Bloor Research – North America
Independent Technology Research & Analysis

Research Brief

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IBM's Grid Computing Strategy — Revisited

On January 27th, 2003, IBM made a series of announcements that greatly clarified its strategic intent in grid computing. The company articulated which target markets it intends to pursue; which products and services it will deliver; and which partners it will use to address industry-specific requirements. And to make its product/solution sets even clearer, the company has put together "decision trees" that can help business and IS executives understand how to build compute- and collaboratively-oriented grids.

Further, IBM has changed its approach to the grid marketplace — from that of a technology/standards approach to a more business/profit-focused, benefits and solutions approach.

This *Research Brief* examines IBM's newly announced, more focused approach to grid computing. And based on our analysis, we believe that IBM's more concrete, better-articulated grid strategy combined with better organized and integrated products and services — aimed at specific industries — will make IBM the company to go to when looking for grid solutions in the aerospace, automotive, financial, life sciences, and government marketplaces.

The Announcement

In July, 2002, we (Bloor Research – North America) published a *Research Brief* that examined IBM's grid computing strategy. We had been forewarned by other competitors that IBM did not really have a grid product set (we were told that the company relies on partners for grid resource management and policy management software); had few commercial customers; and that IBM's strategy was not "fully-baked"…

What our research revealed was quite the opposite: IBM did indeed have a suite of grid products (it consisted of development tools, grid middleware offerings, and manageability software complimented by grid software partner relationships); and the company did have many grid customers (especially in the scientific/research community). However, with regard to whether IBM's grid strategy was "fully-baked" — we stated that we believed that "IBM has a fair amount of work to do to better articulate its grid computing strategy and to unify its grid product offerings".

Apparently IBM agreed with our assessment because on January 27th, 2003, IBM made a series of grid announcements that very clearly articulate IBM's commercial grid strategic intent. What IBM announced was:

- *Five grid focus areas* (in the areas of research and development grids; engineering and design grids; business analytics grids; enterprise optimization grids; and government development grids);
- *Five target industries* (with a focus on specific commercial markets such as life sciences; aerospace, automotive; and financial; as well as in the government marketplace);
- *Ten industry-aligned* offerings (including workshops, tools, customer design centers, and more);
- *Related education and service offerings*; and,
- *A restatement of the role of several of its grid middleware partners* (Platform Computing; DataSynapse; Avaki; United Devices; and Entropia).

After closely examining each of these announcements, we no longer believe that IBM lacks clarity in its grid program. The company now has specific grid solution sets targeted at specific horizontal and vertical markets, and expansive grid-related training, education, and service offerings. Further the company has made clear the role its Independent Software Vendor (ISV) partners play in the grids IBM is seeking to help its customers deploy. Accordingly, we now believe that IBM has the "best-articulated" grid strategy in the industry (especially when compared to Dell, Hewlett-Packard, and Sun).

Solutions Portfolios and Decision Trees

But IBM's declaration of its target markets for grids; its packaging of grid products and services; and its clarification of the role of its ISVs in building specific types of grids are really just half the story of what's going on with IBM's grid marketing effort. Not only has IBM clarified its strategic intent, but the company has also modified its marketing approach to the commercial grid market-place. Instead of approaching prospective grid buyers with a mix of grid technologies and ISV partner relationships (as most of IBM's competitors do), IBM is now approaching grid buyers with "solutions portfolios" aimed at demonstrating how potential customers can build:

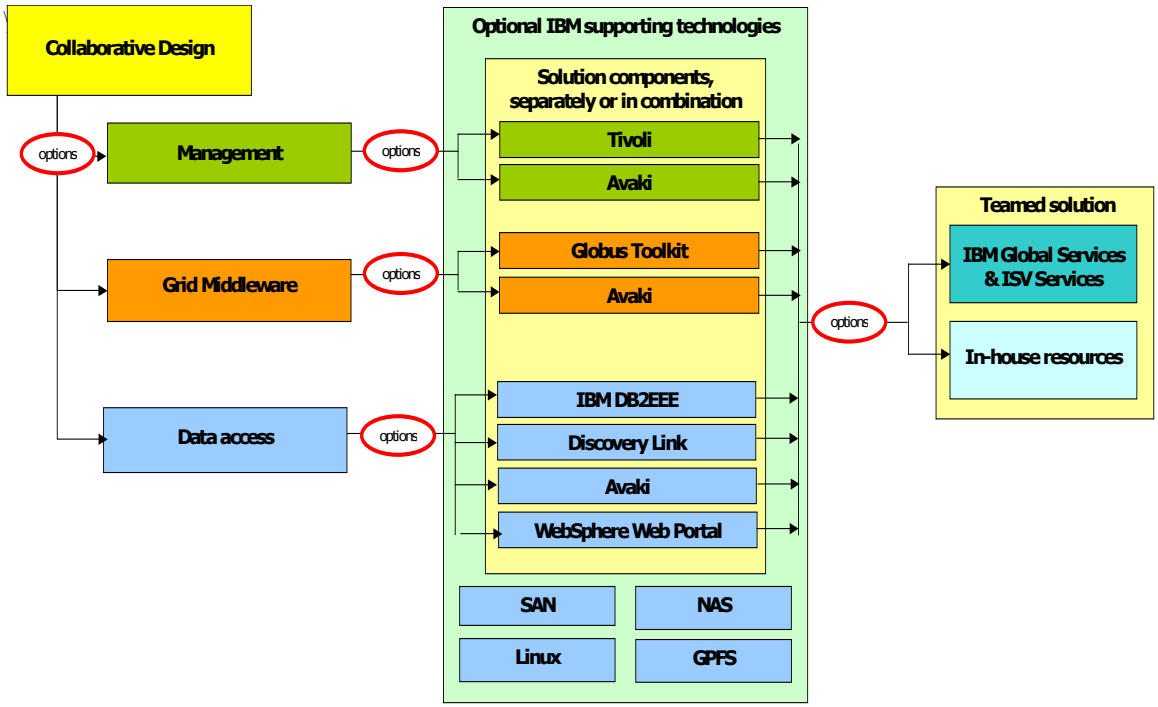
- Research and development grids;
- Engineering and design grids;
- Business analytics grids;
- Enterprise optimization grids; and,
- Government development grids.

This "how-to-build" aspect of IBM new approach is particularly intriguing. Based upon IBM's experiences in deploying grids in various industries over the past few years, IBM has created a group of "decision trees" that show a prospective customer how to construct grids for particular industries. These decision trees provide customers with options that help prospective buyers choose:

- Which ISV solutions provide the solutions for architecting grids that can perform analytics acceleration, or collaborative design, or information accessibility;
- Which software to use for application/data parallelization;
- Which for collaborative information/design access, for system/network optimization;
- Which middleware tools and utilities to use; and
- Which data access products to use in order to build compute- and/or collaboratively-oriented grids.

In other words, these decision trees can be used to save prospective grid users from having to do a lot of market and technology research, architecture design work, and product integration in order to build functional grids (see Figure 1 for an example of a decision tree that can be used to create a collaborative grid environment in automotive or aerospace industries).

Figure 1 — An Industry-oriented Decision Tree



Source: IBM Corporation — January, 2003

Modified Context

Furthermore, IBM has changed the "context" it uses to engage prospective grid buyers in conversations about the benefits of grid computing. Instead of leading with discussions about technologies (algorithms, load-balancing, naming, etcetera…), and standards (Globus and OGSA), IBM is now talking about grids from a "solutions" perspective cast in a prospective client's own business vocabulary. For instance, IBM approaches financial services companies with a value proposition that shows financial managers how grids can be used to analyze the value of an

investment portfolio in minutes rather than the hours it may take today using a traditional computing architecture. Or IBM approaches engineering/design companies with a value proposition that demonstrates how grids can be used to cut product design time in half, while greatly reducing instances of defects.

This new approach focuses on profits, productivity, and efficiency rather than technology and standards — and is (by our assessment) sure to open new doors for IBM that had previously been closed due to lack of understanding of grid computing and its associated benefits.

A Closer Look at the Announcement

IBM's formal announcement consisted of five grid focus areas (these are types of grids that IBM will focus on helping its customers build); five industries (aerospace, automotive, financial, life sciences, and government); ten "industry-aligned" offerings (products and services designed to support grid deployment in specific industries); educational and service offerings; and a restatement of the role of several of its grid ISVs.

Five Grid Types

IBM has segmented its grid offerings into grids that address *productivity* issues and grids that address *efficiency* issues.

Within the productivity segment there are:

- *Research and development grids*;
- *Engineering and design grids*; and
- *Business analytics grids*.

Within the efficiency segment, IBM has identified grids that can be used for:

- *Enterprise optimization* (in other words, to aggregate computing power); and
- *Government development grids* (that help government departments and agencies share computing power and collaborate more efficiently).

This segmentation is important because most information systems (IS) managers and business executives think of "grid" as an architecture for aggregating computing power (for instance: one of the most famous grids is the U.S. government's *SETI@Home* project that aggregates the computing power of unused PC compute cycles on a daily basis in order to perform extraterrestrial calculations). But SETI is an example of only one grid type — an *efficiency* grid that helps a government research organization utilize unused compute cycles to perform complex, supercomputer-like calculations. What IS managers and business executives need to understand is that there are several other types of grids — and that these other grids can be used to help aggregate unused computing resources (for instance, to consolidate servers) as well as to improve collaboration and share information (leading to improved productivity).

Bloor NA research shows that grids are gaining acceptance in commercial markets — particularly in engineering and design, life sciences, and financial services sectors. We observe that dozens of pharmaceutical companies are now using efficiency grids for drug research; and that financial services organizations are now using grids for instantaneous, complex portfolio analysis (efficiency

grids). And we can also cite a dozen examples of engineering firms use grids to share complex graphical designs and models amongst engineers — leading to decreased product development cycles and reductions in design errors (productivity grids). Accordingly, based upon how the market is making use of grids, we think that IBM's grid segmentation into efficiency and productivity grids is legitimate.

Five Focus Industries

IBM's grid announcement also included clear statements regarding where IBM will focus its grid marketing efforts. The company identified five specific industries that it intends to concentrate its sales and marketing efforts upon:

1. Aerospace;
2. Automotive;
3. Financial services;
4. Government; and,
5. Life sciences.

From our perspective, most of the early grid "action" started in the mid-1990s and centered in scientific research communities and in government that primarily used grids to aggregate computing power and to share information. Early government adopters included the Netherlands, the U.K, and the U.S — but dozens of other governments have either deployed grids or are now starting to experiment with grid architecture. To Bloor NA, IBM's choice of the government sector as a focus market makes good sense because governments represent a sizable, grid-educated, growing worldwide market opportunity (and one in which IBM has already established its presence).

Over the past two years, Bloor NA has observed increased adoption of grids in commercial environments — particularly in the life sciences, and financial services sectors. Like their predecessors (the government and scientific communities), much of the early commercial grid usage has centered on the aggregation of computing power to perform complex calculations. And again, we believe that these sectors will remain high-growth areas for efficiency grids — and justify concentrated marketing efforts by IBM.

But, over the past year, we have also observed increased growth of collaborative grids — particularly grids used to share complex data and models in the manufacturing sector. These grids focus on improving worker productivity while assisting in reducing the number of design errors that can result when various designers attempt to merge multiple parts into a completed assembly. And the traditional early adopters of advanced technologies for modeling (for instance, early computer-aided design (CAD) adopters) in the manufacturing sector have been the automotive and aerospace industries. We also believe that this sector represents a high growth opportunity for grids (particularly productivity grids used for collaborative design efforts) — and hence justifies IBM's designation as a target market.

Ten "Industry-aligned" Offerings

In order to increase grid sales in its target markets, IBM needs to provide prospective buyers with a wide range of introductory, technical, and experiential information that explains what grids are; how grids can be built; and which enterprises are already using grids (and what results are those enterprises seeing). What IBM has done is structure its grid information in such a way that prospective buyers can easily get the information that they need to understand how grids can be used in their particular industry segments.

So, for instance, a financial services organization can approach IBM for introductory information on grids (available on IBM web site at http://www-1.ibm.com/grid/index.shtml) that includes what grids are, grid benefits, grid product information, and customer examples. This financial services organization can also obtain additional information from IBM on how grids can be deployed specifically in financial markets because IBM has packaged such information in an industry specific manner (see "Financial Markets: IBM Grid Offering for IT Optimization" in Figure 2 — below).

Figure 2 — IBM's Industry-aligned Marketing Programs

	Research & Development Grids	Engineering & Design Grids	Business Analytics Grids	Enterprise Optimization Grids	Government Development Grids
IBM Grid Offerings	▪Life Sciences: IBM Grid Offering for Information Accessibility •Grid Innovation Workshop/Modules	•Aerospace: IBM Grid Offering for Engineering Design •Aerospace: IBM Grid Offering for Design Collaboration •Automotive: IBM Grid Offering for Design Collaboration •Automotive: IBM Grid Offering for Engineering Design •Grid Innovation Workshop/Modules	•Financial Markets: IBM Grid Offering for Analytics Acceleration •Life Sciences: IBM Grid Offering for Analytics Acceleration •Grid Innovation Workshop/Modules	•Financial Markets: IBM Grid Offering for IT Optimization •Grid Innovation Workshop/Modules	•Government: IBM Grid Offering for Information Access •Grid Innovation Workshop/ Modules

Source: IBM Corporation — January, 2003

Further, this financial services organization can attend "Grid Innovation Workshops" geared to provide business executives and IS managers with an understanding of how to use grids in their particular organization (see Figure 3).

What is important to note about IBM's ten industry-aligned marketing programs is that none of IBM's other major competitors have demonstrated this level of discipline in choosing focused target markets and building focused marketing programs to serve those markets. IBM is way ahead of Hewlett-Packard, Sun, and Dell in this respect.

Figure 3 — Grid Innovation Workshops

Executive Workshop	Innovative Workshop Pre-Work	Innovative Workshop	Deliverables
•Define and provide an introduction to grid computing concepts, evolution and adoption frameworks •Provide a high-level introduction to grid architecture an technologies •Introduce value proposition and benefits of grid computing with an industry point of view •Identify preliminary opportunities to leverage grid technologies	•Develop detailed understanding and map current business processes and technology issues related to potential grid initiatives •Develop fundamental understanding of basic economics and business process impacts for selected business opportunity areas through a combination of interviews and analytical research •Identify preliminary opportunities to leverage grid technologies	•Define and provide an introduction to grid computing concepts, evolution and adoption frameworks •Provide a high-level introduction to grid architecture and technologies •Introduce potential opportunities (current processes, proposed processes, economic justification, business impact, technology impact) •Develop consensus and organizational buy-in •Develop top-line architecture for potential solution	• Detailed description of new grid opportunity including: top-line solution architecture, value proposition, business process impact, top-line economics, risks •Top-line business case justification and implementation time-line including build, test, pilot, launch with go/no-go decision points

Source: IBM Corporation — January, 2003

Related Education and Service Offerings

In addition to its industry-aligned marketing programs, IBM also provides:

- Web lectures and classroom education;
- White papers and executive briefs (this information is readily available at IBM's grid Web site at http://www-1.ibm.com/grid/index.shtml);
- A technical RedBook: "Introduction to Grid Computing with Globus";
- A grid development value tool produced by IBM research; and,
- Customer Design Centers (located in Montpellier, France; Makuhari, Japan; Poughkeepsie, New York; and, Silicon Valley, California).

Bloor NA has seen IBM grid demonstrations and proofs-of-concepts and highly recommends that prospective grid buyers make the effort to visit one of IBM's Customer Design Centers in order to gain a fuller appreciation of how grids work and what grids are capable of doing.

ISV Partnerships

IBM's recent grid announcements also focused on the roles that partners play in helping to serve IBM's chosen focus markets (for instance, AVAKI — a grid ISV — provides strong grid technology for collaborative opportunities in automotive/aerospace design markets; DataSynapse provides excellent grid products for use in the financial services sector; and so on). Bloor NA has interviewed key executives at every one of IBM's grid partners — and has written research papers on each of IBM's grid partners and their respective product offerings. And, based upon our research, we believe that IBM has chosen the best-of-breed grid software providers to address the needs of the specific markets that IBM is targeting.

Summary Observations

IBM's recent grid announcements show that the company is very serious about growing marketshare in the grid computing space. The company has identified five types of grids; isolated and focused on five target industries; has put together ten industry-focused marketing programs; has created educational workshops geared specifically for prospective grid users by industry; and is providing classroom training, industry white papers, and other educational materials to raise IS and business executive awareness about what grids are and the benefits that grids can deliver.

Further, IBM has clarified the role of its ISV partners — and has constructed "decision trees" that help prospective grid buyers understand what product and services options they have with respect to designing and deploying grid architecture.

We also observe that IBM has changed its "approach" to marketing grid solutions. Instead of focusing on the technical intricacies of grid middleware, grid networking, grid standards, and grid management (as it had done in the past) — IBM's tone and approach to grid marketing has changed. Instead of describing IBM's role in the creation of a grid toolkit; or IBM's participation in the formation of grid standards (like OGSA); or IBM's strategic grid Independent Software Vendor (ISV) relationships; IBM is now focusing on how grids can be used to:

- Analyze the value of an investment portfolio in minutes rather than hours;
- Significantly accelerate the drug discovery process;
- Cut the design time of products in half, while reducing the instances of defects;
- Efficiently expand and contract to meet cyclical demand cycles; and,
- Unite research teams around the world to take advantage of up-to-date learnings.

In other words — IBM has changed its grid dialog and is now describing grid computing in the context of particular industry's business problems/solutions. This is a major departure from the technology/standards-focused grid discussions of the past.

We believe that what is going on at IBM is that IBM has learned from its customers and from commercial grid deployments over the past year — and now knows how to describe grid computing in terms of business/profit-focused, problem/solution/benefit statements. Furthermore, we note that IBM can now demonstrate to prospective commercial grid buyers specifically how enterprises can achieve desired business results such as improved efficiency or increased productivity. IBM, moreso than any of its primary competitors, really has its act together in grid computing — and vendors such as Dell, Hewlett-Packard, and Sun should now be greatly concerned.

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February, 2003