Asia-Pacific Broadcasting Union

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ABU TECHNICAL COMMITTEE MEETS IN NEW DELHI

Azadi Ka Amrit Mahotsav

ABU

प्रसार भारती PRASAR BHARATI

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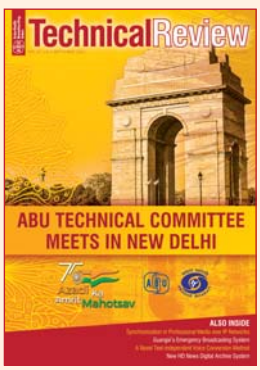

Cover: ABU Technical Committee Meets in New Delhi

Asia-Pacific Broadcasting Union

from the Editor

As the cover depicts, we are very happy and excited to be organising our annual Technical Committee meeting as an in-person event after 2 years of virtual meetings due to the pandemic. The Technical Committee meeting will take place from 26-27 November in New Delhi, India and is hosted by our member Prasar Bharati (Doordarshan and All-India-Radio) as part of ABU's 59th General Assembly and Associated meetings which run from 25-30 November. You will find draft meeting schedule and details within the inside pages. We look forward to welcoming all of you to the meetings.

This third quarter edition of the Technical Review for 2022, is packed with a lot of information and updates from our members and the industry. We have four feature articles in this edition in addition to other information documents and updates. The articles have been contributed by colleagues from our members in IRIB-Iran, RTPRC-China and RTM-Malaysia. The first one titled "Synchronisation in Professional Media over IP Networks" by IRIB-Iran highlights the importance of PTP in synchronising IP streams and devices which is a critical part of IP implementation in the studio environment. The second one on "Guangxi's emergency broadcasting system realises the "Last Step" in providing public services" details the important implementation of Guangxi's emergency broadcasting system and its role in coping with public emergencies. The article titled "A Novel Text-independent Voice Conversion Method for Persian Speakers", also contributed by IRIB-Iran, presents research conducted in speech-to-speech conversion, which is able to convert speech to any desired target speech without the need for text data. The fourth article titled "High-Definition News Digital Archive" contributed by RTM-Malaysia, shares some insight into the development of a new HD News archive system to manage media coverage, allowing media material to be published on either TV, radio or social media platforms.

Also, inside you will find the detailed report and highlights from the first in-person workshop organised on "Cloud Technologies for Media services" after the pandemic. We are extremely grateful for our partners and participants who joined us in-person for this workshop.

As usual this edition concludes with our regular highlights from within the industry, digital updates and the latest in equipment trends. We hope you will benefit from the informative articles and reports.

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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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Synchronisation in Professional Media over IP Networks

SMPTE ST 2059-2 PTP

ABSTRACT

Since IP networks have become common in professional broadcasting, accurate synchronisation using precision time protocol (PTP) has become one of the most important considerations. As all IP studios use the SMPTE ST 2110 standards, it is important to pay attention to the accurate and reliable time transfer protocol that is one of the basic pillars of these systems. SMPTE ST 2059 is standardised according to the IEEE 1588 exact time protocol.

The network or multimedia equipment, affects the accuracy of time transmission and impacts the timing of ST 2110 media streams generated or received by the respective nodes. PTP is highly fault tolerant. However, performance degradation due to time transfer is not well known. This drop can have a significant impact, especially on live and real-time networks. Therefore, a comprehensive view of the end-to-end timing system, including network equipment, backup and standby, is required and necessary. Network timing monitoring should be common to all equipment. Monitoring examines how equipment operates with respect to time transfer and provides a framework for tracking events. This paper describes the different monitoring capabilities, and the value it provides to the monitored datasets. Then focuses on different means and achieves the common process for all monitored equipment.

KEYWORDS

ST2059-2 time transfer, PTP, synchronisation, monitoring, ST 2110

INTRODUCTION

Synchronisation has always been required in the broadcast environment and is becoming more important especially in live event broadcasting. Precision Time Protocol (PTP), as described in IEEE standard 1588 is a widely adopted technique for synchronising devices across Ethernet networks, for example as an integral part of International Telecommunication Union Standards for packet transport networks.

PTP is a message-based time transfer protocol that is used for transferring time across a packet-based network. It guarantees various points in the network are precisely synchronised to the reference (master) clock. PTP timing messages are carried within the packet payload. The precise time of a PTP aware device is recorded using a timestamp. Because packets take different lengths of time to travel through the network, caused by queuing in switches and routers on the path, this results in packet delay variation. To reduce the impact of that, some methods are used to achieve network target accuracy.

PTP uses the exchange of timed messages to communicate time from a master clock to a number of slave clocks. The SMPTE has defined the 2059-2 PTP profile to meet the needs of professional broadcast. Hence this is commonly referred to as the PTP Broadcast Profile.

Media exchange between multiple devices on a large IP network requires constant synchronisation between all transmitters and receivers. Whenever the 1µs synchronisation range is exceeded, even temporarily, the temporal relationship between the respective media flows may be interrupted, and may result in error if different video and audio streams need to be connected during the next processing cycle in the workflow.

In accordance with SMPTE ST 2110 [1-5] standards in media streams, instead of sending the full data of a video frame or set of audio samples in a burst, it must be transmitted at a high and fixed data rate to complete the relevant recording / processing. This mandatory condition ensures that the network is never disconnected, even temporarily and without additional load. If these conditions are not met, sending queues in network equipment can be filled and packets can be dropped. Therefore, the data transfer rate must be the same throughout the network.

PTP [6] is a very efficient means for accurate and reliable synchronisation of all nodes within the network. Therefore, ST 2110 has chosen PTP as the primary technology for synchronising all nodes in an IP network. ST 2059-2 [7] and ST 2110-10 are relevant SMPTE standards that define time transfer specifications. PTP is a simple two-way time transfer mechanism that can provide sub-microsecond accuracy as long as all the timestamps of the PTP messages that carry the time information are accurately embedded in the hardware. However, PTP has a basic requirement that must be met, the time of transmission of all messages over the network from the reference to the end node that requires time information, must be fixed in both directions. Thus, the accuracy of

PTP is affected by the behaviour of the entire IP network, not just the corresponding end nodes.

TIME TRANSFER MONITORING

PTP provides a significant degree of fault tolerance and always selects a device with the best (most accurate) local clock to be used as a source of reference time for the entire network. This decision-making process is done automatically, without the need for user interaction other than configuring all devices based on it during deployment and implementation. As soon as more than one device is considered to be time reference (PTP Grandmaster), PTP can tolerate the reference error that is currently active.

The question arises as to why there is an insistence on constantly monitoring all aspects of the PTP protocol, rather than simply collecting status information regularly, as is usually the case in many other lower layer protocols active in IP networks, such as RSTP (Rapid Spanning Tree Protocol). There are several reasons for using PTP monitoring, which is significantly higher than the base level commonly used for other network protocols. The overall accuracy of PTP is affected by the performance of all network devices in terms of sending and/or processing time information. Therefore, it is not enough to simply confirm that all messages are exchanged at a predetermined rate and that all devices follow protocol rules. In other words, in addition to the expected states, the requested state transition must be considered in a timely and correct manner.

The quality of time information must also be constantly monitored to ensure network synchronisation. If all or most network equipment operating as PTP Transparent Clocks or PTP Boundary Clocks is aware of PTP, general accuracy will be sufficiently considered. But this does not reduce the need for close monitoring of time transfer. PTP-aware network equipment manipulates PTP messages that carry time information, so they may be incorrectly configured, subject to hardware or software errors, or fall victim to a security attack.

PTP MONITORING INFORMATION

Although PTP can handle many faults inherently, several errors with the ability to corrupt or even interrupt time data transmission have not been identified. The fault tolerance improvement methods proposed in PTP have been extensively studied in various papers. For example, more than one auxiliary PTP Grandmaster significantly reduces the risk of loss of synchronisation [10]. To improve PTP flexibility, a fully redundant network infrastructure can be used, such as that specified in the SMPTE ST 2022-7 standard [11] for redundant media transfer. However, regardless of the level of fault tolerance used, monitoring is very important because of a design principle in PTP. PTP monitoring is an essential tool for tracking malfunctions or incorrect settings of the PTP configuration as well as intentional attacks on the integrity of the time transfer system, and its capabilities should not be limited to tracking the overall accuracy of the network.

PTP uses the exchange of timed messages to communicate time from a master clock to a number of slave clocks. The timed messages are SYNC, FOLLOW_UP, DELAY_REQ and DELAY_ RESP, as shown in *Figure 1*. These messages yield four timestamps from which it is possible to calculate the round-trip time for messages from the master to the slave, and back to the master.

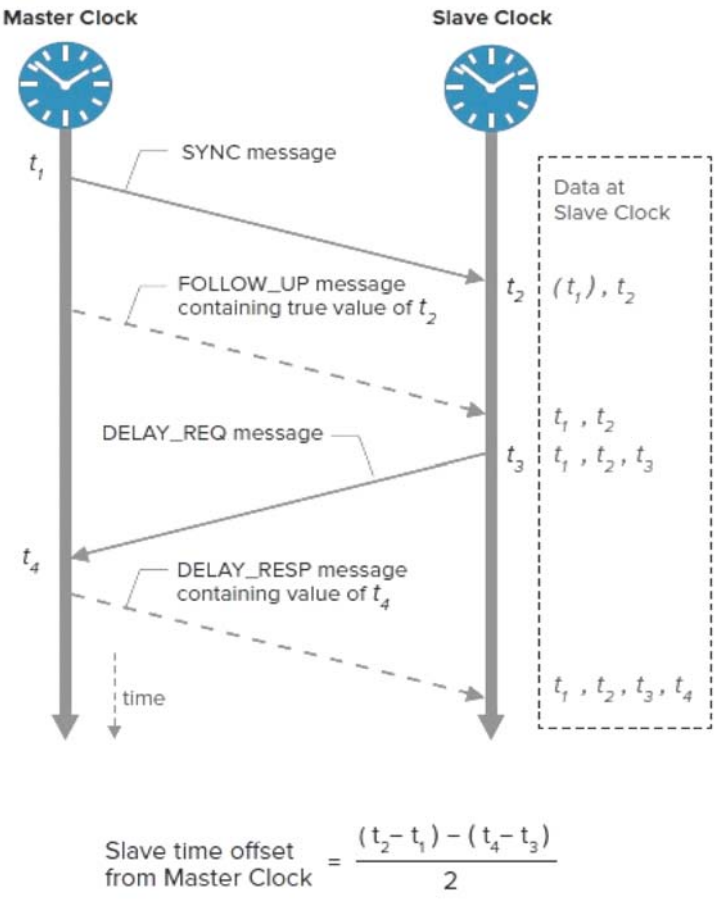

Figure 1. PTP timed messages [8]

The monitoring system needs a list of all the nodes it needs to monitor. This can be provided manually, or it can scan the network via PTP management messages to gather the required information.

In message based offset measurement techniques led by group of PTP vendors like the NetSync Monitor, the transfer starts by sending a Delay Request message to the Follower node. This message is expanded with a special TLV (type length value) field that defines it as a monitoring message. Adding TLV to PTP messages is fully supported by IEEE 1588-2008. *Figure 2* shows the message flow of a follower monitoring system. The follower node will simply process this message by gathering the ingress timestamp and return this information back to the sender via a Delay Response message extended by a similar TLV. The data contained in the TLV triggers the device to generate one additional Sync message, again extended by a TLV. This message is sent to the monitoring system, which now has gathered the same four timestamps as the follower node is continuously using to adjust its local clock. The monitoring system will not use this data to adjust its clock, which is synchronised to the currently active Grandmaster via a separate route. It will be able to analyse the offset of the Follower node. More than one such monitoring device may be added to a PTP network.

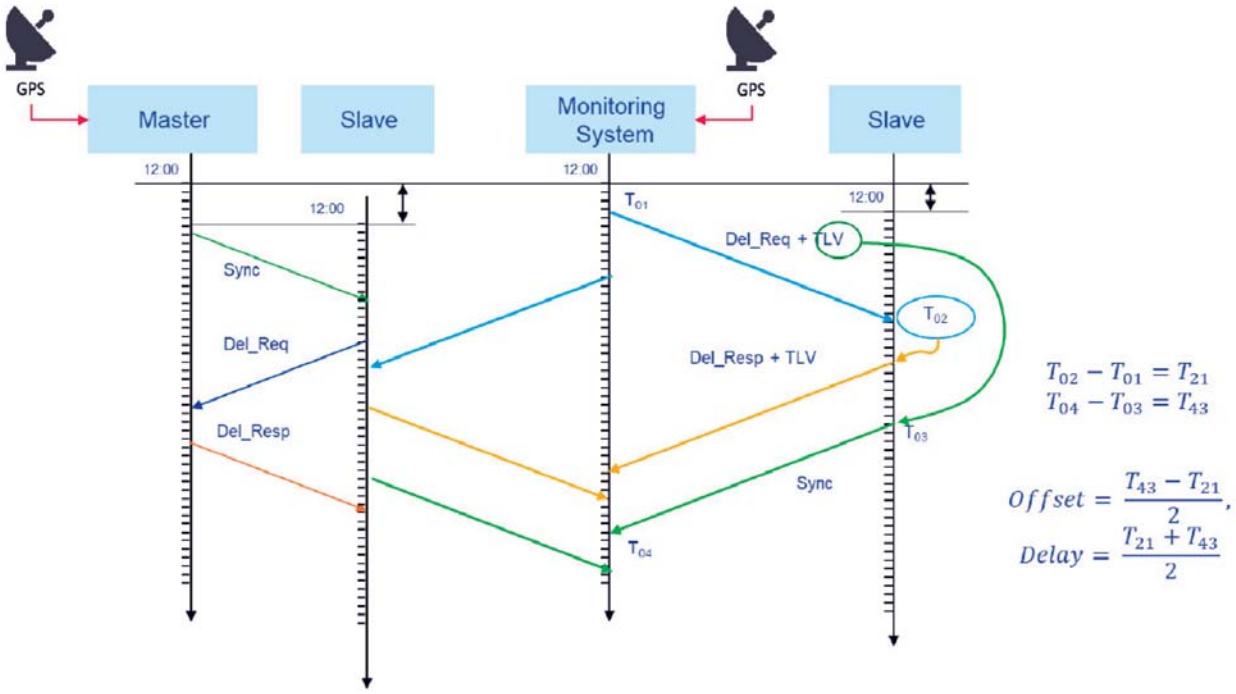

Figure 2: Message Flow of Monitoring system [9]

The data collected by these monitoring systems can be used to evaluate the synchronisation accuracy of all follower nodes that support this extension.

All significant PTP error conditions can be identified when a significant amount of monitoring data is continuously collected from each PTP device. This data should include the current configuration as well as message rates, or even better the total number of processed node messages for a given period of time. If data processing and collection is done effectively, errors can be immediately detected, and it is possible to take action before the affected nodes lose synchronisation.

REFERENCE MODEL FOR MONITORING

There are many ways to collect and aggregate PTP information, including multiple data formats, data structures, and specific vendor implementations. Due to this inconvenient situation, it is necessary to have a unified representation of PTP related data. There is a need for a tool not only to compare such data, but also to validate it in different settings, which should take into account the compatibility and coordination in the data collected.

For this purpose, traditional approaches are defined using SNMP for PTPv2 [14], with a generic PTP Management Information Base (MIB) which is limited to IEEE 1588 PTPv2 only and does not cover the SMPTE ST 2059 specification. To address this gap, the 32NF Technology Committee of SMPTE has launched a project to produce a reference model containing a set of parameters to check the status of ST 2059-2 PTP equipment.

The proposed SMPTE 2059-15 method, which is currently under development [16], defines a YANG[1] (the YANG model, which has been widely defined in the IETF [15]) data model that includes all aspects of the time transfer monitor, including reference clock input such as GNSS[2], its PTP time passes through PTP-aware equipment to the end node and retrieves transfer time.

In the IRIB R&D lab there are various committees and work groups focussed on production over IP platforms and research on synchronising professional broadcast and try to improve monitoring capabilities according to the standard method. We plan to perform PTP accuracy tests by using message-based offset measurement methods offered by various PTP vendors, such as NetSync monitors or the Dataminer Skyline Communications analysis tool. If the standard model is finalised, that method will be used.

CONCLUSION

PTP is a critical part of an all-IP studio that relies on all network devices for synchronisation between devices. PTP inherently provides a significant level of fault tolerance, which can even be increased for mission-critical applications, using redundant networks for time transfer. Continuous monitoring of all equipment is mandatory, especially for large networks, this allows PTP errors to be detected and prevented from occurring before they impair overall accuracy.

A consistent and standard method has not been considered in this field and if available, it has been implemented using a wide range of designs and models by various vendors in the industry. The best way to overcome this limitation is to agree on a common data model and dataset provided by each PTP node.

[1] Yet Another Next Generation

[2] Global Navigation Satellite System

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As you may be aware, the Technical Review is a quarterly publication distributed to all ABU members and industry partners.

It is available to the technical staff in each member organisation and in international organisations such as the ITU and other broadcasting associations, as well as in universities.

The Technical Review is aimed at engineers but also carries general interest news stories. It contains articles on new technologies, developments in broadcasting, innovations by members and other material of interest to engineers.

An article can be any length and written in any style you like. if you have photos to accompany it, they should be high resolution (at least 2 megapixels).

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Radio and Television Bureau of Guangxi Zhuang Autonomous Region

Guangxi's emergency broadcasting system realises the "Last Step" in providing public services

ABSTRACT

This article introduces the features of Guangxi's emergency broadcasting system and its role in coping with public emergencies. It expounds the experiences and practices of Guangxi Radio and Television Administration in constructing and promoting the local emergency broadcasting system.

By technological innovation, Guangxi has created a safe, stable and efficient emergency broadcasting system, which can realise coordinated actions, be safe, reliable and available both at ordinary times and in crisis, thus effectively realising the "last step" in providing public services.

INTRODUCTION

The emergency broadcasting system is an important infrastructure for national social governance, an important part of constructing the public radio and television service system, a social project to protect the lives and property of the people.

Guangxi Zhuang Autonomous Region is located in southern China and enjoys geographical proximity to Southeast Asia. The region's total land area is 236,700 square kilometres. Guangxi has a population of more than 50 million. Zhuang nationality is a minority with more population than any other minorities in China.

In recent years, Guangxi Radio and Television Administration has used new technologies to build an emergency broadcasting system in Guangxi. The system can promptly and effectively publicise government policies, disseminate news and agricultural knowledge, and enrich the cultural life of the masses. In the event of sudden public emergencies, the emergency broadcasting system could deliver immediate information to the masses without delay, playing a role in information dissemination, risk warning, social mobilisation, etc., thus ensuring the safety of people's lives and property. This is an efficient way of ensuring the "last step" in making public services realisable.

THE ROLE OF GUANGXI'S EMERGENCY BROADCASTING SYSTEM IN SUDDEN PUBLIC EMERGENCIES

The first role lies in publicising information. Since the start of the COVID-19 pandemic, Guangxi Radio and Television Administration has been activating the emergency broadcasting system as soon as possible to give full play to its strong publicity capability for sending information directly to rural areas. The system is widely used to release authentic information on combatting COVID-19 to innumerable rural households. At the same time, given the special needs of ethnic minorities, minority languages have been used to broadcast information on COVID-19 containment. This effort has effectively prevented the pandemic from spreading to rural areas. The unusual role of the emergency broadcasting system in the joint COVID-19 epidemic prevention has been reported by mainstream media, shaping Guangxi's experience.

Figure 1: People of ethnic minority group are using the emergency broadcasting system

The second role lies in early risk warning. According to the practical situation, Guangxi's emergency broadcasting system issues regional risk warnings in a regular and seasonal way, effectively ensuring the safety of people's lives and property. In July 2021, Typhoon Cempaka hit Guangxi. At Weizhou Island Tourist Zone of Beihai City, Guangxi, the emergency broadcasting system played a role in emergent response to the typhoon. It released information on shipping suspension, tourist transportation, risk warning, meteorological disasters, etc., covering the whole island and promptly reminding people to disembark from fishing boats, and islanders and tourists to take safety measures. With the timely information provided by the emergency broadcasting system, about 23,000 tourists along the Weizhou Island-Beihai route were evacuated during the typhoon, and the safety of people's lives and property was ensured. On August 4, 2021, a magnitude-4.8 earthquake struck Debao County, Baise City, Guangxi. The local emergency broadcasting system released the earthquake warning to the public instantaneously, promptly reminding people to keep themselves safe. It is the most efficient way for local citizens to get the latest news about the situation in and beyond the disaster area.

FEATURES OF GUANGXI'S EMERGENCY BROADCASTING SYSTEM

Guangxi People's Government has placed high value on the emergency broadcasting system by including the "improvement of the emergency broadcasting system" into the Outline of the 14th Five-Year Plan (2021-2025) for Economic and Social Development of Guangxi Zhuang Autonomous Region and the Long-Range Objectives through to the Year 2035. A safe, stable and efficient network of emergency broadcasting systems has been forged under unified planning, standardisation, construction and supervision, featuring one platform + multiple channels + multiple terminals. It can realise coordinated actions, safety, reliability and availability both at ordinary times and in disaster. Guangxi's emergency broadcasting system is listed as a model case of Smart Broadcasting by the National Radio and Television Administration of China.

Guangxi's emergency broadcasting system adopts a construction model of advancing from one county to another. Emergency broadcasting can vertically link five tier, province, city, county, township, and village levels, and horizontally connect to the information local systems of emergency, meteorology, earthquake, health, water conservancy, and other government authorities. Currently, there are 57 county-tier emergency broadcasting systems, completed or still under construction, in Guangxi, covering 669 towns and townships and 8,106 administrative villages, accounting for 51% of the total construction tasks. In counties under the jurisdiction of Liuzhou City, Guangxi, the system has extended to remote natural villages, realising complete coverage of emergency broadcasting. The following are the features of Guangxi's emergency broadcasting system.

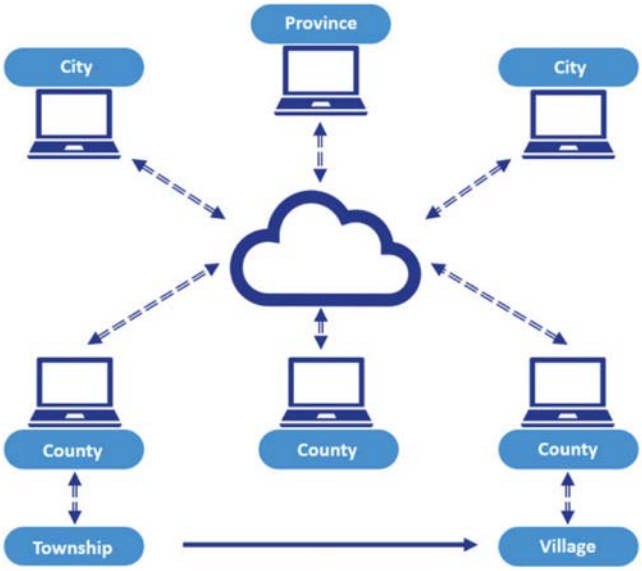

Figure 2: The structure of emergency broadcasting system

First, it has a set of technical standards to ensure the effectiveness of the system. Guangxi Radio and Television Administration strictly implements the technical standards of emergency broadcasting issued by the National Radio and Television Administration of China, has organised a technology task force to carry out research on key emergency broadcasting technologies and strive to master core technologies, so as to ensure the standards of the whole autonomous region are unified.

Second, it has a unified platform to ensure low cost. Guangxi Radio and Television Administration has used cable TV network coverage resources and new technologies such as cloud computing, big data and artificial intelligence to build an emergency broadcasting online platform. This platform allows emergency broadcasting centres at all tiers to adopt the lowest configurations, so that they don't have to purchase more servers, switches, adapters and other hardware equipment. It can greatly reduce the costs of construction, operation and maintenance of emergency broadcasting centres at all tiers.

Third, it has multiple channels to ensure successful broadcasting. The emergency broadcasting system mainly uses cable TV network as the mainstay, wireless network as the backup, and 4G communication network as the supplements. With transmission routes including the cable TV network, terrestrial digital broadcasting network, FM broadcasting network, 4G communication network, and Beidou satellites network, it feature wide coverage, low latency, and prompt response.

Fourth, it has multiple terminals to ensure messages are heard. The terminals include loudspeakers, broadcasting STB, access controller, Beidou receiver, radio, and other terminal equipment. The emergency broadcasting system has multi-terminal management capabilities. It can send emergency messages to different types of terminal to achieve accurate coverage of different areas.

Fifth, it has integrated multiple resources to ensure wide coverage. Guangxi Radio and Television Administration has given full scope to local radio and television broadcasting institutions to carry out the daily management of emergency broadcasting and explore the establishment of a daily scheduled broadcasting mechanism for emergency broadcasting

Figure3: Emergency broadcasting online platform

Figure 3: Emergency broadcasting online platform

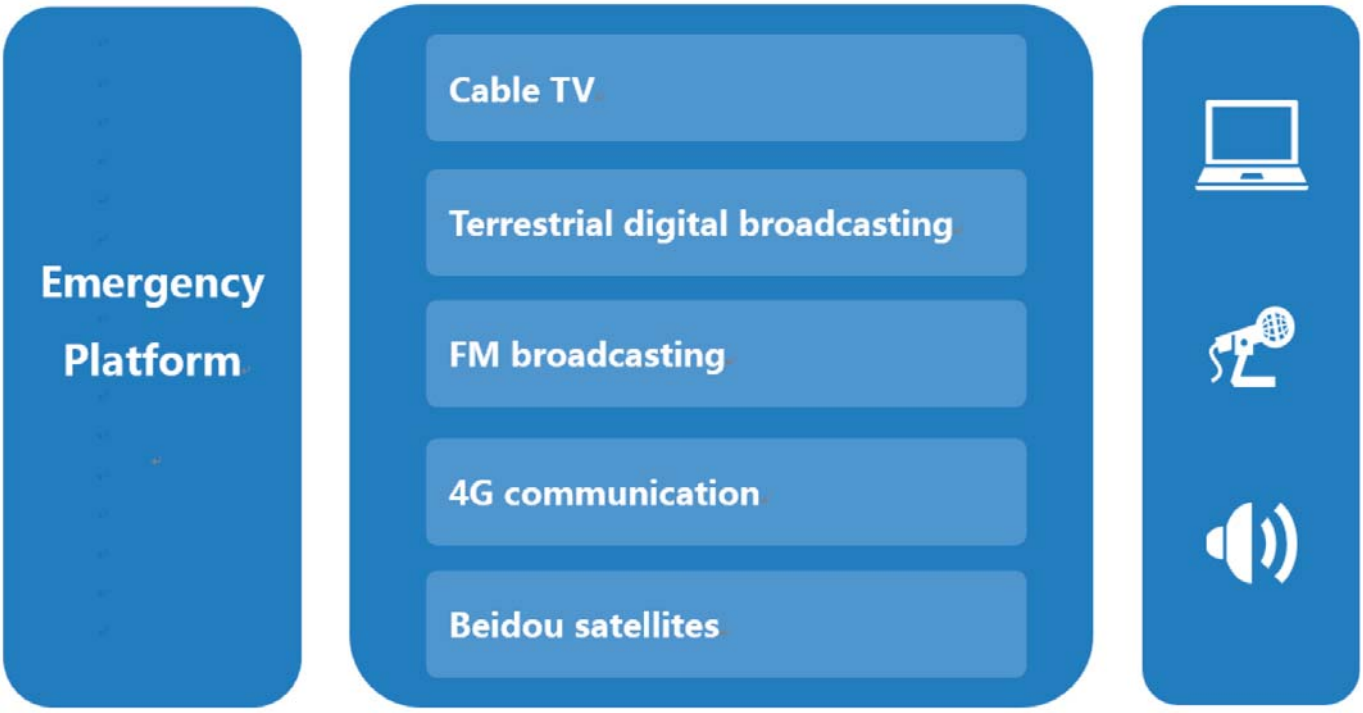

Figure 4: Multiple channels used by emergency broadcasting system

in the early, mid and late hours. On one hand, it has strengthened cooperation with the government emergency management authority for the application of the emergency broadcasting systems in the field of emergency management, and the improvement of an emergency information release mechanism. On the other hand, it has signed the Business Cooperation Framework Agreement with the government meteorology authority, to jointly build and share the dissemination channels of meteorological warning information, and to improve the coverage and timeliness of warning information, especially on major meteorological disasters.

Loud speaker

Broadcasting STB

Access controller

Radio

Beidou receiver

Figure 5: Multiple terminals used by emergency broadcasting

THE WAY FORWARD

Guangxi Radio and Television Administration will further develop and improve the emergency broadcasting system and expand its coverage. We will strive to achieve full coverage of emergency broadcasting in all 14,335 administrative villages under Guangxi's jurisdiction and extend broadcasting terminals to natural villages and urban communities. We will also fully leverage the role of the system in social governance and information dissemination.

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Lan Zhaohua was born in China in June 1982. He received his B.Sc. and M.Sc. in Electronics Information from Guangxi University in 2005 and 2008, respectively. He has over 14 years of experience in the Broadcast and Media industry. He is currently the Chief of Science and Technology Division at Radio and Television Bureau of Guangxi Zhuang Autonomous Region. His current research interests include high-speed networking, cloud computing, SDN/NFV, networking algorithms, video retrieval and artificial intelligence. ■

Workshop on Cloud Technologies for Media Services

ABU Technology organised a workshop on 'Cloud Technologies for Media Services' from 25-27 July 2022 in Kuala Lumpur, Malaysia. This was the first in-person event after running virtual events consecutively for more than two years.

The participants were brought up to date on concepts of cloud computing and platforms, broadcast migration to cloud platforms, and media solutions and cloud-based implementations and services. The event consisted mainly of presentations with live and real-time demonstrations of different cloud-based solutions and implementations, including few case studies. In total, eighteen speakers, representing Benchmark Broadcast Systems, Amazon Web Services (AWS), IPSB Technology, RCS, Skyline Communications, Harmonic Inc, Rohde & Schwarz, Globecast Asia, Haivision, Winmedia, TVU Networks, Vizrt and Alibaba Cloud, presented topics involving cloud technologies, media workflows, system integration, distribution, media asset management (MAM), playout, and others.

The workshop was attended by 46 participants, representing 19 ABU member & non-member organisations from 10 countries in Asia and the Pacific.

CLOUD TECHNOLOGIES FOR MEDIA SERVICES – BENCHMARK BROADCAST

Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources, through a cloud services platform via the Internet, with pay as you go pricing. Broadly, Private, Public and Hybrid are the three different deployments of the Cloud. Public Cloud infrastructure is available in the form of utility services that are used by businesses to buy computing, storage and bandwidth resources on-demand. Private Clouds are for companies that want to manage their data and processes in an environment with exclusive access only to their own resources. Hybrid Clouds are a mix of both public and private Clouds. Based on service model, the classifications are: Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS).

There are three types of implementable solutions for broadcasters - Cloud based; On-premise setup with remote production operations; and Hybrid Architecture. The cloud-based solution has benefits in terms of features or software modules, business needs, scalability, hardware dependency, hardware/ infrastructure management, and maintenance costs.

The Remote Production solution centralises the core functions with connection to the remote locations that bring in raw audio and video signals. It saves time and resources with limited infrastructure in the field. On the other hand, Hybrid Architecture uses collaborative tools, such as NRCS, MAM, Edits, etc, being deployed in the Cloud for easy remote access. It leverages all the advantages of the Cloud and items such as playout, switcher, mixer etc. can be located on the premises. In complex environments, Hybrid architectures allow migration to Cloud, retaining the existing studio/PCR production & MCR infrastructure to leverage the benefits of these systems.

Transitioning to the Cloud is not only a technological, but a strategic decision. Transitioning to cloud-based media production requires consideration of five key areas, which include connectivity, computation, control and compliance, and which offer comfort in usage and cost reduction, as follows.

With respect to connectivity, the questions to consider are; where the raw sources are coming from; where finished assets are going; what connections are available between the source acquisition and the nearest data centre; if compression is needed; the geographic footprint of the planned system; when and how a public, private and/ or hybrid cloud service should be used. Computation requires the maximum compute resource needed, how many compute instances are require and whether vendors have a strategy for working across multiple compute nodes.

Control and Compliance should answer how many access points the system requires and where they would be located, what strategies the solution provider has to support your needs, and the rules and regulations your cloud providers need to adhere to

keep your company safe and in compliance.

Comfort in usage should address points such as, any plans to use a proprietary cloud, personnel available to implement the cloud solution, how much of the operator workflow will have to be changed, how simple the system is to troubleshoot, handling emergency support etc. Likewise, the cost issues regarding cloud usage being episodic or continuous, what the company's strategy is for managing capital and operational expenses over time, how usage will be calculated, and whether the preferred solution is tied to a particular cloud service provider etc.

Examples and use cases included deployments implemented by Benchmark Broadcast Systems were described; the first being media asset management on the Newsbridge platform. This was a typical SaaS service using MediaHub which uses AI based indexing and simple editing functionality. Another deployment was contribution and assisted production for newsroom usage and event production. A further use case was cloud-native video editing and publishing executed in a web browser, providing rapid access to video content anytime, anywhere.

DIRECT TO CONSUMER NEXT-GEN SERVICES – AWS

Direct-to-Consumer (D2C) services should focus more on personalisation and better understanding of customer expectations. A survey of AWS customers revealed that D2C service operators wanted to maximise revenue opportunities by acquiring new customers, driving engagement & reducing churn rates. Next was accelerating innovation & differentiated offerings for audiences to see value in their services. Likewise, producing and acquiring unique localised content was a requirement, in addition to streamlining media supply chains to reduce operations & fixed costs. AWS assists its customers to launch such D2C services, offering options such as building the right viewing experience, driving engagement, increasing lifetime value of AWS, and delivering knowhow to accelerate innovation.

To build innovative viewing experience means engaging your audience. Machine Learning techniques may be used to create ways of keeping the audience engaged. Constantly innovating business models to include every viewer with new offerings and content relevant to their interests. In reality, transporting, preparing, processing and delivering professional quality over-the-top video is quite fast and easy in the Cloud. Viewing experience is changing from lean-back, traditional content watching with passive involvement, towards lean-forward, interactive live broadcast experience that results in more customer engagement. This is seen to be possible in some of the e-commerce products/ services, and interactive live

streaming offerings. The best solutions are those that offer enhanced viewer experience with metadata, live multi-angle playback at event/shows, live chat & moderation. The critical part is being able to scale resources depending on real-time viewership while achieving the best video quality and lowest latency.

Driving engagement may be achieved if you develop viewer profiles to understand the audience. Also, to understand viewers' goals and anticipate the need to make contextual offerings across connected channels, with recommendations. Another option is to improve viewer awareness and activity with personalised messages to build loyalty and reduce churn. Likewise, increasing lifetime value is possible through creation of ad opportunities for connected TV with server-side ad insertion, developing new ad formats with machine learning, contextual and dynamic ad insertion and using plug in apps for more diverse ad demand, besides the analysis of advertising performance and demand across channels. Another AWS strategy is to deliver knowhow and accelerate innovation to serve its customers. There are some key routes, such as to build on the experience gained by running the leading D2C services, to leverage the largest media partner ecosystem of any Cloud provider to rapidly build workflows, to accelerate time to market with specific programs and professional service for development support and to use media specific solutions to speed up the customer's own solution development.

AWS offers a platform that can support the spectrum of customer needs, enabling them to achieve fast and flawless launches using AWS solutions. A big entertainment company affirmed this approach, with its long-term goal being to let AWS do all the infrastructure work, allowing its own development team to focus on features that unique to them, to deliver the most compelling services to its clients.

SCALING MEDIA AND BROADCAST SERVICES WITH CLOUD COMPUTING – IPSB

Broadcast customers are seen as cloud beginners and adopters, as, in 2022 we have just transitioned from lockdown to the new normal. This and coming years may see waves of inflation and recession in international markets. Though benefitting from the pros of globalisation, there are cons, such as sanctions and supply chain disruption. Transitioning from on-prem to the Cloud is driven by resources and takes time to reach the market. Organisations are facing security issues and managements need to understand the criticality of IT systems.

Some organisations are facing the dilemma of 'where to start?' Generally, a dashboard displays the status of each service. Broadcasters need to take one step a time, irrespective of their size. For example, in the case of the national broadcaster of a small country, the pain-point was to address issues of viewers moving away from linear programming; the solution being over-the-top (OTT) services, though some challenges remain, such as uncertainty of user acceptance, lack of prior experience etc. Nevertheless, the best roadmap to address these challenges was, phased implementation.

Similarly, a state-owned channel, looking to promote local interest and programming, lacked a, disaster recovery (DR) plan. The way out was to have a solution which included playout and archiving with DR. in the cloud. However, the challenges of huge capital expenditure to get the channel up and running persisted and getting approval for additional budget was not easy. So, the channel looked to a timeline implementation, based on situational needs.

Next was a private channel under a large private broadcaster focusing on news. Pain points were, its paid subscriber numbers were shrinking, loss of ad revenue due to changes in customer behaviour, and customers moving away from linear programming. So, they planned to generate a new revenue stream by increasing ads on numerous platforms. Again, they had limited budget for capital expenditure. So, the effective roadmap was to minimise use of hardware and utilise cloud services to run ads on multiple platforms.

Cloud services can cater for seasonal requirements for sports, events etc, where service scope covers the entire media supply chain from content acquisition & content, post production to distribution, through to publishing, together with dashboard data analytics and intelligence.

RADIO IN THE CLOUD – RCS

The main advantage of the Cloud platform is that no huge initial capital is required to buy equipment. To list others, the benefits of cloud playout are; no heavy equipment needed to install, reduced real estate footprint, no mission critical equipment to maintain, can expand operations in minutes, can operate from anywhere, assets are safe, assets are instantly available, options for unmatched collaboration and disaster recovery. Cloud hardware is state-of-the-art and system resources can be scaled up and down dynamically with much reduced installation and operating costs. There is freedom to move close to clients or regionalise operations. One is always on the latest and greatest version. A new channel is only a few clicks away and unlimited storage is always available.

The Cloud offers browser-based control of software with mobile ready and monitoring everywhere. Content is stored off site, and redundancy is built into the platform. The Cloud is always on with all content shared in real time, content maintenance is super easy. People can join the same live show from different places and studio automation can be mirrored via Cloud automation.

RCS offers professional playout real time 'Radio in the Cloud'. It has a range of on-premise products, specifically for radio broadcasters: Gselector for music scheduling, Aquira for ad-traffic & commercials, Zetta for playout automation, Revma for streaming. There are alsomcloud-exclusive solutions, such as RCScloud and RCS2GO.

On-premise studio setup consists of a mixer and playout system in live show with storage server, audio server, playout server etc. In a normal flow, the content from broadcast mixer goes through sound processor and encoder into the transmission system. The internet radio component comes through a sound processor and streaming encoder into the streaming CDN server. It is accessed via web or via streaming apps on a listener's device. ZettaCloud, RCS2GO and Revma are the cloud versions of the on-prem setup.

The RCS presenters walked through a live demonstration of RCS Zetta setup, Internet Radio with Zetta Cloud and other features.

Key Considerations for an internet radio station are, variable broadcast format (AAC, HLS, variable bit rates), sound processor, analytic, redundancy, ads replacement, mobile app & player, podcast & monetising, music licensing with Geo lock, live show contents etc. Live callers connect to the Cloud through Skype, Zoom etc., unlike recorded phone connection in a traditional setup. The streaming protocol is AAC for audio via browser, or HLS in apple products. Audio quality, at more than 64kbps, is received well by listeners. Most of the third-party app is integrated in RCS via streaming URL. Transcoding to AAC or mp3 is possible, with variable bitrates.

MEDIA LIVE EVENT AND ASSET MANAGEMENT AUTOMATION IN THE CLOUD AND ON-PREMISES – SKYLINE COMMUNICATIONS

Skyline has DataMiner software with around 350+ staff working on it. DataMiner works across Satellite, Cable, DTT, DTH, Cloud etc and is used by 1000+ organisations. It works in different layers, where the bottom layer is the end-to-end (E2E) operation layer, working independently of devices and platforms such as cloud, media, video, data centre, networking, terrestrial, satellite, HFC, telco, file-based, studio, etc.

The first layer is the data collection & control plane, which integrates whatever devices, protocols are used for E2E operation. It collects data from anywhere unconditionally, easily and quickly and is agnostic of any vendor, technology, domain, API, protocol, data format, structure etc., once built and integrated. Next is the digital twin layer as one standardised and unified, secure, real-time integration. On top of digital twin is the automation operation for agnostic modular workflows, processes, automation and orchestration tailored to your business, operation and resources. The automation engine allows you to build your own solutions and connections, tailored to your business.

Next to automation is the data consumption layer, with its powerful out of the box utilisation of data & unified secured interfacing with 3rd party consumers or controllers. An HTML dashboard for web-based application is available with multiple feeds for different applications. The topmost function is the 3rd party integration and tooling option.

With the help of a real time demonstration of DataMiner, the presenters walked participants through how managing a file and live media supply chain works in the cloud. The modern supply chain is digital, automated & data-driven and essentially it is collaborative & resource efficient. It integrates functions of different parties in the supply chain e.g., event planners, content providers to the media services providers' platform for all the phases e.g. MCR, production, data centre. The event planner manages and enters the details of the event as a client from the DataMiner dashboard. The service provider manages the event administration function for the client. The event groups are created first to work for three different objects-events, jobs, bookings. The event data is collected and initiates multiple jobs and then the bookings object takes care of resource booking for the live event. These bookings can be a mix of resource scheduling, orchestration, and service orchestration.

Another application of DataMiner is media asset management. Media asset management includes a range of function, such as file transfer, BMS/CMS, editing, QC, compliance, encode/ transcode. File transfer may use Aspera tools, Amazon S3 or Azure. The BMS/CMS functionality is taken care of by parties such as Whatson or ForeTV. Editing takes place in Avid or Adobe Premiere. Quality check is done using Baton or Vidchecker. For compliance, Actus is used. For transcoding, either AWS, Vantage or MediaKind tools are used. DataMiner allows dashboard for ingesting/ playing, QC, Editing, transcoding, and publishing or archiving functions in the asset library. On-prem or cloud transcoders are readily available as a part of MAM.

EVOLUTION OF CLOUD BASED MEDIA PROCESSING: LIVE STREAMING AND PERSONALISED TV – HARMONIC INC.

A survey shows that though linear TV remains central to video services in terms of daily watching habits, streaming will become the dominant form of video, while live sports streaming is accelerating. Linear channel streaming will evolve, as will the transformation of formats of TV-SD to HD to UHD.

The trend is such that moving from linear services to personalised experience is now the key. Personalised content or personalised ads are available. The Cloud is rapidly being adopted by media companies. Another survey, of plans to move video infrastructure to the Cloud for live streaming, shows 43% have no plans yet, 21% will move in the coming months and 36% have already moved. Moving to actual SaaS service is noteworthy and Harmonic has its VOS360 solution for the purpose. The entire module enables end-to-end orchestration to launch multiple instances & services, and it harnesses scalability, providing guaranteed uptime and 24x7 proactive DevOps solutions.

What was not possible a few years ago, is now possible, providing UHD & HDR content live sports experience, with low latency. Compared to linear channels, glass to glass streaming is possible in no time. It uses standard based LL-HLS or LL-DASH and is compatible with DAI server-side ad insertion. Changed is the personalised linear TV architecture which combines SSAI & channel variant creation in a single platform in the Cloud.

Content programmers have options of live sources, long form files, ad files etc. whereas channel variants have customised content and customised advertising. Variant channels enable unique branding, content personalisation, and dynamic advertising to maximise user engagement and content monetisation. Each distribution affiliate can receive their own, or even multiple versions of your channels, as variant channels.

There exist two architectures to solve live DAI challenges: in server-side ad insertion, ad is stitched in live video before streams reaches end devices. While in client-side ad insertion, ad is replaced at the end device when ad breaks are detected. These days, free ad supported streaming TV (FAST) platforms are launching niche channels to grow linear viewership exponentially. The problem with traditional playout is high cost and high upfront capex investment. Total cost of ownership is prohibitive from playout/automation workflows and 24/7 live encoding. Channel assembly in the Cloud eliminates upfront capex investment, ingest assets, edit or import of the schedule is instant and your channel is streamed online. Nor is any complex playout/automation is required. Thus, channel assembly is cost effective by means of standardised streaming technology, encode once, reuse everywhere, lightweight & low-cost scheduler.

The presenter shared a case study of Bally Sports, operated by Sinclair Broadcast group, powered by VOS360 and with variant & DAI manipulation on a single platform. So, the trends are that linear channel streaming will evolve, personalised TV will enable unique branding, content personalisation & dynamic advertising maximises user engagement and content monetisation. Channel variant, assembly, DAI, and video streaming is a solution that is all powered by Harmonic's VOS360 Cloud SaaS.

EXPLORE THE NEW ERA OF LIVE STREAMING – ALIBABA CLOUD

The general media asset workflow for most broadcasters includes ingest, editing, delivery or export to preservation/archival. Innovators in the field rely on cloud computing. The benefits include high availability, scalability and service provision. Alibaba emphases are security and compliance. The three ways to deploy media business on Alicloud are: 1, Cloud-native VOD for smaller players (SaaS); 2, deploy with self-built applications for medium to large scale ones; 3, deploying with ISV Partners with IaaS service.

For smaller players, ApsaraVideo for VOD is available, offering services and client SDKs supporting various VOD workloads. ApsaraVideo is a video streaming service based on cloud computing. It covers the full link from video ingestion to playback and provides full-scenario and one-stop video cloud services, that covers live streaming, video on demand, real time communication, media processing, and intelligent production.

To build your media platform on Alicloud infrastructure a number of products are recommended. Object Storage Service (OSS) is the centre piece of the self-build workflow. The value of data changes over time and adapting to changing business needs is the key. Lifecycle management provides cost savings by ensuring data is on the right tier at the right time. The size limit of video storage and better resolution calls for future proof design for media assets. In addition, additional safeguards for disaster discovery & vendor lockdown necessitate this.

Working with ISV partners on Alibaba Cloud provides media archival on cloud through OSS service. OSS integrates with on-premise media asset management (MAM) ISV such as Telestream, EMAM and Dalet to enable media archive on cloud via S3 API. Leveraging other vendors is advised for cloud & hybrid cloud production. On-premise clients & remote clients can leverage EDS for remote production with industry standard NLE deployed. All assets can be managed by on cloud MAM systems ensuring end to end visibility of assets from ingest, work-in-progress to delivery and archive.

Evolving trends such as AI, 5G applications and live streaming have transformed the video streaming industry. Other trends are, new audience expectations, such as looking for a better viewing experience; new scenarios, with new technologies, such as AI, metaverse & 5G make video scenarios more diverse, and new content like gaming, e-commerce, education and medical care. Three pain points faced by video industry are, high resource consumption, high technical barriers, and high operating costs. These restrict large-scale growth of the industry for different one stop services like IaaS, PaaS, SaaS.

Features of cloud-based live streaming are, end-to-end high availability solutions. Streaming data transmission on the nearest edge nodes guarantees the stability of stream ingest. Connection via dedicated line during transmission can guarantee the security and stability of live streams. It supports dual-feeds and backup to maximise availability. This solution features scenario-based capabilities, such as multi-template transcoding, DRM encryption, time shifting / recording, video production on the Cloud etc., which lower the technical barriers and enable you to quickly build high-availability live streaming services.

Alibaba provisions multi-protocol, low-latency service. Live signals can be transmitted to live centres through stream ingest or stream pulling. Stream ingest supports RTMP,

RTS, and SRT protocols to effectively enhance transmission stability and improve package loss in weak network environments. ABR is also supported. This solution supports LL-HLS/DASH protocols with 3 to 4 seconds latency.

Narrowband HD™ technology, originating from human visual system (HVS) models, provides enhanced clarity at lower bit rates. Without compromising video quality it reduces bandwidth costs by 20% to 40%. There are also transcoding templates for different industries/scenarios such as sports events and concerts. It also supports Dolby Atmos to provide cinema-level audio-visual experience. Alibaba Cloud leverage H.265 encoding and SDR+ technology to reduce video bitrate by about 60% and improve the clarity and contrast for live games in 4K/8K.

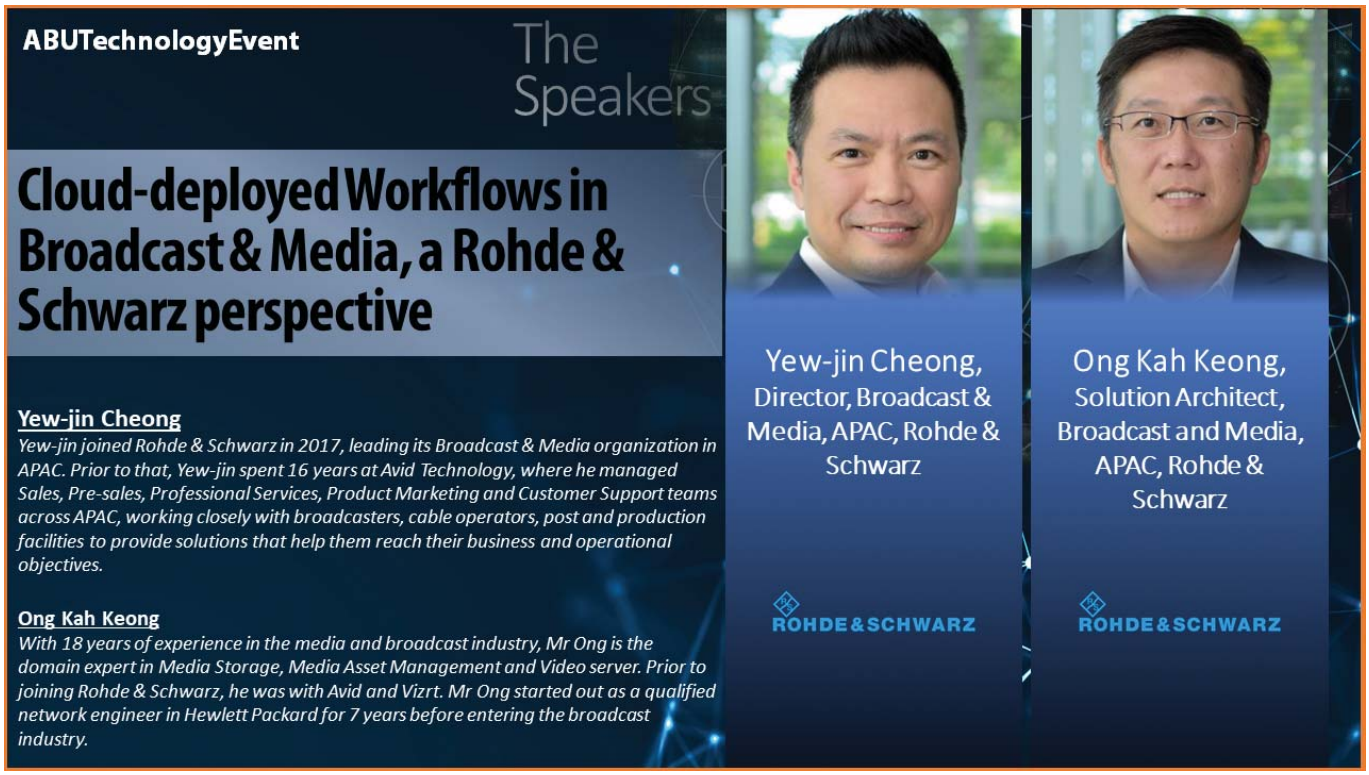
Production studios leverage Alibaba Cloud's powerful livestreaming and media processing services, and integrate capabilities including audio/video processing, image/text packaging, multi-stream mixing, etc., to implement innovation on the cloud for video production. Likewise, interactive virtual studio (Cloud ME) provides the industry's first cloud-based keying and virtual background synthesis capabilities, which are built specifically for remote interaction to achieve an immersive experience in a virtual studio. This solution supports live scenarios with remote production and off-site interactions.

Real-time live monitoring supports screen monitoring with a maximum of 16 split screens, supports the display of information such as bitrate of streams, frame rate etc., and supports alarms such as high volume, time stamps, and lags.

An Indonesian media giant, whose business is sports events, TV entertainment, etc., and whose TV stations account for one third of the market share in Indonesia, cooperated with the Alibaba Cloud Video team in 2019, to improve its product performance and user experience by using Alibaba Cloud Apsara video solution.

A few case studies were shared to highlight Alibaba's experience. They included scaling hybrid cloud secure archive with OSS in Australia and helping to innovate the 2022 Winter Olympics where the first-ever 3D free view content was generated at different angles. Another instance was with OBS Cloud for Beijing 2022, at which content transmission via the cloud outperformed other distribution methods in expandability, flexibility, and cost. OBS can deliver all the live multilateral content to the public in high quality. During the 2018 FIFA World Cup, CCTV.com, hosted by China Media Group, featured the video services, and integrated broadcasting platform of China Central Television (CCTV). In the 2018 Russia FIFA World Cup, it provided highly reliable and smooth livestreaming services.

CLOUD-DEPLOYED WORKFLOWS IN BROADCAST AND MEDIA – ROHDE & SCHWARZ



Though R&S is not a cloud service provider and has no datacentre of its own, it has a long heritage of products and solutions for media to operate in the cloud. Cloud is, at the moment, a hot topic as are other technologies like AI, 5G, AR, VR etc. The first step for broadcasters to start-up in the cloud is having software-defined solutions. Its benefits are: more cost effective compared to discrete hardware, easier to develop new functionality & support new formats, supports OPEX models like pay-as-you-go, supports virtualisation i.e. flexible deployment models of bare metal, virtualised or cloud version.

Cloud comes in different categories. Private Cloud is a private data centre with more flexibility in hardware infrastructure deployment e.g. dongles, SDI. In a way, It is not much different from a broadcaster's equipment room. On the other hand, Public Cloud is a cloud deployment model where computing resources are owned and operated by a provider and shared across multiple tenants via the Internet.

Advantages of deploying in Public Cloud are: pay on usage basis, speedy scalability on demand, flexible computing capabilities and can choose the most suitable one for the task, flexible geography, and use of public internet delivery integration. However, there are downsides, such as the huge cost of 24x7 channels, technical incompatibility if certain critical parts of the workflow do not support cloud, locking into a single cloud vendor, geographical restrictions, security and control, and lack of training and knowledge.

Commercial aspects to consider are, the choice of cloud provider, commercial models, whether IAAS or managed service, security for robust cloud operations and optimisation of existing workflows. Other considerations are, content cost and throughput to and from the cloud as well as that associated with data migration, control and monitoring/ multiviewing depending on-cloud or on-prem options.

Another issue is that of latency and associated location considerations. It is necessary to always adopt eligible standards and consider redundancy for disaster recovery as well as peak time availability.

A case study worth mentioning included disaster recovery for a tier 1 middle eastern broadcaster on AWS S3 repository. Another was that of of a a Tier 1 European broadcaster running thematic channels with playout, multiviewing and automation options.

R&S specific solutions include an ingest server (Venice), shared storage (SpycerNode) and production asset management server (SpycerPAM). With pixel power graphics capability, video & audio playout server (Venice) powers master control playout. The playout signal is taken through to the transmitter solution for delivery and PRISMON for quality monitoring and multiviewing. The mastering solution is via Clipster for iMF creation and post-production DCP formats. The essence of IMF package allows encapsulation of multiple versions of content that can be archived.

Media bricks as such as studio, storage, post production, monitoring and playout functionalities are used to build workflow solutions. Through software-defined implementation and microservices, there is flexibility to implement either on-prem or on-cloud. Pixel power employs different playout technologies namely Gallium workflow orchestration and StreamMaster media processing. Gallium provides a profile of playout automation for linear channel delivery, factory brand for automated file-based content production and promote for automated creation and scheduling of promotional graphics. Likewise, StreamMaster has brand flavour in terms of different functions, such as Prime, Brand, Deliver, Produce, and Create.

R&S storage SpycerNode focusses on asset availability and efficiency and is suitable for any requirements e.g., HDD or SDD. SpycerPAM for production asset management (PAM) works well with external storage integration. For ingest & playout, Venice-S is the media server. It supports major broadcast codecs and formats. Skysport in the UK has Venice for UHD production. CCTV China has the 4K IP mobile studio equipped with Venice.

Media monitoring/multiviewing with PRISMON is the integrated solution for convergent audio/ video monitoring solution as a remedy for lack of operational awareness along the media supply chain. Key requirements for the broadcasters for multiviewing are uncompressed signals, low latency, high image quality, operational flexibility and that for monitoring are checking broadcast and OTT signal mix, diverse content types, in-depth monitoring & analysis, hardware & virtual deployment. Its platform is hardware-based & virtualised.

A use case of R&S solution is for OTT up & download monitoring for supervision of 3rd party CDN. Another is for broadcast & OTT A/V encoder control & shoot-out. Available features are, live measurement of channel video quality, redundancy monitoring and channel content monitoring, recording of audio/video issues, mass monitoring of channels, compact visualisation of faulty channels. At the SRG facility in Switzerland, the product is used as all-IP & virtualised multiviewer for a centralised multiviewing, ST2110 / NMOS compliant IP solution.

CLOUD, AT THE SPEED OF LIVE – VIZRT

Vizrt live production in the Cloud involves market-leading live production tools in one flexible, scalable cloud solution. A number of product ranges available in the cloud are:

- Viz Vectar Plus for 4K switching, DDR, and audio mixing
- Viz Engine for rendering and composition
- Viz Trio for real-time graphics
- Viz Mosart for studio production automation

Such hardware solutions are available in boxes for a traditional workflow, but now they are bundled in a package in the Cloud. All are integrated and linked together via NDI 5. NDI Bridge connects production sites, NDI Remote connects any live source from anywhere, and NDI KVM works as remote control. Advantages are that it gives are full resource flexibility to build freely, to deliver content, producing multi-format outputs and delivering content everywhere audiences can view. Looking at the practical architecture, the Private Cloud includes a virtual network with automation, graphics, Viz engine and switchers. Additional feeds come from SRT sources, NDI remote and studio connected via NDI bridge. Clear cloud benefits are the creation of great content from anywhere in a cost-effective and carbon efficient way.

Barriers to moving into the Cloud are a lack of new skills and procedures, internal resistance, security concerns etc. Viz Now removes the barrier to the Cloud with automated cloud deployments of production software solutions in minutes. It enables cloud operations at the 'speed of live' with deployment, access, and management of live production tools, all connected through NDI.

Case studies included that of MediaMonks, a global digital-first marketing company. They required to produce 20 games in 4K UHD, handling up to 16 inputs. The solution to this was Viz Vectar Plus deployed in the cloud. Another was that of Sky Sports Germany, to deliver the German Bundesliga over 5G. Overcoming the challenges, involved LiveU apps, AWS cloud-hosting with Viz products using NDI bridge. This met the production requirements, making broadcast possible to TV and online.

MIGRATION TO CLOUD PLATFORM IN MEDIA SUPPLY CHAIN SERVICE: PLAYOUT, DISTRIBUTION & CONTRIBUTION – GLOBACAST

A media supply chain ecosystem means processing, managing, creating elements such as asset management, playout, orchestration, infrastructure, disaster recovery, edge delivery and VOD logistics. Among different types of playout service, linear channel playout is the playout of locally stored media assets controlled via schedules with option of live inserts from event sites. Regional playout comprises downstream modification of an original playout stream. Disaster recovery means having minimum assets stored for channel origination in case of main channel origination site failure. Channel technical configurations (video resolution, audio details, bit rate etc.) are stored in form of IaC (Infrastructure as Code).

For migration to cloud playout with minimal upfront investment, it is preferred to implement a software-based solution which has all the functionality of traditional hardware-based playout systems and encoder cards. Generally, cloud-based technology could be developed in a Cloud environment (Public or Private) depending on requirements or consider a hybrid model during the transition. Implementing a customised workflow to have better control & visibility is another option to bring flexibility and takes advantage on the platform capabilities.

A Workflow orchestrator engine is usually required for work order & content import processing, validation or QC checks, transcoding, subtitle file conversions, packaging for delivery. Minimum configuration should include file-based or cloud-ready channel set up, schedule delivery, graphics, compliance, auto file check, monitoring etc.

Other media services to be migrated to the Cloud may be enlisted as:

- Traffic system to manage your peak traffic for a seamless operation,
- VoD delivery for content management system allowing right owners to distribute content to the affiliates in a centralised and secure place.
- Regional ad insertion to add localised advertising in your channel to maximise your revenue or to replace content as an opt out.
- Live event insertion to switch to any live event/moment at any time within the main feed.
- Simulcast to enable to broadcast two or more simultaneous streams from one playout source.
- API for possibility to integrate the orchestrator with the internal tools.
- Archive storage that archives, retrieves your content easily and securely at any time.

Contributions & distribution through the Cloud can supplement either global feed with extra content or for feed management by/to affiliates or for securing video grade transport to the Cloud, and end to end turnkey service. Cloud based network delivery works by different means, such as fibre, Cloud, IP etc.

Benefits of using Cloud for distribution & contribution include comprehensive and secured delivery, fast and simple deployment, flexibility on feed management, integration with content management, collaboration & synergy with delivery management worldwide. Potential cloud applications may include ad-hoc localisation channels to affiliates, securing video grade transport on live events through the cloud, managing hybrid delivery, cloud streaming & media packaging etc.

To plan your own migration to the Cloud, considerations might be to adopt modular, a fully flexible and open approach, to have operation assisted by service provider, to lower investment at client side, and to choose your pricing and business model.

Globecast works globally and a use case mentioned was the creation of a 4K pop up channel for Grand Raid 2021 in La Réunion with the functionality of Cloud remote production and contribution via 5G network.

WINMEDIA SOLUTIONS: WINCLOUD, WINSALES, WINMAM ETC.

One way of managing radio broadcast is to work all the way from ingest, content creation, production, scheduling, on-air playout to reporting functions. In the broadcasting environment, the major concerns are how cloud-based solutions physically decentralise the broadcast studio but can virtually centralise it. Also, how cloud-based solutions expand the field of possibilities in the radio and TV broadcast environment.

The Winmedia software solution is broadcast content management & automation software used across radio &TV stations of different sizes. The single end-to-end software application features quick and easy content creation, management and networking, scalable solution, freedom to expand to different activities, and getting more value from the content.

Winmedia Group provides reliable, scalable and full featured automation solutions to customers worldwide. Its product range include:

- WinMedia for production, music traffic, scheduling, playout, logger,
- WinSales for CRM, booking, invoicing management,
- WinMam for web-based media assets management, newsroom, story management,
- WinWeb for mobile apps & website,
- WinCam for live studio production, automatic video camera management, streaming and broadcasting

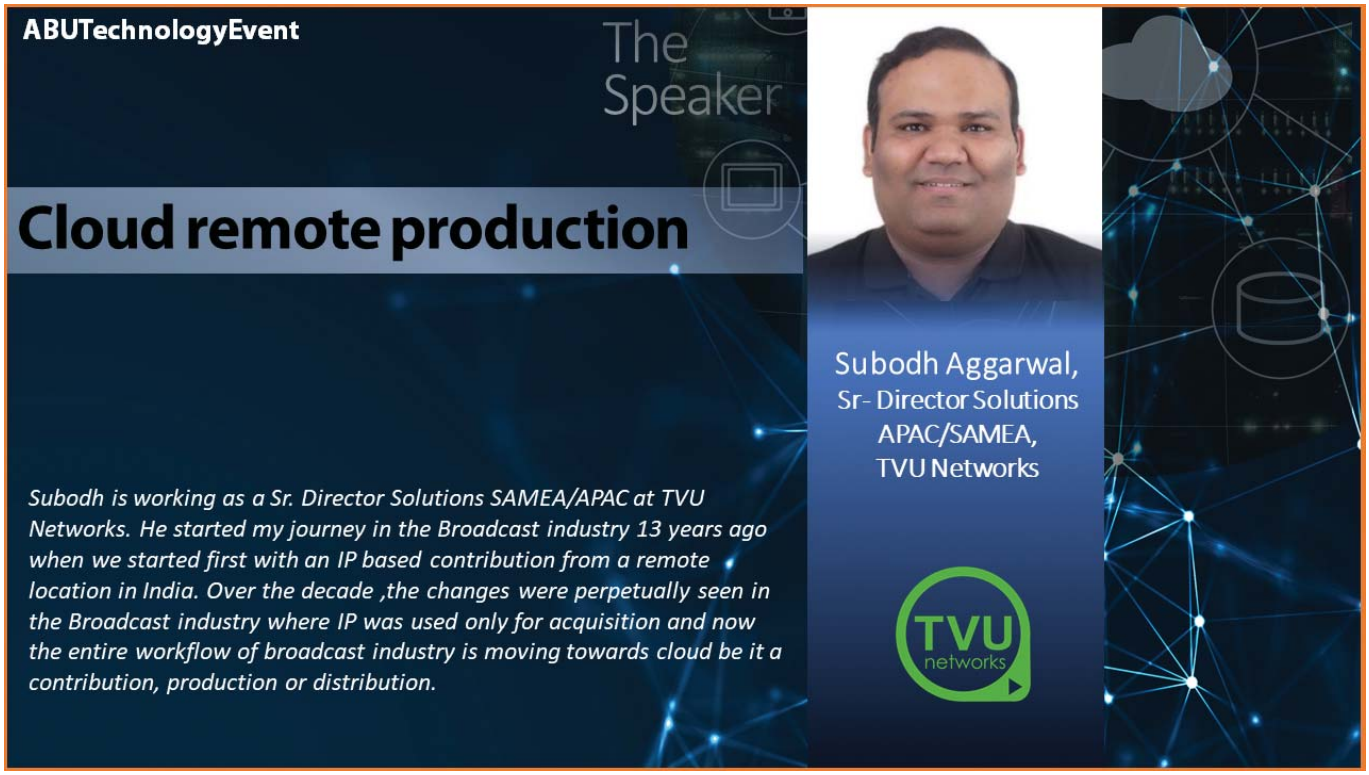
WinMam radio or TV management is the tool to manage and execute workflows with administration and security tools. News management is directly connected to the central database. Winmam provides journalists with all the tools they need to work anywhere, anytime and create compelling, timely newscasts live from the scene. This web2.0 platform extends newsroom functionality to the field while fostering collaboration.

WinMam allows the extra steps of prompter and automatic publishing of news to social media, news feeds. WinSales enables broadcasters to manage multiple stations or multiple media. It increases productivity of quotation, enables broadcasters to manage multiple sales channels by creating different levels to the system and provides real time reconciliation for accurate billing.

WinCloud removes the physical restrictions. It's like running WinMedia in a virtual environment with music and traffic scheduling, sound processing, broadcasting and encoding. Winweb & Winapp expand the platform module for broadcasters looking to extend their potential reach to the Internet and to all devices. It also includes a customisable web template and a mobile application.

All of the foregoing cloud-based solutions seamlessly interconnect with main software WinMedia in order to provide more complete management of the TV and radio broadcast process. Thus, cloud-based solutions expand the field of possibilities in the radio and TV broadcast environment by removing the physical barriers to broadcasting and adding new broadcasting platforms.

CLOUD REMOTE PRODUCTION – TVU NETWORKS



The TVU media supply chain covers live video acquisition/ transmission over IP, indexing/ metadata automation, remote solution & cloud production, global live video distribution over IP, control and management. TVU Networks has its product range for get & connect, create, share & deliver with third party integrations.

Remote cloud production components & solutions used are, TVU Partyline for cloud collaboration, TVU Producer for cloud-based production and TVU Remote Commentator for event commentary from anywhere. By connecting all these components, there can be a new way of production in the cloud. Any type of feed or input such as RTMP, SRT, NDI, SDI, ST2110 etc may be accepted, using any medium. These sources and data may be tagged or indexed using Media Mind's AI functions and, after editing using any TVU cloud tools, they are distributed to any destinations.

To make production simpler and even operated by the talent as an operator, micro services are used. Different micro applications deployed are user definable interfaces on demand, contextual data driven operations, orchestrated distributed productions, intuitive control and customised user experiences. The presenter illustrated remote production solutions such as TVU Partyline, TVUProducer and TVU Remote Commentator with real-time demonstration of different functionality and features. He mentioned a number of customer instances of using TVU solutions, such as SEAGAMES 2022, various international games league draws, Grammy Awards premier ceremonies, AIMS music festival etc.

CLOUD-BASED IMPLEMENTATIONS: OTT SERVICE – GLOBECAST

Globecast identifies itself as a neutral partner to the customers for provision of OTT services, offering Infrastructure as Code (IaC) to future services. IaC is the process of creating and managing cloud-based technologies using scripts, giving flexibility to provide services anywhere. It establishes key partnerships with best-in-class technology vendors. It provides all broadcast services across acquisition, ingest, playout, distribution, monitoring and triage. Globecast OTT solutions cover linear OTT services, some on prem and some cloud based. These include different type of service, such as basic OTT, like TV everywhere AVOD model, full end-to-end OTT solutions, or prime SI, SVOD model.

The speaker presented a few case studies to illustrate its service provision.

One of the use cases described was a managed end-to-end OTT platform for an internet service provider in France. The customer wanted to add a full end to end OTT video service to its offering. Globecast worked with the client and a solution was designed for live & replay service. The service components provided were, acquisition either by satellite or terrestrial, transcoding, storage DRM delivery, service delivery platform etc.

The second case study included an OTT service for an FTA broadcaster. The services deployed were cloud hosting, CDN monitoring, end-to-end project management. The service features available were that for time shift, restart TV, Cloud DVR, caching, routing, analytics, load balancing.

The OTT applications feature external VOD libraries/CaaS, content GEO restriction, concurrent stream limitation, user statistics & analytics, monitoring etc. Monetisation models include T-Commerce management, targeted TV advertising, targeting options for awareness campaign, simple targeting, advanced targeting, retargeting. It also offers LiveSpotter service for video editing & sharing to social media.

CLOUD CONTENT SHARING AND DISTRIBUTION – HAIVISION

Haivision operates in media markets encompassing video contribution, video distribution, video delivery to broadcast, media & entertainment enterprises. Haivision's product portfolio for media comprises Makito X4 encoder, Haivision hub, Haivision SRT gateway, Makito X4 decoder, Haivision play pro & play STB, mobile transmitter over 5G, contribution encoder, MoJoPro LiveGuest Streamhub.

These products employ and work across different technologies to address broadcast contribution challenges. Also, they cover wired & wireless, local & remote, stationary & portable, first mile & the Cloud.

The workflows addressed are live contribution and Haivision cloud components for broadcast, broadcast distribution & cloud services. These are used to distribute sub-second streams to multiple affiliates, broadcasters, and mobile devices worldwide over the public internet. These solutions are employed across all Cloud categories including single cloud, hybrid cloud, multi-cloud augmented with audio mix, CDN Connection with ABR Transcoding, Cloud Ad Hoc-Monitoring etc.

Haivision parents SRT technology that stands for:

- secure, encrypted video streams;
- reliable recovery from severe packet loss; and
- transport for end-to-end network connection.

The connection offers low latency buffer, pristine quality, secured AES Encryption, firewall traversal. SRT overtakes RTMP as the most used IP video protocol in the media industry. Haivision acquired Aviwest technology that promotes safe streams transport (SST) technology. There are many similarities amongst SRT and SST transport protocols, the main difference is that SRT is used for wired networks while SST for mobile networks.

Amongst different products, Haivision Hub offers the easiest way to manage & control all Haivision appliances & routes, Makito appliance management, direct and cloud routing, routing over private networks and the Internet, audio processing etc. Functions of the SRT gateway are, stream routing, protocol flipping, replication for distribution, firewall traversal, bridge networks. The Aviwest transceiver is a Streamhub working across IP-to-IP and IP-to-SDI with hardware appliance in a cloud server or service software container. ■

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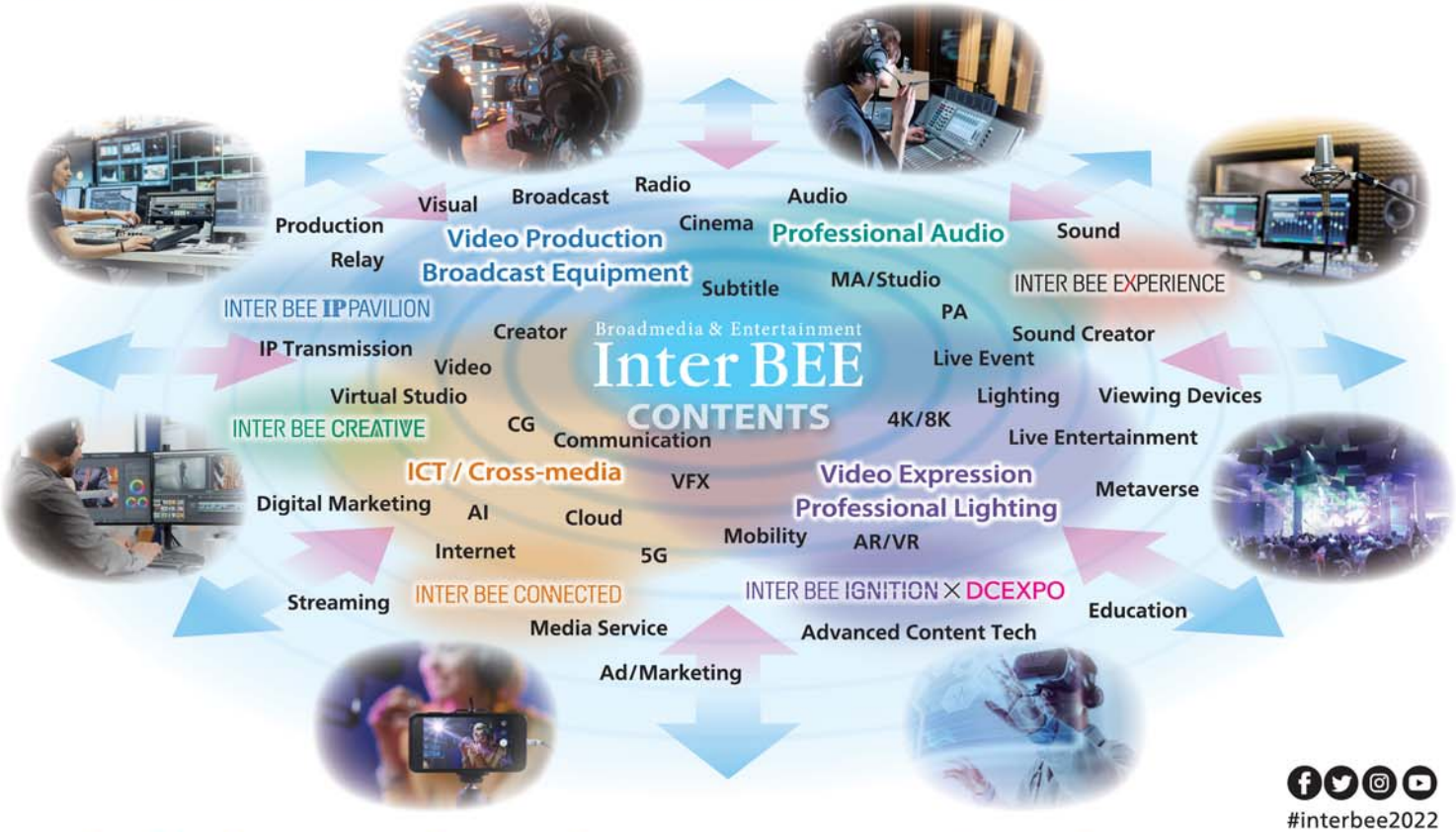

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A Novel Text-independent Voice Conversion Method for Persian Speakers based on variational autoencoder

ABSTRACT

Today, with the advancement of technology and its applications, large volumes of data are generated daily and stored in multimedia, including speech data, so that the automatic and intelligent processing of these data is inevitable by providing intelligent models for the development of related applications. Speech processing is one of the research and applied fields that has been favoured by researchers in the last decade, with the development of intelligent methods based on deep learning. Voice Conversion (VC) is one of the recent hot topics in speech processing, but despite its importance, no independent research has been done on this subject, in Persian. Here, a deep neural network architecture for speech-independent and non-parallel voice conversion is presented. The proposed method is able to convert speech from any desired source speech to any target speech. The main features of the proposed system are its independence from text means and text data in voice conversion, many-to-many conversion means conversion between every pair of speakers and its non-parallelism meaning that it is not necessary to match source and destination speech content. This innovation helped broadcasters create the synthetic voice of a dead celebrity to bring to life a never-read speech. The Experimental results on Persian datasets shows the ability of the proposed method for voice conversion of Persian speech.

INTRODUCTION

In recent years, due to the development of technology and the expansion of its applications, a large amount of data is produced in the form of multimedia, including audio data, and this has highlighted the need for automatic and intelligent processing of this data by providing intelligent models. Speech processing is one of the types of research and applied fields that has been the focus of researchers in the last decade with the development of intelligent methods based on deep learning. Voice Conversion (VC) is one of the recent and hot topics in speech processing. Voice Conversion means the conversion of the voice from source speaker to the target speaker while preserving the linguistic information (content of the speech). In other words, in voice conversion, the content of the source speaker's speech is expressed with the audio features of the target speaker.

Voice conversion applications have been used in privacy applications, the game industry, animation, text-to-speech applications, virtual presenter applications, recognition of unrealistic sounds, etc. They have also helped broadcasters make the synthetic voice of a dead celebrity 'come to life' with an artificial speech that they had never spoken. In general, voice conversion is done in the form of three types of task, which are parallel voice conversion, non-parallel voice conversion, and cross-lingual voice conversion. In parallel audio conversion, the source speaker and the target speaker pronounce the same linguistic content (sentences). In non-parallel voice conversion - which is a more complex process - the content of the speech in the voice of the two speakers is not the same. In the case of cross-lingual voice conversion, the language of the two speakers is different and therefore inherently more complex than in the non-parallel case. It should be noted that in all types of VC, the goal of the process is the expression of the content of the speech (sentences) of the source speaker with the phonetic and audio characteristics of the target speaker. In another classification, based on the use of text data, voice conversion methods are divided into text-independent and text-dependent categories. In text-independent VC, the input data contains only the voice of the source speaker, while in the text-dependent mode, there is no source speaker and only the text of the speech is available, which must be expressed in the voice of the target speaker based on the desired instance.

The use of text-to-speech methods is essential in text-dependent VC. In another classification, voice conversion is divided into two categories, one-to-one and many-to-many, according to how the model is implemented and used. In one-to-one VC, the model's training set is simply audio files from two specific speakers as the source and destination speakers. The use of this type of VC is also limited to the same two speakers. In many-to-many mode, the model is trained to convert audio from one speaker to anyone.

RELATED WORKS

Deep learning as a branch of machine learning and artificial intelligence is a set of algorithms that try to model high-level abstract concepts using learning at different levels and layers (Figure 1)[1]. Various studies show that the brain structure of living organisms uses the architecture of deep neural networks so that abstract concepts are processed in different layers, from simple concepts and features to high-level concepts, in different areas of the cerebral cortex. The idea of deep learning inspired by the natural structure of the human brain and with the help of new technologies has been able to achieve significant success in many areas related to artificial intelligence. The most important benefits of deep learning are:

- Automatic learning of the features *(Figure 2)*
- Multi-layer feature learning *(Figure 3)*
- High accuracy in results
- High generalisation power
- Extensive hardware and software support

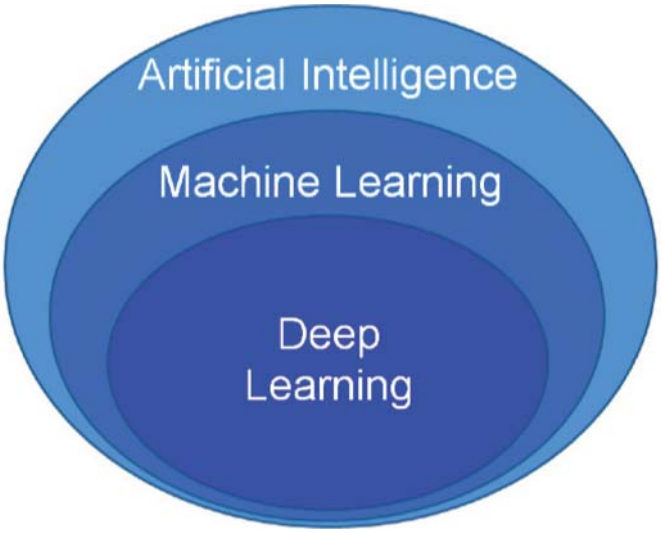

Figure 1: Deep Learning is a branch of ML and AI.

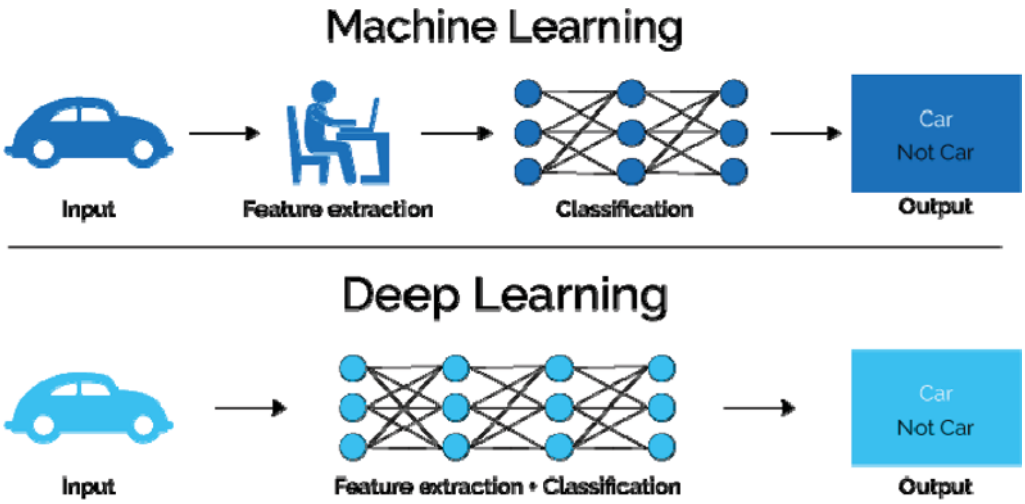

Figure 2: Automatic feature extraction in Deep Learning.

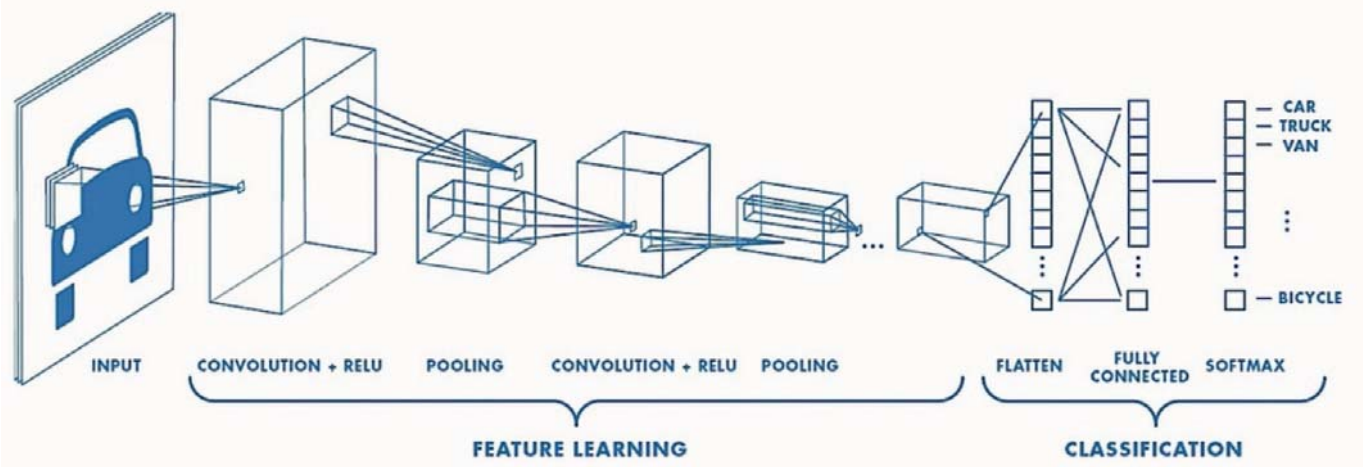

Figure 3: Hierarchical features extraction in Deep Learning.

In recent years, deep learning has revolutionised machine learning and artificial intelligence. Since 2012, all the top rankings of the ImageNet visual recognition challenge, known as the World Cup of Machine Vision, have used deep neural networks. The best methods in MNIST handwritten number image classification competitions (with 21 errors per 10,000 images) and CIFAR natural images (with less than 5% error) also belong to deep neural network models. Since 2012, major software and hardware companies such as Google, Microsoft, and NVIDIA have also devoted a significant portion of their research and business activities to deep learning. Although deep learning is in the early years of its development, the trend of research, articles, and investment of large

companies in this field shows the increasing expansion of its applications. Deep learning has been used in various applications of data mining, image and sound processing, robotics, and medicine. Scientific centres estimate that in the coming years, much successful research, applications, and careers will benefit directly or indirectly from deep learning.

The idea of talking in, or reproducing another person's speech, while very appealing, has many applications in game design and animation, audio reconstruction in multimedia content, and even in privacy and security considerations. In general VC methods are divided into parallel and non-parallel in terms of the data set used. Despite research that has been done, there are three main challenges in the field [2-7]. First, most VC systems are based on the parallelism of the training set, meaning that the system's input-pair audio from the source and destination speaker pronounces the same content (sentences), and few methods are based on non-parallel data where the content of the source and destination speakers is not the same. For non-parallel VC, it is very difficult to generate datasets that require complete content and time matching of sentences. A second challenge, among non-parallel methods is that few can convert many-to-many, that is, to convert from any speaker to another. The third challenge relates to the method's ability to convert to speech that did not previously exist in the training set, so that voice conversion is possible with just a few seconds of the target speaker.

Although many speech conversion systems use parallel data, regardless of the problems and challenges of producing such a data set, it is necessary to perform various pre-processes to adapt the input data to the output data, and in most cases is possible only with fully manual processing, which is time-consuming and expensive and therefore, despite the higher accuracy of parallel methods, non-parallel methods are more common and practical.

So far, three challenges have been addressed in 2016, 2018, and 2020 on speech conversion [8]. The Generator Adversarial Network (GAN) and the conditional Variational AutoEncoder (cVAE) are among the most important architectures offered in the VC program. Of course, none of these architectures are perfect. For example, despite the ability of GAN networks to reproduce (simulate) real data, especially in machine vision applications, training these networks is very difficult and, in most cases, fragile, so recent research has tried to address this problem. On the other hand, cVAE networks are more easily trained, but these networks also do not guarantee compliance distribution and suffer from over-smoothing of the output produced. Some of the most important methods in VC are CycleGAN models [9-11], StarGAN models [7, 12], AutoVC [13], Crank [14], CycleVAE [15], Scyclone [16], MaskCycleGAN [17], VQVAE [18], CycleGAN-vc3 [11] and INVVC [19].

THE PROPOSED MODEL

Speech processing is one of the research and applied fields that has been favoured by related researchers in the last decade with the development of intelligent methods based on deep learning [4, 5, 20, 21]. Voice Conversion is also one of the recent applications of speech processing, which has been at the centre of special attention of researchers due to its many applications, but despite its importance, no independent research has been conducted in the Persian language. In this research, a deep neural network architecture for voice conversion is presented independently of text and non-parallel. The proposed architecture can simulate and convert speech from any desired source speech to any target speech.

The main features of the proposed system are its independence from text means no need for text data in speech conversion, the many-to-many conversion feature, and its non-parallelism (meaning that it is not necessary to match the source and destination speech at the input of the model). The evaluation results of the proposed model on the Persian data sets show the ability of the proposed method to convert Persian speech. The proposed architecture has tried to combine the capabilities of GAN and cVAE networks so that it can have GAN efficiency along with the ease of cVAE training. *Figure 4* shows the architecture of the proposed method.

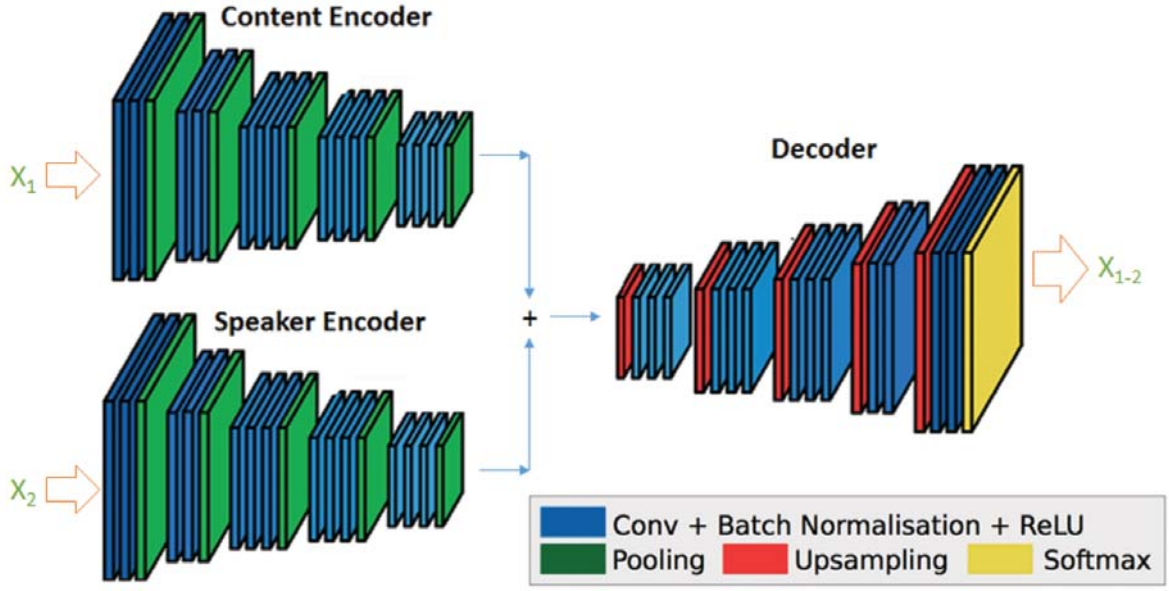

Figure 4: The architecture of the proposed method.

As shown in *Figure 4*, the proposed architecture consists of two Encoder networks and one Decoder network. The first Encoder network, as a content encoder, performs the task of extracting the content vector corresponding to the content. Content encoder input is a numeric matrix corresponding to the frequency range output from a wave file from the source speaker X_1. The second encoder network, as a speaker encoder, performs the task of extracting the vector corresponding to the speaker. Its input is a numeric matrix corresponding to the frequency spectrum extracted from the file with the .wav extension from the destination speaker X_2. The speaker encoder, in the above architecture, is a pre-trained network that is trained on an English data set and is responsible for extracting the feature vector appropriate to the speaker. This network can also be used in speaker recognition applications.

In the next step, the output obtained from the content encoder and the speaker encoder are combined and the result vector is given as input to the decoder network. The final output of the proposed model is obtained from this decoder network and all the weights of the decoder network and the content encoder are updated based on the expected output which is the expression of the content of the first speaker with the voice of the second speaker.

EXPERIMENTAL RESULTS

We evaluated the proposed method on a many-to-many voice conversion task. Due to the overfitting challenge in a nonparallel VC method, because it cannot directly optimise source-to-target mapping functions. we calculate objective measures that represent conversion performance. To estimate the conversion performance without performing subjective tests, we calculate mel-cepstrum distortion (*Mel-CD*) and the mean opinion score (*MOS*) [22] based on evaluation set.

For a subjective evaluation, we used the *MOS* Score to measure the naturalness of the generated outputs. we included the target ground-truth speech (GT) as anchor samples. all evaluation data were used for evaluation, and each utterance was evaluated once. A higher value of *MOS* score means more neutrality in the quality of the results.

Direct measurement of the difference between the target and converted mel-spectrograms is difficult because their alignment is not trivial. As an alternative, we used the objective evaluation mel-cepstral distortion (*Mel-CD*), which measures the global structural difference between the target and converted mel-cepstra. A smaller value of *Mel-CD*, means better performance of the method.

By calculating mel-cepstrum distortion, one can roughly estimate the conversion performance of speaker individuality. Based on MOSNet prediction, it is possible to investigate the sound quality of the converted voice.

The evaluation is performed on FarsDAT speech corpus [23], a speech database of the Farsi spoken language. FarsDAT is produced for speech and speaker recognition tasks. It consists of 386 sentences read aloud by 300 Farsi native speakers. We set the conversion setting set to non-parallel. Depending on the conversion tasks, different subsets of speakers were selected. The data of each speaker is then partitioned into training and test sets by 9:1. *Table 1* shows the comparison results of the proposed method with the others in terms of mel-cepstrum distortion and MOSNet measures. According to the results, it is observed that the proposed method has been able to achieve better results (less *Mel-CD* and more value on MOSNet) in the two criteria compared to other methods. Some output of the model is available online at https://rd.irib.ir/voice_to_voice

Table 1: The Comparison results of the proposed method with the others.

Method	**Mel-CD** score	**MOSNet** score
VQVAE [18]	11.57	2.63
CycleVAE [15]	11.32	2.75
MaskCycleGAN [17]	10.71	2.95
CycleGAN-vc3 [11]	10.96	2.93
INVVC [19]	10.23	3.15
The Proposed	**10.14**	**3.21**

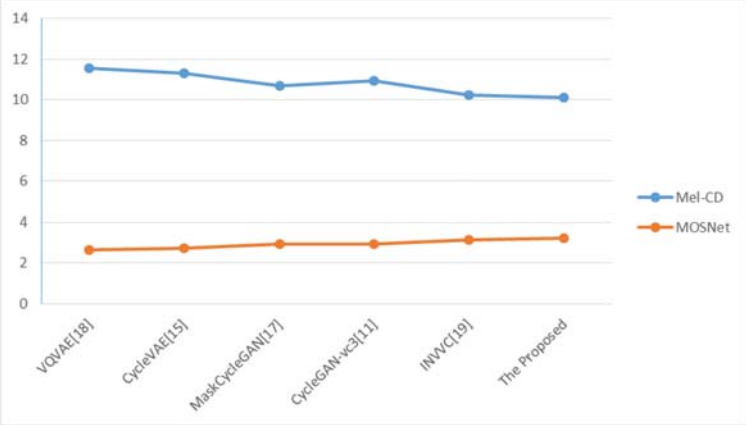

Figure 5: The Comparison results of the proposed method with the others.

CONCLUSION

According to the importance and development of technology and its applications to speech processing, in this research, a deep neural network architecture for speech-to-speech conversion is presented independently of text and non-parallel. The proposed architecture can simulate and convert speech from any desired source speech to any target speech. The main features of the proposed system are its independence from the text (which means no need for text data in speech conversion), the many-to-many conversion feature, and its non-parallelism meaning that it is not necessary to match the source and destination speech at the input of the model. Experimental results confirm that the proposed model has been able to perform voice conversion in the Persian language with acceptable accuracy.

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ABU Technology Provides Technical Advisory Service to VOV-Vietnam

Voice of Vietnam (VOV) requested support from ABU Technology, which provided speakers for a workshop on the occasion of their 15th national radio broadcasting festival. Responding to the request, ABU Technology provided a technical advisory service event for VOV on 4th August 2022. The theme of the workshop was 'challenges of digital transformation for broadcasters'.

A virtual presentation on 'Newsroom Convergence in the Digital Era' covered an overview of new media services that are currently available to broadcasters, with a major focus on newsroom services. It also discussed the concept of media convergence for broadcasters providing print, television, radio and Internet-based services together.

A converged newsroom is not focused on one specific media platform only, instead it consists of teams of journalists preparing content for various products and platforms, focusing on the story or topic. It operates like a content factory, responsible for all intake, production and output. It is a common content hub that unifies multimedia editorial production for multiplatform media outlets (print, digital, broadcast, news agencies).

The need for newsroom convergence arises from issues such as fragmented production workflows, redundant, duplicative processes, lack of standard content development methodology & workflows, lack of communication between teams, security issues etc. Transformations toward newsroom convergence need to look at managerial, editorial, technological issues. Technology solutions for media organisations is critical in that a technological approach to a convergent newsroom implementation always risks integrating multiple systems.

The experts suggested that the right way to go is for systems to be designed and developed as an all-in-one uniform solution for any one media outlet. It should feature single sign–on, uniform rights management, uniform editorial & recourse planning, unified archive for all digital multimedia assets along with cross media search & retrieve, easily adapted to customers environment and philosophy, seamless integration with existing third-party systems, multilingual platform etc.

The potential benefits it brings about are; common investment for all production processes of any media organization, substantial reduction of production processing time and operational expenses, central archive easily scheduled publishing, distribution, and broadcasting of content, streamlined processes & synergies, seamlessly collaboration via remote, role-based access & customized editorial workflows, create & distribute content on multiple media platforms at the same time etc.

The experts were Kostas Vrahnos, an international business development manager at Athens Technology Centre, and Matt Ashe, regional manager at Benchmark Broadcast Systems. About 152 VOV staff registered for the day long workshop. ■

Annual ABU Technical Committee Meeting 2022 to be hosted by Prasar Bharati in New Delhi

The ABU Technical Committee annual gathering is scheduled to take place on 26-27 November and will be hosted by Prasar Bharati in New Delhi as part of ABU's General Assembly and Associated Meetings this year. Along with other meetings the Technical Committee is gearing up for its first face-to-face gathering after TC2019 meeting in Tokyo, a break of after two years due to the pandemic.

Some of the highlights of the TC2022 will include the announcement of the Winners of the Annual Engineering Award and Technical Review Prizes and opening session of the meeting. The morning session will also include the Keynote address which will be delivered by an industry expert. Among administrative matters the TC is expected to consider key recommendations coming from the Technical Bureau on matters related to Cybersecurity and the outcomes from the Task Group setup to review the Engineering Awards and its selection guidelines.

The invited presentations at the TC2022 will be focused around two key themes; "Media Technologies and Solutions", and "Future Strategies". These invited presentations will focus on advanced technologies and innovative approaches that have been taken by broadcaster to help them address the challenges and difficulties during the pandemic. The sessions will also look at future strategic initiatives taken by broadcasters including discussions about cybersecurity, the use of Artificial Intelligence in media applications, IP implementation and remote production and cloud technologies among others. Another highlight of the meeting will be the customary "Host Presents" session organized by the host where they will present on key technological projects and developments within Prasar Bharati's two broadcast entities Doordarshan and All India Radio. The two-day meeting will also hear from the Chairmen of the Study Topics reporting on the latest updates within ongoing projects under Production, Transmission, Spectrum and Training Services.

As usual the meeting is expected to be joined by CTO's, technical heads, and senior engineers from ABU member broadcasters, including industry experts from solution providers and industry partners from around the region and beyond. The annual TC meeting is a platform for engineers, technology enthusiasts and industry experts to come together to share experiences, exchange knowledge and discuss issues of concern among like-minded colleagues.

59TH ABU GA2022 HOST

Prasar Bharati Headquarters

CORPORATE OVERVIEW

Prasar Bharati (India's Public Service Broadcaster) was established on November 23, 1997, under the Prasar Bharati Act, 1990. Its mandate is to organise and run public broadcasting services in the country – to inform, educate, and entertain, as well as to ensure the balanced development of radio and television broadcasting. It has worked tirelessly over the years to fulfil its statutory mandate as enshrined in the Prasar Bharati Act.

Its constituents are Akashvani (All India Radio - the radio network) and Doordarshan (the television network). Prasar Bharati also operates DD Freedish, India's largest distributed DTH platform and the only free Direct to Home service. DD Free Dish, a free-to-air (FTA) DTH service, has recently been expanded. Its current channel lineup consists of 161 SD TV channels, 48 radio channels, 38 DD channels, two Parliamentary channels, 51 co-branded educational channels, two foreign public broadcasting channels, and 65 private C&S GEC, movie, news, and music channels. It is the country's largest DTH platform, currently available in 38 million households. Prasar Bharati also reaches out to its audiences through digital platforms, operating the NewsOnAir App and the Prasar Bharati News Service, which work in tandem with its nationwide and multilingual Broadcast Services.


All India Radio Building

AIR Auditorium New Delhi

CAPACITY BUILDING – TRAINING INFRASTRUCTURE

Prasar Bharati's premier training academy is the National Academy of Broadcasting and Multimedia (NABM) in Delhi. It is in charge of training in-service programme, engineering, and administrative personnel at various All India Radio and Doordarshan stations and offices. The Academy's primary goal is to develop and nurture broadcast professionals for optimum performance in the dynamic and challenging broadcasting environment. NABM has emerged as the leading institution for training broadcasters in the Asia-Pacific region in radio and television production, post-production, and broadcasting.

Currently, three academies, NABM in Delhi, NABM in Bhubaneswar, and RABM in Shillong, train over 3500 engineering/programme/administrative personnel each year. The NABM works with the Asia-Pacific Institute for Broadcasting Development (AIBD) and the Asia-Pacific Broadcasting Union (ABU) to organise trainings and workshops for radio and television engineering personnel from various Asian countries. It also works with organisations such as the United Nations Children's Emergency Fund (UNICEF) and the National Institute of Disaster Management (NIDM) to develop specific training modules for AIR and DD programme personnel.

DIGITAL SERVICES AND DIGITAL PRODUCTION

Prasar Bharati has also established a presence on the digital platform. Live content streaming, informative new websites, and the availability of programmes on YouTube, mobile apps, and Alexa have all contributed to Prasar Bharati's vibrant presence on these platforms. Twitter and Facebook are used to maintain an active social media presence. With over 800 channels primarily focused on commercial programming, the need for a public service broadcaster like Prasar Bharati is even greater. In a highly commercialised electronic media environment, Prasar Bharati is the only counterbalancing force. Indeed, the ethical norms and guidelines developed by Prasar Bharati over time serve as industry benchmarks.

Cultural diversity and languages, rural development, the environment, family welfare, and science and technology all receive special attention. There are programmes for special needs of youth, the status and problems of women, social justice, the welfare of working classes, minorities, and tribal communities, and the protection of children and vulnerable sections of society. Content is also live streamed and accessible from anywhere via the mobile app NEWSONAIR.

DD Free Dish, a free to air (FTA) DTH service, has recently been expanded. Its current channel lineup includes 161 SD TV channels, 48 radio channels, 38 DD

AIR Auditorium New Delhi

channels, two Parliamentary channels, 51 co-branded educational channels, two foreign public broadcasting channels, and 65 private C&S GEC, movie, news, and music channels. It is the country's largest DTH platform, currently available in 38 million households.

IT INITIATIVES

e-Office: Implementation of e-Office in major offices across the network of Prasar Bharati, AIR & DD including Prasar Bharati Secretariat, AIR Directorate, DD Directorate, NSD and DD News HQs and Office of ADG(E)(E) North Zone), AIR Delhi Station, NABM Delhi – a total of 110 offices.

Live streaming: More then 200+ radio channels made available on the mobile platform. Local Radio stations like Darbhanga, Sagar, Mysuru, Regional Stations like AIR Chhatterpur, Jabalpur and State Capital / UTs like AIR Panaji, Port Blair, Kohima, Leh are now available on the mobile app.

Multilingual portal for AIR News: Multilingual pages of AIR news website are provided. Currently web pages are available in Hindi, English, Urdu, Gujarati, Tamil, Dogri, Assamese and Marathi.

NewsOnAir App Live streams: To directly deliver AIR stations' live feed throughout the country on single platform, the App is available for both the operating systems – iOS and Android. More than 1.8 million downloads have been recorded.

Podcasting: Podcasting of popular programmes are available on App & website.

Audio On Demand: station level programs made available on the mobile app. Listeners can enjoy more than 28000 AIR programs/podcasts anywhere, anytime.

Video On Demand: To put all DD & AIR youtube channels at one platform for general public.

PrasarNet: It is an intranet which provides connectivity between the PB Secretariat, AIR (Stations and Sections), DD (Stations and sections), AIR & DD Offices, Management of PB Sectt and Employees, with an individual login. Beyond basic functionalities like Order/Circular repository, policies repository, Events photo repository and there are other modules viz. Prasar Bharati Board Documents repository and sharing of Documents with Board Members, DPC, GeM Statements, Land Record. A Dashboard has been developed to track information like What's New, Birthday Today, Retirements this month, DPC Status, Monthly reports of stations, Search Employee, instant message corner for CEO, DGAIR and DG: DD etc.

Prasar Bharati Annual Report 2019

PROGRAMME (DRAFT)

VENUE: PEACOCK 3, PULLMAN, NEW DELHI AEROCITY

26 NOVEMBER 2022, SATURDAY

TC PROCEEDINGS

09:00 - 09:30 Welcome address by the Chairman, Technical Committee

Welcome address from the Host

Opening Address by ABU Secretary-General

ABU ENGINEERING AWARDS 2022

09:30 - 10:30 Announcement of Winners of the Annual ABU Engineering Award and Technical Review Prizes 2022

10:30 - 11:00 BREAK: Tea, coffee & networking

TC PROCEEDINGS

11:00 - 11:45 Confirm Agenda and TC-2022 Proceedings and appointment of Rapporteurs

ABU Technology Activity Report

Bureau Proposals (Introduction)

KEYNOTE PRESENTATION

11:45 - 12:30 Topic & Presenter (TBC)

12:30 - 14:00 Networking lunch

FUTURE STRATEGIES

14:00-15:30 Themes/Topics include:
- IP Implementation and Remote Production
- Media Applications in AI, Machine Learning and Data Analytics
- Use of Cloud Technologies in Broadcast Environment
- Cybersecurity and Media

15:30 - 15:45 Tea, coffee & networking

MEDIA TECHNOLOGIES AND SOLUTIONS

15:45 - 17:00 Themes/Topics include
- Effective Online Delivery Systems
- Importance of Digitising Archives and Managing Media Assets
- Safeguarding the Broadcast Spectrum and approach to WRC23
- Asia-Pacific View (APV) Cloud Application for Members

End of TC Day 1

27 NOVEMBER 2022, SUNDAY

TOPIC AREA REPORTS

09:00–09:40 Production
Mr Kazim Pektaş, Chief Engineer, TRT-Türkiye

Transmission
Mr Kenichi Murayama, Senior Manager, Engineering Administration Department, NHK-Japan

Spectrum
Dr Li Leilei, Professor, Academy of Broadcasting Planning, NRTA-China

09:40 - 10:15 Training & Services
Mr Shri P. Das, Deputy Director General (Engg), NABM, Prasar Bharati-India

Information Exchange and Status Reports

10:15-10:30 Bureau Proposals (Final Reading)

10:30-11:00 Tea, coffee & networking

TECHNOLOGY PANEL

11:00 - 12:30 Theme and Panellists: (TBC)

12:30 - 14:00 Networking lunch

THE HOST PRESENTS | PRASAR BHARATI-INDIA

14:00 - 15:15 Topics & Presenters (TBC)

MEMBERS' UPDATES

15:15 - 16:30 Members' Updates
New members and Updates from Sister Unions & Intl Organisations

CLOSING

Future Meetings
ABU DBS 2023, Kuala Lumpur, 6-9 March 2023

Appointment of Honorary Vice-Chairman from the host of the 2023 ABU General Assembly
Closing remarks by TC Chairman

18:00 - 18:45 Welcome Cocktail Party @ TBC

19:00 - 21:00 ABU TV Song Festival @ TBC

Radio Televisyen Malaysia (RTM)

HIGH DEFINITION (HD) NEWS DIGITAL ARCHIVE, Revolutionary Broadcast Technology Towards Effectiveness Future Demand

ABSTRACT
Media archiving was rarely used in earlier years and this has caused a lot of limitations to the news searching process. To overcome this, News and Current Affair Department, RTM has proposed a new 'HD News Digital Archive System' for the whole of Malaysia's coverage. This article will share an insight into the development of a system to manage media coverage, either in raw or edited versions allowing media material to be published further, on either TV, radio or social media platforms.

INTRODUCTION

Archive means a collection of the historical documents or records of a government, a family, a place or an organisation and the place where these records are stored [1]. Media archives have begun implementing digital preservation processes and strategies [2]. Preserving digital information has been plagued by short media life, obsolete hardware and software, slow read times of old media, and defunct Web sites [3]. There are a lot of methodologies and technologies, currently on the shelf, which may be deployed. However, the main challenge to setting up an archiving system is deciding whether it is appropriate and suitable for an organisation to invest in the technology. Furthermore, the technology for media archiving advances every year. Hence, in order for better management of the media archive, long-term planning must be consistent with the product life-cycle investment.

PROBLEM STATEMENT

One of the core businesses of RTM is broadcasting information to the public through various media sources, such as TV, Radio, and social media. It is contributed through News Content Creation daily, either as national or regional information. Therefore, news teams have been deployed to all fourteen (14) states of Malaysia, including the islands of Langkawi and Labuan.

All the news teams in the regional stations of the states, through RTM in Wisma Berita, Angkasapuri, as Central News Operation Head Quarters (HQ), are required to manage their news media content. As for the current workflow, all regional stations are required to ingest and edit their own media sources before contributing the final content to various news slots scheduled by our news channel base. Once it is published, all raw media from Single Camera Production (SCP), Near Line Editing (NLE) Machine and External Hard Disk need to be purged to make sufficient room for new news content.

The main problem identified was that when RTM needed to reproduce the content for other purposes, such as Documentary, Analysis or Recap., available media footage was limited to only the edited version of the source content, which in most cases was of less than three minutes duration. In this situation, the edited footage will usually be identified by Slug or File Name only, which makes it harder to be traced at a later date. This issue can result in repetitive use of footage, or even worse, coverage being reduced to graphics or voice-over only.

Therefore, knowledge management within media archives and retrieval needs to be improvised based on the current issues. This includes a need to enhance the Standard Operating Procedures (SOP) by considering the existing manpower required to run the process. Such an SOP review will benefit the past, current and future media management.

OVERVIEW REQUIREMENT

In order to develop the news archival system, a special taskforce was appointed to counter the foregoing issues. Representatives from News Production, Technical, Library, as well as those from each regional station, were selected to be part of the committee.

Through the User Requirement Survey (URS), the taskforce team identified three core issues in the Media Management especially in Regional Station as follows:

a) Hardware Limitation: Lack of Physical Central Storage
Using External Hard Disk (ExHDD) as a Temporary Storage by multiple users, where change of possession can expose the exHDD to viruses, file corruption or missing items.

b) Knowledge Management: Information Synchronisation between Cameraman, Reporter, Visual Editor and Producer

Media ingest has previously been done by cameramen and reporters, using their own filename preferences, which can cause difficulty for later users searching by keywords. At the same time, there is also a possibility for duplication to occur when users are unable to retrieve the ingested media footage, causing unnecessary storage utilisation.

c) Standard Operation Procedure (SOP): Multi-Tasking Media Manager

There were no specific Media Managers appointed to manage the media ingest and storage which have therefore been managed by an appointed librarian.

AREA OF IMPROVEMENT

1.1 STANDARDISATION OF ARCHIVE MEDIA MATERIAL

In order to counter these problems, the appointed team reviewed all the related standards. Since there are a variety of standards that can be referred to, only seven standards were chosen for consideration, to obtain the most effective operation, especially in regard to media conservation for future needs.

a) "ITU-R Rec. BT 709-5", Parameter Values for the HDTV Standards for Production and International Programme Exchange [4];
b) "SMPTE 379M", Material Exchange Format (MXF) Generic Container, 2009 [5];
c) "SMPTE 371M", Television (Archived 2007) 6.35-mm Type D-12 Component Format Digital Recording at 100 Mbits/sec 1080/601 1080/501 720/60p, 2002 [6];
d) New H.264/AVC Professional Profiles and Related SMPTE Standards for P2 Applications [7];
e) "RP 2006", Solid State Media (SSM) card Specifications, 2006 [8];
f) "RP 2002", Content Specification on Solid State Media Card-For DV/DV-based Essence, 2006 [9]; and
g) "L-S1", Specification for low Voltage Internal Electrical Installation, CKE.LA.01.01. (04)2017 [10].

Based on those standards, it can be concluded that the media house format for News Archive shall be as follow:

a) Hi-Res using 1080i50 ProRes 422 Codec at Regional Station;
   i. Utilisation of Panasonic ENG Camera and Apple, Final Cut Pro at regional station.
   ii. Reduce time taken for transcoding and friendly to media transfer.
b) Hi-Res using 1080p50 AVC Intra 100 Codec at Angkasapuri; and
   i. Full Scale Progressive Recording can maximise the video information during postproduction for future demand.
   ii. Higher bitrate that can store more colour depth information in each frame.
c) Lo-Res using 1080i50 H.264 Codec
   i. Small storage size of video will make faster respond on preview.
   ii. Placement at Central Cloud Storage.
   iii. Compromise as backup footage as alternative workflow.

These three media formats use the same frame size of 1920 x 1080 pixels. The target media compression ratio between Hi-Res and Lo-Res is 10:1. The purpose of choosing three different media formats is mainly due to different resources from the states' regional stations which consist of Media Source, Non-Linear Editing Machine and Playout Server. The main purpose is to avoid a transcoding process within the media archive and retrieval. Hence, this will maintain the originality of the media sources with less time needed to process the footage, especially for news purposes. Thus, the workflow of the whole process can be designed effectively, to achieve 1/3 of real-time transfer.
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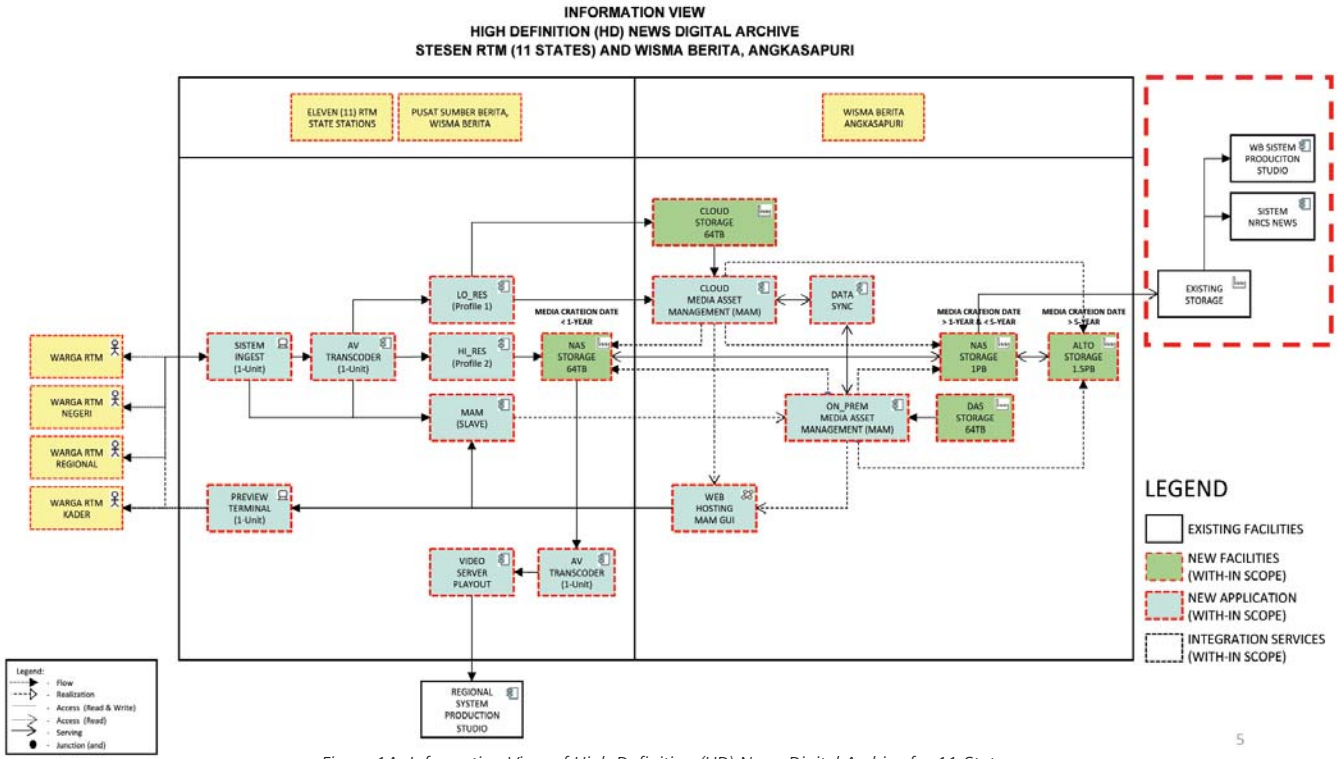


Figure 1A: Information View of High Definition (HD) News Digital Archive for 11-States

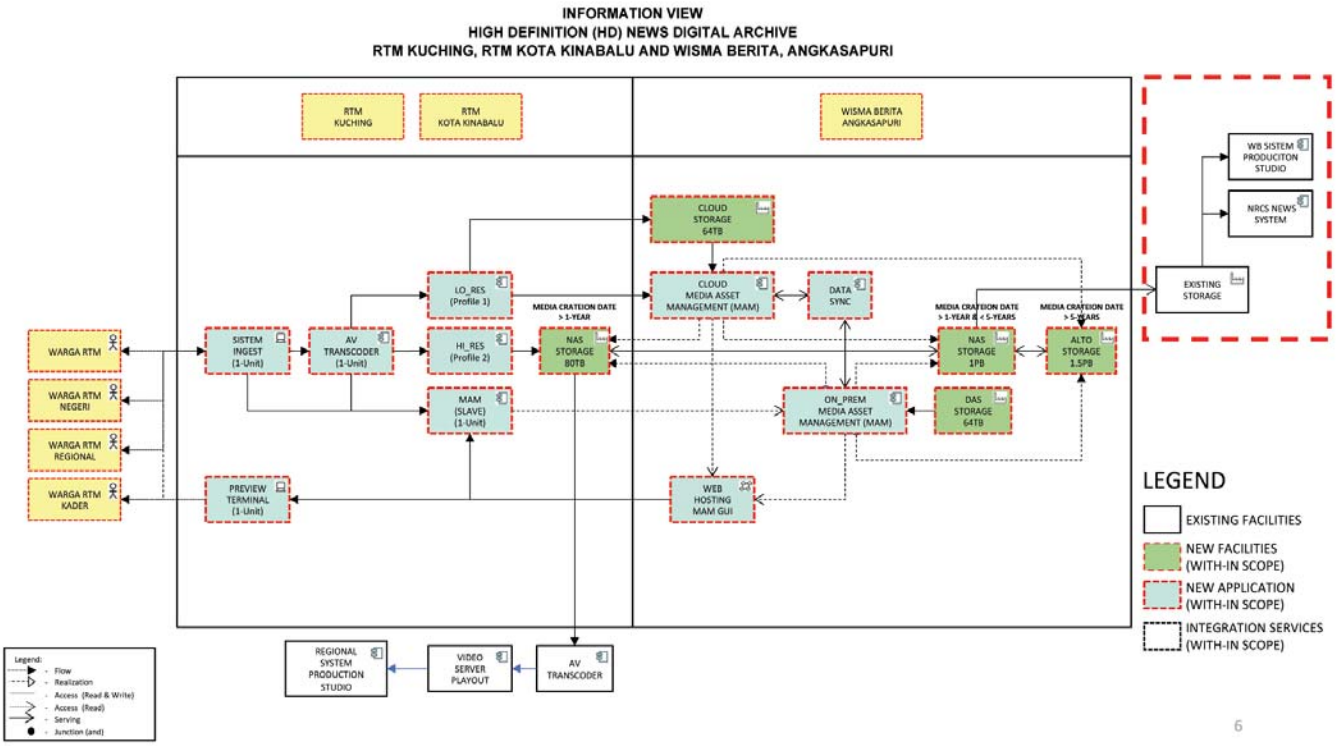


Figure 1B: Information View of High Definition (HD) News Digital Archive for RTM Kuching and Kota Kinabalu (Using Existing HD Playout Server)

1.2 REDESIGN OF MEDIA WORKFLOW

Currently, to overcome this problem, RTM has been procuring more data storage or compressing the media formats, which can cause data-loss, making the original unsuitable to be used in re-production. Hence, to overcome this, the new media archive will focus more on media movement and filtering. At the same time, the media story will be prioritised based on its creation date and time retrieval. During media movement, the team will decide to re-prioritise the media , based on national interest, to be kept safe in RTM's archive storage. At present, the media moment workflow is designed as follows:

a) Day 1 to Days 365 (1-Year)
Media from Regional Station Production Storage to Near Line Archive – It is expected to be quickly retrievable because it is stored as a file base in production house format. Ready to preview, edit, abstract, and use at any time.

b) Day 365 (1-Year) to 5-Year
Media from Near Line Archive Storage to Cold Storage Archive – Because it is stored in Archive Format, retrieving it should take less time because it is still within the local area network (LAN) and infrastructure. To expedite the process, dedicated retrieval archive facilities are required.

c) More than 5-Years
Media from Cold Storage Archive to RTM Central Archive – Because it is stored in Achieve Format across multiple locations and infrastructure, expect it to take longer to retrieve. A media booking procedure is required to manage it.

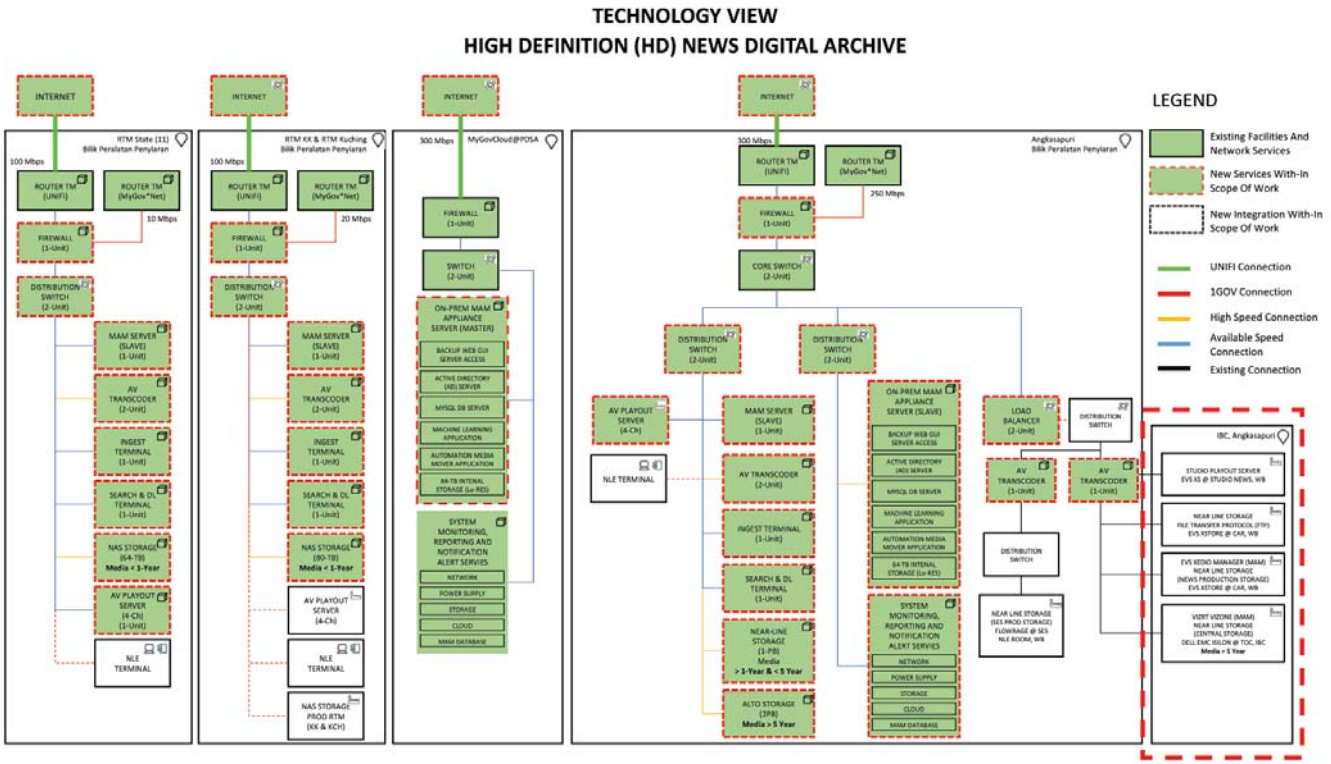


Figure 2: Technology View of Hugh Definition (HD) News Digital Archive

To implement the workflow, software and application for Media Asset Management (MAM) and Production Asset Management (PAM) will be used to manage media movement as the central database system. This is to ensure that media movement is being managed appropriately as a single solution in the File Base Workflow environment. When there are many movements taking place, media filtering shall take place with only prioritised media preserved and reduction of overall storage usage. By having this workflow, the HD News Digital Archive system will operate continuously, without downtime.

The hardware and network infrastructure must be designed with active redundancy, especially during maintenance system backup. Besides, we also need to consider the security level with Multi-Layer Workflow execution. Apart from that, there must be an alternative workflow to ensure that the business continuity plan works without any interruption. For optimum operation the media mover shall be automated. At the same time, should the system require any over-write, the manual mover shall be implemented as an alternative workflow.

1.3 UTILISATION OF ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML) TECHNOLOGY

Media management is more effective when information is being extracted. The information shall be in the form of:

a) Audio to Text Transcription;
b) Face Recognition; and
c) Object (Tag) Recognition

The above-mentioned form is known as a 'video analyser' and will be able to assist media mover and be searchable at the required time. A more accurate process will also provide additional metadata, such as face recognition or transcription audio.

1.4 CLOUD MEDIA ARCHIVING

In media storage management, there are two types of media format; namely high-resolution video and low-resolution video. The development of this system includes low-resolution storage in cloud media archiving, whilst high-resolution storage will remain on-premise. The main purpose of storing the low-resolution video in the cloud media archive is for a speedier preview as the process will not consume existing media mover bandwidth. Cloud media archiving can also be considered as an alternative workflow for any connectivity problems on the premises. Unfortunately, the archived media storage in the cloud that can be used to recover on-premise storage will be in the low-resolution format. But, having said that, low-resolution format media storage is still acceptable for news content.

COMPLETENESS OF THE SYSTEM

2.1 NETWORK MONITORING SYSTEM (NMS)

Since the news archiving system is a vast system, that manages data throughout the country with news media being generated daily, some additional tools need to be deployed, so that the percentage of system failures can be reduced. Thus, NMS will implement consistent monitoring of system health to the highest level of Quality of Services (QoS). At the same time, it may also notify any critical issues from the hardware or network system. On top of that, the NMS also may communicate an early alert to the administrator to either activate backup or alternative workflow.

2.2 MEDIA MIGRATION

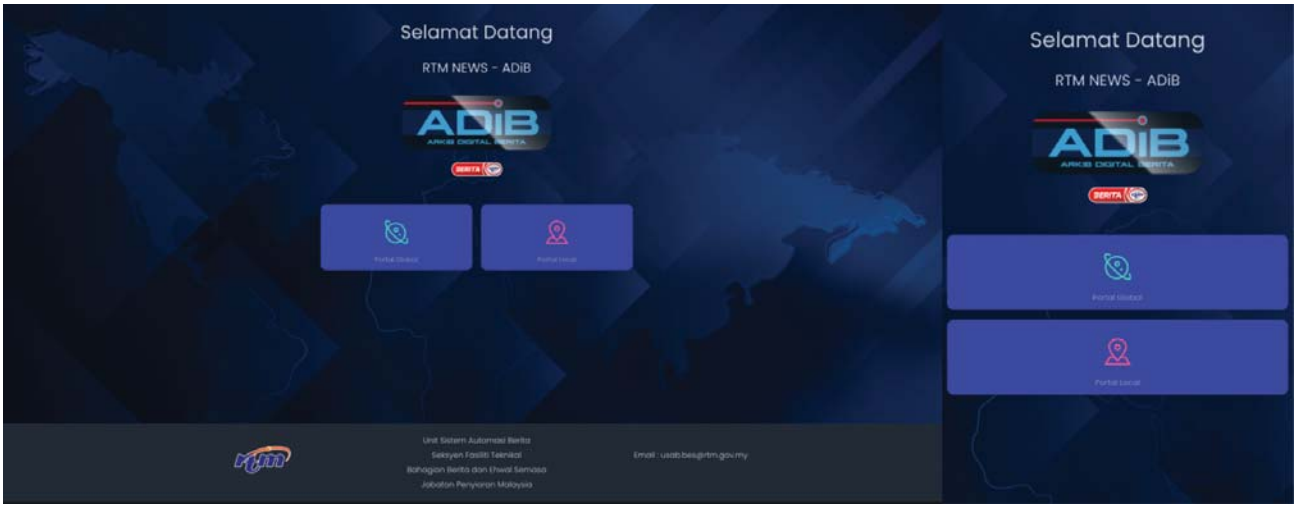
To ensure the effectiveness of the system, media migration should be part of the project. Media migration is crucial for existing media to be in a 'ready-to-use' state, once the system is in place. The execution of media migration will be in the form of 'current-to-future' and 'current-to-past'. By this method, the system will be able to retrieve any related media story from the past, according to current needs.

2.3 LOCAL AND GLOBAL SEARCH

There exist two media of search, which are Global and Local Search, both accessing the same material for preview. The purpose of the design was based on level of authorisation, either to preview and download high-resolution or just low-resolution footage. Global Search has the advantage to preview maximum footage using centralised Media Asset Management (MAM) in the system while the Local Search was designed as Production Asset Management (PAM).

EXPECTED OUTCOME

News media material consumption is growing daily. Therefore, the management's decision 'to archive or not to archive' may have a huge impact on media material collection. The decision-making process is crucial to determine the remaining material to be archived in the future as any purged material will not be retrievable. With this system, the media movement workflow will be more seamless as a result of using AI and ML oriented technology.



PICTURE 1: GUI (Desktop and Mobile View) for High Definition (HD) News Digital Archive access through domain https://adib.rtm.gov.my/

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Ahmad Shafiq Mirza Bin Mansor is a Professional Technologist, recognised by the Malaysia Board of Technologies Malaysia (MBOT) and a Graduate Engineer of Board of Engineering (BEM) Malaysia, since 2008. He commenced his professional career in 2005 at Telekom Malaysia Berhad and joined the Broadcast Department of Malaysia in 2007 in the Implementation Coordination Unit, Prime Minister Department (ICU JPM). He was a Broadcast Engineer for four years then in TV Outside Broadcast Department for six years. Since 2017 Ahmad has been in service with Technical Facilities, News and Current Affairs. Throughout his professional service, he has seen a lot exposure to the organisation of events, both domestic and international, especially Sports Events and International Conferences. ■

Asia-Pacific Broadcasting Union

प्रसार भारती PRASAR BHARATI

Azadi Ka Amrit Mahotsav

59th ABU GA 2022

Serving the People:
Media's Role in Times of Crisis

New Delhi, India
25-30 November, 2022

REGISTER HERE

News from the ABU Region

CMG 2022 MID-AUTUMN FESTIVAL GALA: TECHNOLOGY UNLOCKS TRADITIONAL CULTURE

This year's CMG Mid-Autumn Festival Gala focused on highlighting the fusion of "ideas + art + technology," taking landscape scenery as the backdrop and creative material and deeply exploring the history, culture, traditional folklore and culture of Zhangjiagang in Suzhou, Jiangsu Province, where the main venue was.

In terms of innovative design, the gala brought a surprise presentation through location shooting and virtual production, incorporating scenes rich with the heritage of Jiangnan, an area south of the lower reaches of the Yangtze River. A 360-degree panoramic stage with a circle within a circle and three circles embedded in each other was constructed on the lake surface of Jiyang Lake, incorporating elements of Suzhou's gardens and Jiangnan's waterfront towns.

A collection of some of the screens broadcasting China Media Group's (CMG) Mid-Autumn Festival at various landmarks in China: the municipalities of Beijing, Shanghai, and Chongqing, and the provinces of Guangdong, Jiangsu, and Liaoning.

This year, for the first time, the Autumn Gala of China National Radio also adopts 8K ultra-high definition technology and three-dimensional Audio Vivid technology for production and broadcast. Also, for the first time, the show was broadcast live on ultra-high definition public screens in more than 270 outdoor landmark screens in 70 cities nationwide. [CGTN News]

TELSTRA AND ONEWEB CLOSER TO DELIVERING NEW SATELLITE SOLUTIONS

Telstra and OneWeb, the low earth orbit (LEO) satellite communications company, recently announced the signing of a Memorandum of Understanding (MoU) to explore new solutions for improved digital connectivity across Australia and the Asia Pacific region.

The non-exclusive agreement brings together Telstra's telecommunications expertise in Australia, and OneWeb's satellite capability to deliver innovative connectivity in the future. The partnership complements Telstra's T25 ambition to grow and extend its network leadership position and boost mobile coverage across the country, in addition to being another key milestone for OneWeb's path to global coverage later in 2022.

Telstra's mobile network currently reaches 99.5 percent of the population and covers a million square kilometres, more than any other Australian mobile provider.

OneWeb is making significant progress in building its constellation and currently has 428 satellites in low earth orbit, representing more than two thirds of its planned fleet, delivering connectivity to customers in remote regions of Alaska, Canada, and the North Sea. Launches will continue during 2022 to enable the company to offer commercial connectivity services globally later this year. OneWeb and Telstra will work together over the coming months to finalise the detailed scope of the agreement. [content+technology]

MEDIACORP EXPANDED ITS CAPABILITIES WITH A CLOUD VIDEO EDITING SOLUTION FROM QVEST

Mediacorp, Singapore's national media network and largest content creator, has recently expanded its capabilities with a cloud video editing solution from Qvest. New virtual editing suites also pave the way for Mediacorp to implement more efficient, collaborative, and remote workflows at Channel News Asia (CNA).

Mediacorp, based in Singapore's innovative high-tech cluster "one-north", employs over 2,500 professionals, including more than 300 journalists and engages over three million people in Singapore daily across the four national languages of English, Chinese, Malay and Tamil.

Their CNA team can now work outside of premises, thanks to integrated cloud editing workstations. Central cloud management via the qibb integration platform enables access to integrated and location-independent, predefined programs and functions, such as Adobe Premiere Pro. The PC-over-IP protocol, powered by the cloud workstation's dedicated GPU, provides an appropriate experience when using the integrated applications.

The cloud system is based on qibb, managed as a platform-as-a-service. The cloud architecture, individually configured to meet Mediacorp's requirements, has been tailored for HD resolution editing. Mediacorp can customise the functionalities of the cloud environment with additional services at any time. [tmbroadcast.com]

GLOBECAST CAN BETTER MONETISE YOUR MULTI-SCREEN OFFERINGS

Globecast, a provider of integrated solutions for media, has identified four key strategic growth initiatives to continue to drive customers' digital transformation: End-to-end over-the-top (OTT) video ecosystem integration; media supply chain cloud services; remote production connectivity and production hosting; and digital platforms using Globecast Media Hub services.

Globecast ecosystem allows customers to better monetise their multi-screen offerings via secure, robust and flexible technologies with optimised business and technical solutions.

Globecast's media supply chain strategic initiative is designed to ensure that customers get the most from their media. As a certified AWS global partner, Globecast provides a one-stop shop for cloud playout including 4K/Ultra HD (UHD) live sports, pop-up channels, localisation and disaster recovery, alongside fully orchestrated video-on-demand (VoD) logistics and asset management. The company's cloud-based infrastructure brings the flexibility and scalability required in today's market, alongside powerful analytics and monitoring.

Globecast will also highlight how its low latency, highly resilient, and large capacity networks are supporting hybrid connectivity (5G, fibre, Internet, cloud). The company's agile global reach is enhanced by partnerships with production facilities around the world and additional network providers when required. Remote production hosting services, via Globecast Hubs, enables the company to act as a customer's local studio with remote commentary cabins, studios for post-production/ editing and signal aggregation using the latest edge computing technologies. [APB]

ABC LAUNCHES ABC PACIFIC DIGITAL PLATFORM

The ABC has launched the ABC Pacific digital platform to meet the needs of growing digital audiences across the Pacific.ABC Pacific will be a home for digital content relevant to our Pacific audiences and will be available to Australian and international audiences at abc.net.au/pacific and on Facebook and Twitter. The content will be produced by teams from across the ABC, including ABC Radio Australia and ABC Australia.

ABC Pacific will join ABC Radio Australia in delivering news, information and entertainment to the Pacific region as part of the ABC's ongoing commitment to serving our Pacific audiences. The ABC first launched international broadcasting services in 1939 and currently offers radio and television services to international audiences in the Indo-Pacific via ABC Radio Australia and ABC Australia and digital content via web and social channels.

ABC Radio Australia's programming includes Pacific-focused news and current affairs programs Pacific Beat, Pacific Review, Wantok, and much-loved sports, cultural and music programmes including Can You Be More Pacific, Sistas Let's Talk and Island Music. In 2021, ABC Australia launched That Pacific Sports Show which has become a popular addition to its weekly offering. ABC NEWS also operates an Asia Pacific Newsroom with its content available via abc.net.au/news to digital audiences internationally.

ABC Pacific will target tech-savvy, English-speaking urban residents of Pacific nations, expatriate Australians living in the Pacific, as well as Pacific diaspora populations in Australia and is a response to the increase in smart device penetration across the Pacific region. ABC Pacific will replace ABC Radio Australia's existing homepage and social media accounts. Content currently hosted on the ABC Radio Australia webpages will now be found on ABC Pacific. [content+technology]

ASIASAT JOINS FORCES WITH ABU AND TELSTRA TO DELIVER THE BIRMINGHAM 2022 COMMONWEALTH GAMES LIVE TO ASIA PACIFIC

The Asia-Pacific Broadcasting Union (ABU), in a collaboration with Telstra Broadcast Services (TBS), selected AsiaSat 5, AsiaSat's prime occasional use (OU) platform, for live coverage of the Birmingham 2022 Commonwealth Games in the Asia-Pacific.

During the event coverage, ABU Sports team on the ground managed the production of live broadcast signals at the International Broadcast Centre (IBC) in Birmingham. TBS's expert broadcast solutions team handled the turnaround, uplinking of live transmission for four international HD feeds at Telstra's teleport in Hong Kong to AsiaSat 5 and distribution to rights-holding broadcasters in the region.

Already established as a renowned broadcast platform for live sports in Asia, AsiaSat 5 has a proven record in the delivery of international sports tournaments and events including the last Commonwealth Games on the Gold Coast in 2018. With AsiaSat 5's extensive C-band coverage and exceptional penetration, Asian broadcasters can connect their audiences on multiple platforms with event and athlete highlights for each of the participating nations and territories to witness triumphant moments of the athletes together with one heart.

The 22nd edition of Commonwealth Games running through 28 July to 8 August gathered more than 4,500 athletes from across 72 nations and territories in Birmingham, United Kingdom. Over the 11 action-packed days, these athletes competed across 280 medal events covering 19 sports and para-sports including athletics, cycling, swimming, badminton, diving, basketball, table tennis, gymnastics and more. This year's Games staged the largest ever programme of women's and para-sports in its history. [AsiaSat]

NEVION CLAIMS BREAKTHROUGH IN MEDIA PRODUCTION ORCHESTRATION

Virtualised media production solutions provider Nevion has revealed that its flagship media orchestration platform VideoIPath now supports federation, or the ability for multiple autonomous instances of the technology to collaborate within and across locations.

The development, described by the company as unique development and a major breakthrough in distributed multi-site media production, allows production resources to be shared and used regardless of where they are located, and without compromising on orchestration performance, reliability and security.

The rationale to the launch is the notion by the company that broadcasters, media and production companies are increasingly seeking to increase the flexibility and cost-effectiveness of their live productions by moving to remote and distributed production. It added that such productions involve studios, control rooms, people, on-premise and Cloud processing located at multiple sites and that sharing, controlling,

and connecting these resources easily across LANs, WANs, 5G and GCCG (Ground-to-Cloud-Cloud-to-Ground) is one of the biggest challenges in enabling this type of production.

With federation, individual VideoIPath systems, for example at each site, can now collaborate with other VideoIPath systems to share, control and connect resources across locations securely. As each system is autonomous and in charge of its own resources, it continues to function and collaborate, even if problems occur in other parts of the federation. The federation capability also enables VideoIPath to reach new heights in scalability, to handle all the production resources and all the media streams involved. Federation also allows telcos to provide a WAN orchestration that can operate seamlessly with broadcasters' orchestration, to bring together the customers' facilities.

While remote and distributed production are obvious applications for VideoIPath's federation functionality, Nevion believes that the capability can also be used to compartmentalise networks within facilities, for example between ingest, production and playout. [RapidTV News]

SINCLAIR, KOREAN BROADCASTERS INK AGREEMENTS TO DEVELOP NEXTGEN TV

Sinclair and Korean Broadcasters will work together to develop and implement NextGen Broadcast (ATSC 3.0) business models and technology in both Korea and the U.S.

Sinclair Broadcast Group has entered into agreements with two top Korean Broadcast networks, Korean Broadcast System (KBS), and Munhwa Broadcasting Corporation (MBC), to collaborate on the development and implementation of NextGen Broadcast (ATSC 3.0) business models and technology in both Korea and the United States.

The collaboration includes the development of NextGen Broadcast television technology and Data Distribution as a Service (DDaaS) business opportunities using the ATSC 3.0 broadcast standard, the companies said.

As part of their work on NextGen TV, Hyundai Mobis and KBS demonstrated NextGen delivery of video and data services to a test automobile deployed around Seoul, delivering targeted content using the NextGen standard. [TVTech]

G&D'S NEW VISIONXS SUPPORTS LARGE RANGE OF KVM FUNCTIONS

Keyboard, video, and mouse (KVM) solutions provider Guntermann & Drunck has a range of innovative solutions that highlights the strong alliance between broadcast and IT.

A highlight in IP transmission is the new VisionXS, a high-performance KVM-over-IP extender. With 10G data transmission technology for better user experience, and with resolutions of up to 4K, VisionXS combines a large range of functions with performance in a pocket-size format.

Equipped with G&D's lossless compression bluedec codec, VisionXS enables an "authentic, pixel-perfect viewing experience", while IP-MUX, an integrated switch functionality, allows one console device to manage multiple target IP addresses from up to 20 computer sources, with no additional hardware.

With these features, the VisionXS offers a smart application that is easy to use. For example, in simple applications, users can use the on-screen display to switch between the various sources. The new devices are fully compatible with previous products.

At booth 8.B89, G&D is also introducing the PersonalWorkplace-Controller, which displays multiple screens on one single monitor. This enables users to keep track of all content at a glance, without needing any additional monitors at their workstation.

A multi-viewer tool allows up to 26 video sources to be displayed and controlled on one single screen. In addition to using one or more monitors at the workstation, the PersonalWorkplace-Controller can also be used to display the sources on a large video wall, with image quality of up to 4K60. [APB]

MEDIAGENIX, BEBANJO HELP CLIENTS TO MINIMISE OPEX, MAXIMISE ROI

Mediagenix, a global media solution provider with media business management platform WHATS'ON, has acquired BeBanjo, a technology company that streamlines the editorial and operational aspects of video distribution services with its Movida product suite.

According to Mediagenix, this brings together the best-in-class scheduling and programming solution with itse cloud native video-on-demand (VoD) scheduling and planning solution into a single portfolio, and allow both companies to better help clients engage target audiences, minimise OPEX and maximise content return-on-investment (ROI).

A combined portfolio will strengthen Mediagenix and BeBanjo in delivering content-centric business management software to the full spectrum of media operators, ranging from broadcasters who are increasingly monetising their content through a variety of new distribution models, up to the streaming-centric market segments where VoD-first solutions are critical for success.

Media operators streamlining their digital content supply chain will also enjoy more choices between a fully integrated enterprise solution and dedicated modules. The combination reinforces the capabilities of the Mediagenix Group to answer the needs of media operators for agile, flexible and rapidly evolving software. [APB] ■

DIGITAL BROADCASTING Updates

NEW LIVE IP SOFTWARE TOOLKIT (LIST) SUPPORTS LATEST IP SPECS

The EBU has released version 2.2. of the Live IP Software Toolkit (LIST), the software package for testing and diagnosing IP-based live production infrastructures. The latest version incorporates support for new standards and recommendations such as SMPTE ST 2110-22 with JPEG XS.

EBU LIST v2.2 now also complies with SMPTE RP 2110-25, a recommendation on test and measurement equipment alignment authored by Willem Vermost (VRT). With this adoption, EBU LIST paves the way for the proper alignment between various complementary media over IP test and measurement solutions, aiming to help end-users get a consistent view of the performance and status of their IP networks and media endpoints.

The EBU is now seeking feedback to help build community support for LIST and set further development goals. If you are an active LIST user, please provide us with your valuable feedback via a short questionnaire. By participating in the survey, you agree that the EBU will process the personal data you submit in accordance with its privacy notice. [EBU]

THAILAND'S TV5 MANAGES MEDIA WITH EMAM AND INTRAWARE

Intraware, the APAC distributor of the eMAM Media Asset Management System recently took part in an installation of a fully integrated playout and media asset management system for Thai TV5 at the network's studio headquarters in Bangkok, in partnership with eMAM and PlayBox Neo. The project encompassed the replacement of legacy third-party equipment with a solution designed to combine high operational efficiency, reliability and scalability. Intraware worked with both suppliers in the installation and commissioning of the eMAM system.

The decision to go with eMAM was driven at CH 5, because of its web-based workflows there was no need to change anything on the client side, and eMAM's ability to support all of Ch5 legacy workflows. The Program Department liked that eMAM offered Ingest, Censorship, Media Management, Delivery for ONAIR to Playbox Neo and the News Department liked also that, not only can it ingest, but also that sequences can be created for final editing and integrated with Adobe Premiere CC and then integrate with Octopus Newsroom for ONAIR. It also integrates to CH5's Xendata Archive solution and Qantum LTO Tape Library. The Playout component supplied was from Playbox NEO.

Content arriving at TV5HD, or created in the network's studios, is ingested into the eMAM Enterprise database. The ingest process is supervised using two Capture Suites. Material required for transmission is then transferred to playout server storage within AirBox Neo-20 for on-air playlist preparation, graphics and title generation. Much of this process is handled using Multi Playout Manager. Communication within the PlayBox Neo and eMAM system is over 10G ethernet IP. The system is configured to function as main and backup with the additional protection of a cool spare. The solution gives Ch5 a manageable system and workflow that was within their budget.

TV5HD is now in its 64th year of operation which makes it one of the country's longest established free-to-air television networks, transmitting news and variety programs in 1080i over Thailand's digital terrestrial network and by direct-to-home satellite. [content+technology]

AFRICAN UNION OF BROADCASTERS SUPPORTS "NO CHANGE" FOR UHF BAND AT WRC-23

The African Union of Broadcasters (AUB) has declared support for a "No Change" position by African states on the use of the UHF band at WRC-23. The Union had originally reached the decision in April and has now published an official statement on its website. The move follows intensive consultations between the EBU and AUB on the topic, in the lead-up to the ITU World Radiocommunication Conference 2023 (WRC-23), which globally coordinates the use of radio spectrum by wireless services.

The UHF band is used by terrestrial broadcast and wireless audio and video production systems around the world. Parts of this radio spectrum are currently under review, with mobile network operators hoping to absorb new frequencies for commercial exploitation.

The EBU and others are arguing that such a move would do little to improve mobile coverage in underserved regions, but that it would hamper access to information through broadcast services that currently do reach those same regions. "No Change" would ensure that those services can continue to operate.

The collaboration between both unions includes detailed exchanges on the ITU preparatory process for WRC and reports on the progress on studies in the ITU group in charge of the UHF agenda item 1.5 of WRC-23. [EBU]

HAIVISION BRINGS SRT SUPPORT TO AVIWEST VIDEO CONTRIBUTION

Haivision is promising broadcast customers that they will now have greater flexibility for live broadcast contribution with Aviwest mobile video transmitters supporting SRT as part of its complete product portfolio.

The company closed the acquisition of Aviwest in April 2022, enabling it to incorporate Aviwest's patented network bonding technology across its products, taking advantage of the Emmy award winning Secure Reliable Transport (SRT) and Aviwest Safe Stream Transport (SST) network transport protocols.

Originally developed by Haivision, SRT optimises real-time streaming across unpredictable networks. Widely adopted by the media and entertainment industry, SRT provides television broadcasters with a secure and reliable solution for low-latency video contribution over the internet. SRT includes low-latency packet loss recovery and AES 128/256-bit encryption for end-to-end security. Adding the SRT protocol for streaming over fixed IP networks to SST, designed for cellular transmission of high-quality live video, is said to dramatically improve interoperability with live broadcast production equipment and remote production workflows that include a mix of mobile and wired video contribution.

Haivision's video contribution solutions

portfolio also include 5G transmission, mobile video contribution, and network bonding technology. Introducing SRT support to the Aviwest PRO, AIR, and RACK series now allows for interoperability with the complete Haivision product portfolio and other SRT-enabled solutions. This allows Aviwest devices to be used alongside other Haivision broadcast technology in a wide variety of broadcast production scenarios, including multi-camera remote production, cloud contribution and distribution, and collaborative decentralised workflows. [RapidTV News]

IDEAL SYSTEMS GOES GREEN WITH METALO E-WASTE RECYCLING

Ideal Systems has announced its Think Green initiative for Broadcast and AV projects with leading Singapore based E-Waste recycling company Metalo International. Metalo provide E-Waste removal logistics across APAC and are certified for secure E-Waste destruction with full documentation reports such as Certificates of Destruction which may be required for auditing by government bodies such as the National Environment Agency, they are accredited to guarantee that all materials recovered from asset destruction will not result in landfill. They provide certification to assure absolute e-waste recycling compliance and responsibility in the electronic waste processing industry.

Providing E-Waste removal and recycling is a vital new service for Ideal as the majority of projects performed by Ideal Systems involve the upgrading of older and end-of-life Broadcast and AV systems also, many projects are related to relocation of customers to a new facility when much of the customers legacy equipment and IT racks are no longer needed, and today, the major new business driver for Ideal is the migration of existing broadcast systems to the cloud, which typically generates large amounts of E-Waste in the form of legacy computer servers, encoders, transcoders, storage systems, video routers, SDI cable, workstations and laptops, computer screens and even UPS batteries, all of which can be recycled securely and safely by Metalo and benefit the environment.

In addition to the re-cycling of E-Waste, Metalo also provides secure data destruction as a service. The Metalo HDD Degaussing service is provided using industry leading Degausser Machines from US company Data Security Inc. which are certified to US National Security Agency (NSA) and the Department of Defense (DoD) standards, and the Degaussing can be provided on customer site or at Metalo's facility in Tuas, Singapore. [content+technology]

FCC PUSHES FOR MORE ACCESSIBLE EMERGENCY ALERTS

The FCC is set to consider a Report and Order (R&O) to improve the clarity and accessibility of Emergency Alert System visual messages to the public. This includes persons who are deaf or hard of hearing who are often unable to access the audio message.

One of the changes it could adopt requires EAS participants, when they receive an EAS alert in the legacy format, to check whether a CAP version of the alert is available, and if it is, to send the CAP version rather than the legacy version.

The FCC says under the current rules, if an EAS participant receives the legacy version of an alert first, it might process that version and transmit it to the public even if a CAP version of the same alert arrives seconds later. This may leave the potentially expanded content in the CAP version unused.

CAP-based alerts typically provide more information than the corresponding alerts delivered in legacy format, according to the FCC. It says the increased use of CAP-based alerts will produce higher-quality audio messages, improve the availability of multilingual alerts and ensure that more of the alerts displayed on television screens contain all of the information provided by government agencies that initiate them.

EAS participants, including radio and television broadcasters, will be required to update their EAS equipment if necessary, to implement those changes. In comments filed in the FCC's docket to improve EAS, the National Association of Broadcasters had no objections to the FCC's suggestions and called the proposals "reasonable" and a "worthwhile endeavour".

However, the R&O being considered by the FCC would direct all EAS participants, including radio broadcasters, television broadcasters and operators of satellite, cable TV, and wireline video services to check whether certain types of alerts are available in CAP format, according to the FCC document. [radioworld]

DVB TO INVESTIGATE THREE NEW POTENTIAL WORK AREAS

The DVB Steering Board has approved the launch of three new study missions that may lead to new standardisation activities. The organisation's Commercial Module will oversee preliminary studies on object-based media, energy-aware service delivery and consumption, and low-latency interactive services.

The 102nd meeting of the Steering Board took place in Geneva last week, where Peter MacAvock (EBU) was re-elected as chair for a further two-year period. The newly approved study missions were added to the DVB workplan, with all three to begin work in the coming weeks. Any company interested in contributing to this work can contact the DVB Project Office. Find information about joining DVB here.

Object-based media

Object-based media describes any approach to producing, distributing and/or consuming media content that uses separate digital media assets, known as 'objects. Such media objects could include, for example, video, different audio tracks, sign language or an electronic programme guide (EPG) listing. UK media regulator Ofcom published a landmark report on object-based media last September.

The new study mission will explore how programmes containing multiple media elements can be carried in DVB systems and identify where existing specifications may need to be enhanced to support object-based media. The scope of work required may include the carriage of media objects and related metadata, and the support for rendering at each stage of delivery.

Energy-aware service delivery and consumption

In the context of continually rising demand for electricity and an increasingly urgent need to tackle the climate crisis, the second new study mission will examine how DVB could contribute to lower energy consumption during service delivery and consumption. The study mission will initially examine the potential for energy saving in delivery networks and home networks, later looking at potential savings in the receiver devices.

This topic was, in common with object-based media, the subject of a particularly well-attended session at the recent DVB World unconference in Brussels. Several potentially fruitful areas for discussion were raised during the session and will serve as useful initial inputs to the study mission.

Ultra low-latency interactive services

The recent publication by DASH-IF of a report on DASH and WebRTC-Based Streaming was a key trigger for the third new DVB study mission. The report sets out several use cases that would rely heavily on ultra-low-latency and interactivity capabilities. They include sports betting, live interactive music events, cloud-based game streaming, and in-stadium interactivity. DVB will investigate the level of interest among its members to work on such use cases and relevant gaps in existing DVB specifications with regard to the selected use cases. [DVB]

ASTRO PERSONALISES THE TV EXPERIENCE

Malaysian pay operator Astro has introduced new updates for its Ultra & Ulti Boxes and Astro GO including Multi-User Profile, thumbnail viewing, search enhancements and the ability to launch directly into Netflix shows on Astro's Home Screen.

Astro now allows up to five distinct profiles under a single household, allowing for personalised content recommendations based on each user's unique taste, preferences and viewing habits. Rather than contents of the entire household, every individual can now have their own Continue Watching list, create personal Watchlists, mark their Favourite Channels, pick an avatar of their liking of characters from their favourite shows such as House of the Dragon, The Masked Singer Malaysia, Hua Hee Sekolah and so many more!

Users are also allowed to change their profiles as many times as they want. Moreover, with the Kids Profiles being introduced, children will now be able to explore their favourite programmes including Didi & Friends, Upin & Ipin as well as Cocomelon within a dedicated environment. For an even more enhanced viewing experience, Astro has also introduced other updates which include:

Thumbnail Viewing – Viewers can now find On Demand playback locations easier by previewing through scenes via thumbnails over the progress bar before deciding to start video playback on an exact scene.

Search Enhancements – Search results are refreshed instantly upon each keyword entry in the search bar and users are now able to browse through the results immediately without moving to a new screen. Additionally, popular On Demand content are recommended prior to any keyword entry and users can even user voice search on Astro GO if they wish.

Launch Netflix shows on Astro's Home Screen – Customers can launch directly into a particular Netflix show after clicking on their corresponding posters at the Home Screen, thus enabling a more seamless viewing experience. [content+technology]

FCC: NEXTGEN TV DEPLOYED IN 68 MARKETS REACHING HALF OF ALL U.S. HOMES

The FCC released data as it asked for public comments on the NextGen TV transition and sunsetting of two 3.0 rules. The FCC has released new data on NextGen TV deployments as part of a filing for a Third Further Notice on Proposed Rulemaking that will examine the transition to NextGen TV, a.k.a. ATSC 3.0.

The FCC said, ATSC 3.0 stations have been licensed to operate in 68 markets, though in some cases it may be a single low power television station. Furthermore, most markets with 3.0 deployments have a single 3.0 'lighthouse' facility licensed to provide ATSC 3.0 service. According to S&P Global, Next Gen TV now reaches nearly 66.3 million unique households, or about 51.1% of total U.S. households.

The FCC noted that at least one full power TV station has been licensed to provide ATSC 3.0 services in 54 DMAs. It also said that based on data collected by its staff, there is a single ATSC 3.0 "lighthouse" facility in 38 markets that is providing the NextGen TV broadcasts in a market. In 13 markets, there is more than one "lighthouse" station providing the ATSC 3.0 broadcasts for itself and other stations. [TVTech]

MEDIA, BROADCAST AND TECH WORLD REUNITE BACK IN AMSTERDAM FOR FIRST LIVE IBC SHOW IN THREE YEARS

IBC announced that its first live and in-person show in nearly three years attracted 37,071 visitors from 170 countries to the RAI Amsterdam on 9th-12th September to see over 1,000 exhibitors and celebrate innovation, learning and collaboration. IBC2022's return as a face-to-face show after two years of going virtual was characterised by packed halls, standing room only in theatres, bustling networking events, and crammed meeting schedules.

IBC2022 offered a world-class line-up of headline speakers, with over 250 speaking at: the IBC Conference, centred on the theme 'What's next? Designing the future together'; the show's brand new Changemaker programme, focused on the people side of the business; the IBC Accelerator Media Innovation Programme's proof of concept demonstrations on the Innovation Stage, which was also home to other cutting-edge sessions; the IBC Owner sessions; thought leadership presentations, panels, masterclasses, demos and case studies on the Content Everywhere Stage; and in the Showcase Theatre, where leading technology brands demonstrated how they are paving the way forward.

One of the many highlights was the packed IBC2022 Show Keynote by immersive journalism pioneer Nonny de la Peña, hailed as "The Godmother of Virtual Reality". In an open session de la Peña addressed the topic 'What's Next: How immersive tech will create new narratives and transform entertainment'.

The industry-leading line-up of exhibitors at this year's show included major media, entertainment and technology players Adobe, Amazon Web Services (AWS), ARRI, Avid, Blackmagic Design, Canon, Comcast, Edgio, EVS, Fraunhofer, Google, Grass Valley, Hewlett Packard, Imagine Communications, Lawo, LTN, MediaKind, Microsoft, Nagra, NEP Group, Net Insight, Red Bee Media, RED Digital Cinema, Riedel, Ross Video, Sony, Synamedia, Telstra and many more. [IBC Press] ■

Equipment Trends

DREAM CHIP ATOMONE MINI CAMERA FAMILY

Dream Chip has extended the exceptional ability of their cameras to deliver in-the-moment sports action and events shots by adding an ND filter-holder to a range of its AtomOne mini cameras, including the flagship AtomOne mini, AtomOne mini AIR, and the AtomOne mini Waterproof. And upgrades includes integration with Broadcast Solutions' meshLink IP-based wireless system. The addition of meshLink means that the small AtomOne SSM500 HD 500fps camera is now being claimed to be the most flexible, agile and adaptable miniaturised camera on the market.

The full-duplex wireless meshLink system offers a wide array of capabilities, including ultra-low latency UHD HEVC encoding, RCP, telemetry, intercom, return video and prompter. It also offers true adaptive encoding, total recall of all connectivity parameters and a recently developed prediction tool for coverage calculation based on 3D maps.

Its addition should mean the AtomOne SSM500 not only becomes more versatile, but also more reliable. Common SSM500 applications often see it deployed where there is heavy reliance on 5G, with many different broadcasters and devices competing for signal and bandwidth. The addition of meshLink improves the reliability of the connection made and, when combined with the unobtrusive, lightweight, discrete nature of the camera, allows the tiny device to be deployed in fully remote contexts - including shoulder- and bike-mounted applications.

http://www.atom-one.de/

SONY ILME-FR7

Sony has introduced worlds first Cinema Line Full-frame PTZ Interchangeable Lens camera, with 15+ stop dynamic range, 4K (QFHD) high-frame-rate 120fps, Fast Hybrid & Real-time Eye AF, and S-Cinetone™ colour science.

Because it is based on a large-format sensor and can be fitted with E-mount lenses, "it allows users to create a shallow depth of field, for a more creative look", said Olivier Bovis, Sony's Head of Media Solutions, Europe. It also "gives a huge amount of sensitivity", and is very much "a premium PTZ camera", capable of fitting into IP-based production, using NDI, or broadcast infrastructures, using SDI.

It supports a wide range of E-mount lenses, ranging from 12mm to 1200mm, offering great flexibility in zoom capability and wide-angle shooting. It uses a back-illuminated 35mm full-frame CMOS Exmor R sensor with 15+ stop latitude for wide dynamic range, low noise and cinematic full-frame bokeh. In low light it can be set to 409,600 ISO for the highest sensitivity. Preset scene files include S-Cinetone for natural skin colour. The FR7 can shoot at up to 4K 120p for slow motion.

http://www.pro.sony

SWIT VANGO SERIES RGBW PANEL LIGHTS

SWIT has launched new VANGO series RGBW panel lights. The regular RGB panels are high bright in CCT mode, but much lower in RGB color mode. That' s because in a regular RGB light, the RGB color LED and White LED have fixed rates to share the total power of the light, and when output color lights, the RGB LEDs use only 1/3 power.

By SWIT unique Time Division Drive tech, full power of the light can be assigned to RGB color LEDs, and greatly increased the intensity of color light. The 70W VANGO-70 color light intensity equals to a regular 200W RGB color light intensity, and 100W VANGO-100/100L equals to a regular 300W RGB color light intensity.

With SWIT unique Edge Mounted SMD and 90° high efficient light guide tech, the VANGO lights have an ultra slim size to only 21mm thickness, portable and light weight for carrying, no fan, no noise, and diffused to soft light to paint the entire environment.

VANGO series include 3 sizes and power level: VANGO-70: 1'x1' size 70W, the RGB color light intensity equivalent to a regular 200W RGB light; VANGO-100: 2'x1' size 100W, the RGB color light intensity equivalent to a regular 300W RGB light; VANGO-100L: 3'x0.5' size long ratio 100W, the RGB color light intensity equivalent to a regular 300W RGB light.

https://www.swit.cc/

RODHE&SCHWARZ R&S®TH1 LIQUID-COOLED TRANSMITTER SERIES

The R&S®TH1 is a radical new approach to liquid-cooled, high-power transmitters from Rohde & Schwarz. Designed for sustainable broadcasting in the connected world, it turns critical challenges such as the carbon footprint, operational costs and new media consumption habits into opportunities for broadcast network operators.

The new transmitter reduces energy consumption by 15% compared to the best current designs. And it unlocks new 5G Broadcast applications, generating additional revenue opportunities such as direct transmission to mobile devices and data delivery to IoT and automotive applications.

The TH1 reduces operational complexity and enables a high level of automation. In conjunction with its unparalleled energy efficiency, it slashes operating costs on all levels. The liquid-cooled high-power transmitter offers software-defined operation and the ability to work across all bands of UHF transmission. The design philosophy is to reduce energy costs and carbon footprint; to increase operational efficiency and resilience; and to unlock new broadcast applications, thereby creating new revenue opportunities for the operator.

http://www.rohde-schwarz.com/

COBALT DIGITAL - INDIGO 2110-DC-01

The Indigo 2110-DC-01 is a factory add-on option to Cobalt 9904-UDX-4K and 9905-MPx models. This option adds native SMPTE ST 2110 support for these cards, with multiple 25G Ethernet interfaces.

The Indigo 2110-DC-01 circumvents the cumbersome, error-prone, and expensive prior solutions of multiple devices in the data path. Adding native ST 2110 interfaces to the audio/video processing elements, Cobalt is providing a cost-effective, easily manageable, integrated solution to this problem. Multiple boxes or processing elements are

no longer needed in the data path, going back and forth between IP and SDI. By natively doing all the processing directly over IP, unnecessary complexity and cost is avoided.

With this option, all the advanced processing in these cards is now available with IP inputs and outputs, without the need for an external gateway. Indigo 2110-DC-01 includes support for ST 2022-7 seamless redundancy switching, as well as IS-04/IS-05 NMOS for automatic discovery and configuration. Mated with the host card, this creates a powerful and processing-dense product that is capable of natively processing HD, 3G and 4K IP streams with no quality compromises. Cobalt achieves a remarkable density provided by the combination of functionality offered by the Indigo 2110-DC-01 and the 9904-UDX-4K/9905-MPx combination.

http://www.cobaltdigital.com/

ROSS ULTRIX FR12

Ross has introduced its new router, Ultrix FR12. Ultrix is a compact, but incredibly powerful processing platform capable of fast and accurate video routing, clean/quiet switching of audio along with video signals from SD to 12G, with advanced audio routing and processing as standard functions.

All of this processing power is available whether you are working in baseband, all IP, or hybrid environments ensuring Ultrix is ready for the rapidly evolving topologies that you may need to implement. The unique design permits users to software license additional capabilities such as adding integrated Multi-Viewers, frame synchronizers, virtual audio mixers, and 12G I/O. No special hardware is required for any of these capabilities.

In addition, the new SDPE board allows you to add either Acuity or Carbonite switchers directly inside the frame. Robust hardware, along with the implementation of Ross Video's Software Defined Hyperconverged Production strategy means a platform that will grow with your needs.

It includes routing and signal processing and, as a software-defined platform, is claimed to offer "significant cost, space and power efficiencies" with considerable flexibility, especially as it's the "world's only router with an integrated production switcher". It has lots of I/O, plus 48 non-blocking multi-viewers with access to everything, and a large audio system with mixer. It is also ready for UHD.

http://www.rossvideo.com/ ■

WINNERS WILL BE ANNOUNCED ON

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- ABU Broadcast Engineering Award on SDGs Implementation

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ABU Engineering Awards

Panel Judges

ABU BROADCAST ENGINEERING EXCELLENCE AWARD

ABU DEVELOPING BROADCASTERS' EXCELLENCE AWARDS

Panel Chairman
Mr Sunil, Additional Director General (Engineering) & Head International Relations, **Doordarshan-India** and ABU Technical Committee Vice-Chairman. Appointed a member of the panel in March 2019.

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.

Mrs Putri Joliana Binti Yaacob, Director, Radio Engineering Division**, Radio Television Malaysia (RTM-Malaysia).** Appointed a member of the panel in August 2020.

Mr Naoki Kashimura, Director of the Board, Managing Director, Product Strategy & Marketing Division, Research & Development, **Ikegami Tsushinki Co Ltd, Japan**, appointed a member of the Panel in 2008.

Mr Peter Bruce, Sr. Channel Sales Manager, APAC, **Harmonic.** Appointed a member of the panel in June 2018.

Mr Alexander Zink, Senior Business Development Manager, Digital Radio, **Fraunhofer.** Appointed a member of the panel in July 2018.

ABU ENGINEERING INDUSTRY EXCELLENCE AWARD

ABU BROADCAST ENGINEERING AWARD ON SDGs IMPLEMENTATION

Panel Chairman
Mr Hamid Dehghan Nayeri, Director, International Technical Affairs, **Islamic Republic of Iran Broadcasting (IRIB-Iran)** and Chairman ABU Technical Committee. Appointed a member of the panel in June **2015.**

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.

Ms Dajin Jeong, ABU Technical Liaison Officer, Project Manager, International Relations, **Korean Broadcasting System (KBS-Korea),** appointed a member of the panel in March, 2022.

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

Charles Sevior, CTO (APJ), Dell EMC, Data Lake Scale Out Storage. Appointed a member of the panel in June 2015.

Mr Asaad Sameer Bagharib, Director, **Thinking Tub Media Pte Ltd, Singapore.** Appointed a member of the panel in June 2018.

Hamidah's Farewell

Hamidah, who began her career at ABU in 2002 as a receptionist, ends her role as Team Assistant to the Technical Department and General Assembly Team in September 2022. She has worked with three Secretaries-General, Mr. Hugh Leonard, Mr. David Astley, and Dr. Javad Mottaghi, during her time at ABU.

A key member of the ABU General Assembly team, Hamidah was in charge of member registration and database management. She has been well-known among her co-worker's for her meticulousness, dedication, and devotion to her tasks.

The entire ABU secretariat bids farewell to Hamidah, one of the ABU's longest-serving employees. ■

"Thank you, Hamidah"

Doreen Bogdan-Martin appointed ITU Secretary General

Photo: International Communication Union (ITU)

Doreen Bogdan-Martin is poised to become the first woman to lead the ITU, the UN's oldest specialised agency in its 157-year history. Her new position as Secretary-General will begin on 1 January 2023. She is currently the Director of the International Telecommunication Union's Telecommunication Development Bureau.

Ms. Bogdan-Martin is a strategic leader with over 30 years of high-level experience in international and inter-governmental relations, as well as a long track record of success advising governments worldwide on policy and regulatory issues. She has led the implementation of a results-based management system, improved internal accountability frameworks, and initiated a comprehensive review of reporting mechanisms across BDT's global network of field and area offices, all with the goal of creating a more dynamic, responsive, and fit-for-purpose organisation. ■

Photo: MEDIAGENIX

Françoise Semin joins MEDIAGENIX as Chief Commercial Officer

MEDIAGENIX today announced the appointment of **Françoise Semin** as Chief Commercial Officer to its Executive Leadership team. Françoise Semin, a first-hand witness to the upheaval of the media sector, brings more than 20 years of expertise in International Business Management and Management Director roles to manage the company's Global Sales Excellence Initiative and innovative Customer Engagement models. She will also focus on EMEA expansion.

Françoise has worked in the media sector, ranging from R&D and Product Marketing to major EMEA responsibilities as VP Sales and Managing Director at AVID, Autodesk, Grass Valley, and Wildmoka. Françoise was most recently the Sales Director Europe at Qvest. Françoise has extensive experience in Enterprise & Strategic Accounts Solution Selling as well as SaaS-type organisations. ■

Afghanistan National Radio and TV new Technical Liaison Officer

Mr. Mohammad Ehsan Amiri has been appointed as the new ABU Technical Liaison Officer on behalf of RTA-Afghanistan, where he currently serves as Technical Director of National Radio Television.

Beginning his radio and television studio career in 1990, Mr. Mohammad Ehsan Amiri has been in the industry for more than three decades. Prior to his current role he was Chief Engineer in the Department of Television. He earned a Master's Degree in Electronics and Communication from Moscow (MLREI University). ■

Mauritius Broadcasting Corporation's new Technical Liaison Officer

Mr. Soobass Latchman has been appointed as the new Technical Liaison Officer for MBC-Mauritius. He began his career as a Trainee Technical Operator with the Mauritius Broadcasting Corporation in 1989 and has over thirty years of experience in the technical and broadcasting industries.

Mr. Latchman has a Master of Science degree in Computer Networks from the University of Technology in Mauritius. He is currently employed as the Coordinator Broadcast Technology at MBC. Prior to this, he worked in a variety of departments, including programmes, sales, QC, news, and television. ■

ABU Secretariat welcomes two new colleagues

Nur Farisa Nerina

Irfah Hazirah

Two Malaysians recently joined the ABU Secretariat in Kuala Lumpur.

Nur Farisa Nerina Rosli joined the ABU Technology Department as a Team Assistant. She was born in Kuching, Sarawak and raised in Melbourne, Australia, has lived in Paris, France and comes equipped with cultural intelligence, speaking English, Malay and French.

Nerina holds a Master's degree in international Relations from the University of Nottingham and a Bachelor's Degree in Mass Communication (Journalism) from Universiti Teknologi MARA, Malaysia. Previously she worked as a lecturer at Manipal International University, where she was specialised in writing for mass media and undergraduate human communication.

Irfah Hazirah Hasnol Azam has joined the IT Department as Systems Support Officer. She holds a Bachelor's Degree in Information Technology, majoring in Graphics and Media.

Prior to joining ABU, Irfah worked as a Technical Solution Rep III at DXC Technology, providing technical support and information to staff at the Commonwealth Bank of Australia. ■

ABU TECHNOLOGY CALENDAR *of Events*

2022

1-4 November	Webinar Series on Archiving and Media Asset Management	Online
16-18 November	Inter BEE 2022	Makuhari Messe
25 November	ABU Technical Bureau Annual Meeting	New Delhi, India
26-27 November	ABU Technical Committee Meeting	New Delhi, India
29-30 November	ABU General Assembly	New Delhi, India

2023

5-9 February	A23 Global Shortwave Coordination Conference	Tunis, Tunisia
February	Webinar Series on Member Innovations	Online
6-9 March	ABU Digital Broadcasting Symposium 2023	Kuala Lumpur, Malaysia

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