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Facebook Tao

Distributed Data Store for the Social Graph

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Introduction

What is TAO?

Tao

is a geographically distribute store

- deployed at Facebook
- with efficient and timely access to social graph
- using a fixed set of query
- replacing memcache
- running on thousands of machines
- provide access to many PB of data
- process a billion reads ad millions of writes each second!

The social graph

Facebook has more than 1 billion active user

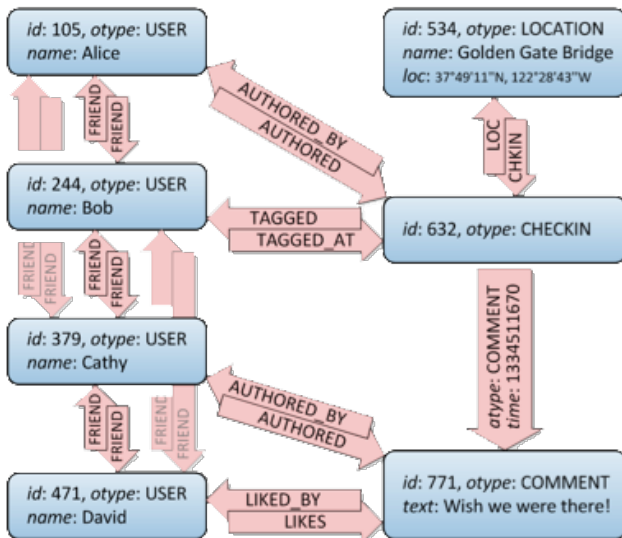
- recording relationships,
- sharing interests,
- uploading pictures and ...

The user experience of Fb comes from rapid, efficient and scalable access to the *social graph*

What's behind an entry in yours Fb page?



A single Fb page aggregate and filter hundreds of items from the social graph.



Before Tao

- Facebook was storing the social graph to MySQL
 - Querying it from PHP
 - Storing result in memcache

Over time Fb deprecated direct access to MySQL in favor of a graph (associations, nodes) abstraction

Limits

- Operations on lists are inefficient in memcache (update whole list)
- Complexity on clients managing cache
- Hard to offer read-after-write consistency

Also they want to access social graph from non-PHP services

TAO's Goals

- **Efficiency at Scale**
- Low read latency
- Timeliness of writes
- High read availability

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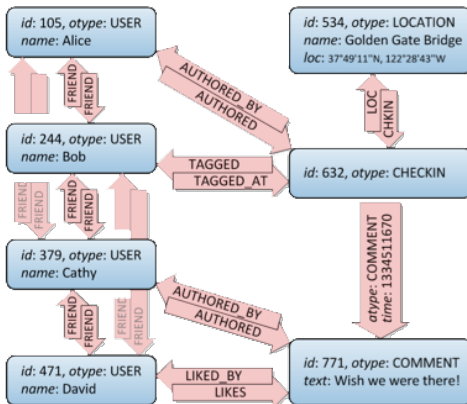
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Tao Data Model

T.A.O. stands for “The Associations and Objects”



Objects

- Typed nodes (type is denoted by `otype`)
- Identified by 64-bit integers. (unique)
- Contains data in the form of key-value pairs.
- Models users and repeatable actions (eg comments).

Associations

title

title

title