

Microservices: The Data Story



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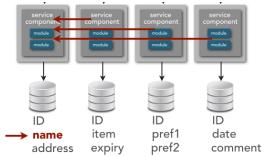
Author of *Microservices Pitfalls and AntiPatterns* (O'Reilly)

Author of *Microservices vs. Service-Oriented Architecture* (O'Reilly)

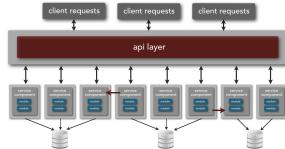
Author of *Enterprise Messaging Video Series* (O'Reilly)

Author of *Java Message Service 2nd Edition* (O'Reilly)

agenda



distributed data challenges



creating data domains



handling common data



distributed transactions

Distributed Data Challenges

distributed data techniques

data is the most important
asset in your company



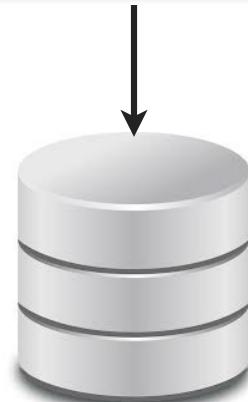
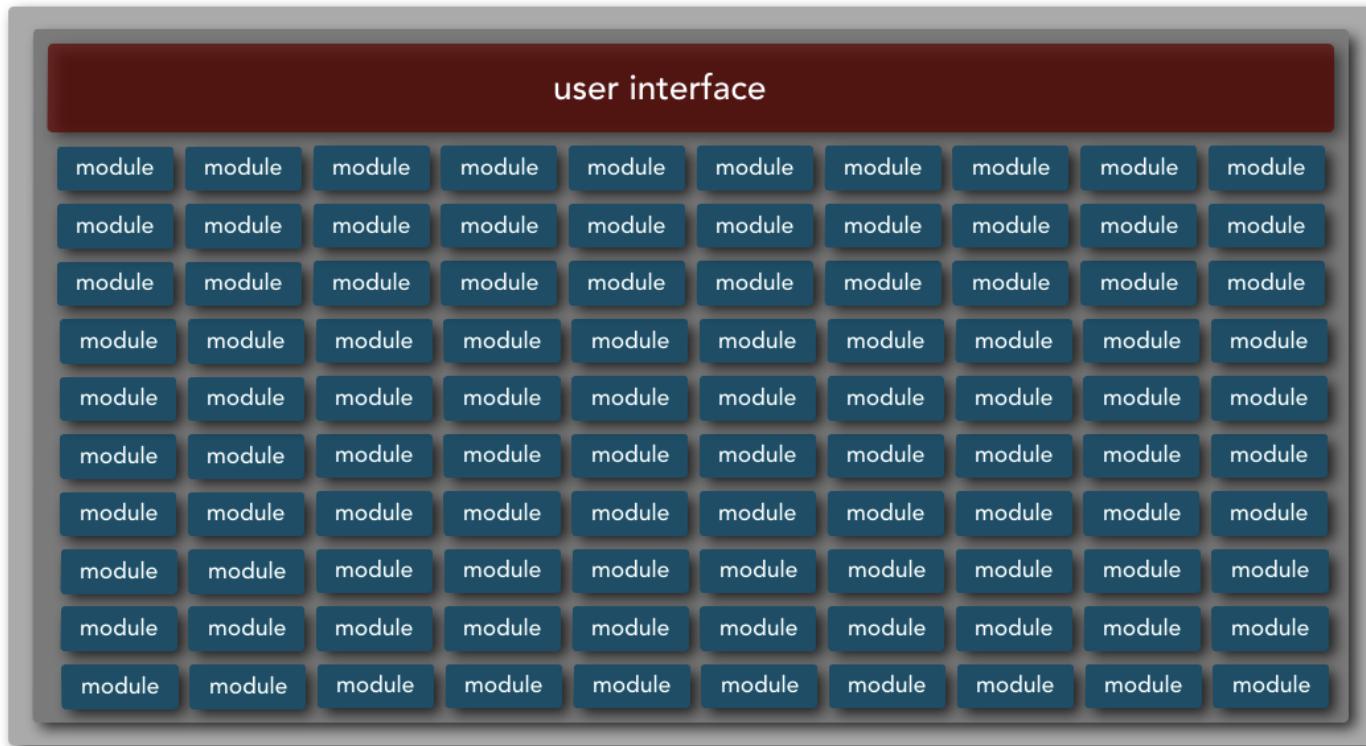
distributed data techniques



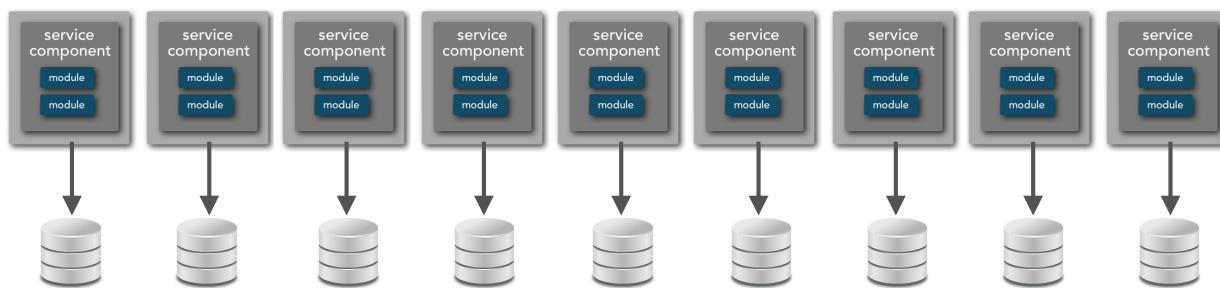
"Those who cannot
remember the past are
condemned to repeat it"

Jorge Agustín Nicolás Ruiz de Santayana y Borrás

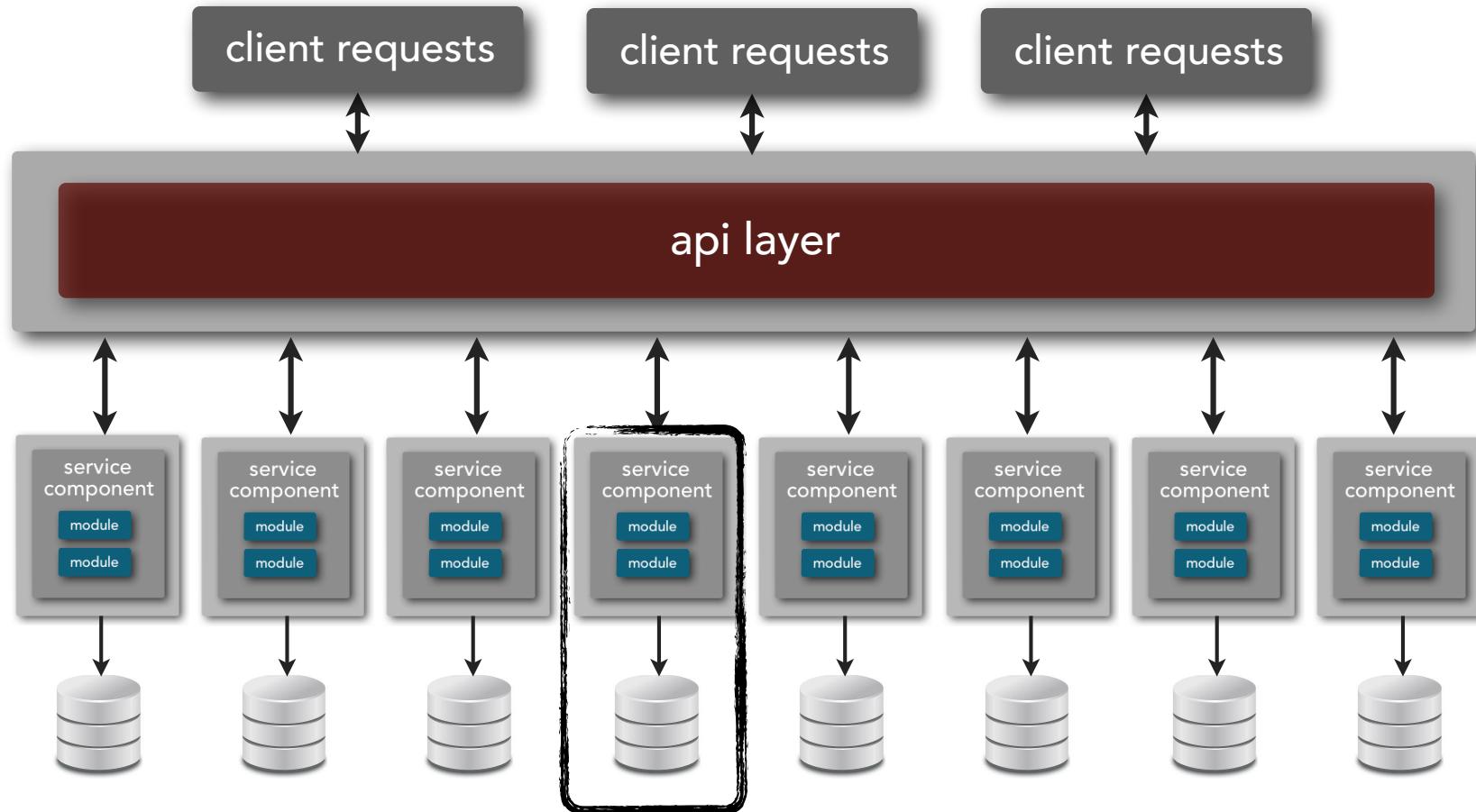
distributed data techniques



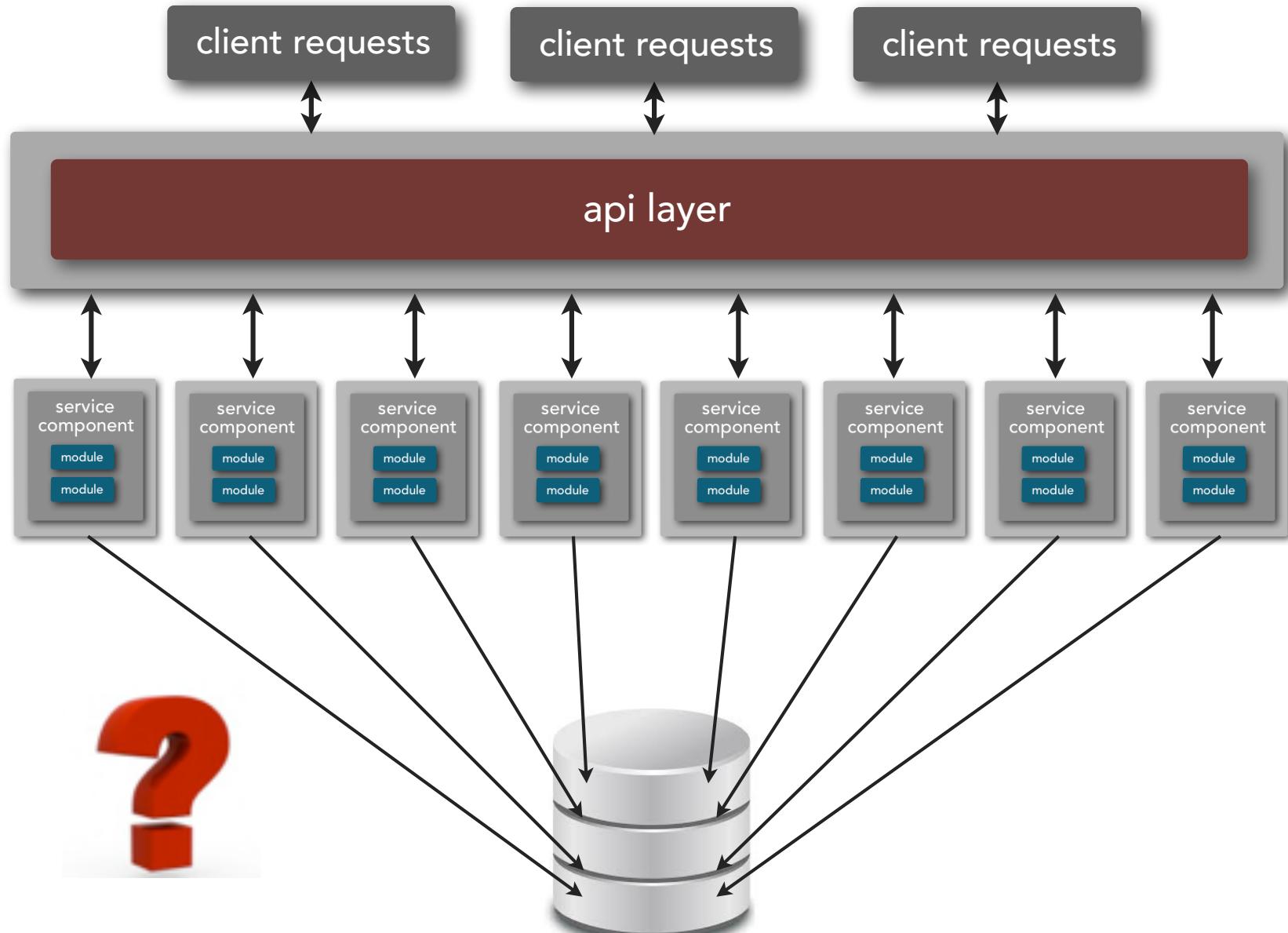
distributed data techniques



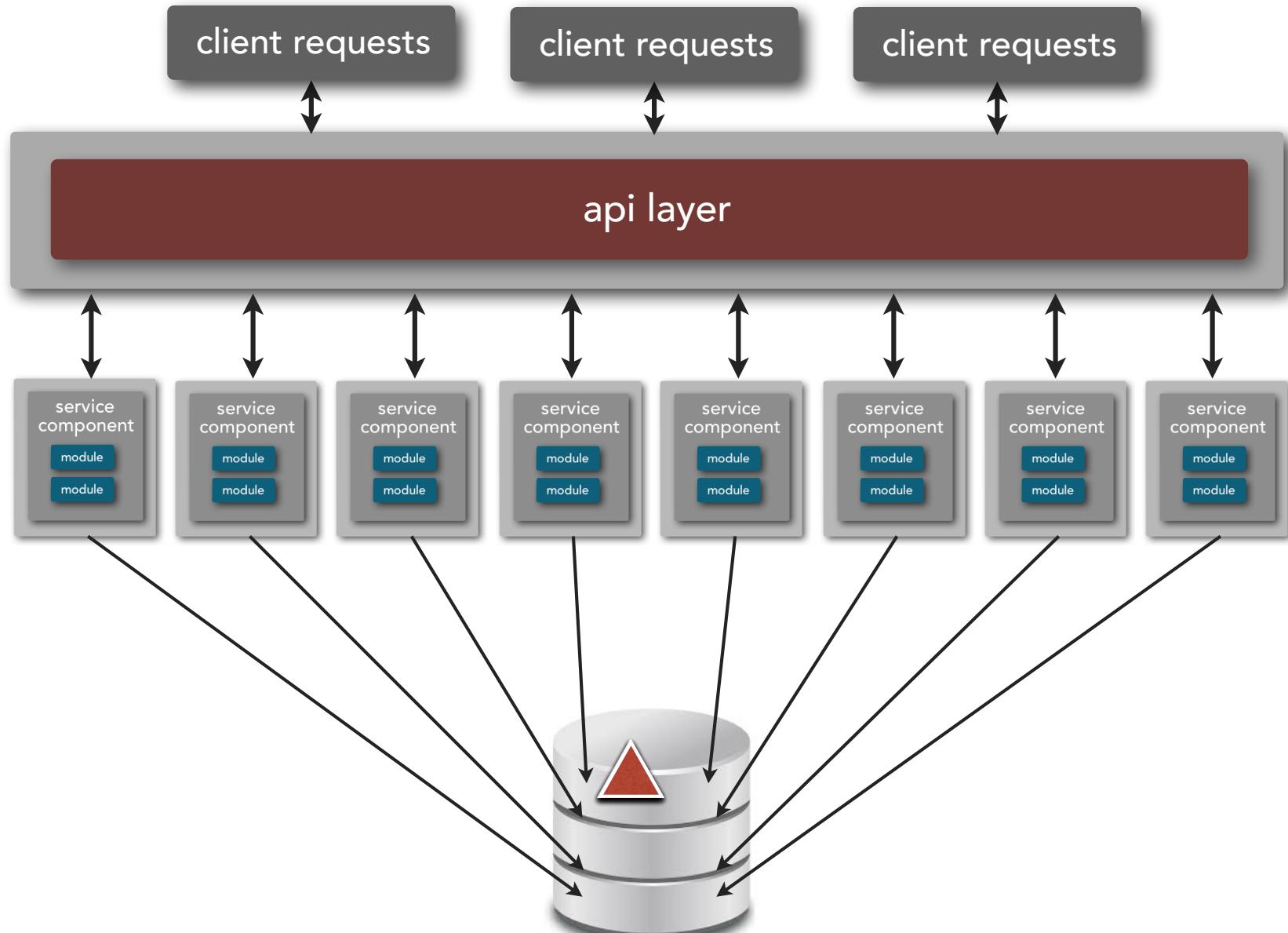
data distribution issues



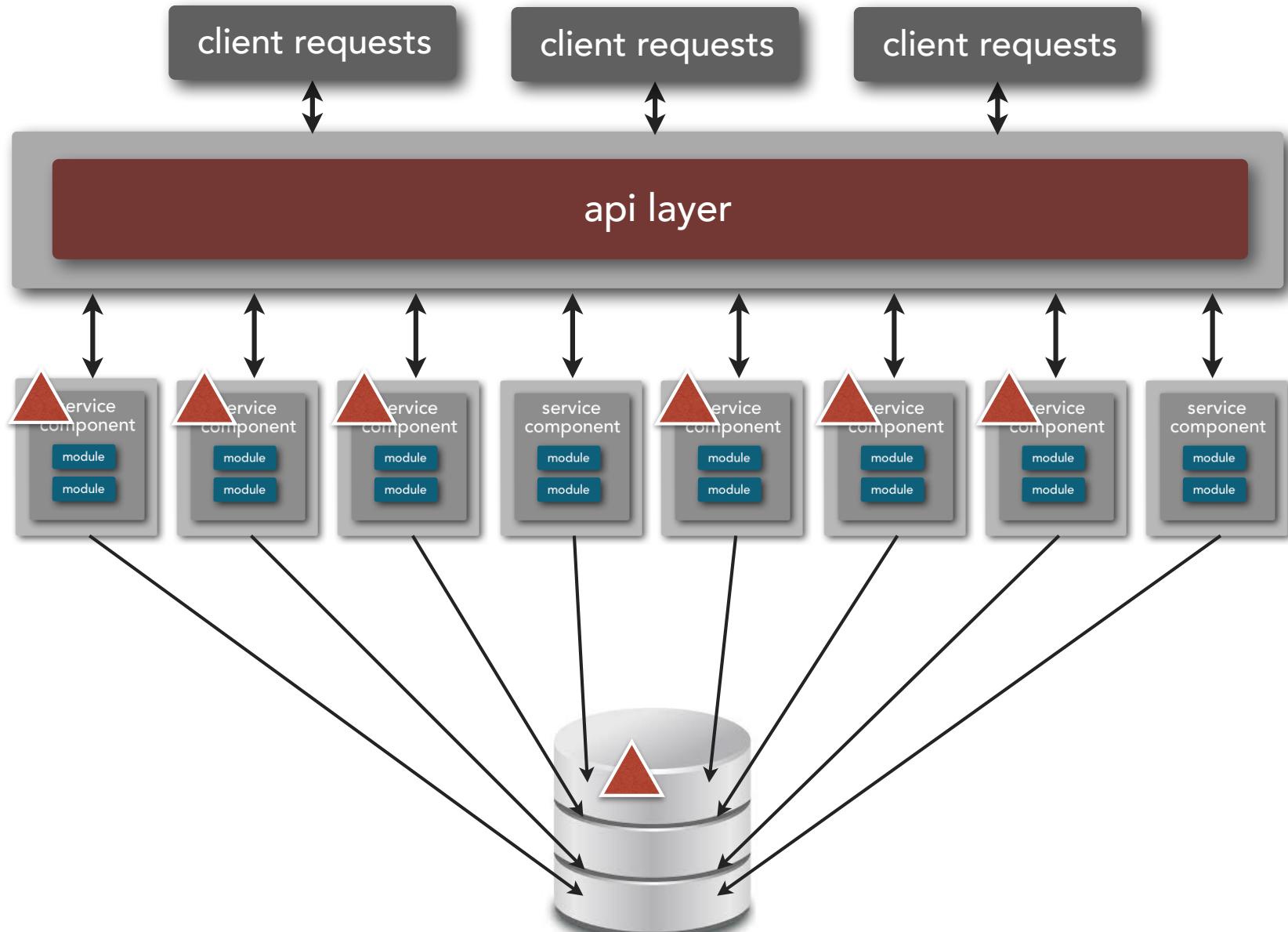
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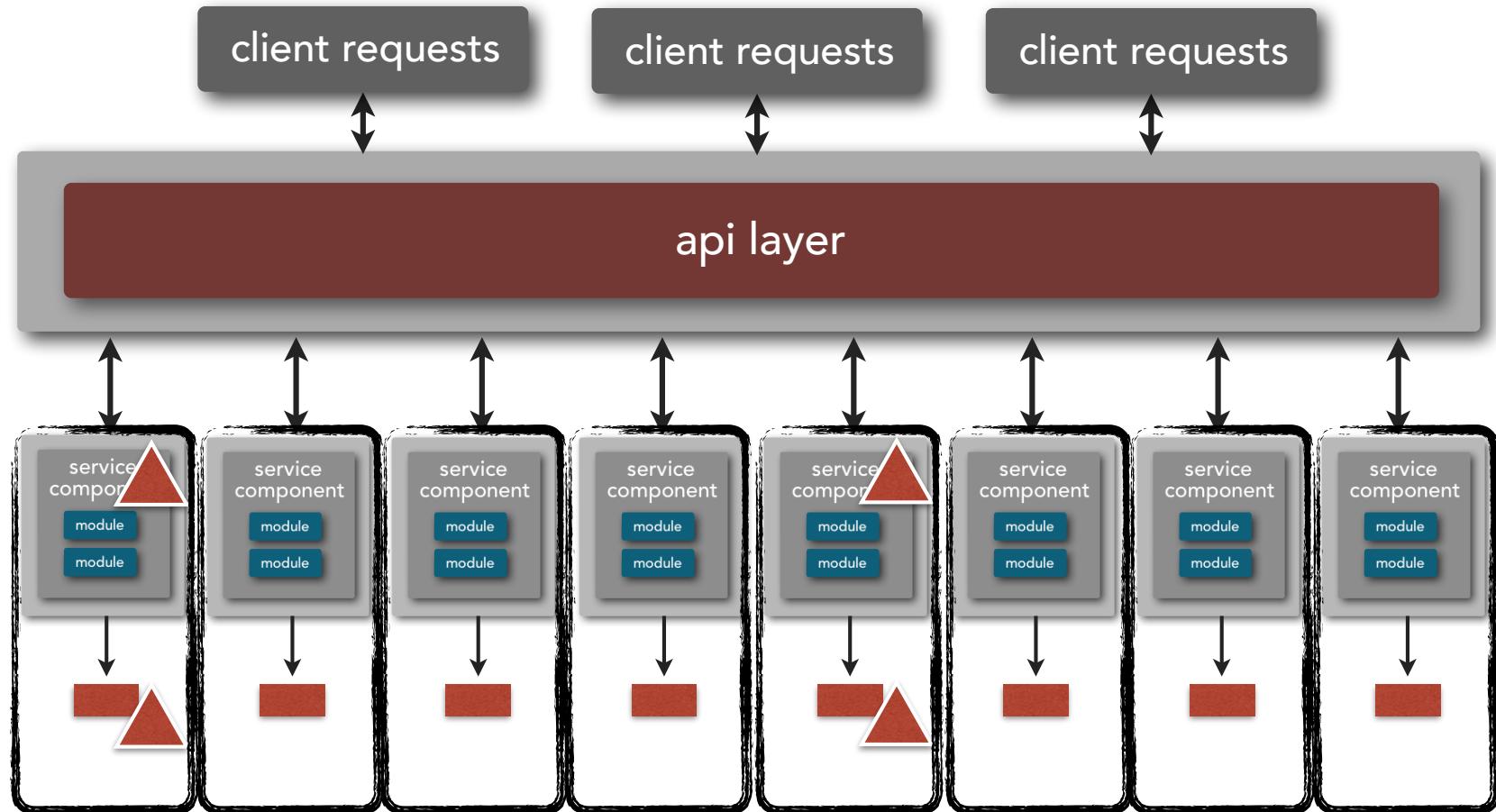
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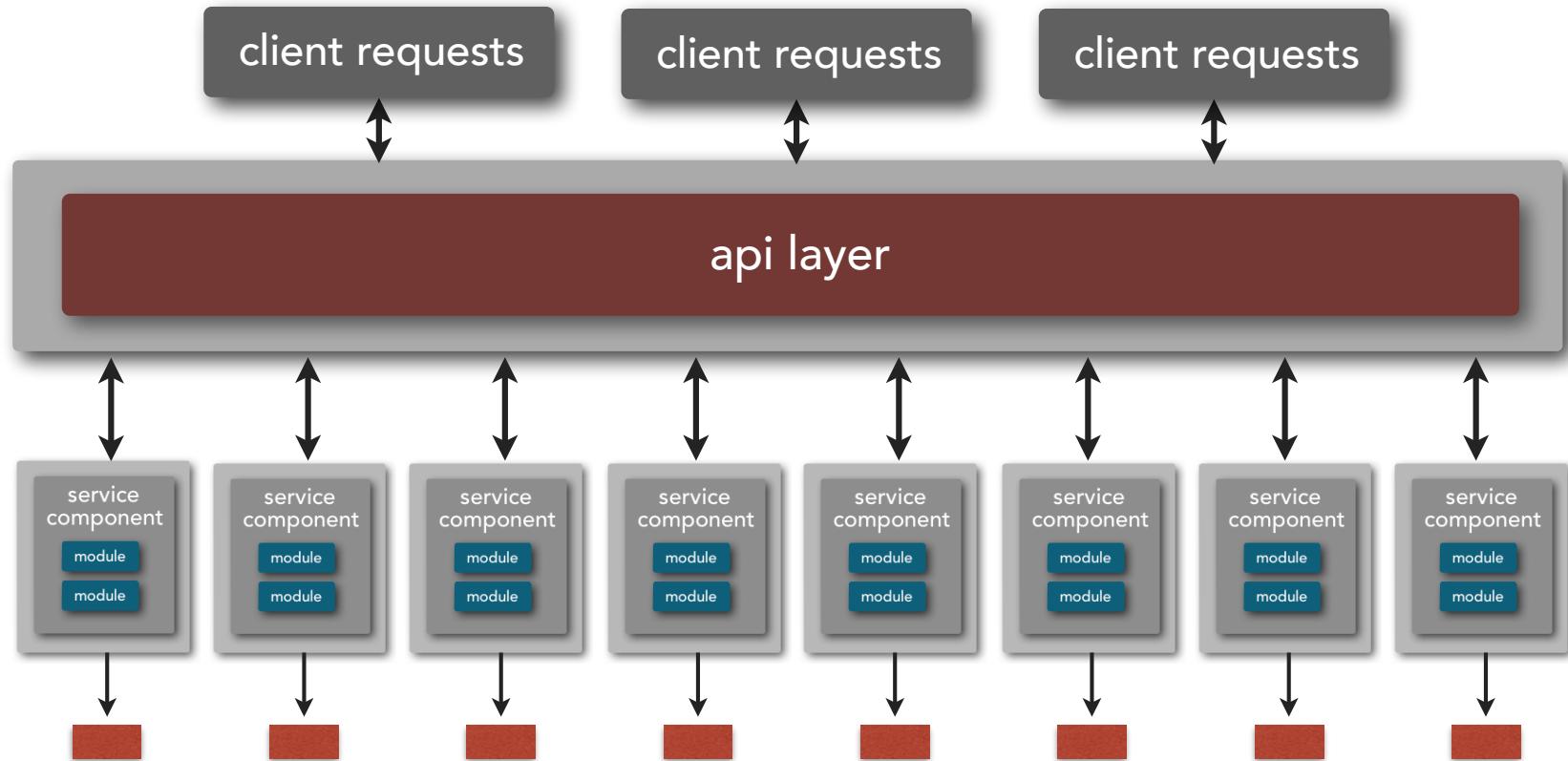
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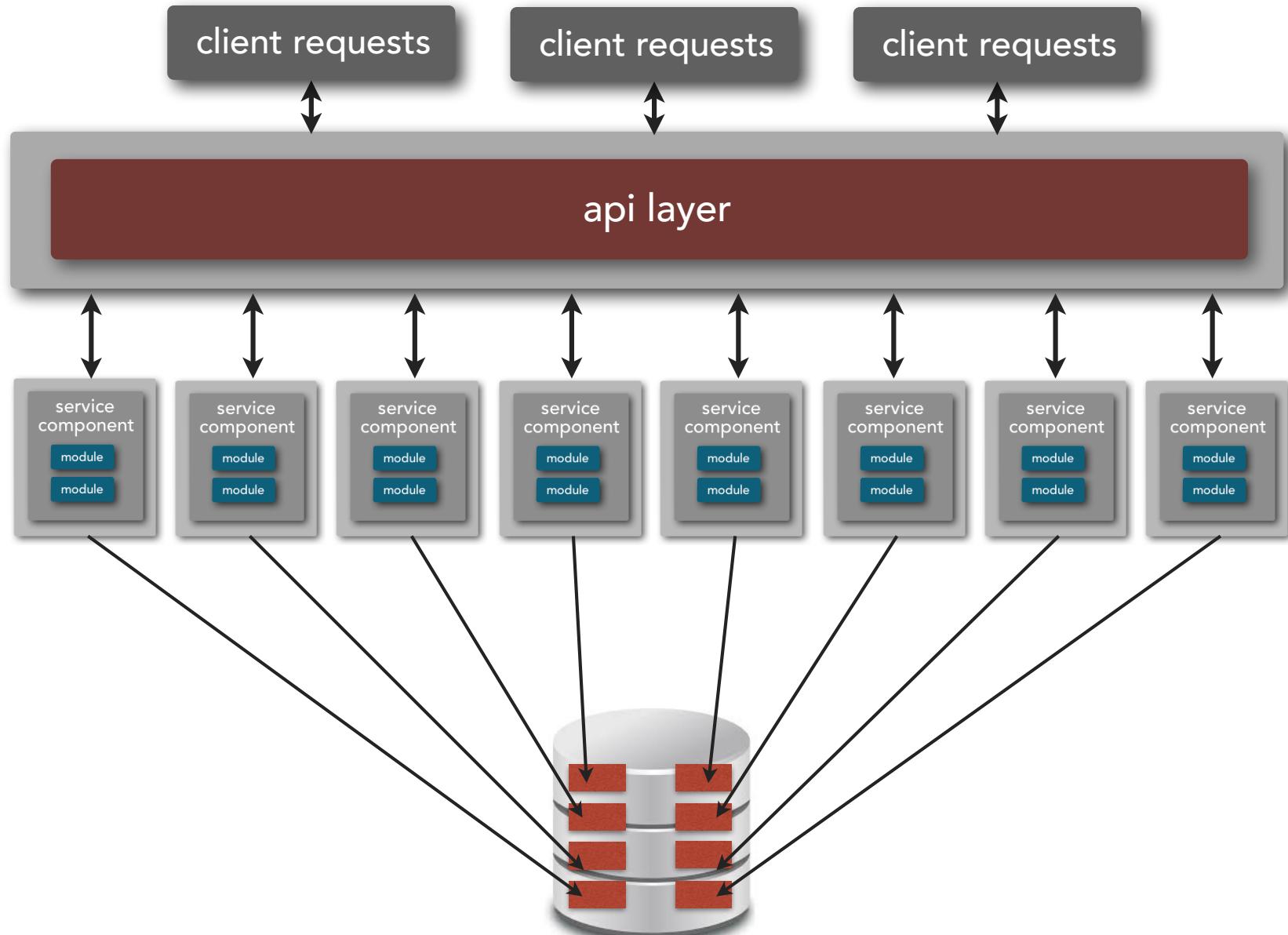
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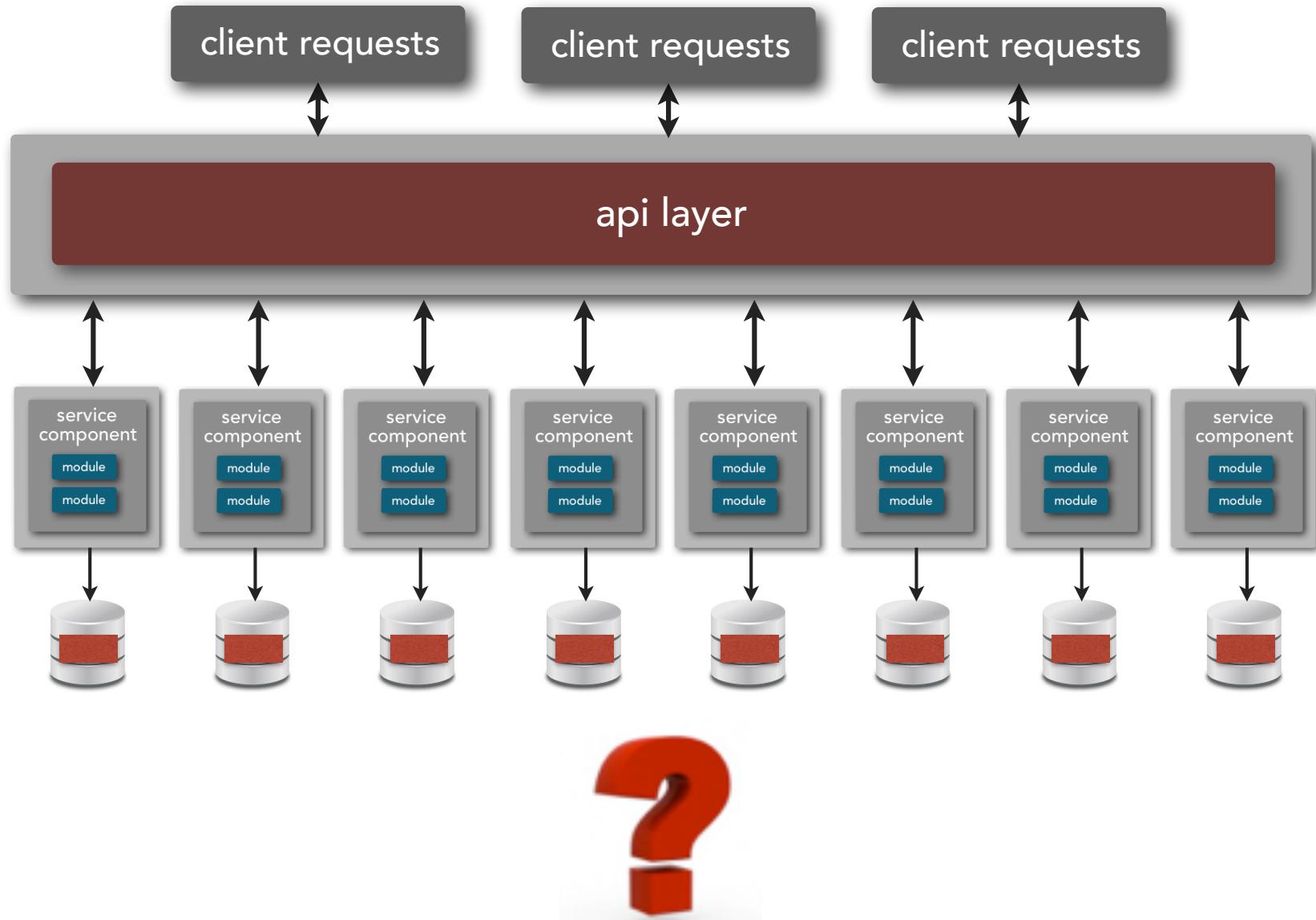
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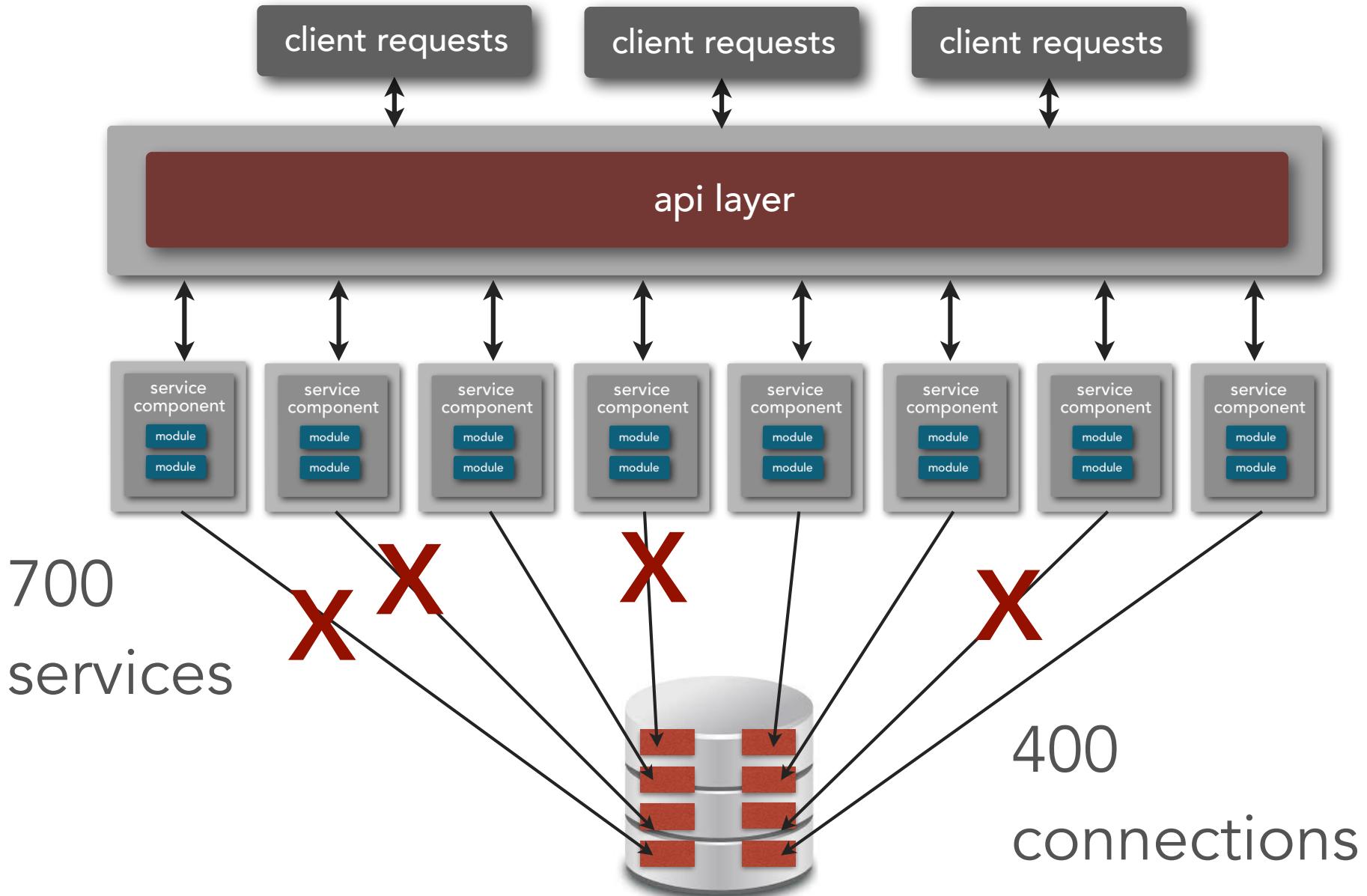
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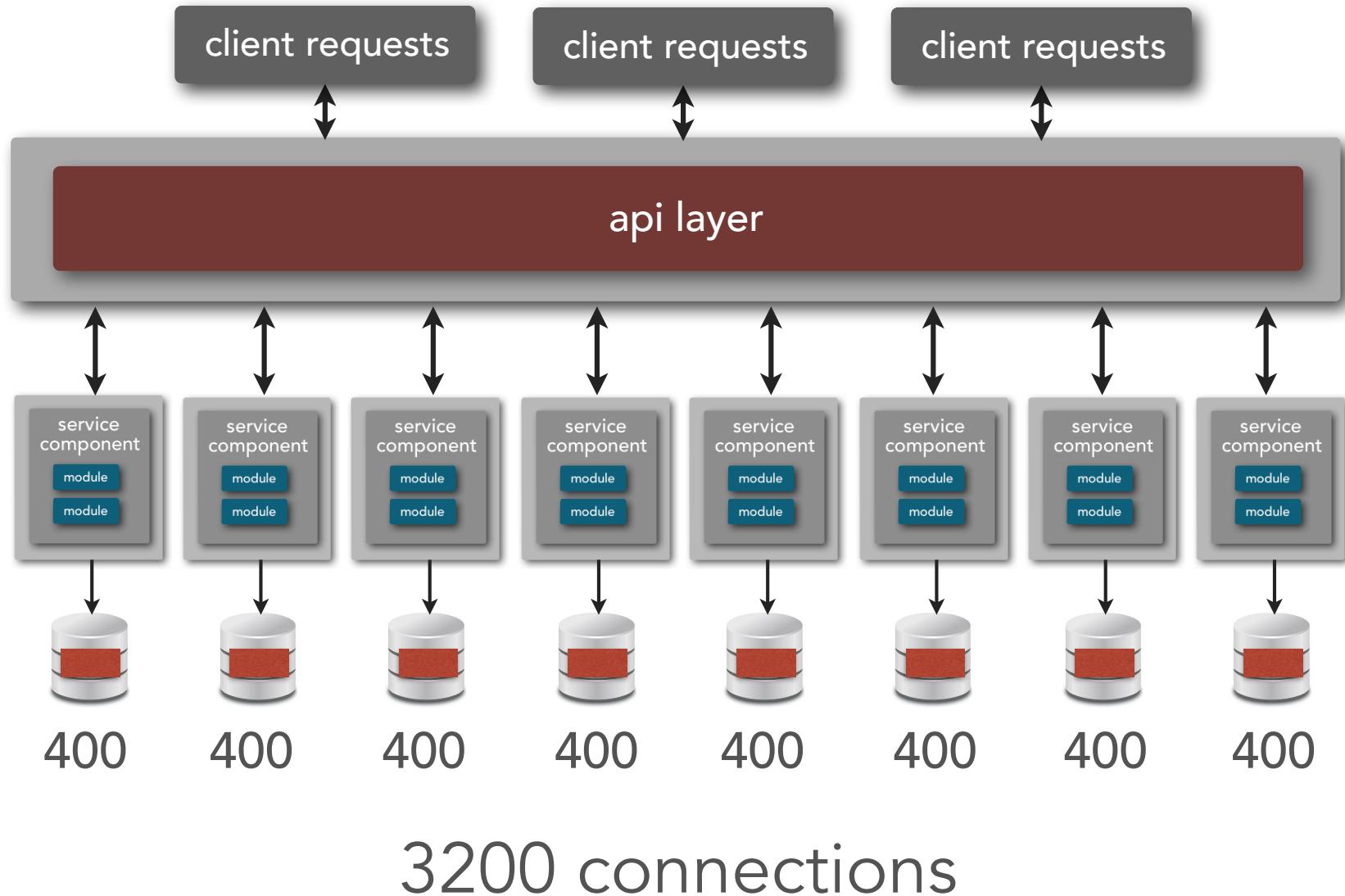
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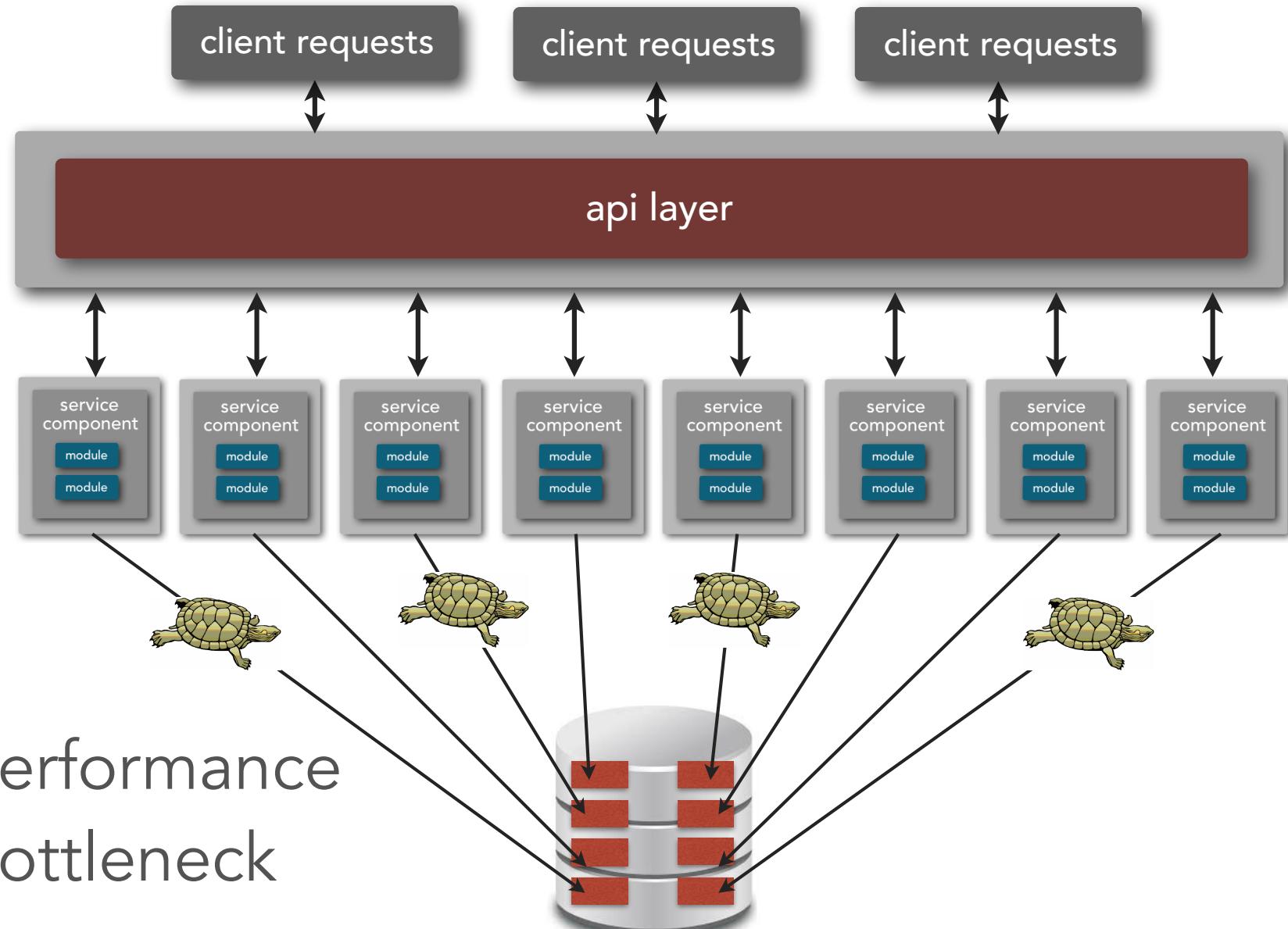
data distribution issues



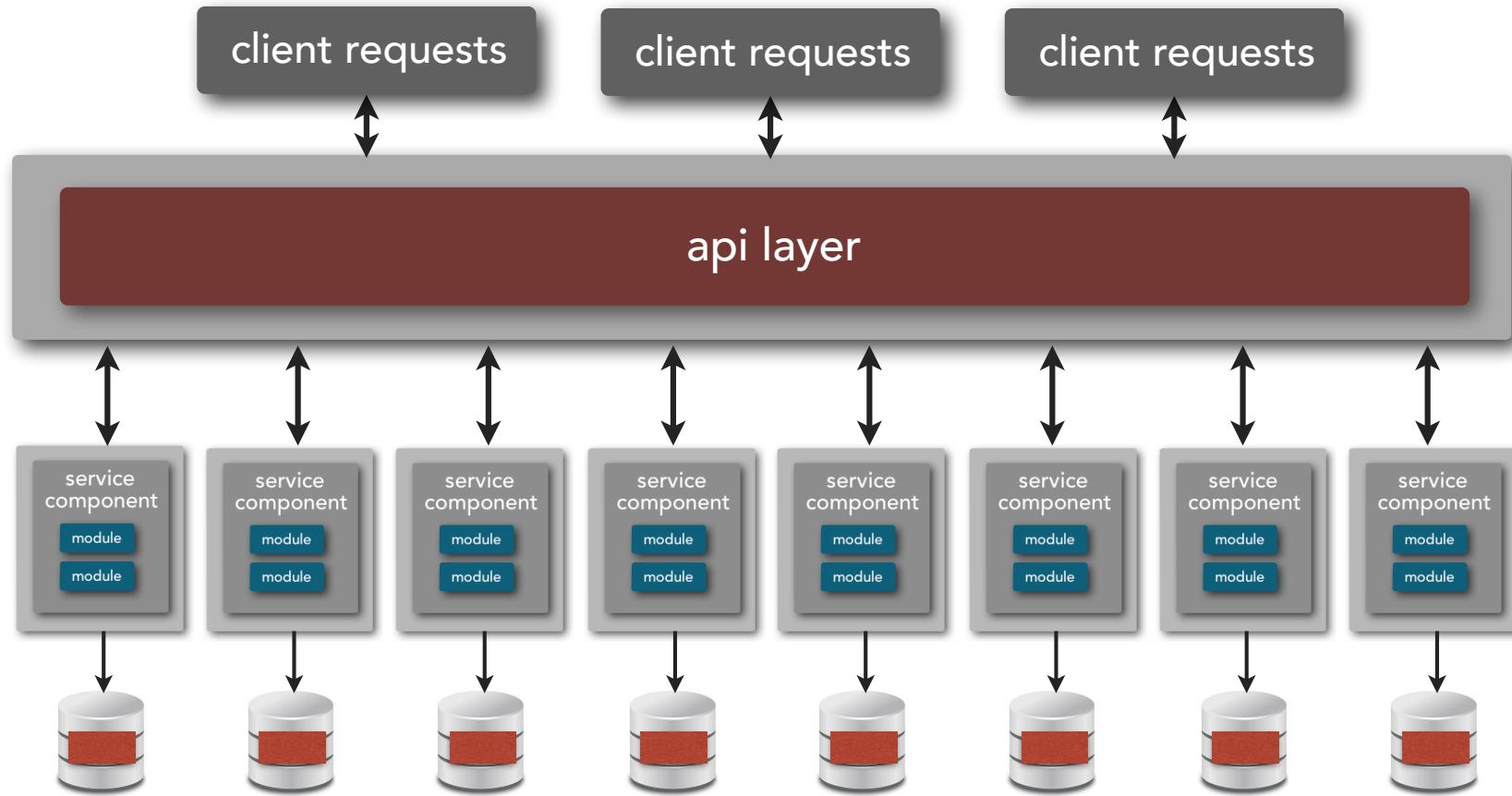
data distribution issues



data distribution issues

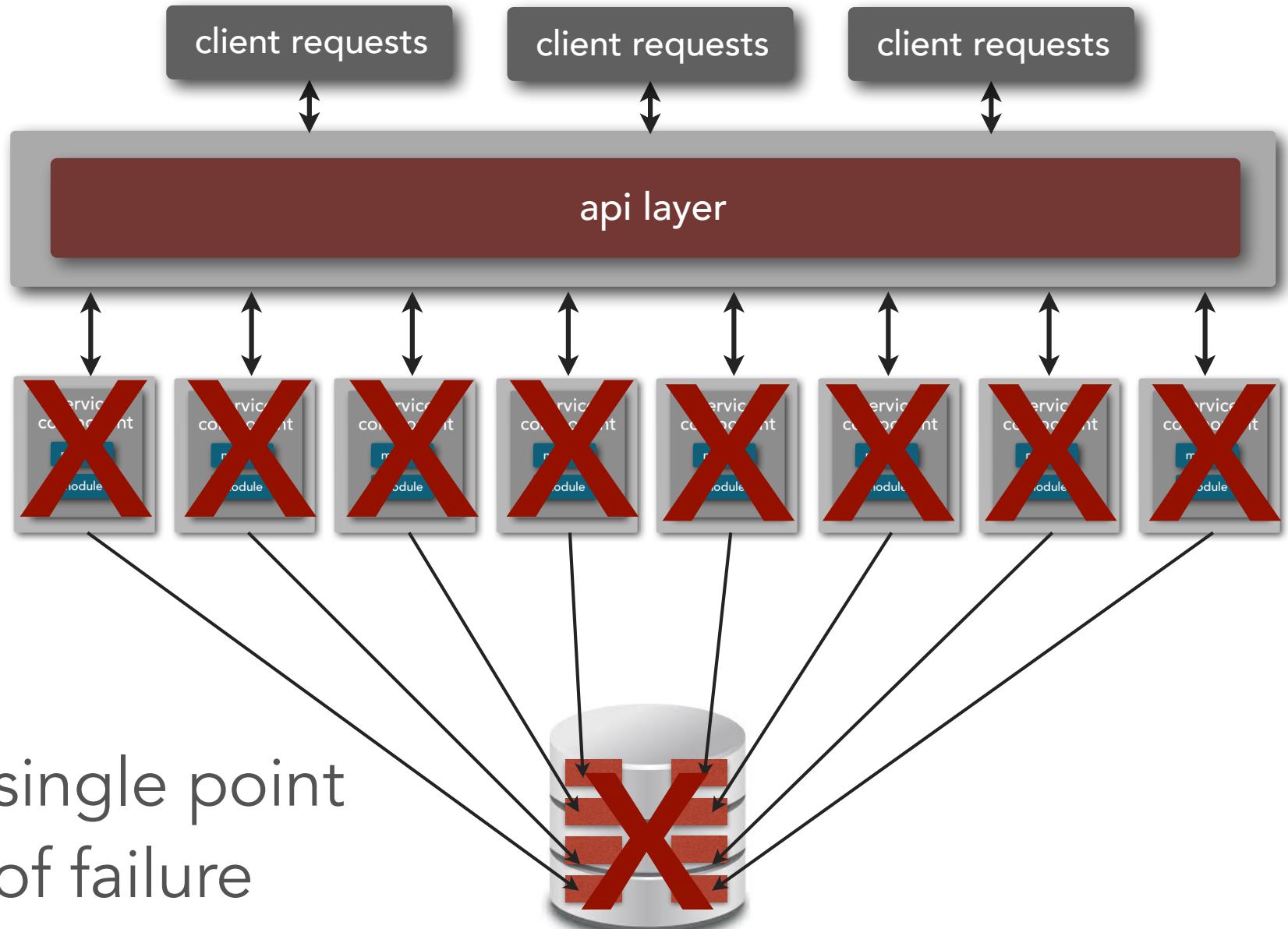


data distribution issues

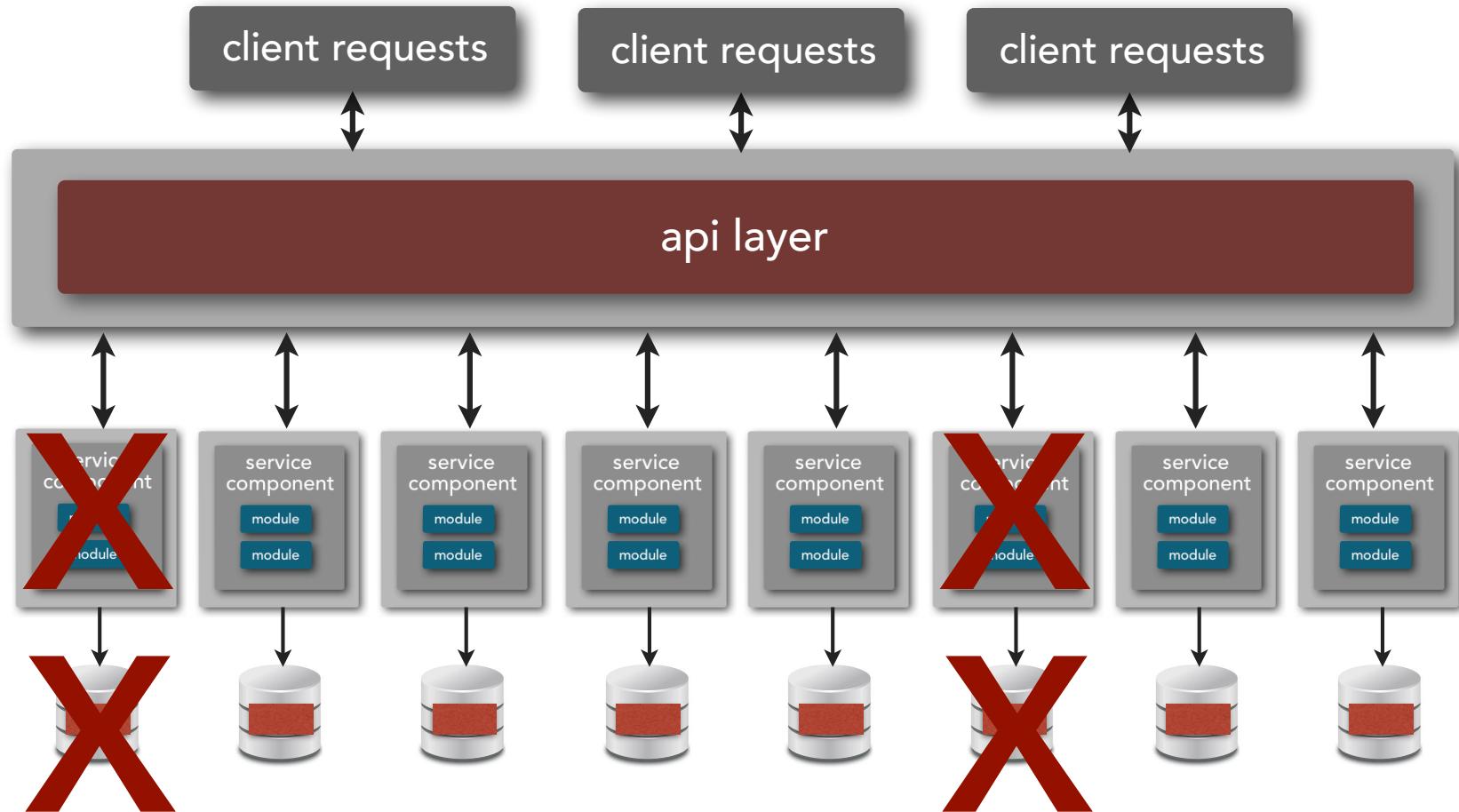


no performance issue

data distribution issues

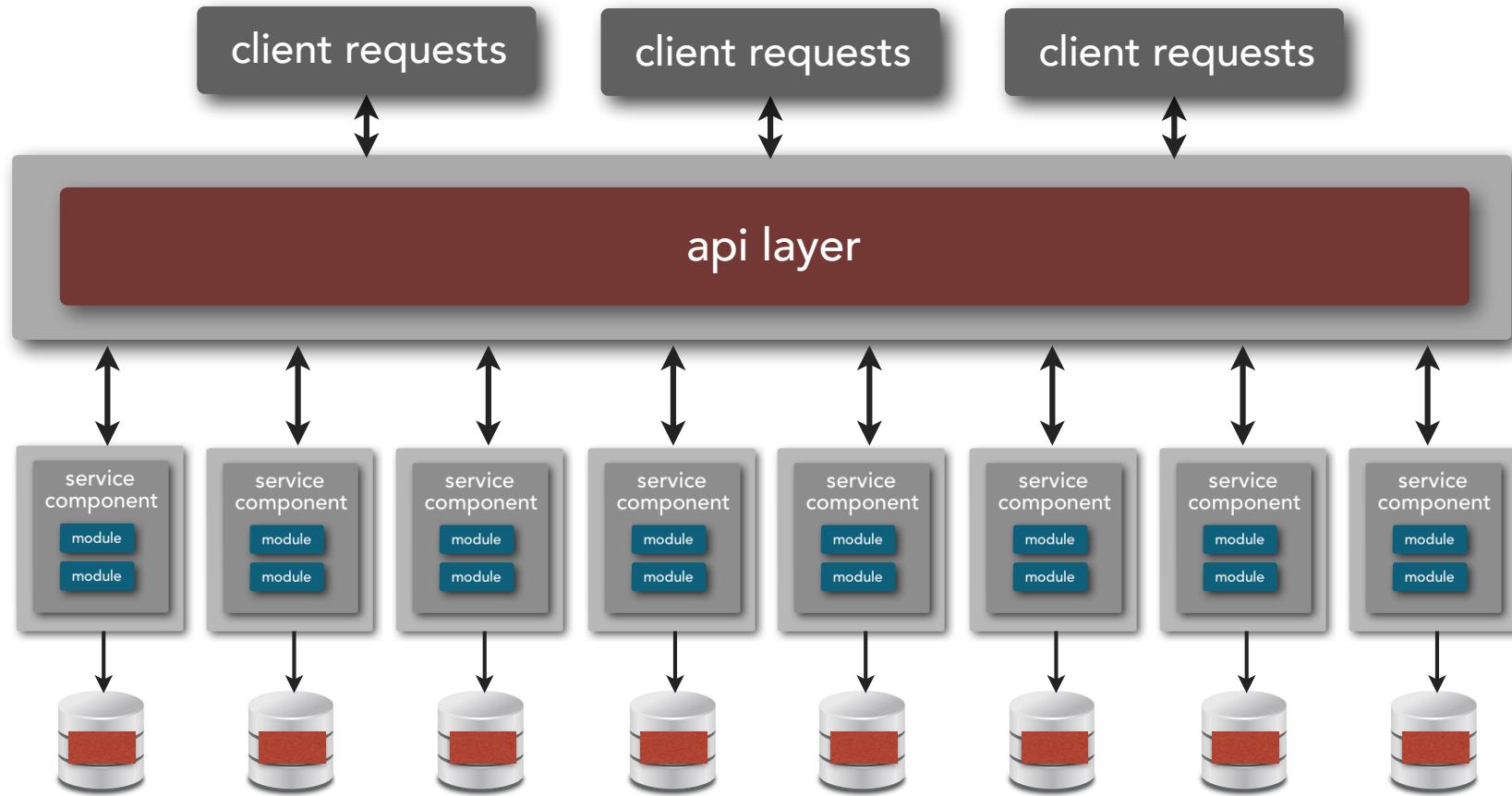


data distribution issues



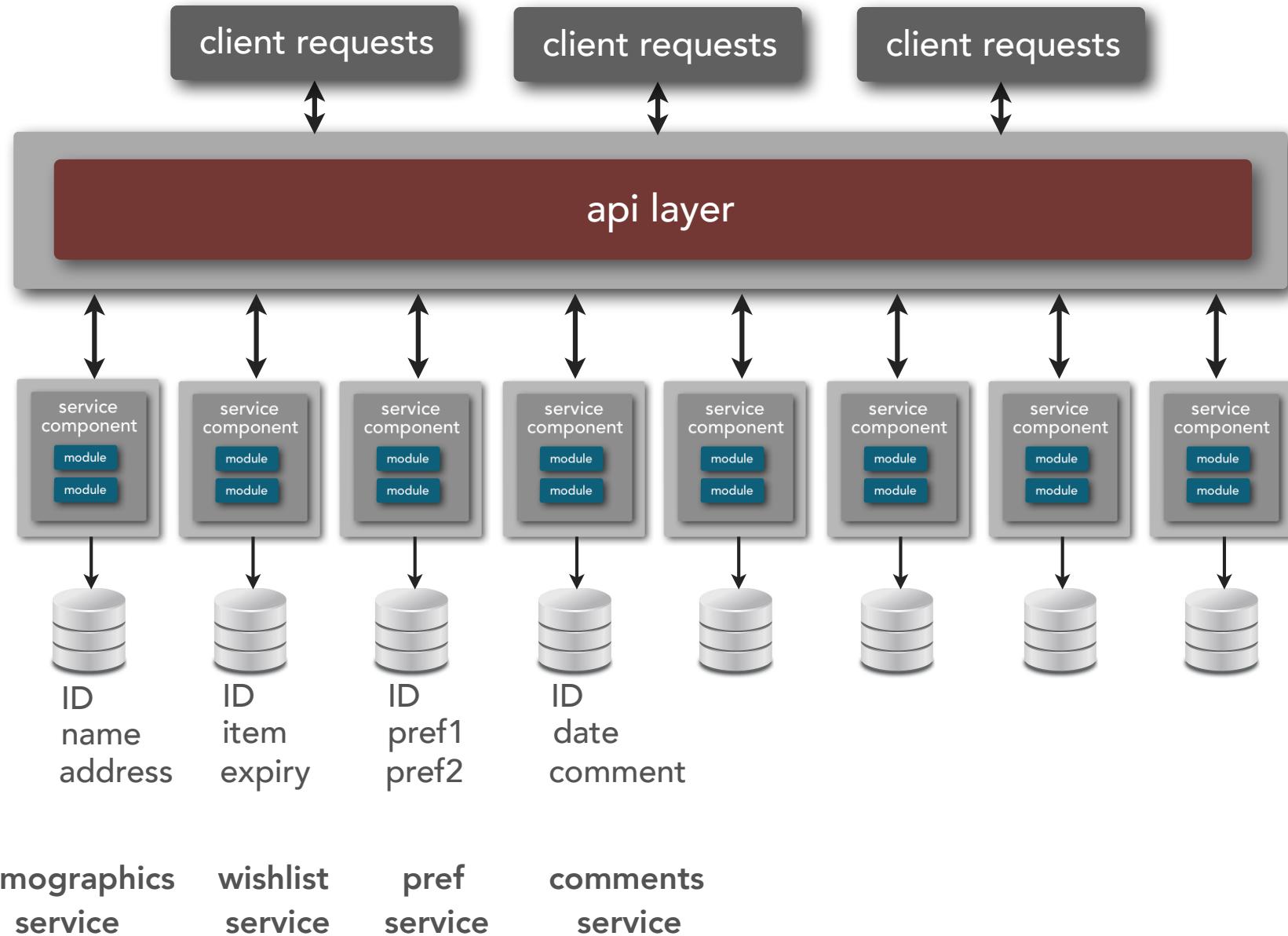
fault tolerance

data distribution issues

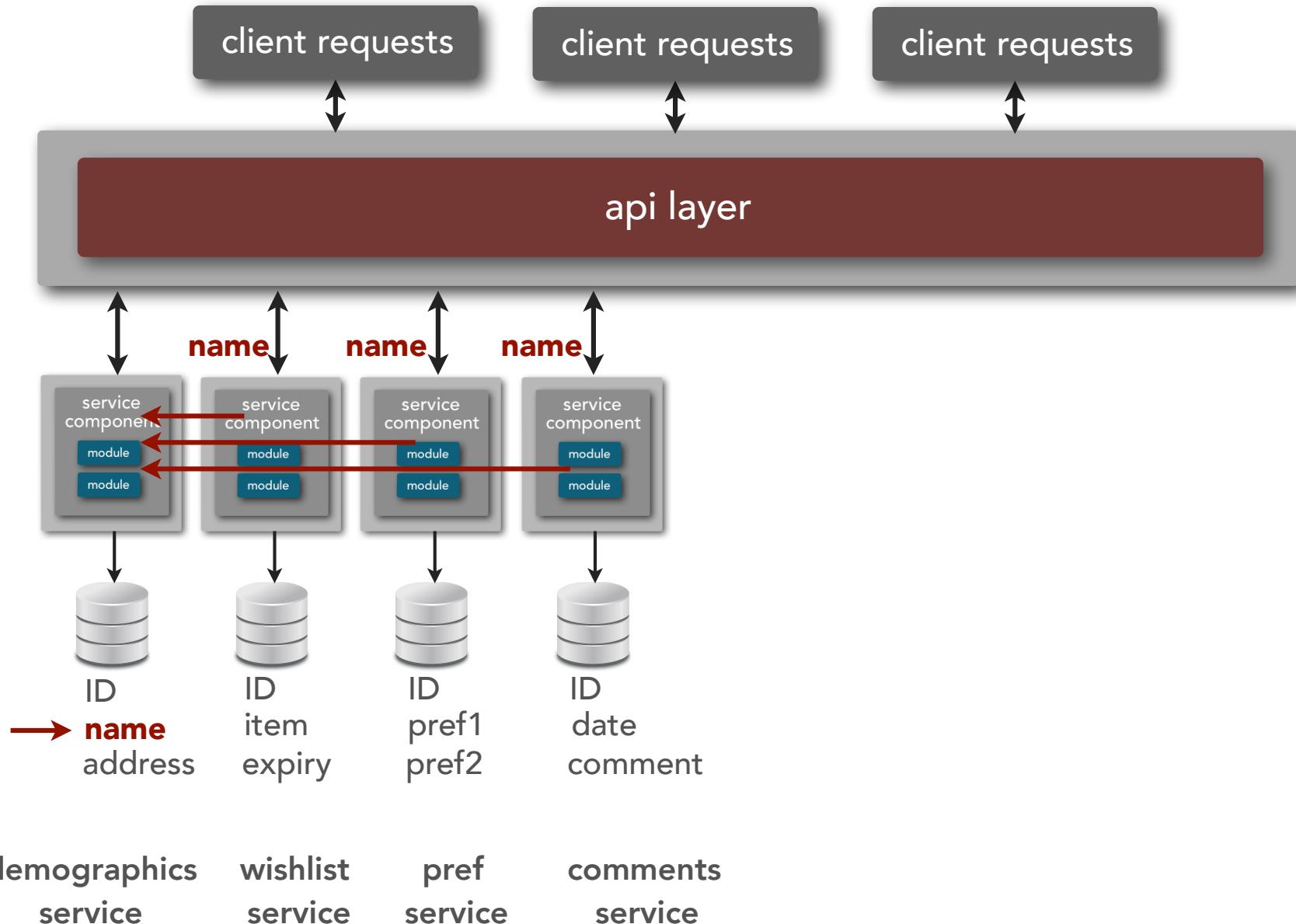


better option?

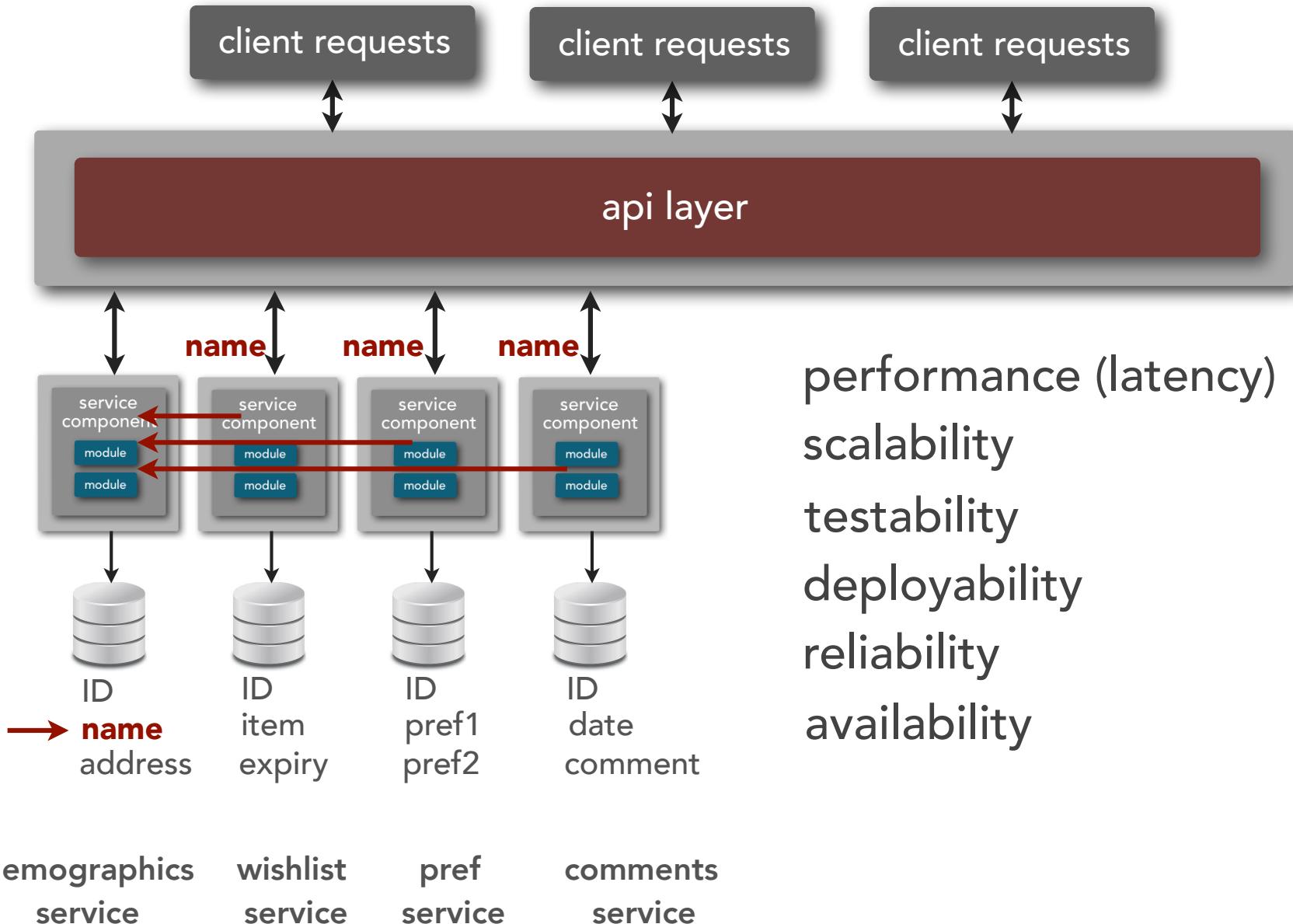
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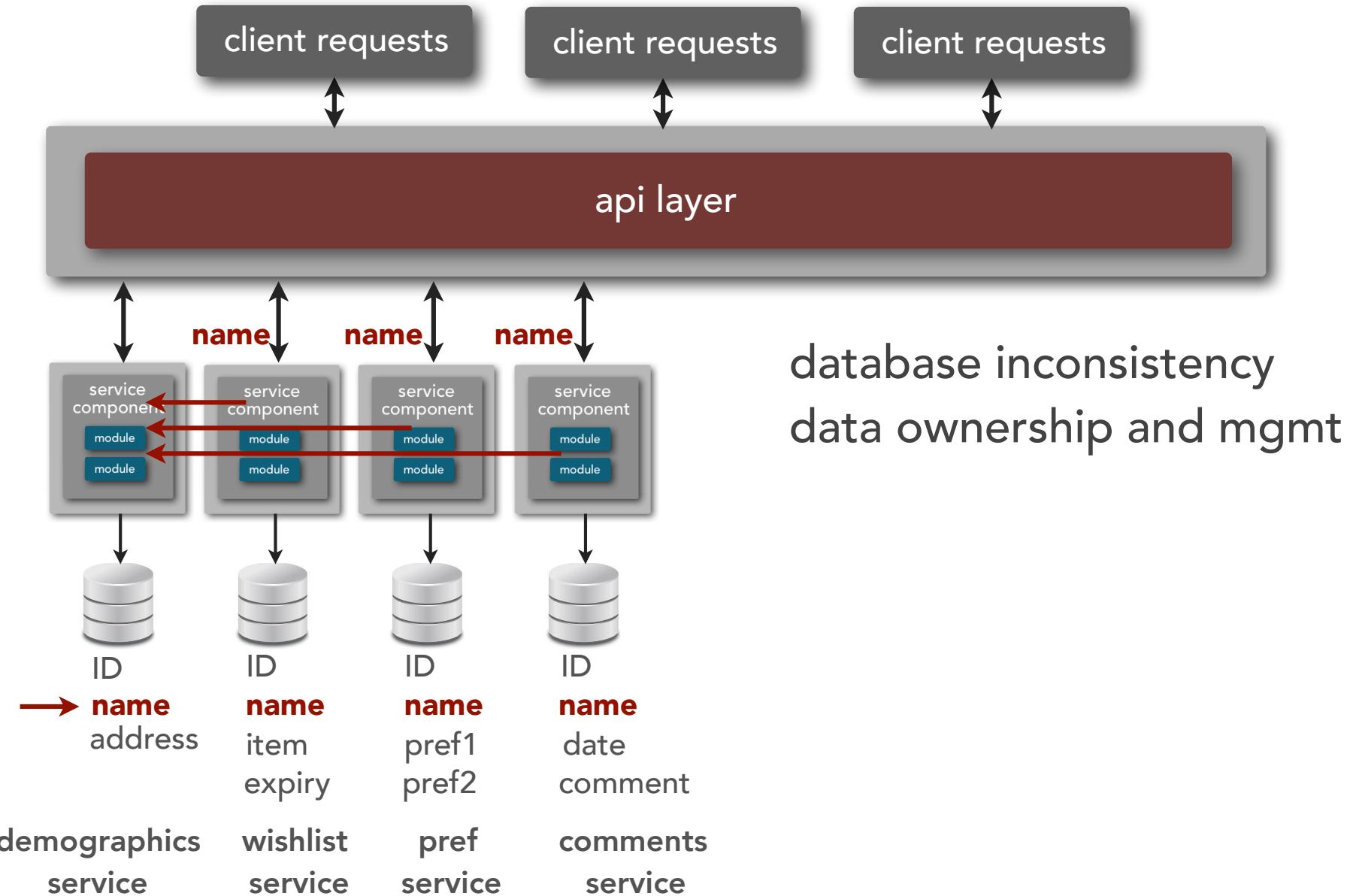
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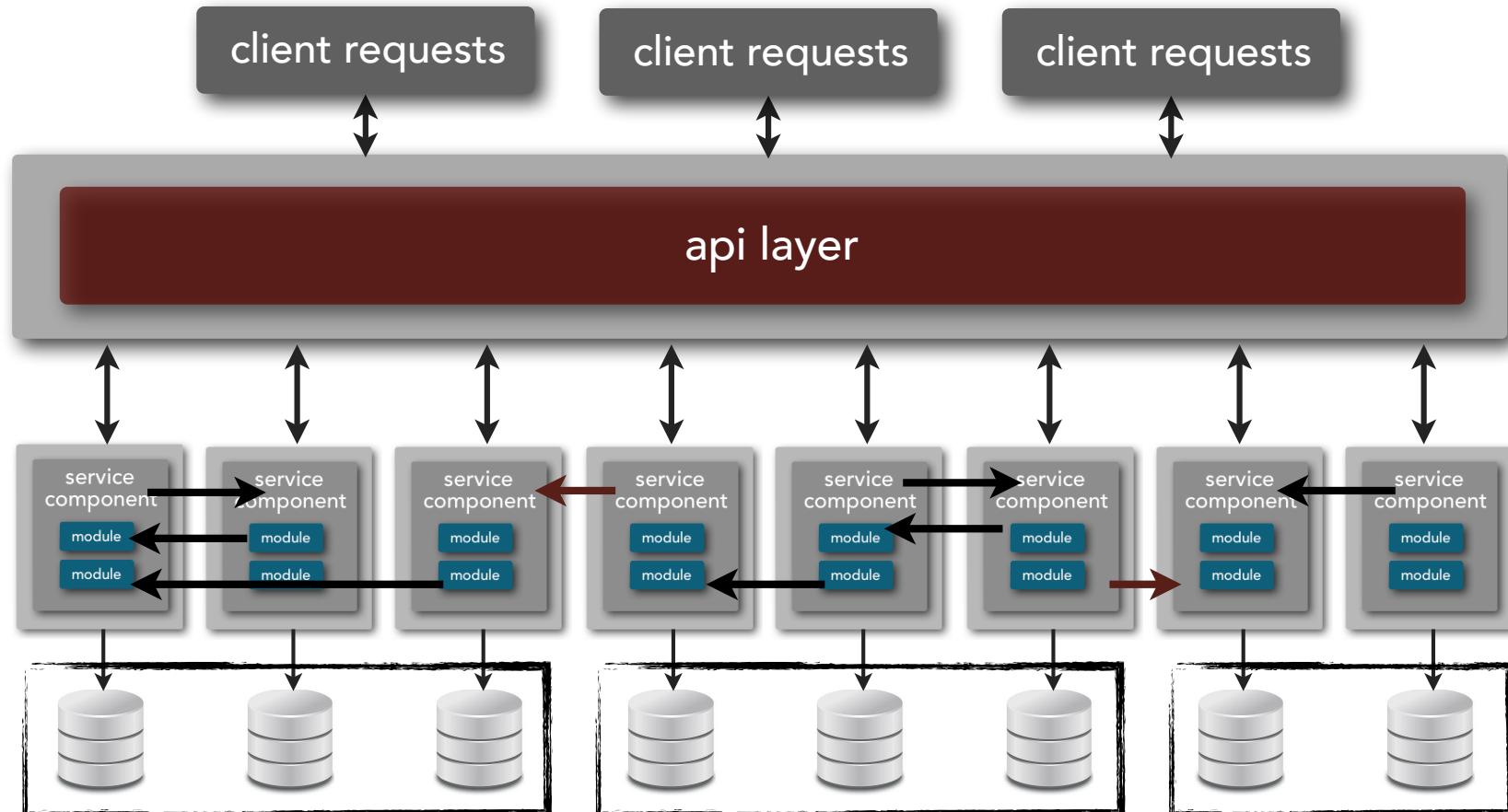
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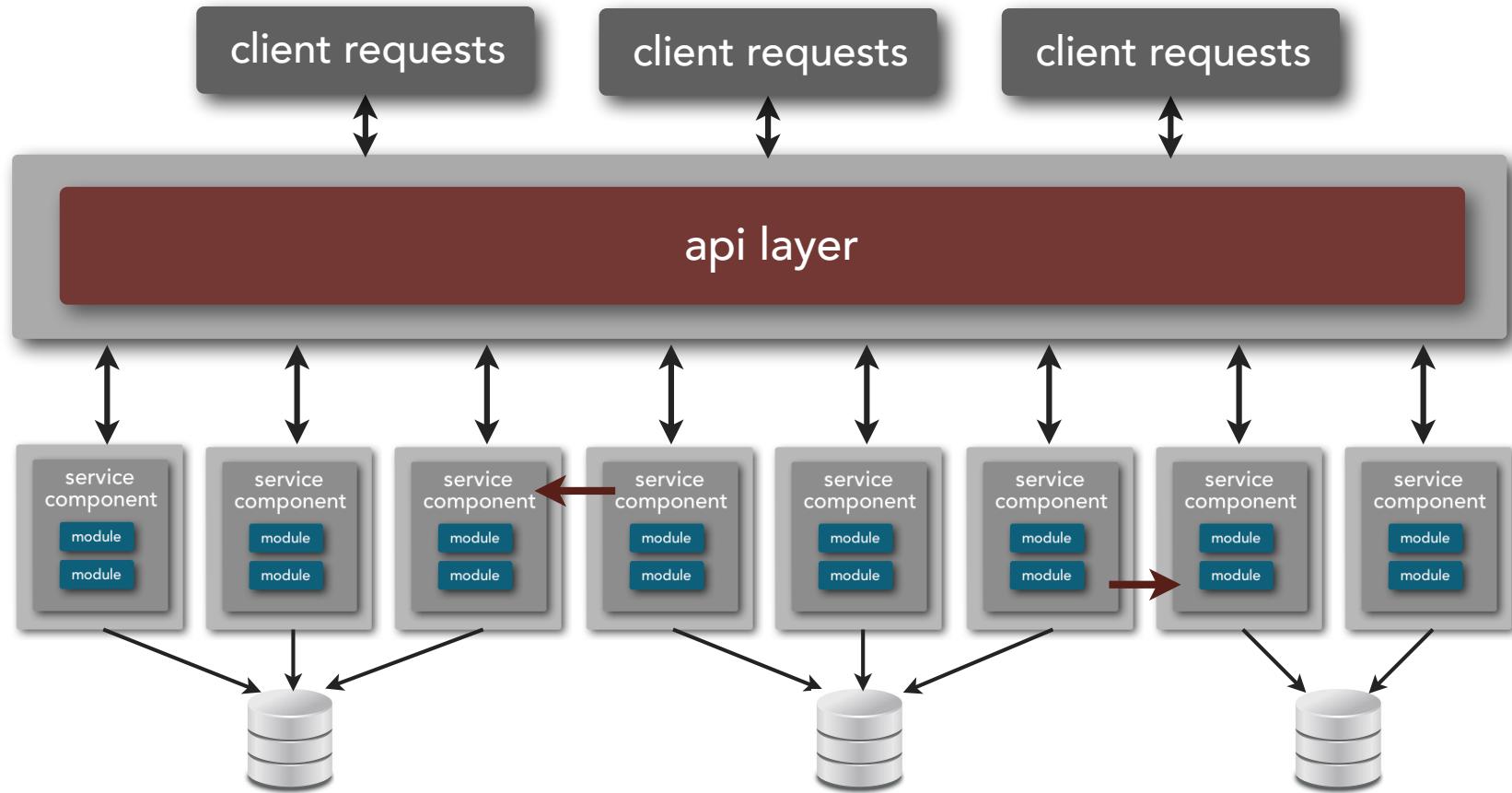
data distribution issues



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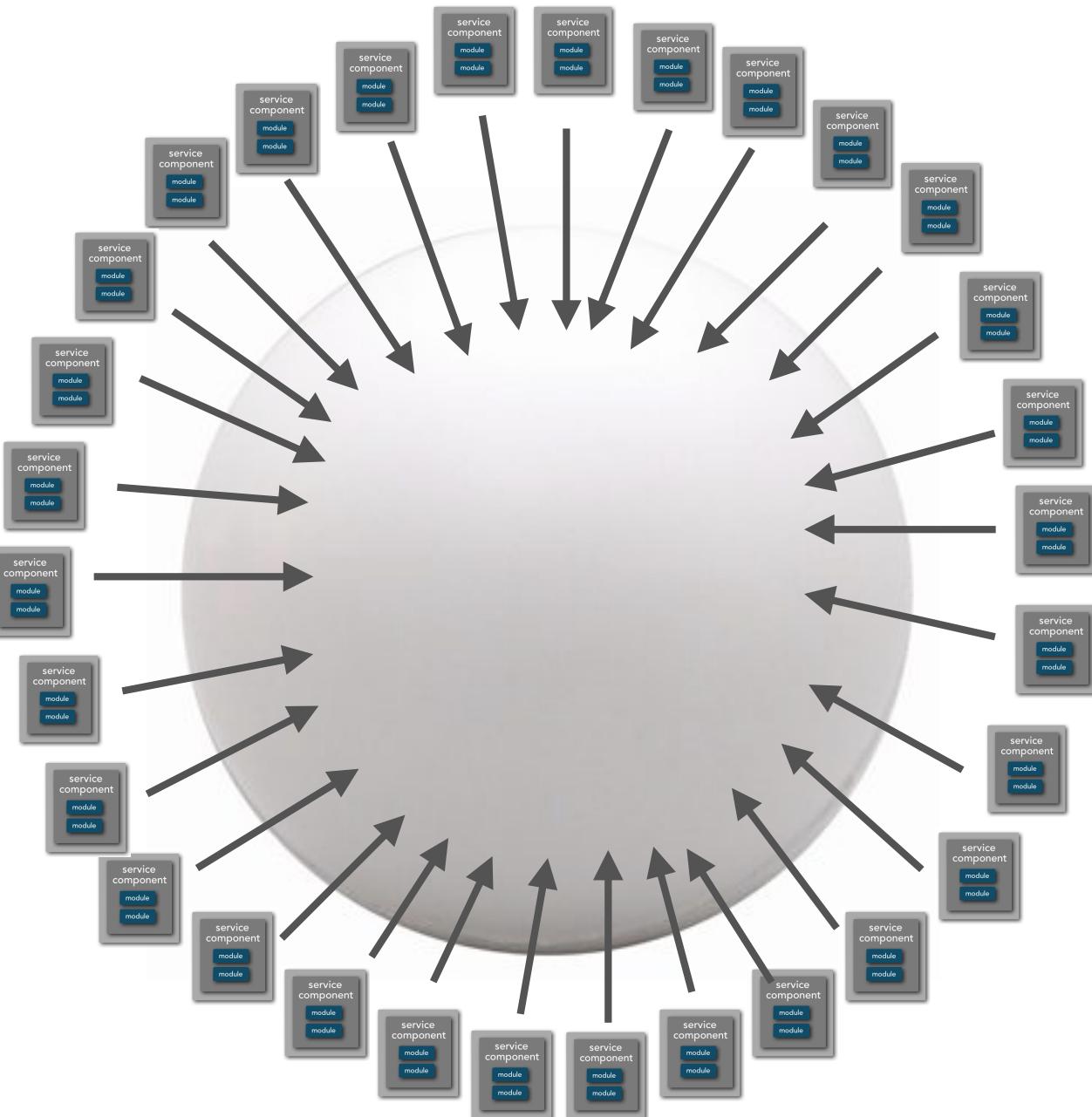


data distribution issues



Creating Data Domains

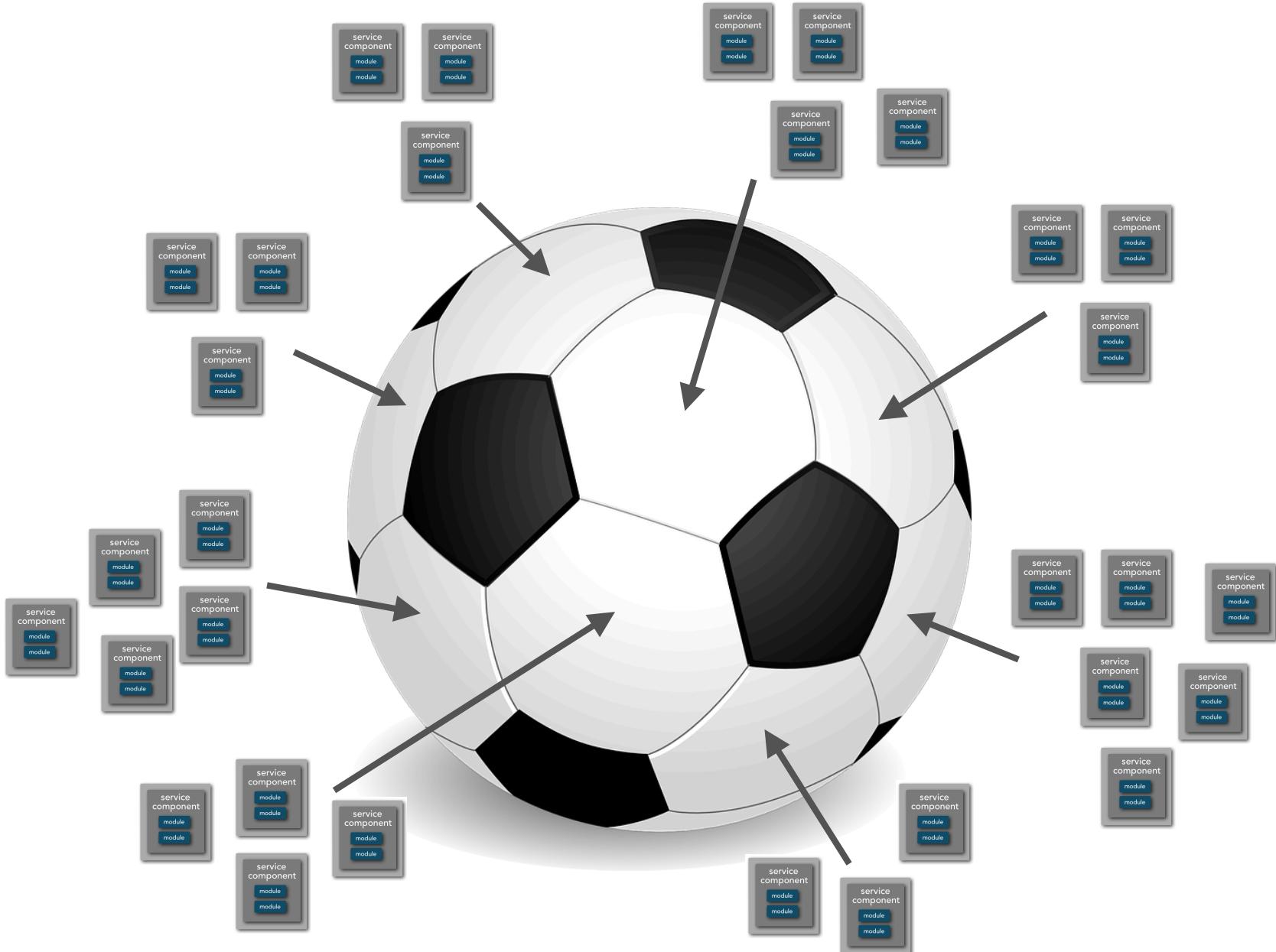
creating data domains



creating data domains

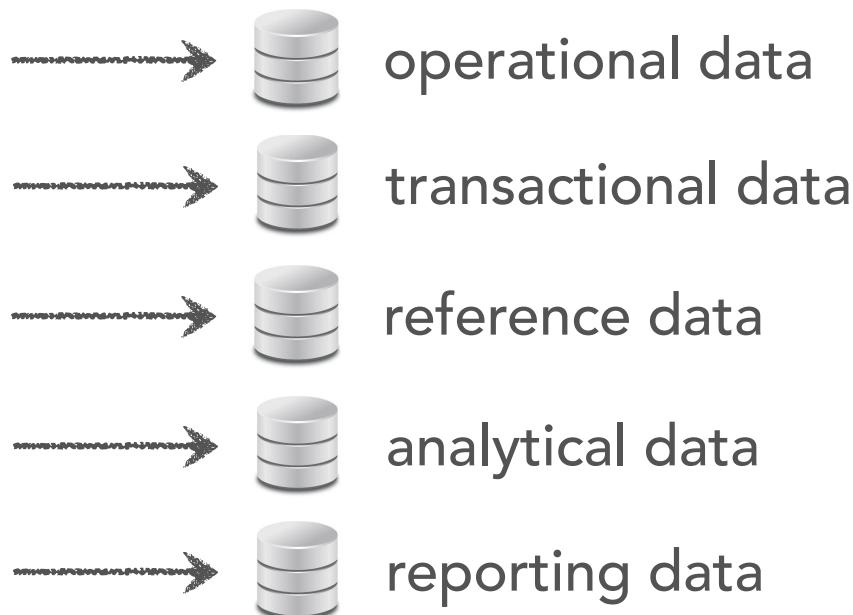


creating data domains



creating data domains

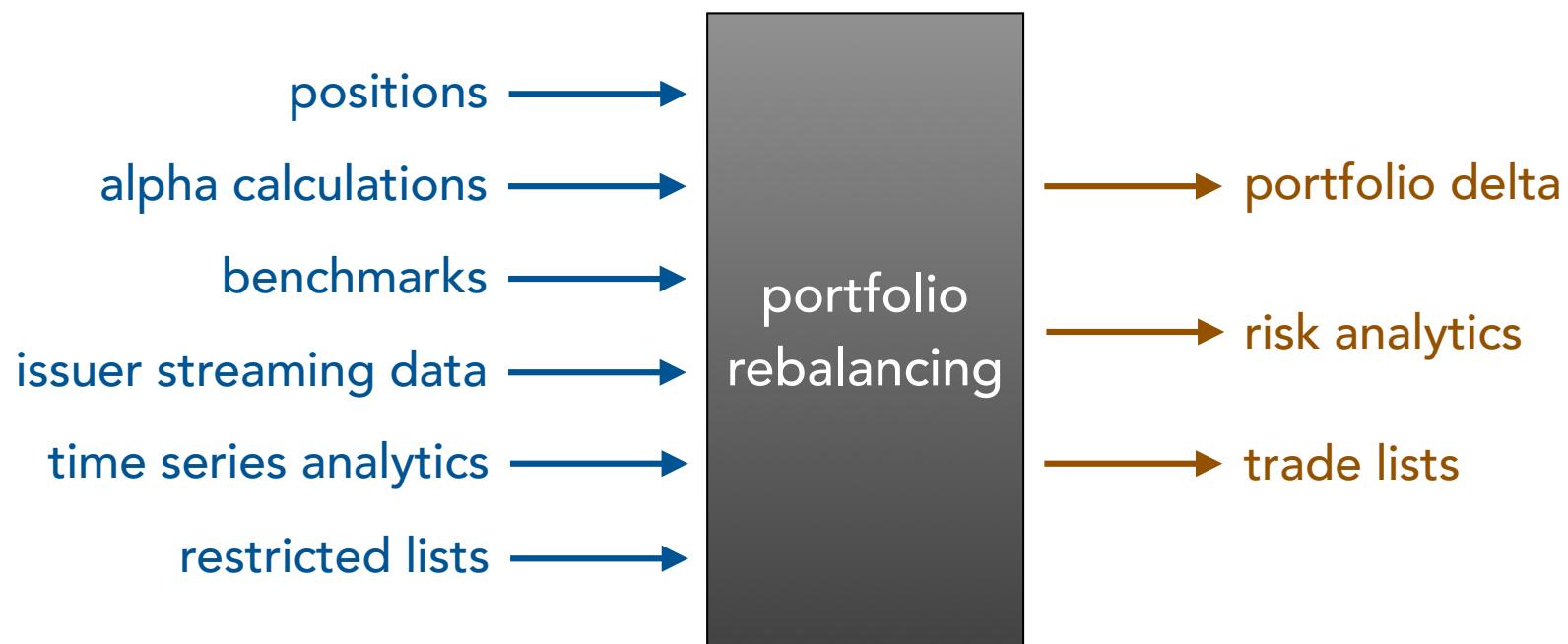
create data taxonomy (classification)



creating data domains

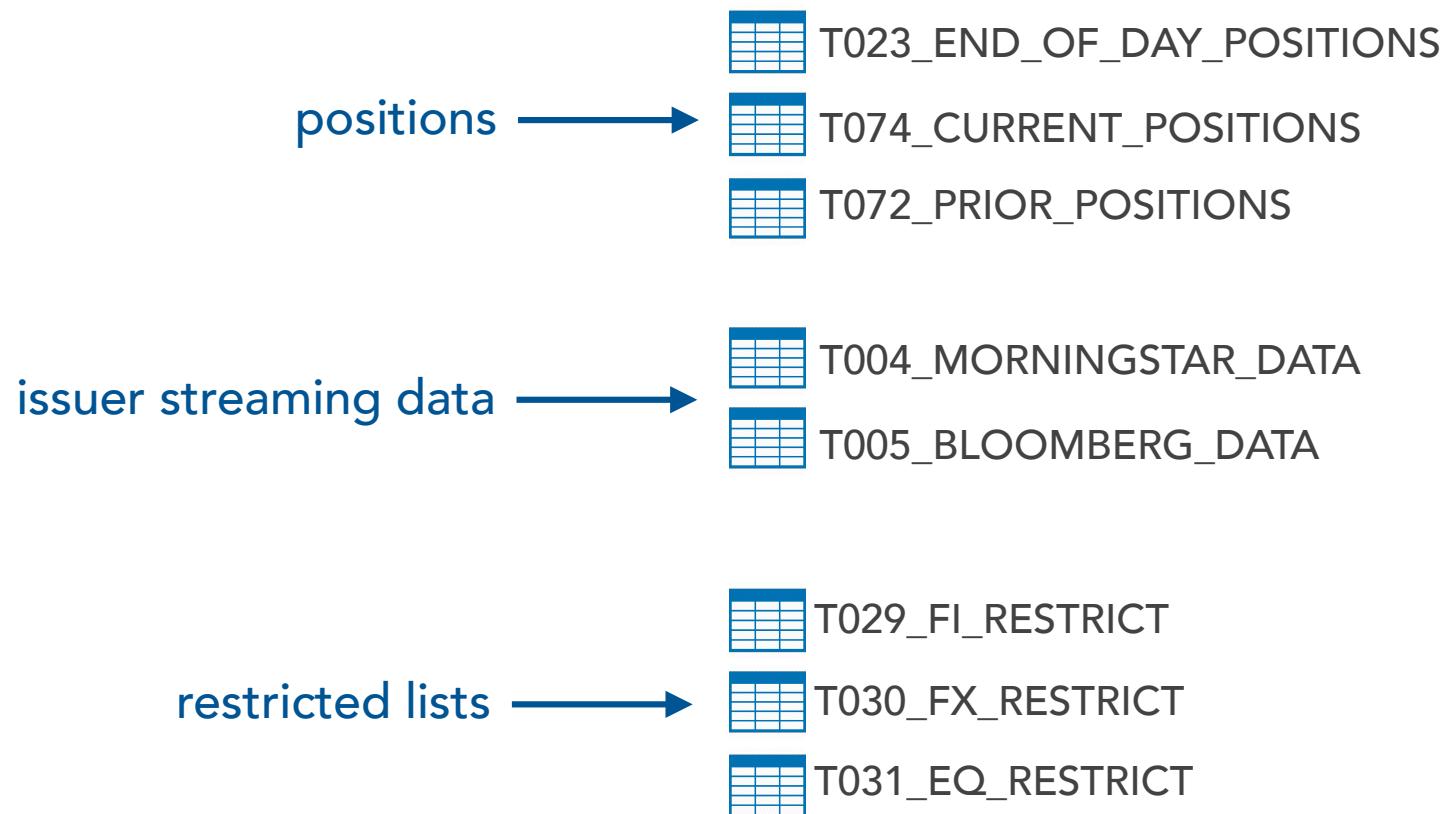
map information to business functions

input information → process → output information



creating data domains

map information to physical database tables



creating data domains



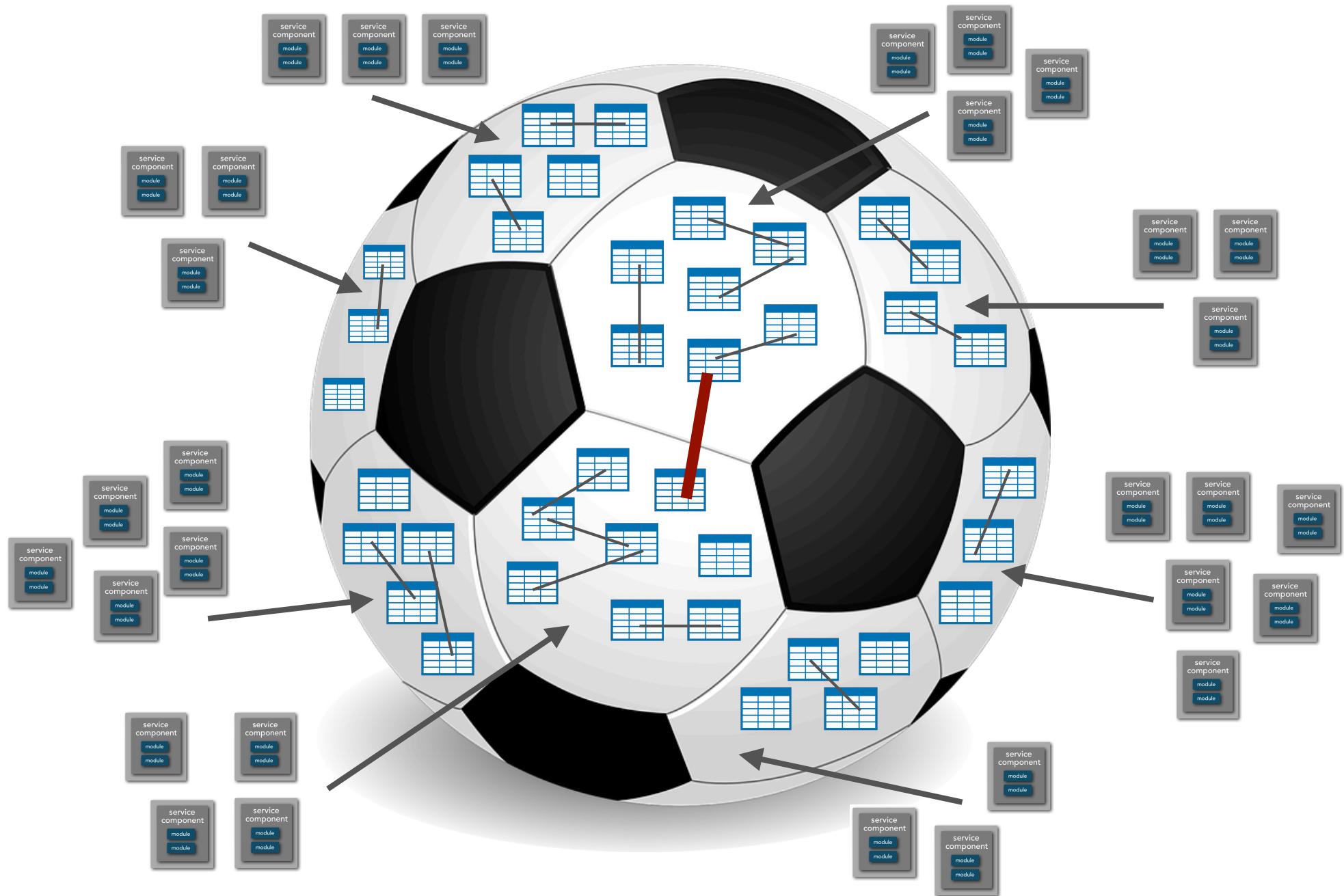
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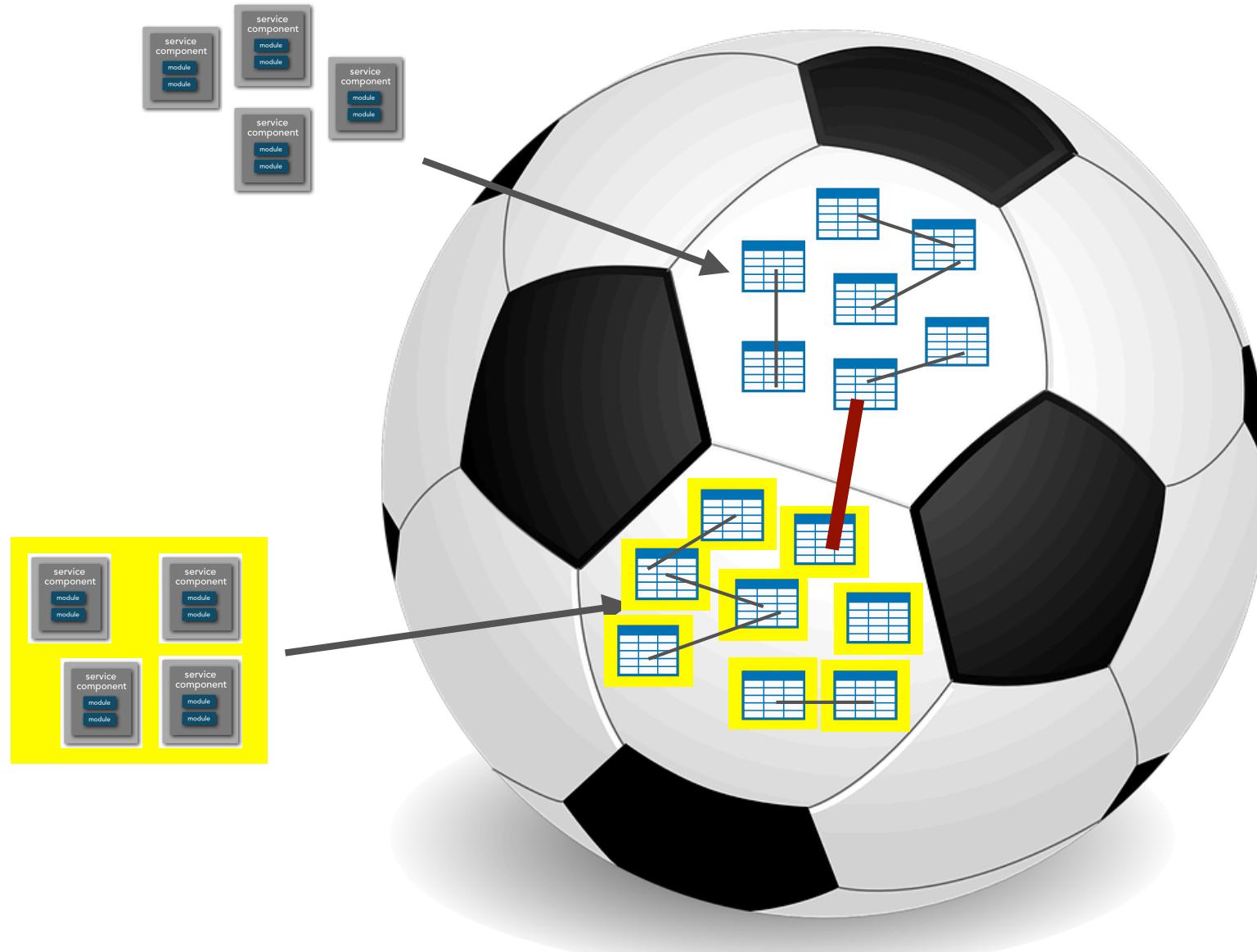
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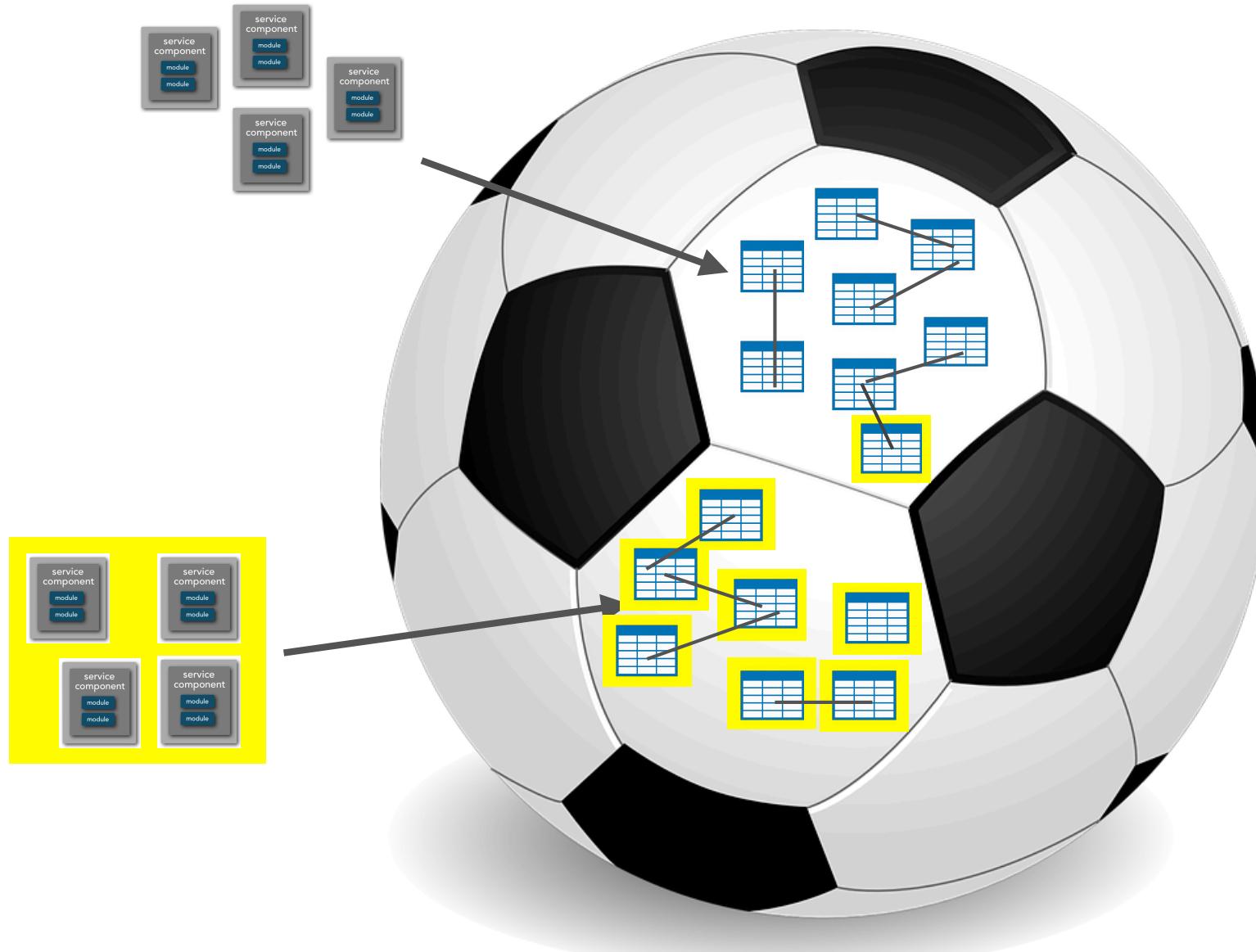
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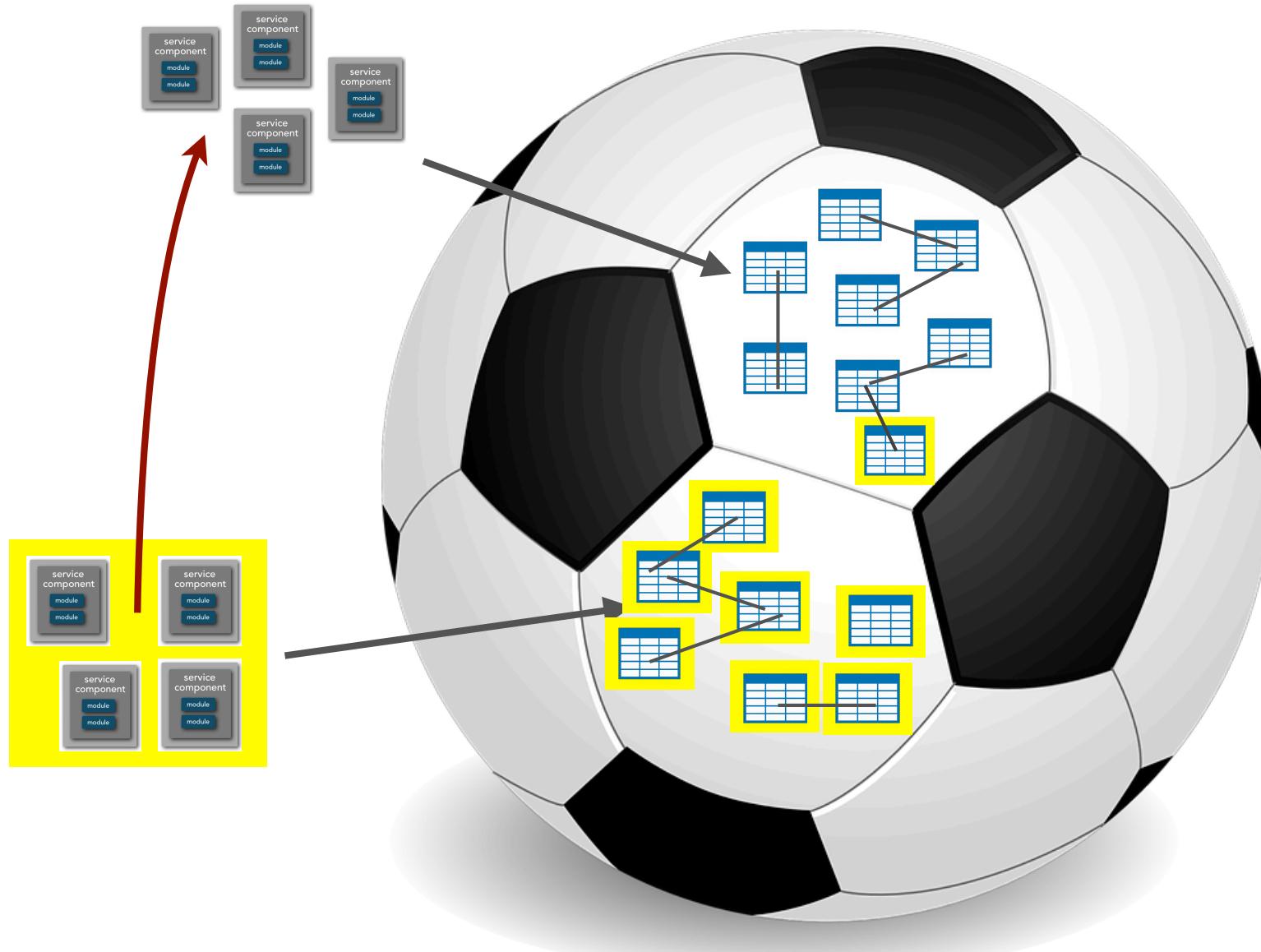
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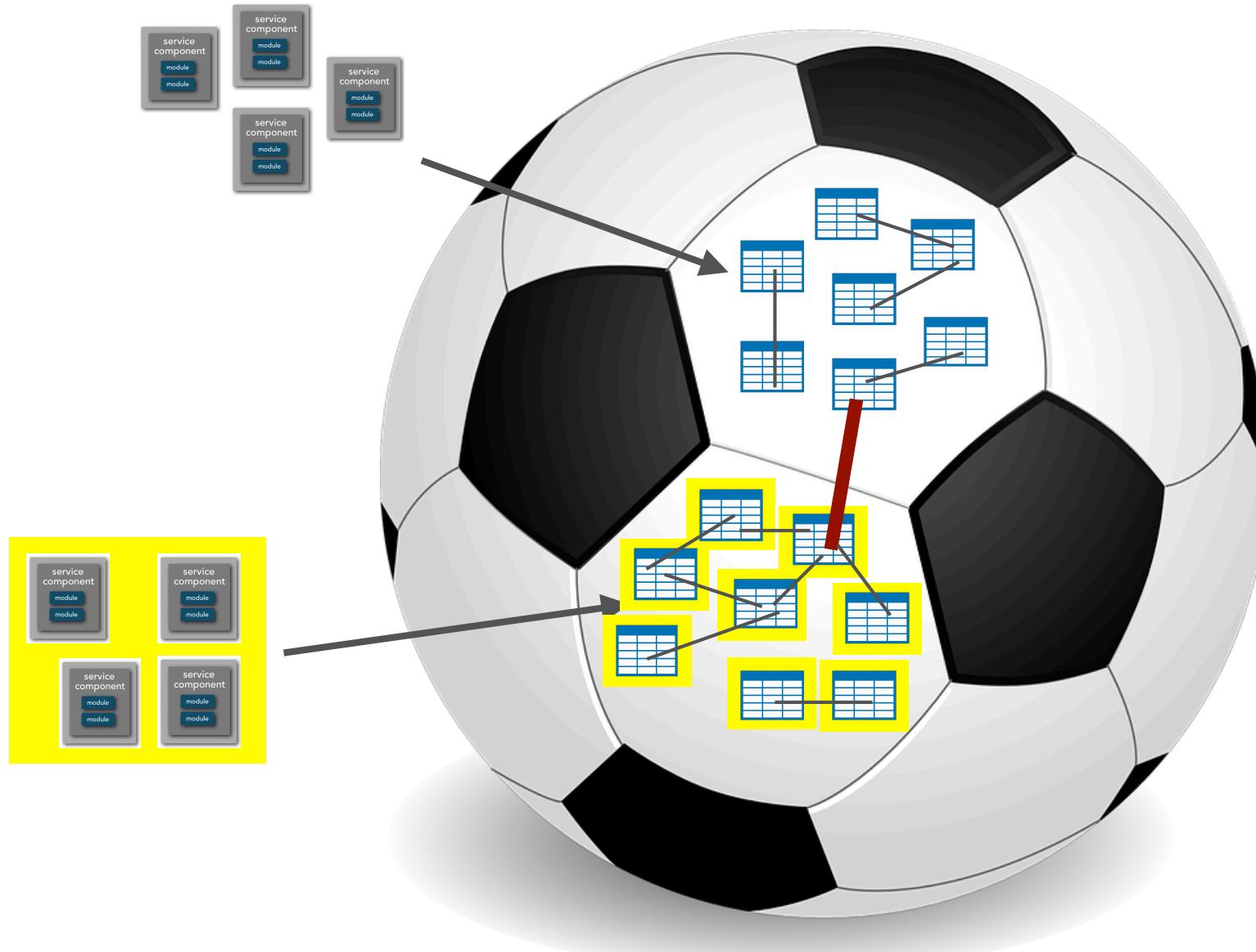
creating data domains



creating data domains



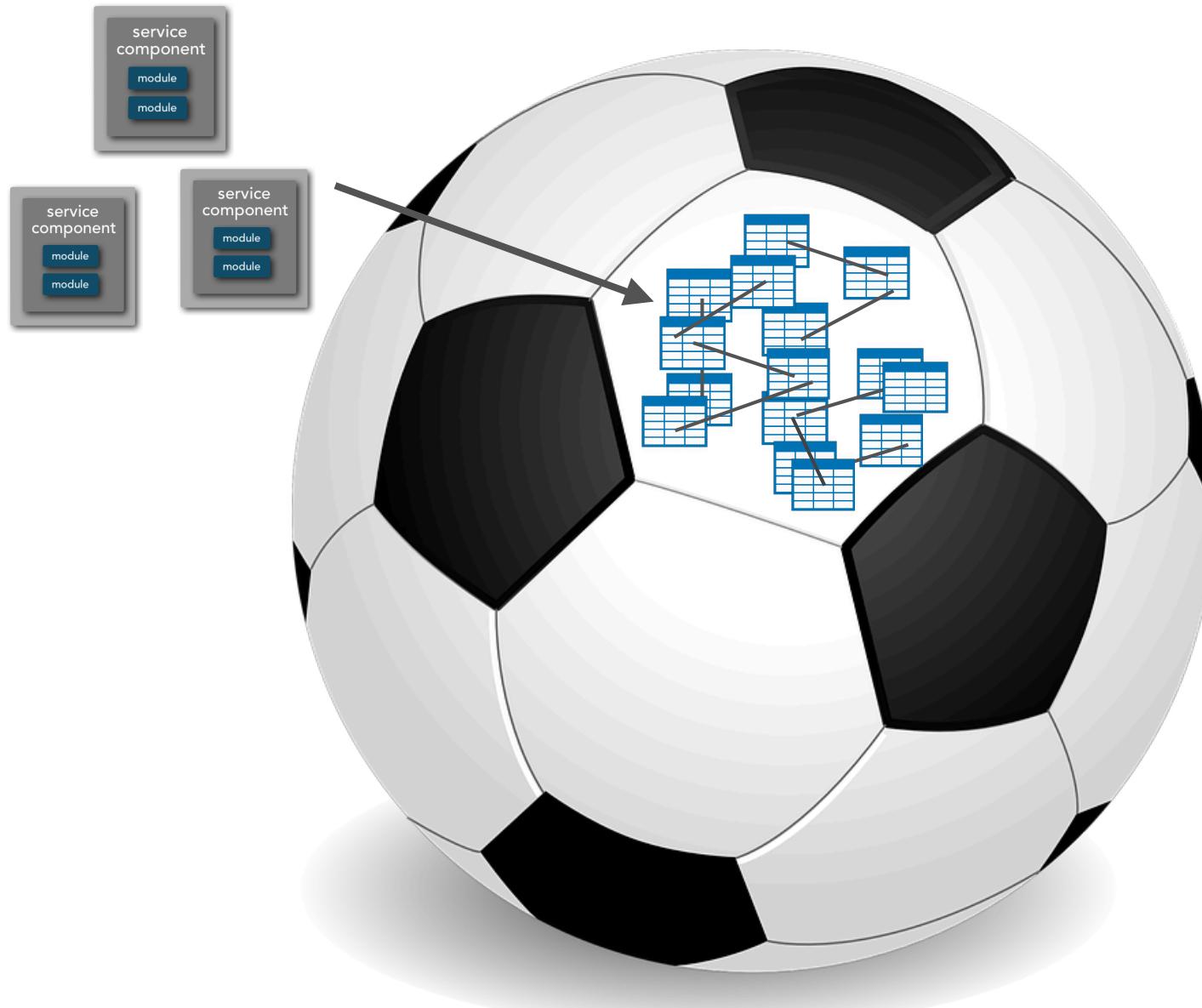
creating data domains



creating data domains

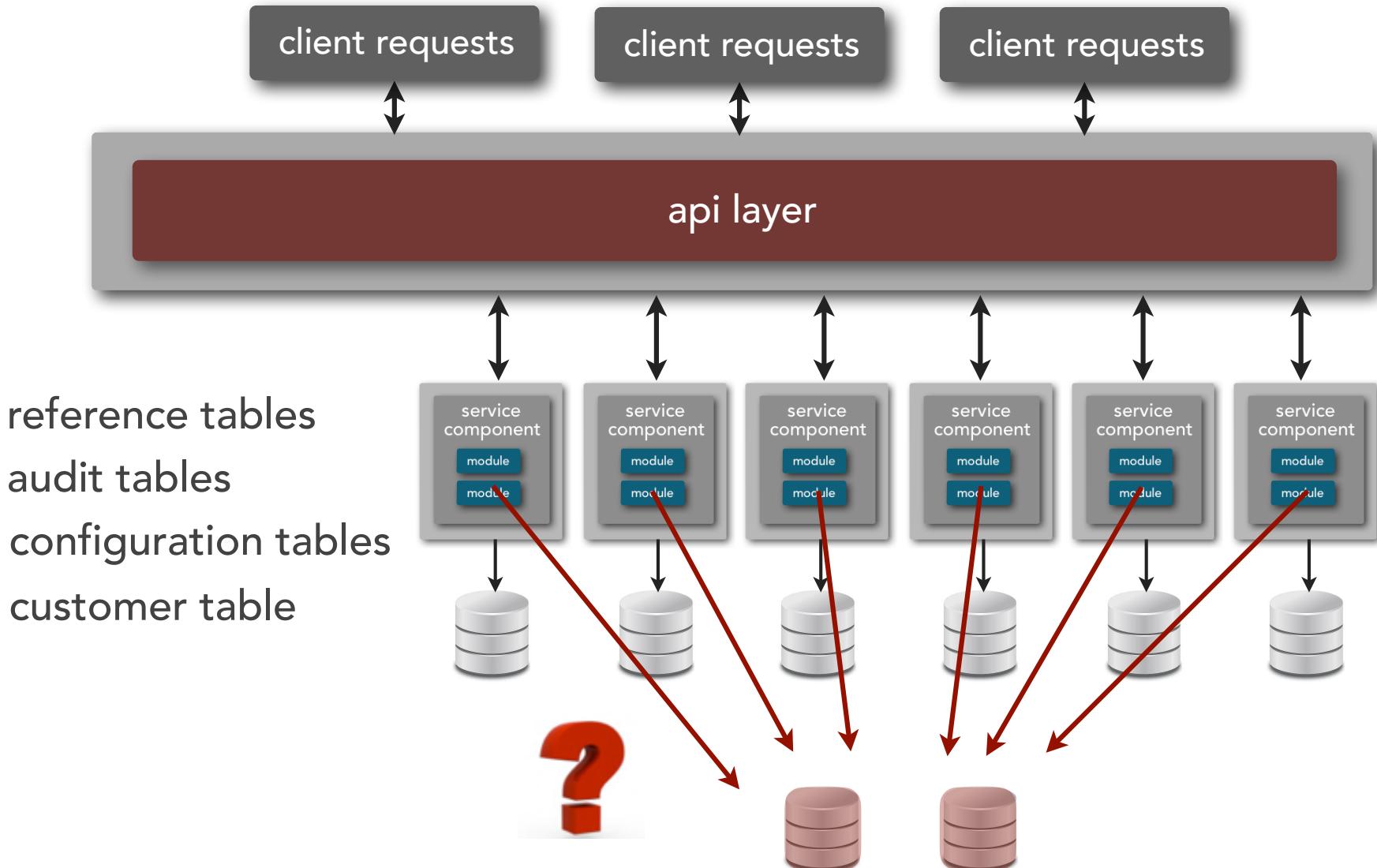


creating data domains

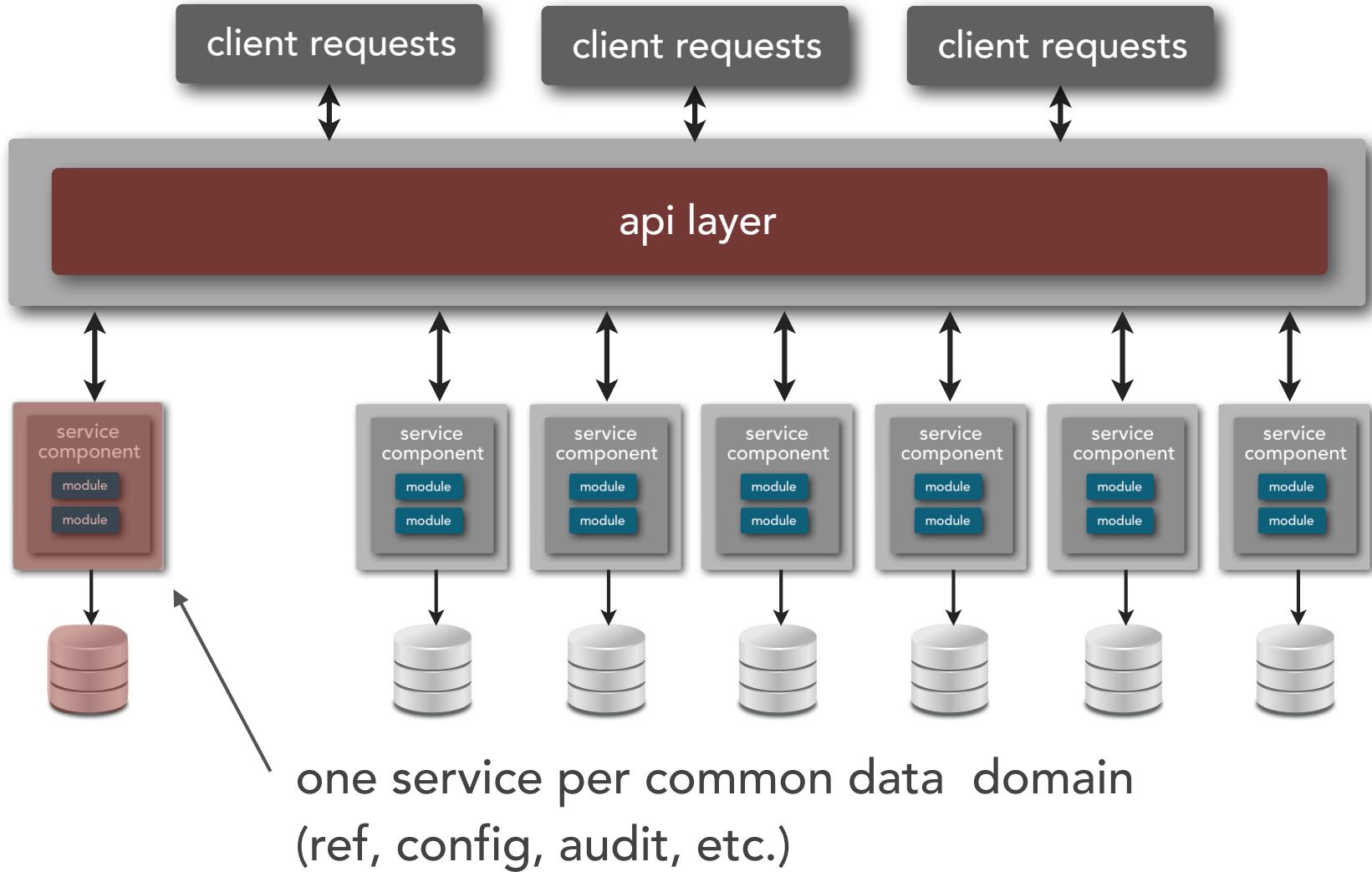


Handling Common Data

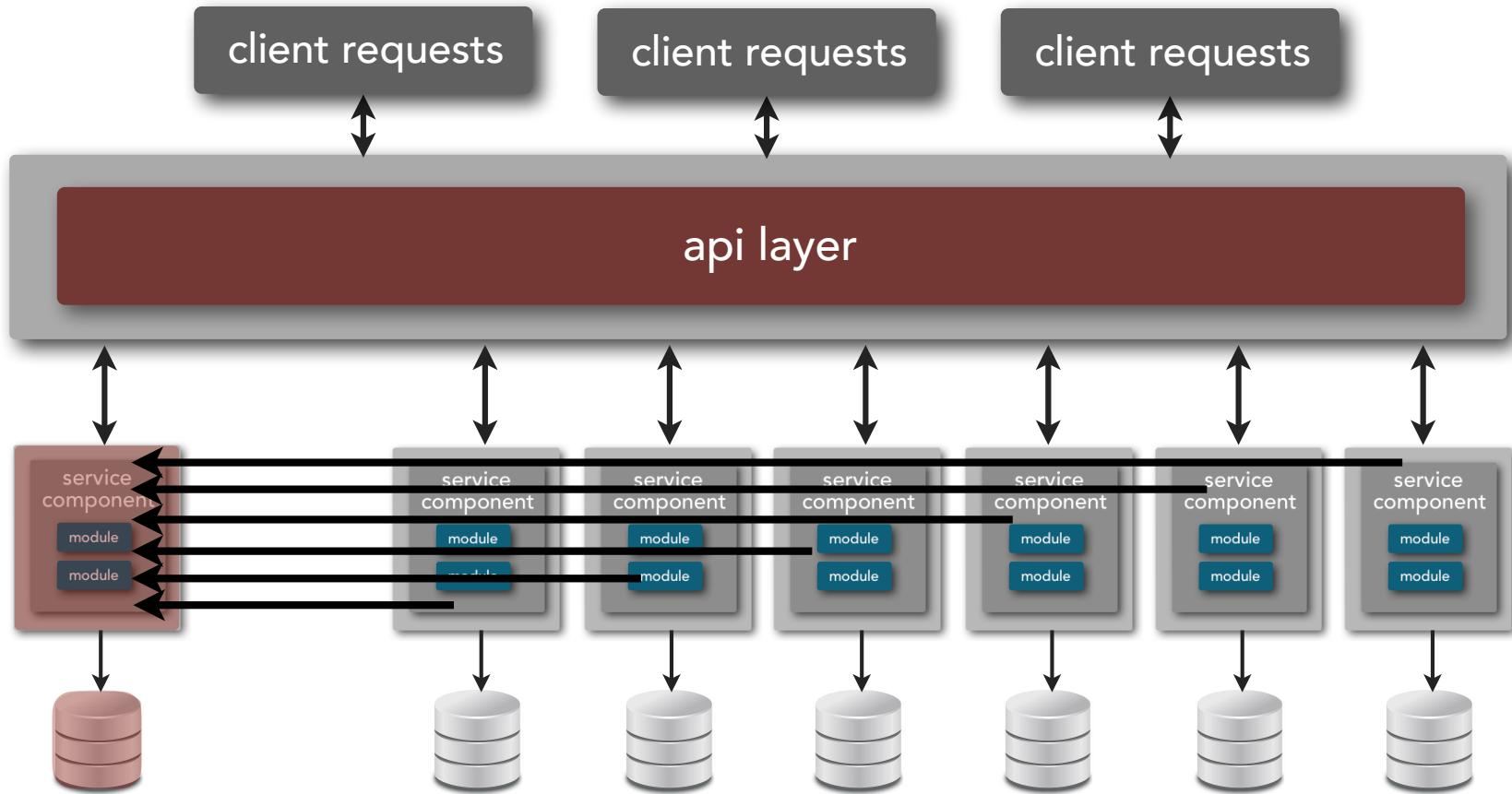
common data



common data

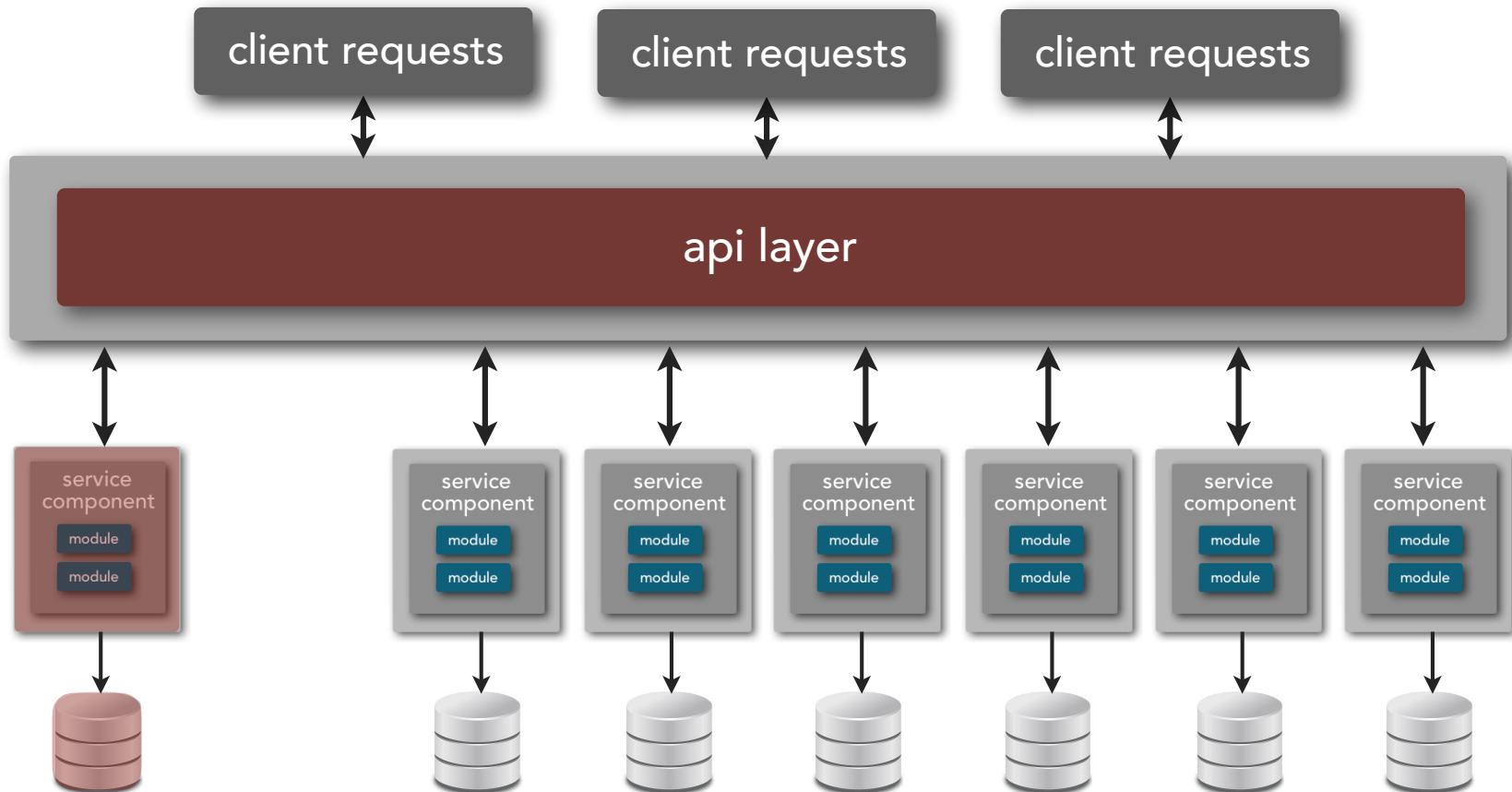


common data

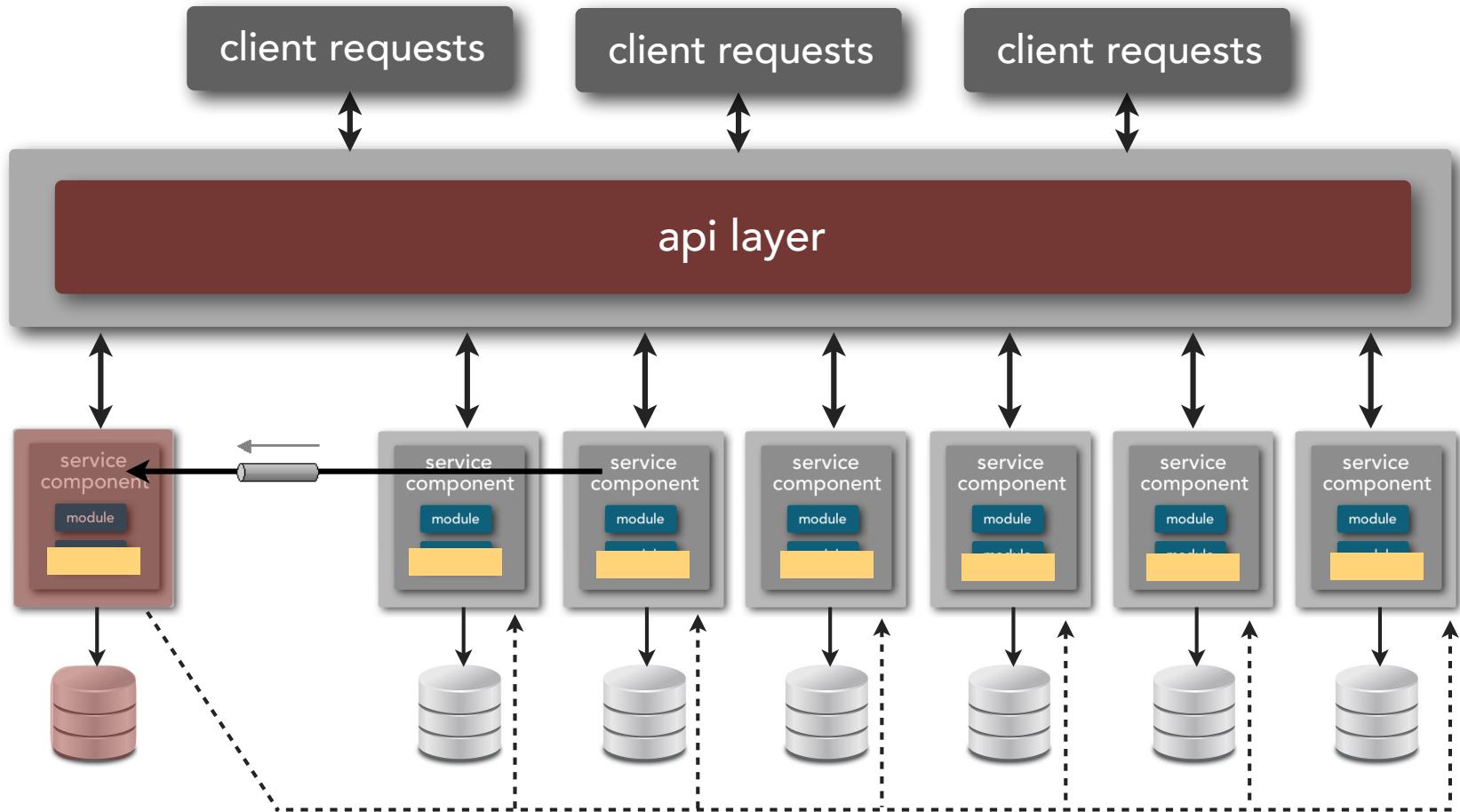


inter-service communication

common data



common data



distributed cache

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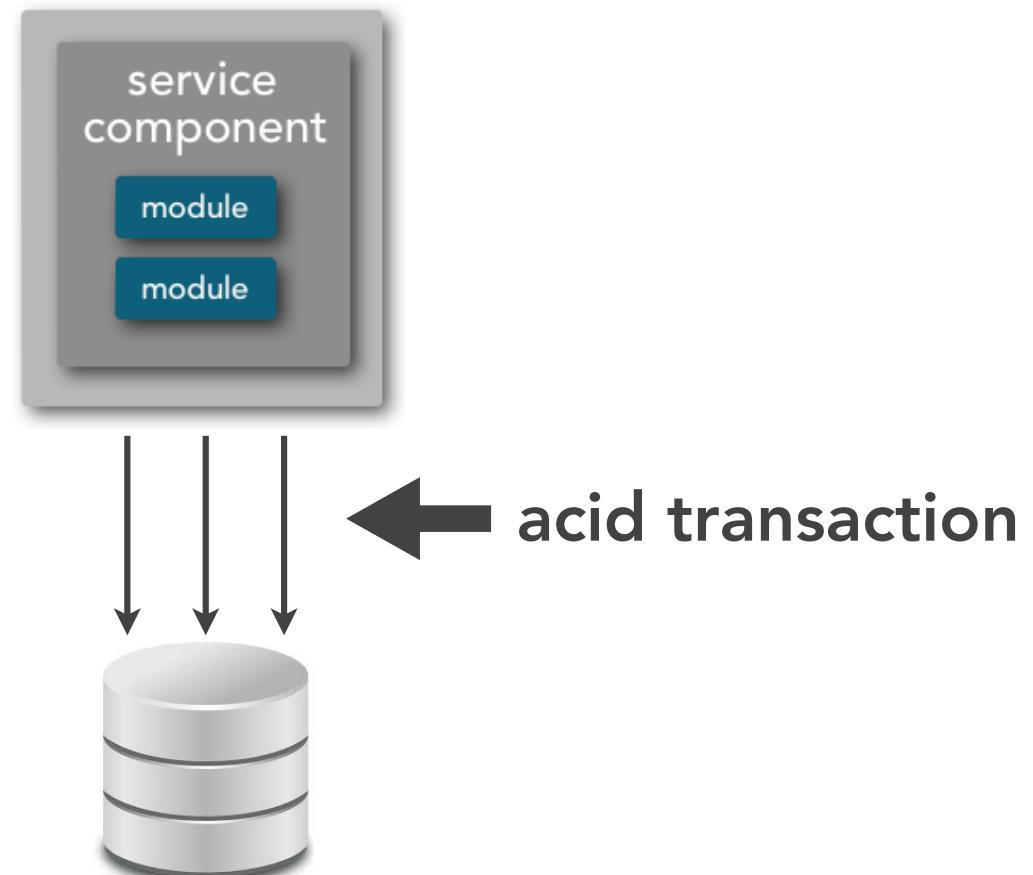
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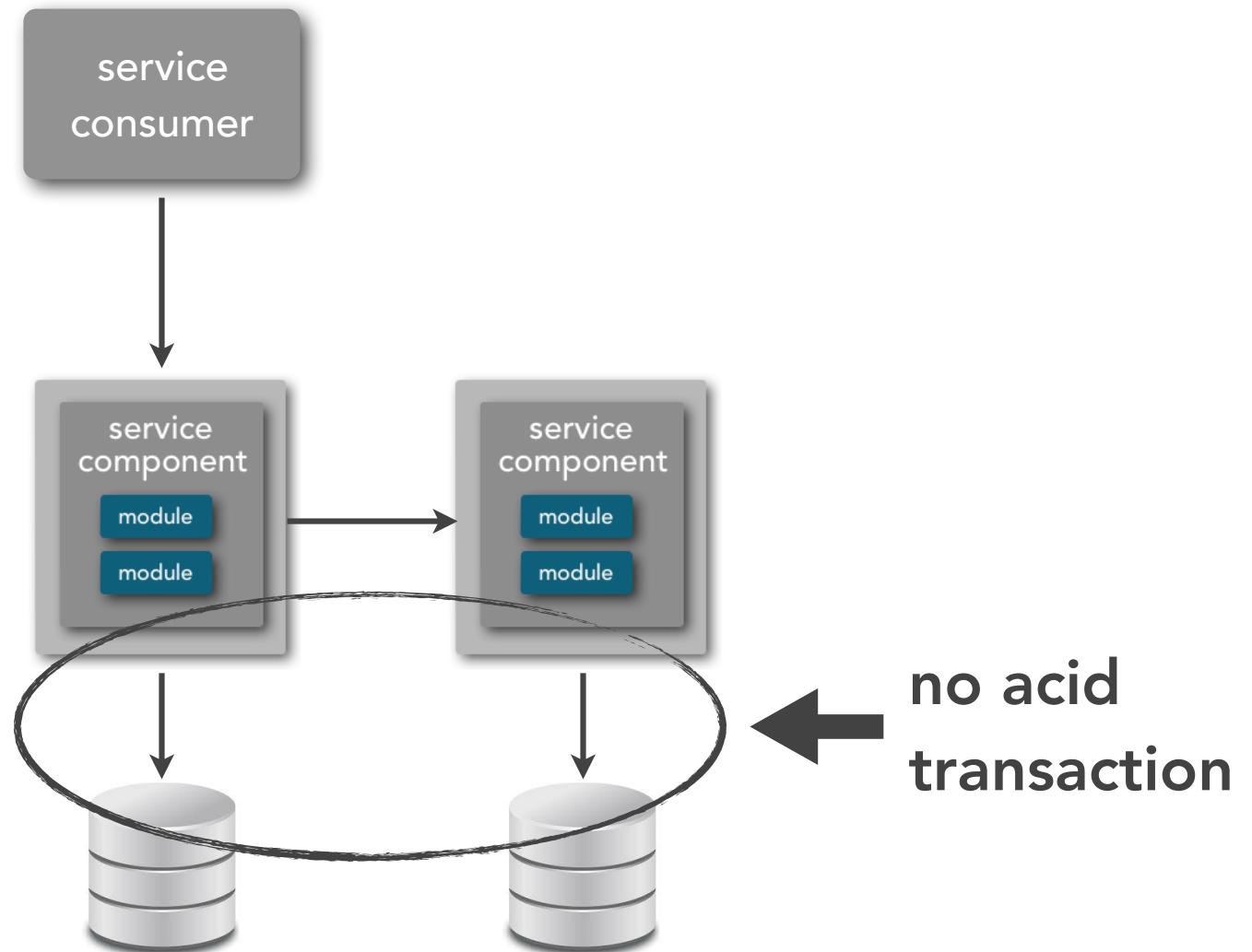
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Managing Distributed Transactions

distributed transactions



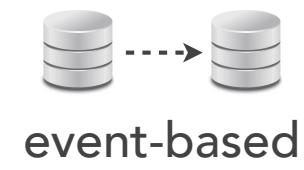
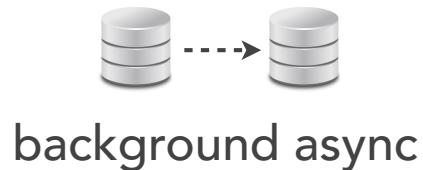
distributed transactions



distributed transactions

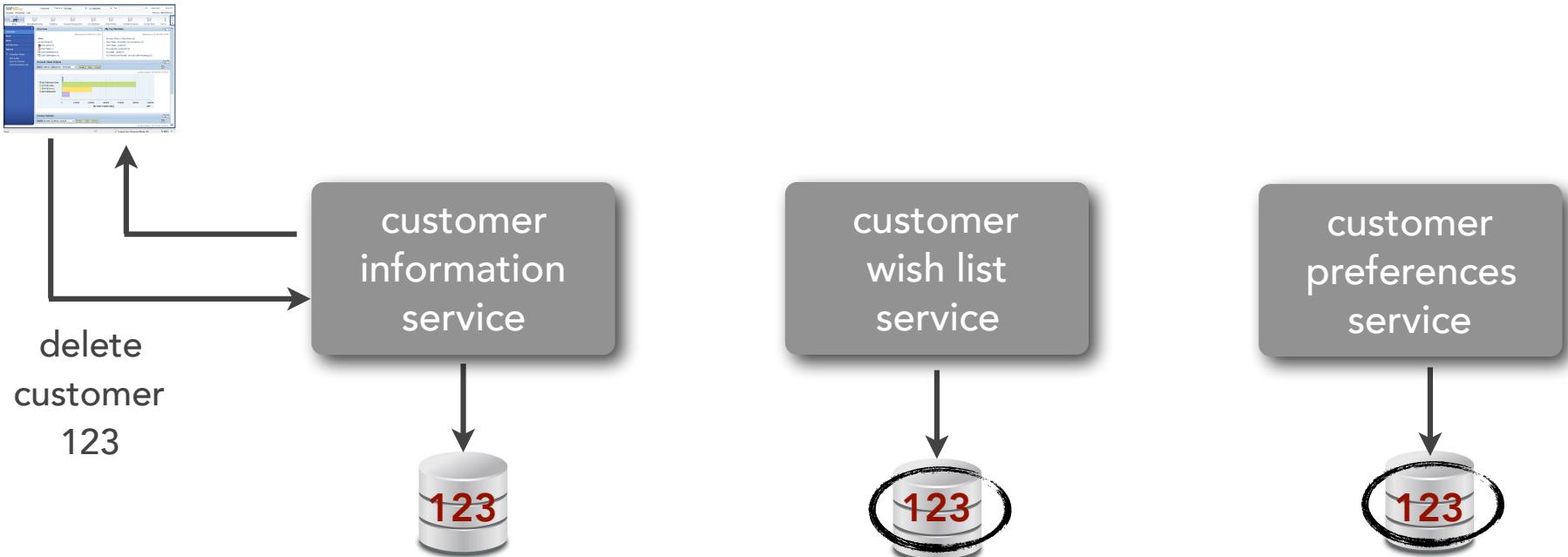
ACID - atomicity, consistency, isolation, durability

BASE - basic availability, soft state, eventual consistency



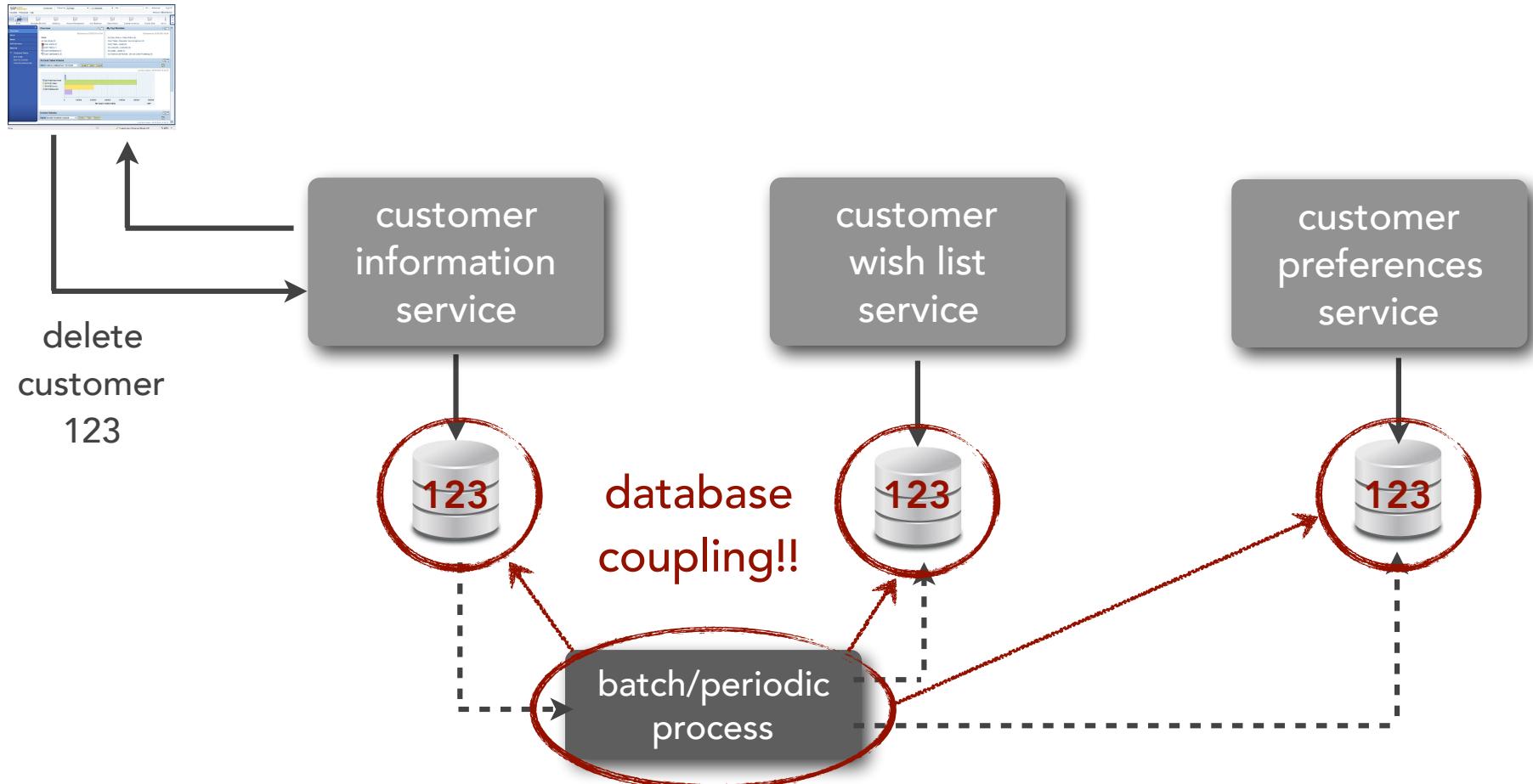
distributed transactions

the problem...



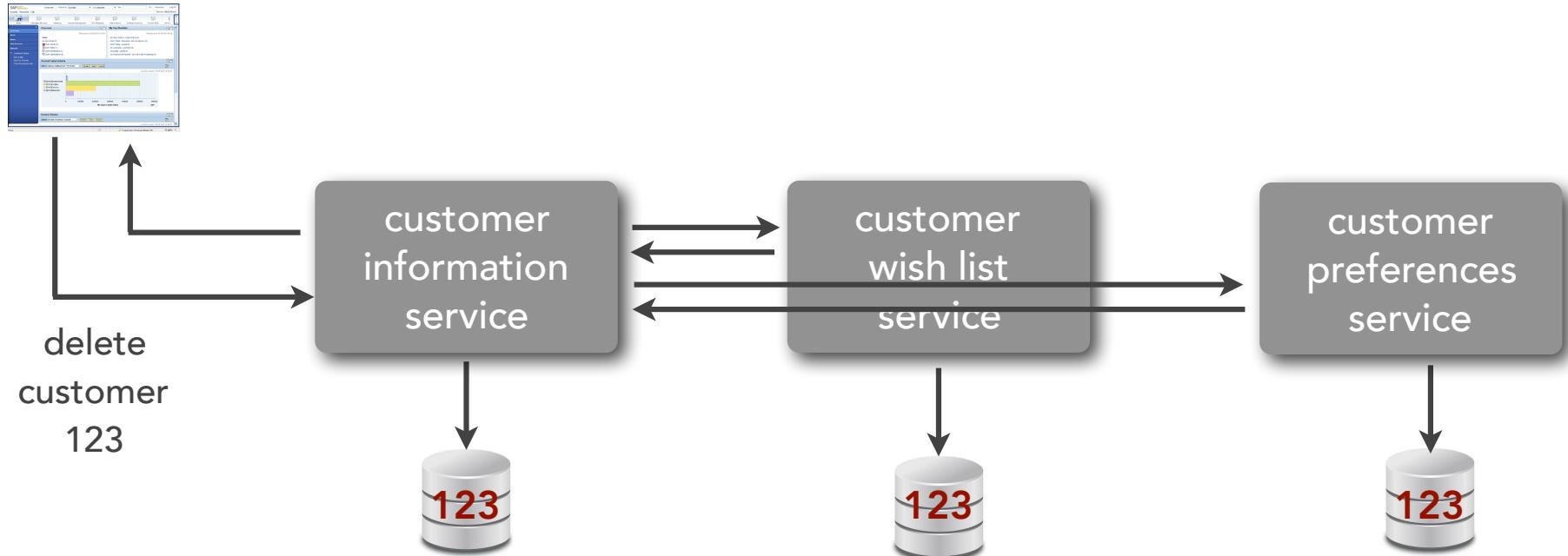
distributed transactions

background synchronization



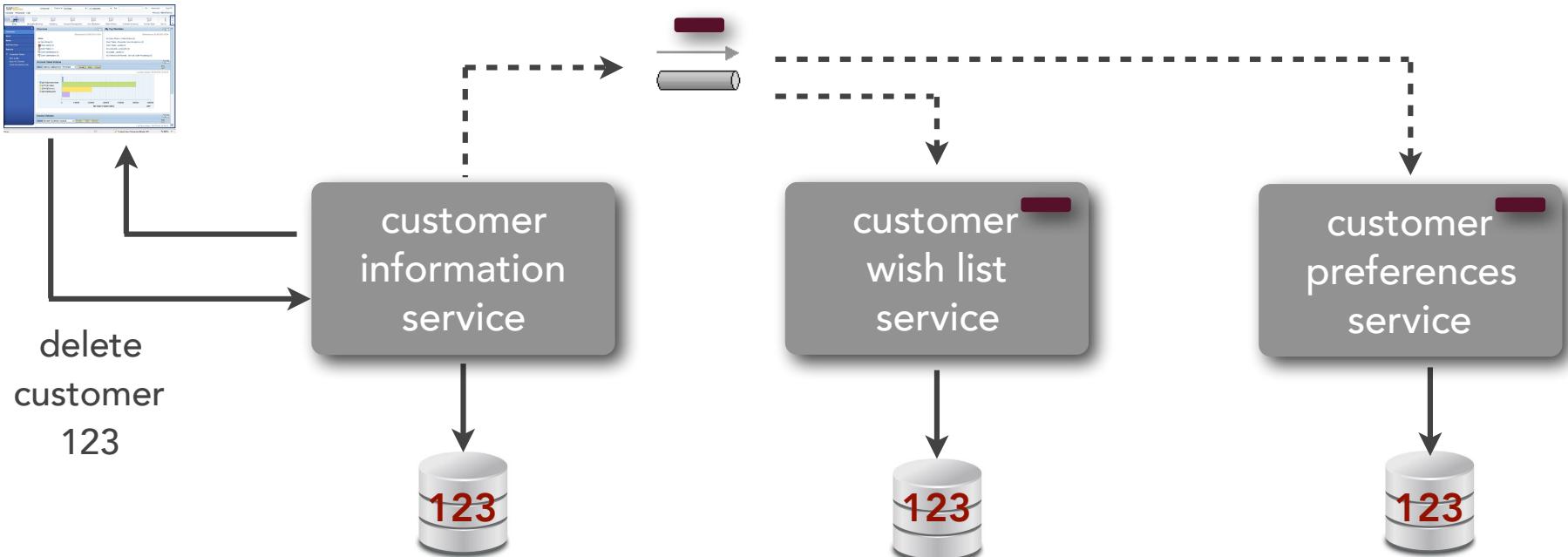
distributed transactions

request-based data synchronization



distributed transactions

event-based data synchronization



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