Initial product line for user sites

Cygnus Support

(415) 322-3811

Cygnus Support provides users with support for free software. We give access to what is widely regarded as some of the best software in the Unix environment. We also give them access to the services of some of the most qualified support people: the authors of that software.

By using free software, users are liberated from the constraints of a single supplier; since source is available the opportunity for maximal portability is assured. By using Cygnus Support, users need no longer worry about new features, release dates, stability, or compatability. Users also may influence the technical evolution of the next generation of platform-independent tools.

Cygnus systems makes the phrase "Open Systems" a reality by providing source code for every package we support.

Our initial product is a support package for C and C++ code development, plus support for the Emacs editor. Other support packages are planned.

This document explains how hiring Cygnus Support benefits advanced development groups by allowing them to concentrate on their core business and to satisfy their own needs at the lowest cost.

1 Free software

Although it is not a traditional option, the choice of free software is straightforward when one considers the following:

- Many of the best Unix tools are already free software.
- Free Software has tracked and driven industry standards.
- Free Software is widely used in the research community.
- Cygnus Support is intimately familiar with this software as we have extensive experience using, debugging, and in many cases *implementing* it.

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- As all the source code is freely available, users and developers who wish to extend the software may do so. Free software is truly open software.
- Free Software and Cygnus Support free the user to fit the software to his or her needs

What do we mean by "best Unix tools?" Free software, especially software we support from the GNU project, tends to be faster, more powerful, and more portable than its commercial counterparts. For instance, the C compiler `gcc` runs on the majority of platforms; on some the code it generates is as much as 30% faster than that produced by the vendor's compiler. It was the first Draft ANSI-compilant C compiler. It is the only Unix C compiler which lets the user debug optimized code.

The Emacs editor is considered by many *the* indispensible tool of the Unix environment. This extensible editor has been programmed to be the interface for innumerable tools.

The `g++` compiler was the first native-code C++ compiler available outside of Bell Labs. It now implements all the features of C++ 2.0, including multiple inheritance. As it uses the same back end as `gcc`, it automatically runs on any machine which suppports `gcc`, and does the same optimizations. In addition, it provides additional C++ specific optimizations.

There are many more examples discussed below in our product line description.

These features are now available to those who need the reliability of supported software, through a support contract from Cygnus Support.

2 What is support?

By support we mean all of the following:

- new releases of system software, in both binary and source form
- a phone/fax number and network mailbox for bug reports and immediate assistance
- information about reported bugs and patches, and the patches themselves. Where possible we provide work-arounds if the patch cannot be written on the spot or if the user would prefer that to a system patch.
- new documentation, as appropriate
- an initial installation and easy-to-install releases

We issue our own releases in order to QA each new version, and to guarantee that reported bugs do not re-appear in later versions. We offer binary as well

as source for each release, since some sites want to do their own customization, while others want a version they can just load from the tape and run.

We can phase our delivery to suit customer requirements. Some sites wish always to have the most current version, as soon as it becomes available. Others wish to have wide spacing between releases, and just want work-arounds between releases. We can easily accomodate either.

We offer different levels of bug assistance depending on the need and severity of the situation. Specifically, we provide a network mailbox that anyone at the site may use (we will call back, if requested), and a phone number for immediate help for use by specific site contacts. It has been our experience that most users would rather send a report by electronic mail, since most of the necessary information comes from the computer anyway. However when a user is blocked and cannot proceed, help will be only a phone call away.

We do our best to provide the customer with a work-around while we write and test a bug fix. Once the patch has been written, we can make it available either as a patch or as part of a new binary, depending on the customer's needs.

We will be bringing on-line a bug-tracking system in early-1990. We will provide access to this system for our customers, so that they may follow the status of reported bugs.

Support also means better documentation. Some "bugs" are actually correct or ill-specified behavior which was not adequately documented. We augment the documentation or the code to reduce situations which cause problems. For instance, if error messages are obscure, or if people often get confused about the `#include` search paths, we will certainly address the problem.

Software installation is a nightmare few wish to face. We make it easier. If requested by the customer, we will perform the initial installation of our packages at the user site. At that time we can ffamiliarize ourselves with the user's installation (such as path assignments and such). Subsequent distributions can then be pre-configured for the site, so that they may be extracted from tape and run, without the usual, complicated installation procedures.

3 Software packages

This section describes the software support package we currently offer, and the ones we are planning to add to our product line. With any support package we include support for Emacs, and for the stadalone documentation programs `info` and `texinfo`.

The initial machines we support are the SUN-3 and SUN-4 (SPARC).

3.1 Overall features

Although each of the Cygnus Support packages addresses a specific facet of the Unix environment, they all share some characteristic advantages:

- Platform independence. All our packages run on all our supported platforms. Users may move back and forth across them at will.
- Adherence to changing standards. We are committed to the official standards processes. From past experience we know we can track emerging standards as they evolve.
- Early access to standards, or "try before you buy." Experience with `g++` has demonstrated that this open environment is the best in which to experiment with new extensions, if desired. Switches let *you* choose which facilities and extensions to use – or none!
- Reliability. When you choose a support package from us, you know that help is only a phone call away.

3.2 The first product: The Cygnus Developer's Kit

Our first customer product is a development package, featuring:

- the compilers `gcc` and `g++`, and the assembler `gas`
- the parser utilities `bison` and `flex` (for `bison` we provide a small parser driver so that its output can be included freely into other programs)
- binary utilities, such as the GNU `binutils` (e.g. `ld` and `ar`), `gdb`, and `protoize`
- the `libg++` library, an upward-compatible version of the `C++` runtime

Together, this provides a powerful standalone package for C and C++ development, which runs uniformly across a variety of platforms. No need to customize your code for multiple compilers. Also these compilers are the only ones which offer simultanious use of debugging and optimization (ie you may specify `-g -o`).

When they become available and reasonably stable, we plan to add the GNU version of `libc` (the `C` runtime library) and the freed version of `libm`, the Berkeley math library.

We will also refine the documentation for the `binutils`, but this need not be done immediately due to our projected initial customer base; we anticipate completion of this by the end of March, 1990.

3.3 The second product: Cygnus Shell Support

This package is analogous to the code development package, but for more general tasks. We project that we will start supporting it in the third quarter of 1990. Based on availability, reliability, and user feedback, we have selected the following programs for this package:

- `bash`, the GNU replacement for `sh`
- `Make` (GNU version)
- the GNU versions of `sed, tar, egrep, vi, diff, gprof` and `more`
- `gawk, perl,` and common applications written in them
- the small shell utilities, like `cat` and `mv`

Unlike most vendor-supplied versions, these utilities provide extended functionality (such as filename completion and context-sensitive accelerators) , Posix compliance, and consistency along all our supported platforms (in other words, a common look-and-feel). Many of them are significantly faster than the vendor-supplied versions as well.

3.4 Performance analysis

Profiling is an important part of the software development process. Properly done it allows the most efficient use of the development time, as it allows the developers to focus their time on the parts of the system which need it, and allows the program to extract maximum use of the machine resources. Unfortunately, the available Unix tools for profiling and tuning are still primitive. We have a modified version of the Pixie profiling tool from Berkeley, and the expertise to use it.

This package will consist of an on-site course on code profiling, special on-line support for the tool's users, and the customization of the tools to the developer's environment.

3.5 X Windows package

This package will not be offered until the spring of 1991 at the earliest. Because of the complexity of the support commitment it will entail, we mention it as an indication of which direction we are moving, rather than as a promise with a firm support date. However X Windows is available as free software, and we have received much input indicating a strong need for such a package, so it is in our plans to support it.

4 Pricing

The cost of the first support package (the developer's toolkit) is $100,000 per year. As noted above, this includes installation, on-line bug-fixing, enhancements, and new releases. So, for about the fully loaded cost of one employee, you get the resources of an entire support team, with individual experts for each area.

Cygnus Support will provide you with access to powerful development tools and the support and training needed to exploit their full potential.

If you have any questions, please call Cygnus Support at (415) 322-3811.

Glossary

This section defines several terms which are used in the document.

`ar` A program used to create libraries. One of the `binutils`.

AutoCAD A Computer-Aided-Design program popular in the PC world.

`awk` A programming language based on pattern matching and strings. See `perl`.

`bash` A free replacement for the Bourne shell (`UNIX` command processor), featuring completion, in-line editing, and many other features.

`binutils` A collection of utilities for manipulating compiled code and libraries of functions.

`bison` A fast parser generator. Replaces `yacc`.

C The system programming language of `UNIX`.

C++ The Object-Oriented programming language designed at Bell Labs to serve as a successor to C.

`Cfront` A pre-processor for the C++ language sold by AT&T. `Cfront` translates a C++ program into C, rather than machine code, which makes debugging difficult.

Compiler A program which translates a program written in a programming language such as C into something the machine can understand. The program the user types is often referred to as the *source* and the result of compilation is often referred to as the *object.*

`diff` A program for comparing differences between two (or three) files.

`egrep` A program that searches files for a text pattern (AKA *regular expression*).

Emacs a very powerful text editor.

`flex` A fast lexical analyzer generator. Replaces `lex`.

The Free Software Foundation An organization devoted to advancing the cause of free software, primarily through the implementaion of GNU. Several of the programs we support were written under the aegis of the FSF.

`g++` The GNU C++ compiler.

`gas` The GNU Assembler.

`gawk` The GNU interpreter for the `awk` language.

`gcc` The GNU C compiler.

`gdb` The GNU Debugger. Used for finding errors in programs.

GNU Gnu's Not Unix.

`gperf` A perfect hash function generator.

`gprof` A profiler for binary `UNIX` applications. Used for finding the places where a program spends most of its time, in order to speed the program up.

`info` A hypertext documentation browsing tool. It runs as part of Emacs and also as a standalone program.

Interpreter A program which executes each statement of a program written in a programming language. Contrast this with a compiler, which does the translation all at once, for later execution.

`ISV` Independent Software Vendor (ie a third-party software developer).

`ld` The `UNIX` linker. It takes a variety of object files (cf Compiler) and links them together into a complete program.

`less` Less is `more`.

`lex` A programming language for building pattern matchers based on deterministic finite automata.

`libC` The `AT&T` C++ library. Provides an Object-Oriented input/output interface, and not a whole lot more.

`libc` The `UNIX` C library. Provides standard `UNIX` services, such as formatted input/output, string searching, data conversion, sorting routines, and an interface to the `UNIX` operating system.

`libg++` The `GNU C++` library. A large set of C++ classes, such as arbitrary precision integers, complex numbers, stacks, heaps, vectors, queues, random numbers, strings, fixed-point numbers, self-balancing tree structures, and a `libC`-compatile input/output facility.

`libm` A library of functions for mathematics.

`make` A program for maintaining dependencies among files, in order to simplify the maintenance of a large program.

`more` A program for browsing files.

`OEM` Original Equipment Manufacturer. Someone who buys a machine from a vendor and then packages it under their own label. Compare with VAR.

`perl` Another programming language similar in intent to `awk`, but with greater power.

`protoize` A program for helping convert K&R-style (old-style) programs into ANSI (modern) C.

Posix A specification of a Portable Operating System which decended from `UNIX`.

`sed` An editor designed to run in a batch mode (ie not interactively).

`tar` A program for building file archives, files which bundle other files or directories together.

`texinfo` A programming language for building documentation. `texinfo` documentations can be processed by TEX, producing formatted hardcopy output, or by `info`, which provides an on-line hyper-text docuement.

TEX A free typesetting system which is used to produce, among other things, this document.

`VAR` Value Added Reseller. Someone who adds some features to a software package and re-sells it. The software equivalent of OEM.

`vi` A simple screen editor.

`yacc` A programming language for building parsers based on `LALR(1)` grammars