Method of Procedure (MOP) Standard

Section I: Background Description

PURPOSE:

This document will define the minimum set of requirements for MOP's (Method of Procedure), for all planned work performed on networks. It will ensure that all MOP's, generated both internally or externally, include a reliable and systematic set of checks and procedures for the organizations responsible for implementing planned work on our networks.

A MOP must be clear on what it expects to accomplish; the impact and expected outcomes.

A MOP should adhere to the Reliability Matters principles of Prepare, Pause, and Confirm; and:

1. Specify details related to pre & post network health checks for the planned work being performed.
2. Include pre-validation of any redundant hardware/path/network, etc. (if applicable).
3. Note planned or potential service impacts.
4. Include instructions for each step, action, or command; either manual or scripted and its expected outputs.
5. Include detailed backout steps and the amount of time required to perform the backout.
6. Include an overall timeline with time checks.

MOP REQUIREMENTS:

1. All production networks, technologies, platforms, systems, and equipment where the planned work will cause service impact or there is the potential for service impact.
2. Applicable to all types of work including: software, hardware, physical, virtual, logical, configuration, database, etc.
3. Applicable to all drivers of work including: break/fix, preventative maintenance, projects, expansion/augmentation, directives, mandates, upgrades, grooms, etc.

Section II: Minimum MOP Requirements

1) Title & Document Information (Suggested)
    1. Title
    2. Document#
    3. Revision#
    4. Author(s)
    5. Issue Date
    6. Issuing (Validating) Organization
    7. Network and/or Device Type
    8. Revision Information Table (Revision#, Date, Reason for Change, Approved by)

(These values should be present in the label for clear MOP identification.)

2) Summary & Scope (required)

    Brief description of the desired outcome (examples):

    1. What is this MOP expected to accomplish and the purpose of the work?
    2. Why is this MOP being written?
    3. What objective will be accomplished?

    Identify scope of MOP; example: region/device/network/etc.

3) Impact Assessment (required)
    1. Expected Duration: This can be an estimate and it's expected that the first use of the MOP (e.g., First Office Application/Lab testing) will be used to make a more realistic estimated time it will take to complete the MOP.
    2. Sufficient time must be allowed to not only gather the pre-check & post-check data, but to also analyze the gathered data for anomalies as well as initiating a roll back procedure.
    3. Indicate if the MOP will be service impacting, and the scope of impact.

4) Pre-Check Procedures (required)

1. Verify redundancy (if applicable), and overall health of the network prior to beginning work.
2. Ensure bandwidth utilization and traffic patterns on the interfaces or across the spans iswithin normal operating levels.
3. If appropriate, note the number of advertised routes before executing the MOP.
4. Resolve critical configuration deviations prior to work commencing.
5. Ensure bandwidth utilization and traffic patterns on the interfaces or across the spans iswithin normal operating levels.
6. Ensure expected link states, traffic flows, and adjacencies are operating as expected.
7. Backup device and save. Ensure no other work or changes are planned after backup istaken.
8. Perform a verification prior to implementing changes to ensure someone else is NOTworking on the platform at the same time you are.
9. Check to see if there are any active or overdue Directives and/or configurationcompliance deviations before beginning work.

5) Configuration Procedures (where applicable)
    1. Each Step of the MOP should be listed in order of sequence, starting with "Step 1" with a brief note on what the Step is. Examples:
        - Detail each command or GUI instruction and include screenshots as necessary.
        - Note expected system comments and output acknowledgements after completing a step.
        - If using automation, provide examples of expected results/outputs once automation is completed.
    2. All warnings or unique pre-requisite checks which may be required prior to each instruction step must be clearly stated.
    3. Detail any failover steps which will need to be taken prior to implementing any step.
        - Confirm failover is functioning as desired after completing the step.

6) Backout Procedures (required)
    1. Document roll back steps and expected results.
    2. For equipment or systems that have a backup, ensure you have a backup device configuration (use a different file name than pre-check backup file.)
    3. List possible assumptions that may cause a BACKOUT.
    4. Recommended time check for BACKOUT. A period in the maintenance window when work needs to stop at a point where there is enough time in the window to safely complete the backout plan.
    5. If using automation, provide examples of expected results/outputs once automation is completed.
    6. Backout time check - If possible, note steps in the MOP as a checkpoint where a roll back may no longer be feasible or where the MOP can safely stop for continuation in another second Maintenance Window.
    7. Instructions to normalize any failure.

7) Post-Check Procedures (required)
    1. Verify all steps in the MOP have been successfully completed. Address fall-out as necessary and reschedule.
    2. Run the same commands as pre-checks, which were used for baselining the network.
    3. These commands can be used to compare to the output from pre-test commands
    4. Ensure bandwidth utilization and traffic patterns on the interfaces or across the spans arewithin expected parameters and align with levels noted during pre-check.
    5. Check alarm info for the devices impacted by the change such as link states, traffic flows,and adjacencies are operating as expected.
    6. Compare the number of advertised routes to what was noted prior to executing the MOP.
    7. Check with support organizations to further validate element and network health (NOC/NMC, traffic, etc.)
    8. Verify redundancy (HW or network) is still intact, available and functional.
    9. Backup device and save per standard operating procedure.
    10. Some changes have an impact only observed after the traffic grows during peak hours which is outside the normal change window. Post-check lifespan may need to be longer than the closure of the maintenance window. People need to monitor relevant metrics of the affected area well after the change is over to see if lingering impacts appear as traffic grows.