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Development of "ARChive system for Cross-reference Across Distributed Environment (ARCADE)" Based on Shibboleth

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In the fields of Earth and space sciences, large amount of experimental and observation data have been generated day by day. It is quite important not only for researchers in the field but also for general researchers in the other fields to cross-refer and make comprehensive analysis using various kinds of data obtained by many observatories and institutes in order to clarify the global picture of the environment. Under this background, it has been pointed out that we have to construct database systems properly, and establish a procedure with which scientists can easily cross-refer these data across organizational boundaries. Especially in the fields of Earth and space sciences, most researchers carry out their research belonging to scientific projects organized by several laboratories and/or research groups. It is quite difficult to define data access policy to their contents simply as fully open access or subscribers only. That is to say, there are many kinds of data access policy depending on the data.

The purpose of this research is to develop a data managing system by which data owner can easily open their own data to the appropriate users across organizational boundaries.

In this research, we introduced Shibboleth, which is an open source software based on SAML2.0 protocol for single sign-on across or within organizational boundaries. By using Shibboleth, we developed an application system named ARChive system for Cross-reference Across Distributed Environment (ARCADE). ARCADE is implemented by Java language. It makes possible to share, upload and download data files among closed communities. We also implemented GUI in ARCADE so that any user can utilize the system just using drag-and-drop action.

In the presentation, we introduce the mechanism of ARCADE with demonstration.

Keywords: Cross-reference, Shibboleth, Authentication, Authorization, Attribute, Global environment measurements