


A different flavor of the distributed transaction



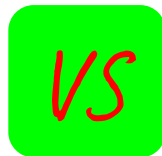
whoami

- Martin Štefanko
- Software engineer, Red Hat
- MicroProfile committer
- Microservices enthusiast
-  @xstefank

Saga



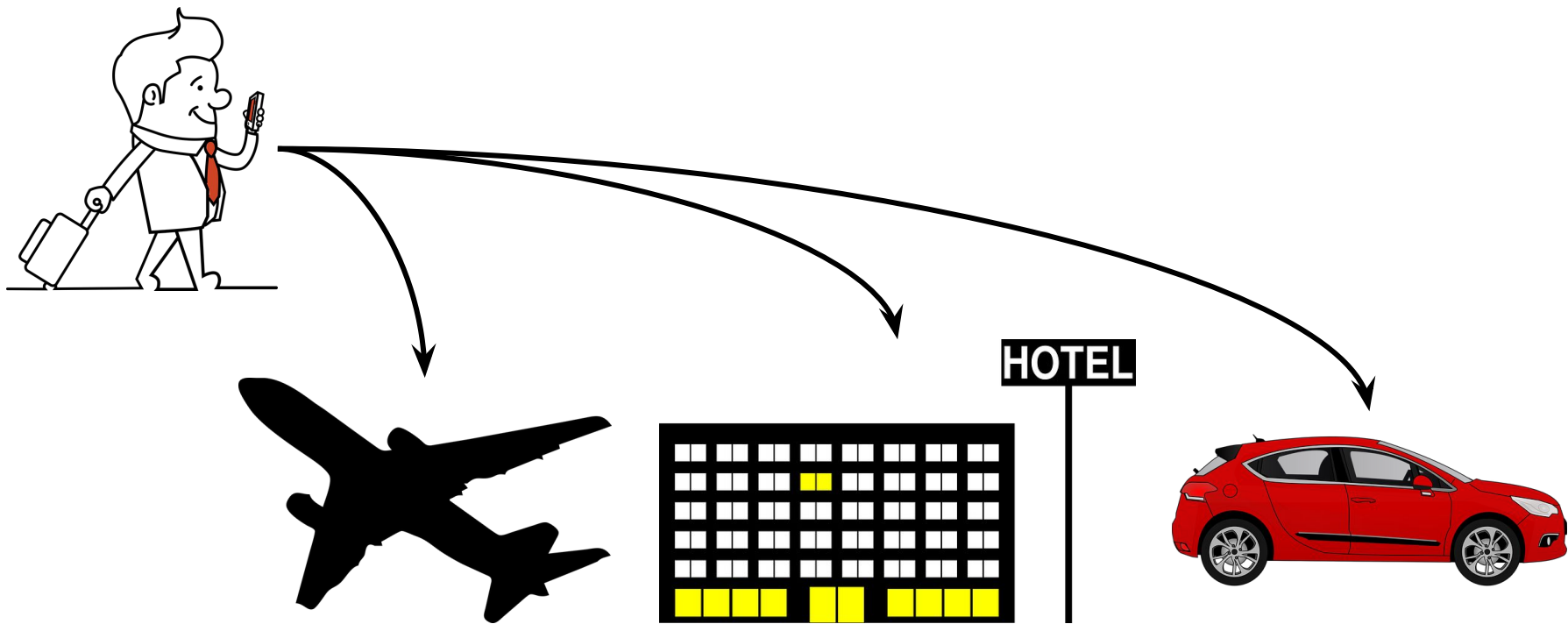
ACID



Saga



Transactions today



Transactions today - ACID



Atomicity



Consistency



Isolation

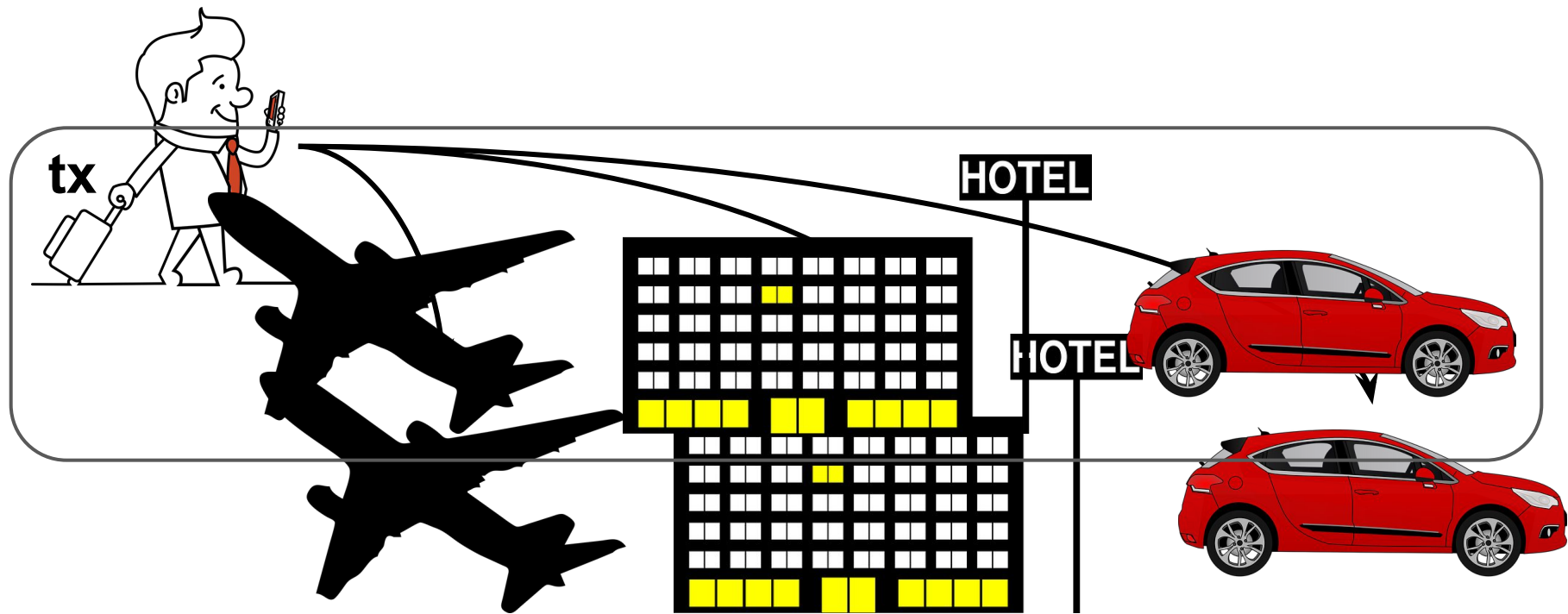


Durability

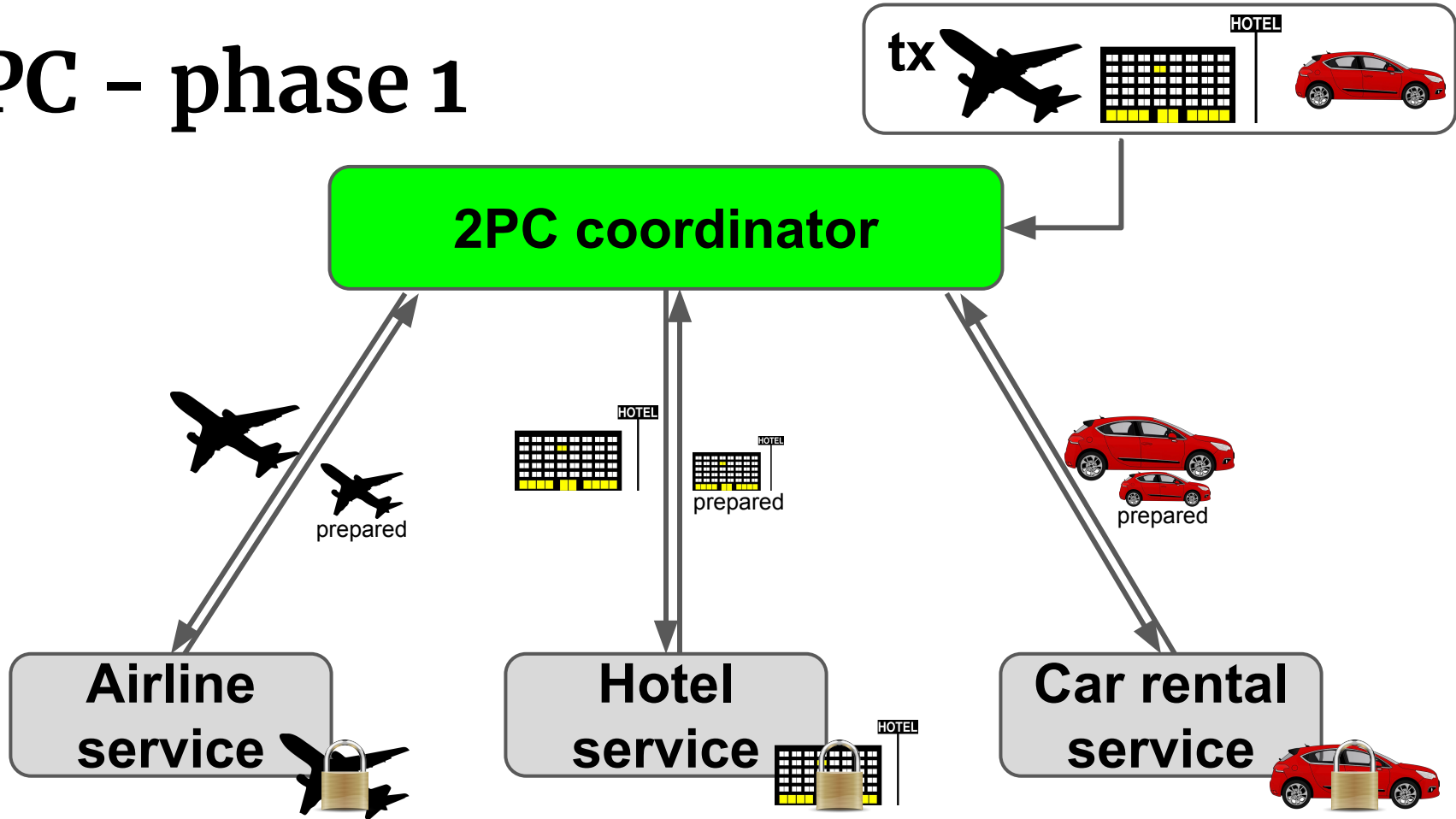
Transactions today - consensus

- Two-phase commit protocol (2PC)
- 3PC
- Paxos
- Raft

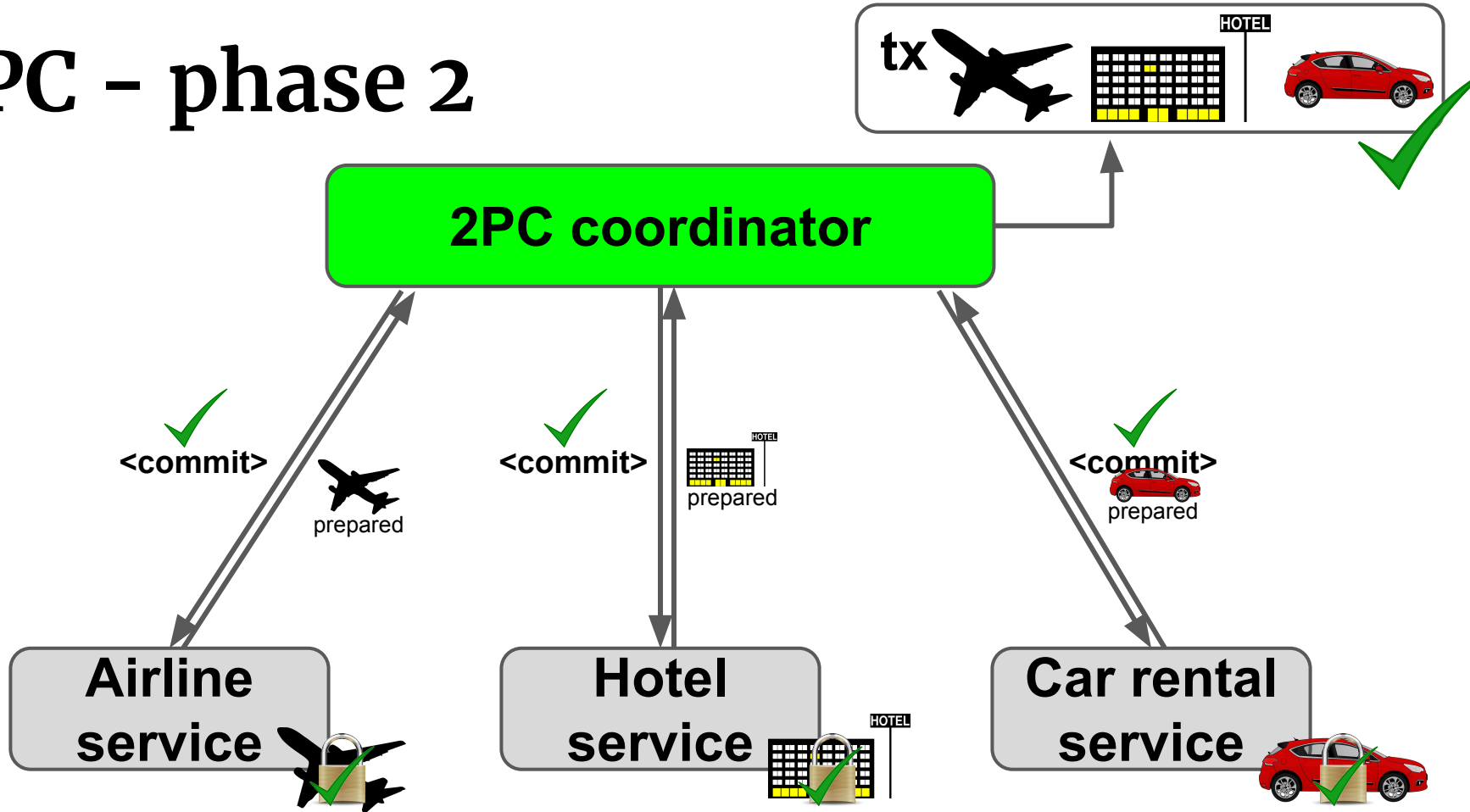
Transactions today - 2PC



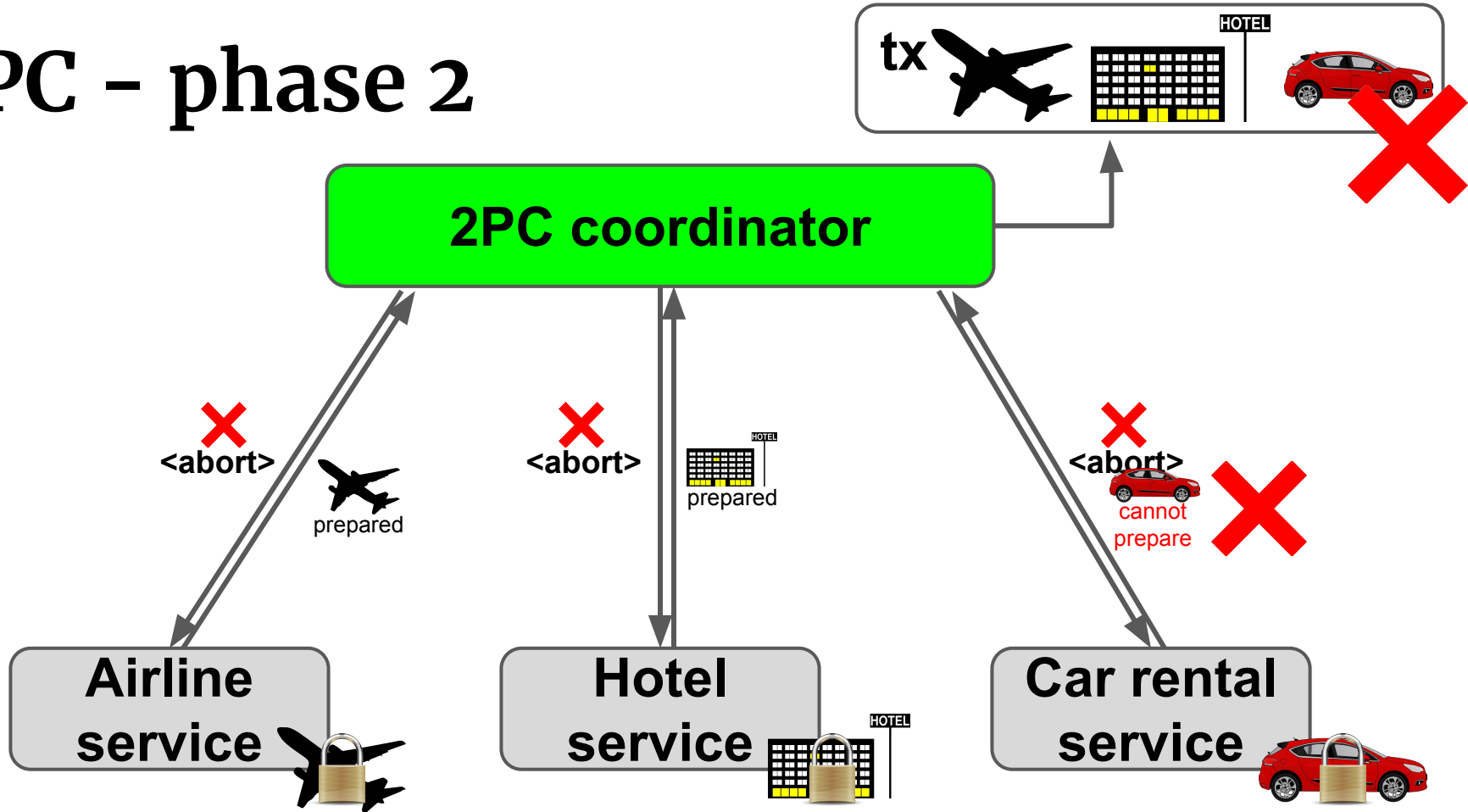
2PC - phase 1



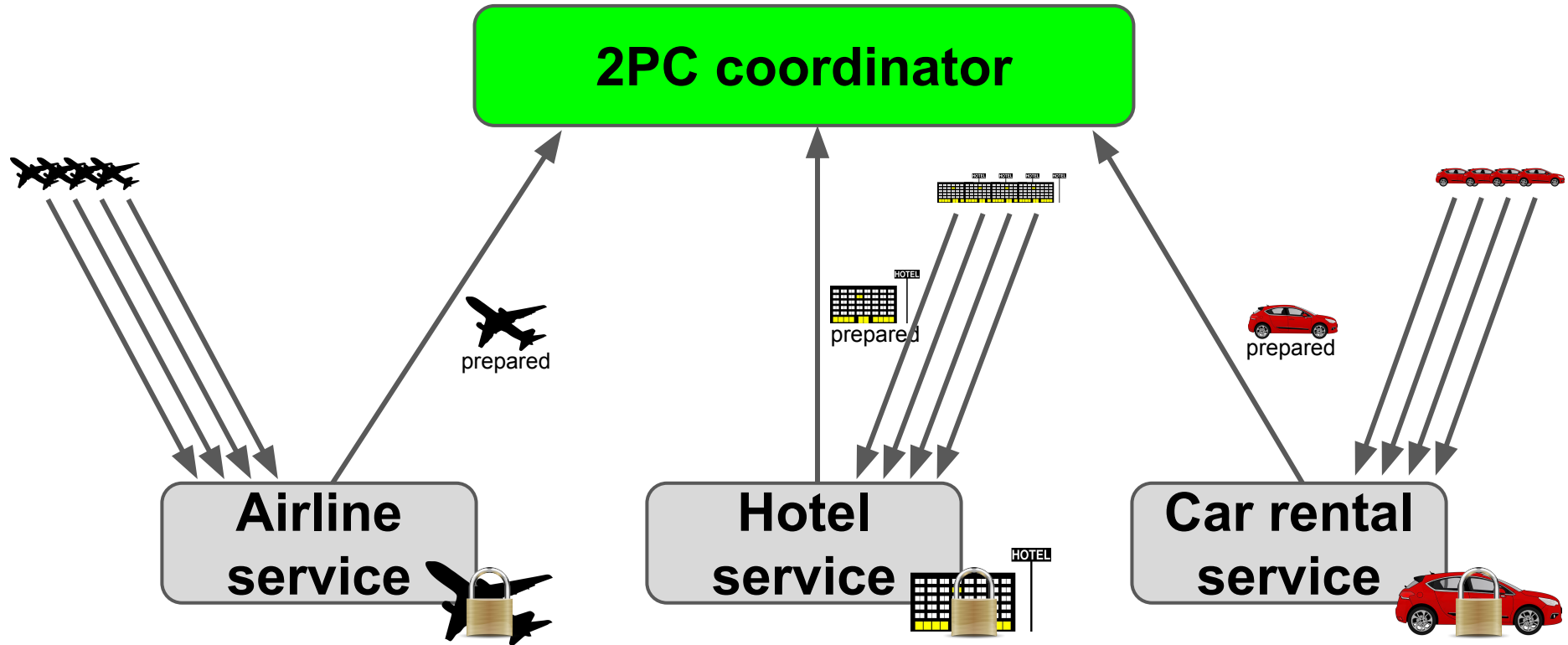
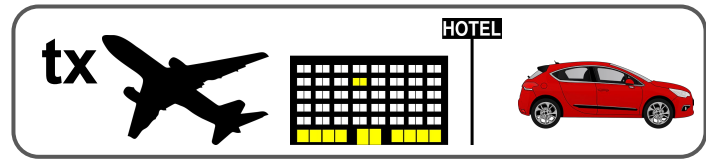
2PC - phase 2



2PC - phase 2



2PC - issues



Saga



The saga pattern

SAGAS

Hector Garcia-Molina

Kenneth Salem

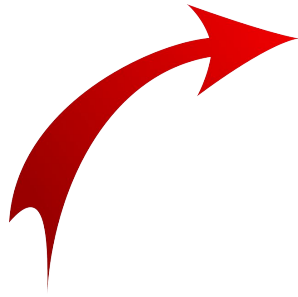
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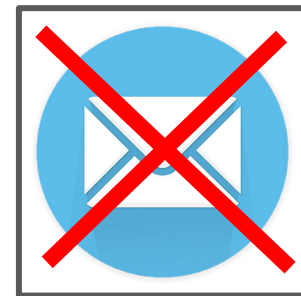
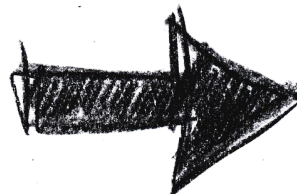
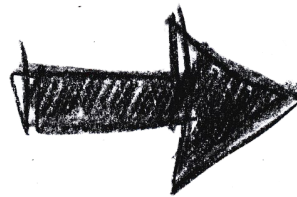
1987

Saga - compensations



Order	Products	Description
65	X-wing	Personal starfighter
66	Jedi situation	TBD

Saga - compensations

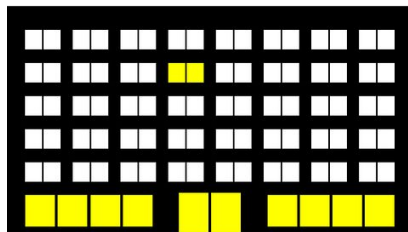


Applying the Saga Pattern • Caitie McCaffrey

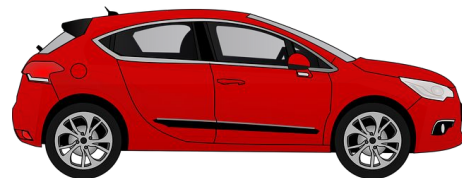


Saga

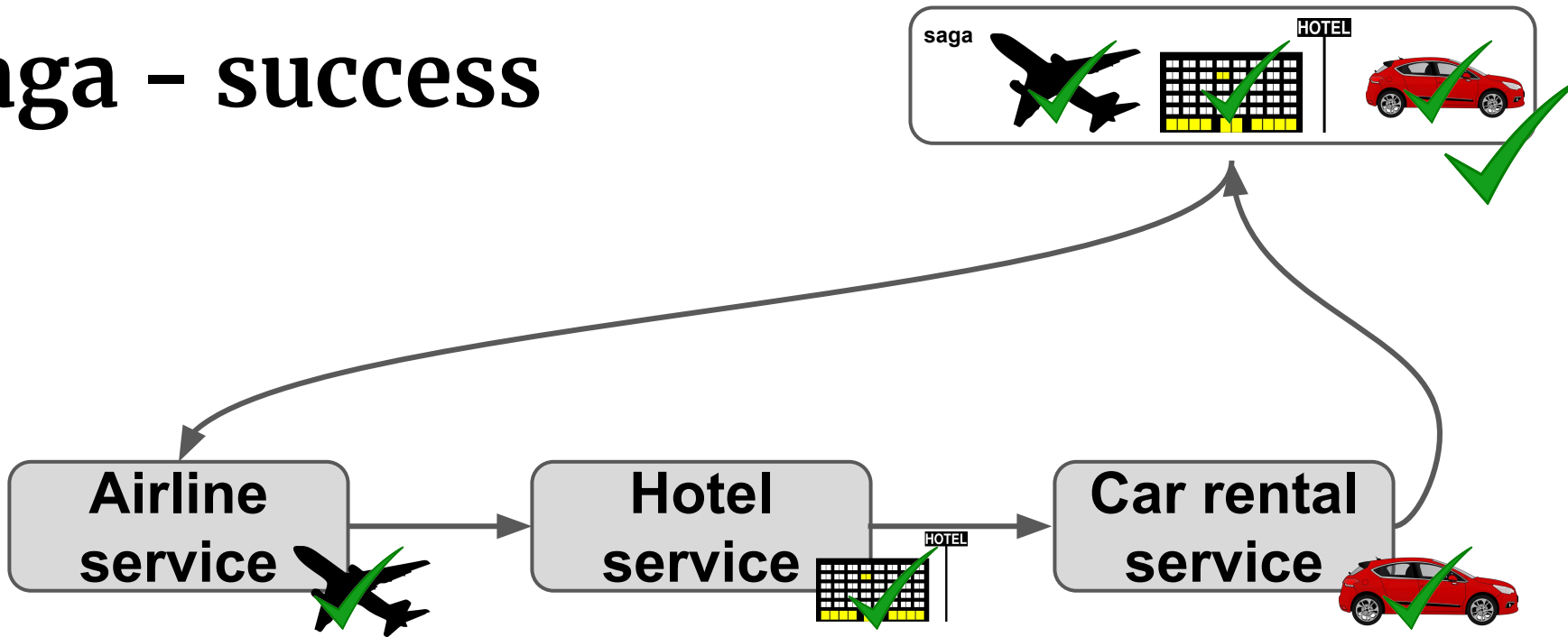
saga



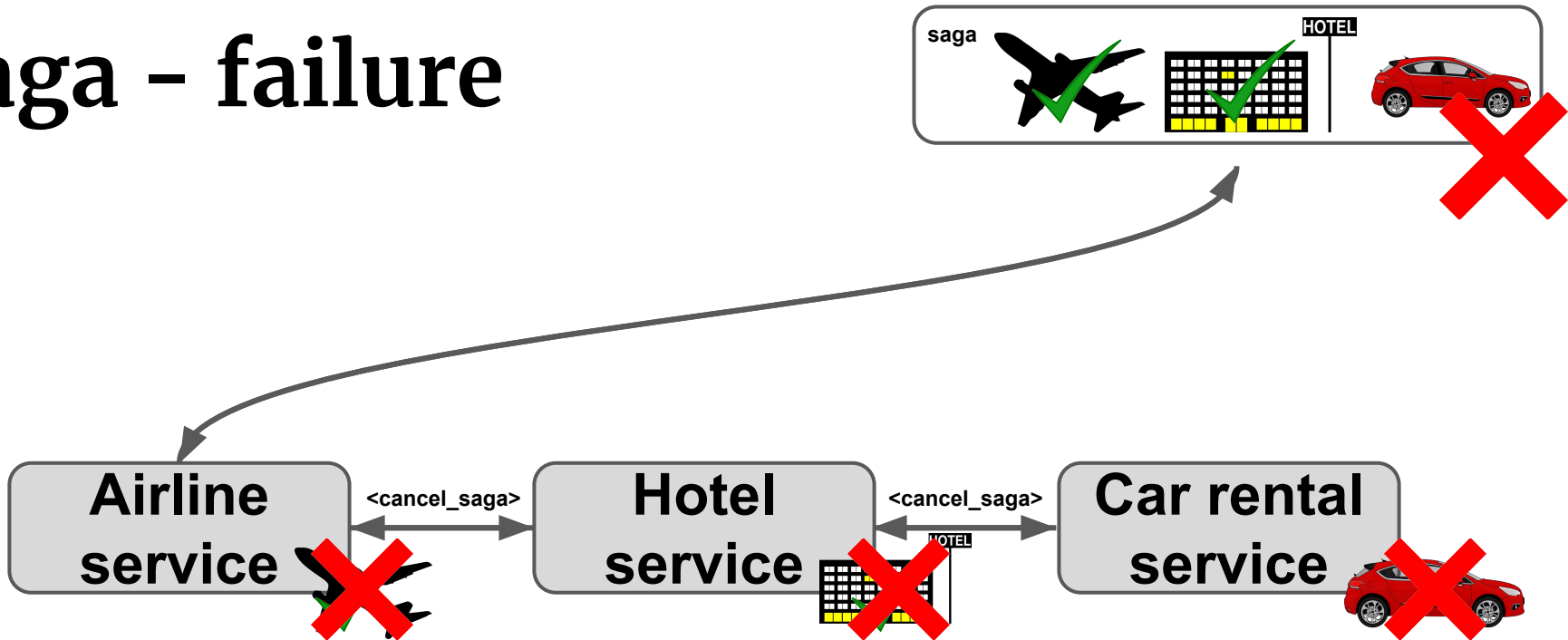
HOTEL



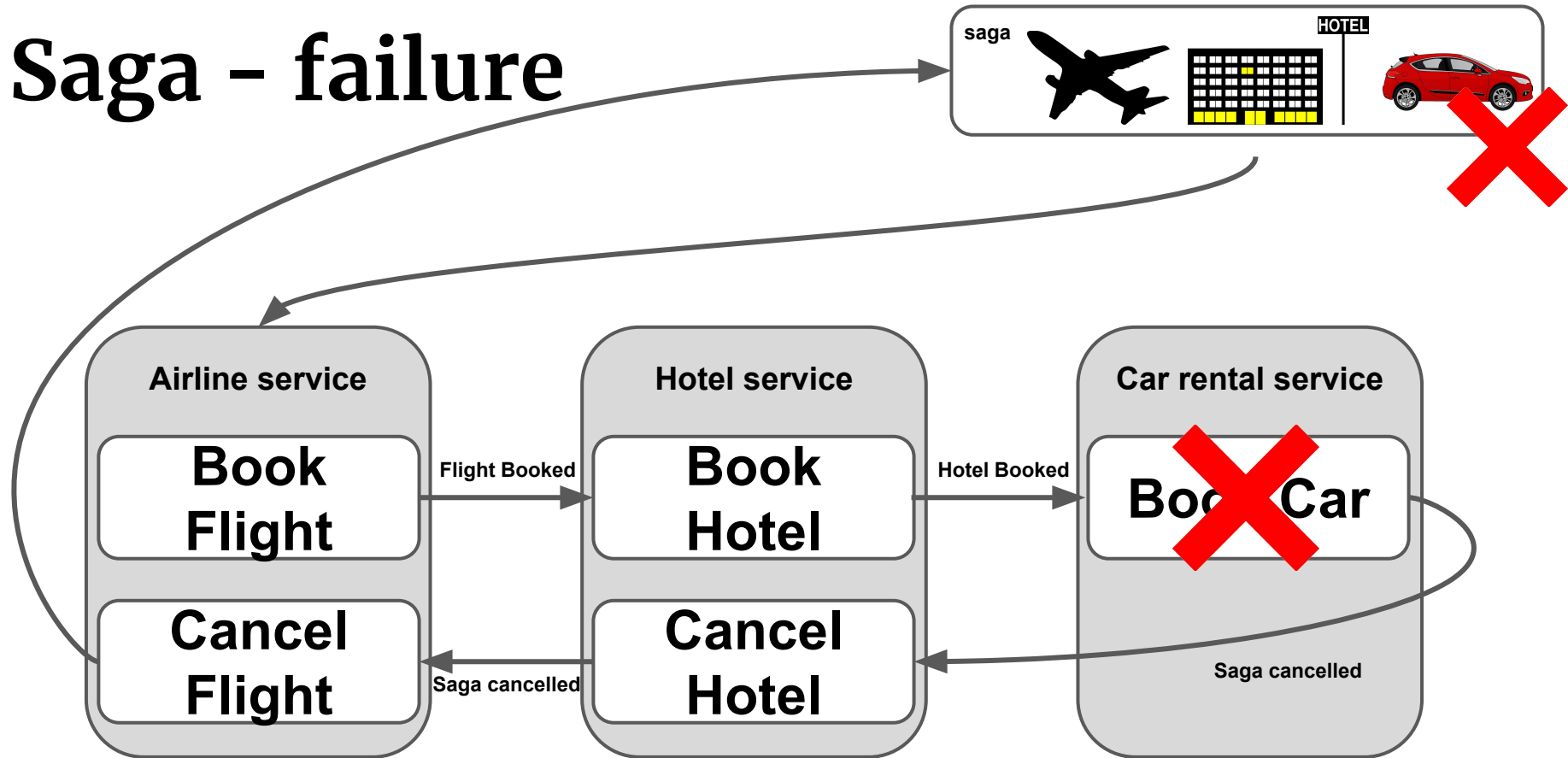
Saga - success



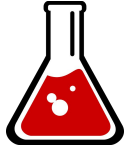
Saga - failure



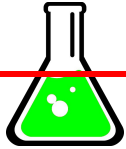
Saga - failure



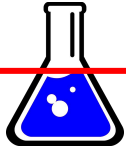
ACID vs BASE



Atomicity



~~Consistency~~



~~Isolation~~



Durability



Basically Available

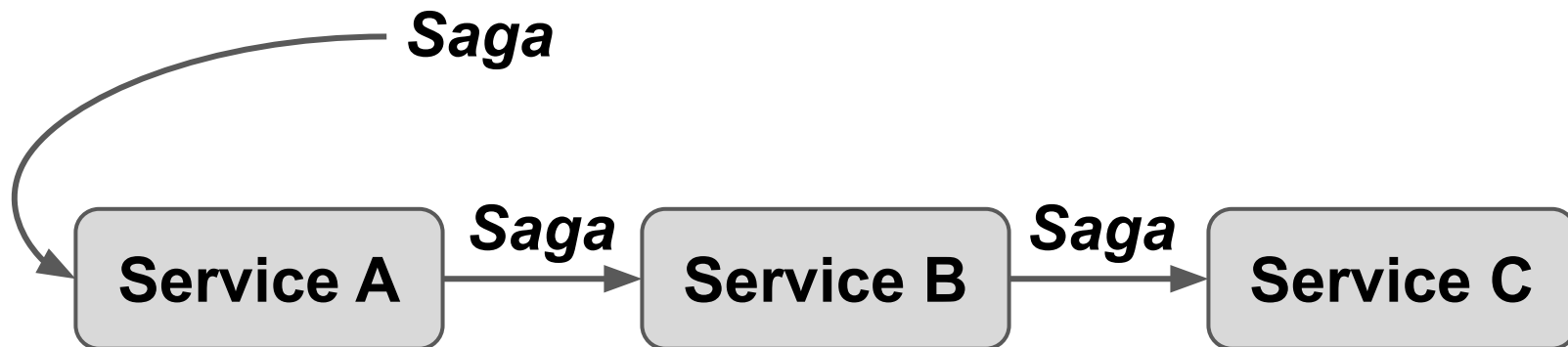


Soft state

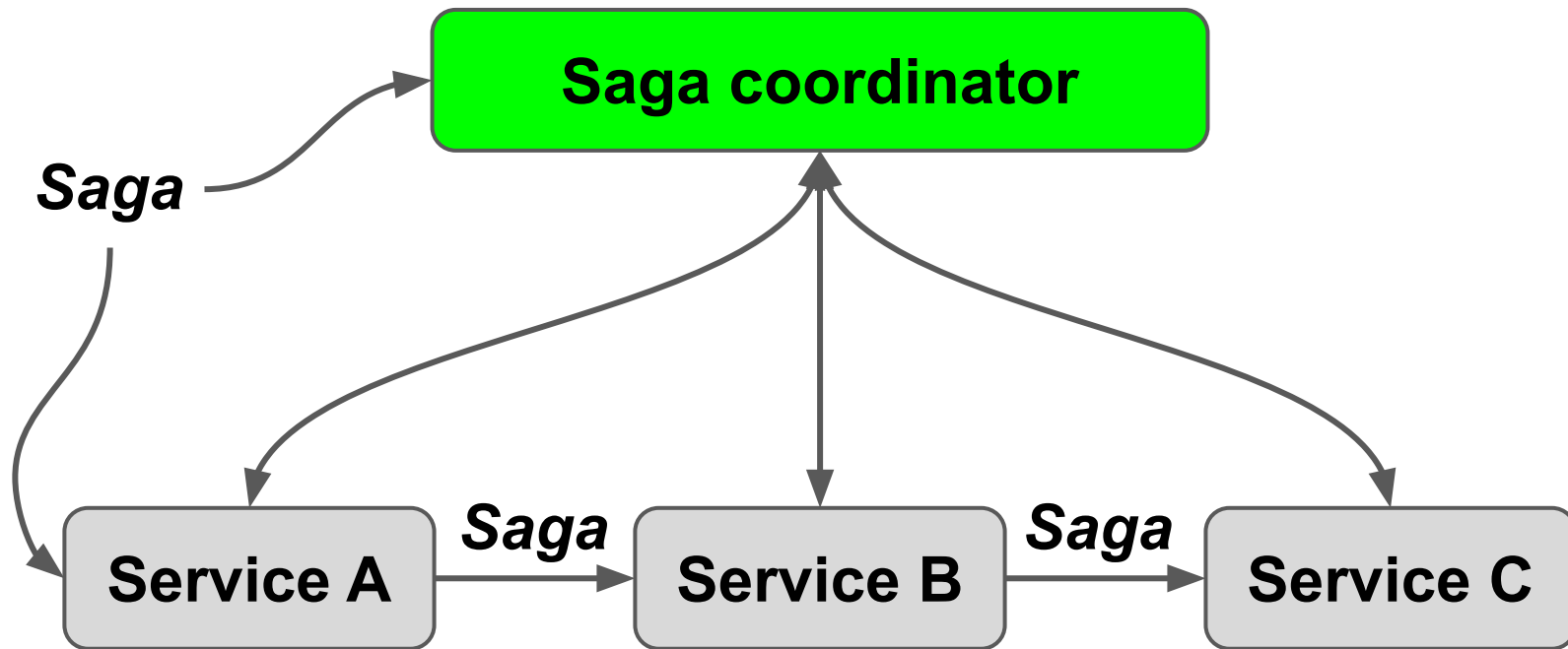


Eventual consistency

Decentralization vs Orchestration



Decentralization vs Orchestration





MicroProfile LRA

(Long Running Actions)

<https://github.com/eclipse/microprofile-lra>

<https://github.com/jbosstm/narayana/tree/master/rts/lra>

Thank you

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Code

<https://tinyurl.com/lra-trip-example>

Slides

<https://tinyurl.com/lra-2022-06-23>

Resources

- https://pixabay.com/users/GraphicMama-team-2641041/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=159766 from https://pixabay.com/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=1597966
- https://pixabay.com/users/OpenClipart-Vectors-30363/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=1293790 from https://pixabay.com/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=1293790
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- https://pixabay.com/users/OpenClipart-Vectors-30363/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=156792 from https://pixabay.com/?utm_source=link-attribution&utm_medium=referral&utm_campaign=image&utm_content=156792
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- <https://gph.is/1F6T8XQ>