Deployment of distributed visualization technologies in multipurpose computing complex of NRC "Kurchatov Institute"

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Distributed visualization

Distributed computing

Distributed visualization
Distributed visualization: hardware and software solutions

**Hardware**
- All displays connected to one device
- Bottle neck: one device for all video sources

**Software**
- Displays connected to several devices. You may use flexible configurations
- Each server produce own part of total image
PARAVIEW distributed visualization

Different “dataservers” produce parts of data for “renderservers”, that place it to specific displays.
XDMX

XDMX is Linux based solution for making video walls. It use X protocol to place part of image on displays and make associated display at control node.

- All programs runs on control node of via X protocol on it’s display.
- Because used virtual display some features of real display unavailable (OpenGL for example)
- Fonts, icons and mouse pointers not useful for wide screen
SAGE

- Data streams follow from image source to specific display servers
- Several clients may run application on the wall
- Some software revision needed
- Display server may used as data source
SAGE. Managers.

- Display manager is software to receive data stream and place it to specific area of a connected screen.
- FreeSpace manager used to determine where data window should be placed on a video wall.
- Application connect to FS manager to determine which display managers should be used for data translation.
SAGE. Visualization data sources

There is different ways to place data from application to SAGE video wall:

– replacement of some library;
– X server buffer streaming;
– VNC;
– patch of application source code to add support of SAIL.
SAGE. Source code patching

There is 3 steps to add SAIL support to application:

1. in application should be added availability to connect to FreeSpace manager
2. application should send data from pixel buffer to DisplayManagers, instead of X server
3. After application exit it should close connection with FS manager and all DMs
Thank you for your attention.

Any questions?