

Ada Core Technologies
79 Tobey Road
Belmont, MA 02478
USA

July 5, 2000



Letter from Ben Brosgol, SIGAda Chair

Dear Colleagues:

The main subject of this letter might be aptly named “A Tale of Two Conferences”. In early June I was in San Francisco to attend *JavaOne*, and later in the month I was in Potsdam, Germany, the site for the *Ada-Europe 2000* conference. In this letter I’d like to share some impressions of and experiences from these two events.

I had not previously been at JavaOne, and I must say that its sheer magnitude was impressive; this year around 25,000 people attended. (I was a bit concerned that the mass of humanity descending on the Moscone Center might tickle the San Andreas Fault to sneeze and trigger the “Big One”. Fortunately that did not occur; California still borders Nevada and not Hawaii.) Ada Core Technologies was present as an exhibitor; in particular to demonstrate JGNAT, a compiler from Ada 95 to Java Virtual Machine bytecodes.

I have to say that the decision to exhibit at JavaOne was the subject of some debate within the company: what sense did it make for a blatantly Ada-oriented vendor to have a booth at a Java conference? Indeed it turned out to be a wise decision. Quite a few people stopped by at the booth and admitted to having used Ada in the past, and also regretted that for largely non-technical reasons they were not using it at present. Others who had vaguely heard of Ada were impressed to learn that its usage was spreading in some areas such as the high-integrity / safety-critical domain. And some people were even interested in JGNAT, although to be honest I think that the company’s booth served more for Ada evangelism than for product-specific marketing. In any event the lesson I took back from our experience as exhibitors is that a high degree of technical interest in Ada is present in other communities, and that smooth integration with related technologies is a key to making inroads. I suppose that neither of these should have been completely surprising, but still I was pleased at the positive attitude that I saw there.

Two weeks after returning from JavaOne I was en route to Ada-Europe 2000, in Potsdam, Germany. This year’s conference had the excellent organization and attractive venue that we have come to expect from Ada Europe. The technical program was instructive, and the ambience (and Pilsner :-)) at the hotel contributed to a relaxed and friendly environment (*Gemütlichkeit*, as we say in English :-)). It was also encouraging to see an increase in attendance over previous years.

Two of the more interesting presentations at the Ada-Europe conference were experience reports: Reto Weiss (Paranor AG) described his company’s use of Ada to develop the Kingcat yacht’s Monitoring, Control and Alarm System; and Bryan Pflug (Boeing Commercial Airplanes) provided a retrospective on Boeing’s usage of Ada. The yacht application combined Ada 95 for the processing-intensive real-time components, Java for a simple GUI, and CORBA for distribution support. The choice of Ada was not controversial; the engineers wanted to use it, and the

customer left the decision to them. Among Ada's advantages were its tasking model and its CORBA integration.

Bryan Pflug's presentation summarized Boeing's use of Ada on commercial aircraft over the past 10+ years. When the choice was originally made in the mid 1980's, there were several reasons that Ada was selected:

- Reduce the proliferation of languages
- Reduce life-cycle costs through portability
- Leverage off military usage of Ada technology
- Reduce risks by choosing an effective / widely-used technology
- Help promote adoption of sound software engineering principles

Ada (in particular Ada 83) was indeed heavily used within Boeing; for example the 777-200 supplier-furnished code contains approximately 2 million lines of Ada code, compared with 600 thousand lines of C and 200 thousand lines in other languages. Did Ada meet all of the original goals? Boeing had a mixed experience. There was good success in reducing language proliferation, and also positive experience in portability. However, they did not realize the expected benefits from leveraging off military Ada use, and the language did not see the wide usage that had been originally hoped. As for promotion of sound software engineering, the tool is only as good as the people who use it; developers need to understand design principles first in order to use Ada most effectively. Interestingly, a benefit usually touted for Ada -- early detection of errors -- was not considered a decisive factor, since the intense testing process would have detected any errors before the software was fielded.

A conclusion from Boeing's experience with Ada on the 777 was that Ada is a great language, but some of the original goals were overly ambitious and decisions need to be driven by business versus technological factors. As for Ada's future in Boeing for commercial avionics: Ada continues to be required at the highest levels of safety certifiability (DO-178B levels A and B); at lower levels other languages are also acceptable. Despite the narrowing of the scope of Ada's usage, I see it as a positive sign that Ada is still required in the area where it has always been strongest.

Don't forget about SIGAda 2000 in November; for program and registration information check the www.acm.org/sigada/conf/sigada2000 web site.

Sincerely,

Ben Brosgol, SIGAda Chair
brosgol@gnat.com