

GoFront Group (China)



ANEKA Trial Customer Reference (December 2008)

Customer Description

Established in 1936, GoFront Group (Zhuzhou Electric Locomotive Works) is China's premier and largest nationwide research and manufacturer of rail electric traction equipment. GoFront is one of the China's 512 state run enterprises and one of the top industrial units under state control.

GoFront products include high speed electric locomotives, metro cars, urban transportation vehicles and motor train sets. These products in addition to over 2700 "green power" products are sold domestically and exported abroad. GoFront has more than 60% domestic market and continues to grow in international markets with a reported CAGR of 10% over the past 25 years.

GoFront is committed to research and quality and employs over ten thousand people, among whom there are over 3000 highly qualified science and technology staff. Its manufacturing operations covers over 2.3 square kilometers and its total assets are valued at RMB 21.8 billion.

Current Problem

The IT department of the GoFront group is responsible for providing the design and prototype of the products including the high speed electric locomotives, metro cars, urban transportation vehicles, and motor trains. The raw design of the prototypes are required to be rendered to high quality 3D images using Autodesk rendering software called - Maya. By examining the 3D images, engineers are able to identify any potential problems from the original design and make the appropriate design improvements.

This process can take many months or even years until the design models are suitable for mass production. The 3D rendering application provided by Maya is compute intensive and very time consuming process. The design modeling process investigates more than 2000 frames which are applied with more than 5 different camera angles to create the 3D rendered image. A single frame with one camera angle defined can take up to 2 minutes to render the image. To render one complete set of images from one design takes over 3 days.

So, if the rendering time could be shortened, the productivity of the whole process will be dramatically increased.

Proposed Use of ANEKA

Manjrasmart worked with GoFront IT department directly and we found that the GoFront IT department had more than 50 desktop machines which were used to process word documents and not fully utilised. By combining just half of these underutilized resources and ANEKA technology, we achieved a 20 times acceleration for Maya rendering. The proposed deployment of ANEKA involved configuring a master and 20 workers across those idle computing resources.

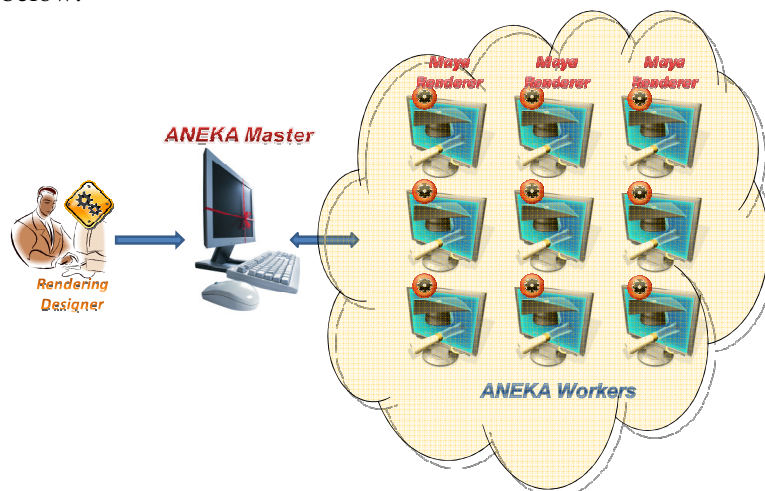
Business Requirement

Deliver a fast user friendly customized Maya rendering tool used to set various Maya parameters and monitor the rendering tasks. This rendering software can then work with ANEKA enterprise Grid infrastructure to help accelerate the rendering process.

Technical Requirement

A C# based customized graphical user interface has been implemented providing two of the four major functions including setting various Maya rendering (batch mode) parameters, generating ANEKA tasks (based on ANEKA Task model API), monitoring submitted ANEKA tasks and collecting the completed rendered images.

ANEKA provided a powerful management and execution environment for the tasks generated by a customized Maya renderer GUI (mainly responsible for setting various Maya render parameters and monitor the rendering tasks) and the execution environment (ANEKA enterprise Grid infrastructure) used to manage and execute those tasks was configured to include one(1) master and twenty (20) workers. See diagram below:



ANEKA Deployment Architecture

Business Benefits

Initial testing has been conducted and the time taken for the rendering process (for a single rendering with 2000 frames) using a grid configured with ANEKA has been reduced from 3 days to 3 hours. The IT department has recognised that the rendering time could be further reduce if all of their idle desktops were deployed into ANEKA infrastructure.

Summary

This trial of ANEKA has demonstrated to GoFront that the utilization of idle computing resources can create a business impact.

Jixiong Sun, Vice Director of IT, GoFront Group said *“ANEKA technology not only improves the overall productivity of our product design, but also it gives us an fantastic opportunity to utilise our existing desktop resources which achieves the maximum utilisation of our existing investment.”*

Using Manjrasoft’s grid / cloud computing expertise and ANEKA to provide a flexible grid infrastructure, GoFront was able to improve a 3rd party’s application rendering processing time by a factor of twenty(20). This provided both a business benefit and a cost saving for the business.