

EDUTAIN@GRID

Scope

In a world where all new and handheld games consoles have online capabilities gamers are crying out for greater interactive and immersive experiences. Currently online games fall into 2 broad categories: non-real time experiences featuring thousands of players and real-time games where only up to 64 players can be supported. In the commercial gaming environment (such as that established by Microsoft and Sony) players pay for and expect a seamless level of performance coupled with security of their accounts and personal information. There are parallels in the e-learning world too where account security and authentication becomes very important for professional training profiles.

The Edutain@Grid project aims to develop a novel, highly efficient middleware that will grant access to a wide base of application developers to high-performance computing that traditionally has only been available to academia and 'big' science through Grid technology. This will make possible a real-time gaming experience involving thousands of players which combines performance, scalability, security and Quality of Service.

Advances

A-Ware is a reaction to the complexity of building cliThe Edutain@Grid Project is delivering a suite of Grid middleware components, new business models and security models to support simple development, hosting and deployment as well as a runtime environment for entertainment and e-learning applications.

The project aims to overcome boundaries for creating Real-Time Online Interactive Applications (ROIA) within existing Grid such as:

- Providing support for a large number of concurrent users
- Providing support for ad-hoc as well as anonymous user connections
- Providing a high level of responsiveness from applications
- Modular services approach to Middleware distribution
- Providing Business models that make large-scale ROIA economically viable
- Providing a QoS-enabled middleware for SLA negotiation and ROIA provisioning that copes with dynamic Grid and highly populated user environments

The middleware components will comprise a modular Management Portal, Business Portal and Real-Time Framework that target the different stakeholders of the business lifecycle.

Positioning in global context

Edutain@Grid presents a unique application of Grid technology to the requirements of the online gaming development industry. There are currently no other publicly-known projects in academia or the gaming industry attempting to address the issues targeted by the Edutain@Grid project.

Target users / sectors in business and society

The target-users of the Edutain@Grid middleware cover almost all the members of the online edutainment business chain. These include **Application Developers** that will be able to quickly develop Grid-enabled applications allowing them to focus on the game or lesson logic whilst the middleware facilitates security and efficient communication, **Publishers** that will be able to use the Middleware to automatically distribute applications and content and **Hosters** that will be able to deploy Edutain@Grid's services to automatically manage load balancing and end-user security so making the most cost-effective use of their hardware.

Target industries include e-learning & games developers, publishers and Internet Service Providers, plus any other sectors that require provision of online services to 1 or 1000 users in a responsive and secure manner.

Overall benefits for business and society

On the whole, Edutain@Grid will provide a faster Time-To-Market for application developers thus directly reducing development costs. By attempting to address the need for the next 'Killer' gaming application increased revenues can be expected by being part of the next 'must-have' gaming experience characterized by events such as a major-title launch. Hosting providers will utilize the middleware to make more cost-effective use of server hardware through Edutain@Grid's management services.

Examples of use

The Edutain@Grid project is testing the middleware through 2 Pilot scenarios:

Online Gaming

The number of players supported by a server in an online First Person Shooter game is traditionally fixed depending on the server the game is started on; to support a session with 64 players a server superior to that capable of running a game with 8 players is needed. Edutain@Grid's server transition and management negotiation will allow game sessions to be started on lower end machines and then be automatically and seamlessly migrated to higher-end machines as the load demand of the gaming session changes. This makes the most effective use of hardware.



E-Learning

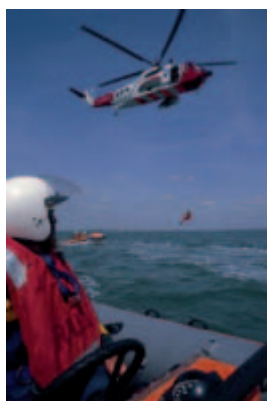
Specialised Learning course such as Maritime Search and Rescue are normally conducted face to face, and due to the specialized nature of the training these course events are run infrequently at only 1 or 2 centres globally. The net result is that they are expensive both in time and travel and place availability also proves a crucial factor. Edutain@Grid technology will allow online e-learning sessions to take place in a secure manner where the collaborative nature of Grid technology facilitates authorization of course attendees, course events and voice/video communication, security of examinations and results.

Achievements

The Edutain@Grid Project results to date comprise the Edutain@Grid Middleware. These modular components are:

- Prototype **Real-Time Framework**, which supports a high-level application development and facilitates the online application session and state management.
- Prototype **Management Portal** used by hosters to control and monitor Application sessions deployed onto the Real Time Framework
- Prototype **Business Portal** that deals with security and Quality of Service
- Prototype **Client-Portal API** that application developers use to communicate with the Edutain@Grid Services.

All public results are available from the project website www.edutaingrid.eu by following the 'publications' link. To obtain access to software components for evaluation this should be made through the 'contact us' link on the website.



title

A scalable QoS-enabled business grid environment for multi-user real-time online interactive applications

contract number

034601

type of project

Specific Targeted Research Project

contact point

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project website and partner list

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EC contribution

2 498 000 €

start date

01/09/2006

duration

36