
MODULE *Northbound*

EXTENDS *Proposal*

INSTANCE *Naturals*

INSTANCE *FiniteSets*

INSTANCE *Sequences*

LOCAL INSTANCE *TLC*

CONSTANT *Changes*

Add change 'c' to the proposal log

$$Change(c) \triangleq$$

$$\wedge \quad proposal' = Append(proposal, [type \mapsto ProposalChange,$$

$$change \mapsto [values \mapsto [$$

$$p \in DOMAIN \ c \mapsto [value \mapsto c[p]]],$$

$$rollback \mapsto [index \mapsto 0],$$

$$phase \mapsto ProposalCommit,$$

$$state \mapsto ProposalInProgress])$$

$$\wedge \quad UNCHANGED \langle configuration, mastership, node, target \rangle$$

Add a rollback of proposal 'i' to the proposal log

$$Rollback(i) \triangleq$$

$$\wedge \quad proposal' = Append(proposal, [type \mapsto ProposalRollback,$$

$$change \mapsto [index \mapsto 0],$$

$$rollback \mapsto [index \mapsto i],$$

$$phase \mapsto ProposalCommit,$$

$$state \mapsto ProposalInProgress])$$

$$\wedge \quad UNCHANGED \langle configuration, mastership, node, target \rangle$$

Formal specification, constraints, and theorems.

$$InitNorthbound \triangleq TRUE$$

$$NextNorthbound \triangleq$$

$$\vee \exists c \in Changes :$$

$$Change(c)$$

$$\vee \exists i \in DOMAIN \ proposal :$$

$$Rollback(i)$$

ASSUME $\forall c \in Changes :$

$$\wedge \textit{Cardinality}(\text{DOMAIN } c) > 0$$

$$\wedge \forall p \in \text{DOMAIN } c : c[p] \in \text{STRING}$$

* Modification History
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