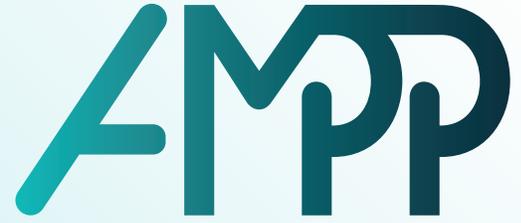


GV AMPP

Agile Media Processing Platform



The first cloud-based SaaS platform for broadcast to fully leverage the power of elastic compute.

GV Media Universe and GV AMPP

GV Media Universe is Grass Valley's ground-breaking vision for transitioning to the software- and cloud-based future of content creation and distribution in a safe, efficient, proven ecosystem of new operations and business practices. Designed around a comprehensive ecosystem of cloud-based tools and services that are interconnected with a range of existing solutions, partner offerings and a community of marketplaces, GV Media Universe will revolutionize the way you think about making media.

Grass Valley's GV AMPP, the Agile Media Processing Platform is the core enabling technology of the GV Media Universe. GV AMPP is the first cloud-based SaaS platform for broadcast to fully leverage the power of elastic compute. Built for the cloud from the start, GV AMPP is specifically designed to overcome broadcasters' long-time reliance on costly and inflexible hardware-based media systems. Using nothing more than a browser on a laptop, this revolutionary platform empowers you with unprecedented flexibility

to spin up or spin down applications as needed — and to only pay for the services you use — even in traditionally costly live production environments.

The true beauty of this game-changing platform is the modular nature of the functions it supports. Specific workflow functions run on the GV AMPP platform as modules, or solutions, which are constructed from a wide range of microservices.

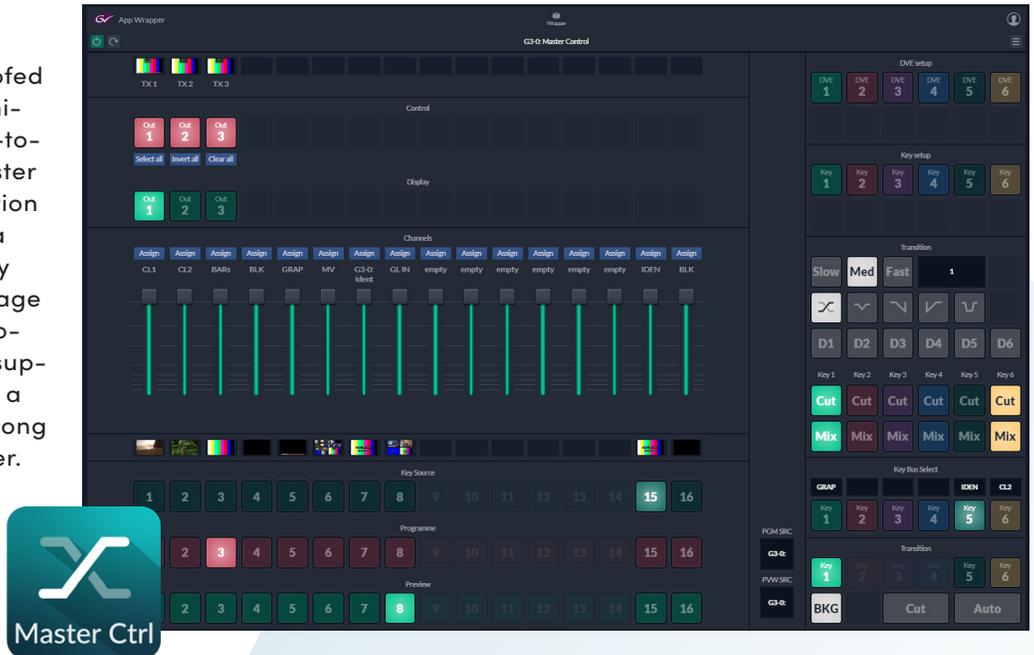
GV AMPP Applications

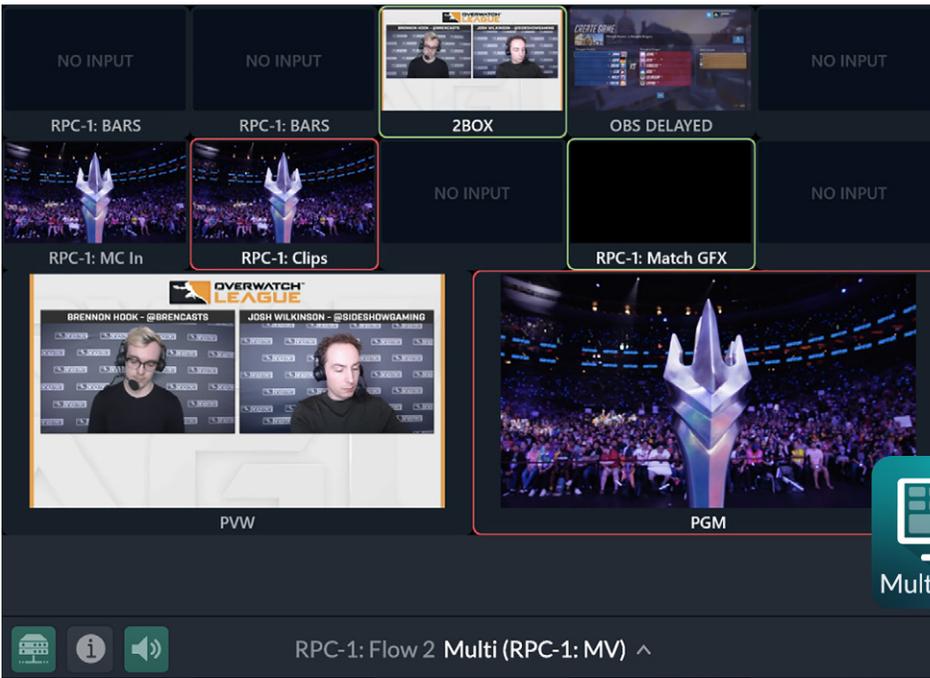
GV AMPP deploys its powerful capabilities with a series of applications that can take on nearly any media processing demand. With GV AMPP, you can continuously add functionality to enable entirely personalized and customized workflows – and the GV AMPP application collection offers a large variety of services you need to build workflows like you are used to in a traditional broadcast station or live production environment. From simple inputs and outputs to sophisticated live master control switching, GV AMPP’s application collection gives you the granularity and customization abilities that, until now, required time-consuming and expensive in-house software development.



Master Control Switching

GV AMPP Master Control unlocks new workflows with a future-proofed solution that scales with an organization’s day-to-day or even hour-to-hour requirements. GV AMPP Master Control enables easy regionalization by driving multiple outputs from a single user interface and with only one M/E, up to 16 different language and/or branding feeds can be produced. GV AMPP Master Control supports HTML5 graphics and allows a simplified on-air feed selection along with an automatic graphics trigger.



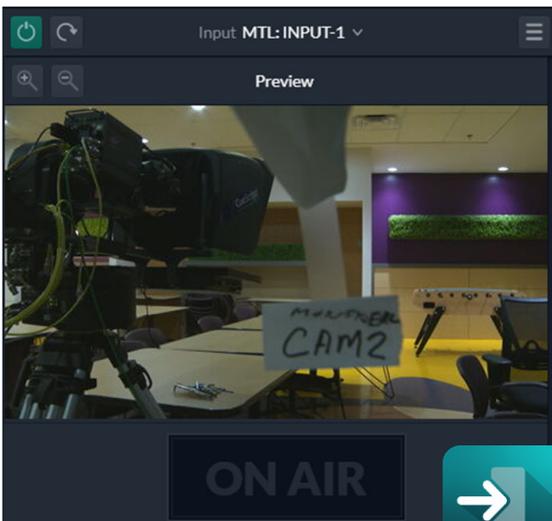
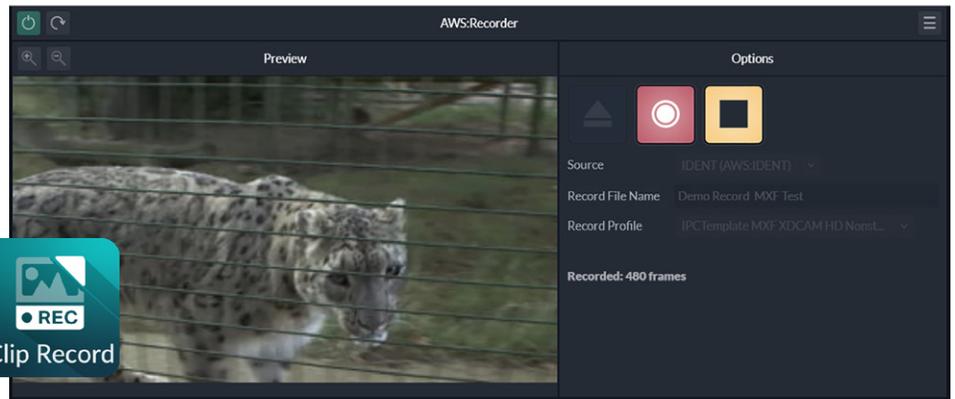


Multiviewer

The GV AMPP Multiviewer is a fully customizable multiviewer that allows you to create different layouts with a single click. Sources can be switched in seconds and the multiviewer editor enables you to create layouts in minutes. The GV AMPP Multiviewer also supports multiple formats.

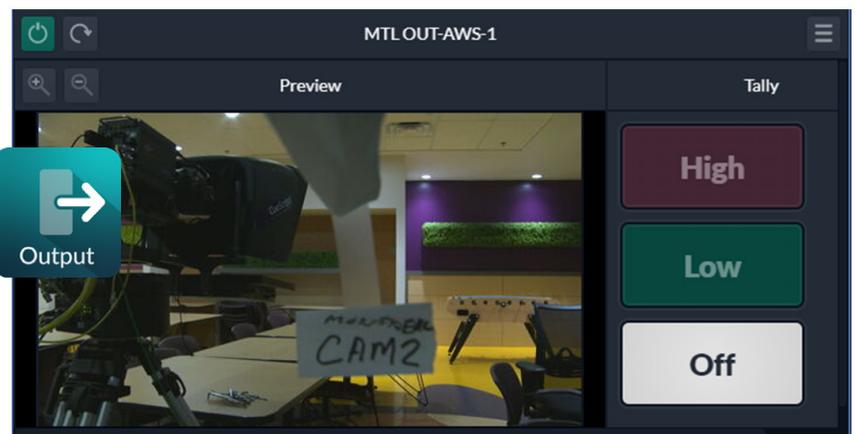
Recording

The GV AMPP Recorder allows you to record any input stream in your system with just a few mouse clicks. You have the choice of a large variety of profiles and formats and can stream to either a local disk or S3 bucket.



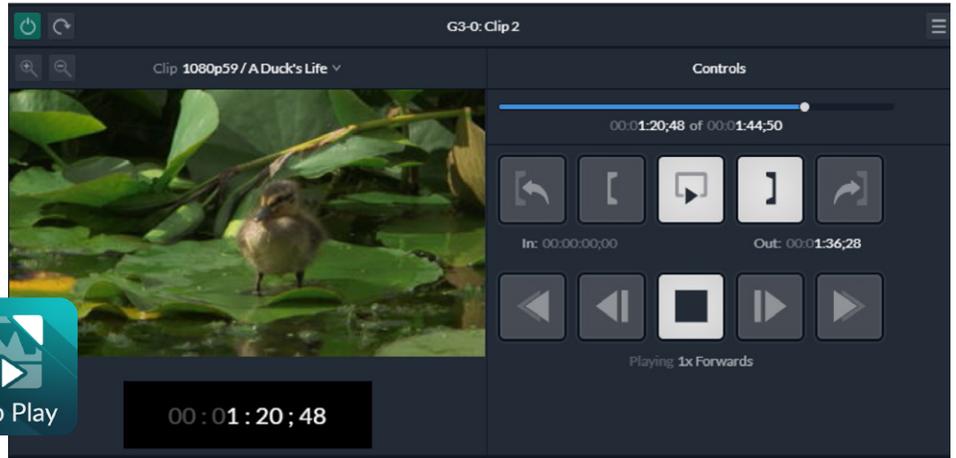
Inputs/Outputs

GV AMPP supports all common local input and output formats including SMPTE ST 2110, NDI and SDI for easy connecting to your existing devices. Global inputs and outputs allow you to stream between different GV AMPP fabrics and lets you choose the best possible transport for low-latency and high-quality streaming. Supporting RIST, ICE and SRT, GV AMPP gives you a wide variety of profiles to fit your needs.



Clip Player

The GV AMPP Clip Player allows you to perform all the tasks of a video server. Easily load, play, stop and start, jog and shuttle, loop or trim clips. You can also change formats and run simple playback with a single click, making this tool an easy-to-use application for your production.



Graphics

The GV AMPP Graphics app makes it easy to add HTML5 graphics to your production. Just build your graphics and add the link to your application. You can access it across the entire system.

GV AMPP Tools

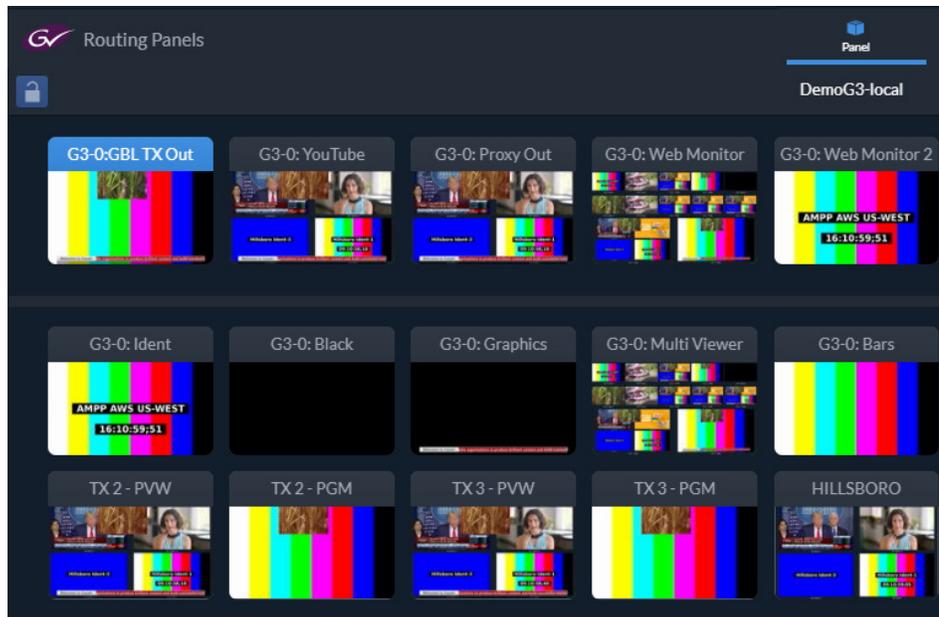
A collection of system tools to monitor, adjust and control the state of your system including resource management, routing, flow monitoring and signal testing.

Resource Manager

At the heart of these system tools is the GV AMPP Resource Manager. This tool allows you to start and stop the system and create, start and stop workloads. It also allows you to select where you want a workload to run and then track its performance.

Node Id	Node Name	Fabric	Version	State	Running Workloads	Total Workloads	VRU Usage	VRU Available	VRU Total
e520c33-ac29-4607...	demo3-0	hillsboro	1.0.0-132 [GV Engin...	Online	27	29	21%	736	1000
866576b1-3a03-4894...	866576b1-3a03-4894	hillsboro	1.0.0-121	Offline	0	0	0%	1000	1000
818330f4-074c-47d5...	818330f4-074c-47d5	QA-0	1.0.0-126	Offline	0	19	0%	1000	1000
9c47191c-030c-481a...	9c47191c-030c-481a	QA-3	1.0.0-121	Offline	0	2	0%	1000	1000
11a3d52f-1a01-4748...	11a3d52f-1a01-4748	QA-2	1.0.0-121	Offline	0	2	0%	1000	1000
6a212661-6290-4c9c...	6a212661-6290-4c9c	QA-1	1.0.0-121	Offline	0	2	0%	1000	1000
8698065-5884-41f8...	demo3-0	DemoG3-0	1.0.0-121	Online	39	39	31%	695	1000

ID	Name	Fabric	#	Package	T...	Version	Current	Desired	State	Node	...	States	Options
> 8066d8b-8c1-4a1...	G3-0_FIC	DemoG3-0		GVApp FrameCache	La...	1.0.0.25	1.0.0.25	Running	Running	demo3-0	5	1 0 0	Edit Delete
> b586382-3e2e-40...	G3-0_Ident	DemoG3-0		GVApp TestSignalGene...	La...	1.0.0.83	1.0.0.83	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 0096c369-5455-45...	G3-0_Black	DemoG3-0		GVApp TestSignalGene...	La...	1.0.0.83	1.0.0.83	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 0287865-c45-406...	G3-0_Black	DemoG3-0		GVApp TestSignalGene...	La...	1.0.0.83	1.0.0.83	Running	Running	demo3-0	5	1 0 0	Edit Delete
> a41137c-e4d0-47...	G3-0_Graphics	DemoG3-0		GVApp HTML	La...	1.0.0.60	1.0.0.60	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 83379c81d29-483...	G3-0_Split	DemoG3-0		GVApp Output	La...	1.0.0.111	1.0.0.111	Running	Running	demo3-0	5	1 0 0	Edit Delete
> e330303-8242-4b...	G3-0_Preview_Out	DemoG3-0		GVApp Output	La...	1.0.0.111	1.0.0.111	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 8434902-3927-4a...	G3-0_Multi_Viewer	DemoG3-0		GVApp MultiViewer	La...	1.0.0.82	1.0.0.82	Running	Running	demo3-0	5	1 0 0	Edit Delete
> c642029-562b-40...	G3-0_Clip_1	DemoG3-0		GVApp ClipPlayer	La...	1.0.0.85	1.0.0.85	Running	Running	demo3-0	5	1 0 0	Edit Delete
> b6129f9-8629-478...	G3-0_Clip_2	DemoG3-0		GVApp ClipPlayer	La...	1.0.0.85	1.0.0.85	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 3d8ef9f-3c4d-48a...	G3-0_Web_Monitor	DemoG3-0		GVApp FlowMonitor	La...	1.0.0.27	1.0.0.27	Running	Running	demo3-0	5	1 0 0	Edit Delete
> c251188-4894-4ef...	G3-0_Web_Monitor_2	DemoG3-0		GVApp FlowMonitor	La...	1.0.0.27	1.0.0.27	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 8a1898b-360c-47...	G3-0_Graphics_2	DemoG3-0		GVApp HTML	La...	1.0.0.60	1.0.0.60	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 78a21c1-4202-44...	G3-0_Master_Control	DemoG3-0		GVApp MasterControl	La...	1.0.0.108	1.0.0.108	Running	Running	demo3-0	5	1 0 0	Edit Delete
> a2549db-7cc-41...	G3-0_Signal_Input	DemoG3-0		GVApp Input	La...	1.0.0.98	1.0.0.98	Running	Running	demo3-0	5	1 0 0	Edit Delete
> e098664-8991-48...	G3-0_GBL_TX_Out	DemoG3-0		GVApp Output	SP	1.0.0.107	1.0.0.107	Running	Running	demo3-0	5	1 0 0	Edit Delete
> 717263d7-339c-4f3...	G3-0_Global_Signal_2	DemoG3-0		GVApp Input	La...	1.0.0.98	1.0.0.98	Running	Running	demo3-0	5	1 0 0	Edit Delete

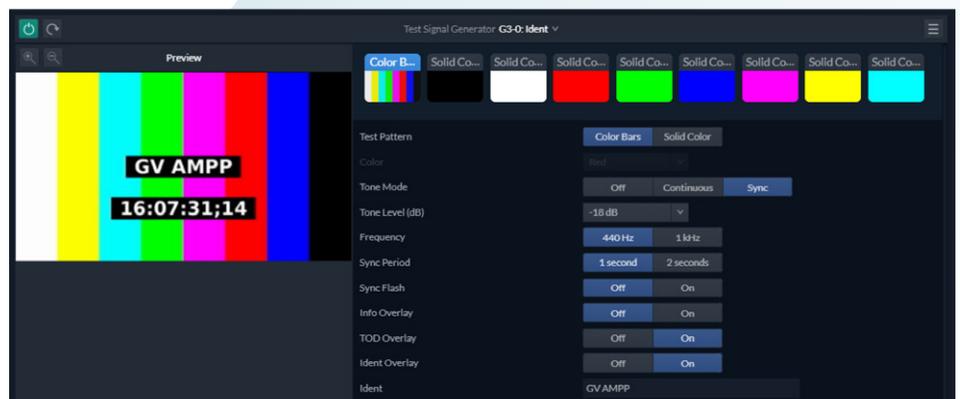


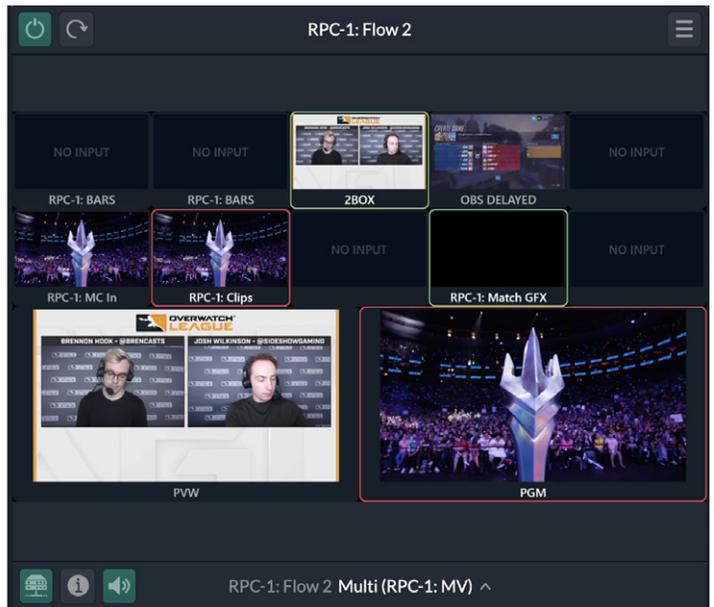
Routing Panels

With a single click you can set up GV AMPP Routing Panels and route your signals where they need to go. It automatically detects all available signals that are running on a node and makes it easy to change the view to what you want to see.

Testing

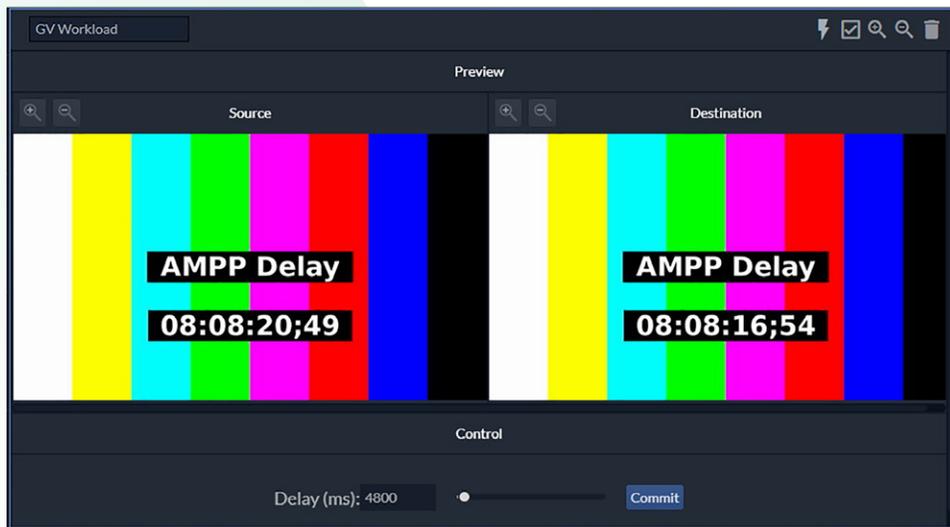
This built-in test signal generator comes with a variety of test signal parameters enabling testing across the entire fabric.





Flow Monitor

Boosted with innovative WebRTC technology, each GV AMPP Flow Monitor enables low-latency live streaming from anywhere.



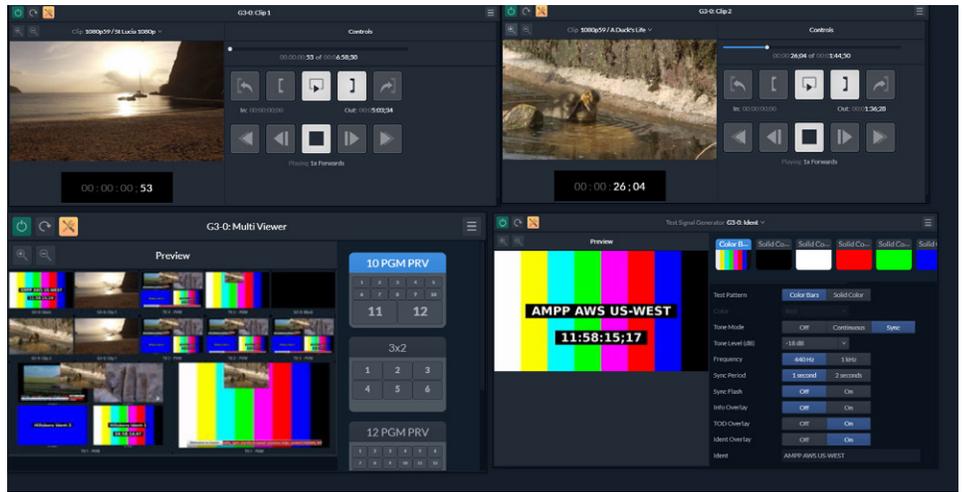
GV AMPP Delay

The GV AMPP Delay app makes it easy for you to correct any errors in your production and to delay your video and audio flows. Just route the signal you want to delay and add the delay time.

GV AMPP GV.UI

GV.UI is an intuitive user interface that can host multiple HTML5 web components for an at-a-glance view of all your GV AMPP applications. Easily define and build your own interface and then create, load and save different layouts suited for any production and user.

Depending on your screen size, you can add a multiviewer next to your master control switcher, add several clip players or simply have one GV AMPP application running on a small display.



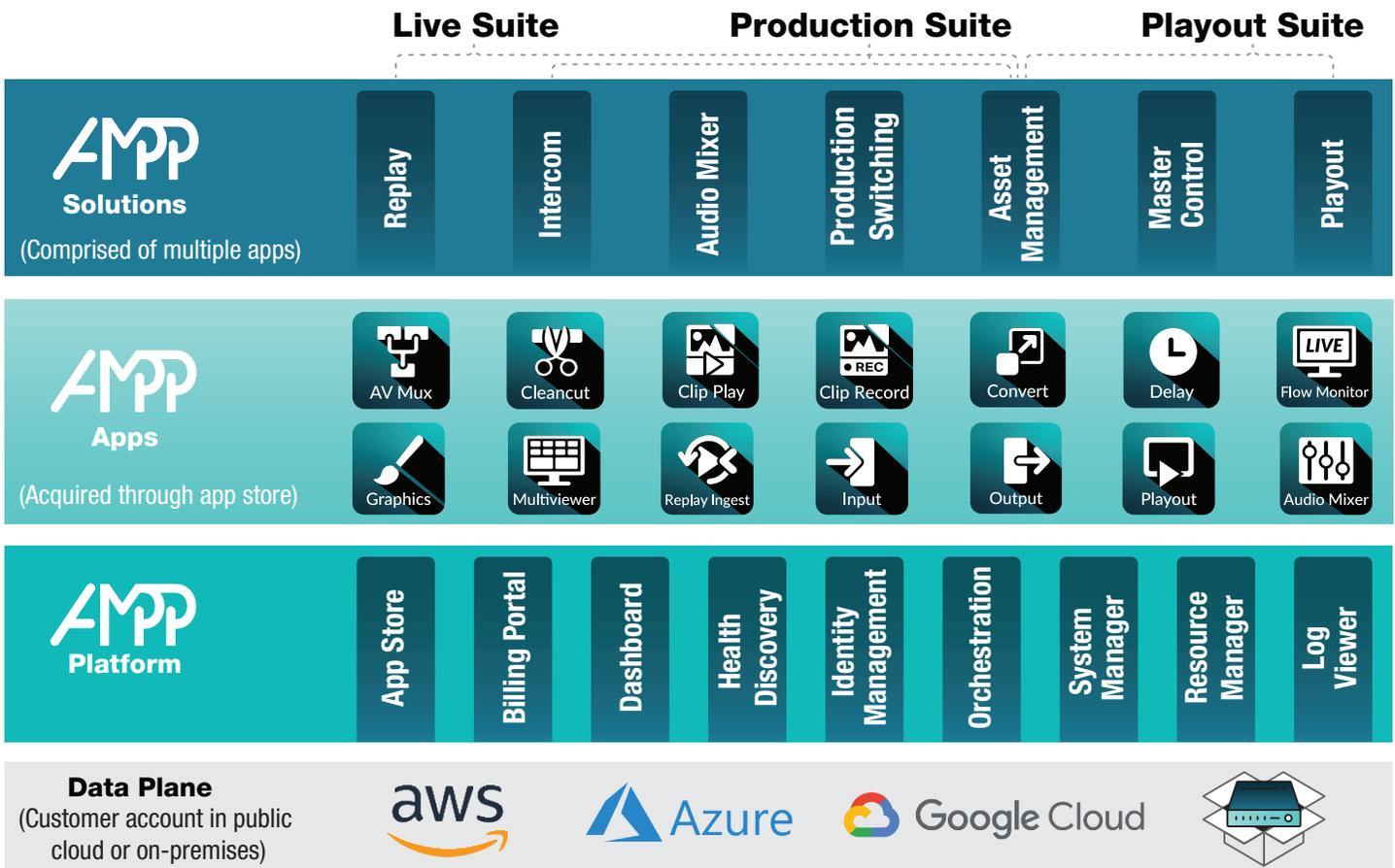
GV AMPP Stack

Independent Platform Deployment

The Agile Media Processing Platform is a fully software-based solution that runs in any data center or cloud environment. It supports a modular, efficient approach to everyday broadcast workflows such as live production, playout automation, asset management, signal processing and master switching.

GV AMPP gives broadcasters the power to easily transition to cloud- and data center-based operations because it addresses the concerns that complicate IP and cloud deployments — particularly network connectivity and latency.

GV AMPP enables easy, elastic content creation and storytelling from anywhere for any kind of live and non-live storytelling, content discovery and delivery.



Intelligent Media Technologies at a Glance

GV AMPP's architecture is based on five core technologies and 17 patented advancements

GV Intelligent Media Fabric: Unique management for distribution of digital media (video, images, audio and metadata).

GV Intelligent Media Connect: Unique management for connections between devices that distribute and process digital media (video, images, audio and metadata).

GV Intelligent Media Timing: Unique management for the timing of digital media (video, images, audio and metadata).

GV Intelligent Media Identity: Unique management the identity of connected devices that process and distribute digital media (video, images, audio and metadata) and manage the identity of the digital media (video, images, audio and metadata) itself.

GV Intelligent Media Streams: Unique management for processing digital media (video, images, audio and metadata) based on the media, itself.

Unique Software Media Processing Boosts AMPP Platform Capabilities

An extensive set of microservices and our latest software processing tools enable GV AMPP applications, file-based workflows, and streaming in real time and non-real time. The virtualization and cloud-friendly core services allow for the fastest and lowest latency on the market.

Low-latency Cloud Streaming and Monitoring

Global low-latency streaming and the ability to always choose the right mechanism is a core function of GV AMPP. Low latency is enabled with H.264, HEVC, AAC or OPUS at any bitrate with configurable FEC and support for RIST and SRT.



GV AMPP Partners

Strategic GVTA partners provide access to industry-leading solutions on a seamlessly integrated production platform, providing you with the power to create more flexible, scalable and agile workflows. Now you can focus resources on content creation rather than system configuration and maintenance.

Ordering

GV AMPP is sold as a Software as a Service model (SaaS) – please contact your Grass Valley sales representative for more details.

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

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