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# The dCS Network Bridge

RAFAEL TODES AND SUBSEQUENTLY MARTIN COLLOMS ASSESS AN INCREASINGLY ESSENTIAL HARDWARE ITEM, THAT OPERATES AS A STREAMER AND CONNECTS SERVERS TO DACS



At the forefront of the UK's 'High End' digital audio scene, dCS has a broad digital audio range starting with legacy A-to-D converters, reaching to each aspect of the digital chain. A complete *Vivaldi* system would cost around £70,000, and remains out of reach for all but the few (to use a much hackneyed phrase!) Enter the *Network Bridge*: a single box that can play a wide range of digital files, either from a connected hard disk, or *via* Tidal, Spotify, or Airplay from a wired network connection, and outputs to conventional S/PDIF co-axial or the alternative proprietary SDIF-2 (*via* one- or two-wire balanced sockets with a separate clock feed). It then feeds a DAC, and retails for £3,250.

DACs make a substantial sound quality difference in the digital chain of course, and I have found that the nature of the timing and colour of the sound are heavily dependent on the DAC. However, the disc drive (or in this case the *Network Bridge*) feeding the DAC can be equally important. A barely adequate bridge streamer will flatten the soundstage and lose image focus, and can also dilute the vital sense of energy needed to make a convincing performance, introducing audible jitter (which sounds like a metallic 'zingy' sound).

This black or silver rectangular box wears its sophistication lightly, with a solitary inset blue LED on the front fascia. The rear panel has word clock inputs at standard rates (44.1 to 192kHz) and a single word clock output. The *Bridge* doesn't use an off-the-shelf chip, but instead is based around FPGA (field programmable gate array) design, a bespoke solution

that can be connected to the factory *via* the internet to update its operation. The *Network Bridge* is Roon-compatible, and will also have a wireless interface at a later date.

The facility for an aerial is fitted, but no aerial is supplied at present. Similarly, dCS intends to make the unit Chromecast compatible before the end of the year. So while Tidal and Spotify are currently natively imbedded in the dCS App, Qobuz will work shortly with Chromecast. (This is because it is extraordinarily difficult to integrate every change with streaming services: It is far simpler to use a platform such as Chromecast, and let Google do the work!) (This connection is said to be bit-perfect, but I didn't have the opportunity to try this out.)

The *Bridge* is controlled by an App from Apple's App store (or an Android App). Although the tiny 'back' button is better suited to an *iPad* than an *iPhone*, it nevertheless gave access to the attached hard drive, Spotify and Tidal, as well as very conveniently operating the internal high performance digital volume control embedded in the processor. There is scope to add new songs to either the front or the end of the queue, and ample functionality to do whatever is necessary.

## Sound Quality

While the *Bridge* will no doubt work even better with a dedicated clock, and *via* 2-wire or 3-wire SDIF connections, I tested the unit in two different locations with the standard S/PDIF output: first at home with a Chord Electronics *Dave* DAC, which has a very different 'family sound' to (but is nevertheless an interesting experiment); subsequently in Colloms' system, using different operational combinations of the DAC in his Naim *NDS*, and also the Chord *Dave*.

In my own system, using the dCS *Bridge* to feed a Chord *Dave* with a Chord Company *Signature* digital cable, through a VAC *Signature* pre-amp and VAC *Phi 200* monobloc power amps, driving B&W *802 D2* speakers, the overwhelming impression I got is of a really clean, open, fast sound which is devoid of jitter, and presents an extremely well-honed and chiseled sound.

On Solti conducting the Scherzo from Mahler's 5th Symphony (listening *via* Tidal), the *Bridge* layers the orchestral sound, so that each row of this

giant orchestra is etched in space, and a hugely wide palette of orchestral colours is provided. In particular, the ‘cellos and basses, so often a problem, not only sound really crisp, but also powerful. It’s not a case of more or less, just greater attack and articulation, with impressive realism. The colour of the sound they are producing is nothing short of inspirational, given the format. When the orchestra hits the big climax, the added grip of the *Bridge* is really spellbinding: nothing is squeezed out, every morsel of the orchestra behaves like a giant 60-person fist!

Bass timing is impeccable: it simply sounds ‘right’, just as the composer had intended. Results from Tidal *via* the dCS *Bridge* were astonishingly impressive compared with past experience. Although I’m not a fan of streaming from the internet, it is clear that this dCS device produces master tape-like sounds from this ‘over the waves’ format. Real image depth layering, fast attack on the front of notes, and a rock-solid bass: this streaming *Network Bridge* ticks the genuine high-end’ streaming box for me for the very first time.

There is an instantaneous realisation when you hear something that is significantly better than what has gone before, because it offers a revelatory degree of musical insight. It’s a bit like listening to master tapes having lived with vinyl! Greater solidity and vibrancy makes what I’m listening to deeply involving.

I subsequently travelled over to MC’s home for a spot of listening, with Townshend Allegri pre-amp, Naim *NAP500DR* power amplifier and the Magico *S5 MkII* speakers, which gave a sound that was very different to what I hear at home through my B&W *802 D2s*. We listened first to Linn’s new £15,000 *Klimax DS* network streamer, a handsome unit which outputs both analogue and digital (for driving the matching digital loudspeakers). While it produced mellifluous sounds, there was a touch of reticence which made the Scherzo of Solti’s Mahler’s 9th Symphony sound like a sluggish three beats to a bar, not the required single, one beat impulse: there was simply less flow to the music.

Next up was the dCS *Bridge* powering Chord’s *Dave* DAC. The Chord’s attack can be on the soft side, and I felt that the synergy with Martin’s Magicos was not positive. My brighter sounding B&Ws seemed to work better here, and while the Magicos gave a beautiful sound with the *Dave*, it felt a bit too distant for my taste. There was a particular recording of the Beaux Arts Trio playing a Mozart Trio on Philips (K564), which actually worked rather well, but on other material the timbre was not quite right.

We moved on to the *Bridge* feeding the Naim *NDS/555DR*. When listening to Philip Glass’s *Glassworks*, fed by a memory stick into the dCS, the combination was really exquisite. The timing on this track is stripped naked for all to hear, and the *Network Bridge* helped take command of this network connected *NDS* as well as I’ve ever heard. There was some extremely precise imagery in operation, and a sense that this £3,250 interface unit had really hit the jackpot in an extraordinary system, and was in no way out-of-its depth.

Tiny differences were audible between the dCS and the Naim *NDS* when both were fed individually from the same memory stick of the Glass track; interestingly when the mains to the Chord *Dave* was unplugged, the Naim sound improved significantly. This led me to believe that the switched mode power supply of the *Dave* was mildly upsetting the Colloms system. I use a PS Audio *PS10* power regenerator at home, and the *Dave*’s power supply does not seem to affect my other audio components, while my valve VACs are likely more forgiving of power supply noise than the *NDS* and *NAP 500 DR*. (This may go some way to explaining some of the differences I heard between my Chord *Dave* at home versus that at Martin’s.)

## Conclusions

The dCS *Network Bridge* can certainly bat with the best of them. It’s an amazing bit of kit for a starting sum of £3,250, and can very likely be improved with the addition of the external precision clock, and also where possible using the SDIF-2 two- and three-wire interface to an appropriate DAC. My tests might have only scratched the surface of the *Network Bridge*’s capabilities, but I consider that it has already made a huge contribution to the streaming-done-right school of design! For me this unit defines a classic product. It can be put in humble surroundings, or with the best, and it will up its game to match the challenge. Put simply, I consider that it can rise to any occasion.



**MARTIN COLLOMS ADDS A SECOND OPINION**

Rafael Todes brought round the dCS *Network Bridge* to try it out in my system for a few hours, and an eventful exploration this turned out to be. He had already given it a good run in his own quite different system (see above) and it was fascinating to ring the changes in my set up. My observations essentially complement his, reinforcing our view of this unit's evident competence.

First of all, as a high performance interface with powerful re-clocking, its intention is to level up the sound quality of various music sources – not least on-line streaming, which can vary in quality. Our objective was to examine the rendering of 'full cream' internet streams such as Tidal, to at least the level of CD drive playback quality: these are nominally of CD resolution, but are often not of local CD data quality. Mild as the losses often are with many audio systems (but evident enough in top class systems), to all intents dCS has proved that any sound quality deficiencies can now be almost inaudible. Live Tidal replay *via* the dCS really was of high grade CD quality, making off-air digital audio streaming true audiophile grade in my system for the first time.

I also tried it replaying familiar content from a 2TB USB HDD, and also a USB stick (running it back to the *NDS/555PSDR via S/PDIF co-ax*). Here the replay was also extremely good, opening up opportunities for higher quality local streaming from multiple music sources and storage. We also used the dCS App (using an Android phone) which offers useful facilities including remote volume control.



**Technology**

The dCS *Network Bridge* acts as a very low jitter interface between digital music sources and a DAC. With dCS and similar equipment the performance may be improved further by using the S-DIF2 interface with its separate connections for clock and data (left and right). Still further enhancement may be obtained when a precision dCS clock is added to synchronise the *Bridge*. These multiple connections all use gold-plated BNCs, while the composite single wire S/PDIF connection is RCA co-ax. There's no optical facility, as its potentially poorer performance could well negate the whole objective.

The *Network Bridge* streams a variety of high resolution music files from network attached storage, connected USB drives, and online streaming services. It connects to Apple devices *via* Apple *AirPlay*, thus providing lower jitter audio to the DAC. Single AES and S/PDIF co-ax outputs operate up to 24-bit/192kHz PCM and up to DSD64 (DoP). The dual AES outputs pass up to 24-bit/384kHz and DSD128. The SDIF-2 outputs operate to 96kHz and to DSD64, while *AirPlay* will run PCM up to 48kHz. This dCS can also perform integer down-sampling to match a DAC's resolution limits. Supported file formats include FLAC, AIFF, WAV, ALAC, AAC, MP3, WMA, OGG, and DFF, DSF.

The plain alloy box and chassis uses aerospace-grade machined aluminium to minimise sound-degrading mechanical vibration and magnetic effects. Multi-stage power regulation isolates the sensitive clock circuitry from any digital processing noise.

A dCS *Network Bridge* App controls both wired and wireless streaming capabilities, as well as the several input, output data and clock settings. The *Network Bridge* App is similar to network streaming and App software for the Vivaldi line. (See <https://www.audiostream.com/content/dcs-network-bridge#P0QZj8zLzZa2U2XA.99>.) It supports Roon, Tidal and Spotify.

The heart of the unit is a powerful FPGA (field programmable gate array) platform. Compatibility with legacy dCS DACs is ensured by including an integer down-sampling feature, which converts high res-data (for example DXD or DSD) and 24-bit PCM at either 176.4/192ks/s or 88.2/96ks/s – bringing the data within the range supported by a specific DAC. Finally, the operating system can be updated easily from the internet using the 'control' section of the App. Thus the owner may add new features or improve the performance of the dCS product as these upgrades become available during its production lifetime (and hopefully some time thereafter).