

HD shared visualization + "real" remote desktop + captioning and translation services

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Who we are and what we do

- The AccessFabrik Lab was established in 2003 to facilitate collaborative research in the area of shared-space multimedia interaction.
- Our work focuses on extending the Access Grid to allow for high-definition visualization, as well as remote control of computing resources.
- We have also set out to reduce cultural barriers to collaboration by developing a suite of tools that facilitate real-time captioning and translation.

Who is it for?

- Our main test case saw implementation of the above to the field of automotive engineering, where visualizations of industrial designs were shared and jointly-manipulated across continents. Our partner was Magna Closures.
- We anticipate that our work may also be used to facilitate other forms of media interaction, education, collaborative performance and shared-space artistic installations.

What the heck is it?!?!?

- It's a proof-of-concept prototype. AG services will be coming later in 2008-2009 (hopefully there will be a full demo at AG Retreat 2009).
- There's three main parts:
 - ▶ Shared Visualization / Remote Application Sharing
 - ▶ HD Video Conferencing
 - ▶ Realtime Captioning and Translation

Existing Application Sharing Tools

- There's currently two ways of sharing applications on the Grid:
 - VNC/Remote Desktop: performance drops with each additional user and the framerate is not suitable for highly interactive or graphics-intensive applications.
 - Synchronized Shared Apps: requires custom tools/wrappers for each application and synchronization can be very difficult to implement.

Our new Application Sharing Tool

Why not stream the entire desktop as video?

- Compatible with all software and operating systems.
- Works either in unicast -- suitable for internal and firewalled networks
- or multicast where it scales indefinitely with no performance loss.
- Delivers high frame rates (25 + fps @ 720p +) suitable for interactive graphics, video editing or 3D visualization.

Our new Application Sharing Tool

- Our solution leverages existing technology (VideoLan, MPEG-4).
- Requires only 3-5 Mbps per stream and delivers relatively low latency (~400 ms)
- There are two modes of operation:
 - External Capture (the desktop of any computer with a DVI/HDMI connection can be captured).
 - Local Capture (captures and streams the local desktop).

HD Video Conferencing

- By substituting the video input the same system can be extended for other purposes.
- Attaching an HD video camera turns the solution into a high-end and low-latency video conferencing solution.

Near-time Subtitling and Translation

- Using a speech-to-text application we capture speech in (almost) real-time and caption the outgoing video stream.
- Local language translation is provided for each recipient via translation web services.
- Currently the quality is limited to the accuracy of both the speech-to-text and translation services.

DEMO TIME...

Thanks

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