

Project Information



Distributed Networked Multimedia Platform

Kusanagi aims at optimizing rendering, compression, streaming, and display technologies in order to provide efficient remote rendering solutions for 2D & 3D content. The applications addressed in the project are 3D gaming and 2D ultra high definition professional visualisation.

Main focus

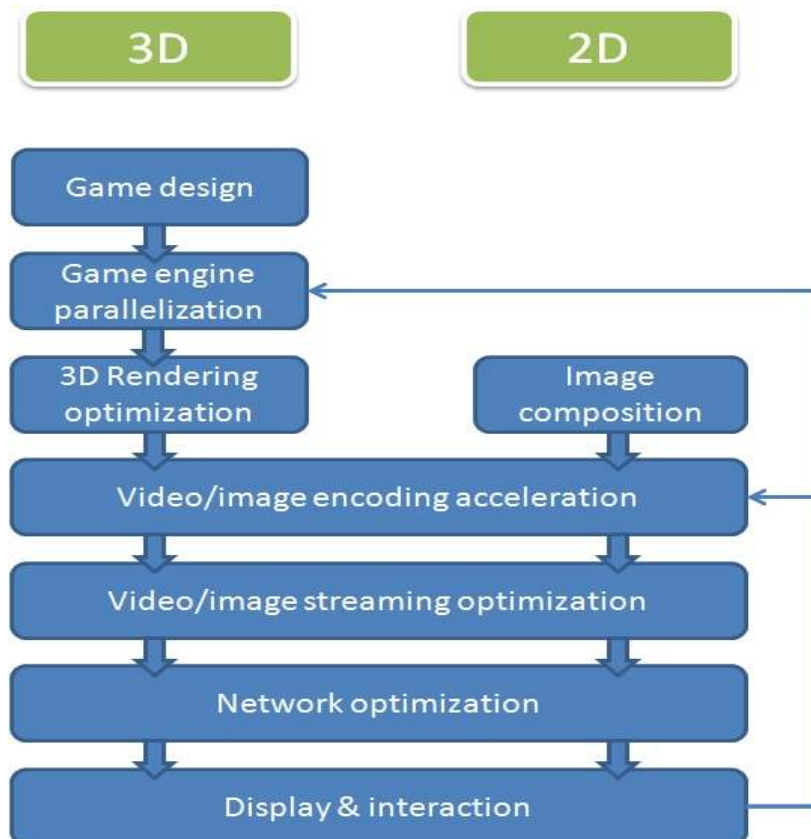
Various remote rendering solutions already exist, but none of them is well suited to the high requirements of 3D gaming or Ultra-High Definition visualization: latency is a major problem in both cases and requires specific optimizations of the whole chain, from the rendering server to the display device. Another common goal is to use only “commercial off the

shelf” (COTS) hardware instead of dedicated hardware, and concentrate the intelligence in optimized software or even firmware solutions.

Approach

To achieve its ambitious vision, the Kusanagi project is driven by a strong consortium with extensive experience in R&D and industry leadership in blockbuster games, and solutions for networked visualization intelligently combining universities, research institutions, large telecom and industrial companies, SMEs and start-ups.

In the long run, Kusanagi wishes to be a driver of the European video game and professional imaging industries and bring



Kusanagi

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Closure date: 30 December 2011

Partners:

BARCO NV, Belgium

Darkworks, France

Eureva, France

France Telecom, France

IBBT (Ghent University), Belgium

Télécom Sud Paris, France

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Project Website

www.celtic-initiative.org/projects/kusanagi

strategic and technical value, in conjunction with the move from consoles and terminals to networked remote desktops and gaming services.

The project focuses on the evolution of software architectures that will be critical to master fields of highly parallelized processing, distributed processing, high bandwidth and low latency networks, and their intricate impact on content quality and speed of delivery, dataset size, optimization complexity, open infrastructure viability and production tools and middleware standardization efforts.

The specific aims of the proposal are to **conduct research and perform breakthroughs** around the following core topics:

1. Image composition and rendering (optimisation, distribution and tools): Development of the base technology for a hardware independent rendering platform allowing efficient multi-core distribution
2. Multimedia Compression: Image/video compression processes will be optimized, both from an algorithmic and an implementation standpoint
3. Streaming / Distribution: Emphasis will be put on protocol adaptability to network conditions and integration with rendering algorithms.

4. Network traffic characterization: Research on network traffic patterns and optimization possibilities and Quality of Service requirements when highly interactive HD content is streamed on very low latency networks.

Main results

The main results of the Kusanagi project will be the optimized software components required by Kusanagi, and the Kusanagi prototype itself. These software components include:

- ◆ High end 2D and 3D content so as to get significant test results
- ◆ The compression and streaming software components optimized for synthetic images
- ◆ The Quality of Service policies to be enforced on LAN and WAN networks to transport this whole new traffic
- ◆ The display device software

Kusanagi will build upon existing technologies, but assembling currently available technologies is not sufficient, and every link of this chain needs to be optimized to provide a superior gaming or professional imaging experience. The Kusanagi prototype will integrate all the optimized software components developed during the project and will be able to compete with modern consoles and replace existing professional visualization solutions.

Impact

The expected impact of the Kusanagi project is to allow the game and professional imaging industries to progressively move from local rendering solutions to centralized remote rendering solutions. In the gaming market, this means replacing consoles and physical data media by a game service accessed on a pay-per-use basis. In the professional imaging market, this means an increasing use of - possibly wireless- thin client devices with all computing resources in a central location.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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