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The openlab adventure continues to thrive

As the CERN openlab enters its second decade, François Fluckiger offers a personal account and some of his own recollections of how this bold initiative began and went on to thrive.

Résumé
L'aventure CERN openlab continue

Au printemps 2001, Manuel Delfino, Chef de la Division IT, convoque François Fluckiger et lui présente une idée absolument novatrice, et pourtant limpide : un modèle ambitieux de partenariats nouveaux, de longue durée, utilisant tous un cadre commun, avec les géants industriels de l'informatique. Il lui demande de s'en occuper. Manuel écrit directement aux présidents des entreprises, leur donnant six semaines pour devenir membres fondateurs. Et cela fonctionne. L'openlab est né ! Dans cet article, François Fluckiger, qui a quitté le projet en ce début d'année, apporte un témoignage sur la naissance étonnante et les étapes majeures de cette entreprise unique.

Friday, 31 May 2001, 6 p.m. – Back in my office, I open my notebook and write "My understanding of MD's ideas" in blue ink. I draw a box and write the words "Open Lab" in the middle of it. I've just left the office of Manuel Delfino, the head of CERN's IT division. His assistant had called to ask me to go and see Manuel at 4 p.m. to talk about "industrial relations". I've been technology-transfer co-ordinator for a few weeks but I had no idea of what he was going to say to me. An hour later, I need to collect my thoughts. Manuel has just set out one of the most amazing plans I've ever seen. There's nothing like it, no model to go on, and yet the ideas are simple and the vision is clear. He's asked me to take care of it. The CERN openlab adventure is about to begin.

This is how the opening lines of the openlab story could begin if it were ever to be written as a novel. At the start of the millennium, the case was clear for Manuel Delfino: CERN was in the process of developing the computing infrastructure for the LHC; significant research and development was needed; and advanced solutions and technologies had to be evaluated. His idea was that, although CERN had substantial computing resources and a sound R&D tradition, collaborating with
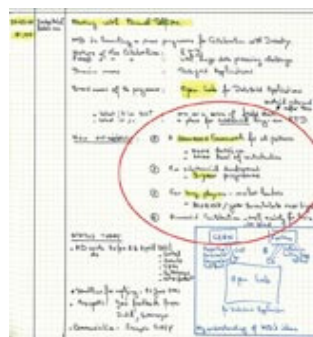
industry would make it possible to do more and do it better.

Four basic principles

CERN was no stranger to collaboration with industry, and I pointed out to Manuel that we had always done field tests on the latest systems in conjunction with their developers. He nodded but stressed that here was the

Hand-written notes

difference: what he was proposing was not a random collection of short-term, independent tests governed by various different agreements. Instead, the four basic principles of openlab would be as follows (I jotted them down carefully because Manuel wasn't using notes): first, openlab should use a common framework for all partnerships, meaning that the same duration and the same level of contribution should apply to everyone; second, openlab should focus on long-term partnerships of up to three years; third, openlab should target the major market players, with the minimum contribution threshold set at a significant level; last, in return CERN would contribute its expertise, evaluation capacity and its unique requirements. Industrial partners would contribute in kind – in the form of equipment and support – and in cash by funding young people working on joint projects. Ten years on, openlab is still governed by these same four principles.

Back to May 2001. After paving the way with extensive political discussions over several months, Manuel had written a formal letter to five large companies, Enterasys, IBM, Intel, Oracle and KPN QWest, inviting them to become the

Delfino, Maiani

founding members of the Open Lab (renamed "openlab" a few months later). These letters, which were adapted to suit each case, are model sales-pitches worthy of a professional fundraiser. They set out the unprecedented computing challenges associated with the LHC, the unique opportunities of a partnership with CERN in the LHC framework, the potential benefits for each party and proposed clear areas of technical collaboration for each partner. The letters also demanded a rapid response, indicating that replies needed to reach CERN's director-general just six weeks later, by 15 June. A model application letter was also provided. With the director-general's approval, Manuel wrote directly to the top management of the companies concerned, i.e. their chairs and vice-chairs. The letters had the desired effect: three companies gave a positive response by the 15 June deadline, while the other two followed suit a few months later – openlab was ready to go.

The first task was to define the common framework. CERN's

legal service was brought in and the guiding principles of openlab, drawn up in the form of a public document and not as a contract, were ready by the end of 2001. The document was designed to serve as the basis for the detailed agreements with individual partners, which now had to be concluded.

Three-year phases

At the start of 2002, after a few months of existence, openlab had three partners: Enterasys, Intel and KPN QWest (which later withdrew when it became a casualty of the bursting of the telecoms and dotcom bubbles). On 11 March, the first meeting of the board of sponsors was held at CERN. Chaired by the then director-general, Luciano Maiani, representatives of the industrial companies were in attendance as well as Manuel, Les Robertson (the head of the LHC Computing Grid project) and me. At the meeting I presented the first openlab annual report, which has since been followed by nine more, each printed in more than 1000 copies. Then, in July, openlab was joined by HP, and subsequently followed by IBM in March 2003 and by Oracle in October 2003.

In the meantime, a steering structure for openlab was set up at CERN in early 2003, headed by the new head of the IT Department, Wolfgang von Rüden, in an *ex officio* capacity. Sverre Jarp was the chief technical officer, while François Grey was in charge of communication and I was to co-ordinate the overall management. January 2003 was also a good opportunity to resynchronize the partnerships. The concept of three-year "openlab phases" was adopted, the first covering the years 2003-2005. Management practices and the technical focus would be reviewed and adapted through the successive phases.

Thus, Phase I began with an innovative and ambitious technical objective: each partnership was to form a building block of a common structure so that all of the projects would be closely linked. This common construction,

Aymar, Intel

which we were all building together, was called "opencluster". It was an innovative and ambitious idea – but unfortunately too ambitious. The constraints ultimately proved too restrictive – both for the existing projects and for bringing in new partners. So what of a new unifying structure to replace opencluster? The idea was eventually abandoned when it came to openlab-II: although the search for synergies between individual projects was by no means excluded, it was no longer an obligation.

A further adjustment occurred in the meantime, in the shape of a new and complementary type of partnership: the status of "contributor" was created in January 2004, aimed at tactical, shorter-term collaborations focusing on a specific technology. Voltaire was the first company to acquire the new status on 2 April, to provide CERN with the first high-speed network

based on Infiniband technology. A further innovation followed in July. François set up the openlab Student Programme, designed to bring students to CERN from around the world to work on openlab projects. With the discontinuation of the opencluster concept, and with the new contributor status and the student programme, openlab had emphatically demonstrated its ability to adapt and progress. The second phase, openlab-II, began in January 2006, with Intel, Oracle and HP as partners and the security-software companies Stonesoft and F-Secure as contributors. They were joined in March 2007 by EDS, a giant of the IT-services industry, which contributed to the monitoring tools needed for the Grid computing system being developed for the LHC.

The year 2007 also saw a technical development that was to prove crucial for the future of openlab. At the instigation of Jean-Michel Jouanigot of the network group, CERN and HP ProCurve pioneered a new joint-research partnership. So far, projects had essentially focused on the evaluation and integration of technologies proposed by the partners from industry. In this case, CERN and HP ProCurve were to undertake joint design and development work. The openlab's hallmark motto, "You make it, we break it", was joined by a new slogan, "We make it together". Another major event followed in September 2008 when Wolfgang's patient, months-long discussions with Siemens culminated in the company becoming a openlab partner. Thus, by the end of Phase II, openlab had entered the world of control systems.

At the start of openlab-III in 2009, Intel, Oracle and HP were joined by Siemens. EDS also decided to extend its partnership by one year. This third phase was characterized by a marked increase in education and communication efforts. More and more workshops were organized on specific themes – particularly in the framework of collaboration with Intel – and the communication structure was reorganized. The post of openlab communications officer, directly attached to the openlab manager, was created in the summer of 2008. A specific programme was drawn up with each partner and tools for monitoring spin-offs were implemented.

Everything was therefore in place for the next phase, which Wolfgang enthusiastically started to prepare at the end of 2010. In May 2011, in agreement with Frédéric Hemmer, who had taken over as head of the IT Department in 2009, he handed over the reins to Bob Jones. The fourth phase of openlab began in January 2012 with not only HP, Intel and Oracle as partners, but also with Chinese multinational Huawei, whose arrival extended openlab's technical scope to include storage technologies.

After 10 years of existence, the basic principles of openlab still hold true and its long-standing partners are still present. While I, too, passed on the baton at the start of 2012, the openlab adventure is by no means over.

• For a version of this article in French, see https://cern.ch/Fluckiger/Articles/F.Fluckiger-openlab-10_ans_deja.pdf.

About the author

François Fluckiger, CERN, openlab manager (2001-2011).

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