Token Ring Algorithm:

Token ring protocol is used for LAN communication which defines the topology of the network to decide which process has to send the messages. All of the senders are connected in the form of a ring. A three-byte frame called as token which is sent across the ring used to pass token access method across all the senders. The latency for the single bit to travel around the ring is determined as ring latency and the time taken by the token to finish entire senders in the ring is cycle time.

Election Algorithm:

A coordinator process is necessary for the efficient operation of several distributed algorithms. A centralized algorithm for mutual exclusion is an example. Algorithm for centralized deadlock detection with a central coordinator. This algorithm chooses a leader process among the list of active process. There are quite some preconceived ideas for the algorithm is a distinct priority number is assigned to each process in the system. The coordinator is chosen from among the processes with the highest priority number. When a failed process recovers, it can take the necessary steps to rejoin the group of running processes.

There are two algorithms for Electing the right process as Bully Algorithm, Ring Algorithm. In Bully, every process is aware of the priority of every other process. A request message fails when there is no reply from coordinator. There is also a message known as Election notice message for checking the largest priority for the process. With the election done, the coordinator sends the message along with an alive message for taking over for the highest priority process. Also, the process with the highest priority always wins the election.

In Ring Algorithm, each and every process is organized in a logical ring which is unidirectional, all the messages which are related to the election process are given a chance to be passed only on a particular direction. It also contains a request message and is flagged as fail when there is not reply received from the coordinator. An election message for every process in the ring and also its necessity of the activity. In order to find the coordinator of the process an inquiry messages are used.

Consistency Models:

Consistency model defines the agreement between the developer and the system which is employing it. There are many abstractions available which defines various properties: Strict consistency, Sequential consistency, Eventual consistency, Model Weak consistency, Client centric consistency model.

Sequential consistency is like all the processes try to function in the order defined. A switch that connects any processor to the memory at any moment is conceptually connected to a “single global memory”. Each processor executes memory operations in the sequence specified in the program, and the switch enables global serialization across all processors. Likewise Sequential consistency, in strict consistency the order of the execution of the processes has to be in the order they are issued which is similar to what multi-threaded process does with the main memory. In eventual consistency, there is a guarantee that whenever there is a change the process that needs to be done and that update is reflected with all the corresponding neighboring processes which results in the same response from all the process which are using the information.

Chord:

Chord protocol is a p2p collaborative Hash table methodology used in computing. It can store the values of the data in the form of key-value pairs by assigning keys that is assigned for individual computers. Chord defines the way keys to be assigned for the computers and locating the key for the leader node. Also, in this protocol, computers and keys associated with it are located around the circle that has at most 2^m places to be filled with and has the range from pow(2,m)-1.