

Vision and Scope Document

WIDE (Well Integrated Development Environment)

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This is the Vision and Scope document for the wide project.

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1 Problem statement

1.1 Project background

Since the early 1990s, with the introduction of character terminals, the spread of integrated development environments (IDEs) has begun. Over the years many features have been developed, but each IDE has been conceived as a unique program, for a specific type of programming, for a specific programming language or a specific toolkit.

The result is that many programmers are forced to use different IDEs depending on the program they want to create. Many others have given up using an IDE, they prefer to use an editor to write code (often Vim) and command-line tools to perform all other tasks.

1.2 Stakeholders

The stakeholders in this project will be programmers who want to join the development or add specific components to their needs.

Indirectly interested parties will be programmers or companies working on similar projects. These people will not be happy about this project because they risk losing their users.

1.3 Users

Users of this system are developers of different categories:

Application developers

This type of programmer creates user applications such as text editor, file manager, or web browser. Games are also included in this category of programs.

Programmers of this type use almost always high-level, compiled or interpreted languages. Depending on the language, they use different libraries to create the user interface. Such interface may be textual or graphic. In the case of games, the graphical interface can be 2D or 3D.

Often, programmers of this type use IDEs that favor the development. Examples of these cases are programmers using the Qt libraries and the QtCreator program, Android application programmers using Android Studio and so on. Programmers who do not use an IDE, use a text editor (often Vim or Emacs) and automate the build using various tools. The most used are: Ant, autotools, qmake and cmake. In the case of games, the build system is often customized to handle specific components.

Created programs can be run on the local or remote machine. Sometimes the remote machine has a different architecture. Sometimes the operating system is also different. When the machine is remote, the programmer needs to transfer the program. To do this use the network connection or a usb cable.

System developers

System programmers create everything that is behind the scenes. Bootloader, firmware, kernels, drivers, middleware libraries, and system utilities are all examples of programs in this category.

Programmers of this type use almost always compiled low-level languages. Sometimes they must create binary files with specific layouts, or with specific dimensions. The bootloader is a typical example of these binaries.

In this category, programmers who use an IDE are really few. Often they do it because they are forced. Most people use a text editor (often emacs or vim) and command-line tools. To automate the build, various tools are used. The most used are: Kconfig and autotools.

Created programs can be run on the local or remote machine. Sometimes the architecture is different. Sometimes the operating system is different or is not there. When downloading files, this type of programmer uses an internet connection, a usb cable, or a serial cable.

Web developers

This category includes everything that works through a browser, including CGI programs, Java applets, browser plugins, and CMS plugins.

Programmers in this category usually use html combined with other languages such as php, javascript, etc. Exceptions are CGI programs, which can be created in compiled or interpreted languages and Java applets.

In recent years, the use of CMS has been spread, the most used systems being Wordpress and Drupal.

In this category, programmers prefer to use a text editor and command line tools.

Programmers of this category often work directly in their own machine, where, in addition to writing tools, they have a web server to display the result. When that is not true, they use a network connection to transfer the files to the target machine.

1.4 Risks

The main risk of this project is the failure to support all kinds of programming, and the tasks related to each. Even if we do not develop everything right away, we have to set up the system so that it supports all the common features of a development environment and prepare it so that it's easy to add new ones.

The second risk is related to the design. There are many tools to develop, very different from each other. We need to find a consistent way to use them. Many programmers prefer to use the mouse; others prefer to use keyboard combinations. We must offer both options. As for the keyboard, we have to offer the ability to modify the combinations. Not all keyboards are the same.

1.5 Assumptions

There are few assumptions underlying this system:

- The operating system is UNIX compatible.
- The operating system provides a window system.
- The device is equipped with a qwerty keyboard.
- The device is equipped with a screen.

2 Vision of the solution

2.1 Vision statement

The purpose of this project is to create an IDE capable of satisfying all types of programmers.

2.2 List of features

The main features of this system are:

Context-based window management

Program windows are handled in contexts. When changing context, only the windows belonging to this context will be visible.

Project management

With this system we can create specific projects for the work we have to do.

Navigation

The system offers a navigation program. From this program we can scan files and work on them.

Editor

The system provides a program for editing text or binary files. The editor supports all the most common features, and the most important file types.

Source navigation

The system allows us to surf the sources intelligently.

Assisted compilation

With this system we can compile our files without commands. Compilation will be managed based on the language and type of project.

Assisted execution

With this system we can run our program without using commands, even if the program must be run on another machine.

Assisted debug

Debugging can be performed without using commands. We will support debugging local or remote programs.

2.3 Features that will not be developed

We will not support all languages, but we will offer an interface to give programmers the ability to add them.

We will not support all the tools, but we will offer an interface to use them.

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