

Title:- Implement token ring based mutual exclusion algorithm

Theory :-

1) What is token ring algorithm to achieve mutual exclusion?

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* Token Based Algorithm:

- A unique token is shared among all the sites.
- If a site possesses the unique token, it is allowed to enter its critical section.
- This approach uses sequence number to order requests for the critical section.
- Each request for critical section contains a sequence number. This sequence number is used to distinguish old & current requests.
- This approach insures mutual exclusion as the token is unique.

2) Which topology is most commonly used with a token ring network?

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Stations in a token-ring network are physically connected, typically in a star-wired ring topology.

3) Why did token ring fail?

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- The token ring topology was one widely used on LANs in the 1980s & 1990s.
- However, it was almost entirely displaced

- by Ethernet, due to Ethernet's lower cost.
- At the time, cabling for token ring networks cost much more than Ethernet Cat3 Cat5e cables.
 - Token ring network cards & parts were also expensive.

4] What type of bridge is used for token ring networks?

→ Source-route Bridge is one type of technique used for token ring networks designed by IBM.

5] Which algorithm is best for mutual exclusion?

→ There are several algorithms that can achieve mutual exclusion, & the best algorithm depends on the specific context & requirements of the system.

- Common algorithms for mutual exclusion

- 1) Peterson's algorithm
- 2) Suzuki-Kasami's Broadcast Algorithm
- 3) Lamport's algorithm
- 4) Ricart-Agrawala algorithm

- However, one of the most widely used & well-known algorithms is the Lamport's Distributed Mutual Exclusion Algorithm.

6] What is the size of token in ring topology?

→ Size of token = 24 bits.