

Technical Review

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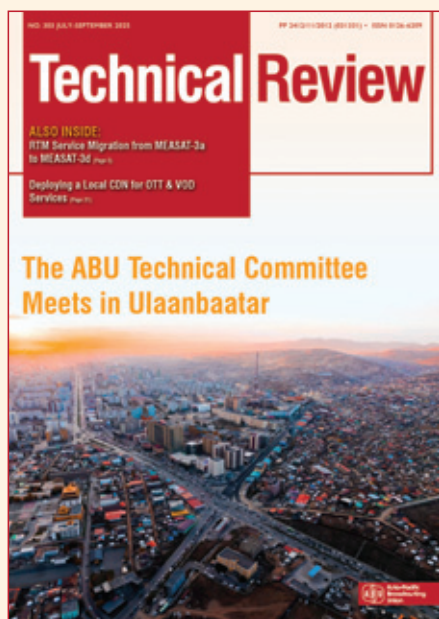
Deploying a Local CDN for OTT & VOD Services (Page 31)

The ABU Technical Committee Meets in Ulaanbaatar



Asia-Pacific
Broadcasting
Union

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Cover: ABU Technical Committee Meets in Ulaanbaatar

from The Editor

As we approach the final stretch of another transformative year in broadcasting, the pace of technological change continues to challenge and inspire our industry in equal measure. Broadcasters across the Asia-Pacific are navigating a landscape defined by rapid convergence — where traditional transmission, IP-based delivery, and digital platforms increasingly overlap to create new opportunities for content distribution, audience engagement, and operational efficiency.

In this evolving environment, the importance of collaboration, innovation, and knowledge sharing within our Union has never been greater. The ABU Technical Committee Meeting 2025, held alongside the General Assembly, once again demonstrated the collective strength of our community. This year's meeting was particularly significant as it included the election of the new Technical Bureau, with 18 Bureau members, a Chairperson, and three Vice-Chairpersons successfully elected. On behalf of the editorial team, we extend our warmest congratulations to all the elected organizations and individuals who will steer the technical work of the Union in the years ahead.

This issue of Technical Review reflects both the breadth and depth of our members' technical initiatives. From RTM's migration from MEASAT-3a to MEASAT-3d, ensuring service continuity and improved performance, to practical insights on deploying local CDNs for OTT and VOD services, these stories capture how broadcasters are adapting to the hybrid world of satellite, terrestrial, and IP delivery. The DAB+ Digital Radio Technical Workshop and the Member Innovation Series further highlight the creative energy driving our transition toward more flexible, data-driven, and audience-centric systems.

Beyond these pages, the global conversation continues to evolve around topics such as Direct-to-Mobile (D2M) delivery, spectrum optimization, AI-assisted production workflows, and sustainable broadcasting technologies. These are not just future concepts — they are shaping decisions being made in our engineering rooms and board meetings today.

We invite all members to stay engaged, contribute their experiences, and continue leading the transformation of broadcasting across our region. Together, we are building a more resilient, inclusive, and innovative media future.

Warm regards,
Dr Veyssel Binbay
veyssel@abu.org.my

The Asia-Pacific Broadcasting Union (ABU) is a professional union of broadcasting organisations in the Asia-Pacific area which aims to co-ordinate and promote the development of radio, television and allied services in the region. It is non-governmental, non-political and non-commercial.

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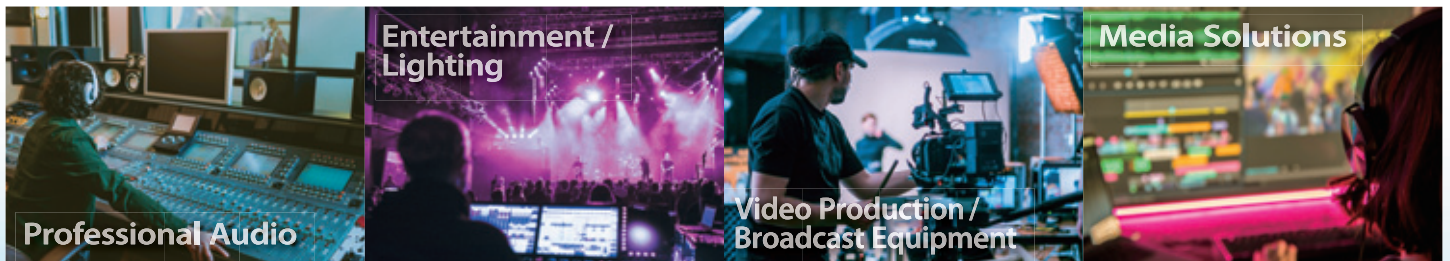
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RTM Service Migration from MEASAT-3a to MEASAT-3d

ABSTRACT

The strategic migration of RTM's broadcasting services from MEASAT-3a to MEASAT-3d marked a significant milestone in ensuring continuity, improved quality, and enhanced resilience in satellite broadcasting for Malaysia's national broadcaster. This article presents a review of the migration project, capturing the objectives, methodologies, execution phases, technical challenges, and the post-migration results, all while reflecting the collaborative efforts of Jabatan Penyiaran Malaysia better known as Radio Television Malaysia (RTM), MEASAT Satellite Systems Sdn Bhd (MEASAT), and Telekom Malaysia Berhad (TM).

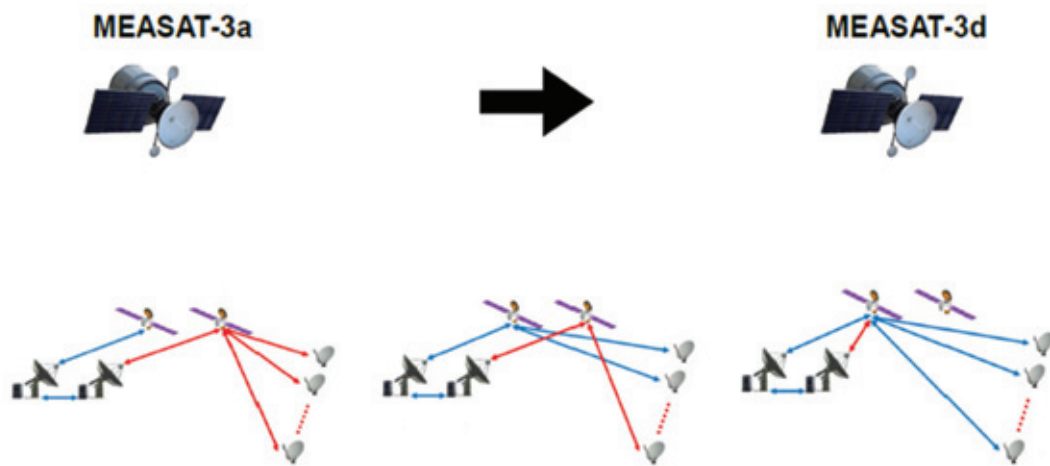


Figure 1: Migration of RTM's Broadcasting Services From MEASAT-3a to MEASAT-3d Using Dual Illumination Technology

INTRODUCTION

RTM, Malaysia's national broadcaster, operates via terrestrial, satellite, and streaming platforms. Satellite broadcasting has played a critical role since 2005 in linking Angkasapuri Kota Media, Kuala Lumpur with regional centers in Sabah and Sarawak, significantly reducing reliance on undersea cable infrastructure. This editorial captures the recent milestone where RTM successfully migrated its satellite services from the aging MEASAT-3a satellite to the technologically superior MEASAT-3d.

MEASAT-3a, which had served RTM since 2009, reached the end of its 15-year operational life. The migration to MEASAT-3d was vital to ensure service continuity and future-proof broadcasting operations.

The transition was conducted collaboratively between RTM, TM, and MEASAT, with meticulous technical and logistical planning.

Satellite broadcasting remains anchored on C-Band frequencies, preferred for their weather resilience.

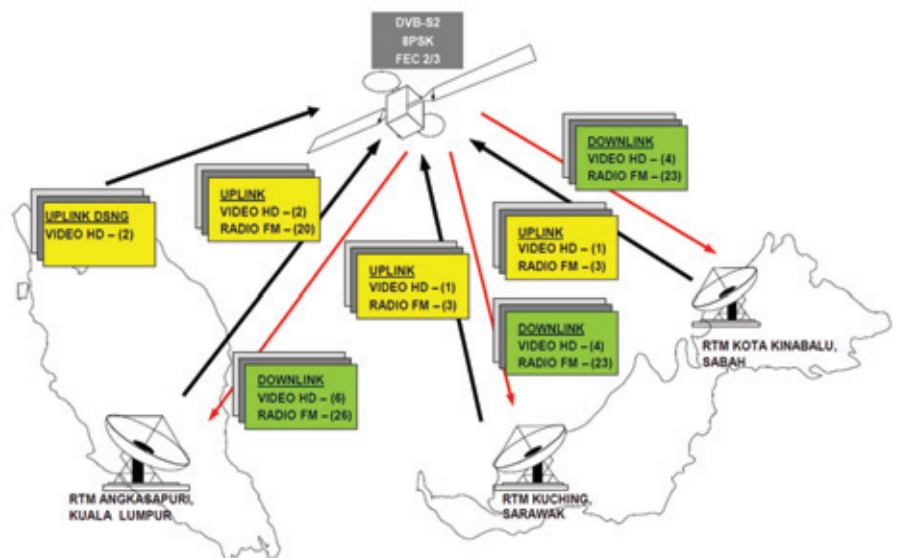


Figure 2: Existing Overall RTM's Broadcasting Services Using Satellite MEASAT-3a

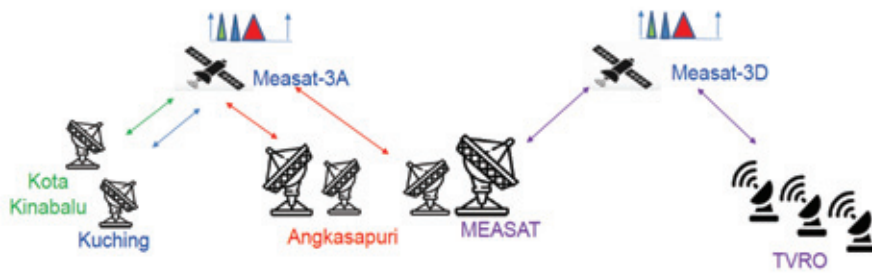


Figure 3: TVRO Migration to Satellite MEASAT-3d Using Dual Illumination Technology

In anticipation of the decommissioning of the MEASAT-3a (M3A) satellite positioned at 91.5°E, Radio Televisyen Malaysia (RTM) embarked on a mission-critical initiative to migrate its broadcast services to the newly launched MEASAT-3d (M3D) in 2022. The transition was imperative not only to maintain uninterrupted services but also to leverage the technological advancements of the newer satellite.

With the combined leadership and expertise of TM, RTM, and MEASAT, this migration was more than a routine technical upgrade. It was a coordinated nationwide effort to ensure RTM's satellite delivery infrastructure evolved seamlessly with minimal disruption.

OBJECTIVES

The primary objective was to achieve a seamless and full migration of all RTM satellite broadcasting services from M3A to M3D by 1 April 2024.

This entailed:

- ✓ Ensure uninterrupted broadcasting or zero downtime during the

migration or satellite switchover.

- ✓ Changing the uplink polarization from vertical to horizontal and transition downlink polarization from horizontal to vertical.
- ✓ Reconfiguring uplink and downlink frequencies or parameters at all Fixed Earth Stations and TVRO (Television Receive-Only) sites.
- ✓ Upgrade outdated infrastructure and equipment.
- ✓ Executing the process in phases using dual illumination technology to support parallel broadcasting during migration to reduce operational risks.

IMPLEMENTATION STRATEGY

The implementation covered 3 main Fixed Earth Stations namely SOC Angkasapuri, SOC Kuching, and SOC Kota Kinabalu, 26 transposer sites, and 6 mobile DSNG vans.

Antenna realignment, azimuth/elevation tuning, and Cross Polarization Isolation (CPI) were performed. Link budget analysis guided performance adjustments.

Dual illumination enabled

simultaneous transmission on both MEASAT-3a and MEASAT-3d to avoid downtime.

REASSIGNMENT

The migration required reallocation of transponder frequencies and carrier assignments. Key parameter changes included:

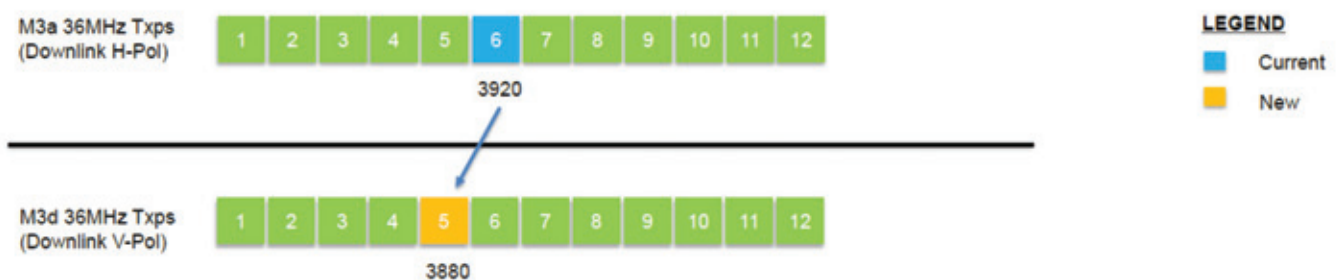
- ✓ Uplink frequency adjustment from 6145 MHz (Vertical Polarity) to 6105 MHz (Horizontal Polarity).
- ✓ Downlink frequency reallocated from 3920 MHz (Horizontal Polarity) to 3880 MHz (Vertical Polarity).
- ✓ Retention of the 36 MHz bandwidth with DVB-S2, 8PSK modulation, FEC 2/3, and 25% roll-off.

Carriers, ranging from 3.6 to 12.4 Msps, were reassigned across the new M3D transponders to support Angkasapuri, Sabah, Sarawak, and the DSNG platforms.

TIMELINE

The migration spanned from January to April 2024 and included the following critical milestones:

- ✓ 26 January 2024: Pilot migration conducted at Ulu Slim TVRO site.
- ✓ February 2024: Full-scale dual illumination and system testing at various TVRO sites.
- ✓ 20-21 February 2024: Fixed Earth station transitions at SOC Angkasapuri.
- ✓ 27 February 2024: Final transitions for DSNG and regional Fixed Earth Stations (SOC Kuching and SOC



	M3a-6	New – G5
Uplink Center Frequency (MHz)	6145	6105
Uplink Pol	V	H
Downlink Center Frequency (MHz)	3920	3880
Downlink Pol	H	V
Bandwidth (MHz)	36	36

Figure 4: Reallocation of Transponder Frequencies in Satellite MEASAT-3d Migration

Kota Kinabalu).

- ✓ 1 April 2024: Initiation of 24/7 RF carrier monitoring on the MEASAT-3d platform.

MIGRATION

1. TVRO Site Migrations

A total of 26 TVRO sites were successfully migrated. This involved comprehensive technical operations such as:

- ✓ Replacement of worn-out connectors.
- ✓ Realignment of antennas to the new satellite orbital location.
- ✓ Cable upgrades from RG6 to RG11 for better signal integrity.
- ✓ Effective mitigation of interference sources, particularly from nearby 5G signals.

Post-migration analysis showed signal improvements across most locations, with Carrier-to-Noise (C/N) ratio gains of up to 5 dB.

2. Fixed Earth Station Migration

The Fixed Earth Station transitions were executed in two phases:

- On 20 February 2024, the 4.5-meter system at SOC Angkasapuri was successfully migrated.
- The following day, the 7.2-meter system was deployed with full optimization and calibration to operate on the new satellite.

These stations showed enhanced signal clarity and improved transmission power metrics.

3. DSNG Migration

Migration of six DSNG (Digital Satellite News Gathering) units posed unique challenges due to variable field conditions. Initially, tests on both 4.5 MHz and 9 MHz bandwidths revealed increased power needs and lower-than-expected link margins.

However, a two-phase optimization (completed on 28 February and 27 March 2024) successfully restored DSNG performance to standard operational levels.

RESULTS OPTIMIZATION

The outcome of this migration effort was quantified through several key performance indicators:

- ✓ SOC Angkasapuri showed a transmit C/N gain of 13.7 dB with a 6.8 dB link margin.
- ✓ SOC Kuching, Sarawak achieved a C/N of 13.4 dB.
- ✓ SOC Kota Kinabalu, Sabah maintained a C/N of 13.1 dB, with an enhanced link margin of 6.8 dB.

For DSNG units, optimization yielded strong improvements as well:

- DSNG 3 and DSNG 4 reported C/N gains above 13 dB, with link margins exceeding 6 dB.
- Even under the more demanding 9 MHz bandwidth test, performance was normalized, although higher power was required.

The final HPA (High Power Amplifier) metrics reflected substantial power

gains, particularly at the regional Fixed Earth Stations, ensuring robust uplink stability.

CHALLENGES AND SOLUTIONS

The migration team faced several notable challenges:

- ✓ Antenna misalignments and degraded components at remote TVRO sites slowed down initial migrations. These were resolved through on-site technical adjustments and hardware replacement.
- ✓ Power inefficiencies in DSNG systems during initial operation on MEASAT-3d prompted recalibration and transponder power management to regain optimal performance.

The ability to swiftly diagnose and correct these issues highlighted the effectiveness of real-time monitoring and technical collaboration.

RESULTS AND OUTCOMES

M3A satellite have been move out from 91.5E by 1 April 2024 and all M3A services have been migrated to M3D satellite at the same orbital slot. The migration was completed within a tight timeline, with no reported service outages. Continuous 24x7 monitoring by MEASAT found no anomalies at the RF carrier since 1 April 2024.

Post migration testing has been performed to all sites inclusive of DSNG 9MHz transmission. Transponder optimization has been performed with MEASAT to ensure full optimization at Fixed Earth Station and Satellite transponder. Signal strength improved significantly, with C/N ratio gains observed at all major stations. DSNG units also returned to expected performance levels post-optimization. The project demonstrated the success of coordinated national-level technical upgrades.

CONCLUSION

The migration of RTM's satellite broadcast services to MEASAT-3d stands as a testament to technical precision, strategic foresight, and collaborative execution. The effort ensured:

- ✓ Uninterrupted service delivery to all audiences.

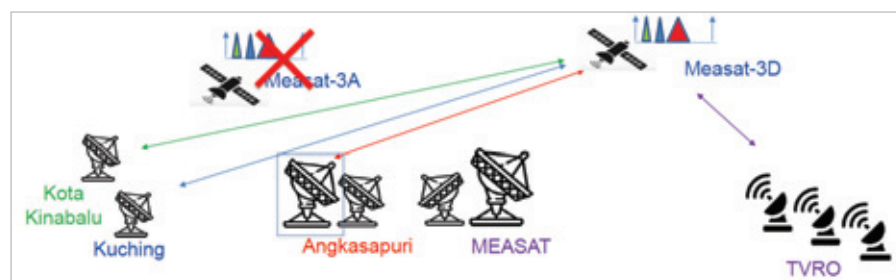


Figure 5: Fixed Earth Station Migration to Satellite MEASAT-3d

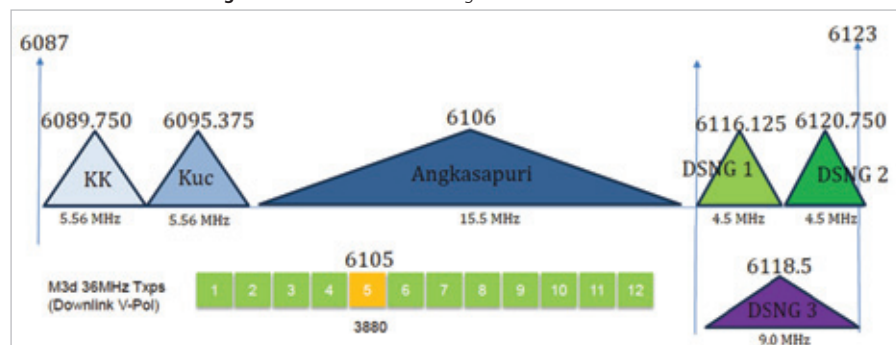
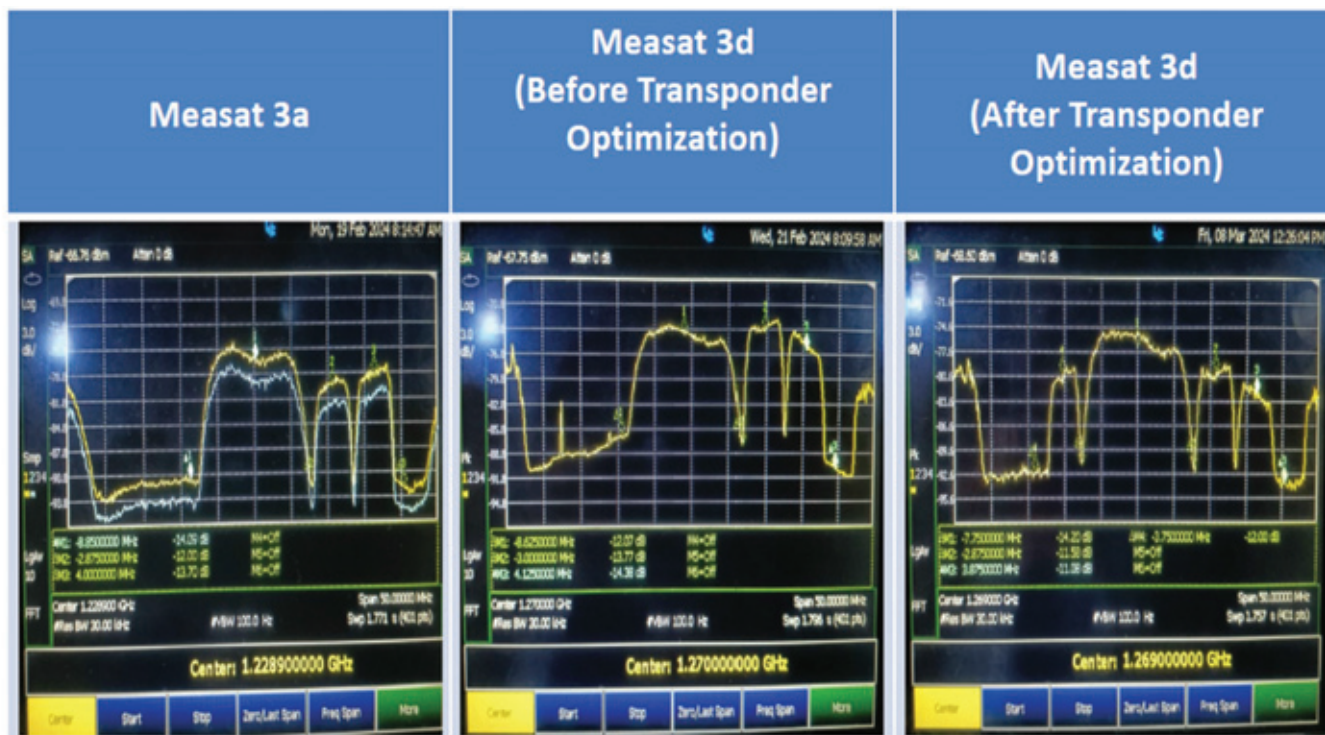


Figure 6: Frequency Assignment at MEASAT-3d



- ✓ Improved signal quality and operational efficiency.
- ✓ Full migration completed ahead of MEASAT-3a's retirement deadline.

AUTHOR:



Gs. Irywan Nizam bin Ramli
SOC RTM

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Introduction to the Mongolian National Public Radio and Television (MNB)



The Mongolian National Public Radio and Television (MNB) is a non-profit media organization that operates national broadcasting services, serving the public interest. The mission of MNB is to operate broadcasting services at a national level, preparing a variety of informative, educational, and entertaining programs aimed at serving the public interest.

History of Mongolian National Public Radio and Television:

In 1930, the “Mongolian Radio” cooperative was established with funds from public and governmental organizations, as well as from citizens’ donations, laying the financial foundation for establishing Mongolian radio. A year later, in 1931, Mongolian radio began broadcasting in the capital city, Ulaanbaatar, and by 1934, it had expanded nationwide, marking the early stages of today’s MNB.

Mongolian television’s first broadcast aired on September 27,

1967, and the first color broadcast was produced in 1981. In 1991, Mongolian television began broadcasting via the Asiasat system, extending its reach to remote areas of Mongolia and abroad. In January 1997, Mongolian National Television became a full member of the Asia-Pacific Broadcasting Union (ABU), initiating international cooperation.

In February 2005, the Public Radio and Television Law was enacted, granting MNB the status of a “public” broadcaster, providing a legal framework for serving the public with independent information. The establishment of this public status for a national broadcaster was a significant milestone in the history of Mongolian media.

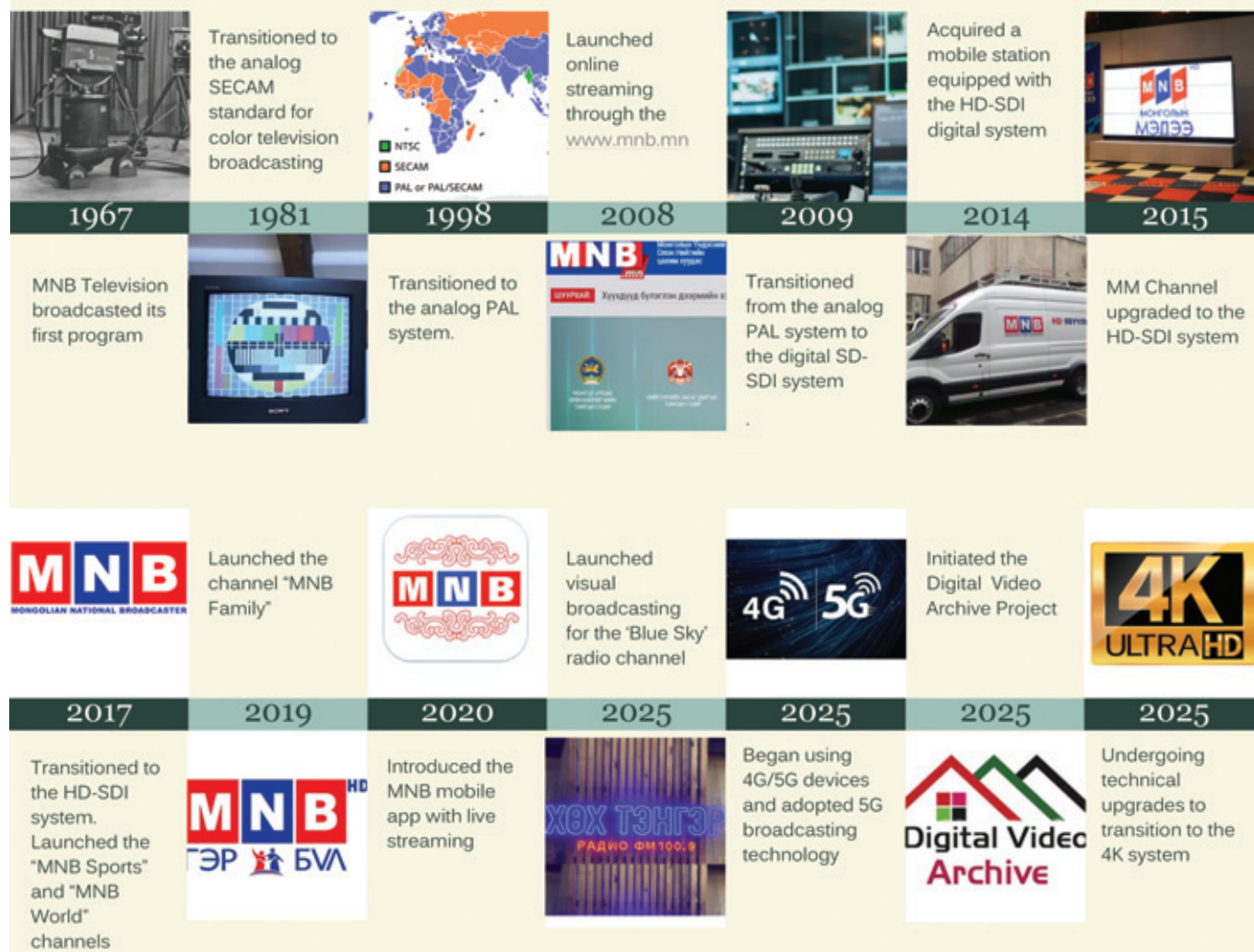
Today, MNB operates several channels, including Mongolian Radio, the Voice of Mongolia (broadcast in multiple languages), the P3 shortwave radio, and five television channels: MNB, MNB News, MNB Sports, MNB Family, and MNB World.

MNB National Television

MNB National Television broadcasts 17 hours a day, producing 6,205 hours of programming annually. The mission is to operate broadcasting services at a national level, preparing various informative, educational, and entertaining programs that serve the public interest. The core principles include independence in operations, respecting the right of citizens to access reliable information, promoting diverse perspectives, transparency, and prioritizing national interests.

The values upheld by MNB include democracy, justice, human rights, equality, and respect for political, religious, social, and economic diversity. MNB also prioritizes national culture, arts, history, traditions, and environmental protection. The channel actively supports peace and international understanding and contributes to the development of arts and culture.

MNB Technical Development Timeline



MNB Sports Channel:

Established in 2018, the MNB Sports Channel plays a key role in promoting national and public sports. It covers a wide range of sports events, including national sports and international competitions, broadcasting them live or in recorded formats. The channel aims to enhance public health and physical education, organize sports events, and bring international sports events like the Olympics to the Mongolian audience.

MNB News Channel:

The MNB News Channel, established in 2016, is Mongolia's leading news channel, providing fast, accurate, and balanced news

coverage. Broadcasting 17 hours of programming daily, the channel employs correspondents in all 21 provinces of Mongolia and in over 10 countries worldwide to deliver timely news on global and domestic events. The flagship news program, "Tsagiin Khurd," has been broadcasting continuously for 57 years and remains the most-watched news program in Mongolia.

MNB World Channel:

MNB World, established in 2018, is a channel dedicated to broadcasting programs in English, promoting Mongolia to the world, and providing information on Mongolia's foreign and domestic policies. The channel aims to contribute

to the development of Mongolia by attracting foreign investment and promoting tourism, while also supporting English language education for Mongolian youth.

MNB Family Channel:

The MNB Family Channel targets children, families, youth, people with disabilities, and the elderly. It focuses on the development and protection of every family member, providing educational, cultural, legal, and health-related content. The channel also addresses sensitive family issues, such as domestic violence and divorce, through specially designed programs.

Introduction to MNB's Mongolian National Public Radio

Mongolian National Radio, established in 1934, is the first national information outlet and continuously disseminates information throughout the country. It produces 17 hours of programming daily, amounting to 6,205 hours annually.

Considering Mongolia's geographical features, its extreme climatic conditions, and the nomadic lifestyle of herders, Mongolian National Radio implements a broad programming policy directed toward all social target groups. Its strengths lie in providing extensive information promptly and at minimal cost, building the trust of its listeners.

In its operations, it adheres to the fundamental principles of maintaining independence, respecting citizens' right to access factual information, upholding pluralism and transparency, and placing national interests above all. It respects democracy, justice, human rights, freedoms, and equality. It respects diverse political, religious, social, and economic

views and represents them fairly. It values national culture, art, history, customs, and traditions, prioritizes national unity, and supports environmental protection. It consistently advocates for peace and works to strengthen mutual understanding and trust among nations.

Mongolian National Radio makes real contributions to developing culture and art by promoting and expanding all forms of creative work. It supports individual and social development, with particular attention paid to the intellectual and physical growth of children and youth.

It strives to equally address the needs of different social groups, including minorities, women, children, and persons with disabilities. Within the framework of sustainable development, it leads efforts to adapt to climate change, protect the environment, support environmentally friendly activities, ensure equal access to resources, and foster gender-sensitive journalism.

Voice of Mongolia Radio

Since 1964, Voice of Mongolia Radio

has produced radio broadcasts about Mongolia for foreign audiences. Pursuant to Article 3.3 of the Law on Public Radio and Television, Voice of Mongolia Radio formulates its editorial policy in conformity with the Foreign Policy Concept of Mongolia, and is responsible for promoting Mongolia abroad.

Voice of Mongolia Radio prepares daily 30-minute broadcasts in five languages (Mongolian, Russian, Chinese, English, and Japanese) and transmits them via shortwave to Asia and Europe. Broadcasts, daily news, and other materials are uploaded in audio and text formats on www.vom.mn. Listeners can access its programming through shortwave radio receivers or online. Germany's 360 Radio retransmits Voice of Mongolia's English programs in Germany and other European countries.

Every year, Voice of Mongolia Radio receives up to 3,000 letters and emails from around 40 countries worldwide. Listener fan clubs operate in China, Japan, India, and Bangladesh.





Khukh Tenger Radio

Mongolian National Radio's third channel, Khukh Tenger (Blue Sky) Radio, was established in 1994 as the first FM radio channel in Mongolia. It produces 16 hours of youth-focused programming daily and 5,840 hours annually. In Ulaanbaatar, its broadcasts are transmitted on FM 100.9 and FM 82.9.

Khukh Tenger Radio has defined its vision as spreading the culture, customs, and knowledge of the Mongolian people, and delivering information in a balanced manner, to become a socially engaged radio and television platform. It has successfully implemented the Visual Radio project, which is a global trend in radio development, and continues to advance in this field. Notable content includes the "Khukh Tenger", "High Heels", "Puuh", and "Vintage Room" Podcasts. Khukh Tenger Radio distributes its content through its Facebook page, YouTube channel, and mnb.mn.

MNB.MN

The official online information channel of Mongolian National Public Radio and Television, the website MNB.mn, was established in 2013. It is a national-level digital information center that integrates content from television, radio, and online channels, and serves as a reliable source of information based on state and public values.

The website receives an average of 13,000 daily visits. Forty percent of its content is government and state information, 23 percent consists of MNB productions, and the remainder is news, reports, and articles prepared by the editorial team.

The site's content is disseminated through the Mongolian National Broadcaster Facebook page (700,000 followers), the MNB Mongolian News and MNB.mn Facebook pages (over 520,000 followers), and MNB's YouTube channel. Readers regard MNB.mn as one of Mongolia's most reliable and official public information platforms.

MNB is Mongolia's first radio and television broadcaster, serving to meet the intellectual needs of its listeners, viewers, and the public by promptly and professionally preparing and delivering balanced coverage of domestic and international events.

MNB aim to be a professional institution of creative work that upholds public interest and produces content of national and international competitiveness.

MNB have closely cooperated with international broadcasting organizations and have honorably fulfilled our membership duties. In 2025, two major events were successfully hosted in our country: ABU Robocon 2025 and the ABU General Assembly. We are confident that these events hold exceptional significance for the development of journalism in Mongolia. We extend our best wishes for success and prosperity to all who share our profession, mission, and aspirations.

Director-General of Mongolian National Public Radio and Television,
G. Gerel ■

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Technical Bureau Annual Meeting 2025



The ABU Technical Department successfully organized the ABU Technical Bureau (TB) Annual Meeting 2025. The event was held online on 4 September 2025. **Mr Masashi Kamei**, Chairperson of the ABU Technical Committee from NHK-Japan, chaired the meeting. Bureau members from across the region attended. Those in attendance were NHK-Japan, NBT-Thailand, IRIB-Iran, PB-India, TRT-Türkiye, MNB-Mongolia, MTV-Sri Lanka, NTV-Nepal, VOV-Vietnam, TVB-Hong Kong-China, and RTM-Malaysia.

The session began with a welcome address by **Dr Veyssel Binbay**, Director of ABU Technology. Mr Kamei then gave remarks, expressing his

appreciation to Bureau members for their continued support and active participation.

Members shared updates on their organizations' activities. They highlighted ongoing technical developments, recent achievements, and challenges in the rapidly evolving broadcasting environment. Members emphasized the importance of regional collaboration and capacity building as key drivers of innovation and practical progress.

Dr Binbay presented the Activity Report and outlined progress since the TB Mid-Year Meeting in April. Updates included initiatives such as the ABU-CCBN Nexus Event, ABU-DRM Webinar, BroadcastAsia 2025, WorldDAB-

ABU-ASBU Workshop, AI Forum, and the Member Innovation Webinar hosted by RTM.

During the discussion, **Mr Kazım Pektaş** proposed an ABU Innovation Hub to enhance communication and collaboration among technical staff. He stressed that the hub would complement, not compete with, existing ABU projects or study groups, providing a platform for staff in maintenance, planning, and similar areas to connect. Mr Pektaş noted that Public Service Media (PSM) organizations commonly face financial constraints and shortages of skilled personnel. As broadcasting technology evolves rapidly – from analog to digital, IP-based systems, and now AI – technical



teams face heavier workloads and increased complexity. The hub aims to help engineers and staff share ideas, exchange solutions, and collaborate efficiently to tackle both innovative and practical challenges.

Dr Binbay briefed members on the upcoming Technical Bureau elections. These elections will take place during the Technical Committee Meeting in Mongolia. He explained the Bureau's composition, nomination status, and eligibility updates. Dr Binbay encouraged all members to review and submit nominations promptly.

A draft of the AI Principles Document was introduced as part of ABU's cross-departmental initiative to address the growing impact of AI on broadcasting. The framework is a set of adaptable principles drawn from international references, such as the EU AI Act and ITU documentation. Members were

invited to provide feedback by 10 September 2025. The draft will then be presented to the Programme Steering Group (PSG) and, after that, to the Administrative Council.

Mr Kamei expressed support for the initiative and highlighted NHK's strong interest in AI. Upon reviewing the draft, he pointed out that the "principles" section was clear. He noted, however, that the "guidelines" section mainly contained examples and use cases, such as newsroom automation, audience analysis, and content distribution. To prevent confusion with prescriptive rules, he recommended renaming this section to "use cases" or "applications of AI." Dr. Binbay welcomed the feedback and confirmed the terminology would likely be updated to better fit the section's content.

Further updates on the Digital Broadcasting Symposium (DBS)

2026, set for 30 March - 2 April in Kuala Lumpur, included structural changes to boost participation and engagement, such as ending concurrent sessions and expanding masterclasses.

The meeting also reviewed findings from a questionnaire circulated earlier by the Chairperson. The aim was to encourage the sharing of best practices and operational experiences among members.

The session concluded with closing remarks from Mr Kamei. He thanked all participants for their contributions and reiterated the importance of collective efforts in advancing the broadcasting industry through collaboration and innovation. ■

ABU Technical Committee Meeting 2025



The banner features a white background on the left with a grid of various broadcasting-related icons. In the center, the ABU logo is displayed above a colorful graphic of a radio tower and signal waves, with the text 'ULAANBAATAR' in large red letters and 'Asia-Pacific Broadcasting Union 62nd General Assembly and Associated Meetings' below it. To the right, an orange background contains the ABU and MNB logos, followed by the text 'TECHNICAL COMMITTEE MEETING' in large white letters. A blue box on the far right specifies the dates '11-12 September 2025' and the location 'Tuushin Hotel, Ulaanbaatar, Mongolia'.

The ABU Technical Committee (TC) Meeting 2024 was successfully held from 11 to 12 September 2025 at the Tuushin Hotel, Ulaanbaatar, Mongolia, hosted by ABU full member the Mongolian National Broadcaster (MNB).

The meeting commenced with opening remarks by Mr Masashi Kamei, Chairperson of the ABU Technical Committee and Senior Manager at NHK-Japan, who emphasized broadcasting's

essential role in preserving culture, addressing technical challenges, and fostering international cooperation.

Next, **Mr Sukhbayar Sukhbaatar**, ABU Honorary Vice-Chairperson and CTO of MNB, spoke about the value of learning from global experiences to support innovation. ABU Secretary-General **Mr Ahmed Nadeem** welcomed participants, praised Mongolia's progress in broadcasting, and encouraged open discussion on industry challenges.

TECHNICAL COMMITTEE PROCEEDINGS

The session began with the confirmation of the agenda and review of the previous meeting's proceedings. **Dr Veysel Binbay**, Director of ABU Technology, presented the Technology Activity Report, highlighting key initiatives and achievements over the past year.

A series of notable events showcased the ABU's commitment to advancing broadcasting technology and fostering collaboration across the industry. One initiative was the Workshop on Cloud Services and Remote Tools for Broadcasters, which was jointly organized with IPPTAR and the Malaysian Government. This workshop provided valuable insights into the practical application of cloud-based solutions and remote



production tools. It equipped broadcasters with the skills needed to adapt to changing technological landscapes.

Another highlight was the ABU-VYPA-NETSTAIRS Webinar, which focused on AI-driven content production and sustainable broadcasting. The event brought together experts to share knowledge and discuss how artificial intelligence can enhance production efficiency while supporting environmental sustainability in media operations.

The ABU Digital Broadcasting Symposium (DBS) 2025 was held in Klang, Malaysia. It drew 774 participants from 36 countries. The symposium maintained its member-focused, non-commercial ethos. It also actively promoted gender diversity in technology. This reinforced the ABU's dedication to inclusivity and professional development.

In addition, the ABU-CCBN Nexus Event in Beijing, themed *"Where Media Meets AI"*, convened industry leaders. The event explored the transformative impact of artificial intelligence on broadcasting. This gathering facilitated dialogue on the integration of AI technologies and their implications for the future of media.

Dr Binbay also noted the success of the Engineering Fundamental Course. This course will expand to advanced levels following positive feedback. He emphasized ABU's continued collaboration with ITU, ASBU, and EBU on emergency broadcasting and spectrum protection projects. He introduced the ABU AI Principles Document, a cross-departmental framework to guide responsible and transparent AI use in broadcasting.

INVITED PRESENTATIONS – PART 1

The first session of the ABU Technical Committee Meeting 2024 was dedicated to exploring emerging technologies. It featured a series of guest presentations.



Mr Zhang Wei, Deputy Director of the Academy of Broadcasting Science, NRTA-

China, delivered an overview of how artificial intelligence is reshaping media and broadcasting. He highlighted China's progress in generative models, intelligent editing, and real-time processing. He stressed the role of AI in cultural preservation and accessibility.



Next, **Mr Chi Wah Leung**, Head of Engineering at RTHK-Hong Kong, addressed

safety and security in AI applications. He explained how RTHK uses AI for media tagging, multilingual subtitling, and film restoration. He underscored the importance of data security, regulatory compliance, and cultural preservation. Mr Leung proposed a structured checklist for safe AI integration in broadcasting.



The session concluded with **Mr Masashi Kamei**, Senior Manager at NHK-

Japan. He shared NHK STRL's vision for the future of broadcasting from 2030 to 2040. His talk explored immersive media, advanced 3D and AR communication technologies, and inclusive innovations such as sign-language CG generation and AI-driven accessibility tools. These demonstrated the technology's potential to create engaging and accessible broadcasting.





THE HOST PRESENTS – MNB MONGOLIA

The host session featured presentations by **Mr Sukhbayar Sukhbaatar**, CTO of MNB, and **Mr Bolorkhuu Namsraijav**, Broadcast Technology Specialist at the Communications Regulatory Commission (CRC) of Mongolia.

Mr Sukhbayar provided an engaging overview of MNB's impressive 60-year journey, tracing its evolution

from the first black-and-white broadcasts in 1967 to the current era marked by digital transformation, including 5G transmission and online streaming. He highlighted MNB's forward-thinking investments in IT infrastructure, active social media engagement, and commitment to digital innovation to meet the evolving needs of today's audiences.

Mr Namsraijav summarized Mongolia's broadcasting regulations,

managed by the Ministry of Digital Development, Innovation, and Communications and the CRC. He explained the regulatory structure, licensing, and policies that support fair competition and protect children. He also noted Mongolia's switch from analog to digital broadcasting in 2015. Current challenges include meeting changing viewer preferences for online content, improving sound quality, expanding coverage, and raising regulatory standards.

TOPIC AREA REPORTS

Distribution

Dr Hirokazu Kamoda, Principal Engineer, NHK-Japan, delivered the Distribution Topic Area Report, addressing developments in Digital Terrestrial Television Broadcasting (DTTB), Integrated Broadcast and Broadband (IBBOTT), Satellite Broadcasting (SB), and Digital Sound Broadcasting Systems (DSBS).

He discussed innovations such as Japan's ISDB-T3 standard, Brazil's adoption of ATSC 3.0, and Korea's channel bonding for 8K UHD transmission. The report also covered



hybrid broadcasting platforms like Hybridcast and HbbTV 2.0. Additional topics included AI applications and low-latency streaming technologies, such as CMAF-ULL and LLHLS.

Spectrum

Dr Guosong Li, Senior Engineer, NRTA-China, presented on behalf of Dr Leilei Li. He emphasized the importance of spectrum management and WRC-27 deliberations to protect broadcasting interests. The report examined new spectrum allocations for Fixed- and Broadcasting-Satellite Services (FSS/BSS). It also highlighted challenges related to mobile-satellite interference and aeronautical modernization.

Training & Services

Mr Prakash Veer, Deputy Director General, NABM–Prasar Bharati (India), emphasized the importance of continuously training professionals to address rapid technological changes in broadcasting. He introduced initiatives such as Technical Training Priorities and Members Requirements (TS/TTPMR) and Technical Skill Building and Knowledge Sharing (TS/TSBKS), which aim to strengthen member capacity in AI, OTT, AR/VR, and 4K/8K technologies.

Production

Mr Putera Afiq Zulfaqar, Manager, Production & Delivery Technology, ABU, presented on behalf of Mr Kazim Pektaş, Chief Engineer, TRT–Türkiye. The report focused on four sub-areas:

- Ultra High Definition and Immersive Media (P/UHDAISM)
- Systems for People with Special Needs (P/SN)
- IT-based Production Systems (P/ITPS)
- Big Data, Personalisation and AI (P/BDAl)

Key highlights included real-time AI-generated audio description for live sports, file-based workflows, and AI-driven metadata generation for efficient news production.







ABU ENGINEERING AWARDS 2025

The meeting also recognized outstanding achievements in broadcast engineering with the ABU Engineering Awards 2025 and the Technical Review Prizes 2025. These awards honored individuals and organizations leading innovation and raising broadcasting standards in the Asia-Pacific region.

The Technical Review Prizes honoured the best papers published in the ABU Technical Review journal, highlighting outstanding contributions in Practical Implementation, Research, and Case Studies. The winners were commended for their valuable impact on advancing the industry's technical and operational excellence.

Five distinguished ABU Engineering Awards were presented, namely:

Broadcast Engineering Excellence Award – for exceptional contributions in broadcast engineering and related disciplines;

Developing Broadcast Engineering Award – for outstanding achievements in a developing broadcasting organization;

Young Engineers' Broadcasting Award – for remarkable work by an engineer aged 35 or below;

Engineering Industry Excellence Award – for the most significant engineering contribution to the Asia-Pacific broadcasting industry; and

Broadcast Engineering Award on SDGs

Implementation – for exemplary initiatives supporting the United Nations Sustainable Development Goals.



The 2025 recipients were:

- Broadcast Engineering Excellence Award – *Chi-Wah Leung (RTHK – Hong Kong, China)*.
- Developing Broadcast Engineering Award – *Oyuntuya Dugersuren (TV5 – Mongolia)*.
- Young Engineers' Broadcasting Award – *Lok-Kwing Cheung (RTHK – Hong Kong, China)*.
- Engineering Industry Excellence Award – *Tolga Ince (TRT – Türkiye)*.
- Broadcast Engineering Award on SDGs Implementation – *TRT – Türkiye*.

Each award recipient received a certificate and trophy, demonstrating ABU's commitment to innovation, professional excellence, and sustainable growth in broadcasting.

TECHNICAL REVIEW PRIZES 2025

The ABU Technical Review Prizes 2025 celebrated excellence in broadcasting research and innovation by recognizing outstanding contributions across three major categories: Practical Implementation, Research, and Case Studies. In the **Practical Implementation category**, **Supatrasit Suansook** from NBTC–Thailand was honored for his insightful article, “Frequency Planning for Digital Radio Network in Thailand”. His work provided a valuable framework for efficient frequency management and demonstrated a real-world impact on the evolution of digital radio broadcasting within the region.

In the **Research category**, the prize was awarded to **Mohammad Behdadfar, Ali Savadzadeh, Touraj Shabanian Boroujeni, and Amin Ghalami Osgouei** of IRIB–Iran for their article titled, “Applying Machine Learning to Improve Quality in Dash Stream Considering Video Content Complexity”. This research explored the application of advanced machine learning techniques to enhance streaming quality, especially by accounting for the varying complexities of video content. Their findings contributed significantly to the ongoing development of adaptive streaming technologies and set a benchmark for future innovations in broadcast media.

The **Case Studies category** recognized **Muhammad Nur Fairuz Bin Ilias, Ahmad Shahie Bin Sobry, Ir. Ts. Ahmad Shafiq Mirza Bin Mansor, Ts. Tarmimi Bin Sahad, and Engr. Mazlina Mohd Yusoff** from RTM–Malaysia, along with their collaborators at Digital Nasional Berhad. Their article, “PROOF-OF-CONCEPT (POC) – Public 5G Network Slicing Technology For Radio Televisyen Malaysia (RTM) Broadcast Facilities and Service Part 2: Execution – Benefits of 5G for Live Event Production”, highlighted the practical deployment and benefits of 5G network slicing for live broadcast events. This case study provided an in-depth look at technological advancements that are reshaping the way live events are produced and delivered to audiences.



The 2025 ABU Technical Review Prizes recognized both individual and group achievements and highlighted ABU's ongoing commitment to technical progress and collaboration.

The innovations presented this year are expected to shape the industry's future, making this report a record of current success and future potential.



INVITED PRESENTATIONS – PART 2

Day 2 commenced with the second round of invited presentations.

Mr Tolga Ince, Chief Engineer at TRT-Türkiye, opened the session by discussing Audio Description Broadcasting Techniques – a pilot project designed to improve television accessibility for visually impaired audiences.

Dr Mohieddin Moradi, Director of R&D at IRIB-Iran, followed with insights on enhancing the resilience of TV broadcasting networks during crisis events. He highlighted effective strategies for maintaining service continuity and implementing robust Emergency Alert Systems (EAS).

Ms Oyuntuya Dugersuren, IT Engineer at TV5-Mongolia, concluded the session by demonstrating a studio-free, AI-driven hosting system. She showcased how AI anchors and synthesized voices can reduce production costs and streamline broadcast workflows.

TC ELECTIONS

The election of office bearers was a significant session that underscored the importance of effective

leadership within the ABU Technical Committee. During this session, a comprehensive process took place, involving nominations and elections for various key positions, including the 18 members of the Bureau, the TC Chairman, and three Vice-Chairmen. There were 15 members from the 2024-2025 term who sought re-election and were successfully reaffirmed by the participating members. In addition, the committee welcomed three new members, SLRC-Sri Lanka, PBS-Philippines, and TDM-Macau, China, who were newly elected to serve in the 2026-2027 term.

The election process progressed smoothly and resulted in all 18 Technical Bureau seats being filled, comprising one Associate Member, three Additional Full Members, and fourteen Full Members. The leadership roles for the upcoming term were also confirmed, with **Mr Masashi Kamei** (NHK-Japan) appointed as Chairperson. The Vice-Chairpersons selected for this term were **Mr Zhang Wei** (RTPRC-China), **Dr Mohieddin Moradi** (IRIB-Iran), and **Mr Nguyen Duc Tue** (VTV-Vietnam).

PANEL DISCUSSION: “FUTURE OF LINEAR CHANNELS – WILL THERE BE ANY?”

A thought-provoking panel moderated by Dr. Veysel Binbay explored the evolving relevance of linear television. Among the panellists are **Mr Zhang Wei** (NRTA-China), **Mr Chi Wah Leung** (RTHK-Hong Kong), **Dr Mohieddin Moradi** (IRIB-Iran), **Mr Tolga Ince** (TRT-Türkiye), and **Mr Sukhbayar Sukhbaatar** (MNB-Mongolia) discussed content strategies, audience shifts, and spectrum management in the 5G/6G era.

They concluded that while linear TV remains crucial for live events, news, and cultural programming, its dominance will give way to hybrid models combining broadcast and on-demand platforms.

Panelists discussed content strategies, audience behavior, and spectrum management in the era of 5G and 6G. They agreed that broadcasters must innovate to attract younger audiences through immersive and short-form content while maintaining public trust and service obligations.



CLOSING SESSION

The meeting concluded with updates from members and announcements by Dr. Veysel Binbay, including details of the upcoming ABU Digital Broadcasting Symposium (DBS) 2026, to be held from 30 March to 2 April 2026 in Kuala Lumpur. An Honorary Vice-Chairperson from Sri

Lanka, host of the next ABU General Assembly, was also appointed.

In his closing remarks, **Mr Masashi Kamei** expressed appreciation to all participants and MNB for their warm hospitality and cooperation. He commended the active engagement of members in sharing ideas and

reaffirmed the importance of collaboration in advancing the broadcasting industry across the Asia-Pacific region.

Contributed by Rapporteurs:

Mr Cheung Lok Kwing

(RTHK-Hong Kong, China)

Mr Tin Htut Oo (MRTV-Myanmar) ■



ABU Engineering Awards

Panel of Judges

- ABU Engineering Industry Excellence Award
- ABU Young Engineers' Broadcasting Award
- ABU Broadcast Engineering Award on SDGs Implementation

- ABU Broadcast Engineering Excellence Award
- ABU Developing Broadcasters' Excellence Award



Mr Masashi Kamei, Senior Research Engineer, **Nippon Hoso Kyokai (NHK-Japan)** and Vice-Chairman ABU Technical Committee. Appointed a member of the panel in March 2019.



Mr Kazim Pektas, Chief Engineer, Studio Planning Department, **Turkish Radio Television Corporation (TRT-Türkiye)** and Vice-Chairman ABU Technical Committee. Appointed a member of the panel in January 2022.



Mr Prakash Veer, Deputy Director General (Global Outreach), **Prasar Bharati-India** and a Topic Area Chairperson of the Technical Bureau. Appointed a member of the panel in July 2025.



RTPRC-China

Dr Leilei Li, Deputy Head of Standard & Information Department, **RTPRC-China** and Topic Area Chairperson of the Technical Bureau. Appointed a member of the panel in July 2025.



Mr Ismail Sulaiman, Director of Technical Services Division, **Radio Television Malaysia (RTM-Malaysia)** and a member of Technical Bureau. Appointed a member of the panel in July 2024.



Mr Peh Beng Yeow, Lead, Content Preparation of **Mediacorp-Singapore** and a member of Technical Bureau. Appointed a member of the panel in July 2024.



Mr Jongwon Oh, Engineer - Technology Infrastructure Planning, **Korean Broadcasting System (KBS-Korea)**, and Technical Liaison Officer (TLO) of ABU. Appointed a member of the panel in July 2025.



Mr Fintan Mc Kiernan, Chief Executive Officer - South East Asia, **Ideal Systems, Singapore**. Appointed a member of the panel in June 2014.



Ms Emily Dubs, Head of Technology, **DVB Project Office**. Appointed a member of the panel in July 2025.



Ms Mardhiah Nasir, Executive Director, **Integriti Padu Sdn Bhd (IPSB)**. Appointed a member of the panel in July 2025.



Mr Aale Raza, Director, **Whiteways Systems, Singapore**. Appointed a member of the panel in July 2024.



Dr Peter Siebert, VP, **IEEE Broadcast Technology Society**. Appointed a member of the panel in July 2025.

DAB+ DIGITAL RADIO: TECHNICAL WORKSHOP ON NEW DEVELOPMENTS IN DAB+ SYSTEMS WEBINAR SERIES

15-17 JULY 2025

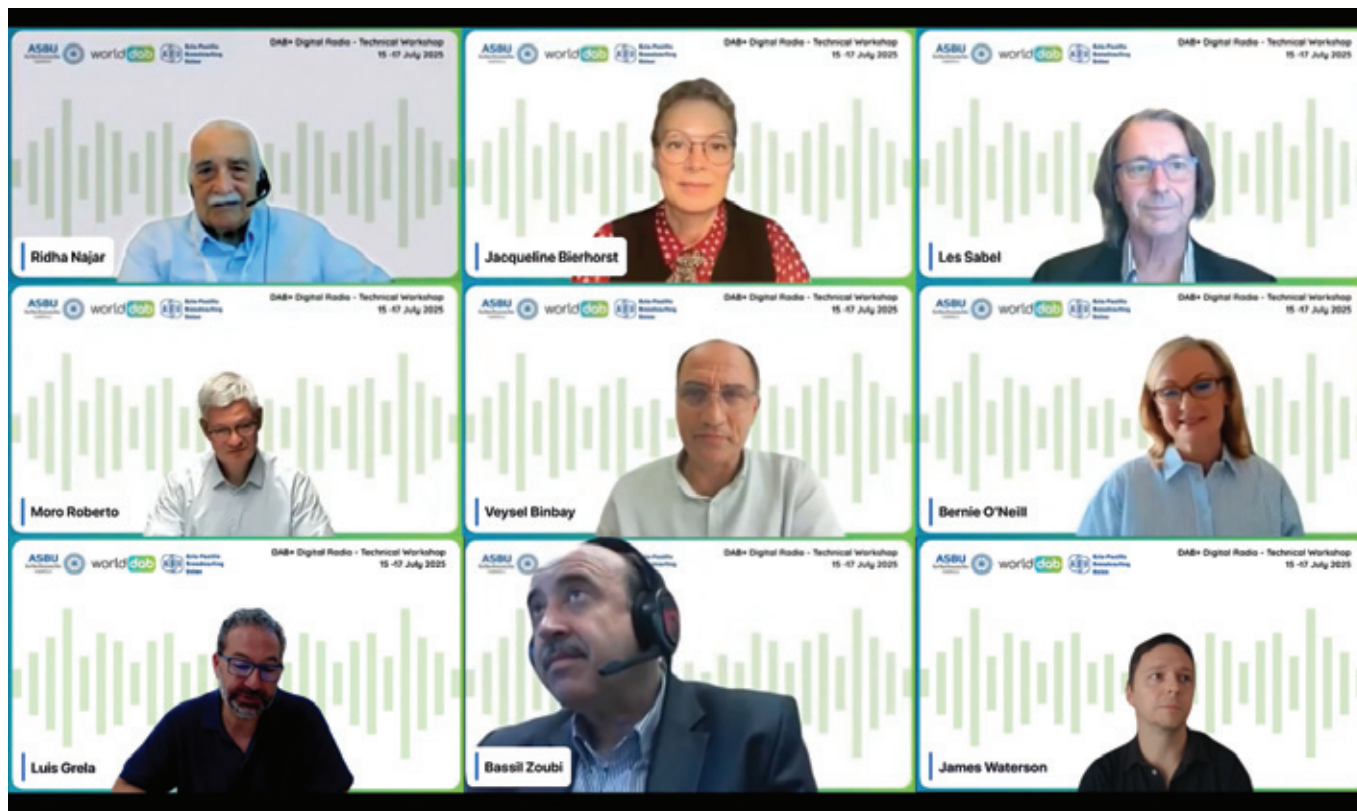


From 15 to 17 July 2025, the Asia-Pacific Broadcasting Union (ABU), the Arab States Broadcasting Union (ASBU), and WorldDAB once again joined forces to host the ABU-ASBU-WorldDAB Technical Workshop, a dynamic online forum that united broadcasters from around the globe. Over three days, the event drew 167 participants representing 51 organisations, including 32 delegates from 11 ABU member organisations. Broadcasters, engineers, regulators, and policymakers from the Asia-Pacific, the Arab States,

Europe, and Africa convened to exchange technical expertise, share practical strategies, and explore market insights for a sustainable digital-radio future. The first day set the tone with an in-depth exploration of the business case, technical standards, and emergency broadcasting. The session commenced with opening remarks from **Bernie O'Neill**, Project Director at WorldDAB; **Prof Ridha Najar**, ASBU Academy Manager; and **Dr Veyssel Binbay**, ABU Director of Technology & Innovation. They highlighted the urgency of cross-

regional collaboration as audience habits continue to evolve. Ms O'Neill praised the enduring ABU-ASBU-WorldDAB partnership as a trusted platform for knowledge sharing, while Dr. Binbay stressed the need for collective action to transform challenges into opportunities.

WorldDAB President **Jacqueline Bierhorst** followed with a compelling case for DAB+, noting up to 80 percent operational cost savings compared with FM, expanded audience reach, and increased advertising revenue



through multiplexed services. Furthermore, the platform contributes to sustainability goals through reduced energy consumption and a lower carbon footprint, and it enhances emergency resilience, remaining operational during power outages and disasters. Real-world examples included Germany's Radio Bob, which tripled its audience after migrating to DAB+; the UK's LBC and Absolute Radio, which expanded nationally; and Switzerland, which is preparing to shut down FM entirely.

In a recorded address, **Lindsay Cornell**, Chair of the WorldDAB Technical Committee, detailed updates to the ETSI TS 101 756 specification, including new regional text profiles and a "Push-to-Local" feature for seamless region-specific content. He also unveiled enhancements to the Advanced Safety Announcement (ASA) emergency-warning system, now supported by a

formal certification scheme to ensure receiver readiness. He noted that more than 150 million DAB receivers are now in daily use worldwide, with transmission and receiving equipment available in many forms.

Dr Les Sabel, Chair of the WorldDAB APAC Technical Group, then offered a practical roadmap for national and regional DAB+ rollouts, stressing the need for pilot trials, shared infrastructure, and robust receiver provisioning. He stressed the critical importance of securing access to the VHF Band III spectrum as a foundational step. The session recommended initiating pilot trials to gain stakeholder confidence and demonstrate technical viability. Emphasis was also placed on the value of shared infrastructure and collaboration among broadcasters and industry players to streamline deployment and reduce costs.

Concluding the day, **Roberto**

Moro, Strategic Broadcast Services Manager at SRG SSR, presented Switzerland's advanced multilingual emergency broadcast system, built on DAB+ technology. Managed by the Federal Office for Civil Protection and integrated with the Alertswiss and Bolert platforms, the system can override regular programming across radio, satellite, cable, streaming, and broadband to deliver urgent alerts during crises such as storms, floods, blackouts, and nuclear incidents. With more than ten days of backup power, extensive nationwide coverage (96% indoors and 98% outdoors), and EP1A-level transmission security, DAB+ provides exceptional reliability. Looking ahead, Switzerland plans to enhance the system through the Advanced Safety Announcement (ASA) framework, which will introduce geofencing, wake-up functions, time synchronization, and emergency override switching.



The second day of the workshop focused on the technical underpinnings and practical deployment strategies for DAB+, offering an in-depth exploration of system architecture, transmission techniques, and national implementation experiences. The sessions aimed to equip participants with a solid understanding of how to effectively plan and roll out DAB+ networks, especially in diverse and challenging environments.

The day began with a session on DAB+ System Features, where Dr Les highlighted the platform's flexibility and scalability. He explained that DAB+ can deliver between 18 and 24 audio services per multiplex, all with integrated error protection. Beyond audio, DAB+ supports a variety of data services, including dynamic labels, visual slideshows, electronic programme guides (EPG), and text-based information. Dr. Les also discussed the new Automatic System Alert (ASA) – an emergency warning system that has been under development over the past year. ASA is designed to protect the public during emergencies by delivering reliable

safety alerts without requiring an internet connection.

Next, **Hanns Wolter**, Technical Director of DAB Italia, presented strategies for creating efficient single-frequency networks (SFNs) and reducing self-interference through careful site selection and antenna design. He explained that one approach to minimising self-interference is to design and deploy a highly extensive, well-engineered single frequency network. Where this is not feasible, broadcasters must adopt strategies to manage and adapt to the limitations. He shared several solutions and recommendations for mitigating interference, including careful site selection, thorough analysis of power requirements, and appropriate antenna system design before SFN implementation.

The focus then shifted to energy-saving transmission methods as **Luis Grela**, Managing Director of TRedess, highlighted how Ultra-Wideband Doherty technology and advanced RF transistors can raise transmitter efficiency to 53 percent while streamlining

maintenance. He shared strategies for designing high-efficiency DAB+ transmitters, noting that Doherty technology has become an industry benchmark. The Ultra-Wideband approach delivers consistently high efficiency across the entire DAB+ band, allowing a single amplifier to cover all frequencies. This reduces the need for spare parts, simplifies network operations, and lowers costs, while also enhancing sustainability.

The final segment highlighted National Case Studies from Uganda and Saudi Arabia, providing practical perspectives on DAB+ adoption in different regulatory and geographic settings. From Uganda, **Mr Arthur Ariiho** of the Uganda Communications Commission (UCC) shared insights from pilot tests in Kampala, which focused on stakeholder education, cost considerations, and the scalability of DAB+ across both urban and rural areas. He also reflected on Uganda's radio landscape: broadcasting began before 1962 with the Uganda Broadcasting Service (UBS), which held a monopoly until

1986. Market liberalization in the 1990s spurred rapid growth in private and community stations, resulting in over 280 licensed FM broadcasters today. However, FM continues to face issues such as limited spectrum, interference, and unlicensed operators.

From Saudi Arabia, **Mr Bander M. Al Rasheedi**, General Manager of Radio Projects at the Saudi Broadcasting Authority, outlined the country's comprehensive nationwide rollout strategy. The initiative began in 2019 with a pilot in Riyadh using a 5 kW Rohde & Schwarz transmitter alongside fully compliant DAB+ encoding, multiplexing, and reception systems. In a significant step toward consumer readiness, the Saudi Standards, Metrology and Quality Organization (SASO) mandated in 2021 that all imported vehicles from 2024 onward must be equipped with DAB+ receivers.

The final day of the workshop focused on the backend infrastructure that powers DAB+ services, along with financial modelling for network rollout and the integration of emergency alert systems.

James Waterson, Sales Director at Factum Radioscape, focused on DAB+ encoding, multiplexing, and modern distribution solutions. He explained how Factum Radioscape's systems support multiple input formats (AES3, AES67, webstream, RTP, satellite, and SRT) and full data services such as station logos, picture advertising, and electronic programme guides. Traditional DAB distribution relies on fixed IP lines or satellite, but these are costly, slow to deploy, and less

flexible. Waterson introduced Secure Reliable Transport (SRT) as a cost-effective, secure, and resilient alternative that uses the public internet while maintaining low latency and reliable performance.

Budgeting and rollout strategies were then discussed by **Lindsay Cornell**, who advocated shared infrastructure and hybrid deployment models, followed by Dr. Les Sabel, who demonstrated methodologies for estimating capital and operational expenditure and for using scenario modelling to support flexible planning. Participants were introduced to both waterfall and parallel planning workflows, adaptable based on a country's infrastructure maturity and regulatory environment. Additionally, the importance of synchronised marketing and receiver distribution campaigns at launch was emphasised as essential for driving early adoption. High-level planning was further illustrated using transmission site templates, accounting for variables such as power output, site type, and redundancy needs.

Closing the technical sessions, **Carsten Zorger**, Director of Digitalradio Büro Deutschland, highlighted Germany's "Five Cs" for DAB+ success – Coverage, Content, Consumer Devices, Cars, and Communication, and warned that stations without a digital strategy risk losing relevance as listeners gravitate toward streaming services. He cautioned that broadcasters without a digital strategy risk losing relevance as audiences, especially younger listeners, increasingly consume content via smartphones, streaming services,

and social media.

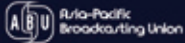
Zorger emphasized the cost advantages of DAB+, noting that in Germany the cost per program is about 1/16th of FM due to lower transmission demands, fewer required transmitter sites, and the integration of green energy. He also highlighted the country's phased FM switch-off, strong retail participation, and broad availability of DAB+ receivers as examples of how coordinated efforts can secure a sustainable digital future.

Throughout the workshop, lively Q&A sessions explored topics ranging from ASA software updates, which require no hardware changes, to the affordability of DAB+ receivers now available for as little as USD 15-20. Car integration, energy efficiency, and sustainability emerged as recurring themes.

In closing remarks, leaders from ABU, ASBU, and WorldDAB celebrated a decade of digital-radio progress and underscored that DAB+ is now a mature, scalable, and future-ready broadcasting technology. They called for sustained cross-sector collaboration and strategic vision to ensure national rollouts that are both resilient and environmentally responsible.

The future of radio is unmistakably digital, built on innovation, robust infrastructure, and compelling content that resonates with the changing behaviours of global audiences. ■

Powering Simless Remote Evolving Media Integration (REMI) TV Production



Webinar series on
**MEMBER
INNOVATIONS**



Ts. Ahmad Shafiq Mirza
Bin Mansor

Powering Simless Remote Evolving Media Integration (REMI) TV Production: 5G Innovation, Malaysia 2025 ASEAN Summit International Broadcast Center (IBC) Services 31st July 2025 | 15:00 KUL Time | Online

On 31 July 2025, the Asia-Pacific Broadcasting Union (ABU) hosted its latest **Webinar Series on Members' Innovation**, featuring a presentation by **Ir. Ts. Ahmad Shafiq Mirza** of Radio Televisyen Malaysia (RTM-Malaysia) on **"Powering Simless Remote Evolving Media Integration (REMI) TV Production"**. The session drew broadcasters, engineers, and media professionals interested in next-generation remote production.

Opening the session, Ir. Ts. Ahmad Shafiq described RTM's ambition to modernise live production infrastructure. Traditional outside-broadcast (OB) models, he noted, are equipment-heavy, costly, and labour-intensive, particularly when multiple venues are involved. RTM's answer is Simless REMI, a decentralised production method that blends 5G, Wi-Fi, and IP-based infrastructure. This hybrid approach reduces travel and equipment needs, lowers latency, streamlines operations, and supports sustainability by cutting carbon emissions.

The Simless REMI system is built on a modular design. It uses 5G networks as the backbone for video and audio transport, with Wi-Fi and local area networks providing redundancy and flexibility in indoor spaces. IP synchronisation integrates multiple feeds into a central production gallery. RTM tested the concept on a grand scale during Malaysia's ASEAN Chairmanship 2025, covering five major events across 12 venues. Each site was linked to an International Broadcast Centre (IBC), which served as the control hub, allowing RTM to switch

feeds, direct content, and maintain high broadcast quality without dispatching OB trucks or large crews to every location.

This lean workflow delivered multiple advantages. Fewer on-site staff and lighter equipment resulted in significant savings in both capital and operating costs, while the reduced travel and power requirements aligned with environmental, social, and governance (ESG) goals. Cloud-based tools enabled real-time collaboration among directors, producers, audio engineers, and graphic operators, who worked seamlessly despite being in different locations.

Operational challenges were not ignored. Some venues lacked reliable connectivity, which RTM overcame by deploying mobile 5G modems and wireless LAN repeaters. To preserve precise, lip-sync and cueing, a sophisticated delay-management system was introduced. Security concerns were addressed through multi-layered VPN encryption and rigorous authentication, while production teams received training in remote camera operation, intercom communication, and IFB/talkback protocols.

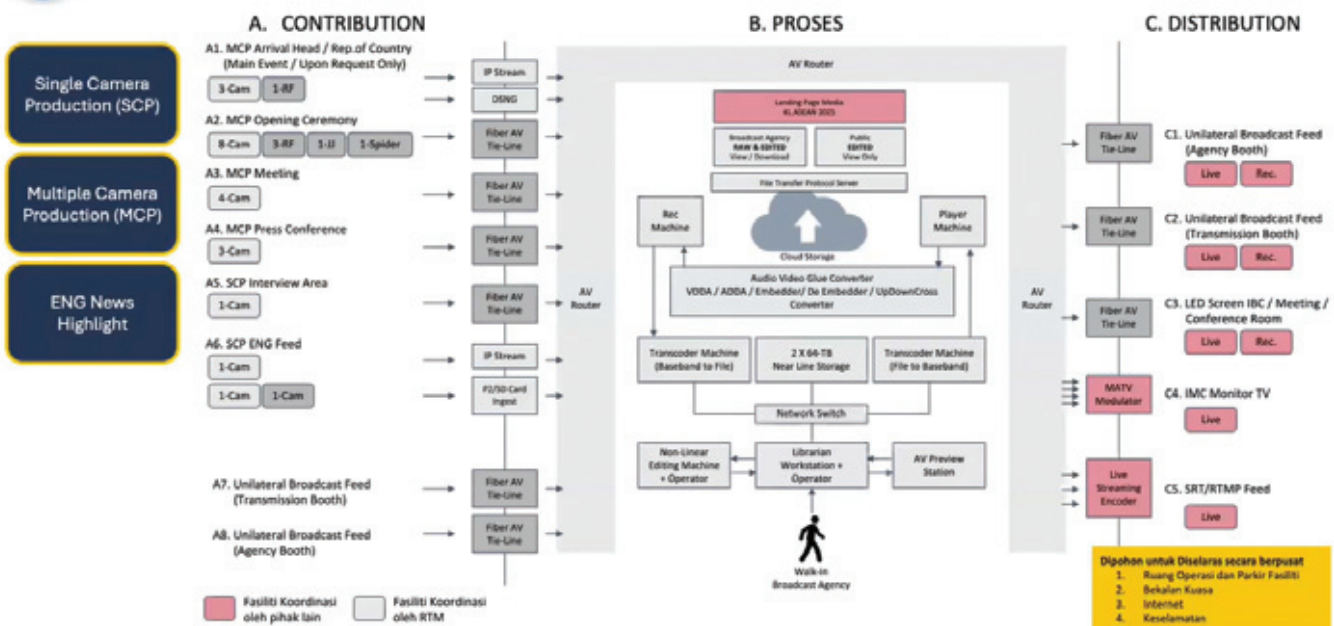
During an interactive Q&A, participants asked about scalability and cost. Ahmad Shafiq highlighted the system's modularity, emphasising that it can be adapted even for smaller broadcasters as 5G routers and PTZ cameras become more affordable. He explained that the

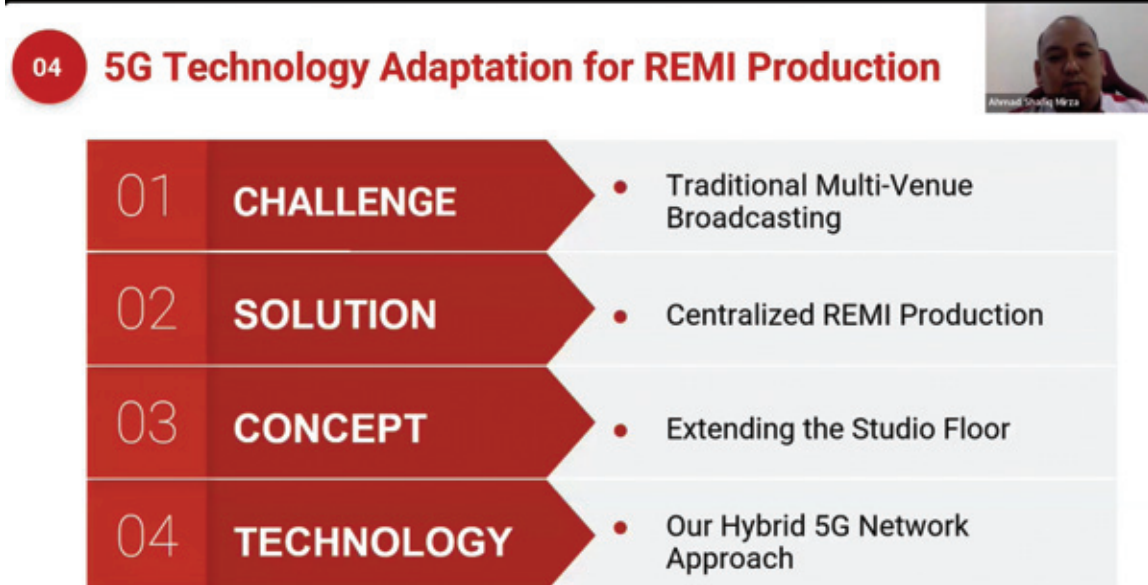
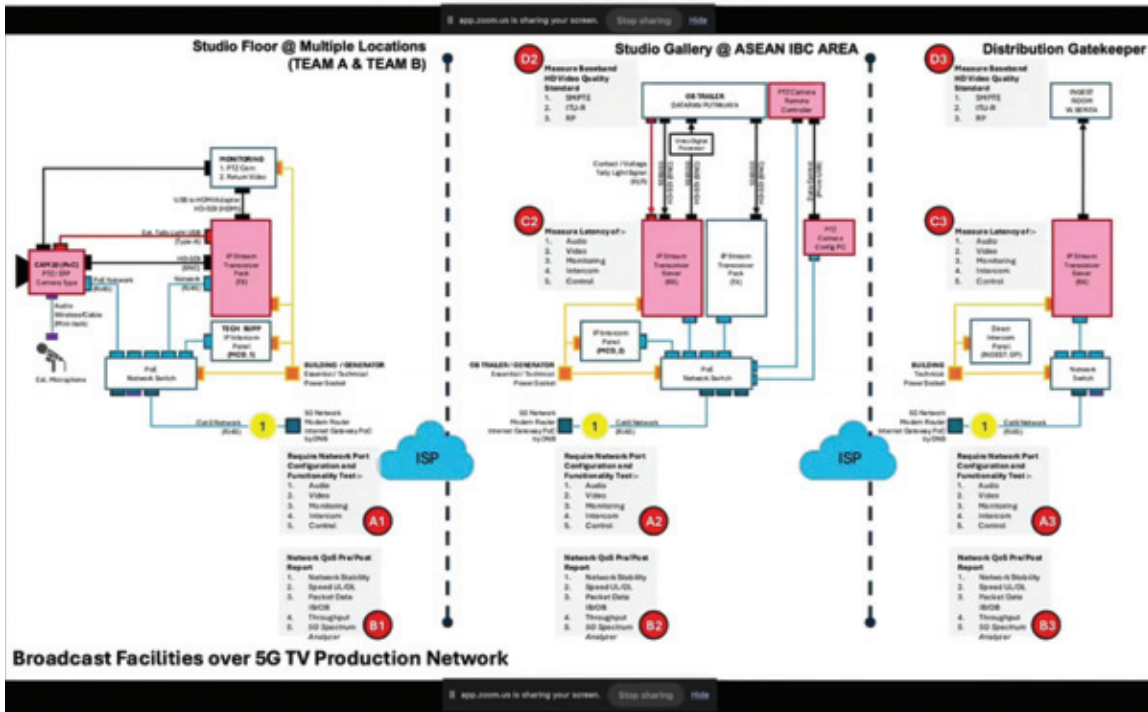
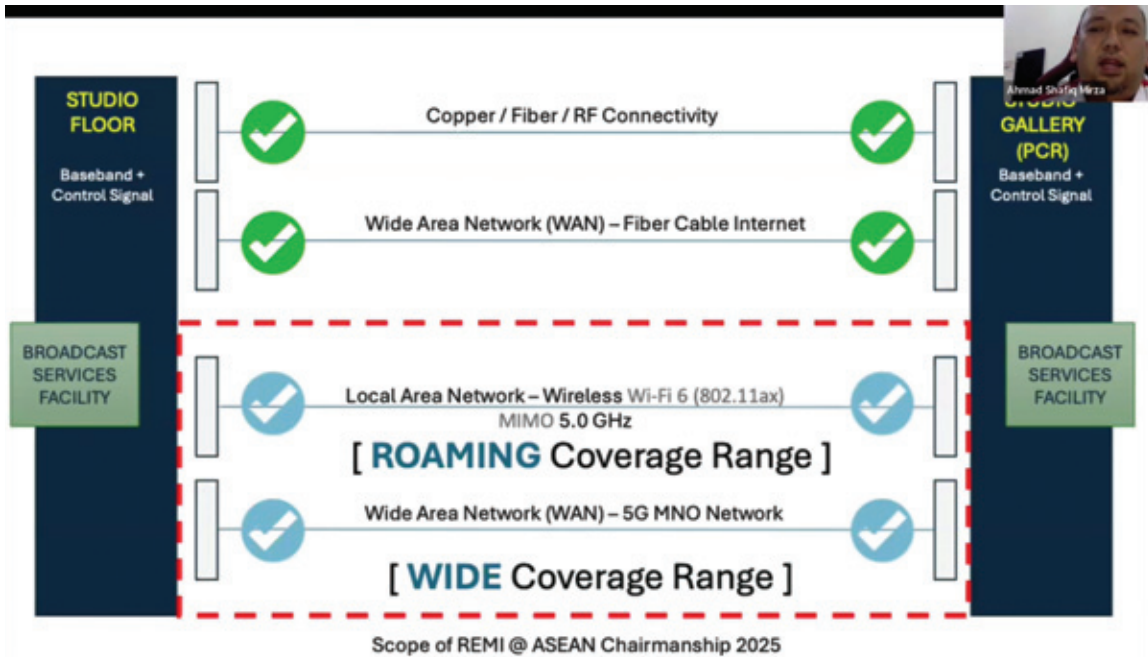


term "Simless" reflects the seamless, SIM-free flexibility of certain IP- and Wi-Fi-based links, which remove the need for a dedicated SIM card in each device. Latency over 5G was acknowledged but effectively mitigated through delay-compensation tools, ensuring smooth production.

The session closed with a clear message: remote production is essential. RTM's Simless REMI shows hybrid workflows can maintain broadcast quality, control cost, and reduce impact. Ahmad Shafiq urged adopting modular, cloud-based, and mobile solutions to stay competitive. ■

IBC Facilities Needs Requirement





Deploying a Local CDN for OTT & VOD Services

EXECUTIVE SUMMARY

This technical paper presents the strategic rationale and practical implementation of a locally hosted Content Delivery Network (CDN) to support our OTT and VOD platforms. Faced with escalating operational expenses from global CDN providers and the need for performance optimization in local markets, our team designed and deployed a cost-efficient, scalable, and reliable CDN solution on-premises. This paper outlines our deployment architecture, integration process, and performance metrics that led to a monthly cost reduction of over 50%, while improving user experience and stream reliability. The local CDN model provides full control over content delivery and ensures long-term return on investment within a year of implementation. This initiative positions our organization as a model for regional broadcasters aiming to build independent and sustainable digital delivery infrastructures.

TARGET AUDIENCE

This paper is intended for technical managers, CTOs, digital strategy leads, and decision-makers in broadcasting organizations or streaming platforms. It is also relevant for infrastructure planners and IT professionals exploring alternatives to cloud-based CDNs for regional content delivery, especially those serving geographically concentrated audiences in emerging or underserved markets.

1. INTRODUCTION

The rapid growth of Over-The-Top (OTT) media consumption has prompted broadcasters to explore efficient, scalable, and cost-effective content delivery methods. While global cloud-based CDNs provide robust delivery capabilities, they also come with high recurring costs and limited flexibility.

This paper outlines how our organization deployed a locally hosted Content Delivery Network (CDN) to support our OTT platform. The goal is to demonstrate that a locally built CDN can drastically reduce operational costs, improve user experience, and provide full control over media delivery.

2. BACKGROUND: OTT AND CDN TECHNOLOGIES

OTT refers to the delivery of video content over the internet without relying on traditional broadcast infrastructure. A CDN, in turn, distributes this content efficiently across multiple servers to reduce load on a single source, ensuring better availability and faster access.

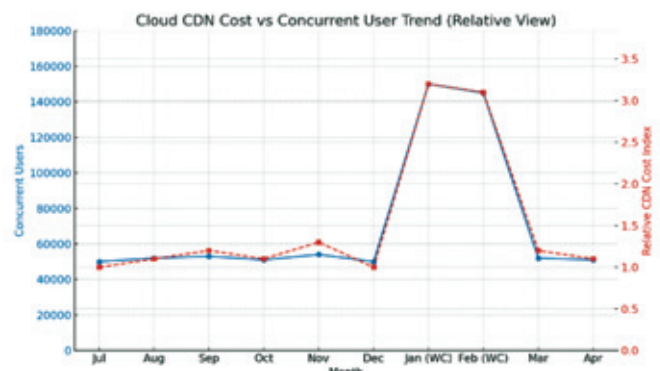
Traditional CDNs use globally distributed nodes, but regional broadcasters often find themselves paying for bandwidth and storage far beyond their actual needs. This becomes increasingly inefficient when most of the audience is concentrated in specific regions.

3. WHY MOVE TO LOCAL CDN?

3.1 COST

Monthly cloud CDN bills ranged from USD 5,000 to 7,000, primarily driven by high outbound bandwidth charges and auto-scaling during peak periods. These recurring costs were incurred while serving an average of 50,000 concurrent users. However, during extended high-traffic events such as the FIFA World Cup 2022,

CDN usage surged significantly. For two consecutive months, our CDN bills exceeded USD 22,000 per month while supporting peak loads of approximately 150,000 concurrent users. These spikes highlighted the unsustainable nature of relying solely on external CDNs for large-scale events and reinforced the need for a more cost-efficient, locally managed delivery solution.



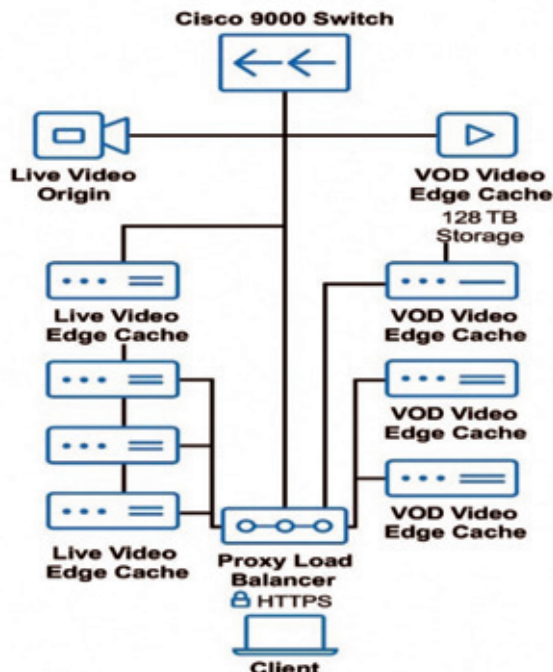
3.2 PERFORMANCE IN LOCAL MARKETS

International CDN nodes often had higher latency for our regional users. A local CDN provided faster load times and better stream stability. Mauritius being an island nation, the nearest CDN nodes were typically located near the east coast of South Africa. This geographical gap contributed to higher latency and slower response times. By deploying CDN nodes locally within Mauritius, we significantly improved the quality of service for our users by reducing round-trip delays and enhancing overall stream consistency.

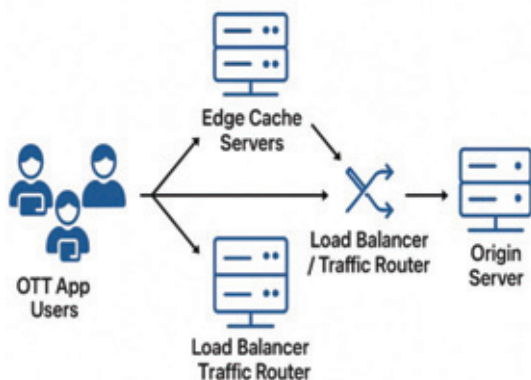
4. LOCAL CDN ARCHITECTURE & DEPLOYMENT STRATEGY

4.1 INITIAL REQUIREMENTS

To successfully deploy a local CDN, we began by



evaluating the primary technical requirements that would ensure the system's performance and reliability. One of the key factors was bandwidth, for which we conducted a detailed analysis of peak traffic patterns and average bitrate demands. Understanding these factors was of utmost importance to determine the network capacity necessary for supporting seamless content delivery.



The **hardware** requirements were also defined based on this analysis. A high-performance **origin server** was selected to handle live encoding, content storage, and

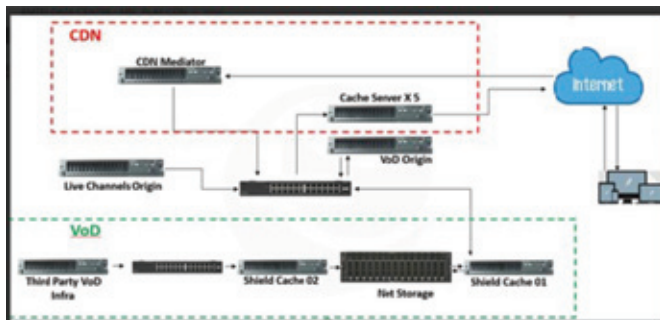
packaging, while **edge cache servers** were distributed to ensure low-latency access and efficient content delivery to end users. In addition, the network infrastructure, including high-speed **network gear**, was put in place to maintain uninterrupted data flow across the system.

Recognizing the importance of reliability and uptime, we prioritized **power redundancy**. This was achieved by deploying **UPS (Uninterruptible Power Supply)** systems to safeguard against power failures, ensuring continuous service delivery. Furthermore, **RAID (Redundant Array of Independent Disks)** redundancy was implemented in the storage systems to protect against data loss, guaranteeing that content remains accessible even in the event of hardware failures. This combination of bandwidth analysis, robust hardware, and redundancy measures formed the foundation for a resilient and scalable local CDN infrastructure.

4.2 SOFTWARE STACK

The software stack selected for our local CDN was entirely open-source, ensuring both flexibility and cost efficiency. At the core of our delivery system, **NGINX** was configured as a reverse proxy and to serve **HTTP Live Streaming (HLS)** content, offering robust support for concurrent connections and high-throughput media delivery. **FFmpeg** was integrated at the origin server for real-time encoding and transmuxing, enabling live video feeds to be converted into adaptive bitrate formats suitable for OTT distribution. To optimize performance at the edge layer, we used Varnish Cache – alongside NGINX where applicable – to store frequently accessed content and improve response times during peak traffic. For intelligent traffic distribution, **HAProxy** was deployed to manage load balancing across origin and edge servers, using health checks and connection persistence to ensure reliable delivery. The entire architecture was monitored using **Grafana** for dashboards and **Prometheus** for metrics collection, enabling real-time visibility into cache efficiency, bandwidth usage, CPU load, and stream health. This software stack allowed our CDN to deliver consistent performance while being easily adaptable for future scalability.





4.3 DEPLOYMENT WORKFLOW

The deployment of our local CDN followed a structured and phased approach to ensure a smooth transition and scalability. First, we configured the origin server, ensuring it had sufficient processing power and storage for encoding, content packaging, and media storage. This server became the heart of our CDN, responsible for processing the raw content and preparing it for delivery. Following this, we deployed several edge servers designed to cache content closer to end users. These edge servers were strategically placed to optimize load times and enhance the user experience by employing a cache-pull model. With this model, content is fetched from the origin server when not already cached at the edge node, minimizing latency and reducing the load on the origin. To further optimize content delivery, we implemented **GeoDNS** and **HAProxy** for intelligent routing. GeoDNS allowed us to direct users to the nearest edge server, ensuring that the content was served with minimal latency based on geographical location. HAProxy provided load balancing, ensuring that traffic was distributed evenly across the edge servers and optimizing resource usage. The final step involved integrating the CDN URLs into the OTT application, making the local CDN the default source for media delivery. After deployment, the CDN was continuously monitored, and adjustments were made based on real-time traffic patterns, ensuring that the infrastructure scaled effectively to meet the demands of the user base. This dynamic workflow allowed us to stay responsive to traffic fluctuations, ensuring optimal performance at all times.

4.4 SCALABILITY

Scalability was a fundamental consideration in the design of our local CDN, ensuring that the infrastructure could grow to accommodate increasing traffic without compromising performance. The modular architecture of the CDN made it easy to clone and deploy additional edge servers on demand. These servers could be added seamlessly as traffic demands increased, ensuring that the system could handle fluctuations in user numbers, particularly during peak events such as live broadcasts or major sporting events. Furthermore, the system was designed with redundancy at every level, from the origin server to the edge servers, to minimize the risk of service disruption. With this approach, even if one server failed, others could take over the load without affecting user experience. Geo-targeted delivery was another key aspect of scalability. As our user base expanded into new regions, we were able to deploy additional edge servers in those locations to ensure low latency and high-speed content delivery. The ability to scale both vertically (by

upgrading server capacities) and horizontally (by adding new servers) ensured that the local CDN could efficiently support the growing demands of our OTT and VOD services, adapting quickly to future requirements without significant additional investment.

4.5 USE OF PSEUDO URLs FOR ENHANCED SECURITY AND ANALYTICS

In our local CDN implementation, we adopted the use of pseudo URLs to enhance both security and traffic management. Pseudo URLs are dynamically generated, obfuscated links that serve content without exposing the actual media file paths or server structure. These URLs are often time-limited and tokenized, helping to prevent direct access, deep linking, or content scraping by unauthorized users. Additionally, pseudo URLs allow for granular analytics, as each request can be tracked, associated with a session, and expire after use. This technique not only safeguards copyrighted content but also provides insights into viewer behavior, aiding in real-time decision-making for caching strategies, load balancing, and content optimization.

5. OTT APP INTEGRATION & PERFORMANCE ON LOCAL CDN

The integration of the OTT application with the newly deployed local CDN involved several critical adaptations aimed at optimizing performance and ensuring service reliability.

5.1 OTT APP ADAPTATION

Playback URLs were updated to point to local CDN endpoints, allowing content to be served directly from edge cache servers. At the same time, fallback mechanisms were retained to route requests back to the origin server when necessary, ensuring uninterrupted service. Key features such as Digital Rights Management (DRM) and geo-blocking were maintained to comply with content licensing requirements and enforce regional restrictions.

5.2 PERFORMANCE GAINS

The impact of the CDN integration was immediately noticeable. Initial content load times dropped significantly – from an average of 4.5 seconds to just 1.8 seconds – greatly improving the perceived responsiveness of the platform. Buffering incidents were significantly reduced, and the system was able to deliver streams at higher bitrates, with an increase of nearly 80% compared to the previous setup. The CDN also achieved a cache hit ratio of 84%, which helped reduce load on the origin server and enhanced overall scalability. As a result, monthly CDN-related operational costs decreased from over USD 6,000 to approximately USD 4,000.

5.3 USER EXPERIENCE FEEDBACK

User feedback further validated the success of the integration. Viewers reported faster start times, fewer buffering issues, and smoother performance during high-traffic events such as live broadcasts. These qualitative improvements led to increased user satisfaction and greater viewer engagement.

5.4 Monitoring and Optimization A set of monitoring and optimization measures were implemented to ensure continued performance. Real-time dashboards were deployed to track CDN metrics and application usage, while automated alerts were configured to notify administrators of usage spikes or potential bottlenecks, enabling quick and proactive interventions. Additionally, automated cache purging mechanisms were put in place to manage storage efficiently and maintain optimal content delivery at all times.

6. COST COMPARISON AND ROI

6.1 MONTHLY COSTS

When comparing the monthly operational expenses between the cloud-based CDN and the locally hosted CDN, the differences were significant. Bandwidth charges on cloud platforms ranged between USD 5000-7000 per month, largely due to high outbound traffic rates. On the other hand, our local CDN incurred total bandwidth costs of only USD 4500 monthly, including both OTT and VOD traffic which were newly introduced, even while supporting up to 50,000 concurrent users.

Additionally, while cloud providers charged for storage and transcoding services and another amount in base CDN fees, the local CDN offered these functionalities in-house at no additional cost. Open-source monitoring tools like Grafana and Prometheus further eliminated the need for paid analytics services.

6.2 INFRASTRUCTURE DEPLOYMENT AND HOSTING STRATEGY

Our local CDN infrastructure was strategically deployed using a modular, scalable approach. The origin server was built with high-performance capabilities to handle live encoding, content packaging, and media storage. Several edge servers were provisioned to cache and distribute content efficiently across different regions. All hardware was installed with appropriate network gear and power redundancy systems such as RAID configurations and UPS units to ensure continuous uptime.

To optimize connectivity and reduce latency, the CDN was hosted within a Telco Data center. This location offered high availability and fiber line redundancy, critical for uninterrupted streaming. We also adopted a fully open-source software stack, which eliminated licensing costs and allowed complete customization. The setup and deployment process was handled in-house with minimal third-party support, resulting in a well-integrated and cost-effective infrastructure.

6.3 BREAK-EVEN

Given a monthly savings we projected a return on investment within 12 months of deployment. This forecast proved accurate, validating the financial viability of shifting to a local CDN.

6.4 NON-MONETARY ROI

Beyond the financial savings, the transition brought significant qualitative improvements. The local CDN allowed us full control over delivery configurations, real-time purging, and latency optimization. It enabled faster

troubleshooting and made our infrastructure independent of international bandwidth bottlenecks. Long-term, this gives us a flexible and resilient platform that can adapt to changing audience behavior and demand patterns.

7. CHALLENGES & LESSONS LEARNED

7.1 CHALLENGES

Deploying a local CDN was not without obstacles. First, the high upfront investment required strong internal justification and budget approval. Second, the technical team had to undergo intensive training to understand the deployment, configuration, and monitoring of CDN components such as NGINX, Varnish, and HAProxy. Another hurdle was establishing peering agreements with local ISPs to ensure reliable end-user delivery. Cache invalidation and content synchronization mechanisms needed careful setup to prevent outdated content from being served. Finally, extensive device-level playback testing was essential to confirm compatibility across mobile devices, smart TVs, and web browsers.

7.2 LESSONS

The project taught us several important lessons. Starting with a small deployment on external CDN helped us fine-tune configurations before scaling up internally. This phased approach reduced risk, allowed for performance benchmarking, and provided valuable insight into user behavior and system bottlenecks. Using open standards and proven open-source tools ensured stability and reduced vendor lock-in. We also realized the importance of proactive monitoring to identify and resolve issues quickly. Most critically, collaboration between the networking, software, and content teams was essential to ensure the CDN's success. Cross-functional synergy made it easier to adapt to real-time challenges and deploy improvements efficiently.

8. CONCLUSION & RECOMMENDATIONS

The successful deployment of our local CDN has fundamentally enhanced the cost structure, performance, and operational control of our OTT and VOD platforms. By moving away from expensive global CDN services, we achieved a reduction of over 50% in monthly delivery costs and improved content latency, load times, and stream reliability for our regional audience.

From a financial standpoint, the local CDN paid for itself within 12 months – thanks to savings of approximately USD 2000-3000 monthly. More importantly, we now operate a fully sovereign delivery network that is optimized for local performance, insulated from international bandwidth volatility, and fully under our technical control.

From a technical operations perspective, our use of proven open-source tools (NGINX, Varnish, FFmpeg, HAProxy, Prometheus, and Grafana) enabled a high-performance, modular platform without vendor lock-in or ongoing license fees. The infrastructure supports geo-targeting, dynamic routing, and seamless cache synchronization across edge nodes.

From a strategic viewpoint, this initiative aligns with our

goal of long-term digital autonomy and sustainability. By building internal capacity and reducing dependency on foreign infrastructure, we are better positioned to scale our OTT offerings, introduce paid services, and meet growing audience demands – while maintaining control over cost and quality.

STRATEGIC RECOMMENDATIONS

1. **Conduct a CDN cost audit:** Evaluate current expenditures on bandwidth, storage, and delivery to identify savings potential.
2. **Begin with a pilot node architecture:** Deploy a minimal viable setup using open-source tools and local infrastructure.
3. **Engage ISPs early:** Collaborate with local internet providers for peering and improved delivery reliability.
4. **Train internal teams:** Build in-house expertise to manage, monitor, and scale the platform sustainably.
5. **Design for growth:** Use a modular architecture that can easily scale in response to audience size or service expansion.

Conclusion: A locally hosted CDN is not just a technical optimization – it is a strategic move toward infrastructure sovereignty, cost control, and content delivery excellence. For broadcasters serving concentrated or underserved markets, this model provides the technical and financial foundation to succeed in the competitive OTT landscape.

AUTHOR



J. Gopaul is a highly accomplished technology leader with over 25 years of expertise spanning broadcast and IT infrastructure, currently serving as the Head of Technology at the Mauritius Broadcasting Corporation (MBC).

Academically, he holds a Bachelor's and a Master's degree in Computer Science and Engineering, alongside an MBA. His distinguished professional journey includes leading the comprehensive digitalisation of MBC TV and its workflows in 2011, a transformative initiative that significantly modernised the corporation's broadcast operations. He was also instrumental in the design and successful launch of MBC Play, MBC's innovative OTT platform in December 2016, and oversaw the strategic deployment of a locally hosted Content Delivery Network (CDN). Mr Gopaul is dedicated to advancing digital transformation, achieving cost-effective operational efficiencies, and fostering the integration of technologies across the entire broadcasting chain to enhance workflows. Concurrently, his commitment to education is underscored by his consistent lecturing at both undergraduate and postgraduate levels since 2008, actively shaping the next generation of broadcasting and IT professionals. ■

Mauritius Broadcasting Corporation (MBC): Pioneering Digital Transformation in Public Broadcasting



As Mauritius' national public broadcaster, the Mauritius Broadcasting Corporation (MBC) has always been a vital source of news, education, and entertainment. In a rapidly evolving technological landscape, MBC is embracing digital transformation to modernize its infrastructure and significantly expand its reach.

MBC is redefining content delivery, moving beyond traditional DVB-T linear television (offering 18 free-to-air digital channels) to cutting-edge OTT services via its MBC Play app. This ensures viewers can access content anytime, anywhere, and on any device. A key strategic move has been the deployment of a locally hosted Content Delivery Network (CDN), which guarantees cost-effective, high-performance, and scalable streaming experiences by bringing content closer to its users.

The Technology Department at MBC is proactively adapting to new trends and is intensely focused on optimising operational costs in both technology infrastructure and human resources. This involves prioritising the adoption of open-source technologies wherever feasible, consciously minimizing reliance on proprietary systems and their associated Service Level Agreements (SLAs). This not only reduces expenditure but also fosters greater flexibility and control over MBC's technical ecosystem.

These forward-looking initiatives underscore MBC's unwavering commitment to innovation, sustainability, and public service. By embracing digital transformation and adopting smarter, more cost-effective technologies, MBC is enhancing its service delivery for immediate impact and securing long-term operational efficiency and resilience. MBC remains dedicated to connecting communities, preserving cultural identity, and delivering high-quality content as it moves into a new era of broadcasting.



News from The ABU Region

MEDIA PRIMA ELEVATES AUDIO OPERATIONS WITH DHD SX2 CONSOLE UPGRADE

Media Prima has recently modernized its television broadcast infrastructure at its new studios in Balai Berita, Bangsar, Malaysia, by integrating DHD SX2 audio production mixers. This development supports major channels TV3 and 8TV and was executed in partnership with VME Broadcast and systems integrator Stagetec Asia as part of Media Prima's digital transformation strategy.

The project's objective is to unify news operations within a single newsroom environment, streamlining content gathering, management, and multi-platform distribution. Bringing various platforms together is intended to optimize workflow and improve departmental coordination.

Technically, the installation includes modular DHD SX2 broadcast consoles in the production control suites for both TV3 and 8TV. Each console features motorised faders, multiple 10.1-inch multitouch displays, and a user-friendly control interface to meet the demands of live news production. The primary 28-fader SX2 consoles are supported by 10-fader auxiliary units, which provide redundancy by taking over audio feeds if the main console encounters issues.

For live reporting, the studios are equipped with the AVT TH2plus V2 IP telephone hybrid system. This system supports both traditional and VoIP connections, thereby enhancing the reliability of field communications. The SX2's IP-based architecture allows for system expansion and integration with other broadcast technologies. The use of modular components, RJ45, and fibre-optic cabling facilitates efficient transmission of audio, power, and control signals.

This infrastructure upgrade is intended to strengthen Media Prima's operational resilience and technical capabilities, supporting ongoing innovation and future advancements in broadcast technology. [\[APB News\]](#)

TECHTEL UNVEILS NEXT-GENERATION INFLO PLATFORM FOR SCALABLE, CLOUD-NATIVE MEDIA MANAGEMENT

Techtel has introduced the latest version of its media content management platform, inflo, which is intended for broadcasters, engineers, and media operations teams requiring high-performance, cloud-adaptable workflows. The platform is designed for private-cloud deployment and utilizes a cloud-native technology stack. The updated core platform provides enhanced elasticity and modularity,

reducing dependence on public cloud vendors and associated costs.

Cloud-native scalability is central to this platform update. By employing Kubernetes and fully containerized services, inflo adjusts media-processing workloads to sustain optimal performance during variable demand. Users can deploy specific functions, including ingest, transcoding, or archival management, and expand system capabilities as operational requirements increase.

Performance is improved through GPU acceleration on cost-effective commercial off-the-shelf (COTS) hardware, which supports high-throughput tasks such as encoding and rendering without incurring usage-based cloud fees. For engineers responsible for critical broadcast chains, all processing is conducted on-premise or within a private cloud. This approach ensures that sensitive content remains under customer control while permitting optional integration with public cloud providers.

The modular, application programming interface (API)-driven architecture of the platform facilitates integration with various media ecosystems. Broadcasters can connect inflo to existing production, newsroom, or media asset management (MAM) systems using comprehensive APIs. Corporate, parliamentary, and creative teams can customize deployments to align with specific workflows. Artificial intelligence (AI)-powered transcription generates searchable metadata and captions, enhancing content discovery and supporting accessibility compliance.

CEO Mal Chandler notes that these capabilities give customers "granular control over how they deploy inflo," making integration easier and more cost-effective while ensuring maximum hardware performance and reliability.

The enhanced inflo platform integrates private-cloud customization, cloud-agnostic flexibility, and enterprise-grade security. This combination provides a cost-efficient and scalable content management solution for broadcasters and media engineers in the Asia-Pacific region and internationally. The platform delivers high performance while maintaining control and interoperability. [\[C+T\]](#)

TABATHA: INTEGRATED AI PLATFORM FOR MODERN NEWSROOMS

Systems integrator Ideal Systems has introduced Tabatha, an AI-driven newsroom platform developed as a new module within its Alice cloud integration platform. Tabatha connects to Alice via APIs, enabling efficient

data exchange and workflow automation. It also integrates natively with Comcast Technology Solutions' (CTS) VideoAI through specialized middleware that supports video retrieval and processing. Together, these integrations are designed to streamline video search and highlight generation for both broadcast and digital news operations.

Tabatha is built to reduce content search times and improve accuracy. Users can identify highlights across news and sports material without content-specific training, simplifying production workflows in fast-paced newsroom environments.

With a focus on compatibility, Tabatha provides an enterprise integration layer that bridges both legacy broadcast systems and modern content management platforms. This allows AI-assisted workflows to be deployed with minimal disruption. The system can also manage multiple AI engines from different providers, support varied billing models, and deliver full API-level audit trails for operational transparency.

According to Fintan McKiernan, CEO of Ideal Systems SEA, Tabatha functions as an extension of the existing newsroom infrastructure. It enhances archives and editing workflows with AI-driven media analysis while maintaining the stability of legacy systems.

With 14 offices across Asia and the Middle East, Ideal Systems is one of the region's leading broadcast and media systems integrators, providing consultancy and technology solutions to broadcasters, media organizations, corporates, and government clients. [\[APB News\]](#)

THAI PBS EXPLORES AI'S IMPACT ON MEDIA, POLICY, AND AUDIENCE TRENDS

The recent Thai PBS forum titled "AI x Communication: A Research Forum, Opening Space for Exchange" provided broadcasters and media professionals with a comprehensive understanding of how artificial intelligence is transforming Thailand's media landscape. Leading academics, researchers, and industry practitioners discussed various technical, organizational, and ethical questions related to the integration of AI, offering insights that are directly applicable to newsroom operations and content creation.

The forum's primary research project, led by Assoc. Prof. Dr. Sermsiri Nildam from Chiang Rai Rajabhat University examined the current status and application of AI in Thai media. Supported by the Thai PBS Public Media Research and Development Center, this initiative focused on three main areas: adapting policies and organizations to AI, audience engagement and the influence of AI, and examining case studies of AI applications in media, education, and social communication.

Technical discussions revealed that the adoption of AI in Thai newsrooms is largely informal and driven by individual experimentation rather than institutional policies. Research conducted by Asst. Prof. Dr. Ekapol

Thienthavorn indicated that AI tools, such as automated transcription, speech-to-text, and preliminary content categorization, are already being utilized in everyday media production. However, the absence of standardized frameworks or policies has led to fragmented implementation. Existing guidelines remain in draft form, and ethical concerns, including data privacy, algorithmic bias, and editorial transparency, continue to pose significant challenges. Currently, AI primarily serves as an assistant to enhance journalistic efficiency, while human expertise is essential for editorial decision-making and narrative development.

Asst. Prof. Dr. Pitaksak Tisapak addressed the regulatory landscape for AI in media, presenting models from Singapore, Canada, and the European Union. Each of these jurisdictions adopts a nuanced approach, ranging from self-regulation to government-led frameworks, but all emphasize accountability and robust data protection. Technical standards, compliance audits, and adaptive legal mechanisms are deemed crucial to address the rapid evolution of AI technology.

Asst. Prof. Rawiwan Sappin underscored the increasing role of AI in Thailand's creator economy. The country now has an estimated nine million content creators, with AI-powered tools such as video editing, automated captioning, recommendation algorithms, and analytics transforming content production and personalization at scale. This rapid growth demands new standards and ethical guidelines to ensure responsible usage.

In summary, the forum highlighted that Thailand's media industry stands at a pivotal moment in its adoption of artificial intelligence. AI presents significant potential for enhancing efficiency and opening new creative avenues, but its development must be accompanied by strong governance, well-defined technical standards, and ongoing ethical reflection. Building a healthy AI ecosystem will depend on shared operational guidelines and active collaboration among media professionals, technologists, and regulators to maintain public trust while promoting innovation and creativity. [\[RadiolInfo\]](#)

GLOBAL STANDARDS AND POLICY FRAMEWORKS FOR AUTHENTIC MULTIMEDIA

The rapid rise of artificial intelligence (AI) is transforming how content is created, verified, and consumed, challenging long-held assumptions about authenticity and trust. AI-generated and AI-edited media have moved from novelty to mainstream, especially among younger, digitally fluent audiences. While these tools democratize creative expression, they also heighten the risk of misinformation, deepfakes, and other forms of synthetic content abuse.

In response, the World Standards Cooperation, comprising the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO), and the International Telecommunication Union (ITU), has launched the AI and Multimedia Authenticity Standards Collaboration. Announced at the AI for Good Global Summit, this initiative brings together standards bodies, technology companies, policymakers, researchers,

and civil society groups to develop a unified framework for transparency, accountability, and ethical innovation. Its objectives align with the United Nations' Global Digital Compact, which calls for inclusive governance of emerging technologies.

The collaboration's first deliverables include two landmark publications. The technical paper, *AI and Multimedia Authenticity Standards: Mapping the Standardization Landscape*, provides a detailed survey of existing standards related to content provenance, trust and authenticity, asset identifiers, rights declarations, and watermarking. It identifies both overlaps and gaps, offering guidance for engineers, broadcasters, and developers seeking interoperable solutions for content verification and rights management.

The policy paper, *Building Trust in Multimedia Authenticity through International Standards*, targets regulators and policymakers. It outlines practical prevention, detection, and response strategies, balancing innovation and freedom of expression with the need to protect societies from manipulated media. The paper features a regulatory options matrix, checklists, and a review of supporting tools such as conformity assessments and enabling technologies.

Industry stakeholders range from major technology firms like Adobe, Microsoft, and Shutterstock to standards initiatives such as the Content Authenticity Initiative (CAI), the Coalition for Content Provenance and Authenticity (C2PA), and the Internet Engineering Task Force (IETF). Academic and research institutions, including Germany's Fraunhofer Society and Switzerland's EPFL, also contribute alongside civil-society organizations like Witness.

For broadcasters, engineers, and media technologists, this international effort underscores the need for robust, interoperable standards that safeguard content integrity while fostering creative innovation. As AI-generated media grows in sophistication, collaborative standardization offers a path to trustworthy digital communication and a sustainable framework for the next era of global broadcasting. [\[ITU News\]](#)

ST 2110 STANDARD EARNS 2025 EMMY® RECOGNITION FOR EBU, SMPTE, AND VSF COLLABORATION

The 2025 Engineering, Science & Technology Emmy® Awards will honor the Society of Motion Picture and Television Engineers (SMPTE), the European Broadcasting Union (EBU), and the Video Services Forum (VSF) for their groundbreaking work on the SMPTE ST 2110 suite of standards. This prestigious award recognizes developments in engineering, science, and technology that materially advance the production, recording, transmission, or reception of television and, in doing so, elevate the storytelling process.

ST 2110 represents a fundamental shift in live media production. Developed through a decade of collaboration among SMPTE, EBU, and VSF, the standards define how uncompressed video, audio, and ancillary data

are transported over Internet Protocol (IP) networks. By replacing the long-standing Serial Digital Interface (SDI) infrastructure, ST 2110 enables broadcasters and production facilities to move beyond rigid, hardware-bound workflows to flexible, scalable, and low-latency IP-based environments. The result is a more efficient framework for live television production and a foundation for ongoing innovation in cloud-native and remote workflows.

The global adoption of ST 2110 underscores its transformative impact. Broadcasters, service providers, and technology vendors now rely on the standard to interconnect devices and systems from multiple manufacturers, supporting everything from major sports broadcasts to real-time news coverage. Its modular architecture and precise synchronization capabilities allow media organizations to route and manage high-quality signals with unprecedented agility.

Key figures involved in the project emphasize both the technical and collaborative achievements. Willem Vermost, Senior Media Technology Architect at EBU, noted that early IP-studio trials revealed a strong demand for greater efficiency and flexibility, which inspired the initial collaboration. Felix Poulin, formerly leading the EBU's IP infrastructure work, highlighted how a concept once considered emerging has become the backbone of future-proof production facilities. Hans Hoffmann, EBU Deputy Director of Technology & Innovation, credited the standard's success to sustained international cooperation across organizations and industries.

By enabling robust, interoperable IP production, SMPTE ST 2110 has set a new benchmark for the broadcasting industry, ensuring that live content creation remains agile and technologically advanced for years to come. [\[EBU News\]](#)

VOV'S IMMERSIVE 'BACK TO THE SACRED MOMENT'

The Voice of Vietnam (VOV) has unveiled *Back to the Sacred Moment*, an immersive virtual reality installation that transports visitors to 2 September 1945, when President Ho Chi Minh proclaimed the nation's independence at Ba Dinh Square. Hosted at the Vietnam National Exposition Center in Hanoi, the project demonstrates how advanced media can bring a defining historical moment to life.

Visitors don the Meta Quest headsets to enter a meticulously reconstructed 360-degree environment that includes authentic flags, floral decorations, and archival audio of Ho Chi Minh's Declaration of Independence. Participants can move freely, interact with the virtual crowd, and even join in patriotic chants, turning a textbook moment into an emotionally resonant, multisensory encounter.

The project blends virtual reality with selective artificial intelligence in a carefully balanced workflow. Hand-crafted 3D graphics ensure historical accuracy and avoid the visual inconsistencies common in generative AI, while an AI-powered "Holobox" acts as a virtual guide, offering

live narration and fielding visitor questions. Historians such as Professors Vu Minh Giang and Tu Thi Loan verified every element from podium placement and vehicle types to the cut of Ho Chi Minh's attire, underscoring the commitment to authenticity.

The VOV pavilion reinforces the VR immersion with spatial sound and synchronized crowd reactions, deepening the sense of presence. Visitors consistently describe the experience as profound and moving, noting that it conveys the significance of the 1945 Declaration more vividly than books or lectures. Even in heavy rain, tens of thousands queued patiently, a testament to the installation's multigenerational appeal and its ability to unite families, students, and tourists.

For the broadcasting industry, Back to the Sacred Moment is more than a commemorative exhibit. It highlights how a national broadcaster can evolve into a modern multimedia enterprise, using immersive technology to engage audiences and preserve cultural heritage. VOV's careful integration of VR and AI illustrates a viable model for broadcasters seeking to diversify content, reach younger demographics, and strengthen audience interaction in the digital era. By combining detailed historical research with modern media tools, the project provides a genuine and emotionally impactful learning experience, showing that storytelling can make history feel alive and not just something we remember.

[\[VOV\]](#)

ABU MEMBERS TO ACCESS LATIN AMERICAN NEWS AFTER MOU SIGNED IN MONGOLIA

At its 62nd General Assembly in Mongolia, the Asia-Pacific Broadcasting Union (ABU) signed a Memorandum of Understanding with the Alliance of Latin American Information (AIL) to establish a formal news content exchange. The agreement was signed by Ahmed Nadeem, ABU Secretary General, and Juan Carlos Isaza Montejo, Director of AIL.

AIL, which brings together 22 Latin American television stations, facilitates collaboration in sharing news, technical resources, and expertise. The new partnership builds on a successful trial exchange period between ABU and AIL, during which both organizations recognized the value of formalizing cooperation.

Indra Singh, ABU Director of News, noted that the deal will enhance the reach and diversity of ABU News by offering more Latin American coverage through Asiavision's Asia-Pacific View (APV) platform. In turn, content from ABU members will gain exposure in Latin America, the Caribbean, and Spain, broadening the global footprint of member broadcasters.

AIL Director Isaza Montejo highlighted the strategic importance of the agreement, positioning it as a step toward delivering a global news service to AIL's partner channels. He also underlined the role of trusted news exchanges in an era marked by disinformation, emphasizing that collaboration between established media outlets strengthens democracy and press freedom.

For broadcasters, this MoU represents not only an expansion of content sources but also an opportunity to strengthen international cooperation, diversify storytelling, and improve coverage of global issues across regions traditionally underserved in each other's media landscapes. [\[ABU News\]](#)

OTTO SCHADE PRIZE HONORS BT.2020 PIONEER AND DISPLAY STANDARDS INNOVATOR

Kenichiro Masaoka of NHK Science & Technology Research Laboratories has been awarded the 2025 Otto Schade Prize for his outstanding contributions to electronic display image quality. He is widely regarded as the driving force behind ITU-R BT.2020, which defined the RGB primaries that enabled the wide color gamut standard now central to UHD broadcasting.

Masaoka's work addressed critical limitations in how display color performance was measured. Early methods using the CIE 1931 (x, y) chromaticity diagram were sufficient for additive RGB systems, but proved inadequate for multi-primary and narrowband light-source displays such as LED, QD, and laser-based systems. To overcome this, he introduced gamut rings, a 2D visualization technique that represents color capability across lightness, chroma, and hue dimensions. Gamut rings allow more precise quantification of display color performance than traditional triangular gamut metrics.

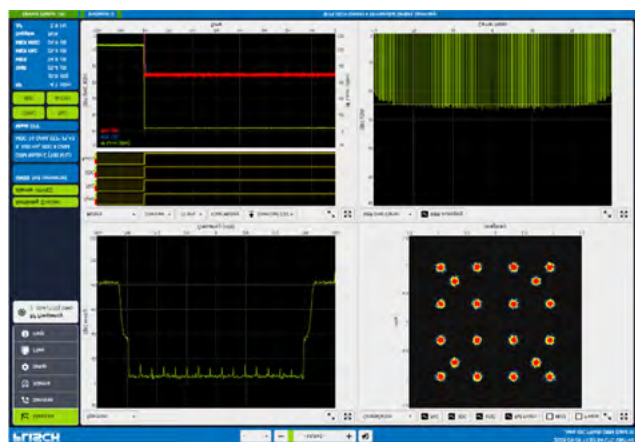
The method has since been standardized by SID's International Committee for Display Metrology (ICDM), IEC, and CIE, and was integrated into calibration software such as Portrait Displays' Calman in 2024. Masaoka later extended gamut rings to evaluate the color content of video, providing a new "color scope" tool for post-production workflows and streamlined grading.

In addition to his work on color, Masaoka pioneered a real-time modulation transfer function (MTF) measurement system for cameras and displays, enabling precise characterization of spatial resolution in UHD imaging systems. This innovative system is now widely used for evaluating and selecting cameras and lenses, as well as for condition assessments of 4K and 8K equipment.

As chair of ICDM's Color Metrology and Spatial Measurements subcommittees, Masaoka has integrated these advances into industry standards, including new chapters in the Information Display Measurements Standard (IDMS). His innovations continue to shape both display metrology and practical tools for broadcast engineers, ensuring higher fidelity and reliability in next-generation UHD production. [\[NHK STRL\]](#) ■

DIGITAL BROADCASTING Updates

RFMONDIAL DISPLAYS WORLD'S FIRST MULTI-CHANNEL DRM TRANSMITTER IN VHF BAND III - DIGITAL RADIO MONDIALE



Following Indonesia's recent recommendation of Digital Radio Mondiale (DRM), among other standards for deployment in VHF Band III, the demand for suitable broadcasting equipment in this frequency range has increased significantly.

In response, Plisch and RFmondial have collaborated to deliver an integrated solution that meets these requirements. The partnership brings together Plisch's Medium Power Transmitter Series 5600/5700, which ranges from 500 W to 20 kW, and RFmondial's digital DRM modulator/exciter LV5e, creating a strong

The LV5e modulator is capable of multiplexing up to 15 DRM-FM streams within a single spectrum, with each stream featuring its own content and adjustable power level. The combined output is then sent out using Plisch's medium power transmitters, which use advanced techniques – like reducing signal peaks, limiting, and correcting non-linear signals – to make sure the transmission is of the best quality and efficiency

Additionally, RFmondial's DRM measurement and monitoring receiver, RF-SE, is already fully compatible with VHF Band III, enabling seamless setup, testing, and monitoring of DRM networks. With this technological readiness, Indonesia and other nations exploring digital radio expansion now have access to complete, field-proven equipment for establishing DRM broadcasting networks in VHF Band III. [\[DRM\]](#)

AUDIO DESCRIPTION GENERATION TECHNOLOGY FOR LIVE SPORT BROADCASTING

The **Science & Technology Research Laboratories (STRL)** is advancing research on information accessibility to realize a broadcast media environment that allows everyone, regardless of age, ability, or background, to access and enjoy the content they need. These efforts aim to create a more **inclusive media ecosystem** that delivers reliable information and enriching experiences for all audiences.

As part of this initiative, STRL is developing a system for producing and delivering audio descriptions for live sports broadcasts, enabling visually impaired audiences and others to enjoy sports programs in real time. The system automatically generates descriptive text, reviews it for accuracy, converts it into audio commentary, and delivers it to a dedicated app that synchronizes playback with live television broadcasts.

The project integrates three key technologies for **automated descriptive text generation** in baseball coverage:

• Video Analysis Technology:

Building on existing systems capable of recognizing on-screen information such as ball counts, pitch speeds, and player movements, STRL has developed new technologies to identify **pitch types** (e.g., fastball, breaking ball) and **pitch locations** (e.g., high middle, low inside).

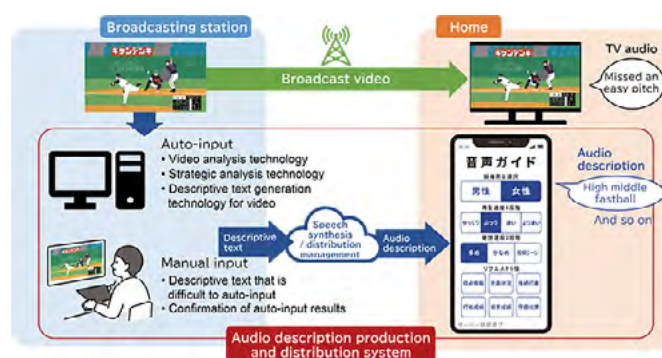
• Strategic Analysis Technology:

Using **reinforcement learning**, this technology examines the relationship between players' actions and game progress to predict likely strategies. It generates strategic commentary, such as "Choosing a hit-and-run increases the chances of winning," enhancing the analytical depth of audio descriptions.

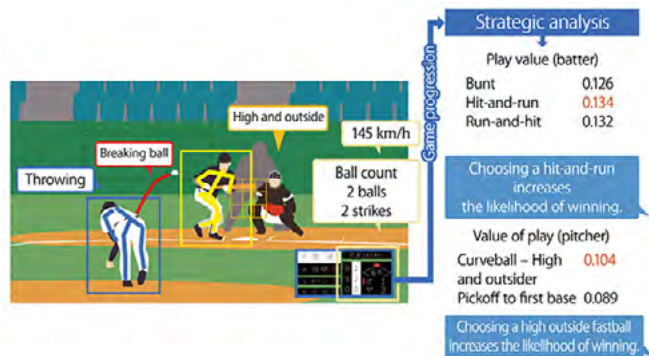
• Descriptive Text Generation Technology for Video:

By integrating multiple analytical outputs – including face and character recognition – the system generates natural, contextual descriptions of player actions, crowd reactions, and stadium atmosphere, making the viewing experience more immersive for all audiences.

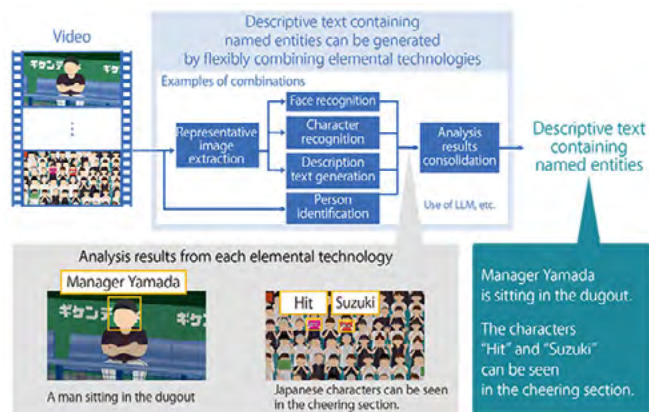
Looking ahead, STRL aims to apply this audio description production and distribution system to live baseball broadcasts, while expanding its use to other sports and continuing R&D to improve efficiency and quality in audio description production. [\[NHK STRL\]](#)



Overview of the audio description production and distribution system



Example Output from Video Analysis and Strategic Analysis Technologies



Example Output from Descriptive Text Generation Technology for Video

SIMULATIONS DEMONSTRATE THE HIGH PERFORMANCE OF DVB'S SPECIFICATIONS FOR NGSO SATELLITES

A new wave of satellite innovation is changing how the world connects. Non-Geosynchronous Satellite Orbit (NGSO) constellations, which orbit lower and move faster than traditional geostationary satellites, are set to bring high-speed, low-latency broadband to even the most remote places.

However, this leap in capability brings new challenges. To ensure these advanced systems are reliable, efficient, and future-proof, strong and interoperable standards are essential. That is where the **DVB Project** plays a key role.

Why Standards Matter

Open, common standards allow satellite operators and manufacturers to achieve interoperability, scalability, and long-term sustainability. They help avoid vendor lock-in, reduce costs, and enable equipment from multiple suppliers to work seamlessly together.

The **DVB Project** provides a well-established suite of standards for satellite communications, including **DVB-S2X** for forward (downlink) transmission and **DVB-RCS2** for the return (uplink) channel. Recent updates have optimized these standards to meet the unique demands of NGSO constellations operating in fast-moving orbital environments.

Proven Performance for NGSO Systems

Independent simulations, commissioned by DVB and carried out by **Magister Solutions**, compared DVB's technologies with the **3GPP 5G NR-PUSCH** standard used in terrestrial networks. The study looked at Doppler shift, a frequency change caused by satellite movement that is a major challenge for NGSO systems.

The results, published in a new **DVB White Paper**, showed clear advantages for DVB technologies:

- **Higher resilience to Doppler effects**, ensuring stable performance even without perfect compensation.
- **Consistent throughput**, matching or surpassing 5G performance, especially under real-world conditions.
- **Improved signal integrity**, thanks to DVB's single-carrier design, which reduces interference common in multi-carrier 5G systems.

These findings confirm that DVB standards provide **stronger, more reliable performance** for NGSO satellite operations, particularly where terminal precision varies, or conditions are less than ideal.

With these advancements, **DVB now offers a comprehensive open standard** for NGSO satellite systems, covering both forward and return links. Validated through real-world simulations, these standards enable operators and manufacturers to deploy next-generation satellite networks that are both high-quality and cost-effective.

The full DVB White Paper offers deeper insights and technical data supporting these results, underscoring DVB's leadership in defining the future of satellite connectivity.

[\[DVB News\]](#)

VIZRT LAUNCHES AI-POWERED ADVANCEMENTS TO SPEED UP AUGMENTED REALITY SPORTS PRODUCTION

Vizrt, a global leader in real-time graphics and live production solutions, has introduced Viz Arena 6, the latest version of its all-in-one augmented reality (AR) graphics and virtual advertising platform for sports broadcasts.

The new version uses AI-driven automation to make calibration, keying, and masking much easier. These steps are usually complex and take a lot of time in live AR production. With built-in AI, operators can add AR graphics to live broadcasts faster and more accurately, cutting down on setup time and effort.

A key enhancement is AI-based calibration, which ensures AR graphics and virtual ads remain precisely aligned with the playing field regardless of camera movements. This enables broadcasters to get graphics on air up to ten times faster while maintaining exceptional precision. The Sports Intelligent Keyer further enhances efficiency by using ambient learning to automatically distinguish between foreground and background elements, minimizing manual adjustments.

By lowering technical barriers, Viz Arena 6 enables broadcasters to scale high-quality live sports production without increasing costs or complexity. The system also enhances revenue potential through virtual advertising, allowing sponsor-specific and event-tailored graphics to be inserted seamlessly into live coverage.

Combining automation, precision, and creative flexibility, it represents a major step forward in real-time sports production, empowering broadcasters to deliver visually dynamic, data-driven coverage that enhances both viewer engagement and operational efficiency. [\[APB+ News\]](#)

VIDA LAUNCHES MEDIA FACTORY: A VISUAL AUTOMATION ENGINE FOR THE MEDIA SUPPLY CHAIN

VIDA, the secure cloud-native media asset management platform, has unveiled Media Factory, a drag-and-drop workflow automation engine designed to transform how media supply chain teams manage and orchestrate their content and business processes.

Fully integrated into VIDA Content OS, Media Factory brings intelligent automation directly to operations and technology teams. With over 300 pre-built connectors, including compatibility with leading AI agents, teams can quickly design, test, and deploy customized workflows that previously required weeks of bespoke development, now achievable in just hours.

As operational teams face growing demands to deliver more content across multiple platforms under tighter deadlines, Media Factory introduces a faster, smarter approach to automating complex workflows through a simple visual interface.

The platform enables both users and AI models to orchestrate actions such as:

- Ingest, AI tagging, transcription, translation, and metadata packaging
- AQC, compliance checks, and age-appropriateness flagging
- Trigger-based delivery to FAST platforms, YouTube, or social media
- Automated notifications, system integrations, and analytics reporting

Workflows can be initiated by scheduled events, webhooks, asset-level changes, or file activity. New connectors can also be added to integrate internal tools, ensuring seamless enterprise-wide automation across content, rights, analytics, and marketing systems.

Unlike traditional workflow systems requiring extensive software development, VIDA Media Factory empowers teams to deploy and evolve workflows dynamically, accelerating content operations while reducing technical complexity. [\[VIDA\]](#)

LTN'S PURPOSE-BUILT SATELLITE-TO-IP TRANSITION OFFERS SIGNIFICANT SAVINGS

LTN has announced a series of enhancements to its purpose-built IP video network, enabling broadcasters, station groups, and networks to simplify the migration from satellite to IP. The upgrades are designed to deliver live content with satellite-grade reliability while reducing costs, expanding reach, and accelerating deployment times.

The new capabilities enhance visibility, control, and efficiency across LTN's IP ecosystem, supporting a smoother transition to next-generation distribution workflows.

Key enhancements include:

- Advanced monitoring: Real-time visibility of signal quality, SCTE-35 ad markers, and transport stream integrity via a browser-based interface within the LTN client portal.
- Low-latency multi-viewer: Integrated multiviewer functionality for simplified distribution and improved control of high-volume channel operations.
- Simplified group management: Streamlined tools that

eliminate legacy satellite inefficiencies, enabling faster, flexible, and cost-effective channel launches.

- Channel customization: Real-time versioning for tailored content delivery across any destination or format, including IPTS, SDI, ASI, MPEG2, MPEG4, AVC, H.264, HEVC, UHD, HD, and SD.

LTN's network currently supports nearly 2,000 Tier 1 broadcasters, MVPD/vMVPD head-ends, and content owner sites, including MSG Networks, TelevisaUnivision, Scripps, and Tennis Channel, helping them achieve greater flexibility, efficiency, and cost savings in their transition to IP-based operations. [\[APB+ News\]](#)

FRAUNHOFER IIS INTRODUCES NEW MPEG-H DIALOG+

The Fraunhofer Institute for Integrated Circuits IIS has introduced an advanced feature of its MPEG-H Dialog+ technology, designed to deliver clearer and more personalized audio experiences for television and streaming audiences.

For years, MPEG-H Dialog+ has enabled broadcasters and streaming platforms to offer dialogue amplification, allowing users to adjust speech levels independently from background sounds. This capability has been particularly beneficial for viewers with hearing impairments, helping them better follow conversations without sacrificing sound quality.

One of the biggest challenges in audio enhancement has been managing scenes where dialogue and music vocals overlap, such as in dramas or concert broadcasts. Traditional systems often mistakenly amplify vocals alongside speech, leading to distorted or unbalanced audio. Fraunhofer IIS has now overcome this issue with a new AI-driven improvement that distinguishes between spoken dialogue and singing voices. This ensures that vocals remain natural and musical sections retain their original quality, even as dialogue is made clearer.

ARTE, the German-French public broadcaster, has been using MPEG-H Dialog+ on its arte.tv platform, offering audiences a choice between the original mix and an enhanced version labeled "Klare Sprache" (German) or "Confort Audio" (French). With the integration of the latest feature, ARTE continues to advance accessibility and improve user experience for its streaming audience. Public broadcaster ARD is also deploying MPEG-H Dialog+ across its media library.

Built on artificial intelligence and deep neural networks, MPEG-H Dialog+ automatically separates speech from background elements such as music, ambience, and sound effects. It dynamically lowers the background only when speech occurs, generating a dialogue-enhanced version of the original mix. This technology empowers broadcasters to enhance existing content even when only the final sound mix is available, offering viewers the ability to switch seamlessly between the original and improved audio.

With the new MPEG-H Dialog+ feature, Fraunhofer IIS is setting a new benchmark in accessible audio, combining technical precision with an inclusive approach that benefits all audiences. [\[Fraunhofer IIS\]](#) ■

Equipment Trends

IHSE LAUNCHES NEW DRACO XSTREME EXTENDER SERIES



IHSE USA has introduced the Draco XStreme series, a groundbreaking product line built on a next-generation hardware platform that redefines performance, flexibility, and long-term sustainability in video and signal transmission.

Designed to support resolutions from Full HD up to 8K, the Draco XStreme series delivers high-resolution, low-latency video transmission while seamlessly integrating with both proprietary and future IP-based technologies. The new platform reflects IHSE's focus on energy efficiency and simplified infrastructure, offering a scalable solution for modern broadcast, control room, and professional AV environments.

Engineered for performance and efficiency, the series enables 4K60 signal transmission over standard 1 Gb networks with no visible loss in image quality. This reduces power consumption and infrastructure requirements, ultimately lowering total project costs.

Among the first products in the series are the Dual-Head 4K60 Extender, capable of transmitting two 4K60 video signals over a single cable, and the Single-Head 4K60 Extender, optimized for efficient operation over a 1 Gb link.

With the launch of the Draco XStreme series, IHSE sets a new standard for future-proof, sustainable video transmission solutions, combining cutting-edge technology with practical efficiency for a wide range of professional applications. [\[TV Tech\]](#)

WISYCOM'S NEW WIRELESS SOLUTIONS OFFER HIGH-GRADE FIELD PRODUCTION

Wisycum, a global leader in advanced wireless audio solutions, has introduced two major innovations, the Portable RF-over-Fibre Box and the MTP61 XL bodypack transmitter, designed to meet the demanding needs of today's broadcast, film, and live production environments.

The Portable RF-over-Fibre Box delivers a compact, field-ready solution for long-distance RF signal transport where coaxial cabling is impractical or causes excessive signal loss. Available as a two-channel transmitter or diversity receiver, it operates over single-mode fibre to maintain pristine signal quality across extended runs. Featuring a wide dynamic range, low-noise design, and dual power options (battery and mains), it ensures reliable performance even in challenging outdoor conditions. With simple BNC and fibre connections, the system offers flexible deployment for IFB/IEM transmission or microphone diversity reception and supports remote Ethernet control for greater operational efficiency.

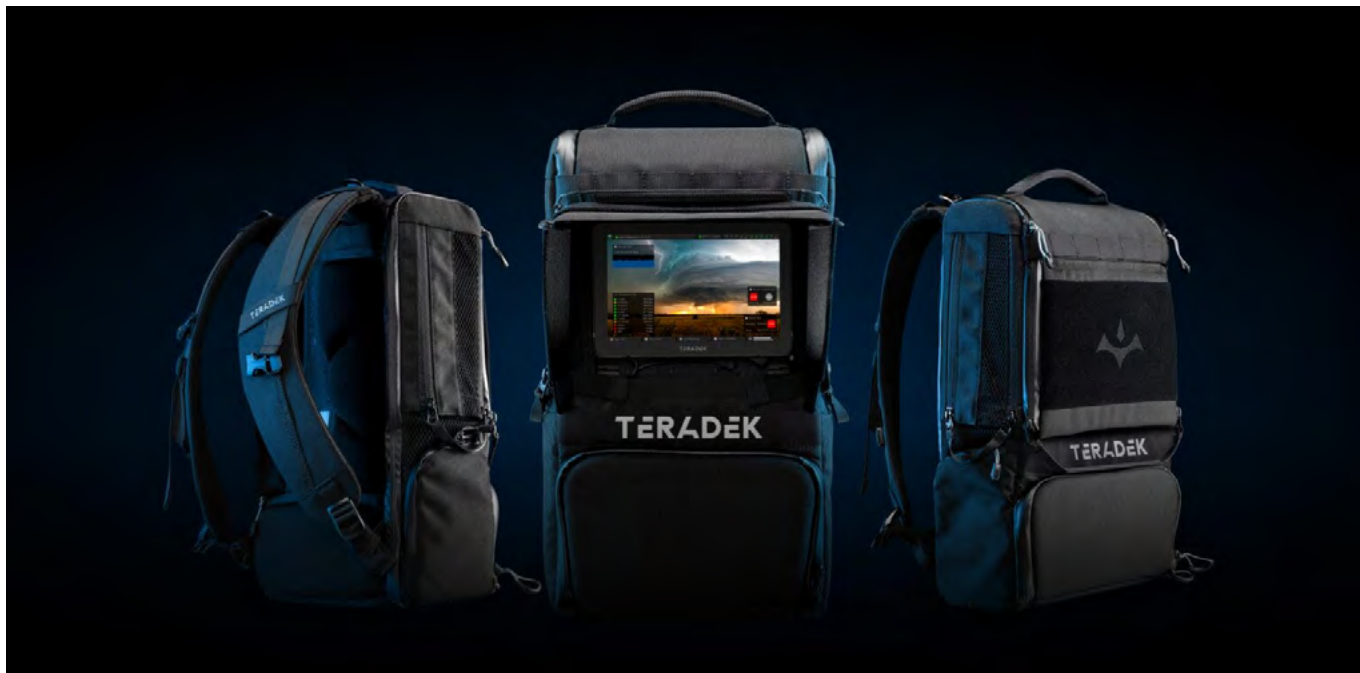


The MTP61 XL, an enhanced version of Wisycum's world-renowned miniature multiband bodypack transmitter, doubles the battery life of its predecessor while maintaining a compact design. Offering up to 19 hours of operation at 10 mW and 15 hours at 100 mW with recording enabled, the XL is engineered for productions where size, endurance, and performance are critical. It retains Wisycum's widest tuning range, advanced linear technology for intermodulation-free frequency planning, and features a rugged, splash-resistant housing with Bluetooth connectivity for monitoring and control via Wisycum Manager or mobile apps.

Together, these two solutions reinforce Wisycum's reputation for innovation and reliability, providing audio professionals with powerful tools for flexible, interference-free operation in the most demanding production environments. [\[APB+ News\]](#)

TERADEK LAUNCHES PRISM JETPACK: A NEW ERA OF 5G VIDEO CONTRIBUTION FOR LIVE PRODUCTION

Teradek, a leading provider of video transmission and live production solutions, today announced the launch of Prism Jetpack, a 5G video contribution pack designed to meet the demands of live field production at the highest



level. With cutting-edge connectivity and studio-grade monitoring, Prism Jetpack introduces a new category of mobile contribution for news, sports, and event coverage.

At the heart of Jetpack is an advanced 5G architecture featuring eight internal 5G modems and a custom high-performance antenna array, with total support for up to ten simultaneous network connections, including Starlink. Whether operating in densely populated urban centers or remote field locations, Jetpack ensures rock-solid connectivity when reliability is critical. With the ability to stream in 4K60, 10-bit HDR, and carry up to 16 audio channels, it delivers broadcast-grade performance for even the most challenging live productions.

The system offers a 3-hour internal battery and compatibility with Gold or V-mount batteries for hot-swappable power, ensuring uninterrupted operation for extended productions. Flexible SDI and HDMI I/O, along with upcoming support for Quad-SDI REMI workflows, make Jetpack production-ready for multi-camera shoots.

What sets Jetpack apart is its integrated 7" SmallHD production monitor, a studio-grade display that's both detachable and highly configurable. It can be mounted directly to the camera for live monitoring or positioned separately for reviewing return feeds in the field. With a 1200-nit daylight-viewable screen and Jetpack's built-in sunshade, it remains clearly visible even in harsh lighting conditions. Designed for real-world production demands,





the monitor includes both touchscreen controls and physical buttons for use with gloves, and it is equipped with professional imaging tools like focus assist, exposure assist, waveform, peaking, zebra, and histogram that give crews everything they need to nail the shot.

Designed for the Field

Understanding the physical demands of live production, Teradek partnered with LowePro to develop a custom ergonomic backpack that's rugged, comfortable, and optimized for all-day use. The pack includes dedicated compartments for accessories and personal items, plus an integrated rain cover, ensuring the system remains operational in unpredictable weather. [\[Broadcast Beat\]](#)

AJA SIMPLIFIES MODERN WORKFLOWS WITH NEW CONVERSION/IP TOOLS

AJA Video Systems has a series of new products and software updates designed to streamline signal flow management across broadcast, production, and proAV environments. The lineup includes the IP25-R Mini-Converter, UDC-4K, and Bridge LIVE 12G-4, alongside a major update to AJA's Desktop Software v17.6 for the Kona IP25 I/O card. These innovations will be showcased at AJA's stand (7.B19) from September 12–15, 2025, in Amsterdam.



IP25-R: Bridging IP and Baseband Workflows

The IP25-R Mini-Converter enables seamless de-encapsulation of SMPTE ST 2110 video, audio, and ancillary data for output to baseband 12G-SDI and HDMI 2.0 devices. Designed for hybrid IP/baseband environments, it delivers low-latency video up to 4K DCI (4096x2160p60) and advanced HDR metadata handling. Equipped with dual 10/25GbE network ports, two HDMI 2.0 outputs, and four 12G-SDI BNC outputs, the IP25-R is ideal for monitoring, playout, and routing applications.



UDC-4K: Flexible Signal Conversion and Synchronization

The AJA UDC-4K Mini-Converter combines 12G-SDI/HDMI 2.0 conversion with 4K/UltraHD/2K/HD scaling, frame rate conversion, and frame synchronization. Featuring an integrated color LCD, active cooling, and a built-in EDID emulator, it simplifies setup while ensuring reliability in field or studio environments.

Bridge LIVE 12G-4: High-Density IP Video Workflow Solution

Expanding AJA's IP video line, the Bridge LIVE 12G-4 introduces cost-efficient, multi-channel UltraHD support. Housed in a compact 1RU chassis, it offers four bi-directional 12G-SDI ports and supports encoding, decoding, and transcoding across codecs and protocols such as H.264, H.265, NDI, SRT, RTMP, and HLS. The device is tailored for broadcast contribution, remote production, and live streaming workflows.



Desktop Software v17.6: Enhanced IP Capabilities

The Desktop Software v17.6 enhances the Kona IP25 PCIe I/O card, adding Video+Key playout/TX per SMPTE ST 2110-20:2022, 4:4:4 12-bit 4K support, and multiple audio stream routing options. It also introduces IGMPv3 Source-Specific Multicasting and Forward Error Correction (FEC) to improve reliability over long-distance IP transport.

[\[Newscast Studio\]](#)

PROTON INTRODUCES NEW CONTROL INTERFACE

Proton Camera Innovations has launched the Proton PIO-E, a new hardware accessory designed to enhance camera management and remote control within its expanding lineup of compact, broadcast-grade cameras. Developed in direct response to user feedback, the PIO-E adds IP and Bluetooth connectivity, enabling more flexible and efficient workflows for live and remote productions.



The Proton PIO-E (Proton Input/Output Ethernet) is a compact, lightweight module measuring just 22 x 27 x 60 mm (66 mm with Hirose connector) and weighing 60

grams. It offers 100 Mbit Ethernet connectivity with Power over Ethernet (PoE) and converts IP or Bluetooth data into the RS-485 protocol, ensuring seamless integration with existing systems. Fully compatible with Cyanview and Proton's proprietary control software, the device supports automatic network discovery, allowing for centralized management across multi-camera setups.

With 12V/1A power delivery and Bluetooth functionality, the PIO-E simplifies cabling and accelerates setup, making it ideal for fast-paced production environments. Future updates will expand its Bluetooth capabilities, further enhancing mobile control options via upcoming Proton applications.

The launch of the PIO-E complements Proton's growing family of ultra-compact broadcast cameras, all of which will be showcased at IBC 2025. The lineup now includes:

- Proton Cam – The world's smallest broadcast-grade camera, featuring Full HD resolution, 12-bit processing, and superior low-light performance in a 28 mm-wide body.
- Proton Flex – A modular design with a flat ribbon cable separating the lens and sensor for flexible installation in tight or mobile setups.
- Proton Rain – A rugged, weather-sealed model built for outdoor or high-impact environments.
- Proton Zoom – Offers remote-adjustable optical zoom for dynamic shot framing.
- Proton HFR – Delivers global shutter capture at up to 240 fps for smooth slow motion in live workflows.

All Proton cameras share a unified architecture featuring 12-bit imaging, interchangeable lenses, and robust workflow integration. The addition of the PIO-E further strengthens Proton's ecosystem, empowering filmmakers and broadcasters to centralize control and streamline operations both in the field and from remote production centers. [\[Broadcast Prome\]](#)

HOLLYLAND ADDS PYRO 7 ALL-IN-ONE VIDEO MONITOR, TX AND RX TO PYRO SERIES



Hollyland has launched the Pyro 7, a wireless video monitor that combines a transmitter, receiver, and a seven-inch display into one compact, durable device. Its Auto Dual-Band Hopping technology helps keep the signal stable by steering clear of interference, allowing transmission up to 1,300 feet or 400 meters. With just 60 milliseconds of latency, it delivers smooth, real-time video monitoring for filmmakers and content creators.

The Pyro 7 is part of Hollyland's new Pyro Series, which also features the Pyro S and Pyro H. This device offers a portable, all-in-one solution for monitoring and transmission. Its hardware allows one transmitter to connect to up to four receivers simultaneously, and customizable shortcut keys make dual-camera monitoring easier. The latest HollyOS adds improved image analysis tools and supports exporting multiple videos to an SD card.

The Pyro Series introduces new tools for wireless transmission and monitoring, transforming how video professionals collaborate on set. With one transmitter sending clear, almost real-time video to four receivers, everyone on the team can view live footage simultaneously.

Powered by Hollyland's proprietary ADH technology, the Pyro Series operates on both 2.4 GHz and 5 GHz frequencies, automatically selecting the optimal channel for reliable performance. This makes it a perfect solution for multi-user monitoring in dynamic environments such as film production, live events, and ENG/EFP applications.

Each model in the series, Pyro H, Pyro S, and Pyro 7, offers unique features to meet diverse production needs.

- Pyro H includes HDMI input and loopout, enabling users to connect a camera for transmission while viewing output on an external screen.
- Pyro S supports both HDMI and SDI ports, catering to professional broadcast and small-scale production setups.
- Pyro 7, featuring a built-in 7-inch touchscreen monitor, supports HDMI and SDI input, output, and loopout, offering unmatched versatility for any workflow.



When used with Pyro H and Pyro S, the Pyro 7 makes it easy to view multiple cameras at once. Once you set up grouping presets, you can quickly switch between camera feeds using shortcut keys.

With WifiBroadcast technology, a single Pyro 7 transmitter can deliver a stable signal to four receivers at once, enhancing flexibility and enabling faster decision-making for teams and clients who require additional monitoring on set. [\[PR Newswire\]](#)

ATOMOS INTRODUCES NEW NINJA TX MONITOR-RECORDER



Atomos has introduced the Ninja TX, a new 5-inch monitor-recorder that builds on the popular Ninja series. This model adds 12G-SDI and HDMI 2.0 inputs and outputs, plus built-in Wi-Fi 6E and AirGlu timecode. Its updated design improves cooling, lowers weight, and makes it easier to carry, making it a strong choice for filmmakers and content creators who want a small but capable tool.

Powered by the new Linux-based AtomOS, the Ninja TX delivers faster performance, smoother operation, and support for over-the-air firmware updates. It records to ultra-fast CFexpress Type B cards or USB-C external drives, giving users flexible options for storage and workflow management. The bright 1500-nit 5-inch touchscreen

offers precise monitoring with advanced tools such as false color, focus peaking, waveform, RGB parade, and vectorscope, ensuring accurate exposure, color, and focus control on set.

Designed for today's connected workflows, the Ninja TX supports direct uploads to ATOMOSphere, Frame.io, Dropbox, and other cloud platforms, as well as streaming via NDI 6/HX3, enabling real-time collaboration from virtually anywhere. All major codecs, Apple ProRes, ProRes RAW, Avid DNx, and H.265/H.264, come pre-activated, allowing immediate recording in the preferred format without additional purchases. The Ninja TX supports resolutions up to 8Kp30 RAW, 4Kp60, and HD120fps, depending on the camera's output.



The improved cooling system keeps the device quiet and efficient. With two USB-C ports, you can connect drives, accessories, or calibration tools at the same time. The new cable locks for HDMI and USB-C help keep connections secure, so you are less likely to lose your connection during a shoot.

With its combination of advanced connectivity, compact design, and high-end recording performance, the Ninja TX sets a new benchmark for portable field monitor-recorders and continues Atomos's legacy of innovation in professional video production tools. [\[ATOMOS\]](#) ■



Personalities & Posts

New CEO, Mr Hideo Kado

Mr Hideo Kado
President & CEO of B-SAT
(Broadcasting Satellite System Corporation),
currently in the fourth year of tenure.

Since the early days of satellite broadcasting in Japan, Mr Kado has been deeply involved in the production of numerous large-scale high-definition programs and content, contributing significantly to the widespread adoption of satellite broadcasting.

As the only Broadcasting Satellite Service infrastructure company in Japan, B-SAT is committed to ensuring stable broadcast operations and strengthening facilities to prepare for natural disasters such as severe weather and earthquakes. Mr Kado is also leading the urgent management initiative of the next-generation satellite procurement project, with a launch scheduled in the second half of Japan's fiscal year 2029. In addition, he visits reception monitoring stations located across Japan, including remote islands, and is dedicated to improving the satellite broadcast reception environment nationwide. ■



New Judges Appointed for ABU Engineering Awards

The ABU Engineering Awards judging panel enters a new chapter this year. Experts from Asia and Europe are joining, bringing fresh perspectives and innovation. **Mr Prakash Veer** (Prasar Bharati-India), **Dr Leilei Li** (RTPRC-China), **Mr Jongwon Oh** (KBS-Korea), **Ms Emily Dubs** (DVB-Switzerland), **Ms Mardhiah Nasir** (IPSB-Malaysia), and **Dr Peter Siebert** (BTS-Switzerland) now join the team.



Mr Prakash Veer



Dr Leilei Li



Mr Jongwon Oh



Ms Emily Dubs



Ms Mardhiah Nasir



Dr Peter Siebert

We warmly welcome these judges and thank our outgoing panel: **Mr Zheng Shifan** (RTPRC), **Mr Ashok Kumar** (Prasar Bharati), **Mr Naoki Kashimura** (Ikegami), **Mr Peter Bruce** (Harmonic), **Mr Charles Seviar** (Dell EMC), and **Mr Alexander Zink** (Fraunhofer). Their dedication and expertise have shaped the awards' prestige. ■



Mr Zheng Shifan



Mr Ashok Kumar



Mr Naoki Kashimura



Mr Peter Bruce



Mr Charles Seviar



Mr Alexander Zink

ABU TECHNOLOGY CALENDAR *of Events*

2025

SEPTEMBER 4

ONLINE

ABU Technical Bureau Annual Meeting

SEPTEMBER 11-12

ULAANBAATAR, MONGOLIA

ABU Technical Committee Meeting

SEPTEMBER 14-15

ULAANBAATAR, MONGOLIA

ABU General Assembly

WBU Technical Committee

OCTOBER 20

Tunis, Tunisia

Technical Workshop (Collaboration with IPPTAR)

OCTOBER 28-30

Kuala Lumpur, Malaysia

NOVEMBER

ONLINE

Members Innovation Webinar

NOVEMBER 19-21

JAPAN

Inter BEE 2025

NOVEMBER 25-27

Vietnam

VOV Workshop

RTHK Technical Visit

DECEMBER

Hong Kong - China

2026

JANUARY 19-23

Kuala Lumpur, Malaysia

HFCC A26 Conference

ABU Digital Broadcasting Symposium 2026

MAR 30 - APRIL 2

Kuala Lumpur, Malaysia

How to contribute to the Technical Review

Would you like to contribute an article to the ABU Technical Review?

We welcome submissions from everyone. This is an excellent opportunity to showcase your organisation's work and gain significant exposure.

We are open to a variety of articles, including research papers, details on new technical developments, or any content that will interest TR readers. The Technical Review, our quarterly publication, is distributed to all ABU members, industry partners, and technical staff, as well as international organisations such as the ITU, other broadcasting associations, and universities.

While it primarily targets engineers, it also features general interest news stories. It contains articles on new technologies, developments in broadcasting, member innovations, and other materials of interest to engineers.

Your article can be of any length and written in any style. Should you include photos, please ensure they are high resolution (at least 2 megapixels). Although we cannot offer payment, we do provide a free half-page advertisement for select articles, especially those covering technical research. This advertisement will be placed immediately after your article, giving your organisation extra publicity.

Additionally, articles by ABU members on Case Studies, Research, and Practical Implementations are eligible for the annual ABU Technical Review Prizes, which include a cash prize and a certificate.

You can view previous issues of the Technical Review on the ABU website's main page or directly at: <https://www.abu.org.my/technical-review/>

We look forward to considering your submission.



The ABU Technical Committee Meets in Ulaanbaatar



If you need more information, please contact: balqis@abu.org.my

ABU DBS 2026

DIGITAL BROADCASTING SYMPOSIUM

The background features a green wireframe illustration of two hands cupping a globe. A network of orange and white dots connected by thin lines is overlaid on the scene, suggesting a digital or technological theme.

THE RISING SYNTHETIC ERA

30 MARCH – 2 APRIL 2026
BERJAYA TIMES SQUARE HOTEL, KUALA LUMPUR

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