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## Overview

The e-Viz project aims to provide application scientists with a turnkey mechanism for creating visualizations on the Grid. A single client-side application gives the user access to a range of remote visualization services provided by a variety of visualization software packages and toolkits. The user is assisted in the process of creating and managing collaborative visualizations by a wizard-style launcher application coupled to a centralised database of hardware and software resources.

## Visualization Brokering

The e-Viz system helps users in the process of creating Grid based visualizations by determining the types of visualization services appropriate for use with a particular dataset, and the hardware and software capable of running them.

## A Range of Data Sources

The e-Viz system can be used to visualize either static datasets or live simulation data from codes instrumented with the RealityGrid or gViz computational steering libraries.

## Heterogeneous Visualization Services

A range of server side visualization applications and systems are supported, including Visual Molecular Dynamics (VMD), the Real Time Ray Tracer (RTRT), and the Visualization Toolkit (VTK).

## Adaptive User Interface

A cross-platform user interface connects to the e-Viz visualization services and configures itself to display controls and widgets according to the functionality offered. When visualizing live data, the user interface can also be used to computationally steer the simulation data source.

## Collaboration

The e-Viz framework offers collaborative capabilities by allowing multiple users to simultaneously view and control the same visualization.

## Fault Tolerance

Real time fault tolerance for mission critical visualizations can be achieved through the user of redundant visualization services.

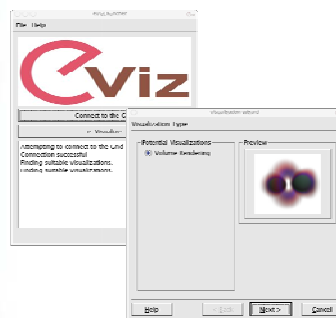


Figure 1: a wizard-style launcher application locates data sources, determines the e-Viz visualization services and hardware instances that are suitable for use, and stages the visualization job.

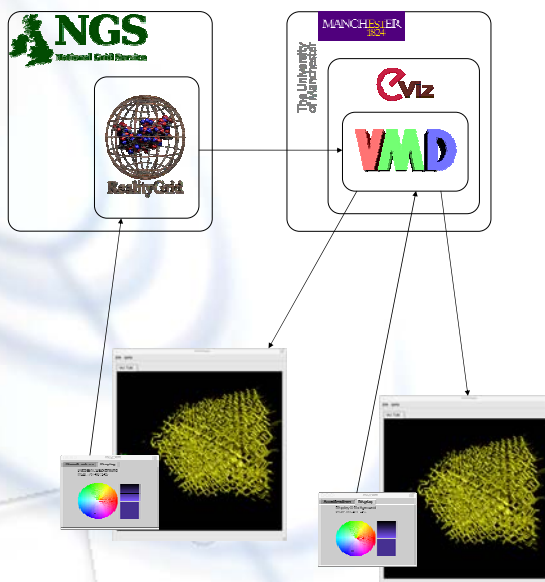


Figure 2: a RealityGrid enabled molecular dynamics code running on the NGS supplies data to an e-Viz enabled VMD visualization service running on a HPV machine at the University of Manchester. The visualization is shared by two collaborators, who can steer both the simulation and the visualization.