Project Proposal: Customisable VNC Viewers

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Problem Statement

There is a marked increase in the demand for large, multi-monitor, display environments, both in the commercial and consumer sectors. The increasing graphical-processing power of personal computers further fuels this demand. The construction of these environments is typically accomplished by tiling multiple monitors on a mounted display, or presenting multiple projectors on a large wall display.[1]

McMaster University's Computing and Software Department identified and addressed the need for a new, unconventional large display environment for visualising large sets of data with the VIDALab (Visual Design and Analysis Laboratory). The VIDALab attempts to solve the issue of interpreting large datasets with a high-resolution display wall constructed from twelve monitors powered by multiple computers. With multiple computers supporting the display as a whole, running applications that span the entire wall becomes a challenge.[2]

The niche that we will address is the need for software that supports customisable remote access through virtualised displays. We will treat these large displays as dummy clients, with a back-end server running applications and distributing the view among one or more client displays in an efficient and intelligent way. We will support VNC (Virtual Network Computing), a family of popular platform-independent desktop sharing software, to perform remote control of an X11 window system.

Our specialised implementation will support normal VNC viewing while also making it possible to start a client that efficiently views a single defined portion of the server's total display. With this software, distributed display environments, like McMaster's VIDALab, will become measurably more practical and usable.

This software will be desirable in the contexts of research and development, both at the academic and commercial levels. Large displays are already being used to view, understand and analyse data. The burgeoning field of data visualisation is gaining attraction as more of our commercial and social problems become problems of big data analysis, and traditional methods of visual processing are insufficient. Complex collections of data demand enhanced software that aids researchers in extracting knowledge and insights applicable to the problem at hand. We seek to tackle the problem of distributing the observation of such data across multiple screens so that visual cues might further help researchers interpret meaningful information from visually-represented data.

References

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[2] J. Costabile, M. Dawson, and P. Deljanov-Harrak. Helios: A distributed, large, high-resolution graphical display. `https://www.mcscert.ca/index.php/sqrl-seminars`, August 2010.