Ted Nelson's ZigZag technology

On this page, I try to briefly introduce ZigZag the way I see it. The view point is **technical**, as the first applications of ZigZag are only about to be ready for end-users. I've also tried to include links to all important ZigZag sites on the net, as well as to a few relating matters.

If you would prefer information on using ZigZag, please refer to current implementations.

ZigZag is a concept originally created by Ted Nelson for Xanadu hypertext system. It can be applied to information systems - whole, or parts of: user interfaces, databases, applications, the operating system. The major part of ZigZag is the *ZigZag space*: a network of information cells, ordered into ranks, cubes and linked clusters along multiple dimensions. All data in the system is stored in this global space. Into this space, several views can be created for the user and access provided for programs in the system.

Altough Nelson has designed the concept independently from prevailing pradigms in computing, it can be seen as drawing from many well-established concepts, paradigms and theories:

- ZigZag space is **a directed labeled graph**, where the ZigZag axiom holds for every dimension
- Space dimensions divide links into groups of (possibly cyclic) **lists**. While most links build sequences, some are more like **hyperlinks** between cell clusters.
- Every dimension is an unequivocal binary relation on the cells. Thus the system has to do with **relational databases**.
- ZigZag can represent structures highly similar to **conceptual graphs**.
- **Multidimensional database systems (OLAP)** have already a significant niche in business data modeling
- The system architecture is essentially one huge **Model-View-Controller setup** where the space is the only model.

ZigZag is, however, a unique cocktail of old and new, a system meeting Nelson's opinions of computing as a target. Some ideas that are special in ZigZag:

- Multidimensionality, without limits, is also present in the user interface
- Every piece of data is global (as a cell)
- There are as few hierarchies enforced as possible
- *Spreadsheet paradigm*: the user is right, the user decides which way things are represented. Also, when you know the simple basics, you know everything important.

Major documentation

- Ted Nelson's ZigZag site
- Documentation within Gzz project

Current implementations

- Gzz - functional ZigZag-system, gaining features all the time, GPL-licensed, at the moment written in Java
- Zigzag for XML - WWW interface done using XML, currently supports only MS IE5
- Xanadu ZigZag - the original prototype in Perl, shareware

Writings

- Tuomas Lukka, Katariina Ervasti, GZigZag - A Platform for Cybertext Experiments, draft
- Ted Nelson, Embedded Markup Considered Harmful, The World Wide Web Journal, October 2, 1997
    - Pankaj Kamthan, XML Euphoria in Perspective, February 7, 2000
    - Tim Berners-Lee, Semantic Web Road map, draft updated October 14, 1998
    - Tim Berners-Lee et al., The Semantic Web, Scientific American, May 2001

Related

- Zigzag: Introduction and State of the Art - A workshop on ACM's HT01 conference
- The Babbage of the web - Article on Ted Nelson and Xanadu (December 7, 2000)

Projects with similar goals

- Jude - A RAD concentrating on information sharing and re-use
- KnownSpace - An alternative approach to a computing space
- Bootstrap Institute - A powerful framework for collaborative hypertext
- The Casbah Project
- Hyperbolic Tree Demo - An applet for hierarchy browsing
- The Brain - A web applet for hierarchy-free sites