



NCSA Alliance Report Form

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Project Title : Development of Collaboration Technology for Education

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1. Accomplishments since 7/99:

2. Update SOW based on new budgets:

FY00: Object Web Technologies for Education and Computing Portals

NPAC's activities fit well into the Alliance road map and in our 99 activities, we built a prototype computing portal for nanomaterials illustrating some of the features highlighted in the common portal architecture (CPA) and consistent with grid architecture roadmap. We also developed the portal collaboration service.

Computing Portal Architecture and Services

In our activity in FY00, we propose to work within the emerging Alliance CPA in the areas of basic architecture, secure object brokers, visual authoring tools

built around our WebFlow technology, modifying our current system to support Alliance standards. We will do this both for our original nanomaterials portal and the lead AT team chosen by the Alliance - chemical engineering. This should lead to operational 3 tier portals in two application areas supporting dataflow and a general object based programming model. We will make this available with both our JWORB and commercial CORBA object broker middle tier infrastructure. We will develop this activity synergistically with our DoD funded work on the so called Gateway project.

We anticipate a substantial Alliance planning activity in all aspects of portal development and we will participate in most areas as we have quite a bit of relevant experience. In particular we will continue leadership of Java Grande activity which has already a Computing Portal working group. Another major activity identified at Oak Brook concerns XML standards for scientific data where a working group was identified. This needs to set standards and also either develop or recommend existing XML management tools. We have already work of this type with NASA and DoD and will participate in these discussions.

Portal Collaboration Service

Collaboration is both a key part of the access grid and a major service identified in the Alliance portal architecture. We will work with the Alliance to develop a good definition of collaboration for portals viewing collaboration as implying a general synchronous shared object facility. We will continue to develop support for EOT projects including the Biology workbench, which is expected to be an early example of the new Alliance portal architecture. This is likely to require significant work as both the workbench and the underlying document object model are expected to change significantly. This work will be done using where possible the new IMS messaging standards for which Tango Interactive has been provisionally selected as a reference implementation. We will deploy a version of Tango2 that supports Microsoft explorer and the new version 5 browsers (currently only released for Microsoft). We expect to be able to support Macintosh's with this version of Tango. These steps imply enhancing Tango2 to share the new W3C Web document object model.

We will continue our work on the implications of universal access for the access grid. The goal is allow convenient specification of customized client side rendering of a shared object. Technically systems like Tango can share the XML or similar abstract definition of an object state and then customize the style sheet on each client to cope with users who could be visually impaired (and so require sonified rendering) or have just a low bandwidth line (and so require the low resolution version of an image). We can produce a modest illustration of this but we will only be able to implement a significant demonstration of this with additional funds.

Our architecture work will make use of a new XML/Jini experimental collaboration system being developed inside NPAC. We expect this to fit and support the CPA very well. We will also use our operational XML link to Tango2 in the context of sharing information resources in a web-linked databases using XML templates. This can be extended to include the set of XML based information (stored both in and outside databases) expected to be developed as part of the CPA. (A working group in this area was

established at Oak Brook). It is difficult to be precise at this stage given the uncertainties in the implementation of the Alliance plans. Collaborative visualization is likely to be important for the Alliance and we will share our expertise here based on the integration of a Java3D visualization system SV2 into Tango Interactive. Finally we remember that Tango Interactive is living in a time of great change in core software infrastructure. We therefore need an ongoing effort to maintain Tango at leading edge.

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