

# Broadcasting a golf tournament live and remotely from three locations with the KAIROS IT/IP video production platform



Proof of Concept (PoC)

Mainichi Broadcasting System, Inc.

System: IT/IP Platform KAIROS

When: September 23-26, 2021

### The Challenge:

Needed remote production capability for live broadcasts from multiple locations.

### The Solution:

The KAIROS IT/IP platform equipped with a PTZ camera system enabled live video production from three locations.

“KAIROS consolidated camera footage at site and allowed remote switching for extremely smooth remote production.”

Mr. Yasuyuki Sakurai  
Technical Production Center  
General Technical Division  
Mainichi Broadcasting System, Inc.  
Note: Job title at time of interview

## PoC overview

### Using KAIROS and PTZ cameras for remote live production

Mainichi Broadcasting System, Inc. (MBS) conducted a PoC demonstration using the KAIROS IT/IP platform and PTZ cameras for a live broadcast of the Panasonic OPEN Golf Championship in September 2021. Supporting a variety of video I/O formats, including not only SDI but also new IP protocols such as SMPTE ST2110, NDI® and SRT (Secure Reliable Transport), KAIROS enabled camera footage from the course to be switched using control panels or GUI software installed in separate remote locations. The demonstration was conducted from three locations, including a broadcasting center with a KAIROS main unit at the golf course in Kyoto, Japan, a control

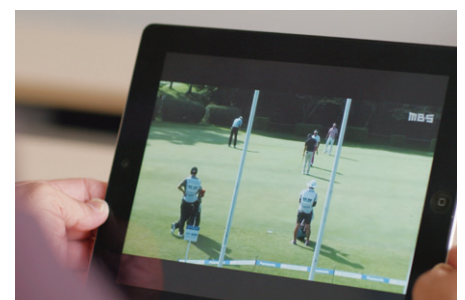
room at the MBS head office in Osaka, and a control room at the "GAORA" satellite sports channel. An HD Outdoor Integrated Camera, AW-HR140, was set up at the first hole to live-stream players' opening tee shots via the Distribution Channel 2. PTZ controllers in the three locations were used to operate pan, tilt and zoom for cameras on the course. Since the tournament had to be conducted without spectators due to the COVID-19 pandemic, KAIROS enabled high-quality live streaming without the need for camera operators to visit the course, making this a useful demonstration for future live productions.



▲ KAIROS in the broadcasting center at Jojo Country Club in Kyoto, Japan



▲ High-quality PTZ camera installed at the first hole to capture opening tee shots



▲ Live stream viewed on a tablet

## Benefits

### Simultaneous remote production from three locations for terrestrial, satellite and Internet broadcasts

Commenting on the results of the demonstration, Mr. Yasuyuki Sakurai, a member of the Technical Production Center in MBS's General Technical Division, said: "To carry out remote production at our head office, we had to transmit all camera footage from the course to our office. Securing the necessary number of transmission lines would have increased our costs and would have been difficult to implement. Using KAIROS, however, we only had to install a single unit on site for remote switching, and we only had to transmit switched images and multi-view images, which minimized line load. This year's Panasonic OPEN was broadcasted simultaneously on terrestrial, satellite (GAORA) and multiple live streaming channels, so the ability to switch between different footage depending on control rooms in multiple locations was very useful."

### Using KAIROS for remote video

Video footage captured with a PTZ camera at the first hole was transmitted via SDI to the KAIROS main unit at the golf course. Multi-view images were then sent from KAIROS to the control rooms of GAORA and MBS using the SRT protocol for stable transmission. Cameras were remotely operated using multi-view screens. Overall, the system was highly evaluated for its low latency and smooth camera control.

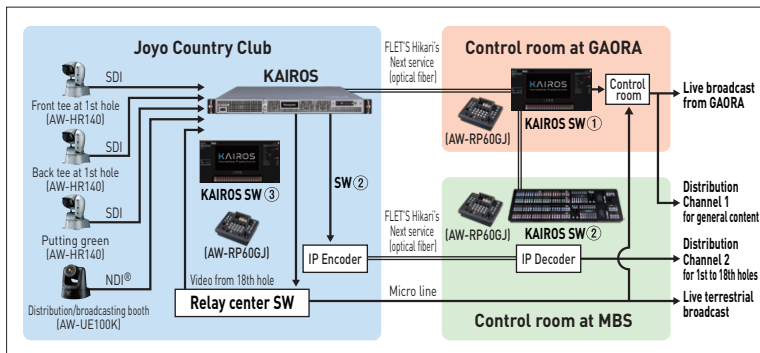


▶ The PTZ camera at the first hole complied with IP65 high dustproof and waterproof standards and has a lens equipped with wipers for outdoor shooting in rainy weather.

▶ The commentator booth had an AW-UE100K camera compatible with NDI®, which enabled a single LAN cable to be used for video transmission, power supply and camera control.



### System Overview



▶ Using the Kairos Creator (GUI software) in the GAORA control room



▶ Using the Kairos Control (control panel) for live streaming supported with a multi-view screen in the MBS control room



▶ Control room at MBS for terrestrial broadcasting



▶ Remote Camera Controller (AW-RP60GJ) used to operate cameras at the course

## In the Customer's Own Words

### Advanced remote production for added-value live broadcasting

"The ability to consolidate all camera footage on one main unit installed on-site and being able to remotely switch content to target destinations reduced the risk of any trouble. I felt this was a new step for remote production. As demonstrated with broadcasts from the first tee, KAIROS helps to realize content that can only be provided through live streaming, unlike terrestrial broadcast. Seeing how this system lowers the hurdles of remote live production, I want to take on new challenges to broadcast live sports from remote locations."



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▶ Freely customizable multi-view screen with max. two output systems

## Equipment used

- IT/IP Platform KAIROS x1
- HD Outdoor Integrated Camera AW-HR140 x3
- 4K Integrated Camera AW-UE100K x1
- Remote Camera Controller AW-RP60GJ x3

NDI® is a new protocol developed by NewTek, Inc. that supports IP video production workflow. NDI® is a registered trademark of NewTek, Inc. in the United States and other countries. In this instance, NDI® is used to indicate low latency with high bandwidth NDI®.

