

CGrADS Year-One Budget Reduction Strategy

The proposed budget for year one of the CGrADS STC is \$3,804,083. The NSF has requested that we indicate how we would allocate the year one budget if funding were reduced by 30% (\$1,141,226). A reduction of this magnitude would significantly affect the first year of the project. However, to comply with the NSF's request, we have developed the following budget plan. In developing this plan, we gave priority to research and education activities in the first year. This budget reduction would have a significant impact on the infrastructure development and knowledge transfer activities.

1. The project software manager (a full-time employee) would not be hired until the beginning of year two. We have learned through the existing GrADS project that coordinating the development of a large, complex, distributed software system is a very difficult process, and one that would be best handled by a full time person with experience in the management of large software development projects. If the project manager is not hired until the second year, it will delay the production of useful software for the community by a corresponding amount. However, given that the reductions would be for the first year only, we believe that the fundamental research and education components must take priority. Under this scenario, efforts during year one would concentrate on initiating research in the "Advanced Problem-Solving Tools" and "Software Infrastructure and Middleware" thrust areas, along with preliminary design of infrastructure. The project software manager could begin leading development efforts early in year 2. This hiring delay would reduce the year one budget by approximately \$190,000.
2. Implementation of most of the knowledge transfer activities would be delayed until year two. We would not produce the newsletter and other publications originally projected to start in year one. We would not hold external technical workshops that were scheduled in year one, although internal project workshops would go ahead as planned. Furthermore, we would not hire the personnel who would initiate the knowledge-transfer activities. In particular, the Associate Director for External Relations would not be hired until year two, which would delay many important activities. Nevertheless, we feel that priority should be given to initiating education programs over broad-based outreach to the community, at least for the first year. Under this scenario, the knowledge transfer activities would be reduced by nearly 75 percent in year one—from \$287,909 to \$72,909.
3. The balance of the reduction would be distributed among the different research efforts and the administrative budget, and would be accomplished by ramping up less aggressively during year one. Of the three main research project thrusts, the most affected would be "Construction and Validation of the Execution System" (approx. \$526K). This includes the delayed hiring of the project software manager. The "Software Infrastructure and Middleware" thrust area would be reduced by approximately \$154K, the "Advanced Problem-Solving Tools" thrust would be reduced by approximately \$185K, and the administrative budget would be reduced by approximately \$62K. Although most of the research reductions can be achieved by postponing the hiring of

new research personnel for a few months, the reductions would also involve postponing the investigation of more ambitious high-level programming strategies until after the first year.

4. The only effect on education and outreach programs would be a small reduction in student support (approximately \$62K out of \$744K).

The charts below show the breakdown by dollar amount and percentages of the funds allocated to major thrusts in both the reduced and the original year one budgets. Because it is unclear whether we should include proposed funds for students in the Education/Outreach budget or in the research project budgets, both categorizations are presented. The reduced year one budget includes \$682,465 for student support.

Year one allocation with student budgets listed in the research areas:

| | Yr.1 Proposed | % Total | Yr.1 @70% | % Total | % Reduced |
|---|---------------|---------|-----------|---------|-----------|
| Education/Outreach | 251,294 | 6.6% | 251,294 | 9.4% | 0.0% |
| Management / Admin. | 365,356 | 9.6% | 303,810 | 11.4% | 16.8% |
| Knowledge Transfer | 287,909 | 7.6% | 72,909 | 2.7% | 74.7% |
| Software Infrastr. & Middleware | 630,584 | 16.6% | 476,734 | 17.9% | 24.4% |
| Construction/Validation of Exec. System | 1,543,632 | 40.6% | 1,017,422 | 38.2% | 34.1% |
| Advanced Problem Solving Tools | 725,308 | 19.1% | 540,688 | 20.3% | 25.5% |
| Totals | 3,804,083 | 100.0% | 2,662,857 | 100.0% | 30.0% |

Year one allocation with student budgets listed in Education/Outreach:

| | Yr.1 Proposed | % Total | Yr.1 @70% | % Total | % Reduced |
|---|---------------|---------|-----------|---------|-----------|
| Education/Outreach | 995,299 | 26.2% | 933,759 | 35.1% | 6.2% |
| Management / Admin. | 365,356 | 9.6% | 303,810 | 11.4% | 16.8% |
| Knowledge Transfer | 287,909 | 7.6% | 72,909 | 2.7% | 74.7% |
| Software Infrastr. & Middleware | 493,831 | 13.0% | 339,981 | 12.8% | 31.2% |
| Construction/Validation of Exec. System | 1,171,630 | 30.8% | 676,190 | 25.4% | 42.3% |
| Advanced Problem Solving Tools | 490,059 | 12.9% | 336,209 | 12.6% | 31.4% |
| Totals | 3,804,083 | 100.0% | 2,662,857 | 100.0% | 30.0% |