

Smooth and Flexible ERP Migration between Heterogeneous ERP Systems/ERP Modules

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The two types of ACID properties:

1. *Traditional ACID properties* may be viewed as a DBMS guarantee to users that they are working with data that is consistent and up to date.
2. *Relaxed ACID properties* may be viewed as an application guarantee to users that they are working with a "data quality" that is good enough from an application point of view.

Substituting Traditional ACID properties with Relaxed ACID properties may improve the availability and performance of a system at the cost of using a data quality that is only good enough.

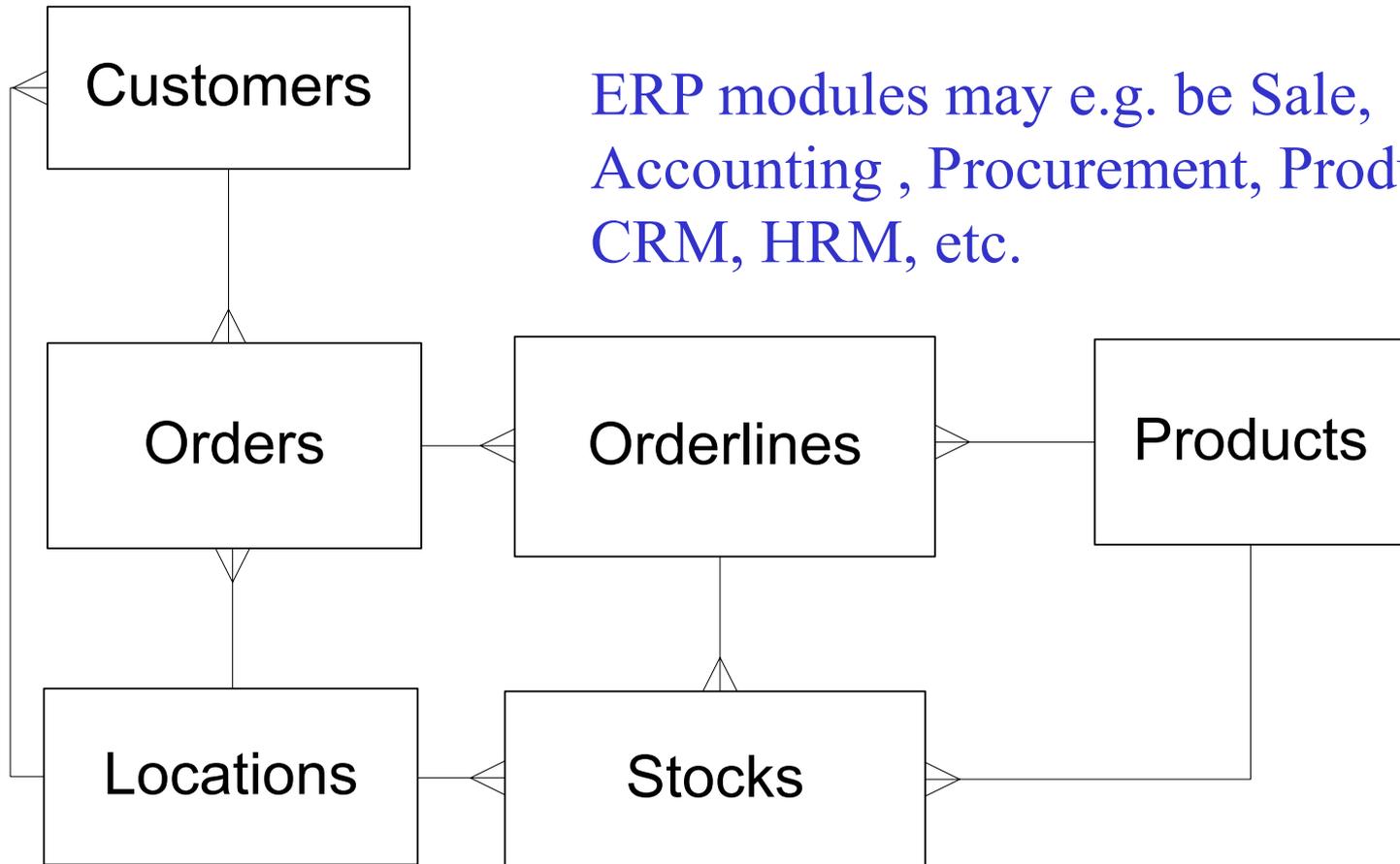
However, many applications cannot function in practice without relaxing the ACID properties as the availability otherwise may be zero.

Properties of an ERP architecture with relaxed ACID properties across the ERP modules:

- It is easier to migrate to a *new ERP version* as the migration may be done module by module.
- It is easier to migrate to a *new ERP product* as the migration may take place between heterogeneous ERP modules.
- It is possible to make a prototype of a distributed modular ERP system by splitting an existing ERP module in accordance with the new architecture
- It is easier to integrate specialized lines of business modules like hospital health systems and university administration.
- It is easier to avoid bottlenecks as each module may run at its own computer and/or database system.

A distributed modular ERP system =

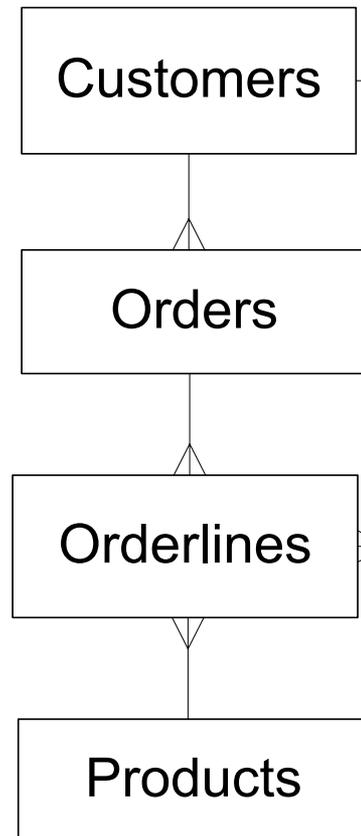
A set of local ERP systems integrated in such a way that each ERP module can use the resources of the other ERP modules in its own or in other ERP locations.



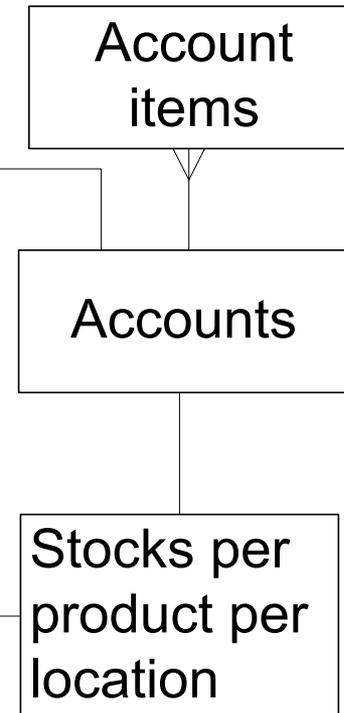
ERP modules may e.g. be Sale, Accounting, Procurement, Production, CRM, HRM, etc.

A distributed modular ERP system have relaxed ACID properties across the autonomous databases of the ERP modules.

The sales module

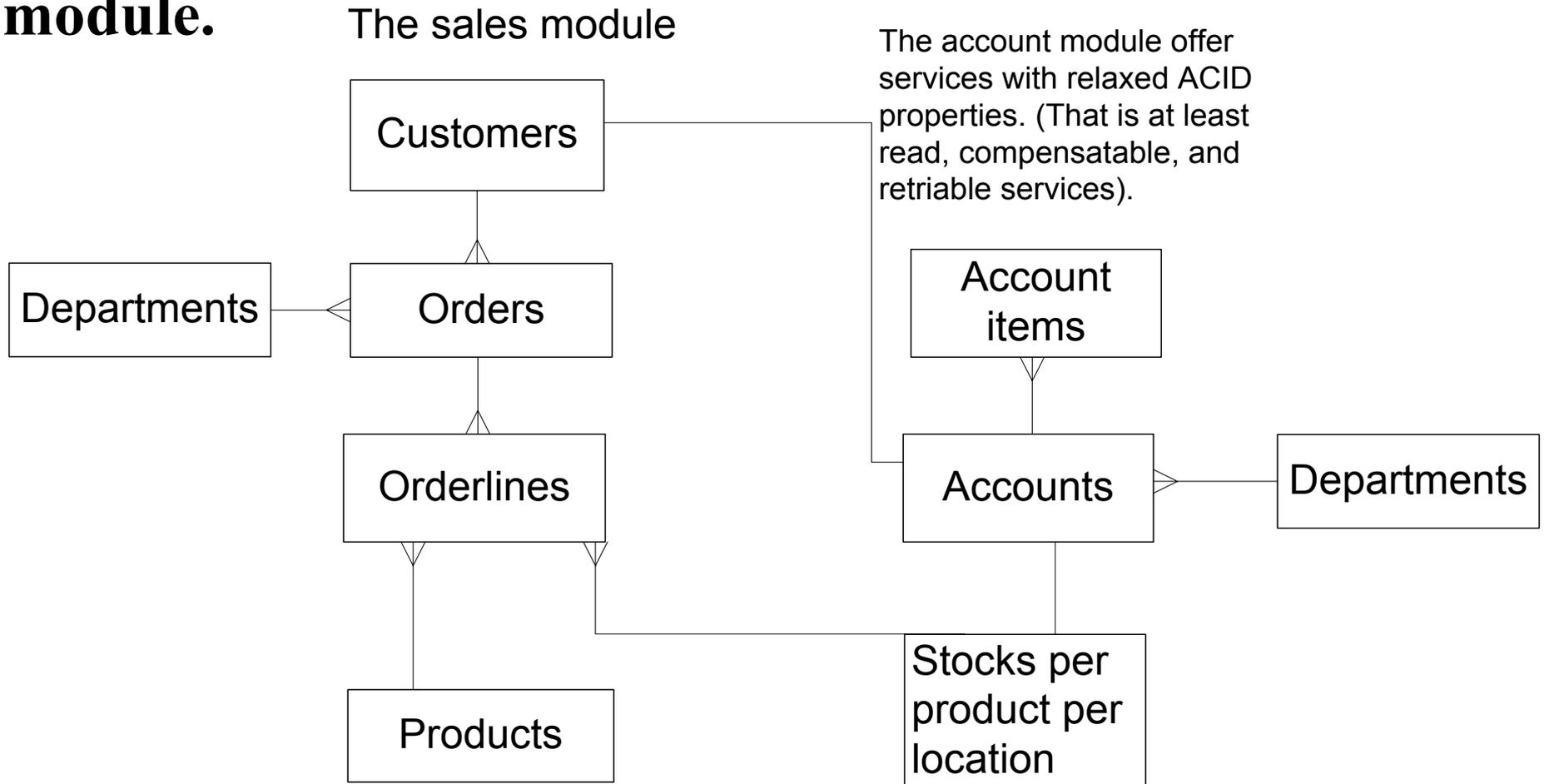


The account module offer services with relaxed ACID properties. (That is at least read, compensatable, and retrievable services).



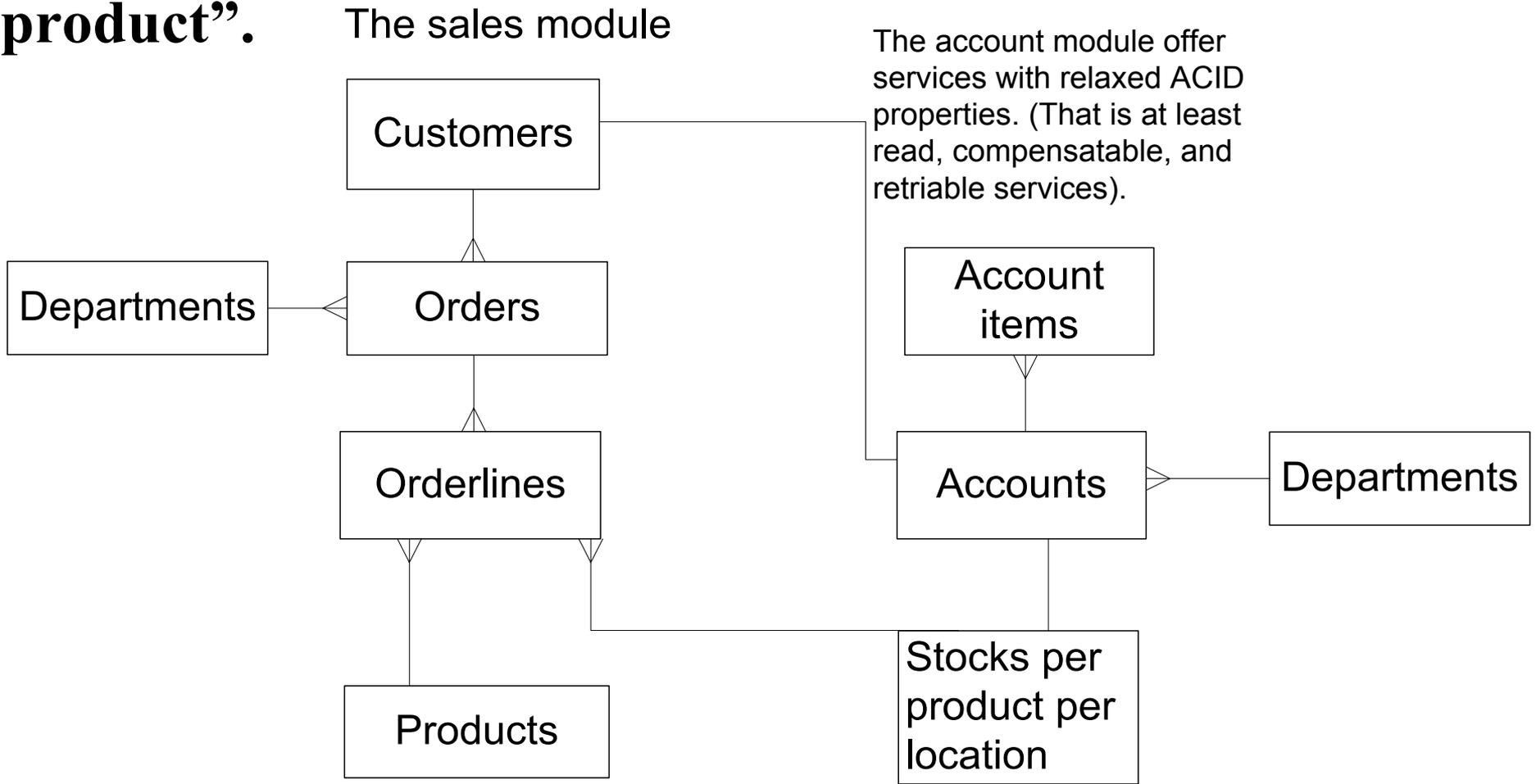
ERP migration step 2.

It may be necessary to have replicated versions of e.g. tables with Organization/department information as these tables may be used by the old ERP accounting module.



ERP migration step 3.

The Sales system, the Procurement system, and the Production system can now be migrated by using relaxed ACID properties to the table “Stocks per product”.



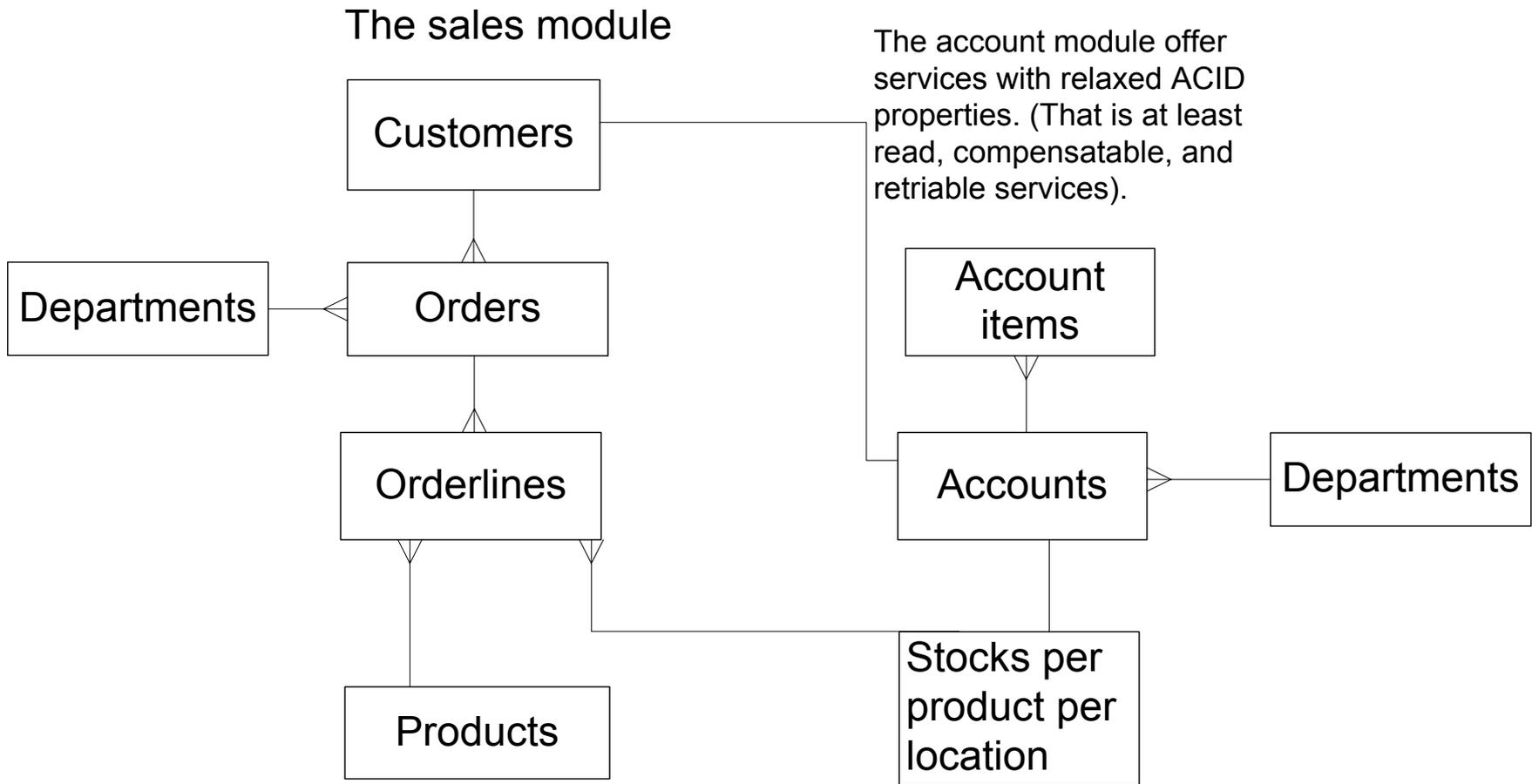
ERP migration step 4.

The order of ERP module migration should be determined in such a way that the applications of migrated modules only use migrated tables, replicated tables, or non-migrated tables with retrievable and compensable update services.

Therefore, systems like CRM may now be migrated

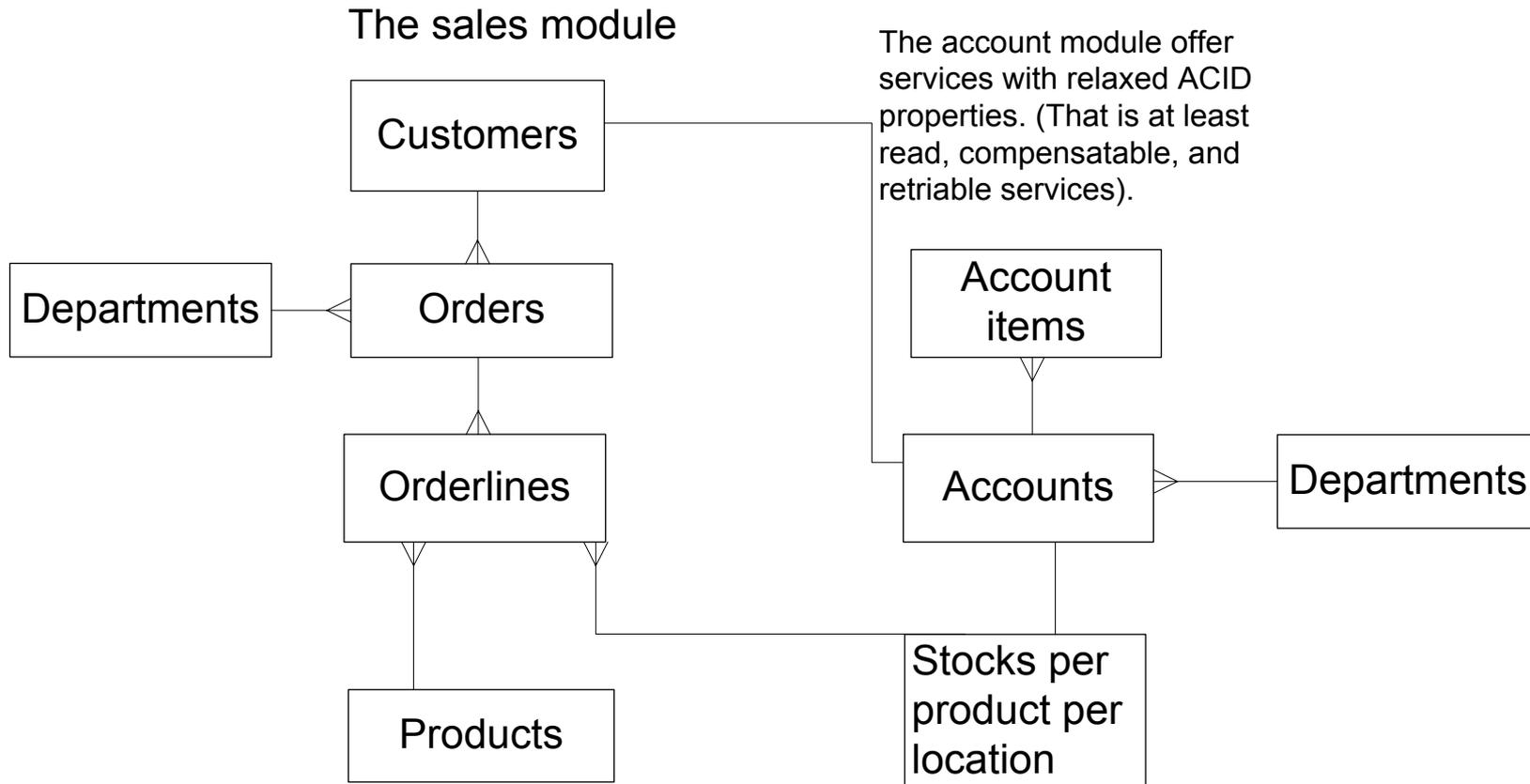
ERP migration step 5.

Migrating to the new Accounting module should be easy as the new Accounting module also offers relaxed ACID services.



ERP migration step 6.

A last migration step may be to remove the relaxed ACID properties across the modules if this is not necessary for reasons of performance or flexibility



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- It is easier to migrate to a *new ERP product* as the migration may take place between heterogeneous ERP modules.
- It is possible to make a prototype of a distributed modular ERP system by splitting an existing ERP module in accordance with the new architecture
- By using the above described properties it is easier for e.g. Microsoft to migrate all the existing ERP systems to a common new ERP platform
- It is easier to integrate specialized lines of business modules like hospital health systems and university administration.
- It is easier to avoid bottlenecks as each module may run at its own computer/database.

End of session

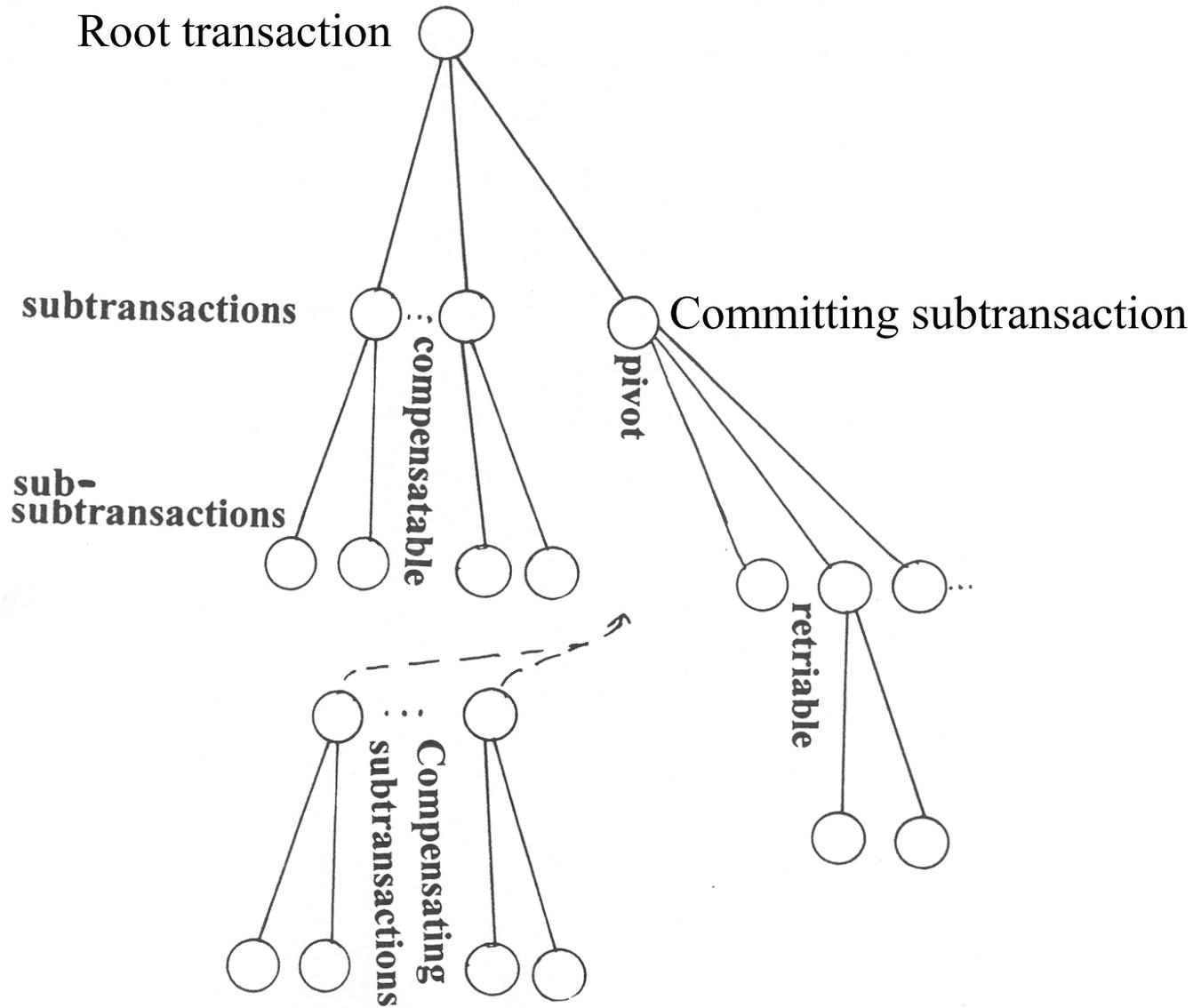


Thank you !!!

The ACID properties of transactions:

- Atomicity = the all or nothing update property.
- Consistency = if a database is consistent before a transaction is executed, then the database must also be consistent after the transaction is executed.
- Isolation = The updates of a transaction must not be seen by other transactions before the transaction is committed.
- Durability = Committed data can be recovered in case of failures

Relaxed atomicity:



The Relaxed Isolation Property:

Relaxed isolation or *relaxed concurrency control* uses countermeasures against the missing isolation property in such a way that the information provided to the users is good enough from an application point of view.

However, countermeasures will reduce availability and performance just as normal concurrency control. Therefore, the countermeasures used by an application should be as weak as possible but strong enough not to cause troubles neither for the application itself nor for concurrent applications.

The Relaxed Consistency Property:

If a database has relaxed consistency before a transaction is executed, then the database must also have relaxed consistency after the transaction is executed.

That is, the database should converge towards a consistent state.

The Relaxed Durability Property:

If a database has the relaxed atomicity property consistency then the the Durability property will automatically be implemented by the involved local DBMSsystems.