

# Reading Report: Terry13

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The length of the report must not exceed **5 pages**.

## 1 Content

### 1.1 *Identify the genre<sup>1</sup> of the document, its purpose, and its target audience.*

The document is an article. Its purpose is to spread knowledge about the different types of consistency that exist for a distributed system. Its target audience is junior developers or other IT related beginner that want some start knowledge about this topic but that do not want to be overflowed with information.

### 1.2 *Summarize the document, indicating the key concepts<sup>2</sup>.*

The consistency models that have been researched in the past 30 years lie between strong consistency and eventual consistency, although there are some models even weaker than the eventual consistency. There are such a variety of consistency models as there are trade-offs between consistency, performance and availability (Proven in the CAP theorem).

Read Consistency Guarantees:

Consistency ratings are based on the strength of the consistency guarantee as previously defined. Performance refers to the time it takes to complete a read operation, that is, the read latency. Availability is the likelihood of a read operation successfully returning suitably consistent data in the presence of server failures.

- Strong Consistency:

Guarantees a read operation returns the value that was last written for a given object. A read observes the effects of all previously completed writes.

Consistency: Excellent

Performance: Poor

Availability: Poor

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<sup>1</sup>Genres: book, article, essay, report, review, manual, white paper, data sheet, weblog, etc.

<sup>2</sup>The summary should help you to answer the questions about the reading in the exam.

- Eventual Consistency:

It allows the greatest set of possible results. For whole-object writes it can return any value for the data object that was written in the past. A read can return results from a replica that has received an arbitrary subset of the writes. So "eventually" all replicas will have the same information thus the read will get the last information.

Consistency: Poor

Performance: Excellent

Availability: Excellent

- Consistent Prefix:

Returns an ordered sequence of writes starting with the first write to a data store. The reader sees a version of the data store that existed at the master at some time in the past. The main benefit of requesting a consistent prefix arises when reading multiple data objects or when write operations incrementally update an object.

Consistency: Okay

Performance: Good

Availability: Excellent

- Bounded Reads:

Ensures read results are not too out of date given a T period. The storage system guarantees a read operation will return any values written more than T minutes ago or more recently written values. Alternative, some systems have defined staleness in terms of the number of missing writes or even the amount of inaccuracy in a data value.

Consistency: Good

Performance: Okay

Availability: Poor

- Monotonic Reads:

It is called a "session guarantee." With monotonic reads, a client can read arbitrarily stale data, as with eventual consistency, but is guaranteed to observe a data store that is increasingly up to date over time.

Consistency: Okay

Performance: Good

Availability: Good

- Read My Writes:

It guarantees the effects of all writes that were performed by the client are visible to the client's subsequent reads. For clients that have issued no writes, the guarantee is the same as eventual consistency.

Consistency: Okay

Performance: Okay

Availability: Okay

These last four read guarantees are all a form of eventual consistency but stronger than the eventual consistency model that is typically provided in cloud storage systems. Smaller sets of possible read results indicate stronger consistency.

## 2 Assessment

### *2.1 Rate the readability of the document: easy, readable, difficult, unreadable.*

I would rate this assignment with a readable level, as although the author tries to make the load of information more entertained it is still quite long and I find the baseball example too extensive.

### *2.2 Give your opinion of the reading assignment, indicating whether it should be included in next year's course or not.*

I think this reading assignment should be included in next years course as I've found it a really interesting peak in the Consistency mechanisms.