
Subject: Re: Compiling IDL ... ever likey ?
Posted by [Rick White](#) on Tue, 23 Jan 1996 08:00:00 GMT
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Ken Knighton wrote:

- > Languages that compile to the host machine level are rapidly becoming
- > obsolete and investing programming time into turning a very efficient
- > pseudo-compiled, array oriented language like IDL into a true compiled
- > language is a waste of resources that could be better used to improve
- > other features of IDL. For example: I haven't heard anyone suggesting
- > that JAVA be turned into a compiled language.

You're wrong -- there are definitely plans to produce Java compilers that turn Java binaries into native machine code. These compilers are seen by the Java community as crucial to getting good performance on computationally intensive applications.

I think the Java approach could serve as a good model for an IDL compiler. Java gets compiled to an intermediate, machine independent pseudo-code which is (ordinarily) executed by the Java interpreter. The execution penalty of the interpreted code compared with C is about a factor of 20. The new compilers will replace the interpreter and will translate the Java pseudo-code into native machine instructions at execution time. This on-the-fly (or "just-in-time") compilation will produce code that executes at nearly the same speed as C (I haven't seen any hard numbers.)

I think this approach could work very well for IDL. Most IDL code executes efficiently enough in interpreted mode, especially when you're doing large array operations where each step takes a considerable amount of compute time. The slowdown comes if some part of your calculation can't be done as an array operation but must be written as an explicit loop over array elements. Then IDL is, like Java, a factor of 20 (or more) slower than C (so it's not just a matter of a few cycles here and there.) If such loops could be compiled on-the-fly then IDL's speed would be comparable to C/Fortran for essentially all applications.

Perhaps someone should be working on an IDL-to-Java translator or even an IDL-to-Java pseudo-code compiler!

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