



SQL Beginner to Guru

MySQL Edition

RDBMS Deployment Architectures



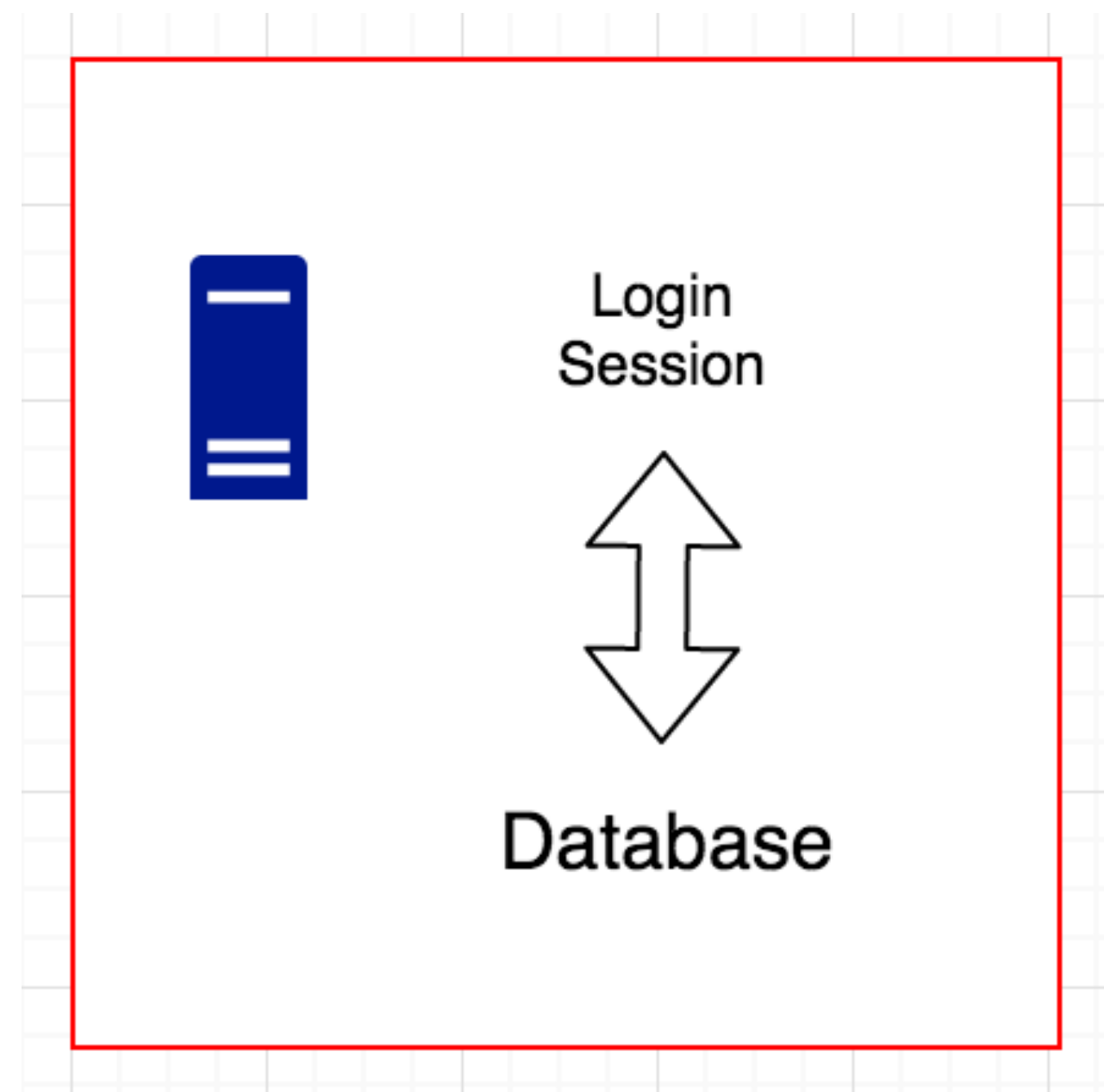
RDBMS Deployment Architectures

- 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

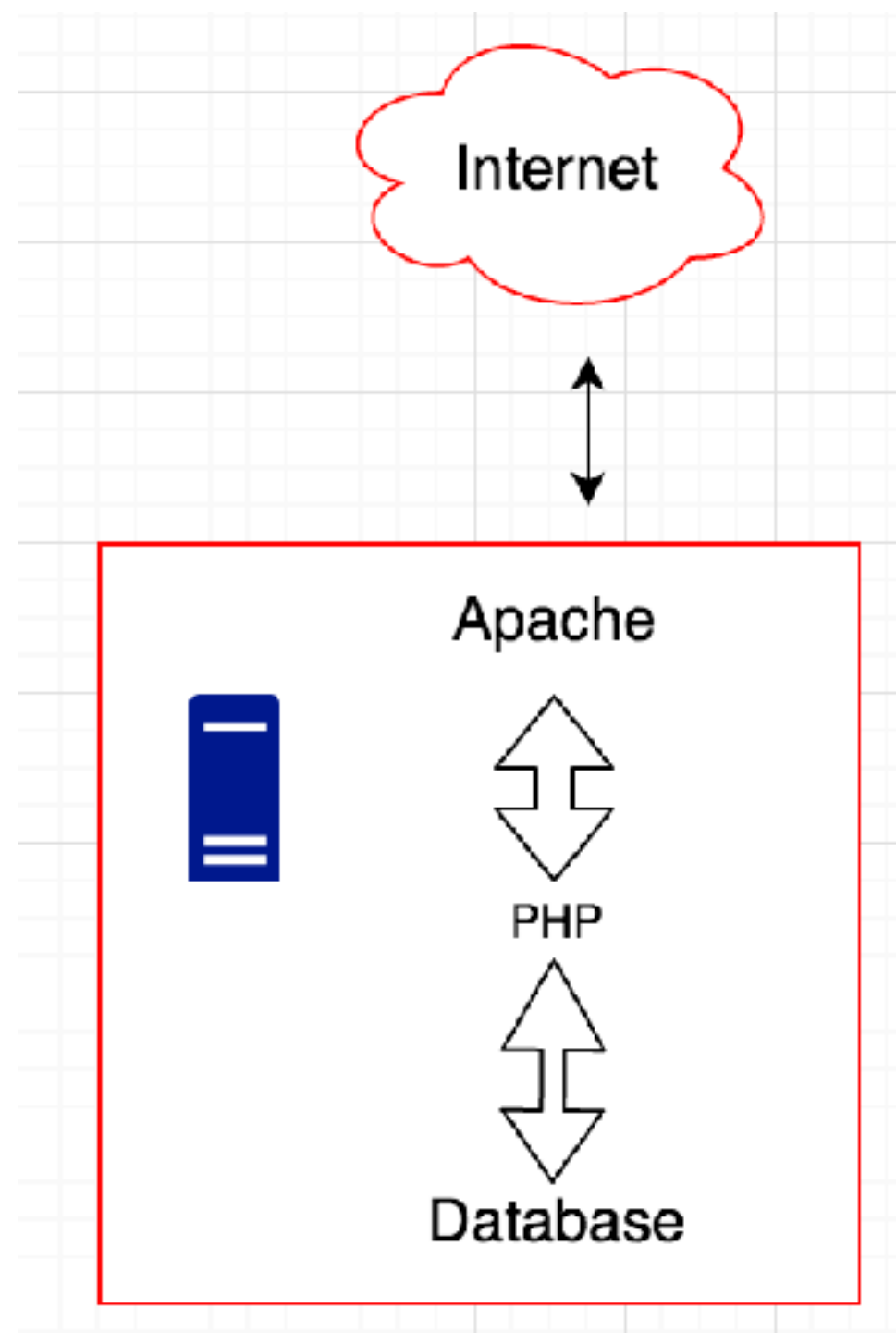


- Single Server (Computer).
- RDMBS is installed.
- User logs in and accesses database from command line.
- Simplest configuration.
- Often will talk over 'localhost' and a network socket on localhost.





LAMP Stack

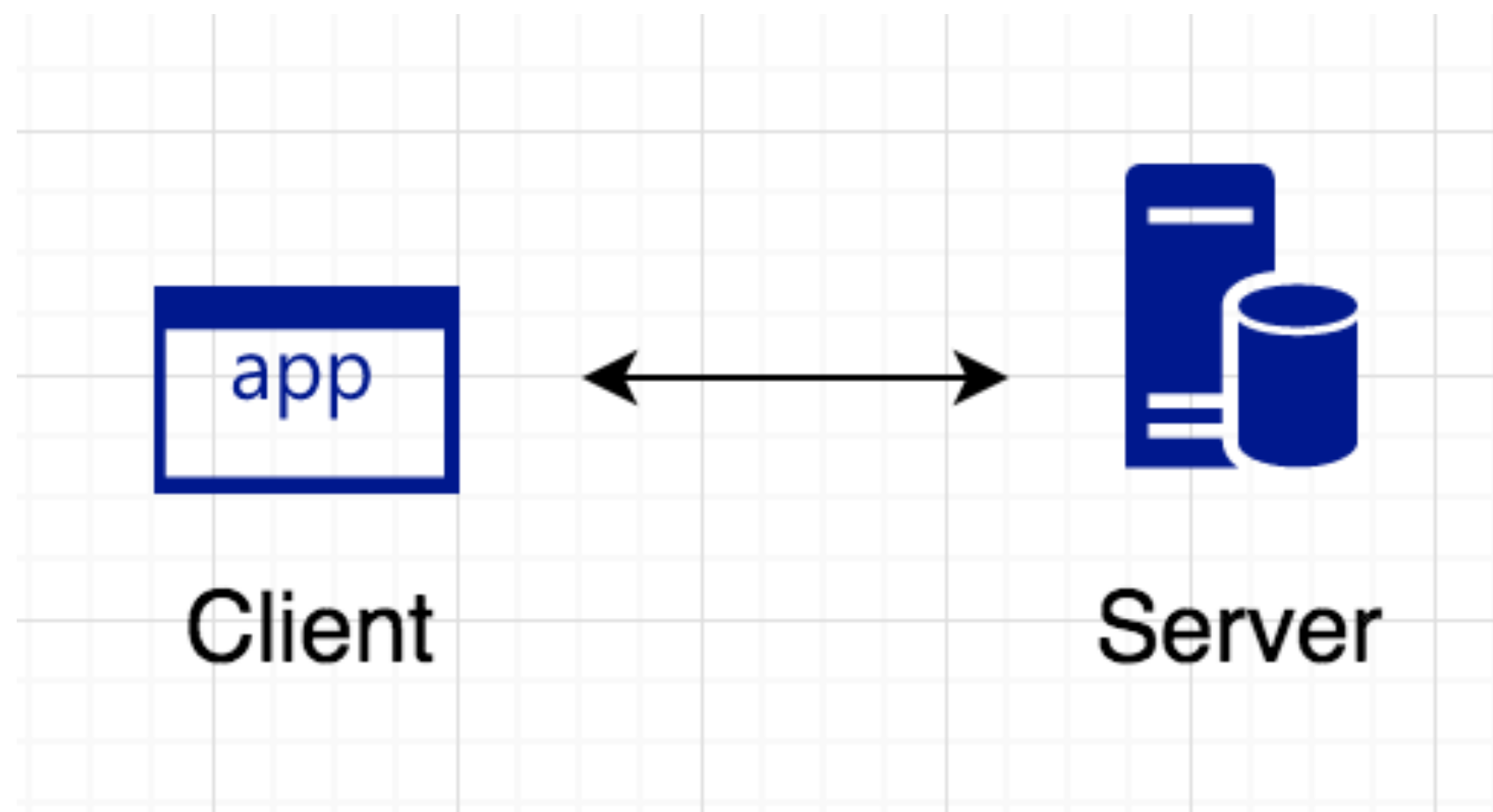


- LAMP = Linux, Apache, MySQL, PHP
- Very popular.
- springframework.guru uses this.
- Most websites will run off a single server.
- Downside is database and Apache compete for the limited server resources.





Client Server

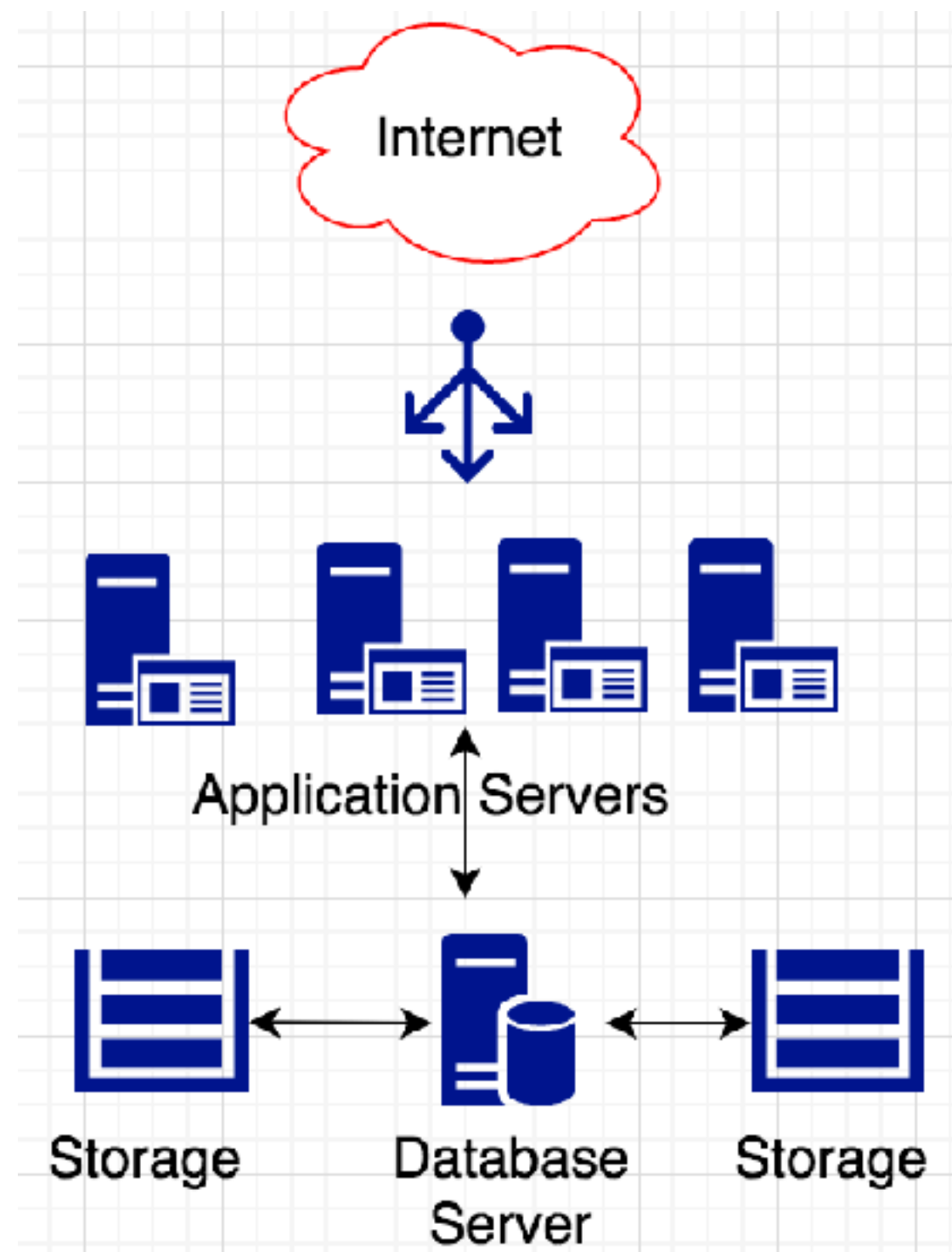


- “Client Server” was the buzz in the 90s.
- Concept of moving application code to the client and different hardware, while using dedicated hardware for the database server.
- Offloads the application load from the database server
- Still frequently used in some form





Scaling Client Server

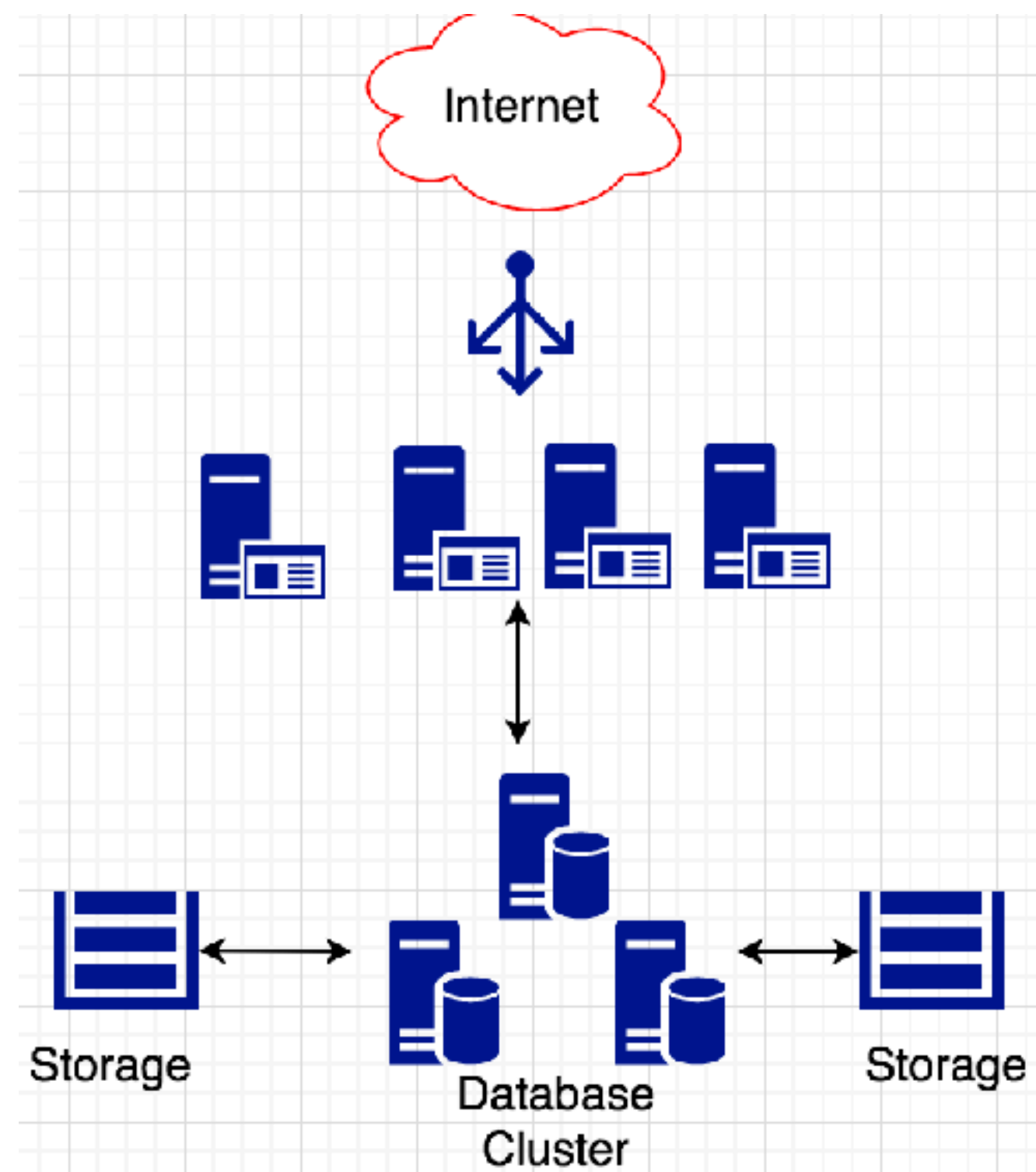


- Scalability is achieved by doing processing on application servers.
- Database Server is dedicated.
- Often companies will increase the size of the database server to grow further.
- Data storage is off loaded to dedicated hardware.





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.



