3DVIA Virtools VR Library / VR Publisher

3DVIA Virtools Solution for Totally Immersive PC Cluster Based Virtual Reality

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The VR Library is an add-on for 3DVIA Virtools 5 that allows developers to create totally immersive, full-life experiences using industry standard VR peripherals and/or PC based distributed computing (clusters).

The VR Publisher enables the deployment of compositions created with the VR Library. It features remote controlling and logging facilities as well as appropriate configuration and management tools for the administrator and the end user.

"Virtools' technologies have proven to be the ideal platform for creating virtual reality applications for our CAVE. Programming is done in an extremely high-level environment which nonetheless remains open. The complexity inherent in CAVE cluster development is no longer an obstacle. With technical issues revolved, we are free to concentrate on building effective applications."

David Routier DSIN CAD & Visualization Manager PSA Peugeot Citroën

Immersion

Taking advantage of VRPN, an open source standard (more info at http://www.vrpn.org), the VR Publisher provides an easy out-ofthe-box solution to manage and get the most out of industry standard VR devices. A VRPN server is installed on the PC managing the input devices. Device-state information is specified in a configuration file (that includes required axis modifications and tracker/ antenna offsets) and is retrieved in a Virtools scene via Virtools Behavior Building Blocks, familiar to all 3DVIA Virtools 5 users. Building Blocks for direct device support are also provided.

With head-tracking, correct user centered perspective is setup, and full immersion is achieved through stereoscopy, whether using active or passive equipment (shutter glasses, shutter screens, polarizing filters or glasses).

Key Features

• Greater flexibility and reduced costs with standard PC hardware clusters

• VR peripheral device drivers ready to use out of the box

• More realistic experiences with advanced display synchronization

• Rapid, low cost content development using simulation mode

• Faster, more effective development using 3DVIA Virtools 5 intuitive interface (GUI)

• True support for multi-GPU / multi-CPU PC architectures

• Application templates and VR specific behaviour libraries to drastically reduce development time (VRNR)

• Ready to use set of VR demos to showcase your VR hardware and software capacities

Distributed Computing On PC Clusters and Multi-GPU System

The VR Library/Publisher enables distributed computing for PC clusters, which can radically lower the cost of VR projects while offering very high performance. Scenes are synchronized by reading parameters in the master scene and passing them to client scenes.

Relevant parameters for synchronization are determined by the developer authoring the application, and are easily accessible in the Schematic editor of 3DVIA Virtools 5. PC cluster distributed computing enables rendering from different viewpoints, a requirement for high-performance passive stereoscopy or multi-screen displays. Note that PCs with two graphics cards or a dual-head graphics card can render two or more viewpoints simultaneously.

The VR Publisher can also take advantage of scalable cluster platforms such as Orad DVG: add more rendering nodes per screen to increase polygon or pixel performance and/or antialiasing quality.

Comprehensive Deployment for the Administrator and the End-User

The VR Publisher gives the system administrators configuration tools to define the actual display, device and cluster parameters such as screen dimensions, stereo types, PC names. This is only to be done once and guaranties the end user that his VR experience will be compliant with the actual hardware being used.

This hardware configuration facility also enables transparent interchange of VR experiences between different VR centers and displays.
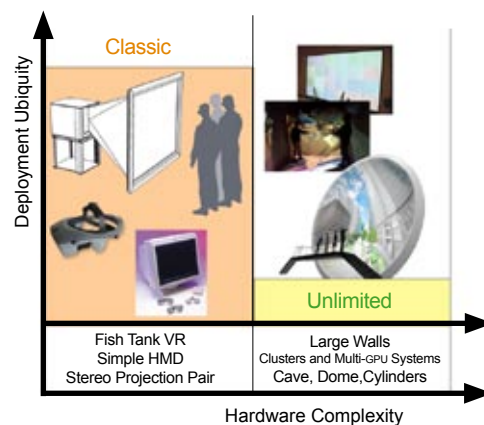
www.3dviavirtools.com

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Scalable Offer for Buyers

The "VR Library Standalone" offers all the development features necessary for authoring a VR experience to be deployed on standalone single GPU workstations, whereas the "VR Library Complete" also includes the ability to author for PC clusters or Multi GPU Systems .

The VR Publisher comes in 2 Levels, Classic and Unlimited, with a scalable pricing depending on the hardware target (see table). When deploying over a cluster or a Multi-GPU System, **the pricing is dependant on the overall number of GPUs** in the system, enabling you to budget your VR software together with your VR hardware.

Classic

Unlimited

Deployment Ubiquity

Hardware Complexity

Fish Tank VR
Simple HMD
Stereo Projection Pair

Large Walls
Clusters and Multi-GPU Systems
Cave, Dome, Cylinders

General Features

• Designed for PC clusters

• Support for many industry standard VR peripherals

• Multi-Display synchronization with FrameLock & Genlock capabilities

• Simulation mode in the absence specific hardware

• Active or passive stereoscopy

• Hardware portability with external configuration

Supported Input Devices
(partial list)

• Polhemus Fastrak

• Ascension Technology Flock of Birds

• InterSense IS600, IS900, IS1200, Inertiacube, Intertrax

• Immersion Cyberglove

• ART, Vicon or Motion Analysis tracking optical trackers and flysticks

• Logicad/Magellan SpaceBall and SpaceMouse

• VRPN compatible tracking and input devices

• All Windows compatible game controller

Supported Image Generators

• Any DirectX/OpenGL- compatible 3D graphics accelerator card

• Genlockable graphics card for multi-screen active stereos- copy such as Wildcat® 7210 or Nvidia® Quadro fx 3000, 4500, 4600, 5500, 5600 or 5800 with G-Sync option board

• Scalable cluster hardware for optimized performance (e.g. Orad DVG)
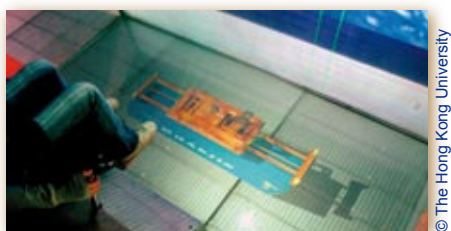
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Technical requirement

3DVIA Virtools 5 for the VR Library
DirectX/OpenGL compatible 3D graphics accelerator card
Windows 2000/XP/Vista 32 or 64 bits

Supported Displays (partial list)

• Virtual reality cubic rooms (e.g. SAS Cube®, Cave®, VR Cube®, I-Space®)
• Panoramic rooms (e.g. Reality Center®)
• Immersive tables/desks (e.g. Baron®, ImmersaDesk®, Workbench®)
• High-resolution image walls (e.g CAD wall)
• Desktop multi-monitors
• Any head mounted displays or VR goggles
• Sensics' or Crescent's high resolution and high field of view HMDs
• Any custom shaped set of fixed or reconfigurable screens
• Philips WoW autostereoscopic screens
• DLP-based HD TVs

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