

The Tyrell logo is rendered in a bold, italicized, red sans-serif font.

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Providing leading technology  
and service solutions

A network diagram consisting of several grey dots connected by thin grey lines, forming a web-like structure.

# ABTT Interactive Live Streaming Webinar

Ian Holden & John Page

## Who are we?

Ian Holden

I am a professional sound engineer who has worked in the post-production and broadcast industry for almost 20 years. I diversified into sales where I managed several video and audio brands as well as managing a post-production studio specialising in content for social media, gaming, virtual reality, and augmented reality. I am now a Sales Account Manager for Tyrell CCT focussing on Clear-Com audio and Live Streaming in the Theatre Market.



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Hi all, my name is Ian Holden, a brief history. I am a professional sound engineer by trade and have work in a few different environments from post production including advertising and long form and I also managed a small production studio that specialised in experiential advertising, so augmented reality, virtual reality, social media, gaming and whatever we could combine to create interactive and engaging solutions for our clients. Past that, I also work in sales and I have also represented a number of audio and video brands, some notable ones being Avid Audio, JBL, Soundcraft, Studer and now, currently Clear-Com with Tyrell.

## Who are we?

John Page

Aged 11 John converted a double garage into a theatre, including 24 dimmable lighting circuits and 30 seats. Later he trained at Central School of Speech and Drama. He has toured Nationally and Internationally with Dance, Theatre, Comedy, Opera and even puppets. John has production managed the build of a number of temporary theatres and the more permanent Fugard Theatre in Cape Town. John has managed productions at the Garrick theatre the Noel Coward Theatre The Royal Opera House and the Old Vic and is a regular Production manager for Chichester Festival Theatre.



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I'm John Page I've been a production manager in both Theatre and live events for almost 25 years now, often working with Companies from India and South Africa producing work there which then tours over here and internationally.

I do a number of shows a year at Chichester, and have had the odd west end show too. At the moment I am building on the experience of overseeing the finishing and opening of the Fugard theatre in Cape Town by managing the re-occupation ..... of the Theatre Royal Drury Lane after its multi million pound refurbishment.

## About Tyrell

**Making Media Simple** – Providing Leading Technology and Service Solutions

Tyrell CCT provides turnkey solutions for the creation, manipulation, management, and delivery of digital content to the broadcast and media entertainment industries. Tyrell CCT are the official UK distributor for Clear-Com and resellers for Livestream, Telestream, Streamstar, Twizted-Design, Brightcove and Sienna.

We are specialists in providing live performance solutions and it's our expertise in live streaming that brings us here today, we would like to share your knowledge and experience with you."

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So who is Tyrell? Well we provide turnkey solutions for the creation, manipulation, management, and delivery of digital content to the broadcast and media entertainment industries. We are the official UK distributor for Clear-Com and resellers for streaming solutions such as Livestream, Telestream, Streamstar, Twizted-Design, Brightcove and Sienna. We are specialists in providing live performance solutions and it's our expertise in live streaming that brings me here to you today.



*"It will soon be possible to distribute grand opera music from transmitters placed on the stage of the Metropolitan Opera House by a radio telephone station on the roof to almost any dwelling in Greater New York and vicinity... The same applies to large cities. Church music, lectures, etc., can be spread abroad by the Radio Telephone."*



**Lee De Forest**

Father of radio and a pioneer in sound to picture.

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So today I will be discussing why we believe the next generation of theatre should be considering live streaming as a service offering for their audience and I am going to begin with a quote which I'll let you read rather than say it out loud mainly because it's a bit of a mouthful!

Now this quote was said 113 years ago and since then we have seen massive changes in how audiences engage with live cultural experiences in theatre, cinema and live events in general.

So why is this quote relevant to live streaming?

- Currently live streaming is being dismissed as just another method of broadcasting content when it's so much more.
- When combined with other new media formats, it can be far more interactive and engaging than other traditional formats

And it kind of reminds me of so many other points in history that we felt were relatively insignificant at the time but made a huge impact.

- Mobile Phones vs pagers
- Betamax recorders
- Email vs Fax Machines
- CDs vs Vinyl
- iTunes
- Bluetooth
- Even colour TV's I mean they were nice but now we have Dolby Vision, HDR and 75" flat screens

These were all relatively innocent beginnings that have changed our lives completely. We are still in live streaming's infancy and this is why this quote resonates with me.

## Live Streaming & Video on Demand



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Now back to theatre. In 2009, the National Theatre became the first theatre company to embrace Event Cinema with the launch of NT Live . On the 1<sup>st</sup> of December this year, the National Theatre announced its own live streaming platform, \*\*National Theatre at Home. And while the National Theatre is not the 1<sup>st</sup> Theatre to embark on this journey, its notable in the sense that it signifies a definite change in the theatre market. What the National Theatre has demonstrated with their investment into the National Theatre At Home platform is that Live Streaming and Video on Demand in theatre is here to stay.

And they are not the only ones with

- Soho Theatre On Demand,
- Marquee TV,
- Shakespeare's Globe
- Digital Theatre

Live streaming enables theatres to

- Create broadcast channels that they can manage how they want
- Its this unparalleled freedom
- Decreased costs in filming technology,
- Permits theatres the ability to create high-quality content for very little investment.

From an audience's perspective, this technology provides the ability to

- Watch live streamed shows if the theatres are full
- Catch the show via VOD if they missed the original performance
- Cost savings for the aged and students
- And those that may not just not have the financial means

Live streaming is a new chapter in creativity that can never be achieved via traditional broadcast means.

## Audience Engagement

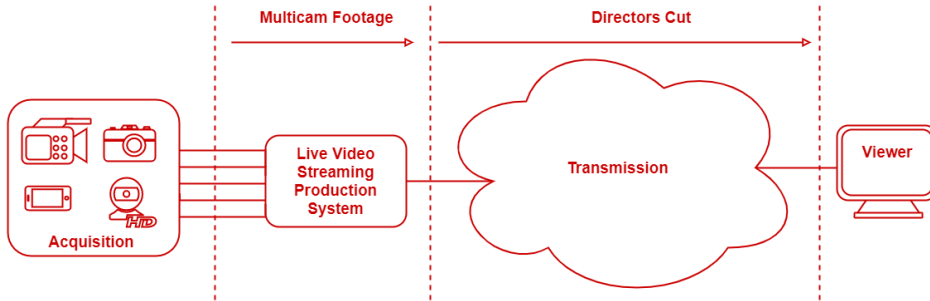
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As a theatre enthusiast, one of the most enjoyable aspects of attending a live performance was being part of the audience and the ability to look where I wanted, when I wanted, and this was an experience that I felt a traditional broadcast could simply not provide. It is missing the two key ingredients that make theatre so appealing, the audience interaction and engagement.

I have interviewed a few theatres over the last few months and one comment has stuck with me throughout, “unless live streaming was filmed with theatre in mind, the result would just come across as a badly filmed TV show”. And while there’s a lot to that statement and I will leave the technicalities of lighting and camera positioning to John, there is one truth that has never changed and that is, film and theatre differ in the sense that film is shot in the eye of the director whereas with theatre, the stage is the canvas, and the audience can focus on whatever intrigues them, whenever they want.

## Single Stream Broadcast



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For me, this directors cut, or single streamed broadcast takes away from the perceived live experience engagement of theatre.

While live streaming has opened many doors in so many ways, if packaged in the conventional way, it is

- Still nothing more than a regular broadcast
- But unlike regular TV, it does have the potential to be a lot more.

In this webinar, I want to explore how we can take advantage of new media technologies to make live streaming:

- More interactive
- More engaging
- Provides a creative tool that can be embraced by theatre professionals moving forward





## Live Streaming Benefits

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So what are the current benefits of Live Streaming? Well, the truth is it varies depending on who you ask so I'll break this down into 3 categories; Audience members, Theatres and Production Companies.

Oh and just before we get into some stats, a lot of the information I've gleaned is not just from online sources, but a very good study called From Live-To-Digital that was done for the Arts Council. You can download it for free online and I highly recommend that anybody investigating live streaming should give it a read. I found it quite enlightening. Elysia should be able to provide you the link.

## Live Streaming and Vod Benefits for the Audience

- Convenience
- More cost-effective pricing
- Embracing Technological Benefits

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So from an audience perspective a few of the benefits are:

Convenience. And this is aimed at those

- Those that may not be physically able to get to the show
- Those that are too ill to travel.
- Senior citizens

More cost-effective pricing. Qualifying members could be:

- Students,
- Senior citizens
- Or simply people who would love to watch the show, but just can't fit it into their budget.

Embracing Technological benefits

- None of the above points would not exist without the benefits of technology. The fact that most average people have a computer in their pocket with the ability to connect to anybody around the planet should not be ignored. It's a massive privilege and something that we should all be taking advantage of.

## Live Streaming and VoD Benefits for Theatres

- Providing access to those who may not be able to attend
- Serving the education sector
- Providing new experiences for audiences
- Reaching new audiences
- Providing business continuity

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From a Theatres perspective the first benefit would be

Providing access to those who may not be able to attend the performance.

- Not physically able
- Too ill to travel.
- Senior citizens
- Or for those that just live too far away or unable to attend a particular time slot.

Serving the education sector.

- Already being done and has proved to be incredibly popular.

Providing new experiences for audiences.

- Combined with other new media formats, can be manipulated in unique and interesting way.

Reaching new audiences.

- International audience
- Younger audience more comfortable with streaming technology

Providing business continuity

- Pandemics

## Live Streaming and VoD Benefits for Production Companies

- Pushing artistic boundaries
- Providing new experiences for audiences
- Reaching new audiences /expanding reach
- Engaging with technology

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From the Production Companies perspective, their benefits are very similar to theatres however I have added a few more:

Pushing artistic boundaries.

- New technologies provide new creative possibilities

Providing new experiences for audiences.

- Entices audiences to experience new experiences and methods of engagement

Reaching new audiences.

- New technologies enables new styles of story telling which can and should entice newer audiences

Engaging with technology.

- Enables a gateway into more interactive and engaging experiences

## Live Streaming Building Blocks

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Now before I get into the interactive live streaming part of this presentation, I want to go over the live streaming building blocks. I want to explain how we go from filming a performance to that image arriving on YouTube or something more complicated like NT Theatre at Home or Digital Theatre.

## Live Streaming - Acquisition



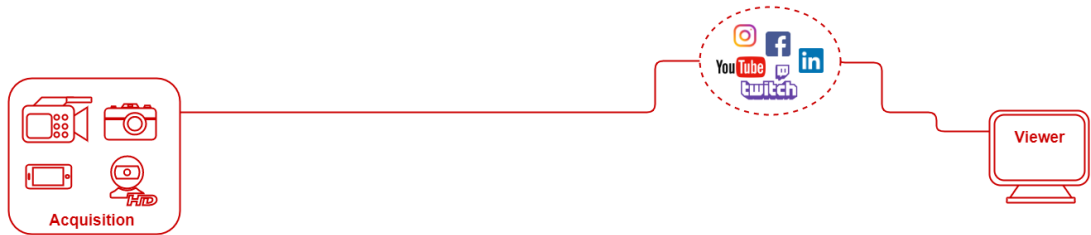
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First we start with acquisition, this is where we acquire or capture the source footage. Nowadays, this can be done via

- Camcorders
- Mobile phones
- Professional video camera's
- Or even webcams

## Live Streaming – Simple Workflow

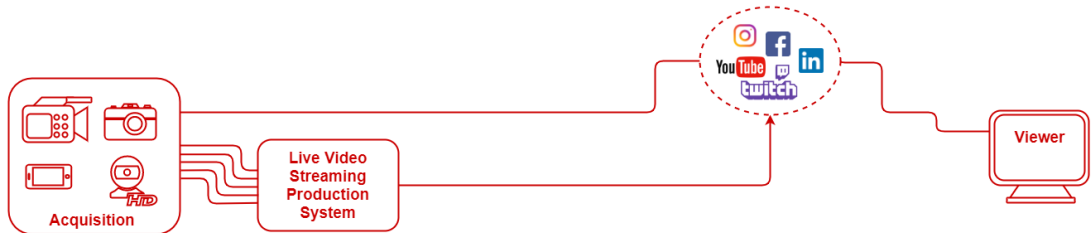


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Once the footage is captured, two things can happen, in a simple workflow with one source, it can be sent directly to a Streaming Platform like Youtube, Facebook Live, Twitch or Instagram for distribution

## Live Streaming – Hardware Encoding and Mixing



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or, in the case of multiple camera sources, they can be sent first to a

- Hardware encoder
- A Hardware encoder is a powerful computer with a powerful graphics card that enables video switching and encoding

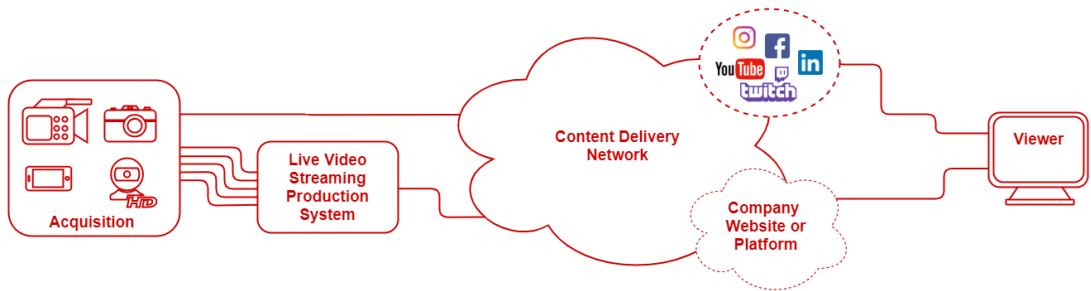
Video switching allows the director to

- Focus on individual camera feeds, or
- ISO's which stand for isolated camera feeds,

He or she will then cut these ISO's together to form a story, and then that story feed is sent to a CDN.



## Live Streaming – Streaming Platforms



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Now what is a CDN? Well it stands for Content Delivery Network

- Backbone for all the streaming platforms we know today
- Big names in this space
- AWS Cloudfront
- Akamai
- Fastly
- Limelight

Now these CDN's can host

- Free streaming platforms like Youtube, Facebook Live, Twitch or Instagram
- Host subscription-based OTT platforms like Digital Theatre and Marquee TV
- Host privately owned OTT platforms like NT at Home and Soho Theatre on Demand.

OTT by the way stands for

- over-the-top
- They are streaming services that don't require set top boxes like virgin or sky to deliver content.

So pretty much any content delivery service that's delivers content over the internet could be called OTT.

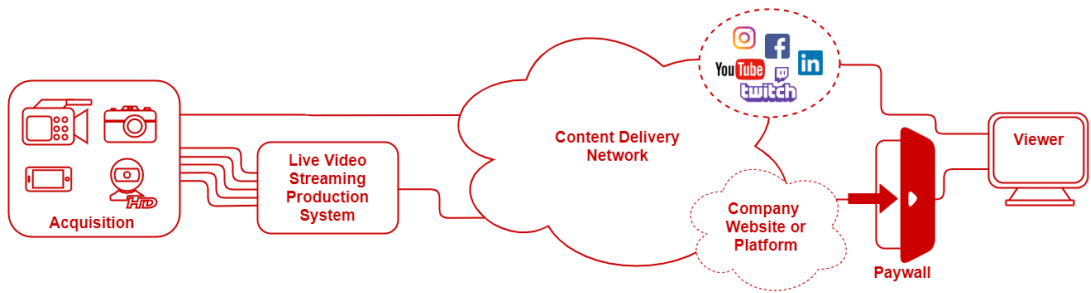
Anyway, these CDN's can contribute media in two ways, either

- Live aka live stream
- Provide access to pre-recorded media aka Video on Demand or VoD.

These services can be delivered in multiple ways, it could be via an

- HTML webpage
- a mobile app
- app developed for smart TV's

## Live Streaming – Paywalls



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Now if you are wanting to monetise your performances, which I am sure a lot do, then you will need to get a paywall.

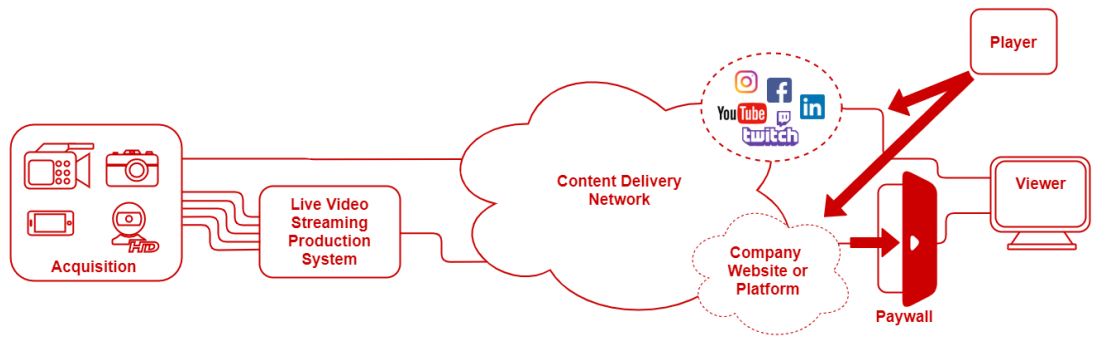
A paywall is

- Basically a door that is placed in front of your content that your audience will need to either
- Pay to unlock
- Given a code for access

Paywalls can take multiple forms

- Be included platform service
- Part of your webpage
- Or separate entities completely
  - That push your client to a microsite
  - Or separate landing page

## Live Streaming – Players



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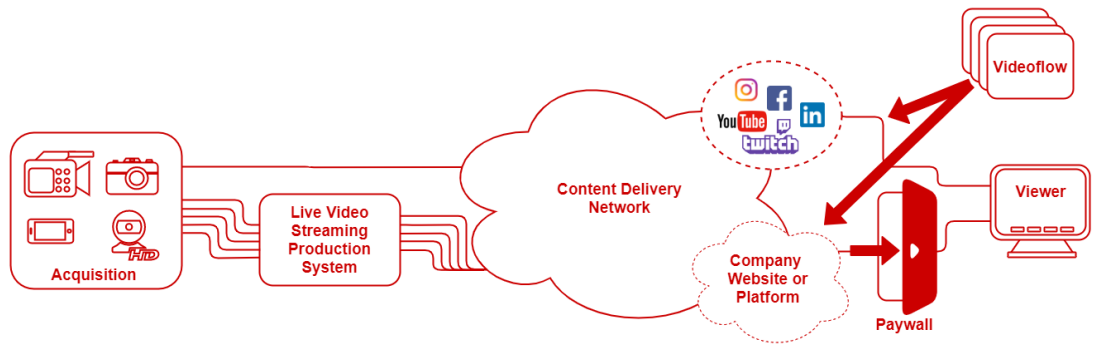
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Now it would also be remiss of me not to mention content video players as this plays a part in interactive streaming. Just because a CDN can stream content, it doesn't necessarily mean that it can be viewed, for that to happen, you need a video player and for the most part they have a YouTube looking user interface

- Standard navigation controls
- Volume
- Start stop button

Some will have the ability to choose what resolution you want to see, others use a variable bit rate (or VBR) that will analyse your bandwidth and adjust the resolution accordingly (like Netflix etc). Not all video players are created equal so a decent player can warrant quite a bit of pride on the providers behalf. Again, a player can be supplied by the CDN or it can be handled by a separate entity completely.

## Live Streaming – Video Augmentation



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And now we move onto the exciting bit.

As you can see from the diagram, a few things have changed.

- We can now access more of those ISO streams coming out of the Live Video Streaming Production System
- We also now have multiple video players
- Overlay controls on the viewers screen

What this means, is we can now provide viewers with access to multiple streams at once, which can be manipulated in multiple ways.

These streams don't necessarily need to be video either, it could be

- Text
- Independent streams of audio
- Social media

And this Video Augmentation is very easy to implement

- Its just a simple overlay to a current live stream
- And it works on free streaming platforms as well

## Why is interactive important?



“unless live streaming was filmed with theatre in mind, the result would just come across as a badly filmed TV show.”



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Why is interactivity important? Well, I am going to go back to that original comment I remembered so well “unless live streaming was filmed with theatre in mind, the result would just come across as a badly filmed TV show” and David is right and ultimately its the statement that sent me on this quest.

So, what can we do to set a filmed theatre experience apart?

- Bring in the elements that has made theatre so popular
- Inject that interactivity that nurtures engagement

Otherwise there really no difference, and we can't really expect live streaming to be any more than just another method of broadcast. Granted, its an incredibly flexible method but your end product would still just be that badly filmed TV show. It needs something more to entice and engage theatre patrons.

So, lets take a look at what we can do.



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What you are going to see now, is a

- Jazz performance
- Shot from multiple angles.

We took all these

- Independent camera shots
- Streamed them in sync
- And allowed the viewer
- Choose seamlessly
- What camera angle they wanted to view
- When they wanted to

We intentionally made the

- Overlay buttons large and obvious
- Switching backwards and forwards

I have provided a link to the online demo to Elysia but please view the demo after the presentation.

<https://www.videoflow.io/output/SyZaxbDzU?unlisted=ByOMCg-PMUryYMRI-vGLr15zAgZwML>

Due to the nature of the product, there is

- No stop feature
- 3 minute performance,
- Great tune.
- Demo will only be up for 12 hours

And here we go, hopefully zoom broadcasts the video like I would hope but yeah, zoom has its moments when coming to playing video.

## Interactive Views



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Now I wish I could've played the whole song but I think the point is made.

So as you can see, this

- Interactive engagement
- Changes the experience dramatically
- Draws the viewer into the performance
- More than they would have been, by simply watching a linear streamed "directors edit".

And I am not against a directors edit at all, but the point of what we are trying to do is to

- Engage the viewer
- To become part of the experience

This is a relatively "simple" example because with some great creative story telling, these

- "independent" views
- So much more than just another camera angle of the stage.

## Interactive Views



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"Camino Fuente"

Written by Peter John Ross

©copyright littleBIGman music

Performed by Ian Ross & Peter John Ross

Camera Operators Jerod Nawrocki & Scott Spears

Gaffer - Jerod Nawrocki

Grip - Joe Fuller

Sound Recordist - Micah Jenkins

Sound Mixer - Robin Gulcher/Magnetic Studios

Clapper Loader - Mike Maletic

filmed live in ROSSLAND

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## Interactive Sets



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These individual camera views could be different scenes completely. They could be different sets where the viewer could be enticed to explore different rooms at designated times or the viewer could enter these sets at their own free will. It could be a simple way to get around elaborate set changes or it could be an elaborate Nolanesque story telling experience where multiple stories are told at once with each room bearing its own importance or significance in the story.

## Interactive Sets



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## Interactive Sets



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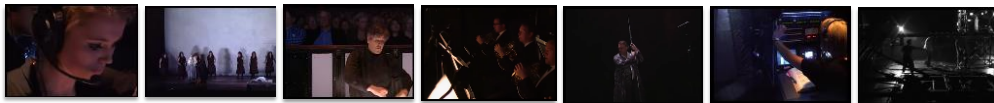
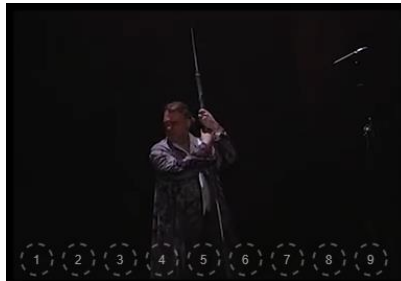
## Interactive Sets



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## Educational Initiatives



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From an educational standpoint, this augmentation offers a different set of benefits. Students will now be able to follow different members in a theatre production in real time and see how they interact with other members to create a live production. This time synced augmentation allows the viewer to not only flip between camera feeds views but also the relevant audio for that camera feed, so you can hear exactly what is going on in these productions. This provides a very unique, real world view into live production. On a side note, the images that I have used for this example were taken from the Royal Opera House. I have shared the link with Elysia who can pass it on should you wish to see it.

YouTube - <https://www.youtube.com/watch?v=stnZ-Oc3c6c>

## Unobtrusive Overlays Controls



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Now we move to the actual controls of this augmentation as I am sure many would be concerned with how obtrusive it could be. The truth is, it's up to your creativity. This augmentation can be as unobtrusive as you want, it could be a simple option added to the bottom of screen that disappears over time or it could be something a lot more obvious like we had in our example



## Custom Overlays Controls



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The augmentation could be also used as a tool to persuade the viewer to \*\*interact with the performance or just left as an option to view alternative camera views. Again, its about how creative you want to get with the engagement.

## Audience Participation



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Further to this, this augmentation could add polls or questions that would allow cast members on stage to participate with not only the audience at the live event but also those watching, this could be a simple

- Yes or no question (In this case it was Quiz by James Graham)

## Audience Participation



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- A multi choice for a game show

## Audience Participation



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- Post-show discussion

## Interactive Live Streaming and VoD Benefits

- Resetting Artistic Goals
- Interactive VoD Education
- New Market Segments
- New Theatre Experience

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So what are the benefits of interactive live streaming over standard live streaming?? Well I think first and foremost, its

Resetting artistic goals

- This technology opens a level of interaction and engagement that's never been available before.
- easy to dismiss it
- with the right creative foresight
- It has massive potential

Then there's Interactive VoD Education.

- Interactivity creates a certain level of engagement that has not been realised before
- These shows can be recorded and stored on a VoD platform for future use
- And can contribute towards educational initiatives in multiple ways
- Directing
- Filming
- Lighting
- Theatre production.

New market segments are born.

- This is exciting new technology that is
- bound to attract a new breed of audience.
- Be it people that want to experience theatre in a different way or just
- people that want to experience the experience.

Its new, enticing and exciting

And this is the most exciting part for me. Creating a New Theatre Experience.

- Has potential to create an entirely new and unique theatre experience
- that compliments live theatre rather than draws away from it

- opens creative doors for innovative and experimental minds that were simply never there before



Let's use the challenge the pandemic has given us, to rethink what theatre is. Let the business challenges we have been presented with, give us an opportunity to develop a new user viewing experience and ready theatre for a new generation of viewers, and help build a business resilience for the future.



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So in closing my side of this presentation, in my LinkedIn bio I have a quote "Technology has always been something I have been extremely passionate about; I am always excited with new advancements that change the way we work and live."

Live streaming is going to change our world, it is the next big step in society. Currently Live Streaming is a \$50 billion business with forecasts that it will exceed \$185 billion by 2027 so there's no denying that it is here to stay. However while the technology is exciting, its not particularly new? And I was trying to think of a suitable analogy that would fit how I am feel about live streaming in theatre and its this:

I am not a gamer at all, my last big gaming quests ended with Nintendo's Super Mario Brothers, but I have watched with interest in how interactive gaming has evolved into this huge multi billion dollar industry it is today and I feel like we are on a similar brink with interactive live streaming for theatre. For the 1<sup>st</sup> time, people at home, on a bus or in a hospital bed can not only watch a live streamed theatre production, but they can look around, they can see the stage from uniquely different angles and if we include certain elements of social media, they could even interact with the audience and the performers. This for me is massive and has the potential to change peoples lives.

I asked to present to the ABTT because I felt I had discovered something that could truly benefit the theatre industry in new and exciting ways, especially during these incredibly trying times, however this is still just a tool, and its up to the creative minds and spirits out there to turn it into something amazing.

So as my closing comment:

"Let's use the challenge the pandemic has given us, to rethink what theatre is. Let the business challenges we have been presented with, give us an opportunity to develop a new user viewing experience and ready theatre for a new generation of viewers and help build a new business resilience for the future"

**Thank You for your time!**

**Ian Holden**  
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Thank you for your time



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