| Our Client | : | National TV and Broadcasting Institution |
| Sector | : | Broadcast |
| Project | : | IP Broadcast Core Synchronisation |

As the technologies used within broadcast continue to evolve, the transition to an all IP workflow is likely to have the most significant impact in coming years. Whilst this will affect all areas of broadcast, it is particularly relevant to live production workflows.

The migration from SDI to IP is picking up pace. Many 'early adopter' broadcasters are now starting to recognise the commercial benefits of deploying a scalable and future proof solution and are moving beyond evaluation to actual deployments. With the coming of SMPTE ST2110, it is increasingly important to transition to IP environments.

## The brief

Our client, a national broadcasting institution, was beginning to explore an SMPTE-ST2110 broadcast solution, moving away from frequency based synchronisation both within the studio and within the broadcast chain. Their plan was to test the new technology ahead of the full release of ST2110.

As part of the ST2110 requirements, they required an IEEE1588 Grandmaster clock to fulfill the ST2059-2 and AES67 requirements which form part of the overall ST2110 requirements.

The customer required two Grandmaster outputs per system, one for master and one for backup as well as a slave input card for synchronisation to an upstream PTPv2 Grandmaster clock. The PTPv2 generator card was set to a certain level of unicast clients after discussion with the end user to allow for the best combination of price and performance.

## Our Solution

The client selected APC Time due to our ability to understand their technical requirements and provide a scalable, future-proofed solution that could be developed and expanded over time.

After detailed technical discussions to get the correct build, we recommended the Meinberg Lantime/M1000/IMS systems, which supports SMPTE 2059-2 as one of the standard profiles built into the system. The system incorporated an HPS-100 PTPv2 generator card with 256 Unicast client capacity, which was enough for their end solution, as well as providing plenty of room to expand the solution further in the future.

**Scalable PTP Solution**

**Supports ST2059-2**

**Precision timing on high usage networks**

## The product used was the Lantime/M100/IMS, which contained the following modules:

1x Lantime/M1000/IMS basic chassis inc. ACM module
1x CPU-C051F Lantime processor unit
1x GPS-HQ GPS synchronised clock with HQ timebase excl. GPS antenna and 20m of RG58 cable
1x HPS100 (PL-A: 8 clients) PTP / SyncE / hardware NTP interface
2x HPS100 (PL-B: 256 clients) PTP / SyncE / hardware NTP interface
2x PWR-AD10 power supply 100 -240 V AC/DC



**Slot-Configuration: 10002649 (2017-02-2**

| #1 | [ACM] | ACM :: ACM - Active cooling module] |
|---|---|---|
| #3 | [CPU] | CPU-C05F1 :: LANTIME processor unit |
| #4 | [IO2] | HPS 100 (PL-B: 256 Clients) :: PTP / SyncE / hardware NTP interface; GBIT RJ45 + SFP, PPS, 10 MHz or 2048 kHz via SMA |
| #5 | [CLK1] | GPS-HQ :: GPS clock HQ timebase incl. GPS antenna/converter unit and 20m coax cable |
| #6 | [ESI1] | HPS100 (PL-B: 256 Clients) :: PTP / SyncE / hardware NTP interface; GBIT RJ45 + SFP, PPS, 10 MHz or 2048 kHz via SMA |
| #7 | [MRI1] | HPS100 (PL-A: 8 clients) :: PTP / SyncE / hardware NTP interface; GBIT RJ45 + SFP, PPS, 10 MHz or 2048 kHz via SMA |
| #8 | [PWR2] | PWR-AD10 :: Power supply 100 - 240 V AC/DC |
| #9 | [PWR1] | PWR-AD10 :: Power supply |



**M**einberg is a global leader in time synchronisation solutions. As an AIMS member Meinberg supports the transition from SDI to IP in the broadcast industry. As PTP is the selected technology for synchronising studio equipment over IP, Meinberg can provide GPS synchronised grandmaster solutions that are already well-established in other industries for many years.



Oregano Systems offers design services as well as a product portfolio for IEEE1588 high accuracy clock synchronization (PTP). Design services offered include board design (high-speed, high-density), board-level verification, complex high-speed digital FPGA/ASIC design and verification as well as embedded software development.
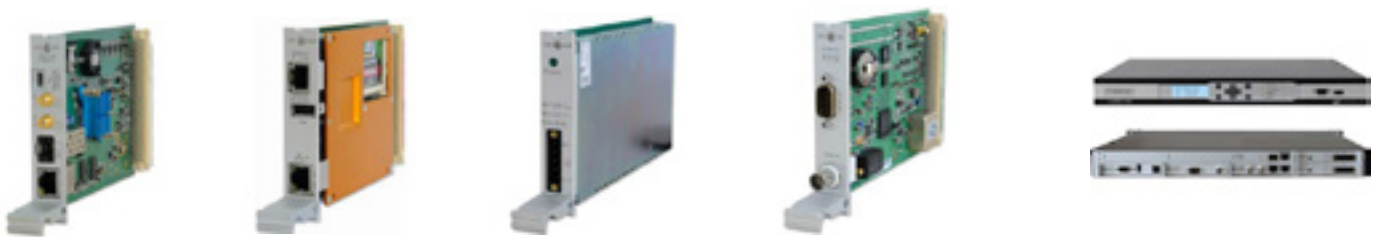
APC has over thirty years experience in designing, specifying and supporting
time and frequency synchronisation systems within the UK and Ireland.

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