

Project 2

eBay Search Service

Isabel Giang and Maxwell Wenger

CSS490 Group Y4

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1 Overview

1.1 Problem Statement

In the last few months, eBay users have reported increasingly slow response times from eBay's website when searching for auctions. Application log analysis for the eBay Master Service has confirmed that our FindAuctions API for the eBay Master service takes significantly longer to return a response when we search for auctions using keywords. It also takes longer to search for a large number of auctions.

This is negatively impacting eBay's user experience for existing users and is hindering the website's chances of being adopted by new users.

Performing further analysis on the eBay Master service schema shows that the FindAuctions API must scan the entire table to first find active auctions. Then it must scan those active auctions to find auctions that have titles with the keywords we are looking for.

To partially address this problem, we have added an AuctionStatus index to the Auction table so we can immediately access all active auctions instead of search for all auctions every time we query with keywords.

This speeds up the FindAuctions API enough to fix the poor user experience temporarily, but this will not be enough as the company grows. The number of records in the Auction table, and subsequently, the number of active auctions will increase at an exponential rate.

1.2 Solution

To solve this, we want to create a separate search service that will handle searching for auctions by keyword and/or category.

2 eBay Search Service API Specification

3 eBay Search Service Intervals

4 Changes to eBay Master Service

5 Appendix

5.1 ebay Master Service API Specification

This section defines and explains the eBay Master Service API.

5.2 API List

External synchronous, point-to-point API calls.

1. CreateSeller - Creates a new seller in the system.

2. GetSeller - Get the Seller information for a user given a session key
3. CreateAuction - Allow a Seller to create a new auction
4. GetAuction - Get information about a specific auction
5. UpdateAuction - Update an existing auction
6. GetCategories - Get sub-categories from a node in the eBay category tree
7. FindOpenAuctions - Find auctions that match some search criteria
8. CreateBid - Allow a bidder to place a bid on an auction
9. GetWinningBidders - Get winning bidder information for some range of time
10. CreateReview - Allow the winning bidder to write a review
11. GetBidHistory - Get bid history for an auction

5.3 API Definitions

5.3.1 CreateSeller

5.3.2 GetSeller

5.3.3 UpdateSeller

5.3.4 CreateAuction

5.3.5 GetAuction

5.3.6 UpdateAuction

5.3.7 GetCategories

5.3.8 GetSessionKey

5.3.9 FindOpenAuctions

5.3.10 CreateBid

5.3.11 GetWinningBidders

5.3.12 CreateReview

5.3.13 GetBidHistory

5.4 eBay Master Service Schema