

Full-School Interactive Flat Panel Deployment: Our Process & Lessons Learned

Bill Thomas & Greg Krueger
School District of Holmen

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The School District of Holmen

- 4,100 students
- 4 Elementary Schools, 1 middle school, 1 high school
- 4 Helpdesk Specialists
- 1:1 Chromebooks at Middle and High School
- 6 iPads per classroom grades K-2
- Shared Chromebook carts grades 3-5



Evergreen Elementary

- 365 students, K-5 grades, built in 1980, 63,000 sqft
- 22 classrooms were part of our IFP project, including all regular-ed grade-level classrooms



Choosing a site for this project

- Evergreen Elementary consisted mostly of 8-year-old projectors and Smart SB680 interactive whiteboards
- Recalibrations frequently required on Smart Board SB680s throughout this school
- Other elementary schools had already seen some IFPs deployed to replace end-of-life boards and projectors. IFPs were well-received at the elementary level
- Principal of this building was very cooperative through entire project

Existing Technology at Evergreen Elementary

- HP Prodesk 600 G1 SFF in each classroom, stayed in place
- Extron ceiling audio system in 2 classrooms, stayed in place
- Projectors would be removed
- Smart Boards would be removed
- Monitors updated from 4:3 17" panels to 16:9 HP E223, \$144 each
- Most classrooms had no ceiling or other audio system - a good audio system in the chosen IFP was critical
- Assorted Doc Cams



Existing Technology Example



Process for determining needs, specs, objectives

- We were not bound to a certain brand of IFP. Multiple brands had been used throughout the rest of the District with success.
- What size of panel to go with?
 - Previously we had used Smart E70 IFPs in a few locations and found them barely large enough or a bit too small for our classrooms.
 - 75" IFPs were working well at the middle and high school, and select elementary rooms where they'd already been deployed
 - 75" IFPs were the most similar in size to the SB680s they were replacing
- Importance of viewing angle
 - We experienced other panels with poor viewing angle
 - Good viewing angle allows teachers flexibility in setting up their rooms
 - Teachers were used to projectors, not early generation IFPs or LCD TVs with poor viewing angle

IFPs we currently had in use

- Smart 4070 aka E70
- Smart 6075
- Smart 7275
- BenQ RP750K
- Promethean ActivPanel 75" V5
- Promethean ActivPanel 86" 4K
- Clary Icon OneScreen T4-75

Developing the RFP: Preferred Products

We chose three panels most highly approved of by our teaching staff.

- Listed these as our preferred models in the RFP
- Listed 4K or current versions of panels even if our experience was with the prior generation of the specific panel.

The Preferred Models:

- Smart SBID-7275
- Promethean AP6-75A-4K
- BenQ RP750K

Alternate Products

- Also allowed vendors to submit proposals for products other than our preferred list
- There were more products on the market than we were aware of
- Received [bids](#) on the following IFPs outside of our list:
 - Boxlight/Mimio Procolor 752U
 - ClearTouch CTI-6075U-UH20
 - Aver CP754I
 - InFocus INF7530EAG
 - QOMO Journey QIT13754K
 - Clary Icon OneScreen T4-75
 - Smart SPNL 6275

Evaluating alternate products

- This was not a focus of our process but we did look at several that offered a compelling feature set
 - Aver CP754I
 - Took a demo remotely, we were not impressed by the lag in touch processing
 - Clary Icon OneScreen T4-75
 - Took a remote demo, then allowed manufacturer to bring one onsite
 - Product allows easy access to the Google Play Store embedded in board
 - This was the most likable alternate product
- Side-by-side comparison of OneScreen T4-75 with BenQ
 - BenQ had superior brightness, clarity and viewing angle
 - Sound on BenQ was much fuller, clearer, and able to be louder if needed

The Decision

- Smart 7275 was out of the running due to high price
- Promethean offered a better price in our bid for qty 22 than we'd gotten in the past for single purchases, but it was still substantially higher than BenQ
- BenQ offered needed feature set and quality at best price
- We [made a spreadsheet with comments on various models](#) throughout the decision process
- BenQ RP750K was our chosen IFP
- \$3,776 each, factoring in shipping, for our quantity of purchase
- Purchased these panels from [BG Innovations](#) out of Duluth, MN.

Hesitations re: BenQ at time of decision

- Slightly longer power-on time. This was eventually remedied through a software update.
- No full Google Play Store built-in. Two competitors were offering this at the time we purchased. It has since become less prevalent.
- Not a lot of BenQ product in use in District or region
- Lacking in training resources online



IFP Arrival



The order and install

- Panels arrived within 2 weeks of order
- Internal maintenance staff installed them
- Height-adjustable mounts were used in kindergarten rooms
 - The first one we got failed after a couple months of use, replaced under warranty
 - Remainder worked without issue
- Static wall mounts were used in 1st through 5th grade rooms
- First panel was installed in May
- Remainder of panels were installed over summer
- Install took most of summer, commencing in June, finishing in mid August

Determining locations in each classroom

- Principal and I&T team worked through building marking walls for IFP placement
- Worked within existing electrical placement
- Movement of existing whiteboards and chalkboards was required
- All IFPs mounted on the wall...no wheeled carts
- Principal was clear with teaching staff that location IFPs are mounted is where they stay. Maintenance staff will not mount an IFP twice in one room

Location Choice Samples













Miss Bremer

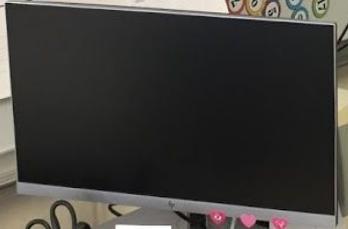


A large sheet of paper with a list of names and dates, possibly a class roster or schedule, pinned to the wall.



5 February 18 2014
Assignment
Summaries
Test

Choice
Cold Lines





Handwritten notes and posters on the left wall, including a portrait of a man and a sign that says "AUTHORITY TEACHER ZONE".

AUTHORITY TEACHER ZONE



Classroom Rules

1. Listen carefully.
2. Follow directions.
3. Speak quietly in your assigned area.
4. Respect others for their work and opinions.
5. Respect school and personal property.
6. Work and play safely.

Argument Vocabulary

Claim - a strong opinion

argument - a claim supported by reasons and evidence

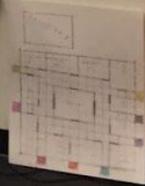
unsubstantiated - a claim that does not have good reasons

Overview - a tool that gives a summary of both sides of an argument

Opposition - a tool that gives one side of an argument



A table with various papers, folders, and supplies on it.







Height-Adjustable Mounts

- Were used in kindergarten rooms
- Products used together:
 - Balance Box 400-70 (For use with panels 90.2-154 lbs)
 - BALANCEBOX 400 FLATSCREEN / VESA INTERFACE
- [Video of one demonstrated](#)
- These cost approximately \$890 each with shipping
- Very heavy
- District's internal maintenance team installed



Pens & Pen-Touch Differentiation

- Panels cannot tell the difference between a pen and a finger-touch
- The two provided pens are very durable



BenQ Panel Usability

Straightforward controls

- Competing panel had volume buttons reversed in order
- Buttons have substantial feel
- Gear button brings up touchable input-change menu



Input Selection Menu

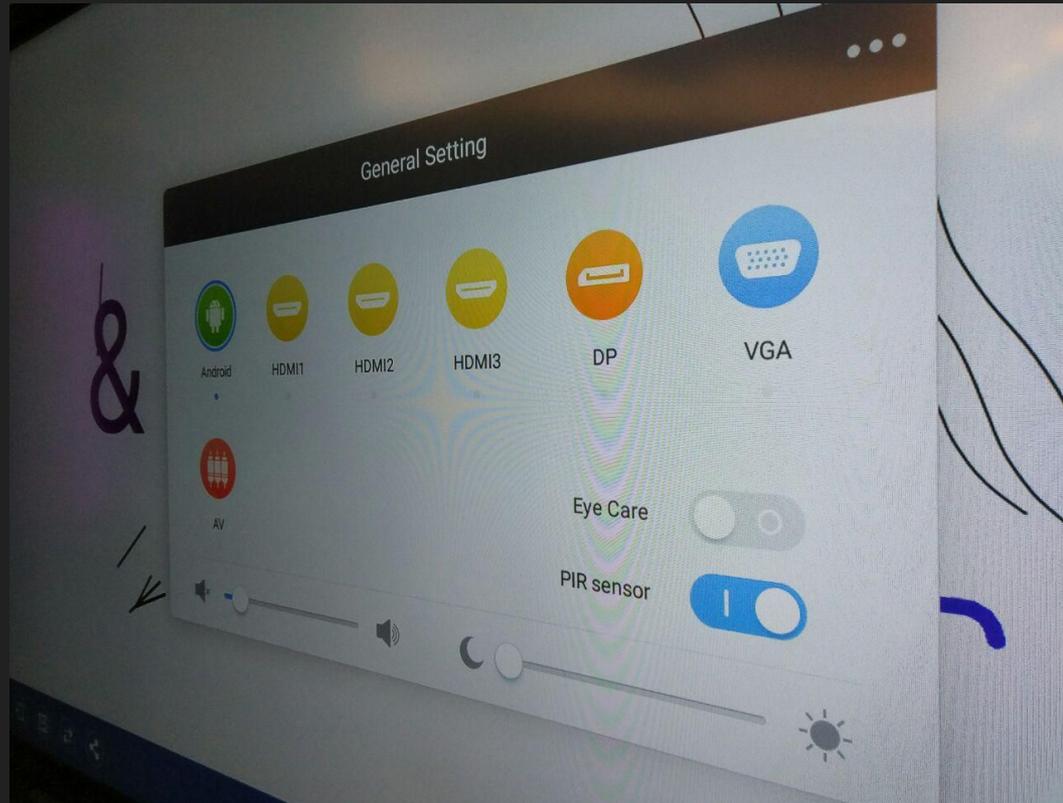


Image credit:

<https://thetechrevolutionist.com/2017/07/benqs-new-interactive-flat-screen.html>

Inputs / Outputs (side)

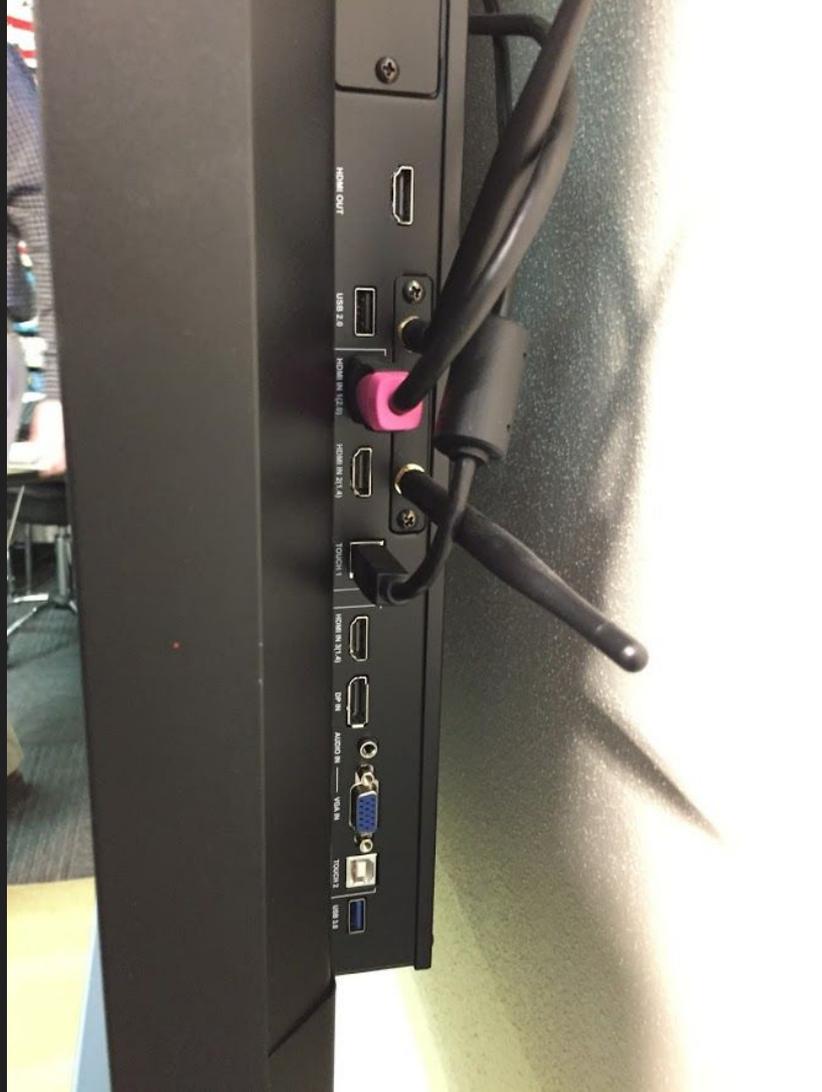
2 USB Touch

3 HDMI

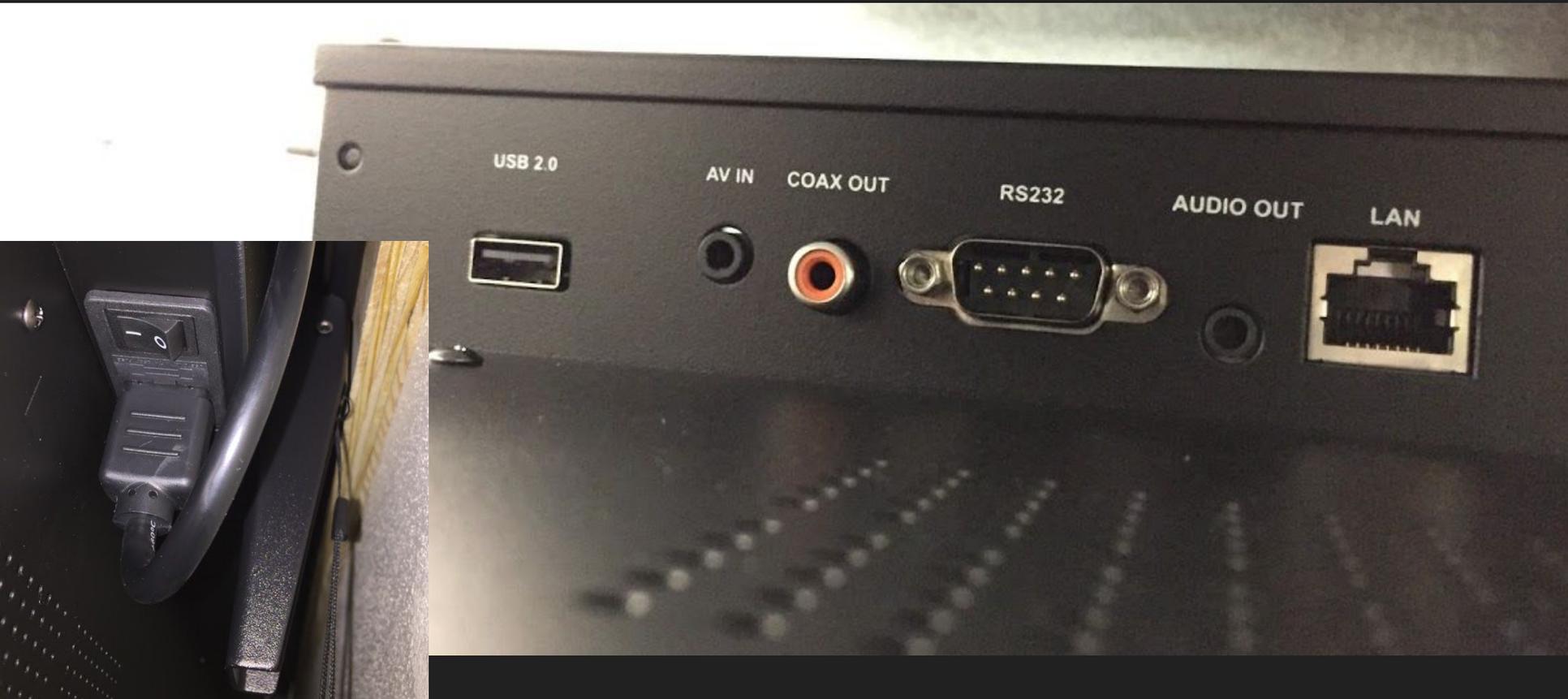
1 DisplayPort

1 VGA

Wi-Fi Card



Inputs/Outputs (lower)



Expansion Slots - Side

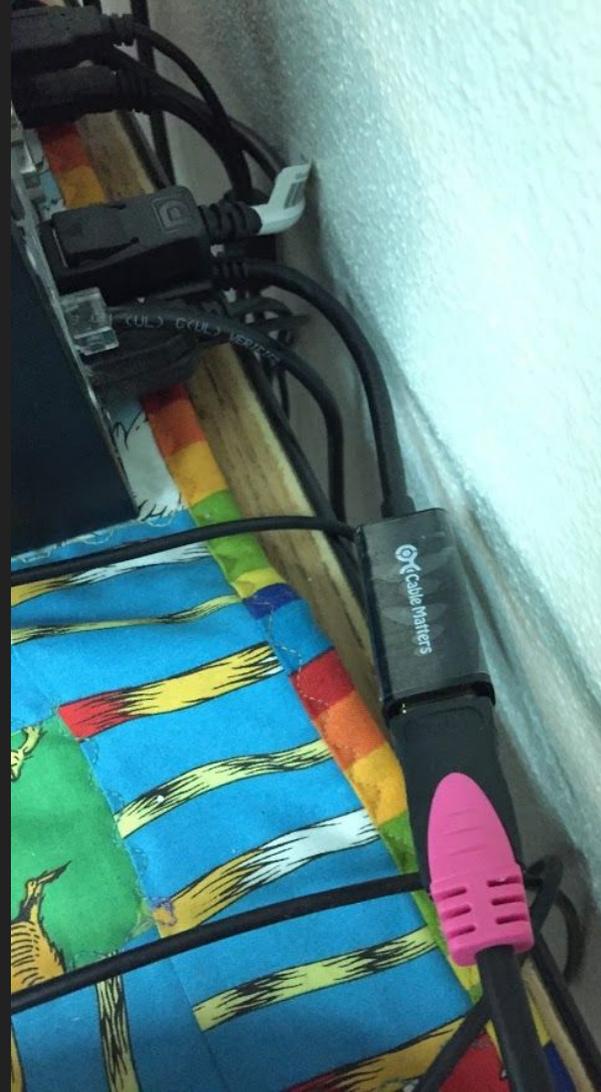
We did not make use of these



DisplayPort & HDMI

Adapters needed in most classrooms because long DisplayPort to DisplayPort cables were not available

DisplayPort to DisplayPort cables could be used in rooms with short distances between IFP and computer

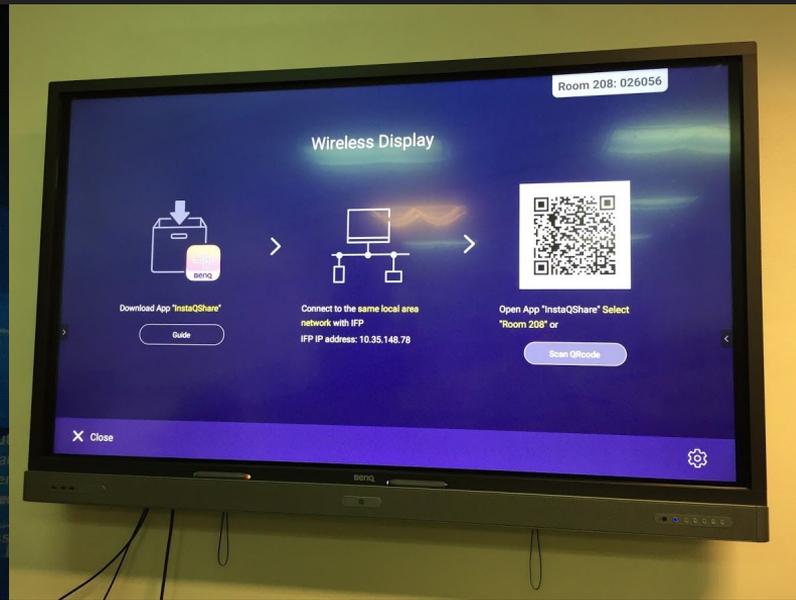
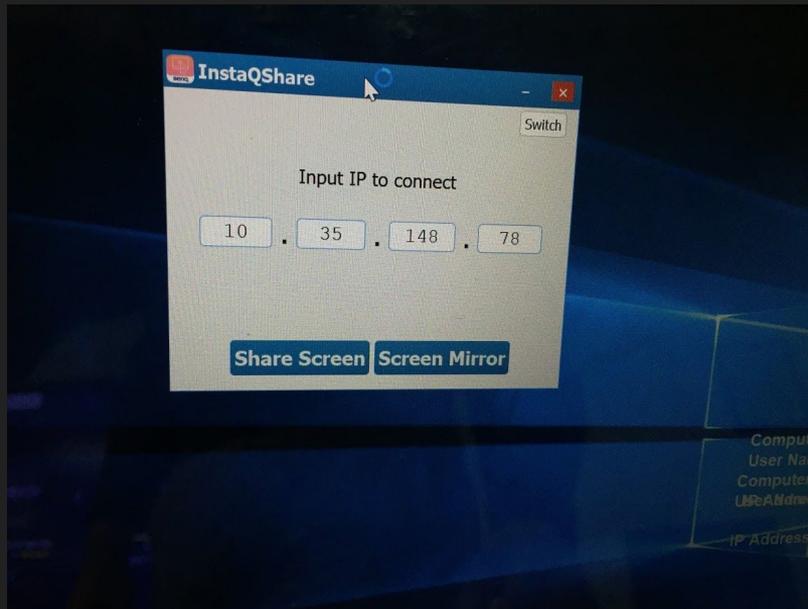


Issues encountered with BenQ IFPs

- Flickering video issue
 - Was attributed to the HP Prodesk 600 PCs we were using throughout the school. Fixed this with a BIOS update on the PCs.
- Audio not connecting via DisplayPort and HDMI after computer cycled through sleep
 - Also attributed to same BIOS issue, update fixed it
- 1 of our height-adjustable mounts broke
 - Fixed it under warranty
- 1 screen showed condensation underneath one of the layers of glass
 - This only happened during very humid days of summer and our building did not have fully functional HVAC during summer. BenQ replaced this unit.

Screen Mirroring - Highlights & Challenges

- Built-in iPad mirroring does not work reliably - use an Apple TV
- Windows mirroring works great with app & includes touch
- Android mirroring works reliably....no touch



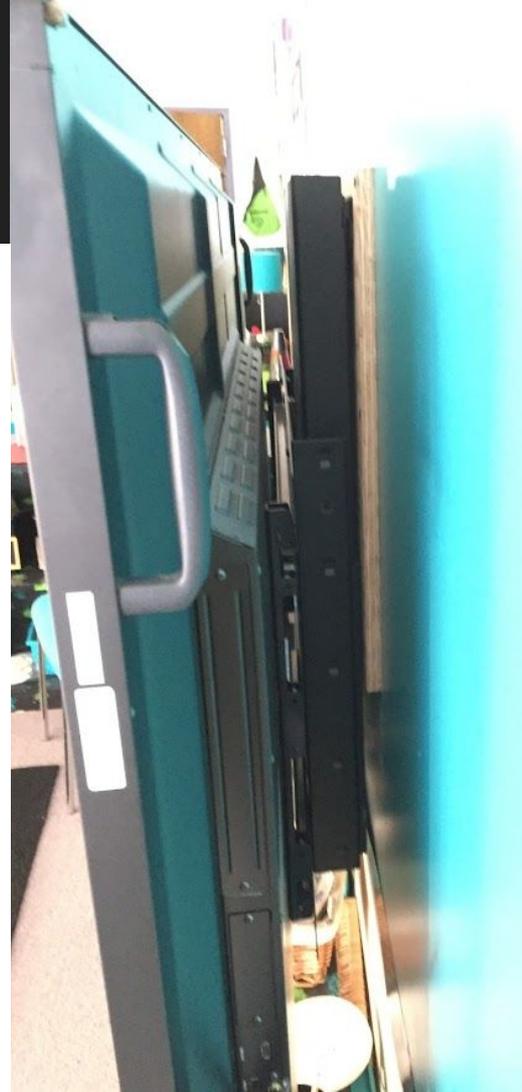
Warranty Service Experiences: BenQ

- Support took some time to process request initially, but once replacement was initiated, process went smooth.
- BenQ includes services to unbox new panel, dismount old panel, mount new panel and prep old panel for shipping.
- BenQ paid District to perform this service in one incident when a local contractor could not be found in a timely fashion
- In total we have had two warranty experiences with BenQ. Only one was within Evergreen Elementary where the 22 panels were installed.

Warranty Experience: Balance Box Mount

- No contact or phone number at the actual company could be located online
- Had to work through reseller to start warranty process
- Took several weeks to get warranty replacement underway.
- Company did cross-ship new product without requiring deposit
- Replacement product worked fine
- District needed warranty service 1 time on these mounts, we purchased and installed a total of 4

Install Challenges and Techniques





Movable Carts

Limited Usage - Only 1 room at Evergreen School

We have two favorite models.

Mount Factory [MOUNT-CART-RC1900P / B014JM7HHS](#) |

Mount Factory [MOUNT-CART-RC1700P / B014JM7EBC](#)

We've also used [North Bayou AVA1800-70-1P](#) when the above two are out of stock. Approx \$150.



Fixed Mounts

We have been using [Monoprice Product # 12278](#) to mount IFPs for several years with no issues. Approx \$50 each.



Other IFPs we have demoed since

- CleverTouch - viewed in-person demo, but we do not own one
- Smart MX series - we purchased one of these

Looking to the future

- Another elementary school will get displays throughout entire building this coming summer
 - We plan to do another RFP listing several preferred IFP options
- Displays are getting lighter-weight and more responsive to touch as new generations come out

If we could do our process all over at Evergreen

- We would still have deployed BenQ IFPs based on the options available on the market at the time
- Additional communication with staff throughout the process

Questions? Contact us:

Greg Krueger

krugre@holmen.k12.wi.us

Bill Thomas

thobil@holmen.k12.wi.us

Thoughts welcome! Please leave feedback on this presentation.