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──────────────────────── MODULE E2Node ────────────────────────
LOCAL INSTANCE Naturals

LOCAL INSTANCE Sequences

LOCAL INSTANCE FiniteSets

LOCAL INSTANCE TLC

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  An empty value
CONSTANT Nil

  Node states
CONSTANT Stopped, Started

  The E2 node identifier
CONSTANT E2Node

  A set of RIC node identifiers
CONSTANT RIC

ASSUME ∧ IsFiniteSet(RIC)
       ∧ ∀ n ∈ RIC : n ∈ STRING

  The state of the E2 node
VARIABLE state

  The state of the network
VARIABLE net

  The state of E2AP connections
VARIABLE conns

  Subscriptions
VARIABLE subs

vars ≜ ⟨state, net, conns, subs⟩

LOCAL E2AP ≜ INSTANCE E2AP WITH conns ← net

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StartNode ≜
    ∧ state = Stopped
    ∧ state′ = Started
    ∧ UNCHANGED ⟨net, conns, subs⟩

StopNode ≜
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```
    ∧ state = Started
    ∧ state′ = Stopped
    ∧ UNCHANGED ⟨net, conns, subs⟩

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SendE2SetupRequest(c) ≜
    ∧ UNCHANGED ⟨conns, subs⟩

HandleE2SetupResponse(c, r) ≜
    ∧ UNCHANGED ⟨conns, subs⟩

HandleRICSusbcriptionRequest(c, r) ≜
    ∧ UNCHANGED ⟨conns, subs⟩

HandleRICSubscriptionDeleteRequest(c, r) ≜
    ∧ UNCHANGED ⟨conns, subs⟩

HandleRICControlRequest(c, r) ≜
    ∧ E2AP!E2Node(E2Node)!Reply!RICControlAcknowledge(c, [foo ↦ "bar", bar ↦ "baz"])
    ∧ UNCHANGED ⟨conns, subs⟩

HandleE2ConnectionUpdate(c, r) ≜
    ∧ UNCHANGED ⟨subs⟩

HandleE2NodeConfigurationUpdateAcknowledge(c, r) ≜
    ∧ UNCHANGED ⟨subs⟩

HandleRequest(c) ≜
    ∧ ∨ E2AP!E2Node(E2Node)!Handle!RICSusbcriptionRequest(c, LAMBDA m : HandleRICSusbcriptionRe
      ∨ E2AP!E2Node(E2Node)!Handle!RICSubscriptionDeleteRequest(c, LAMBDA m : HandleRICSubscrip
      ∨ E2AP!E2Node(E2Node)!Handle!RICControlRequest(c, LAMBDA m : HandleRICControlRequest(c,
    ∧ UNCHANGED ⟨state⟩

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Init ≜
    ∧ E2AP!Init
    ∧ state  = Stopped
    ∧ conns = [c ∈ {} ↦ Nil]
    ∧ subs = [i ∈ {} ↦ [id ↦ Nil]]

Next ≜
    ∨ StartNode
    ∨ StopNode
    ∨ ∃ t ∈ RIC : E2AP!E2Node(E2Node)!Connect(t)
    ∨ ∃ c ∈ E2AP!E2Node(E2Node)!Connections : E2AP!E2Node(E2Node)!Disconnect(c)
    ∨ ∃ c ∈ E2AP!E2Node(E2Node)!Connections : SendE2SetupRequest(c)
    ∨ ∃ c ∈ E2AP!E2Node(E2Node)!Connections : HandleRequest(c)
```

* Modification History
* Last modified *Tue Sep* 21 05:58:26 *PDT* 2021 by *jordanhalterman*
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