



# CLUSTERLION TEST SCENARIOS MC-IP

This document describes many test scenarios related to a MetroCluster setup with ClusterLion. The scenarios are basically differentiated in three categories:

- ClusterLion connection failures
- MetroCluster failures that do not cause switchover
- MetroCluster failures that result in a switchover

How the scenarios are structured:

Description of the scenario			
<b>How to test:</b> How can the scenario be achieved when testing?			
Affected Location	Other Location	Alarm	Status
Status values in the ClusterLion web portal at the affected location.	Status values in the ClusterLion web portal at the unaffected location.	Name of the alarm occurring at the ClusterLion.	Which status results from the perspective of the ClusterLion.
<b>Note/Explanation:</b> Additional comments or explanations to this scenario.			

The resulting status can basically take the following values, which are briefly described here:

- Operational:  
The ClusterLion works normally and continues to react to all occurring situations.
- Actions-Disabled:  
The ClusterLion cannot make any clear decisions and therefore deactivates all further actions as long as there is no clear status again.
- Split-condition:  
The MetroCluster is in a split condition and therefore ClusterLion deactivates all further actions as long as there is no clear status again. This absolutely eliminates the possibility for Split-Brain.
- Switchover-mode:  
The MetroCluster is in switchover mode and therefore ClusterLion deactivates all further actions as long as there is a normal status again.

In case of any questions please contact us at [support@prolion.at](mailto:support@prolion.at) or by phone at +43 650 470 43 23.  
Thank you!

## ClusterLion connection failures:

### One AgentBox fails

**How to test:**

Disconnect PoE and/or press the Reset button on one AgentBox.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
One Device AGT: Warning or Error	-	agent-alarm	operational

**Note/Explanation:**

If one AgentBox has an error, ClusterLion will continue to work normally as they are redundant.

### Both AgentBoxes fail

**How to test:**

Disconnect PoE and press the Reset button on both AgentBoxes.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
Both Devices AGT: Warning or Error All other values are hidden	-	location-offline	actions-disabled

**Note/Explanation:**

If both AgentBoxes have an error, the ClusterLion disables all actions after a short while because it can no longer make any legitimate decisions.

### Serial connection fails

**How to test:**

Disconnect all serial console ports.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
PowerSafetyStatus: Warning	-	-	operational

**Note/Explanation:**

If the serial query fails, it is basically possible to perform a power-off. That's why the metric is called PowerSafetyStatus.

### Ethernet connection fails

**How to test:**

Disconnect all ethernet ports.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
All storage metrics: Warning	-	controller-unreachable	actions-disabled

**Note/Explanation:**

If the ethernet queries fail, the ClusterLion disables all actions after a short while because it can no longer make any legitimate decisions.

Any, but not all power input fail

**How to test:**

Disconnect one to three power inputs.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
Power Input: Warning Power Output: Warning	-	input-alarm output-alarm	operational

**Note/Explanation:**

If a power input is not supplied with power, the equally numbered power output is also not supplied with power. A warning is displayed in the web portal.

**MetroCluster failures that do not cause switchover:**

Connection to local discs lost

**How to test:**

Disconnect all SAS Ports at the Controllers.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
Local Plexes: Error	Remote Plexes: Error	local-plex-warning-alarm	operational

**Note/Explanation:**

If one site of the MetroCluster loses the connection to the disks, the ClusterLion will alert, but will not initiate a switchover because each MetroCluster Location still has access to a disk backend.

Backend connection between MetroCluster sites lost

**How to test:**

Disconnect all Inter-Switch Links.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
NVRAM Mirror: Error Fabric Interconnect: Error Remote Plexes: Error	NVRAM Mirror: Error Fabric Interconnect: Error Remote Plexes: Error	isl-error-alarm	split-condition

**Note/Explanation:**

If the MetroCluster is in a split condition, that means that all ISL connections in the FC backend are broken, the ClusterLion will not initiate a switchover and will not do so until the situation is resolved. Each side of the MetroCluster works independently for itself.

Both local Cluster Switches (backend) fail			
<b>How to test:</b> Turn off both MetroCluster Backend Cluster Switches.			
Affected Location	Other Location	Alarm	Status
NVRAM Mirror: Error Fabric Interconnect: Error Network Interconnect: Error	NVRAM Mirror: Error Fabric Interconnect: Error Network Interconnect: Warning Remote Plexes: Error	isl-error-alarm	split-condition
<b>Note/Explanation:</b> This situation is very unfavorable for the MC-IP because HA is disabled and the cluster is out-of-quorum. <b>ATTENTION:</b> We only recommend this test if you are really sure what you are doing. Maybe NetApp support is needed to recover this situation.			

### MetroCluster failures that result in a switchover:

Both storage controllers fail			
<b>How to test:</b> Turn off both storage controllers.			
Affected Location	Other Location	Alarm	Status
All storage metrics: Warning; PowerSafetyStatus: Warning	NVRAM Mirror: Error Fabric Interconnect: Error Remote Plexes: Error	controller-error-alarm	switchover-mode
<b>Note/Explanation:</b> If both storage controllers fail on one site, ClusterLion detects the situation and initiates a switchover to the other site.			

A power outage occurs at the data center			
<b>How to test:</b> Turn off the whole rack or at least disconnect the 4 power inputs on your ClusterLion.			
Affected Location	Other Location	Alarm	Status
All storage metrics: Warning PowerSafetyStatus: Warning Power Input: Error Power Output: Error UpsOnBattery: Error	NVRAM Mirror: Error Fabric Interconnect: Error Remote Plexes: Error	poweroutage-alarm usv-alarm	switchover-mode
<b>Note/Explanation:</b> If a power outage occurs, ClusterLion detects the situation and initiates a switchover to the other site.			

## A site disaster occurs

### How to test:

Simultaneously disconnect both PoE ports and turn off the storage controllers at the same time.

<i>Affected Location</i>	<i>Other Location</i>	<i>Alarm</i>	<i>Status</i>
Both Devices AGT: Warning or Error All other values are hidden	NVRAM Mirror: Error Fabric Interconnect: Error Remote Plexes: Error	sitedisaster-alarm siteoutage-alarm	switchover-mode

### Note/Explanation:

If a site disaster occurs, ClusterLion detects the situation and initiates a switchover to the other site. A site disaster is a situation in which both, the MetroCluster and the ClusterLion on one site completely fail within a short time. This situation would be conceivable, for example, when an explosion takes place, a heavy earthquake occurs, etc.