Federations are being seen as new and catalytic in the corporate sector, but they have been part of the modus operandi of higher education for years. Shibboleth, for example, has been a subject of interest in the academic community for years. Shibboleth and associated directory infrastructures provide an immediate infrastructure for DRM to scaffold on a superstructure. Shibboleth represents two interrelated efforts: (1) the development of a set of preapproved requests. Whether such a “killer app” can be built between institutions, with data provided by each campus local system but moved securely and privately in interrealm exchanges. Even the K-12 curriculum could be served. If an elementary school’s mascot is a cougar, students could frame questions such as: Do more schools in the West have cougars as their mascot than in other regions? Does the mascot apply more often to rural schools? Do more elementary schools than middle or high schools have a cougar as their mascot? Can we see other schools’ cougar mascots? Each of these queries could be answered with simple network-based information tools that can harvest data from other schools. The opportunity to train students on how to perform complex searches across networked spaces seems useful.

Virtual organizations, such as many of the planned computing grids and the National Virtual Observatory, can significantly reduce their difficulties in implementation by leveraging the federated services. Researchers can use their local institutional credentials and information in the virtual organizational context. Local resources being provided by a researcher can integrate both campus and organization rules for use. Collaborative tools such as Shibboleth and list processors, can be made to operate within national organizations as they work within this campus. It should be noted that such a future can present real challenges. For example, can we rethink our “workflows” to take advantage of such tools? How difficult will it be for users to manage privacy? The design targets have been systems that permit interested users unlimited freedom to control the release of information about themselves but that also permit the setting of broad defaults so that users are not besieged with the most common or preapproved requests. Whether such a balance can be found in the real world will be a critical factor in the success of such systems. Shibboleth is also part of an evolving middleware architecture, and its components can benefit non-Web-based applications as well. For example, desktop video has often been cited as the next “killer app” but it has suffered from a variety of technical challenges, notably the lack of plumbed middleware. We want desktop clients that will work with the open standards that allow clients that announce and control incoming video calls. We want clients that allow institutions to authorize how much bandwidth a user is permitted to consume. Elements of the Shibboleth architecture can be repositioned to be used to ensure such capabilities.

Federations such as Shibboleth can also be leveraged within the curriculum itself. Spreadsheets can be built between institutions, with data provided by each campus local system but moved securely and privately in interrealm exchanges. Even the K-12 curriculum could be served. If an elementary school’s mascot is a cougar, students could frame questions such as: Do more schools in the West have cougars as their mascot than in other regions? Does the mascot apply more often to rural schools? Do more elementary schools than middle or high schools have a cougar as their mascot? Can we see other schools’ cougar mascots? Each of these queries could be answered with simple network-based information tools that can harvest data from other schools. The opportunity to train students on how to perform complex searches across networked spaces seems useful.

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