Ada 9X Overview

ABSTRACT

The current version of Ada has been an ANSI standard since 1983. In 1988, the Ada Joint Program Office was tasked with reevaluating the language and proposing changes to the standard. Since that time, the world has seen a tremendous explosion in object–oriented languages, as well as other growing fields such as distributed computing and support for very large software systems. Mr. Weller will discuss the new features being added to the next version of Ada, currently called Ada 9X, and what transition issues must be considered for current Ada projects. The presentation assumes a familiarity with the features of the current Ada programming language.

BIOGRAPHY

Mr. Weller is a senior systems engineer with CAE–Link, Space Technology Division. He is the project leader of the Software Engineering Group, which is responsible for the definition of the software architecture and development methodology for both the Space Station and Space Shuttle Training Systems. Mr. Weller has been working with Ada since 1985, and is currently an official reviewer of the Ada 9X language. Mr. Weller was previously in the Air Force in the Electronic Warfare arena.

The New Face of Ada

- Programming Paradigms
- Multitasking and Parallel Processing
- Distributed Processing
- Programming-in-the-Large
- Specialized Needs
- Object-Oriented Programming
- Ada 9X compared to C++ 3.0
- Transition Issues

Programming Paradigms

- International Support
- Subprogram Parameters
- "Foreign Language" Support
- Storage Allocation/Reclamation
- Generics
- Exception Handling
- I/O Support

Multitasking and Parallel Processing

- Task Creation and Destruction
- Protected Records
- Massively Parallel Architectures
- Vector Processing

Distributed Processing

- Partitions
- Dynamic Reconfiguration
- User Defined Communication Package (UDCP)

Programming-in-the-Large

- Avoiding Recompilation
- Subsystems
- Incremental Development

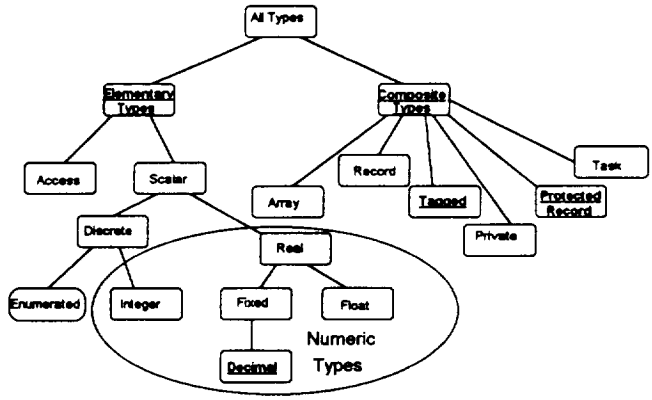
Specialized Needs

- Systems Programming
- Safety-Critical and Trusted Applications
- Information Systems
- Scientific and Mathematical Systems

Object-Oriented Programming

- Type Hierarchy
- Type Classes/Inheritance
- Operations and Overloading
- Polymorphism
- Multiple Inheritance

Type Hierarchy



Ada 9X compared to C++ 3.0

		Ada 9X	*C++ 3.0*
Abstraction	Instance variables	Yes	Yes
	Instance Methods	Yes	Yes
	Class variables	Yes	Yes
	Class Methods	Yes	Yes
Encapsulation	Of variables	Public, protected, private	Public, protected, private
	Of methods	Public, protected, private	Public, protected, private
Modularity	Kind of Modules	Package	File (header/body)
Hierarchy	Inheritance	Yes, partial multiple	Multiple
	Generic units	Yes	No
	Metaclasses	Yes	Yes (templates)
Typing	Strongly typed	Yes	Yes
	Polymorphism	Yes (single)	Yes (single)
Concurrency	Multitasking	Yes (synch or asynch)	Yes (defined by class)
Persistence	Persistent Objects	No (Streams supported)	No (Streams supported)

Transition Issues

- New Reserved Words
- Implicit Assumptions
- Static Literals
- Ada 9X Publications
- Validation rules for 9X
- Compiler Availability

Where Can I Learn More?

- Anonymous ftp from `ajpo.sei.cmu.edu` (go to /pub/ada9x directory
- Ada 9X BBS: 1-800-Ada-9X25
- Ada Information Clearinghouse
  IIT Research Institute
  4600 Forbes Blvd
  Lanham, MD 20706-4312
- Ada 9X Project Office
  PL/VTET
  Kirtland AFB, NM 87117-6008