

# **CENG 491 Proposal: Design and Develop in Cloud**

**22.10.2012**

**Team:** TinTin

**Members:** Aican Güçlükol, Anıl Paçacı, Meriç Taze, Serbay Arslanhan

## **1. Motivation**

Software development is an important activity in today's world. In old days, programmers used to write codes into the text files and then by using compiler and similar tools which are command-line based, these written codes were turned into software programs. As the computers evolve, size and the complexity of software production increased. With this increasing complexity, accomplishing tasks such as code editing, build automation and debugging started getting more and more difficult.

Solution for this problem of programmers is found to be Integrated Development Environments which are commonly referred as IDE's. Integrated Development Environment is an application which provides facilities to programmer for software development such as code completing and fixing, source code editing and management, automated testing, etc.

First IDE's were terminal based application which provided basic facilities to programmer. Later, as the power of computers and softwares increased, IDE's started to gain more complex features such as GUI. Although IDE's are life saver for programmers, these software applications have couple of drawbacks;

- Local systems. IDE's are installed on a system and one need to use that computer to use features of IDE and develop the software.
- Require additional tools. For source code management, dependency management... they require additional softwares which needs to be used in corporation with IDE.
- Need for high computer resources. As IDE's supported more facilities to the

programmer, they require much more computer resources, especially memory and CPU, which may not be available all the time.

In this project, a new generation of Integrated Development Environment addressing to solve above mentioned problems by using today's in demand technology, Cloud Computing, to be implemented. Cloud computing, according to the Wikipedia's definition, is usage of computer resources (both hardware and software) which is served over the internet[1].

The reason why we do this proposal and start a Cloud IDE project is our observations on drawbacks of current integrated development environments and our experience on developing multi-user web applications. In the rest of this proposal document we will briefly explain current systems and their problems and after our solution to this problems.

## **2. Background**

Integrated development environments are used by computer programmers to create, manage, debug application softwares. While some of them is more language specific like [2], some provides more general architecture that allows the addition of a new feature in a plugin based manner like [3], [4].

Some of them also provides features like GUI creation tools, integration with version control systems such as git, svn.

With the advent of cloud computing, online IDE's have begun to appear such as [5], [6]. In contrast to common standalone IDE's these cloud based IDE's provides additional a set of useful features and solves some of the problems mentioned above like requirement for additional tools, need for high computer resources, being local systems, while lacking some of the useful features like plug-in based extensibility.

Another advantage of cloud based IDE's is that they are independent of the platform in contrast to common standalone IDE's, since they can run on any browser supporting fundamental features like HTML, Javascript, CSS, etc.

# 3. Proposal

In this project, facilities of general purpose IDE and cloud computing will be combined in a modular manner. Users can design, compile, and debug their projects without any requirement in the cloud. They can also reach their projects whenever and wherever they want.

We use a modular structure approach so that new plugins can be developed according to user needs, and new languages can be added in the long run.

Users will create a workspace, and start coding, all the other stuff will be done in background. They spend no time for finding and installing an IDE, a version control software, setting up environment for every single language.

## References

- [1] Wikipedia - Cloud Computing, [http://en.wikipedia.org/wiki/Cloud\\_computing](http://en.wikipedia.org/wiki/Cloud_computing)
- [2] Dev-C++ website, <http://www.bloodshed.net/>
- [3] Eclipse website, <http://www.eclipse.org/>
- [4] Netbeans website, <http://www.netbeans.org/>
- [5] Cloud9 IDE website, <https://c9.io/>
- [6] Exo IDE website, <http://cloud-ide.com/>