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# VizStream: Streaming 3D Technology

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## VIZSTREAM: STREAMING 3D TECHNOLOGY

### THE NEED

Traditional technologies representing 3D information over Internet, such as Virtual Reality Modeling Language (VRML), encounter numerous bandwidth, hardware and software limitations: slow transfer speeds across network connections, sluggish rendering and an inability to collaborate with distant clients. The problem is that even a small 5MB VRML file could take upwards of twenty minutes to download over a 28.8K modem. Streaming technologies, such as RealityWave's VizStream, are the practical alternatives to non-streaming technologies.



FIGURE 1 A DIGGER MODEL BY VIZSTREAM

### THE TECHNOLOGY

VizStream streaming 3D technologies incrementally deliver the 3D data. Users can immediately interact with the 3D model or environment without waiting for it to download. As the user continues to interact, more detail 'streams' to the user's computer. Streaming 3D drastically reduces the bandwidth required to effectively use 3D content. VizStream even works over a 28.8 kbps modem.

The patented RealityWave streaming technology allows a user to look at three-dimensional data, even when the user can only connect to the source of that data through a low bandwidth connection. This is achieved by carefully prioritizing the data so that the information that will be most visible to the user is sent across the network

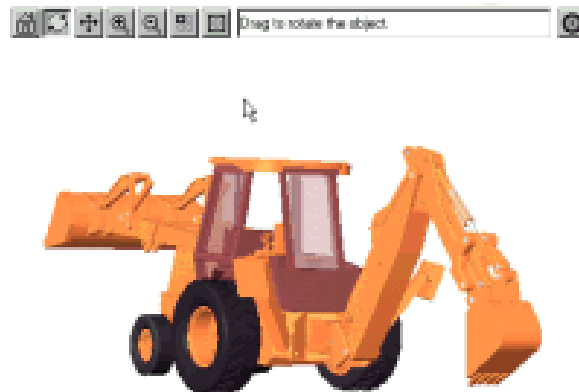


first. These changes in importance are used to continually choose the most relevant information to transmit across the network connection.

VizStream prioritizes streaming based on the users point of view. The technology initially streams the part of the model or environment that is directly in the viewer's line of sight. Distant or small objects are approximated and delivered in a single stream. As the user moves closer to examine an object in the environment, the object stream splits to deliver more information and detail.

The VizStream architecture are:

- **The VizStream Server.** The server stores three-dimensional models and can respond to the prioritized requests necessary in the streaming protocol. The Server runs as a Windows NT service.
- **The VizStream Client.** It is designed to integrate into applications using ActiveX control/viewer. It allows applications to connect to the VizStream server and to render the three-dimensional models that are stored there. The ActiveX Control runs on Windows 95/98/NT.
- **The VizStream API.** The VizStream Components contain an extensive API for third party application. Application of VizStream technology are:
  - **3D product design:** design teams and customers, located throughout the world, can collaborate in 3D in real-time.
  - **Marketing:** a Web site becomes more dynamic and interactive, differentiating it from the competition.
  - **Sales:** a user can view a company's wares in 3D and customize various configurations of the product.
  - **Support:** 3D collaboration between users and technicians greatly aid in supporting products.
  - **Training:** trainees can learn to use a product remotely without expensive training equipment.



**FIGURE 2 AS THE USER VIEWS A MODEL FROM DIFFERENT POSITIONS AND ORIENTATIONS, THE RELATIVE IMPORTANCE OF DIFFERENT PARTS OF THE MODEL CHANGES**



## THE BENEFITS

- VizStream's performance is truly independent of the size and detail of the 3D model.
- Because VizStream can handle large and detailed models, designers can use their original models and users can zoom in to and even take apart those models.
- VizStream can handle all 3D models regardless of how well they are designed.
- Users can create a website with exact original models in full detail quickly and inexpensively.
- VizStream's support for client side modifications to models allows users to configure products or view animations.
- When a user makes a change to the model, VizStream sends only those changes to other users.
- Because VizStream is so careful about what it sends, the real-time collaboration features work over any speed Internet connection.

## STATUS

VizStream is a patented technology from RealityWave, Inc. Products created by RealityWave using this VizStream technology are:

- RealityWave to create fast, streaming 3D Web sites quickly and easily.
- To enables users to run real-time, collaborative CAD design sessions from existing CAD software application.

RealityWave provides two options for purchasing the VizStream WebKit:

- The VizStream WebKit is \$1800 for the server and 5 Concurrent Users. Additional Concurrent Users are \$360 apiece.
- A 3DSP Account is \$15/month/Concurrent User. There is a minimum of 2 Concurrent Users and a minimum of 3 months of service.

## BARRIERS

Limitations of this technology are that its server only support Microsoft NT and since it uses ActiveX technology, the client side only works with Internet Explorer 4.0 or higher.



## **POINTS OF CONTACT**

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## **REVIEWERS**

Peer reviewed as an emerging construction technology

## **DISCLAIMER**

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## **PUBLISHER**

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