

CASE STUDY:

Making Digital Screens Work Together Perfectly

WHAT WE DO:

Smart Solutions for Digital Displays

8Seneca specializes in software development.

The company excels at turning complex technical challenges into seamless, engaging viewer experiences for both marketing and sales.



OUR CLIENT:

A European technology company, specializing in digital signage and audio-visual solutions, partners with businesses across retail, public spaces, and corporate environments. Renowned for innovative design and high-quality screens, touch-screen kiosks, and content distribution methods, this company create captivating visual experiences.

THE PROBLEM:

Screens Out of Sync

The project consists of an Android-based digital signage system capable of simultaneously displaying video and images across numerous screens. Despite having powerful hardware, when the same video was played on different screens, they were out of sync by up to half a second.

This affects the viewing experience, especially in shops and public areas where all screens need to look the same. The main reason was that the devices did not have a built-in way to make all screens play at exactly the same moment. Other small problems, like how long it took for HDMI to connect or how fast screens refreshed, made the problem worse.

- Hardware: Multiple Android TV boxes, each connected to several displays via HDMI cables.
- Device Specifications: These powerful boxes featured quad-core ARM Cortex-A53 processors and Android 10.
- Visual Capability: They supported 4K resolution at 60 frames per second through HDMI 2.0, making them suitable for high-quality video playback.



OUR SOLUTION:

A Smart Way to Sync Displays

The existing hardware lacked the capability to synchronize playback across multiple HDMI screens. Rather than attempting to alter the device's core firmware or develop intricate low-level syncing mechanisms (which would have been time-consuming and required extensive testing), a practical and rapid solution was devised.

Leveraging extensive knowledge of Android systems and custom video player development, a key component of the solution involved integrating a special "offset time" setting into the content player of each Android device. This setting enabled each screen to pause for a precise number of milliseconds before initiating its content, allowing for the manual alignment of all displays.

To manage this system, the client's existing Content Management System (CMS) was utilized, providing centralized control over all devices. Through the CMS, technicians could remotely modify the "offset time" values for each screen in real time. Achieving perfect synchronization involved a technician using a high-speed camera to record all screens playing simultaneously. By reviewing the video in slow motion, minute delays could be observed, allowing for iterative adjustments to the offset times until the screens achieved near-perfect synchronization.

This method, while requiring some manual intervention, proved to be the most effective and affordable approach given the time constraints. Upon implementation, the delay between screens was reduced to a minimal 40–60 milliseconds, imperceptible to the human eye.

This delivered a smooth and cohesive visual experience for the client. This solution exemplifies how technical limitations can be balanced with real-world project deadlines, yielding a functional and adaptable outcome without compromising quality.

THE RESULT:

Perfect Pictures, Happy Customers

Despite inherent hardware limitations and a tight deadline, the solution was delivered on time and successfully implemented at the client's retail store.

The new synchronization system enabled 4K advertisement videos to play across multiple screens with virtually no delay, creating a cohesive, powerful, and eye-catching presentation. The client's customers expressed high satisfaction with the outcome, commending the flawless picture quality and the enhanced, modern ambiance it brought to the store.

This project underscores 8Seneca's capability to provide advanced, flexible Android display solutions that effectively overcome complex technical challenges. It demonstrates a commitment to helping clients achieve seamless and impressive digital communication, ultimately boosting their brand presence and increasing customer engagement in critical business and public environments.



ABOUT US

8SENECA - Pure Play IT Extensions

At 8SENECA, we are a Pure Play B2B IT Outsourcing company, meaning we are singularly focused on delivering exceptional IT services for your business. Our unique strength lies in combining European management expertise with highly skilled Vietnamese talent, ensuring top-quality solutions that are both innovative and cost-effective.

What We Do

SOFTWARE DEVELOPMENT

CYBERSECURITY

IT OUTSOURCING

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