CASE STUDY

Viewer Participation with Web vs. Promi

German public TV station ZDF had toyed with one such idea for many years: an interactive kid’s game show, where children at home can play against each other, moderated by a host in the studio. A few attempts were turned into pilots by ZDF’s subsidiary KiKA, a channel focused on children’s entertainment.

They mostly consisted of quizzes and challenges, such as collecting all paper cups a kid could find in their home in a certain timeframe. Although high-end technologies were utilized, all concepts faced the same problem: too much delay in the video streams. This made communication between studio and contestants at home clumsy and stiff and hindered not only more complex game show elements, but also stalled a smooth flow of the entire program.

Finally, the Munich agency Rayd was called to the rescue. “When we were brought on board, the ZDF had already decided on an even more complex approach to the show,” explained Oliver Grimm of Rayd. “They wanted to incorporate video games that the kids could play on their screen against a celebrity in the studio. But they were still facing the same delay issues – a double challenge for us.”

Rayd, long time veterans in broadcast technology and gameshow development, took on the entire workflow and renewed it from scratch. “We started with the video communication system,” said Johannes Klaer of Rayd, “quickly realizing that none of the commonly used products would be sufficient for the job.”

They developed a browser based flash plugin that the children could access via opening a specific website on the internet without having to install any software on their home computers. This reduced delay for all six incoming video streams – four contestants and two backups – to less than half a second.

A major challenge was the game development. Rayd created a variety of games, ranging from an adaption of the all-time favorite Pong to flying simulators and races.

The contestants participated using their webcam and a custom-made motion sensing shader, which tracked the players movements and translated them into the game world. On their home screen the kids could see the game and their own video stream as a half transparent overlay. For the second season of the show, Rayd added voice commands to the games for even more complexity.

The greatest endeavor for broadcasters in the 21st century is viewer participation. Bridging the gap between the TV studio and the families at home is the final cornerstone of broadcast evolution, and producers, directors and decisionmakers are frantically searching for solutions.

Children’s game show allows kids at home to compete against a celebrity in the studio.
With three incoming streams from each contestant – video, audio, and motion sensor data – the game server had quite some computing to do. Next to handling the game logic, the software also calculated all scores and leaderboards and transmitted this information to the controlling software, another custom piece from the hands of Rayd.

The final task was bringing all the information – video streams from the contestants, a stream of the real-time game, scores, and camera image – into one HD signal for broadcasting. For this purpose, Rayd used the real-time software Ventuz. A total of three servers were installed, each managing a specific aspect of the show. One machine was equipped with a Deltacast HD capture card which offered two HD inputs, one bringing in the real-time game stream, while the other received all six video streams from the contestants and the celebrity’s video stream – all in one split signal. “We created a masking functionality in Ventuz with which we could designate certain areas of the split screen to specific spots in the playout”, explained Oliver.

“This allowed us to place the contestants’ individual video streams exactly where we needed them.”

A second Ventuz machine was used for the actual real-time on-air graphics. Rayd created a number of different frame graphics in Ventuz, each picking up the look and feel of the game which would be placed inside the graphics. Then the video streams of all players were arranged around the game area, and names and additional data were added on an additional text layer. The Ventuz scene received this information from the controlling software via .NET remoting.

In between games, Ventuz also provided a scoreboard, “the first scoreboard in the history of broadcasting that had live videos of the players embedded”, said Johannes. A third Ventuz machine was used for an in-studio video wall, an HD backprojection, which offered the full game experience to the audience in the studio and also showed scoreboards and full-screen live videos from the kids at home.

Ventuz has been Rayd’s number one choice for on-air graphics for many years. “There is no software in this market that can compete with Ventuz”, said Oliver. “Of course the pricing is a big plus, but what really makes the difference is what you as an agency can offer for the client’s money. Ventuz has so many little tools and helpers that allow you to design really beautiful graphics and incorporate smooth animations. Yet at the same time, you can work very fast. So even if the client’s budget is limited, the real-time graphics can still look like a million dollars.”

The two seasons of Web vs. Promi proved a true success for KiKA and ZDF with an average market share of about 17% in the relevant target group, a number that increased over time. Although the second season ended in 2013, all episodes are on constant rerun and still draw a noteworthy audience. Web vs. Promi was nominated for the Emmy award for digital programs in 2013. Thus far, no other production has reached a similar level of interactivity with viewers at home.

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Oliver Grimm, Rayd