

Service Descriptor Syntax

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Akihiro Shimura

CANON INC.

Background

Current Draft (PPDT_r04.pdf as of July 6, 1999) specifies the SERVICE_DIRECTORY control operation in the section "8.3 Service discovery". The response for the SERVICE_DIRECTORY request is a list of service descriptors ("SERVICE_ID" parameters).

The essential role of the SERVICE_ID parameter will be as follows;

- a) Inform the type (name), attributes and/or other information that describes and qualifies the service.
(This part will be independent of the underlying transport, and will solely describe the nature of the service.)
- b) Inform transport specific access information (location or *destination identifier*) that is required to access a particular service selected by a).

Current draft is unifying these two roles into single common SERVICE_ID string that is a registered service name string under an authorized global name space.

As for the role "a)" (i.e., transport independent part of the service description), the use of simple service name string registered with a naming authority will make the information that would be advertised by the service very restrictive. There already exist several descriptor formats that enable to describe the name with its naming authority. The service name registered with different naming authority can not be supported if the authority itself is restricted.

For example, the "service" URI scheme syntax (<ftp://ftp.isi.edu/in-notes/rfc2609.txt>) defines service-type ["." naming-auth] notation to represent naming authority, and "urn" URI scheme syntax (<ftp://ftp.isi.edu/in-notes/rfc2141.txt>) defines <NID> ":" <NSS> notation, where <NID> is the Namespace Identifier, and <NSS> is the Namespace Specific String.

Furthermore, regarding the role "a)", it will be highly preferable to provide the way to flexibly describe whatever information the service wishes to advertise. Otherwise, if very poor descriptor format is employed, it will enforce yet another discovery over the service discovered by the SERVICE_DIRECTORY discovery.

As for the role b) (i.e., transport specific access information), employing the globally registered service name as a *destination identifier* will make the application of the transport very restrictive. Or otherwise, the global name space will be exhausted.

Introducing new parameter “DEST_ID” for the role b) will solve the problems as I described in the document “<ftp://ftp.pwg.org/pub/pwg/p1394/mtg081699/DestId0799.pdf>”. (Please refer the document for more details.)

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The service descriptor needs to describe a) and b) in pair to a particular service to be accessed.

Though it will be possible to invent something new, I think we should avoid re-inventing yet another variant for this purpose, if there already exist well-defined ones.

The transport independent part a) will neither be printing specific nor be PPDT/SBP-2/1394 specific, and the syntax broadly employable will be preferred.

Thus, I would like to propose to examine the “Uniform Resource Identifier” syntax for the service descriptor as a start point. The “Uniform Resource Identifier (URI)” syntax is specified in RFC2396 (<ftp://ftp.isi.edu/in-notes/rfc2396.txt>). The URI syntax is already widely used in the Internet. It also defines escape character/sequence that is useful when representing string is originally encoded in different character set.

In general, absolute URI are written as follows:

<scheme>:<scheme-specific-part>

The *scheme* (e.g., “http”, “ftp”, ...) is registered with IANA. Because the transport independent part of the information depends on the requirement from the service, the transport specification should not restrict the use of schemes to a particular scheme as far as the scheme is providing a method to describe a) and b) in pair. The service description will be extensible by defining a new scheme.

For example, the “service” scheme in the “Service Location Protocol Version 2” (<ftp://ftp.isi.edu/in-notes/rfc2608.txt>, <ftp://ftp.isi.edu/in-notes/rfc2609.txt>) provides such a method.

Note: The “service:” scheme supports to describe naming authority other than IANA by dot “.” notation.

By using this scheme, the issue to “*differentiate different registration authorities*” will be resolved.

The “urn:” scheme (<ftp://ftp.isi.edu/in-notes/rfc2141.txt>) also supports “different authorities”, but it only describes service name along with a naming authority and will not be able to used if the location

need to be rendered from the description.

The transport specific part b), that is usually called “address specification”, need to be specified explicitly by the transport specification. This part will consist of the “DEST_ID”. The complete address beginning with the node_id (or EUI-64) is not necessary because the SERVICE_ID retrieval is done in passive way and requester already has knowledge of the fetch agent location.

As a result, the specification for the service descriptor will become as follows;

The SERVICE_ID parameter shall conform to the absolute URI syntax specified in RFC2396.

The SERVICE_ID parameter (URI) shall contain a “DEST_ID” information as an address specification.

The syntax of the “DEST_ID” shall be a form of “1*DIGIT” where DIGIT = “0”/“1”/“2”/“3”/“4”/“5”/“6”/“7”/“8”/“9”.