Modula-3 at Sun Microsystems Laboratories

The Vantage Project at SML is investigating structuring and reliability mechanisms for very large distributed object systems.

Modula-3 is the principal implementation language for the project.

The project has built several protocols on top of Network Objects

The project has built (is building) some tools for Network Objects

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Protocols

Transaction management

- A set of interfaces and an implementation for creating, committing, aborting distributed transactions.

Event distribution

- A set of interfaces and an implementation for lightweight event interest registration and notification.

Activation

- “inetd” for network objects.

Tools

IDLNO

- Parses OMG IDL (Interface Definition Language) descriptions, generates M3 Network Object's interfaces

CM3

- C callin's and callouts to/from M3 (Network) objects

Experiences Developing with M3

Uniformly positive!

Language and libraries make it possible for us to develop sophisticated protocols with very little effort:

- Transaction manager: ~3500 lines
- Event system: ~1000 lines
- Activation system: ~600 lines

These systems made heavy use of M3 generics, tables, sequences, threads, pickles, and OS independent interfaces

Works in Progress

Native Solaris-2 Threads for M3

- Replace portable threads implementation with one using native Solaris-2 threads
- Allows us to take advantage of multiprocessors

ATMObjects

- Raw ATM transport for Network Objects
- An experiment in living directly on ATM-style networks

Experiences Developing with Modula-3

One project member said: "Modula-3 makes programming fun again!"

I view the SRC Modula-3 implementation as: "Smalltalk with static types"

- Clean, simple language
- Understandable inheritance mechanism
- A lot of value-added, cleanly integrated libraries.

To me, this is one of the best reasons to use M3 !