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Intaj lights up

by Vijaya Cherian on Nov 21, 2009

Last month, twofour54, Abu Dhabi's media precinct, launched a state-of-the-art facility called intaj, to provide production houses and broadcasters with a one-stop HD solution that will enable them to undertake their entire workflow from content generation and editing to delivery.

In more ways than one, intaj is thought to be unique. While it may not be the largest facility in the region, it's the only one that presently offers a media asset management facility service for the region besides providing industry-standard solutions for end users.

Intaj presently operates five studios and several post production suites from two sites in Abu Dhabi located at the National Theatre site and Khalifa Park. The former includes three large HD studios, post production suites, and MAM and archiving systems while the latter, which is located within twofour54's headquarters, comprises, in addition to two small HD studios and post production suites, a playout centre and satellite teleport as well.

Heading the facility is Hasan Sayed Hasan, a former winner of the Digital Studio Broadcast Engineer of the Year award. Hasan says clients can access an end-to-end solution that spans across all departments or use a combination of services that their project requires.

"The system is built in a flexible way to allow various clients — each one of them having a different requirement or wanting to work in a different workflow — to do their work smoothly," he explains. Hasan leads the tour.

STUDIOS

Our first stop is at twofour54 intaj's three large studios that were being used at the time of going to press by Abu Dhabi TV's sports channel — a clear indication that demand will rise in time. Intaj boasts five studios in all.

Ranging in size from a news studio of 60sqm to a large live audience entertainment production studio of 650sqm, each studio is sound proofed and equipped with fully saturated lighting rigs and soft infinity cycloramas.

"Each of our studios comes with a fully-equipped production gallery, corresponding green rooms, VIP rooms, and make-up and dressing rooms. Each client's individual lighting and studio configurations can be saved so they don't have to revisit their settings each time they come to the facility," explains Hasan.

"In addition, we have a dedicated production gallery for each studio. This ensures that the facility can record or air five live broadcast shows at the same time," he adds. Large "elephant doors" allow full drive-in access to the three larger studios at the National Theatre site.

The studios include dedicated storage facilities to store clients' sets and other paraphernalia.

STUDIO RECORDING

Next, we move on to the studio recording area. The Pharos Mediator plays a key role here. It is used to initiate studio recordings, and control routers and servers for recording live and studio feeds. Hasan explains how it works.

"To start the recording process, the material ID is entered together with other available metadata such as a nominal duration. The server can be cued and placed into record, which will continue until the specified duration is reached or the Stop button is pressed. The recording is automatically entered in the Mediator database and is available for further processing such as transcoding for browse," he says. Multiple record ports can also be triggered from a single panel to provide 'ganged' record functions. In the meantime, ingest can be triggered via a soft panel, mouse click or a physical panel.

STUDIO PLAY-IN

Pharos' Studio Playtime is available in the studio galleries to replace hardware control panels with an intuitive touchscreen-based interface.

"Operations in a busy gallery require random access to clips and multiple channels feeding the studio mixer. Studio playtime is optimised for busy studio gallery operations or other areas where manual assist operation is appropriate," Hasan explains.

Studio Playtime essentially provides a paged content selector, which allows the operator to select and play video clips across a number of server ports. The user interface panels allow the Mediator database to be searched, and clips to be dragged into the grid. These clips can then be cued for playout on the available ports and triggered when required either via the interface or from external triggers such as GPIs.

Full integration with the media management system enables clips to be selected from the entire library.

They are then automatically transferred to the relevant server when required.

The user interface at intaj is fully integrated with browse, allowing clips to be previewed and trimmed as required for playout, explains Hasan.

"It also presents the clips in a grid across a number of pages allowing large numbers of clips to be instantly available. These grids can be pre-built and recalled when required for use," he says.

VIDEO SERVERS

At each of the intaj sites, a shared pool of Avid Airspeeds is available to the Pharos automation system to share between the studios, lines and media management.

Each Airspeed provides a single input or output port when operating in HD mode such as, when combined with a DNxchange module, explains Hasan.

"The Airspeed can also be configured to operate with SD such as, for dubbing SD files back to an SD VTR in the Media Management area. The Airspeeds are controlled with the Pharos Pilot control system," explains Hasan.

In addition to the AVID ports, a shared pool of ports of Omneon Spectrum HD servers is also available to the Pharos automation system to share across the whole chain.

VISION SWITCHERS

In the production galleries, intaj has chosen to install the Sony MVS-8000GSF video switchers. The MKS-2700 device control engines offer direct control of servers and other RS422 devices.

Omran Abdallah, engineering director at twofour54 intaj says the MVS-8000G was chosen because of some powerful features such as a Re-sizer function (internal 2D DME) and built-in format converter.

"The MVS-8000G suits intaj's HD productions and is in line with its operational requirements. It offers full multi-format operation across a variety of SD and HD formats, customisable control panels with highly intelligible indicators and buttons, advanced networking with system peripherals, integrated control and maintenance, powerful M/E functions and effects, and complete system scalability," he explains.

"In addition, the integrated MVE-8000A multi-format DME processor provides a wide variety of effects such as 2D/3D and linear/non-linear transforms in both HDTV and SDTV video formats. The system then allows DME- wipes, processed key, and a wide variety of attractive effects that can be controlled from the control panel as if they were a part of the switcher functions," he adds.

MONITORING

Abdallah then points out to the high quality video monitoring feature at intaj. He explains that this is crucial for producers, directors, and control room operators, especially in HD environments.

"In line with this thinking, we have chosen high-quality seamless video walls as the main monitoring systems. For instance, Barco's OVF-715 series displays are used in the larger studios' galleries. These are fed by the Miranda Kaleido-X multiviewers. The OVF-715 70" video wall systems are designed and optimised for use in a 24/7 mission critical environment.

"The Barco projection engine provides a high-contrast rear projection-system. Brightness, contrast, and large viewing angles are tailored to the human eye providing maximum readability. Also, it features a Sense6 technology that provides consistently excellent video wall colour uniformity over time," he explains.

TALKBACK (IINTERCOM)

An important facility is the TELEX KP32 talkback panels and interfaces that provide comprehensive facilities to all operators. These systems are configured to access assigned cameras, any studio floor wireless and wired facilities and any destinations of the overall broadcast centre intercom system, whether internal or external, Abdallah confides.

ON-AIR GRAPHICS

Taking us through to the next feature is AbdelFattah El-Hammouri, intaj's production operations manager. He tells us that the AVID Deko Graphics systems are accessible by each studio with the help of the Deko 3000. The Deko systems give real-time HD or SD graphics and advanced effects for live production and newsroom integration; delivering real-time 3D motions, 3D DVE-style transitions, video clips, linked sound effects and animating true 3D models.

"They have broadcast-focused workflow using intelligent templates, multi-aspect composition, Photoshop layer associations, user-definable macros with auto-learn functionality and full Unicode and QuickTime file support.

The ClipDeko option allows real-time native HD/SD graphics processing and synchronised audio clip playback," he explains.

AUDIO

Based on the Calrec Omega with Bluefin and Hydra audio network, intaj's audio production facilities provide fully redundant audio production systems with HD 24 bit/ 48KHz, 5.1 Surround Sound format, Dolby E, D and D+ Encoding/ Decoding (ready), 64 Stereo Digital AES I/O, 52 mono Line Outputs and 92 Mic/mono line inputs for each studio.

Calrec's Hydra Network allows the studios to be "combined" providing some 192 digital I/O and 156 analog mono I/O, all controlled from within a single Omega Desk, of 224 channels, 56 A/B Faders. Each console from one studio can access and control the audio lines from any of the other studio floors.

intaj has carefully planned its production facilities. It has paid special attention to the digital and network audio solutions, fitting its audio production suites with DAWs, and several different types of audio players and recorders ranging from minidisks to Dolby and DTS Surround audio formats, provided with GSM and POTS Telephone Hybrids, and ISDN/ IP codecs.

"Our studios, post-production, and VO Rooms/ suites, are acoustically treated to the highest standards. They are fitted with highly fire retardant material, and extremely low noise cooling system, which is less than 20 dBA at floor level," claims Hasan.

POST-PRODUCTION

We then move to intaj's post production facilities. intaj currently has 22 HD post facilities comprising video editing suites, audio post production, graphics and high end compositing suites.

intaj's post-production systems are based on a combination of AVID and Apple systems for video post production, DigiDesign Pro-Tools for audio postproduction and a mix of Mac and Windows-based Graphics workstations with a variety of 2D and 3D software packages installed on them.

"Our HD video editing suites are non-linear and available in multi-resolution for offline and complete end-to-end finishing. The audio suites here are geared for 5.1 surround sound and equipped with Pro-tools HD systems," adds Hasan. All AVID suites are connected to AVID Unity ISIS Storage with a mirrored storage capacity of more than 66TB, explains Martin Roberts, post production manager at twofour54 intaj.

The ingest "house format" for the AVID "world" will be the DNxHD120, he says. "We plan to combine the offline/ online editing process as we don't have any bandwidth limitations to handle the edit of multiple HD streams. This will save our clients both time and money as no online conform is required. For more of our high-end work, where the client requires to work in uncompressed HD, we can re-ingest directly into the AVID DS10 high-end compositing suite's 16TB Raid storage, where any additional finishing and compositing can take place. The DS10 unit also allows us to work in all the digital film formats such as RED, ARRI and other film formats for DPX finishing," Roberts says.

He also claims that the AVID Interplay MAM system allows them to be more productive in the post, providing both flexibility and efficiency. "These client workflows are designed to ensure the process is smooth all the way from ingest to offline/online to finishing, compositing and grading through to the final stages of a 5.1 surround mix in our Pro-Tools suites and that metadata is carried through to all stages," he explains.

In the meantime, the FCP suites are connected to the ISILON server with a capacity of 28TB. Ingest is typically done in a central ingest room through the Omneon Spectrum HD servers.

Martin explains that the "house format" for the Final cut Pro suites is the 50 Mbps Long GOP codec (as used in XDCAM HD). "A very wide range of formats is supported depending on clients' requirements. Content can also be ingested into 4TB external units that, in turn, can be directed to the edit suite if uncompressed HD or SD is required. Two of the FCP suites have been upgraded to higher-end online suites containing colour grading software and hardware feature deep effect capabilities," he explains.

MEDIA ASSET MANAGEMENT

This is one of twofour54 intaj's unique features as it claims to be the first media company in the region to provide comprehensive media management and digital archiving services to the industry.

"A high storage capacity archiving system coupled with a sophisticated content storage management solution is designed to facilitate complex content and storage environments at intaj," claims Hasan.

Heading this part of the project is Eilidh Brandon, media asset manager at intaj.

With Pharos Mediator as the ingest tool, the material is first passed to multiple environments including Avid, Apple FCP and the production studios, allowing for a centralised point of entry for the material across both sites.

The system can handle both SD and HD material in multiple file and tape formats from HDCAM SR, HDCAM, P2 & XDCAM to digital betacam as well as external and studio feeds all from one central point ensuring proper standardised ingest QC and metadata capture.

Pharos contexts and Avid Interplay provide secure workspaces for each client within the edit environments based around their preferred workflows. This, in turn, protects client confidentiality and asset security throughout their stay with intaj. Both Avid Interplay and Pharos Mediator allow clients to browse their material prior to their edits, enabling them to create EDLs, thereby, streamlining the entire edit process.

"Metadata is crucial in facilitating the client's project and communicating vital information," explains Brandon. "By following the set workflow, intaj is able to both store clients' content and enrich their metadata in centralised areas easily accessible to the client as and when required," she explains. In the meantime, two Sony Petasite datatape libraries are controlled across the two sites by Front Porch Digital's DivArchive Middleware.

The full library management service caters to both the physical and file-based assets, thereby, offering a safe and secure environment to store media content at any quality required by the client.

This provides easy access to the client's materials, allowing them to reuse them without loss of quality, as can happen with videotapes.

"This service can also cater to both the content producer or the owner's long and short term requirements ensuring that the assets are always available and secure," explains Brandon.

PLAYOUT AND UPLINK

Besides asset management, intaj also provides a HD-capable teleport and a 20-channel playout centre.

INFRASTRUCTURE

Last but not the least is the Evertz EQX routing systems that lie at the core of the project. These systems offer format independent data paths, and support 3Gb/s signals including SD-SDI, HD-SDI, DVB-ASI, SMPTE 310M digital video formats as well as optical formats. They support four independent timing planes that provide independent SMPTE compliant switching for up to four different digital video signal formats.

The central routing format is HD video with embedded audio.

Engineering director Abdallah claims that this simplifies routing operations and ensures consistent audio/married video routing. "All of the studios include a set of incoming line synchronisers, de-embedders and outgoing circuit embedders that allow direct signal routings of synchronous or non synchronous external signals. Those are based on Snell's broadcast infrastructure modular products. The facilities are highly resilient and fully redundant in all stages starting from acquisition till delivery," he explains.

The two intaj sites are linked with the expandable, high bandwidth MPLS network, in addition to dark fibres. This network is shared between VOIP, ftp A/V transfers and metadata traffic.

"All of the systems at twofour54 intaj are fully HD. The systems are 1080i but the infrastructure is designed and set up for 1080p (3Gb/s) as this is the format of the future," explains Hasan.

However, the head of twofour54 intaj is quick to add that cutting edge technology is only part of the equation. He reiterates that what twofour54 intaj brings to the table is the "skills, the talent and the creative minds".

"intaj has sourced some of the best engineers, operators, editors, designers, and client services team from across different parts of the world. We have sourced people who have the right combination of technical expertise, creativity and client-facing skills to facilitate the creation of high-quality content from Abu Dhabi. Our team is what I believe will make twofour54 intaj stand out in this region," Hasan explains.

Key systems integrators

MAIN SYSTEMS INTEGRATOR: SONY Professional Solutions Middle East.

Sony undertook the deployment and integration of the production, post and MAM facilities. The main suppliers under the Sony umbrella include AVID, Pharos, Omneon, Apple, ISILON, Front Porch Digital, Telex, Calrec, Evertz, Miranda, Snell & Wilcox, Barco, Autocue, Sennheiser, Canon, Genelec, Cisco and Vinten.

LIGHTING: Oasis Enterprises.

PLAYOUT CENTRE & SATELLITE TELEPORT: SES Astra. Key players include Publitronic, NDSatcom, Harris, Andrew and Harmonic.

LIGHTING AT INTAJ

The lighting system at intaj's studios is designed to be flexible and enable a quick shift in the lighting set up from one programme to another.

Lighting in studios

- 80 motorised lighting hoists with 3 x 3kw dimmable channels, 1 X non dim 16 amps, 1 X DMX output (46 motorised lighting hoists in Studios 2 and 3)
- Saturated lighting grid with Desisti Leonardo 1kw Fresnel
- Desisti Leonardo 2kw Fresnel
- 4 tubes cool light and cyclorama light.
- 12 scenery hoists distributed on the border of the ceiling giving flexibility in lifting scenery pieces that do not exceed 200kg. (6 scenery hoists with similar features in Studios 2 and 3).
- **Dimmers:**
- Studio 1 is equipped with 3 ETC + SENSOR RACKS of 288 dimmable channels x 3kw each.
- Studios 2 & 3 have 162x 3KW Dimmer modules each.
- **Non dim Power:**
- Each Studio is able to supply up to 100 amps x 3 phase as non dim power to be used for moving lights and effects.

Hoist control system:

- Each studio is equipped with two Icarus hoist control computerised panels that can memorise hoist positions in order to recall them when required.

- Each studio is equipped with a wireless Motorola remote control to enable the lighting operator to work with more flexibility on the studio floor.

Lighting consoles:

- The lighting controllers consist of Ion and Eos lighting consoles from ETC.
- 5 x Ion lighting consoles with 2 DMX (512) Universes that could be extended into 8 DMX (512) Universes by using the ETC 3 DMX to Ethernet gateway.
- 1 EOS lighting console located in gallery 1 which is compatible with the Ion console in gallery 2 and 3.
- The lighting operator is able to programme the show from the studio floor and save it on a memory stick, then load the configuration onto the gallery console and operate the show on air from there.

Outdoor lighting:

- intaj also has a comprehensive stock of grips and accessories such as butterflies, reflectors, flags and tripod systems.
- Desisti Rembrandt Piccolo 200W and 575W HMI kits
- Desisti Rembrandt 1200/ 2500/ 4000/ 6000W HMI kits
- Desisti Cosmobeam 800W READ head kits
- Desisti Cosmobeam 1000W open face kits
- 650W Dedo Light Tungsten kits
- Sundance Dedo Light Kit 200W Daylight/Tungsten
- kino flo Diva -Lite 200 and 400 Universal kits
- Mini Flo 12" Universal Kits

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