

# Soliton®

## Soliton Systems

### MainConcept powers HEVC/H.265 in Smart-telecaster Zao series HD View player software

Camermen shooting news or sports events in the field mainly use professional camcorders using broadcast formats such as XDCAM, P2 AVC-Intra, XAVC, etc. These are not formats that are suitable for live streaming due to high bitrates. There are also other markets where the recording does not match the required output format, e.g. in surveillance or public safety where streaming is required as a 24/7 service with high resolution and high bitrate recordings being done for archival purpose. With over 30 years of experience, Soliton Systems serves more than 2000 enterprise customers. They offer high quality solutions for the broadcast, security and surveillance market to turn instantly recorded content into a suitable streaming format on-the-fly. This requires a powerful and reliable playback software to receive and decode these live streams in client side applications either at the master control room or even at the actual consumer's place.

## CHALLENGES

Broadcasting live events, like sports, breaking news, interviews or music events all around the world has always been a challenge, because of high on-site production costs for satellite trucks and broadcasting units. Lots of effort and people's time is spent each day for setting up hardwired connections where the event takes place.

There are other areas where users encounter similar challenges. In the surveillance and public safety market, existing high quality cameras are used by emergency services in crisis situations, in order to get a quick impression and overview of the scene in real-time. This is essential in fast moving and quickly changing situations that require instant decisions and actions. In addition, a kind of mobile solution would help to provide a first overview of the scenery, so emergency or police crews can quickly decide on the right next steps based on their immediate judgement of the scene.

Soliton Systems carefully evaluated the market requirements to come up with a proper solution for reliable and good-quality mobile streaming. For encoding Soliton Systems introduced the world's first HEVC/H.265 mobile hardware encoder for live video streaming. On the client side, i.e. the recipient or editor of the content, a similar solution but in software was found with the MainConcept HEVC Decoder SDK allowing real-time playback of HEVC/H.265 content in all resolutions.



### PRODUCTS:

- Smart-telecaster Zao
- STC HD View

### MARKETS:

- Broadcast
- Surveillance
- OTT

### USE CASES:

- Live Streaming
- Decoding

### MAINCONCEPT SDKS:

- HEVC/H.265 Decoder SDK

**AT A GLANCE:**

- MainConcept is used for decoding HEVC / H.265 video
- World's smallest mobile HEVC live encoder
- Low latency decoding
- MainConcept decoder powering STC HD View player software
- Only about three months of complete integration time
- HEVC video transmission over mobile network
- Reliable, robust & highly scalable overall decoder package
- Serving broadcast, surveillance & OTT markets at the same time

**SUCCESS STORY**

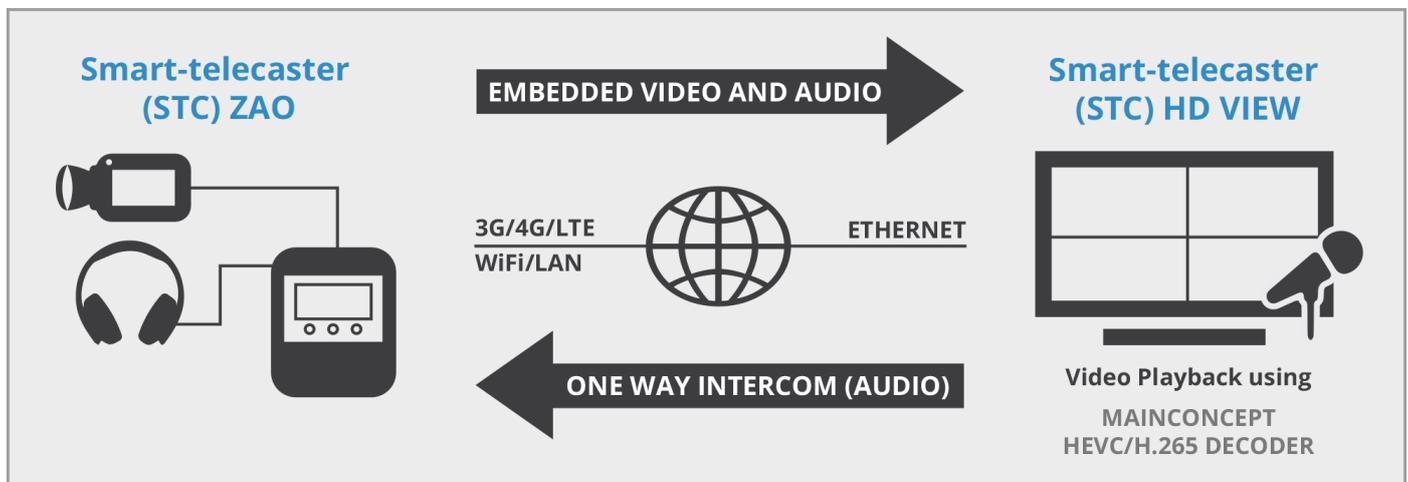
For saving transmission bandwidth and still preserving quality for remote broadcasting live sports, news, music events or even surveillance and public security all around the globe, Soliton Systems developed an enterprise product for mobile on-the-fly HEVC/H.265 encoding up to full HD resolution. It makes one step in the production chain obsolete, because it is not necessary to get the recorded content in its original format to the master control room or OB truck at the scenery. The live reports can now be streamed directly from the breaking news scenes in a simple and quick way.

The Smart-telecaster Zao series is a small box which can be plugged into any professional camera via HD-SDI, HDMI or any other supported interface. It is a portable HEVC/H.265 hardware encoder which additionally serves as a video transmission device. The Smart-telecaster Zao device encodes the recorded HD quality video into the HEVC/H.265 format which is then transmitted over any kind of IP network such as 3G/4G, satellite or WiFi via UDP/IP protocol to another location. It can make use of any public wireless network. The reduced bandwidth requirements of HEVC/H.265 help the broadcaster to provide a better HD quality video compared to AVC/H.264. It has turned out, that this workflow is much more efficient and reliable than traditional AVC/H.264 solutions.

To handle high quality HD video in low bitrate environments using HEVC/H.265, Soliton Systems uses an in-house technology for optimized mobile communication called RASCOW (Real-time Auto-Speed Control based On Waterway model). RASCOW dynamically controls the video encoding rate by automatically balancing the load between various network base stations during live broadcasting. This guarantees unprecedented stability in transmission, even under weak network conditions.

However, the Smart-telecaster Zao mobile encoder is only one part of the story. When looking for a solution for playing back live HEVC/H.265 streams on the client side, Soliton Systems was targeting a robust yet flexible software decoder. They selected MainConcept as a leading state-of-the-art codec provider offering SDKs that are used by most companies in the broadcast market.

For live preview, Soliton Systems also offers STC HD View, a real-time split screen decoding and remote management software that handles the HEVC streams received from the Smart-telecaster box. The player software runs on regular Windows 7 or Window 10 platforms, and it is used to remotely manage the Smart-telecaster Zao hardware. However, STC HD View operators are able to monitor and playback up to four incoming HEVC/H.265 HD channels simultaneously on a single screen.



Soliton Systems has licensed MainConcept's HEVC/H.265 Decoder SDK to meet their requirements of multi-stream real-time decoding on standard computer hardware in their STC HD View software. These four streams can further feed into the editor's broadcast system via HD-SDI. Moreover, the STC HD View application can archive incoming streams to local files for long-time storage and later playback.

Designed as an extremely robust component, MainConcept's renowned HEVC/H.265 Decoder SDK adds highest quality playback in tremendous speed to STC HD View by only using significantly low memory resources which are a crucial requirement in broadcast production workflows. The MainConcept HEVC/H.265 Decoder provides stable multi-stream HD real-time playback 24/7.

Soliton Systems' decision for using the MainConcept HEVC/H.265 Decoder was based on long and intensive testing. Because its major area of operation was in live scenarios, for public safety and surveillance use-cases, they had to be sure to get the best HEVC software video decoder currently available on the market. Besides integrating a robust and reliable decoder, they also needed to get highest quality to remain competitive in the market. The MainConcept HEVC Decoder also convinced Soliton Systems because of its low latency which is an essential feature for live HD streaming and playback.

**“We focused on developing our encoder, because we could rely on the MainConcept’s HEVC Decoder stability. We would like to continue working with MainConcept expecting the library to become better with a rich feature set we want to have for our future products.”**

**DAISUKE HIDAKA, MANAGER OF MOBILE BROADCASTING DIVISION @ SOLITON SYSTEMS**

Due to its flexible API, first integration of the MainConcept HEVC/H.265 Decoder into STC HD View and the complete interaction with the Smart-telecaster Zao hardware series was a simple engineering task for Soliton Systems developers. With that already done, they could concentrate on further improving the Smart-telecast Zao product and implement additional features requested by Soliton Systems' many customers and partners. For the live streaming, broadcasting as well as for surveillance, HEVC/H.265 will be the driving force in the future to keep the business up and running.

Thanks to MainConcept's flexible and reliable Decoder SDK libraries, integration and extension of workflows is a quick task. In case of any problems or question, there is always the worldwide professional engineering and integration support by the MainConcept Customer Care team to move partners forward fast and efficiently.



## CLOSING WORDS

MainConcept Codecs have a worldwide acceptance in the broadcast industry. Their HEVC/H.265 Decoder is the most reliable and robust decoder available on the market and is used by many global companies today. Broadcasters all around the world must rely on highly flexible streaming solutions for their live productions even under bad network conditions while preserving video quality. Providing the opportunity to handle and decode multiple HEVC streams simultaneously, also helps Soliton Systems to keep additional hardware costs and overall efforts low.

Soliton Systems has a clear vision about their future plans by developing and entering new markets in addition to existing broadcast and surveillance industry they already serve for many years now. Introducing just recently a new product called Smart-telecaster Zao-S already reduces the size of the original Smart-telecaster Zao box by more than 50%. The close partnership with MainConcept allows Soliton Systems developing more powerful and light-weighted encoders, while relying on the stability of the popular HEVC/H.265 Decoder SDK vendor.

MainConcept is constantly improving their state-of-the-art codec technologies for the broadcast industry to satisfy the demand for higher performance and latency in astounding quality. These goals will enable both companies to enter the next stage in their ongoing success and growth story.



### REQUEST A DEMO:



**MAINCONCEPT SDKs**

Free evaluation downloads are available for testing.

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