Hibernate & Spring Data JPA

Beginner to Guru

RDBMS Deployment Architectures

RDBMS Deployment Architectures

- RDBMS's can be deployed in a number of different ways.

- Typically is driven by needs of scalability and availability.

- Can be done on a single non-dedicated server, or many dedicated servers.

- Communication is typically over a network socket.

- The client will need software called a 'driver' to talk to the database over the network socket.
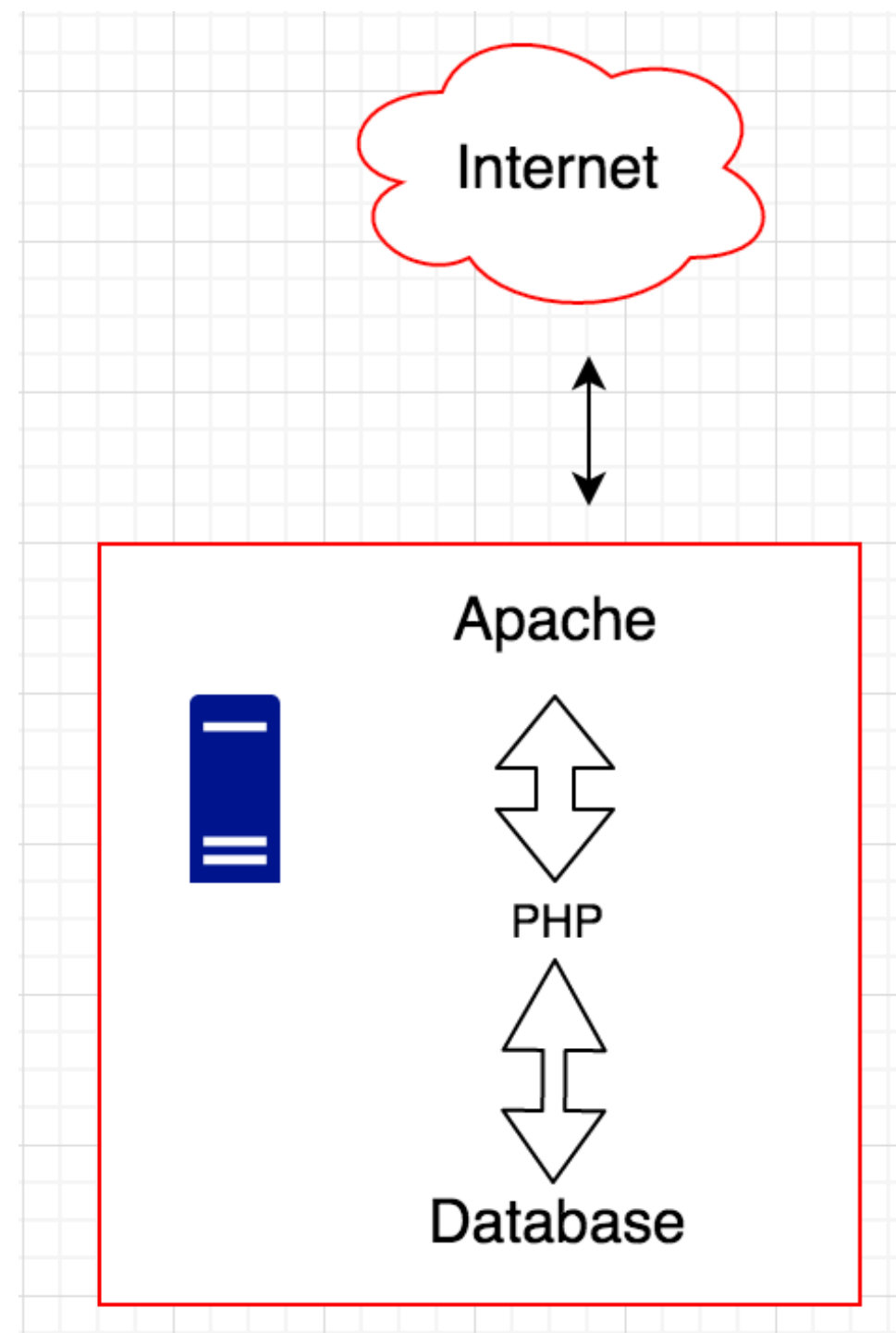
Simple Non-Dedicated Server
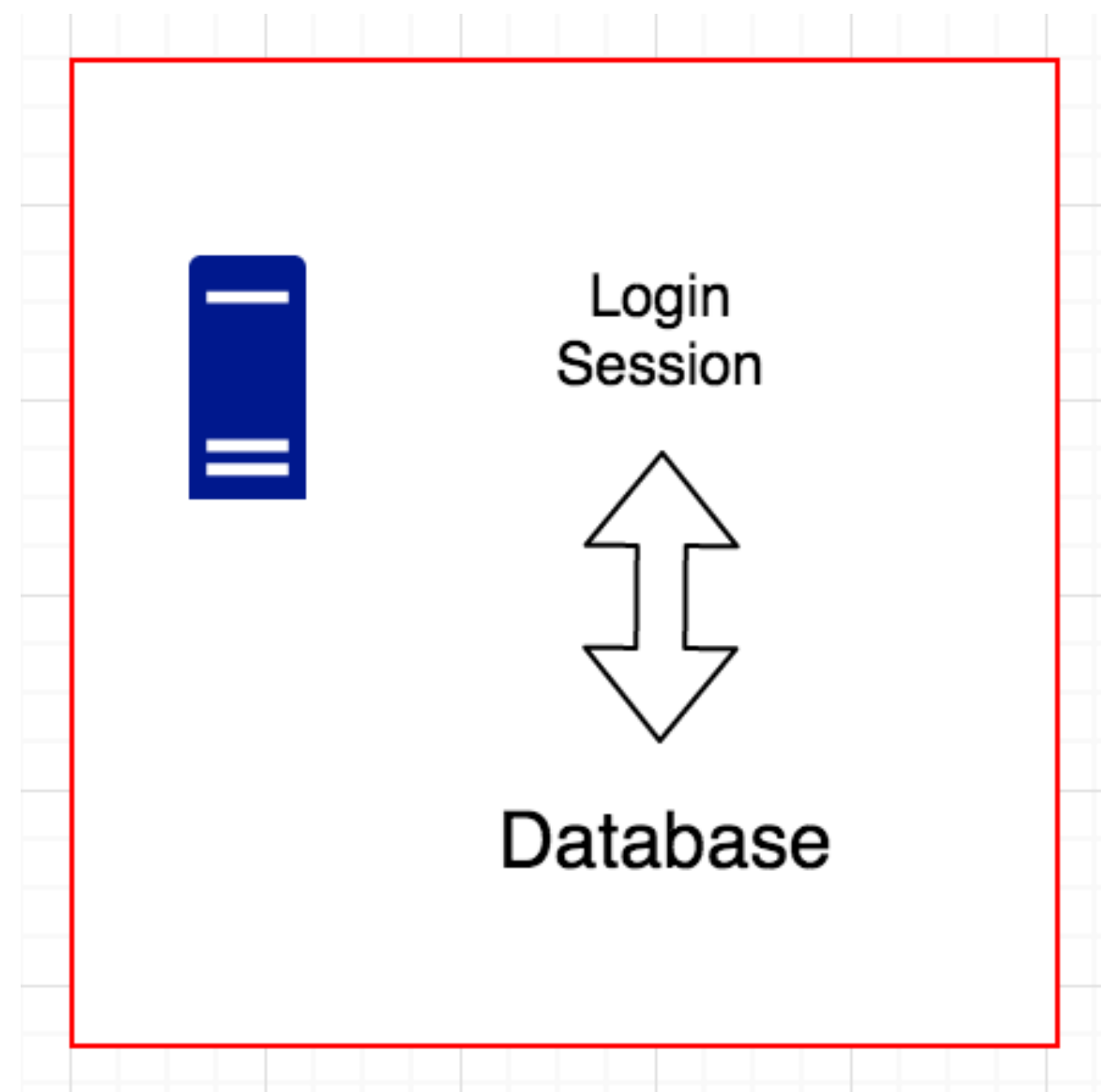
- Single Server (Computer).

- RDMBS is installed.

- User logs in and accesses database from command line.

- Simplest configuration.

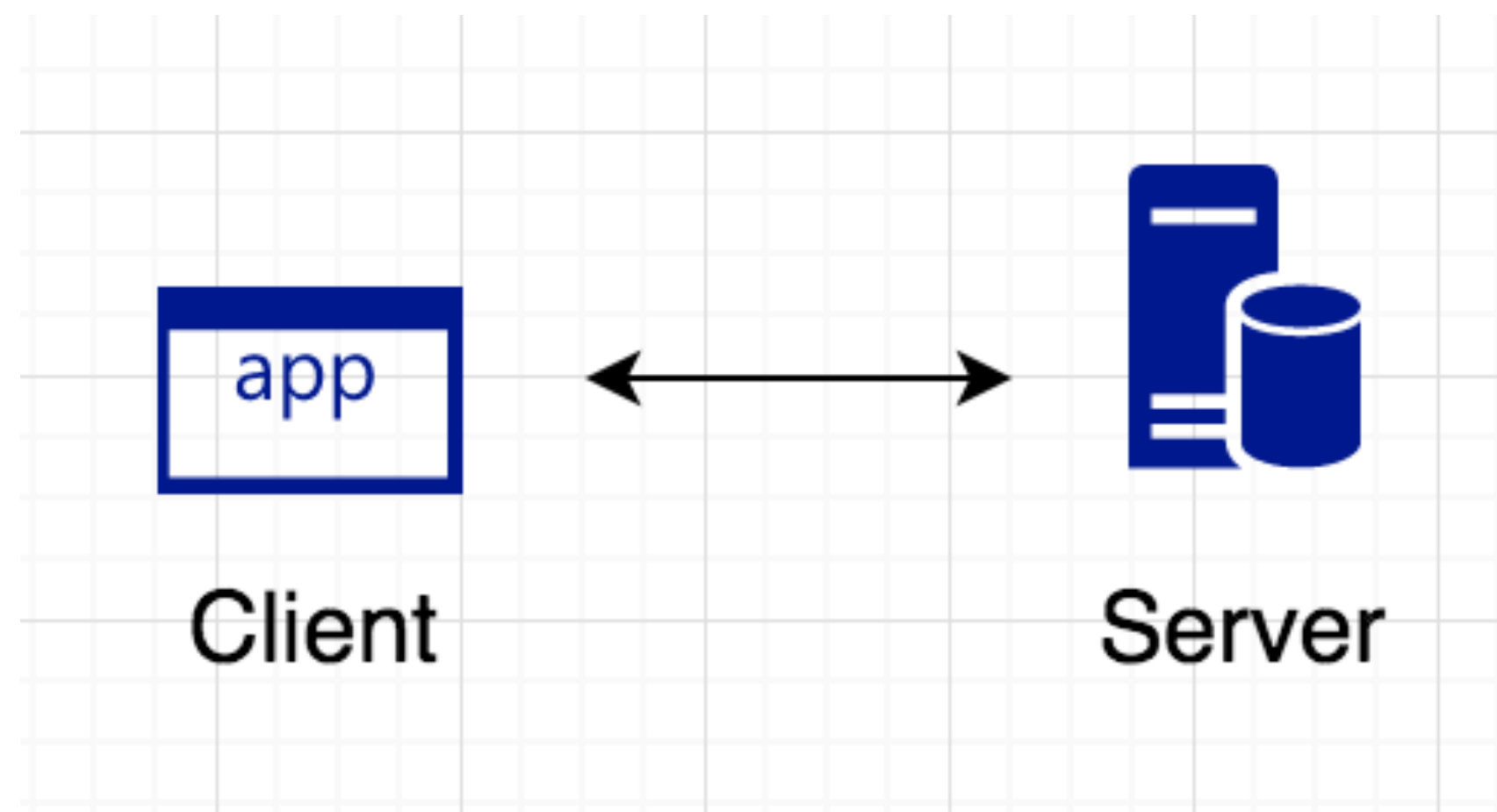- Often will talk over 'localhost' and a network socket on localhost.

LAMP Stack

- LAMP = Linux, Apache, MySQL, PHP

- Very popular.

- springframework.guru uses this.

- Most websites will run off a single server.

- Downside is database and Apache compete for the limited server resources.

Client Server

- "Client Server" was the buzz in the 90s.

- Concept of moving application code to the client and different hardware, while using dedicated hardware for the database server.

- Offloads the application load from the database server

- Still frequently used in some form
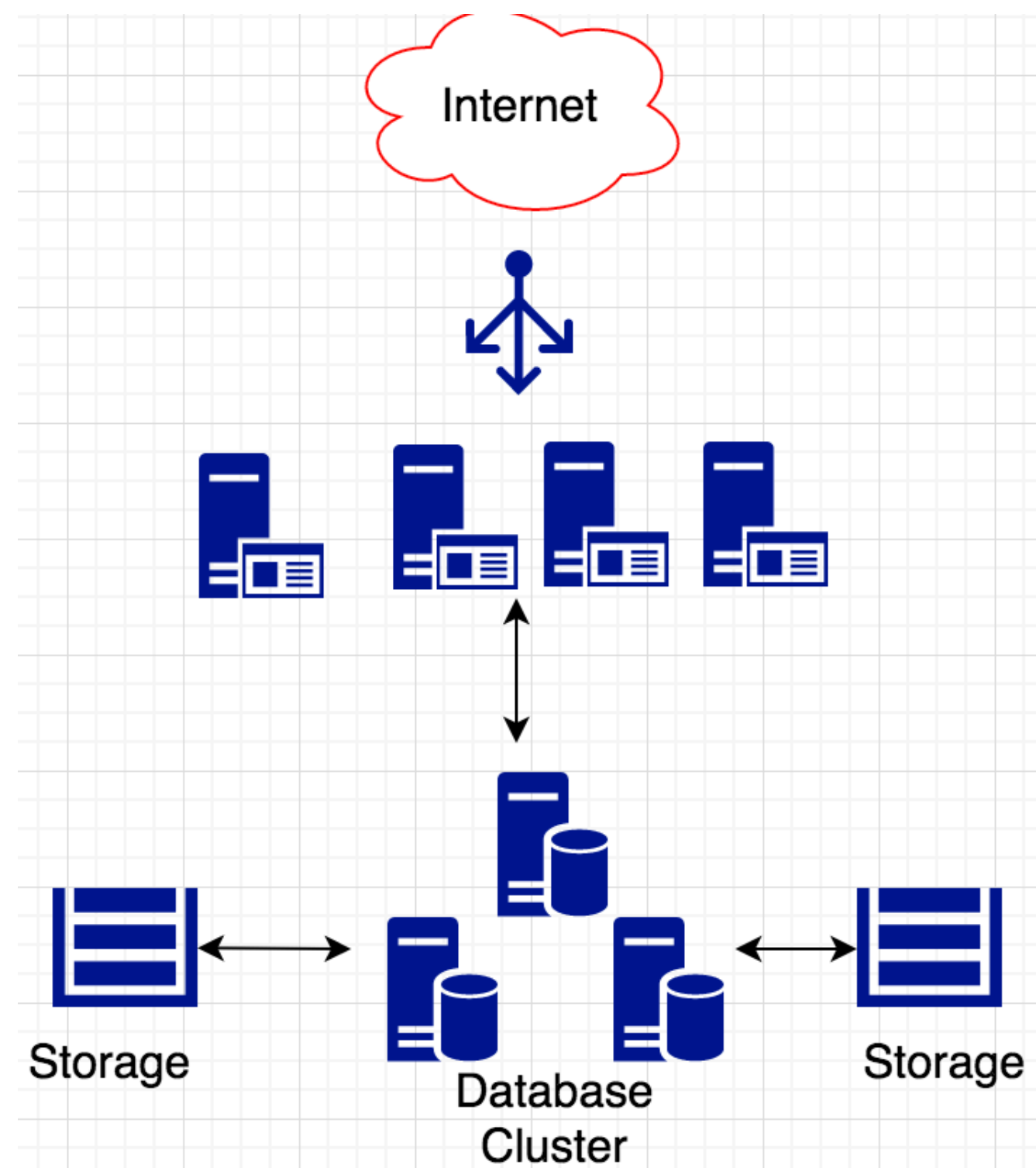
Scaling Client Server
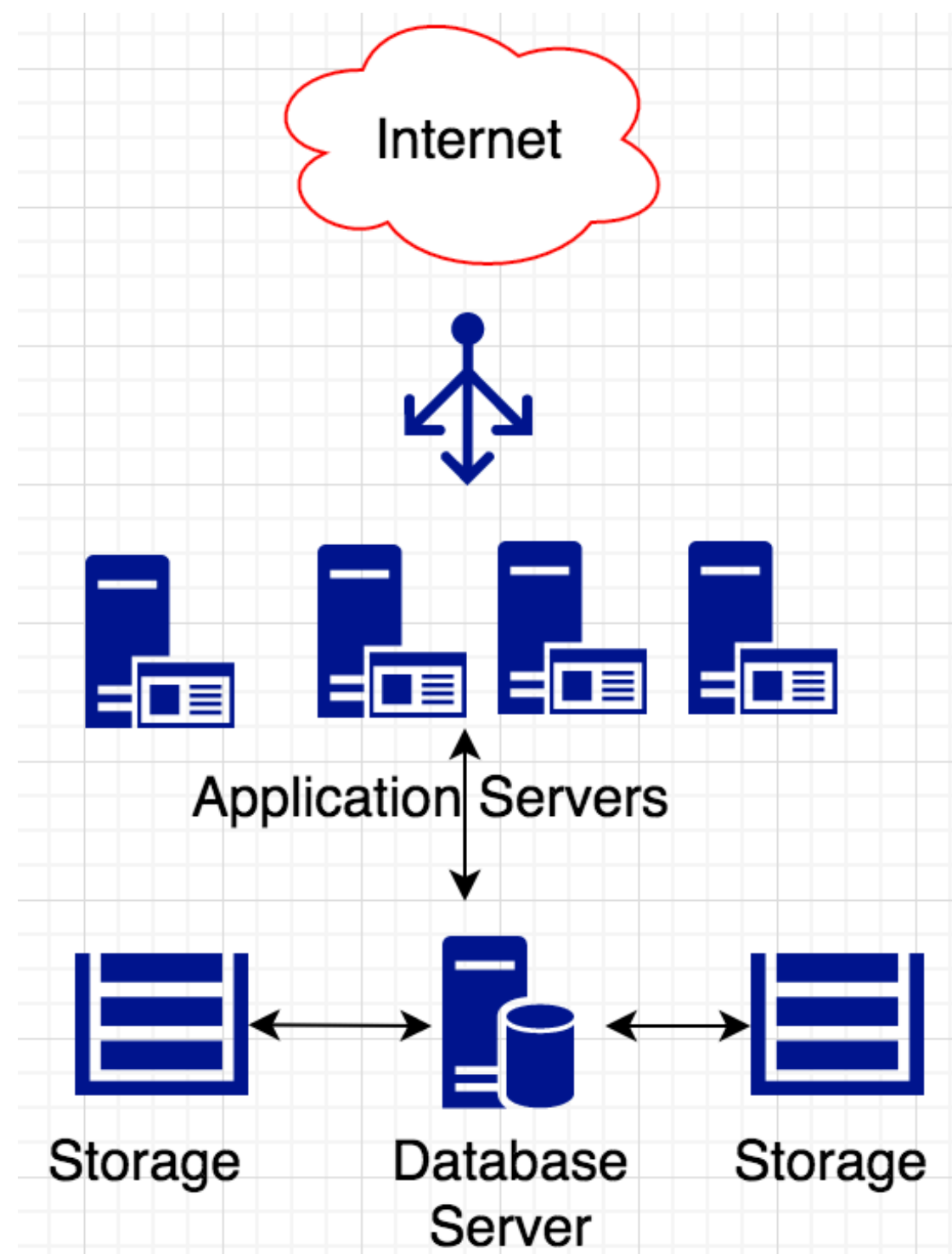
- Scalability is achieved by doing processing on application servers.

- Database Server is dedicated.

- Often companies will increase the size of the database server to grow further.

- Data storage is off loaded to dedicated hardware.

Scaling Even Higher

- Multiple Servers are used for the database

- Example - Oracle Real Application Cluster

- Improves Scalability over a single database server.

- Improves Reliability since a node can be lost, and the database cluster will continue.

- "Mainframe" like performance

Scaling Even Higher?

- Cloud Scale - Think Amazon, Google, Facebook.

- Distributed computing - load is spread to many many servers.

- Often cheap commodity servers are used.

- Large mainframe like systems are avoided.

- Significantly different paradigm than Client Server.

- RDBMS's are typically not used due to scalability limitations .

- Therefore, outside the scope of this course.

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