SUCCESS STORY FOR MATHEMATICAL OPTIMIZATION

BACKGROUND

Computer Aided Engineering (CAE) software companies have high-speed, high-pressure and very complex development environment where there is a vast need for program library that can supply the critical code necessary for the mathematical or other complex manipulations. The client partnered with Enosis to improve developers' productivity by providing them highly optimized mathematical library to perform linear algebra operations while improving the performance and scalability of their CAE software applications. Using Enosis' High Performance Computing Solution, the client was able to improve developers' productivity and software performance. The library improved scalability of clients' CAE applications by supporting more simulations and mechanical operations involving complex calculations, thus providing more flexibility to the end users.

THE CLIENT

A NASDAQ listed American multinational corporation that focuses on 2D and 3D design software for use in architecture, engineering, manufacturing and building construction. Founded in the early eighties, it has arguably become the world's largest design software company, with more than 9 million users throughout the world. They have developed a broad portfolio of digital prototyping solutions to help users visualize, simulate, and analyze real-world performance throughout the design process.

THE SOFTWARE

Developer productivity tends to grow with the amount of pre-written code that can be brought into an application or system from outside of the local development environment. But a program library is useful only when it supports the necessary operations and does that efficiently. Being aware of the above, Enosis team focused a great deal of attention on developing a mathematical library that contains linear algebra routines optimized for vector, vector-matrix, matrix-matrix operations and offers the best performance on popular computer architectures. The routines are available to both FORTRAN and C programs.

CHARACTERISTICS & BENEFITS

- The implementation of the mathematical functions has been highly optimized to ensure minimum hardware resource usage

- Template has been used in C++ so that these functions can handle any data type like int, double, complex etc.

- Suitable for large scale engineering simulation software applications where hardware resource optimization is mandatory

- It is consistent with industry standard library like BLAS, LAPACK, Intel Math Kernel Library etc.

- Excellent code readability

- All the versions require minimum execution time even for large Matrix and Vector dimensions

- Can handle very large Matrix and Vector dimensions

- Extensive documentations including both for user and technical details have been prepared
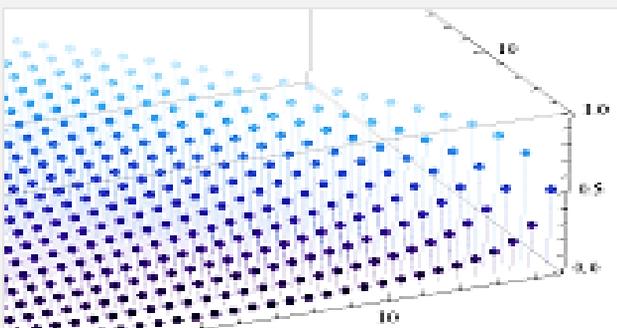
TOOLS AND TECHNOLOGIES

C, **C++**, **FORTRAN** and **Pascal**

enosis
SOLUTIONS