

THE PC MAGAZINE FOR WINDOWS BUYERS

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March 1995

HANDS-ON REVIEWS

100VG-AnyLAN

HP's Multimedia Network

If 10Mbps just isn't fast enough, Hewlett-Packard's 100VG-AnyLAN hardware provides a cost-effective upgrade path, bringing 100Mbps to the desktop without the need to rip out existing cabling or create new network topologies. The 100VG AdvanceStack hub works with existing 10Mbps

technologies, and can be used in place of as many of your existing network connections as you need. It's even good enough for real-time applications such as voice and video.

HP's 100VG-AnyLAN technology, as defined by the emerging 802.12 IEEE standard, provides 100Mbps

over existing four-pair category three, four or five UTP cabling. In time it will also support two-pair UTP, STP and fibre. Physically, the 100VG network topology is familiar, but unlike 100Base-T, 100VG isn't a speeded-up Ethernet – it's a new technology, with some clever techniques to get 100Mbps out of existing cabling, and prioritise data to optimise the performance of multimedia applications.

HP's AdvanceStack 100VG Hub-15 supports 15 100Mbps ports for connection to end nodes or other 100VG hubs. Connectivity to existing 10Mbps Ethernet networks is via an optional bridge module – Token Ring interconnectivity is expected mid-year. HP PC-LAN adaptor cards are available

100VG-AnyLAN

Hewlett-Packard
31-41 Joseph Street
Blackburn, VIC 3130
Tel: 13 1347

Fax: (03) 898 1968
List price: \$6326 (100VG Hub-15); \$475
(ISA 10/100 network card);
\$725 (EISA 10/100 network card)

Warranty: Lifetime Limited

Quick take 100VG makes 100Mbps to the desktop a financial reality at last. Hewlett-Packard's 100VG-AnyLAN products build upon the company's existing networking range to provide high throughput at a realistic cost. By utilising existing cable infrastructure, capital outlay is minimised, and user upheaval negligible. A good next step up from 10Mbps Ethernet.



HP's AdvanceStack 100VG Hub-15 is key to the 100VG design, providing 15 100Mbps LAN ports, with room for an optional bridge/SNMP module for connection to 10Mbps networks.

HP 100VG. Speed your traffic foundation for tomorrow's

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Industry standard



On-site warranty



If your existing network is becoming congested, update it now with new HP AdvanceStack 100VG. You don't even have to change cabling.

HP's new 100VG AnyLan is the new standard delivering 100Mbps. It will enable information to flow between your work stations around 10 times faster – avoiding bottle-necks and collisions along the way.

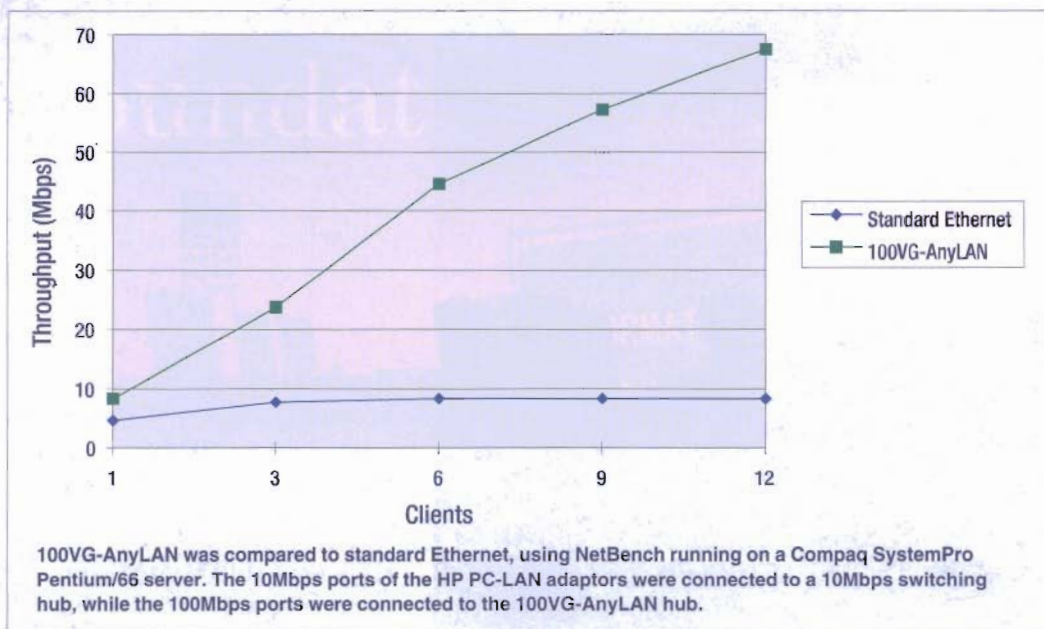
As well as improving your network immediately, it will also be an investment in tomorrow. The same 100VG AnyLan will form the foundation for all the multi-media developments rapidly approaching in the future.

Others may promise you the future, but only HP can deliver it right now. We can supply 100VG 15 port hubs, 10/100 ISA and EISA adaptors, and 10-100 SNMP Bridge Modules.

For more information, see your nearest HP dealer or phone 13 1347. Or, to receive a fact sheet, simply phone our HP FIRST fax service, on (03) 272 2627 and request ID number 90016.



A Better Way.



pair (out of two) at a time for data, or two pairs in a full-duplex environment. Using NRZ signalling, 100VG complies with international RFI regulations and meets category three UTP specifications, as well as categories four and five. So even if you have voice-grade cabling, you can still get 100Mbps speeds – hence the VG in 100VG.

In our I/O data throughput tests (see graph), the 10Mbps network performed as expected, reaching

in both ISA and EISA versions. The cards support both 10Mbps Ethernet and 100VG, so you can use them with your existing 10Base-T hubs until you're ready to upgrade, and then just swap the cable over to the new hub when you want to operate at the higher speed.

You manage the hubs using HP's Windows-based application, Stack Manager, which can also manage HP's 10Mbps hubs. Stack Manager automatically searches the network to locate all AdvanceStack hubs – click on one to select it, and you get a graphical representation of the front panel, from where ports can be disabled, parameters changed, statistics viewed, or the hub reset.

HP's 100VG operates within the physical and data link layers of the OSI seven-layer model. Physical Medium Dependent and Physical Medium Independent sublayers handle frame channelling, data scrambling and encoding. At the MAC sublayer, nodes and hubs carry out link training on power-up, where they exchange test packets to verify the cabling and allow the hub to "learn" about the end stations. Demand Priority Protocol Control, which forms the basis of 100VG, also resides within the MAC sublayer. When nodes indicate that they have

data to transmit, the hub will accept equal-priority data from end stations sequentially: one-at-a-time access eliminates collisions, giving 100VG the more deterministic qualities of Token Ring, but without the overhead of token processing.

Also, because 100VG prioritises data, it's a good choice for time-sensitive applications, such as multimedia voice and video. High-priority requests generated by the end nodes will be serviced by the hub first, and to prevent data loss usual priority packets will be promoted to high priority automatically if they're not dealt with within a set time. If the applications can't request high priority, the HP PC-LAN cards can be set for high-priority use.

Received data is passed on by the hub to the destination port only, rather than being broadcast out to all ports. This removes unnecessary traffic from the network and adds an extra level of security. If you want to connect external network monitoring tools, any port can be set to operate in promiscuous mode, to receive all data packets.

To reach 100Mbps speeds, 100VG uses a very efficient coding scheme called 5B6B encoding, to minimise overhead. It also uses all four pairs of standard UTP cabling for data transfer, whereas 10Base-T uses only one

a plateau of around 7Mbps after only three clients were connected. The server CPU was never stretched, with utilisation peaking at under 14 per cent. By contrast, 100VG performed impressively, with a nearly linear throughput increase to a maximum of 67Mbps and a server CPU usage of almost 60 per cent.

We also looked at video performance among six of the clients and a second server, while the other six clients continued to generate background traffic. On the 10Mbps LAN, video was slow and jerky, but at 100Mbps both audio and video were clear and smooth, with minimal throughput losses on the other PCs.

The HP 100VG hub achieved a nine-fold performance increase over standard 10Mbps LANs, at a price per port of less than three times the cost of a comparable 10Base-T installation, and is much cheaper than FDDI. Although 802.12 hasn't been finally signed off by the IEEE, it's expected to be ratified in a matter of months.

Perhaps most importantly, this technology provides the speed needed, now, without great user upheaval, and while protecting existing infrastructure investment. It's an excellent way of satisfying your users and keeping the bean counters happy too.