

Telescience

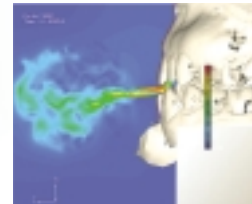
Grid service operation for interdisciplinary applications



Our mission is accelerating scientific research activity using Grid computing technology.

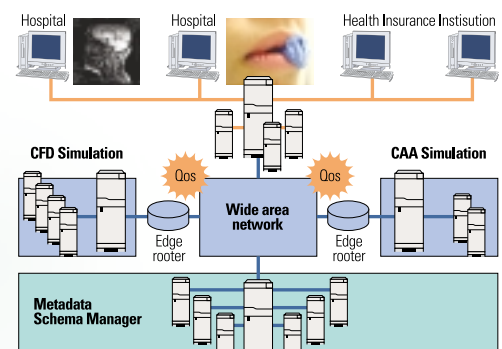
DentGrid / Oral maxillofacial science

We propose a new method of speech analysis by numerical simulations, such as computational fluid dynamics (CFD) and computational aero-acoustics (CAA). Our method improves performance and usability of this numerical simulation by network QoS (Quality of Services) and parallel visualization technique.



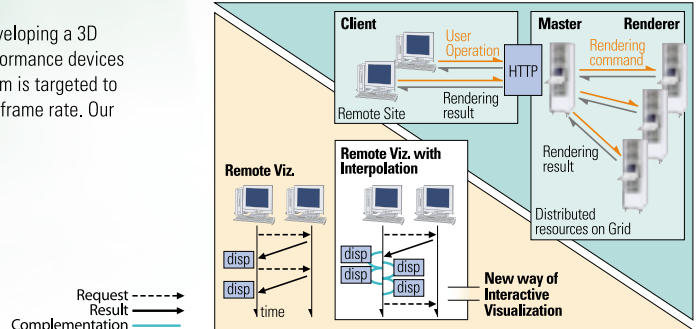
Dynamic QoS control for large data transfer

Our approach to QoS for Grid service is to minimize "loss of reservation request" for each file transfer using Diffserv and the call admission function of policy network technology. We collaborate with NiCT on the JGNII project. QoS can accelerate medical application, such as speech simulation by using the policy, "minimizing loss of reservation request". Throughput of the application can be increased by using QoS in the case of a generic network environment, such as domestic medical information networks.



Visualization

To utilize high performance devices effectively, we are also developing a 3D visualization system for observed specimen analysis. High performance devices produce very high resolution specimen images. Thus, our system is targeted to visualize high resolution images from remote sites with high a frame rate. Our approach is also effective for visualizing simulation results.



Telescience with Grid

Remote control for UHVEM (Ultra High Voltage Electron Microscopy)

The objective of our research for UHVEM is to establish remote operation environments for high performance observation devices. UCSD students have been engaged in the improvement of the remote control system at Research Center for UHVEM (Osaka University).

Telescope

Transient phenomena like an explosion often occur in our universe. The clarification of these phenomena help us understand the stellar evolution and so on. But it is difficult to predict when the event occur and observe these transient objects. We develop the environment for the cooperative observation system among many small telescopes using by Grid and P2P technology (Osaka University).

HDTV Codec

The real time transmission system for ultra high-definition bioscience images is evaluated as a core technology needed for remote control of UHVEM. This system has been developed by KDDI labs to enable high performance compression coding over the framework of JPEG2000. The establishment of this technology is regarded as a significant outcome for improving the remote control system where seamless access and flexible operation of UHVEM is provided for foreign researchers.

