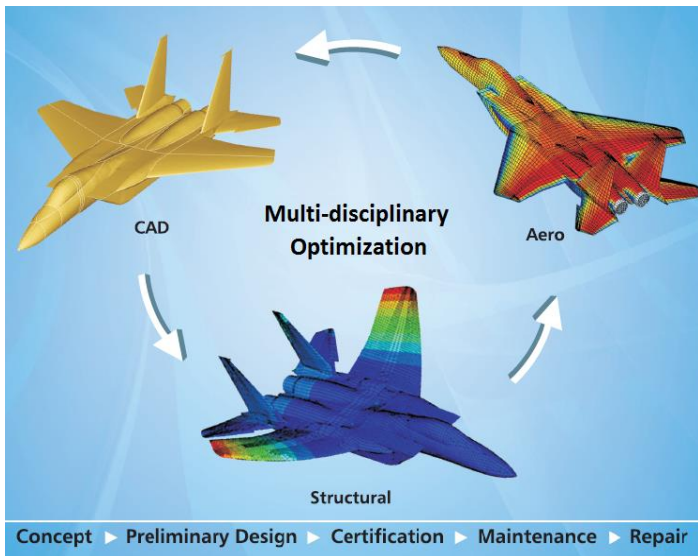


Software Development: Aerospace Concept Design & Optimization



The Customer

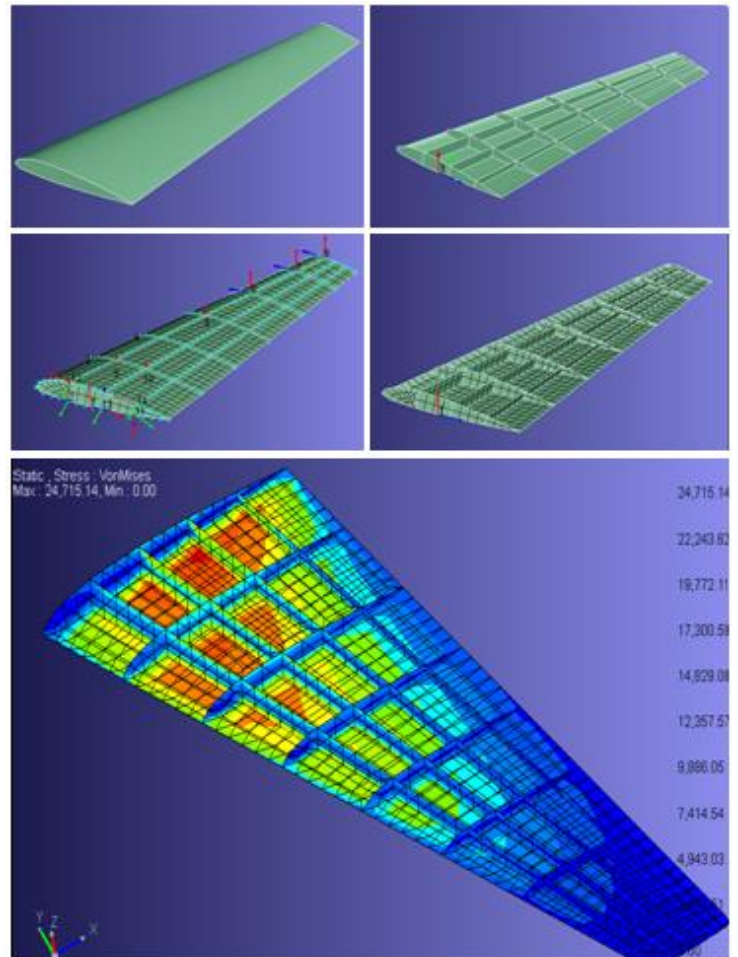
The customer was a California, USA based OEM, having strong expertise in automotive and aerospace FEA.

Background

Customer wanted to develop **Software for Aerospace Concept Design, Validation and Optimization** by considering various engineering aspects like structural strength, buckling, aerodynamics, composite materials, trim & flutter etc.

Key Features

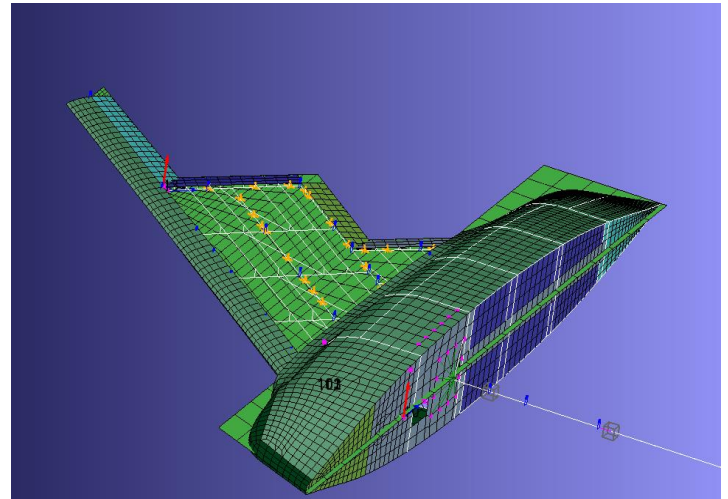
- ✚ Simple and quick creation of parametric structural model of full airframe (no present day software offers this)
- ✚ Congruent QUAD mesh generation
- ✚ Automatic creation of parametric FE properties. Support for composite properties.
- ✚ Automatic mapping of CFD loads
- ✚ Modal, Buckling, Static Structural, Aero-elastic analysis using NASTRAN
- ✚ Hybrid optimization capabilities (Gradient + Genetic Algorithm) for handling large number of design variables
- ✚ NASTRAN results reader (.op2)
- ✚ OpenGL based visualization of FE model and NASTRAN results
- ✚ Platform independent user interface



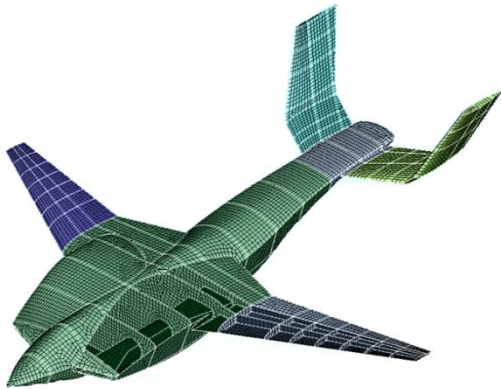
Parametric Wing Model & FE Results

Benefits to Customer

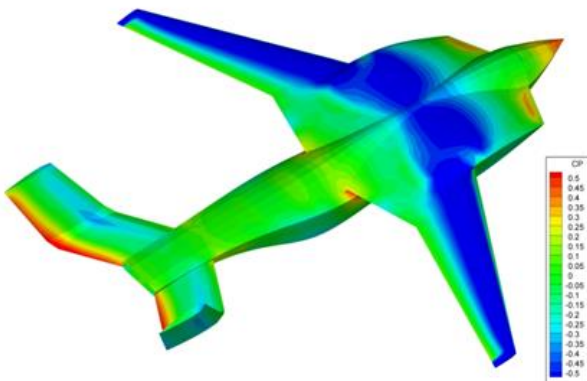
- + Senior technical leadership with strong mechanical engineering background
- + Team with experience on CAD, CAE development including variety of CAD kernels, Meshing libraries, Finite Element pre processors, solvers and post-processors
- + Strong software engineering skills starting with user requirements, software requirements all the way up to delivering quality software
- + Customer can focus on product management, sales, support
- + 50% reduction in development costs



Congruent QUAD mesh for fuselage



Panel Mesh



Pressure Distribution

The software and tools developed by Aashai for parametric studies with design optimization in the loop have helped NextGen Aeronautics reduce airframe development cycles on many projects. This is directly a result of automation of FE modeling process in the software that avoids the traditional manual modeling bottlenecks.

Dependability, commitment and consistent performance make Aashai a great partner to work with!

Adarsh Pun
Director, engineering Methods
NextGen Aeronautics