

Q&A about GLUE 2.0 Specification - Working Group Last Call (draft 41)

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Parag Mhashilkar, Fermi lab, Comments on GLUE Schema 2.0, 2008-05-02 20:24

1. Figure 1 GLUE main entities and their relationships:

Based on the description for Endpoint, cardinality of Endpoint -> Service should be 1 and not 0..1. Maybe cardinality in UML diagram is still in works?

FIXED: the cardinality of Service-Endpoint is now 1-to-*

2. AccessPolicy:

How can access policy be used to express Access control Base Rule? Additional info on this will be useful. Another question we had was, is it possible to express policies on FQANs and if so how?

FIXED: a basic policy syntax for Rules is defined in Section 17.4 of GLUE Spec

3. Is there an extension to this scheme and will it allow to express policies on all the elements of the certificate/proxies? For example, will it be possible to express a policy stating that "As a site I will not accept any jobs from users who have proxies valid for less than a day?"

FIXED: the basic syntax for policy rules does not support this, nevertheless, you can define your own syntax and use this under a different policy scheme to advertise this information; as we advised in the document, the policy rules should be coarse-grained; consider that they are going to be advertised in the information service, therefore such a level of details may be out of scope; (see Section 4.12.1)

4. Conceptual Model of the Computing Service:

Based on the description of various attributes, cardinality for ComputingEndPoint->ComputingService, ComputingShare->ComputingService and ComputingResource->ComputingService should be 1..* instead of *.

FIXED: every ComputingService-ComputingEndpoint/ComputingShare/ComputingManager relationship was changed to 1-to-*; to be verified during public comment period if we want to enforce 1-to-1..* for computing endpoint (i.e., what is the use case for GLUE to model services with no endpoint?)

5. It might be useful in general to make sure that the description of different entities are consistent with the cardinality mentioned in the UML and vice-versa.

FIXED: we verified consistency, nevertheless typos are still possible

6. MPI jobs:

From the description of ApplicationEnvironment and ApplicationHandle it is not clear if there is a way to express Compiler Versions used to compile MPI libraries. MPI applications are quite sensitive to the

compiler version and the architecture on which the libraries were compiled and need to know this in order to compile against correct set of libraries. We feel that there is no way to express this information.

FIXED: in the current model, we do not envision dedicated attributes for this information; nevertheless, you are able to publish them using the extensibility mechanism of Extension carrying Key,Value pairs associated to the ApplicationEnvironment

7. Also it is not clear how one can express connection between ApplicationEnvironment and ApplicationHandle.

FIXED: in the UML, the connection is expressed by a composition association; this is consistently represented also in the concrete data models realizations (e.g., for the XML, the ApplicationHandle is a child element of the ApplicationEnvironment element)

8. Storage:

We have a means to mention the storage reservation through the GLUE. Also it seems that most of the use cases are covered.

OPEN: can you send detailed information about the requirements for storage reservation and example use cases?

9. Appendix A: UNKNOWN data

Is there a particular reason to have multiple UNDEFINED types? Can't we just have UNDEFINED instead of UNDEFINEDVALUE, UNDEFINEDPATH, UNDEFINEDUSER, etc? Are we really buying anything having multiple UNDEFINED types?

UNCHANGED: the different UNDEFINED types are kept (see Paul Millar answer to the thread "Comments on GLUE Schema 2.0", <http://www.ogf.org/pipermail/glue-wg/2008-May/000683.html>)

10. It will be useful to sort Appendix B alphabetically.

UNCHANGED: at the moment, it follows the same order as they appear in the tables; we leave it open for the final version

Mattias Ellert,Nordugrid, 2008-05-15 14:45, re: GLUE 2.0 Specification - draft 41 - Working Group Last Call

11. Page 4: 'MUST' → "MUST"

FIXED

12. Page 4: fmultiple → multiple (or maybe multiples)

FIXED

13. Page 11: see Section 0 → see Section 6.2

FIXED

14. Page 13: In the table for the Policy entity, UserDomain.ID is marked <<abstract>> though it is not.

FIXED: all the association end belonging to a concrete class are now concrete, conversely, all the association end belonging to an abstract class, are considered abstract

15. Page 15: Application Environment Handle → Application Handle

FIXED

16. Page 16: single computing manager which execution environments → single computing manager whose execution environments

FIXED

17. Page 20: see Section 0 → see Section 5.6

FIXED

18. Page 21: The description for LogicalCPUDistribution doesn't make sense

FIXED: improved definition

19. General: OtherInfo attribute vs. Extension entity association. Do you need both? When to use which? You probably thought of this already.

FIXED: added more information about extensibility in section 3

20. General: Some of the tables lack the vertical dividers/edges.

FIXED: checked and corrected all the tables

Stephen Burke, 2008-05-13 19:06, re: GLUE 2.0 Specification - draft 41 - Working Group LastCall

21. One general comment is that I think most things could do with more detailed explanation; even I find it difficult to understand what some things mean, and I think someone new to this will get lost fairly quickly. Can we give some examples in the text?

OPEN: in general normative documents do not have examples, but I agree that we should add more descriptive text; during the public comment period, we will consider to add non-normative examples to the realization document or to a new document (e.g. GLUE 2.0 Primer)

22. Page 5, I think there is still some problem with the multiplicities, or perhaps with my understanding of what they mean ... for example I can see "1"s near Endpoint, Share and Resource, and yet all of them also have *s - so they are optional in some directions and mandatory in others?! (Formally I think they should all be optional.)

> when I instantiate the endpoint, what associations must be instantiated?

I can see that can make sense in some cases, e.g. if there is a ShareCapacity there must be a Share to attach it to. However, for the main entities that isn't the case, e.g. you can have a Share without a Resource or a Resource without a Share, so the relation can't be mandatory.

OPEN: in general, a share implies policy at least on an endpoint and on a resource, therefore, if you instantiate a share, you must instantiate at least one endpoint and one resource; the main entities are consistent to this vision,

nevertheless the computing and storage are not; to be verified during public comment period

23. All the definitions have a section labelled "Association End" - what does "End" mean there?

FIXED: explained in the Template section of the document

24. Entity: I'm not sure why the attributes are mandatory

FIXED: changed to optional

25. also they are missing in all the other entities even though they all inherit from Entity! In fact although the description says that everything inherits from Entity

OPEN: added a note in the document, will be done for the final version

26. Also I'd be inclined to add Name and OtherInfo to Entity - at the moment not everything has a Name but I don't think it does much harm to include it.

FIXED: for the moment, we prefer to keep only CreationTime and Validity which represent metadata about a class instance; in the future, we may consider this; and also consider the idea of having only ID to be added to the Entity (drop LocalID)

27. Extension: despite the statement at the start that everything must have an opaque ID Extension doesn't, the ID is the Key.

FIXED: clarified in the General Statements section

27bis. Extension does ***not*** inherit from Entity even though the text says that everything does. Actually Paul suggested that maybe Extension should inherit from Entity and there could be some logic to that - if you did that then you could have Extensions to Extensions so it would be possible to build a more complex extension structure.

FIXED: we clarified in the Entity definition that Extension does not inherit from it; at this stage, we prefer not allow Extension of Extension because we do not have clear requests while they lead to complex structures to be handled

28. among other things you might have multiple instances of the same Key. That relates to another question which is why is the Value multiplicity *? I would suggest it should be 1 but you could have multiple instances for the same Key.

FIXED: changed multiplicity of Value to 1, stated that Key is not meant to be unique in the key attribute description

29. Location: is missing OtherInfo, but it will get it automatically if it gets added to Entity

OPEN: postponed to public comment period

30. AdminDomain: I think Owner needs to be defined better.

OPEN, CHANGED: the definition was improved, but needs further modifications

31. UserDomain: similarly I think UserManager and Member need more explanation and/or examples.

OPEN: postponed to public comment period

31bis. UserManager should be an association and not an attribute. Also the structure gets more complicated, you will need a Service to attach the Endpoint(s) to ... I'd be interested to see what this would look like in practice. It's also worth remembering that there may be several VOMS endpoints for a given VO, maybe at different sites, used for failover

OPEN, UNCHANGED: the current UserManager references an EndpointID; we understand that the correct way to go is to model an association in the UML; we did not want to complicate the model with a "minor" association; let's postpone this during the public comment period

32. Also it's not clear if what's there can work - for example if UserManager is supposed to be a VOMS URL the scheme would just be https, so how can you tell that it's VOMS and not something else? Probably it would need some kind of Type attribute.

FIXED, UNCHANGED: the UserManager represents an ID of the Service; by resolving this ID to the Service instance, you get all the information about the Endpoint description

33. Service: it's not entirely obvious to me why Capability is mandatory.

OPEN, UNCHANGED: we want to enable the discovery of services based on conceptual capability; it is needed if you want to search for Grid capability regardless the middleware interface/implementation; it represents a different level of abstraction

34. Also I think the enumerated Type list in the appendix is inadequate

OPEN, UNCHANGED: the enumeration is open, the list of values is drafted from OGSA architecture document; it will be revised after experience

35. it's not really clear to me how this is supposed to work, given that every Service is supposed to have a unique Type (what about computing and storage services?!). Conversely many of the things which are listed (e.g. org.teragrid.gpfs) don't seem to represent things I would consider to be Services at all.

OPEN, UNCHANGED: to be revised during public comment period

36. Endpoint: again I wonder why Capability is mandatory.

OPEN, UNCHANGED: see 33.

37. And I don't understand why or how Type and Version are combined as a single Interface URI: at the very least this needs ***much*** more explanation since it's absolutely vital to using the endpoints! Basically I don't understand why we haven't kept the Type and Version as we have them in 1.3.

OPEN, UNCHANGED: we understand your point, the change in the WG Last Call version was made to address a different issue; this requires more discussion: postponed to public comment period

38. For QualityLevel, how do the Endpoint QLS relate to the one in the parent Service?

OPEN, UNCHANGED: at the moment, we did not define rules; to be addressed after experience

39. For StartTime, is this different to Entity.CreationTime which should be inherited?

FIXED, UNCHANGED: yes, it is; StartTime is the timestamp of last (re)start of the endpoint; CreationTime is a metadata about when a certain representation of a GLUE instance was created

40. I still think that TrustedCA belongs in AccessPolicy and not Endpoint - if we can't figure out how to fit it in there it probably means that we still don't have a good enough definition of the AP object. It is an access policy, i.e. it specifies who is allowed to access the endpoint/service. It's true that it's somewhat different in format to, say, a VOMS FQAN - but we want the Policy object to be generic, so it should be able to cope with that.

FIXED, UNCHANGED: The TrustedCA definition was improved as follows: Distinguished name of the trusted Certification Authority (CA), i.e., certificates issued by the CA are accepted for the authentication process; We consider it as an Endpoint property since it specifies what are the trusted sources of credentials to be considered for the authentication process; we think that they should not be mixed with the access policies; if you are strongly convinced that they should be part of the accessPolicy, then we can rediscuss this during the public comment period

41. And I still think the Downtime attributes should be in a separate object, to me it makes no sense to put them there - among other things, if the service is down the Endpoint will probably not be published so you won't be able to read the Downtime information;

FIXED, UNCHANGED: the downtime attributes are mainly meant to carry information about future unavailability of the Endpoint to be used for scheduling choices; you do not want to submit your job if the endpoint is going down in a few hours; for this kind of use case, we believe that is better to have the downtime info together with the endpoint; we also believe that the knowledge of the next scheduled downtime is enough;

42. Share: the Endpoint and Resource relations are marked as mandatory, which doesn't seem right since the objects are supposed to be optional

Sergio: that means, if you instantiate a share, then you must instantiate an association to an existing resource and an existing endpoint;

Stephen: I'm not sure what you mean by "existing". If you're saying that ***if*** the Endpoint and Share both exist then you should fill in the relations too then I guess that makes sense, but I think it should be clarified that that is the meaning. However, that doesn't seem to match what you have for other things, e.g. Service to Endpoint is marked as *, but the same argument would apply there, ***if*** Endpoint objects exist for a given Service then the relation from Service should be filled in, it isn't optional in that case

OPEN, UNCHANGED: they should be read as follows: consider Service(1)---(*)Endpoint; if you instantiate an Endpoint, then you **MUST** instantiate an association to a Service; if you instantiate a Service you **MAY** instantiate associations to one or more endpoints; when considering a class, always look at the other side of the association; on the consistency of the multiplicity, there is an open issue: see 22 above

43. Manager: I'm not sure why it needs a globally unique ID?

Sergio: about ID/LocalID probably we need more experience; apart a few cases, I don't know when to lean in one direction or in the other

Stephen: I think there are two cases: you need a unique ID when you have associations that span across services, or where some external service

like a catalogue may need to store the ID. For Manager, I'm not sure that either of those apply because you don't access the manager software directly.

OPEN, UNCHANGED: it is difficult and probably dangerous to make such a prediction, in my opinion (Sergio), I think that all the entities should have a global ID; let's leave it for the public comment

44. but in fact I don't see it - what is supposed to be the Glue 2 equivalent of the RTE?

FIXED, UNCHANGED: this was clarified a while ago in the specification document just below the table of the ApplicationEnvironment: *The Application Environment is suggested to be used also for describing application software or special environment setup in terms of a simple tag. In this case, the Name property should be used.*

45. And again the Resource relation is mandatory which can't be right since the Resource itself is optional. Resource: as above, the description and the relations say that Endpoints, Shares and Managers are mandatory, which doesn't seem right. And again I don't think it needs a global ID.

FIXED, CHANGED: it is like to say, "every person MUST have a residence"; if the person is not born, you do not assign an association to a residence, but as soon as it "appears", then you MUST assign a residence; if you represent a resource, then you MUST represent an association to its manager; we removed the mandatory share because you may have not defined a share yet

46. Also there is no accompanying text, which should at the very least say that it's an abstract entity.

FIXED, CHANGED: added text

47. Activity: it looks odd to have two identical lines for the Activity-Activity relation.

FIXED, UNCHANGED: also to me... but I wanted to be consistent; since you can navigate from one end to another, then from the class you see two ends; unless we put directionality in the navigation (only from one end you can go to the other), then we need both in order to be consistent with the UML semantics

48. Policy: I think we still have some problems with this ... for one thing I think the Rule has to have type "string", since we can't possibly specify all formats.

CHANGED, FIXED: the PolicyRule_t was defined as abstract type to be later specialized for each policy scheme (see section 17.4 of WG Last Call doc); we decided to rollback and remove this type; the type of Policy.Rule is now String; The value should be interpreted according to the value of the Policy.Scheme

49. And I'm not sure why the Rule is optional, shouldn't it be 1..*?

FIXED, CHANGED: changed to 1..*

50. Also I think we need to say something about the semantics in the case where you have multiple Policy objects, either with the same Scheme or with different Schemes

FIXED, CHANGED: we added more text in the policy section

51. Also the UserDomain relation should be * - the Rules may relate to several VOs, and conversely the UD object itself is optional.

FIXED, CHANGED: we made Policy-UserDomain as *-1..*; you can relate a policy instance to one or more UserDomain; a UserDomain may have zero or more policy instances; see description below the Policy table; this association is not going to be implemented, just present at the conceptual level

52. AccessPolicy: One basic point is that it seems to me that APs should be related to Service as well as Endpoint, otherwise service discovery will be a lot more complex and messy than it is now.

FIXED, UNCHANGED: in GLUE 2.0, in the simplest case, service discovery can be seen as endpoint discovery

53. MappingPolicy: I'm not clear if the concept of the Default mapping can actually work as stated. As mentioned above I don't think the relation to UD can be mandatory, it may well not be published, and while the Rules implicitly relate to a VO (or perhaps more than one) it may not be in any simple way, e.g. it may involve groups and roles. What exactly does it mean to say that there MUST be only one default MP per UD, in a way which is guaranteed to be meaningful for all possible policy Schemes, all technologies, all service types, ...?

CHANGED, OPEN: yes, you are right, at the moment there is no consistent definition of Default; we decided to remove the property and postpone the issue to the public comment period; we envision at least two options:

- a. Add to the policy rule syntax
- b. Add as a property of mappingPolicy; in this case we need to allow multiple policy instances with same scheme

54: Share: it's missing the relation to MappingPolicy, with the result that it's also missing for ComputingShare and StorageShare

FIXED, CHANGED: added in the tables

posting #2, 2008-05-15 16:05

55. for the Computing diagram, I'm unsure about the multiplicities. I can reasonably believe that you must have a Share and an EE, but I'm not entirely sure if the Endpoint should be mandatory at the schema level, e.g. would you ever want to publish something where you only had local submission?

FIXED, CHANGED: the computing endpoint is now optional for a computing service (see no. 4 above)

56. And it seems slightly strange that there is no direct relation from EE to Service, although it's the result of how the main entities are related - it will be interesting to see what this looks like in LDAP.

FIXED, UNCHANGED: the ExecutionEnvironment is "part of" an Computing Manager (composition association), therefore the execution environment is indirectly part of a service; no need for an explicit relationship; in ldap, the execution environment will be a child of computing manager which in turn will be a child of a computing service

57. so I don't understand why there is a relation from Benchmark and ApplicationEnvironment to ComputingManager, I would expect them to only relate to the EE.

FIXED, UNCHANGED: we wanted to be able to represent aggregated benchmarks per computing manager; cluster level benchmark

58. ComputingService: I think we should explicitly say what the constraints are on the *Jobs attributes, i.e. that Total is the sum of the others (I assume?) Also are these numbers supposed to include non-Grid jobs?

FIXED, CHANGED: improved the definition of the attribute; for the Computing Service, only Grid jobs are considered; for ComputingShare, we count also local jobs

59. In the table the relations to Endpoint and Share have multiplicity * but that doesn't correspond to the diagram (as above), i.e. it should be 1..*.

FIXED, CHANGED: fixed multiplicity in ComputingShare table

60. ComputingEndpoint: the description says that it may be used for things like reservation and proxy manipulation, but that seems a bit odd to me, e.g. the attributes (Staging and JobDescription) probably wouldn't be relevant for such things. Maybe this raises a more general point: can a ComputingService only be composed of ComputingEndpoints, or can it have generic Endpoints too?

FIXED, UNCHANGED: for simplicity, we redefine the computingService to be associated only to computingEndpoint; therefore, in case of proxy delegation endpoint, this will be called anyway computingEndpoint, but having a different capability than the one from the computing endpoint managing the execution of jobs; they are anyway computing endpoint because they are related to the management of computing activities (event though some service is ancillary); given the current modeling, a computing service cannot have a generic endpoint because the association end to endpoint.ID "is redefined" (therefore overrides) as association end to computingEndpoint.ID

61. ComputingShare: MaxMemory says that it's the maximum RAM, but is it in fact the total memory size whether RAM or swap?

FIXED, UNCHANGED: the definition states that it is the RAM

62. The Tag says that it's user-defined but it can presumably also be grid-defined. Anyway can this not just be OtherInfo?

FIXED, UNCHANGED: the definition says UserDomain-defined; this was added to support the tagging by class names of shares; for instance, atlas wants to tag some share as "premium" and some other as "besteffort"; then, they may write policies like "/atlas/prod can access premium shares"; this relates to the experience in the job priority WG and the future evolution in EGEE III; the attribute represents a generalization of this specific use case

63. Also the association says ComputingResource and not ExecutionEnvironment.

FIXED, CHANGED: corrected

64. ComputingManager: I think the Homogeneity attribute would be better to be called Homogeneous if it's a boolean, i.e. True means it is homogeneous.

OPEN, UNCHANGED: will be fixed during public comment period

65. Why is there a NetworkInfo attribute here, surely this is a property of the EE and not the LRMS?

OPEN, UNCHANGED: this is an optional attribute to be used in case of homogeneous

network connectivity within the cluster; to be discussed in public comment if it should be dropped

66. Is there a relation between TmpDir and the WorkingArea variables - and again, is this a property of the LRMS or the EE?

OPEN, UNCHANGED: TmpDir has no relation with the WorkingArea; the ScratchDir may be related to the WorkingArea; we need more input from JP on this; TmpDir is "the absolute path of a temporary directory local to an execution environment instance"

67. What is the difference between WorkingArea and Cache?

FIXED, UNCHANGED: the definition should be clear enough; if not, we can improve

68. Are the WorkingAreaTotal and Free supposed to be dynamic attributes? If so, what do they mean given that WN-local working areas could all have different sizes, and how could anyone write an info provider?

FIXED, CHANGED: yes, they are dynamic attributes; we have improved the definition to clear your doubt

69. Similarly for CacheTotal and CacheFree - presumably they are WN-local areas, so what does an LRMS-level value mean? (Basically I think the descriptions are not adequate here ...)

FIXED, CHANGED: added "shared" in the description; they are not WN-local areas

70. The WorkingAreaLifetime is presumably a minimum value, i.e. the files might stay longer.

FIXED, CHANGED: clarified definition

71. In the associations, the EE is marked as multiplicity 1..* but the description says "zero or more".

FIXED, CHANGED: changed to "one or more"

72. Benchmark: as above, I don't understand why it's related to the ComputingManager, it's a hardware property. There is no explanatory text for this object, I think there should be something.

OPEN, UNCHANGED: see 57 for motivation; the explanatory text will be added during public comment

73. EE: Seems to be missing the attributes inherited from Resource.

FIXED, CHANGED: added inherited properties section

74. The marking of a few properties (Platform, MainMemorySize, OSFamily and ConnectivityIn/Out) as mandatory seems rather arbitrary - I can see an argument for OSFamily to be important enough to be mandatory, but not the others.

FIXED, UNCHANGED: we consider them to be the really minimum information to be published

75. I think it could be made clearer exactly what is meant by an instance of an EE.

CHANGED, FIXED: we improved the definition of EE

76. The multiplicity for the association to ComputingManager is 1 which seems wrong given that ComputingManager itself is optional, at least according to the diagram.

FIXED, UNCHANGED: if you instantiate an execution environment, then this MUST be associated to a ComputingManager, therefore the presence of execution environments implies the presence of ComputingManager; conversely, you can not advertise both

77. ApplicationEnvironment: I think the Name attribute should be named something different, given that everywhere else Name just means a human-readable description with no semantics (which appears to be the definition of the Description attribute here).

OPEN, UNCHANGED: we'll try to find a better name during public comment

78. Also as someone pointed out we may need more information about the application, e.g. compiler options.

FIXED, UNCHANGED; see no.6 above

79. The explanation of Repository doesn't really enable me to understand what it means.

OPEN, UNCHANGED: we postpone to public comment period the addition of more text

80. Again the ComputingManager association is marked as mandatory when the object itself is optional, and as before I don't understand why this relation should exist at all since AE is a property of the EE and not the LRMS.

FIXED, UNCHANGED: thinking in LDAP, the ApplicationEnvironment is a child of ComputingManager; then, it can be related to zero or more ExecutionEnvironments; we want to avoid to replicate application environment info in all execEnv

81. ApplicationHandle: there is no explanatory text, and I think it needs some.

OPEN, UNCHANGED: we postpone to public comment period the addition of more text

82. ComputingActivity: is the Owner generally supposed to be a DN? If so I would suggest typing it as DN_t rather than String, and indicating anonymity with a Paul-style special DN like /O=Grid/CN=ANONYMOUS.

FIXED, UNCHANGED: we are not sure if it can be only DN, therefore we leave it is as string

83. UserMainMemory - again this says RAM but I suspect it means the total memory.

FIXED, UNCHANGED: we consider the main memory to be the RAM

84. ProxyExpirationTime: for VOMS proxies this is complex as every AC has its own expiration time as well as the one for the entire proxy. Should this be the smallest of all those times?

FIXED, CHANGED: improved description

85. For SubmissionHost, I don't understand why this would have a port, or indeed what the "e.g." part in the description means at all.

FIXED, CHANGED: removed part in brackets

86. The associations to Share and EE are marked as optional, shouldn't they be mandatory?

FIXED, UNCHANGED: they are optional because they may appear during the life of the job and not since the beginning of its life; potentially they cannot never appear if the job is killed when is in the Computing Endpoint layer

87. CS2SS: is missing any explanatory text.

OPEN, UNCHANGED: we postpone to public comment period the addition of more text

posting #3, 2008-05-15 17:47

88. OK ... on the diagram I again have doubts about the multiplicities: Share to Resource says 1..* at both ends but I think they should both be *.

FIXED, CHANGED: changed to *

89. Conversely, Service to AccessProtocol says * but I'm inclined to think it should be 1..*, an SE with no way to access the data wouldn't be very useful ...

OPEN, UNCHANGED: the AccessProtocol was added to list the available protocols to access data in case of SRM-based Storage service; what about a simple disk server with a GridFTP server? The latter would be published as a storageendpoint; do you expect to publish it also a s accessprotocol? In that case this would be redundant

90. As a general comment, the text uses the word "capacity" (or "capacities") in many places to mean something like "the ability to store data". I think this is a bad choice of word, partly because of possible confusion with the Capacity objects and partly because I don't think it's really the right word anyway.

OPEN, UNCHANGED: we postpone to public comment period

91. Also in some places the text uses "storage extent" to mean what seems to be something similar, and again I don't think "extent" is a very good word. However, I'm not entirely sure what to recommend as an alternative - perhaps "capability"?

OPEN, UNCHANGED: storage extent is an heavily used term in CIM; capability is not good because it is already used; to be evaluated during public comment

92. Service: four of the association descriptions use the word "offers", which I suspect isn't really the right word for most of them - for protocols it's OK, and maybe for Shares, but it doesn't really offer managers (they aren't externally visible) and it definitely doesn't offer Capacities, it just has them.

OPEN, CHANGED: we changed some of them, nevertheless they should be made consistent across all the entities; to be done during public comment period

93. SSCapacity: Here the word "capacity" appears in the description, so it seems that a Capacity object tells you the capacity of a capacity ... not very good!

FIXED, CHANGED: aligned with definition of storagesharecapacity

94. I think the *Size attributes need a more completed description, as this

always seems to confuse people. Indeed there is no general explanatory text for this object

OPEN, UNCHANGED: this is a task for the storage experts to be done during public comment

95. I think there should be come, e.g. to say that this is a whole-SE summary of the more detailed Share-level information.

FIXED, CHANGED: improved description

96. AP: The association to the SS2CS object (as shown in the diagram) is missing from the table. Again there is no explanatory text.

FIXED, CHANGED: added more text

97. Endpoint: are we expecting access protocol endpoints (e.g. for a classic SE) to be published as Endpoints or StorageEndpoints? There is no text to indicate what the endpoint is expected to be.

FIXED, CHANGED: also for this, we override the association to Endpoint, therefore only storageendpoint are possible; they should be used to expose any kind of endpoint contributing to the creation of the storage service; anyway, the access protocol was already envisioned by the definition

98. Share: the Path is marked as mandatory - maybe that's OK and you should publish "/" if there is no specific path, but if so I think it should say so explicitly. Indeed it needs to be clearer exactly what the semantics are here - this is a SURL prefix to be used when files are written, and cannot in general be reverse-engineered, i.e. given a SURL you can't reliably deduce which Share it's in.

OPEN, UNCHANGED: given the Paul appendix and the type of attribute (string), we should use UNKNOWN; we can rediscuss the type and improve the description during public comment

99. Tag: I think we need a better description here, something which would correspond to the space token description for an SRM while being generic enough to be applicable to other technologies.

OPEN, UNCHANGED: to be rediscussed during public comment period

100. In the associations of the storageShare, Endpoint and Resource are marked as mandatory when the objects are optional (and MappingPolicy is missing because it's missing from the main entities too).

FIXED, CHANGED: StorageShare: Endpoint and Resource association ends are made option according to the UML, MappingPolicy association was added,

101. I think the text description for Share is not very clear.

OPEN, UNCHANGED: to be improved during public comment period

102. ShareCapacity: the description says "size and state" but in fact it's only the size.

FIXED, CHANGED: changed state to usage

103. Again I think the attributes need a clearer description.

OPEN, UNCHANGED: see 94

104. The text below the table could also be clearer, at least my mental parser is currently throwing an error :)

FIXED, CHANGED: improved

105. Manager: Type seems a slightly strange name for the attribute, things like "enstore" and "castor" aren't really types. Actually this applies to ComuptingManager too although I didn't pick it up there, are "lsf" and "pbs" types? Also since both CM and SM have a Type attribute should it anyway be defined in the parent Manager entity? (ditto Version).

OPEN, UNCHANGED: to be rediscussed during public comment period

106. For the StorageResource association it says 1..* for the multiplicity but the text says "zero or more" - I think the text is right.

FIXED, CHANGED: aligned to the text

107. There is no explanatory text below the table, I think there should be some.

OPEN, UNCHANGED: to be improved during public comment period

108. StorageResource: as you might guess I'm still inclined to prefer DataStore! Since we have ExecutionEnvironment and not ComputingResource this is evidently not a hard naming rule ...

OPEN, UNCHANGED: to be improved during public comment period

109. the description says "one or more endpoints/shares", it should be "zero or more".

FIXED, CHANGED: corrected

110. The Latency description is wrong, in this case it's the actual latency and not the maximum (tape is Nearline here even if it's part of a D1T1 Share).

FIXED, CHANGED: changed max to actual

111. The Manager and Share associations say that they are mandatory, but I think the reality is a bit more complicated - you must have at least one of them otherwise the object will be completely detached, but logically either one of them could be missing - although possibly that would make a mess of the renderings.

FIXED, CHANGED: only the manager is now mandatory and the storage resource will be rendered as child of manager

112. There is no explanatory text, this definitely needs some given all the trouble it causes ...

OPEN, UNCHANGED: to be improved during public comment period

113: SS2CS: The AccessProtocol relation is marked as multiplicity 1, but I think it should be *. On one side you could have a "close SE" relation involving several protocols (e.g. rfio and file). On the other side you may want to have the network info regardless of protocol (e.g. for gridftp).

OPEN, UNCHANGED: to be improved during public comment period

114. Again there is no general explanatory text for this object.

OPEN, UNCHANGED: to be improved during public comment period

posting #4, 2008-05-15 18:59

115. Right, last lap on appendix B ... one general thing is that I think it should say at the start exactly what "open enumeration" and "closed enumeration" mean, and indeed what the mechanism is for adding to the open ones.

CHANGED, FIXED: added description of what open/closed enum means

116. Also it looks as though most, but not all, of the enumerated values are in lower case - is there any particular reason for that? It looks a bit odd in some cases, and doesn't match our current practice. Also in some cases, e.g. ExpirationMode_t, the values are defined elsewhere (e.g. the SRM spec) and have a definite case structure already.

FIXED, CHANGED: we decided to have all enumeration values lower-case because glue is case sensitive and we wanted to give a simple rule for people writing queries about case of enumerations. We specified this in the beginning of app. B; if some value has Upper case initial letter, that's MS Word who did automatically the change (it should be corrected)

117. Basic policy rule syntax: I think this still needs more work. I don't understand how the basic scheme can be just RECOMMENDED, surely if we define it it must be mandatory?

FIXED, CHANGED: changed to MUST

118. Also I still don't like the DENY in there, and if it is there I think the semantics needs to be defined much more explicitly. Indeed that's true in general, I don't think this is clear enough.

OPEN, UNCHANGED: to be improved during public comment period

119. It also doesn't mention wildcard matching rules, which we need at least in a simple form for EGEE.

OPEN, UNCHANGED: to be improved during public comment period

120. As more minor points we currently have VO: and VOMS: rather than vo: and fqan:, is there a good reason for changing the current practice?

FIXED, CHANGED: fqan is the prefix defined by EGEE-III AuthZ group; we dropped "vo:" since it is included in fqan

119. Also in the examples this is wrong in the EGEE practice, for example VOMS:/atlas would ***not*** match /atlas/higgs according to the EGEE-agreed matching rules. Should EGEE just ignore this and define its own scheme?

OPEN, UNCHANGED: this is to be aligned to EGEE rules during public comment period

120. Capability_t: I find this pretty hard to grasp, and if we are seriously intending to make it mandatory (which I still think is a mistake) there needs to be a lot of guidance to implementors on how to assign these in practice.

OPEN, UNCHANGED: (see 33) we agree that this needs to be reconsidered upon experience; the capabilities are extracted from this document:
<http://www.ogf.org/documents/GFD.80.pdf>

121. ServiceType_t: as I already said I think this list needs to be extended

at least to cover the cases we know about in EGEE, OSG and Nordugrid.

OPEN, UNCHANGED: this is to be refined during public comment upon experience

122. EndpointTechnology_t: What does "legacy" mean? What would e.g. http counts as? I would suggest having a value "custom" to mean a service-specific protocol (e.g. the old NS interface to the WMS). Describing (nearly) anything that isn't a web service as "legacy" seems a bit extreme :)

OPEN, UNCHANGED: to be improved during public comment period; it is an open enumeration, therefore is not a showstopper

123. DateTime_t: why restrict to GMT, is there any reason to disallow the generic format? A Grid operating in e.g. Japan might find that annoying

FIXED, UNCHANGED: we followed the TeraGrid practice

124. Staging_t: why is it an open enumeration when it seems to cover all possibilities?

FIXED, CHANGED: changed to closed

125. ApplicationHandle_t: the description for softenv seems to be copied from module.

FIXED, CHANGED: modified softenv description

126. OSName_t: for EGEE, after a long discussion we ended up with this for the current schema:

http://goc.grid.sinica.edu.tw/gocwiki/How_to_publish_the_OS_name

If you plan to change that be prepared for some disagreements!

OPEN, UNCHANGED: to be rediscussed during public comment period

127: License_t: why is this a closed enumeration? The values seem quite restrictive.

OPEN, UNCHANGED: to be rediscussed during public comment period

Paul Millar, 2008-05-15 23:26, re: GLUE 2.0 Specification - draft 41 - Working Group Last Call

when suggesting changes to text, I've used the following convention:

```
"[aa]" means delete "aa",
"/bb/" means add "bb",
"/bb/[aa]" means replace "aa" with "bb")
```

*** General comments (not page specific)

128. Top left corner of each page has "GWD-R, GWD-I or GWD-C"; this is not consistent throughout the document. Bottom left corner of each page (except title page) has what looks like an email address. This is not consistent throughout the document. Top right corner of each page (except title page) has a date. This is not consistent throughout the document (contents pages vs document main-body).

FIXED, CHANGED: it should be ok now thoughts sometimes word resets it

129. The RFC-2119 references (MAY, SHOULD, MUST, etc) are not typeset in a

uniform fashion. They're capitalised for most part but I believe there's the occasional usage in lower-case (Appendix A has them in lower-case). A search-and-replace should identify all such problems. Could RFC-2119 terms be typeset in a slightly smaller font? I find this helps a surprisingly when dealing with all-caps acronyms and phrases.

OPEN, UNCHANGED: will be done for final version

130. There are many places where "can" is used instead of an RFC-2119 term. Could you search for all instances of the word "can" and replace (almost) all of them with either "MAY" or "SHOULD"?

OPEN, UNCHANGED: will be done for final version

131. References are not handled consistently through the document: in some places they are cited using a square-brackets notation ("GLUE Schema 1.x [glue-1x]"), in other places URIs are placed in-line (e.g., "RFC 2119 (see <http://www.ietf.org/rfc/rfc2119.txt>)."). A consistent scheme should be used. My vote would be for square brackets.

OPEN, UNCHANGED: there is a recommendation in the OGF template about having URI's inline for some situation; to be rechecked for final version

132. The start of the References section doesn't appear in the Table of Contents.

FIXED: it is present now

133. The Appendices are currently referenced as additional numerical sections: Appendix A is Section 16, Appendix B is Section 17. In my experience, it is usual to have Appendices start as a separately "numbered" sections, where the enumeration is expressed in upper-case Alphabet (hence the "A" of Appendix A). Could the two Appendices be altered to follow this convention?

OPEN, UNCHANGED: will be done for final version

134. Could we have consistent typesetting of the entity names? The capitalisation tends to vary throughout the document: sometimes capitalised, sometimes lower-case (e.g., "UserDomain" vs "userDomain" vs "userdomain" vs "user domain"). It might help when reading the document if the entity names stood out more; for example, they were all in italics. However, this is a style issue, so it's just a mild suggestion.

OPEN, UNCHANGED: will be done for final version; we propose to use the same style as for the class entity name (i.e., *UserDomain* in your example + italics)

135. The phrase "this is an abstract entity not meant to be instantiated" is repeated for different abstract entities. This is imprecise: instances of this phrase should be updated so they say that abstract entity "SHOULD NOT be instantiated" or "MUST NOT be instantiated".

FIXED, CHANGED: corrected using MUST NOT

136. The OtherInfo property the word "example" should be plural ("examples"), perhaps a better phrase is "[...] are all examples of valid syntax".

FIXED, CHANGED: changed as suggested

137. There are several places where the document repeats information; for example on page 4 it is emphasised that ID is of type URI, where this is clearly stated in the Entity definition. Do we really need to labour this point? Could these statements be replaced by a single blanket statement (in General Comments, for example) that implementors must ensure that they follow the correct types for each entity property.

OPEN, UNCHANGED: will be done for final version

*** Page 1 (title page)

138. Could my association be changed to "DESY" (i.e., all caps) ?

FIXED, CHANGED: done

139. Some suggestions (feel free to ignore :)

"[...] described */using/[in]* natural language */and/* enriched with a graphical representation [...]"

"As a conceptual model, */it/[this]* is */designed to be/[meant to be]* */independent of the underlying information system/[implementation-independent].*"

"Rendering to concrete data models such as XML Schema, LDAP */Schema/*, and */SQL/[relational]* are provided in [a] separate document/s/."

See also changes within first para. of Introduction (page 4).

FIXED, CHANGED: some of the above suggestions were applied

posting #2, 2008-05-16 12:06, More comments on the draft spec.

140. To answer some questions, multiple passes through the info-system may be required. For example, see "Which sites have SEs which support the gsidcap protocol?" within Stephen's page, here:

http://egee-uir.web.cern.ch/egee-uir/production_pages/Advancedldapsearch.html

With LDAP, the object's RDN is often built from its ID or LocalID. So, fields derived from an object's RDN (such as GlueChunkKey and GlueForeignKey) will be dependent on LocalID (or ID).

I believe Glue currently makes no statement about how long LocalID or ID should remain constant for the same object: the persistence of the LocalID value. Although silly, I believe it would currently be acceptable to generate fresh random LocalIDs for each object every time data is published, provided all references were updated at the same time.

However, if one uses the RDN (for example, by following a GlueForeignKey value in a separate query), there is a tacit assumption that the RDN of the target object will not change (or, at least, that it is unlikely to change for the period between successive queries). This is only true if the ID or LocalID used to build the RDN doesn't change.

So, it seems we have a requirement for IDs or LocalIDs to be persistent over time. This should be stated somewhere, probably in section 3 (General Comments).

OPEN, CHANGED: we added more text in section 3; we need anyway more discussion

*** Page 12

141. "activity" is misspelt in the description of the Associate End for Share.LocalID

FIXED, CHANGED: corrected

*** Page 28

142. When providing a diagram representing the specialisation of entities (e.g., Fig. 3) the inherited associations are not shown. Could these be added somehow (e.g., within the Main Entities section)?

OPEN, UNCHANGED: they are represented in the table in the inherited association end; in the UML, when you subclass from an entity, you inherit the associations which are not required to be repeated unless you redefine them; we need probably to make explicit in the UML the redefinition of inherited associations (this can be done with UML 2.0)

143. Also, it isn't immediately clear that the entities in "Storage Entities" are the same as those in "Storage Entities - Inheritance". Could this identification be included in the diagram?

FIXED, CHANGED: we changed the name of the package "Storage Entities" to Storage Entities-Relationships so it should be clearer that represents a part of info other than inheritance

*** Page 30

144. It's a little unclear why we have both StorageAccessProtocol and StorageEndpoint since StorageEndpoint can represent access protocols.

The StorageAccessProtocol seems to be only of use when talking about the CE-SE-bind objects. If so, perhaps the description of StorageAccessProtocol could be updated to mention this.

OPEN, UNCHANGED: the storage access protocol was asked in order to list the types of access endpoints in case of SRM Storage Endpoint; since SRM will provide the details of URL for them, it was not considered useful to adopt the storage endpoint entity (e.g, you may have 10 gridftp endpoints, you just want to advertise that you are able to offer gridftp); see also 89; of course It could be evaluated to use StorageEndpoint for this purpose; in that case, the storageEndpoint could be a kind of meta-endpoint with URL equals to UNKNOWN or something else; move discussion to public comment

145. There's still the question why Capability is a required property of StorageEndpoint: this is an echo of my previous point about this, suggesting that it is optional in Endpoint or simply removed and added to a new subclass of Endpoint.

FIXED, CHANGED: see 120 above

*** Page 31

146. I feel we should mention in the description of StorageShare that it is: A UserDomain's view of [a utilization target for a set of StorageResources ...] This may not be obvious, especially as the UserDomain--StorageShare association is currently not shown on the Storage entities diagram (Fig.3) as it's inherited.

FIXED, UNCHANGED: it might not be correct, because the association to userdomain is given by the mapping policy; we have some explanation below the table; we could extend it if not enough complete

*** Page 33

147. StorageResource:

The Latency is the maximum latency under normal operating conditions, not the maximum under any circumstance.

OPEN, CHANGED: see 110

*** Page 4. (second half of Paul's first email)

148. The terms LDAP, XML Schema and "relational" (perhaps replaced by "SQL") are used without citing references for them.

OPEN, UNCHANGED: will be done for final version

149. On page 6. there is a reference to "an interoperability profile" without this term being defined. The closest to a definition is the last sentence of the first para of the introduction, which hints towards an interopt. profile.

The term "interoperability profile" should be defined somewhere and the introduction seems like a natural place. This could be an additional paragraph, appearing after the first.

OPEN, UNCHANGED: will be done for final version

General Statements

150. Instead of "The ID MUST be compliant with the syntax of a URI.", how about simply "All ID property values must be valid URIs".

FIXED, CHANGED: corrected

151. Assuming ID is moved to Entity, perhaps some of the content of the paragraph about ID and LocalID could be moved to the section in Main Entities, where the "Entity" entity is defined.

OPEN, UNCHANGED: the moving is not yet agreed, postponed for public comment (see 43)

152. The terms "URI" and "URN" are used without defining them. A simple citation of the relevant RFCs should be sufficient.

OPEN, CHANGED: added meaning of acronym, reference to be added

153. I believe SI is "Le Système International d'Unités", not "International System".

FIXED, CHANGED: corrected

154. ISO-2955 might be a more appropriate reference than Wikipedia, although the URI (from Wikipedia) is spectacularly ugly:

http://isotc.iso.org/livelink/livelink/fetch/2000/2122/138351/138352/4446951/1297176/1296842/4282436/ISO_2955-1983E_repr_of_SI_units_with_limited_char_sets.pdf?nodeid=4289384

I feel we should cite some reference for the binary SI prefix, but I'm not sure of the best source to reference.

OPEN, UNCHANGED: to be done in final version

155. Could we typeset exponent numbers in superscript?

FIXED, CHANGED: corrected

156. The "place-holder values" section is either Appendix A or Section 16, not "Appendix 16".

OPEN, UNCHANGED: to be done, similar comment above

157. I feel we should state whether implementors MUST or SHOULD follow the guidelines in Appendix A, rather than just introducing the Appendix.

FIXED, CHANGED: corrected

158. There's a throw-away comment about "attributes" and "properties" being synonyms. Could we simply replace all instances of "attribute" with "property" and remove this paragraph?

OPEN, UNCHANGED: will be done for final version

*** Page 5

159. The associations between Domain and Location, and Service and Location are described as "primary located at", this is perhaps better expressed as "primarily located at" or "has primary location".

OPEN, UNCHANGED: will be done for final version

*** Page 6

160. Do we really want to make CreationTime and Validity properties required?

FIXED, CHANGED: made optional

161. How about these changes to the descriptions:

CreationTime: "Timestamp /describing/ when the Entity [...]"

Validity: The duration after CreationTime that the information presented in the Entity MAY be considered relevant. After that period has elapsed, the information SHOULD NOT be considered relevant.

FIXED, CHANGED: corrected

162. CreationTime and Validity are not included in the inherited properties in the other entities.

OPEN, UNCHANGED: similar comment above, to be done during public comment version

163. Extension:

"A key,value pair enabling /the/[to] /association of/[associate] extra information /with/[to] /an Entity/[a class] instance [which is] not capture by the model"

FIXED, CHANGED: corrected

164. Location

Longitude: "The position of a place east or west of /the primary meridian (located in/ Greenwich, /UK/[England] /)/." We should also mention that -180 degrees is not a valid meridian of longitude (it's +180 degrees instead).

FIXED, CHANGED: corrected

*** Page 7

Contact:

165. URL property: this name seems wrong. The property is a URI, which is something the description seems to contradict itself over (URL, no URI,). Perhaps it should be given a more generic name, although I'm struggling to come up with something better than "transport".

FIXED, UNCHANGED: if we read the mentioned RFC, they talk about URL

Domain:

166. The description reads more like a description of a User-domain: AdminDomain objects (as a subclass of Domain) are not assigned Roles, so this description is wrong.

FIXED, UNCHANGED: this was discussed with the reference model WG; the adminDomain are assigned the role of managers of services

167. Perhaps the "WWW" property should really be something like "FurtherInfo".

FIXED, UNCHANGED: WWW is more expressive and people better get what to put there

168. The Type is URI, not URL, so could express something other than a web-page. For example, a grid might choose to express Domain further information using gopher, or by looking up the details through the French Minitel system, by querying some database service, or ...

FIXED, UNCHANGED: the type is about the syntax, and the syntax of URL should be the one of the URI; the semantics in the description states that it should be a URL

169. "This structure /MAY/[can be] represent[ed] /a/[via the] "participates in" association."

FIXED, CHANGED: corrected

UserDomain:

170. Description: "A collection of actors that /MAY/[can] be assigned [with] user roles and privileges to Service or Share entities via Policy entities."

FIXED, CHANGED: corrected

171. I'm not sure why is there a Level property; isn't this described by the UserDomain--UserDomain hierarchy?

FIXED, UNCHANGED: it is there to easily access the level in the hierarchy without resolving the association; also

*** Page 9

172. The para describing Virtual Organisations seems a little out of sequence. For example, "VO" is used before it's defined in the second sentence. The term is defined in the third sentence, rather than where "Virtual Organisation" is first used. Someone should spend a little bit of time tidying up that para.

The final para should be changed: "This structure /MAY/[can be] represent[ed] /a/[via the] "participates in" association."

OPEN, UNCHANGED: to be done in final version

Service:

173. Capacity property: this is the first time OGSA is used, but it isn't referenced.

FIXED, CHANGED: corrected

174. "StatusPage" should be "StatusInfo" (it isn't necessarily a page). The description says it's a web page. It might not be: it could be via RFC-742 (finger protocol), automated/recorded phone message.

OPEN, UNCHANGED: to be done in final version

*** Page 10

175. Comma missing after "e.g." in the "The simplest Service [...]" sentence. And the final sentence is imprecise: "Endpoints, Shares, Managers and Resources /MUST/[can] belong to /precisely/[only] one Service."

FIXED, CHANGED: corrected

Endpoint:

176. The name "URL" for the property doesn't seem correct: the type is URI and the endpoint might not be a URL. How about something like Target, Contact or just "URI"?

WSDL: the description says this is a URL. The Type is URI so the value might not be a URL.

FIXED, UNCHANGED: see 168 for URI type; about changing name, not confident about changing the name of URL attribute; you can embed legacy contact info in URL (also we need real examples that invalidate the name)

177. SupportProfile The description is useless: it doesn't specify what this is in any way.

OPEN, UNCHANGED: will do during public comment period

178. ImplementationVersion. The description mentions the three-number representation (major-version.minor-version.patch-level) without specifying whether information MAY, SHOULD or MUST use this form.

FIXED, CHANGED: corrected

*** Page 11

179. DowntimeStart description: "The [starting] timestamp /describing when/ [of] the next [scheduled] downtime /is scheduled to start/"

(likewise for DowntimeEnd)

FIXED, CHANGED: corrected

180. For the JMS example, the phrase "Java Messaging Service" should be capitalised.

FIXED, CHANGED: corrected

*** Page 13

182. Policy: Neither the Scheme or Rule properties appear to be particularly well defined.

OPEN, UNCHANGED: will correct during public comment

[skipping onto Appendices]

Appendix A:

183. Various RFCs are mentioned without including references. Could the URI for RFC-2119 be adapted for these other references?

OPEN, UNCHANGED: to be done during public comment version

184. Some of the examples appear to be converted to external links within the document; for example, the "www.example.org" example (16.2.1 "Fully qualified domain name") appears in blue text with an underline. Could these be converted back to plain text?

FIXED, CHANGED: corrected

185. There's many references to "unknown value" or similar. I feel these should all be changed to "place-holder value". I've tried to note where they occur, but searching should find them all.

OPEN, UNCHANGED: will correct during public comment

186. The RFC-2119 terms (MAY, SHOULD, etc) are all lower-case

OPEN, UNCHANGED: will correct during public comment

*** Page 39

187. The first place-holder values should be "Simple strings". This is currently body-text rather than Section 16.2.1

FIXED, UNCHANGED: corrected

*** Page 40

FQDN:

188. Could you update the indentation used for the examples? It appears to be inconsistent with the others.

FIXED, CHANGED: corrected

*** Page 41

Integers:

189. "For these reasons, information providers MUST use all-nines to indicate /a place-holder/[an unknown] value."

File path:

Software should accept either value as /a/[an unknown-value]
place-holder /value/."

FIXED, CHANGED: corrected

*** Page 42

URI:

190. "Take care with the URI encoding. All /place-holder/[unknown] URI values
MUST
be [...]"

"For "mailto" URIs [...] /Place-holder/[Unknown] mailto /URI values/[URIs]
MUST use [...]"

FIXED, CHANGED: corrected

*** Page 43

FQAN:

191. "Where VO is well-formed /FQDN/[DNS name]. Unlike /FQDNs/[DNS names], VO
names must be lower-case. The [unknown] place-holder value for DQAN is
derived from the /place-holder/[unknown] /FQDN/[DNS name] (see /section
16.2.x/[above])."

Geographical location:

"(0,0) MUST be used to specify /a place-holder/[an unknown] location"

FIXED, CHANGED: corrected

Appendix B

*** Page 47.

192. Should be "UTC" rather than "GMT".

FIXED, CHANGED: corrected

193. Should the OSName_t have entries like "windowsxp", should this be just "xp"
as the Windows part is already spoken for in the OSFamily_t

OPEN, UNCHANGED: to be revised (similar comment above)

194. Could the xrootd protocol be added to StorageAccessProtol_t.

OPEN, UNCHANGED: will correct during public comment

195. AccessLatency_t

The descriptions seem wrong to me as they use technologies rather than
describing the latency.

Here's my attempt:

online: files with online latency are available for user activity with a low
latency. The precise definition of "low" may be system-specific, but will

typically be much less ten seconds.

nearline: files with nearline latency will have typically latencies greater than those of online files and are typically satisfied without human intervention. Average latency for a requested files will be implementation-specific and may depend on the available hardware, but a typical value is in excess of a minute. Storage systems may undertake optimisations so that, under special circumstances, nearline latency may approach that of online latency.

offline: storage that requires manual, human intervention to retrieve the data. Typical latency will depend on SLA, but typical values may exceed a day.

OPEN, UNCHANGED: will correct during public comment