ANSA DM: SIMULATION DATA MANAGEMENT IN PRE AND POST PROCESSING

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ABSTRACT –
A key aspect of CAE activities is related to managing the vast amount of related data both in the pre processing as well as in the post processing phase. Failing to address this efficiently constitutes probably the most significant bottleneck that disorients engineers from the core of their work and consequently results in time cost and quality penalties. Available solutions involve the introduction of a third party software that undertakes the management of data fed to the pre- or the post-processor and in most cases the pre and the post phase are facilitated either completely separately or they are served in an unbalanced way in favor of one of the two.
BETA CAE Systems being active in data management for more than nine years, perceives the aforementioned problem as a key challenge for CAE, hence, has proceeded with extending its pre-processing data management system, known as ANSA DM, to post-processing. The new ANSA DM, is embedded both in ANSA (pre-processing) and μETA (post-processing). As its predecessor, it is still a file-based tree structured system. Added to the part level, it has also introduced two more levels, the simulation model and the simulation run, thus allowing for the effortless association of part versioning with each model and run. Loadcases and post-processing sessions can be parameterised and thus, stored as library items and can be applied easily to different models / runs. Automated post-processing actions can be initiated from within the tool and the outcome (curves, tables/spreadsheets, videos, images) is automatically placed under the corresponding simulation run and can be readily displayed through a viewer in either ANSA or μETA. Overlaying and comparing results stemming from respective runs is also streamlined, based on associations that are built intrinsically between the different model runs and their results.
Through its simple architecture (file system -based) that does not involve any extra infrastructure or a third party software, ANSA DM constitutes a simple solution for efficient managements of data related to CAE activities. The fact that it is embedded in ANSA and μETA makes it easy to adopt and implement since it is not related to any additional cost or does not necessitate any pre-configuration. At the same time, it is perfectly scalable and can be used from a single engineer up to a multi-member team or an enterprise. The most considerable merit, however, derives from the fact that this tool addresses equally data related to pre and post processing. Through the provided automated archiving and the association between respective data, the user is exempted from spending time with non-engineering activities, hence the model development cycle (modification-calculation-new modification) can be further improved by conducting more simulation runs and evaluating results faster and more accurately. Previous runs are more easily traceable by any user and the engineering experience is better captured and maintained. The tool is also linked to SDM Console, the new product of BETA CAE Systems, which serves as a higher level and light front-end handler of certain predefined CAE tasks while providing a quick overview of the model and its current status.