agile production

Agile Live

Cost- and power-efficient remote live productions with customizable quality and cloud-based collaborative workflows

The award-winning Agile Live, part of Agile Production, introduces a new way to produce live content. It supports a variety of cameras and sources, with quality and latency configured to the format and purpose. It enables collaborative workflows, in the cloud, with proxy editing.

It means that more content can be produced without ever-increasing budgets and that single or multiple real-time curations, adapted to the expectations of an online audience can be easily created and distributed!

What it does

Agile Live takes advantage of the latest innovations in cloud and GPU technology. It enables remote live production without the need for proprietary hardware, while using standard Internet for contribution.

With its unique capabilities to synchronize camera feeds and to create multiple versions, it also enables efficient collaboration in the cloud, with proxy editing. This makes it possible to work cost-efficiently, while engaging the best talent in your production.

Agile Live supports a range of cameras and input sources ranging from traditional SDI broadcast cameras to mid-range NDI ones, and down to consumer grade devices such as mobile phones and drones – and all can be synchronized!

Agile Live also offers graphics insertion via HTLM as burn in or delivered separately, and digital video effects such as picture-in-picture, animations, cropping and scaling.

To adapt quality to fit the content and the distribution, Agile Live introduces flexibility to customize quality so that each production can be optimized by balancing video quality, latency and cost.

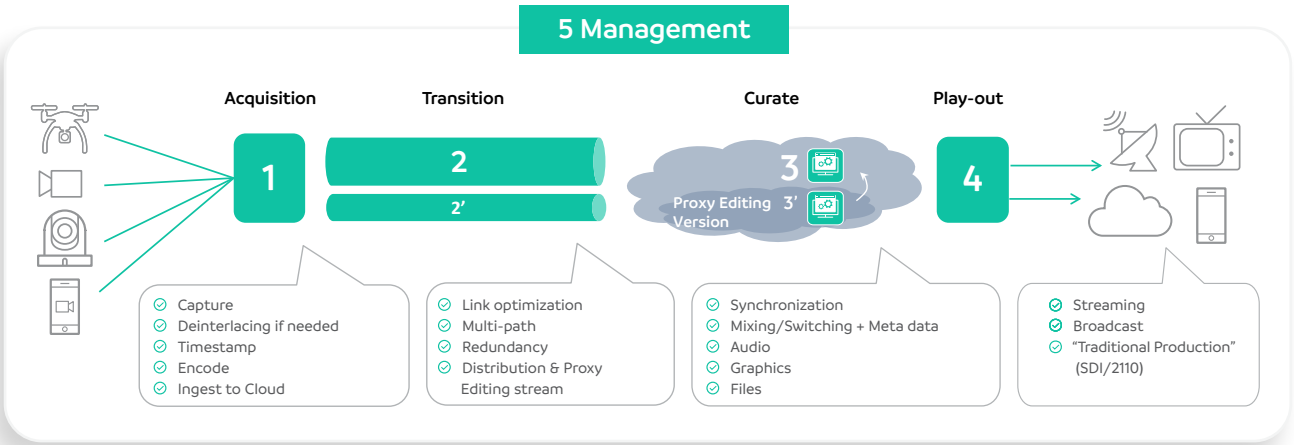
Key features & benefits

- Cost and energy efficient, leaving more money for content and good for our planet!
- Increase Reach and improve Relevance by producing and curating content optimized to viewers' devices and distribution platforms
- Adopt cloud-based methods and workflow for fast and flexible operations
- Combine broadcast cameras with drones and mobile phones to generate more and engaging content
- Cloud enabled collaboration and proxy editing enabling always having the best talents in your production
- Create amazing GPU powered video effects
- Avoid quality degradations from re-encodings by delivering CMAF directly from production

"This project may represent the beginning of a new age for broadcast production and distribution."
– EBU

EBU Technology & Innovation Award ★ RUNNER-UP ★ 2022

agile content



How it works

① Video and audio sources are captured, deinterlaced if applicable, and encoded in two (or more) versions to enable proxy editing and adapted curations. The Capture & Ingest software runs on a standard COTS server or in the capturing device (e.g. mobile phone)

② a) The low bitrate/latency/quality feeds are contributed via the internet using the Elastic Frame Protocol (EFP) and a transport protocol to the Cloud Production pipeline for editing

b) The high-quality/bitrates feeds are contributed via the Internet using the EFP and a transport protocol to the Distribution pipeline running in a public/private cloud

③ a) Editing is done using the Production pipeline and editing tools. Available tools currently include Multiviewers and Mixers. Actions in those applications are logged and time-stamped and sent to the Distribution pipeline

b) The actions from the tools in the Production pipeline are applied on the feeds in the Distribution pipeline

④ One or multiple curations are delivered, as Program Out, from the Distribution pipeline as TS streams for later SDI, NDI or CMAF playout

⑤ All software and resources are managed by an orchestration API and/or UIs.

How to deploy

As Agile Live is a fully software-based solution, deployment models are very flexible, fast and can be customized to the actual production.

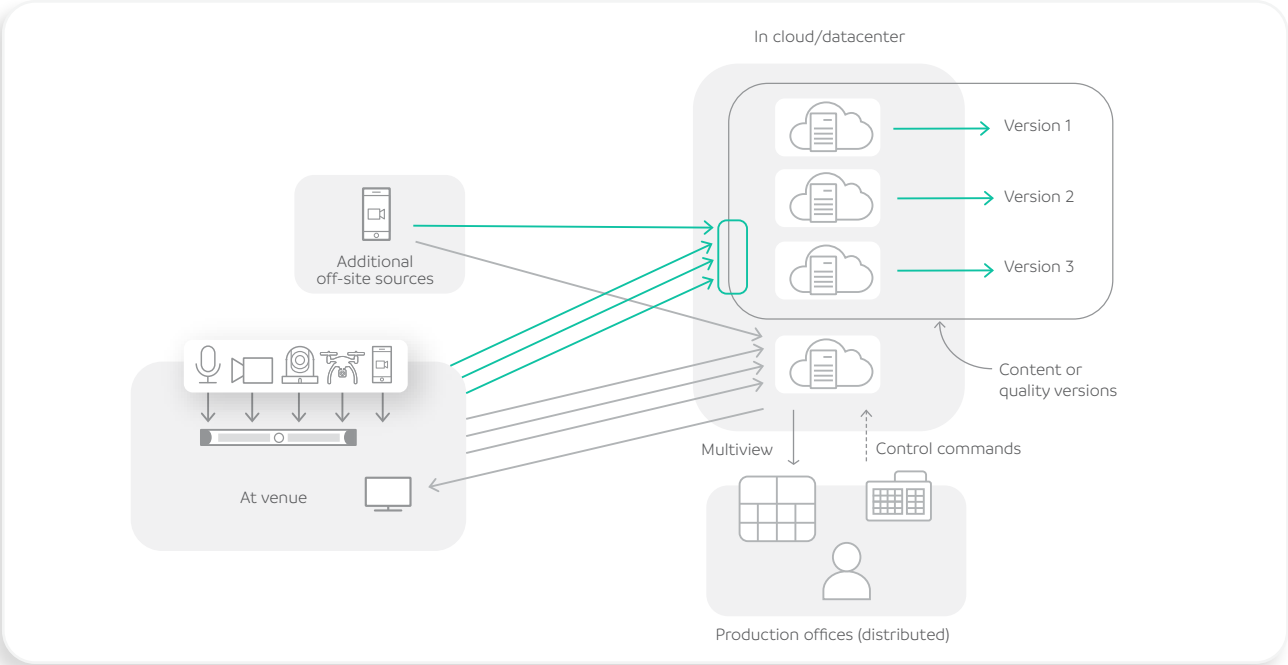
When delivered as software to be deployed and maintained by the customer (as opposed to the SaaS service), the system is delivered as a set of binaries for a smooth first deployment, as well as in libraries and examples to allow for advanced customization.

The Management software is typically deployed in a cloud platform, either Private or Public.

The Ingest application is deployed on COTS HW running Ubuntu, possibly using interface cards for e.g. SDI or balanced audio.

The Production Pipelines may be deployed in a private cloud or in an Nvidia GPU-enabled VM in a public cloud such as GCP, Azure or AWS.

Finally, the control panel interface libraries can be utilized to provide a bridge to any existing control surface for video or audio.



Technical specifications

AQUISITION
SDI
NDI
MPEG TS over SRT
Deinterlacing (if applicable)
High resolution absolute time-stamps

CONTRIBUTION
Selectable quality and latency
Elastic Frame Protocol
AVC, HEVC, AAC, Opus
8-bit & 10-bit video

VIDEO MIXING AND EFFECTS
Runtime-customizable GPU-SW-based video mixer
Fully customizable multiview with UMD, tally and audio meters
Digital Video Effects: Picture-in-picture, cropping and scaling with animations
Key/Fill inputs
HTML5 Graphics rendering with triggering via control panel or from 3rd party service
Chroma Key – “green screen”

AUDIO MIXING
Multi-channel audio transport and internal audio router
Basic built-in audio mixer: levels, panning, parametric EQ, compressor, low/high-pass filters
Interface for 3rd party SW audio mixers

PRODUCTION CONTROLS
Interface library for custom integrations with any legacy or 3rd party control panel
Some already existing control panel integrations
Websocket controlpanel endpoint for web-based panels
TCP controlpanel endpoint for e.g. Bitfocus Companion

PLAYOUT
AVC, HEVC, AAC
8-bit & 10-bit video
MPEG TS over UDP or SRT
CMAF

ORCHESTRATION & MONITORING
Backend controller with REST API
Prometheus exporters & Grafana

SYSTEM HW / SW
COTS, no proprietary appliances
Ubuntu 22.04
x86 platforms
Black Magic Design DeckLink
SDI cards
Intel QSV-enabled GPUs
Nvidia GPUs
Nvidia GPU-enabled VMs in the cloud