

The Data Group

Enterprise Nervous System

Project C – MDE

<http://www.bazaarmodel.net>

The Data Group – *The Enterprise Nervous System*

This group will be the main focus for me in the coming years. The goal is an easy (European) Grid [1] upgrade with intelligent servers (Hypercomputer + Cyc + Linux [2]). The intelligent servers could be a financial revenue source for further funding of the Project C – MDE project. When the Grid is upgraded with these intelligent servers it will be known as the Enterprise Nervous System (ENS). ENS contains immense calculating power and (Cyc) intelligence which could be used for scientific research, industrial development, education [3], etc. The Hypercomputers are suitable for the harsh environments, like space, and for building a Solar ENS within the Solar System. Different satellites, super space telescopes [4] etc. could utilize this space network for data transport. The ENS is a knowledge fountain for everyone.

Hypercomputer

The computing power of the Hypercomputer [5] is far more than a traditional computer equipped with serial processors. The Hypercomputer HC-62 has more calculating power than five thousand Intel CPUs combined while it consumes only 900 watts maximum. The price of one HC-62 is \$350,000. The Hypercomputer is also a rock solid device. To give an extreme example, when you would use a pistol and shoot at your computer there is a high chance that the computer will stop working. Shoot a Hypercomputer and the operations that it performs continues as normal. That's what is meant by fault recoverability, instead of the more traditional fault tolerance. The only weak point would be the power supply for powering the FPGAs chips.

Strong:

- Rigid system for harsh environments.
- The change of data loss is 99.99% non existent.
- The Hypercomputer is able to sustain heavy damage while continuing operations.
- Immense calculating power.
- Easy learning curve in learning to use the Hypercomputer.
- Genetic algorithms could be integrated within the hardware (“nerve cells” for Cyc).

Possible drawback:

- There is a question on how the Viva program could be intertwined with Cyc (and Mathematica?). This should be researched.

Cyc

Integrating Cyc [6][7] with the ENS would give the network 'intelligence' in a way it could monitor the infrastructure, adjust the infrastructure for optimal performance and explain the network to an (human) engineer. Cyc could explain to an engineer its own thoughts on what could be improved, if something is wrong with the network and maybe why etc. This is very important for places which are beyond human reach at this moment, for example space. Cyc could manage itself in hostile environments without waiting for instructions with time delay (a data transmission to Mars takes 10 minutes).

Cyc could also be a teacher with a vast array of tools to help explaining things in a clear graphical manner like a (holographic) 3D view of Earth within the Solar System, history, physics, mathematics etc. An agent like a human being is able to interact directly with the ENS so that it could manipulate mathematics formula's and sees directly what the results are, or why the change, explained by Cyc, is impossible to calculate.

Strong:

- Cyc could be used in an almost unlimited kinds of way, like a teacher, a juridical knowledge reservoir for the juridical world, an assistant engineer, a translator [8] etc., which makes it very flexible.
- Could be implemented within a robot [9][10], or Cyc could control a robot via a cordless network to touch objects and learn from its surrounding.
- Robust and flexible, the Cyc knowledge base (the knowledge of Humanity) could be spread over unlimited amount of (specialized) agents. So there would be a physics Cyc, a material-scientist Cyc etc. Other Cycs could take over the role of their counterpart when one is damaged.

Possible drawback:

- It is a direct competitor with a human being. The only difference is that a human being has imagination. A Cyc contains much more knowledge and understanding about reality than a very highly educated human being and thereby could be seen as a 'threat'.
- The coming fifteen years are crucial for the development of Cyc's view of reality. Help is needed [11].

Open Source

The most important aspect to use Open Source [12] is the guaranty that the data is accessible for future generations. Secondly, there are no constraints on sharing or copying the data. Everyone has the right to use it. Open Source would also be applicable on matter (moulds) and objects created by the Creator Unit.

Strong:

- Knowledge flows freely unhindered by boundaries.
- Every agent is able to access the Open Source data (like the matter moulds).

Possible drawback:

- In a world ruled by scarcity (of materials), Open Source is an odd duck, contradicting with many established economic dogma's. Patents and copyrights could hamper the spread of Open Source (juridical battles).
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Rapid Single-Flux-Quantum

With Rapid Single-Flux-Quantum [13] data devices (for example, this technology could be implemented in switches) would allow sustainable 1 terabyte per second data transmissions, or higher, to saturate the Hypercomputer with (direct memory) input.

Strong:

- Ultra fast communication.
- Very low power consumption.

Possible drawback:

- The lack of speed of storage devices. A new kind of data storage is needed (solution: 3D storage [14]).

[1] The EU DataGrid Project <http://eu-datagrid.web.cern.ch/eu-datagrid/>

[2] Linux <http://www.linux.org/> and <http://www.kernel.org/> and <http://kernelnewbies.org/> and <http://www.linuxhq.com/>.

[3] Education for All <http://www.ics.uci.edu/~bork/papers.html>

[4] Darwin <http://sci.esa.int/science-e/www/area/index.cfm?fareaid=28>

[5] <http://www.starbridgesystems.com/>

[6] Romancing the Rosetta Stone http://www.bazaarmodel.net/phorum/read.php?f=1&i=326&t=326#reply_326

[7] Cyc <http://www.cyc.com>

[8] OpenCyc <http://www.opencyc.org>

[9] Human Robot <http://world.honda.com/ASIMO>.

[10] Open Automaton Project <http://oap.sourceforge.net/>

[11] <http://murl.microsoft.com/LectureDetails.asp?1032>

[12] Open Source <http://www.opensource.org/>

[13] Rapid Single-Flux-Quantum pulse <http://pavel.physics.sunysb.edu/RSFQ/RSFQ.html> and

<http://www.ewh.ieee.org/tc/csc/News/RSFQFeb01.htm>

[14] For example Holographic Memory <http://computer.howstuffworks.com/holographic-memory.htm>