UNIX® NEWS

UNIX is a registered trademark of AT&T in the USA and other countries

MISYS ACQUIRES TIS AND MENTOR IN £38m ACQUISITION DRIVE

Mysis Plc, the Stratford-upon-Avon, UK based software house has snapped up two major Unix acquisitions, including Convergent, Mips and Apple systems house TIS Ltd from Bourne-End in Buckinghamshire, and fellow software house Mentor Systems Ltd, Blackburn, Lancashire, which concentrates on software for the construction industry running on HP, NCR, ICL, and Convergent hardware. The deal is valued at around £38 million, including £26m for TIS Ltd and TIS Computer Maintenance, and £12m for Mentor Systems. TIS and its subsidiaries are expected to continue to operate as normal. The move probably makes Misys the largest and most profitable Unix computing services groups in the UK, since it more than doubles its £17m turnover. TIS Ltd's main attraction to Misys is its exclusive distribution deal with MIPS, an agreement that it hopes will be extended beyond this September. One of the first things to be done through the TIS/MIPS connection will be to put a Wang-compatible office automation package up under Unix and thus be in a position to get a hold on the Wang Laboratories user base. The other side to TIS is TIS Computing Ltd, which provides a maintenance service for TIS Group customers, and has recently expanded to cover various Altos Computer Inc dealers and end users, a fact which helps tie in Misys' other company now in the Unix market, BOS Group, a user of Altos hardware. TIS also has its own applications division which has developed several successful accounting packages for customers in the housing association, catering and field maintenance sectors. Consequently, TIS is seen as the kernel of Misys' Unix push, since it will now now constitute its source of supply for total Unix solutions.

Mentor the first Unix niche player

The acquisition of Mentor Systems Plc, however, points to the direction of the group's acquisition policy over the next year when it will be buying up niche market systems companies in the Unix arena. Mentor, with a current turnover of £6m, is an example of the type of house that Misys is now hunting. It deals in high end technical software, and has strong accounting packages for the construction industry. Mentor's packages will be expanded into the low end of the niche market to take bites out of the Tetra and Multisoft market. The Misys group group now officially has a financial services sector (Misys Dataller, BaseSys), a business systems sector (BOS, Zygal Printers, Modular Technology, ICC), a solutions sector (CPP, CHA, CHA Communications, Mentor), and an Open Systems sector (TIS companies).

LYNWOOD MOUNTS NEW UK WORKSTATION CHALLENGE

A new British player has launched itself into the workstation market - Lynwood Scientifc Developments Ltd of Alton in Hampshire. The Open 30 family of 16 MHz, 68030-based Unix workstations has two models, the 100 and 200. They are aimed at the lower-end of the market for office administration applications, and with a starting price of £2,955 for a minimum quantity of ten. The entry level Model 100 provides 3 MIPS performance, and comes with 4Mb RAM, a SCSI controller, thick and thin Ethernet, two serial lines and a 14" mono screen, while the 200 has up to 8Mb RAM and a 20" mono screen. Operating system is Lynwood's Lynx version of Unix V.3 with Berkeley extensions, and the workstations include X-Windows, NFS, and Hunter Systems' X-DOS Dos under Unix converter. Lynwood was acquired last year by Hunting Associates plc, which has strong interests in the defence marketplace, and Lynwood revealed that it has been shipping tempested versions of the workstations for over six months, over 1,000 of which have gone to defence customers.

HEWLETT SETS OUT 68040 BOARD UPGRADES

Hewlett-Packard Co is promising users of both its own and Apollo Computer's 68030-based workstations board-level upgrades to the 68040 processor when it is available in quantity from Motorola Inc. The company said that Apollo, running as a Division in its present headquarters in Chelmsford, Massachusetts, would be part of the Workstation Group, based in Sunnyvale, California. All the current Apollo products will continue, but a merger-management organisation has been created to speed the process of integrating Apollo, its products, people, processes and organisations into one unified business.

SOLBOURNE KEEPS UP PACE WITH NEW MULTI-PROCESSORS

Only weeks after its last hardware launch (UN No 1), Solbourne Computer Inc, Longmont, Colorado, has come up with more Sparc-based servers - the Series 4/530 and Series 4/670 - compatible with Sun Microsystems' recently introduced Sparcserver 300 series, (UN No 3). The 4/530 workgroup server is a 5-slot under desk processor with up to two Sparc processors for 17 mips performance, 16-40Mb memory and up to 2.6 Gb storage. Then comes the 4/670 departmental server, housing up to four Sparc processors for 30 mips performance with 16-80Mb memory, up to 2.6 Gb of SCSI disk storage. Solbourne has now set up its European headquarters in the UK - the new office is in Swindon, Wiltshire.

STELLAR UNVEILS NEW GRAPHICS SUPERCOMPUTERS

Stellar Computer Inc has enhanced its basic processor to create the 2000 Series Graphics and Departmental Supercomputers, doubling the performance of its previous systems. Each is claimed to sustain up to 35 MIPS, with peak vector floating point performance of up to 100 MFLOPS. The GS2000 Series also offers twice the graphics animation rate of the GS1000, and an "industry-unique" dual- user capability - but come in at from $113,000. A GS2000 with 16Mb memory, 1Mb cache and 380Mb disk is $125,000. A corresponding DS2000 is $113,000. DS2500 pricing begins at $128,000. GS2500 systems begin at $140,000. All GS2000 single-and dual-user systems and DS2000 systems are available now, GS2500 and DS2500 systems are available in the fourth quarter and upgrades to the 2500 models from the 2000s are $15,000.

CONTENTS

FORTHCOMING EVENTS

Common Unix Environment, CUE. 22 June. Institution of Electrical Engineers, London. The UK's own mini X/Open group demonstrates GOSIP and X/Open conformance.

ECOP '89. European Conference on Object Orientated Programming. 10-14 July. East Midlands Conference Centre, University of Nottingham. British Informatics Society Ltd, 13 Mansfield Street, London W1M OBP.

EUUG Autumn '89 Conference and Exhibition. 18-22 September, Wirtschaftsuniversitat, Vienna, Austria. Austria 222 512 0235.

Open Systems '89 1-3 November. London. Cahners Exhibitions 01 891 5051.

Scandanavian Unix Conference and Exhibition. 14-16 November. Stockholm International Fairs, Alvsjo, Sweden. Anita Nilsson, UNIForum Svenska AB, 46 8 750 3976.

SHOWCASE

CANADA: The Canadian Multi User Unix Computer Show and Conference, held in Toronto's Metro Convention Centre under the shadow of the city's CN Tower, proved to be a very lively affair, despite the accompanying heatwave that brought summer to the city which lies on the northern shore of Lake Ontario. Fast growing Toronto is the centre of Canada's information technology and business community. There are now reckoned to be around 21,000 systems in operation throughout Canada, and most people at the show were talking very optimistically about future prospects.

NCR was showing off the first commercial implementation of Novell Inc's Portable NetWare communications software, linking PCs up to its Tower machines, as well as its new 32/825 system, (see below).

Around the stands, Commodore International - as it seems to do at most of the big shows - pulled the wraps off its Unix offering, but this time it is a new 68030 machine, the Amiga 2500UX, not the 68020 box we are getting used to. The 2500UX runs Unix System V.3.3 and can also run Amiga-DOS in a separate partition on the 100Mb hard disk, with the Amix Windows multi-tasking user interface. The 25MHz version of the 68030 has 5Mb RAM expandable to 9Mb and the desktop also has X-Windows and TCP/IP and Ethernet support. The 2500UX will begin shipping in Canada later in the summer and will cost around CAN $8,500. UK and German lauches will follow, but a US release is said to be a long way off.

Toshiba Canada , Markham, Ontario, is to begin shipping a new multi-user Unix desktop this week, the T8500/25, which runs AT&T Unix V.4.2 with BSD extensions and MS-DOS 3.3, as well as MS OS/2. It has a 25MHz 80386 with 4Mb RAM expandable to 8Mb, 64Kb of cache and a 100Mb disk. It comes with X-Windows, Remote File System, TCP/IP and Ethernet support, together with three AT compatible expansion slots and a T5100 compatible slot for Toshiba or XT cards. Costing CAN $13,000, the T8500/25 is targeted at the government, medical and education areas - Toshiba is aiming for a 2% share of the Unix marketplace in Canada.

Julius Oklamcak, Atari Corp's technical manager in Canada gave a few sketchy details about a Unix machine that is scheduled for an October release date. The TT and TTX/X 68030 based desktops will run AT&T Unix and are likely to be the first in a new series of machines.

If you have attended any shows in addition to those covered in Unix News and think that readers may be interested to know what was on offer, do not hesitate to send in material for us to include on this page. We also welcome letters, contributions, comment and opinion on any issues that affect users, and would like to hear from any of you with ideas for future articles and columns.

HARDWARE NEWS - SYSTEMS

NCube Corp, the Beaverton, Oregon based hypercube system manufacturer, is set to introduce a new massively parallel supercomputer at the top end of its range. Although firmly under wraps at present, the machine is reported to utilise up to 8,192 specially designed processors operating independently in parallel. Known as the NCube 6480, it is claimed to deliver an incredible 100 BIPS, thats 100 billion instruction executions per second. There will be an upgrade path from existing NCube systems, and it will run the same Unix like operating system, Axis. The 6480 will be available from NCube's UK distributor Arrow Computer Systems of Epsom, Surrey, after its June launch in the US.

NCR has filled out its top-end system range with a new model, the Tower 32/825. Supporting up to 256 users and 128Mb memory, the new machine can be configured with from one to six 30MHz 68020 application processors, and fits between the existing Tower 32/650 and the top-of-the-range 32/850. Each application processor has 40Kb cache memory and Motorola 68882 floating point co-processor, and the "slimline", 10 slot cabinet includes a "plug-in" design of integrated disk and tape units, eliminating cabling and making field upgrades and repairs easier. UK list price for the new system is £62,500 for an entry-level 32-user configuration, available from September. And a 20-slot, 68030-based version of the 32/850 is currently in the works, according to an NCR source.

Encore Computer (UK) Ltd - formerly Gould Computer Systems - has launched the Multimax 500 shared memory symmetrical multi-processor, introduced by Encore in the US back in February. The machines are rated at from 17 to 170 Mips, and use up to 20 30MHz NS32532 processors from National Semiconductor, with up to 10Mb memory and 7.2 Gb disc storage. Encore offers three "parallelised" Unix-based operating systems to run on the Multimax: the Berkeley compatible UMAX4.3, System V-based UMAX V, or the Carnegie-Mellon Mach operating system. Prices start at under £100,000, from July.

Cambridge Micro Computers Ltd says it plans to unveil a new addition to its Vitesse V683 range of 68030-based systems at the forthcoming European Unix Users Show in London this month. The new system will use multiple 68030s and a VME bus architecture to achieve a 15 MIPS performance in a four processor configuration, according to the Cambridge, UK-based company.

Datapoint Corp has made another push into the Unix market with the launch of a new series of DX machines based on the 68030 processor, which are VME-bus based and System V compliant. The desktop DX50 3 slot processor starts from $8,495, and six (DX100), 12 (DX200) and 20 slot (DX400) versions are also available, with the top-range, 64- user models priced at from $36,425. They are sourced from a US manufacturer. Datapoint has an existing OEM agreement with Charles River Data Systems for the 2400 Series data entry machines, which are now to be distributed in the UK by Standard Platforms Ltd of Blackburn, Lancashire.

Nokia Data Systems is preparing for the introduction of a range of 386 and 486-compatible systems later this year. Heralding the move, the company has developed Unicon, an Ethernet-based protocol conversion board for its proprietary Nokia 2500 minicomputer range, allowing its systems to co-exist with Unix-based hardware. The Unicon link, using TCP/IP communication protocols, allows file-to-file transfer and program-to-program communications between System 2500 and Unix-based systems.

WORKSTATIONS

Sun's successful 386i workstation has been enhanced with a 20-fold improvement in the AT bus interrupt response time so that the machine can communicate effectively with networks of personal computers, as well as the speeding up of the interactive MS-DOS performance, with better keyboard, mouse and screen response on the 80386-based Unix station - MS-DOS is supported under Unix via Phoenix Technologies Ltd's VP/ix product on the Sun stations. The 386i will now therefore support Novell NetWare and 3Com 3+ local nets, and support for NetWare 2.1 running over Ethernet or Token Ring networks, and 3+ networks running over Ethernet will be included in SunOS 4.0.2, set for release in July.

Proteus Technology, Clifton, New Jersey, has begun shipping the 5400vi, its engineering workstation based on a 25MHz 80386 chip. The tower configuration comes with 4Mb RAM, 110Mb EDSI hard disk with a 1/2ms access time and 15Mb per second disk transfer rate, floppy drive and ethernet adaptor. It runs an MS-DOS shell as well as SCO Xenix with Multiview, X-Windows, and costs from $13,995.

DESKTOPS

Compaq Computer Corp is claiming unrivalled speed, power, and internal storage capacity for its three new 33MHz 8038-based computers. The new Deskpro 38/33 line comprises Models 84, 320, and 50, the numbers reflecting the size of the fixed disk drive. The machines come with 4Kb of cache memory, eight expansion slots, a memory slot capable of holding 1Mb of 32-bit RAM, and support for five internal storage devices, offering up to 1.3Gb of storage capacity. Performance-wise, Compaq says that the new models offer a 35% improvement over 25MHz machines, such as its Deskpro 28/25 and IBM's best PS/2. The Model 84 costs £7,000, while Models 320 and 50 cost 9,700 and 12,000 respectively. Delivery next month.

Lynx Real-Time Systems Inc from Campbell, California, has introduced two ruggedised Intel-based Unix systems aimed at the industrial PC market. The 1MHz Model 40 uses the 8038SX processor, the Model 50 uses a 20MHz 8038 with 80387 floating point processor, and starts at $1,995. Both run LynxOS, a Unix compatible real-time operating system developed by Lynx that contains no AT&T code.

SERVERS

NBI Inc, Boulder, Colorado, has added three new network file and application servers to its range of systems - the 505, 580 and 580XD - running Unix V.3. The entry level 505 server can support up to 32 networked AT compatible, Macintosh or Unix workstations. It uses a 68020 processor and has a 5.25" SCSI hard disk drive and two VME expansion slots. The 505 is upgradable to the 580, which runs either a 2 MIPS version of the 68020 to accommodate up to 64 users, or a 6 MIPS 68030, capable of supporting 128 users. It takes up to four 5.25" SCSI hard disk drives and has nine VME expansion slots. The 580XD has a total disk capacity of 3472Mb. All three come with Ethernet connectivity and have optional token ring support. Available now, prices start at $18,800 for the 505, $32,700 for the 580 and $46,500 for the 580XD.

Sony Microsystems has added a top of the range file server system to its NEWS workstation series. Rated at 5.3 MIPS, the NWS-1930 is now available in the UK through Sony's distributor Logitek, based in Wigan. Running two 25MHz 68030s the new model has 16Mb RAM expandable to 32Mb, 64Kb cache memory, 572Mb internal storage, three expansion slots and can take up to five extra VME boards. With Ethernet, and running Sony's NEWS-OS Unix variant, the NWS-1930 costs around £32,000.

NEWS ROUNDUP

The focus of the Open Systems market moved to Japan this month, with an historic meeting between rival contenders for the Unix crown, and the standards organisation X/Open Co Ltd. At an X/Open board meeting in Tokyo both Unix International and the Open Software Foundation were accepted as members. Although both groups have previously expressed their intentions to comply to X/Open guidelines, the good news for users is that membership of X/Open will provide a new channel for further negotiation between the two groups. In another far east coup, X/Open won an agreement from the Information Technology arm of Japan's Ministry of Trade and Industry that future specifications from the national Sigma project will conform to X/Open's Common Application Environment Portability Guide. Sigma's mission is to develop a standard Unix workstation and set of software tools.

In the Unix International camp there is also mounting speculation about a possible merger of Unix International and AT&T's Unix Software Operation, responsible for actual development of Unix, which it separated off from the Data Systems Division at the beginning of the year - after all AT&T is thought to be losing around $50m a year from its Unix operations. As far as the OSF is concerned, July 1990 is the month set for the general commercial release of OSF/1.

News on IBM's RT Unix box suggests that the core of the new version will be an enhanced version of the Micro Channel, so that the machine can be built up of a federation of concurrent processors, running AIX-3. Those of you out there looking for the box anytime soon will be disappointed however - word is that it won't arrive until next year sometime.

Xerox seems finally to be dealing with its perennial problem of giving away good ideas, but that is unlikely to make anyone else very happy. Metaphor Systems has agreed to pay royalties on its Metaphor graphical user interface, Xerox says it now intends to make available new licensing arrangements for the interface it developed in 1981. Where that puts Apple, in the light of Xerox's decision to assert its rights in the interface, the key distinguishing feature of the Mac, is anyone's guess. The equation is further complicated by Apple's suit against Microsoft and Hewlett-Packard over the look and feel of Presentation Manager and New Wave, but it suggests that if Apple were to win the lawsuit, Xerox would come out the real winner.

On the same ground, Quarterdeck Office Systems Inc has raised an eyebrow or two by applying for and being granted a patent on its technology for multitasking applications in a windowing environment, because it is thought that the patent could have implications for every developer with multiple bordered areas on its screens.

Interesting UK news saw a management buy-out at the artificial intelligence products division of SD-Scicon Plc resulting in the formation of a new company, Integral Solutions Ltd. Based in Basingstoke, Hampshire, the company takes over the rights and support for SD-Scicon's widely used Poplog artificial intelligence development environment. Poplog, originally developed at Sussex University and exclusively licensed to SD-Scicon, has around 2,000 commercial, government and academic users. Poplog allows software development to be carried out in any mixture of Prolog, Common Lisp and Pop-11, and runs on Sun Microsystems workstations and DEC VAXstations. It competes directly with Inference Corp's ART Automated Reasoning Tool and IntelliCorp's KEE Knowledge Engineering Environment, but costs about 35% less and also eats up less computer capacity.

RISC NEWS

Incompatibilities between DEC's new range of DECstations and servers using RISC processors from MIPS Computer Systems and other hardware based on the chip have now come to light. DEC has changed the byte ordering of the chip to Little-Endian byte ordering, which numbers the bytes of a word from 3 to 0 and places the sign and most significant bits in Byte 3. The change brings the DECstation in line with VAX and PDP-11 hardware and allows for easier data transfer across DECnet. In contrast, machines from other vendors using the MIPS chip, including MIPS Computer Systems itself, use Big-Endian byte ordering, with bytes numbered from 0 to 3. Consequently, software built up by third parties for the MIPS processor is only source, not binary compatible with the DEC system. Sources from DEC minimised the problem, and MIPS said that the forthcoming Applications Binary Interface currently under development between MIPS and AT&T should take byte ordering into account. But Motorola semiconductor spokesman Steve Heath said he doubted that this was possible, and suggested that DEC had changed the byte ordering to maintain proprietary differences. Big-Endian byte ordering is used in the Motorola 68000 and IBM s/370 chips, while little-endian is used for the VAX 11/780, Intel 80X86 and National Semiconductor 32000 ranges. The MIPS R2000 and Motorola 88000 can be configured both ways,although Motorola specifies big-endian ordering for ABI conformant systems.

Word from Japan is that Sony Corp has launched its first MIPS Computer Systems Inc RISC-based machine as the RISC NEWS, and claims for it a higher performance than the equivalent Sun Microsystems and DEC RISC machines. It uses the top-end R3000 chip as the basis of the a new, top-of-the-range series called the NWS-18000, rated at 20 MIPS by Sony, compared with Sun's Sparc line at 16 MIPS, the DECstation-3100 at 14 MIPS, according to Sony. The machine has multi-media capability, with an audio interface kit and audio compression, with a long-recording time ADPCM audio real-time encoding board. Prices and dates have not yet been announced.

Kode Computers Ltd of Swindon in Wiltshire, the UK distributor of Sanyo's Icon range, is now ready with the Icon 8000, based on Motorola's 88000 RISC architecture. The new machine runs under MS-DOS, Unix and Pick, and all three operating systems can run concurrently, with simultaneous access to and transfer of data. The Icon 8000 supports up to 256 users and delivers up to 15 MIPS.

Point 4 Data Corporation, Tustin, California, has chosen MIPS Computer Systems R2000 chip as the basis of its RISC offering, releasing the new Mark 2000 Model based on the chip. It has 8 Mb RAM, expandable to 48 Mb, and supports from 32 users up to a maximum of 128. Prices start from $54,000.

Pyramid Technology is to re-badge MIPS Computer Systems Inc's M/120 and M/2000 servers, which use the R2000 and R3000 RISC processors, as the MIS-1e and MIS-1 office server. The machines are rated at 13 and 20 mips, and are to round out the low-end of the Pyramid line. UK prices start from £34,000 for the low-end machine and £160,000 for the top-end machine.

CARDS, BOARDS AND ADD ONS

A new Sparc-based co-processor system for PC compatibles has been introduced by Definicon Systems (UK) Ltd of Battersea in South London. Using the 33 MHz of the Sun Microsystems Sparc RISC processor fabricated by Cypress Semiconductor, Definicon's SP-ARC1 system combines the CPU with a floating point unit from Texas Instruments - the TI 8847 - and includes up to eight megabytes of high speed RAM. It can be added to any 80286 or 80386-based PC, according to Definicon, allowing peripherals such as graphics cards, serial and parallel ports and optical disks to be accessed by the SP-ARC1 via the PC system bus, using the host CPU as an I/O controller.

Apple Computer Inc will next month come out with a board and supporting software to enable its Macintosh machines to participate in IBM Token Ring networks. According to Newsbytes, the TokenTalk board, due on June 12, is expected to be only for Macs with the NuBus, and to cost between $1,000 and $1,300. The announcement is also tipped to include an X Window System server for the Macintosh, an wide area communications product to support both IBM SNA and X25, and a feature to enable Macs to exchange files with DEC VAXes. Also likely is AppleTalk 2.0, to extend beyond the 254-node barrier.

National Semiconductor has introduced a microcontroller based SCSI bus controller board for Apple Macintosh II and IIx computers called Maccelerate. The board, which stores and retrieves data through a direct memory access technique, is claimed to double overall system performance. Maccelerate has software drivers for both A/UX and the standard MacOS operating system.

Improvements to its range of PC and PS/2 add-on input/output controller cards have been announced by Specialix Systems Ltd, of Thames Ditton, Surrey. It has added AIX, OS/2 and MS-DOS software drivers to its existing Unix V, SCO Xenix, PC MOS 386, Prologue and Concurrent DOS drivers already available for the S1 series boards, which come in four, eight, 16 or 32 port versions. Prices range from £495 for a four port AT card to £1,795 for a 32 port PS/2 card.

Hewlett-Packard has launched two rewritable optical storage systems. The HP C1710A library system holds 32 5 1/4" optical disk cartridges, each with 650Mb capacity, and has a simplified autochanger mechanism for more reliable disk access. The two drives it incorporates have been brought in from Sony's magneto- optical NWP-539 system launched in February. HP C1710A costs $29,000 in the US, available later this year. The HP C1711A is a stand alone optical disk subsystem with a 95 ms average search time, 680Kb per second transfer and SCSI interface. It costs $6,190 in the US, available from June.

Logitek has been appointed the sole UK distributor of the much in the news NCD16 network display station from Network Computing Devices Inc of Mountain View, California. Price in the UK will be £2,195 for the 1Mb version. The station is the first in a family of similar products, with colour versions expected later this year.

Systech Corp has launched the Unplug, a communications control system that can support from 16 to 255 serial peripheral devices on a single coax link, taking up a single slot in the host computer. Unplug includes terminal control software residing in the Unix operating system kernel which provides the software interface to the single 68000-based Systech I/O board. The company has recently opened its European headquarters in Winchester, and plans to have UK-based manufacturing facilities in place by the end of 1990.

BERKELEY PUSHES FORWARD WITH UNIX COMMUNICATIONS ENHANCEMENTS FOR 4.4
by William Fellows

Sun Microsystems, DEC and Hewlett Packard were among the scores of companies that cut their Unix teeth on the University of California at Berkeley variant of the AT&T Bell Laboratories operating system. The contribution made by Berkeley to the take up of Unix, particularly in the scientific and engineering world cannot be underestimated. The next version of Berkeley Unix, BSD 4.4, due for release at the beginning of next year, will include OSI protocols as part of an OSI-POSIX project instigated by the National Institute of Standards and Technology, (previously the National Bureau of Standards), and backed by DARPA, the US Defense Advanced Research Projects Agency. Both Transmission Control Protocol/Internet Protocol, TCP/IP, and Open Systems Interconnection (OSI) protocols are being integrated into new BSD Unix features being put together at the University of Berkeley in California by a team led by Keith Sklower. These will add certain structures and protocols to TCP/IP "to make it look like X.25," and is being built on top of the OSI protocol development work by Marshall Roades of the Warnock Group.

UK Involvement
The University College of London is contributing work on X.400 message handling protocol, the University of Nottingham's work on X.500 address-per-user-worldwide X400 directory is to be included, and the University of Michigan will add other work on the TCP/IP and OSI sets. Whether these POSIX compliant additions will be included in future versions of AT&T's Unix as well as BSD, which are both POSIX stamped, is unclear, because communications protocols in System V are treated in a slightly different way to those in the BSD variant. However the OSI-POSIX project material will be put "close to the public domain," and is hoped to "foster the commercial application of OSI protocols." Sklower thinks that Hewlett Packard may be interested in picking up these developments for its HP/UX operating system, though DEC already has its own DECnet system, and Sun has already implemented some of the ideas, (see below). What is clear is that the project should provide a springboard for the OSI suite to be more widely adopted. It must be remembered that the inclusion of TCP/IP protocols in BSD Unix helped to make TCP/IP a success, and the inclusion of both TCP/IP and OSI under the same operating system should make the transition from TCP/IP to OSI easier. The Berkeley project itself is part of a more general effort going on at the moment to push forward development and integration of communications protocols.

Jacobsen Extensions
In particular Dan Jacobsen, just down the road from Berkeley, has devised a number of additions to the TCP/IP suite, generally known as the Jacobsen extensions, but probably more accurately described as a 'tweaking' of the control and transport layers. They allow 98% of the theoretical bandwidth on Ethernet to be utilised, as well as enabling communication congestion to be noted so that appropriate backing-off action can be taken if needed. By installing one element of cache memory on each network layer, the system can also predict what is going to happen next on the stack and again, take appropriate control action.

Commercial implementation
The first commercial implementation of Jacobsen extensions has been done by Sun Microsystems on its Sun-4 workstation. They allow data to be transferred off a Sun-4 at the rate of eight megabits per second, dramatically improving upon the standard TCP/IP rate of one or one and a half megabits per second, and nearly as good as Sun's own Network File System at ten megabits per second. The performance was achieved by removing duplication and eliminating redundancy in the Internet Protocol element, and reformulating the design of Lance chips in Ethernet boards. The popular TCP/IP protocol suite was developed in the 1970s by the US Defense Advanced Research Projects Agency, DARPA, as part of the effort to create ARPANET, a wide area network that links DARPA's various research centres.

Error Checking
The US government began to require TCP/IP in its networking contracts and the development of more powerful PCs that could handle the processing required by complex protocols gave TCP/IP a boost. TCP is the transport layer protocol and IP is the network layer protocol, operating at the OSI levels of 4 and 3 respectively. TCP/IP was originally developed for wide area networks, which tend to be less reliable than LANs, so its transport layer does more error checking, slowing down performance, but it has nevertheless become a de facto standard in networking technology. According to a study of network architectures by LAN specialists Interlan, Boxborough, Massachusetts, recently acquired by Racal Electronics plc, TCP/IP's major competition will come from this OSI de jure standard for interoperability, but the Berkeley project seems to suggest that some sort of co-existence is likely, especially in the near future. ISO has been gradually developing protocols for the seven layers of the its OSI model, and now virtually every computer company has expressed support for OSI. The US government has adopted OSI in place of TCP/IP through its implementation of GOSIP, the Government OSI Profile.

4GLS "NEED MORE POWER TO OUST COBOL"

Die-hard Cobol programmers are unlikely to convert to fourth generation languages until they contain commands equivalent in power to more traditional "3GL" languages, according to Mark Rogers of the UK software firm MF Systems Ltd, based in London's Kensington. According to Rogers, talking at the recent PC User Conference at Olympia, many 4GL products have been self-defeating, helping developers with the "easy" 80% of programming tasks, but offering no help to the more complex 20%. "It's almost regarded as acceptable that 4GLs should provide links to languages like C for the complex pieces of the program", said Rogers. "But as soon as you do that, you forfeit most of the benefits you gained from using a 4GL in the first place; you lose development speed, ease of maintenance and portability". Problems of efficiency, a major concern in the early days of fourth generation languages, is in most cases no longer an issue, with efficient coding overcoming performance problems and virtual memory techniques optimising the use of memory. And new database techniques such as variable length fields use far less disk space than traditional systems, and are faster to use. Apart from development speed, Rogers pointed to maintenance of programs as a key benefit of switching to 4GLs. "More than 75% of a programmer's time is spent amending existing software, rather than developing new programs. By using a data dictionary, 4GL techniques make it easier to amend systems, and to manage projects where there are different versions of software". But future products should concentrate on increased sophistication rather than simply aiming to save time and money. "The real worth of using a 4GL is to write better, more sophisticated programs which could not be written before", said Rogers. "I feel this objective has been somewhat neglected".

SOFTWARE NEWS

COMMUNICATIONS AND NETWORKING

Novell Inc has made a string of announcements headlined by NetWare 386 v3.0, described as the first member of a new family of products based on the NetWare 386 server. The new version is a 32-bit implementation of NetWare optimised for the features of the 80386. It supports up to 250 users on one server, with high-performance file system supporting up to 32Tb, 4Gb main memory and maximum file size; enhanced security, dynamic resource configuration and enhanced printer services. It supports MS-DOS, OS/2 and Macintosh workstations, the last via a bridge running NetWare for Macintosh. The second announcement is the NetWare Programmers Workbench collection of software development tools, including the first C compilers for developing network applications and a library ANSI C- and IEEE Posix-compliant functions, licensed from Watcom Group Inc, Waterloo, Ontario. As part of the Workbench, Novell also has a pre-release NetWare 386 for developers called NetWare 386 v3.1 Software Developers Kit, to be available with the workbench, in the third quarter, as will 386 3.0 for users, to be followed by the 3.1 release in the first quarter of 1990. The C Network Compiler, the C Network Compiler/386 and NetWare Programmers Workbench with NetWare 386 v3.1 SDK are $700, $1,000 and $4,000 respectively. No price on the end user version. And Novell has NE/2-32, claimed to be the first 32- bit Ethernet network server adaptor for NetWare 386, designed to take full advantage of the 32-bit implementations of IBM's Micro Channel Architecture and NetWare 386.

IBM is to market image processing software from from Image Business Systems Corp, New York. ImageSystem is a local area network-based document-handling imaging application that runs on the RT under AIX Unix. It enables the RT to serve as an independent file server for PS/2s - or any personal computers running MS-DOS - linked together on an IBM Token-Ring or Ethernet local area network, and as a gateway to an IBM mainframe. It is designed to provide a customisable software architecture for creating integrated image-oriented business applications and needs AIX 2.2.1, C and AIX/NFS Network File System on the RT, plus the Sybase relational database manager.

Xerox Corp has announced the marriage of its Xerox Network Systems with the standard Unix networking facility to create Xerox TCP-XNS Gateway Service, offering mail, file transfer, printing and terminal emulation operations between XNS and environments using TCP/IP. A Xerox External Mail Gateway-X400 enables users on XNS networks to exchange electronic mail with public and private X400 systems. The company also announced an IGES 4.0 Graphics Conversion capability for new Xerox engineering graphics applications, enabling them to import and export graphics data from other programs. TCP-XNS Gateway Service is $6,000 and X400 gateway costs $10,000.

Two UK companies have collaborated with ICL to produce an open systems file server package aimed at ICL users, which integrates the VME, Unix and MS-DOS operating systems. The new product, EXS is the result of work carried out by communications specialists Network Designers Ltd of Kingston Bagpuize, Oxfordshire, Industry Standard Software (ISS) and ICL's mainframe systems division, and allows an ICL Series 39 mainframe running VME to act as a fileserver to MS-DOS and Unix systems connected to it via ICL's OSLAN Ethernet local area network. The first result of the collaboration is EXS/NFS, which provides an implementation of Sun's Network File System under VME, allowing transparent data sharing between the three operating systems. At the PC level, display, printer and file access is provided by PC-NFS which have just been adopted by ICL for use with its newly launched MS-DOS DRS range of PCs.

Communications specialists Retix Corp of Santa Monica, California, has introduced a new family of Open Systems Interconnection products for the Unix market. The Osix line up includes X.400 electronic messaging, File Transfer, Access and Management (FTAM) and transport layer products for both local and wide-area networks. Running as processes in the Unix environment, the product uses the common AT&T Transport Layer Interface of Streams. The company has binary versions aimed at 80386-based systems running Interactive Systems' 386/ix, and plans a Motorola 88000 binary version by the end of the year. Prices start at $295 for the binary OSI transport products, and $395 for the OSI applications software.

Interlan, Boxborough, Massachusetts, has released version 2 of its LAN detector, an Ethernet protocol analyser for PCs and compatibles. The menu driven system provides real time screen information and analysis on the state of a network, both its hardware components and the software it is carrying. At present LAN detector can be used to analyse multiple protocols on range of networks, including Novell, XNX, TCP/IP, Sun PC-NFS, OSI, Banyan Vines, AppleTalk and DECnet. LAN detector costs $12,000.

Kinetics Inc, the Walnut Tree, California-based connectivity division of Excelan Inc, has announced K-Share, a full implementation of the AppleTalk filing protocol for Sun Microsystems workstations and DEC VAX systems running Ultrix. K-Share allows Apple Macintosh computers to use Sun or VAX computers as AppleShare servers, and features access to Network File System volumes residing on any computer on the same network as the Sun or VAX - NFS disk volumes can be mounted from the Macintosh desktop. K-Share lists for $795, and will be available in the third quarter of this year.

Sun Microsystems' Tops division has upgraded its Tops networking product to support Sun 386i and Sparc-based Sun 4 workstations, and Sun3s running the latest SunOs 4.x operating system release. Tops version 2.2 allows Macintosh and MS-DOS users to access Sun workstations as network file servers, and can also act as a gateway to any computer supporting Sun's Network File System. Previously only Sun 3s were supported. The new version also provides connectivity with many of Sun's SunLink products, allowing microcomputers to gateway into wide area network services such as X.25 and DEC's DECnet. TOPS for Sun sells for $895 for 1-4 users and $1,595 for five or more users - but an upgrade for current users is available for $99.

DATABASES

DEC "plans to bundle" the Ingres relational database management system with every licence to its Ultrix implementation of Unix, Relational Technology Inc has told Computer Systems News. DEC already bundles its own Rdb database with every copy of its proprietary VMS operating system.

Oracle has a new 4.1 version of Case*Dictionary that can now automatically generate database designs for IBM's DB2; and Version 1.1 of Case*Designer which includes a data flow diagramming capability, to support the SSADM standard set by the UK Government's Central Computer and Telecommunications Agency. Both tools now run on IBM PS/2 and compatibles under OS/2 with Presentation Manager, on DEC VAXstations under DECWindows, and on the HP9000/300 under Unix.

SOFTWARE DEVELOPMENT

Progress Software Corp has signed a deal to distribute a set of 'pop up' software engineering tools, designed for its own application development environment by Vanguard Computer Services Ltd, Narberth, Pennslyvania. The Workbench is written entirely in the Progress 4GL, has a variety of display features and allows developers to test applications and terminal benchmarks without leaving Progress. It can be accessed from any location in the Progress environment and is available as a separate module to the Progress 4GL/RDBMS. Prices range from $350 to $4,250 for the Workbench, on PCs running MS-DOS, Xenix 286 and 386 systems, NCR Tower 32 Series and Sun-3s.

Softool Corp, Santa Barbara, California, is now offering its Change and Configuration Control package, CCC, for software development on H-P's 9000 Series 300 and 800 systems under HP- UX. The change management element of CCC is an automated environment for controlling changes to individual components within each version of information represented by the system. Configuration management provides corresponding control over complete versions and the relationships between changes, as well as the methodology to move a software product through the various phases of the software lifecycle.

Cognos, the Ottawa, Ontario based software house has has signed up Bournmouth, Hampshire based Systematica Ltd as its computer-aided software engineering partner in a technology and marketing agreement signed this week. Cognos is to take Systematica's Virtual Software Factory product, a knowledge-based software development design tool that uses object-oriented techniques to improve programmer productivity and system quality. The product runs on VAX/VMS and Sun workstations, and Systematica has a technology agreement with DEC to develop VSF-based software tools addressing the various European design standards. An IBM PS/2 version is also under development. Cognos will launch its own version of the product by the end of 1989, and will eventually fully integrate it with its PowerHouse environment, to which it recently added Star-Base, an SQL compliant relational database, now available on Hewlett- Packard minis running the HP/UX. Future plans include ports to Data General's new Aviion range and IBM's AS/400.

Touch Communications Inc has developed a software tool, Fastport-OSI, that it claims enables users to implement Open Systems Interconnection, OSI, protocols. It says the software provides a seven-layer OSI protocol stack, as well as network functions such as filing, printing and terminal emulation and, according to Microbytes, the software complies with the US Government OSI Profile, MAP 3.0, and TOP 3.0. The software will work with AT&T Unix System V Release 3, Intel 80386 processors, Motorola 68000 processors and some proprietary operating systems. The software costs between $50,000 and $100,000, depending on the configuration and the number of users.

UK company Cambridge Micro Computers Ltd has launched a new turnkey sales system for estate agents, for storing, retrieving and displaying property information, using an X Window graphical interface. Based on the 25MHz 68030-based CMC V683 supermicro running Unix System V, up to 48 terminals can access the system simultaneously. A 200Kb 8-bit framestore and video input card enables photographs and maps to be entered from video or still cameras and stored in black and white (support for colour prints will be available as from July). The price tag is from £30,000 up to £100,000.

SECURE UNIX

Trusted systems expert Addamax Corp has extended its B1 level Unix security extension kit with a new networking product, B 1st-Net 1.0. The Champaign, Illinois-based company says it provides multi-level security for networking between Unix systems. Both products are designed for hardware manufacturers and integrators attempting to meet the National Security Center's "Orange Book" requirements for B1 and C2 class trusted systems. Pre-release versions of B 1st-Net are currently running on DEC and ICL systems.

UK firm Secure Information Systems Ltd, Fleet, Hampshire - known as SISL - has developed Secure 400, a multi-level secure implementation of the CCITT X.400 electronic mail standard, included within the Open Systems Interconnection model as an applications utility. Secure 400 can handle electronic mail messages with different security classifications, a problem previously tackled by using physically separate computer systems for classified information. Secure 400 runs in Unix, Secure Unix or Xenix-based platforms. It also conforms to the UK Government Open Standards Interconnection Protocol (GOSIP) version 3.0. Price ranges betweeen £50,000 and £250,000.

COMPILERS

Parsytec GmbH, Munich, West Germany, is releasing a parallel C compiler, Par.C, developed by the Dutch company Parsec, giving transputer programmers an alternative to working in Occam, although the parallel features of Occam have been embedded in C extensions. Par.C itself is written in standard C, the firm says it will be upgraded to recognise all additions to the ANSI C standard, and it can be compiled to run on any host machine. Par.C also translates a number of added keywords, enabling the programmer to use parallelism without having to learn a new language. Parasytec is distributing Par.C as a package running under the Helios Unix alike operating system from Perihellion Ltd, and Megatool and other versions are also available.

Amalgamated Software of North America Inc, Malibu, California is to launch a C compiler for IBM's AS/400, Diploma/C, in September - claimed to be Systems Application Architecture-compliant. Whilst allowing Unix applications to run on the AS/400 systems, it could provide an escape route from IBM's proprietary AS/400 architecture into the cheaper world of Unix systems.

OTHER NEWS

Software Europe, a recently formed consortium of software distributors aiming to introduce new products into the European marketplace, has made its first signing - Oxford- based ICL specialist Hytec Microsystems' TP+ transaction processing monitor. TP+ is said to provide a Unix alternative to IBM's CICS transaction processing software, providing high throughput, recovery and data integrity. It provides an environment under Unix for Cobol and C programs similar to mainframe-based TP programs. TP+ costs from £5,000 to £20,000.r

Apple Computer Inc is planning to boost the capabilities of its proprietary Mac OS operating system with A/UX-like features such as 32-bit addressing, and a new Interapplication Communications Architecture for multi-tasking. In addition, new imaging system software is being designed to maximise Mac capabilities in the areas of colour, text and printing, and includes outline fonts, a new Layout Manager architecture for printing and the previously introduced 32-Bit QuickDraw software. All will be in System 7.0 of the Mac software, planned for availability later in the year.

College Point, New York based **Sirex** has introduced a new range of 286T terminals featuring a 10MHz or 12MHz Intel, or 16MHz Harris 286 CPU and 640K RAM; and are ARCnet, Ethernet and token-ring card compatible - priced at $789, $829 and $919 respectively.

DEC has introduced version 4.0 of its VAXeln real-time operating software in the UK. The new release adds DECwindows support - 4.0 can now access other VAX computers in a network without affecting monitoring or control functions; it also adds a new Set Host facility that enables a networked real-time VAX system to connect users via the X Window System-based product to other VAXes on the network, and windows on a workstation can display VMS, MS-DOS and Ultrix applications concurrently with VAXeln; starting prices are $2,900 for the host and $290 for the target system on MicroVAX II.

The Unix-based Ryan McFarland Cobol compiler, owned by **LPI Inc**, is available in Europe through the **International Consortium for Open Software** network of distributors set up by **Sphinx Ltd**, Maidenhead, UK.

And **Sphinx Ltd** is now the supplier of Q-Calc from **Quality Software Products**, said to be 98% compatible with Lotus 1-2-3, and available on a range of Unix hardware.

Control Data has now implemented Version 11 release 2 of X-Windows under the NOS/VE operating system for its Cyber 900 mainframe series: Unix workstation and other X-Window users will now be able to manage multiple windows when using Cyber mainframe applications.

Dunlop Tyres International Ltd is to tread the Unix path with the computerisation of its international enquiry and order processing systems - it has bought a Convergent S/320 from **TIS Ltd**, in an order valued at £120,000: **Dunlop** is to develop an office automation system using Informix 4GL.

Nexpert, the expert system from **Neuron Data**, Palo Alto, California, is now available right across the DEC range with a new release that supports DECwindows; Nexpert is available in the UK from **Software Sciences**, Farnborough, Hampshire, the DECwindows version costs £7,500.

Iris Graphics of Bedford, Massachusetts, has interfaced its Iris 3024 high resolution colour ink jet printer to the Sun-3 and Sun-4 family of workstations: it and will be distributed in the UK by **Hi-Res Ink Jets** of Hove, East Sussex.

A Masters degree in **Parallel Computing Systems** has been introduced at **Bristol Polytechnic's Transputer Centre**: the 25 students on the one year intensive course began work in January, and use 12 PC hosted transputer systems, 17 Sun 3 workstations, and a Sun 4/280 hosting a **Meiko Transputer Computing Surface** at the Centre's teaching labs.

Turns out that the reason that **HBB Electronics Inc**, which came with **Daisy Systems Corp's Cadnetix Inc** acquisition, kept its own identity in the merger was that the computer-aided engineering business was on the block - and the buyer looks to be the UK's **Racal Redac Ltd**, Tewkesbury, Gloucestershire subsidiary of **Racal Electronics Plc**: **Redac has** signed a letter of intent to pay $19m for HBB, but the talks have been going on for some time and could still collapse.

WHEELIN' AND DEALIN'

May's heatwave saw computer companies getting all hot and bothered under their collective collars, provoking a flurry of activity. **Altos Computer Systems** turned in a third quarter loss of $3.6m and promptly handed out 60 pink slips to employees in the US and Europe, and, on the back of news that it has now completed the acquisition of **Gould Computer**, the new enlarged **Encore Computer** announced that 320 of the former's employees are to lose their jobs. Continuing the recent trend, prospects for minisuper manufacturers still look bleak. The future of **Multiflow Computer Inc**, Branford, Conneticut, looks shaky with news that plans to reverse into publicly quoted workstation manufacturer **Adage Inc**, Billerica, Massachisetts have collapsed. As for supercomputers, **Control Data** is trying to sell its ETA sibling instead of dumping it. Former ETA president Lloyd Thorndyke wants is trying to raise the funds to buy it. In the UK, shrinkage plans are afoot at **MBS plc** which reported losses of £14m in 1988. A management buyout of its loss making **Product Sales Division** is on the cards, and MBS is also negotiating with interested parties for the sale of its specialist **Altos** division **Microtex**. **Technology for Business plc**, only acquired by **CLF Yeoman** at the end of last year has been put up for sale. May was also full of blossom however, and company offshoots were being spawned left, right and centre. **Silicon Graphics UK**, Abingdon, Oxfordshire has formed a new subsidiary - **Silicon Graphics Applied Systems Ltd** - to market software products for the range of MIPS based 3D workstations. **Cray Research Inc** is to spin off Cray 3 development into a separate company, **Cray Computer Corporation**, Colorado Springs, Colorado. And the sun certainly shone on the UK city of Sheffield - Pick house **Sanderson Electronics** has agreed to invest £200,000 for a 75% stake in another Pick company, **System 800 Computers Ltd** of Newcastle-upon-Tyne, and the Sheffield Computer Group, now known as **Sheffield Micro**, is expanding with the acquisition of two ICL traders, **Atlantic Data Systems** of Frome, Somerset, and **Information Engineering Services Ltd**, Manchester. **Tetra Ltd**, Maidenhead, Berks, reported a 100% rise in sales last year to £15m, meanwhile, Paris based expert system specialist **Cognitech** has been bought by **Framantec**, a subsidiary of French nuclear reactor builder **Framantone**; **Intel** has bought up the assets of **Bell Technologies** of Fremont, California; and **Trio Software Systems** is to merge with much troubled **Silicon Valley Software**. Deals saw **Motorola's Computer Systems Division** sign a three year OEM contract with **Orion Associates** of Monaco; **Wyse Technology** signing a license agreement with IBM for the use of IBM parts over the next five years; **AT&T Co** starting to market its 3B Unix supermicros in France under its own **AT&T Data Systems** name; and **Cimlink**, the Elk Village, Illinois software firm forming sales and marketing agreements with **Solbourne Computer**, **Network Computing Devices** and **Visual Technology**. Finally, the US government and **General Motors Corp** are leading a group presenting a Computer Seal of Approval for computer kit that easily interconnects with other manufacturer's equipment.

CONTACTS