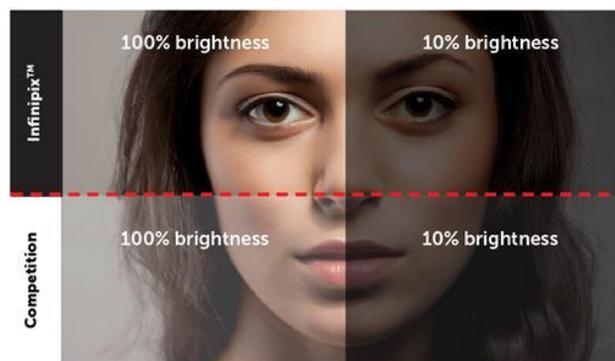# LED Talks #1: Show your content as intended

More and more LED walls are looking alike from a mechanical point of view, but there is one important differentiator amongst them: LED processing. With our 'LED Talks'-series we want to show you that in order to get the best-looking LED wall, it requires deep understanding of how LED is working, and how they should be driven to get unsurpassed outcomes. In this first deep-dive we're talking about how processing can ensure impeccable image accuracy in your environment.

Here's something to think about: the performance of your LED wall is only as good as its underlying processing. Barco's LED walls, for example, are peaking in color capabilities thanks to the carefully selected LEDs with a Rec.709 color gamut, but the wrong processing or color adjustment will still ruin the quality of your image. And ultimately disappoint the end user, because in the end all you want is to see your content the way you intended to.

Turn the lights down

For a display to be all-round, it must be fully adaptable to any lighting condition, showing the same colors and level of detail when operating in dimmed mode as it does at full brightness.
The dimming mechanisms of most LED products reduce the dynamic range of the colors. The images lose grey scale levels. The details on the blacks disappear or the grey scale image suddenly starts to show a strange color effect or green haze. And that's not how you imagined your image to look like!

Thanks to Barco's Infinipix™, image quality is perfect in both dimmed and high-brightness mode. The optimized smooth dimming technology takes special care of the colors and grayscales – allowing you to adjust and fine-tune the brightness as you like by selecting a value between 1 and 100% – without any loss of color quality or image details.

Show your true colors

Correct contrast and perfect colors are critical for every LED user:

- Color fidelity is key in mission-critical **control rooms** where the LED wall is typically not driven at full brightness. In addition, the flexible dimming capabilities of Infinipix™ contribute to the viewing comfort of operators monitoring images 24/7.

- Consumer **brands** invest a lot of time, effort, and money in their brand identity. Where other processors are often over-saturating colors, Infinipix™ allows for brand-specific calibration. Even the palest pastel colors are accurately reproduced.

- The human eye reacts differently to light than cameras. **Television studios** highly benefit from Infinipix™ to recalibrate colors for specific camera requirements with one single press on the button.

- In the case of **digital prototyping**, manufacturers want to review their 3D designs as close to reality as possible. Thanks to Barco's LEDs' outstanding color accuracy and perfect contrast levels, these designers can trust what is being visualized and make the right decisions.

LED by example: BMW Welt

BMW Welt in Munich is the heart and soul of the automotive giant. The artistic building serves as a combination of exhibition, delivery center, museum and visitor experience venue. A few years ago, BMW Group updated all 15 sites at their 'brand temple' with Barco LED walls.

Obviously, having the wrong BMW blue in their own brand center is unacceptable. Luckily, the Infinipix™ platform ensures amazing color performance of the LED video walls. Each of these displays is highly luminous and can be used without restrictions – even in full sunlight.

Conclusion

If there's anything to take away from today's LED Talks, it's that superior pixel quality is undeniably a key element for LED displays, as it provides the "wow" factor; but how the image is processed can really affect the overall impression.

LED Talks #2: Create flawless viewing experiences

Insider's tip: video sync hiccups typically arise on fast-moving content, that's why during LED demonstrations you will often be shown still images or slow-motion videos which hide these issues. With this knowledge in mind, be critical and keep your eyes open for the following things when comparing LED walls and their processing technology.

Continuing on the first topic of this series - '[showing your content as intended](#)' - this post tackles everything you need to know about potential video synchronization issues and other possible artifacts in your content. Spoiler alert: the significance of a good processor will again prove irrefutable to resolve these problems and achieve optimum results.

Latency

Latency is delay. It's the amount of time that is needed to process and transfer the content from the input source to the output destination. High latency is, for example, translated in those annoying lip-sync issues we've all experienced at some point during live events. Increased delay often occurs when a LED display is powered through a combination of an LED processor and a presentation switcher.

With Barco's processing solutions, you can always keep latency at its lowest thanks to the wide bandwidth and high refresh rates (7680Hz) of the [Infinipix](#)^{TM} system combined with the cutting-edge [Event Master](#) portfolio.

Motion blur

Motion blur refers to the blurred effect that's visible on images with rapidly moving objects, as if there's a focus loss in the content. To optically reduce or eliminate this motion blur, Barco's LED processing uses **fast movement compensation**. This tricks the human eye to perceive fluid motion and makes the brain think we're seeing a smooth movement.

Tearing

Tears, i.e. when the image jars, are incredibly disruptive to the viewing experience as they pull the audience out of the story being told. Our Infinipix^{TM} platform ensures smooth and flawless video for still, slow-moving and fast-moving images – even when multiple panels or image sources are involved!

Seams

An LED wall is configured out of different LED tiles and although technology has evolved dramatically over the years, this still means you inevitably have seams in your display. When the LED modules are too close to each other, you get a bright seam; when there's too much space between the tiles, you get a dark seam.

But the good news is, processing can do something about it! Our Infinipix^{TM} system takes a picture of your entire wall and analyzes the seams in the image. It then calculates the necessary corrections and adjusts the brightness of the pixels at the edges of the tiles, so your wall becomes optically seamless.

How about scaling?

Re-rendering of the content or creation of display-specific content can be quite expensive and take a considerable amount of time! But chances are that the original content will eventually need to be scaled to match the resolution of the available LED display wall. Therefore, the need for quality scaling cannot be underestimated.

Infinipix^{TM} has a state-of-the-art scaler embedded that realizes perfect representation and sharp images on LED systems. The premium **anti-aliasing filters** make the resized image pleasing to the eye. The phenomenal up- and down-scaling features also guarantee the intended colors and key details are maintained throughout the process, and ensure smooth images in all situations.

LED by example: HP Customer Engagement Centre

The UK headquarters of tech company [Hewlett Packard](#) is located in a 67,000-square-foot building at the heart of London. The building also houses an impressive Customer Engagement Centre (CEC) which is of course equipped with the most innovative technologies.

At the entrance hall of the CEC a huge Barco LED wall of eighty tiles welcomes visitors with very high-resolution images of iconic places around the world, as well as HP graphics and specialist content. First impressions matter, so the content on this lobby display always needs to be flawless. Barco's Infinipix™ platform guarantees perfectly scaled images and smooth transitions between the different backgrounds.

Conclusion

You can create memorable moments with outstanding unique content and impressive LED walls, but if even the smallest artifact disrupts the viewing experience people will remember your project in a negative way. The only way to do your content justice is to choose an LED wall and a processor that displays it the way you intended to, and helps you to be remembered for all the right reasons.

LED Talks #3: Trust a worry-free canvas

What a LED processor basically does is translating the original signal of the connected video source into something the LED tiles understand. But things don't always go as planned. That's why you need a great processor increasing the reliability of your project and offering that extra piece-of-mind throughout the entire servicing process.

Our previous LED Talks broadly dealt with the influence of processors on the image quality of your LED wall. But your content may look as perfect as you want, if the display suddenly decides to break down, it isn't worth a thing anymore. So today we're zooming in on the relationship between processing and LED maintenance.
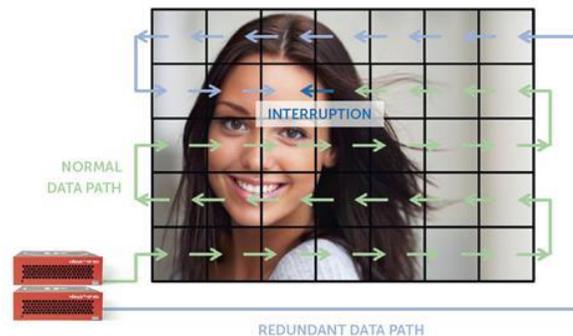
1. Before potential failure: Ease-of-use

The InfinipixTM manager, NM100, hosts a **straightforward web interface** that allows you to centrally access information for your LED displays and offers the tools to view and manipulate settings on your devices. As the system is based on HTML5, operating systems running on Windows, Mac OS, and Linux, can be used to control the LED displays. With the additional SNMP and JSON RPC support, the InfinipixTM features can also be implemented in third party monitoring and control solutions.

2. During failures: Guaranteed up-time

Because one processor can drive multiple tiles, data flows from tile to tile in a daisy chain. In the unlikely event that the data path is interrupted, all subsequent tiles in the chain would be void of content. Now, you don't want your customers to look at a black display, right?

The Barco LED platform works with an additional processor which is connected to the last display tile in the chain. This **redundant data path** travels in the direction opposite to the data flow to ensure all the LEDs receive the signals. When this back-up data flow takes over an uninterrupted image is guaranteed.

But what's the use of having a redundant system if nobody ever knew the redundancy kicked in? InfinipixTM will also send out **notifications** to the service engineer, so he can fix the issue and prevent a second failure from happening. In addition, where competitive processors would leave you to search for the point of failure all by yourself, Barco's product is telling you exactly where to look for the issue and which specific component needs replacement.

3. After failures: Stress-free serviceability

Barco's LED platform facilitates **efficient maintenance**. With our latest XT series, replacing a LED tile can be done in less than two minutes. The InfinipixTM system is able to identify the replacement of a module in your installation and this information then automatically triggers a transfer of the necessary image settings and color data of the replaced tile to (re-)calibrate the entire wall. There's no need for user intervention or additional manual actions from an engineer.

The intuitive and easy web interface also enables **remote** control, monitoring and maintenance. This means service personnel can dial in remotely and don't always need to go on-site, reducing labor and transport costs to a minimum.

LED by example: NOS

NOS, a Dutch journalistic broadcasting institution, uses Barco's curved LED displays to support the anchor's stories with compelling high-quality images and infographics. The Infinipix™ system brings 24/7 reliability to the time-critical news environment. The technology not only provides the demanding viewing audience at home with an added perspective on the current events, the production team also admits that Barco's LED technology makes it easier and more cost-effective for them to do their job.

Conclusion

In your quest for a new LED solution, don't forget the most vital question: What if things go wrong? Barco's unmatched LED processing technology excels in exceptional user experiences and is fully optimized to support maximized up-time and effective productivity.

LED Talks #4: Secure your data

Over the course of this series, we have already been talking about color consistency, image quality and reliability. But recently, we've also noticed an increased concern in the market regarding data protection. So, in this post, we're introducing the final topic of our 'LED Talks'-series: security.

LED displays are used in various data-critical applications: government monitoring centers, military command posts, internal company presentations… If you're looking for a wall to set up in a similar environment, think cautiously about the risks of a data leak and dare to challenge the trustworthiness of the proposed solution.

Security shortlist

- **Encryption**
  Instead of using the standard transfer protocol, our Infinipix™ processors work with a proprietary protocol to encrypt the sensitive data which is then communicated to and decoded by the receivers in the LED tiles to be further analyzed or visualized on the wall.

- **Production**
  The Infinipix™ software is always developed inhouse. No one else, not even our hardware manufacturing partners, has access to the software code that's behind the data communication of our LED processing.

- **Smart user management**
  The Infinipix™ NM100 web interface allows for smart user management and offers the possibility to set-up multiple profiles with different access rights. This doesn't only facilitate easy maintenance, but it eliminates the risks of data leaks by unauthorized parties by securing all entry points into the system.

- **Compliancy**
  At Barco we're serious about privacy and data protection. The Infinipix™ Manager allows for remote analysis of your data logs by our helpdesk. You can be 100% sure that this information is always handled in a compliant way.

LED by example: Dubai Civil Defence

The Dubai Civil Defence (DCD) recently opened a high-tech control room at its headquarters, which is linked to real-time fire and safety information at airports, ports and commercial buildings. To ensure that Dubai is the safest, smartest and happiest city in the world, the emergency response organization can't afford any downtime. Barco's LED solutions help the operators perform their vital tasks in the best possible conditions while also protecting the crucial information from falling into the wrong hands.

Conclusion

With this series, we've attempted to summarize different aspects worth considering and takeaways to keep in the back of your mind when choosing your next LED wall. If you think about it, you could compare having a good processor in your LED set-up to having a best friend. It understands your needs and supports your creativity. It helps you and your content to look picture-perfect, always on point. It doesn't spill your secrets to the world, and last but not least, it always has your back, through good and bad times!