Failowering

Mizu server and gateway will make automating failowering between outbound gateways if the "CAN_failower" and "hasfailower" global configuration settings are set to true (they are true by default).

The following failowering procedures are done by the mizu voip server:

-**gateway failowering**: when an outbound gateway has wrong global statistics
-**direction failowering**: when only a few direction (prefix) statistics are wrong on an outbound gateway
-**failowering on subsequent called number**
-**in-call failowering** (this is also called as "**rerouting**")

The failowering module will collect **statistics in the background** and will detect if a gateway is below the predefined thresholds. This means that its priority will be automatically lowered by the routing module.

Failowering can occur on both gateway and gateway-direction level. When the ASR, ACD, etc is "wrong" for all calls trough a gateway, than the whole gateway is failowered. But there are situation when a gateway can handle most of the traffic gracefully and will fail only to a few direction (direction means 4 digit prefix). In this case only these directions are failowered (this means that even if the gateway is with high priority to these directions, other gateways will be favorized –if you have enabled other gateways in these directions). The failowering are based on ASR, ACD statistics and if there is predefined subsequent wrong calls to a direction. Once a route is marked as failowered, it will be probed time to time to check if the problem was solved. This is happening only a few times (with exponentially increased time intervals) than if the quality is still wrong, the route will be marked as permanently failowered. This routes can be **reset**ed only manually from the failowering form if you set the MaxSubsFail, NoPriorityCount, NoPriorityCountD to 0 and the NoPriority to a date in the past.

The rules can be defined using the "Failowering" form. The table will be populated automatically after your traffic pattern.

You can check the route status also from here.

The following fields are defined:

ID: database id. Auto increment
GatewayID: called gateway or sipproxy
Direction: called direction (prefix)
MaxSubsFail: if we get more wrong calls than MaxSubsFail we failover to the next route if any
MinASR: if we get more lower ASR than MinASR we failover to the next route if any
MinACL: if we get more lower ACL than MinACL we failover to the next route if any
MinCallCount: we calculate ASR and ACL statistics only if we have MinCallCount cdr
SubsFails: current subsequent wrong calls detected
NoPriority: We have done a failover until this date. When the time elapses, we try this route again. This will grow exponentially.
NoPriorityCount: we have failovered NoPriorityCount until now because of SubsFails. The bigger is   NoPriorityCount, the longer we d
deprioritization (NoPriority)
NoPriorityCountD: : we have failovered NoPriorityCount until now because of statistics
Manual: all routes will be added automatically to failover table with a minimum of quality requirements
Enabled: failowering enabled
Datum: record insertion or last modification date
Comment: why was the record modified last time (reason)

There are some **conditions** for the gateway and direction failowering to work correctly:

-the server must have enough call to calculate relevant statistics (this can be fine-tuned from the "Failowering" form) ; the default are optimized for medium traffic amount
-some time must elapse for a route to be marked as failowered (too aggressive settings might result in false failowering)
-you must have at least one secondary gateway/direction where the traffic can be failowered

You should not build your entire business based on the correctness of the failowering module. Outbound gateways should be **monitor** a regular interval (Advanced statistics -> by Called gateways) and you should take remedy actions when the statistics will drop to any outbound gateway (fix the problem or remove it by removing from the routing or set as temporary disabled)

Other important failowering process is the **"in-call failowering" or "rerouting".** This means that if the call is rejected by the first route be immediately routed to the next route (without the caller to be disconnected)

Another failowering type occurs when there is at least **two subsequent calls to one number** and the first call length was below 25 sec This is a convenient way to detect if somebody calls a number with wrong voice quality and will call it again in a short time. These can enabled by the configuration wizard or from the global configuration by the following options.

-maxreroute: how many time a call can be rerouted
-rerouteon: on which conditions a call will be rerouted
-reroutedisccodes: disconnect codes to be received for the rerouting
-noreroutedisccodes: define disconnect codes when there will be no rerouting

All these setting are set by default to optimal values which you can modify after your requirements.

Note: failowering will occur with increased thresholds (more slowly) if the priority between the routing directions (SIP servers) is more t 100.