Reverse compartibility issues with C++11/14 migration

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Programming language evolution is a natural phenomenon, as they are rarely perfect in their juvenile versions, experiences of real usage must be reflected in later versions. Although mature mainstream languages change less frequently, we experience major new versions in these languages too. As the user base of a mature language is much wider, such new versions pay extreme care to avoid braking changes that make older code either uncompilable – or even worse – silently change the program behavior.

The C++ programming language is one of the major tool when the performance of the software system is in high importance. Large telecommunication systems, high-frequency banking, or energy-aware software is usually implemented in C++. There are a large – billions of lines – code base written in the language.

C++ experienced recently two major new version changes. The earlier C++03 version has gone under major review and a large number of new features have been introduced from automatic type deduction, a large set of smart pointers to lambda functions. These changes made C++ more flexible and safe. C++14 extended these elements with more new features.

Although, one of the design idea of these changes was to keep reverse compatibility with the older versions, we experienced a number of programming elements, where the compatibility has been broken. In this lecture we concentrate on these elements, to warn the programmers planning C++11/14 migration.

References

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