

## *Automating design engineering processes with a globally scalable execution workflow*

SynfiniWay connects Altair's HyperMesh® FE pre-processor, OptiStruct® optimisation solver and HyperView® post visualiser tools into a single workflow, with automated end-to-end implicit data movement and optimised execution

### **Background**

To keep competitive, manufacturing enterprises demand higher quality with a shorter time to market for their products.

Pressures on product design cycle times force the need for automation in the design process. Higher usage of optimisation processes increases the demands and scope placed on IT resources.

The product design cycle which includes, data pre-processing, simulation solver and post-processing visualisation must be automated and globalised to ensure the business objectives of quality and time to market are met.

### **Customer problem**

Applications are limited to local resources so that overloads or inaccessibility to local systems means the engineering process chain stops, leading to delays in the design process.

Not all applications involved in the process chain are linked by the data produced at each step. This slows down the entire process cycle and reduces the efficiency of individual engineers.

Engineers do not have a reliable and automatic means to move data from their desktop to the location where the solver runs. They waste time monitoring file transfer requests and re-running any failed transfers.

### **Our offer**

Combining the strengths of Altair's HyperWorks engineering tools with SynfiniWay's global framework and automated workflow management ensures the design process chain can be optimised.

Access to a global scope of resources ensures the best usage of IT resources for the whole process chain.

Implicit file transfer between processes means processes can execute anywhere within the framework and have data delivered to them and collected from them to be sent to follow-on processes.

### **Solution**

The HyperMesh desktop is directly integrated with SynfiniWay's workflow manager. The engineering user can start a workflow and have desktop data sent directly to the execution location of the OptiStruct solver. Once completed the simulation output is automatically returned to the engineer's desktop system where the HyperView visualiser is automatically started. The engineer gets immediate access to the completed results. This process chain is managed by a single mouse click.

SynfiniWay's resilient file transfer mechanism ensures failed file transfers are transparently retried. Engineers are therefore freed to work on other aspects of their engineering projects.

The global framework provided by SynfiniWay enables multiple execution locations for the specified services, harmonising the use of enterprise wide IT resources.

### **Benefits**

By capturing the key processes into an automated workflow engineers can obtain results more quickly.

Implicit data movement with direct point to point access between servers ensures workflow processes are started with minimal delay.

Access to global resources expands the possible execution locations of individual processes. This leads to faster access to design results due to global scheduling and better sharing of enterprise resources.

Built-in resiliency features of the workflow framework ensure that results are reliably returned to the engineer's desktop without any user intervention even when IT failures occur. This results in higher efficiency for the whole engineering process cycle.

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