

From: Kjetil Kjernsmo kjetil@inrupt.com
Subject: Position paper for graph data workshop
Date: 11 January 2019 at 23:54
To: group-data-ws-pc@w3.org
Cc: Mitzi László mitzil@inrupt.com



Hi!

Please find my position paper on Solid:

The Solid project builds on the Linked Data Platform specification, and adds Web Access Control and identity, currently in the form of access control lists with modes Append, Write, Read and Control. Users of Solid will have a Pod, i.e. a personal space they control to store or stream data. The current Solid server implementation is engineered for decentralisation under the “square root of number of humans” assumption, i.e. there will exist ~100 000 Pod providers that host ~100 000 Pods each, but obviously with great variations, and other implementations will be engineered with very different assumptions.

The ability to execute queries within a Pod is a priority that will be added soon and currently simple to do as data exists in plain text on the server side, and is only encrypted while in transit using TLS. There is demand for a Pod provider implementation where data is encrypted while at rest and can never be found in clear text between storage and the authorized user. Given that Web Access Control enables sharing data with many parties with good granularity, ensuring confidentiality is much more complex than when data may simply be accessed by a small number of parties that can operate with a set of shared keys. This creates interesting problems both for within-Pod queries (that may operate on encrypted data without needing to have a clear text message), and federated queries across many Pod providers.

Relatively simple applications, such a system to support comments on media resources, create practical graph traversal problems, given that the participating users should have an option as to where they store their media and comments. If the users elect to store comments and media separately, the commenter may use notifications to alert the media owner of comments, and/or the media owner may subscribe to them, but may use a query system to filter only noteworthy comments, and cache them for performance. With this, recent specifications such as WebSub become relevant for working with graph data.

--

Kjetil Kjernsmo
Senior developer, Inrupt Inc
Project Release Manager, Solid Project