NGOP Action Handling Proposal.

Action Initiation Mechanism.

Action could be defined by the following:

- place of execution:
  - *centralized action* - performed by Action Client (AC) on the machine where AC is running. AC will execute action after receiving request from NGOP Central Server (NCS). AC will start an action only if NGOP Monitoring Client (NMC), that initiated this requested via NCS, has appropriate authorization.
  - *local action* – performed by MA or NMC on the local machine.
- method of initiation:
  - *automatic action* – would be initiated automatically by NMC or MA when status rule associated with Monitored Object has been satisfied and action was required.
  - *acknowledged action* – would be initiated by NMC when status rule associated with Monitored Object has been satisfied, action was required and user manually acknowledged the request for action.

Action Execution Mechanism

The following NGOP subsystems could perform actions:

- Monitoring Agent should perform mostly non-intrusive action (notification); intrusive actions should be performed only when MA could initiate them exclusively (impossible to enforce). Action executables should be located on the machine where MA is running. For standard MA action would be described in configuration file and would be associated with specific monitored object and condition. Action would be performed when condition has been met. NCS would be notified about the action and its characteristics (associated monitored object, success or failure of the action, etc.)
- Action Client would perform centralized actions based on request received from NCS. Action executable would be located on the machine where AC is running. Before AC would execute the action, it would check for permission to perform the action. If action could not be performed AC will notify NCS about the problem. If action could be performed AC notifies NCS and initiates the action. When action is completed AC notifies NCS again.
- NGOP Monitoring Client could perform user-defined actions locally. Action will be described in monitored object rules. NMC would initiate action request when the rule is satisfied. In order to do so, NMC would notify NCS and ask it for permission to perform an action. Upon receiving the permission the specific action would be executed. When action has been completed, NMC notifies NCS again. If the permission is denied NMC will retry to request this action later, if the rule is still satisfied.

NCS role in action coordination

NCS would provide simple locking mechanism in order to coordinate actions. For this purpose NCS:

Keeps all actions successfully requested:

- Action id
- State:
  - Started
  - Done
  - Failed
- Start time

- End time
- Exit code
- Requester's id
    - Host
    - User name

Performs following steps upon receiving

- "Action Cntrl Request" message from MC:
    - Verifies that no action, associated with the specified monitored object, has been executing.
    - Rejects request if there is an action in "Started" state.
    - Determines when the last action was executed. Rejects request if action has been executed just recently (after "action time gap" specified in NMC request).
    - Sets action state to "Started" and forwards action request to AC.
- "Action Permission Denied" from AC:
    - Sets action state to "Failed", sets "end time"
    - Notifies the requester about failure
- "Action Finished" from AC:
    - Sets action state to "Done" or "Failed", sets "end time"
    - Notifies the requester about action state
- Action Executed" from MA:
    - Sets action state to "Done" or "Failed", sets "end time"
- "Action Lcl Request" from MC:
    - Verifies that no action, associated with the specified monitored object, has been executing.
    - Rejects request if there is an action in "Started" state.
    - Determines when the last action was executed. Rejects request if action has been executed just recently (after "action time gap" specified in NMC request).
    - Sets action state to "Started" and notifies requester that action could be performed.

Forward initiation and ending messages to Archive Service.

Action Client role in action execution and coordination.

Action Client is a process that will perform centralized actions. It would do the following steps:

- obtains action description and executable file names and authorization file name from the Configuration Management Service.
- downloads this files from repository storage.
- subscribes to receive notifications from the NGOP Central Server when action is requested by NGOP Client.
- performs centralized automatic action when the request is received.
- verifies requester authorization to perform specified action.
- sends notification to NCS when it starts and finishes an action. Notification would include exit code of the performed action.

NMC role in action execution and coordination.

NMC will do the following steps in order to request/execute the actions:

- obtains action description and executable file names and authorization file name from the Configuration Management Service.
- downloads this files from repository storage.
- sends request to perform action to NCS.
- performs the following steps that depend on initiation mechanism and NCS response:

Type of Action	NMC initial steps	NCS response: OK	NCS response: Authorization Error	NCS response: Error
Centralized automatic	Verifies that rule is satisfied Sends request for action to NCS	Do nothing	Info Window pops up	Info Window pops up, will retry later
Centralized acknowledged	Verifies that rule is satisfied Pops up ack window Sends request for action to NCS if the action has been acknowledged	Do nothing	Info Window pops up	Info Window pops up, will retry later without prompting for acknowledgment
Local automatic	Verifies that rule is satisfied Sends request for action to NCS	Performs action Sends notification to NCS	-	Info Window pops up, will retry later without prompting for acknowledgment
Local acknowledged	Verifies that rule is satisfied Pops up ack window Sends request for action to NCS if action has been acknowledged	Performs action Sends notification to NCS	-	Info Window pops up, will retry later without prompting for acknowledgment