

# Nordost Valhalla 2 Ethernet cable

by Andrew Harrison

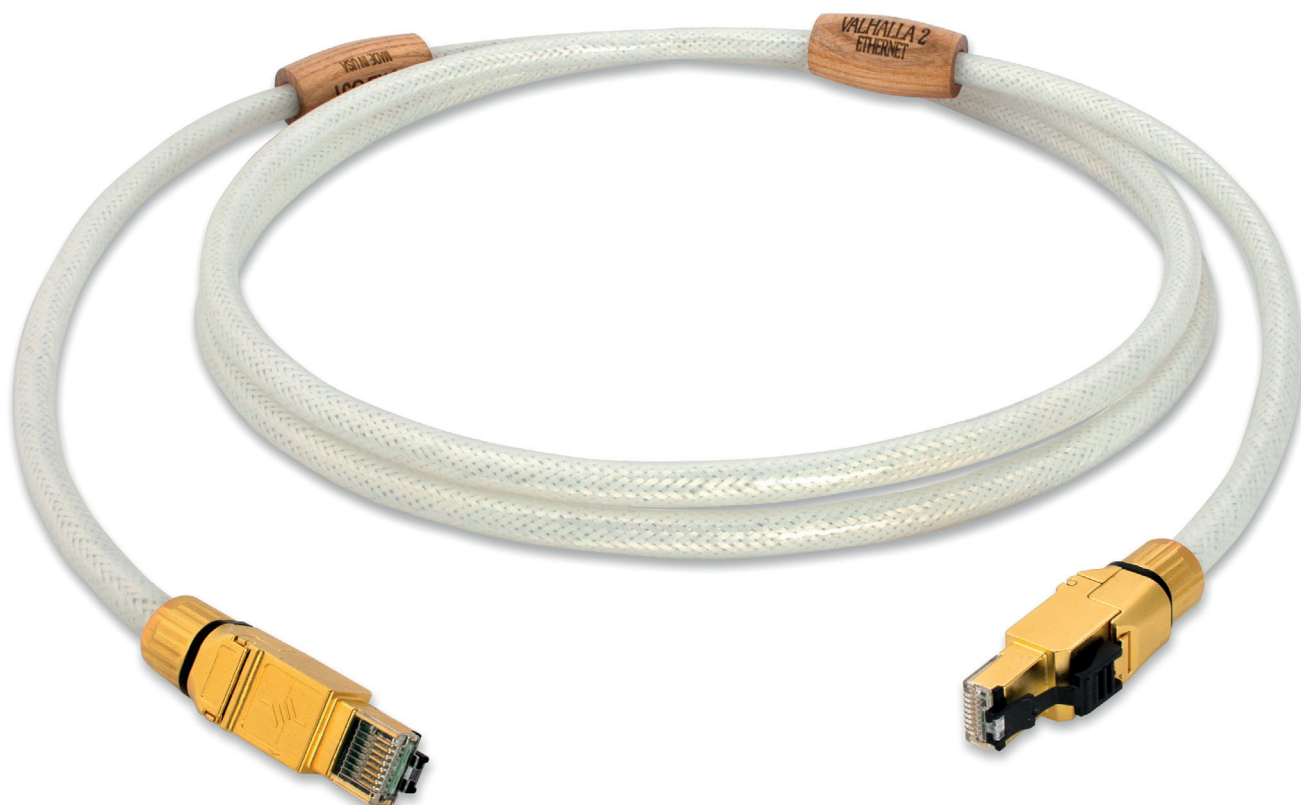
It's not only audiophiles that obsess about fidelity. Network engineers have been working on the issue of reproducing data for decades, to ensure that a stream of digital bits will be an exact clone as it moves from place to place.

Modern life is built around computers and networks that tirelessly make perfect copies of digital information, where it's essential that the bit structure is not altered in any way – the result of less-than-perfect transfers would be a text document with missing or misspelled words, while the international world of finance would quickly collapse if numbers were to be changed or decimal points misplaced by a flaky network. In older analogue times, music lovers might have been content with 'the

closest approach' to the original article; in the digital world, nothing short of perfect fidelity is allowed for most digital operations.

Which makes the idea that one ethernet cable can be a better, more accurate, conduit of bits than another somewhat hard to swallow. The network stack that underpins the use of an ethernet cable in a digital music system is the same as that used for any other computer, namely a physical channel for signalling binary levels; the ethernet link layer which assembles data and metadata into frames; a network layer of discrete packets; and a transport layer above that, almost invariably the TCP/IP (Transmission Control Protocol/Internet Protocol). Error correction is employed at various stages, notably forward error correction in Layer 2, and a robust check-and-resend system in Layer 4's transport control protocol.

Nevertheless this hasn't hindered a growing interest in audio-grade ethernet cables which promise to improve sonic performance. The latest Valhalla 2 cable is Nordost's brand-new and bestest ethernet cable yet, upstaging two such cables already in the range – Blue Heaven and Heimdall 2 – and despite the sequel numbering is the first ever Valhalla ethernet cable. ▶





► To review an 'audio' ethernet cable is to defy many engineers' common sense. As it was 20 years ago when power cables like El Dorado were introduced to improve sound quality – notwithstanding the fact that, whatever goes into a spruced-up power cable spanning the final two metres from wall socket to hi-fi, there has been literally miles of far-from-oxygen-free copper making the link into and then through the house first. And yet it only takes a minute's demonstration to show that mains cables can make an ungodly difference to the sound of a system.

And so it was with the Valhalla 2 ethernet cable, fast indicating in my initial trials as sounding not just different but clearly better than a commodity Cat 5 twisted-pair cable. Before getting into specifics, the effect I was hearing in the first auditions was a more precise sound – tidier, cleaner, with the music sounding simply more integrated and 'together'. Time to take a pause and consider how this cable may be different from a commercial network cable, even if we can't necessarily answer all the questions of how it can make that much difference.

As a follower of Nordost technology since the 1990s, my first instinct on discovering this new product was to examine the specifications, to see where

its construction deviates from normal network cable construction practice. This proved puzzling at first, as on paper it had effectively the same spec as Heimdall 2, for instance – including 23 AWG solid-core conductors; foil shielding around each of the four twisted-pair groups; two overall braid screens; and professional-grade screened metal plugs.

Moreover, bar the plugs, these specifications are effectively the same as one would find on many Category 6A or higher network wires. They are known as SFTP cables, from the use of a screened and foiled twisted pair topology. Curiously though, entirely missing from Nordost's ethernet technology story are the usual pillars of high-end Nordost cables: eight '9s' silver-plated OFC conductors, PTFE/FEP materials, and micro monofilament (MMF) dielectric technology.

Enquiries to Nordost subsequently revealed that the advertised spec was mostly correct. The Valhalla 2 ethernet cable does not use MMF, I was told, because it would make the cable too bulky to fit the chosen 8P8C ('RJ45') plug. Without MMF, which exposes the conductor to more air than does traditional plastic insulation, there is no need for silver plating, which is now stated as present in Nordost cables to reduce oxidation. And FEP is not used here, because a foamed insulator known simply as High-Density Polymer was chosen instead as its mechanical qualities are better suited in this application.

Where the printed specification was slightly awry at first was in the listing of two overall braid screens, when Valhalla 2 actually includes three in succession before meeting the cable's final outer sheath. The middle and outermost braids are now also detailed as being significantly larger in size than the first inner braid screen. Grounded from plug to plug, this seems to act as a floating screen without itself being connected to system earth.

The plugs are impressive pieces of engineering, all die-cast zinc alloy with a ►

*“Bass replay was notably tighter and better controlled, appearing as essentially smear-free against the bloom of the reference cables.”*

- ▶ full gold plating, based on industrial field-termination plugs. They slot snugly into the usual network ports and are removed the normal way with a plastic release tab, here sturdily executed and not likely to snap off as with many mass-produced versions. The cable comes with detachable caps to keep dust from the tiny inset pins when not in circuit.

At just over 8mm thick, the V2 ethernet cable is comparable with the Valhalla 2 analogue RCA/XLR cable, reasonably pliant although it will resist being coiled into tight loops. The cable is finished with the familiar semi-opaque white jacket along with wooden cylinders each end, these branded with name and serial number. One barrel is also marked with cable directionality arrows, and given the bi-directional application of wire pairs in the full-duplex gigabit standard, this is a can of worms best left unopened for now. Nordost supplied two cables for test, nominal one-metre and four-metre lengths, which were thoroughly burned-in on the company's Vidar machine, which also now accommodates network cables.

Nordost describes its top three cable ranges as mechanically tuned in length, and to this end actual supplied lengths are a little longer than specified. In the case of the V2 ethernet, the samples were closer to 103 and 412 cm, with a puzzling discovery that they did not sound the same – the four-metre cable was clearly the better performing of the two. Where the four-metre was relaxed and flowing, the one-metre was more clenched and highly strung. Further discussion with Nordost revealed this to be a recognised theme, with biggest performance improvements arguably found between one- and two-metre lengths. Unwieldy coiled bunches of Nordost cable chaining together a system may not be so elegant, but by golly I now appreciate the need to supersize sometimes.

A phenomenon that I noticed ten years ago in an earlier age of computer audio was how music could sound different depending on its storage source – with variable results depending on whether the digital audio was derived from an internal hard disk, direct-attached USB drive, or streamed from NAS over a local network. And typically, the network-attached storage was the least-best in terms of digital coloration, sounding repeatably less natural in extended trials.

Listening to the Valhalla 2 ethernet cable reminded me of those differences again, only more starkly this time, as its effect in the system was to remove the haze and subliminal jumble that network-streamed audio can introduce.

In soundstage terms, V2 ethernet cable set the panorama gently further back, making a return to reference Cat 5e and Cat 6 cables sound almost unendurably too forward and lairy. It made me wonder how much the Nordost secret of network cable manufacture lay in the latest Category 8 standard, with its additional screening and improved bandwidth. But no, substitution with three different off-the-shelf Cat 8 cables bought in specially showed that while the latter were a trade-up on Cat 5/6 performance, Valhalla 2 ethernet cable

was further removed again from any other available SFTP cable.

To quantify the changes further, bass replay was notably tighter and better controlled, appearing as essentially smear-free against the bloom of the reference cables. Top-end detail was improved, if more subtly, but enough to make it easier to pull apart ride and crash cymbals in a cluttered rock kit. Noise floors were perceptibly lowered, allowing for a more nuanced ambience, to the point of allowing the character of older recordings' varied tape hiss to shine through. These kind of revelations were not at the expense of exaggerating flaws in archive material, merely to make such artefacts' presence another layer that could be sifted away from other musical strands. In fact, it is the V2 ethernet cable's very lack of digital edge, of undue emphasis, that make it a natural performer, and night-and-day A-B demonstrations so easy.

Expectations were kept in check for this review, and yet now I have to concede that this is a network cable that's not just a bit sonically different, it's a palpable triumph in digital audio sound reproduction. +

## PRICE AND CONTACT DETAILS

**Price:** £2,670 for 1m (add £350 per each additional 1 metre)

**Manufacturer:** Nordost

**URL:** nordost.co.uk

**UK distributor:** Renaissance Audio

**URL:** renaissanceaudio.co.uk

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