Maintaining bandwidth over copper in changing noise environments requires a multi-faceted approach
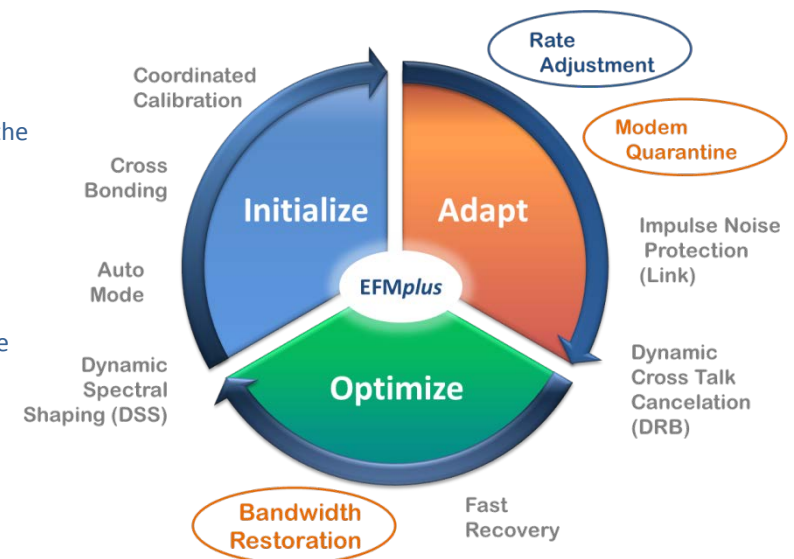
Achieving high quality transmission with copper requires responding appropriately to various changes in the noise environment. These changes can be intermediate (caused by impulse noises or temperature), or they can be more permanent in nature (such as changes in noise introduced as other services are added to or removed from the binder).

"Rate adaptive" capability allows modems to adjust their performance to ensure high reliability and service availability by lowering their bandwidth and increasing their SNR. This feature is widely implemented by EFM over Copper vendors. Rate adaptation has its benefits, particularly in addressing longer-term sources of noise (such as a change in the services that exist within a binder). But rate adaptation is not very effective in dealing with intermittent interference, as it allows the bandwidth on the link to drop when intermit interference occurs. More is needed to solve these temporary noise problems.

Actelis' solution goes beyond simple rate adaptation to effectively solve the problems introduced by intermittent noise. Actelis' modem quarantine and bandwidth restoration mechanisms effectively adapt in real time to changes in the noise environment, maintaining the transmission rate and throughput of services.

Using algorithms that differentiate the way in which permanent and intermittent noise are treated, these features distinguish between intermediate and permanent sources of interference allowing the link to adapt to overcome intermittent noise, and then restoring the link's full bandwidth when the interference has passed. Moreover, Actelis' flexible bandwidth restoration automatically maximizes the throughput, allowing the link to be quickly re-optimized, recovering any bandwidth lost since the last calibration due to changes in the noise environment.

Actelis EFM*plus* suit of Technologies

To learn more go to **EFMplus performance Enhancements**

High Performance Broadband over Copper