



**corrivium**

## Mastering Live Streams: How Corrivium Innovates for Global Impact

## At a Glance – The Players

Corrivium – Based in Sydney, Australia, Corrivium is the brainchild of founder Steve Jones, who has leveraged 15 years of extensive knowledge, technical and leadership expertise in the delivery of major live events to build a premium streaming service in the high-pressured world of real-time production.

Jones adopted the name Corrivium from the Latin meaning 'convergence of two streams' as a constant reminder that the company always uses both a primary stream and a backup stream which converge to create a cohesive single output for the audience.

Corrivium's cutting-edge streaming services are tailored to target a vast cross-section of customers ranging from global brands leaders, sports organizations, courtrooms, and government agencies. Projects include corporate live events, court hearings, parliamentary proceedings, internal Town Halls, virtual conferences, and sports competitions.

Jones has chosen to partner only with the world's leading technology providers to deliver custom-designed services based on honesty and trust and tailored for each event and audience. Because failure is not an option, Corrivium uses the industry's most advanced and dependable broadcast-grade equipment to keep virtual events live and bring amazing streaming experiences to remote viewers.

## The Challenge

Corrivium's diverse client base has one thing in common – they all need to provide high-quality, engaging, live experiences to their audiences. The Company's varied range of users requires Corrivium to work with only the most agile and scalable technology adept at pivoting from large to small projects within varying time frames and differing bandwidths.

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Explains Jones, “Annual meetings are one end of the spectrum because they traditionally operate with a modest budget. Other times we'll be working with larger-end clients producing a live event, such as a keynote, and you can imagine the pressure. Failure is not an option. Regardless of what happens, regardless of the client or magnitude of the project, it must always be on air.”

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Corrivium's platform drives feeds straight to the cloud, utilizing the power of Amazon Web Services cloud technology for reliability and the ultimate in scalability. But the live stream must be delivered to a wider audience, requiring the use of high-end AWS-Elemental encoders to accommodate any device or web page on the receiving end. The platform also enables multi-track audio that facilitates numerous languages, and multi-track captions.

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Corrivium can build a microsite to look after the client registration, or it can live stream a hundred different sessions from an event originating from numerous locations. Our platform looks after that whole space which is built on top of AWS. So, we must be able to see what's happening at each of those points. Is there a problem? Where is the problem? Is it originating from the ground encoder? The ingest point? The Amp? Or perhaps at the captioning workflow? Or is it at the media service?

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As Corrivium grew, Jones recognized the need to step up to a monitoring platform that did more than pull feeds from encoders and display them on a multiviewer.

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Most likely we'll be receiving numerous feeds, different production elements for example, or language feeds in dual regions, so we'll have two internet connections, dual encoders, and be using LiveU in the event of an Internet failure. They'll be audio mixing and overlays, insertions, lower thirds, and caption translation – all happening within AWS. These scenarios call for a sophisticated monitoring system with ultra-low latency and the highest level of accuracy.

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## The Solution

Before TAG, Corrivium's monitoring was very subjective, with 10-15 second latency. Operators would notice a problem and attempt a guess at the issue retrospectively, not really knowing what to look for.

Corrivium transitioned to TAG's Media Realtime Performance platform that provides real-time comprehensive workflow probing, monitoring and alarming, ultra-low latency multiviewing, and real-time insight to maximize data utilization. Corrivium uses the TAG system to monitor every point in the chain, from ingest when it hits, to the SRT Gateway, when it leaves the cloud-based media processing platform, at pre-caption tracks, after captioning service, and at the HLS stack.

Corrivium custom configures a multiviewer to serve as a TAG dashboard to monitor streams at each point across the primary region, and each point across the secondary region, because there are always two workflows running concurrently. One of the main jobs of the operator is to be aware of alerts.

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TAG immediately alerts us that there's an issue, with audible alerts as well, showing exactly where it is and speeding up the process. I knew that as we grew as a business with more concurrent projects, we needed a scalable, accurate and reliable monitoring solution. Our old system required too much guesswork, whereas having a TAG dashboard monitoring all the streams we are alerted to any problem immediately, and we'll know exactly where that problem is.

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The configuration, however, can easily be replicated by Corrivium if they need a similar system for a project in a different location.

Corrivium also took advantage of TAG's flexible business models, a mixture of OPEX and CAPEX. Benefiting from the best of both worlds, this mixture delivers TAG's Zer0 Friction® experience by providing the highest level of agility. The CAPEX satisfies most of the Company's needs, while the OPEX adds flexibility by allowing Corrivium to purchase licenses that can be used whenever or however they are needed, creating an environment of Zer0 Friction and allowing the Company to focus on the projects, not potential costs.



## The Results

One of the first Corrivium uses for TAG was for one of the largest Cloud Technology Events of the year, an event that featured keynotes, labs, workshops, demos, announcements and much more, all streamed to a massive audience. Across multiple sessions running concurrently, Corrivium was able to configure alarms, see alerts, and catch glitches immediately along the entire workflow.

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The TAG dashboard lite up like a Christmas tree with alerts immediately. We knew what was happening before the client, which is what we wanted. It's amazing. What we did at that event - we're now doing across the board for all our clients.

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Recently, Corrivium used TAG for its biggest event ever, which was in Japan and involved 13 concurrent rooms with 150 sessions over two days.

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We could never have monitored an event of this size without TAG.

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TAG has also served up cost-savings for Corrivium by curtailing travel and shipping expenses.

Prior to TAG, the streaming company flew considerable staff around the world to every event. Locations included: the US, Japan, Singapore, Belgium, London, Taiwan, France, India and Australia. TAG's platform now allows Corrivium to build a monitoring system within their MCR for remote monitoring and the amount of equipment shipped can sometimes fit in a single pelican case. And having more staff at the MCR enables them to scale up and do more projects.

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In the past, if I sent one of my senior team members, I'd lose them for a week, whereas now there's half a day in the rehearsal onsite with the production team, and then there might be a maximum of 6 hours live. So, I've lost them for two days versus losing them for seven. Now we can do more projects, and we can do more concurrent projects as well. TAG has allowed us to scale.

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In addition, since TAG is a cloud-native product, Corrivium can easily and quickly spin it up in another part of the world, move it to that region, and run it.

The TAG system also saves time for Corrivium as it's easier to bring in a new employee. With a little bit of training, they know what they're looking at and what it means, it's not subjective. If there is an alert it identifies the exact issue and where it is.



## Looking forward

In the near future, Corrivium is looking forward to incorporating ST 2110 as they work towards getting uncompressed video over dark fiber to their rack, encoding it with AWS Elemental encoders, and getting it to the cloud.

Jones noted that Corrivium will also be moving towards a more automated system.



Automation is our next piece of work. Every project for us is slightly different. In different locations, we use different Amazon instances, and the workflow differs depending on the client's requirements. Sometimes it's English only, no captions. Sometimes it's six or eight language tracks, and each is being captioned. We also serve clients who are 24/7 so we only need to monitor the HLS and if something happens, we'll capture the alert on the HLS feed. So, we are moving towards automating the process and leveraging TAG's capabilities to get us there.



Corrivium is also looking to increase the use of TAG's Penalty Box, especially for larger projects, or multiple projects running concurrently. The Penalty Box is a feature that allows operators to isolate and closely monitor video feeds or channels that are experiencing issues. Penalty Box will drastically reduce complexity, and the eyes-on-glass required to monitor every step of the chain in very different workflows all operating simultaneously. It will alert one operator to the specific problem in the exact workflow, instead of requiring numerous operators to monitor individual workflows.



Our focus is live, and live is a different thing. Live is high pressure. Things go wrong, and you must react quickly, and have the experience, calmness and tenacity to stop, evaluate and resolve the issues.

In the future, we want to be doing more events globally in different regions for large clients. And TAG is helping us get there. Some events can take place in multiple concurrent rooms and last for days or weeks, or end at odd hours. Our customized TAG dashboard, created for our support team, can share the load, and we couldn't do that without TAG. Monitoring with TAG is easy; and if an alert comes up you want to know about it before the client calls you, so you can say 'I know, and I'm on it'.

TAG has elevated our capabilities in the eyes of our customers. When we say we will be monitoring their event with a TAG system, it ticks a box. They're more confident. We can troubleshoot with them and walk them through possible scenarios. It smooths the conversations and gives our customers peace of mind.

