



EVOLUTION OF THE CONTROL ROOM: LEVERAGING XR, VOICE, AI & HTML-BASED GRAPHICS SOLUTIONS

#IBCACCELERATORS2024





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Production Control Room

Where the crew work their magic and make the stories happen

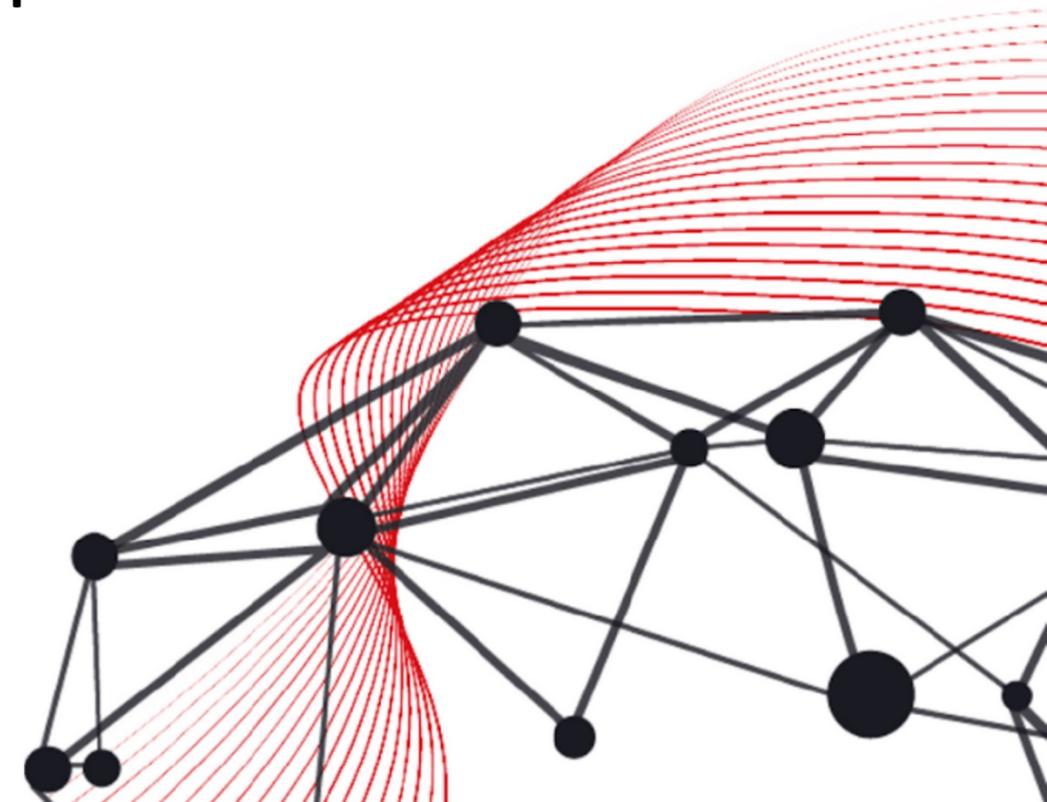
- Audience reach across a wide range of platforms
- Challenging times – do more with less
- Transform with AI & new technologies
- Enabling us to produce more
- Facilitate teams to do what they do best
- Flexibility
- More options within the production model



The media landscape has changed

Yet we still have complex legacy workflows, hardware dependencies, and a reliance on specialist skills

- **Empower** the director to realise their creative vision
- **Simplify** workflows, leveraging AI and automation
- **Flexibility** for the production crew
- **Sustainable** work practices
- **Modular** systems



2024 CHALLENGE PROPOSAL

SIMPLIFY LIVE PRODUCTION



- XR virtual workspaces
- New modalities of control leveraging **AI & Voice**
- Modular approach to **HTML**-based graphics





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The central challenge of gallery automation (indeed arguably any control room evolution) is...

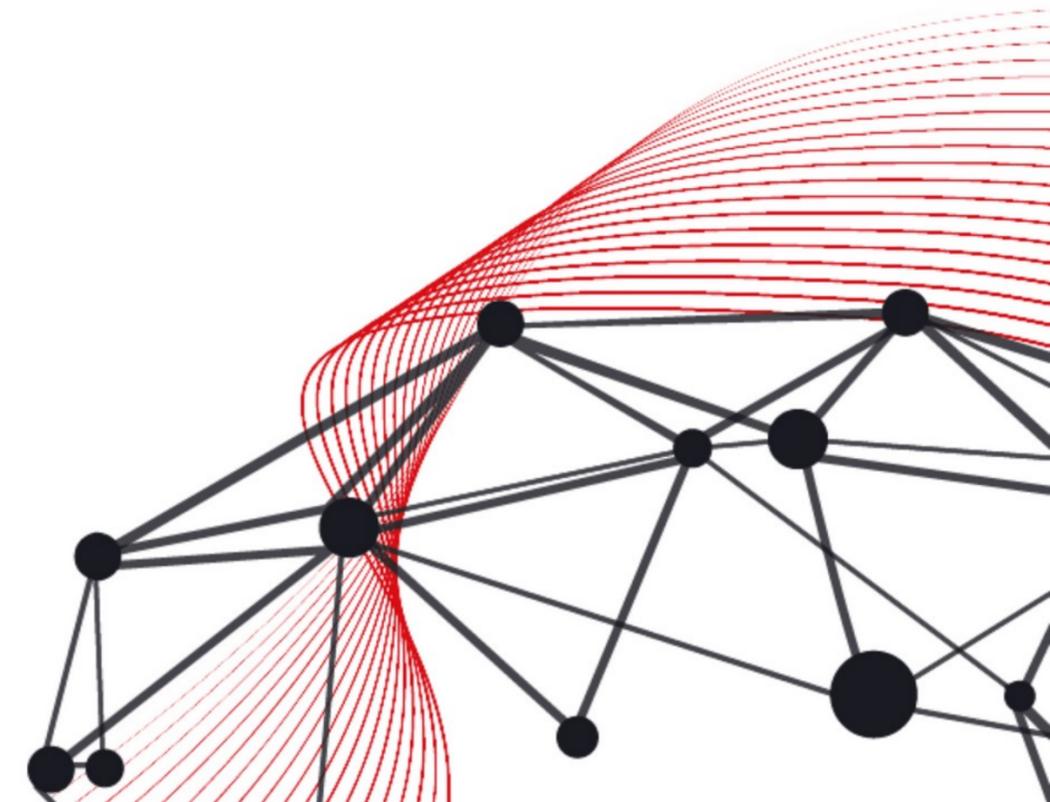
Empowering skilled operators to do more, through richer control

The two keys to unlocking this are...

Deeper device integration

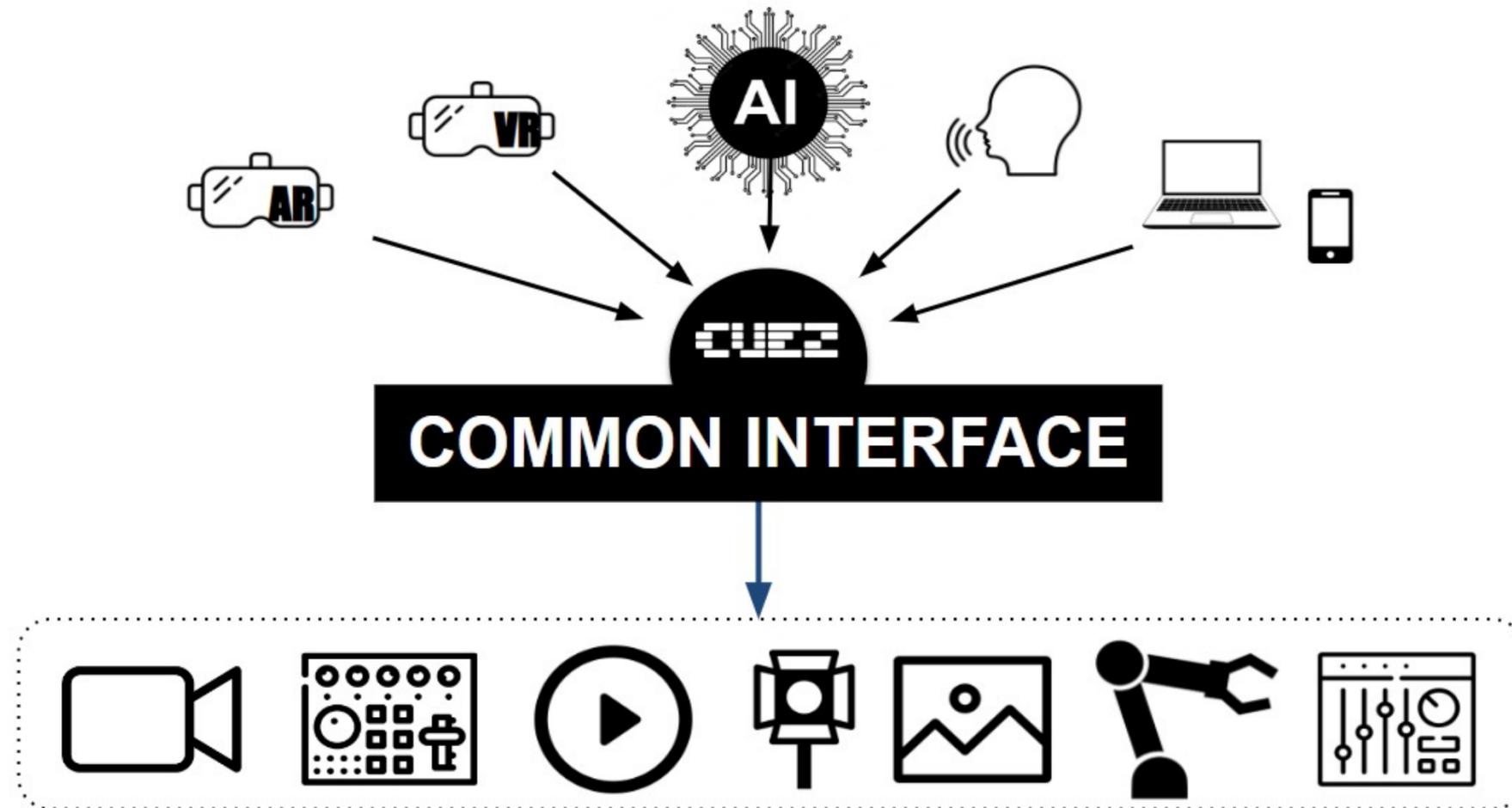
&

Smarter, flexible, user interfaces



2023 IBC Accelerator

GALLERY AGNOSTIC MEDIA PRODUCTION

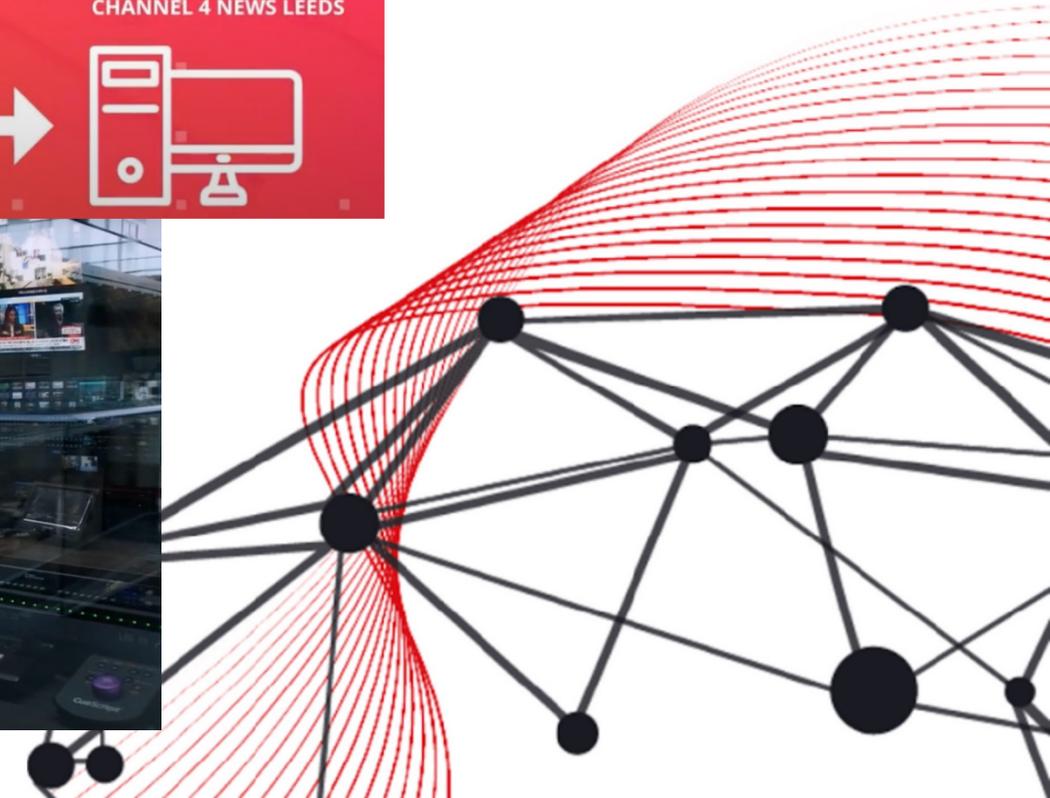
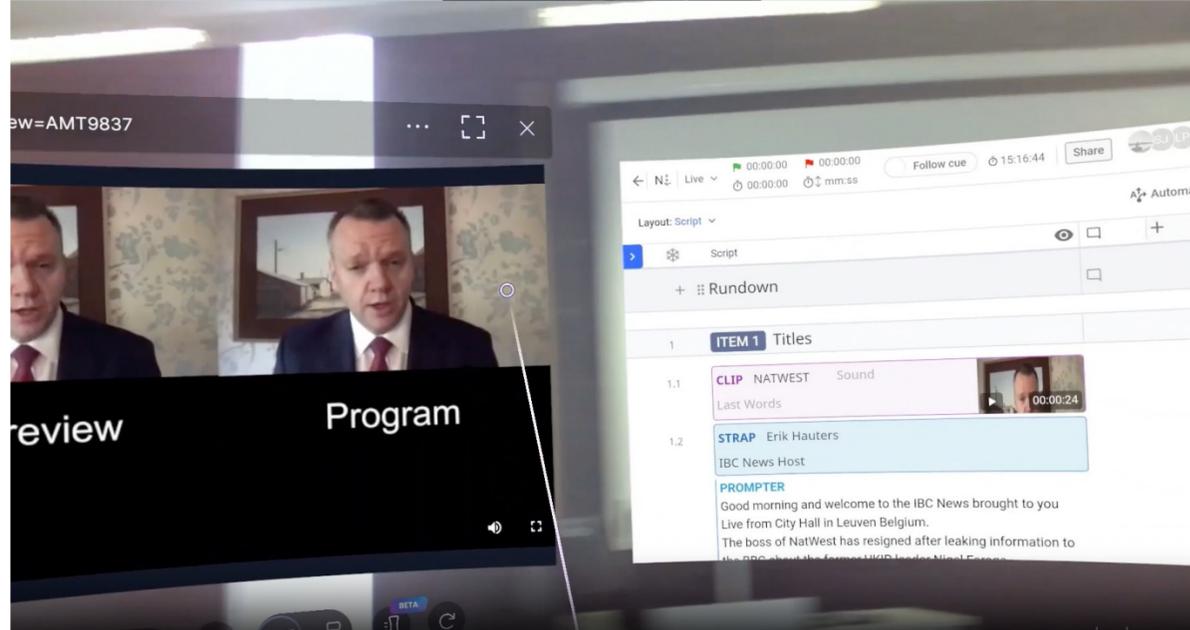
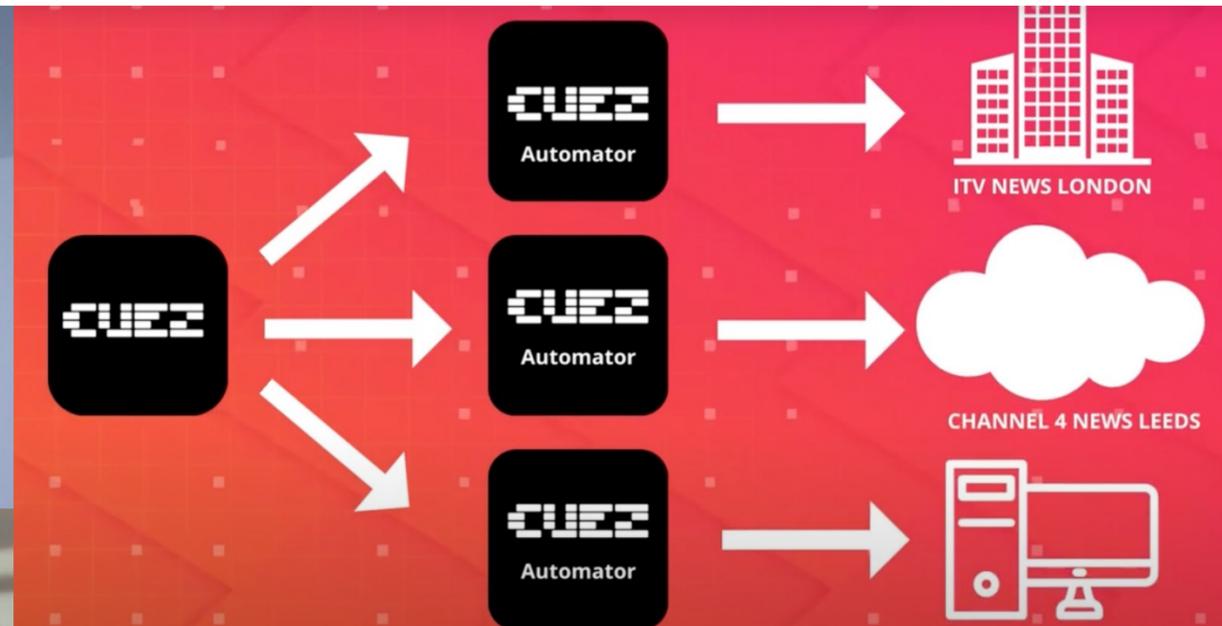


Device
Integration



2023 IBC Accelerator

GALLERY AGNOSTIC MEDIA PRODUCTION





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What have newer gallery models given us so far?



What have they taken away?



... and what might new technologies help us to now put back?



Modular HTML-based Graphics solutions

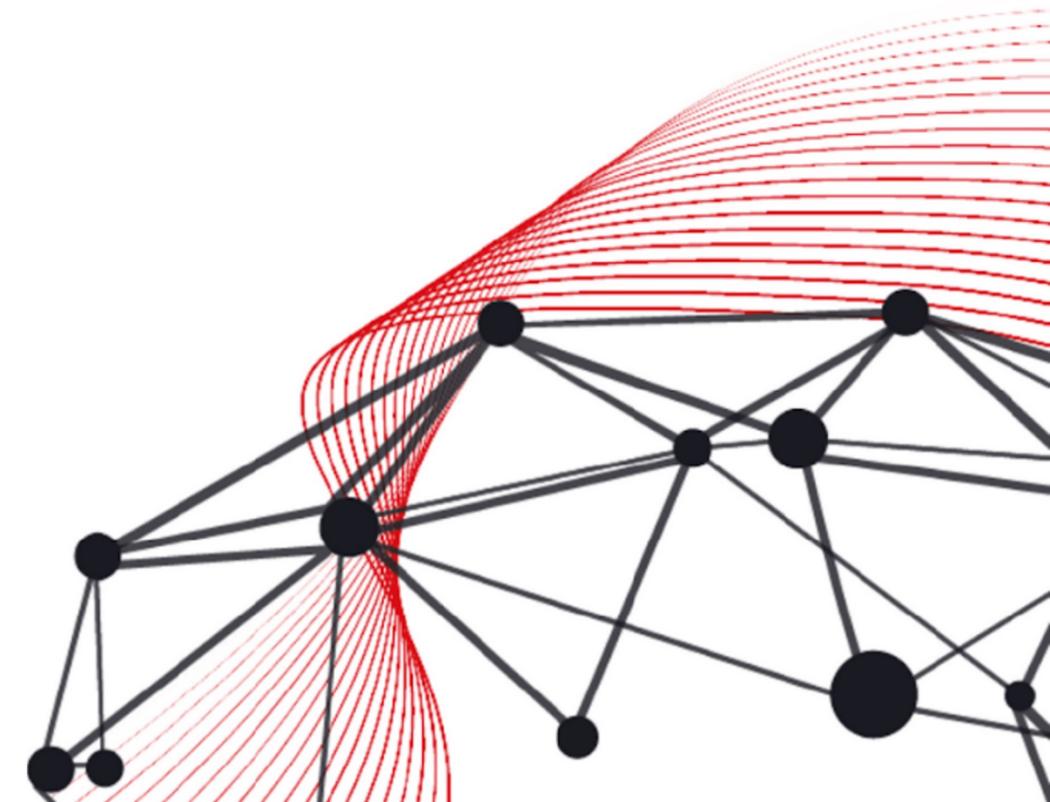
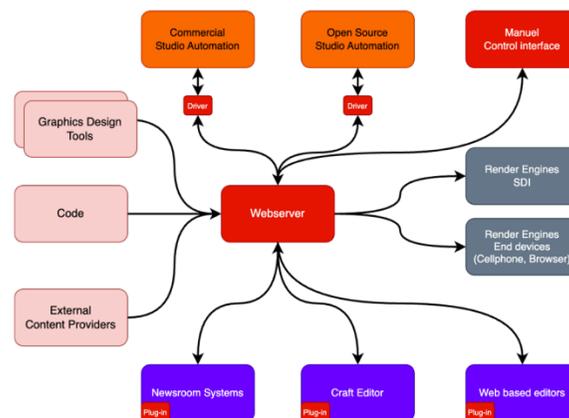


- **Why do we need a modular HTML based graphics solution?**

- Media houses publish content to multiple platforms
- Media is consumed across multiple platforms
- Multiple viewing aspects are in use
- Better support for user-controlled customization

- **How do we achieve that?**

- Open and visionary collaboration between vendors and media houses
- Use of widely accepted formats
- Break workflow apart and into interchangeable components





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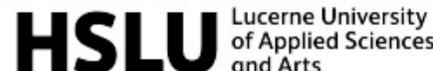
EVOLUTION OF THE CONTROL ROOM/HTML GFX

IBC INNOVATION STAGE

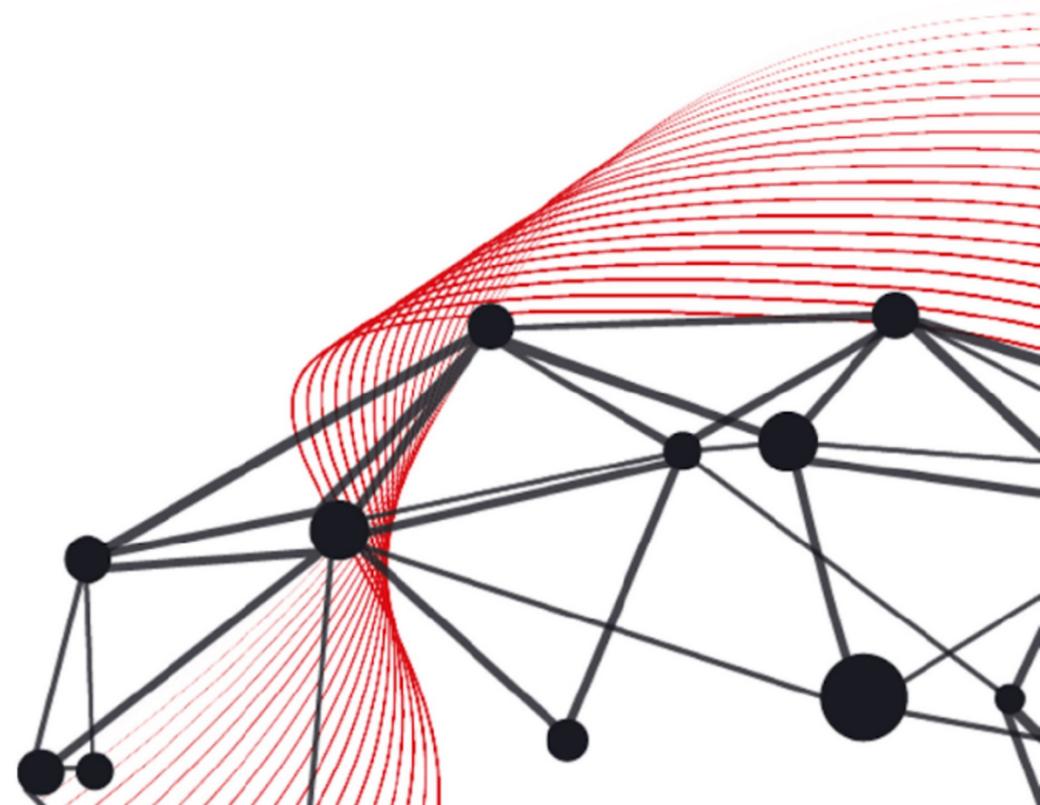
13 SEPTEMBER 14:00 - 15:00

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CHAMPIONS



PARTICIPANTS







TRANSMIXR

2023 XR Control Rooms

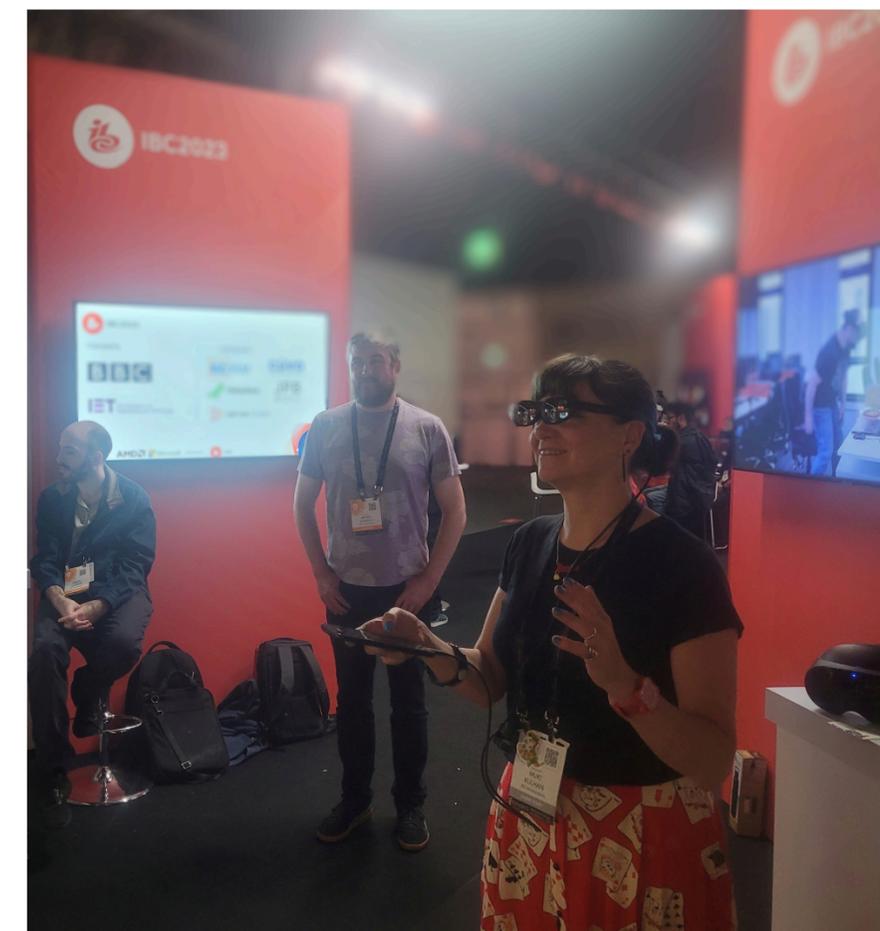
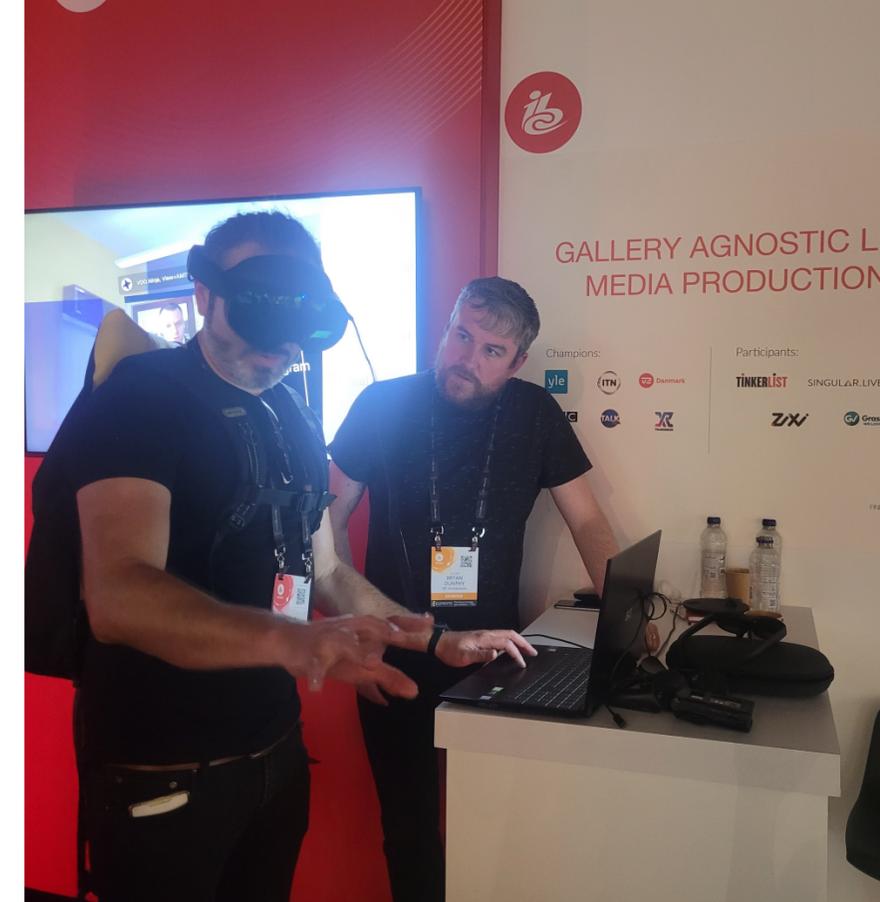
For Meta Quest, HoloLens, X-Real Glasses

TUS & TCD Survey results:

○ Virtual screens



○ Handheld controllers





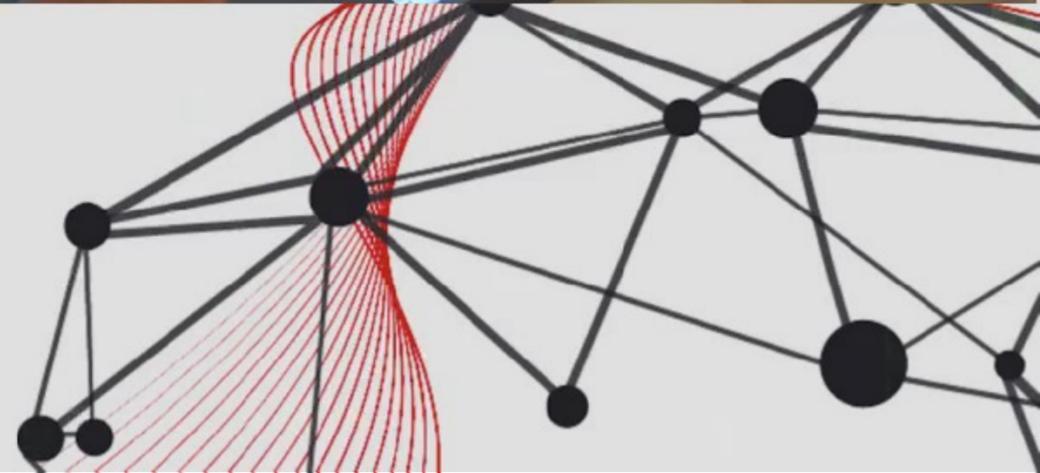
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TX OUT



METAQUEST VIEW





IBC XR Control Room

PoC from TRANSMIXR, developed in Unity 3D

An open-source project by Milan Wulf was extended to include:

- Cuez Running Order
- Cuez Automator
- TRANSMIXR Dashboard
- Storypact Editor

Features:

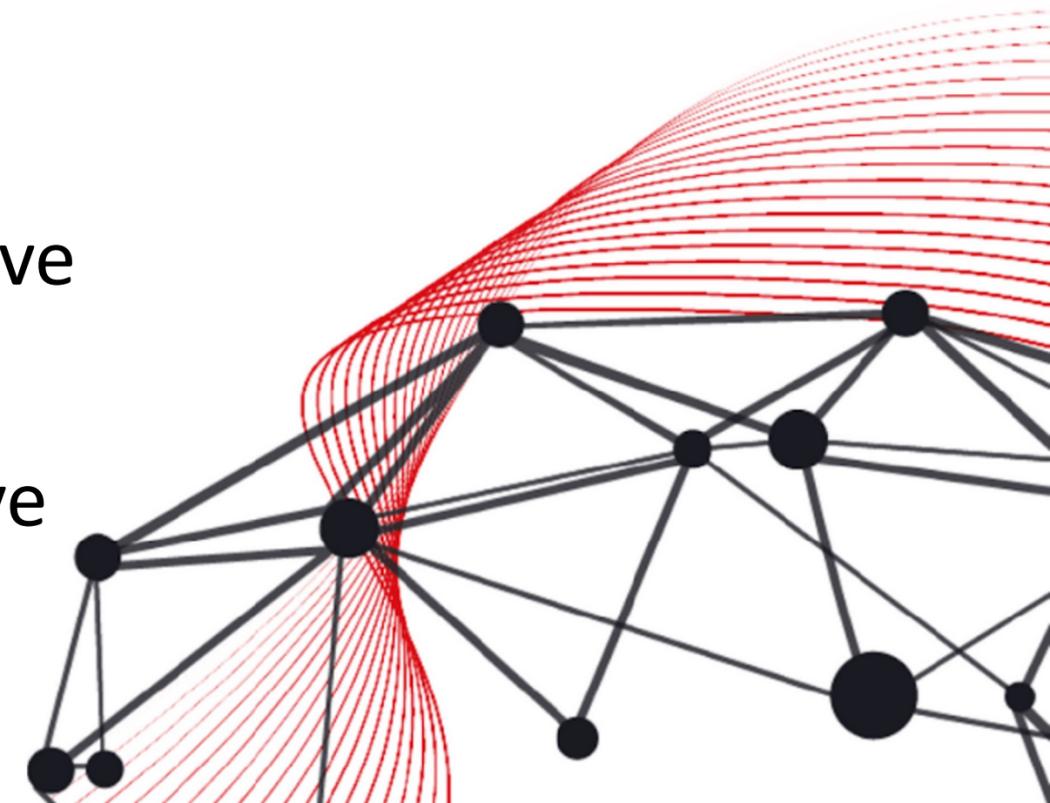
- Customisable virtual workspace
- Scalable virtual monitor stack
- Interactive screens and workstations
- Compatible with external hardware control interfaces – keyboards, touchscreens, mini-midis, etc.

Planned integrations include AI assistant, with natural language voice control, to interact with the UI and data sources.



Virtual Production...a whole new meaning

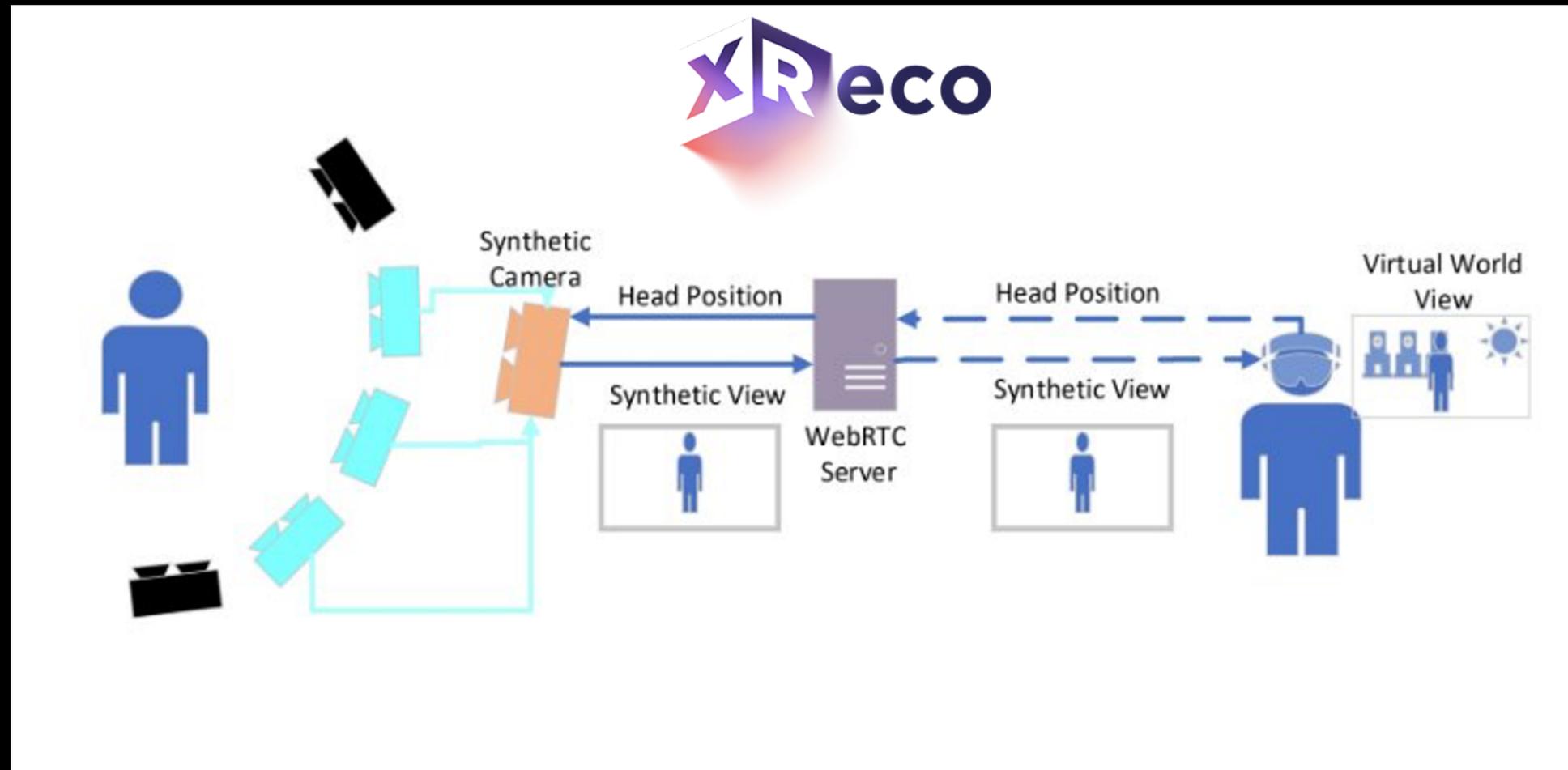
- **Virtual Studios**, with **virtual control rooms**, and innovative **volumetric video** solutions
- **No physical infrastructure**, specialist production hardware or **realtime camera-tracking**
- **Low-cost** with high production value
- **Scale-up and expand** with distributed virtual studios and live production XR solutions
- **Multi-format delivery**, including new immersive, interactive audience experiences





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Free Viewpoint Video Live RGB+D

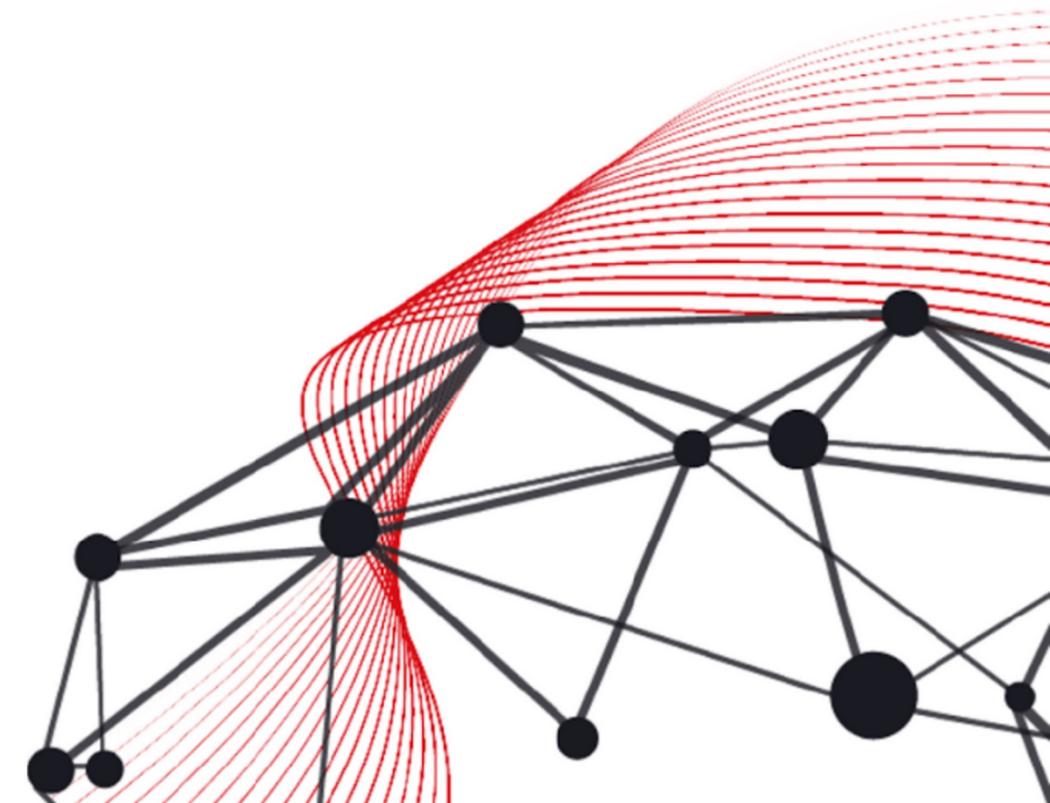




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Virtual production in Unity using Free Viewpoint Video



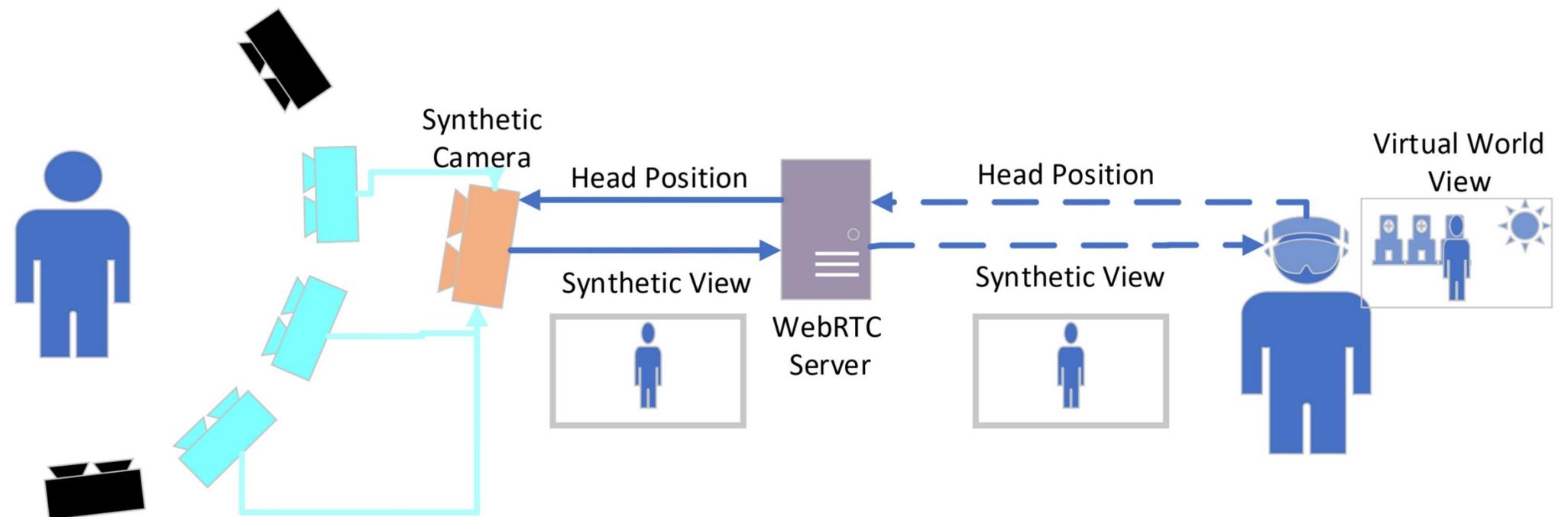
Free Viewpoint Video (FVV)

- **FVV Live** is a real-time FVV system developed by UPM
- **XReco**: Integration with virtual scenarios built on Unity
- Virtual production
 - Pre-defined smooth camera paths
 - Spontaneous camera paths



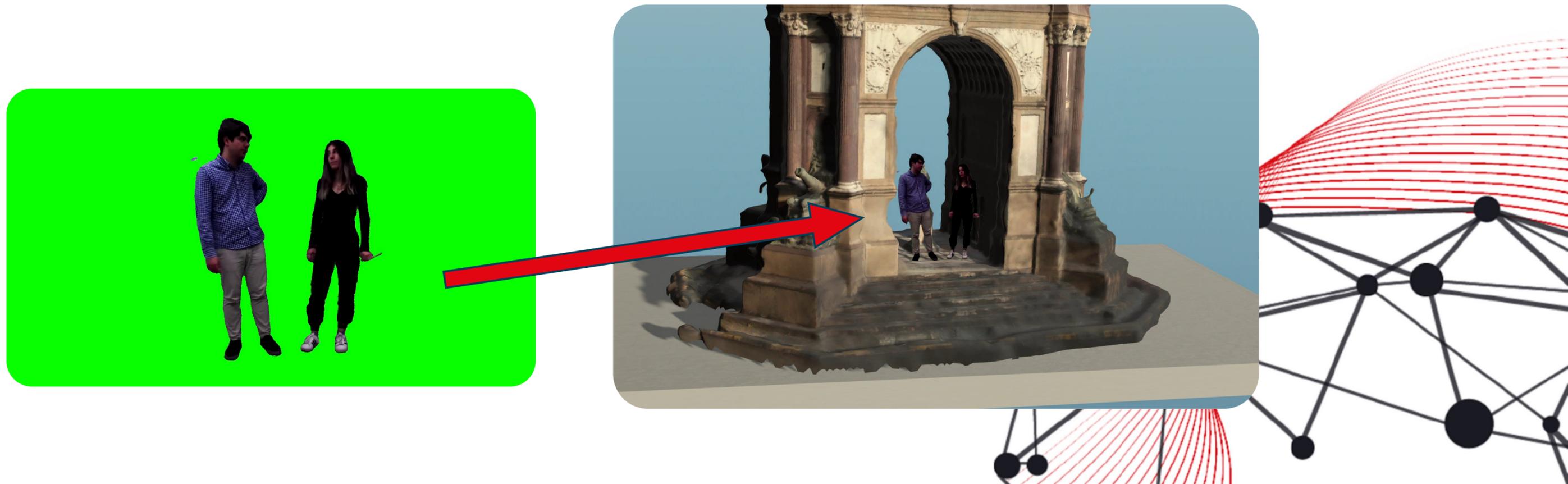
3D Human integration in Unity

- **FVV Live:** 9 Stereo cameras capture the scene (RGB+D)
- Green Screen setup to segment people
- Remote rendering approach

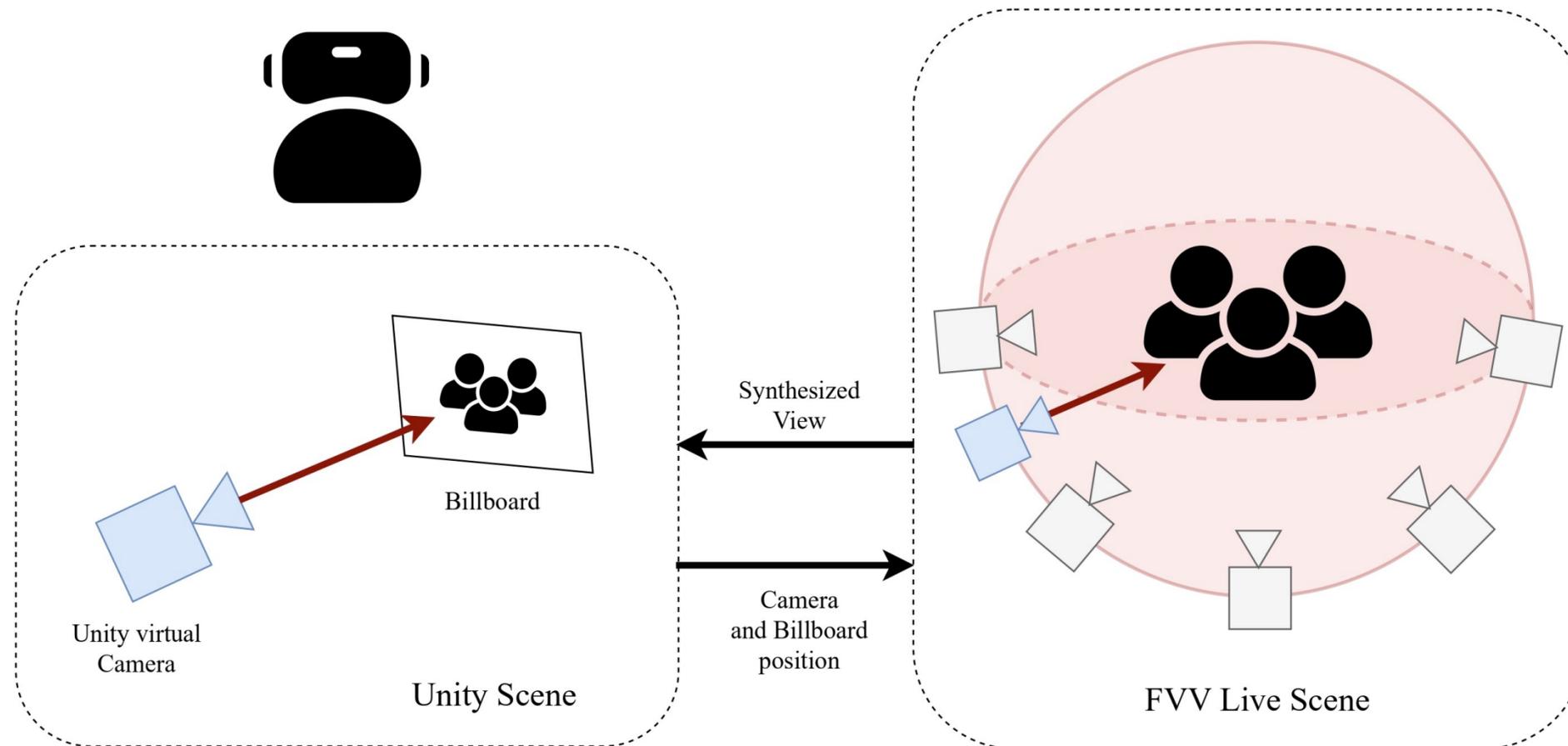


Remote rendering

- User communicates their point of view
- Synthetic views are rendered (**heavy processing**) in the server
- User only receives and plays 2D video

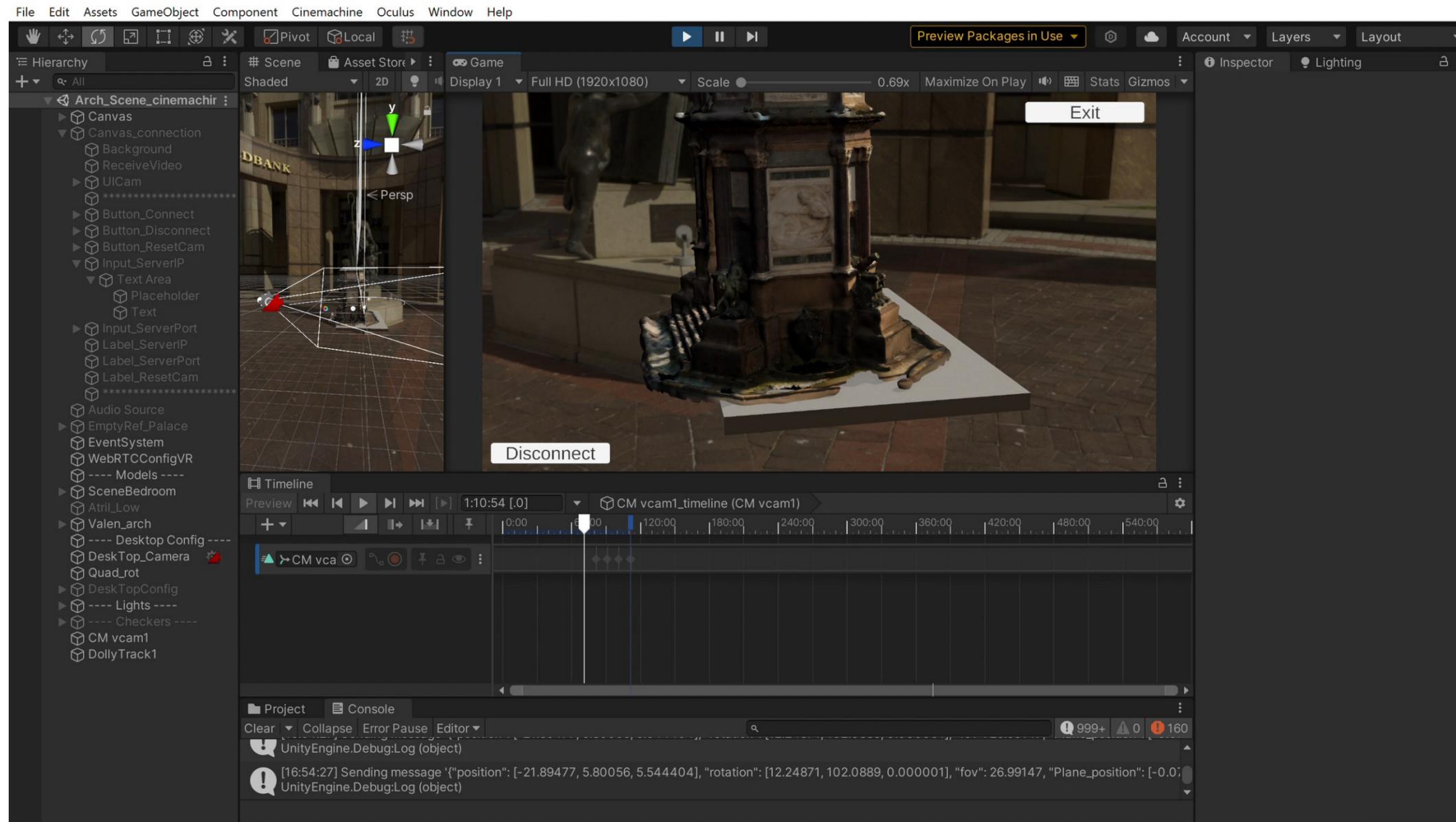


Rendering a coherent view yields volumetric sensation



- The video received is played on a billboard inside of a Unity scene
- The server takes the direction from the user to the billboard to render the virtual view

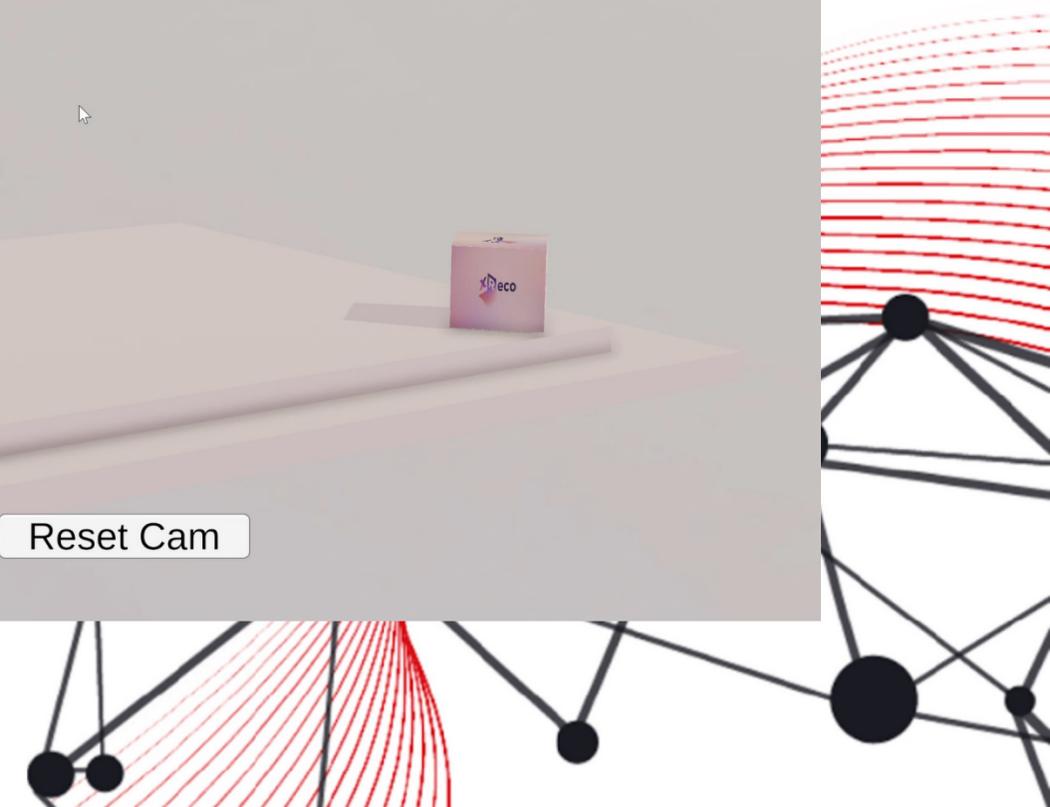
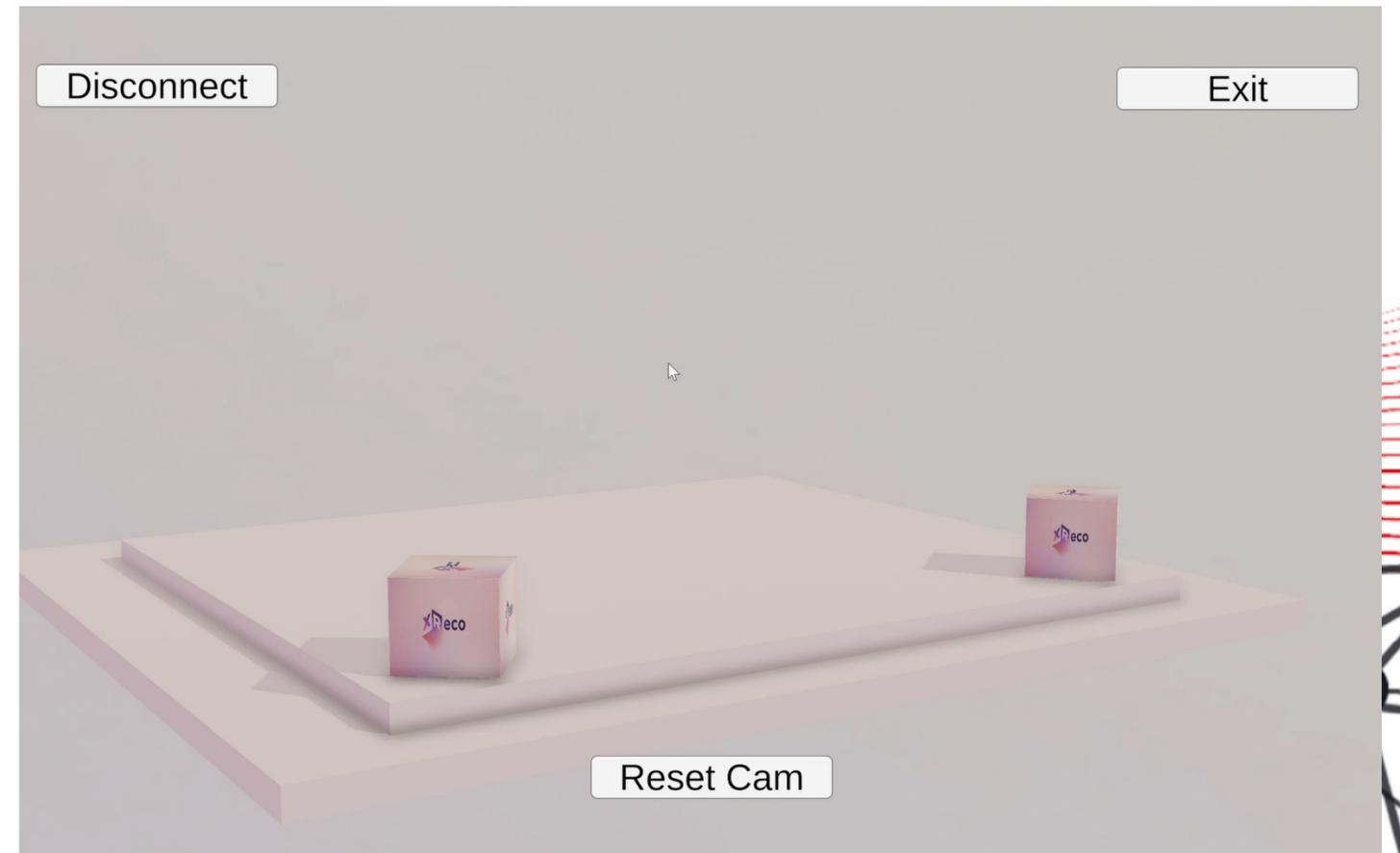
Virtual Production



Virtual Production

Pre-defined smooth camera path

Spontaneous camera path



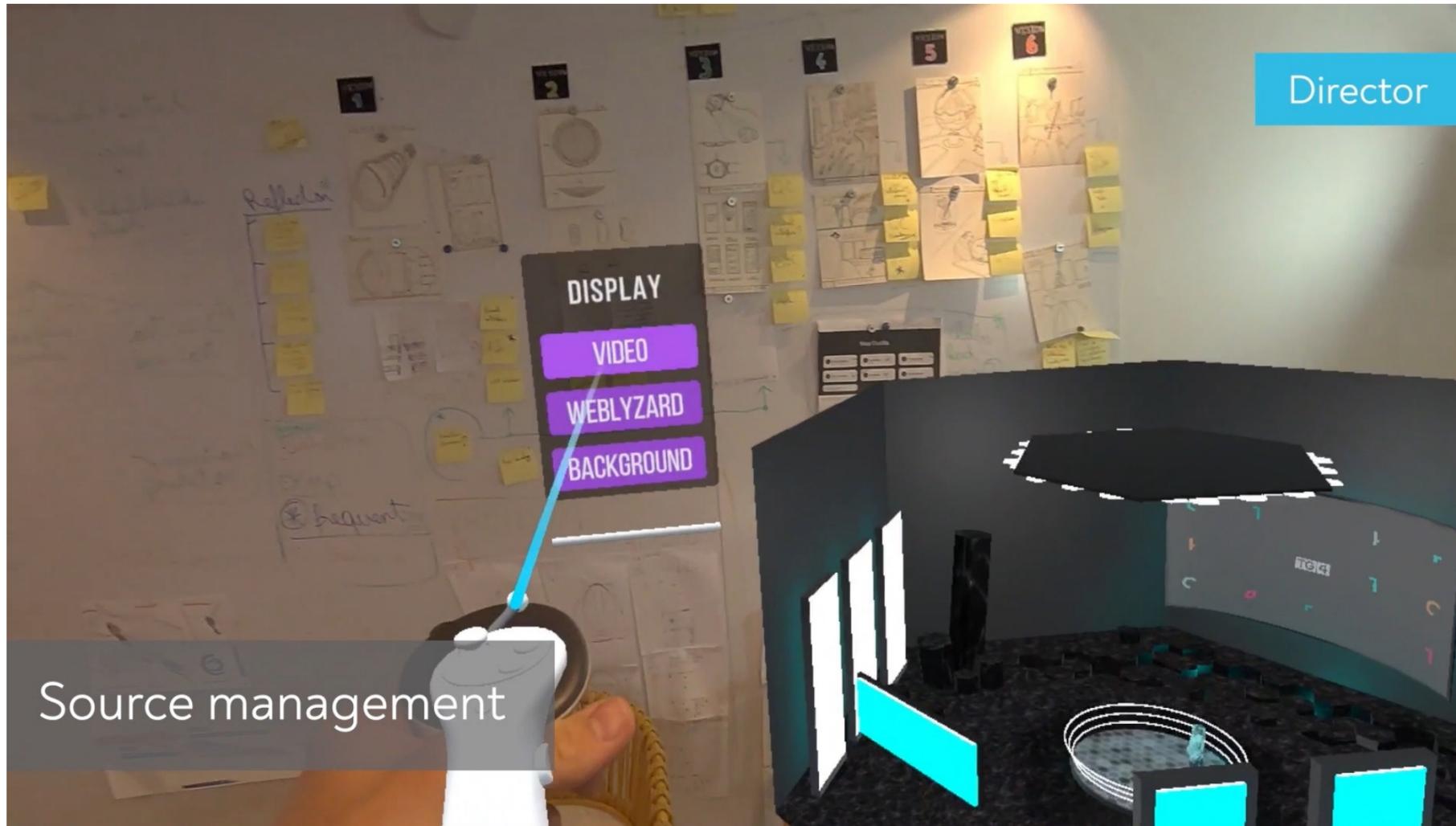


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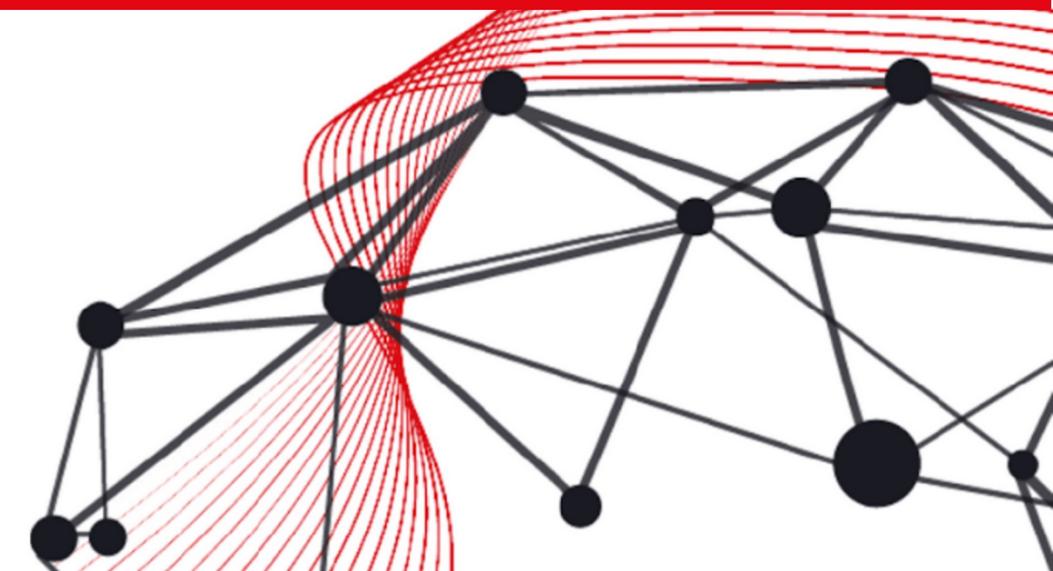
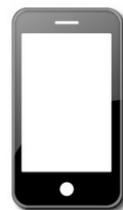
TRANSMIXR XR Studio

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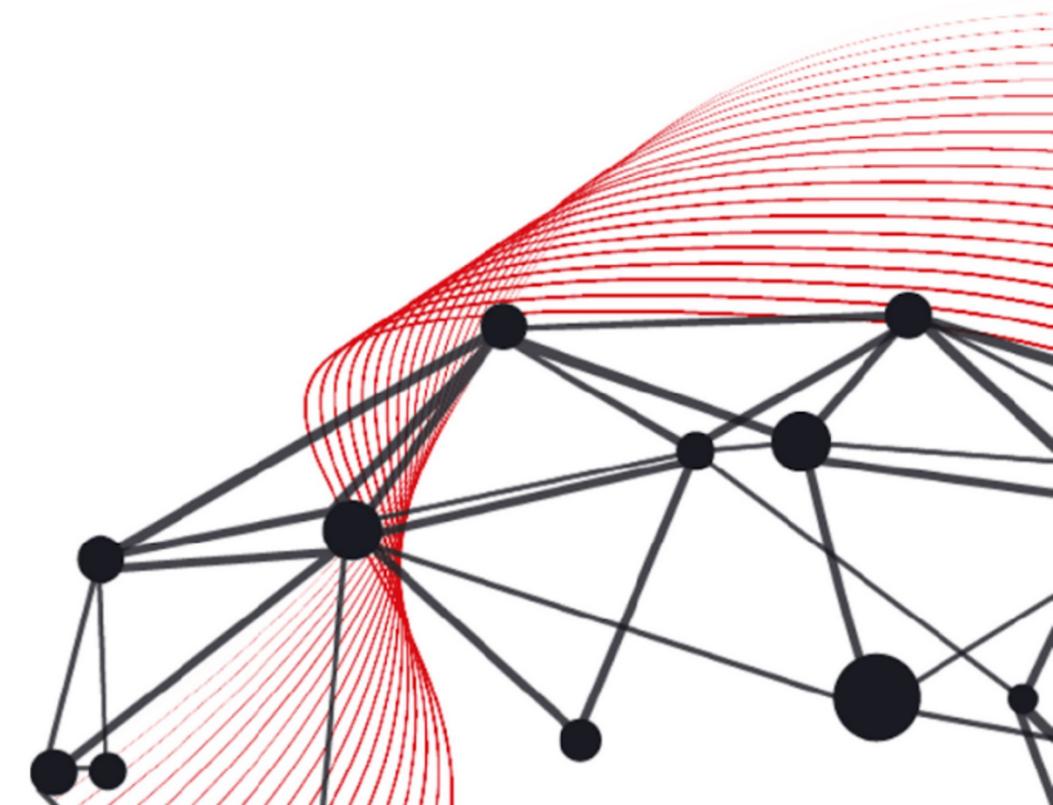
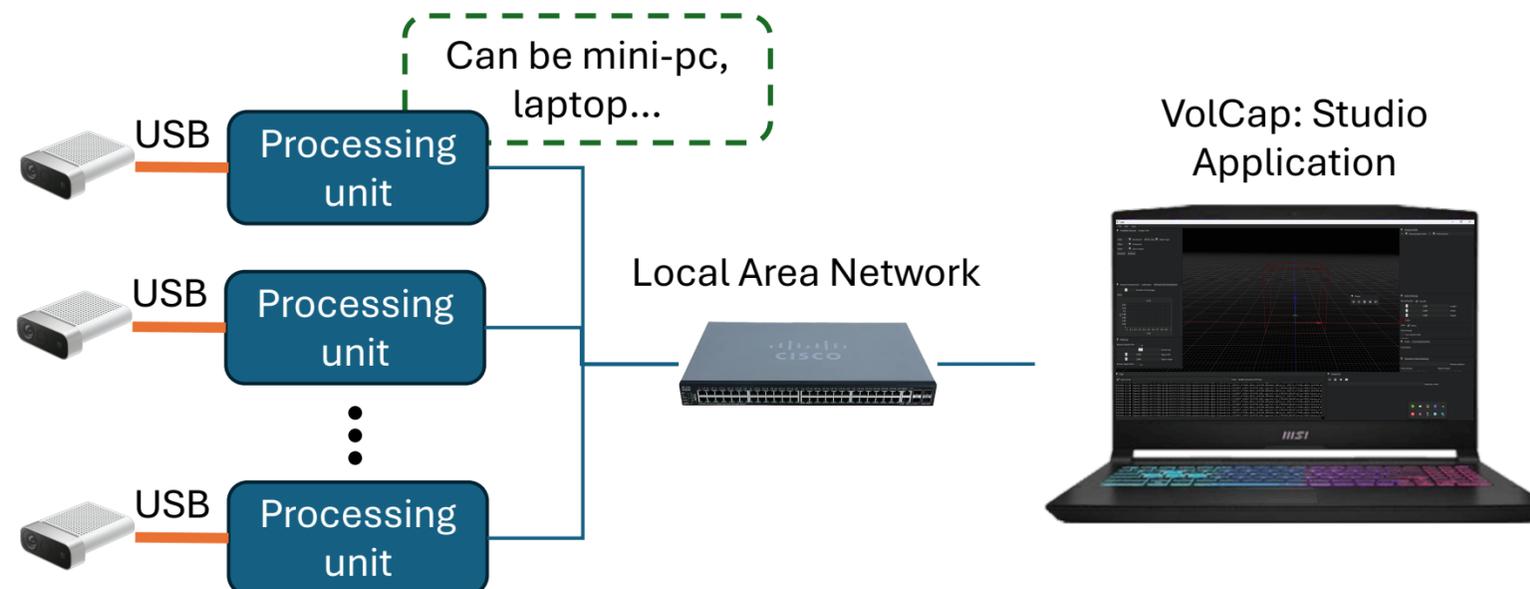
- Transform the Studio Set
- Virtual Video Walls
- Shots framed for TV and Mobile
- Virtual Cameras (invisible on output)
- No Camera-Tracking Equipment
- New XR Audience Experiences
- 6DoF and Interact with 3D Elements

LIVE



 **TRANSMIXR** Volumetric Video XR Studio

- Distributed solution
- Provides scalability
- Easy to assemble with commodity-based hardware
- Easy to use
- AI-based spatial camera calibration solution

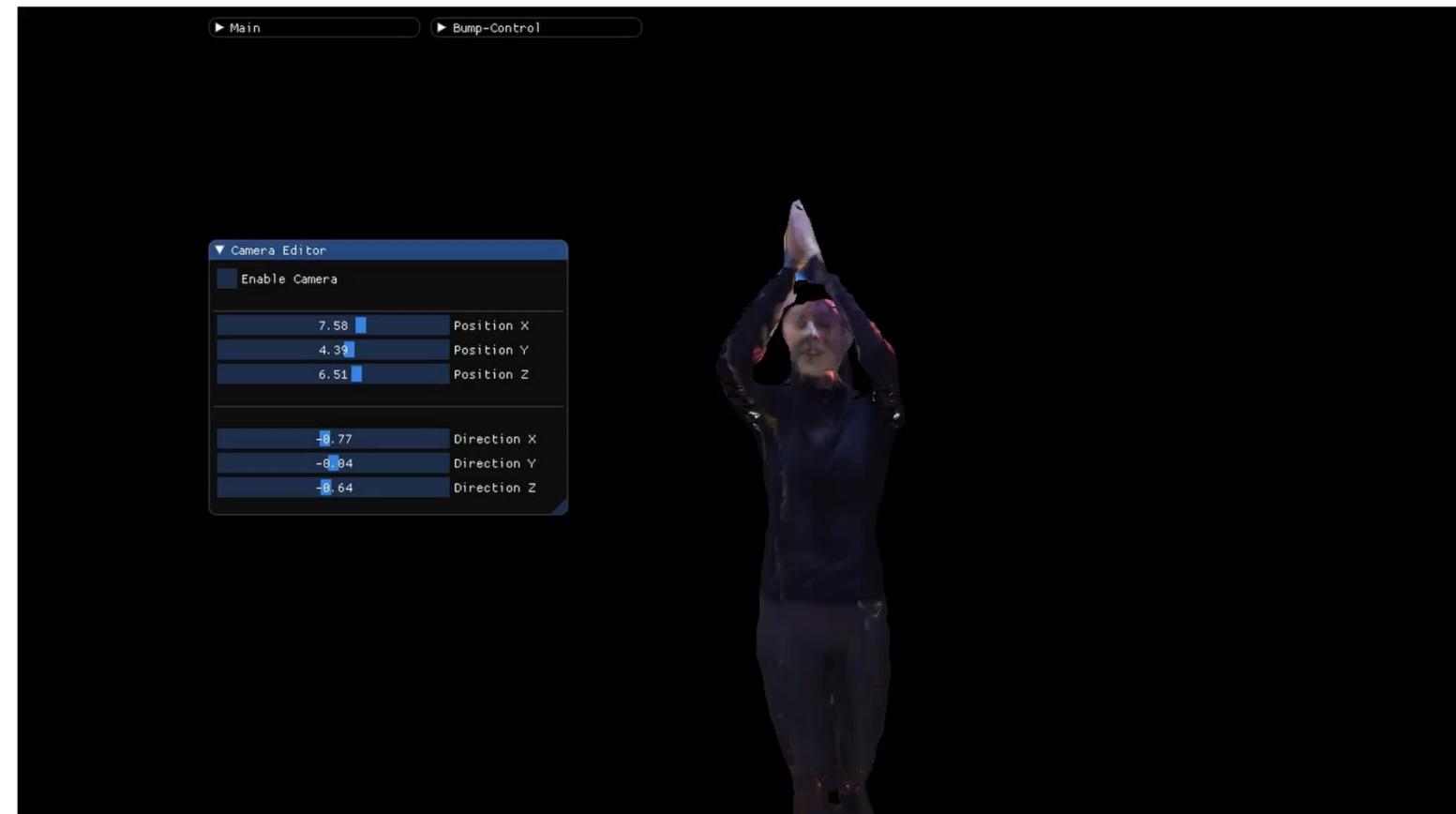


 **TRANSMIXR** Volumetric Video XR Studio

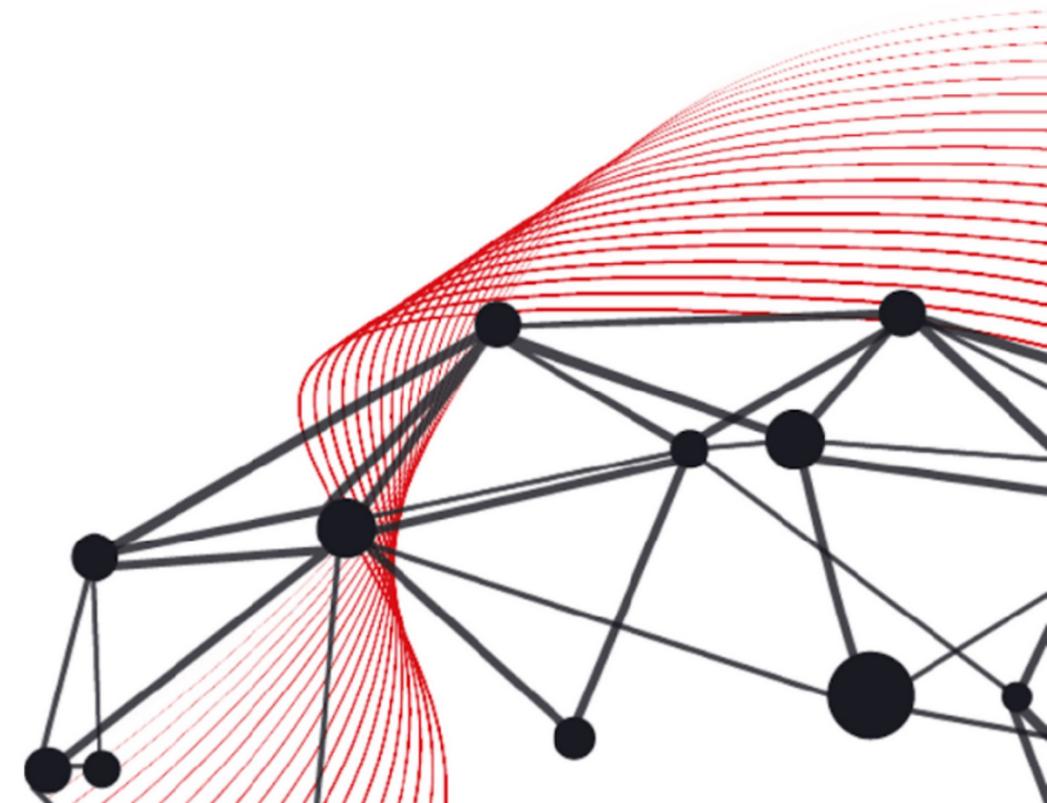
Integrated with real-time reconstruction service

Features:

- Automatic sensor discovery
- AI-based spatial sensor calibration
- Live 3D and 2D viewport
- Persistent data saving
- Volumetric data compression
- Volumetric data capturing (saving)
- Volumetric data streaming (UDP)



AI Assistant





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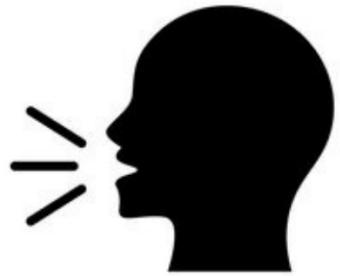
Can gallery AI co-pilots reduce complexity for operators?

Runorders are structured datasets, perfect use cases for LLMs to help us navigate



Can we train AI agents to hunt for problems?

Could this win back a lot of 'brainspace' for operators while improving output quality?



Wasn't voice always the best 'control protocol'?

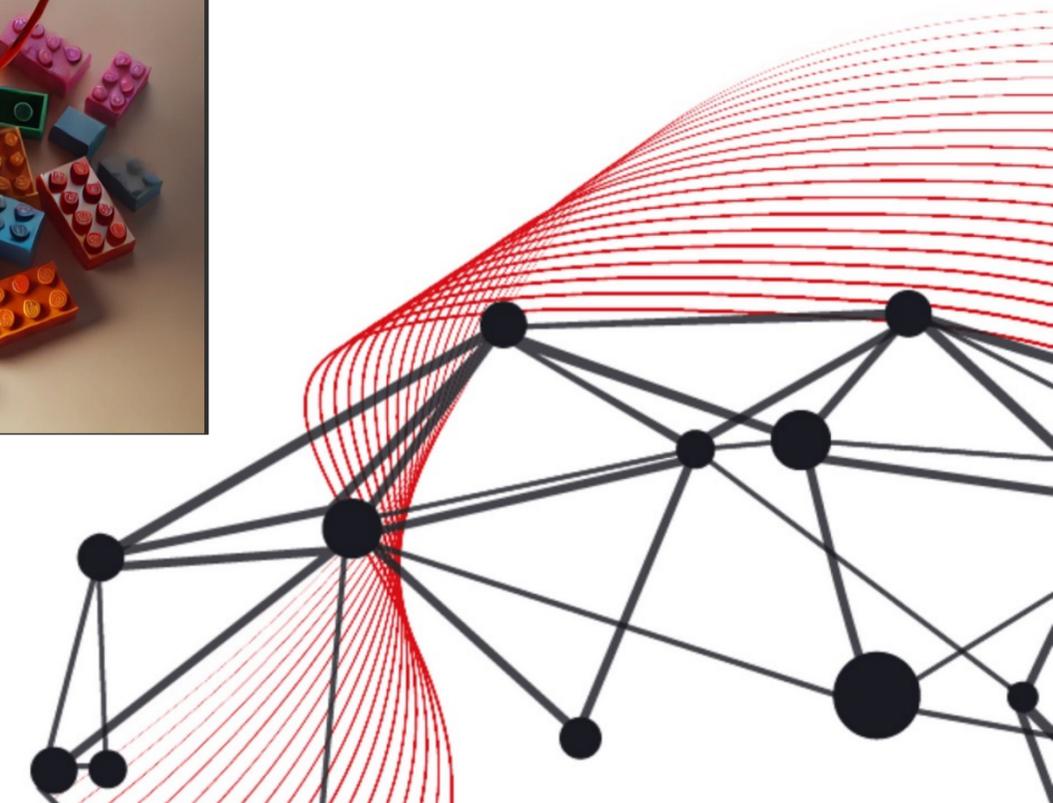
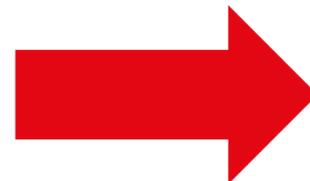
Do advances in natural language AI voice bring it back?



The running order needn't be seen as 'just' a linear plan... it's a data bucket!

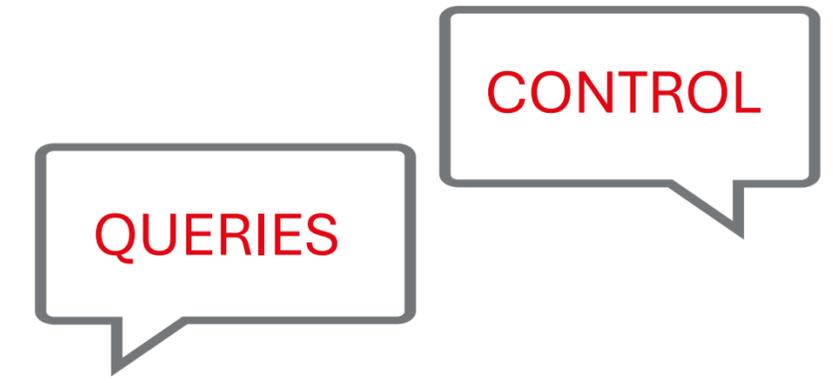
The NRCS helps teams collate content, can AI & Voice help empower production teams to more dynamically use it?

	SLUG	SEGMENT	ELEMENT	CAMERA
	TOP HEAD		IN VISION	3
	HEAD	MOBILE PHONES	CLIP	
	HEAD	US ELECTIONS	CLIP	
	HEAD	SEVERE WEATHER	CLIP	
	TITLES	TITLES		
		READ	IN VISION	2
	MOBILE PHONES	VT	CLIP	
		1+1	CHAT	5
		READ	IN VISION	2
	US ELECTIONS	VT	CLIP	
		DTL	DTL	
		READ	IN VISION	1
	SEVERE WEATHER	VT		
		1+2		5
	SPORT	SPORTS PRES	IN VISION	4
	FOOTBALL	IN VISION + OOV	CLIP	4
	GOLF	IN VISION + OOV	CLIP	4
	WEATHER	WEATHER PRES		
	GOODBYE			1
	END TITLES			



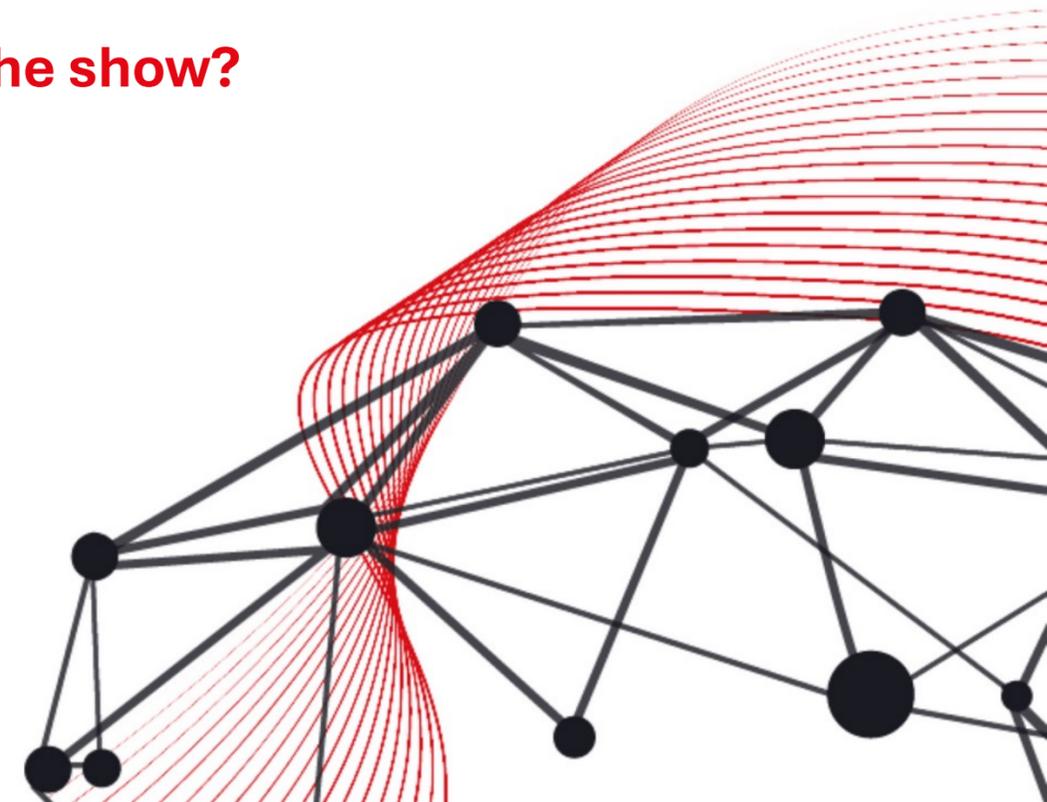
What if the director could leverage the power of LLMs to help navigate a runorder?

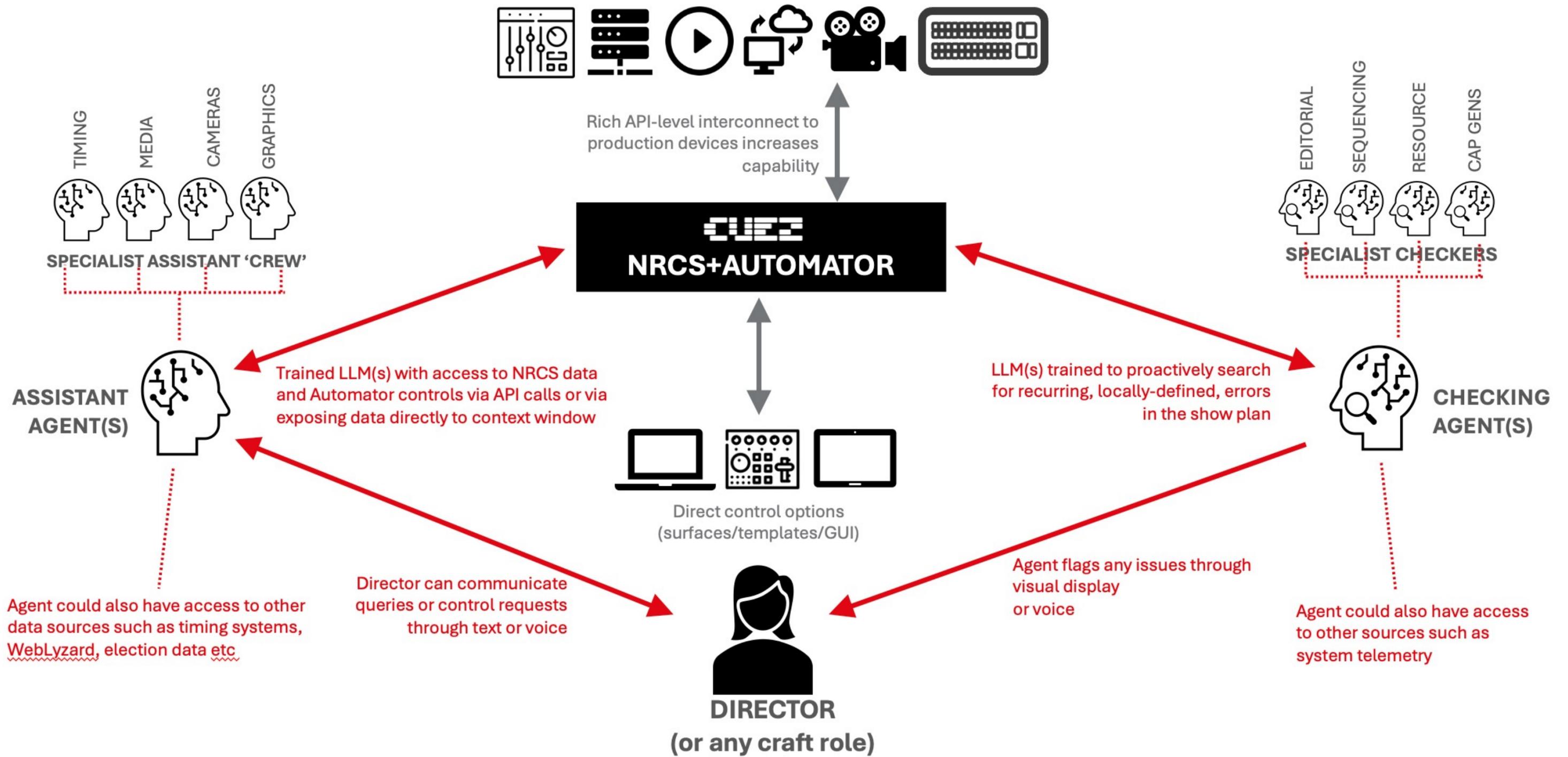
- ‘Are all of my clips for today’s show online?’
- ‘How long is the script in story 5?’
- ‘Which item number is the election story?’
- ‘Which camera is item 10 on?’
- ‘Do we have name straps prepared for all guests?’
- ‘Do we have any float pictures for item 7?’
- ‘What is our off-air time?’



If the NRCS is also an automation system, can the same LLM can also help run the show?

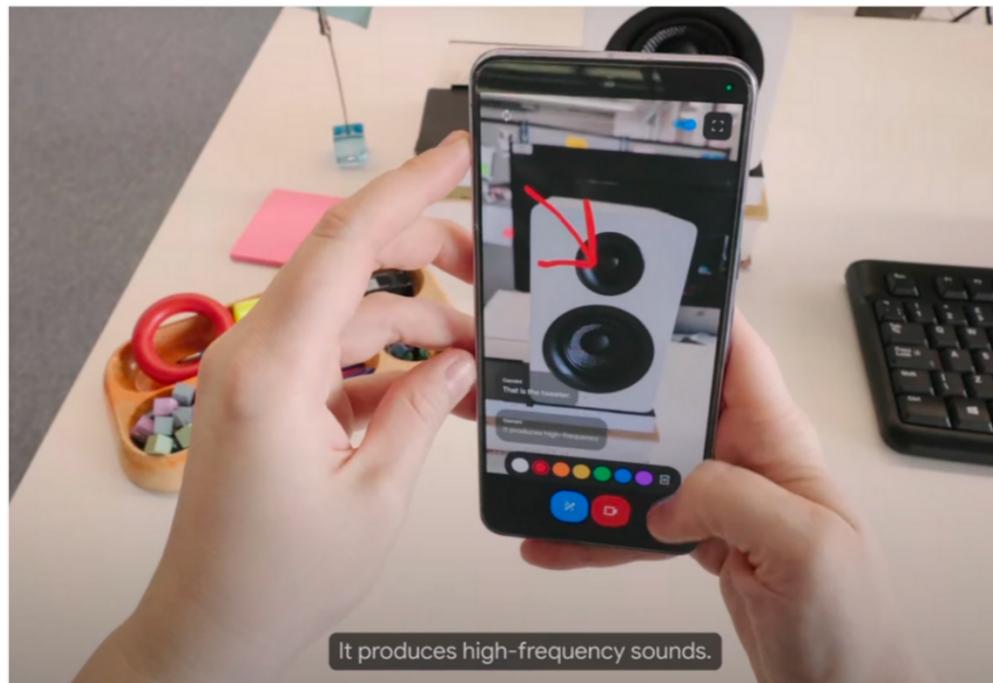
- ‘Reset to the top of the show’
- ‘Camera 2 to presenter left’
- ‘Show me the football graphic on preview’
- ‘How long is left on this clip?’





While more traditional 'standalone' voice recognition still has use cases, particularly where latency is an issue, integrated LLM voice interaction is exponentially more powerful.

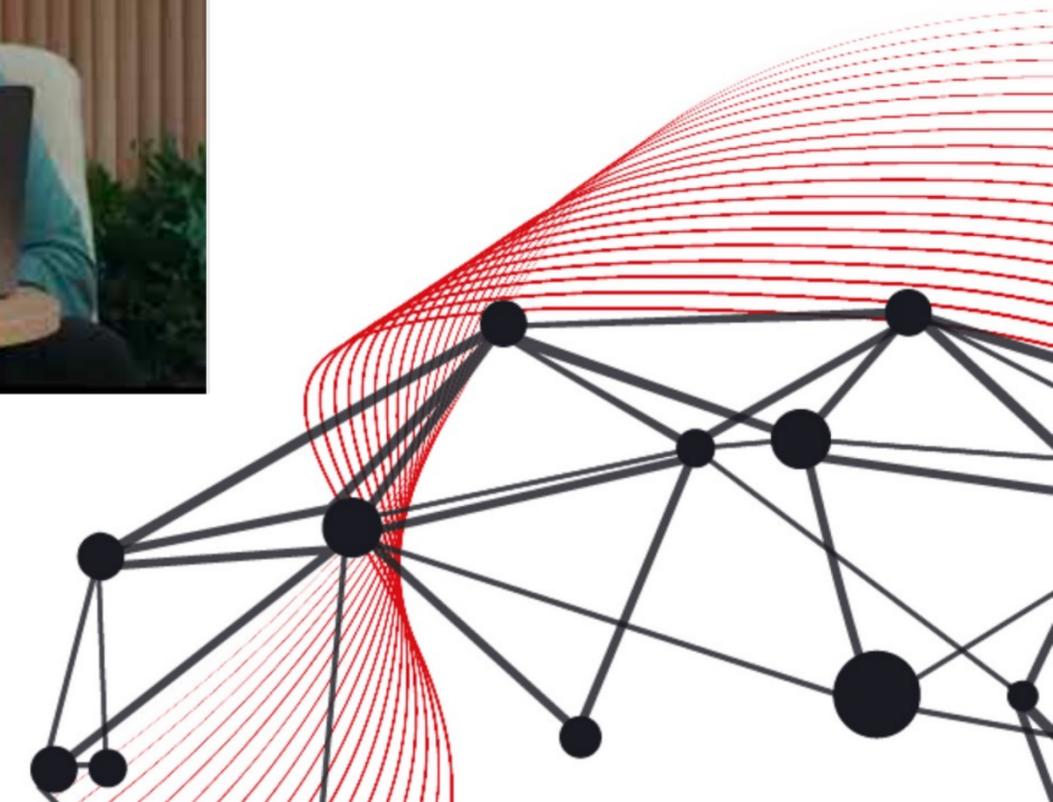
This unlocks a new generation of voice driven capability in control rooms.



Google Project Astra / Gemini Demo



GPT 4o / Advanced Voice Mode Demo





Bridge Screen
Transformation Director, CW42, and Foundation Front
EX PVW 2 (AUXS)

GFX 3: 0 XREN03

GFX 4: 0 XREN04

TODAYS STUDIO
BOOKINGS for C4

10:55 - Noon
Bulletin TX
11:00 BellNext
PCRG 80L

CLOCK

CAM 1: ST6 CAM1

CAM 2: ST6 CAM2

CAM 3: ST6 CAM3

CAM 8: (XY)

:00:00

DEMO MODE

ember 5

Example 'RAG' training data

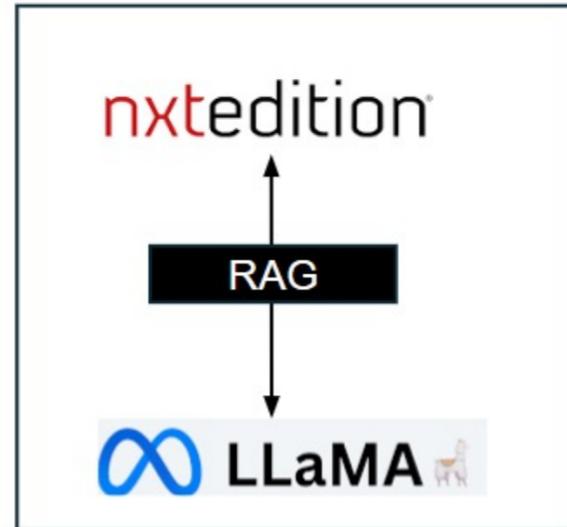
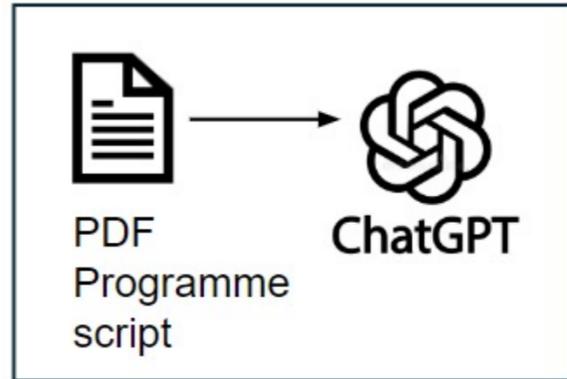
'Programme time is the total duration of the programme from the moment the programme starts and goes on-air, until the moment the programme stops and goes off-air. Time left on programme is the amount of time left until off-air. Stop-talking is the time that the presenter is supposed to stop talking, usually near the end of the programme, usually followed only by a wide shot, the credits and/or end titles before the programme goes off-air. Count to stop talking or time to stop talking is the amount of time left until stop talking. Item time is the total duration of all of the constituent parts of an item. A time quantity (e.g 1 minute) on item time means the quantity of time left until....'

'A CU (short for Close Up) is a tight, zoomed in shot, looser than a BCU, a CU of a person means almost filling the frame with their face. E.g a CU of a person means that we should see the whole of that person's face, with a little headroom at the top, but do not see their shoulders. An MCU (short for Medium Close Up or Mid Close Up) is a zoomed in shot, looser than a CU, an MCU is usually of a person, and means seeing the person's head and shoulders only in the frame. E.g an MCU of Grace means that we should see the whole of Grace's face down to her shoulders with a little headroom at the top. An MS (short for a Mid Shot or Medium Shot) is looser than an MCU...'

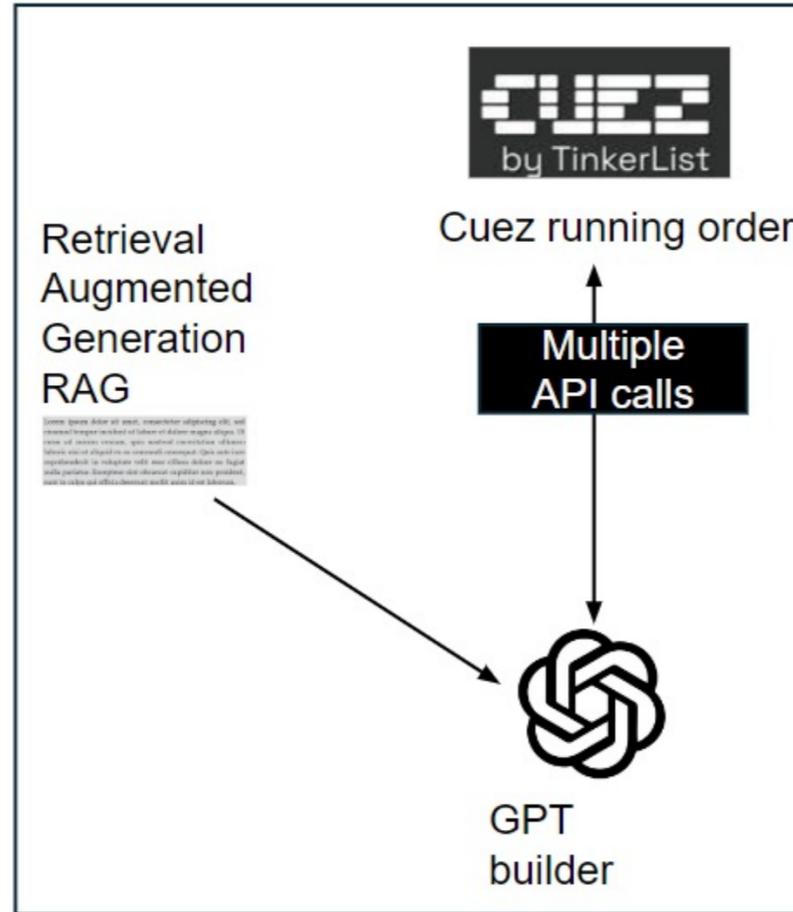
'OOV (which stands for Out Of Vision), GVs (which stands for General Views), B-roll, Ulay, Underlay, Voiceover, Read over and Colour are all interchangeable terms for each other. These terms signify that the presenter's reading a script to server pictures (media) which are relevant to the content of the script. Usually the pictures are running full frame, but sometimes these terms are used when the pictures are running in a screen...

Package, VT (which stands for Video Tape), an edit, a piece, and an edited piece are all interchangeable terms for each other. These terms signify that an edited piece of media made up of prerecorded video and audio footage and graphics will play..'

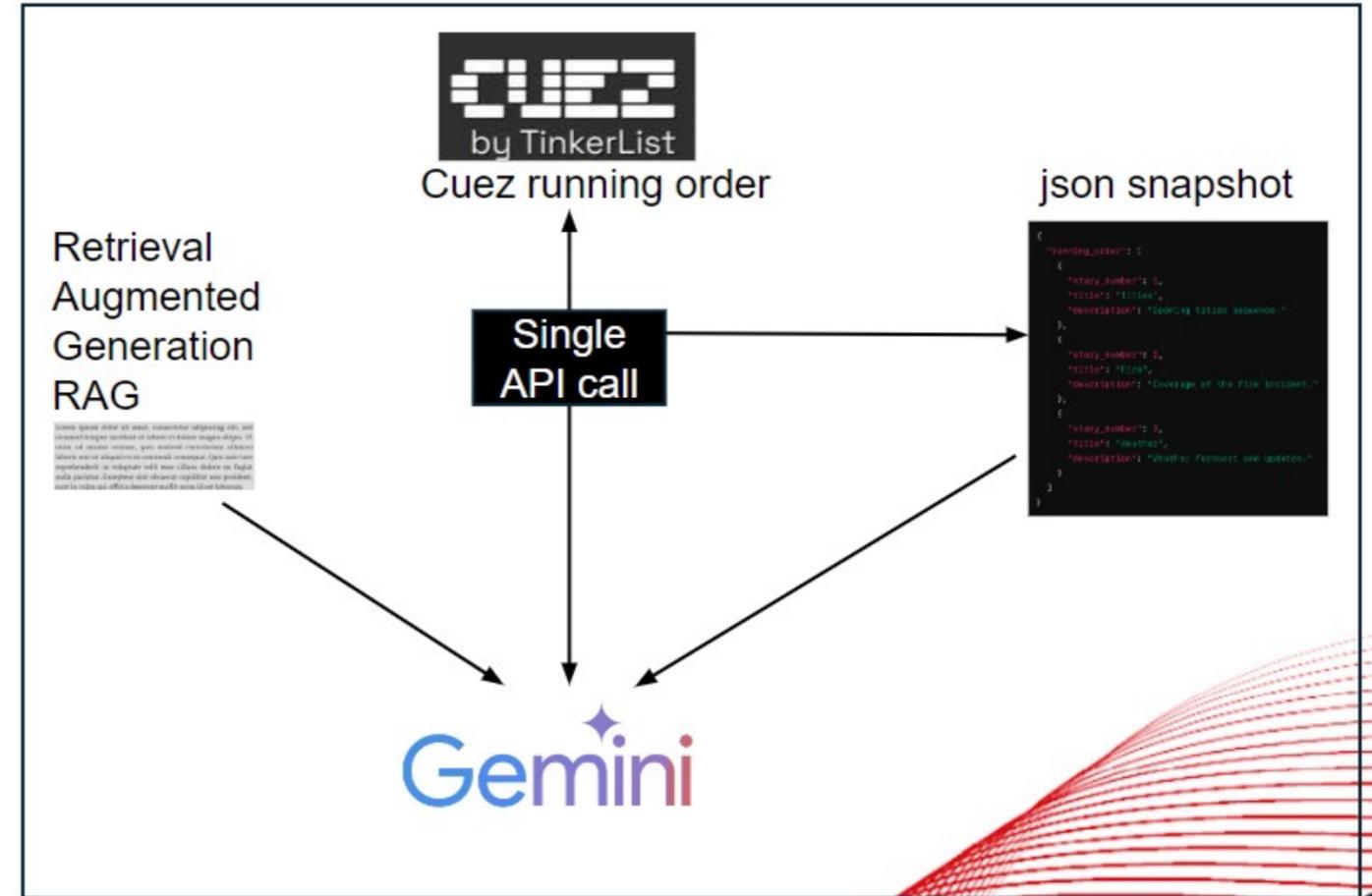
Phase 1 (pre-hacks)



Phase 2 (June 2024 hack at ITN London)



Phase 3 (July 2024 hackathon at BBC Scotland)



- This fundamentally works! (But not entirely without hallucinations)
- We feel it is the most valuable place to invest AI integration effort
- Latency is an issue, but fundamentally resolvable
- We need to optimise 'Agent Readable Runorders'

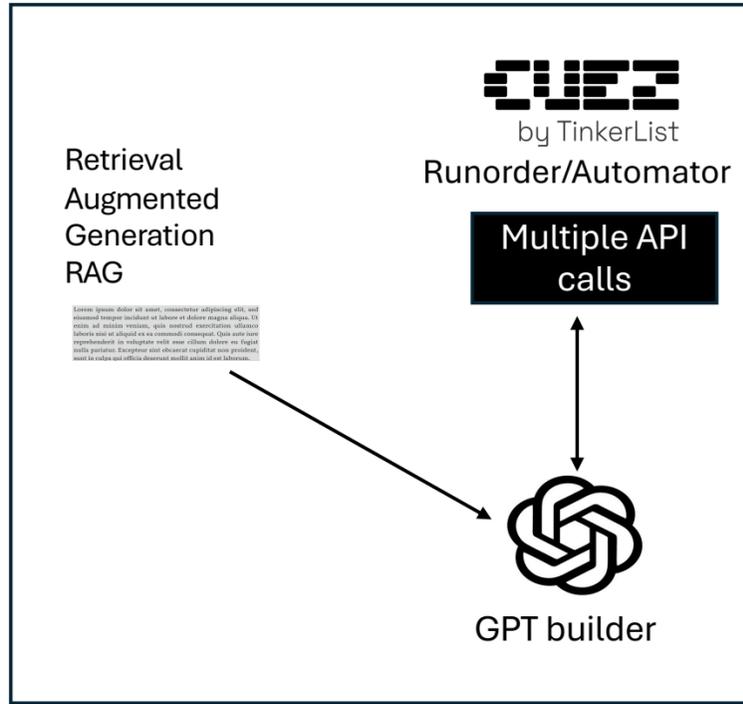


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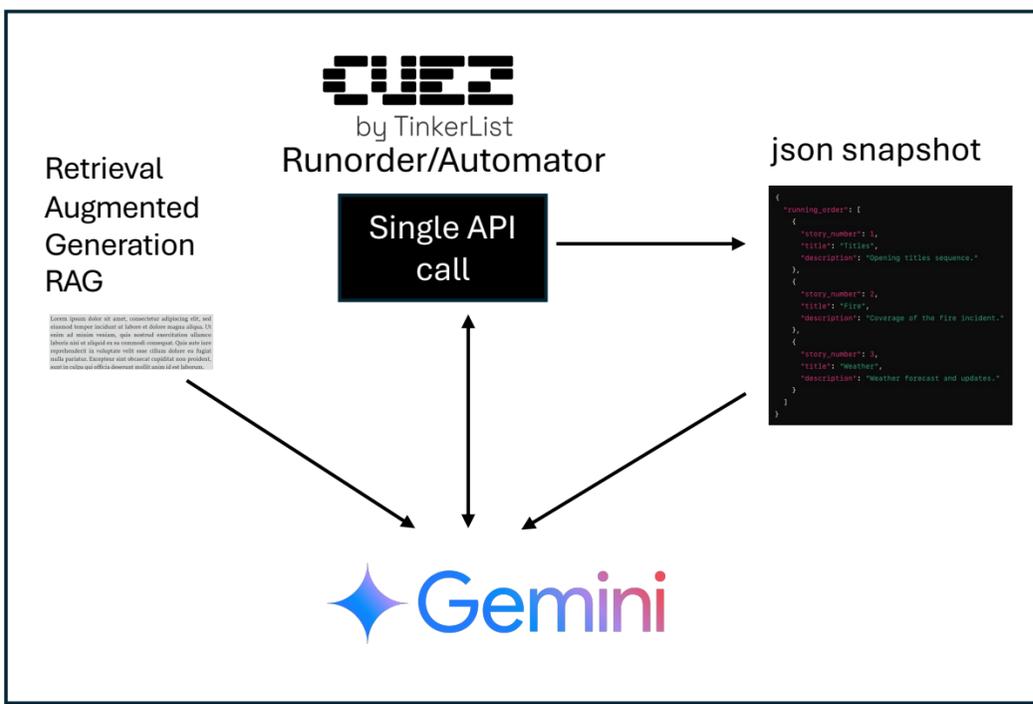
Pre-project

- LLM POCs predominantly focused on scripting/content
- Simple ‘query engineering’ adding functionality to existing platforms
- Voice primarily being used via word and phrase recognition

Hackathon 1 : June 2024 @ ITN London



Hackathon 2 : July 2024 @ BBC Scotland



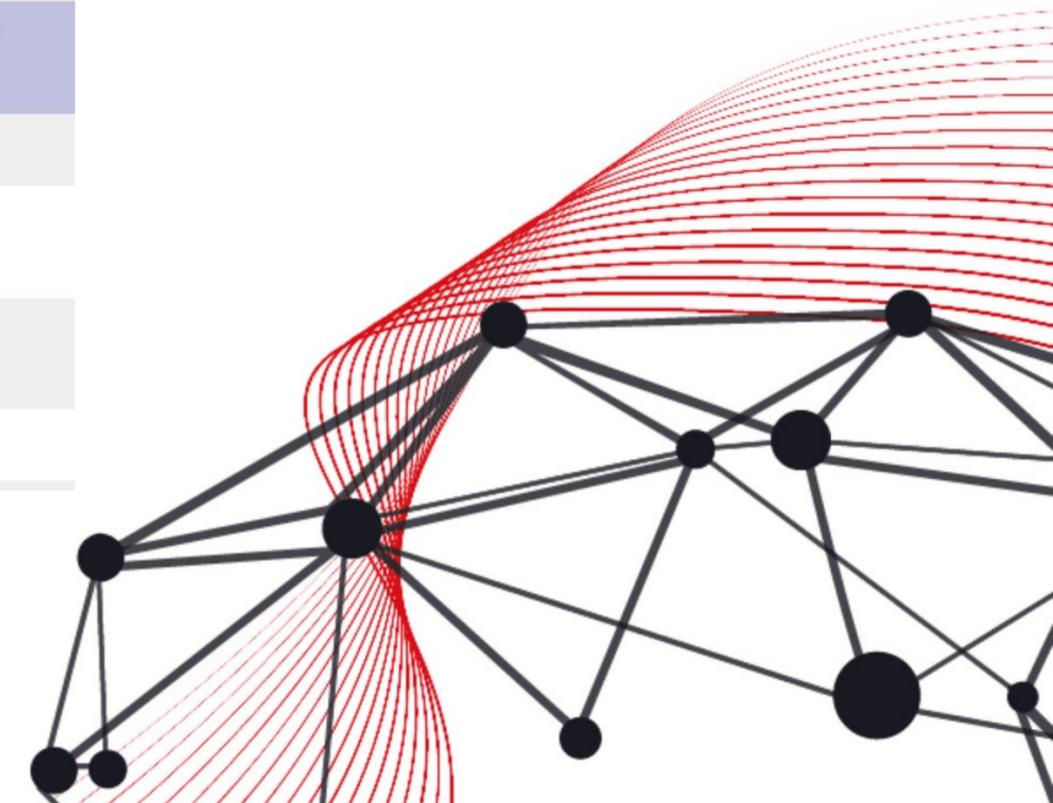
Next?

- Advanced voice modality reduces latency and adds interruption and more nuanced voice
- Optimise data connection to reduce data query latency
- Continue to develop RAG and Instruction training, including specialist agents

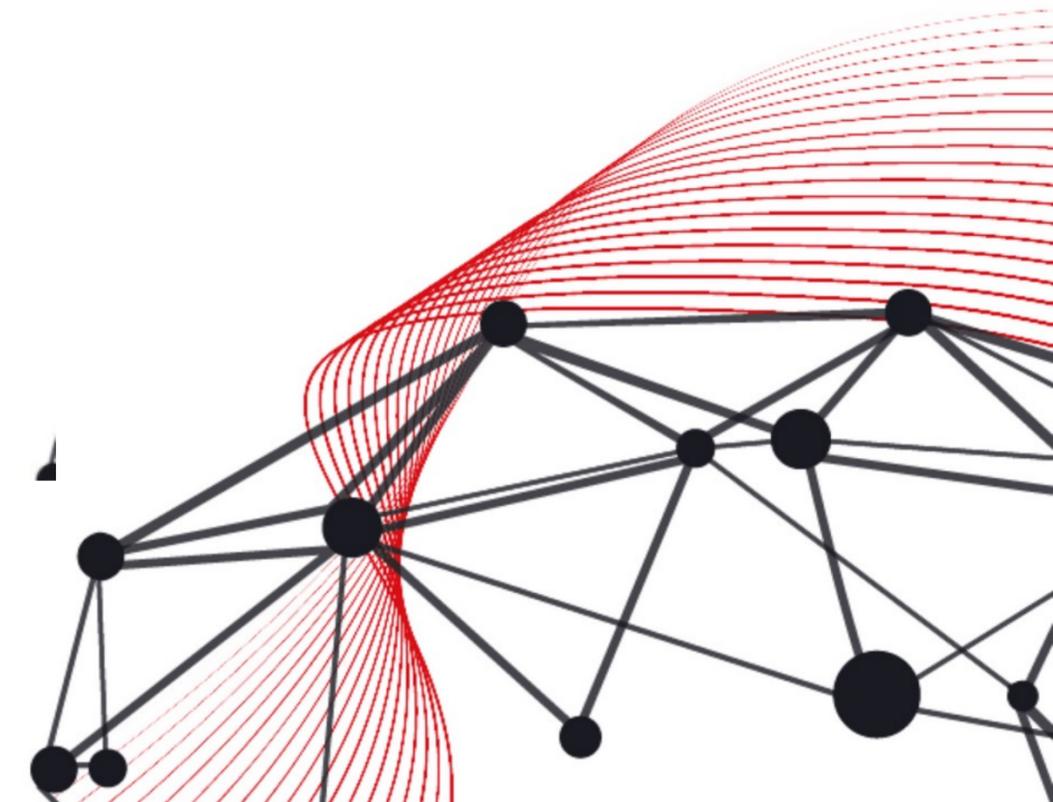
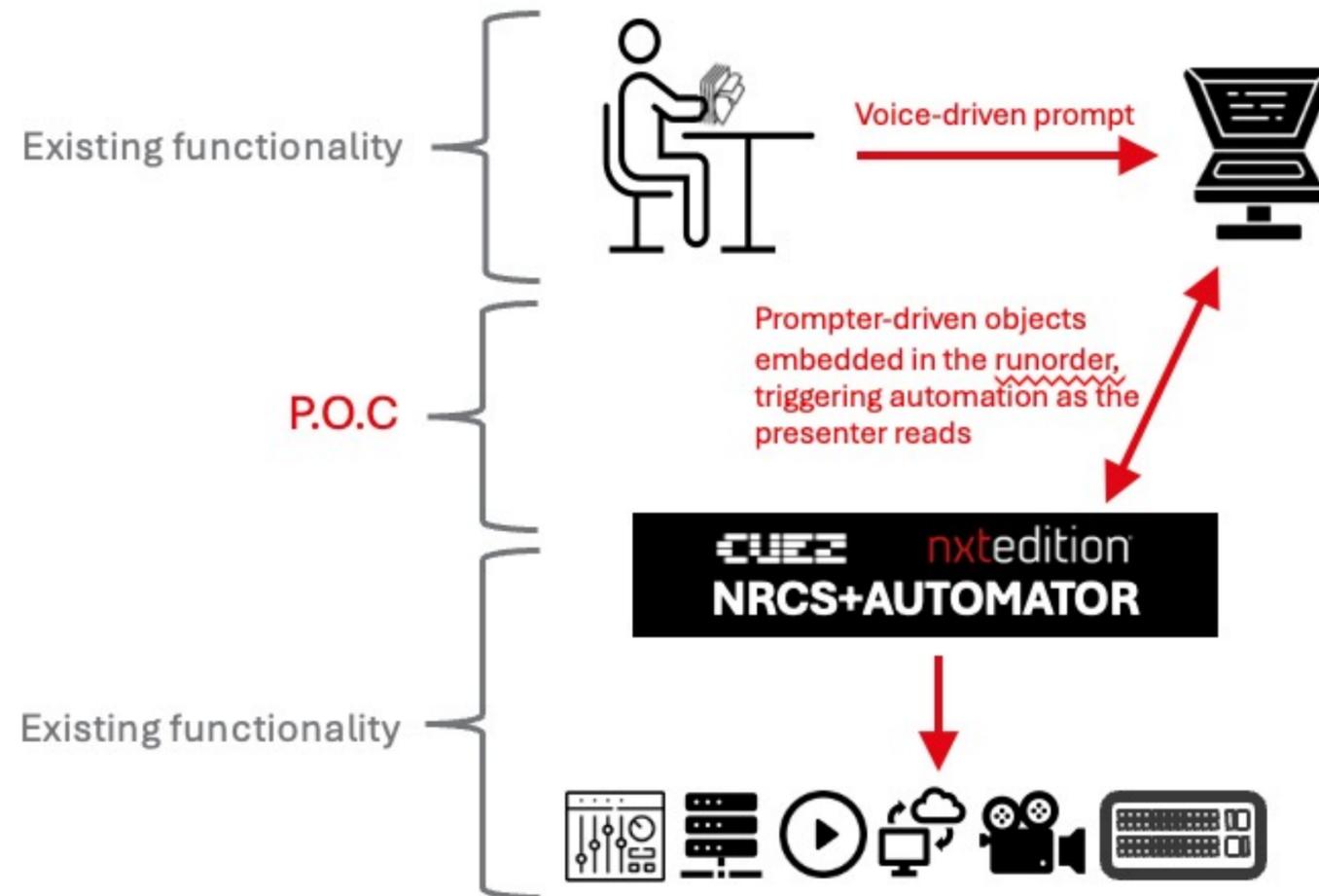
Checking Agents

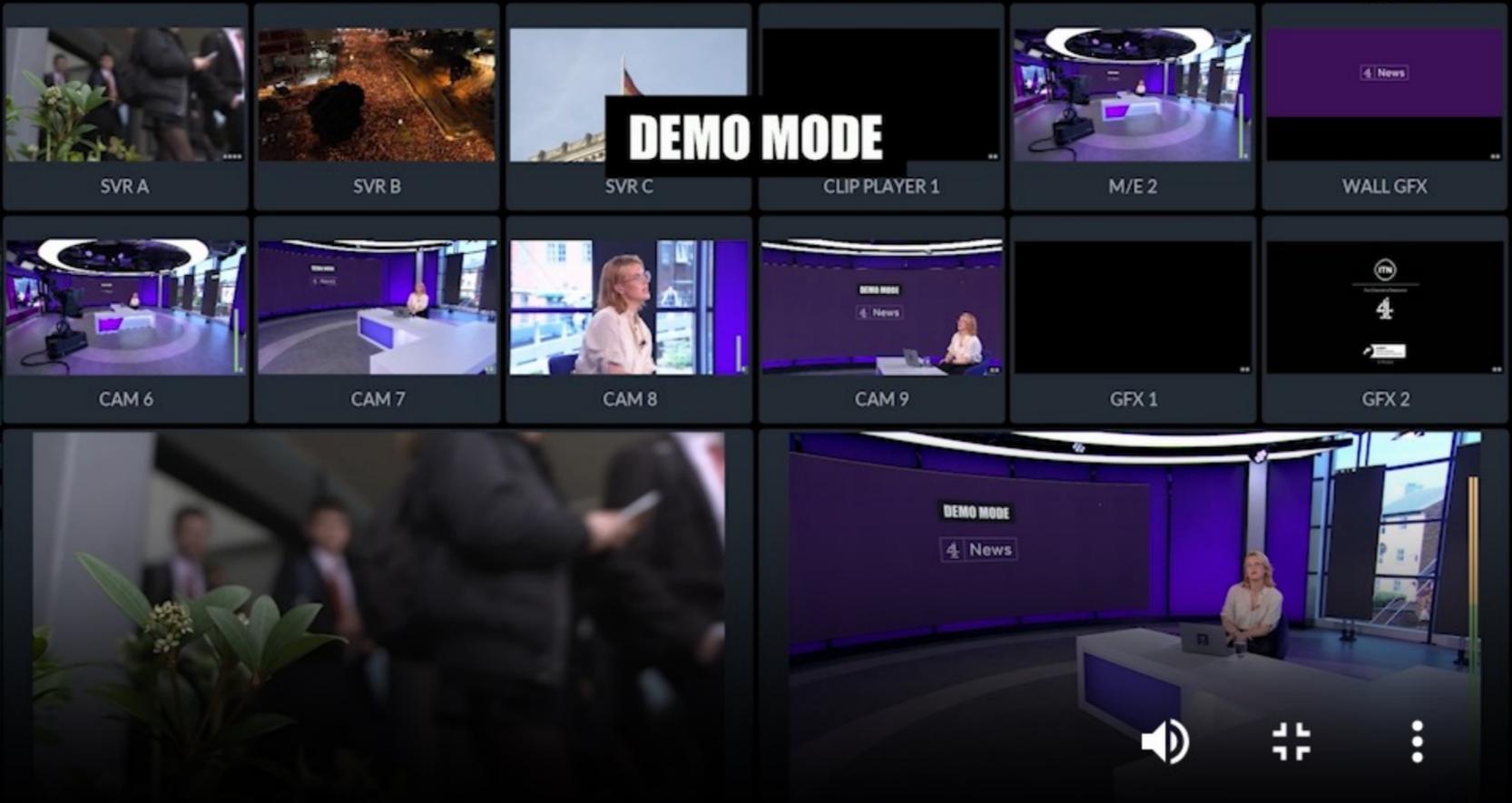
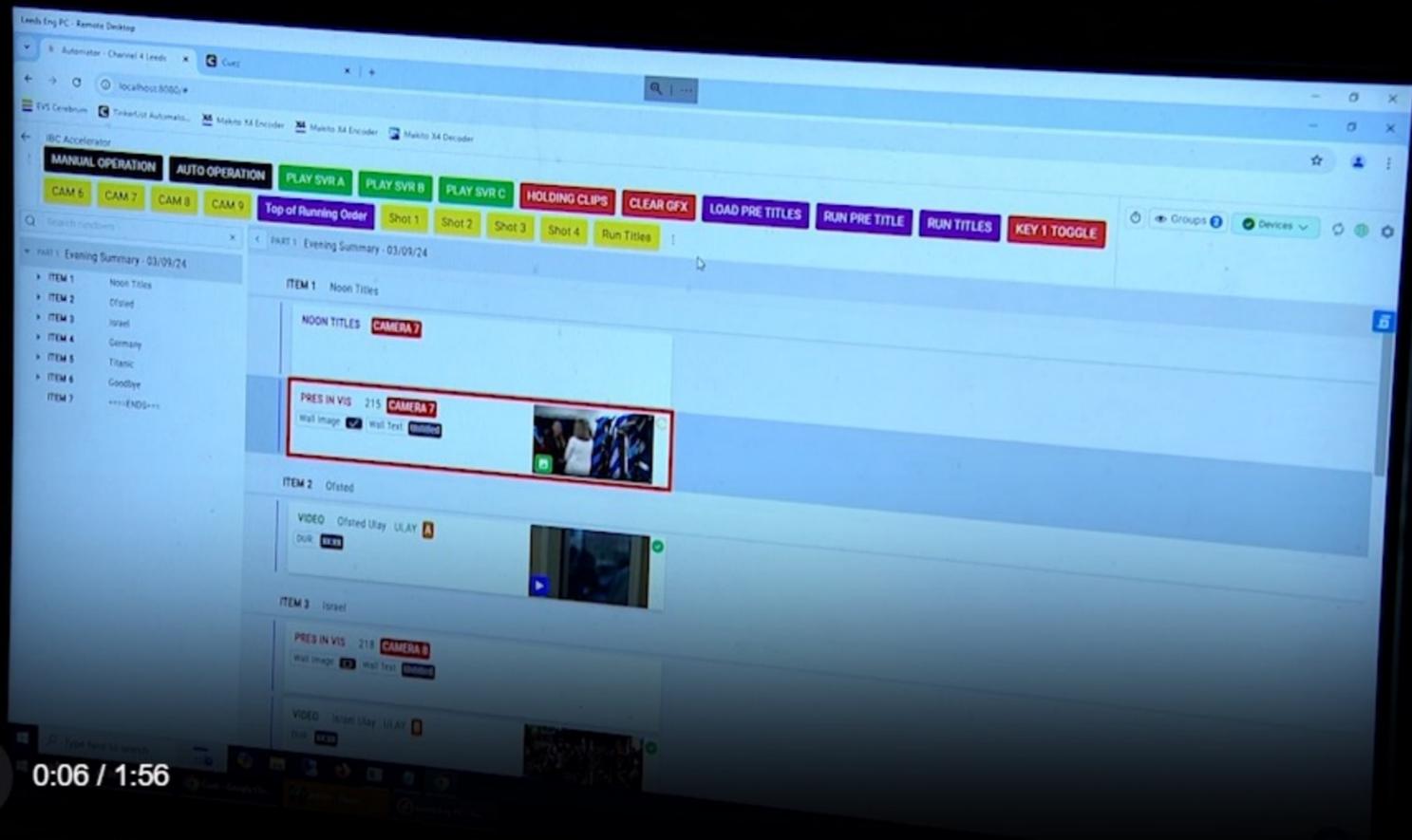
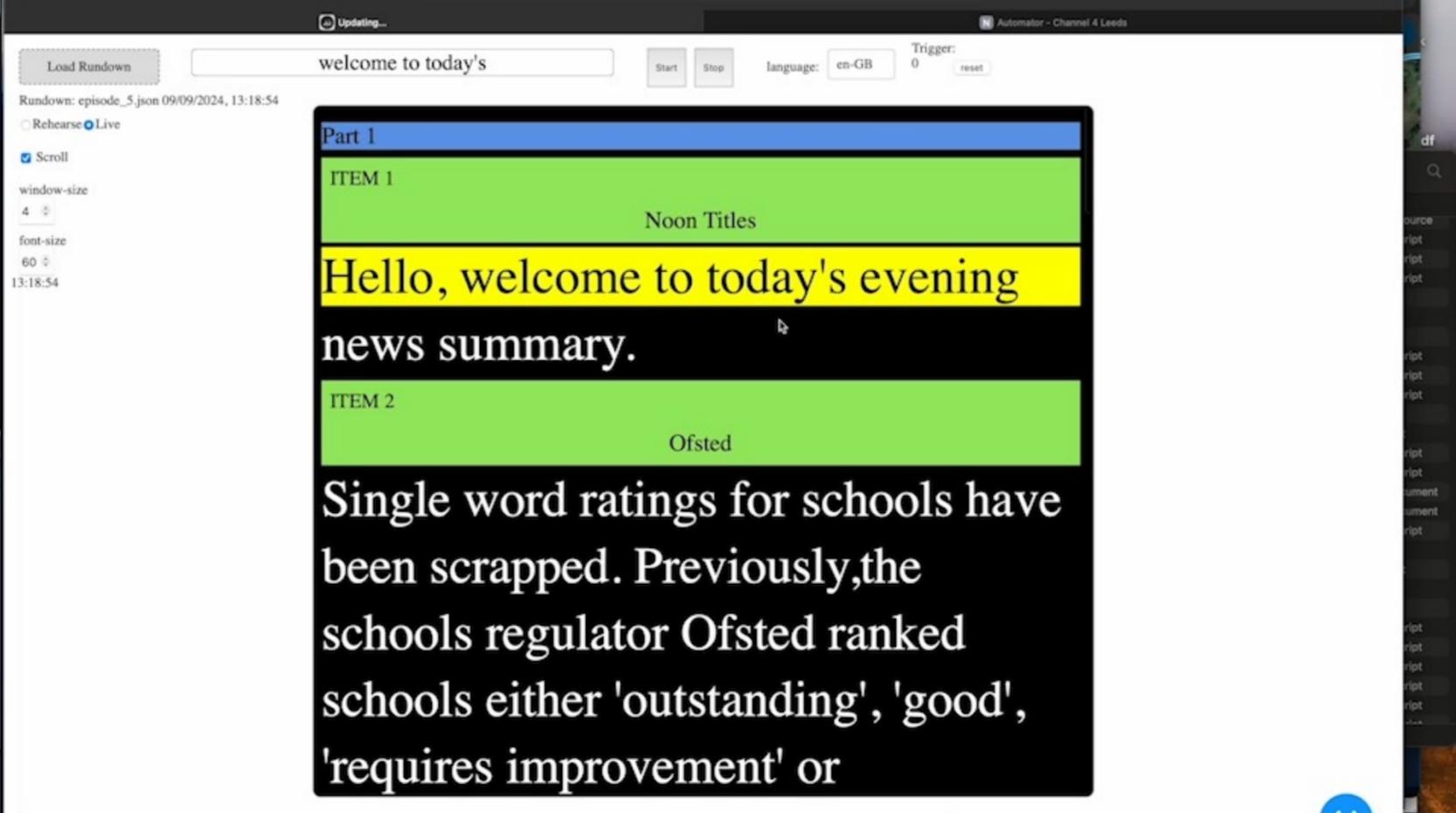
- A significant amount of control room effort & cognitive load is spent finding and resolving errors
- The faster, easier and more automated we can make that, the more creative teams can be
- Many of these issues are localised to individual requirements and workflows
- NRCS LLMs can be trained to intelligently hunt for these problems and highlight them

BIDEN - HILSUM live	Washington DC	OK	OK
	Lindsey Hilsum International Editor	OK	OK
BIDEN - HILSUM vtr	Janet Murguia CEO, UnidosUS latino advocacy group	OK	suggested: Janet murguia CEO, UnidosUS latino advocacy group
	Pictures from BET News	OK	OK
	Heather Gottlieb Democratic Party Organiser, Loudoun County	OK	OK
	Buta Biberaj Democratic Party, Loudon County	OK	suggested: Buta Biberaj Democratic Party, loudoun County
	Ami Mason Bookshop Owner	OK	OK



Presenter Voice Driven Automation : Deeper Device Integration enabling New UI





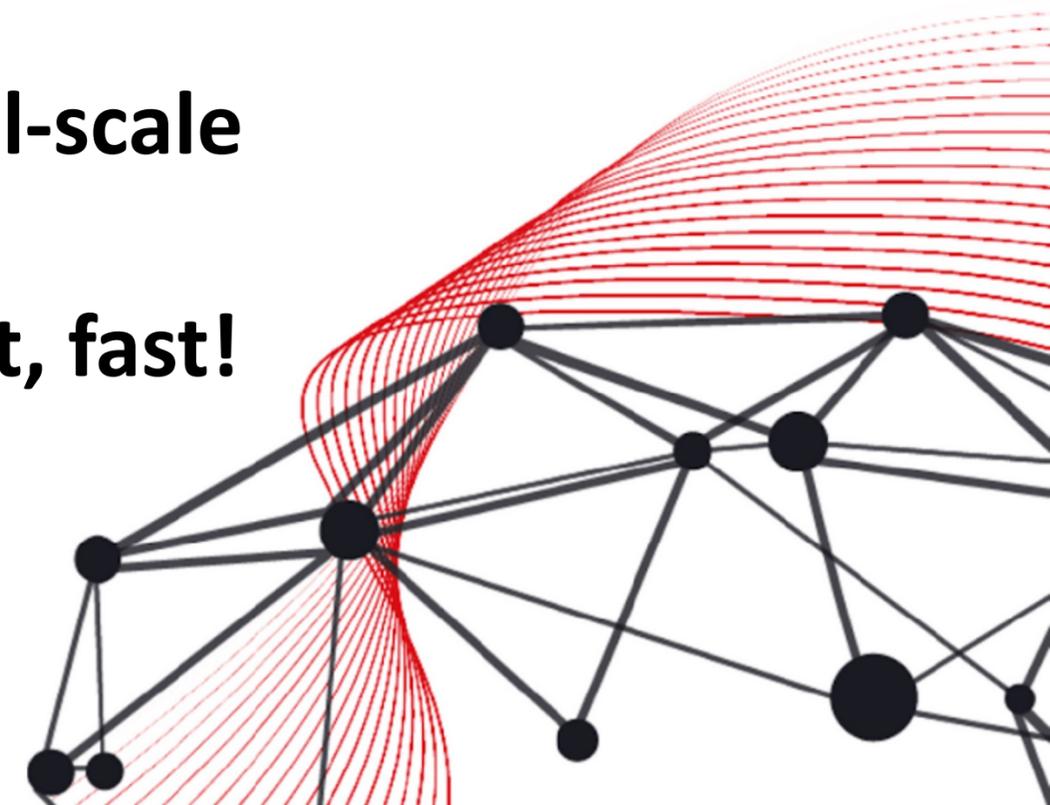
Use cases for Presenter voice-driven automation

- **Late night News bulletin**
- **The shifts no one wants to work - Christmas Day, New Year's Eve, etc. - an alternative solution.**
- **Podcast studios, radio studios, new platforms and experiences, where it doesn't make sense to have a full gallery crew, but we want to include visuals to enhance the audience experience**



Impact of Presenter voice-driven automation

- **Presenter doesn't require any additional technical expertise**
- **Flexibility** for the production crew
- Breaking News scenario, a **common interface** such as Cuez, allows for **remote collaboration**.
- XR control room, to **transform home office into a full-scale production gallery!**
- AI solutions to help us **source breaking news content, fast!**



 **TRANSMIXR** Dashboard

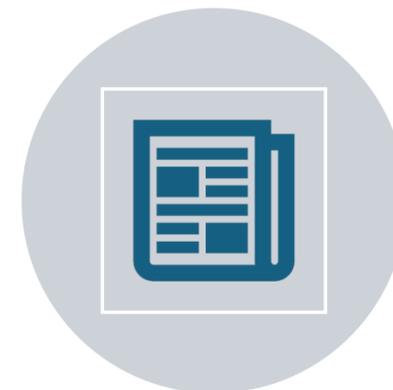
Real-Time content exploration and Web intelligence tool with a wide range of visual analytics features, available in a LITE and PRO version



Integrating AI solutions with the NRCS can empower editorial teams and the production crew



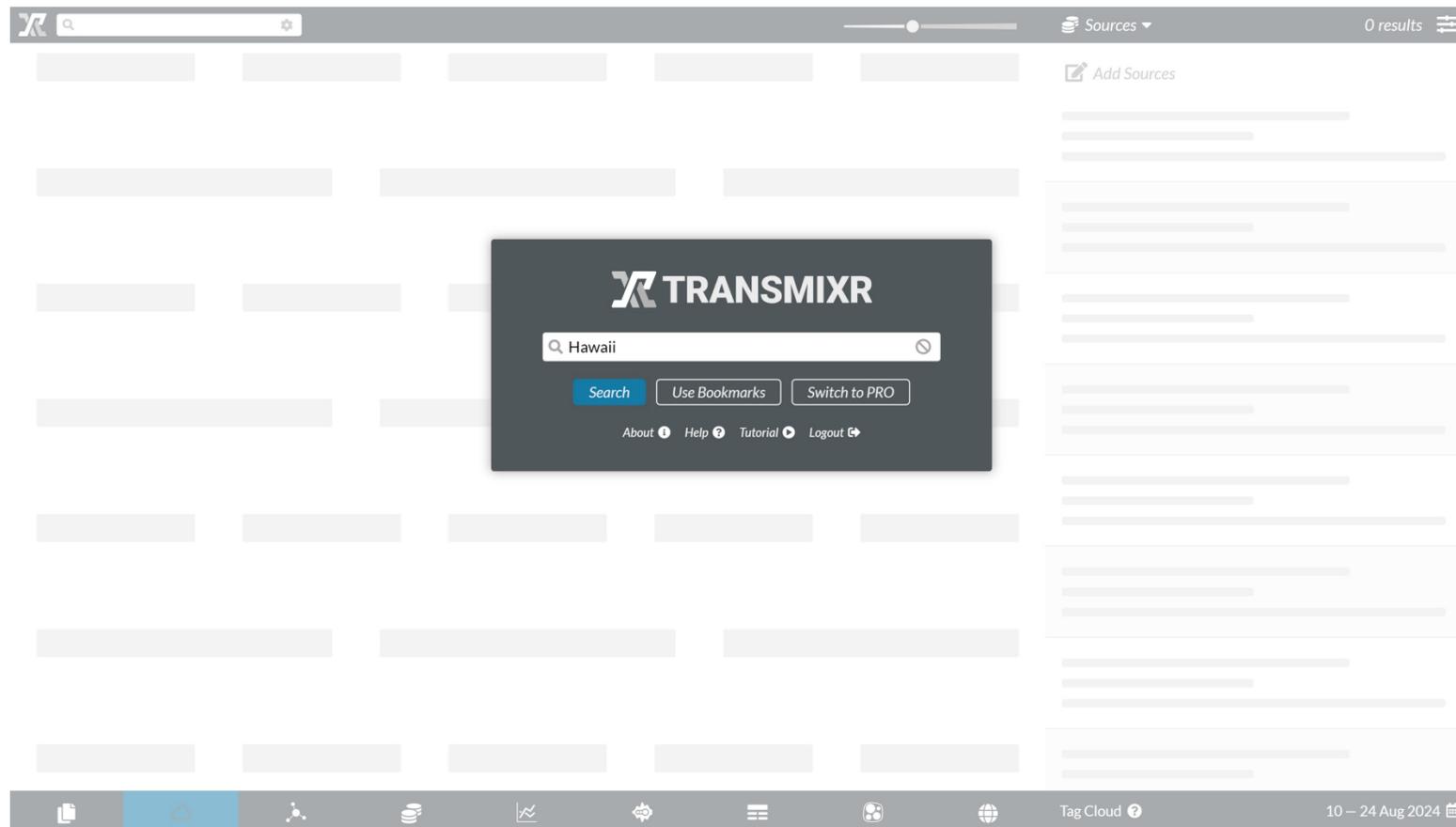
Search for specific online articles, emerging trends or stories (= clusters of related content) over a specific date range or geographic location



Quickly identify relevant content to enhance the production, source breaking news stories and improve the audience experience

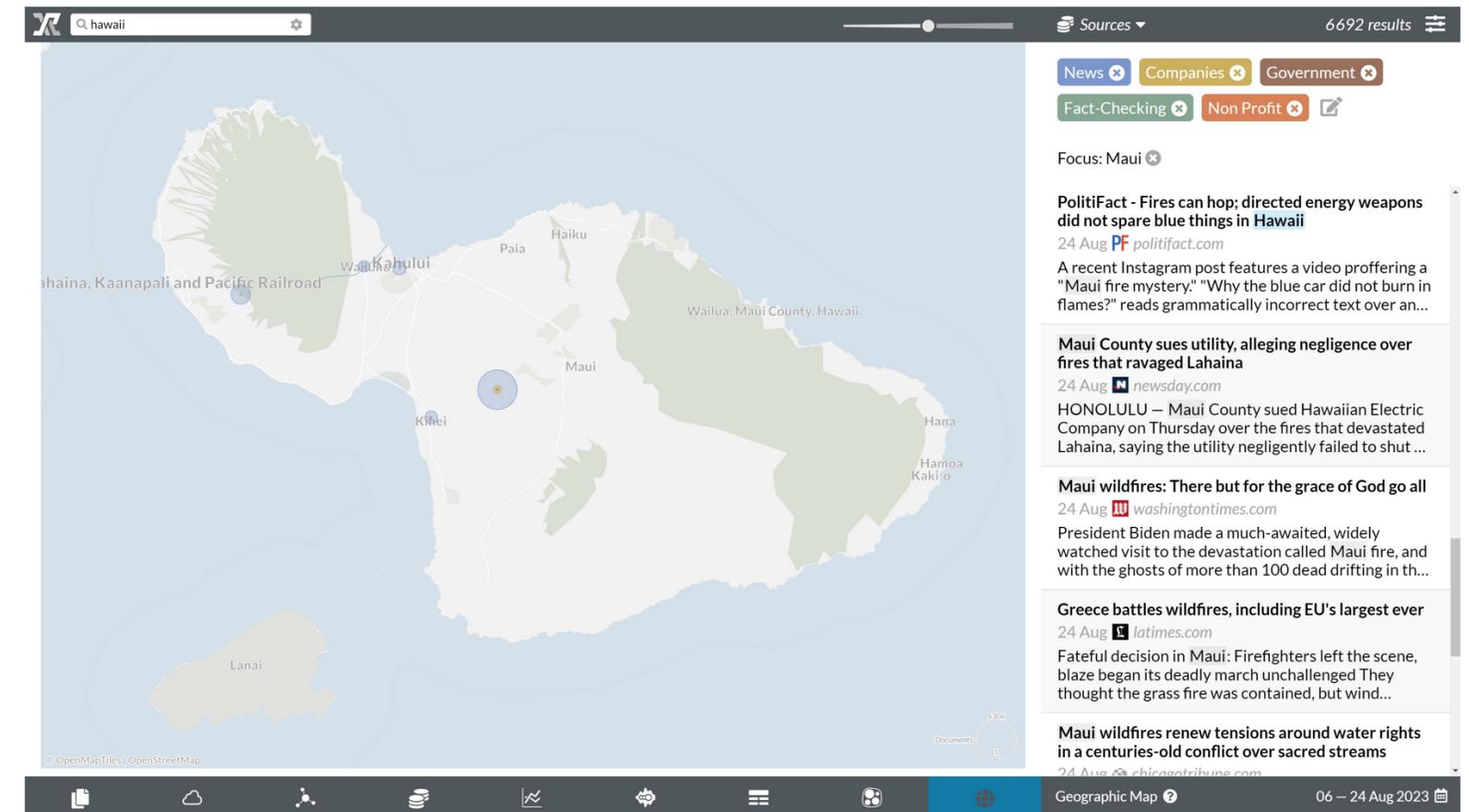
 **TRANSMIXR** Dashboard LITE

Search query "Hawaii" between 06 and 24 Aug 2023



The screenshot shows the landing page of the TRANSMIXR Dashboard LITE. The search bar contains the query "Hawaii" and shows "0 results". A modal window is open in the center, displaying the TRANSMIXR logo, a search bar with "Hawaii", and buttons for "Search", "Use Bookmarks", and "Switch to PRO". Below the modal are links for "About", "Help", "Tutorial", and "Logout". The right sidebar shows "Add Sources" and a list of sources. The bottom navigation bar includes icons for home, search, and other functions, along with a "Tag Cloud" and a date range of "10 - 24 Aug 2024".

Landing Page



The screenshot shows the Geo Map view of the TRANSMIXR Dashboard LITE. The search bar contains the query "hawaii" and shows "6692 results". The map displays the Hawaiian Islands, with a focus on Maui. The right sidebar shows filters for "News", "Companies", "Government", "Fact-Checking", and "Non Profit". The "Focus: Maui" section is active. Below the filters, there are several news snippets:

- PolitiFact - Fires can hop; directed energy weapons did not spare blue things in Hawaii**
24 Aug PF [politifact.com](#)
A recent Instagram post features a video proffering a "Maui fire mystery." "Why the blue car did not burn in flames?" reads grammatically incorrect text over an...
- Maui County sues utility, alleging negligence over fires that ravaged Lahaina**
24 Aug [newsday.com](#)
HONOLULU — Maui County sued Hawaiian Electric Company on Thursday over the fires that devastated Lahaina, saying the utility negligently failed to shut ...
- Maui wildfires: There but for the grace of God go all**
24 Aug [washingtontimes.com](#)
President Biden made a much-awaited, widely watched visit to the devastation called Maui fire, and with the ghosts of more than 100 dead drifting in th...
- Greece battles wildfires, including EU's largest ever**
24 Aug [latimes.com](#)
Fateful decision in Maui: Firefighters left the scene, blaze began its deadly march unchallenged They thought the grass fire was contained, but wind...
- Maui wildfires renew tensions around water rights in a centuries-old conflict over sacred streams**
24 Aug [chicagotribune.com](#)

The bottom navigation bar includes icons for home, search, and other functions, along with a "Geographic Map" and a date range of "06 - 24 Aug 2023".

Geo Map



METADATA

My Documents

Sources - Aggregated

Youtube News	456
Other	175
Fact-Checking	77
Non Profit	34
Government	31

Sources - Detailed

Sentiment

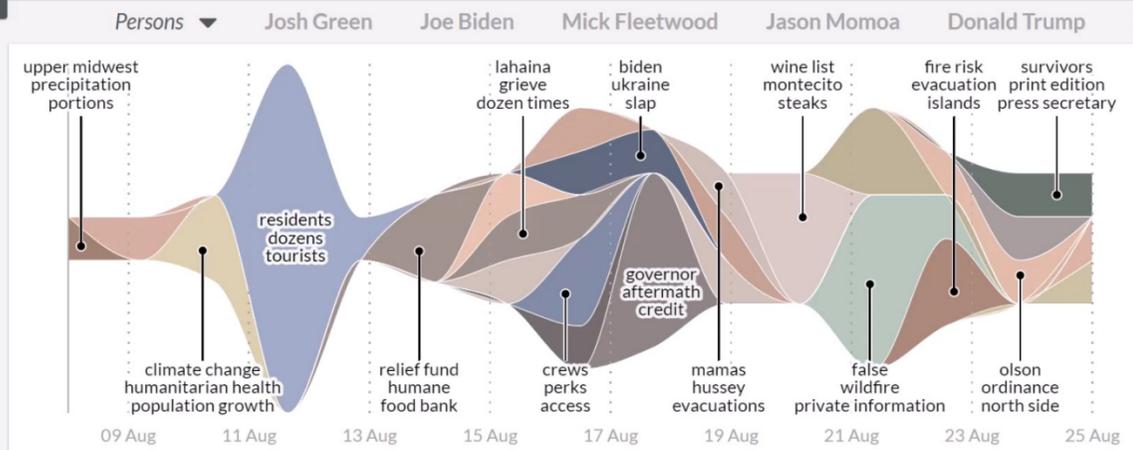
Recency

Source Locations

<input type="checkbox"/> United States	111
<input type="checkbox"/> United Kingdom	89
<input type="checkbox"/> France	17
<input type="checkbox"/> Canada	10
<input type="checkbox"/> Australia	8
<input type="checkbox"/> Netherlands	7
<input type="checkbox"/> Spain	5

ASSOCIATIONS

<input type="checkbox"/> wildfires	550
<input type="checkbox"/> death toll	167
<input type="checkbox"/> death	177
<input type="checkbox"/> flames	118
<input type="checkbox"/> climate change	66
<input type="checkbox"/> town	182
<input type="checkbox"/> devastation	77
<input type="checkbox"/> sirens	34
<input type="checkbox"/> governor	87
<input type="checkbox"/> hurricane	101
<input type="checkbox"/> disaster	144
<input type="checkbox"/> high winds	30
<input type="checkbox"/> residents	125
<input type="checkbox"/> emergency	129
<input type="checkbox"/> lahaina	257
<input type="checkbox"/> victims	65
<input type="checkbox"/> blazes	39



Entity

Entity	Count	Sentiment
Josh Green – American politician wildfires · governor · sirens	66	-0.48
Joe Biden – 46th and current president of the United States wildfires · flames · recovery effort	58	-0.53
Jason Momoa – American actor and model wildfires · devastation · aquaman	18	-0.3
Mick Fleetwood – British rock drummer, songwriter wildfires · front · emergency shelters	18	-0.29
Donald Trump – 45th president of the United States tornado · claim · climate change	15	-0.4
Oprah Winfrey – American businesswoman, talk show host, actres... camera crew · emergency shelters · wildfires	14	-0.16
Dwayne Johnson – American-Canadian actor and professional wre... wildfires · camera crew · aiga	12	-0.23
Sylvia Luke – American politician wildfires · low humidity · air patrol	11	-0.71
Jill Biden – American educator and academic; First Lady of the Unit... wildfires · first lady · aid programs	9	-0.64
Stevie Nicks – American singer and songwriter, member of Fleetwo... wildfires · bandmate · niece	8	-0.21
Barack Obama – 44th president of the United States hawai'i · wildfires · aquaman	6	+0.01
Lil Wayne – American rapper, singer, songwriter, record executive, ... climate emergency · cfact · disaster area	4	-0.66
Alexa PenaVega – American actress and singer	2	+0.25



ablaze agency-expertise animals authorities beam blazes bushfire bushfires cada chapter claim climate-change colonization condolences county crews death death-toll devastation disaster disaster-relief donations economic-injury efforts el-niño embers emergency energy-weapons evacuations explosion facts false fire-department fire-management firefighters flames flyer food-bank fossil front fuel-companies governor grasses greenhouse-gases grocery-bags harms hawai'i hawai'i health-costs health-institute high-winds history homes hooks humane humanitarian-health hurricane hurricane-dora inferno lahaina land-imager lasers lauren-dauphin low-humidity marines maui-fires maui-wildfires mauna media-users meer mulch mutual narrator news-feed ocean ohana oli olson plaintiffs population-health power-lines prayers preparedness print-edition professor public-hearing radio-stations raw ready recovery-efforts red-flag relief-efforts relief-fund rescue-operations residents reverse-image screenshot shortwave sirens smart-cities society state state-governor stream survivors televisions tenant thousands tiktok-video tornado tourism-authority tourist town town-staff tree tsunami tuition-reimbursement tv-footage update upper-midwest vail vegetation verification victims village-council voiland voluntary weapons wildfire-response wildfire-risk wildfires wildland-fire year-term youth-climate zone

Storygraph with the evolution of topics

BBC video from YouTube

Tag cloud color-coded by source

List of the opinion leaders most frequently mentioned in the coverage



Hawaii <adv>

METADATA

My Documents

Sources - Aggregated

Sources - Detailed

theguardian.com	107
bbc.co.uk	55
itv.com	29
telegraph.co.uk	24

Sentiment

Recency

1 - Oldest	425
2 - Old	330
3 - Recent	187
4 - Most Recent	131

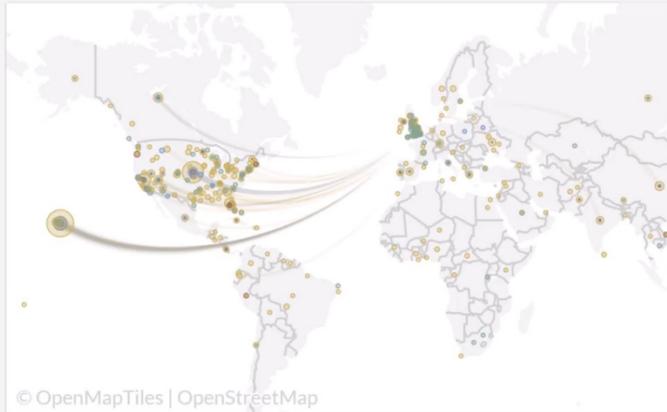
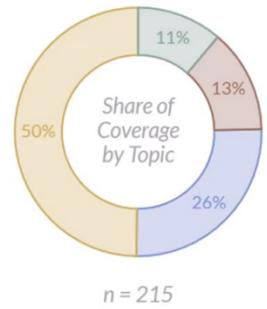
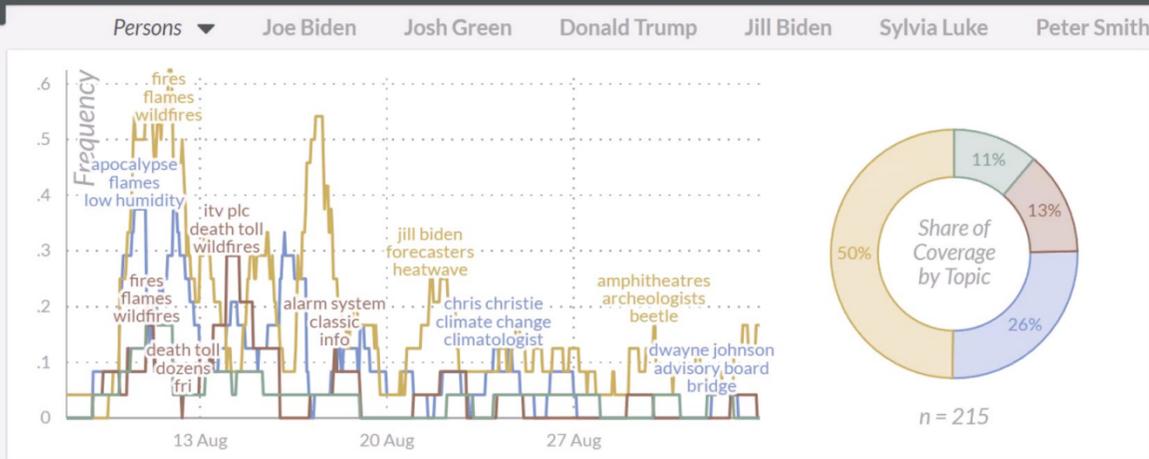
Source Locations

United Kingdom	1073
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Emotions

ASSOCIATIONS

wildfires	804
fires	721
flames	400
sirens	138
management agency	186
winds	379
devastation	258
island	603
high winds	106
hurricane	343
power lines	101
blazes	130
low humidity	57
eop	108
death toll	341
climate change	133
inferno	91



DEATH TOLL · LOCALS · DELAY 3 Articles

Maui fire: First victims named as death toll reaches 111
Mr Biden was asked by a reporter over the weekend about the rising death toll in Hawaii and responded: "No comment." The president's apparent delay in visiting Maui, as well as that remark,...

bbc.co.uk · 17 Aug

Hawaii assesses public schools as Maui sees signs of recov... *theguardian.com · 17 Aug*

Hawaii's governor Josh Green warns wealthy buyers not t... *telegraph.co.uk · 17 Aug*

VICTIMS · TOURS · REMAINS 2 Articles

Biden tours 'overwhelming' Hawaii wildfire damage
Experts have told the BBC both finding and identifying the victims could take months or even years given the magnitude of the destruction and the condition that many of the remains are likely...

bbc.co.uk · 22 Aug

Hawaii fire survivors urged to submit DNA to help identify...
theguardian.com · 23 Aug

CORALS · BLEACHING · HEAT 2 Articles

Florida's coral at severe risk of bleaching after 'unprecedented' heat stress
... But the corals have suffered deterioration over the past 50 years due to pollution and, increasingly, bleaching events due to the rising ocean temperatures caused by the burning of fossil...

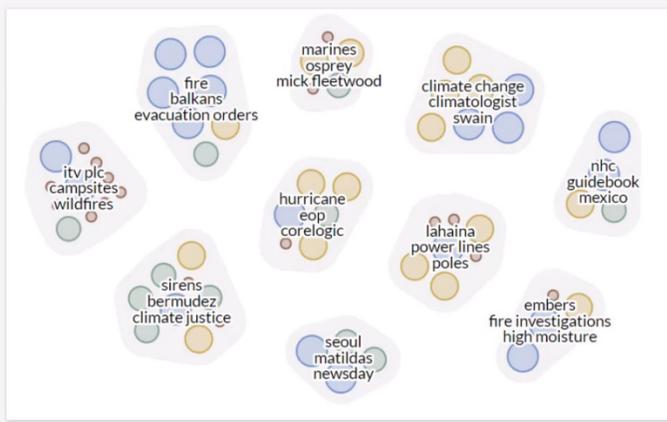
theguardian.com · 17 Aug

The Guardian view on protecting corals: what lies beneath ...
theguardian.com · 16 Aug

NEWSDAY · MATILDAS · LIONESSES 2 Articles

BBC World Service - Newsday, Hawaii officials begin identifying the dead

- america apocalypse aquaman-star blazes california chris-christie classic climate-change correspondent crews death death-toll devastation disaster dozen-people drama drama-series emergency-management emergency-response eop evacuees facebook fires first-thing flames front heatwave high-winds historic hurricane inferno info island itv-plc jill-biden lethality low-humidity management-agency matildas mexico mick-fleetwood newsday nws people phone-coverage pilot-episode poles power-lines recovery-effort rescue-teams rescuers residents sat seoul sirens smoke smoke-inhalation sofa-coppola squirrels stanley-tucci stevie-nicks stoicism storyteller survivors tarmac television-station televisions ticker top-stories tourism-authority tourists town toxic-chemicals traffic-accidents travel underway vapour vargas veteran vietnam vitality wall-street war-memorial warning-sirens warning-system warnings west-country wildfires wildlife-experts wind-gusts winds witch yellow-brick youngsters



Animation generated from selected UK sources, indicating how the topics and mentioned locations for the search query "Hawaii" change between early August and early September 2023

Hawaii Wildfires 2023

TOPIC: **Politics** ▾

In early August 2023, wildfires erupted in Hawaii, mainly on Maui. The wind-driven fires led to evacuations, widespread damage, and casualties in Lahaina on Maui's northwest coast. The fires spread due to dry, gusty conditions caused by a high-pressure area north of Hawaii and Hurricane Dora to the south. An emergency declaration on August 8 authorized actions including activating the Hawaii National Guard and allocating state funds for relief.

By August 9, Hawaii declared a state of emergency, and on August 10, President Joe Biden issued a federal major disaster declaration. For the Lahaina fire, the Pacific Disaster Center (PDC) and the Federal Emergency Management Agency (FEMA) estimated extensive destruction, predominantly of residential buildings and historic landmarks. The United States Department of Commerce later reported the official damage total.

The community faced significant challenges as infrastructure was heavily impacted, leading to disruptions in essential services such as electricity and water supply. Schools and businesses were forced to close, amplifying the socio-economic impact on residents. Numerous organizations and volunteers mobilized to provide immediate relief and support, including food, shelter, and medical assistance.



Explore Related Content

Tag Cloud ▾ Help ▾

afternoon-storms alexander-mountain aloha arborists area-saturday
 big-island bitten breadfruit butte cal-fire calfire canyon-fire
 chief-nim commercial-lots complex-regulations conch-shells
 disaster-declaration downs-horse durkee endo enough-rain
 evacuations examiner fire fire-dangers fire-injuries fire-victims
 firefighters-gain fork-fire hand-crews hawai'i hawaii honea
 honolulu island-mayor issue-tuesday kauai kawakami lahaina
 lahaina-blaze larimer leeward lynn-crawford maui mescalero
 mescalero-apache mountain-fire multiple-wildfires
 national-interagency-fire-center official-request oroville
 other-causes palermo park-fire pressure-ulcers recovery richard-bissen
 ruidoso salt-fire south-fork survivors tehama thompson-fire
 top-winds ulu windward

Older ■■■ Newer

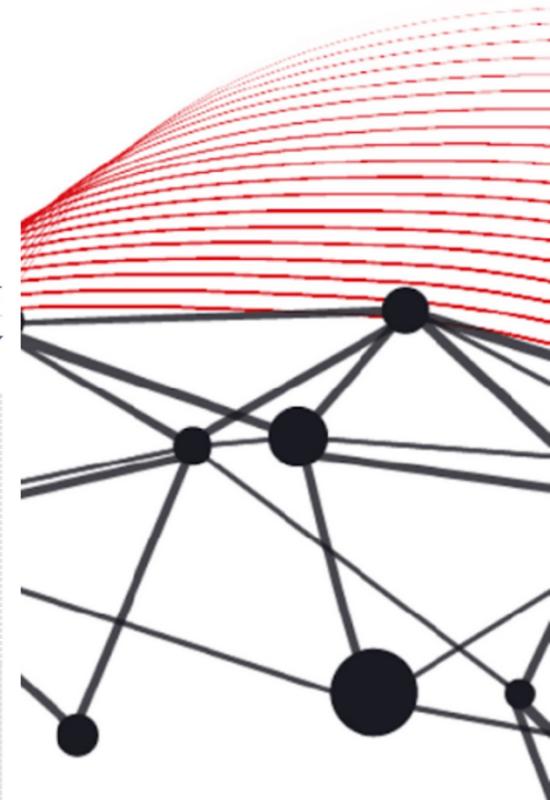
maui ☒

Recency ▾

Wildfire red flag warnings called off as Hurricane Hone passes Hawaii ...is Hawaiian for "sweet and soft", poked at memories still fresh of last year's deadly blazes on **Maui** which were fuelled by hurricane-force winds. Red flag alerts are issued when warm temperatures, ver... 25 Aug 

Tropical Storm Hone lashes Big Island ...winds and high surf throughout the state as well as potential localized and moderate flooding in **Maui** 25 Aug 

Storypact Editor
 Summary of 2023 events via the *AI Toolbox*; *Tag Cloud* with related topics currently discussed; click on a keyword ("Maui") focuses on articles mentioning this location.



Video analysis REST service (CERTH) for multimodal media understanding

Utilizes state-of-the-art algorithms to extract the metadata

- **Video scene and shot segmentation:** Performs temporal decomposition of the videos into scenes and shots based on content analysis
- **Visual concept / event detection:** Annotates video shots and images with concept / event labels
- **Sentiment analysis:** Annotates with sentiment (polarity: positive/negative) images and videos
- **Cross-modal signatures:** Extracts cross-modal signatures from video keyframes, images, and text
- **Video summarization:** Generates visual video summary and selects key thumbnails
- **360 video analysis:** Detect salient events within a 360-degree video, converts it to traditional 2D video, applies the described video analysis techniques

360° video



2D video summary



CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

it i IDT Intelligent Digital Transformation
Laboratory

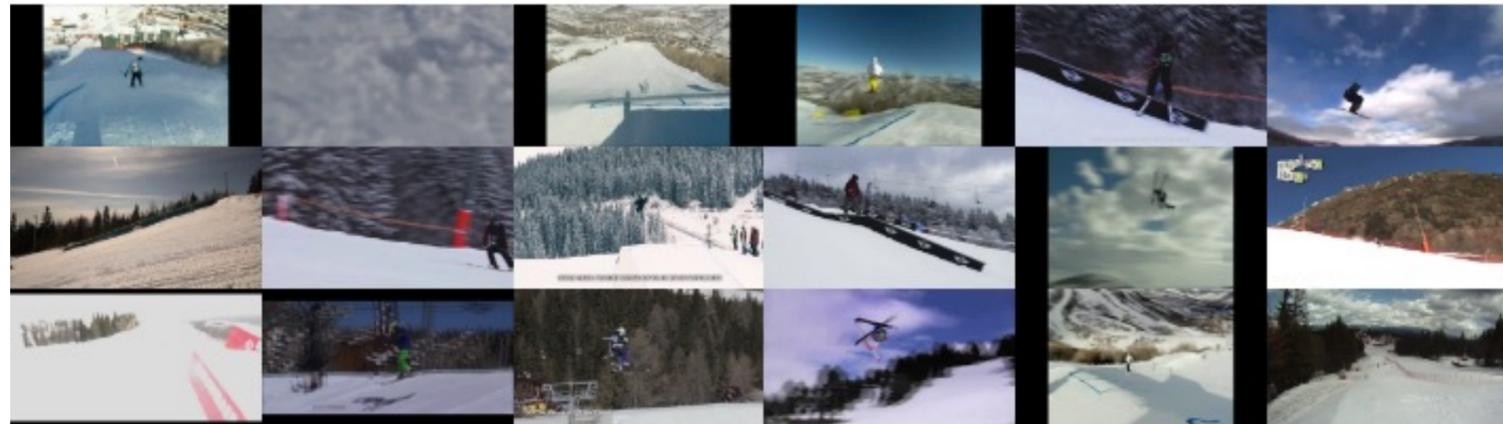
TR TRANSMIXR



Generated metadata enables diverse and efficient content search

- **Keyframes & Video summary:** Enable users to search and preview video content using keyframes and automatically generated summary
- **Concept/Event detection & Sentiment analysis:** Retrieve specific videos by filtering based on detected concepts, events or sentiment
- **Cross-modal signatures:** Perform searches across different modalities, allowing free-text-based video retrieval

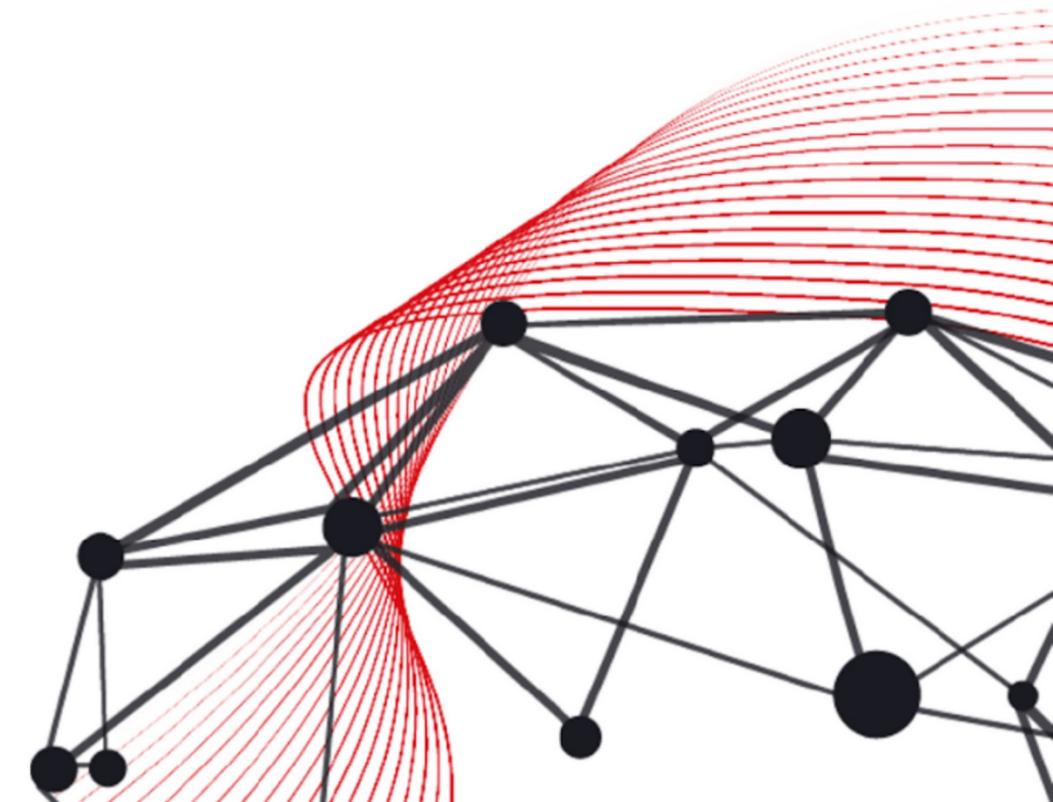
“ski jumping on a sunny day” →



CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

it i IDT Intelligent Digital Transformation Laboratory

TR TRANSMIXR



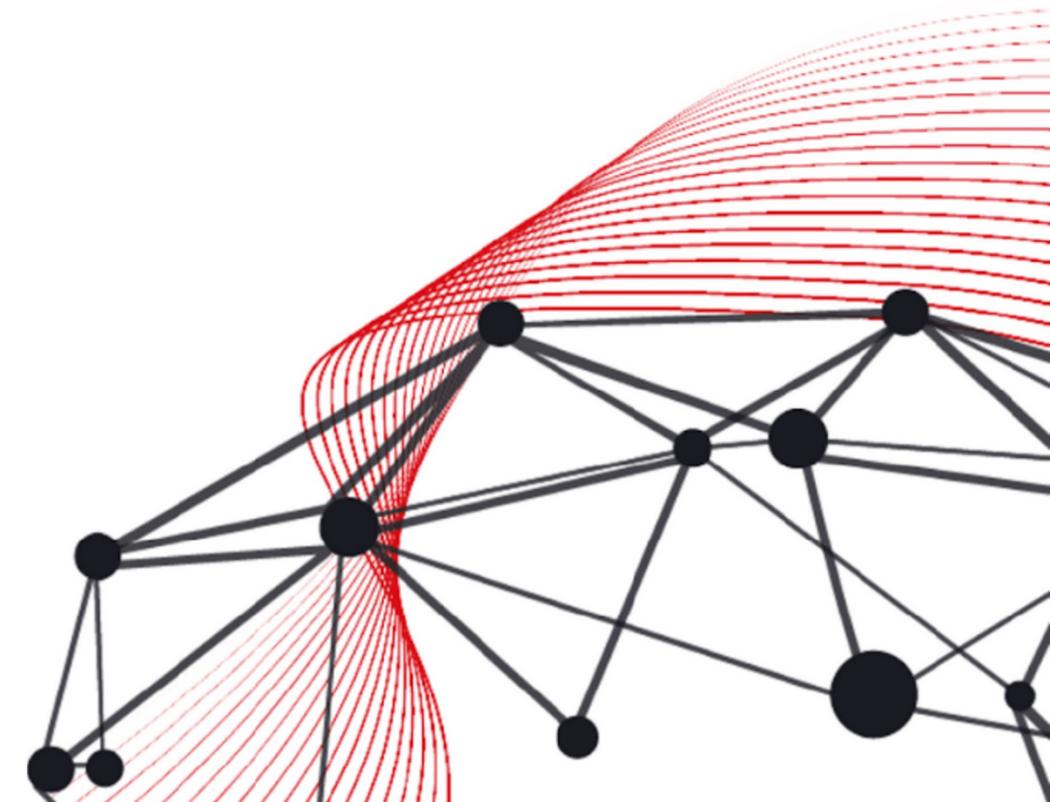


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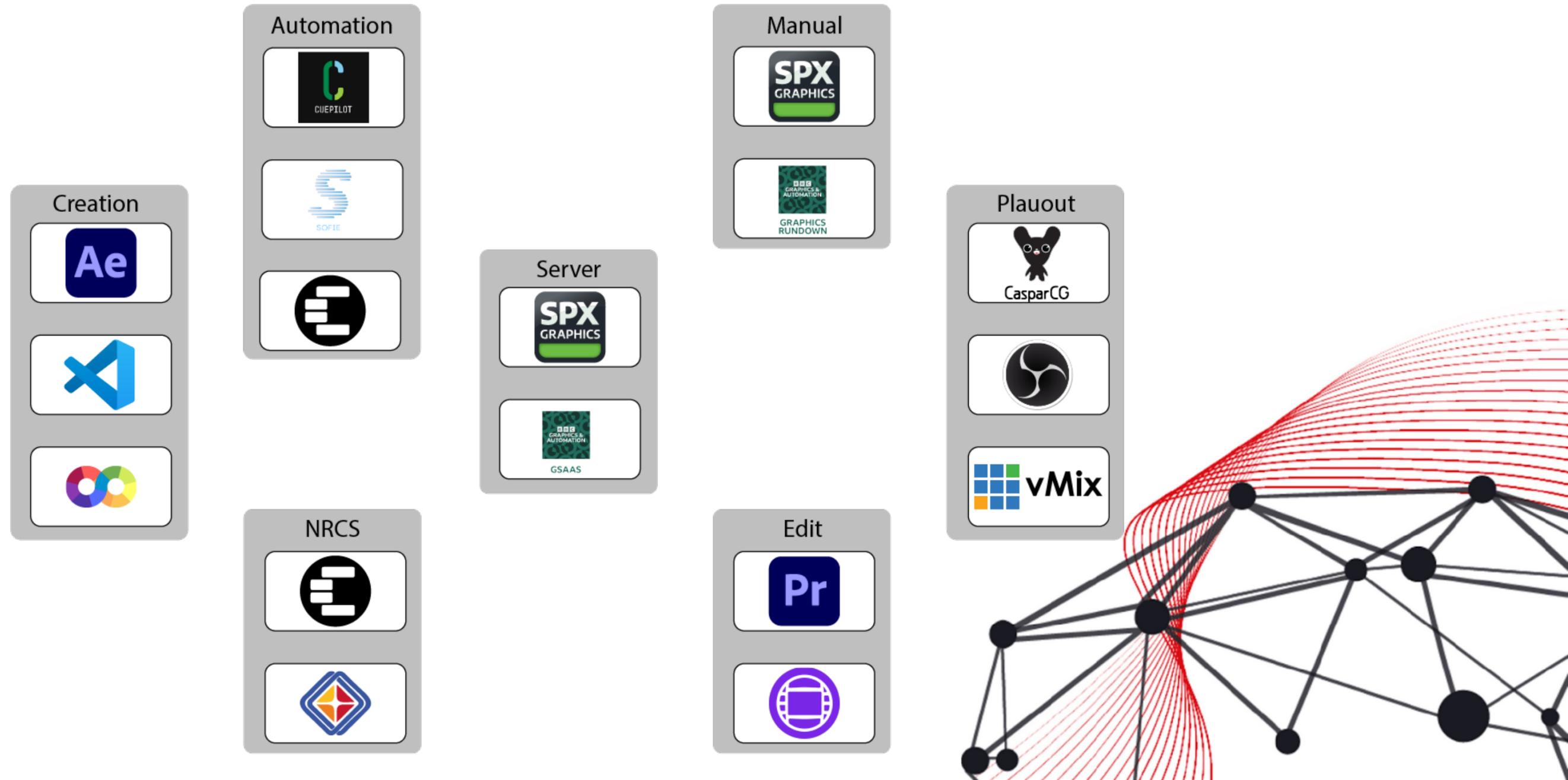
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HTML Graphics

Modular approach to graphics



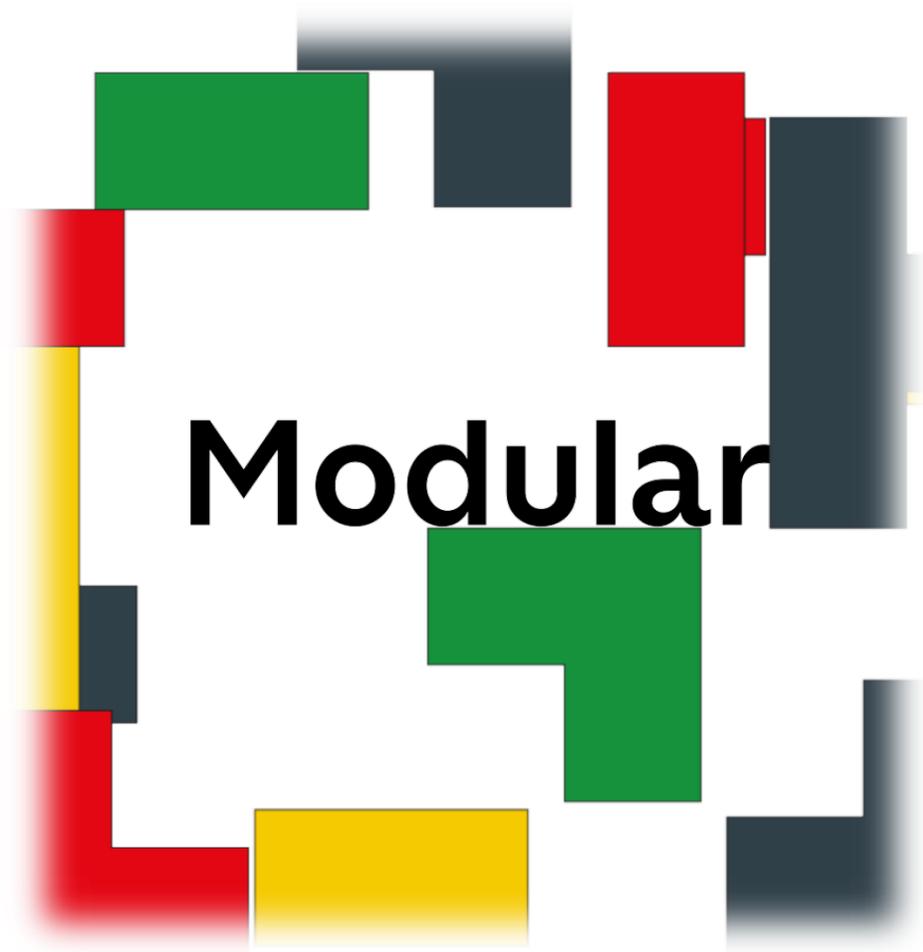
Partners in the workflow





IBC2024

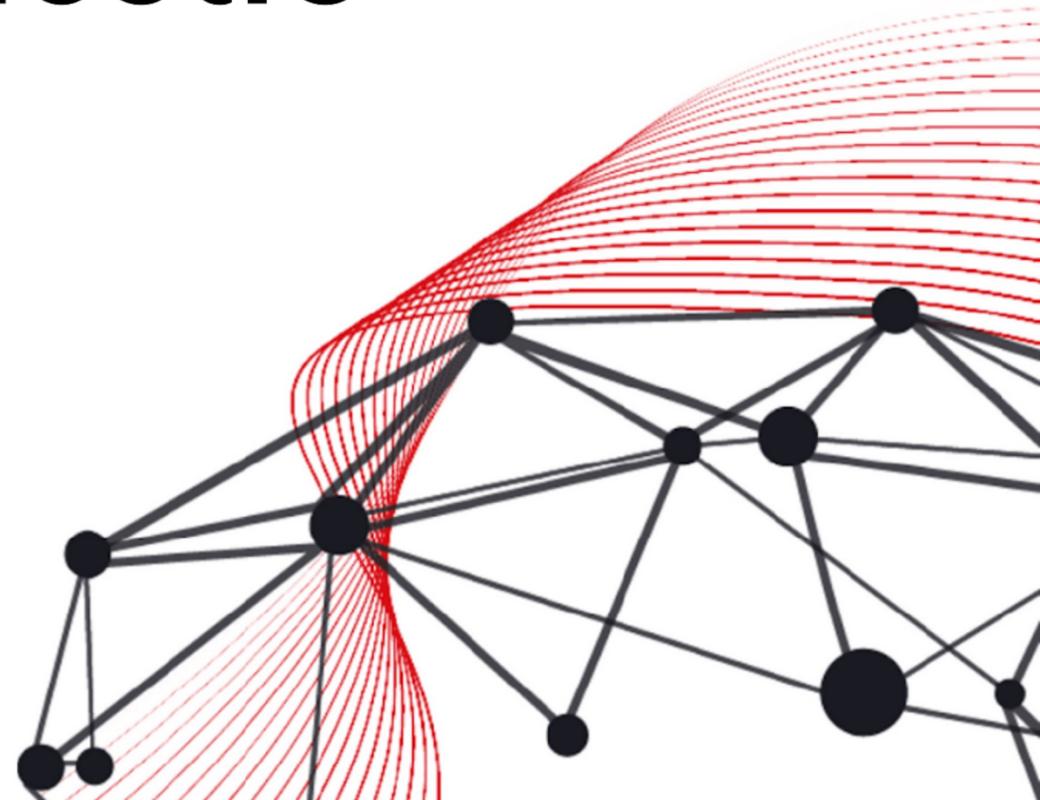
#ACCELERATORS2024



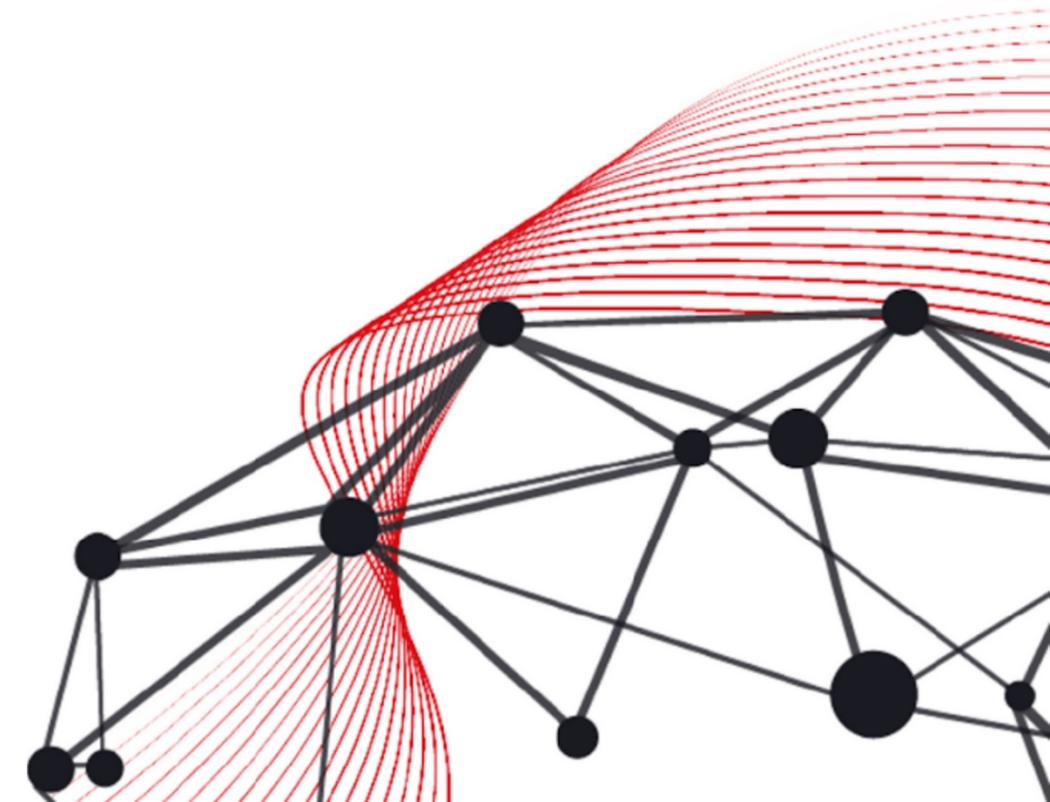
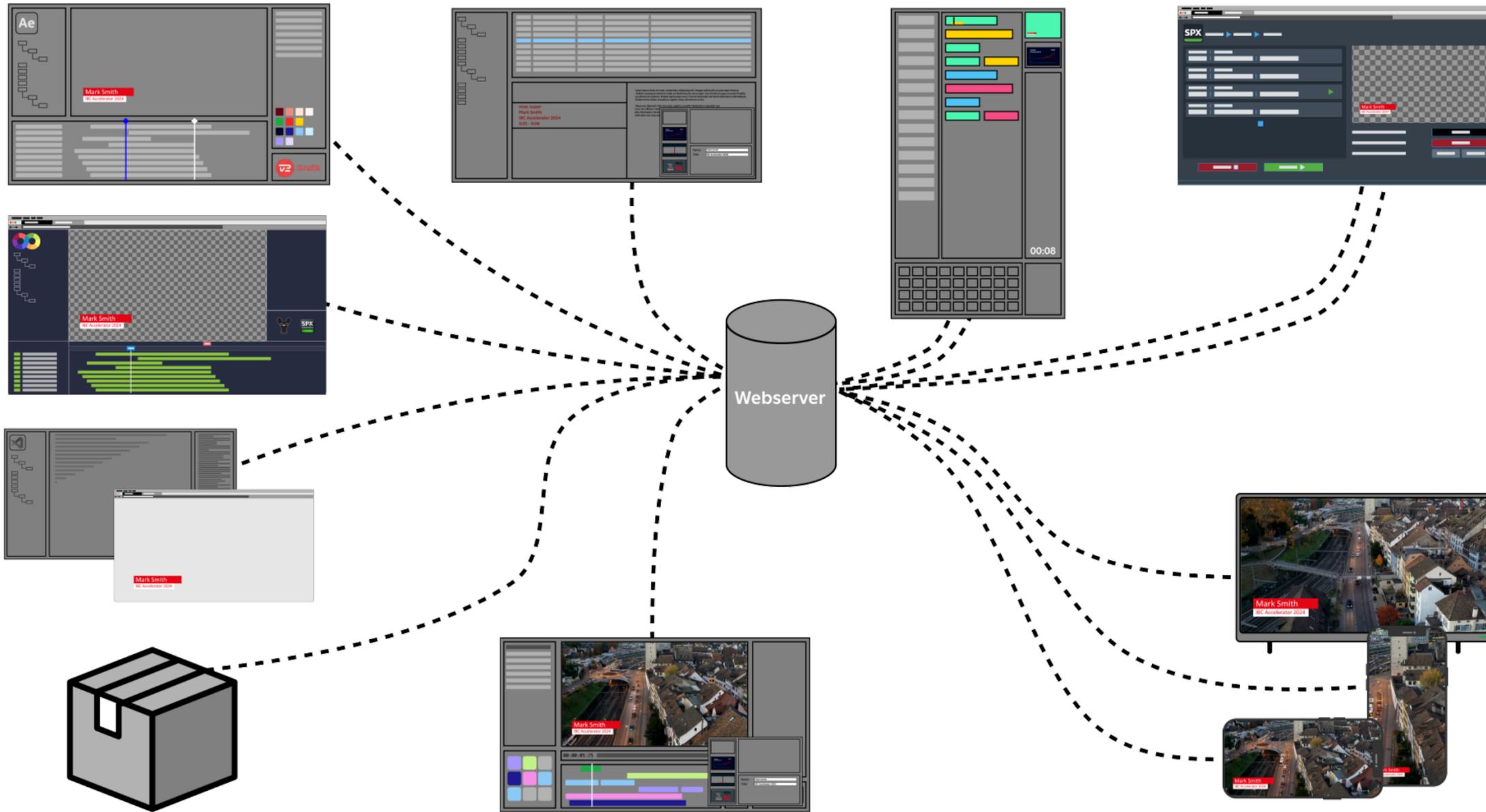
Modular



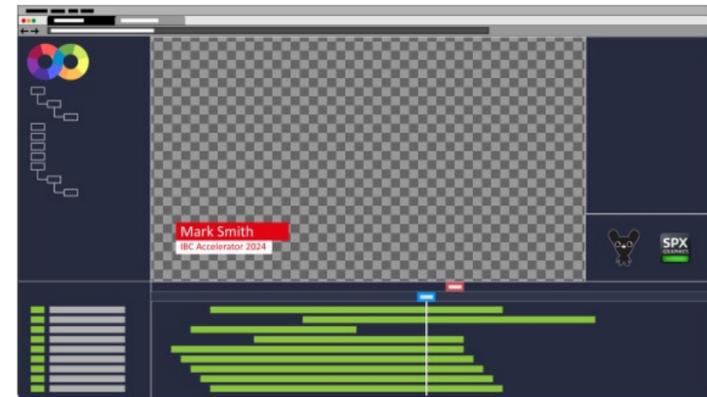
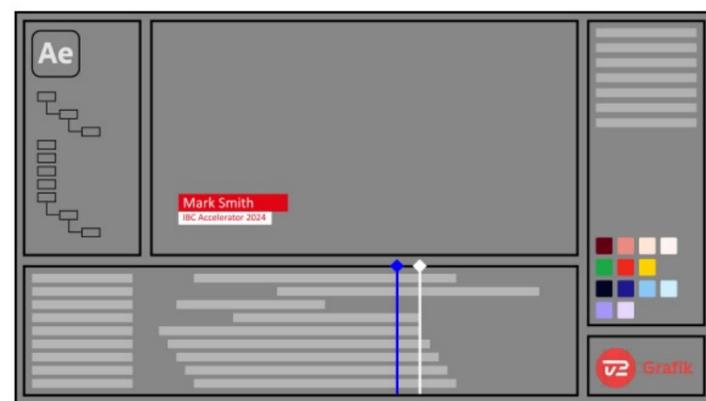
Platform
Agnostic



The workflow



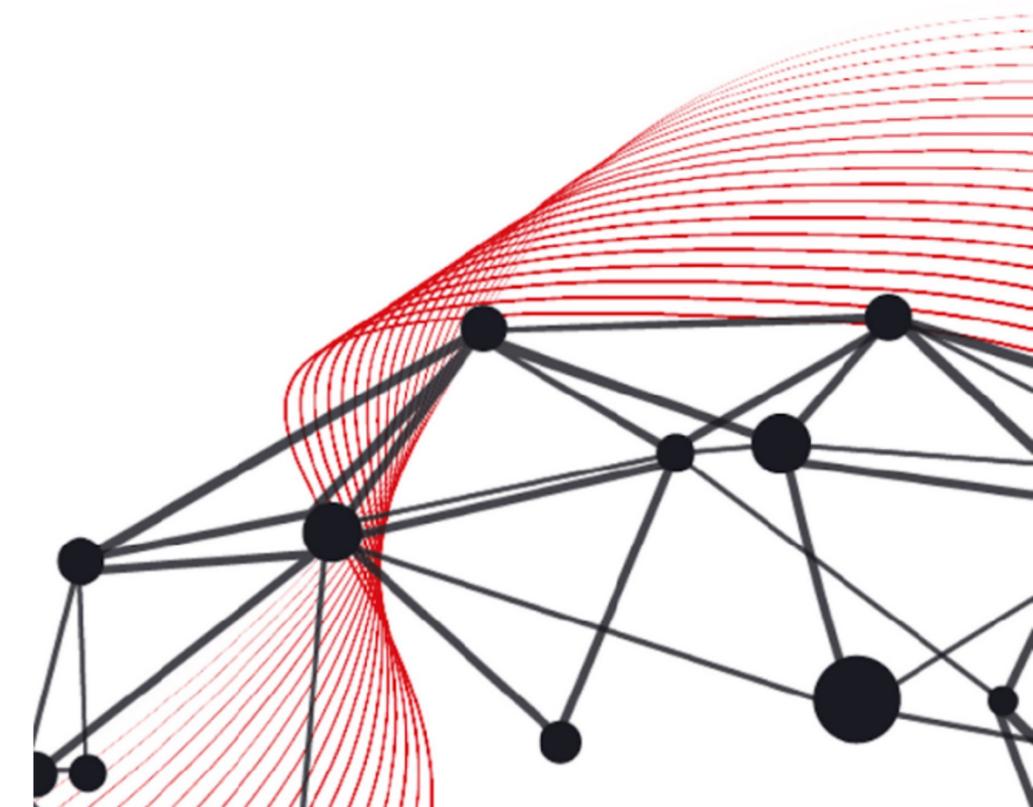
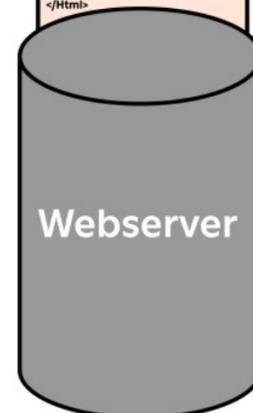
Graphics creation



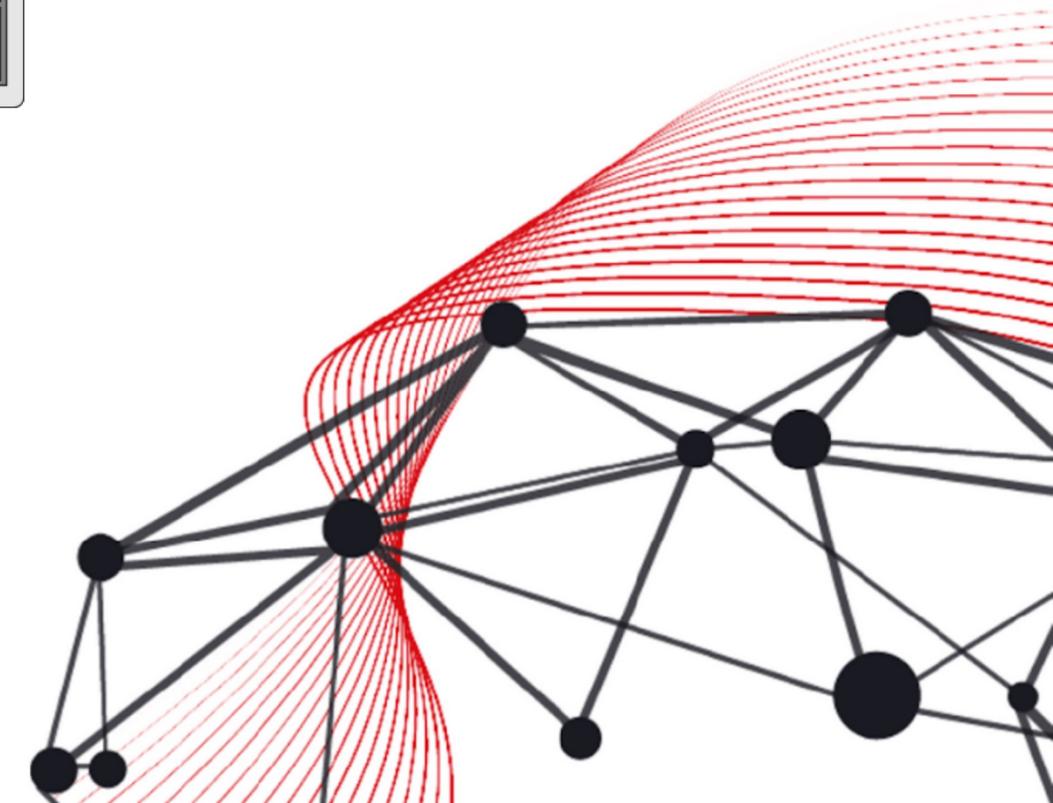
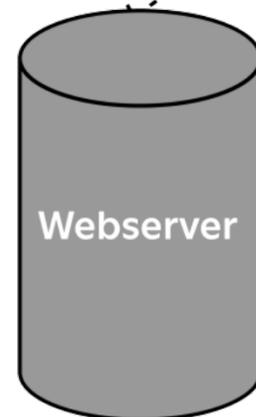
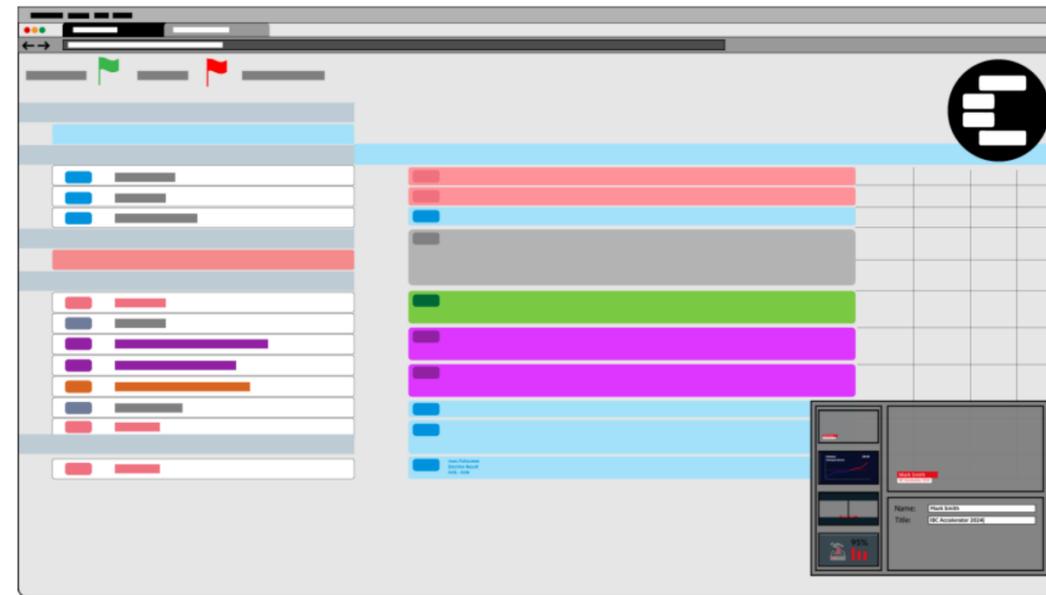
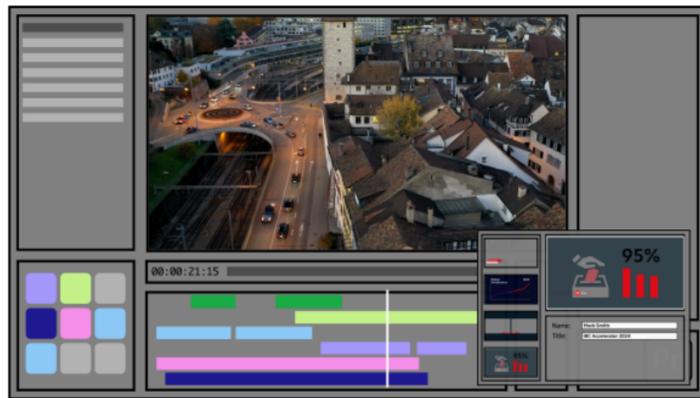
```
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<head>
<title>
TV 2 Danmark HTML Graphic</title>
</head>
<body>
<!-- In this example we use
the anchor tag for linking one
page to another by using the
href attribute which specify the
uri of the second page which you
want to link-->
<center> Click on
<a href="https://www.tv2.dk">
this link </a>
for reading news from TV 2 Danmark.
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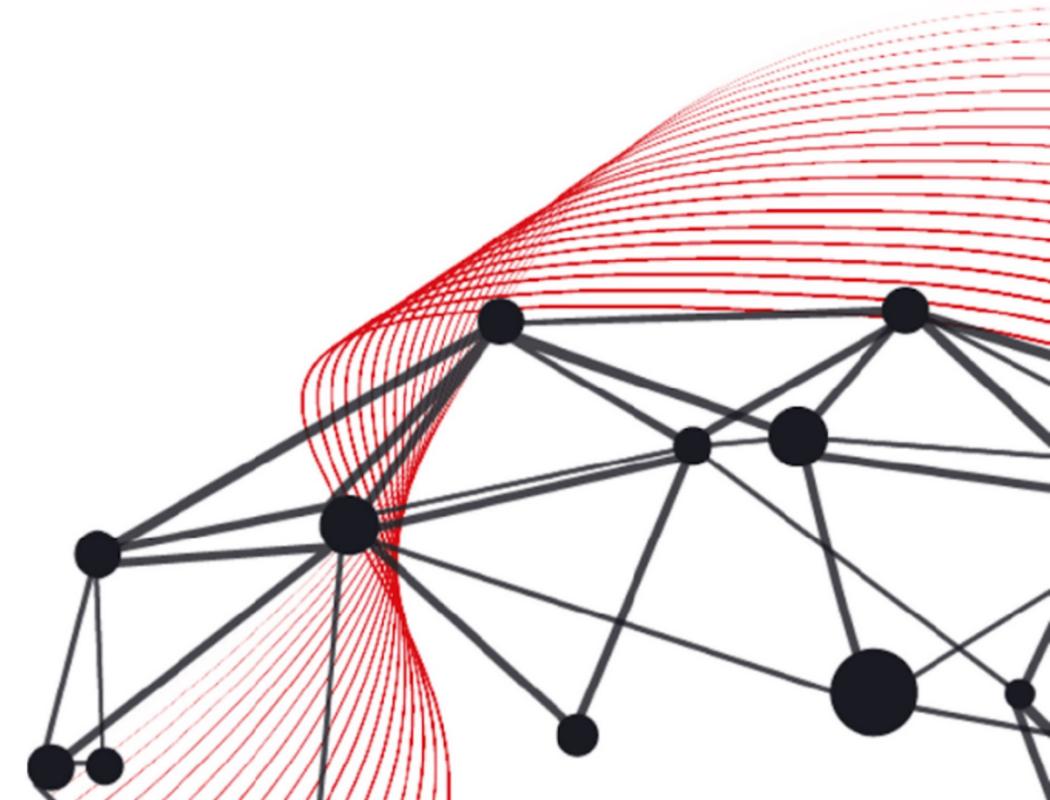
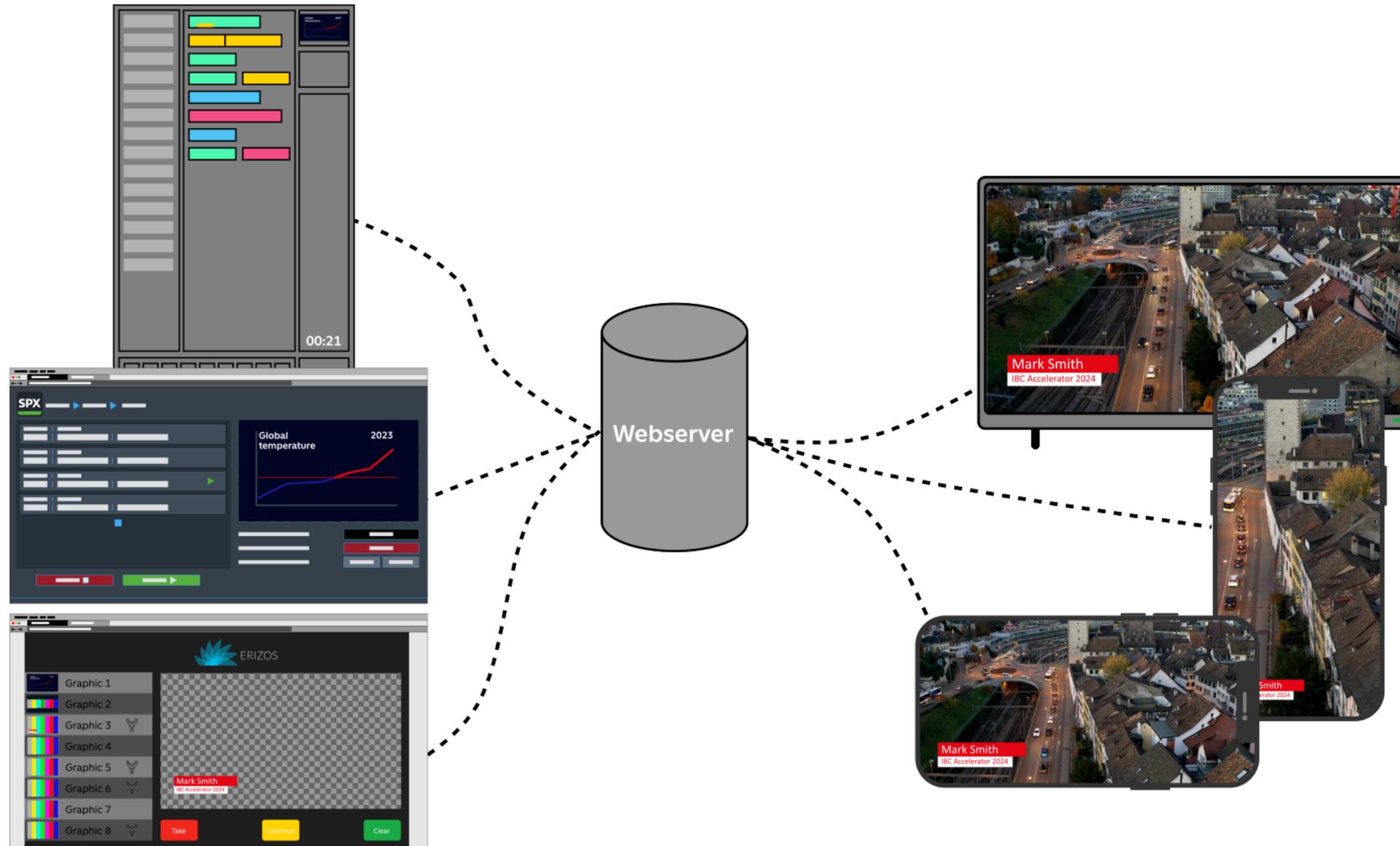
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```



Template input



Playback



Industry Impact

- **Produce more for less, scale-up and expand**
- **Live multi-format output**, including emerging AR and VR platforms
- **Unified workflow & intuitive UI**
- **Reduce hardware & on-prem facilities**
- **Enables remote and flexible work**
- **Accessibility through customisable virtual workspaces**



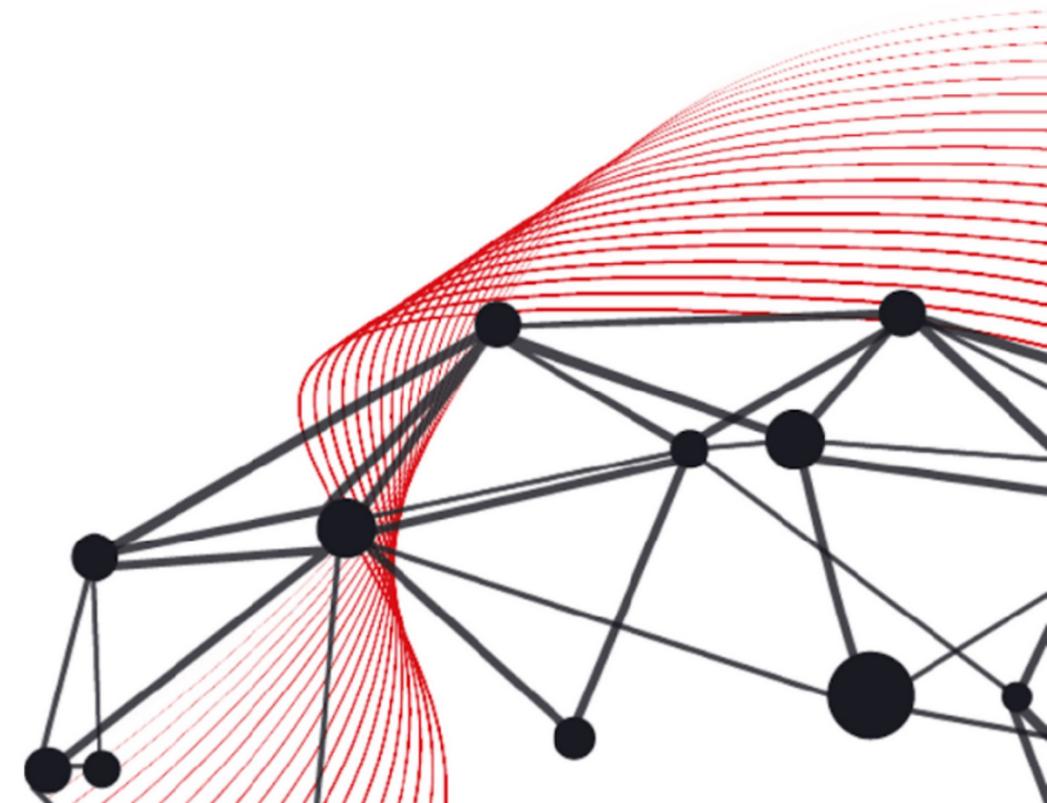


Ethics and responsibilities of new tools

- AI is likely to transform the broadcast industry
- While it could be used to cut costs and reduce headcount, instead we should consider how it can **enable us to grow**.
- It can enable us to **reach more platforms and output formats**
- It can **assist the crew** to do more, **in easier and more flexible ways**
- AI and automation can **enhance the audience experience**, where a full production crew doesn't suit the model, such as podcast studios.
- We are more than television producers, we are multi-format, so we need more than the television production model to **reach our audience in new ways**.

Sustainability

- **Reduced** travel and transportation of equipment
- **Less** hardware dependencies
- **Enables** remote collaboration
- Distributed studios with **shared** resources





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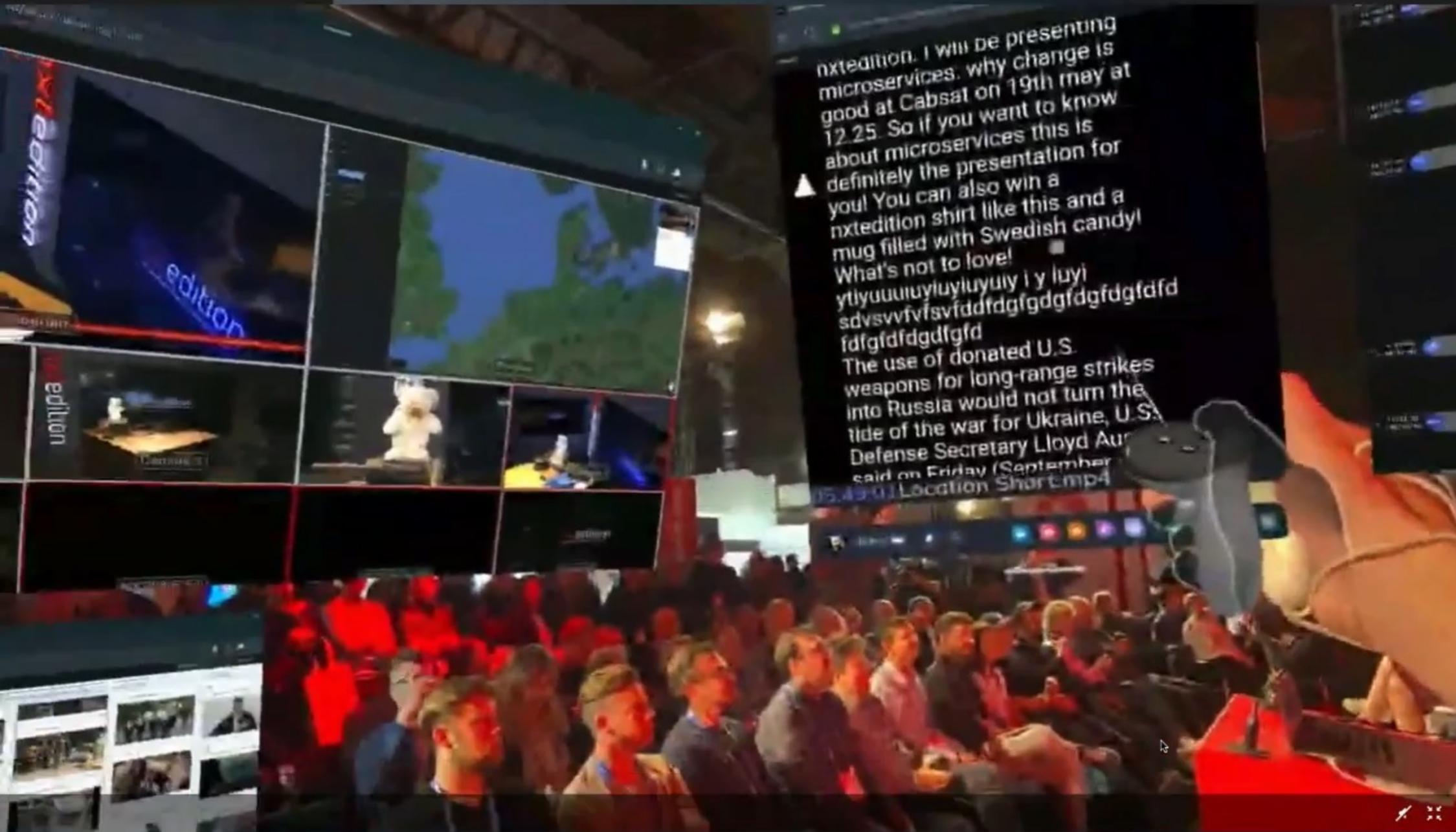
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**If we use the new tools in
same way we used the
old tools...
We will never fully realise
the full potential of these
new technologies**



NxtEdition XR Control Room live demo – Adam Leah controlling the NxtEdition studio in Malmo, Sweden live from IBC at the RAI, Amsterdam, using a Meta Quest 3 over Wi-Fi!!!



NxtEdition's XR/Mixed Reality Studio Gallery Control won the IABM BaM award in the Create category, and the TVB Europe Best of Show at IBC 2024



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EVOLUTION OF THE CONTROL ROOM:
LEVERAGING XR, VOICE, AI &
HTML-BASED GRAPHICS SOLUTIONS

#IBCACCELERATORS2024

