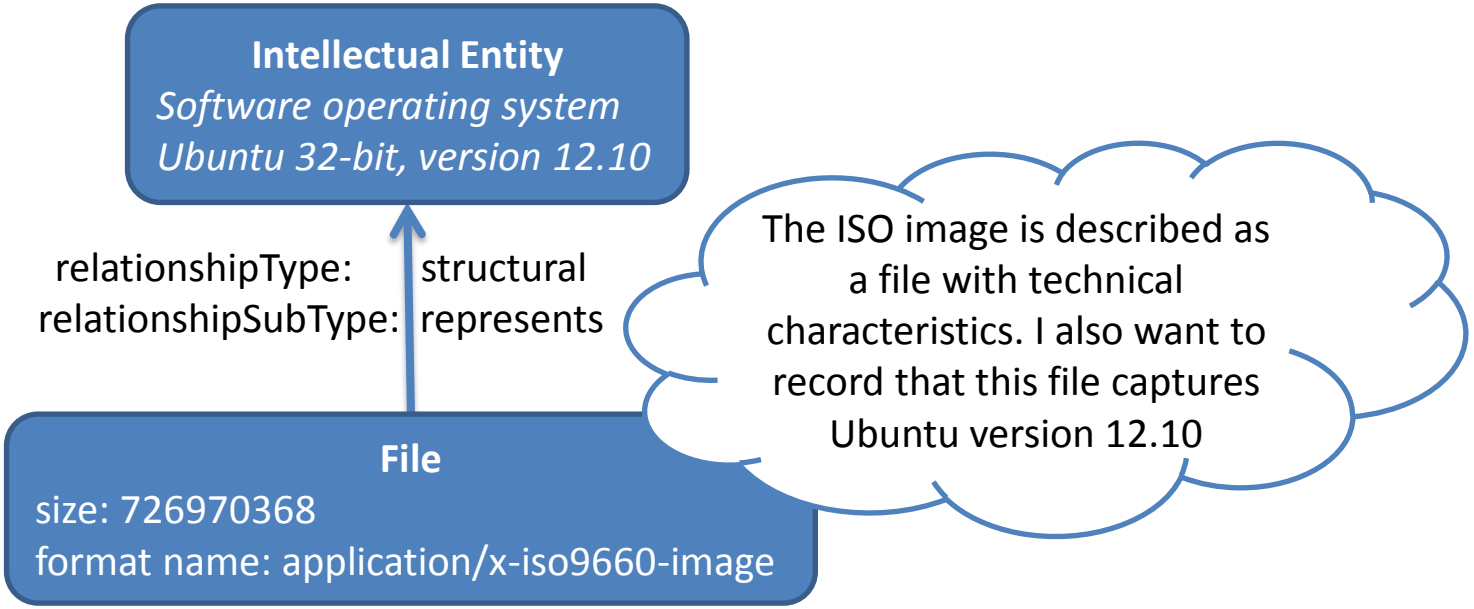


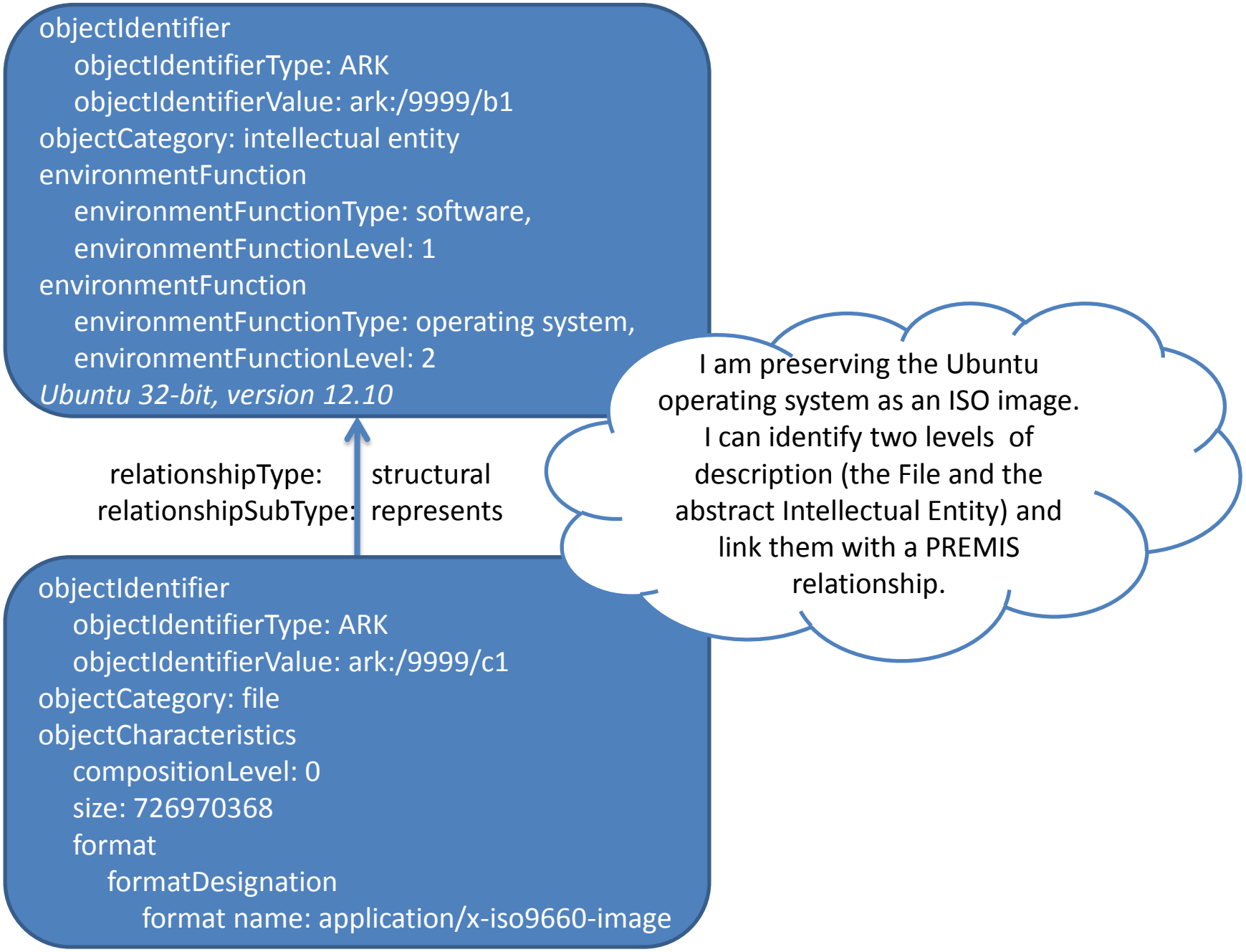
1. An Object is related to an environment in order to specify its computational context (for example a File that relates to the software application that renders it). This is implemented as semantic unit container in PREMIS 2.
2. An environment is related to another Object (for example, a part of the rendering stack relates to the documentation that supports its use, such as a user manual or specifications).
3. An environment is related to another environment through inclusion, dependency, derivation or other relationships (for example, environments that interact within the rendering stack, such as applications, software plugins, operating systems, computer hardware and peripherals, or software drivers).
4. An environment is an Object (for example, software source code) and is to be preserved as a first-class entity in its own right.
5. An environment takes the role of an Agent (for example, a format migration software Agent involved in a preservation action Event is described and preserved as an information package).
6. An environment has an Event associated with it that records its lifecycle (for example, an environment creation, adding computer memory/RAM or a software versioning Event).
7. An environment has a RightsStatement associated with it (for example, a software license or a policy RightsStatement).

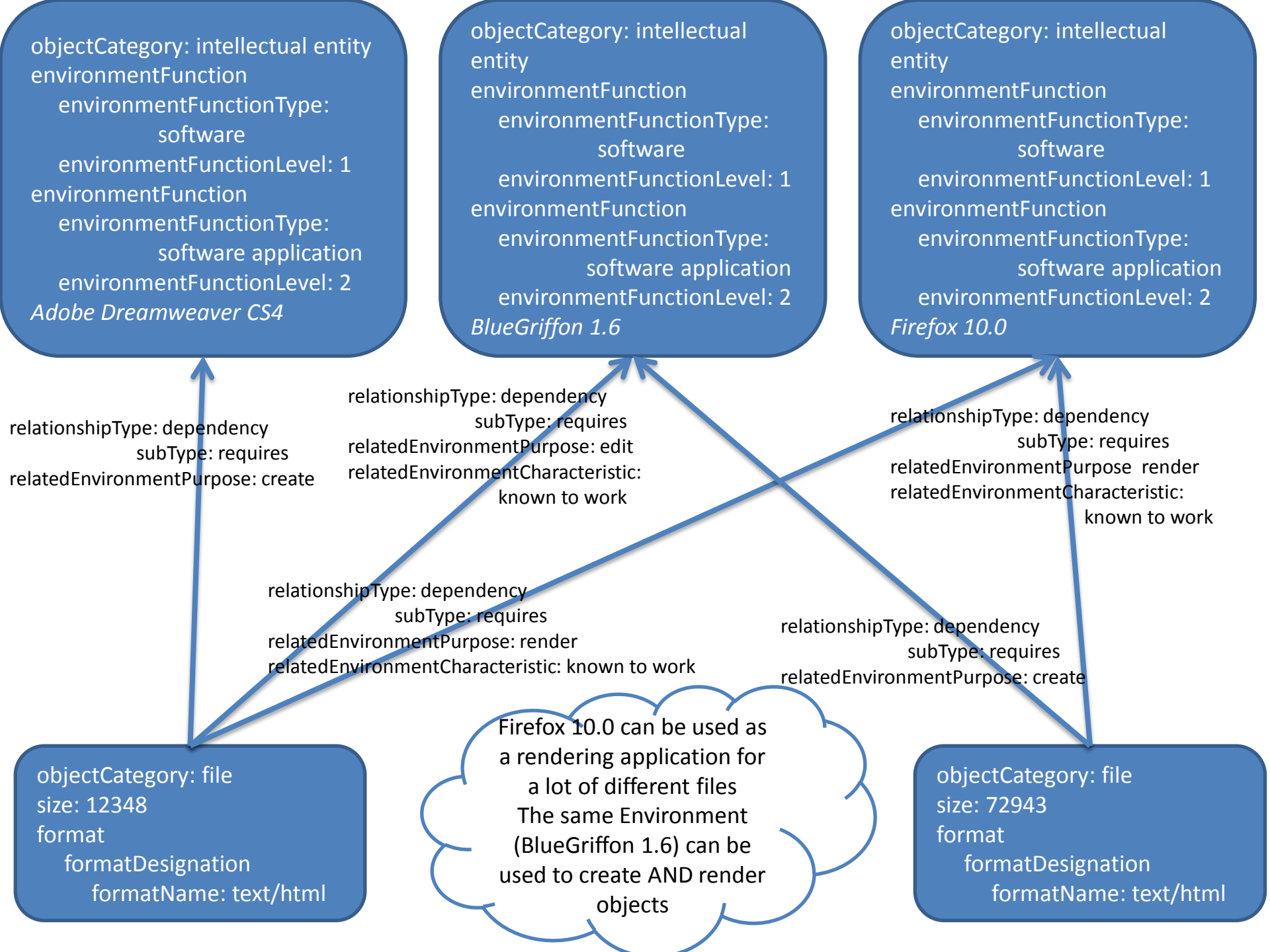
MICRO USE CASES

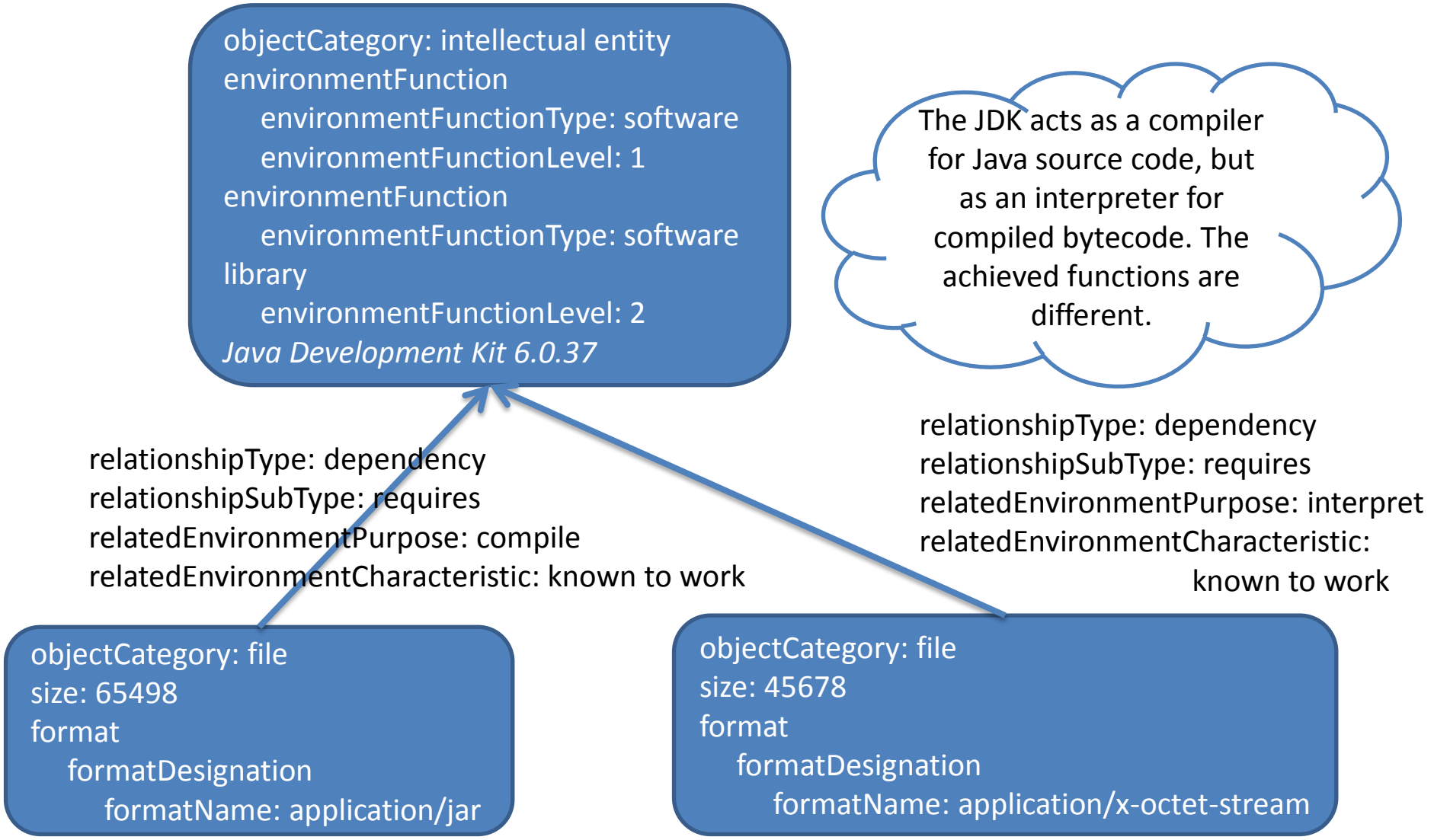

Intellectual Entity
Environment Description
Representation
Digital Environment Representation
Physical Environment as Representation
File
Bitstream
Environments can be physical (e.g. hardware) or digital (e.g. binary or source code).

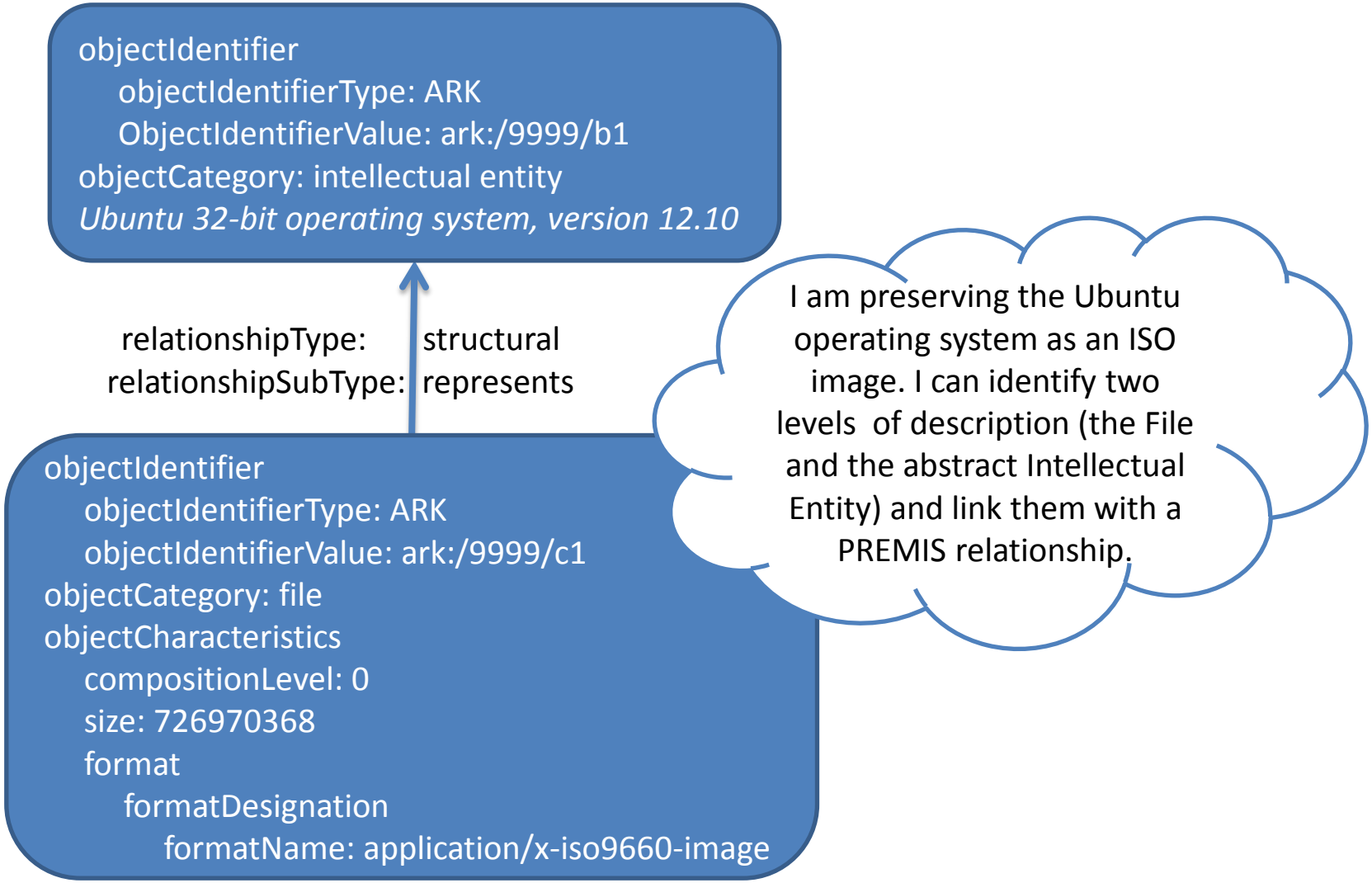

An intellectual entity can be represented as a representation, or directly as a single file or a single bitstream, skipping the intermediate Object types.
Intellectual Entity
Intellectual Entity
relationshipType: structural
relationshipSubType: represents
relationshipType: structural
relationshipSubType: represents
Representation
File

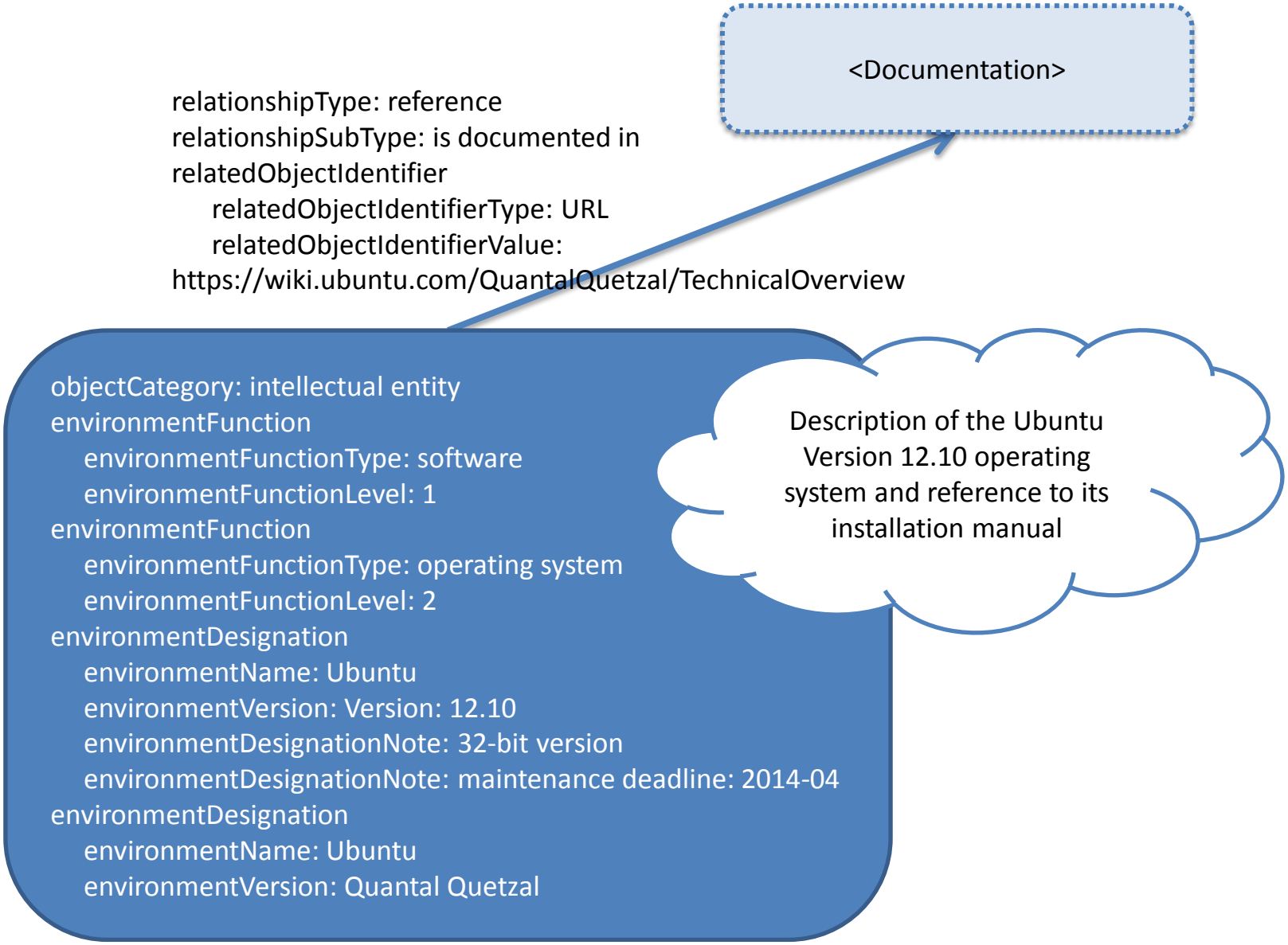

Intellectual Entity
Software operating system
Ubuntu 32-bit, version 12.10
relationshipType:
relationshipSubType:
structural
represents
The ISO image is described as a file with technical characteristics. I also want to record that this file captures Ubuntu version 12.10
File
size: 726970368
format name: application/x-iso9660-image


objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/b1
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software,
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: operating system,
environmentFunctionLevel: 2
Ubuntu 32-bit, version 12.10
relationshipType: structural
relationshipSubType: represents
I am preserving the Ubuntu operating system as an ISO image. I can identify two levels of description (the File and the abstract Intellectual Entity) and link them with a PREMIS relationship.
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: file
objectCharacteristics
compositionLevel: 0
size: 726970368
format
formatDesignation
format name: application/x-iso9660-image


objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
Adobe Dreamweaver CS4
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
BlueGriffon 1.6
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
Firefox 10.0
relationshipType: dependency
subType: requires
relatedEnvironmentPurpose: create
relationshipType: dependency
subType: requires
relatedEnvironmentPurpose: edit
relatedEnvironmentCharacteristic: known to work
relationshipType: dependency
subType: requires
relatedEnvironmentPurpose render
relatedEnvironmentCharacteristic: known to work
relationshipType: dependency
subType: requires
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic: known to work
relationshipType: dependency
subType: requires
relatedEnvironmentPurpose: create
objectCategory: file
size: 12348
format
formatDesignation
formatName: text/html
Firefox 10.0 can be used as a rendering application for a lot of different files
The same Environment (BlueGriffon 1.6) can be used to create AND render objects
objectCategory: file
size: 72943
format
formatDesignation
formatName: text/html


objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software
library
environmentFunctionLevel: 2
Java Development Kit 6.0.37
The JDK acts as a compiler for Java source code, but as an interpreter for compiled bytecode. The achieved functions are different.
relationshipType: dependency
relationshipSubType: requires
relatedEnvironmentPurpose: compile
relatedEnvironmentCharacteristic: known to work
relationshipType: dependency
relationshipSubType: requires
relatedEnvironmentPurpose: interpret
relatedEnvironmentCharacteristic:
known to work
objectCategory: file
size: 65498
format
formatDesignation
formatName: application/jar
objectCategory: file
size: 45678
format
formatDesignation
formatName: application/x-octet-stream

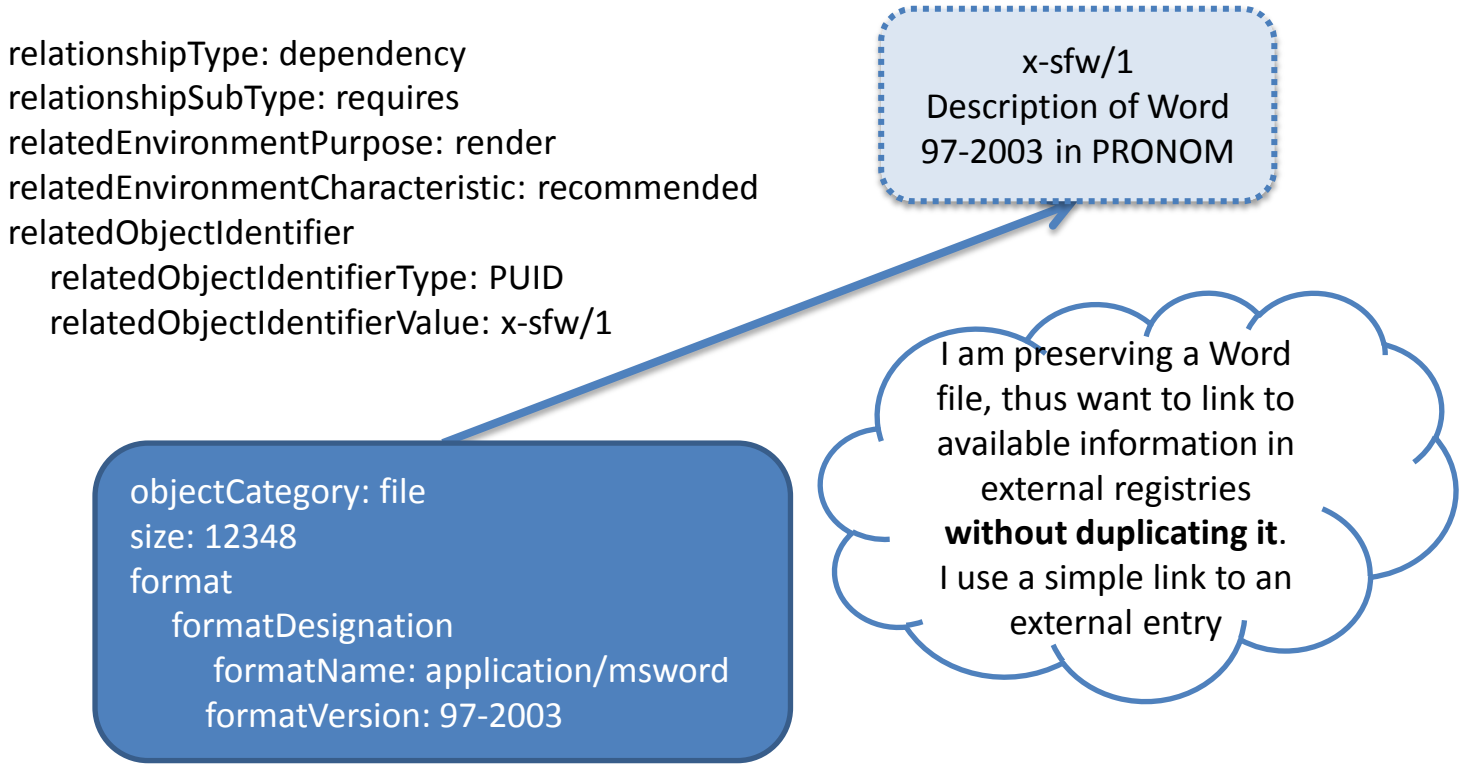

objectIdentifier
objectIdentifierType: ARK
ObjectIdentifierValue: ark:/9999/b1
objectCategory: intellectual entity
Ubuntu 32-bit operating system, version 12.10
relationshipType: structural
relationshipSubType: represents
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: file
objectCharacteristics
compositionLevel: 0
size: 726970368
format
formatDesignation
formatName: application/x-iso9660-image
I am preserving the Ubuntu operating system as an ISO image. I can identify two levels of description (the File and the abstract Intellectual Entity) and link them with a PREMIS relationship.

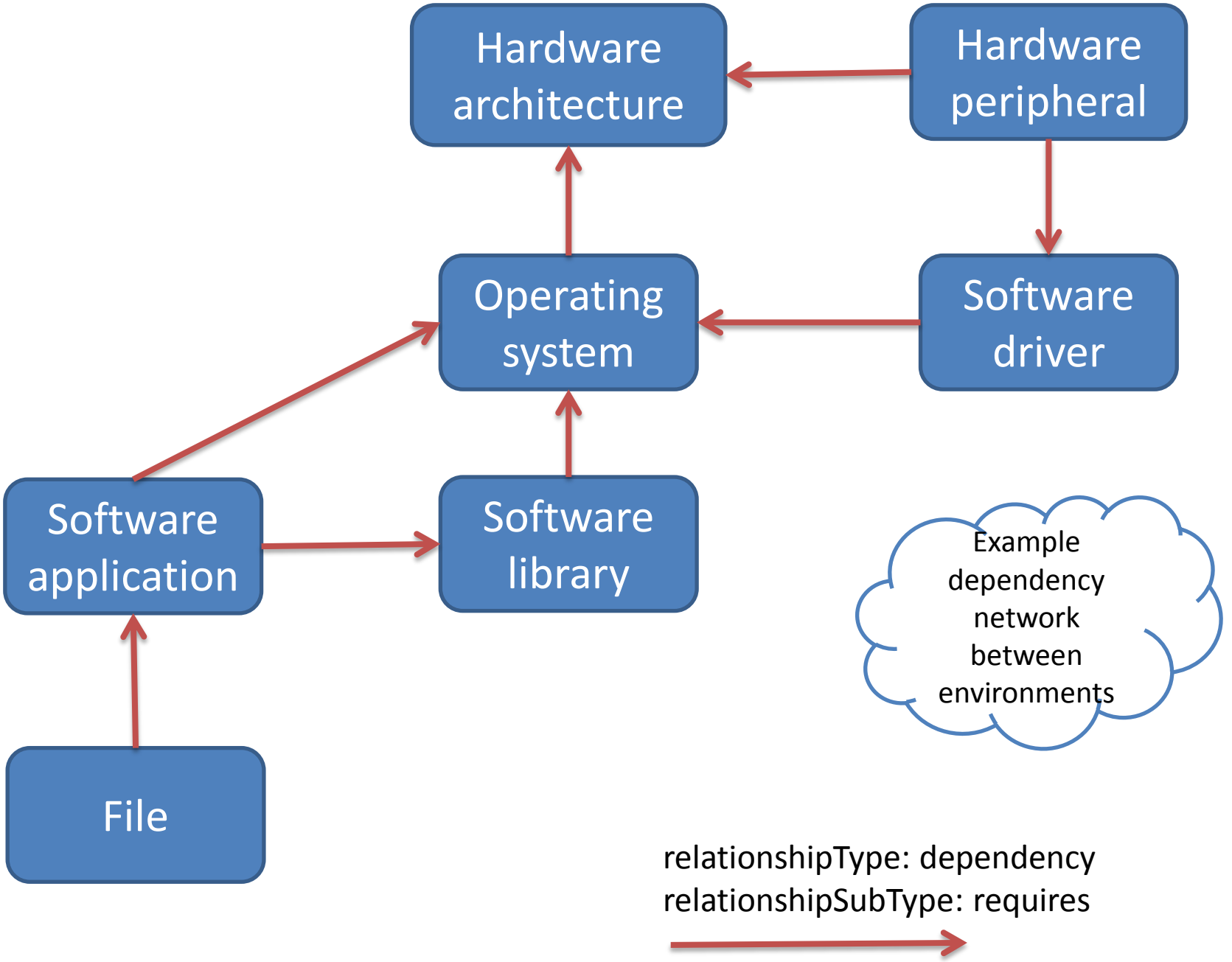

<Documentation>
relationshipType: reference
relationshipSubType: is documented in
relatedObjectIdentifier
relatedObjectIdentifierType: URL
relatedObjectIdentifierValue:
https://wiki.ubuntu.com/QuantalQuetzal/TechnicalOverview
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: operating system
environmentFunctionLevel: 2
environmentDesignation
environmentName: Ubuntu
environmentVersion: Version: 12.10
environmentDesignationNote: 32-bit version
environmentDesignationNote: maintenance deadline: 2014-04
environmentDesignation
environmentName: Ubuntu
environmentVersion: Quantal Quetzal
Description of the Ubuntu Version 12.10 operating system and reference to its installation manual

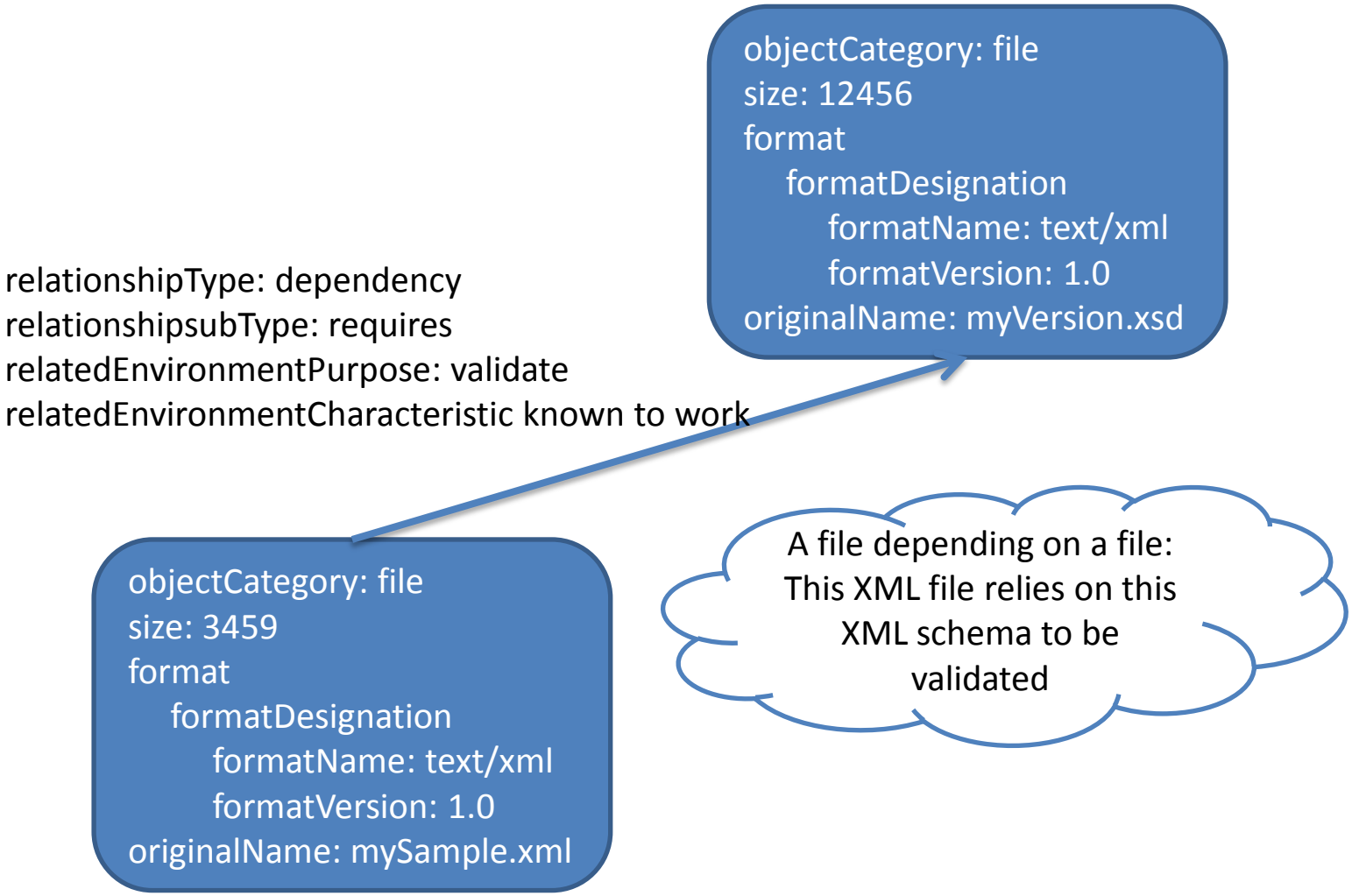
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: operating system
environmentFunctionLevel: 2
environmentDesignation
environmentName: Windows XP Professional
environmentVersion: Service Pack 3
environmentRegistry
environmentRegistryName: PRONOM
environmentRegistryKey: x-sfw/8
environmenttRegistryRole: generalization
environmentRegistry
environmentRegistryName: IIPC Database
environmentRegistryKey:
http://gator1355.hostgator.com/~iipc/pwg/software.php?id=1006
environmentRegistryRole: identity
environmentRegistry
environmentRegistryName: UDFR
environmentRegistryKey: http://udfr.org/udfr/u1r2415
environmentRegistryRole: generalization

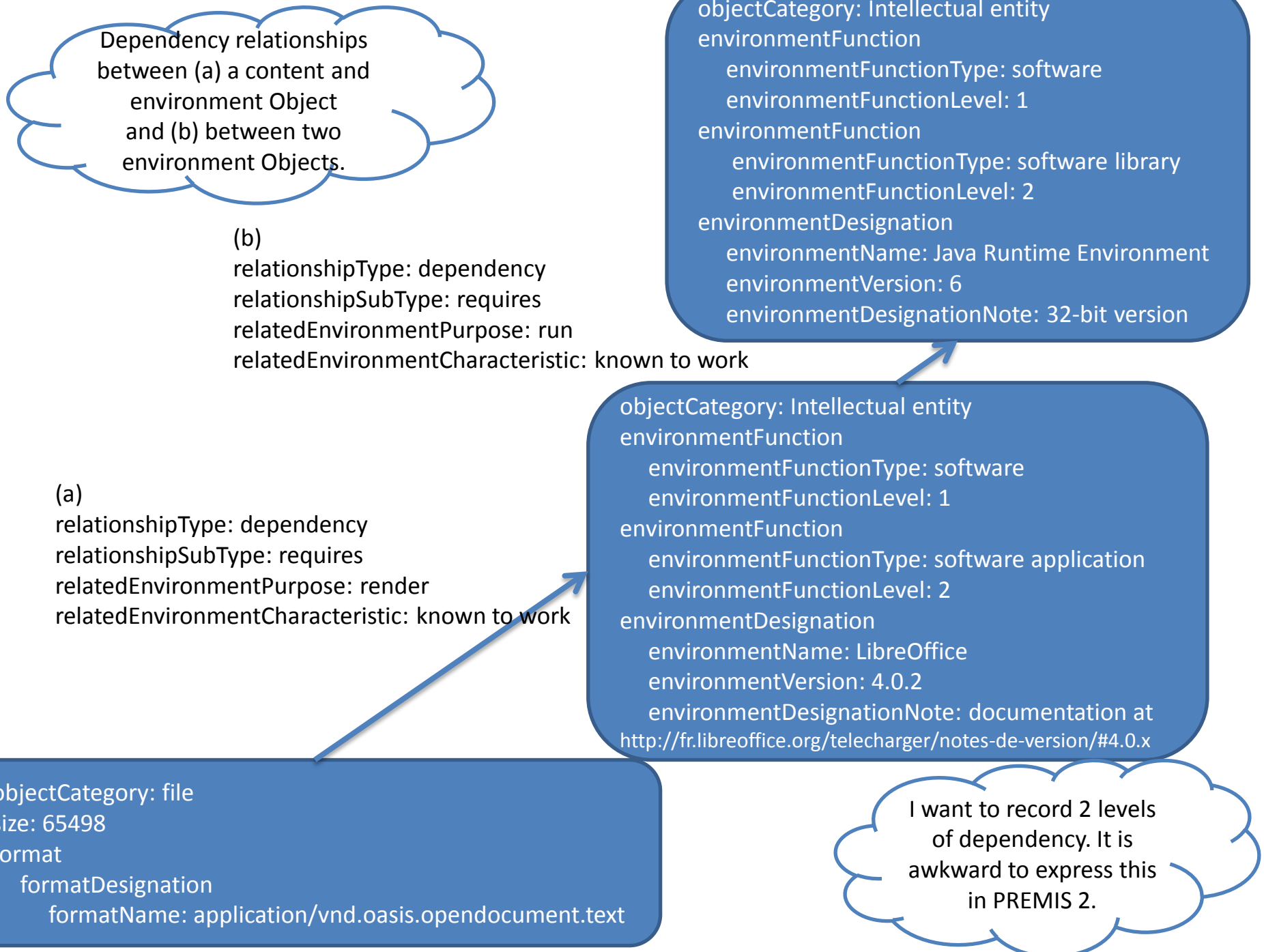
This ISO image contains Windows XP Pro, SP3. I have 3 descriptions of Windows XP outside the registry.

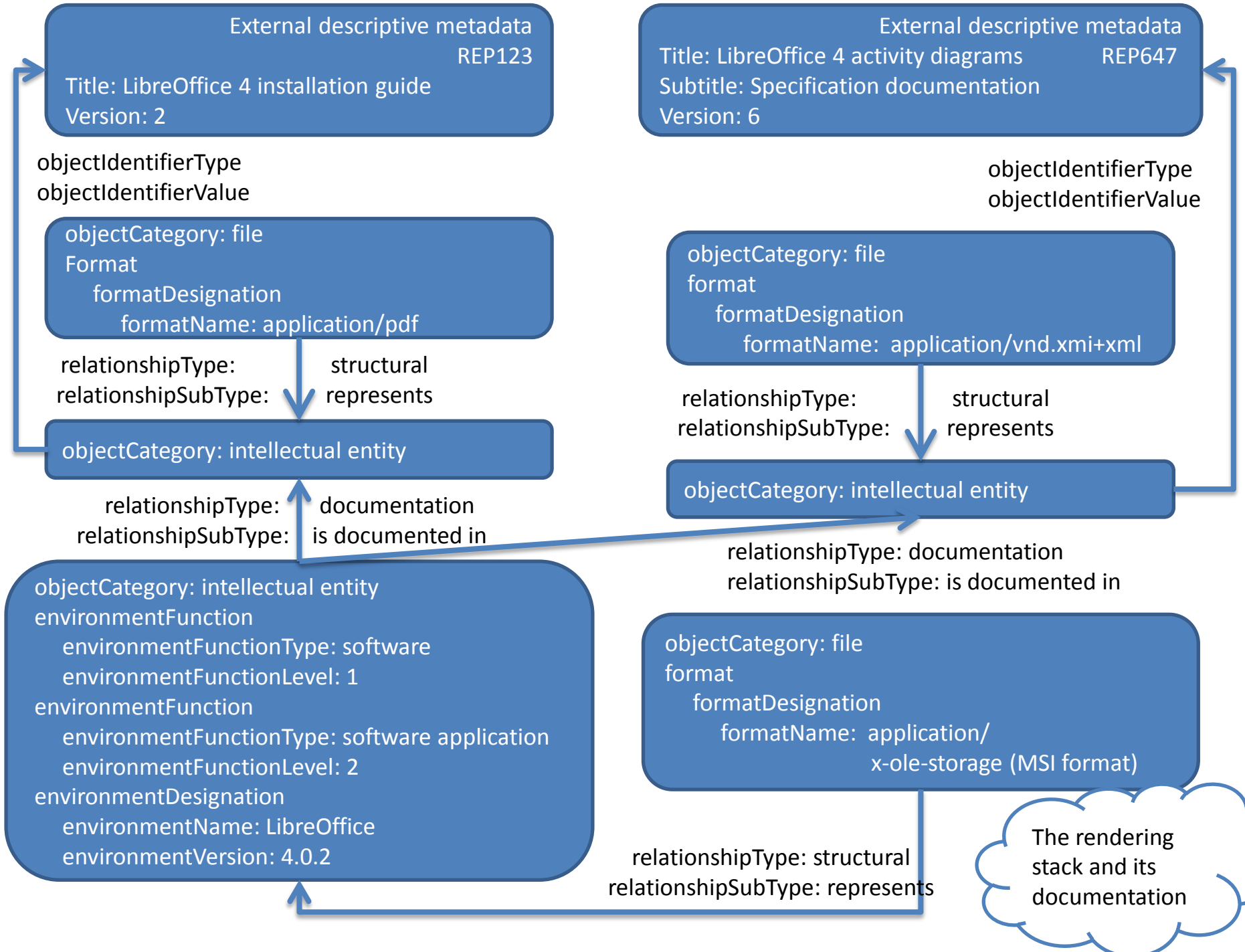
3 different registry entries about Windows XP Professional

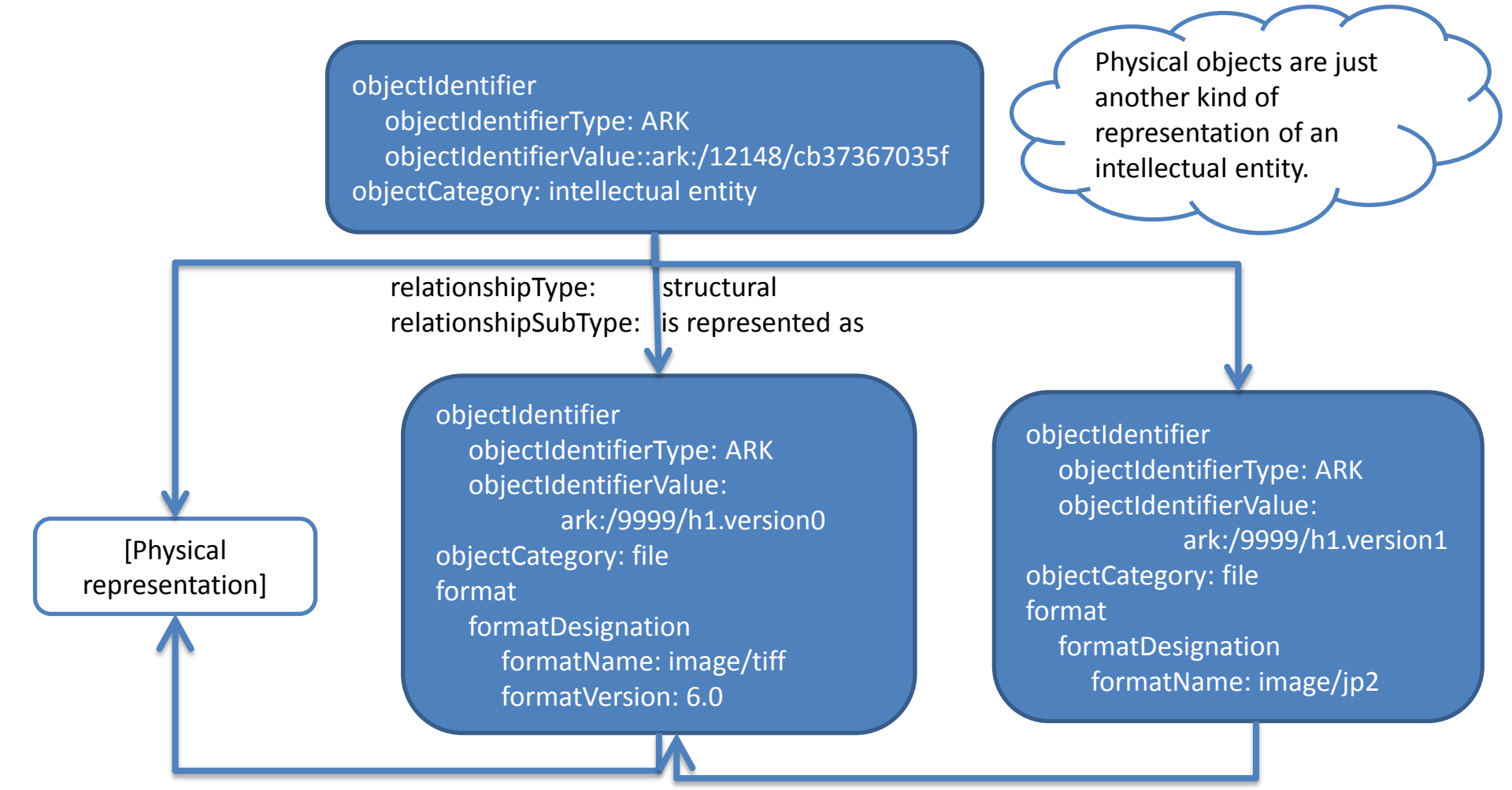

relationshipType: dependency
relationshipSubType: requires
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic: recommended
relatedObjectIdentifier
relatedObjectIdentifierType: PUID
relatedObjectIdentifierValue: x-sfw/1
x-sfw/1
Description of Word 97-2003 in PRONOM
I am preserving a Word file, thus want to link to available information in external registries **without duplicating it**. I use a simple link to an external entry
objectCategory: file
size: 12348
format
formatDesignation
formatName: application/msword
formatVersion: 97-2003

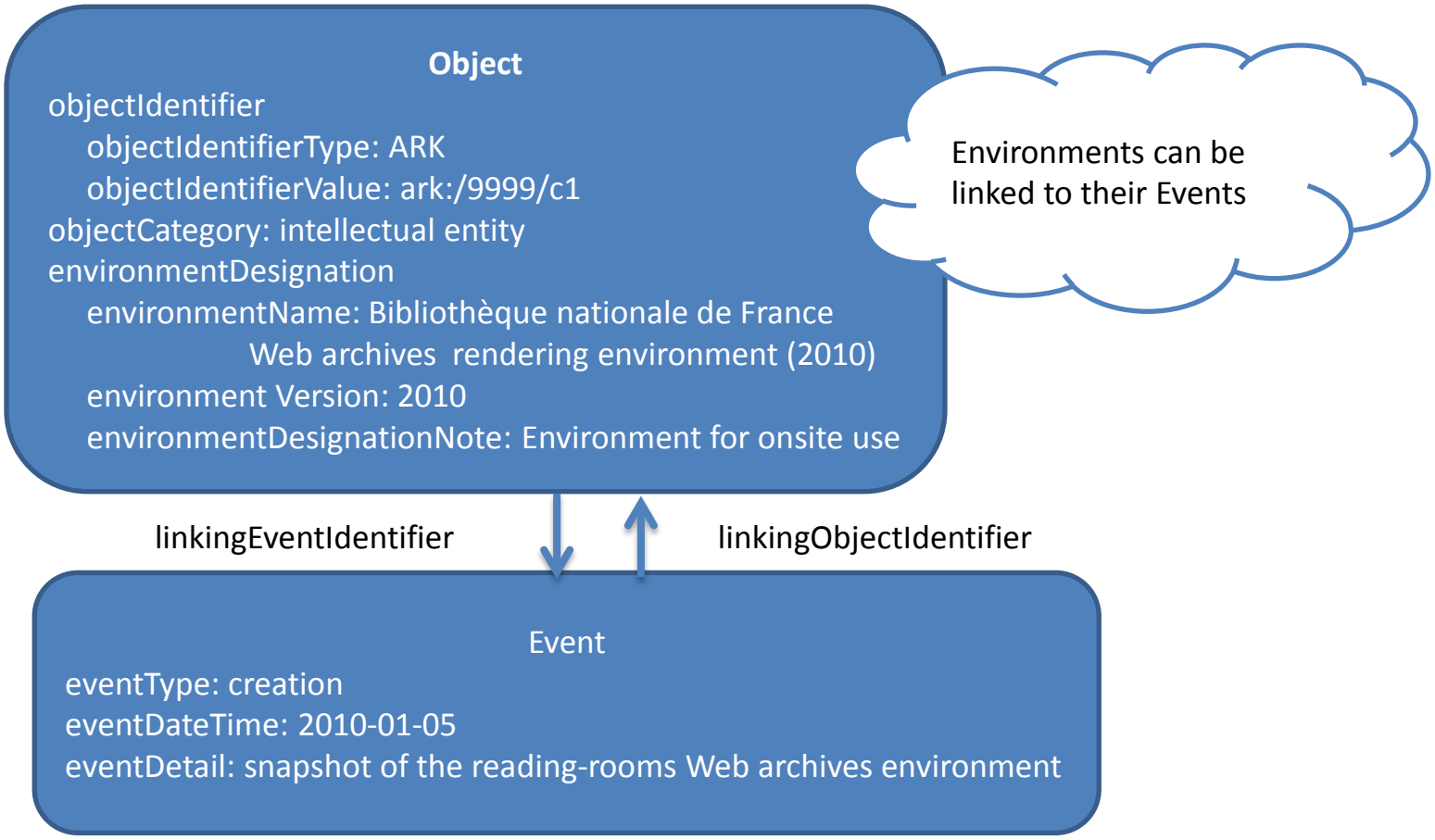

Hardware architecture
Hardware peripheral
Operating system
Software driver
Software application
Software library
File
Example dependency network between environments
relationshipType: dependency
relationshipSubType: requires

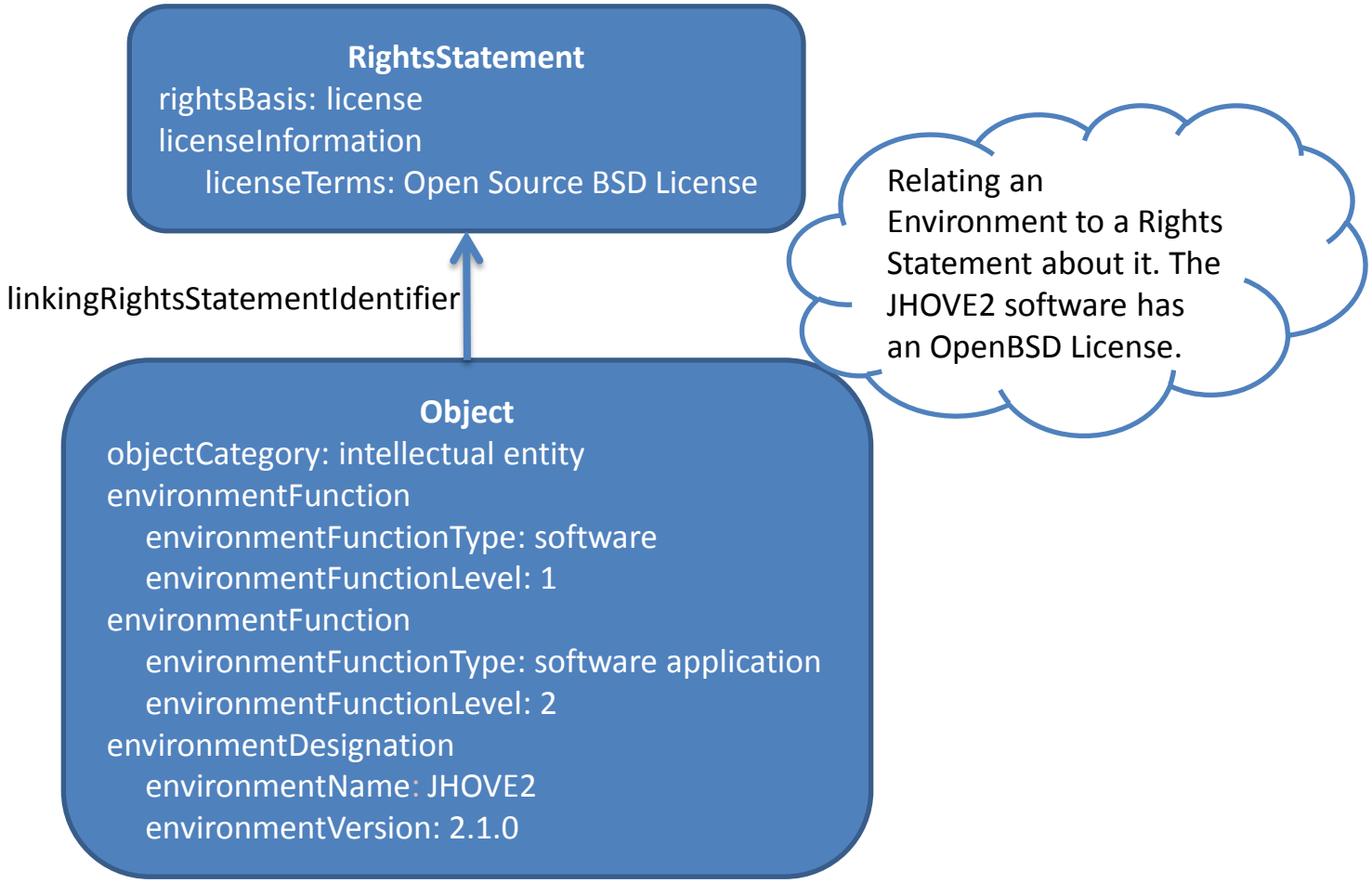

objectCategory: file
size: 12456
format
formatDesignation
formatName: text/xml
formatVersion: 1.0
originalName: myVersion.xsd
relationshipType: dependency
relationshipsubType: requires
relatedEnvironmentPurpose: validate
relatedEnvironmentCharacteristic known to work
objectCategory: file
size: 3459
format
formatDesignation
formatName: text/xml
formatVersion: 1.0
originalName: mySample.xml
A file depending on a file:
This XML file relies on this
XML schema to be
validated

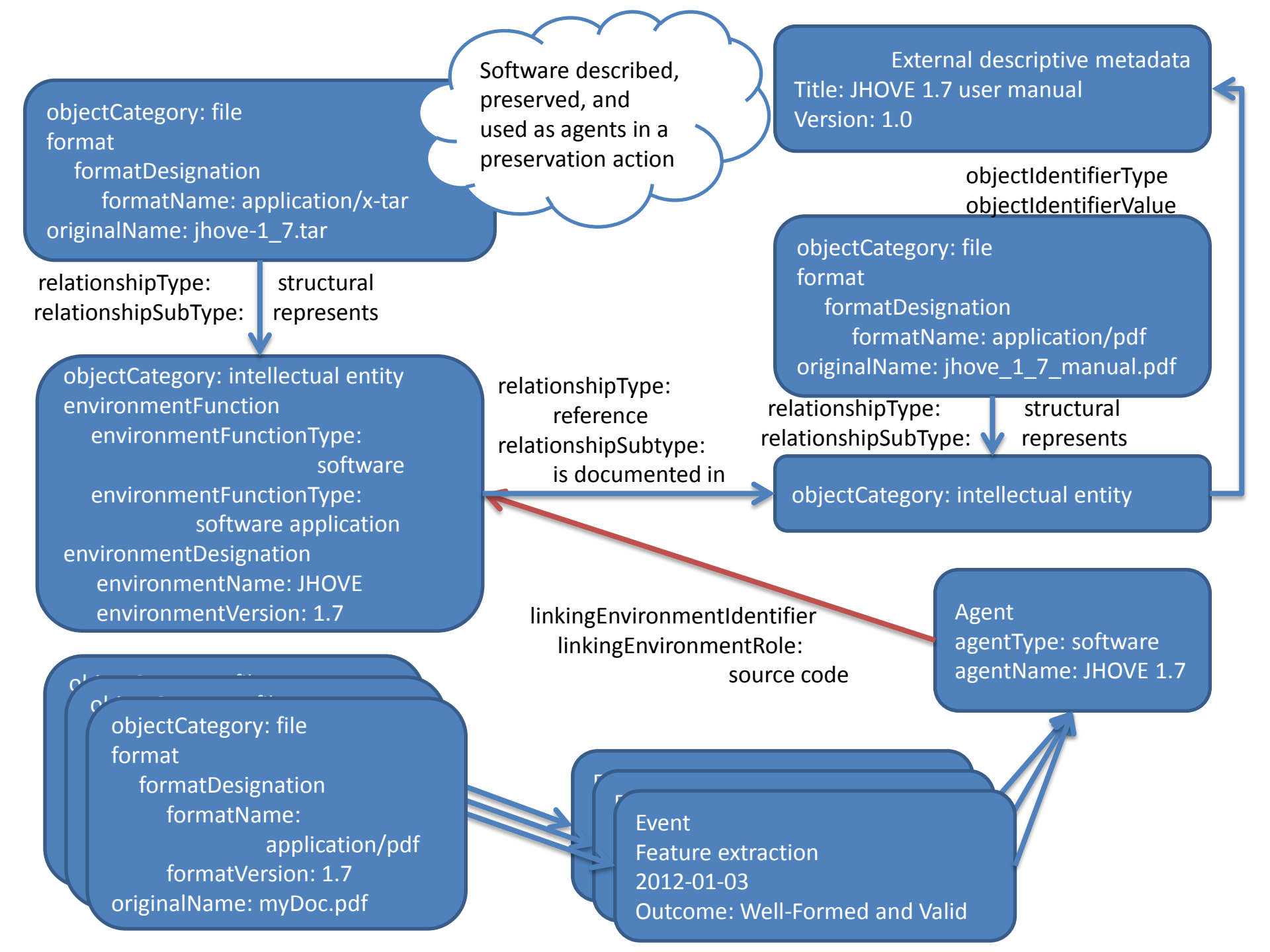

Dependency relationships between (a) a content and environment Object and (b) between two environment Objects.
objectCategory: Intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software library
environmentFunctionLevel: 2
environmentDesignation
environmentName: Java Runtime Environment
environmentVersion: 6
environmentDesignationNote: 32-bit version
(b)
relationshipType: dependency
relationshipSubType: requires
relatedEnvironmentPurpose: run
relatedEnvironmentCharacteristic: known to work
objectCategory: Intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
environmentDesignation
environmentName: LibreOffice
environmentVersion: 4.0.2
environmentDesignationNote: documentation at http://fr.libreoffice.org/telecharger/notes-de-version/#4.0.x
(a)
relationshipType: dependency
relationshipSubType: requires
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic: known to work
objectCategory: file
size: 65498
format
formatDesignation
formatName: application/vnd.oasis.opendocument.text
I want to record 2 levels of dependency. It is awkward to express this in PREMIS 2.


External descriptive metadata
REP123
Title: LibreOffice 4 installation guide
Version: 2
External descriptive metadata
Title: LibreOffice 4 activity diagrams
REP647
Subtitle: Specification documentation
Version: 6
objectIdentifierType
objectIdentifierValue
objectIdentifierType
objectIdentifierValue
objectCategory: file
Format
formatDesignation
formatName: application/pdf
objectCategory: file
format
formatDesignation
formatName: application/vnd.xmi+xml
relationshipType:
relationshipSubType:
structural
represents
relationshipType:
relationshipSubType:
structural
represents
objectCategory: intellectual entity
objectCategory: intellectual entity
relationshipType:
relationshipSubType:
documentation
is documented in
relationshipType: documentation
relationshipSubType: is documented in
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
environmentDesignation
environmentName: LibreOffice
environmentVersion: 4.0.2
objectCategory: file
format
formatDesignation
formatName: application/
x-ole-storage (MSI format)
relationshipType: structural
relationshipSubType: represents
The rendering stack and its documentation

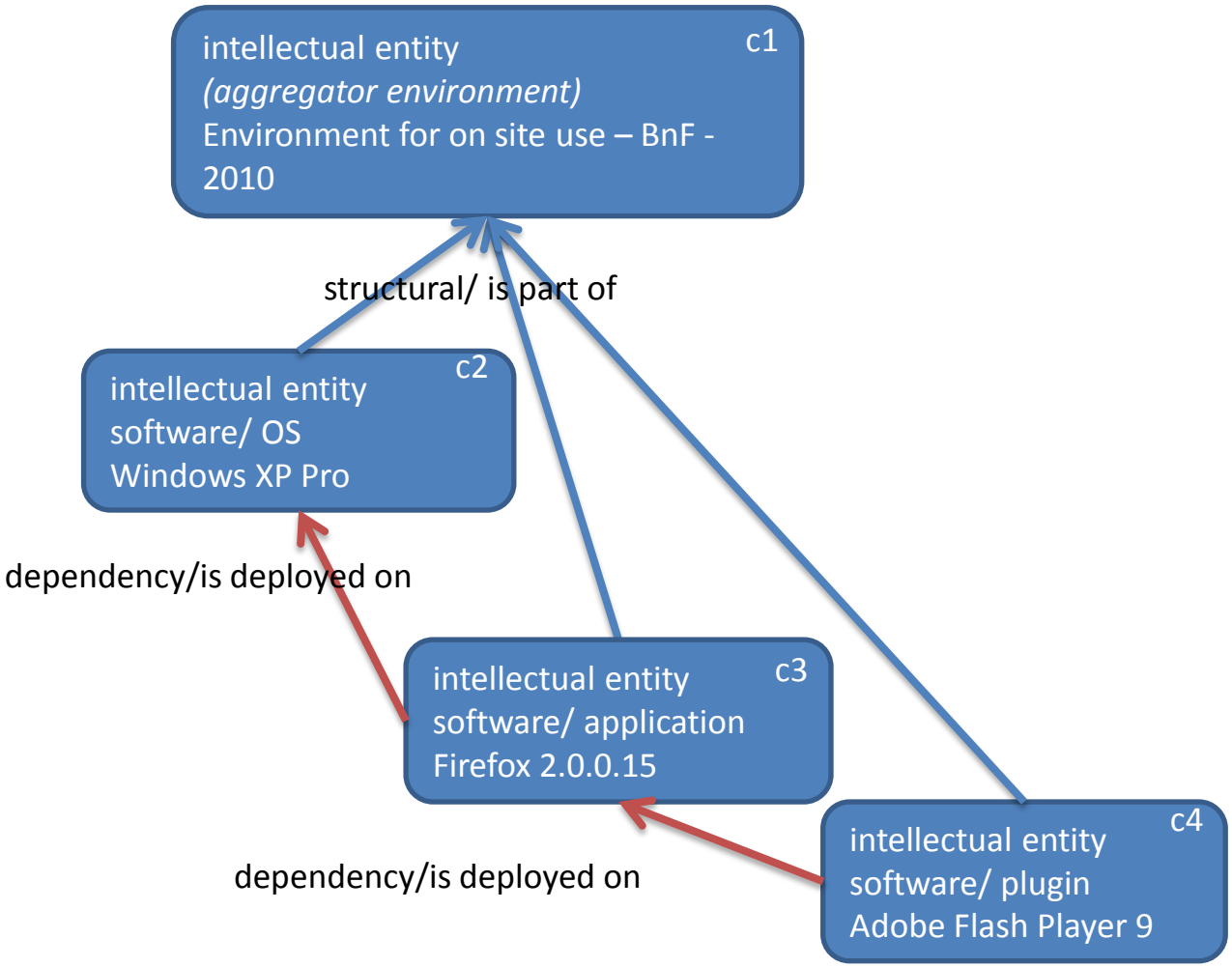

objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue::ark:/12148/cb37367035f
objectCategory: intellectual entity
Physical objects are just another kind of representation of an intellectual entity.
relationshipType: structural
relationshipSubType: is represented as
[Physical representation]
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/h1.version0
objectCategory: file
format
formatDesignation
formatName: image/tiff
formatVersion: 6.0
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/h1.version1
objectCategory: file
format
formatDesignation
formatName: image/jp2
relationshipType: derivation
relationshipSubType: has source
relatedObjectIdentifier
relatedObjectIdentifierType: Internal call number
relatedObjectIdentifierValue: Rés. Ye-3535
relationshipType: derivation
relationshipSubType: has source
relatedObjectIdentifier
relatedObjectIdentifierType: ARK
relatedObjectIdentifierValue: ark:/9999/h1.version0

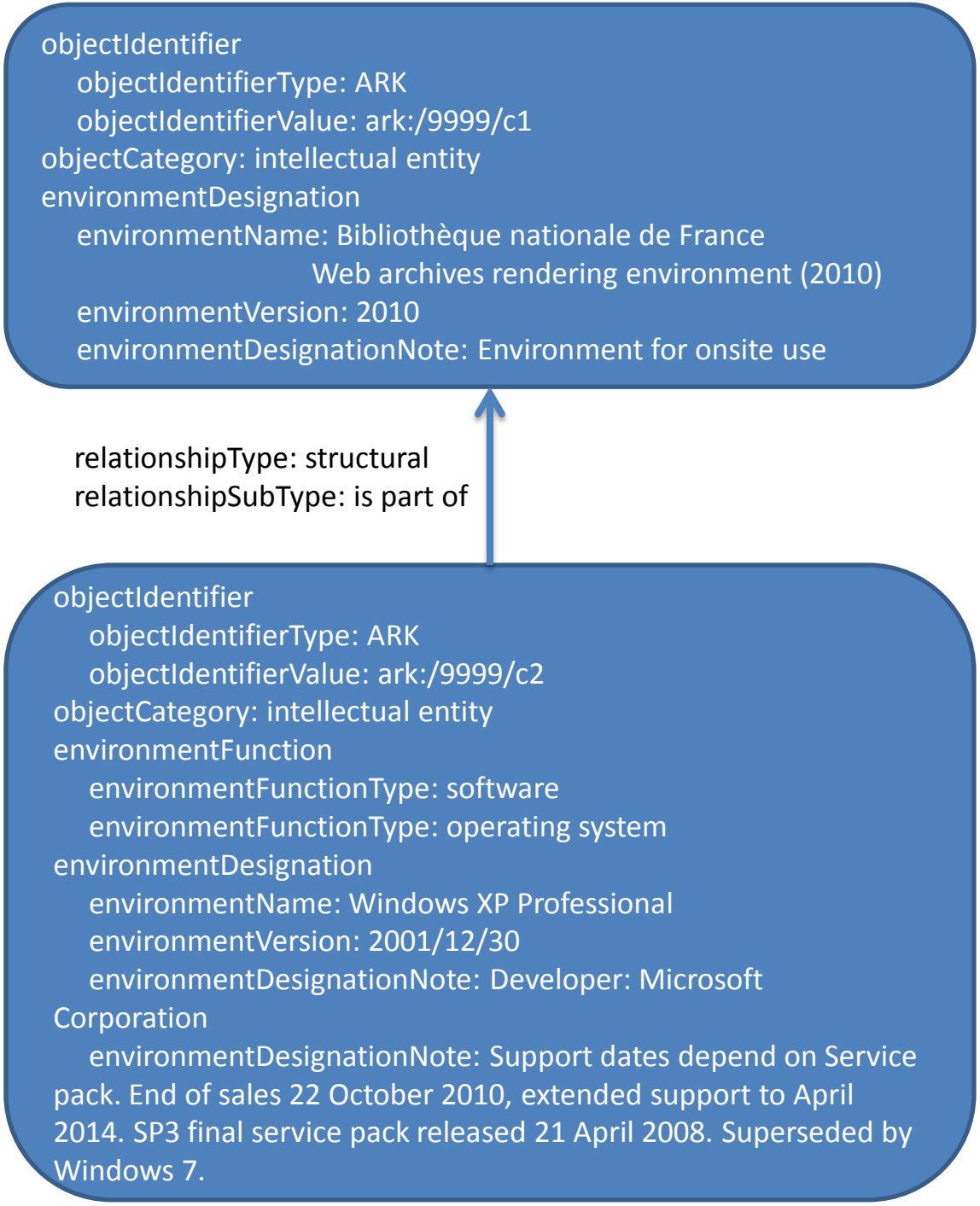

Object
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: intellectual entity
environmentDesignation
environmentName: Bibliothèque nationale de France
Web archives rendering environment (2010)
environment Version: 2010
environmentDesignationNote: Environment for onsite use
Environments can be linked to their Events
linkingEventIdentifier
linkingObjectIdentifier
Event
eventType: creation
eventDateTime: 2010-01-05
eventDetail: snapshot of the reading-rooms Web archives environment

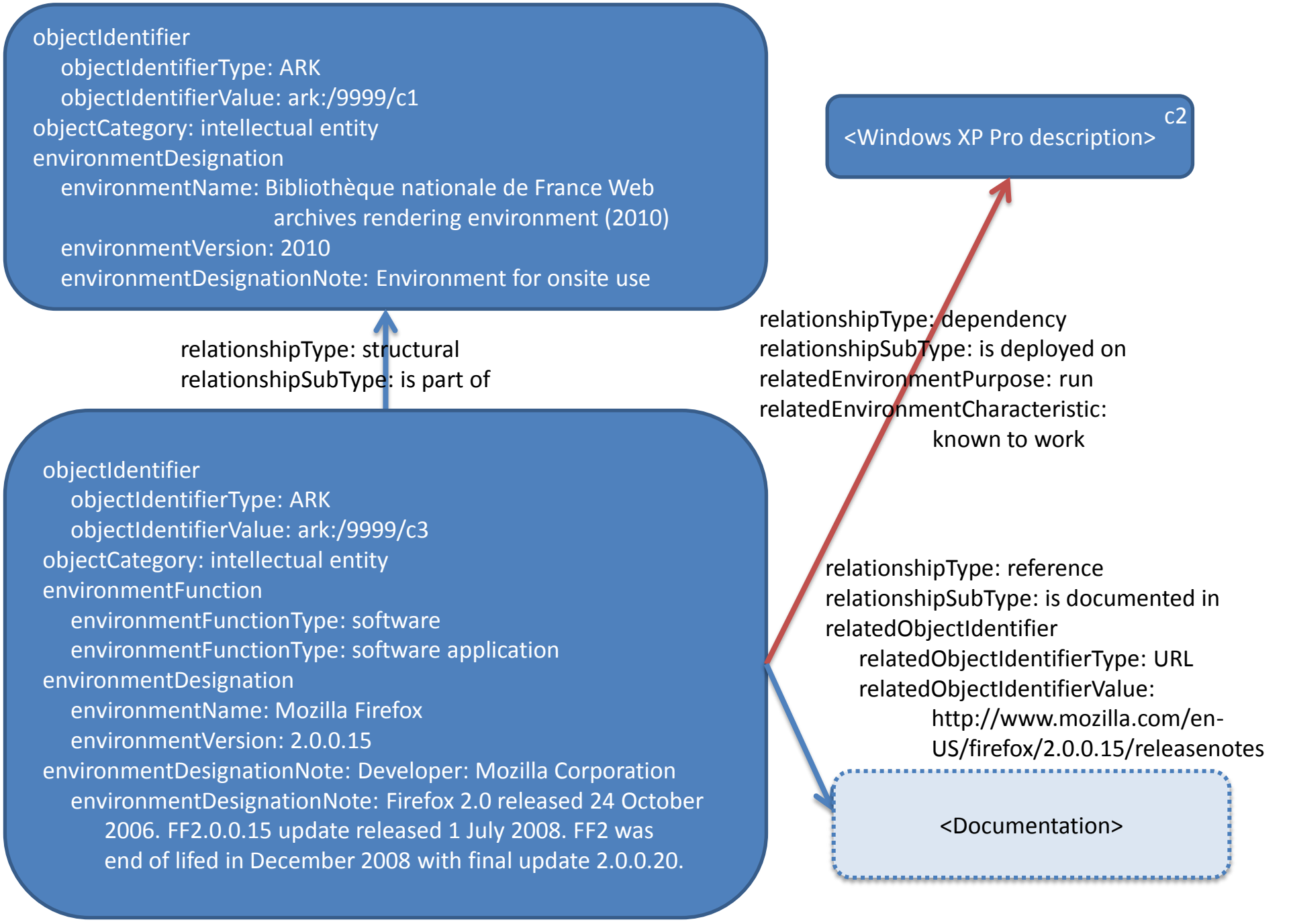

RightsStatement
rightsBasis: license
licenseInformation
licenseTerms: Open Source BSD License
linkingRightsStatementIdentifier
Relating an Environment to a Rights Statement about it. The JHOVE2 software has an OpenBSD License.
Object
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunction
environmentFunctionType: software application
environmentFunctionLevel: 2
environmentDesignation
environmentName: JHOVE2
environmentVersion: 2.1.0

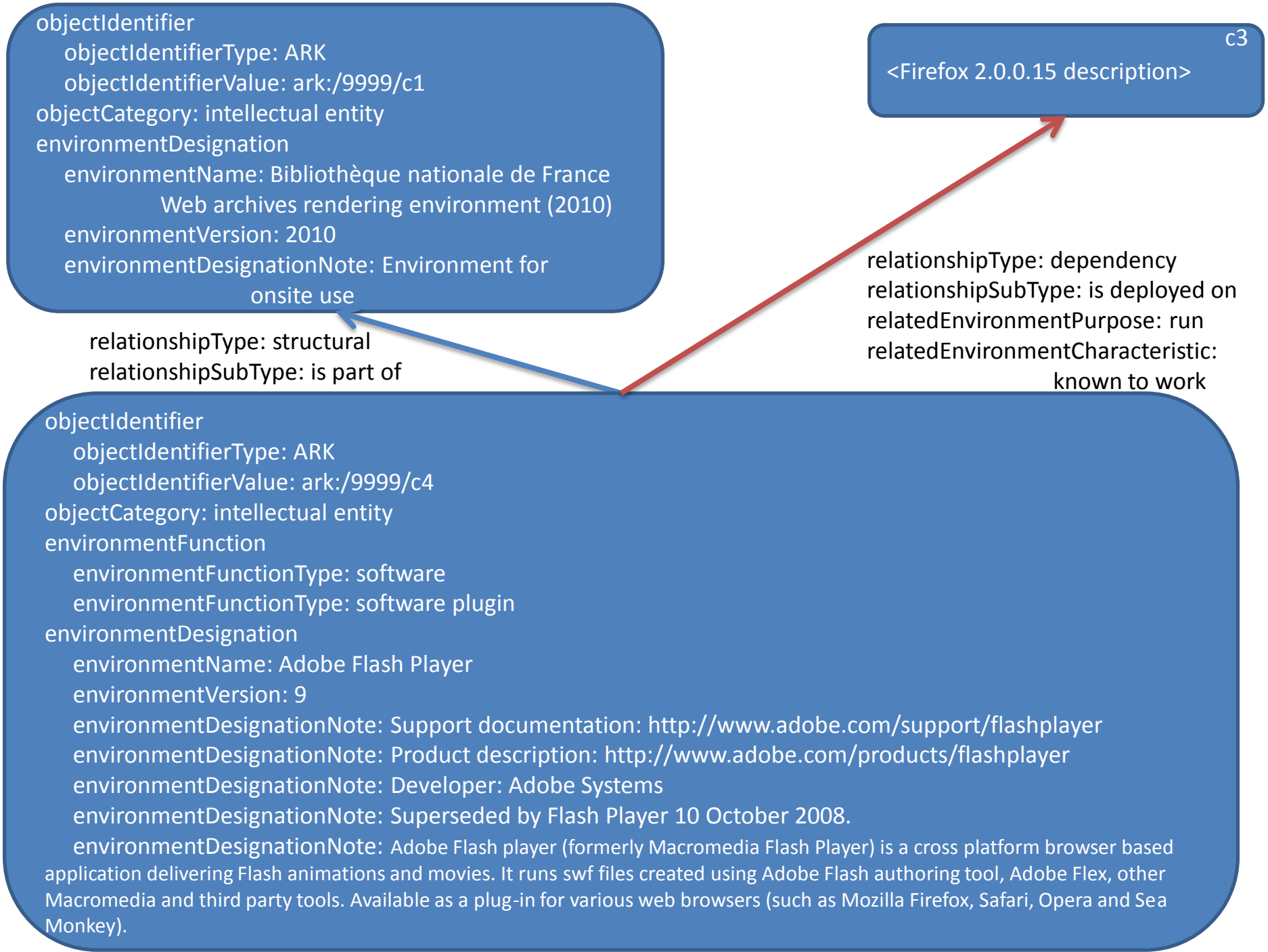

Software described, preserved, and used as agents in a preservation action
objectCategory: file
format
formatDesignation
formatName: application/x-tar
originalName: jhove-1_7.tar
External descriptive metadata
Title: JHOVE 1.7 user manual
Version: 1.0
objectIdentifierType
objectIdentifierValue
objectCategory: file
format
formatDesignation
formatName: application/pdf
originalName: jhove_1_7_manual.pdf
relationshipType:
relationshipSubType:
structural
represents
objectCategory: intellectual entity
environmentFunction
environmentFunctionType:
software
environmentFunctionType:
software application
environmentDesignation
environmentName: JHOVE
environmentVersion: 1.7
relationshipType:
reference
relationshipSubtype:
is documented in
relationshipType:
relationshipSubType:
structural
represents
objectCategory: intellectual entity
linkingEnvironmentIdentifier
linkingEnvironmentRole:
source code
Agent
agentType: software
agentName: JHOVE 1.7
objectCategory: file
format
formatDesignation
formatName:
application/pdf
formatVersion: 1.7
originalName: myDoc.pdf
Event
Feature extraction
2012-01-03
Outcome: Well-Formed and Valid

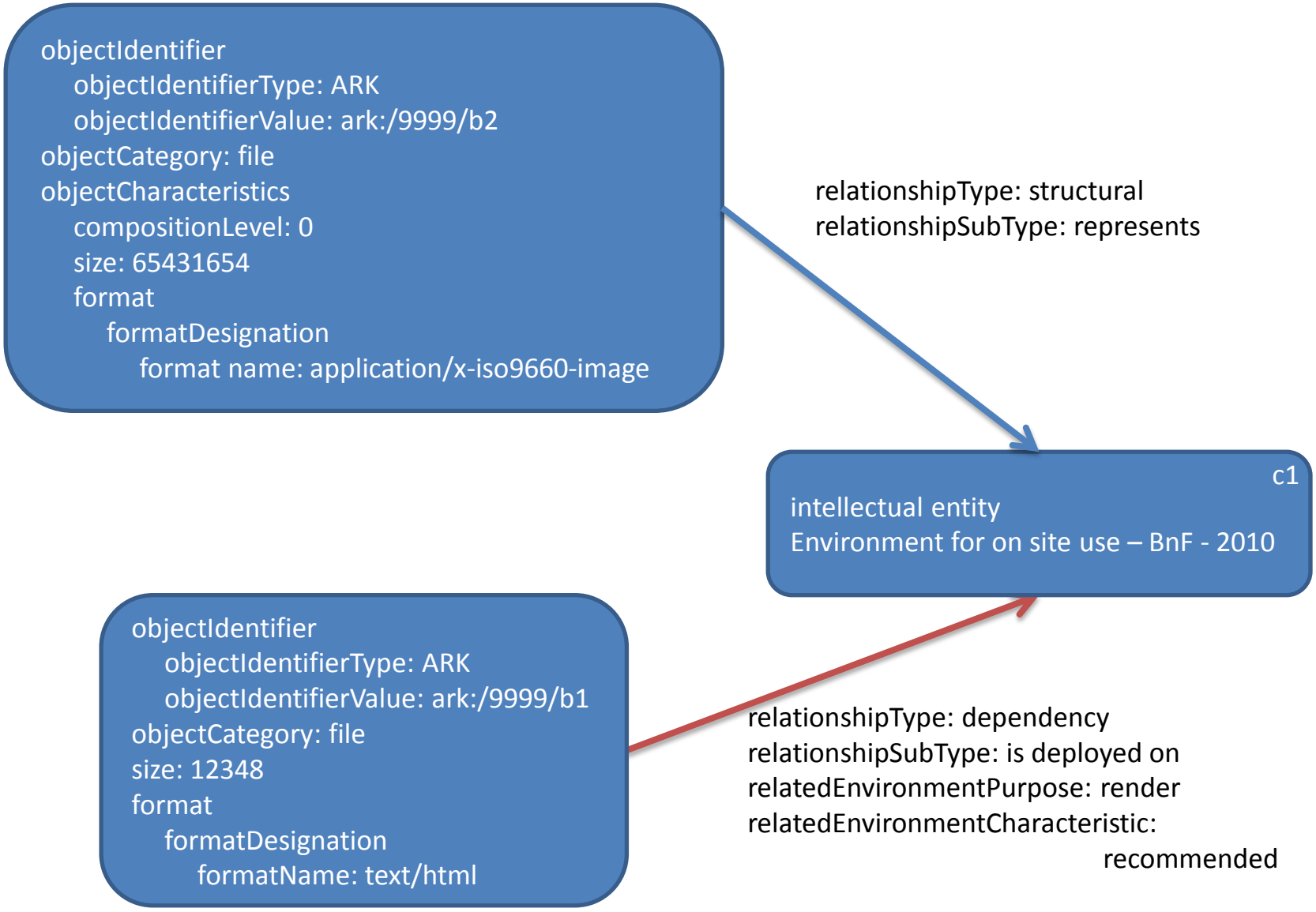
TEST USE CASES

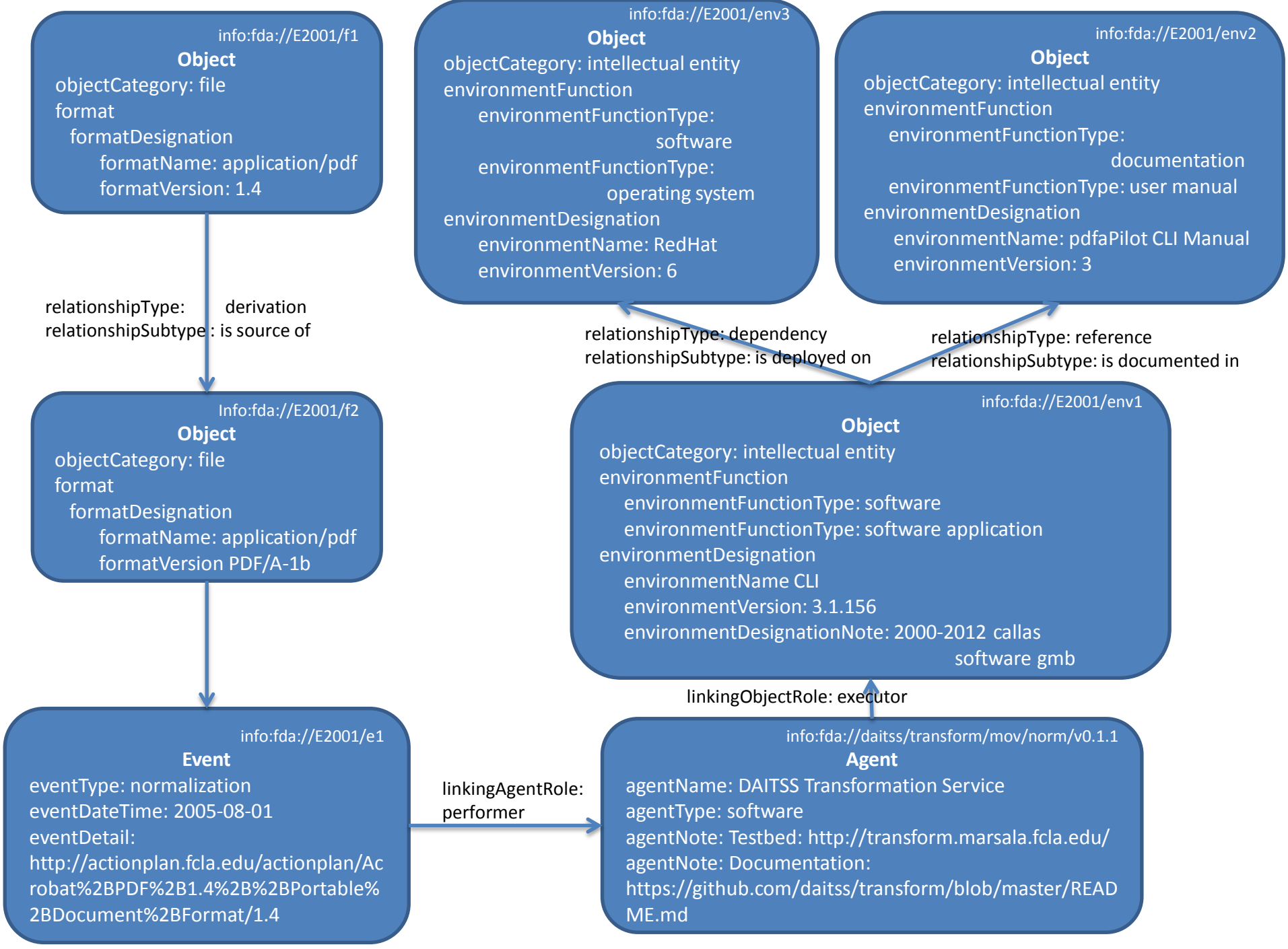

intellectual entity
(aggregator environment)
Environment for on site use – BnF - 2010
c1
structural/ is part of
intellectual entity
software/ OS
Windows XP Pro
c2
dependency/is deployed on
intellectual entity
software/ application
Firefox 2.0.0.15
c3
dependency/is deployed on
intellectual entity
software/ plugin
Adobe Flash Player 9
c4

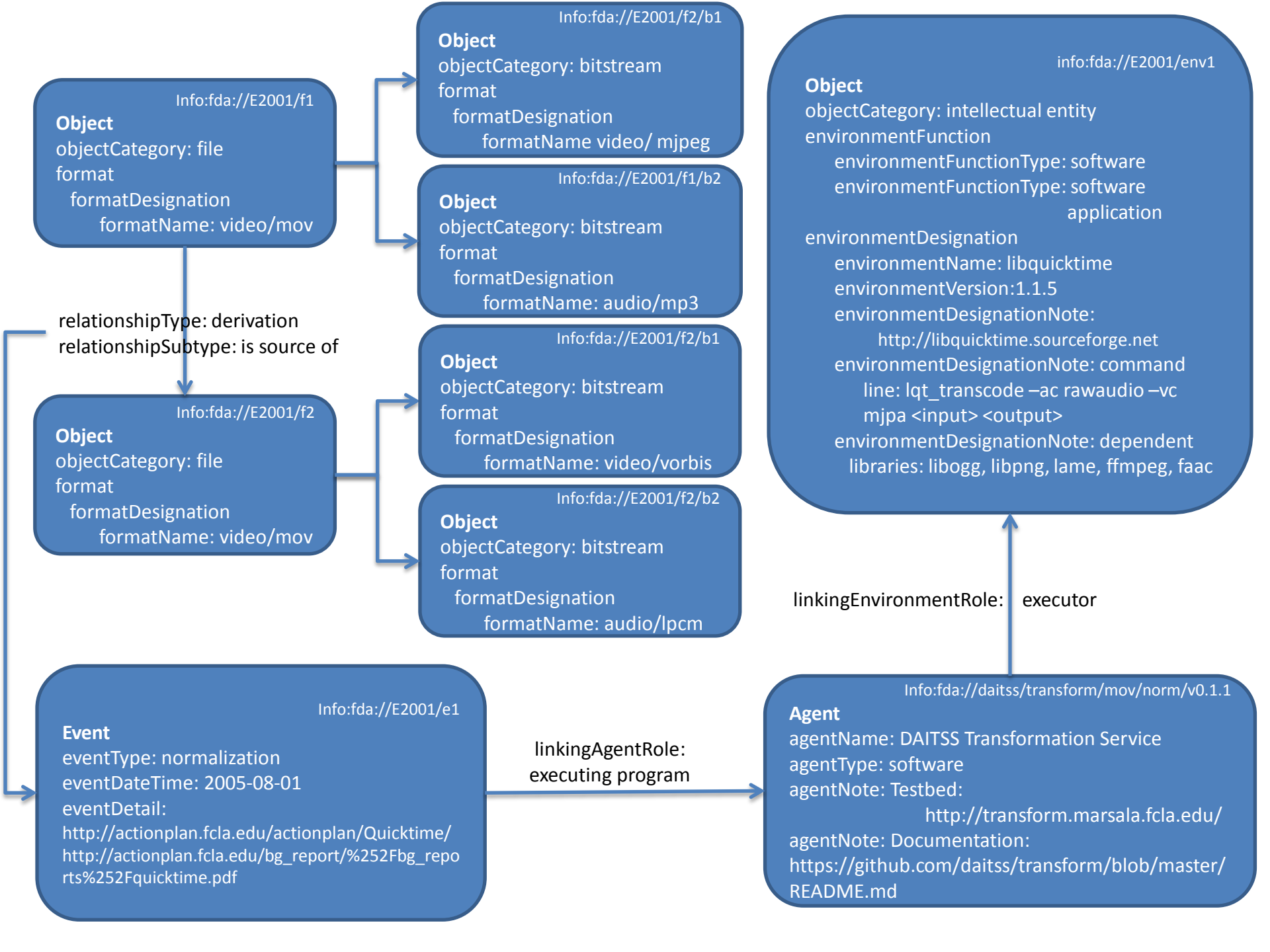

objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: intellectual entity
environmentDesignation
environmentName: Bibliothèque nationale de France
Web archives rendering environment (2010)
environmentVersion: 2010
environmentDesignationNote: Environment for onsite use
relationshipType: structural
relationshipSubType: is part of
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c2
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: operating system
environmentDesignation
environmentName: Windows XP Professional
environmentVersion: 2001/12/30
environmentDesignationNote: Developer: Microsoft Corporation
environmentDesignationNote: Support dates depend on Service pack. End of sales 22 October 2010, extended support to April 2014. SP3 final service pack released 21 April 2008. Superseded by Windows 7.

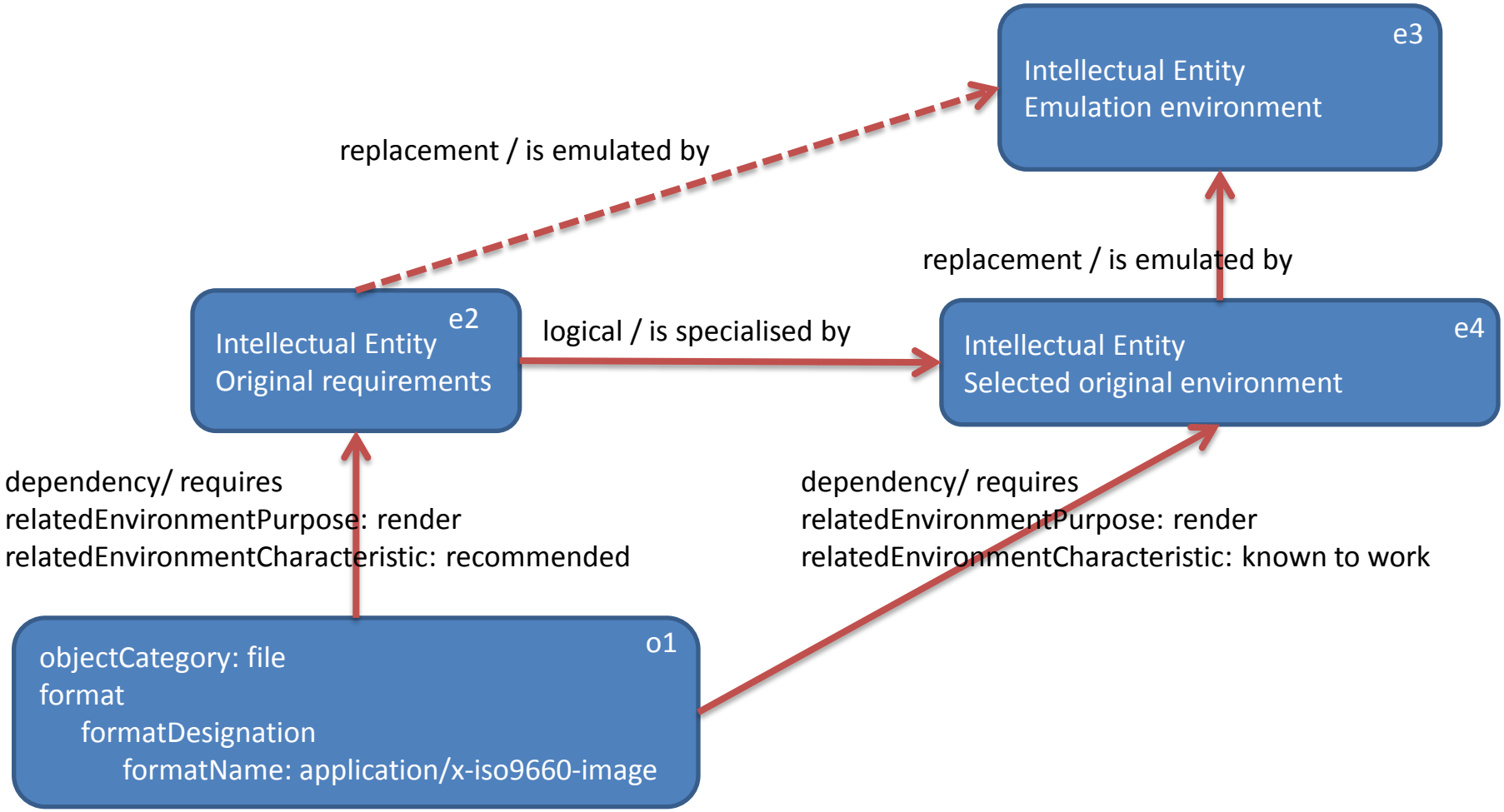

objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: intellectual entity
environmentDesignation
environmentName: Bibliothèque nationale de France Web archives rendering environment (2010)
environmentVersion: 2010
environmentDesignationNote: Environment for onsite use
relationshipType: structural
relationshipSubType: is part of
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c3
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: software application
environmentDesignation
environmentName: Mozilla Firefox
environmentVersion: 2.0.0.15
environmentDesignationNote: Developer: Mozilla Corporation
environmentDesignationNote: Firefox 2.0 released 24 October 2006. FF2.0.0.15 update released 1 July 2008. FF2 was end of lifed in December 2008 with final update 2.0.0.20.
<Windows XP Pro description>
c2
relationshipType: dependency
relationshipSubType: is deployed on
relatedEnvironmentPurpose: run
relatedEnvironmentCharacteristic: known to work
relationshipType: reference
relationshipSubType: is documented in
relatedObjectIdentifier
relatedObjectIdentifierType: URL
relatedObjectIdentifierValue: http://www.mozilla.com/en-US/firefox/2.0.0.15/releasenotes
<Documentation>

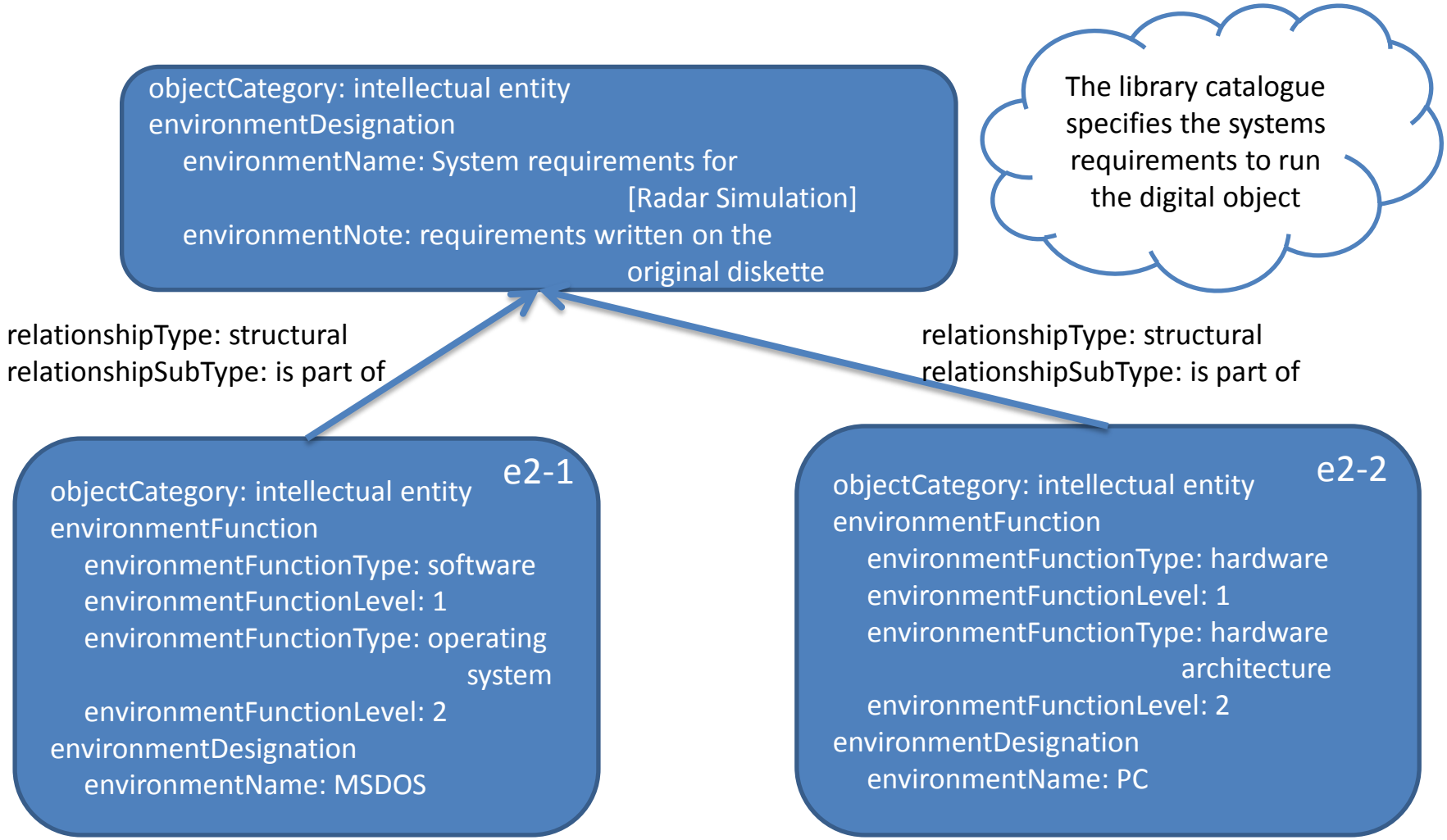

objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c1
objectCategory: intellectual entity
environmentDesignation
environmentName: Bibliothèque nationale de France Web archives rendering environment (2010)
environmentVersion: 2010
environmentDesignationNote: Environment for onsite use
c3
<Firefox 2.0.0.15 description>
relationshipType: dependency
relationshipSubType: is deployed on
relatedEnvironmentPurpose: run
relatedEnvironmentCharacteristic: known to work
relationshipType: structural
relationshipSubType: is part of
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/c4
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: software plugin
environmentDesignation
environmentName: Adobe Flash Player
environmentVersion: 9
environmentDesignationNote: Support documentation: http://www.adobe.com/support/flashplayer
environmentDesignationNote: Product description: http://www.adobe.com/products/flashplayer
environmentDesignationNote: Developer: Adobe Systems
environmentDesignationNote: Superseded by Flash Player 10 October 2008.
environmentDesignationNote: Adobe Flash player (formerly Macromedia Flash Player) is a cross platform browser based application delivering Flash animations and movies. It runs swf files created using Adobe Flash authoring tool, Adobe Flex, other Macromedia and third party tools. Available as a plug-in for various web browsers (such as Mozilla Firefox, Safari, Opera and Sea Monkey).

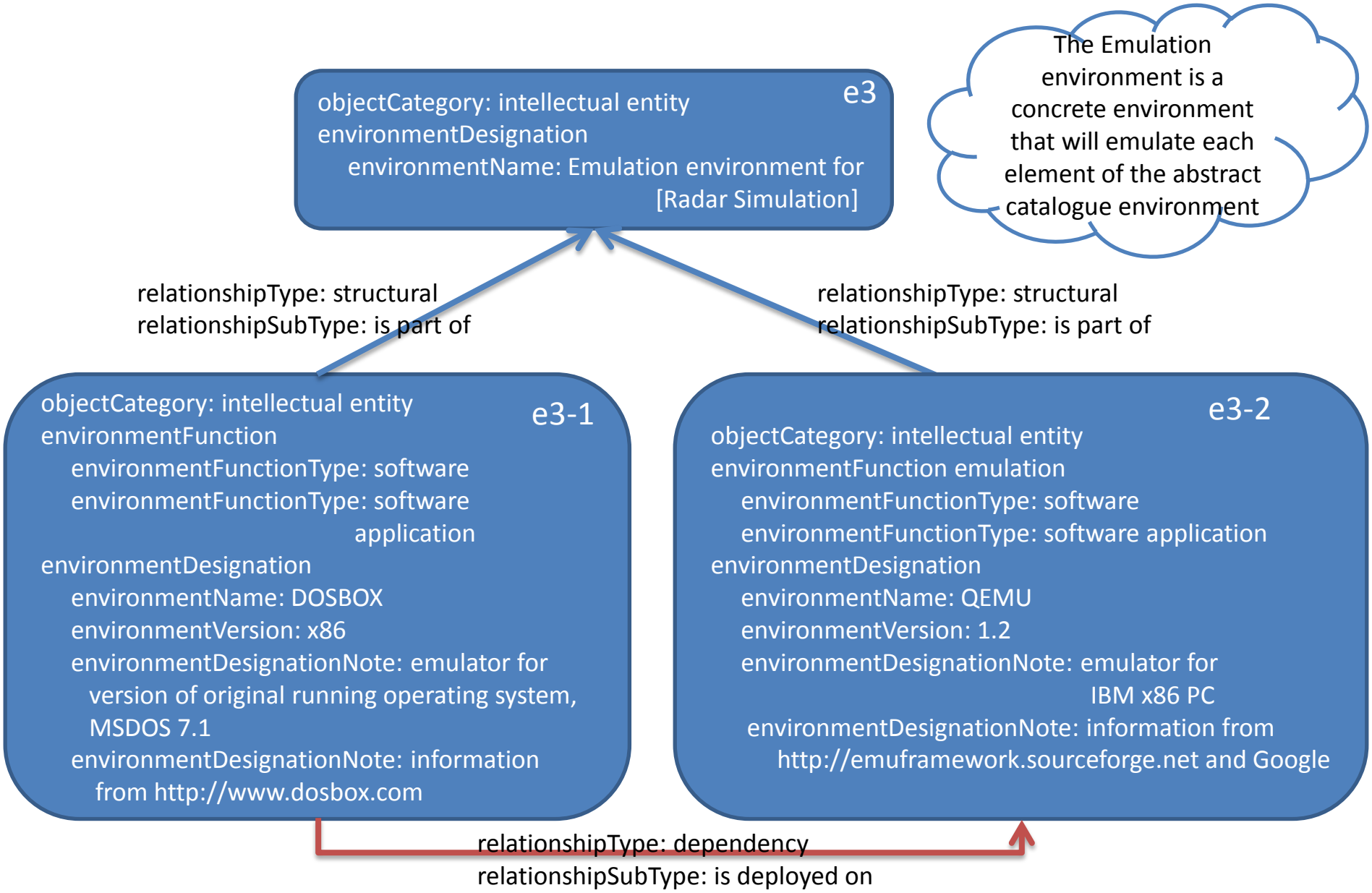

objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/b2
objectCategory: file
objectCharacteristics
compositionLevel: 0
size: 65431654
format
formatDesignation
format name: application/x-iso9660-image
relationshipType: structural
relationshipSubType: represents
c1
intellectual entity
Environment for on site use – BnF - 2010
objectIdentifier
objectIdentifierType: ARK
objectIdentifierValue: ark:/9999/b1
objectCategory: file
size: 12348
format
formatDesignation
formatName: text/html
relationshipType: dependency
relationshipSubType: is deployed on
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic:
recommended

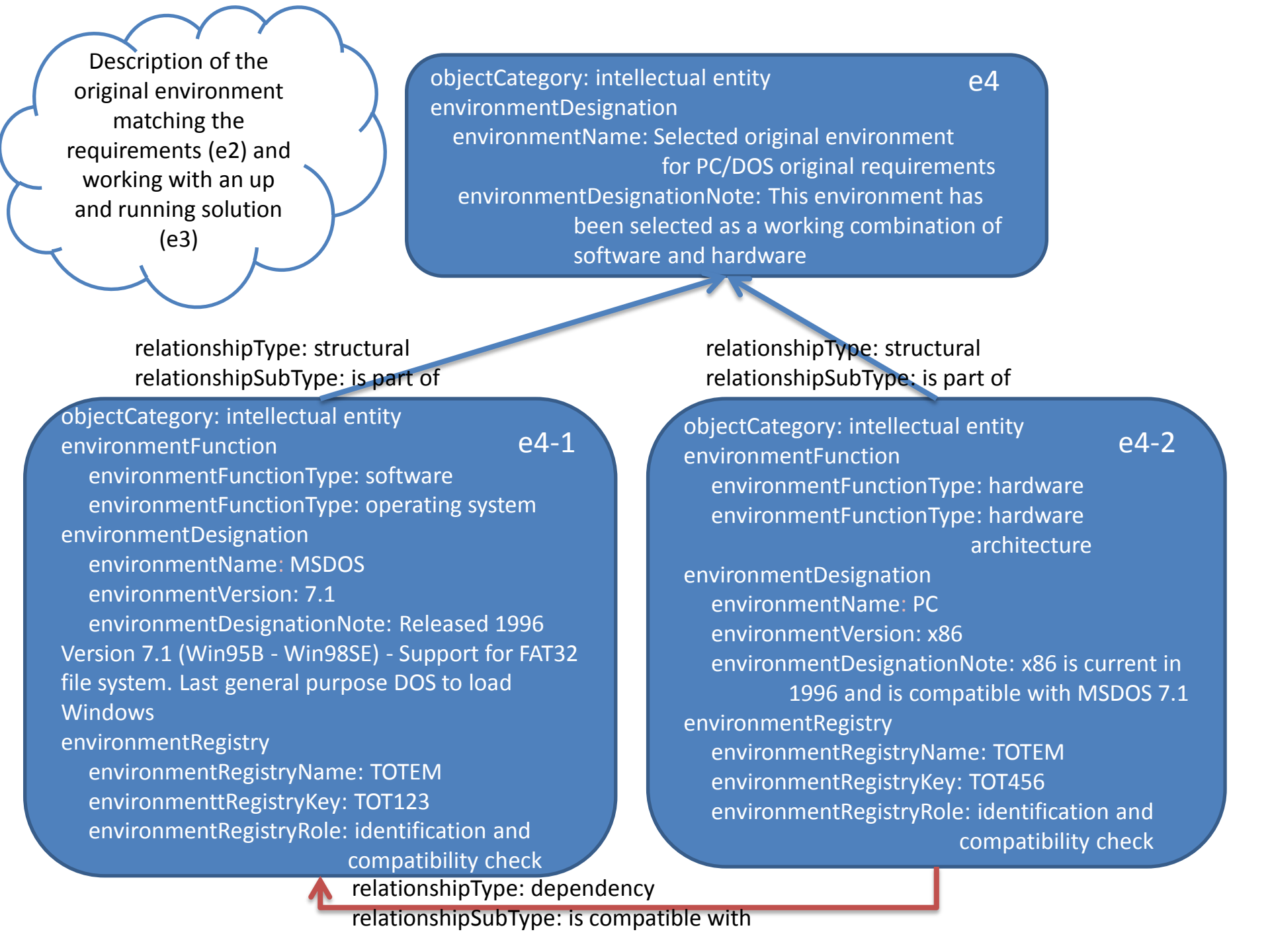

info:fda://E2001/f1
Object
objectCategory: file
format
formatDesignation
formatName: application/pdf
formatVersion: 1.4
info:fda://E2001/env3
Object
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: operating system
environmentDesignation
environmentName: RedHat
environmentVersion: 6
info:fda://E2001/env2
Object
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: documentation
environmentFunctionType: user manual
environmentDesignation
environmentName: pdfaPilot CLI Manual
environmentVersion: 3
relationshipType: derivation
relationshipSubtype: is source of
relationshipType: dependency
relationshipSubtype: is deployed on
relationshipType: reference
relationshipSubtype: is documented in
Info:fda://E2001/f2
Object
objectCategory: file
format
formatDesignation
formatName: application/pdf
formatVersion PDF/A-1b
info:fda://E2001/env1
Object
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: software application
environmentDesignation
environmentName CLI
environmentVersion: 3.1.156
environmentDesignationNote: 2000-2012 callas software gmb
linkingObjectRole: executor
info:fda://E2001/e1
Event
eventType: normalization
eventDateTime: 2005-08-01
eventDetail: http://actionplan.fcla.edu/actionplan/Acrobat%2BPDF%2B1.4%2B%2BPortable%2BDocument%2BFormat/1.4
linkingAgentRole: performer
info:fda://daitss/transform/mov/norm/v0.1.1
Agent
agentName: DAITSS Transformation Service
agentType: software
agentNote: Testbed: http://transform.marsala.fcla.edu/
agentNote: Documentation: https://github.com/daitss/transform/blob/master/README.md


Info:fda://E2001/f1
Object
objectCategory: file
format
formatDesignation
formatName: video/mov
Info:fda://E2001/f1/b1
Object
objectCategory: bitstream
format
formatDesignation
formatName video/ mjpeg
Info:fda://E2001/f1/b2
Object
objectCategory: bitstream
format
formatDesignation
formatName: audio/mp3
relationshipType: derivation
relationshipSubtype: is source of
Info:fda://E2001/f2
Object
objectCategory: file
format
formatDesignation
formatName: video/mov
Info:fda://E2001/f2/b1
Object
objectCategory: bitstream
format
formatDesignation
formatName: video/vorbis
Info:fda://E2001/f2/b2
Object
objectCategory: bitstream
format
formatDesignation
formatName: audio/lpcm
info:fda://E2001/env1
Object
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: software application
environmentDesignation
environmentName: libquicktime
environmentVersion:1.1.5
environmentDesignationNote: http://libquicktime.sourceforge.net
environmentDesignationNote: command line: lqt_transcode –ac rawaudio –vc mjpa <input> <output>
environmentDesignationNote: dependent libraries: libogg, libpng, lame, ffmpeg, faac
linkingEnvironmentRole: executor
Info:fda://E2001/e1
Event
eventType: normalization
eventDateTime: 2005-08-01
eventDetail:
http://actionplan.fcla.edu/actionplan/Quicktime/
http://actionplan.fcla.edu/bg_report/%252Fbg_reports%252Fquicktime.pdf
linkingAgentRole:
executing program
Info:fda://daitss/transform/mov/norm/v0.1.1
Agent
agentName: DAITSS Transformation Service
agentType: software
agentNote: Testbed:
http://transform.marsala.fcla.edu/
agentNote: Documentation:
https://github.com/daitss/transform/blob/master/README.md


e3
Intellectual Entity
Emulation environment
replacement / is emulated by
replacement / is emulated by
e2
Intellectual Entity
Original requirements
logical / is specialised by
e4
Intellectual Entity
Selected original environment
dependency/ requires
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic: recommended
dependency/ requires
relatedEnvironmentPurpose: render
relatedEnvironmentCharacteristic: known to work
o1
objectCategory: file
format
formatDesignation
formatName: application/x-iso9660-image


objectCategory: intellectual entity
environmentDesignation
environmentName: System requirements for [Radar Simulation]
environmentNote: requirements written on the original diskette
The library catalogue specifies the systems requirements to run the digital object
relationshipType: structural
relationshipSubType: is part of
relationshipType: structural
relationshipSubType: is part of
e2-1
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionLevel: 1
environmentFunctionType: operating system
environmentFunctionLevel: 2
environmentDesignation
environmentName: MSDOS
e2-2
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: hardware
environmentFunctionLevel: 1
environmentFunctionType: hardware architecture
environmentFunctionLevel: 2
environmentDesignation
environmentName: PC


e3
objectCategory: intellectual entity
environmentDesignation
environmentName: Emulation environment for [Radar Simulation]
The Emulation environment is a concrete environment that will emulate each element of the abstract catalogue environment
relationshipType: structural
relationshipSubType: is part of
relationshipType: structural
relationshipSubType: is part of
e3-1
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: software application
environmentDesignation
environmentName: DOSBOX
environmentVersion: x86
environmentDesignationNote: emulator for version of original running operating system, MSDOS 7.1
environmentDesignationNote: information from http://www.dosbox.com
e3-2
objectCategory: intellectual entity
environmentFunction emulation
environmentFunctionType: software
environmentFunctionType: software application
environmentDesignation
environmentName: QEMU
environmentVersion: 1.2
environmentDesignationNote: emulator for IBM x86 PC
environmentDesignationNote: information from http://emuframework.sourceforge.net and Google
relationshipType: dependency
relationshipSubType: is deployed on


Description of the original environment matching the requirements (e2) and working with an up and running solution (e3)
objectCategory: intellectual entity
environmentDesignation
environmentName: Selected original environment for PC/DOS original requirements
environmentDesignationNote: This environment has been selected as a working combination of software and hardware
e4
relationshipType: structural
relationshipSubType: is part of
relationshipType: structural
relationshipSubType: is part of
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: software
environmentFunctionType: operating system
environmentDesignation
environmentName: MSDOS
environmentVersion: 7.1
environmentDesignationNote: Released 1996 Version 7.1 (Win95B - Win98SE) - Support for FAT32 file system. Last general purpose DOS to load Windows
environmentRegistry
environmentRegistryName: TOTEM
environmenttRegistryKey: TOT123
environmentRegistryRole: identification and compatibility check
e4-1
objectCategory: intellectual entity
environmentFunction
environmentFunctionType: hardware
environmentFunctionType: hardware architecture
environmentDesignation
environmentName: PC
environmentVersion: x86
environmentDesignationNote: x86 is current in 1996 and is compatible with MSDOS 7.1
environmentRegistry
environmentRegistryName: TOTEM
environmentRegistryKey: TOT456
environmentRegistryRole: identification and compatibility check
e4-2
relationshipType: dependency
relationshipSubType: is compatible with