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# **Oracle TimesTen use within Bank of America Merrill Lynch GCCIBT**

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## My Organization: GCCIBT

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- GCCIBT supports initiative delivery, maintenance and production support for Global Products Solutions and Global Corporate and Commercial Banking Center Client Services
- GCCIBT has approximately 5,500 associates and contractors
- Application and product development initiatives total about \$300 million in 2009
- GCCIBT provides around-the-clock coverage for a global sales force in over 30 countries and 6 continents
- Risk Management coordinates first line of defense activities which provides business continuity for more than 40,000 associates and contractors as well as information protection for 3,000+ applications across GBMWM T&O

### **There are two main users of TimesTen in GCCIBT: GPBS and Navigator.**

**GPBS** (GCIB Party Business Services) provides client information to 10 major applications across the bank. The client-search service is called on average 40k times/day. Associate search, ~17k times/day.

**Navigator** is the next-generation, portal-based CRMS application that is being rolled out to the organization, replacing existing internally-developed applications within legacy Merrill Lynch and Bank of America. It will have a user-base that exceeds 10k.

In both cases, performance is key to our adoption of TimesTen. Because of the complexity of some of the queries, and the frequency of their use, we could not meet many of our SLAs without some type of caching strategy.



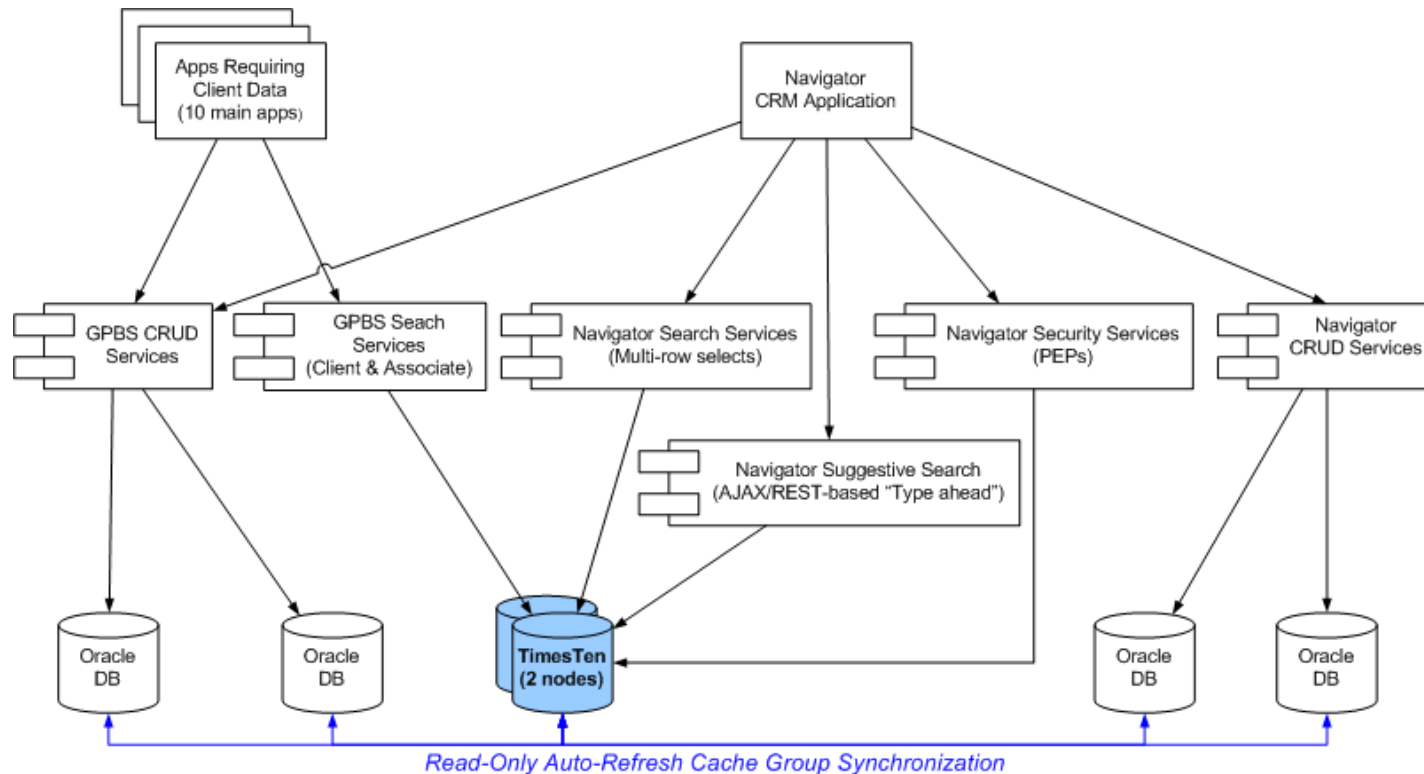
## Challenges & Requirements

Implementation of a caching strategy for both GPBS and Navigator had a number of requirements and challenges:

- Had to work well with Oracle DB.
- Had to be able to bypass caching and not bring down the application. In other words, needed to provide a performance boost to our apps, but not be considered a critical system.
- For GPBS we had to increase client and associate search performance to meet our SLAs and accommodate the load that our user base was expected to put on it.
- For Navigator, we knew that our “suggestive search” and security services would be too slow without some sort caching. Additionally even with optimal tuning, the complexity of many of our multi-row select queries would not allow us to meet our SLAs.

# TimesTen Functionality Used

TimesTen is now being used for multi-row selects against selected databases and tables in our data model. CRUD operations and single-row selects go to Oracle. We use read-only, auto-refresh cache groups almost exclusively (with two independent nodes). Additionally we have one dynamic write-through cache group. We are using the direct driver (not client/server).





## Performance Gains

Performance gains using TimesTen were not uniform across the board. Depending on the query we could see greater than a 20x improvement, or in some cases little or none at all.

Our experience with GPBS has shown that if both the Oracle and TimesTen queries are fully optimized (with all the requisite indices) the performance gains for using TimesTen are 2-3 times (just returning ids for example). The performance gains seem to be greater the more data that you return in the query because of the faster IO. The GPBS queries are fairly simple, without a large number of joins.

Our Navigator experience is a bit different as most of the queries for which we are using TimesTen have a large number of joins (15-20 in some cases). This seems to lend itself to an even greater increase of performance than GPBS experienced.



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