HDR Information Technology Group | *Connecting Technology & Business*

Applying The Big Picture

Multi-Screen Monitoring Center for Hydroelectric Power Plants

Clint Pearson – HDR, Infrastructure Systems Lead

The Main Point

- New Technology has dramatically changed the creative options available to help save the world from calamity!
- The NVIDIA GPU Technology Conference 2013 was the catalyst for overcoming the TVA Project challenges
- Application of what you learn here is exciting!

Disclaimers and Clarifications:

- Fellow IT Admin, sharing experiences at work
- Fellow Admin with new experiences daily.
  - Open to discussion and correction
- “I” means “we” …. It takes a Team!
- Not anti-Vendor A, B or C, just sharing experiences
- Sharing Limited Content … and *very* fast!
  - More technical details are available
  - Ongoing collaboration is encouraged

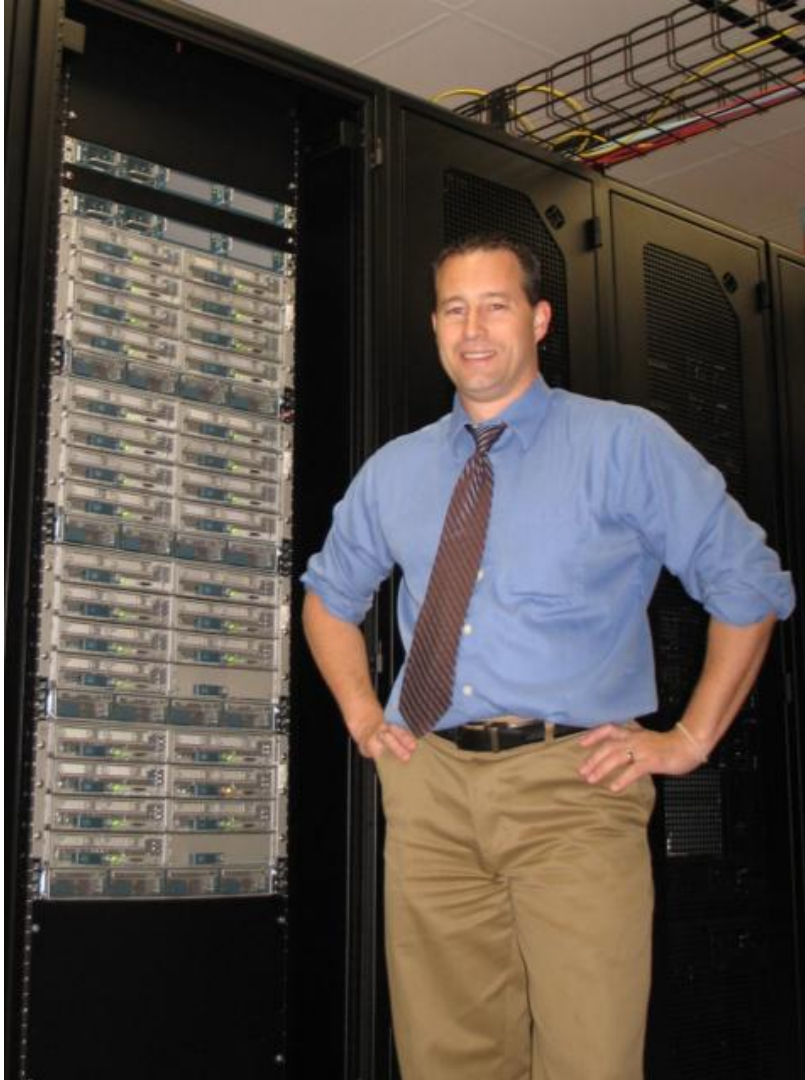
INTRODUCTION – some extra info

What might we have in common?

Clint Pearson
- of Kennard NE

22 years of IT experience:
- Army Aviation
- DeVry University – KC, MO
- VTel – Austin, TX – the Novel Days
- MACC – Blair, NE – SQL Admin

10th Year at HDR, IT Group
- dba, sharepoint,
- vmware, cisco ucs



Who We Are

What We Do

TENNESSEE VALLEY AUTHORITY

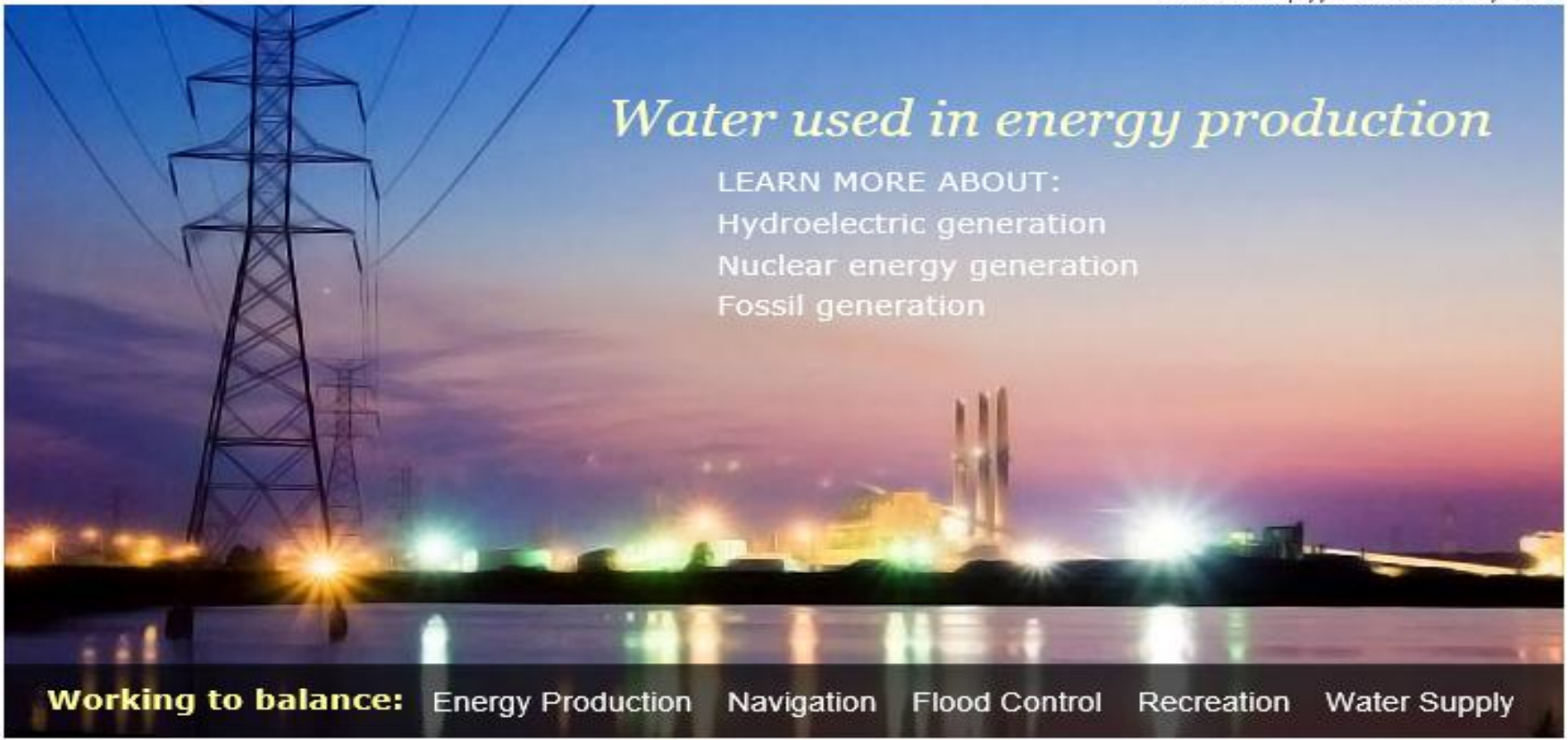
SEARCH GO

www.TVA.com

RIVER MANAGEMENT

HOME

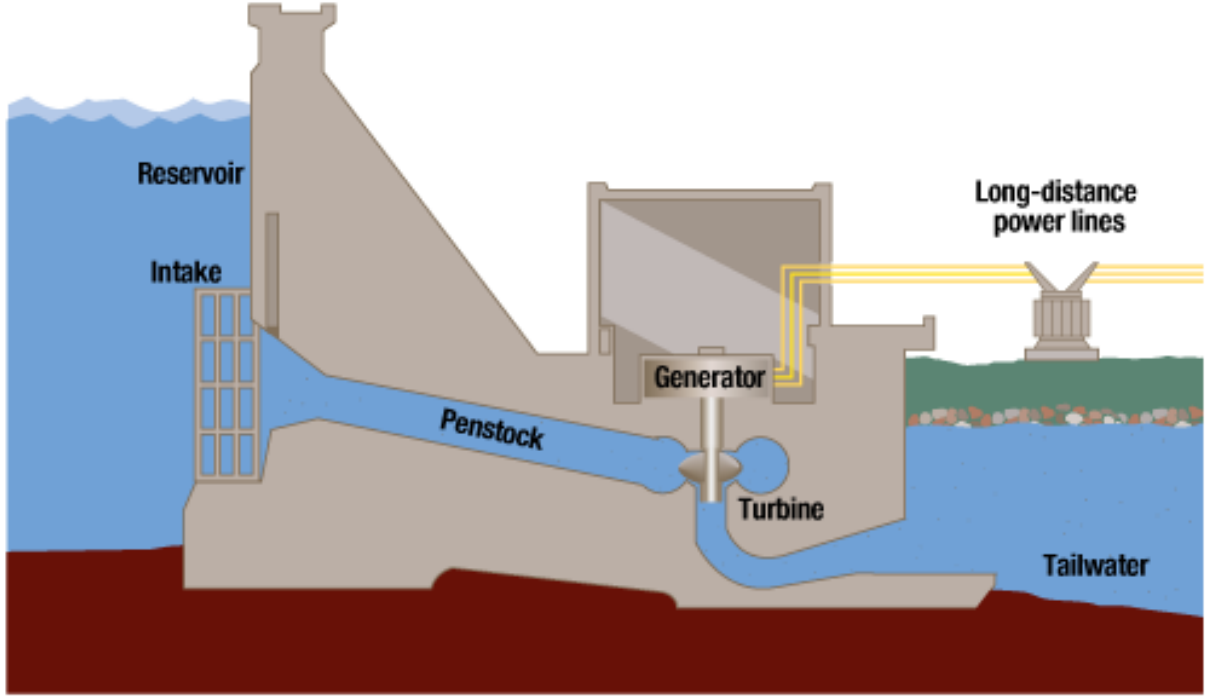
source: http://www.tva.com/river



Source:
http://www.tva.com/power/hydro.htm

What is hydroelectric power?

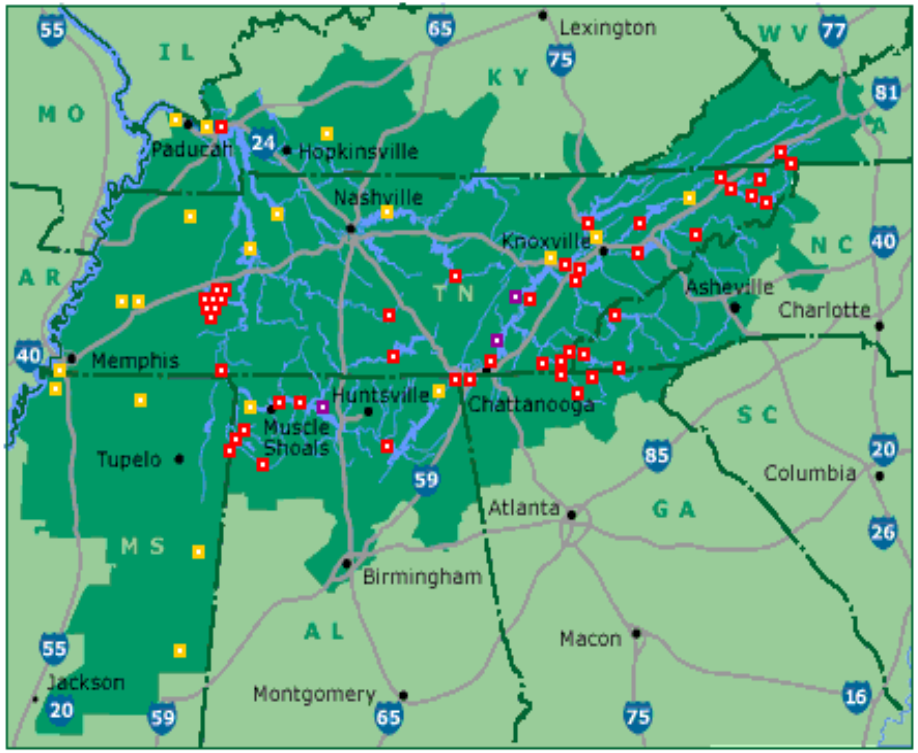
Water is needed to run a hydroelectric generating unit. It's held in a lake behind the dam, and the force of the water being released from the lake through the dam spins the blades of a turbine. The turbine is connected to the generator that produces electricity. After passing through the turbine, the water reenters the river on the downstream side of the dam.



TVA Reservoirs and Power Plants

Return to previous page

Use this map to link to detailed information on all of TVA's facilities.
Point to a colored dot on the map to see the TVA site name. Click for more information.
or
Point to a name on the list to see the site location on the map. Click for more information.



Reservoirs
Apalachia
Bear Creek
Beaver Creek
Beech
Blue Ridge
Boone
Cedar
Cedar Creek
Chatuge
Cherokee
Chickamauga
Clear Creek
Dogwood
Douglas
Fontana *
Fort Loudoun
Fort Patrick Henry
Great Falls
Guntersville
Hiwassee
Kentucky *
Little Bear Creek
Lost Creek
Melton Hill
Nickajack
Nolichucky
Normandy
Norris *
Nottely
Ocoee 1
Ocoee 2
Ocoee 3
Pickwick
Pin Oak
Pine
Raccoon Mtn. *
Redbud
South Holston
Sycamore
Tellico
Tims Ford
Upper Bear Creek
Watauga
Watts Bar
Wheeler
Wilbur
Wilson

Fossil Plants
Allen
Bull Run
Brownsville
Caledonia
Colbert
Cumberland
Gallatin
Gleason
John Sevier
Johnsonville
Kemper
Kingston
Lagoon Creek
Magnolia
Marshall
Paradise
Shawnee
Southaven
Widows Creek

Nuclear Plants
Browns Ferry
Sequoyah
Watts Bar

Small TVA dams at John Sevier and Doakes Creek do not appear on this map.

source: http://www.tva.com/sites/sites_ie.htm

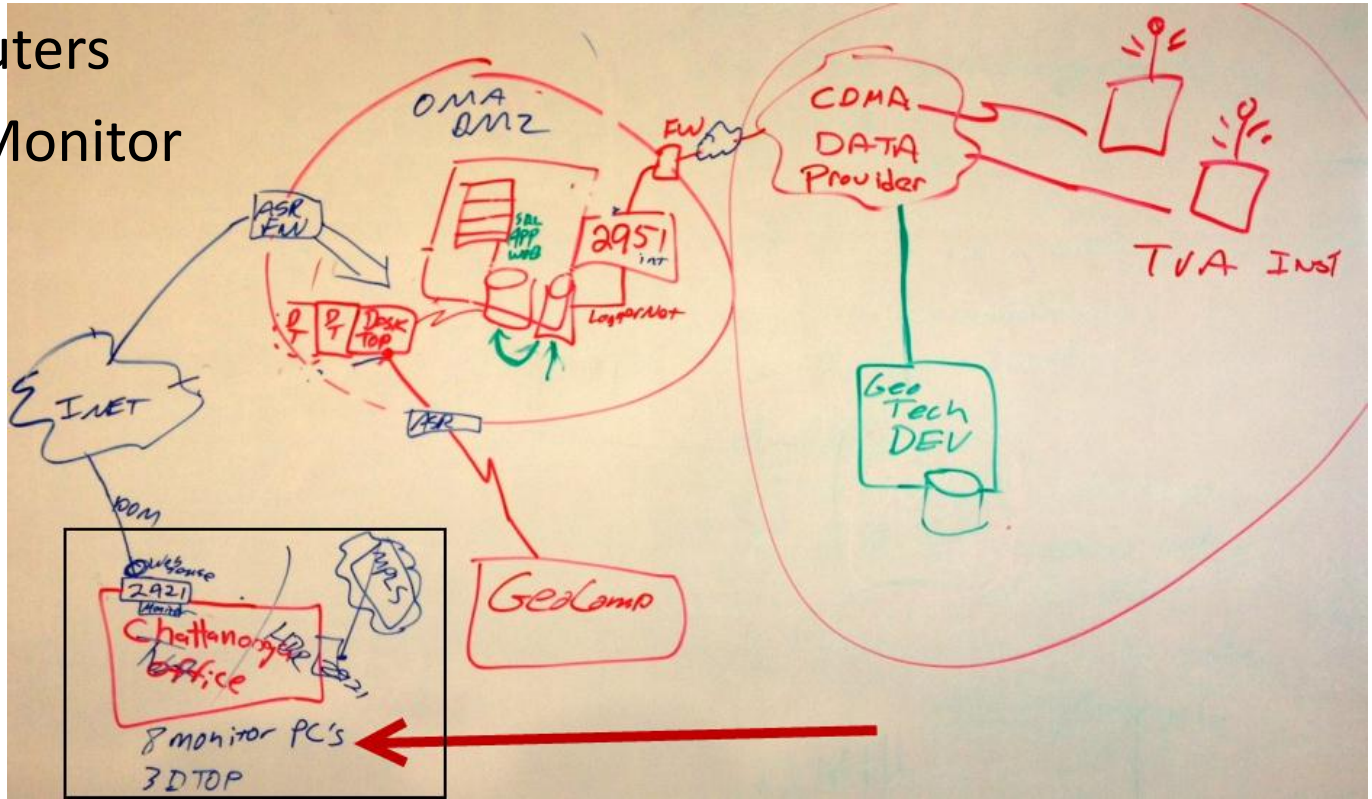
Remote Sensor Equipment

Timeline: 2012 Project Requirements

First Implementation

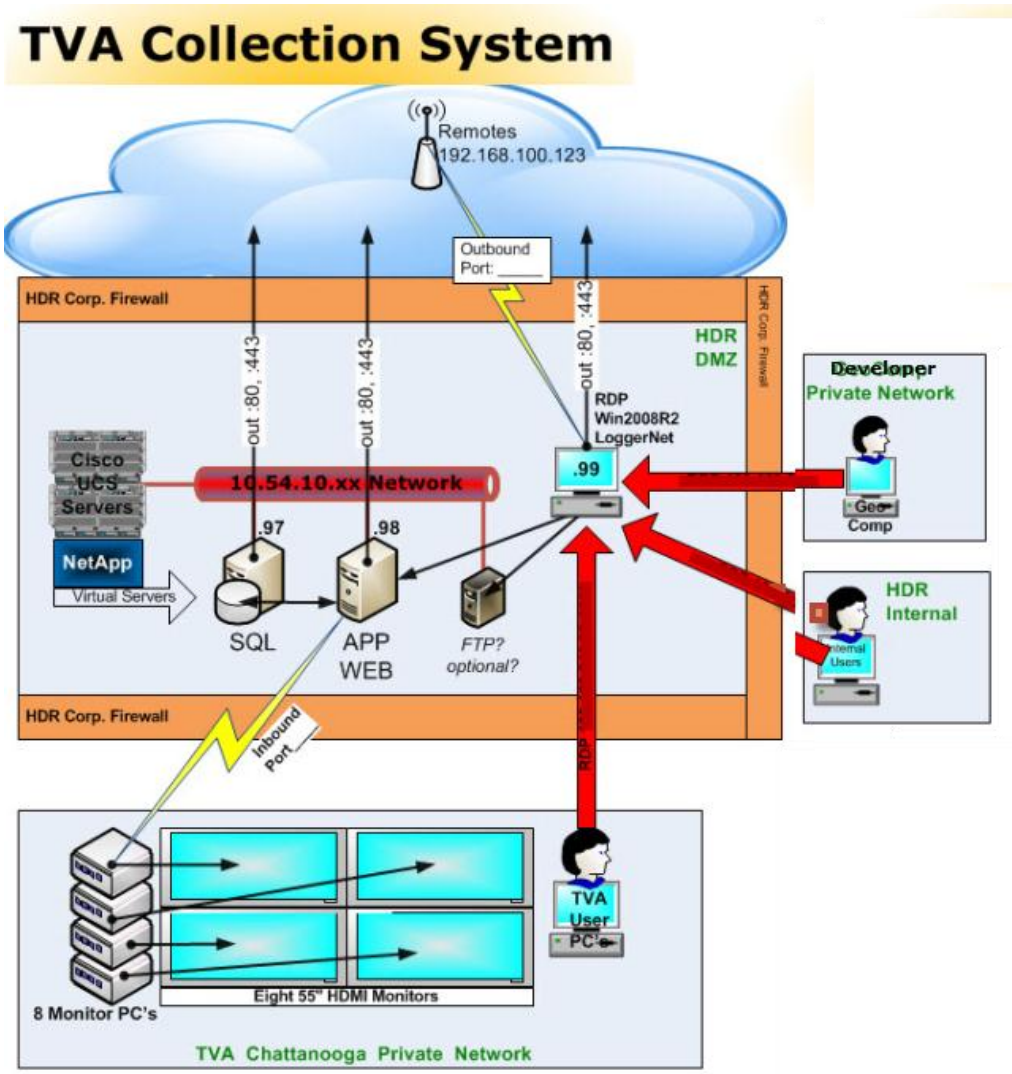
8 Individual Computers

with HDMI to 1:1 Monitor



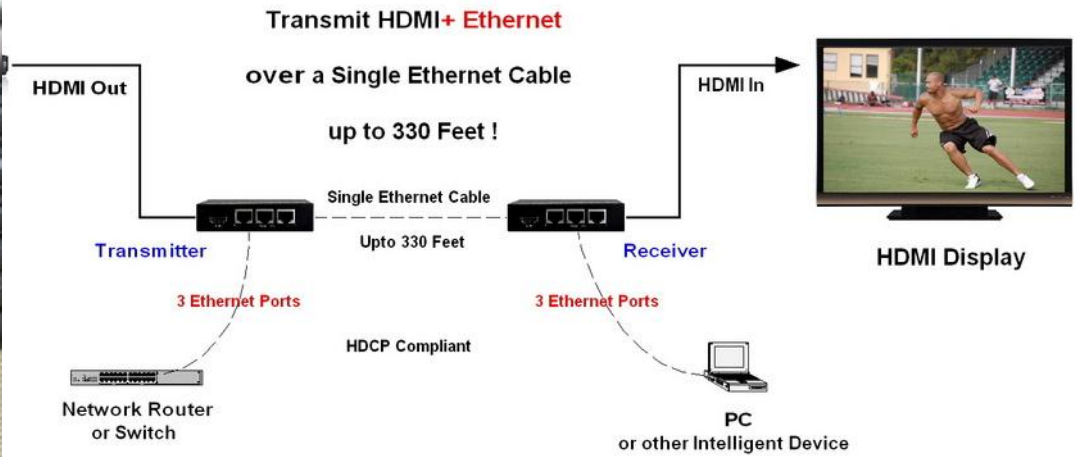
2012: First Design

- From Whiteboard to **Visio**
- 8 Computers with 1:1 HDMI to 8 Monitors



2012: First Design – Computer Room

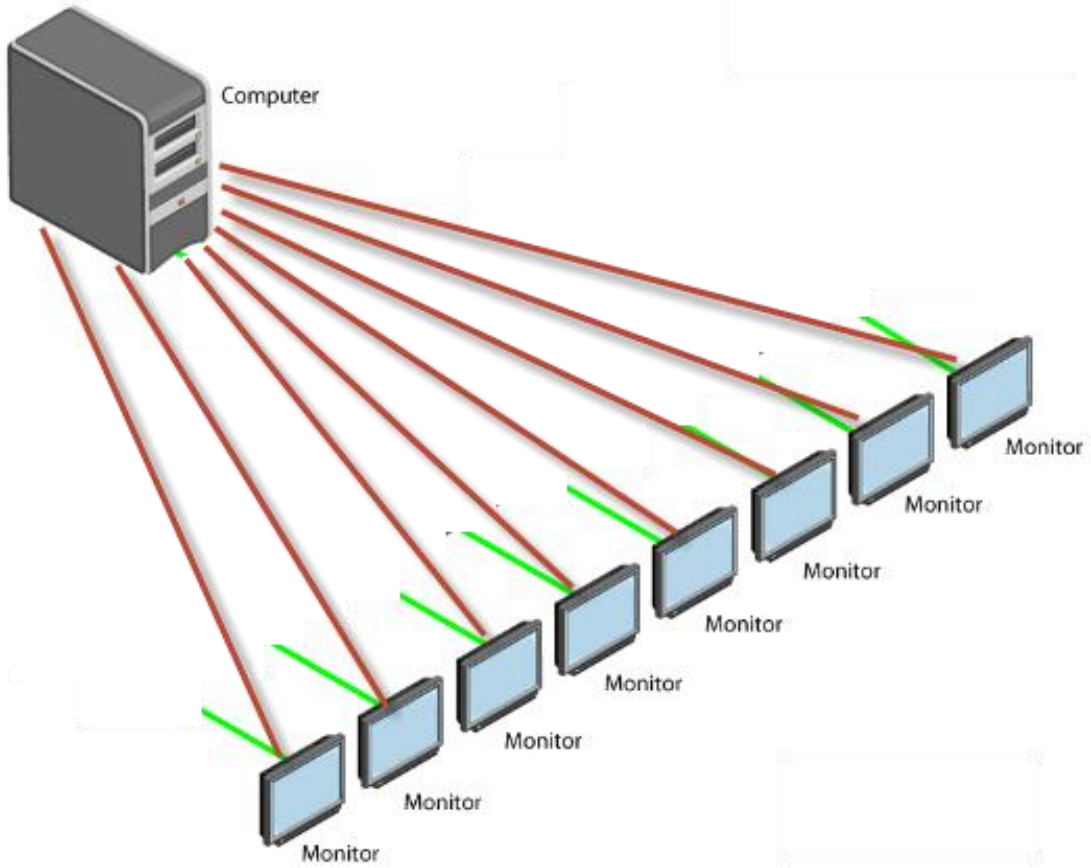
- From Whiteboard to Visio to **Reality**
- 8 Computers with HDMI to Ethernet

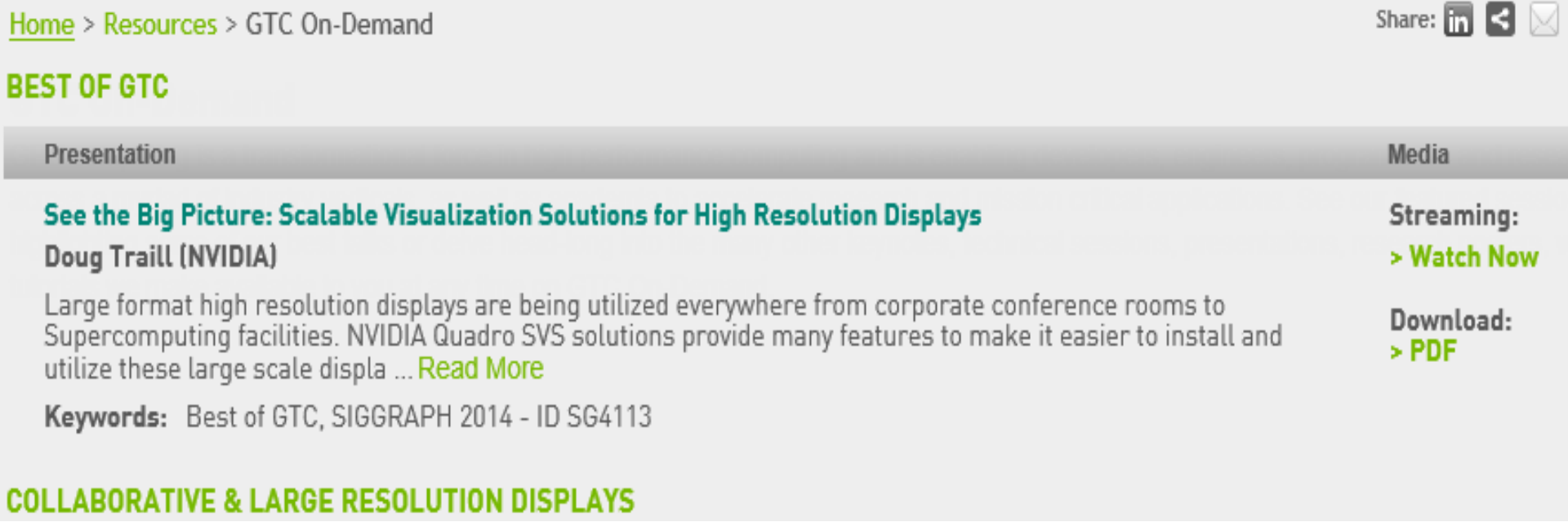


2012: First Design – Monitoring Room

Project Requirement Shift

- Client was quickly frustrated with the lack of control of each map
- Desire for 8 individual displays controlled by 1 computer, but able to become 1 large display





– GTC 2013 Day 1 – “Seeing The Big Picture”

– Multi-GPU System Selection Process

– Implementation of Boxx with K5000’s

GTC 2013 Demos

Timeline:

2013

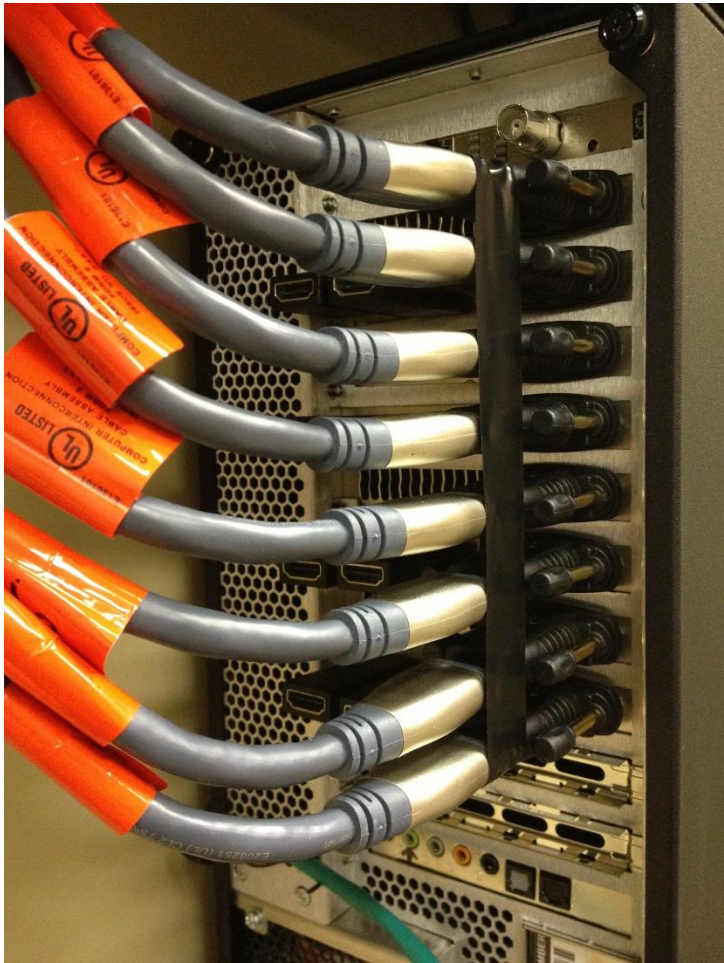
- Rethinking Multi-Display for TVA
- Research and Project Adjustment Presentation
  - The cost was worth it for ability to go full screen!
- Multi-GPU System Selection Process
- Implementation of Boxx with K5000’s

Implementation Details in Pics

Hardware

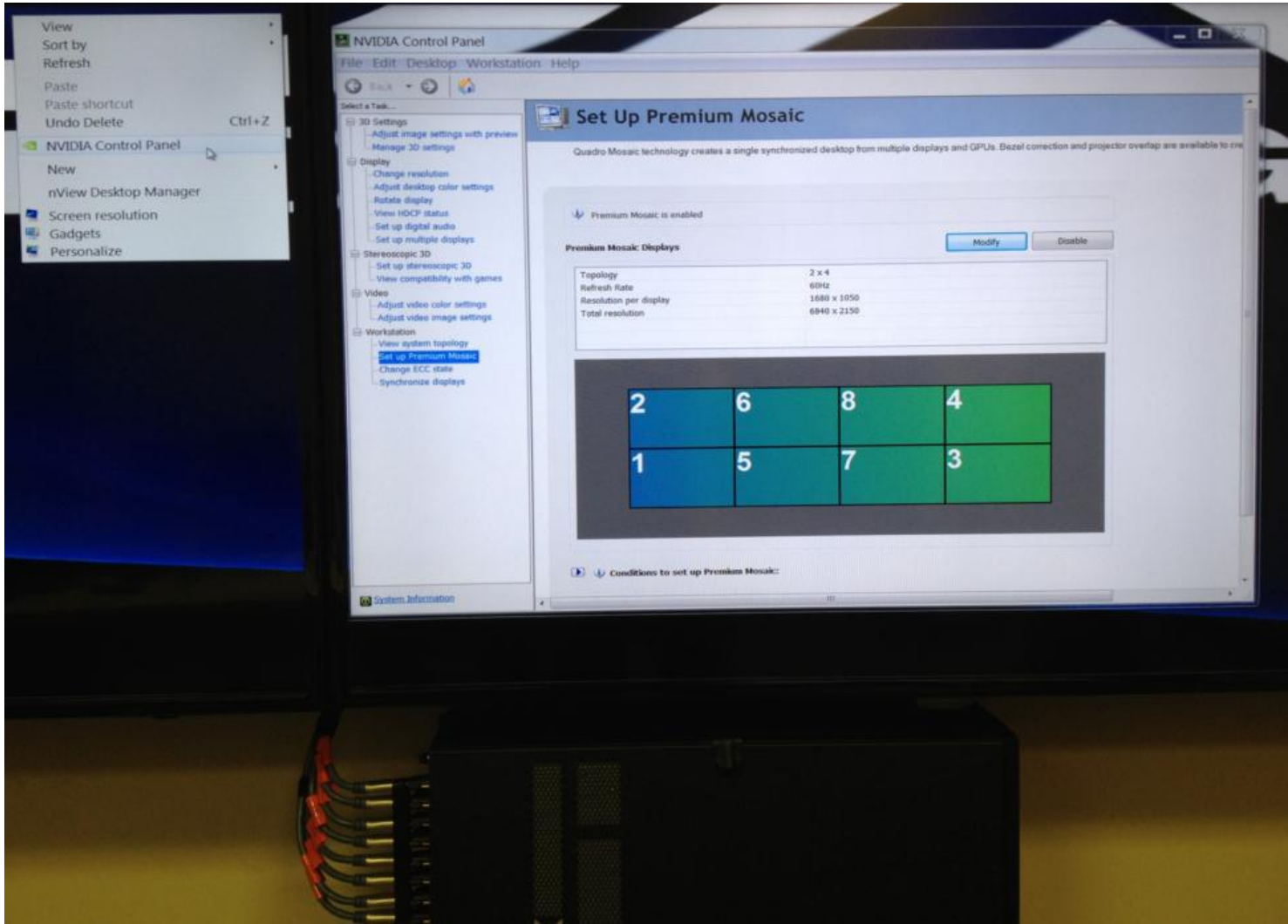
Implementation Details in Pics

Hardware



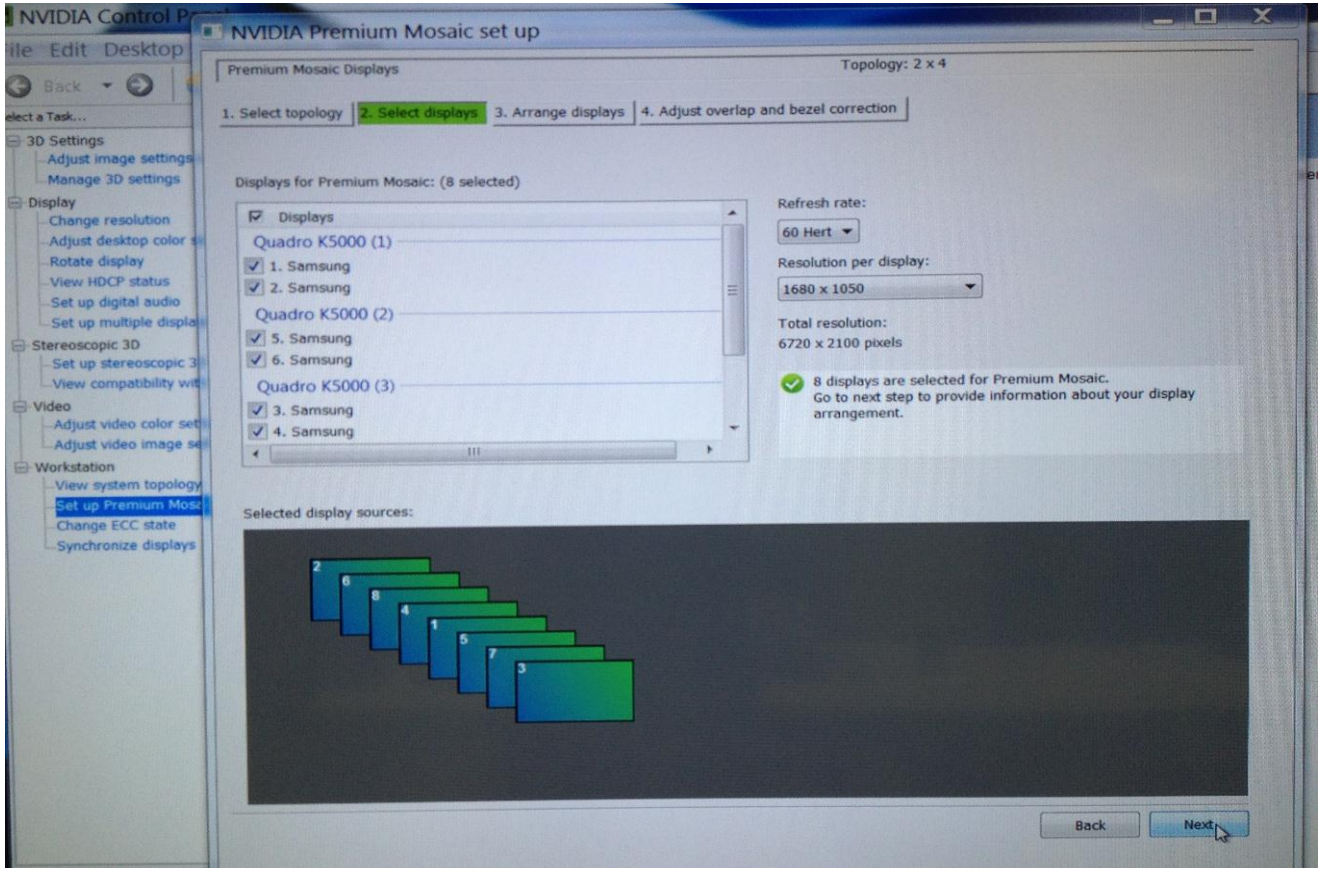
Software

Mosaic Control Panel



Default Display Arrangement

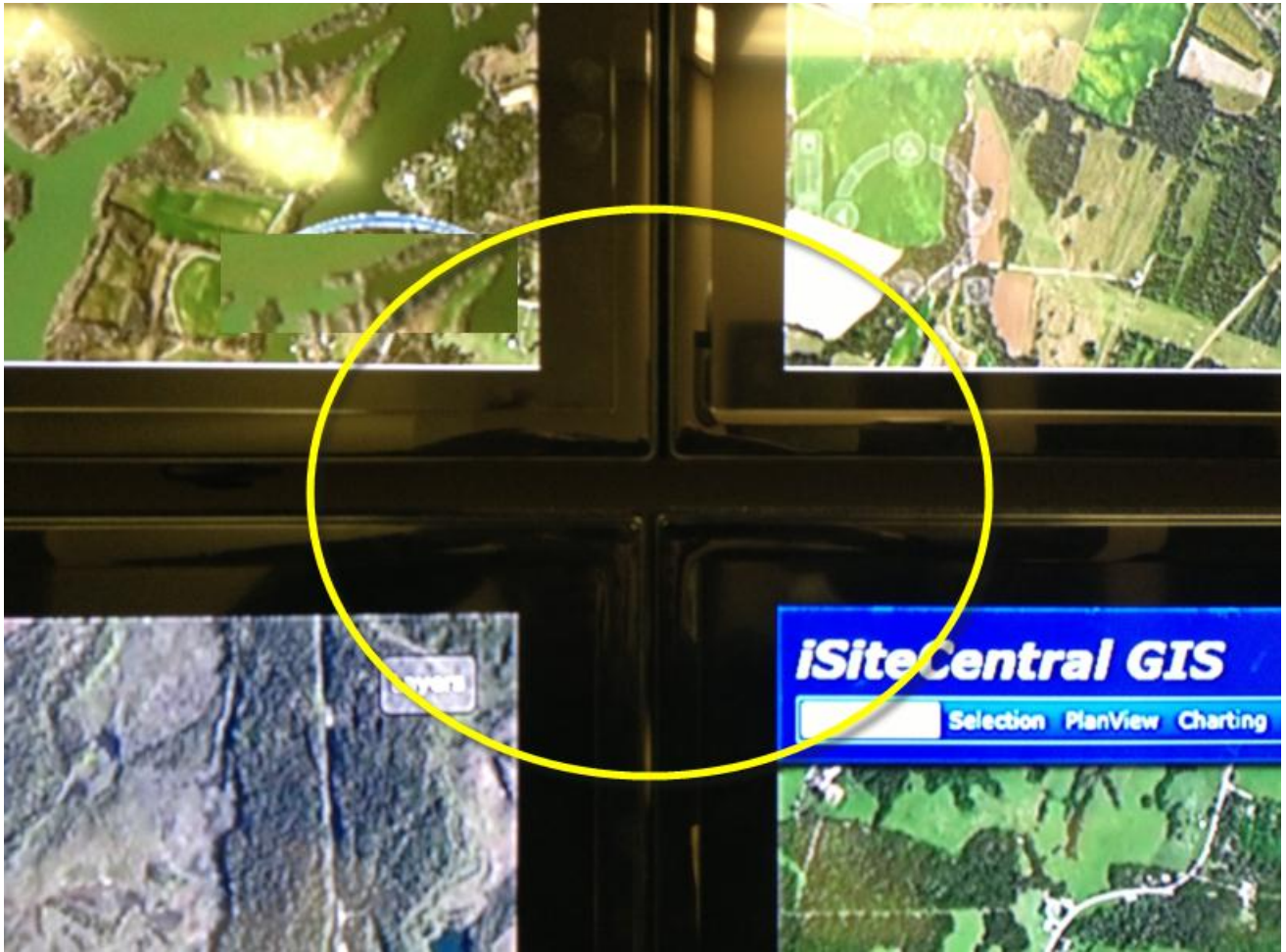
Software



Arrange Displays – impressive wizard

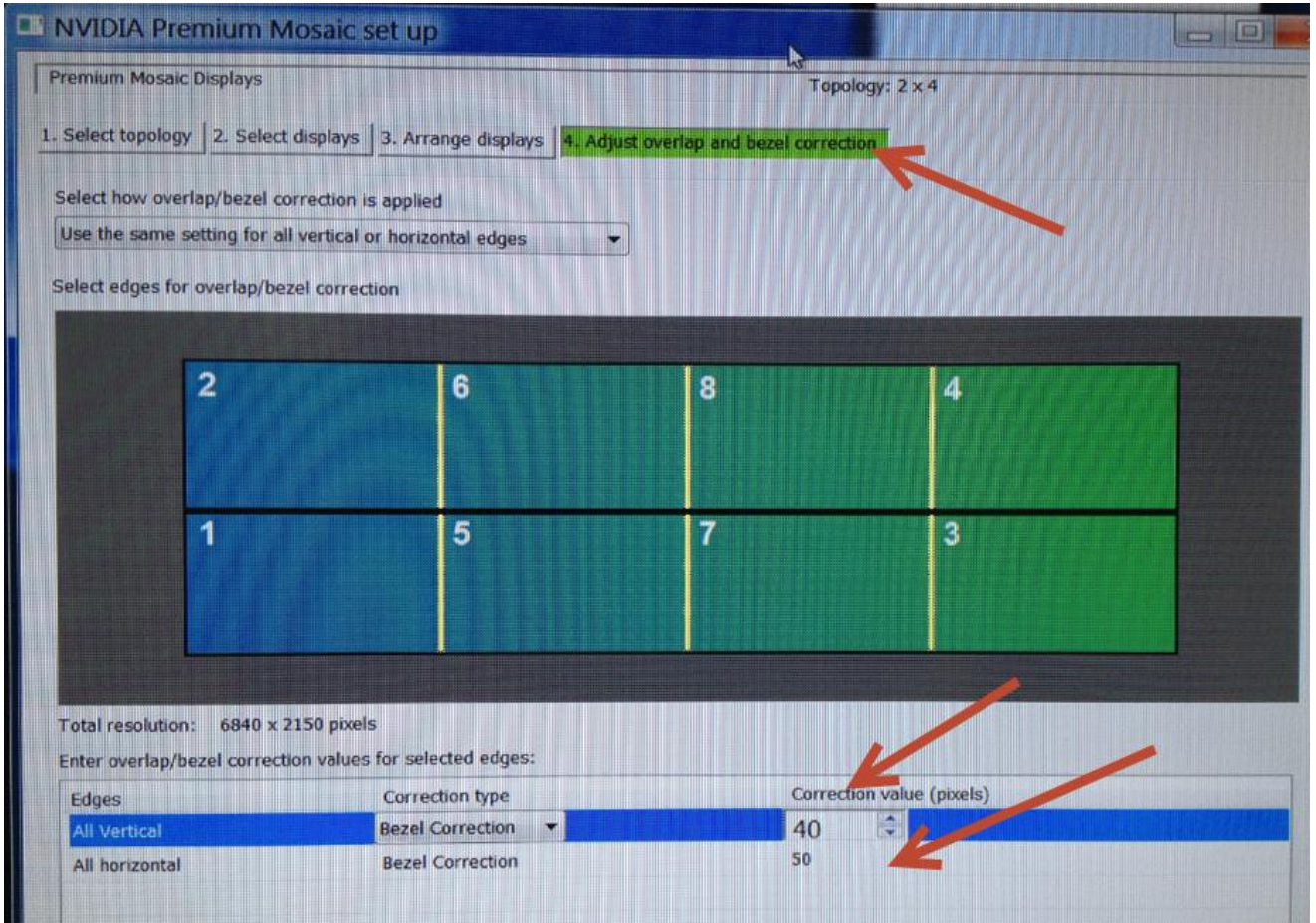
Bezel Correction Needed

Software



Bezel Correction – Easy Peasy!!

Software




Excellent!
BOXX
TECHNOLOGIES

Simple Testing – very impressive

Ultimate Test: from 8 Individual Maps…

…. To One Big Display!

Success!!

Central Control

Able to control the entire room by 1 keyboard and mouse

Questions??

if time

Thank You!!

- Ways to contact us:
  - cpearson@hdrinc.com
  - @ClintP22
  - LinkedIn.com/clintpearson

- Your feedback is important!

  Please complete the Presenter Evaluation sent to you by email or through the GTC Mobile App.