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|----- MODULE CausalInterface -----|
|
| EXTENDS SEC
|
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|
| CONSTANTS
|   Data      the set of data
|
|   Vector  $\triangleq [Replica \rightarrow Nat]$ 
|
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|
|   Op-based AWSet definition
|   Instance  $\triangleq [d : Data, r : Replica, k : Nat]$ 
|   Msg  $\triangleq [r : Replica, update : SUBSET Uid, seq : Nat, vc : Vector, abuf : SUBSET Instance, rbuf : SUBSET Instance]$ 
|
|-----|
|
| VARIABLES
|   Network variables
|   incoming,      incoming[r]: incoming messages at replica r  $\in Replica$ 
|   msg,
|   messageset,
|   vc,             vector clock
|   seq             seq[r]: local sequence number at replica r  $\in Replica$ 
|
|   NETvars  $\triangleq \langle incoming, msg, messageset, vc, seq \rangle$ 
|
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|
| Reliable Causal Network
|
|   RNetwork  $\triangleq$  INSTANCE ReliableCausalNetwork
|
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|
|   IntTypeOK  $\triangleq$ 
|     seq  $\in [Replica \rightarrow Nat]$ 
|
|   IntInit  $\triangleq$ 
|      $\wedge seq = [r \in Replica \mapsto 0]$ 
|      $\wedge RNetwork!RCInit$ 
|      $\wedge SECInit$ 
|
|   IntSend(r, m)  $\triangleq$ 
|      $\wedge RNetwork!RCBroadcast(r, m)$ 
|      $\wedge SECSend(r)$ 
|      $\wedge UNCHANGED \langle seq \rangle$ 
|
|   IntReceive(r)  $\triangleq$ 
|      $\wedge RNetwork!RCDeliver(r)$ 
|      $\wedge SECDeliver(r, msg')$ 
|      $\wedge UNCHANGED \langle seq \rangle$ 
|
|   IntDo(r)  $\triangleq$ 
|      $\wedge seq' = [seq \text{ EXCEPT } ![r] = @ + 1]$ 
|      $\wedge SECUupdate(r, seq[r])$ 
|      $\wedge UNCHANGED \langle incoming, msg, messageset, vc \rangle$ 

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\\* Modification History  
\\* Last modified *Tue Jun 04 01:12:22 CST 2019* by *xhdn*  
\\* Created *Mon Jun 03 21:20:23 CST 2019* by *xhdn*