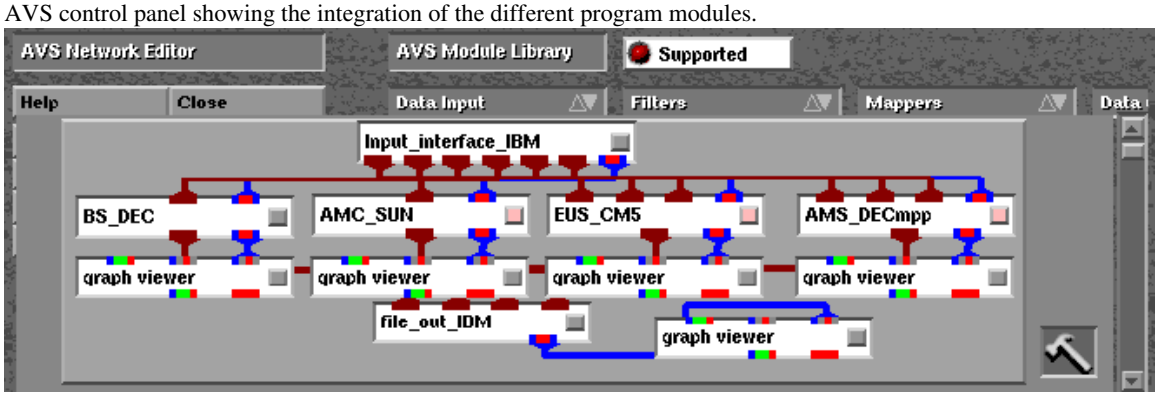
An Interactive Visualization Environment for Financial Modeling on Heterogeneous Computing Systems

SUMMARY

Financial modeling represents a promising industry application of high performance computing. In previous work, parallel stock option pricing models were developed for the Connection Machine−2 and DECmpp−12000. These parallel models run approximately two orders of magnitude faster than sequential models on high−speed workstations. To further develop this application, a portable, workstation−based, interactive visualization environment was developed for a heterogeneous computing environment. Application Visualization System (AVS) was used to integrate massively parallel processing, workstation based visualization, an interactive system control, and distributed I/O modules.

Different pricing models are run on different machines in a heterogeneous computing environment. A DECstation is running the BS model, a Sun SPARCstation is running the AMC model, the 32 processor CM−5 is running the EUS model, and an 8K processor DECmpp is running the AMS model. AVS running on an IBM RS/6000 is used to integrate the different programs programs running on different machines, and to display the results.

AVS control panel showing the integration of the different program modules.



AVS panels showing the results of different pricing models running on different parallel computers.

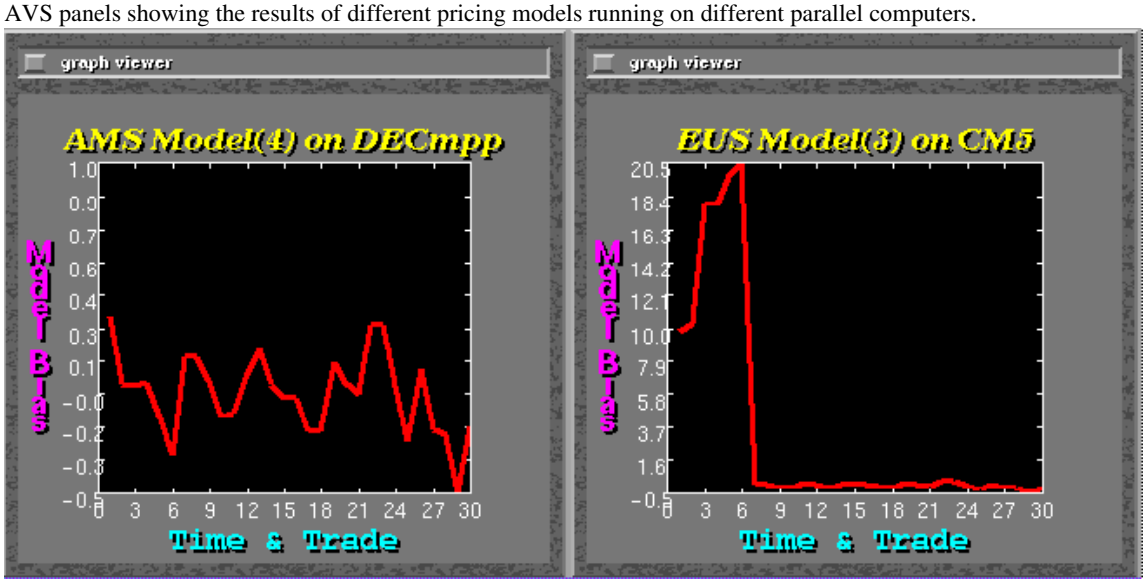


DIAGRAM OF SYSTEM CONFIGURATION

PICTURE OF FULL AVS DISPLAY

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