

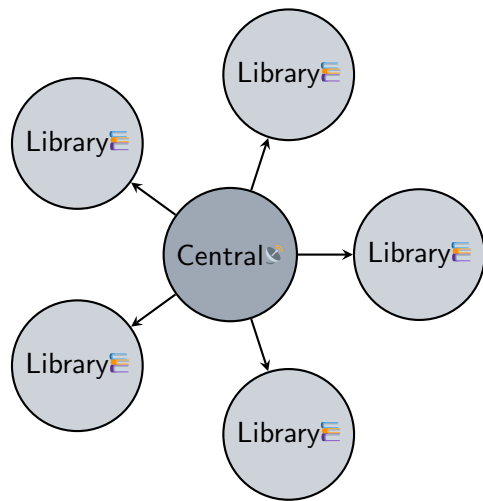
# BookChop: A Transaction-Oriented Library

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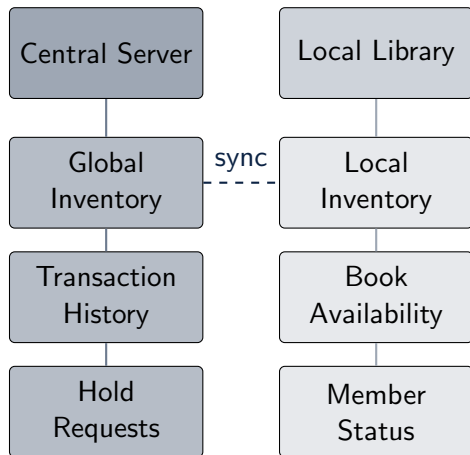
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# Library Management System



- Co-locate physical items and their digital representations
- Centralized remote book borrowing logging for equal access

# Data Distribution



## Central Server:

- Global book inventory
- Transaction history
- Hold request queue

## Local Libraries:

- Local book inventory
- Real-time availability
- Member information

# Database Schemas

Books (Local and Central)		
book_id	title	status

Members (Local and Central)		
member_id	name	status

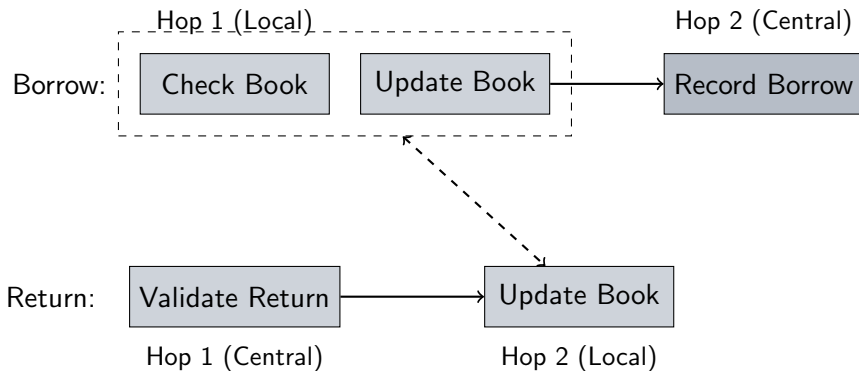
Records (Central)					
trans_id	book_id	member_id	due	type	

FK: book\_id, member\_id

Type: BORROW, RETURN, HOLD

Status: active, completed

# SC-Graph



# Transaction Chopping Strategy

Original

Read Book

Update Book

Check Member

Log Transaction

Chopped

Read Book

Update Book

Check Member

Log Transaction

## Chopping Rules:

- Group operations accessing same data object
- Maintain operation order within groups
- Execute groups atomically
- Prevents some SC-cycles by forcing transaction groups to be atomic