



Technical and Management Challenges

Pre-Solicitation Conference/
Industry Day

NASA IV&V FACILITY
July 28, 2004



Purpose of Presentation

- To provide the bidder community with some insight into some of the other technical and management challenges that are frequently encountered during the course of IV&V



Software Reuse

- Software reuse on NASA missions is rarely part of a structured reuse process
 - Original software not designed for reuse
 - Lack of domain engineering to determine similarities and differences between original use domain and intended reuse domain
 - Access to development artifacts may be limited
 - Indefinite terms such as “Heritage” result in uncertainty about the true amount of reuse



Development Project Schedule Slips

- Slips routinely cause problems for IV&V being performed in-phase with the project
 - IV&V team is up and running, but planned analyses can't be done (documents or code delayed)
 - Requires significant management finesse to shift work within the IV&V effort or to shift personnel to other work.

Lack of Artifacts

- Nominal set of tasks cannot be done because project has not (maybe never will) create the necessary artifacts
 - IV&V effort must compensate with supplemental tasks, additional emphasis on selected tasks, or alternative methods to accomplish the original objectives
 - Must have a variety of methods, tools, and personnel available to ensure a “constant risk” approach

“I don’t want IV&V”

- With regard to acceptance of IV&V, NASA has made great strides forward in the last 5 years
- It is still common to encounter project managers, software managers, subsystem managers, etc. that are against IV&V involvement in their projects.
Manifestations include:
 - Delayed delivery of artifacts (“They are not ready for review yet”)
 - Restricted communications avenues (“It is too much impact to talk to IV&V”)
 - Issues left unresolved (“We’re looking at those”)
- Project doesn’t understand what IV&V is.
- Projects begin to value IV&V when:
 - They are getting valuable assessments and information from IV&V
 - They interact with IV&V personnel that know as much about the domain as their resident domain experts