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|----- MODULE SEC -----|
|
| EXTENDS Naturals
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|
| VARIABLES
|   updateSet,
|   prev_updateSet
|
| SECvars  $\triangleq$   $\langle \textit{updateSet}, \textit{prev\_updateSet} \rangle$ 
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|
| CONSTANTS
|   Replica
|
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|
| Update  $\triangleq$   $[r : \textit{Replica}, seq : \textit{Nat}]$ 
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|
| OpUpdate(r)  $\triangleq$  updateSet[r] \ prev_updateSet[r]   for op-based CRDT
| StateUpdate(r)  $\triangleq$  updateSet[r]                     for state-based CRDT
|
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|
| SECInit  $\triangleq$ 
|    $\wedge$  updateSet =  $[r \in \textit{Replica} \mapsto \{\}]$ 
|    $\wedge$  prev_updateSet =  $[r \in \textit{Replica} \mapsto \{\}]$ 
|
| SECUpdate(r, seq)  $\triangleq$ 
|    $\wedge$  updateSet' =  $[updateSet \text{ EXCEPT } ![r] = @ \cup \{[r \mapsto r, seq \mapsto seq]\}]$ 
|    $\wedge$  UNCHANGED  $\langle \textit{prev\_updateSet} \rangle$ 
|
| SECSend(r)  $\triangleq$ 
|    $\wedge$  prev_updateSet' =  $[prev\_updateSet \text{ EXCEPT } ![r] = \textit{updateSet}[r]]$ 
|    $\wedge$  UNCHANGED  $\langle \textit{updateSet} \rangle$ 
|
| SECDeliver(r, m)  $\triangleq$ 
|    $\wedge$  updateSet' =  $[updateSet \text{ EXCEPT } ![r] = @ \cup m.\textit{update}]$ 
|    $\wedge$  prev_updateSet' =  $[prev\_updateSet \text{ EXCEPT } ![r] = @ \cup m.\textit{update}]$ 
|
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|
| Sameupdate(r1, r2)  $\triangleq$ 
|   updateSet[r1] = updateSet[r2]
|
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| \ * Modification History
| \ * Last modified Tue May 14 11:15:33 CST 2019 by zfwang
| \ * Last modified Mon May 06 16:50:42 CST 2019 by jywelling
| \ * Created Sun May 05 15:42:13 CST 2019 by jywelling

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