TAO: How Facebook Serves the Social Graph

Venkat Venkataramani
Facebook
veeve@fb.com

ABSTRACT

Over 800 million people around the world share their social interactions with friends on Facebook, providing a rich body of information referred to as the social graph. In this talk, I describe how we model and serve this graph. Our model uses typed nodes (fbobjects) and edges (associations) to express the relationships and actions that happen on Facebook. We access the graph via a simple API that provides queries over the set of same-typed associations leaving an object. We have found this API to be both sufficiently expressive and amenable to a scalable implementation. In the last segment of the talk I describe the design of TAO, our graph data store. TAO is a distributed implementation of the fbobject and association API that has been serving production traffic at Facebook for more than 2 years.

Categories and Subject Descriptors

H.2.4 [**Database Management**]: Systems – Distributed databases; H.2.1 [**Database Management**]: Logical Design - Data models

General Terms

Design, Performance, Reliability

Keywords

Distributed systems, Facebook, Social graph, TAO

Bio

Venkat Venkataramani is an Engineering Director at Facebook. He is responsible for Cache and Storage Infrastructure, which stores and serves almost all of Facebook's user data. Prior to joining Facebook he worked on the Database Manageability Team at Oracle. Venkat received his MS in Computer Science from University of Wisconsin-Madison in 2002.

Additional Authors

Zach Amsden (zamsden@fb.com),
Nathan Bronson (ngbronson@fb.com),
George Cabrera (gc3@fb.com),
Prasad Chakka (pchakka@fb.com),
Peter Dimov (pdimov@fb.com),
Hui Ding (huiyding@fb.com),
Jack Ferris (jferris@fb.com),
Anthony Giardullo (agiardullo@fb.com),
Jeremy Hoon (jhoon@fb.com),
Sachin Kulkarni (skulkarni@fb.com),
Nathan Lawrence (nathan@fb.com),
Mark Marchukov (march@fb.com),
Dmitri Petrov (dmitri@fb.com), and
Lovro Puzar (lovro@fb.com)

SIGMOD '12, May 20–24, 2012, Scottsdale, Arizona, USA.
ACM 978-1-4503-1247-9/12/05.