Monet; a next-Generation DBMS Kernel For Query-Intensive Applications

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At the time I was studying computer science at the Vrije Universiteit Amsterdam, I used to regard databases (which I mostly identified with conceptual modeling and relational normal forms) as an extremely dull and uninspiring subject. My computer science interests were rather in computer architecture and systems engineering, in which area I completed the M.Sc. program in 1992 together in a joint project with my best friend Hylke Sprangers. It is therefore ironical that I ended up doing a Ph.D. in databases. This episode started in 1994 when I came across an OIO position with Martin Kersten in the MAGNUM project, where a new database system was to be developed to power – among others – a new generation of geographical information systems. The challenge of architecting and engineering a database management system had not occurred to be before, but immediately attracted me.

Martin Kersten at that time headed the database research group at CWI, and had just started at a part-time position as professor at the University of Amsterdam, where I became stationed. Martin has played a crucial role in all my research. He has a tremendous creativity that produces a continuous stream of ideas, ranging from brilliant to impossible, coupled with the courage to go against the tide of accepted scientific opinion when he believes in something. Many ideas underlying Monet – which were rather unusual at their inception – come from him, as well as the initial implementation. As we share many of our interest, our professional relationship has always been stimulating, sometimes by competitiveness in the positive sense.

In the MAGNUM project, I enjoyed working together with Carel van den Berg, Wilko Quak, Jan Flokstra and Annita Wilschut. In that time, Annita took charge of most of the organizational hassles, and made MAGNUM one of the few inter-university projects I know of where intense and fruitful cooperation occurred. Investing in hard work directed at objectives only in the mid- or longer-term was a characteristic of Annita, who was also invaluable in helping the junior project members like Wilko and me in acquiring basic research skills. Meanwhile, the daily work routine in my room at the university, whose distance to the CWI made me a physically rather isolated member of the CWI database research group, were enlivened by the companionship of my room mate Arnold Jonk. I specifically recall his (black) humor and our always continuing conversation on a broad range of topics.

An important event in my professional career was the foundation of Data Distilleries as a data mining spin-off company by members of the CWI database research group, including Marcel Holsheimer and Fred Kwakkel. Data Distilleries, which later specialized into aCRM (analytical Customer Relationship Management), is special in the Dutch IT sector because it is a software product company, while almost all IT companies here are service-oriented and “just” customize software that generally comes straight out of the USA. Software product companies have an immense potential in terms of growth and profitability, but are much more difficult to make into a success than IT service companies due to the stiff competition in the software product market, which has a winner-takes-all characteristic.

Quickly, Data Distilleries started using the Monet prototype to power their data mining products, which is why they asked me to join in, initially for one day a week. As a consequence of working just four days at the university, my Ph.D. contract extended until June 1999. By that time, I had produced what I consider my best research results
through an extremely effective and pleasurable cooperation with Stefan Manegold in the area of cache-conscious query processing. This experience really showed me the power of teamwork as well as the possibilities of inter-disciplinary research.

Due to the frenetic development of Data Distilleries and the pressure this put on Monet as a software product instead of a research prototype, I decided to join Data Distilleries full-time when my OIO contract finished. Working at Data Distilleries was an eye-opener for me, as it was my first experience working in the “real world” and the circumstances were highly stimulating: a booming high-tech startup where the possibilities as well as the demands were endless. Here I learned to broaden my horizon from only one specialized subject to a complex interplay of many factors (among others facing the many challenges of going from finding a viable business proposition to overall system architecture into managing large-scale software development by cooperating teams of persons, with all its social aspects as well). But most of all, at Data Distilleries I had the privilege of working with an inspiring set of individuals including Tim Rühl, Donald Kwakkel, Hans Boëtius, Edith Kanters, Ronald Wanink, Maarten Smeets, Frank Bos, Marijn Deé and Martin van Dinther. They put up with many of my Monet bugs and the best of them are still fluent in MIL.

Currently I am back at the database research group at CWI, where Monet continues to be used and improved, among others by the tireless work of Niels Nes and enthusiasm of Arjen de Vries. Monet has always been a team effort which would have been impossible to achieve without all those who contributed, notably among them Menzo Windhouwer and Jonas Karlsson.

During my time at Data Distilleries, I was always intending to finish my thesis, but the endless list of urgent company issues would always prevent me from doing any work. In the end, after coming back at CWI, it took four months to complete. Finally getting there is in many senses thanks to my family and especially Cecilia, who has always stimulated me to finish this thesis and lovingly accepted my late working hours in doing so.