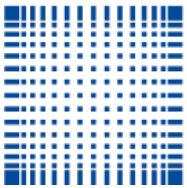

hochschule mannheim

Understanding Eventual Consistency

MSI Presentation SS2014

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Hochschule Mannheim

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Introduction

„...the storage system guarantees that if no new updates are made to the object, eventually all accesses will return the last updated valuee“
–W. Vogels (2009)

„Zweites Zitat über Ev. Consistency “

The Problem

- The definitions are ambiguous
- Most big players claim to implement it
- Implementations can't be be compared. . . scientifically

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- Two examples: Int Register **intreg**, Counter **ctr**

$$\mathrm{Op}_{\mathrm{ctr}} = \{\mathrm{rd}, \mathrm{inc}\}$$
$$\mathrm{Op}_{\mathrm{intreg}} = \{\mathrm{rd}, \mathrm{wr}(k) | k \in \mathbb{Z}\}$$

Replicated Data Types

Sequential Data Type Specification

In a *strongly consistent system*, the semantics of a data type can be described by a function

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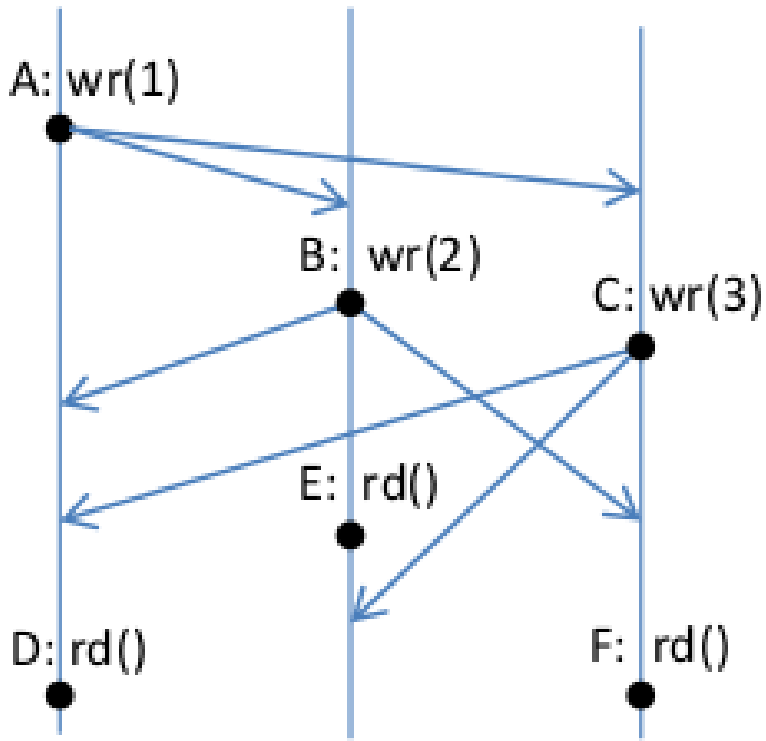
Replicated Data Types

Conflict Resolution Strategies



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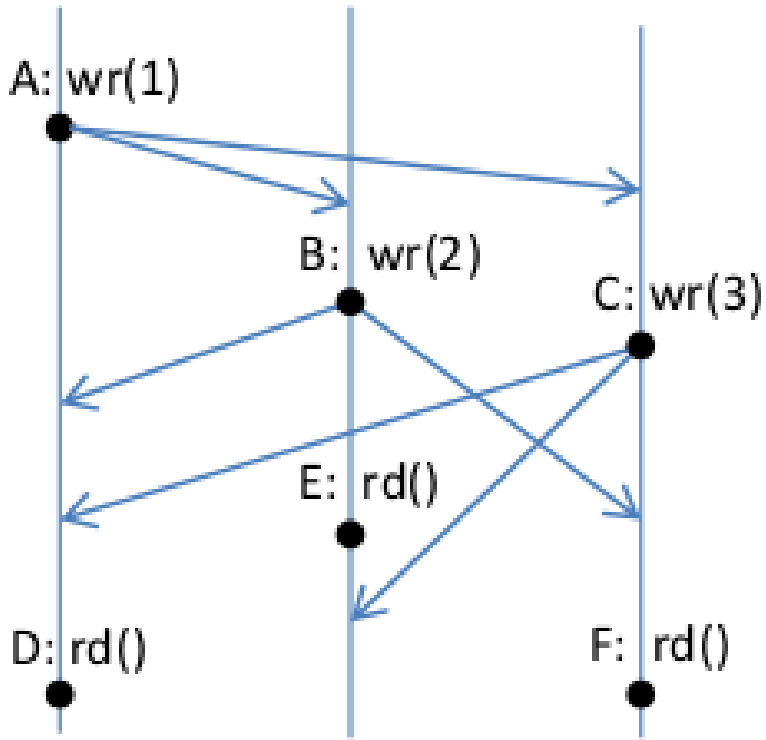

1. Make concurrent operations commutative

Replicated Data Types

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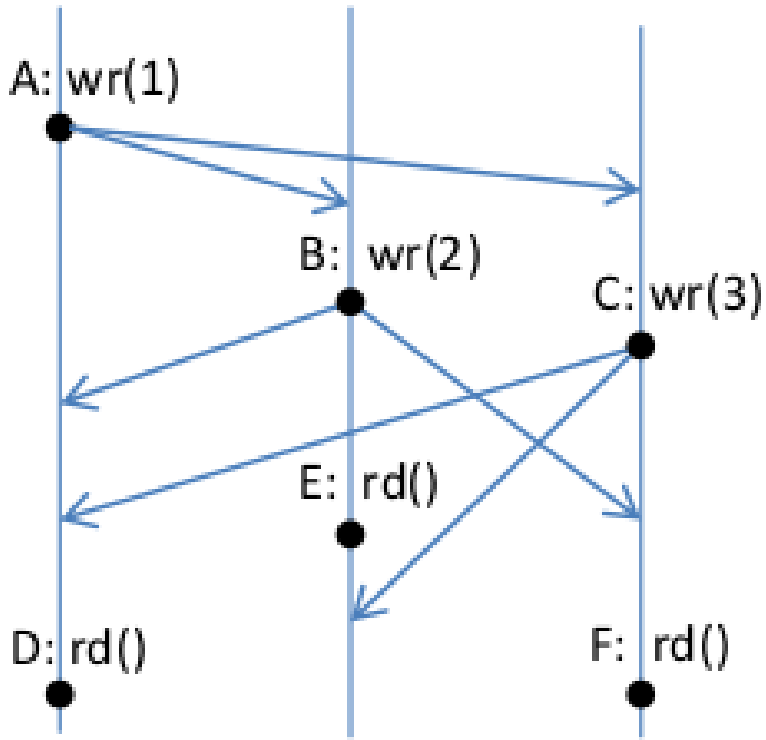

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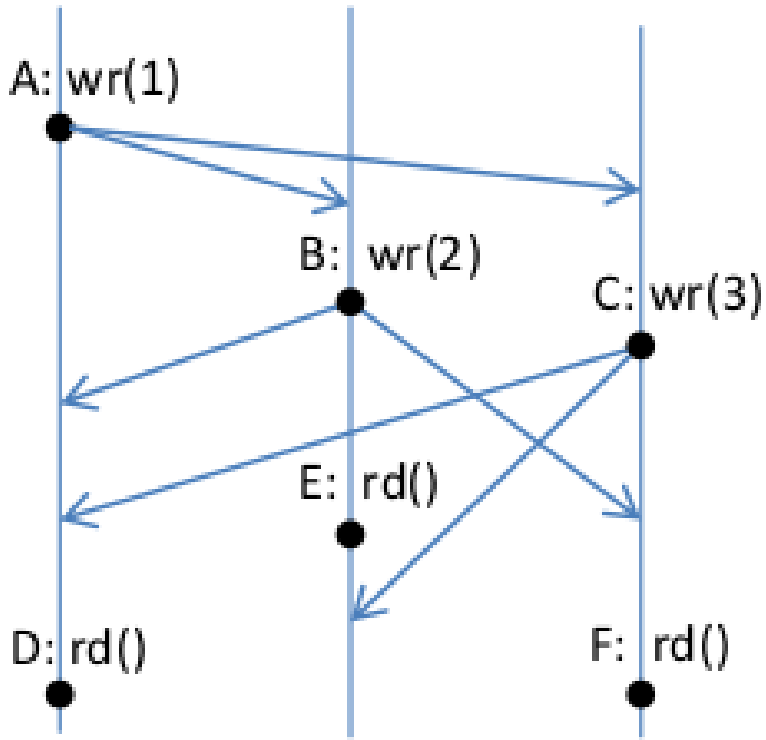

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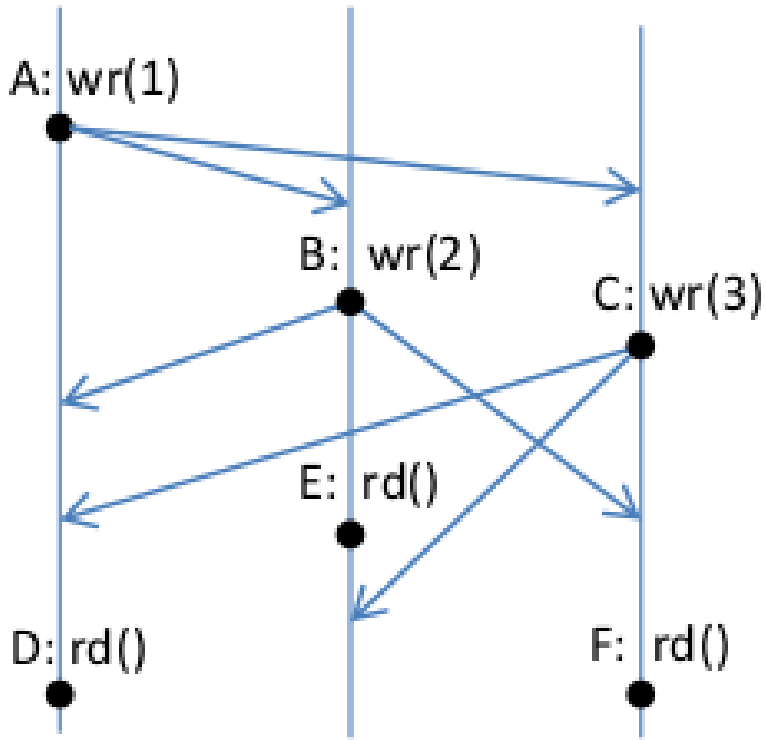

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Anfang Hauptteil Patrick

Ende Hauptteil Patrick

Conclusion

- Which problems does the techreport solve?
- What is not solved by it?
- What do **we** think about it?