Scalable Adaptive Graphics Environment (SAGE) Software for the Visualization of Large Data Sets on a Video Wall

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The use of collaborative scientific visualization systems for the analysis, visualization, and sharing of "big data" available from new high resolution remote sensing satellite sensors or four-dimensional numerical model simulations is propelling the wider adoption of ultra-resolution tiled display walls interconnected by high speed networks. These systems require a globally connected and well-integrated operating environment that provides persistent visualization and collaboration services. This abstract and subsequent presentation describes a new collaborative visualization system installed for NASA's Short-term Prediction Research and Transition (SPoRT) program at Marshall Space Flight Center and its use for Earth science applications. The system consists of a 3 x 4 array of 1920 x 1080 pixel thin bezel video monitors mounted on a wall in a scientific collaboration lab. The monitors are physically and virtually integrated into a 14' x 7' for video display. The display of scientific data on the video wall is controlled by a single Alienware Aurora PC with a 2nd Generation Intel Core 4.1 GHz processor, 32 GB memory, and an AMD Fire Pro W600 video card with 6 mini display port connections. Six mini display-to-dual DVI cables are used to connect the 12 individual video monitors. The open source Scalable Adaptive Graphics Environment (SAGE) windowing and media control framework, running on top of the Ubuntu 12 Linux operating system, allows several users to simultaneously control the display and storage of high resolution still and moving graphics in a variety of formats, on tiled display walls of any size. The Ubuntu operating system supports the open source Scalable Adaptive Graphics Environment (SAGE) software which provides a common environment, or framework, enabling its users to access, display and share a variety of data-intensive information. This information can be digital-cinema animations, high-resolution images, high-definition video-teleconferences, presentation slides, documents, spreadsheets or laptop screens. SAGE is cross-platform, community-driven, open-source visualization and collaboration middleware that utilizes shared national and international cyberinfrastructure for the advancement of scientific research and education.