ECE552 – Lab 5 Prelab
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1. In real hardware, state transitions and their associated actions do not happen instantly, transient states offer a time period where the controller can safely process the request in case another request comes in during that transition period
2. If a request comes in during a transient state, it needs to be stalled to be process later after the transition is complete - the controller can't allow the request to go through or it may mess up the single-writer, multiple-reader invariant or the data values, and the request can't just be discarded because it could cause the computation of incorrect values
3. A deadlock is when no progress can be made in a system due to 2 inter-dependent events (e.g. A must complete before B occurs, but B depends on A completing). This can be avoided through the use of virtual networks – networks with their own set of input/output buffers for different types of requests
4. Put-Ack messages sends an acknowledgement to a cache, to indicate that a PUT message has been received
5. The sender of a data reply is determined by who currently owns the data, the possible options are:
   a. DATA_FROM_OWNER: data from a remote owner (L1 cache)
   b. DATA_FROM_DIR: data from the directory
   c. DATA: data from a cache going to a directory
6. A Put-Ack is sent as a response to a PUT message, and an Inv-Ack is sent as a response to an INV message