─────────────────────── MODULE $E2T$ ───────────────────────

LOCAL INSTANCE $Naturals$

LOCAL INSTANCE $Sequences$

LOCAL INSTANCE TLC

CONSTANT $E2TNode$

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Message type constants
CONSTANT
    $SubscribeRequest$,
    $SubscribeResponse$
CONSTANTS
    $UnsubscribeRequest$,
    $UnsubscribeResponse$

VARIABLES $e2tNbConn$, $e2tNbConnId$

$E2TNB \triangleq$ INSTANCE $Messaging$ WITH $Nil \leftarrow$ "<nil>", $conn \leftarrow e2tNbConn$, $connId \leftarrow e2tNbConnId$

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Message type constants
CONSTANT
    $E2Setup$,
    $E2SetupResponse$,
    $E2SetupFailure$
CONSTANT
    $ResetRequest$,
    $ResetResponse$
CONSTANT
    $RICSubscriptionRequest$,
    $RICSubscriptionResponse$,
    $RICSubscriptionFailure$
CONSTANT
    $RICSubscriptionDeleteRequest$,
    $RICSubscriptionDeleteResponse$,
    $RICSubscriptionDeleteFailure$
CONSTANT
    $RICControlRequest$,
    $RICControlResponse$,
    $RICControlFailure$,
    $RICServiceUpdate$
CONSTANT

1

E2ConnectionUpdate,
E2ConnectionUpdateAcknowledge,
E2ConnectionUpdateFailure

CONSTANT
E2NodeConfigurationUpdate,
E2NodeConfigurationUpdateAcknowledge,
E2NodeConfigurationUpdateFailure

Failure cause constants

CONSTANT
MiscFailureUnspecified,
MiscFailureControlProcessingOverload,
MiscFailureHardwareFailure,
MiscFailureOMIntervention

CONSTANT
ProtocolFailureUnspecified,
ProtocolFailureTransferSyntaxError,
ProtocolFailureAbstractSyntaxErrorReject,
ProtocolFailureAbstractSyntaxErrorIgnoreAndNotify,
ProtocolFailureMessageNotCompatibleWithReceiverState,
ProtocolFailureSemanticError,
ProtocolFailureAbstractSyntaxErrorFalselyConstructedMessage

CONSTANT
RICFailureUnspecified,
RICFailureRANFunctionIDInvalid,
RICFailureActionNotSupported,
RICFailureExcessiveActions,
RICFailureDuplicateAction,
RICFailureDuplicateEvent,
RICFailureFunctionResourceLimit,
RICFailureRequestIDUnknown,
RICFailureInconsistentActionSubsequentActionSequence,
RICFailureControlMessageInvalid,
RICFailureCallProcessIDInvalid

CONSTANT
RICServiceFailureUnspecified,
RICServiceFailureFunctionNotRequired,
RICServiceFailureExcessiveFunctions,
RICServiceFailureRICResourceLimit

CONSTANT
TransportFailureUnspecified,
TransportFailureTransportResourceUnavailable

VARIABLES *e2tSbConn*, *e2tSbConnId*

$E2TSB \triangleq$ INSTANCE *Messaging* WITH *Nil* ← "<nil>", *conn* ← *e2tSbConn*, *connId* ← *e2tSbConnId*

$E2TNBHandleSubscribe(c, m) \triangleq$
 $\wedge\ E2TNB\,!\,Reply(c, [type \mapsto SubscribeResponse])$
 $\wedge\ \text{UNCHANGED}\ \langle\rangle$

$E2TNBHandleUnsubscribe(c, m) \triangleq$
 $\wedge\ E2TNB\,!\,Reply(c, [type \mapsto UnsubscribeResponse])$
 $\wedge\ \text{UNCHANGED}\ \langle\rangle$

$E2TNBHandleMessage(c, m) \triangleq$
 $\wedge\ \vee\ \wedge\ m.type = SubscribeRequest$
    $\wedge\ E2TNBHandleSubscribe(c, m)$
 $\wedge\ \vee\ \wedge\ m.type = UnsubscribeRequest$
    $\wedge\ E2TNBHandleSubscribe(c, m)$
 $\wedge\ \text{UNCHANGED}\ \langle\rangle$

$E2TSBHandleE2Setup(c, m) \triangleq$
 $\wedge\ E2TSB\,!\,Reply(c, [type \mapsto E2SetupResponse])$
 $\wedge\ \text{UNCHANGED}\ \langle\rangle$

$E2TSBHandleMessage(c, m) \triangleq$
 $\wedge\ \vee\ \wedge\ m.type = E2Setup$
    $\wedge\ E2TSBHandleE2Setup(c, m)$
 $\wedge\ \text{UNCHANGED}\ \langle\rangle$

$E2TInit \triangleq$
 $\wedge\ E2TNB\,!\,Init$
 $\wedge\ E2TSB\,!\,Init$

$E2TNext \triangleq$
 $\vee\ \exists\, c \in E2TNB\,!\,Connections : E2TNB\,!\,Disconnect(c)$
 $\vee\ \exists\, c \in E2TSB\,!\,Connections : E2TSB\,!\,Disconnect(c)$
 $\vee\ \exists\, c \in E2TNB\,!\,Connections : E2TNB\,!\,Handle(c, E2TNBHandleMessage)$
 $\vee\ \exists\, c \in E2TSB\,!\,Connections : E2TSB\,!\,Handle(c, E2TSBHandleMessage)$