

User stories



The logistic efficiency is critical for the competitiveness of Air Liquide (€16 billion in revenues, 70,000 employees), the world leader of industrial and medical gas. The delivery of its gas products in bulk to the clients, done with the help of tanker trucks represents a cost of several hundreds of millions of euros for the company. In 2008, Air Liquide wished to equip itself with a software that would allow an operational optimization of the replenishment tours of its clients. By operational optimization, we mean a 15-day horizon implicating very short calculating times, in the order of minutes. On a planning area, there can be several hundreds of clients. Furthermore, numerous operational constraints have to be taken into account: loading of the trucks in the factories, length of drivers' worktime, industrial site access etc. A major difference with the classic vehicle routing optimization problem is that, in this instance, the clients' stocks are managed by the supplier. Thus, it is an inventory routing optimization problem that we needed to solve. Ultimately, the software needs to answer the questions: which clients are to be delivered? What quantities need to be delivered. When and how should they be delivered? To answer this demand, we have developed a unique software solution on the market, based on the LocalSolver technology. The software, delivering near-optimal solutions in less than 5 minutes on a standard computer, allowed important cost reductions all the while ensuring a high-quality client service. Since then, it has been deployed on a global scale by Air Liquide.



Bouygues SA is the parent company of the Bouygues Group (€33 billion in revenue, 120,000 employees). As in all groups of the CAC 40, Bouygues SA has to publish its consolidated accounts in millions of euros. This practice brings forth a question more complex than it seems: how to round up the amounts that are published? At first sight, you just need to divide these numbers by one million. Indeed, if a table is composed of 10 lines of 400,000 euros each, a roundup would have transformed these 10 lines of 0 million each for a total of 0 instead of 4 million. It is thus necessary to round up sometimes to the superior million and sometimes to the inferior million so that the totals at the bottom of each table is correct. Each trimester, the consolidation management of a group like Bouygues has to generate at least 600 tables that have to be rounded up in a coherent way between them meaning that an amount that appears in several tables always has to be rounded up to the same amount. These tables contain 5 accounting analysis axes: by section, by flow, by business sector (subsidiary), by country, and by partner. In addition, all accounting equilibriums need to be respected: assets need to be equal to liabilities in millions, the income that appears on the income statement needs to be the same as the one that appears on the balance sheet, etc. The difficulty of the problem is reinforced by the size of the cube to be treated: tens of thousands of atomic amounts combine themselves in hundreds of thousands of sums that have round up values that need to be controlled. In the favor of putting in place a data cube, an automatic and optimized rounding software solution was developed by the LocalSolver team. For the first time, the accounts of the 1st trimester for the year 2011 of the Bouygues Group were rounded up automatically which allowed to create a reliable process and to decrease production times of the consolidated accounts. This software is now deployed in subsidiaries of the Bouygues Group.



Bouygues Telecom is the 3rd telecommunications operator in France. Providing mobile, fixed, TV and Internet communication services to 12 million clients, the company has 7500 collaborators and generates €4.5 billion in revenues. The LocalSolver team was called in 2009 by Bouygues Telecom marketing division in the context of the redesign of their information system. The planning of human and material resources was not suitably managed and optimized by the Oracle Siebel CRM system. Then, Bouygues Telecom was looking for a specific software solution to treat this problem whose resolution was critical for the efficiency of the operational process. To answer this need, the LocalSolver team offered a custom-made turnkey application, which could be integrated to Siebel CRM. This solution offers a LocalSolver-based optimization component allowing to calculate a near-optimal planning of resources in real time, but also a rich graphic interfaces allowing to visualize and rapidly modify the planning of marketing campaigns and related resources. This rich internet application (RIA) was based on Microsoft Silverlight framework. Operating since 2010, this application allows to automatically plan 20,000 marketing campaign per year, meaning close to 100,000 tasks (feasibility studies, extraction, broadcast, QoS analysis).



Bouygues Energies & Services is an expert company in energy performance and services, offering services in three broad fields: energy and digital networks; electrical, climatic and mechanical engineering; facility management. Operating at an international scale, Bouygues Energies & Services employs 14,000 collaborators and generate €2.5 billion in revenues. The company answers a lot of bids for the long-term maintenance of public lighting. To price such contracts, making a strategic, long-term planning of the maintenance of the city's lighting equipments is necessary. This planning is built for periods of time that usually exceeds 20 years, with a monthly or quarterly time step. For each equipment, the date and type of renovation has an important impact on the final costs, linked to the labor force, the energy consumption and the maintenance operations that will follow. Thus, for each street of the city, we have to choose at best the maintenance dates as well as the list of equipments to install, in order to avoid obsolescence of equipments, to satisfy global constraints of availability of labor force, to smooth expenditures, etc. These constraints vary depending on the financial package and the type of the contract signed with the city. Based on LocalSolver, the dedicated software solution developed for Bouygues Energies & Services allows to price 25-year contracts for cities with thousands of streets. Thierry Guil, project manager at Bouygues Energies & Services, was impressed by its efficiency: "We are now able to finely optimize complex maintenance schedules in minutes thanks to LocalSolver". Beyond the optimization engine, the LocalSolver team has developed a complete tailor-made software solution allowing the Bouygues Energies & Services teams to manage the data of each call for bids, to optimize and visualize the related schedules and to interact with the search engine.