

Keynote Address

The Need For New Software Technology: Have We Overcome the Software Crisis?

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Software development technology has continuously evolved along with the innovation of hardware technology since the first electronic computer emerged in the 1950's. Because of its uniqueness, the growth of software development technology has not matched that of hardware technology. The software crisis refers to the unbalance between these two technological categories continuously deepening from the early 1960's. For several decades, numerous software development methodologies and programming techniques have been introduced to overcome this crisis. However, have we really overcome the crisis? If not, do we expect to overcome the crisis in the near future? Unfortunately, we can hardly be optimistic yet, because software technology still heavily depends on both hardware platforms and development environments.

Software engineering is neither simply a matter of programming skills nor that of process specification techniques anymore. Rather, it deals with technologies ranging from legacy software development and emerging object-oriented methodology to advanced system design techniques that are deeply affected by various application-dependent factors. For instance, object-oriented technology can be one of the solutions that will overcome this software crisis. However, it is not all. We are still on the way of seeking breakthrough technologies that can bring us an ultimate innovation in software technology for the new century. Now we are just in the beginning stage of building up new software technologies. We need a strong shift of software development paradigm for the breakthroughs in order to eventually overcome the software crisis.