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Abstract:

In September 2014, a transition was made to a direct purchase and installation of Seaspace hardware and software. The installation of the Seaspace hardware included: 15 Visualization workstations, 2 monitoring systems, a Teravault raw storage device, and a TeraScan Rapid Environmental X-treme (TRES) high powered processor. The installation of the Seaspace software on the 15 Visualization workstations included: an updated version of TeraScan(which includes the Graphical User Interfaces TeraVision and TeraMaster), and CentOS(which is a Linux-based Operating System). Also a two 5.0m L band systems were installed on Dixon-Patterson hall in the summer of 2012 [Original Abstract]. The purpose of this project was to document the installation requirements and internal processes at ECSU for Seaspace Hardware and Software Equipment, with also addressing; the location of engineering findings, location of installation requirements, repositioning and securing current ground stations, and training center needs.

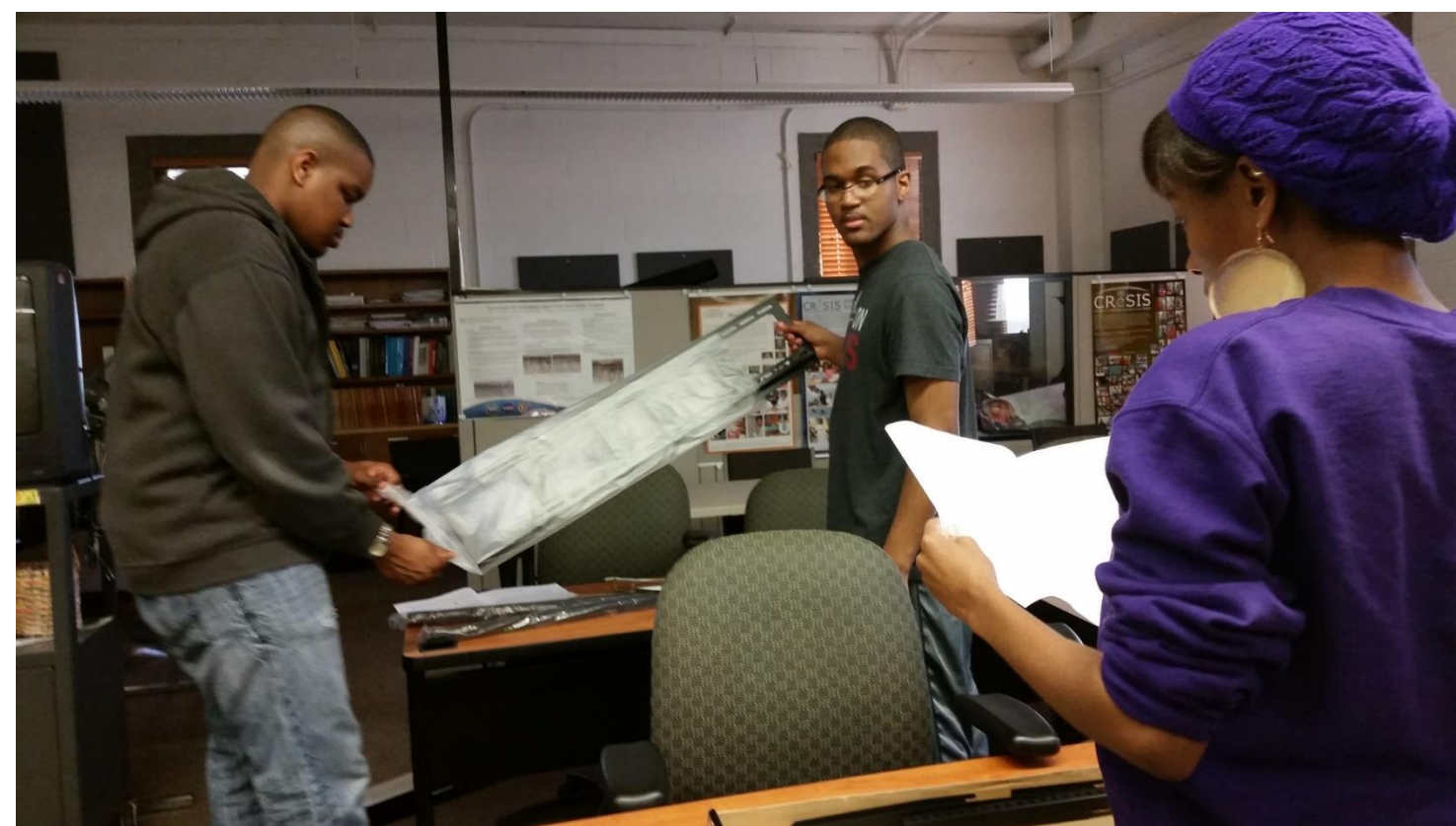


Figure 1: Building the mound

Introduction:

- SeaSpace Corporation Inc. based in Poway, California is a provider of remote sensing ground stations beginning in 1982.
- Dating back to 2002 to now, SeaSpace has provided equipment to the Center of Excellence in Remote Sensing Education and Research (CERSER) at Elizabeth City State University, in the form of an east coast training site and data center.
- The equipment gained from SeaSpace Corporation thus far includes one 5.0m Geostationary L_Band antennas and their associated acquisition and processing servers.
- In September of 2014, a new acquisition was made by Elizabeth City for new Seaspace hardware and software for Dixon-Patterson Hall on Elizabeth City State University's Campus.

Methodology:

- Equipment Preparation
 - When arrived to Dixon-Patterson Hall at ECSU, it needed to be unpacked and stored in room 228 for subcontractors who came on March 23.
- Contractual Service Monitoring Station, Generator and two 220 v connections.
- Room 226
 - Documentations on all programs on previous machines that have been replaced by new visualizations stations.
 - Notes of two visualization stations per table in room 226 with one of the visualization stations connected to the projector in the room and the length of each of the tables is 6ft with power strips beneath each of the tables.
 - Visualization Stations ran off Linux Operating System, so search for Linux software that was similar from previous machines .
- Room 228
 - Removed unnecessary items that would potentially obstruct the SeaSpace contractors from installing the new TeraScan Equipment.
 - Was consolidated so it was more accessible to maneuver in and out of the room and have more space to operate and facilitate in.
 - Holds one of the monitoring systems mounted on wall.
- Room 229
 - Holds the monitoring system, which is mounted to the wall and displayed on a cart.

New Hardware Provided By SeaSpace:

- Visualization Station:
 - Dell T1700n Computer. These is in room 226.
 - The visualization stations will be able to access whole pass datasets from the TeraScan systems and will also be able to manipulate the datasets as well.
- Monitoring Systems:
 - There is two screens one 24 inch and one 42 inch These are in room 228 and 229.
 - Will be able to do what the Visualizations stations do, but will be able to display the information on the larger screens.
- TeraScan Rapid Environmental X-treme (T-Rex) Processing Computer
- Tera Vault
 - 60 TB (Raw) with a certain number of extra TB which is effective.
 - The TeraVault will hold the raw data incoming from the TRES which is collecting the whole pass data sets.



Figure 2: Goes Satellite



Figure 3: Setting up the equipment

New Hardware Provided By SeaSpace :

- Uninterruptible Power Source Assy:
 - There is a total of two UPS machines, with four possible racks/outlets.
 - One of the racks will be for the GOES East connection, and one for the GOES West connection.



Figure 4: The completed Visualization Station

New Software:

- The Site Acceptance Test was done to the 15 visualization stations to see if the computer is working correctly and the software on the computer is updated to the newest versions.
- TeraScan
 - A combination of hardware and software designed for automated reception of data from meteorological/environmental satellites and for processing the data into images and data overlays
 - Formats for images are TeraScan Data Format (TDF).
 - These satellite data types that can be received from both the hardware and software include: X-Band Data from Polar-Orbiting Satellites, L-/S-Band Data from Polar-Orbiting Satellites, and L-Band Data from Geostationary Satellites
- Data Processing in TeraScan
 - Data processing is carried out according to configuration files located in \$PASSDIR/configproc. The processes to be run are set as "active" in those files .
- CentOS
 - Linux-based Operating System that is a free and open source computing platform.

Conclusion:

In conclusion, rooms 226, 229, 228 have been prepped for new hardware and software that is currently in each of the rooms. As CERSER continues to advance in research collaborations and projects, CERSER will have the most up to date technologies for its students and trainees of the CERSER program.

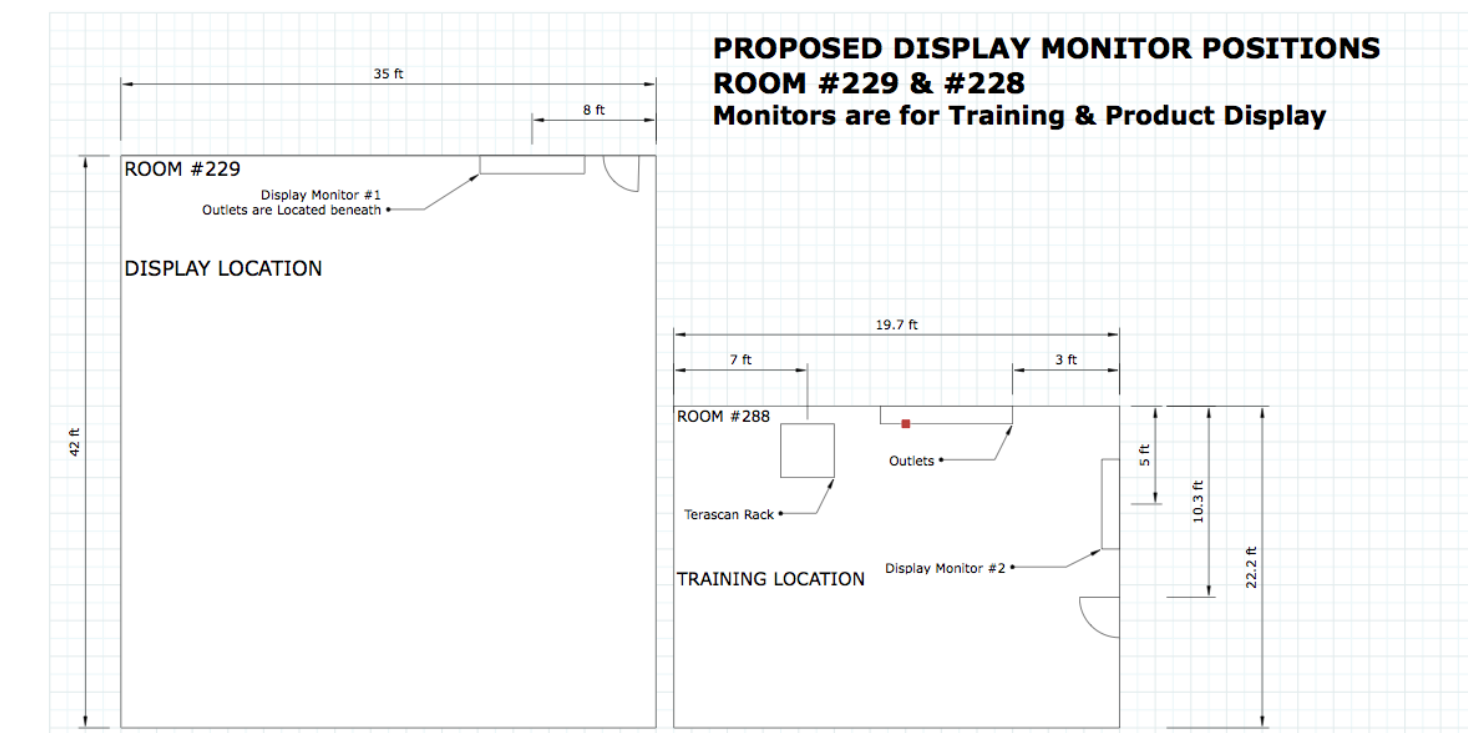
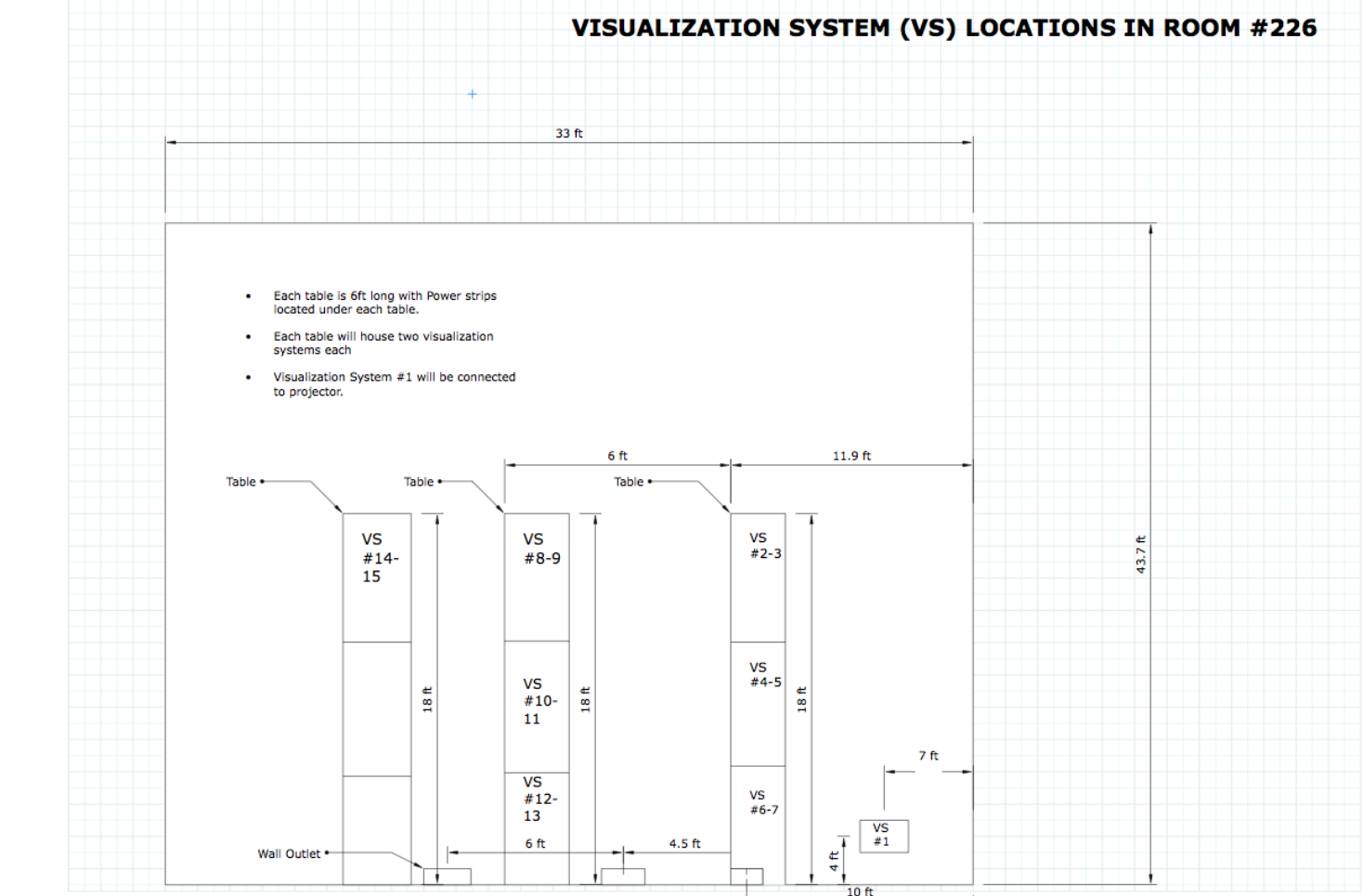
Future Work:

- Complete Server Room
- Ground lightning arrestor for ground stations
- Produce web application to share images
- Develop Data Archives Batch Operations (scripts)

Acknowledgement:

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Results:



Reference

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