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MARCH
1990

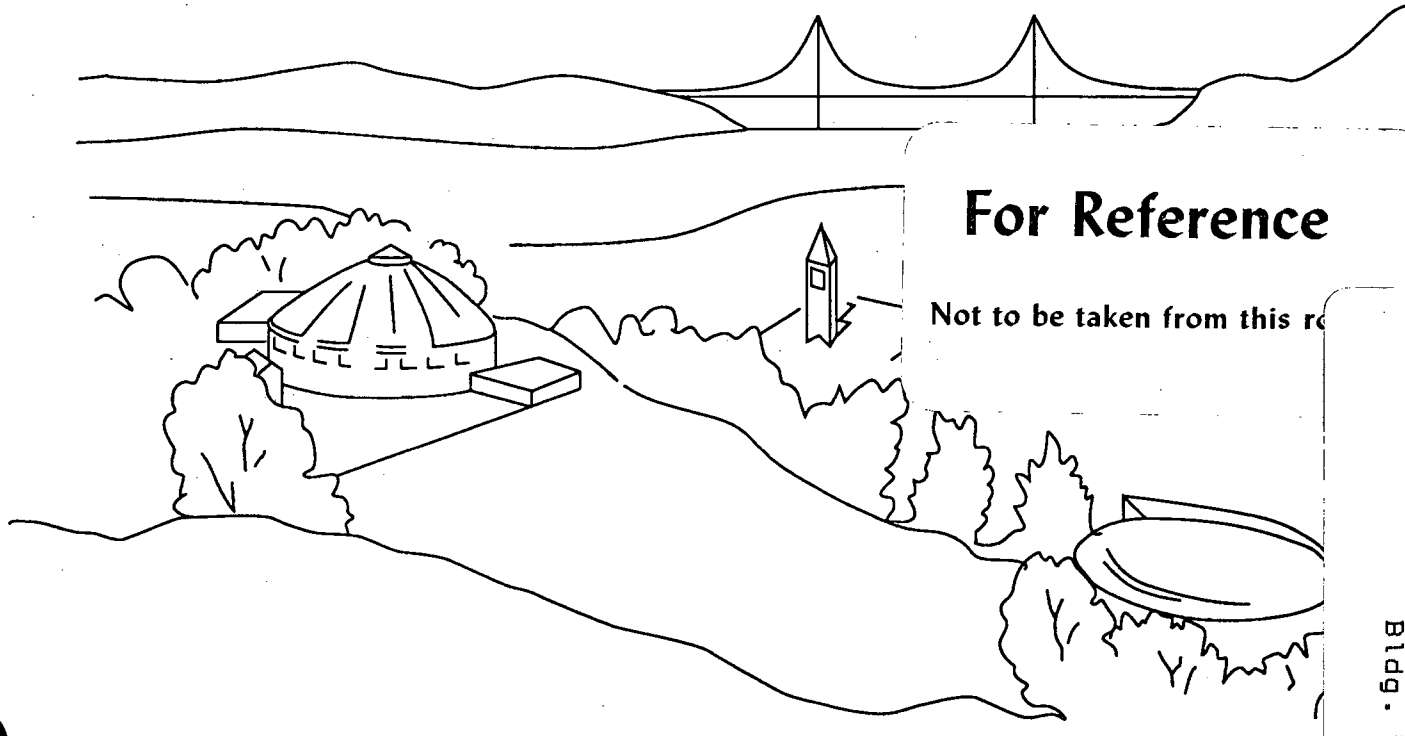
COMPUTING NEWSLETTER

Lower Rates For MacDUMPS

Scientific Workstation Support

QMS Color PostScript Printer

Graphics Seminar



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Newsletter Closing Date is Thursday, March 15, 1990

Address all communications for the Newsletter to login nooz@ux1.lbl.gov
or put in Maggie Morley's Drop Box in the Workstation Group File Server

Editor: Maggie Morley

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GENERAL NEWS

LOWER RATES FOR MACDUMPS

Bill Benson

Macintosh users: we've lowered the rates for our MacDump backup service to a flat $15 monthly fee after an installation charge of $25. For less than 75 cents a day you can protect yourself against the heartbreak of Painful Restoration of Lost Data by taking advantage of Computing Services' automated backup service for Mac hard disks. We back up your disk to 8mm tape cartridges in the middle of the night. This is an effortless and automated service. You leave your Mac powered on overnight; we do the rest.

We keep the tapes for 180 days; you can restore individual files or an entire hard disk. For full details, see the Computing Newsletter, September 1989, Pg. 7. Or look at the **ReadMe** file on the AppleShare file server WKSG Server 1 in the lbl zone (it's in the Macdumps folder inside the Utilities folder).

We're now running a new version of Dumper with enhanced security. As configured, this one will refuse connections from anywhere other than the official macdumps on dp1. You can get it from AppleShare - WKSG Server 1 in the lbl zone, in the Utilities folder, then in the MacDumps folder.

Dumper goes in the System Folder; you need to reboot for it to take effect.

Forward comments and questions to me at x5703 or

Unix or Software Tools Mail:	**macdumps@lbl.gov**
VMS Mail:	**lbl::macdumps**

NEW MATHEMATICA RELEASE

Marty Gelbaum

Mathematica 1.2, the latest release from Wolfram Research, Inc., is up and running on UX1 and UX5; these are the only two machines for which we have *Mathematica* licenses.

To invoke the new version on UX1 or UX5, type after the Unix prompt

math

Users can no longer access the old version.

The manual entry has been expanded to explain more about getting graphics output. To read it, type after the Unix prompt

man mathematica

Wolfram Research, Inc., now supplies all *Mathematica* support and product distribution. Sun Microsystems no longer supplies or distributes *Mathematica*.

Forward comments and questions to me at x4749 or

Unix or Software Tools Mail:	**martyg@lbl.gov**
VMS Mail:	**lbl::martyg**

CORRECTION PLEASE

The second paragraph of "Displaying Graphs and Trees with LaTeX" — on Pg. 6 of the February 1990 newsletter — should read:

You may copy the LaTeX source file on CSA:

TEX_INPUTS:graph_latex.tex

on UX1/UX3/UX5:

/usr/local/lib/tex/macros/graph_latex.tex

Forward comments and questions to me at x4749 or

Unix or Software Tools Mail:	**martyg@lbl.gov**
VMS Mail:	**lbl::martyg**

SCIENTIFIC WORKSTATION SUPPORT

COMPUTING SERVICES AND SCIENTIFIC WORKSTATIONS

For a number of years, scientific computing at LBL has been evolving from a monolithic central computer model to one that includes workstations, central facilities, and access to supercomputers. We believe that the most effective computing environment for many scientists includes a workstation which has access to compute servers, mass storage and other related services on the network. Although Computing Services has been providing services for the lease and management of workstations for several years, we intend to place more emphasis on this activity in future.

This policy was affirmed by the lab-wide Scientific Computing Technical Planning and Evaluation Group, which recommended that Computing Services should "encourage and support the use of state-of-the-art workstations as the primary means of computing at LBL". Other recommendations in the report stressed the need for ICSD to promote a "seamless" environment, and to maintain an up-to-date central facility as an integral component of LBL computing.[1]

Support of X Windows has been especially important in promoting the goal of seamless computing. Assisting researchers in converting to X Windows, and in solving problems associated with differences in products such as DECwindows/X Windows has been a significant activity.

We constantly survey the field for new products that may be appropriate for LBL researchers. For example, we have acquired VAXstations, DECstations, Sun workstations, and X Display terminals as soon as they were available. After becoming familiar with the capabilities, we made them available for user test and evaluation. Similarly, we will acquire one of the recently-announced IBM workstations, which, at 25 MIPS and 7.5 mflops, is a formidable entry into the field.

We continue to advise users on the appropriateness of various computer technologies in solving their problems.

We are aware that rapid development of a productive scientific workstation community within the Laboratory can be impeded due to

- high cost of the workstations, necessitating the expenditure of capital funds;
- long lead time for procurement, often resulting in selection of a workstation by availability rather than by capability;
- need to develop supporting infrastructure: hardware maintenance, system management, software evaluation and acquisition, applications, etc.

We are also aware that newer workstations can be costly. With "enough" memory, a local disk, and perhaps a color monitor, one of these systems can be expensive.

Workstation	Cost	Monthly
Sparc-1 Monochrome	$6,000.	190. (est)
Sparc-1 Color, 19" Sony	9,200.	290. (est)
VAXstation 3100 Monochrome w/600mb Disk, 16MB	14,000.	450. (est)

To address these issues, we are providing many services in support of scientific workstations.

ADVANTAGES OF PROFESSIONAL SYSTEM MANAGEMENT

Despite the obvious utility and convenience of the workstation, the costs for both professional hardware and software management are still significant. While some scientists can maintain their systems, we have observed that in many cases the amount of time the scientist spends managing his workstation can be significant enough to interfere with the expeditious progress of his research.

Seasoned Management

As in any service operation, we obtain economies of scale. Expertise in system management learned on one machine can be replicated fairly economically on other machines. Thus, it is not ten times as difficult to maintain 10 workstations as to maintain one.

Access to Graphics Software:

Computing Services evaluates and tailors scientific graphics packages. When we administer your workstation, we make these products available to you. For example, you can mount the needed graphics packages via NFS/DFS and save on both disk space, and your time to copy and maintain the package. Also, you can be sure that you will always have access to the latest version.

[1] Copies of the full TPEG Report, "An LBL Site Strategy for Scientific Computing." (LBID-1498) are available at the Help Desk, Bldg. 50B., Rm., 1215, x5981.

The graphics packages currently available include:

GKS .....(from Advanced Technology)
NCAR .....(from the National Center for Atmospheric Research)
HIPS[2] .....(from New York University's Human Information Processing Laboratory).

For more information on the HIPS package, see the Graphics Section in this Newsletter.

X Windows[2] System
The arguments for having us provide you with the latest version of MIT's X Window system are the same as those that apply for the graphics hardware. We support X11R4, from MIT, which is the latest version of X. (The X11R4 distribution uses 180 Mbytes of disk storage and took several man days to install and test.)

For more information on the X11R4 version, see the Graphics Section in this Newsletter.

Dependable Security Practices
We are careful to stay current with the latest preventive measures to forestall system intrusion and to exterminate viruses.

Backup Management
Computing Services provides full and incremental backups with archival storage of user and system data.

Distributed Printing
Computing Services' Distributed Printing system presently consists of six server hosts, 85 printers and 106 hosts, serving over 800 LBL users. It serves ascii, PostScript, and Impress printers.

SYSTEM MANAGEMENT

Computing Services offers a full range of VMS and Unix support services. The level of this support can be either full, shared, or selected service depending on the needs of the user. The costs are based on a monthly estimate of the time required to provide the service averaged over a twelve month period. Rates for support of systems which have unique hardware or software requirements will vary. License cost for proprietary software is not included.

Full Support
Full support includes all services necessary to maintain the system at the level required by the user, at one low monthly charge.

With full support, we provide the normal administrative functions involved in administering a computer system — including hardware installation, checkout, disk formatting, and testing. We also provide access to Computing Services-supported and maintained software, and many other services.

Shared Management
Shared Management allows users to reduce their management cost by performing certain management functions themselves. Computing Services personnel will perform system installation and upgrades, and other major duties, while a local system manager performs such tasks as account creation, software installation, etc. The local system manager retains control/responsibility for the system.

Selected Service
Selected service allows the user to tailor support to selected needs and abilities; it can include any of the services offered under the full support plan. For instance, groups may wish to administer their own system, but require access to Computing Services software, or want to have Computing Services perform their system backups.

UNIX SUPPORT

Full support for client/servers includes the following (as appropriate):

- System generation
- System maintenance (cron, log files, etc)
- Crash recovery
- Network management
- Mail configuration/maintenance
- Security enhancements/checking (password checking optional)
- Computing Services supported software
- Operating System patch installation/checkout
- Account management
- Distributed printing installation/support
- Printing tools (TeX, LaTeX, etc.)
- Disk management
- Layered product installation/updates
- Vendor assistance and problem tracking
- System/user consulting
- File system backup (Full, with daily incrementals and archival storage)
- File recovery

For servers with full support the following is included:

- Client support based on server architecture
- Support for 5 clients at no additional charge
- Disk management of two disk drives (total capacity < 1.5GB)
- Backup of two disk drives (total capacity < 1.5GB)

Selected support is a selection of the above items.

[2] HIPS and XWindows are for Unix systems only.

Rates for Shared Management
Special rates have been calculated for those users who wish to perform some system software maintenance, and have Computing Services perform other management functions.

EXAMPLES OF UNIX CHARGES
In the examples listed below, note that CPU and user disk charges incurred on CSD servers are not included.

Also note that these costs are direct costs/month.

Full support for SPARCstation-1 on CSD server (includes root & swap space on server)

	Estimated Cost /month($)
CSD Client	165.
Total monthly charge	165.

Full support for SPARCstation-1 on CSD server with 600MB local disk (includes root & swap space on server)

	Estimated Cost /month($)
CSD Client	165.
Disk Management	85.
Backup (.39/MB)	235. (media/ management)
Total monthly charge	485.

Full support for SPARCstation with two 600MB local disks acting as server for 5 SPARCstations.

	Estimated Cost /month($)
YP-Master	1660.
Total monthly charge	1660.

VMS SUPPORT

Computing Services offers VMS support services on a full-support basis, and also offers one-time upgrade and installation service. Tailored or selected services are also available.

Types of VMS support available from Computing Services are much the same as for Unix.

Full support includes all services necessary to maintain the system at the level required by the user at one monthly charge.

One-time upgrade & installation service applies to systems with unique or unusual hardware or software requirements; rates will vary with the system.

EXAMPLES OF VMS CHARGES

Full support for VMS VAXstation

	Estimated Cost /month($)
System management	$165.
DEC Software license (VAXstation 2000)	25. (est.)
DEC hardware maintenance (VAXstation 2000)	50. (est.)
Total monthly charge	240.

VMS Software Upgrade service:

To upgrade VMS Operating system:

	Estimated Cost /month($)
Upgrade	$200.
Install Distributed printing and Multinet (TCP/IP)	$200.

WORKSTATION LEASE PROGRAM

We have been leasing VMS and Unix workstations and can now provide newer workstations (the Sun Sparcstation, the DEC VAXstation 3100, etc.) as well. We will make these workstations available on a lease-to-own (LTO) plan to other divisions within the Laboratory. This will significantly increase a research group's ability to acquire state-of-the-art workstations. By utilizing an internal LTO, purchase costs and interest are amortized on a 36-month basis. (This charge does not include management or hardware/software maintenance.)

. . . Computing Services Staff

GRAPHICS NEWS

SUPPORT FOR THE X WINDOW SYSTEM

Bill Johnston, ICSD
Nancy Johnston, ICSD
Bob Rendler, ICSD

Over the past year or so, the X window system has moved to a position of clear pre-eminence among the window system contenders in the scientific/engineering workstation market. X now provides almost universal support for raster (image) and graphics access to both vendor and third party supplied displays. This is a tremendous advantage for software developers, who can count on a single standard for basic window access, and for users who can reap the benefits of this standard functionality with access to a rich collection of applications that will run on a wide variety of workstations.

We have not arrived at a standard window interface environment by any means, but we have made progress. The next step will be for people to settle on an interface style so that there is a commonly accessible "look and feel" to user interfaces, as in the Macintosh environment. This battle is still being fought, with the Open Systems Foundation's **Motif**, and Sun/AT&T's **OpenLook** the top contenders. This level of interface is built on top of the basic X interface (Xlib) with procedure libraries called "toolkits". The OpenLook interface style is implemented by Sun's XView toolkit library, now in the public domain.

At the same time that people are developing standard toolkits, CASE — Computer Aided Software Engineering tools to design and implement interfaces — are becoming available. These tools are called Graphical User Interface Development (GUID) systems. A window interface to an application includes the windows, sliders, buttons, menus, etc., together with the application functionality that is attached to each of these interaction mechanisms. The GUID systems allow the application developer to design a window-based user interface by working with a graphical editor that provides specification and placement of the window interface components. When the graphical design of the interface is complete, the GUID systems automatically generate programs that will produce the window interface that the application designer has described. This is done by generating source code that makes calls to the toolkit (e.g., XView) that implements the window interface functions, and by providing application "stub" routines. These stub routines (which are typically invoked by a window interface artifice like a "button push") are then replaced by the program code of the application that actually provides the application functions (e.g., data analysis).

One such GUID system is Sun's GUIDE product. GUIDE is itself a window based application, but is used for defining new window applications. LBL has been a beta test site for Sun's GUIDE product, which is now available from Sun. We have used GUIDE to produce the interface for several window applications and have found it to be a very successful software productivity tool, both in designing the original interface, and in making subsequent changes to the interface.

As part of ICSD's commitment to support a modern scientific software environment, the X window system is being supported. This support takes the form of acquiring, configuring, and exporting the MIT X distribution. The current version of X is X11 release 4 (**X11R4**). This is a relatively new release (within the past month), and until the bugs are worked out, X11 release 3 will also be supported. X is NFS exported in these two versions, and in two main pieces: the binaries, libraries, include files, and man pages are one piece, and the source code is the other piece. The part containing the binaries has a separate sub-part for each supported architecture. (Sun 3 and Sun 4 are currently supported).

The architecture of the directories of these two pieces has been designed so that each can be mounted at a specific point in the importing file system, and then a few symbolic links are created to cause the files to appear in the "standard" places in the local file system. For example, the Sun 4 export directory is in UX3.lbl.gov:/X11R4/Sun4 . The suggested mount point for this on all importing systems is /usr/local/x11r4. Once the mount is accomplished, then we find that the following directories exist on the local system:

```
/usr/local/x11r4/notes
/usr/local/x11r4/bin
/usr/local/x11r4/include
/usr/local/x11r4/lib
/usr/local/x11r4/man
```

. . . other contributed software directories, e.g.,

```
/usr/local/x11r4/xview
```

The next step is to create links so that these files appear in the places in the local file system that the usual utilities (man, cc, etc.) expect to find them. For example:

```
ln -s /usr/local/x11r4/bin/*/usr/local
ln -s /usr/local/x11r4/lib/*/usr/local/lib
ln -s /usr/local/x11r4/man/man3/* /usr/man/man3
ln -s /usr/local/x11r4/man/mann/* /usr/man/mann
ln -s /usr/local/x11r4/include/X11/usr/include/X11
```

The source part of the X11R4 distribution is currently exported from

UX5.lbl.gov:/usr/local/src/x11r4

a convenient place to mount that source in the local file system is on **/usr/local/src/x11r4** .

For those users who compile programs that are written in the style of the MIT X distribution, and use **Imake**, there are some notes available as to how the imake configuration is set up.

More detailed notes for the export/import process, on setting up your X environment, and on the use of Imake can be found in the NOTES directory.

Forward comments and questions to Bob Rendler at x5629 or

Unix or Software Tools Mail:	**RERendler@lbl.gov**
VMS Mail:	**lbl::RERendler**

X WINDOW DISPLAY SERVER ON MACINTOSH

Bill Benson

eXodus, an X Window server from White Pine Software, has been out for several months now. The current version is 1.12; Version 2.0, with color support, is in beta test and scheduled for release in April. A second server, **MacX** from Apple, is scheduled to be released early in 1990.

We have used **eXodus** on a MacII connected to LBLnet by a Kinetics FastPath (AppleTalk - Ethernet gateway) using MacTCP for transport. With this configuration, our experience is that it is viable, although performance is somewhat slower than with servers on other platforms. A direct ethernet connection would probably make a great deal of difference; a faster Macintosh would also help. It is possible to run **eXodus** on a Mac SE or Mac Plus, but this would probably be too painful for most applications.

eXodus consists of separate applications for Macs with (MacII and above) and without floating point hardware, a configuration file (**eXodus** Settings), and a font folder with ~700 KBytes of fonts. There is an auxiliary program to convert fonts, such as native Mac fonts, to snf format.

eXodus runs as just another Mac application under MultiFinder. The X root screen is a Mac window, which can be moved, resized, or scrolled through. The latter is awkward, but can be used when the size of the virtual X screen has been defined to be larger than the real Mac screen. Copy and paste can be done between other Mac applications that can accept bitmaps (PICT resources).

The configuration parameters include font path, screen size, keyboard assignments to make three buttons from a one button mouse, and a menu to run remote applications (clients).

The Clients menu can be set up to login and run applications on remote hosts. The internet number of your Macintosh can be sent automatically to the host, so that it is not necessary open a separate telnet connection. **eXodus** will, however, co-exist under MultiFinder with other programs using MacTCP, such as NCSA Telnet, HyperFTP, and the netnews reader HyperCard stack.

Any host can connect to your internet number and put up windows on your screen - the usual xhost mechanism cannot be used with **eXodus**. There is a menu entry, however, which when checked allows you to accept or decline attempted connections.

The Workstation Group has a copy of **eXodus** for evaluation ($499 list).

Forward comments and questions to me at x5703 or

Unix or Software Tools Mail:	**WHBenson@lbl.gov**
VMS Mail:	**lbl::WHBenson**

COLOR POSTSCRIPT PRINTER AVAILABLE

Nancy Johnston
Bill Benson
Bob Rendler

A color PostScript printer, a ColorScript 100 - Model 30 - from QMS, should be up and running in the User Area (Bldg. 50B, Rm. 1215) by the time this Newsletter hits your porch. You can print plots on both 8 1/2" x 11" and 11" x 17" paper as well as transparencies. A full range of colors and saturated blacks are produced by using thermal wax technology. The printer has a resolution of 300 dots per inch.

A variety of software packages can create color PostScript. For example, on the VAX/VMS Cluster, Computer Associates' DISSPLA and Tell-A-Graf and ATC's GKS (the color PostScript driver will be available next month). On Computer Services' Sun Unix machines, try ATC's GKS (coming next month). For Mac applications some of the packages supported are: PixelPaint 2.0, Adobe Illustrator 88, Pagemaker, and Cricket Presents.

The QMS is on the network and is accessible by computer throughout the Laboratory (including scientific workstation, Macintoshes, PCs, etc.). To access it from Unix and VMS machines, type:

lpr -Pqp2 <name of your PostScript file>

For Macintosh users, the printer name is "50B-1215 COLORSCRIPT qp2", which can be selected after clicking the **LaserWriter** icon and the lbl zone in the Chooser. (The **"LaserWriter 6.0"** distribution is required to get color or gray scale output. This distribution consists of three files, LaserWriter 6.0, LaserPrep 6.0, and Print Monitor 1.3, which should be copied to your System Folder, replacing the previous versions. In fact, all other Mac users in your work area should upgrade as well, so as to prevent thrashing between the two versions when printing to other LaserWriters. The three files can be obtained from the Graphics Folder on the file server **"WKSG Server1"** in the lbl zone)

The cost of materials for producing plots on the various media are:

	Paper	Transparencies
8 1/2" x 11"	.56	1.56
11" x 17"	.74	2.74

Since the paper trays are hand loaded, we will have no idea which medium is being used. Thus, we are experimenting with how much to recharge so we can recover the cost of the paper, transparencies and the thermal wax transfer sheets. The initial price will be $.75 per page.

Forward comments and questions to Nancy Johnston at x5093 or

Unix or Software Tools Mail:	**NEJohnston@lbl.gov**
VMS Mail:	**lbl::NEJohnston**

THE HIPS IMAGE PROCESSING SOFTWARE

Bill Johnston, ICSD
Nancy Johnston, ICSD

In the past few years image processing has become important to a more general audience than previously, due to the increased use of imaging as a data collection and analysis mechanism. In addition, traditional 2D image analysis techniques are now routinely used for things like data collection from video tape; data compression for storage; enhancement and geometric correction of 3D tomographic images; storage and manipulation of temporal sequences of images, etc. In particular, in the visualization of 3D scalar fields (of which tomographic reconstructions are one example), the distinction between visualization and imaging has become blurred. At the same time, the X window system, and very cost-effective, powerful scientific workstations like the Sun color SPARCstation, have, respectively, provided us with the capability of displaying images on a wide variety of devices, and routinely using our workstations for doing significant image calculations that were previously relegated to special purpose hardware.

Image processing capability can be provided in several ways. In order of decreasing dependence on programming skill, we can identify procedural libraries, modular program units, modules accessed through a visual programming paradigm (like the Macintosh LabView program), and specific applications, as mechanisms to get at image processing capabilities. To characterize each of these in turn, procedure libraries require a program be written to access the functionality; modular program units may be used directly, but may also require writing shell scripts to perform useful tasks; visual programming inter faces are the newest and most easily used, flexible environment; and specific applications are typically the easiest way to accomplish a specific task, but also the least flexible.

Over the next several months we will describe several of these paradigms that ICSD will make available to the LBL community. This note describes HIPS, an image processing system that is older, but fairly well developed, and very useful. Future notes will describe XVision and the new Stardent AVS (Application Visualization System), both of which are visual programming interfaces to image processing.

HIPS (New York University's *H*uman Information Processing Laboratory - *I*mage *P*rocessing *S*ystem) is a unix-based software image processing system that provides a modular and extensible mechanism for operating on images with most of the common image processing algorithms. HIPS is by no means the end-all-be-all of image processing, but the system is very useful and relatively easily to use. HIPS is organized as a collection of "filters", each of which performs a single image operation. These filters are implemented as programs in the Unix environment, and more complex tasks can be constructed by writing simple shell scripts to connect these filter programs.

Each HIPS program reads an image from "standard input", transforms the image, updates the image header to record the current operation, and writes the image to "standard output". These filters are piped together in the Unix fashion to provide complete image transformations. HIPS images are row and column oriented, monochrome gray scale images, with the pixels represented by a variety of data types (e.g. byte, short, integer, float, and complex), and with a header that contains sufficient information so that each HIPS program can operate on the image without further information.

In addition to gray scale and geometric transformations, spatial and frequency based filters, etc., there are a number of display modules that take a HIPS image and

present it as a viewable image on a particular piece of hardware or type of window system (e.g. X and SunView). Typical HIPS jobs or tasks are Unix shell scripts that transform an image, and then display it.

The following (non-trivial) example illustrates this typical HIPS usage. The original image is a 650 x 1445 pixel image, which is rotated 90 degrees from the natural "up" orientation, and which has gray values in the range 0-37000, stored in 16 bit pixels. This is essentially an "unviewable" image because the information of interest is located in several narrow gray level bands that are well below the resolution of video displays (or the eye for that matter). A conventional histogram equalization technique does not help — for two reasons:

- there is a gray level bias across the image;
- the desired information occurs in just a few monitor gray levels — and is therefore essentially invisible — even when you stretch the significant image gray scale to the full gray scale range of the monitor.

The technique for display is to use an "adaptive" histogramming technique that computes histograms in a local window, thereby preserving only local gray variations. In a sense this acts like a spatial frequency, high pass filter, suppressing all of the low spatial frequency gray level variations. This technique, developed by Stephen Pizer at the University of North Carolina, Chapel Hill, is a powerful, general-purpose technique for exploring images without a substantial a priori knowledge of the image structure.

In the example, several HIPS tasks are given as Unix, csh command lines. (The long file names are a personal convention for a quick reference to the nature of transformed images. This same information is kept in more detail in the image header.)

(1) Scale the image to a smaller gray range, perform a maximum likelihood smoothing for noise suppression, and an adaptive histogram equalization for contrast enhancement:

```
scale_gray -m 0 2000 -s < image_plate.1.h | mls \
    | mahe -H -W 20 20 > image_plate.1.ahe
```

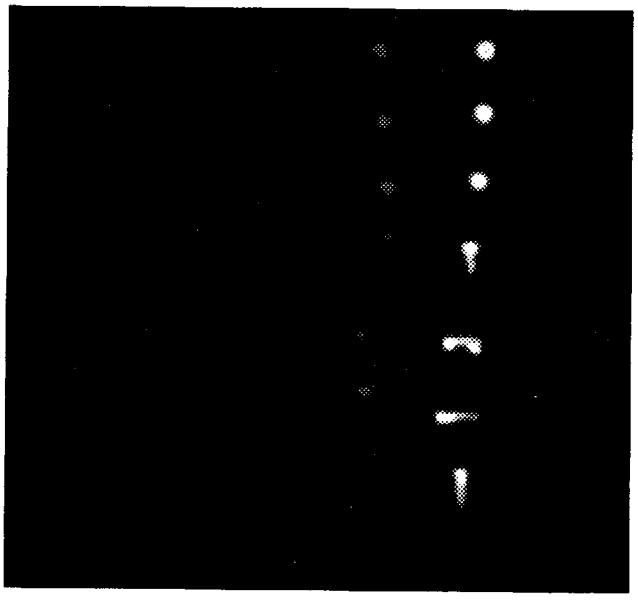


Figure 1.
This image illustrates the result of trying to display a typical high-resolution image. This image contains useful information in more than four orders of magnitude of gray scale. No linear mapping of that range of gray scale to a display device will be able to reveal that information.

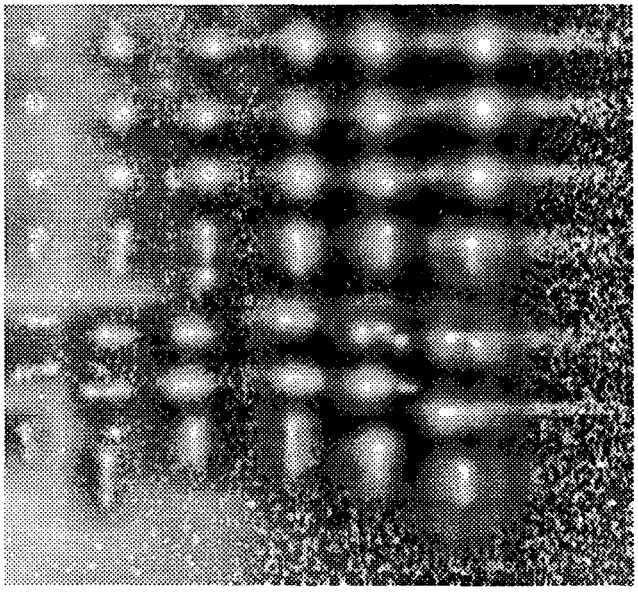


Figure 2.
This transformed image shows the result of applying the adaptive histogram equalization algorithm to the image of Figure 1. Since AHE is a locally-adaptive technique that expands the gray scale in a neightborhood of the point in question, all gray level detail is brought out. In particular, it can now be seen that information consists of six columns of blots. The first (leftmost) column represents a signal approximately $1/10{,}000^{th}$ of the sixth column. (These images are the result of calibration studies of a phosphor image plate reader, and represent work by Joseph Jaklevic, EE Measurement Science Group, LBL, Bill Johnston, ICSD, LBL and Molecular Dynamics, Inc.)

(2) Display the enhanced image in an X window by scaling to 255 gray levels, rotating, sizing to a specified window height, and sending the image to the desired workstation:

```
scale_gray -b < image_plate.1.ahe.w20 \
  | rotate90 \
  | scale_geom -h 750 | Xhips -d george.lbl.gov:0.0&
```

(3) Extract two sub-images that can each be displayed using the full area of a piece of 8.5 x 11 in. paper (in order to produce a high resolution hardcopy of the same aspect ratio as the original image), convert the images to halftoned, bi-level images for printing, and print on a 600 dpi, PostScript printer. (This printer gives a good representation of the image, but not photographic quality. LaserWriters may also be used. (For LaserWriters, use a screen frequency of 60 ("-F 60").)

```
scale_gray -b < image_plate.1.ahe \
  | extract 650 700 \
  | rotate90 | pshalftone -F 100 -w 8.5 \
  | lpr -Pvt1 -J 'image_plate.1.ahe'

scale_gray -b < image_plate.1.ahe \
  | extract 650 745 1 700 \
  | rotate90 | pshalftone -F 100 -w 8.5 \
  | lpr -Pvt1 -J 'image_plate.1.ahe'
```

There are about 230 HIPS routines that fall into the following categories:

- Gray Level Transformations
- Geometric Transformations
- Histogram Transformation and Display
- Filtering, Digital Transforms, etc.
- Noise Filtering
- Image Coding
- Segmentation, Classification, and Object Transformation
- Extraction of Geometric Areas or Gray Level Windows
- Image Characterization
- Operations on Sequences
- Operations on the HIPS Header
- Create Images
- Image Compositing
- File Format Conversion
- Image Annotation
- Display and Non-Image Output
- Misc
- Device Specific
- Graphics

One noteworthy little annoyance: while the images are self describing, many of the module implementations can deal with only one pixel data type. This means that the user must explicitly convert from data type to data type depending on the algorithm. (See, for example, the use of the "scale_gray" routine in the example above. HIPS provides a whole suite of these data conversion routines.) In image processing, different data types may not be related in a straighforward manner, so this may not be a trivial problem. For example, the histogram of a digitized (and therefore sampled and quantized) image reflects fundamental characteristics of the image. Transformation of that image from a fixed point to floating point representation (as is, for example, required for many transform filtering techniques) may destroy, or at least make difficult to recover, the original histogram information. The upshot of this is that one frequently has to interpose data conversion routines between the other HIPS modules explicitly .

HIPS is available on UX5 (the Sun 4/490, where the above example can be run to display on your local (gray-level or color) X workstation), and is also available for export to Sun3 and Sun4 architecture systems (DECStations running Ultrix could probably also be supported). For those interested in modifying the HIPS algorithms, or developing new HIPS modules, or for those who are just curious to see how the modules are written, the source code is available (though licensed, so a non-disclosure agreement is necessary.) There are two introductory documents for HIPS, one is the manual page "hips_intro", which contains a one line description of all of the HIPS routines, and the other is /usr/local/HIPS/doc/hipl_sw.me, which is an overview document. From UX5 these may be printed as follows:

```
itroff -man -P[printer] /usr/man/mann/hips_intro.n
                        and
itroff -me -P[printer] /usr/local/HIPS/doc/hipl_sw.me
```

Forward comments and questions to Bill Johnston at 5014 or

Unix or Software Tools Mail:	**WEJohnston@lbl.gov**
VMS Mail:	**lbl::WEJohnston**

DISSPLA 11.0 IS UP ON CSA3

Bill Benson

The latest release version of Disspla (Version 11.0) is now available on CSA3. Computer Associates' Disspla is an extensive graphics subroutine library for scientific and business applications.

Schedule:

Monday, March 19	Version 11.0 will become the default.
Monday, April 30	The previous versions (9.2 and 10.5) will be removed.

Changes needed in user programs:

Subroutine calls for static device nomination should be replaced by calls to load device drivers dynamically (exception: the Matrix QCR film recorder is nominated as before). The corresponding changes are listed below. Hardcopy devices nominated dynamically will use device specific output files, such as **ps.dat** for postscript, **talaris.dat** for talaris, etc. (Note well: static device nomination does **not** behave as expected - output is usually appended to **std00001.dat**.)

See also the chapter named **Devices** in Volume 2 of the reference manual and the online help. Here's how:

1) **login to CSA3** .....(Disspla is licensed only for CSA3)
2) **issco** .....(sets up necessary symbols)
3) **helpdis** .....(invokes the help library)
helpdis 11.0_Updates .....(this information)
helpdis device_drivers .....(using device drivers at LBL)

DISSPLA 10.5	DISSPLA 11.0
call zeta	call dev('nicolet_zeta1453_general',ierr)
call t4510a	call dev('tektronix_4693_general',ierr)
call vt240	call dev('dec_vt240_general',ierr)
call pscrpt	call dev('postscript_all_general',ierr)
call tekall	call dev('tektronix_4014_general',ierr)
call tk42	call dev('tektronix_4208_general',ierr)
call talars	call dev('talaris_v32400_general',ierr)
call ima300	call dev('imagen_8300_general',ierr)
call lsru1q(1,0)	...call lsru1q(1,0)

Major new and enhanced features in Version 11.0 include:

- Dynamically loaded device drivers (**DLDD**): Device drivers can be loaded at runtime, reducing the size of the executable, and allowing any installed device to be used without relinking (for example, by reading the device name at execution time).
- **Shareable library**: The Disspla and device driver object libraries have been installed as a single shareable image. This greatly reduces the time required to link applications to the object libraries, reduces the size of executables on disk, and reduces system memory usage.
- **Raster primitives**: Capabilities are now available for representing complex geometric objects in wire frame and fully shaded models.
- **Online help**: Extensive online help is available within the Disspla environment. Here's how to access the VMS help library for Disspla:

  1) **login to CSA3**
  2) **issco**
  3) **helpdis**

  You'll find a discussion of Features, Usage, Devices, and Current Status there. You'll also find detailed descriptions of each of the Disspla routines and their arguments.
- **Codebook**: This is an application generator for Disspla programs. After selecting the Master for the particular application type desired, Codebook prompts for keyboard input and produces Fortran output. Masters contain Fortran code, Disspla calls, and Codebook processor commands. Codebook output programs are fully functional and may be used as standalone applications. The programs are also highly structured and liberally commented as an aid to learning advanced Disspla features.
- **New user manual**: A complete new set is available; it includes a two-volume reference manual, pocket guide, workstation handbook, CA-DISSPLA First Facts.

To use DISSPLA Version 11.0 before March 19:

1) **login to CSA3**
2) **issco**
3) **setup_dis110** (this will not be needed after Monday, March 19 because $ issco will invoke the new version)

Forward comments and questions to me at x5703 or

Unix or Software Tools Mail: **WHBenson@lbl.gov**
VMS Mail: **lbl::WHBenson**

NEWS OF PHYSICS LIBRARIES

Werner Koellner

● PHYSICS UTILITIES

You can access the Physics Utilities, including the CERN Library, the PAW (Physics Analysis Workstation) Library, and the various Physics Utilities HELP Libraries by executing the DCL command

@Physics$Manager:Setup_Phys

We recommend that you include this line in your Login.Com file.

● CERN LIBRARIES FOR UNIX SYSTEMS, AND OTHERS

The discussion of programs and utilities in this section has been, and still is, restricted to implementations on the VMS Cluster CSA. Work is now in progress to make some CERN libraries available to Sun and SparcStation users. In particular the GEANT and PAW systems and associated object libraries will hopefully be available on local Sun machines in the very near future. Similar efforts could be untertaken for installation of these libraries on Silicon Graphics machines. Watch for future announcements.

● HELP

When you type

Help @Physics_Utilities

you'll see a list of utilities for which help text is available under "Additional information available." You may also type

Help *'subtopic'*

where *'subtopic'* is one of the utilities listed, to get help directly on a particular utility. You'll find information about some miscellaneous programs by typing

Help Mis_Phys

● APS_LaTeX

Submit articles to the PHYSICAL REVIEW in machine readable LaTeX compuscripts by using the APS "compuscript toolbox." Type

Help Mis_Phys Aps_Latex

for more information.

● APS_WHATS_NEW

Weekly news capsules, issued by Robert Park, of the American Physical Society, are available in APS_WHATS_NEW. Please type

Help Mis_Phys Aps_Whats_New

for further information.

● CERN LIBRARY

Object libraries are updated at unpredictable times. Changes are documented in the "Program Library News" section of the CERN Computer Newsletter. Past, current, and sometimes future issues can be found in **Cern$Inform:PROGLIB.CNLxxx**. Of particular interest are news items regarding the status of obsolete routines. Additional information can be found in various files in **Cern$Inform**, in **Cern$CernHlp**, and via online HELP for selected products. In some cases a previous version of an object library is available as **xxxxx.OLD**.

No new releases have been received this month, except as detailed below.

● COJETS

Documentation may be found in **Cern$Inform:Cojets.Doc.**

● GARFIELD

Garfield is a drift-chamber simulation program that calculates and plots the electrostatic field, the drift-lines of electrons and ions, and the currents on the sense wires resulting from the passage of a charged particle through the chamber. A copy of the User's Manual may be available from the Computer Center Librarian, Bldg. 50B., Rm. 1232C, x4242. Relevant files are **Cern$Library:Garfield.EXE**, as well as **Garfield.OLB**.

● GEANT

GEANT, a system of detector description and physics simulation tools, is available as part of the CERN Libraries. A new Sample Program, using ATC_GKS to demonstrate graphics and other capabilities, is now available.

Version 3.13/05 is the default version, with recent update modifications made in the Object library. The logical name **Cern$Geant_Lib** points to the appropriate object library file. The recommended link procedure is **Cern$Library:Geant.Lnk** using linker options files **GEANTxy.OPT**, where x is either I or B, and y is either <null> or _ATC, depending on the answers to the questions **Geant.Lnk** asks. The graphics interface for Geant is now GKS, but Geant is also available with the DI3000 graphics interface. To link that version, on CSA2 only, use **@Cern$Library:Geant_Di3000.Lnk.** METAFILE graphics output is available. Please type

Help Geant

for additional information.

● JETSET72

See **Cern$Inform:Jetset72.Doc** for information about the current versions of Jetset and Pythia.

NOTE: a pre-release of an updated version is available as

Cern$Library:Jetset72_New.Olb.

A test program, which also shows the appropriate linker command, can be run by typing

@Cern$Library:Jetset72

You may copy or type this file, **Cern$Library:Jetset72.Com**, to see what it actually does.

● PAW

At LBL, the program PAW is primarily being maintained in the full GKS version, named PAW_ATC, although the mini-GKS version, as well as a DI3000 version, are available. PAW_ATC uses the ATC-GKS interface, whereas PAW_DI3000 uses the Precision-Visuals DI3000 interface, which can be used only on CSA2. Both versions make a large number of output devices, for graphics output, available to the user. Standard executable programs of PAW_ATC, META-PAW, PAW_DI3000, as well as PAW, are available in **PAW$LIBRARY**. If desired, users may link their own versions by using or modifying the procedures

PAW$LIBRARY:PAW_ATC.LNK or
PAW_DI3000.LNK or
PAW.LNK).

These procedures use corresponding linker options files, e.g. PAW_ATC.OPT. With PAW_ATC, graphics output may be directed simultaneously to the screen or to a Metafile for subsequent processing via the program METAPAW, and also simultaneously, and selectively, to a PostScript file.

Most recent PAW_ATC improvements are documented in files **Cern$Inform:Paw.News***. The latest of these is PAW.NEWS1081. Manuals for PAW, including a fancy new User's Manual, are available from the Computer Center Librarian (Bldg. 50B, Rm. 1232C - x4242). Type

Help Paw

for more information.

● TOPDRAWER

A preliminary user manual is available in **Topdrawer$Library:Topdrawer.Doc**, and may be printed on any hardcopy device. Since local modifications are still in progress, you must type

Help Topdrawer

to receive the latest detailed information.

The latest version allows direct use of the VAXStation. To use that feature, specify VAX, in the SET DEVICE command. Note that all graphics plots can be "dumped" to a distributed printer, via the command

PR_DUMP <printer>

e.g. PR_DUMP IP5 <cr>.

Forward comments and questions to me at x4398, or

Software Tools Mail
or Unix: **WOKoellner@lbl.gov**
VMS Mail: **lbl::WOKoellner**

LBLnet NEWS

Bob Fink & Sig Rogers

Buildings Added to LBLnet
Building 66 was connected to the Routed LBLnet via the *ir5gw* router, and is located in subnet 131.243.16 along with Building 62.

Buildings 77 and 83 were connected to the Routed LBLnet via the *ir5gw* router, and are located in subnet 131.243.224 along with Building 74.

LBLnet Phase II Building Schedule Update
The LBLnet Phase II building attachment schedule is shown below.

If you have further questions about this schedule, please call Bob Fink (x5692), Sig Rogers (x6713), or Ted Sopher (x4559).

Bldg. 1 (Donner)	**operational**	Routed LBLnet
Bldg. 2 (AML)	**operational**	Routed LBLnet
Bldg. 3 (Calvin)	**operational**	Bridged LBLnet
Bldg. 5	**operational**	Routed LBLnet
Bldg. 7	**operational**	Bridged LBLnet
Bldg. 7	**operational**	Routed LBLnet
Bldg. 16	**operational**	Routed LBLnet
Bldg. 25	late Mar 90	Routed LBLnet
Bldg. 29	**operational**	Bridged LBLnet
Bldg. 62	**operational**	Routed LBLnet
Bldg. 66 (SSCL)	**operational**	Routed LBLnet
Bldg. 69	**operational**	Bridged LBLnet
Bldg. 72 (NCEM)	late Apr 90	Routed LBLnet
Bldg. 74	**operational**	Routed LBLnet
Bldg. 76	**operational**	Bridged LBLnet
Bldg. 77	**operational**	Routed LBLnet
Bldg. 80	**operational**	Bridged LBLnet
Bldg. 83	**operational**	Routed LBLnet
BARRNet (UCB)	**operational**	UCB, BARRNet & NSFNet access
ESNET	**operational**	MFE & several DOE Decnet sites

Routed LBLnet means Decnet and Internet (tcp/ip) service. XNS, LAVc and other protocols are only supported on the Bridged LBLnet unless their use is entirely local to a subnet of the Routed LBLnet.

Kinetics FastPath Limitation Soon To Be Fixed
A limitation was reached in January for the total number of routes that Kinetics FastPath gateways can know about and communicate. This limits LBLnet to the currently installed FastPaths. An enhancement to the FastPath software to allow more routes is currently the highest priority project for LBLnet. It is hoped that this enhancement will be done by the time you read this newsletter, but it is not certain at the time this article went to press (early February).

Recently, all FastPath Model 2 gateways were upgraded to FastPath Model 4s so that there would be sufficient memory space available for software enhancements such as the one now necessary to allow more FastPaths on LBLnet. The Model 2's had 48K of internal memory; the Model 4's have 256K. This larger memory space is essential for the routing enhancement.

All FastPath installation requests will be honored as soon as possible, based on FastPath delivery and the completion of the software enhancement.

AppleTalk/LocalTalk Networks As Part of LBLnet
When a user's private AppleTalk/LocalTalk network is attached to LBLnet with a Kinetics FastPath, it becomes part of LBLnet just as any Ethernet that is attached to LBLnet via a Bridge or a Router. What this implies is that the health of LBLnet for all of its users depends on the health of all of its components, including FastPaths and their attached AppleTalk/LocalTalk networks.

This is why, for example, no user is allowed to install software in a FastPath, or to configure it. This is done only under LBLnet management.

Users must pay for their AppleTalk/LocalTalk networks to be connected to LBLnet in the form of the costs for the FastPath and its installation. In addition, LBLnet staff must assess the health, documentation and cost effective maintainability of the user's AppleTalk/LocalTalk network before it can be become part of LBLnet.

In addition, AppleTalk/LocalTalk networks that are part of LBLnet are not allowed to be modified by the user. LBLnet staff must perform any changes. These issues will be discussed in more detail in next month's newsletter.

As for the Kinetics FastPath that a user "pays" for, it is really an attachment fee. Once the FastPath is acquired it becomes part of a pool of equipment that is part of LBLnet. LBLnet maintenance and operations staff is often required to replace a faulty FastPath or to have one upgraded to a newer version.

The result of this is that there is no guarantee of where a FastPath will eventually become installed in LBLnet as this depends on the maintenance of LBLnet. What is

guaranteed is that the user's AppleTalk/LocalTalk network will be kept operational on LBLnet tothe best of the LBLnet staff's ability. The user will always have the best FastPath that we can provide.

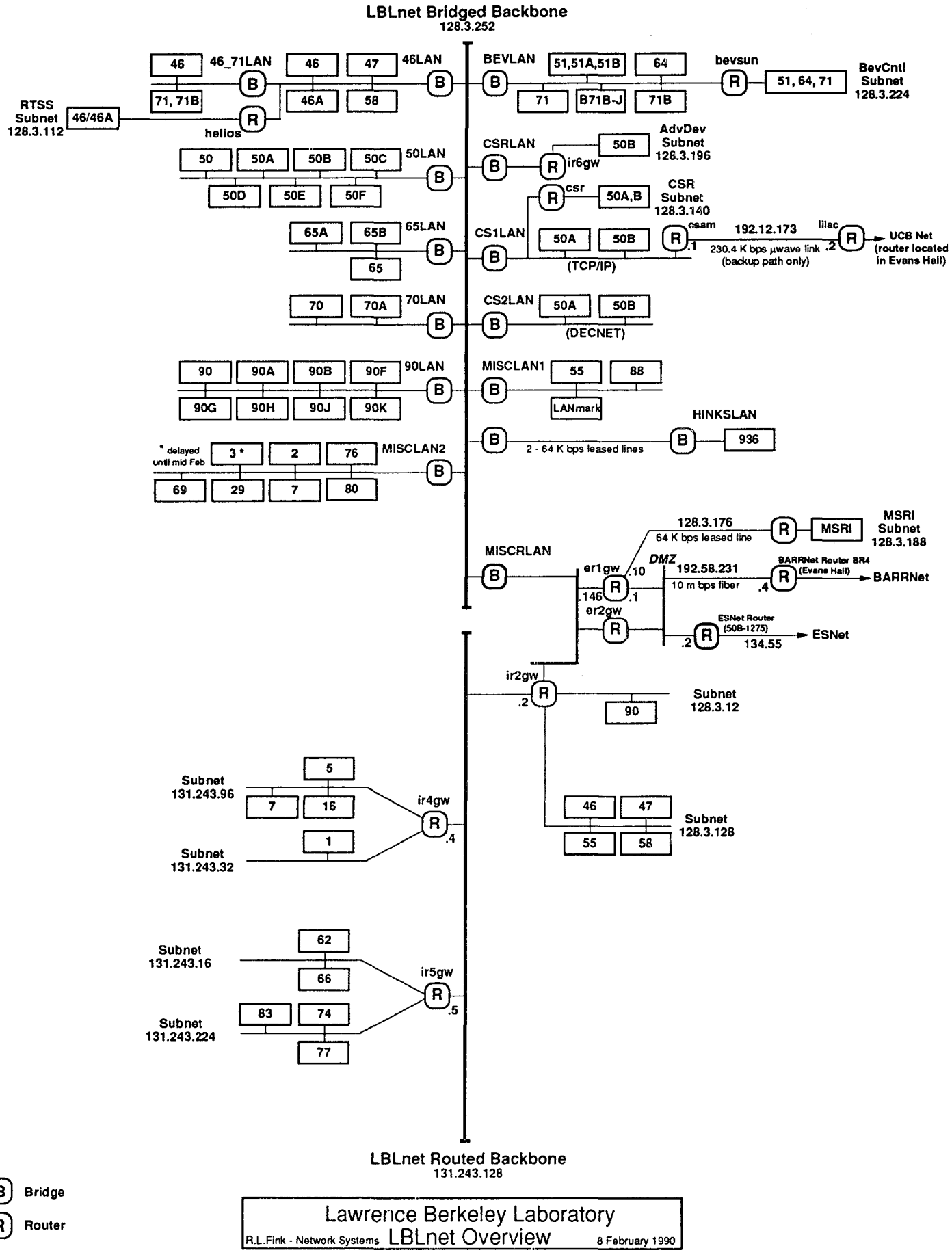
Since overhead funding is currently provided only for LBLnet Ethernets, maintenance costs for Kinetics FastPaths and AppleTalk/LocalTalk networks are charged to the user. Maintenance costs in both the AppleTalk/LocalTalk and Ethernet cases include documentation, labor and parts.

NETWORK TRAFFIC DATA FOR JANUARY 1990

Ethernet	Load	to Bridged Backbone	from Bridged Backbone
46LAN	38.6 pps	5.4 pps	32.7 pps
46_71LAN*	29.8 pps	0.1 pps	28.8 pps
50LAN	295.2 pps	113.4 pps	115.8 pps
65LAN	31.7 pps	.7 pps	28.9 pps
70LAN	82.1 pps	28.1 pps	50.0 pps
90LAN	46.7 pps	6.0 pps	34.6 pps
BEVLAN	131.2 pps	47.0 pps	60.4 pps
CS1LAN	354.6 pps	42.5 pps	84.4 pps
CS2LAN	242.8 pps	81.4 pps	104.4 pps
CSRLAN	55.1 pps	15.9 pps	39.6 pps
MISCLAN1	86.7 pps	13.5 pps	37.0 pps
MISCLAN2	35.3 pps	2.6 pps	35.3 pps
MISCRLAN	55.3 pps	13.9 pps	41.4 pps

Bridged Backbone Load ~371 pps

* 46_71 LAN traffic is to 46LAN, not the Backbone


LBLnet Bridged Backbone
128.3.252
46
46_71LAN
46
47
46LAN
71, 71B
46A
58
RTSS Subnet 128.3.112
46/46A
helios
BEVLAN
51,51A,51B
64
bevsun
71
B71B-J
71B
51, 64, 71
BevCntl Subnet 128.3.224
CSRLAN
50B
AdvDev Subnet 128.3.196
ir6gw
50
50A
50B
50C
50LAN
50D
50E
50F
csr
50A,B
CSR Subnet 128.3.140
65A
65B
65LAN
65
CS1LAN
50A
50B
csam
192.12.173
lilac
.1
.2
230.4 K bps µwave link
(backup path only)
(TCP/IP)
UCB Net (router located in Evans Hall)
70
70A
70LAN
CS2LAN
50A
50B
(DECNET)
90
90A
90B
90F
90LAN
90G
90H
90J
90K
MISCLAN1
55
88
LANmark
HINKSLAN
2 - 64 K bps leased lines
936
* delayed until mid Feb
3 *
2
76
MISCLAN2
69
29
7
80
128.3.176
64 K bps leased line
MSRI
MSRI Subnet 128.3.188
MISCRLAN
er1gw
.10
DMZ
192.58.231
10 m bps fiber
BARRNet Router BR4 (Evans Hall)
BARRNet
.146
.1
.4
er2gw
ESNet Router (508-1275)
.2
134.55
ESNet
ir2gw
.2
Subnet 128.3.12
90
5
Subnet 131.243.96
7
16
ir4gw
.4
1
Subnet 131.243.32
46
47
Subnet 128.3.128
55
58
62
Subnet 131.243.16
66
ir5gw
.5
83
74
Subnet 131.243.224
77
LBLnet Routed Backbone
131.243.128
B Bridge
R Router
Lawrence Berkeley Laboratory
R.L.Fink - Network Systems LBLnet Overview 8 February 1990

THE WORKSTATION SCENE

The Workstation Group Laboratory, home of several Workstation members as well as the *Workstation Evaluation Library* is located in Bldg. 50B, Rm. 2231. The hours are:

Mon	8 AM - 1 PM
	3 PM - 5 PM
Tues - Fri	8 AM - 5 PM

You can also reach us from the Computing Division's Unix machines or the VMS cluster by sending mail to:

Unix or Software Tools	WKSG@lbl.gov
VMS Mail.	lbl::WKSG

We're here to help; please call us at x6858.

• [27.3.1]

GRAPHICS SEMINAR MARCH 13

Workstation Group member John Flambard will give a one-hour seminar — "Upgrading Your Graphics" — on Tuesday, **March 13**, at 10 AM in Bldg. 50B, Rm. 4205.

Flambard will discuss Word Slides, Bar Charts, Scatter Plots, & Pie Charts; he'll also give general rules for producing high-quality visuals.

This seminar is aimed at originators and authors of graphics for both presentation and publishing.

To reserve, call Carole Casaretto at x6858.

• [27.3.2]

ELECTRONIC LBL PHONEBOOK: ONLINE ACCESS

The electronic version of the LBL Phonebook is usually updated once a month. Here's how to get the most up-to-date listing:

• On the CSA cluster, type at the CSA prompt ("CSA*n*>"):

set default ibmpcphone

to set your default to the location of an ASCII version of the file called PHONBK.FIL. To search the file on the CSA cluster mainframe, type at the CSA prompt:

search phonbk. fil *'string'*

where *'string'* is a string of characters such as a name or phone number. For convenience, include a symbol to search the PHONEBOOK file in your LOGIN.COM file . A typical example:

LBLPH*one == "SEARCH
IBMPC_DISK:[PHONE]PHONBK. FIL"

Now you have defined "lblph," a private symbol, which will accept a string and search the PHONEBOOK file whenever you are logged in to your CSA account. Note that there are also several utility programs in this directory that are used to search the file when the file is downloaded to an IBM PC or clone.

• On a PC or compatible, type at the CSA prompt

set default ibmpcphone

to get to the correct directory, then download "PHONBK.FIL" to your PC using Kermit (or other file transfer program). If you don't already have a program to search the file when you get it to your PC, you may also get a copy of "LIST.COM"or "FGREP.COM" to accomplish that. NOTE WELL: these programs will execute only on an IBM PC or compatible and not on the CSA machine itself.

If you're really into speed and want an even faster way to access the phonebook on an IBM PC, you can type

set default ibmpcphone

first, and then

set default[.phonex]

to get to a sub-directory containing a special compressed version of the phonebook called "**pbookx**" and the program "**phone1.exe**" to search it. The other files in this subdirectory are support files and documentation for this phonebook version. NOTE WELL: this version and its support file can be used ONLY on an IBM PC or compatible.

• On a Macintosh computer:

A version of the phonebook exists as a HyperCard document. This document is available from the WKSG Server. Look in the folder "UTILITIES," and the folder LBL Phone Stack for the HyperCard document called **LBLPhoneBook**. You can copy this HyperCard document from the Workstation server to your own Macintosh computer. The LBL Phonebook is also available via disk exchange at the Workstation Group lab, Bldg. 50B, Rm. 2231. The file almost fills a 3 1/2" diskette and can be searched using the HyperCard program on almost

everyone's Mac. (At this writing, the HyperCard stack for February 1990 is now available.)

• For PC users with access to the lab 3COM 3+ network:

The WKSG server contains a copy of the same compressed version found in the ".PHONEX" subdirectory on the CSA cluster. PC users may access it on-line or get a copy on their machines by logging in to their local 3COM network server and then linking to the directory containing the phonebook files. The details will vary in each local 3COM network server. Check with your local 3COM administrator for details. A typical setup is

3f link d: \\s\apps

These on-line phone lists are always more recent and up-to-date than the printed Laboratory phonebook.

Forward comments, suggestions, and questions to the Workstation Group at x6858 or via e-mail to **wksg@lbl.gov** (or **workstation@lbl.gov**).

• [27.3.3]

TRADING POST

Items advertised here are for Laboratory use only and must be purchased with a valid account number. If you have items you wish to advertise in the Trading Post, contact Bruce Burkhart, x6858.

1. For Sale: DaynaTALK network Interface box for LocalTalk, 3 ea, brand new, Half Price! $70 ea. Contact: Workstation lab, Bruce Burkhart, x6858.

2. For Sale: 2400 Baud internal Modem for a DataView Spark Laptop, IBM-PC compatible computer, $239/b.o.; Contact Harvard Holmes, x5742.

3. For Sale: Package: MacSE w/20 Mbyte HD/2.5 Mbyte RAM, and 19" LaserView Monochrome Monitor, $2.095. Contact: Richard LaPierre, x4692.

4. For Sale: Moniterm VY1000, 19" Monochrome Monitor, w/MacII card, almost new, $795. Contact: Richard LaPierre, x4692.

5. For Sale: MacPlus w/1 Mbyte RAM/keyboard & Ext. 20 Mbyte Hard Disk, $950. Contact: Bruce Burkhart, x6858.

6. For Sale: IBM XT personal computer, 10 Mbyte Hard Disk, & CGA Color Monitor, $549. Contact: Richard LaPierre, x4692.

7. For Sale: IBM XT personal computer, 10 Mbyte Hard Disk & Monochrome Monitor, $549. Contact: Richard LaPierre, x4692.

8. For Sale: Apple 12" Monochrome Monitor, wo/ adaptor card, $119. Contact: Bruce Burkhart, x6858.

9. For Sale: Sun Microsystem Software: Sun *Paint-Write-Draw v1.1*, 1/4" tape, for Sun workstations, $250. Bruce Burkhart, x6858.

10. For Sale: Apple Personal Modem, 1200/300 baud. 2ea., $80/bo; contact Phil Williams or Vangie Peterson, x4373.

[27.3.4]

LUNCHTIME WORKSHOPS

Here is the schedule of the new Lunchtime Workshops for Microsoft *Word* for the Mac, Microsoft *Word* for the PC, and *FileMaker II* coming up in March through June. No sign-up is required.

Microsoft *Word* for the Mac Workshops in March
12-1 PM - 50B/1229

03/06/90.....Styles
03/13/90.....Glossaries
03/20/90.....Tables
03/27/90..... *Word* Equations

Note: There will be **NO** Microsoft *Word* Workshops for the Mac in April, May, or June.

Microsoft *Word* for the PC Workshops in May
12-1 PM - 50B/1237

05/01/90.....Styles
05/08/90.....Glossaries/Macros
05/15/90.....Merge/labels

***FileMaker* II Workshops in June**
12-1 PM - 50B/1229

06/12/90.....Entry Options
06/19/90.....Calculations/Summary Fields
06/26/90.....Scripts, etc.

• [27.3.5]

GENEROUS VENDORS

The following vendors have recently contributed software to help us keep our evaluation effort lively in spite of our tired budget:

Altsys Corp:	*Fontographer* 3.0 upgrade
Fifth Generation Systems Inc.:	*Fastback Plus* and *Mace Utilities*
Kent-Marsh Ltd:	*MacSafe II* upgrade
ParcPlace Systems Inc.: (watch for our review next month)	*Smalltalk-80*
Symantec Corp.:	*Sum II* upgrade

Many thanks.

• [27.3.6]

VERSATERM UPGRADE

VersaTerm v4.1 and *VersaTerm-PRO v3.1* are now shipping. For the next several months only, the Workstation folks will do the paperwork, and process your order.

To upgrade from VersaTerm Version 3.0.x or VersaTerm-PRO 4.0, bring (or mail):

- A photocopy of your original disk (with the serial # showing)
- A valid account number
- Name, Mail Stop, and Phone extension.

Send all this stuff to:

Workstation lab
Bldg. 50B, Rm. 2231
LBL

A cost of $20 per upgrade will be recharged to your account.

If you have earlier versions of these programs, we will need your original "manual cover" instead of the photocopies — plus the $20 per upgrade.

• [27.3.7]

3COM ADMINISTRATORS USERS GROUP

LBL's 3Com administrators began meeting again in February. (These meetings will provide an exchange of expertise between work Groups.)

Many attendees were interested in the implementation of multi-user PC Focus on LANs. Several FOCUS applications are in the planning and development stages.

Russ Montello and Barbara Carroon of Data Processing Services explained the requirements of a central database security machine. All multi-user FOCUS procurements must be coordinated with Russ so that a license for new users is added to the existing network base.

Network administrators attending this forum came from the Office of Sponsored Research, Personnel, the Budget Office, Travel Office, Environmental Health and Safety, Construction and Maintenance, Information and Computing Sciences, and Electrical Engineering.

The next meeting will be held on Wednesday, March 21st, from 9 to 10 AM in Bldg. 50A, Rm. 4205 (the Conference Room). The main topic will be network training and technical support. There'll also be a demonstration of network diagnostic equipment. If you would like to be put on the mailing list, call Nancy Travis at x6858.

• [27.3.8]

TOPS 3.0 UPGRADE

. . . LBL Site Upgrade

Both TOPS/Mac 3.0 and TOPS/DOS 3.0 upgrades will soon be available to LBL users, at no charge, from the Workstation Group (Bldg. 50B, Rm. 2231). The upgrades are just for users currently running Version 2.0 or 2.1 of TOPS. If you're running an older version of TOPS (1.x), an upgrade is available for $75 per node. The new TOPS/InBox software is not included with the Workstation upgrade offer. Call Bruce Burkhart at x6858 for a status statement (availability of the upgrade; additional information).

• [27.3.9]

USED MONITOR SPECIAL

. . . From Sigma Designs

Do you have one of those "first edition" LDM0019 Sigma Designs monitor (the original one with the "square metal back")? Well, it's almost two years old now, and if it has been given lots of use, this might be time to unload it before heavy repairs are necessary.

For just $650, you can trade in the old monitor (even if it's dead) for a brand new model (LBM1019); a one-year warranty goes with it. You keep your old adaptor card, which will be upgraded with new ROMs at no charge. Contact Dave Busby, RTSS, x6411 for more details.

• [27.3.10]

THE 15TH WEST COAST COMPUTER FAIRE

The West Coast Computer Faire will be held on Thursday through Sunday, **March 1-4, 1990.** Hours are:

Thursday - Saturday .....10 am - 6 PM
Sunday .....10 am - 4 PM

The show will be held at Brooks Hall and the Civic Auditorium, San Francisco. This show is the Grandaddy of computer shows for MS-DOS microcomputer users.

Tickets are available at the Civic Auditorium Box Office ONLY. They will go on sale 15 minutes before the show opens each day.

A one day ticket cost $12; a four day tickets cost $25 (cash only).

• [27.3.11]

WORD 5.0 DRIVERS FOR NEW HP CARTRIDGES

Just when things seemed stable with *Word* 5.0 and HP LaserJet printers, Hewlett Packard comes along with a whole new line of cartridges. Which driver (PRD file) to use?

The **ProCollection Cartridge:** For any HP LaserJet

Use the HPPRO and HPPRL PRD's included in *Word* 5 distribution disks. (But not documented. Our great thanks to Doug Lipton who got this information from the Workstation Support Group on campus and passed it on.)

The **Microsoft Cartridge:** For any HP LaserJet

Use HPLASMS PRD available from the Workstation Group on the Super-8 driver set.

Super-8 cartridges: For Series II and newer only

All PRD's on the Super-8 driver set disk available from the Workstation Group:

WordPerfect Cartridge	HPWP PRD
Global Cartridge	HPGLOBAL PRD
Bar Codes and More	HPBAR PRD
Scientific Equations[1]	HPEQUATE PRD
Forms	HPFORMS PRD
Polished Worksheets	HPWSHEET PRD
Presentations	HPPRESENT PRD

• [27.3.12]

DOS LBL LOGO FILE FOR POSTSCRIPT PRINTERS

Russ Montello offers a PostScript LBL logo.

THIS LOGO WORKS ONLY ON POSTSCRIPT PRINTERS—NOT ON HP PRINTERS[2] -SORRY!

NEITHER RUSS NOR THE WORKSTATION GROUP CAN PROVIDE SUPPORT.

Now that those bristly disclaimers are out of the way, the adventurous might enjoy trying the logo. We've added some notes indicating modifications that users can make and we've thrown in a "DOC" file with instructions on how to do it; the whole package is available on diskette (bring a blank) from the Workstation Group.

[1] This one is like having both the old J and K cartridges in one.

[2] Excepting those HP printers tricked out with PostScript boards or cartridges.

• [27.3.13]

TWO NEW PC PRODUCTS FROM ASHTON-TATE

✔ *Applause II*
is a business graphics color presentation package for making 35mm slides, overhead transparencies, viewgraphs, color prints, and printed output. This is a major upgrade of their original product, *Draw Applause.*

✔ *Control Room*
is a very jazzy utility that reports on the current state of your system, and gives you options for maximizing performance. It will, for instance, find the size of your hard disk and its access time, its interleave ratio, its data transfer rate, and more. *Control Room* is scheduled to ship April 1.

Applause II is now available at a special LBL discount price of $99 through March 31. There is no upgrade path from the original *Draw Applause.* We'll take orders at the Workstation lab (x6858) until the last few days of March, so you don't have much time left to decide.

• [27.3.14]

SCREEN HELP FOR POSTSCRIPT PROGRAMMERS

✔ *PS Tutor* from Lincoln & Co., $112 LBL price.

PostScript hackers: save paper, save time — *PS Tutor* mimics a PostScript printer, on screen. It includes on-line help for the program itself and an on-line PostScript manual. Be aware that *PS Tutor* takes lots of RAM, it is a little slow, and it isn't too easy to set up. Given all of that, it's fun to make it draw boxes, circles, etc., in PostScript.

Available for evaluation from the Workstation Group.

• [27.3.15]

THINK BACKUP
THINK PREVENTION
THINK RECOVERY

. . . *Cogent Commentary from WKSG member Claudia Madison.*

✔ *Fastback Plus* from Fifth Generation Systems, Inc., $189.

✔ *Mace Utilities Version 1990* from Fifth Generation Systems, Inc., $99.

(Special thanks to Fifth Generation Systems, Inc., for providing evaluation copies of their programs.)

Where there are two or more PCs there should be a system administrator, and that administrator should have, and know how to use, disaster prevention, diagnosis, and recovery tools. Unfortunately, many of us do

our own system administration, after a fashion. The fashion is often of the "My hard disk has been acting funny for a few weeks, and now it's so bad I can't load/save/find my files and I don't have a backup" variety. The moral: EVERYONE NEEDS SYSTEM ADMINISTRATION TOOLS.

There's a rub, though. These tools are often hard to understand, "techie"-oriented, and so inconvenient that we're willing to risk occasional catastrophe in order to avoid a daily grind. To the extent that such utilities are useful—and used—they must be comprehensible and convenient.

These utilities from Fifth Generation Systems, Inc. pretty much fill the bill. Manuals accompanying both packages are clearly written, installation is easy, there are menu-driven interfaces, and clear and certain warning messages about possible results. *Fastback* is especially friendly, and its manual contains a good background explanation of image vs. file-oriented backups, incremental vs. differential, etc.

✔ *Fastback Plus:*

First, a confession. I don't really believe in full backups.[3] Once, long ago, I had a bad experience with an image-based backup system. Then I tried a file-based system and got tennis elbow inserting the thirty-first floppy required to "do" a 20 Mbyte drive.

The news with *Fastback* is that, easy as it is to use, it still takes 11-360K disks to back up the 3+M of real work I need to keep track of. The disks have to be carefully labeled and saved. This is still a pain.

But this is also 1990 and we have higher capacity floppies and networks! Once Nancy Travis got me onto the 3-Plus network, I was able to back up my entire 30M disk to the server in 15 minutes flat. Recovery of my 3+M "real work" directories (I really did erase them; this was a serious test!) took 9 minutes. If you have extra server disk space, this is a fairly painless way to go. It becomes even easier if you create a backup command macro to make the process almost automatic. (The manual gives full instructions.)

Moving on to a PS/2 model 70 we're testing: A full backup (12 Mbytes) onto 1.4 Mbyte floppies took 8 minutes (and 6 disks). I re-partitioned and re-formatted the hard disk on this system and was able to restore all the files in another 8 minutes. (This compares favorably with a streaming tape backup of the same machine that took 5 minutes plus a lot of time for the tape to wind, rewind, and do whatever else it does that makes it sound like a dentist's drill.)

My conclusion is that users with almost any configuration can find a way to use *Fastback* to do frequent, painless backups. If our excuse for not doing backups was that they are inconvenient, we've just about lost that excuse.

✔ Mace *Utilities Version 1990:*

I think of disaster when I think of the Mace Utilities package. It has programs to recover text from a chowdered text file (into *Word* format, if you please), to repair damaged dBASE files, to identify and lock up bad disk areas, to repair damaged File Allocation Tables, directories, and boot sectors (all of which, if damaged, can make a disk look hopelessly destroyed).

It's hard to evaluate such utilities, though, if you don't have a wide variety of disasters at hand. The only disaster I had to test was one particular old XT hard disk that has been "flaky" since the earthquake. (Honestly). Mace Utilities *Remedy* program actually found two bad sectors in the disk and made it so that DOS never tries to go to those places again. A graphical representation of this process is fun to watch. (During an otherwise long, boring process). I created a disaster of my own, formatting diskettes and then trying to unformat them (which works best if one first runs Mace's *RxBack* program to ensure that Mace can fully restore the zapped files).

Disaster recovery with Mace may be gratifying, but Mace *Utilities* are actually more rationally used as **preventive** measures. Modules exist to check and fix fragmentation, to check (ahead of time) for bad disk areas, and to maintain vigilance against the most obvious behavior of viruses. I defragmented my 386 disk with no trouble. (Again, with a graphical representation of the process that looks something like a Pac Man game.)

If $99 still seems like too much money to spend for occasional disaster recovery and prevention, consider that Mace Utilities also include goodies we can use every day. The *Find* program to locate files by name is slick and fast. Other programs can do two-level sorts on directories—ascending or descending—give system status, destroy files thoroughly according to DOE specs, and, as part of the virus detection system, provide a detailed list, by directory, of all executable files. Aside from using it as part of virus protection, this last is a boon to anyone trying to keep track of what machine has what programs—not an easy task in a place like this.

Users are encouraged to evaluate both *FastBack* and Mace's *Utilities* at the Workstation Group.

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[3] It's not that I don't believe in backups. I do. I do. I'm a person who zones out and types "erase *.*" at the wrong place at least once a year. I backup my work to floppies as I go. I keep backup disks of my applications. And I can say—truthfully—that I have always been able to recover, albeit at some cost in time, from my disk disasters.

• [27.3.16]

PC TECHNICAL WORD PROCESSING IN THREE PARTS:

1. More on *Windows Word*

Some things to clarify about last month's remarks:

(A) I had a brief opportunity to try *Windows Word* on a fast 386 PS/2 with tons of extra memory and it is a wonder. Really, folks. If you have the hardware, this is the word processor. And get this! Many of the equation problems I reported last month disappear. (The subtile ones do not, but the terribly ugly things do.)

(B) Seeing how well *Windows Word* worked on the PS/2, I was even more disappointed at how it had performed, especially the equation problems, on my less-powerful machine. I installed it one more time on my machine. Lo-and-behold, the serious equation display problems cleared up on my machine, too, and I got a passable print from our old LaserJet Plus. (The PostScript printer output was always pretty good.).

There are still subtile alignment problems with in-line integral-type expressions; and the HP printers still do a horrible job on radicals. Even so—this was a better result than last month's.

I believe the trick is to install HP symbol soft fonts, whether you are using an HP printer or not. The installation prompts you to do this if it detects an HP printer installed in your Windows or if you choose an HP printer when installing the runtime version.

At any rate, *Windows Word* works better than I thought last month. If you, too, had problems, you might want to try it again.

(C) I should have mentioned before this that *Windows Word* on-line help is very good; it's a hypertext-type application that's probably all the manual most of us need.

2. A Quick Look at *WordPerfect 5.1*, from WordPerfect Corp, $495, list price. Upgrade from 5.0, $85.

WordPerfect 5.1 boasts 30 new features but I only looked at 4: mouse/menu, tables, characters, and equations.

(A) Mouse/pull-down menu support is a wonderful addition for people who have never cottoned to *WordPerfect*'s function key system.

(B) The new table layout allows multi-line table cell entries, easy border-making, calculation, and more. It is less intuitive than the *Windows Word* table generator because editing the cells has to be done in one mode while editing the contents of the cells is done in the regular editing screen. Still, it is nice.

(C) *WordPerfect* has zillions of characters (including Russian, Hebrew, Japanese, dingbats, and numerous scientific and math symbols). All it takes to get special characters is lots of time and a printer that can do graphics and has plenty of memory. I choked an old LaserJet Plus doing a single page of all special characters, but the PostScript printer had no trouble; I imagine an HP series II printer with 1 or 2 extra megs could handle it all with aplomb.

(D) Equations are treated as graphics, and, as such, require editing in a completely different mode from that of regular text editing. Creating equations requires typing them in a TeX-like mark-up language. "{a + b} over {c + d}," for example, to create $\frac{a+b}{c+d}$. This is not difficult; there is on-screen palette menu help and a graphical representation of the equation being drawn. The full palette menu of *WordPerfect* graphics layout options is available. Right-adjusted equation numbering (automatic) is default. In many ways this is a terrific add-on. (And it is an add-on; users of *MathEdit* will find the new equation editor very familiar.)

The only problem with *WordPerfect* equations is that the results are disappointing. Integrals and brackets don't size to fit their expressions, operators don't align to the center of the main line of the equation; horizontal spacing of sub- and superscripted characters is erratic. This happens on both HP and Apple laser printers, and there's no way I can see to control it.

My suggestion to users: try it before you buy it. (The Workstation Group evaluation center has it.) It may be that the quality is sufficient for most uses. And, let's face it, unless you have the configuration to use *Windows Word*, *WordPerfect* is the only equation-producing full-featured word processor in town.

3. What is this month's bottom line for Equation-typers?

If you have (or can beg, borrow, or buy) a fast 386 with 2 or 3 extra megs of memory you might be very happy with *Windows Word*.

Even if you have only an AT with no extra RAM, you might try *Windows Word*. If you need the features, you might be able to stand the slow performance.
If you have a minimal configuration AT or an older PC, look at *WordPerfect* 5.1.

In the case of both *Windows Word* and *WordPerfect* 5.1, try *your* equations. You might have better (or worse) luck than I did.

• [27.3.17]

CD ROM SHARED VOLUMES

The Workstation Group is currently mounting public domain CDs (compact disks) on our file server. These disks are intended to give the user community a sampling of available compact disks.

The current CD library includes

- **BMUG Public Domain CD**
- **Apple Developer Helper CD**
- **Apple Science CD**

Compact disks on a file server can only be switched at boot-up time. Therefore, we cannot casually switch disks upon request. Normally we will publish our newest selection and occasionally we will republish the more popular disks. Since these disks will not remain mounted for long, copy what you want before it disappears.

The server will be down from 7 to 9 AM on the first working day of the week: CDs are usually switched at that time.

For a more complete review of the CD connection, see the December '89 Newsletter, 26.12.9. Forward comments and questions to William Jaquith (x4388) or to **wksg@lbl.gov.**

• [27.3.18]

MACWORLD EXPOSITION

The MacWORLD Expo will be held on **April 11, 12, and 13,** in three San Francisco locations: Moscone Center, Brooks Hall, and Civic Auditorium. MACWORLD Expo Express Buses conveniently connect you with all three locations.

Exhibits	10 am to 6 PM	Wed. & Thurs.
Conference	10 am to 6 PM	Wed. & Thurs.
Program	10 am to 12 noon	Friday

Pre-registration costs are $65 for Conference/Exhibits; $15 to go to the Exhibits only. Your advanced registration must be received by March 5, 1990. After March 5, you must register at the show and the cost will be $80 (cash only) for the Conference/Exhibits; $25 (cash only) for the Exhibits only.

Please contact WKSG member Carole Casaretto at x6858 for more information.

• [27.3.19]

FILEMAKER II TIPS

. . . *From Wksg member Carole Casaretto*

If you're just getting started with ***FileMaker*** II and you don't have time to take the Workstation Group's introductory course, here are some important concepts to keep in mind,

1. Fields must contain the smallest meaningful unit of information.

For example, one common mistake is to create a "name" field containing multiple components.

Here's the **right way** to define *name fields* that contain components (title, first name, middle initial, and last name):

FIELD DEFINITIONS

title	*first name*	*middle I.*	*last name*
Mr.	Curt	L.	Besette
Ms.	Sylvia	T.	Sutter

Here's the **wrong way**:

FIELD DEFINITION

name
Mr. Curt L. Besette
Ms. Sylvia T. Sutter

Never, **never**, lump all the components into the one field definition "name". There is no way *FileMaker* can sort on last name with a field defined as "name" since *FileMaker* starts sorting on the first character of the first word in the field.

Creating an "address" field is also a common mistake; always remember that fields must contain the smallest meaningful unit of information.

2. When doing your data entry, remember to TAB between fields. Do not press the return.
3. Use the Option Key to keep objects aligned and to keep lines straight.
4. A "find" undoes a "sort." Find your records first, then sort them.

To learn more about these topics, and much-much more about *FileMaker* be sure to enroll in our Introduction to *FileMaker* course. Contact WKSG member Carole Casaretto at x6858.

• [27.3.20]

MACINTOSH HARD DISK PROBLEMS

There seems to be a problem with some of the hard disk drives purchased from Apple. If your disk icon fails to appear on the desktop when you first power up your Macintosh, you may have one of these troublesome drives. (We experienced this phenomenon when one of our systems was shut down for the long holiday break and again over a long cold weekend.)

The problem is manifested in two drives:

- Certain 40 Mbyte drives manufactured by Seagate. (Apple will do free advance exchange; you receive and install the new unit before returning the faulty unit.)
- Certain drives manufactured by Quantum. (There is now a PROM upgrade.

If you are experiencing problems with your hard disk, give RTSS technicians a call at x6411. They have the PROM upgrades and will arrange to get you an advance exchange disk if yours is subject to the recall.

• [27.3.21]

UPWARD AND ONWARD I: MODIFIED FTPA FORM TEMPLATES

We've modified the FTPA Form template documents (found on the Workstation Group Server in the LBL forms folder).

The appearance of the forms pages has not changed: we've just refined some spacing and margins and added a continuation pages file with the forms data placed in a header.

• [27.3.22]

UPWARD AND ONWARD II: LBL FONTS

LBL fonts are works in progress. We keep the most recent modifications on the Workstation Group Server (Utilities folder, LBL FONTS folder). The fonts folder is labelled with the date the folder was moved to the server. You may want to upgrade your own copy periodically.

• [27.3.23]

HYPERCARD/MULTIMEDIA CORNER

. . . by HyperFan Bruce Burkhart

E-Mail Help Stack is coming!

By mid-March, a new HyperCard stack produced in the Workstation lab should be available to those new users caught in the quicksand of Electronic Mail. Titled, **"An Introduction to Electronic Mail at LBL."** the stack has been designed primarily for new and intermediate users who are completely baffled by Electronic Mail, networks, gateways, etc. The stack will include sound & film clips of live Macintosh login Electronic Mail sessions connected via Telnet, VersaTerm, and the new magical ADI/IBX boxes. Other highlights include:

- How to open an account on the Cluster/Unix machines
- How to connect your workstation to your E-Mail account
- Using Telnet, VersaTerm, and the ADI connections
- Mail Address Basics; finding an address
- How to send mail
- Local and Remote Networks.

BMUG March '90 Calendar

March 1:... A talk on computer security by Cliff Stoll (author of "The Cuckoo's Egg")
Mar 8:..... *MacInTax* demo by SoftView, and a demo of *JukeBox* by PLI.
Mar 15:..... Some new products will be shown by Symantec. *LetterForm & Illusions* will be demo'd by Scott Kims.
Mar 22:..... Again, some new products by Peter Norton, and a *PhotoShop* demo by Adobe.
Mar 29:..... Three demo's: *Partner* by Salient, *LetterWriter Plus* by Power Up, and *PixelPaint Professional* by SuperMac.

For location, times and other information about the Berkeley Macintosh Users Group (BMUG) meetings, contact us at the WKSG lab (Bldg. 50B, Rm. 2231, x6858).

Farallon & MacroMind

Both multimedia program developers have new or upgraded products in the pipeline.

✖ Farallon's soon-to-be-announced program, *MediaTracks* (an upgrade of *ScreenRecorder*), lets users record and replay sequences, or "tapes," of user actions — graphically. The resulting screen events then can be used in demos or other presentations. Since we're beta testing this product, such recorded screen events have been incorporated in our HyperCard stack. "An Introduction to Electronic Mail at LBL" (see lead paragraph).

✖ MacroMind has announced three events:
MacroMind Director 2.0 Upgrade
3DWorks, a new high-end 3-D rendering and animation program
MediaMaker, lets you assemble presentations that combine 24-bit color graphics, video, still images and CD and digitized sound.

ICSD TRAINING SCHEDULE

March - June 1990

COMPUTING SERVICES CLASSES

Bldg. 50B, Rm. 1237

The following courses are offered by Computing Services. To enroll, obtain you supervisor's approval and then contact Carole Casaretto x6858.

Introduction to UNIX	March 5, 7 9 AM - Noon	Intro. to C Programming	March 14, 16, 21, 23 10 AM - Noon
VI Editor	March 6 9 AM - Noon	Electronic Mail: Survey	March 29 10 AM - Noon
Intro. to Text Formatting	March 8 9 AM - 10:30 AM		

WORKSTATION CLASSES

The following courses are offered by the Workstation Group. There is no charge for these classes. To enroll, obtain your supervisor's approval and then contact Carole Casaretto, x6858.
(Those classes with asterisks (*) prepended are already full.)

IBM-PC: Bldg. 50B, Rm. 1237

Introduction to PC-DOS	*	March 13, 15 1 - 2:30 PM
	*	April 24, 26 1 - 2:30 PM
		May 22, 24 1 - 2:30 PM
Microsoft Word for the PC	*	March 6, 8, 13, 15 3 - 4:30 PM
		April 17, 19, 24, 26 3 - 4:30 PM
		May 15, 17, 22, 24 3 - 4:30 PM
		June 19, 21, 26, 28 3 - 4:30 PM

Macintosh: Bldg. 50B, Rm. 1229

Basic Macintosh		March 7 12-1 PM no sign-up required
Basic Intro. to *FileMaker*	*	March 7, 9 1 - 3 PM
		May 9, 11 1 - 3 PM
Beginning *MS Word 4.0*	*	March 12, 14, 16 10 - Noon
		April 23, 25, 27 10 - Noon
Intro. to *MacDraw II*		March 20, 21, 22 10:30 - Noon
Beg. *Excel* Spreadsheet	*	March 26, 28, 30 10 - Noon
		April 30, May 2, 4 10 - Noon

The Workstation Group also offers noon time classes (no sign-up required) in the following subjects:

Basic Macintosh Class	3/7	50B/1229
Macintosh Forum	3/21, 28	50B/1229
Microsoft Workshops for the Mac	3/6, 13, 20, 27	50B/1229
Microsoft Workshops for the PC	5/1, 8, 15	50B/1237
FileMaker II Workshops	6/12, 19, 26	50B/1229

See Workstation Scene Newsletter Articles for more details on these workshops.

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Deputy Director: Sandy Merola (AXMerola)	7440	50B	2232C

OFFICE OF COMPUTING RESOURCES

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ADVANCED DEVELOPMENT PROJECTS

Head: Dennis Hall (DEHall)	6053	50B	3238

COMMUNICATIONS & NETWORKING RESOURCES

Head: Ken Wiley (KGWiley)	7083	50B	2258E

NETWORK SYSTEMS

Bob Fink (RLFink)	5692	50B	2258B

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Sam Gibson (FSGibson)	4234	80A	103

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Central Office	5871,2	50F	125

VMS SYSTEM

Eric Beals (ERBeals)	5351	50F	143
System Manager: Gil Johnson (GPJohnson)	6211	50B	1225

UNIX SYSTEM AND DISTRIBUTED PRINTING

Craig Eades (CAEades)	6569	50F	142
UNIX (DHCleveland)	5336	50F	110
Distributed Printing (RERendler)	5629	50F	129
System Manager: Roger Cochran (RJCochran)	5565	50F	127

USER RESOURCES

Jerry Borges (JTBorges)	5568	50F	144
Accounting	7008	50B	1232A
HELP DESK	5981	50B	1215
Math Libraries	4749	50F	114
Library/Document Sales	7008	50B	1232A
Opening a New Account (PSBean)	7008	50B	1232A
UNIX and Cluster: Software Evaluation and Acquisition	5568	50F	144

GRAPHICS

Nancy Johnston (NEJohnston)	5093	50F	145

COMPUTING FACILITIES

Connecting a Remote Terminal	5354	50B	2259
Develcon Problems & Terminal Repair: Paul G Murray (PGMurray)	5354	50B	2259
Operations Area	6211	50B	1215

COMPUTING APPLICATIONS

Applications Group: Head: Jerry Borges (JTBorges)	5568	50F	144

WORKSTATION GROUP

Group Leader: Richard LaPierre (RLLaPierre)	4692	50B	2245
Software Evaluation and Acquisition	6858	50B	2231

MFE Consulting Number is 422-1544

CENTRAL ELECTRONIC MAIL FACILITY

First Initial-Middle Initial-Last Name is the standard recipient format in lab-wide mailing address

Examples: VMS ..... lbl::JASmith
UNIX ..... JASmith@lbl.gov
Software Tools ..... JASmith@lbl.gov

NETWORK CONTACT INFORMATION

LBLnet New Installations & Trouble Calls: Ted Sopher (TGSopher)	4559, 5354	50B	2266
DECnet Administration: William Jaquith (WDJaquith)	6966	50F	146
IBM PC & Mac Network Administration: William Jaquith (WDJaquith)	4388	50B	2231C
Nancy Travis (NJTravis)	7690	50B	2231B
Distributed Printing/Kinetics FastPath administration and requests: Bob Rendler (RERendler)	5629	50F	129
AppleTalk Support	5354	50F	2259

LBLnet troubles	*trouble@lbl.gov*
LBLnet comments or non-critical trouble reports	*lblnet@lbl.gov*
Internet administration	*ip-request@lbl*
LBL Postmaster for Lab-wide mail	*postmaster@lbl.gov*
Network Advisory Group (NAG)	*nag@csam.lbl.gov*

DEVELCON

DEVELCON Access Names

[VAX 64xx's (Generic) ..... CSA]

VAX 6420 (VMS)	CSA1
VAX 6420 (VMS)	CSA2
VAX 6410 (VMS	CSA3
SUN-3/280 (UNIX 1)	UX1
SUN-3/180 (UNIX 3)	UX3
SUN-4/390 (UNIX 5)	UX5
SUN-3/180 (ISD)	ISD

Dial-up Access Numbers for DEVELCON

All Machines - 300 BPS	486-4959
All Machines - 1200 BPS	486-4979
All Machines - 2400 BPS	486-4969

Local TYMNET Access Numbers for DEVELCON

	1200 BPS	2400 BPS
Oakland	430-2900	633-1896
Walnut Creek/Concord	935-0370	935-1507
San Francisco	974-1300	543-0691
Santa Clara	408-432-3430	432-8618
Palo Alto	415-366-1092	361-8701
San Jose	408-432-3430	432-8618
Fremont	490-7366	490-7366
Davis	916-758-3551	
Burlingame	415-588-3043	
Vallejo	707-644-1192	
Antioch	754-8222	
Pleasanton	462-2101	

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