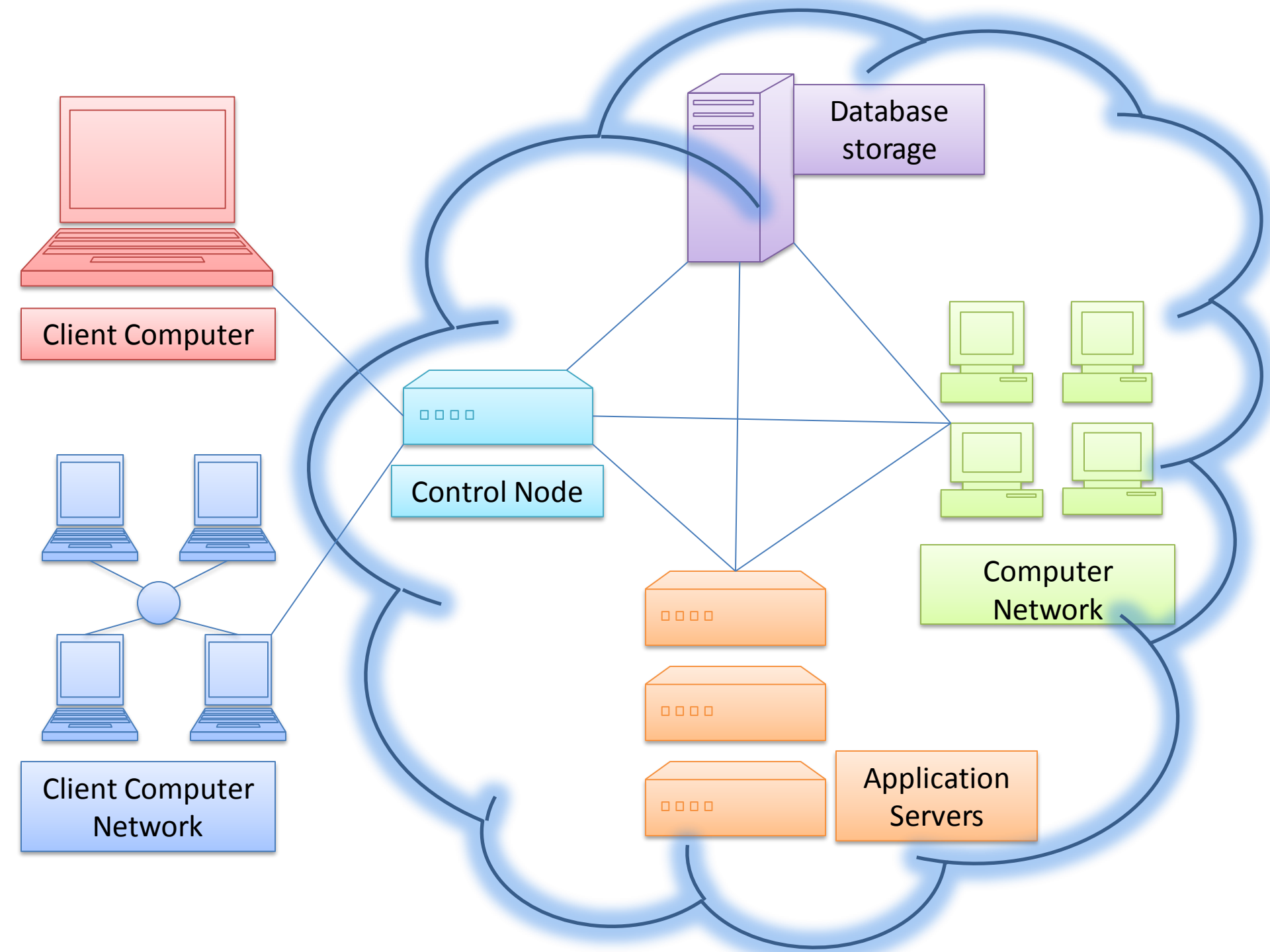
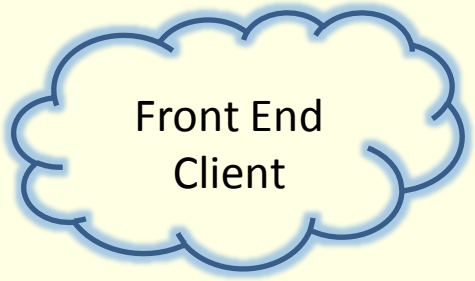
Computing in the Cloud

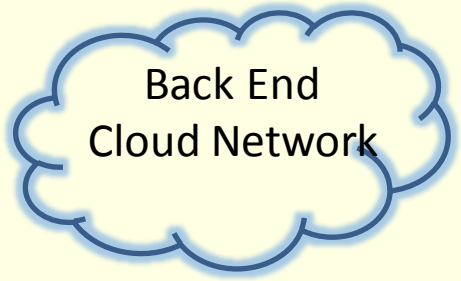
Monroe County Library System


Database storage
Client Computer
Control Node
Computer Network
Client Computer Network
Application Servers



How the Cloud Works

Divided into two sections - connected by the internet



Front End

- **Client computer or network**
- **Interface application**
  - **Example-Email interface would be IE, Firefox, Chrome or other web browser**
  - **Other systems will provide an interface application unique to them**

Back End – Cloud network, servers and data storage

- **Includes any computer program imaginable**
  - **Word processing, Gaming, etc**
  - **Each provides it's own interface application**

Central Server – administers the system

- **Monitors traffic and client demands**
- **Keeps system running**
- **Follows a set of protocols - Middleware**

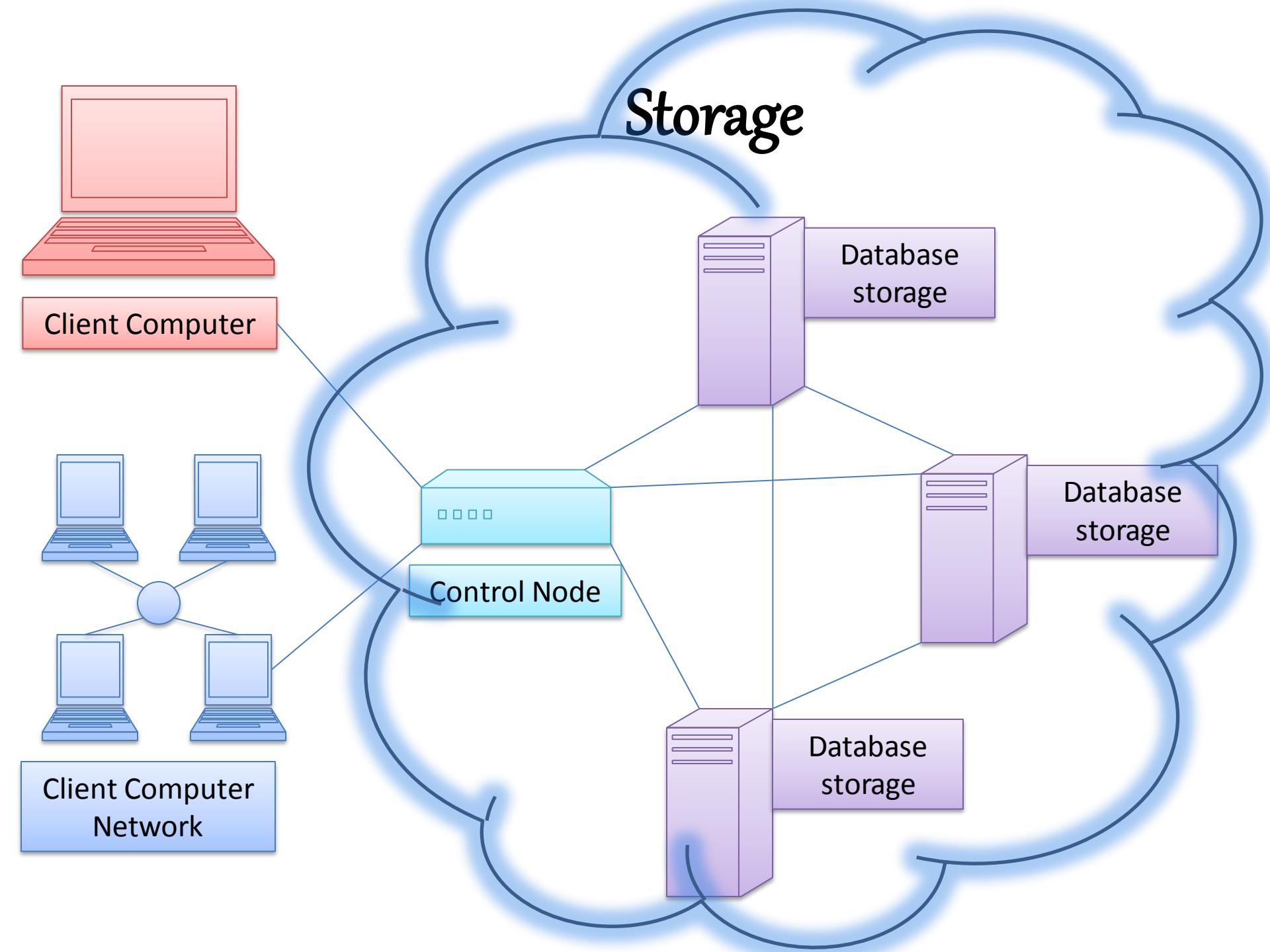
Middleware – allows networked computers to communicate with each other

Server Virtualization – maximizes individual server output and reduces the need for more physical machines

- **Servers often do not run at maximum capacity**
- **Power is being wasted**
- **Virtualization fools server into thinking it is multiple servers, each running its own independent operation system**

Redundancy – making copies of data as a backup

- **Cloud computing needs to make a copy of all data stored in case of a breakdown in the system**
- **Enables the server to get the data from the backup**


Storage
Client Computer
Client Computer Network
Control Node
Database storage
Database storage
Database storage

Pro's and Con's of Cloud Computing

Accessibility

- Applications and Data accessible from any computer at any time

Storage

- Saved data would not be limited to one computer or network
- Under debate- who actually owns the data stored in the cloud
- Lowers cost of hardware – cloud would have:
  - High speed and most memory
  - Monitor, mouse, keyboard, enough power to run middleware to connect to cloud system

Security - trusting someone else to protect you

- These services know this and will go all out to protect clients – they take it seriously to keep business

Privacy – Authorization where each client can only access data relevant to their job
Authentication techniques-user names and password

Impact computer maintenance and repair--

- Possibly lower IT needs
- These jobs could migrate to the backend of cloud computing

Cost

- Not necessary to purchase applications
- Only need to load one application
- Web based service hosts programs
- Remote machines would run programs
- Cloud network handles the workload
- Client only needs the interface software
- Can be as easy as a Web browser