MODULE $E2Node$

LOCAL INSTANCE $Naturals$

LOCAL INSTANCE $Sequences$

LOCAL INSTANCE $FiniteSets$

LOCAL INSTANCE TLC

An empty value
CONSTANT Nil

Node states
CONSTANT $Stopped$, $Started$

A set of $E2$ node identifiers
CONSTANT $E2Nodes$

ASSUME $\land IsFiniteSet(E2Nodes)$
$\land \forall\, n \in E2Nodes : n \in$ STRING

A set of $E2T$ node identifiers
CONSTANT $E2TNodes$

ASSUME $\land IsFiniteSet(E2TNodes)$
$\land \forall\, n \in E2TNodes : n \in$ STRING

A mapping of node states
VARIABLE $nodes$

Connections to $E2$ nodes
VARIABLE $conns$

$vars \triangleq \langle nodes, conns \rangle$

LOCAL $E2AP \triangleq$ INSTANCE $E2AP$

$StartNode(n) \triangleq$
$\land\ nodes[n] = Stopped$
$\land\ nodes' = [nodes$ EXCEPT $![n] = Started]$
$\land$ UNCHANGED $\langle conns \rangle$

$StopNode(n) \triangleq$
$\land\ nodes[n] = Started$
$\land\ nodes' = [nodes$ EXCEPT $![n] = Stopped]$
$\land$ UNCHANGED $\langle conns \rangle$

$SendE2SetupRequest(n,\ c) \triangleq$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$HandleE2SetupResponse(n,\ c,\ r) \triangleq$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$HandleRICSusbcriptionRequest(n,\ c,\ r) \triangleq$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$HandleRICSubscriptionDeleteRequest(n,\ c,\ r) \triangleq$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$HandleRICControlRequest(n,\ c,\ r) \triangleq$
$\quad \land\ E2AP!E2Node!Reply!RICControlResponse(c,\ [foo \mapsto$ "bar", $bar \mapsto$ "baz"$])$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$HandleRequest(n,\ c) \triangleq$
$\quad \land\ \lor\ E2AP!E2Node!Handle!RICSusbcriptionRequest(c,$ LAMBDA $m : HandleRICSusbcriptionRequest(n,\ c$
$\qquad \lor\ E2AP!E2Node!Handle!RICSubscriptionDeleteRequest(c,$ LAMBDA $m : HandleRICSubscriptionDelete$
$\qquad \lor\ E2AP!E2Node!Handle!RICControlRequest(c,$ LAMBDA $m : HandleRICControlRequest(n,\ c,\ m))$
$\quad \land$ UNCHANGED $\langle nodes \rangle$

$Init \triangleq$
$\quad \land\ E2AP!Init$

$Next \triangleq$
$\quad \lor \exists\, n \in E2Nodes : StartNode(n)$
$\quad \lor \exists\, n \in E2Nodes : StopNode(n)$
$\quad \lor \exists\, n \in E2Nodes,\ t \in E2TNodes : E2AP!E2Node!Connect(n,\ t)$
$\quad \lor \exists\, c \in E2AP!Connections : E2AP!E2Node!Disconnect(c)$
$\quad \lor \exists\, n \in E2Nodes,\ c \in E2AP!Connections : SendE2SetupRequest(n,\ c)$
$\quad \lor \exists\, n \in E2TNodes,\ c \in E2AP!Connections : HandleRequest(n,\ c)$

* Modification History
* Last modified *Mon Sep* 13 19:43:18 *PDT* 2021 by *jordanhalterman*
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