

AeroSystems

Consulting Services Case Study

Client Summary

AeroSystems designs, constructs and supports aircraft engine test cell facilities worldwide. AeroSystems is part of ASE Holdings and is headquartered in St. Paul, Minnesota.

Project Overview

Noesis Labs LLC (Noesis) was engaged by AeroSystems to assist in the conception, design, and technical planning of a successor to their supervisory control and data acquisition product ASE2000. AeroSystems's primary goals for the new product were to maintain existing functionality while providing a more modern and flexible user interface (UI) and, additionally, to support increased data acquisition speeds.

UI Modernization Research

The consulting process began with Noesis spending time with client domain experts to understand the existing ASE2000 product, its functions, how end-users interact with it, and its perceived shortcomings. Using the insights gained during this introductory period, Noesis assembled a detailed list of technical and functional requirements and worked with client stakeholders to hone the list and achieve consensus. Once requirements were defined, Noesis transitioned to researching potential solutions and that research culminated in a matrix comparing the strengths and weaknesses of several possible UI technologies as they related to the new product. Noesis presented matrix document and related findings to AeroSystems and after several discussions about details and prioritization, a best candidate solution was identified. Finally, with the UI solution chosen, Noesis produced a proof-of-concept implementation as well as a summary of findings that provided estimates around staff requirements and talent availability as well as overall development effort and timeframe. These findings were presented to the AeroSystems board to provide an actionable summary of the project goals and scope of work.

Data Acquisition & Storage Speed Research

Having completed and presented their UI modernization research results to good reception, AeroSystems then engaged Noesis to identify a solution to their remaining challenge of increasing the speed of data acquisition and storage. During discussions with the client it became clear that their data acquisition requirements lacked the detail necessary to properly assess possible solutions. To remedy this situation, Noesis assisted AeroSystems in defining more exact metrics around acquisition and storage speed and understanding how their existing ASE2000 software performed against those metrics. With a clearer understanding of the existing system and software limitations, Noesis and the client assembled a more detailed set of performance requirements for the new product. With these requirements in hand, Noesis set to

work researching potential technical solutions. This research involved the creation of several proof-of-concept applications to test theories and explore performance behaviors. In the end, a technical solution was identified that could meet the rigorous requirements of the project. The solution utilized off-the-shelf hardware and open-source software combined with a custom transmission protocol. The use of commodity hardware and licensing free software dramatically lowered the potential project development and implementation costs while simultaneously shortening the project timeline and lowering potential support costs.

Result

The technical consulting services Noesis provided to AeroSystems enabled the client to begin work on an important new product that had failed to launch several times in the past due to lack of resources, specialized expertise, and organizational buy-in.

“Many of the ideas, discovery, and artifacts [Noesis Labs] have brought to the table have allowed ASE to become unstuck and move toward a modern data acquisition platform. [Their] business model was a very good fit [...] when we needed leadership, ideas, consult, prototyping, etc.”

Greg Swanson - Manager, Controls & Computer Systems
