TRANSACTIONS

Myths, Surprises and Opportunities

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A topic that drive people INSANE

Transactions are from System R 1975

Atomicity → how fault are handled

Consistency ← not the same as the one in CAP theorem

Isolation → about race conditions

Durability

ABORT

- Deadlock
- Network fault
- Constraint vidation
- Crash / power failure

Different levels of isolations

Max level is SERIALIZABLE but it's so slooooow

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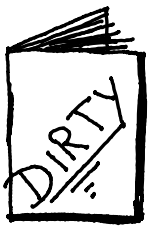
Default on most systems is

READ COMMITED

↳ No dirty reads

↳ No dirty writes



Can't read uncommited data

WRITE SKEW

Read

Decide

Write

BUT

by the time write is commited the premise of the decision is no longer TRUE

DIRTY WRITE needs a drawing to be explained, and I don't feel like doing it !!

To make it serializable, you can

- LOCK everything you read
- QUEUE transactions in order
- DETECT CONFLICTS and abort

BUT what if we have several DBs?

Create TRANSACTION BOUNDARIES and compensate

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- Social Network with Micro-services -

1. Break up
2. Unfriend
3. Post message

causality is not perceived by the system

Ex can see the message

because of

Eventual Consistency

dealing with causality is still an **Area of Research**

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