



## FOREWORD

We are pleased to offer for your reading pleasure our newsletter. We hope to through the newsletter, keep in touch with you, as well as keep you informed about the company's expertise, latest solutions and projects that we are involved in.

Broadcast Engineering Services has been in the business for 23 years, since 1995. The company has evolved in tandem with the Broadcast industry. We of course serve more than just the Broadcast industry – educational institutes and houses of worship are examples of other markets that we have provided solutions to. As the world moves into more software based solutions, we have expertise in the company who can provide customised software development that will work with hardware solutions to enable companies to work more efficiently. We pride ourselves as a total solutions company providing consultation, design, supply, integration and commissioning of solutions. Our tag line "Delivering Effective Media Solutions" is not mere words but it is our philosophy as to how we approach every project.

In the past year, the company has further strengthened its team and built relationships with companies that offer solutions that are ahead of the curve. We welcome you to get in touch with us for your next project. We are confident that we will be able to achieve your objectives effectively.

Tan Lai Heng  
Chief Operating Officer  
Broadcast Engineering Services

## Our New Logo

Broadcast Engineering Services recently redesigned its logo. Our new logo has been designed with vibrant colours, as RGB colours are generally associated with broadcast media and we have maintained that as part of the company's legacy. However the RGB is just the base colours that have been mixed to create other vibrant colours, indicating the company's vibrant outlook for the future. The map background indicates that our services go beyond Singapore, and the logo placed above the world map signifies the company outshining its competitors and expanding beyond Southeast Asia. Four arrows represent spreading the business across the Four Seas, and circle in the centre has complementary colours that represent a united company working together to undertake projects and bring them to completion.



*The new logo was unveiled on 28 May 2018 by the BES management team*

## Keep In Touch

We intend to publish two Newsletters a year. The first issue was specifically printed to complement our participation at BroadcastAsia. We however, would like to encourage those interested to register with us to receive our newsletter as a PDF in their mail box.

To receive the soft copy please register at  
<http://bes.com.sg/>

## Who Are We?

**Our mission and vision is to provide our esteem customers with the best solutions and workflow that ensures an excellent quick return of investment.**



*Standing (L-R): Thomas Chia, CTO, Tan Lai Heng, COO, Stanley Lien, CFO and Ian Ang, Sales Director  
Sitting (L-R): Francis Tan, Director, Steven Cheng, Chairman of Board and Alvin Kueh, Director*

Broadcast Engineering Services Pte Ltd is a Singapore based company that was founded in the year 1995. It was established to support and service the growing broadcast industry but since then has branched beyond the broadcast sector.

As a leading Systems Integrator, BES provides a host of turnkey services for the broadcast, post and production sectors as well as educational institutes, houses of worship, government organisations and beyond.

Our core business includes consultancy, system design, project management, supply and integration of solutions and commission-

ing of systems. Our main aim and drive is to provide cost-effective and reliable on-time turnkey project solutions.

BES has a vast network of professional and reliable partners to support and provide our clients the best competitive prices and services with a wide range of broadcast equipment and products.

BES also extends its services beyond Singapore. We were engaged and delivered solutions to organisations in Brunei, India, Malaysia, Myanmar, and Thailand.

## What Are Our Solutions?

We design workflows and solutions for Transmission Playout, Live Production Studio, SAN Storage, Media Asset Managements and Archival Systems, IPTV, Digital Signage and AV.

We also provide customised software development services. Companies generally face the dilemma between choosing off-the-shelf products vs developing custom software to suit their operational needs. Since every business has different requirements, it is very difficult for one product to accommodate multiple needs simultaneously. We believe in integrating

customized software with off-the-shelf software applications to transform the daily operations into a specific goal oriented application. This provides remarkable ability to run software exactly the way that the business requirement wanted.

Our Customized Software Development Services offer tailor-made solutions to fit requirements and provide seamless integration with the customer's existing system, at minimal cost. Our extended maintenance service and local support also offers customers peace of mind.

## A Word From Our Partners

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BES, one of the leading system integrators in South East Asia, has amassed extensive experience in designing, supplying and delivering turnkey solutions to video broadcast and post production facilities. They are well known throughout the industry as experts capable of delivering high quality project solutions. Over the past two decades BES has achieved the highest level of customer satisfaction, demonstrating a reputation as an integrator that understands their clients' requirements and delivers systems accordingly.

The company's well-deserved reputation stems from their commitment to building a team of highly qualified, reliable and responsive employees: a team that their clients and partners can completely trust. The 'flying colours' theme of the logo reflects their ability to deliver the best solutions in every situation.

BES's professional approach is aligned with IHSE's customer-centric values and the very core of our KVM technology. Both organisations strongly believe in providing clients with products of the highest performance; in terms of video quality, speed of switching, system reliability and availability. We have known BES for more than a decade and they have worked actively as a strong alliance partner and our exclusive distributor in Singapore and Brunei for the past 5 years. We are honoured to work with BES who are totally committed to delivering the top-quality solutions to our customer.

**Terence Teng**, Managing Director, IHSE APAC



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At Imagine Communications, we are extremely pleased with the valuable business partnership we have built over the years with our channel partner, Broadcast Engineering Services (BES).

Working in close collaboration, Imagine and BES have successfully executed major, next-generation Payout projects in the region, including a cloud-based disaster recovery deployment for one of the world's largest media and entertainment companies.

As the broadcast industry continues to migrate to IP, Imagine's Payout business is growing very quickly — and BES is a fundamental part of this success. Knowing that the team at BES have the skills to support complex, changing workflow requirements gives us confidence that we have a great foundation to satisfy our joint customers today and in the future.

**Mathias Eckert**,  
SVP & GM EMEA APAC Payout & Networking Solutions



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Quantum believes in collaboration which is why we are honoured to partner with BES for

media and entertainment solutions that deliver industry-leading high performance and high availability storage.

The Quantum and BES partnership offers a strategic combination of extensive project management experience and proven solution architectures in scale-out tiered storage, archive and data protection that will help you continuously improve your business productivity and efficiency. Quantum and BES collaborate so you and your broadcast and post production teams can collaborate to address even the most demanding 4K, 8K and beyond workflows.

**Jim Simon**,  
Senior Director, Marketing for Quantum  
Asia Pacific and Japan.



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BES has a highly respected team of professional engineers and technicians who have many years of high-performance system integration, workflow design, and payout solution experience. That depth of experience - coupled with their skills in live production, SAN storage, media asset management, and archive systems - make them an ideal Cinegy partner.

**Daniella Weigner**, Managing Director, Cinegy



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## Project Highlights - A selection of our past, recent and current projects that we are pleased to be associated with.



BES has a long history of providing services in Brunei. The company had set-up broadcast facilities that includes broadcast control room, journalist room, editing room, etc including engineering support on site during the following events:

- ♦ South-East Asia Game (1999)
- ♦ Asia-Pacific Economic Cooperation Ministers meeting (2000)
- ♦ ASEAN Summit (2001 and 2013)



BES were selected as Project Designer and Systems Integrator for 18 Playout Channels for GlobeCast Asia. BES supplied and integrated the following equipment:

- ♦ Equipment Supplied:
- ♦ ORT Server
- ♦ ACO
- ♦ Encoder/Decoder
- ♦ Embedder/De-embedder
- ♦ D/As
- ♦ Routers
- ♦ Multiviewer



### Myawaddy TV - Myanmar

In 2010, BES delivered an end-to-end turnkey TV solution for Myawaddy TV in Naypyidaw. A two Storeys building which houses the technical facilities includes News Production Studio, TV Production Studio, TV Theatre, 6 channels Playout System, Monitoring Control Room, Satellite Earth Station, 16 Post Production System, Audio dubbing suite and Audio recording Studio.

#### News, TV Production Studio

Multi HD camera system, Video server, VTR's, Character generator's, Frame sync for external feeds, Vision mixer, Video Router, Multiviewer & monitoring system.

Audio devices such as microphone, audio processor and mixer, Intercom system for internal and external communication.

#### TV Theatre

5 HD camera system, Video server, VTR's, Character generator's, Frame sync for external feeds, Vision mixer, Video Router, Multiviewer & monitoring system.

2 business projectors for great visual experiences.

Audio devices such as microphone, audio processor and recording and F.O.H audio mixer as well as Audio network system to facilitate audio experiences for the audiences. Intercom system for internal and external communication.

#### Video Editing and Graphic facility

FCP editing suites, linear video editing suites, graphic station and preparation. VTR's for ingesting and playback, video routing facilities for signal routing and distribution.

#### Audio dubbing and recording suites

Microphone's for vocal and musical instrument, VTR's and video server for ingest and playback functionality, Audio mixer, audio processor and multiplexer for signal processing. Digital Audio Recording station for multi-track audio recording.

#### Presentation suites

Automation playout system, Video servers, Frame synchronizer, Master control switcher, Routing system, Channel branding, Audio processing system and monitoring facilities.

#### MCR

Video routing system for signal distribution within various TV station facilities as well as external, Master Intercom system for inter TV station communications, Monitoring facilities for signal monitoring and quality assurance.

#### Satellite Earth Station

TVRO RF decoder's for contribution link content decoding, Video routing and monitoring facilities and distribution and quality assurance inspection. Optical fiber signal extension and network system for inter-area signal distribution.

## New Creation Church (The Star Performing Arts Centre)



New Creation Church

The 5000-seater Auditorium fitted with broadcast grade audio, video and production lighting systems was completed in 2012. Ideal for world-class concerts, musicals, dance and operas, the auditorium is also suited for business conferences, award ceremonies, product launches, town hall meetings and convocations.

The Multi-Camera Broadcast Production System is equipped with cutting-edge broadcast-grade equipment, such as Sony cameras and production switchers, Miranda routing, multiviewer, utility devices, Telemetrics robotics system (especially the 18-metre camera), robotic camera tracks for a spectacular wide-angle experience of the entire auditorium, as well as broadcast-grade audio and lighting system.

A gigantic LED wall display, high-end audio and lighting system gives exceptional audio-visual experience to the audiences.

Over 100 displays and terminals throughout the entire building of Digital signage system provide the accessibilities from mechanised promotion, advertisement, announcement and navigation of the venue.

## Mediacorp



Mediacorp

Mediacorp has the widest range of media platforms in Singapore spanning digital, television, radio, print and out-of-home media.

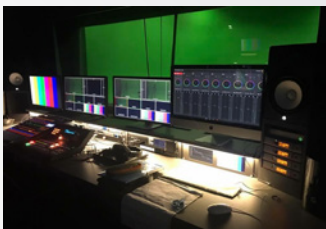
With wide-ranging facilities, including a 1,500-seat theatre, 7 networked TV studios, 13 radio studios and an expansive open workspace

on the campus, the challenge is to find a way of connecting and managing an extensive portfolio of production equipment to staff spread widely throughout the facility to achieve high accessibility, secure and flexibility connectivity.

ihSE answered to that challenge, three separate systems were required in the news, studio and media and radio operations areas to ensure instant and flexible access to equipment, whenever and wherever operators needed it.

With IHSE APAC's local system integration partner Broadcast Engineering Services to design and deliver an efficient and robust KVM switching system for the media campus. In the news area, a fully redundant KVM system comprising two Draco tera 160 port enterprise switches, and redundant variant CPU and CON units provides totally reliable and secure connectivity to a wide range of broadcast equipment using a mixture of DVI, DisplayPort, serial, analog audio and USB data transfer.

## Singapore University of Technology and Design (SUTD)



SUTD

Academic Media Studio, a video production and a multitrack recording studio was completed in 2017.

The primary purposes of the video studio are to produce high quality lecture audio & videos, record education related interviews,

Broadcast Live presentations, produce Videos for film-related humanities modules, conduct studio photography, record multitrack sessions, perform post-production process such as Foley/Dubbing/Voice over for education videos and film-related humanities modules.

The UHD production studio equipped with multi-cameras, video production switcher, multiviewer, routing facility, monitoring system, audio mixer, video and audio recording devices, LED studio lighting system. There is also video editing suite and colour grading station for post-production work.

## Creators' Space at Pixel Building (Nanyang Polytechnic)



Nanyang Polytechnic

Creators' Space aims to support online content creators through the provision of a physical space of approximately 14,820sqft, shared production facilities and capability development programmes to improve the quality of production and engagement for their content. It supports a vibrant

eco-system for online content creators to turn ideas into commercially viable content concepts that lead to business enterprises. It is geared towards encouraging online content creators to experiment and innovate in the creation of content for non-linear platforms.

This shared production facility, media equipment such as video cameras, lighting, audio and video editing equipment will be required by content creators to facilitate the shooting of video productions as well as for post-production support.

There are two video production studios with UHD multi-cameras, virtual studio systems, production switchers, audio mixers, and studio lightings.

For post-production, there are two video and one audio post-production suites as well as one audio recording booth with Adobe Premiere Pro CC and Avid Pro-tools respectively.

### Other Projects

**Ramp up the Audio-Visual (AV) Infrastructure and Systems of the National Archive of Singapore (NAS) for National Library Board (NLB)**

**Broadcast Business System Turnkey Project for StarHub**

**Awarded Dalet MAM System and Integration of System with Hardware Requirement by SPH**

**Awarded Automatic Emergency Payout System for DTV by Mediacorp**

## Solution Highlights From Our Partners

### IHSE Draco vario Remote IP CPU Revolutionizes Both the KVM Market and the Virtual Machine Space



The new Draco vario Remote IP CPU revolutionizes both the KVM market and the virtual machine space by combining the two systems into one homogeneous solution. It delivers the same level of

flexibility and performance associated with IHSE KVM matrix switch systems.

IHSE expands the successful Draco vario series with the IP CPU unit. The device enables the integration of virtual machines in KVM environments into existing Draco tera KVM switch systems. The result is a highly functional remote desktop solution with all the benefits of the Draco KVM system.

This new device is particularly suited to control rooms with virtualized process automation, Network Operations Centers (NOC) that require real-time access to real and virtual target devices, as well as in the TV and film industry, where virtualized desktops are increasingly used. The solution delivers additional connection capability, convenience and represents substantial cost saving over alternative connection methods. It is suited to safety-critical applications requiring extremely fast access to the required information.

### Can Your Broadcast and Post Production Teams Collaborate on Native 4K/8K Workflows?



Creating and delivering video content is more challenging than ever across every type of media operation. Shooting ratios are way up, 4K and 8K resolutions are the buzz words, and the proliferation of production and delivery formats all combine to push the boundaries of workflow efficiency. Collaboration between team members—no matter where they're located—is essential.

Quantum's StorNext file system and advanced data management solution combined with Xcellis workflow storage is the foundation of a quick, resilient approach to media production challenges. Whether customers prefer fibre channel, NAS, or a combination, Xcellis is designed for all three options, with NAS 2.0 recently introduced.

"Quantum's StorNext® platform powers modern high-performance workflows, enabling seamless, real-time collaboration and keeping content readily accessible for future use and re-monetization," said Jim Simon, Senior Director, Marketing for Quantum Asia Pacific and Japan.

Jim continues, "together with BES, we have successfully helped a government organisation preserve a nation's heritage by deploying

Xcellis workflow storage with a combination of disk and tape—a proven scalable and reliable solution for long term preservation. BES and Quantum have also enabled a pay-to-view broadcasting company to bring faster and enjoyable viewing experience to their subscribers."

More than 100,000 customers have trusted Quantum to address their most demanding content workflow needs, including top studios, major broadcasters and cutting-edge content creators.

### Versio Offers Integrated Payout Functions with a Variety of Deployment Models



Versio by Imagine Communications is a powerful integrated payout solution used worldwide by media companies from small, single-channel to very large, multichannel environments and master control operations. It combines the best of the world's automation, branding, graphics, file server, storage and master control capabilities in an entirely software-based environment.

Versio simplifies the creation and management of channels and enables media companies to extend their brands and content with more freedom, visibility, and control than ever before. With Versio at the heart of channel-enablement, broadcasters and media companies are able to accelerate new services and improved operations that include:

- Specialty and popup channels
- Market expansion via rapid channel launch
- Hyper-localized content and advertising
- Business continuity and disaster recovery
- Reduced infrastructure
- Virtualized and streamlined master control

As a truly integrated, 100% software-based, and fully IP-enabled solution, Versio provides a disruption-free transition to the future of channel launch by enabling the widest variety of payout applications across flexible deployment models including:

- Premises – traditional, on-site channel-in-a-box deployments with baseband/SDI connectivity
- Hybrid – hybrid IP/SDI deployments
- Virtualized/Cloud – private data centers or public cloud deployments, supporting all media types including baseband, SMPTE 2022 and compressed



## What's Next For The Broadcast and Media Industry?

By Thomas Chia, CTO, BES

Every year, network bandwidth continues to grow in the industry. Cloud-based services will grow together with this trend to provide broadcasters and media organizations

a platform to timely deploy their services to the market with the advantages such as lower start-up cost and adjustable resources when necessary.



Recent years, Media Cloud services has enhanced their service to provide the artificial intelligence (AI) as a driver to automate most of the broadcast and media operations. Many manufacturers especially in the media asset management sector have started to adopt this capability as part of their products and features. We have yet to see wide adoption of AI services in the Media Industry this year but expected to see more in years to come.



IP technology, with the finalization of SMPTE ST2110 suite of standard has stimulated broadcasters to transform from their current traditional broadcast to IP infrastructure. We see some broadcasters have started to use the cloud services for their disaster recovery.

With the infrastructures moving to IP and the cloud, broadcast and media companies are increasingly becoming targets for hackers. Technology to counter the cyber threat to effectively secure the services provided will be an important feature in the broadcast industry. We see this will be a trend coming up in the broadcast industry.

## What is the SMPTE ST 2110 Suite of Standards?

The SMPTE ST 2110 Professional Media Over Managed IP Networks suite of standards is a major contributing factor in the movement toward one common internet protocol (IP)-based mechanism for the professional media industries.\* The foundation for SMPTE ST 2110 standards is Video Services Forum (VSF) Technical Recommendation for Transport of Uncompressed Elementary Stream Media Over IP (TR-03), which VFS agreed to make available to SMPTE as a contribution toward the new suite of standards. The SMPTE ST 2110 standards suite specifies the carriage, synchronization, and description of separate elementary essence streams over IP for real-time production, playout, and other professional media applications.

## What will adoption of the SMPTE ST 2110 suite of standards mean for the industry?

The impact goes beyond just replacing serial digital interface (SDI) with IP to the concept of having the flexibility to come up with a whole new set of applications based on, and leveraged off, information technology (IT) protocols and infrastructure.

The advantages of shifting to IP are comparable to those achieved when the industry moved from physical tapes to virtual files for content storage. Files were not treated as if they were just virtual tapes; rather, all the benefits of software and virtualized access have come to be realized with new workflows and functionality offered.

Another advantage is that intra-facility traffic now can be all-IP. Thus, rather than requiring two separate sets of switches — SDI switches for professional media and IP/Ethernet switches for general data — facilities can rely on one common data center infrastructure. Most operators will continue to separate traffic by priority; however, the newer switches do have the intelligence to prioritize real-time media streams.

## What is unique about how the ST 2110 standards suite handles ancillary data?

ST 2110 standards make it possible to separately route and break away ancillary data, as well as the audio and video. This change promises to simplify the process of adding metadata such as captions, subtitles, Teletext, and time codes, as well as tasks such as the processing of multiple audio languages and types.

All elements can be routed separately and brought together again at the endpoint. With ST 2110 standards, each component flow — audio, video, metadata — is synchronized to each other while remaining independent streams.

## How about Ultra HD, including 4K, 8K, and high-dynamic-range (HDR) imaging? Do SMPTE ST 2110 standards account for new and emerging formats?

Yes! SMPTE ST 2110 standards are video-format-agnostic and therefore support Ultra HD, HDR, and other new and emerging formats.

Information extracted from SMPTE.org website

## Brands BES Works With



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ENGINEERING  
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