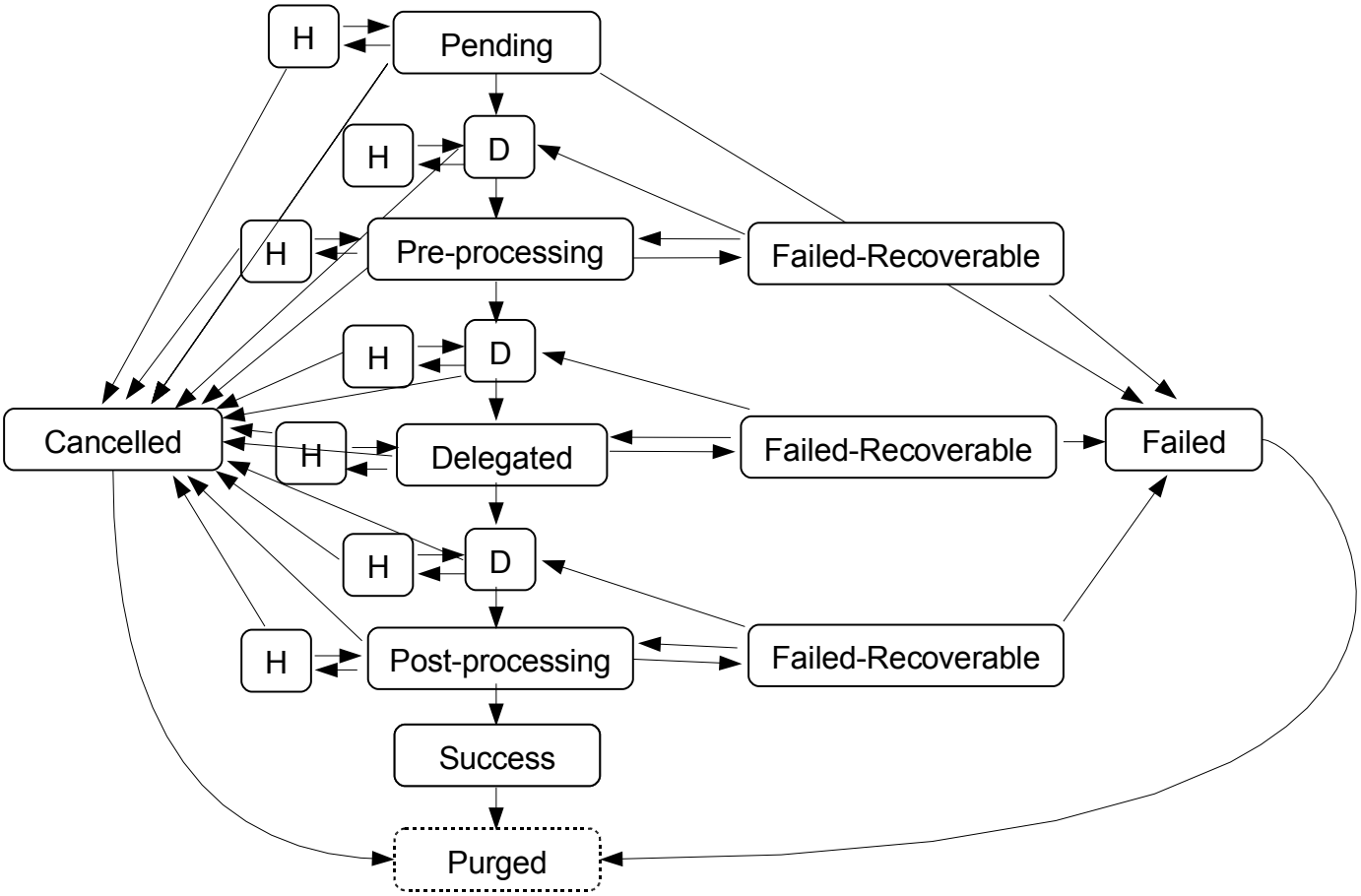

D – delayed. Although all tasks in previous state are finished Activity can't proceed to next state due to some internal reasons. For example saturation of available resources. This can be either separate states (per every delayed state) or sub-state.

H – hold. Activity is put on hold on request of client or due to internal functionality (like submit activity and wait for explicit request to start processing). Activity is resumed to previous state by client request only. This can be either separate states (per every holdable state) or sub-state.

Failed-Recoverable – Activity failed but can be restarted on request of client. This can be either separate states or sub-state of corresponding state or substates of Failed state. In second case this would fit into BES states model, but generic BES clients wouldn't understand these as final states. In any case these states must be treated as final states.

Purged – virtual state. Activity does not exist anymore. Activity can go to Purged either on request or client or after timeout from any final state – Success, Cancelled, Failed and all Failed-Recoverable states/sub-states.

Post-Processing and Pre-Processing are mostly for stage-in and stage-out functionality. But those may include more sophisticated tasks like preparing application environment. So they may have sub-states, but those may be implementation specific.

Delegated is for passing Activity to batch system and may include sub-states representing batch system specific functionality. For intermediate execution service (like broker) this state would mean Activity passed to another execution service.

NOTE:

If H and D are made substates then diagram should become simpler.

When activity goes to H state/sub-state it should probably keep all other sub-states in order to into exactly previous state.