

3D-Visualization and Collaboration for CAE Workflow



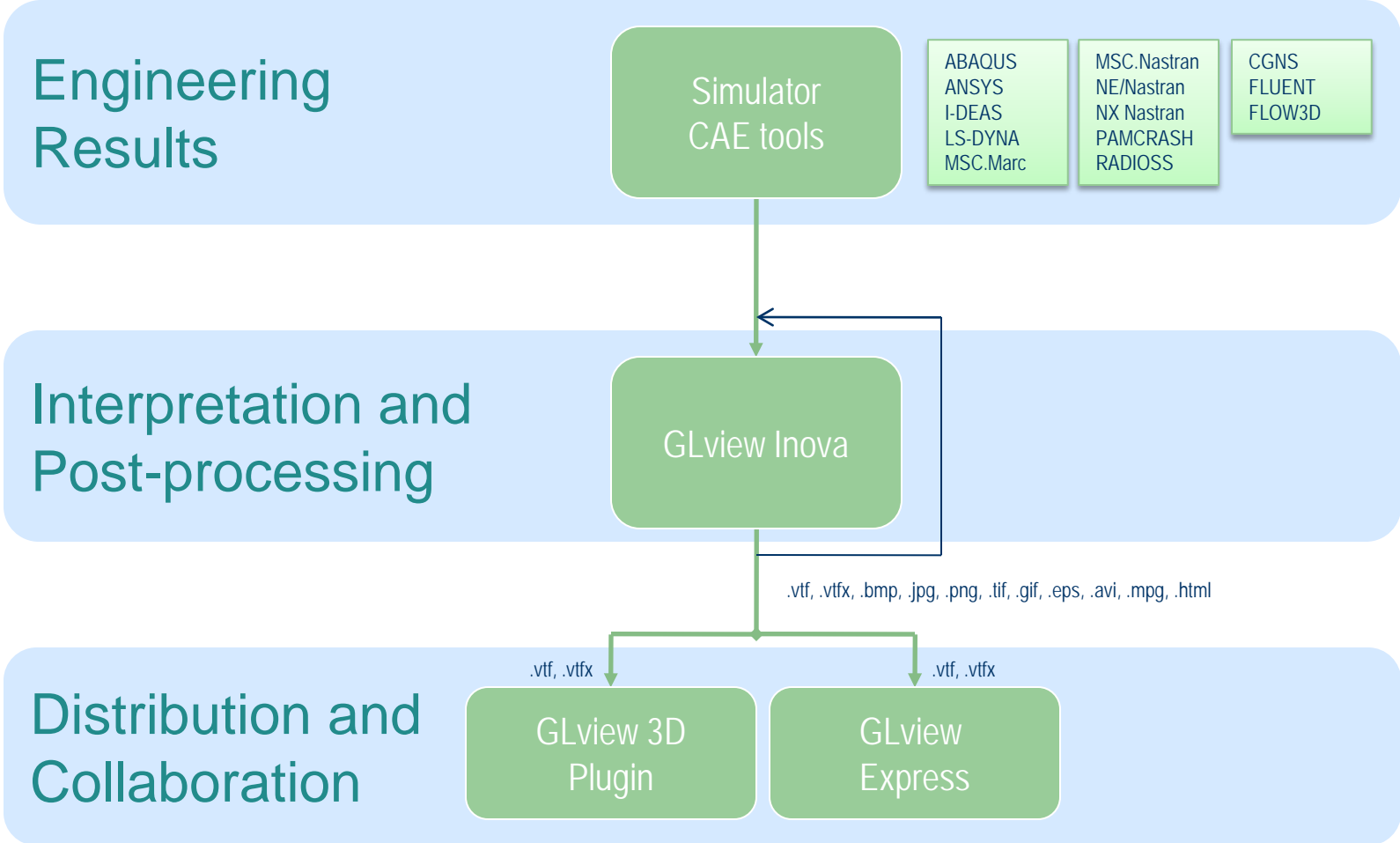
2008 FLOW-3D World Users Conference

Santa Fe, New Mexico, USA

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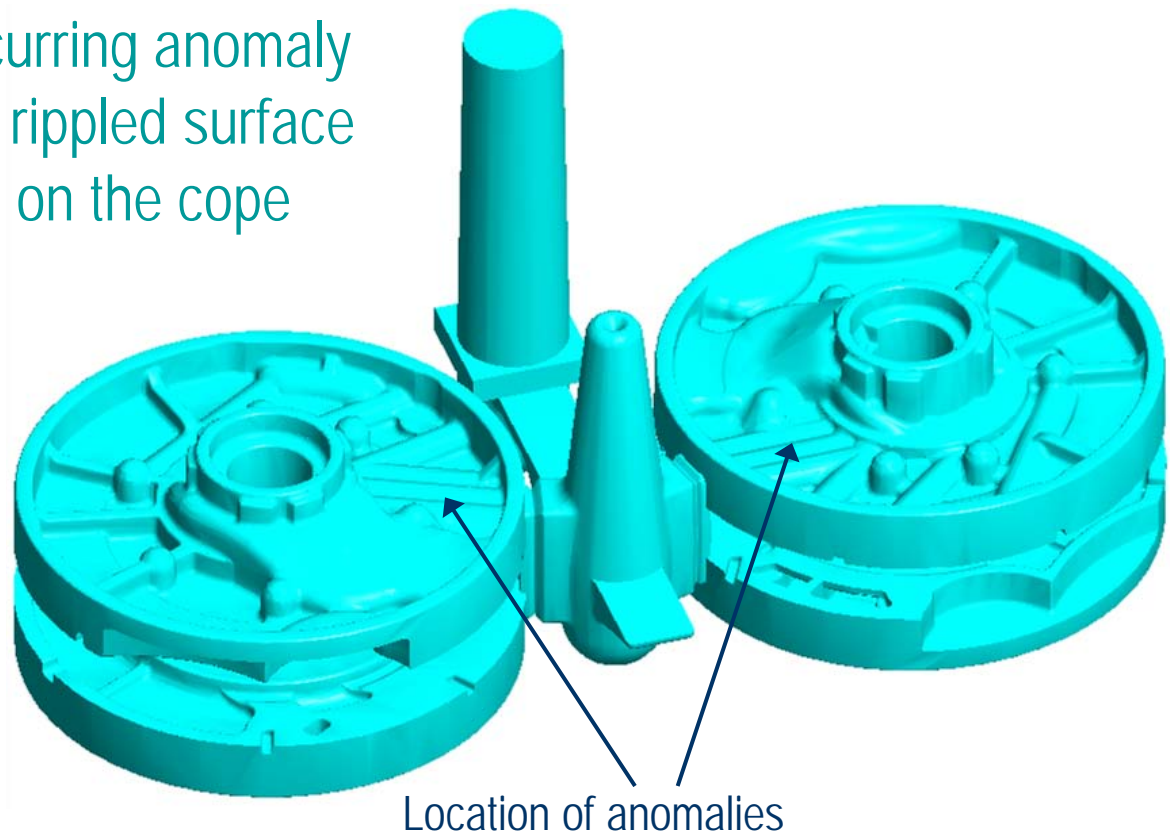
3D-Visualization in CAE Workflow



Casting Anomaly Analysis



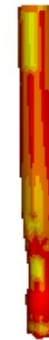
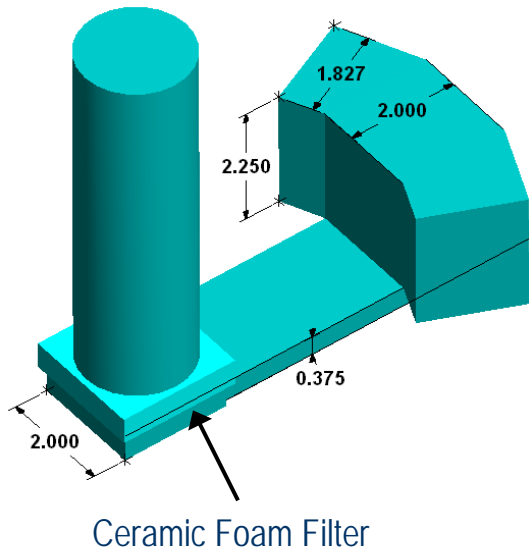
The current transmission hub casting has a recurring anomaly that resembles a rippled surface near the in-gates on the cope castings



Casting Anomaly Analysis – Results



Original Gating



New Gating



Flow3D Restart Data: 0.132046

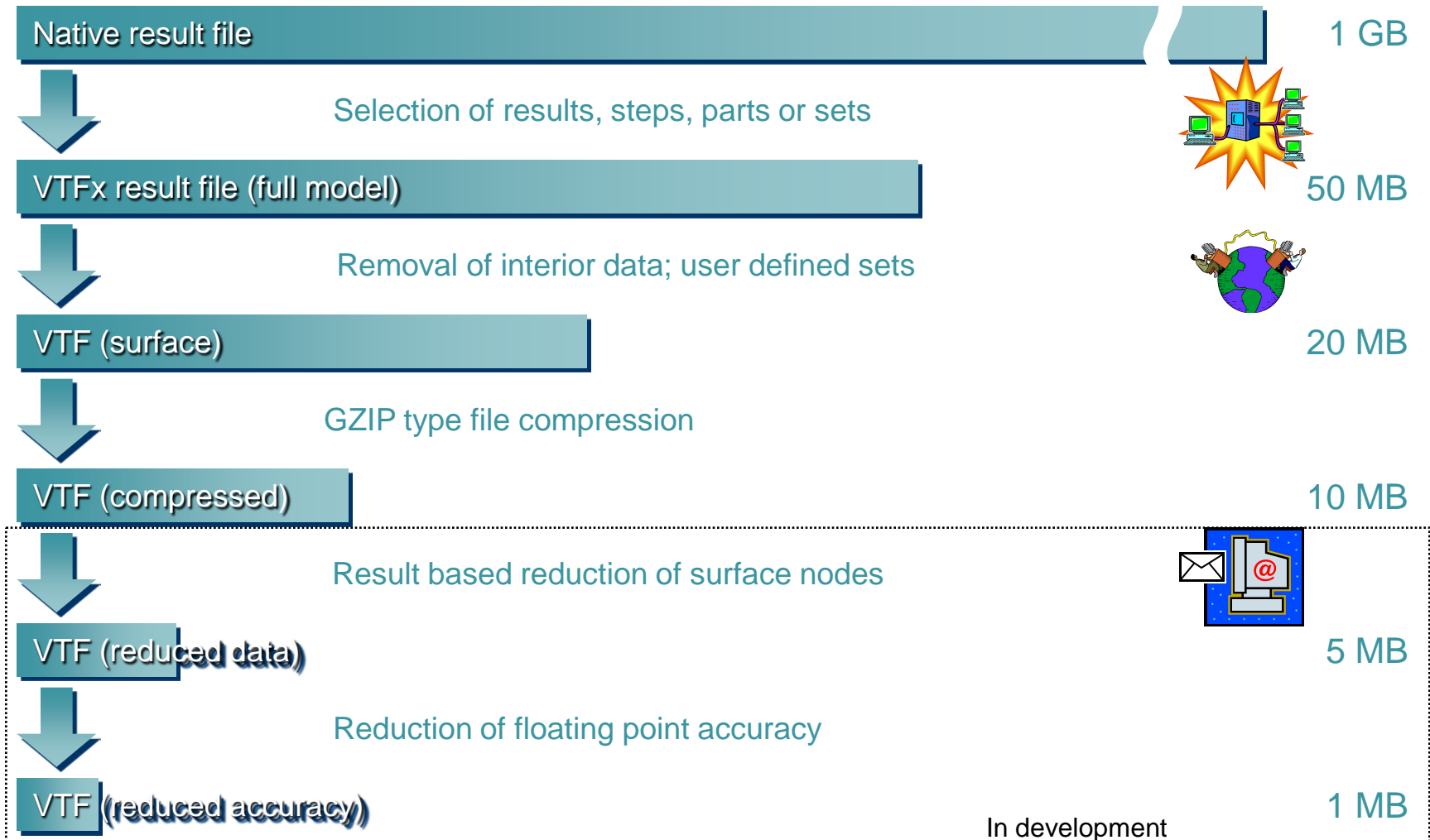
GLview Inova 2008-09-12
Frin: fraction of fluid_R

Casting Anomaly Analysis – Size Reduction



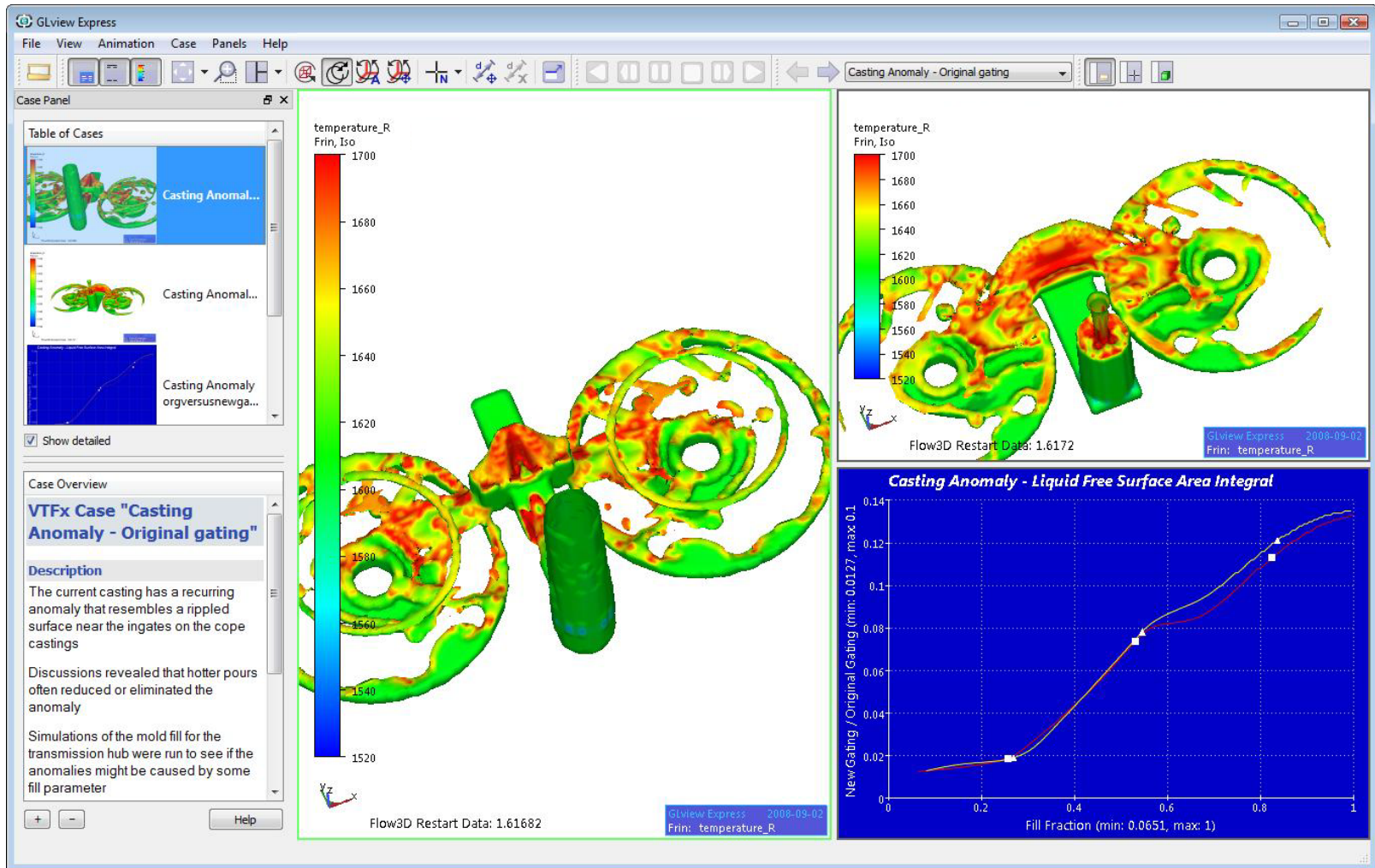
Case	Original Size [MB]	Time Steps [Count]	VTFx Size [MB]
Original Gating	1500	98	40
New Gating	1900	305	130
Size Reduction			~200

Data Reduction Techniques

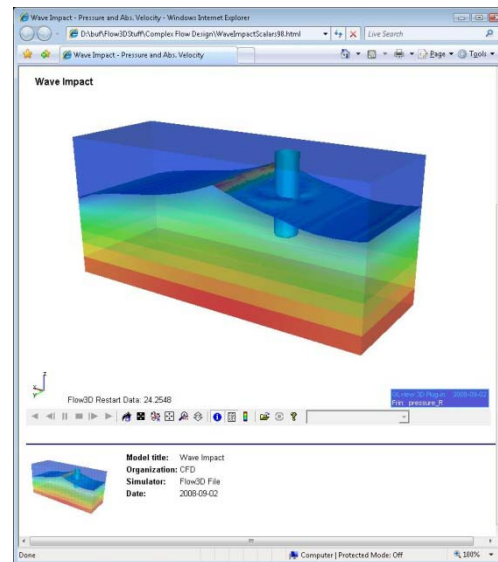
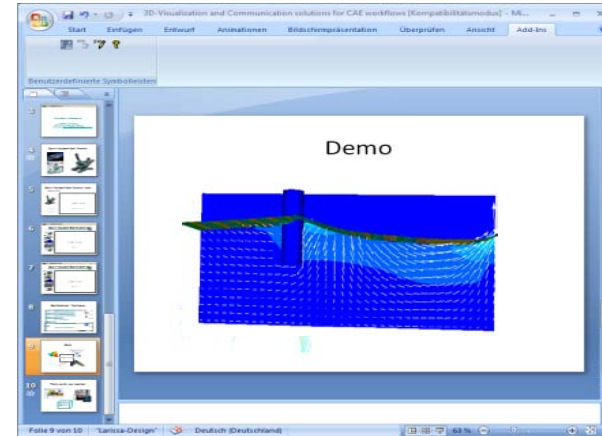
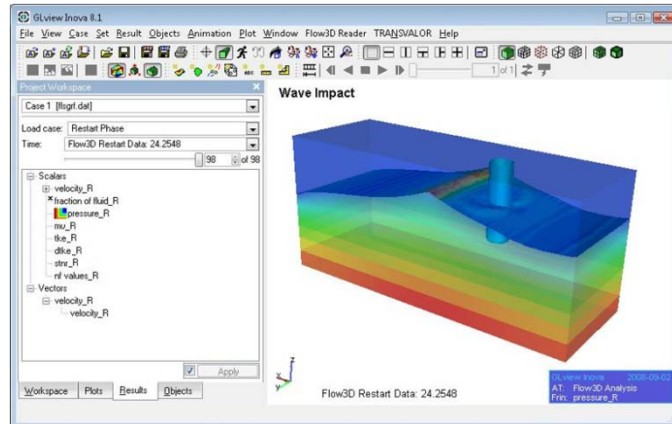


In development

Comparison of CAA with Standalone Viewer



Authoring of Analysis Results - Demo



Model courtesy of
Complex Flow Design AS

3D-Visualization in the CAE Workflow



3D-Visualization gains in importance in CAE workflows because simulation data sets keep growing constantly.

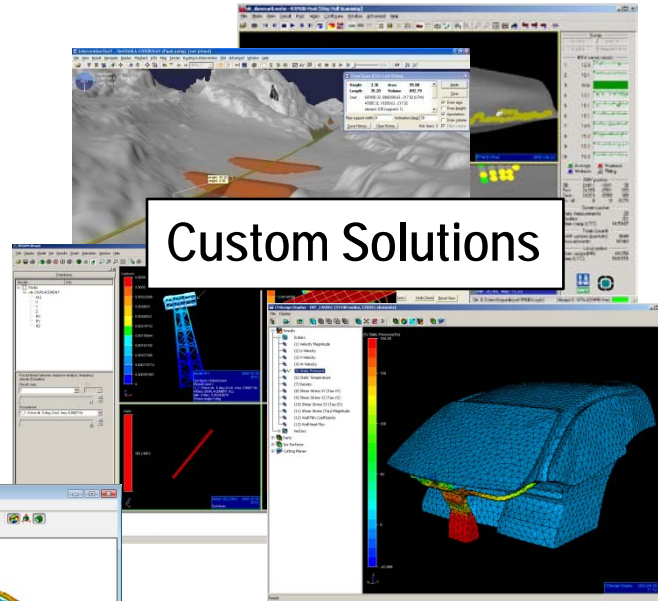
The aim is to provide clients, co-workers, managers and other third parties with easy-to-use but powerful 3D-Visualization tools that can be integrated seamlessly in the CAE workflow.

Combined with automated production of reports, the time needed for communication of engineering results and decision processes can be significantly reduced from i.e. a week down to two days – a great benefit for teams that collaborates globally.

Thank you for your attention



```
.....  
*  
* VTDisplayParticleTrace::AddPoint()  
*  
* Descr: Add a trace point to this particle trace  
* Param: position - Position of point  
* Return: Index of the newly added point, -1 on failure  
*  
* By: SP  
.....  
VInt VTDisplayParticleTrace::AddPoint(const VTVector3 position)  
{  
    IF (!m_aPositions.AddGrow(position)) return -1;  
  
    VInt iNewIdx =  
    VTbool bSet = VT_  
    IF (m_paTime)  
    IF (m_paMapScalars)  
    IF (m_paMapVectors)  
    IF (m_paOctetat)  
  
    // Clean up on failure  
    IF (!bSet)  
    {  
        IF (m_paTime)  
        {  
            IF (m_paTime->GetNumItems() > iNewIdx) m_paTime->Delete(iNewIdx);  
        }  
        IF (m_paMapScalars)  
        {  
            IF (m_paMapScalars->GetNumItems() > iNewIdx) m_paMapScalars->Delete(iNewIdx);  
        }  
        IF (m_paMapVectors)  
        {  
            IF (m_paMapVectors->GetNumItems() > iNewIdx) m_paMapVectors->Delete(iNewIdx);  
        }  
    }  
}
```



Custom Solutions

