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Comment ■

What Is a Grid?

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Precision of language is often thought to contribute to precision of thought, and certainly helps to communicate ideas unambiguously. A countervailing tendency, however, causes people to adopt terms developed in one field to stand for analogous concepts that may relate only incidentally to the original. Eventually the meaning of the original term becomes so broad and heterogeneous that we recognize its imprecise use as an impediment to communication, and the community adopts more precise language to clarify meaning. I argue that it is time to apply this corrective process to the term "grid." This suggestion arises from my own confusion listening to numerous talks at the 2006 AMIA Symposium (and elsewhere), where speakers describe grids that have little in common.

The Compact Oxford English Dictionary defines "grid" with four noun meanings,[1] all derived from "gridiron," a griddle for grilling meat:

1. a framework of spaced bars that are parallel to or cross each other.
2. a network of lines that cross each other to form a series of squares or rectangles.
3. a network of cables or pipes for distributing power, especially high-voltage electricity.
4. a pattern of lines marking the starting places on a motor-racing track.

The term "grid computing" was adopted in the 1990's to describe an architecture and set of communication and policy standards to allow large groups of "personal" computers to work together to provide at low cost the computational power of a supercomputer by exploiting parallelism. This approach was pioneered by the scientific computing community, and has been formalized through the efforts of the Globus Alliance.[2] This meaning of "grid" is now broadly accepted and, except for some technical variations, is used fairly unambiguously.

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At AMIA and in various other venues, however, I hear "grid" used to mean a very broad range of goals and methods:

- a community of common interests,
- a social and funding infrastructure to encourage data sharing,
- a technical approach to what we used to call federated databases,
- standardization and ontology construction for specific fields, and of course
- "real" grid computing, in its original meaning.

For example, most descriptions of caBIG, including plenary talks at AMIA, present that project as addressing the first two of the above meanings: "***caBIG***™ is a voluntary network or grid connecting individuals and institutions to enable the sharing of data and tools, creating a World Wide Web of cancer research."[3] The *Medical Grid* project seems to take a narrower view, aiming to provide a set of federated tools for imaging and analysis.[4] Yet others seek an integration of evolving ideas of ontology construction, the semantic Web, service oriented architectures, and grid computing.[5] And of course many projects exploit formal grid architectures to achieve large-scale computing.[6]

I will be happy to leave to others in the community the crystallization of exactly which topics deserve a new name and structure, but I believe that we should enhance the clarity of our discussions by finding distinct names for distinct ideas.

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