

---

# Stock Options at Caldera

---

## Case-2016-02-Caldera-Stock-Options

The last day of February 1999 had ended and Frances Feldberg, a software developer at Caldera Deutschland GmbH, the German subsidiary of Caldera Systems Inc., turned off her computer and decided to go home. She had spent the last couple of hours checking stock prices and making calculations. Caldera's executives had promised exciting news for weeks and had finally invited all employees to a highly anticipated information meeting. This meeting had taken place via a conference call earlier that day. In the meeting, Alan Hansen, Caldera's chief financial officer, had announced that Caldera was going public.

Surprised as she was, Feldberg could not stop thinking about what this initial public offering (IPO) might mean for her financial future. Feldberg was participating in the employee stock options plan (ESOP) that Caldera had implemented the year before. The plan granted employees the option to buy a defined number shares of the company, which could be worth a lot after the IPO. Also, the IPO was an opportunity for her mother, a potential beneficiary of the Friends and Family package that came with the IPO. All the more reason to make an informed and professional decision about her stock options. But how to make that decision? Feldberg was particularly concerned about the implications for her tax liability and the uncertainty over future stock prices in the software industry. Should she join the bandwagon of co-workers who planned to buy shares of stock? Mr. Hansen had shared very exciting news indeed.

---

## 1 The Industry: Linux and the Linux Business

---

### 1.1 Linux in a nutshell

The late 1990s had been characterized by significant growth in open source software. The Linux kernel and operating system as well as software built around and on top of it were a key part of this growth. In 1991, Linus Torvalds had developed what became known as the Linux kernel (an operating system core). Together with Richard Stallman's GNU tools, it came to be known as the free operating system (OS) Linux.

In 1983, Stallman had put together the GNU<sup>1</sup> tools, intending to create an operating system himself. Failing to create a kernel, Stallman left the project incomplete until Torvalds came along with the a new attempt at a kernel. Because Torvalds' kernel demonstrated high security and scalability, it became an important part of the operating system's success. After the initial rather informal introduction of the kernel and the operating system, Linux immediately gained popularity and supporters. Because of the OS's portability, reliability, similarity to UNIX, as well as its open source nature, Linux was appealing to developers and, eventually, to companies (West & Dedrick, 2001).

Over the years, Linux had become increasingly popular. In 1998, one year before Caldera's IPO, the number of companies using Linux grew by 27 per cent (Millman, 1998).

## 1.2 The Linux business

An operating system (OS) is a combination of different components. An OS consists of the kernel, operating systems tools, applications and environments. Most of the components are developed independently and in case of Linux were distributed in source code form, which means that they could be assembled by any user. However, combining different components into a single – properly working – operating system, was a difficult task, separate from programming the individual components. This task of compiling and integrating different components was carried out by distributors (distribution maker) and the result was called a distribution, where a distribution is equivalent to a particular version of the full-fledged operating system. From the user perspective, a distribution only needs to be booted and installed and can be purchased from a distribution maker. Companies in the Linux business mainly profit from the commercialization of distributions and support services for these.

As surprising as it may sound, commercial companies offering Linux distributions could be highly profitable, even though the underlying software was almost all open source software. Right after the launch of Linux, distributions sold on CD-ROM and technical support packages from startup companies such as TurboLinux, SuSe and Red Hat were in high demand.

The main competitor of Linux as an operating system was Microsoft's Windows. Advocates of Linux pointed out a number of advantages that outweighed the limited number of applications that ran on Linux. First, the multiuser version of Linux with documentation and 60- to 90-day support from Caldera sold at US\$199, a considerably lower price than the more popular Windows NT offered at about US\$1500. Second, because Linux was open source, it was easier to customize it to specific needs of the client and it ran on a large number of platforms. Third, Linux was more stable than its competing products, which made it attractive as a server operating system and for manufacturing and financial applications (Millman, 1998).

These factors contributed to a large increase in the market share of Linux. In 1998, International Data Corporation (IDC) reported a 150 per cent market share growth. Linux reached a 17 per cent market share, the highest share since the inception of Linux in 1991 (West & Dedrick, 2001). Two key aspects may have influenced the results. Firstly, the popularity of the open source movement as a philosophy for young computer scientists and technology companies. Secondly, the explosion and accelerated adoption of the Internet. Linux came as the ideal operating system, successfully combining both trends.

---

1 Note that contrary to a common misconception, GNU is not UNIX.

---

## 2 The Company: History and Business Model

---

### 2.1 LST Software becomes Caldera Deutschland

Caldera Inc. was a young company. Founded in 1994 by Bryan Sparks and Ransom Love in Utah (USA), the Canopy Group-funded startup had less than fifty employees when it incorporated Caldera Deutschland GmbH, its German subsidiary. The company had an ambitious business model without any previous record of success in the industry. Caldera relied on a combination of open source software and proprietary technology, as well as support and consulting services.

Starting in 1995, Caldera expanded internationally. Besides establishing a development center in Germany, responsible for Linux-related technologies, the company also set-up another development center for the operating system DR-DOS<sup>2</sup> in the United Kingdom, and sales retailers for disk operating system-based (DOS) products in Taiwan. In 1998, Caldera Inc. decided to split the company into two separate and independent entities:

1. Caldera Systems Inc., in charge of Linux businesses, and
2. Caldera Thin Clients Inc., in charge of embedded businesses.

The goal behind the split was to implement the company's strategy to position itself in two separate markets, the Linux and the e-commerce systems market. Caldera's history of acquisitions, separation, and reincorporation would continue for more than a decade until 2011, when international operations were officially canceled.

“Middle Franconia has the highest density of Linux developers in the world. We are a Linux-Valley.” Johannes Nussbickel, Chief Financial Officer at SuSe Linux in 2000

LST Software GmbH's origins are the Linux Support Team (LST), a community project that had started at the University of Erlangen. The project team was responsible for Linux Power, a popular Linux distribution. The distribution had quickly become a success and had been adopted by many German universities. The Linux Power (LST Distribution 2.2) installation and system administration tool was the first Linux distribution to ship with a single 2.0 kernel.

The popularity in Germany was mainly due to the language, keyboard support, and international flexibility (language expansion). After the Linux distribution had gained popularity, LST Software GmbH was founded by Ralf Flaxa and Stefan Probst in 1996 in Erlangen, Germany. Because of Linux Power's automatic hardware detection and graphical user interface with on-screen prompts, it did not come as a surprise that the product got the attention of Caldera Inc.

Caldera Inc., the US Linux vendor looking for European partners and international expansion, was impressed by LST's distribution and simple installation procedure. Soon, both companies were engaged in a joint project. Caldera had failed twice to release their latest product, be-

---

2 DR-DOS is a desktop solution and embedded application purchased by Caldera from Novell.

cause of a lack in simple working installation software. LST satisfied Caldera’s internationalization requirements and offered a working installation component.

What started as contract work became permanent. In May 1997, LST Software GmbH became Caldera Deutschland GmbH, an independent German subsidiary of Caldera Inc. With the split of Caldera Inc. into Caldera Systems Inc. and Caldera Thin Clients Inc. in 1998, Caldera Deutschland GmbH became part of Caldera Systems Inc. Table 1 shows a brief summary of the timeline.

Table 1 shows a brief summary of the timeline.

| Timeline   |      |  |
|--|------|--|
| Incorporation of Caldera Inc.  | 1994 |  |
|  | 1995 |  |
|  | 1996 | Foundation of LST Software GmbH  |
|  | 1997 | LST becomes Caldera Deutschland GmbH   |
| Caldera Inc. splits into: Caldera Systems Inc. and Caldera Thin Clients Inc. | 1998 | Caldera Deutschland GmbH becomes the German subsidiary of Caldera Systems Inc. |

*Table 1: Timeline of Caldera Inc. and LST*

Feldberg was an original employee of LST Software GmbH. Her first project and achievement in the German subsidiary of Caldera Inc. was OpenLinux 2.3, a Linux for business solution that helped Caldera establish itself as one of the industry leaders alongside Red Hat and VA Linux. Because OpenLinux included commercial packages that were not licensed under the GNU Public License, one of the leading open source licenses, the product was only available through Caldera’s authorized distribution channels around the world, and not for free download over the Internet. As part of the services offered, Caldera’s partners provided users with assistance, training, and configuration help. Feldberg’s team had high hopes and she was convinced that future releases of OpenLinux would be highly recognized in the industry.

## 2.2 Business model

The premise of Caldera’s business model was that the combination of open source software with proprietary products would be worth something to customers. Since Caldera’s incorporation in 1994, the company had redefined its business plan on several occasions, trying to figure out the key to successfully implementing this model. Starting as a software provider for novice Linux users, Caldera jumped to business and appliance servers. By the time of the IPO, the company decided to focus on business solutions. This change in focus represented a change in the product line as well. So far, Caldera’s revenue had been based on the sales of OpenLinux and related products. Some employees, including Feldberg, were worried about the capacity of the company to generate revenue based on sales of new products.

A second branch of the business were value-added services. On the one hand, Caldera offered training for Linux. On the other hand, Caldera offered a set of complementary services. Through a set of courses designed to teach about development, deployment, and management, attendees of Caldera’s training sessions mastered any Linux distribution. Training was offered locally and internationally via the Caldera Open Learning Provider’s educational programs.

Yet other services, but not discussed further, included:

- Technical support for the installation of products,
- Consulting and custom development,
- Hardware optimization and certification, and
- Documentation.

---

## 3 Caldera's Stock Option Plan

---

When LST became Caldera Deutschland GmbH, the work contracts of several employees changed in accordance with the new company's policies. For Feldberg, this created the opportunity to participate in Caldera's 1998 Employee Stock Option Plan (ESOP), which was adopted in December of the same year.

As it is common in startups, Caldera offered employees stock options as part of the employee compensation package. Eligibility was determined by the Board of Director's Compensation Committee, internally called Plan Administrator. Feldberg had started working as a software developer for LST in 1996. As one of the employees with tenure in the company, she was entitled to participate in the companies' extraordinary benefits plans. Feldberg was a reputed Linux developer. Her experience with Linux made her indispensable, respected by her colleagues, and an asset to the company. Feldberg was happy with her job and her employer; it was exciting to be part of an emerging industry and she was curious to see what the future would hold for the company and herself.

Based on Feldberg's profile, performance, and annual wage of EUR60,000<sup>3</sup> Feldberg was granted 5,000 stock options at a grant price of US\$3.28 with her new working contract. Her vesting schedule spanned four years with 25 per cent of the grant vested each year. Vesting is the minimum holding period between option grant and potential exercise (OECD, 2005).

### 3.1 Option terms

Under the 1998 Plan, employees were eligible for options to purchase shares of Caldera's common stock. The plan opened five million shares of common stock for issuance to participating employees and limited the maximum number of shares per employee to one million shares.

Employees were offered stock options with an expiration date of 10 years from the grant date. In this case, options would expire after December 29, 2008. Optionees<sup>4</sup> did not have any shareholder rights before exercising the option. Shareholders did not expect to benefit from any dividends, because Caldera did not plan to pay dividends to common shareholders. The stock options provided to employees were non-qualified stock options.

---

3 We use US dollars as main currency throughout the case. In case currency conversion is required, we apply a standard exchange rate of 1.13 EUR/US\$.

4 Employees participating in the 1998 Plan who were granted shares of common stock.

Exercising options is the process in which the employee proceeds with the actual purchase of stock from vested options (Khincha, 2002). Only after exercising the options, that is purchasing the optioned shares, does an employee become a shareholder and thereby attains the corresponding rights.

All administrative affairs involving the plan were under the responsibility of the plan administrator, who had total authority to determine:

- Employee eligibility,
- Option grant schedules,
- Share number covered under the grant,
- Exercise price of the options,
- Exercise schedule, and
- Vesting schedule.

### 3.2 The Friends and Family Program

When filing for its IPO, Caldera made 10 per cent of common stock available to friends and family of employees, a program formally known as directed share program (Ljungqvist & Wilhelm, 2002).

Under this program, Feldberg's mother, an enthusiastic amateur investor, gained the right to buy shares at the initial public offering price, estimated to be north of US\$7 per share. Participants could buy the shares without commission and had the liberty to sell at any point in time.

Because being part of this program was considered an attractive investment opportunity, many employees provided a long list of potential beneficiaries. Feldberg's position and profile guaranteed her mother's name on the very exclusive list.

Because the number of available stock was limited, each friend and family member gained rights to buy only a few shares. After a classification process finished, Feldberg's mother was granted the right to buy up to 300 shares of stock.

“My name is on the list!” she said when Feldberg announced how many shares would be available. “I feel like I won a golden ticket!”

### 3.3 Exercise and lock-up terms

An employee, who wishes to exercise vested stock options, has to give the employer written notice. The day on which the notice is received by the company counts as the exercise date.

The exercise price per share of US\$3,28 was determined by the plan administrator on the day of the grant and should always meet the fair market value.

When exercising the options, employees sign a lock-up agreement under which selling and further commercial activities involving the shares were restricted for after a period of 180 days. Beneficiaries of the Friends and Family program do not fall under the lock-up period.

---

## 4 Making a Decision

---

Feldberg had kept a post-it note on the side of her computer screen for days, her personal resolution to take advantage of this opportunity. The time to decide whether to exercise her stock options was getting close. Making an as rational as possible decision had always been her priority. She considered the outlook of Caldera's future stock price, i.e. the money she could win or lose by exercising her stock options. No personal feelings were to influence her decision.

Feldberg did, however, contemplate some non-rational aspects as well. She was a big industry enthusiastic, an active part of the Linux community, and a believer in Caldera's success.

In order to make a rational decision based on uncertain future stock prices, Feldberg considered the performance of the Linux industry and Caldera's performance.

### 4.1 The industry

To form expectations on Caldera's potential at the stock market, Feldberg studied the software industry's stock market performance in the past 12 months.

Feldberg searched for an index that aggregated stock market prices of several US Software companies. She found just such an index and the outlook was very positive. Figure 1 shows the index reflecting the aggregated stock market value of selected US software companies for up to 12 months prior to Caldera's IPO. The figure, provided by an Internet investment portal, also included a simple projection of the index's development. If the positive outlook applied to Caldera, the value of her stock might almost double in the course of a year.

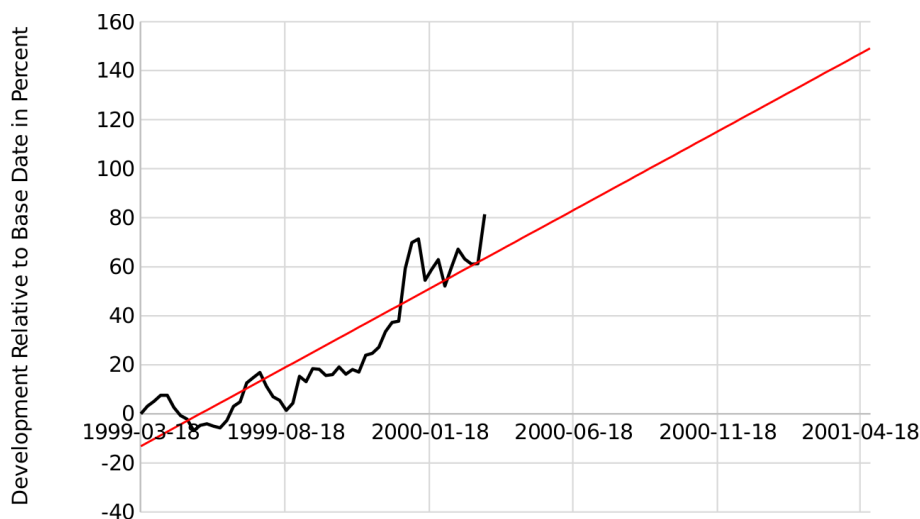


Figure 1: Development of an aggregate index of stock prices

Of course, there were also stories of stock market busts. From the famous example of the Netherlands' tulip prices, to more contemporary examples, such as the Japanese asset price bubble of the 1980s. There was always the possibility that the stock was overpriced and that market forces would eventually lead to a downward adjustment. If this was the case, past de-

velopment was a bad indicator, as it would only reflect overconfidence of investors in the market. Alas, the bust of investment bubbles was almost impossible to predict.

Feldberg understood that the advantage of an aggregate index was that any forces that affected only single companies would average out. Therefore, the index should provide her with a good assessment of the systematic potential of the industry without relying heavily on single companies' success stories that might not apply to Caldera. However, Feldberg also understood that Caldera might perform worse than the industry as a whole, so in the next step, she tried to assess Caldera's specific performance and the potential of its business model. She would also have a look at the development of stock market prices of similar companies who filed for IPO before Caldera.

## 4.2 The company

To get an idea of Caldera's performance, Feldberg evaluated the company's financial statements, with special attention to the balance sheet and income statement. The first thing that sprang to her attention was that Caldera was not yet a profitable company. Caldera's financial situation had been as volatile as its business focus. The company had not achieved profitability in any working year. By the time of the IPO, which was scheduled to take place a year after the internal announcement, Caldera anticipated an accumulated total net loss of almost US\$35.1 million.

At first glance, the situation was not looking good. Expenses would only increase as a result of new product development, new employee hiring, and brand promotion.

“Fluctuation is normal in this business” she thought. “Sales increase with a new product release and decrease when a new version is announced, no news here”.

She wondered about the profitability of open source products: Were they just normal products or might they be less profitable than traditional non-open-source products that the industry was used to? Maybe the eBusiness solutions would make a difference| The newly implemented training and services program could also generate profit.

Even if the company would not become profitable in the next years, stock prices could rise and the investment would be profitable if investors saw profits on the horizon. Feldberg's assessment would have to strike a balance between the present losses and the prospect of growth and potentially large but uncertain future profits.

The net loss in the income statement left a strong impression on Feldberg. She knew that everybody at Caldera was confident that they were selling a great service and that eventually the company would take off. Still, she had to think about if and how she should take the information provided in the financial statements into consideration when making her decision.

## 4.3 Tax implications

An important aspect to keep in mind when making a decision are taxes. Non-qualified stock options have no preferential tax treatment (Bickley, 2012).



Thus, Feldberg knew she would be taxed twice. Firstly, for the bargain element of exercising options. And secondly, for capital gains when she eventually sold the stock.<sup>5</sup>

An important factor was that Feldberg would need cash to pay for both the stock and the resulting taxes when she exercised her options. Because of the lock-up period of 180 days, her tax liability could not be offset by an immediate gain from selling the stocks at a higher price.

Thinking about this, Feldberg said to herself: “If I have to invest money upfront to pay taxes, I need to be very cautious in my calculation of how much money I would actually make, or lose, when I sell the stocks eventually”.

When exercising options allows the investor to buy stock at a price below the market price, the money she saves is called a bargain element.<sup>6, 7</sup> In the German tax code, this bargain element increases income in the same way as an extraordinary cash bonus does. Therefore, Feldberg would be taxed on the bargain element of exercising the options. Feldberg’s gains from the bargain element fell under the top marginal tax rate of 42 per cent.<sup>8</sup> This simplified the calculations as the top marginal tax rate is flat in Germany and the progression of tax rates does not have to be taken into account.<sup>9</sup> Because Feldberg’s mother was not an employee at Caldera, she would only need to calculate the tax on sale and not the tax on exercise.

The second time Feldberg would have to pay taxes was when selling her stock. Frances would need to declare capital gains on the sale, which, in Germany, is taxed at a flat rate (Abgeltungssteuer) of 25 per cent.<sup>10</sup> In a nutshell, this capital gain is the gain an investor realizes if she sells her stock at a higher price than the purchase price.

There were no official stock prices to work with and it was difficult to estimate the price of the stock after the lock-up period. Therefore, Feldberg decided to focus on the exercise cost first. Second, she would calculate the potential proceeds of selling the stock right after the lock-up period was over. Similar calculations for her mother would be necessary as well.

“The best way to proceed is to analyze every possible scenario”, she thought.

- 
- 5 In this case, we use the tax code of 2016 for our calculations. In 2000, Feldberg was subject to different tax rates and a different method for calculating the tax liability (half-income assessment method). However, like in 2016, she was taxed twice: When she exercised her options and when she sold her stock.
  - 6 An important distinction has to be made between companies whose stock is already being traded and companies which are still before their IPO. Because there are no market prices available before the IPO, the company itself determines the fair market value of their stock. This is the price that is relevant for the calculation of the bargain element.
  - 7 The gain from the bargain element is only realized at the moment the investor sells the stock. When Feldberg exercises the option, she merely saves money when compared to buying stock at market prices.
  - 8 In her calculation, Feldberg had to consider an annual tax exemption (German: “Freibetrag”) applying to the bargain element of EUR360, converted at an exchange rate of 1.13 EUR/US\$. She also considered the 5.5 per cent solidarity surcharge (German: “Solidaritätszuschlag”) on the tax payment.
  - 9 The Federal Ministry of Finance provides a calculator of tax liabilities for all incomes on their website. If the annual income falls below the threshold of EUR53,665 per year, the tax liability can be estimated with this calculator. For income above this threshold, one can use the top marginal tax rate of 42 per cent to calculate the tax liability.
  - 10 Again, Feldberg would have to consider the annual tax exemption (Freibetrag) on capital gains and the solidarity surcharge (Solidaritätszuschlag) on the tax payment.

Following Caldera’s projections, the stock price at the day of the IPO would land between US\$7 to US\$9. Feldberg made the necessary calculations to estimate her tax liability. Would her savings be enough to pay the taxes? Was a loan to pay the taxes necessary? Was paying that much money in taxes even worth it? Above all, how could she predict the future stock price of Caldera?

---

## 5 Initial Public Offering

---

Starting between 1996 and 1997, the stock market experienced unparalleled overnight rises of stock prices of companies shortly after their IPOs. When technology companies started tripling their stock prices on the first day of trading, other companies hurried to file for IPO. Analysts expected the number of offerings of Internet and technology related firms, or “Dot-com offerings”, to continue to grow in 1999.

Factors for such sudden growth may have included access to the Internet becoming relevant in everyday-life for business and private use, the open source movement becoming an industry, and tax changes, such as the Taxpayer Relief Act of 1997.<sup>11</sup> NASDAQ, the stock exchange housing most of the technology companies’ stocks, grew along with the trend to approximately 5,000 points in 2000.

For Caldera, the moment of the IPO had finally arrived. All employees were excited about the upcoming events. A year after the internal announcement, Caldera filed for IPO with the Securities and Exchange Commission (SEC) on January 10, 2000. The company expected the price of the stock to go up before going public and to raise an estimated US\$57.5 million.

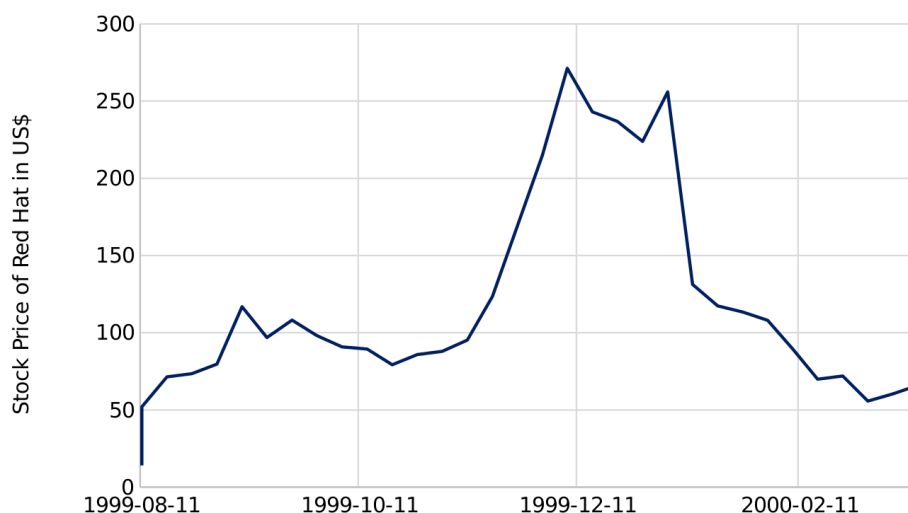


Figure 2: Development of Red Hat’s stock market price

---

11 US tax-reduction legislation under which amounts that could be excluded from estate taxes increased and capital gains tax rate become lower.

Caldera had reasons to be optimistic about the IPO. By the time Caldera – as an award-winning Linux products and services provider – would go public, investors would be completely engaged with open source software. Those who decided to invest in the stock were sure there was ample room for Linux companies to succeed on the stock market.

The news of the IPO did not come out of the blue for the industry. Rumors of Caldera going public had circulated for months, making competitors and employees curious about the results. Competitor Red Hat's stock had exploded in value on the first day of trading (starting at US\$14 and closing at US\$52, providing the company with capital value of approximately US\$3 billion). VA Linux had NASDAQ's most successful first-day performance on record (going from US\$30 to US\$239.25 a share). Therefore, Linux-related IPOs were closely followed on Wall Street.

Figure 2 shows Red Hat's stock market price after the IPO.<sup>12</sup> The figure shows the large hike of the stock price on the day of the public offering. After the IPO, the price was volatile, rising to over US\$250 and falling back to a price around US\$50 in the course of half a year.

With the success story of Red Hat's IPO in mind, everybody arrived early on the day of Caldera's initial public offering. It was not going to be a typical day at work.

---

12 The data was retrieved from Thomson Reuters Datastream.

---

## References

---

- Babenko, I., & Tserlukevich, Y. (2009). Analyzing the Tax Benefits from Employee Stock Options. *The Journal of Finance*, 64(4), 1797–1825.
- Bickley, J. M. (2012). *Employee Stock Options : Tax Treatment and Tax Issues*. Congressional Research Service.
- Binay, M. M., Gatchev, V. A., & Pirinsky, C. A. (2007). The Role of Underwriter-Investor Relationships in the IPO Process. *The Journal of Financial and Quantitative Analysis*, 42(3), 785–809.
- Brau, J. C., & Fawcett, S. E. (2006). Evidence on what CFOs Think About the IPO Process: Practice, Theory, and Managerial Implications. *Journal of Applied Corporate Finance*, 18(3), 107–117.
- Crimmel, B. L., & Schildkraut, J. L. (1999). National Compensation Survey Collects Test Data on Stock Option Plans. *Compensation and Working Conditions*, 17–20.
- Davies, T., & Boczko, T. (2005). *Business Accounting and Finance (Second Ed.)*. McGraw- Hill.
- DeLong, B. J., & Magin, K. (2006). A Short Note on the Size of the Dot-com Bubble. National Bureau of Economic Research., (No. w12011).
- Economides, N., & Katsamakas, E. (2006). Two-Sided Competition of Proprietary vs. Open Source Technology Platforms and the Implications for the Software Industry. *Management Science*, 52(7), 1057–1071.
- Engelhardt, G. V., & Madrian, B. C. (2004). *Employee Stock Purchase Plans*. National Bureau of Economic Research, No. w1042.
- European Commission. (2003). *Employee Stock Options The Legal and Administrative Environment for Employee Stock Options in the EU*. Brussels.
- Falk GmbH & Co. KG. (2011). *Business and Taxation Guide to Germany*.
- Glautier, M. W. E., & Underdown, B. (2001). *Accounting Theory and Practice*. Pearson Education.
- Hail, L. (2002). Kennzahlenanalyse Beurteilung von Abschlussinformationen mit Hilfe finanzieller Kennzahlen und Kennzahlensysteme\*. *Der Schweizer Treuhänder*.
- Hall, B. J., & Murphy, K. J. (2003). *The Trouble with Stock Options*. National Bureau of Economic Research.
- Huddart, S. (1998). Tax Planning and the Exercise of Employee Stock Options. *Contemporary Accounting Research*, 15 (2)(203).
- Huddart, S., & Lang, M. (1995). Employee Stock Option Exercises: An Empirical Analysis. *Journal of Accounting and Economic*, 20.
- Huyghebaert, N., & Van Hulle, C. (2006). Structuring the IPO : Empirical Evidence on the Portions of Primary and Secondary Shares. *Journal of Corporate Finance*, 12, 296–320.
- Kahle, K. M., & Shastri, K. (2005). Firm Performance, Capital Structure, and the Tax Benefits of Employee Stock Options. *The Journal of Financial and Quantitative Analysis*, 40(1), 135–160.
- Khincha, H. P. (2002). Taxation of Employee Stock Option Plans: International Principles. *Revenue Law Journal*, 12(1).
- Krishnamurthy, S. (2003). *An Analysis of Open Source Business Models*.
- Leenders, M. R., & Mauffette-Leenders L. A., Erskine, J. A. (2001). *Writing Cases*. (R. I. S. of Business, Ed.). Ivey Publishing.

- Lerner, J., & Tirole, J. (2005). The Scope of Open Source Licensing. *Journal of Law, Economics, and Organization*, 21(1), 20–56.
- Liebig, T. (2001). Is There a “Tax Penalty” on Stock Options in Germany ? *Forschungsinstitut Für Arbeit Und Arbeitsrecht an Der Universität St. Gallen*. Ljungqvist, A. P., & Wilhelm, W. J. J. (2002). IPO Pricing in the Dot-com Bubble. *The Journal of Finance*, 58(2), 723–752.
- Merrill Lynch. (2000). *How to Read a Financial Report*. New Brunswick.
- Millman, H. (1998, September). Good (and bad) news: No one owns it. Retrieved from [www.computerworld.com](http://www.computerworld.com)
- Niemman, R., & Simons, D. (2002). Costs, Benefits, and Tax-Induced Distortion of Stock Option Plans. CESifo, Working Pa.
- OECD. (2005). *The Taxation of Employee Stock Options*. Paris.
- Ofek, E., & Richardson, M. (2000). The IPO Lock-Up Period : Implications for Market Efficiency And Downward Sloping Demand Curves.
- Oyer, P., & Schaefer, S. (2004). Why do Some Firms Give Stock Options to all Employees? An Empirical Examination of Alternative Theories. National Bureau of Economic Research.
- Patzner, A. (2015). Aktien für Mitarbeiter. *Frankfurter Allgemeine*.
- Pinedo, A. T., & Tannenbaum, J. R. (2015). Frequently Asked Questions About Initial Public Offerings.
- PwC. (2011). Roadmap for an IPO.
- PwC. (2014). Navigating new territory Internationally Mobile Employees International Assignment Services Taxation of International Assignees Country – Germany.
- Sanders, W. M. G., & Tuschke, A. (2007). The Adoption of Institutionally Contested Organizational Practice: The Emergence of Stock Option Pay in Germany. *Academy of Management Journal*, 50(1), 33–56.
- Staiman, J., & Tompson, K. (1998). Designing and Implementing a Broad-Based Stock Option Plan. *Journal of Composite Materials*, 16(4), 928–940.
- Thomas, T. A. (2001). The New Marital Property of Employee Stock Options. *Family Law Quarterly*, 35(3), 497–525.
- Valimaki, M. (2003). Dual Licensing in Open Source Software Industry. *Systemes d’Information et Management*, 8(1), 63–75.
- West, J. (2003). How Open is Open Enough? Melding Proprietary and Open Source Platform Strategies. *Research Policy* (Vol. 32).
- West, J., & Dedrick, J. (2001). Proprietary vs . Open Standards in the Network Era : An Examination of the Linux Phenomenon. *System Sciences*, 360(c), 1–10.

## Appendix

### Exhibit 1

|    | October 31   |            | January 31 | January 31                          |
|----|--|------------|------------|-------------------------------------|
|    | 1998   | 1999       | 2000       | 2000                                |
|    |  |            |            | Pro Forma Stock-<br>holders' Equity |
| 1  | CURRENT ASSETS:  |            |            |                                     |
| 2  | Cash and cash equivalents.....   | 75,586     | 121,989    | 25,412,907                          |
| 3  | Accounts receivable, net of allowance for doubtful<br>accounts of \$15,000, \$90,000 and \$134,000,<br>respectively..... | 151,546    | 670,043    | 823,339                             |
| 4  | Stock subscriptions receivable.....  | 15,481,000 | 1,500,000  | --                                  |
| 5  | Other receivables.....   | --         | 375,000    | --                                  |
| 6  | Inventories.....   | 49,746     | 169,409    | 114,415                             |
| 7  | Other current assets.....  | 176,605    | 33,524     | 102,243                             |
| 8  | Total current assets.....  | 15,934,483 | 2,869,965  | 26,452,904                          |
| 9  | PROPERTY AND EQUIPMENT:  |            |            |                                     |
| 10 | Computer equipment.....  | 401,015    | 609,665    | 731,555                             |
| 11 | Furniture and fixtures.....  | 332,915    | 675,181    | 708,249                             |
| 12 | Leasehold improvements.....  | 50,514     | 86,973     | 86,973                              |
| 13 |  | 784,444    | 1,371,819  | 1,526,777                           |
| 14 | Less accumulated depreciation and amortization.....  | (366,269)  | (652,399)  | (735,470)                           |
| 15 | Net property and equipment.....  | 418,175    | 719,420    | 791,307                             |

|    | October 31                                      |            | January 31 | January 31                     |
|----|---|------------|------------|--------------------------------|
|    | 1998  | 1999       | 2000       | 2000                           |
|    |   |            |            | Pro Forma Stockholders' Equity |
| 16 | INVESTMENTS IN NON-MARKETABLE SECURITIES:       |            |            |                                |
| 17 | Affiliate.....                                  | --         | --         | 10,000,000                     |
| 18 | Non affiliates.....                             | --         | --         | 4,450,848                      |
| 19 |   | --         | --         | 14,450,848                     |
| 20 | OTHER ASSETS, net.....                          | --         | 124,430    | 851,233                        |
| 21 | Total assets.....                               | 16,352,658 | 3,713,815  | 42,546,292                     |
| 22 | LIABILITIES AND STOCKHOLDERS' EQUITY            |            |            |                                |
| 23 | CURRENT LIABILITIES:                            |            |            |                                |
| 24 | Accounts payable.....                           | 314,138    | 1,309,255  | 1,344,553                      |
| 25 | Accrued liabilities.....                        | 112,948    | 450,157    | 608,559                        |
| 26 | Accrued marketing development.....              | --         | 172,900    | 217,900                        |
| 27 | Accrued sales returns and other allowances..... | 54,000     | 169,000    | 239,961                        |
| 28 | Deferred revenue.....                           | --         | 38,080     | 143,535                        |
| 29 | Current portion of long-term debt.....          | --         | 3,698      | --                             |
| 30 | Payable to Caldera, Inc.....                    | 15,163,890 | --         | --                             |
| 31 | Related party payables.....                     | --         | 48,933     | 44,707                         |
| 32 | Total current liabilities.....                  | 15,644,976 | 2,192,023  | 2,599,215                      |
| 33 | LONG-TERM DEBT, net of current portion.....     | --         | 5,762      | --                             |

|    | October 31  |              | January 31   | January 31                     |
|----|---|--------------|--------------|--------------------------------|
|    | 1998  | 1999         | 2000         | 2000                           |
|    |   |              |              | Pro Forma Stockholders' Equity |
| 34 | COMMITMENT AND CONTINGENCIES  |              |              |                                |
| 35 | STOCKHOLDERS' EQUITY:   |              |              |                                |
| 36 | Preferred stock, \$0.001 per value; 25,000,000 shares authorized – Series A convertible preferred stock, 6,596,146 shares designated, 6,596,146 shares outstanding at January 31, 2000 and note pro forma |              |              |                                |
|    | --  | --           | 6,596        | --                             |
| 37 | Series B convertible preferred stock, 5,000,000 shares designated, 5,000,000 shares outstanding at January 31, 2000 and none pro forma  |              |              |                                |
|    | --  | --           | 5,000        | --                             |
| 38 | Common stock, \$0.001 per value; 75,000,000 shares authorized, 16,000,000, 26,607,329 and 21,621,198 shares outstanding, respectively, and 33,217,344 pro forma   |              |              |                                |
|    | 16,000  | 26,607       | 21,621       | 33,217                         |
| 39 | 1,752,693   | 16,160,312   | 75,185,795   | 75,185,795                     |
| 40 | --  | (1,500,000)  | (1,500,000)  | (1,500,000)                    |
| 41 | --  | (2,734,934)  | (6,683,831)  | (6,683,831)                    |
| 42 | 3,991   | (4,365)      | (20,131)     | (20,131)                       |
| 43 | (1,065,002)   | (10,431,590) | (27,067,973) | (27,067,973)                   |
| 44 | 707,682   | 1,516,030    | 39,947,077   | 39,947,077                     |
| 45 | 16,352,658  | 3,713,815    | 42,546,292   |                                |

*Caldera's balance sheet*



## Exhibit 2

|  | Year-ending October 31 |             |             | Quarter-ending January 31 |             |
|--|------------------------|-------------|-------------|---------------------------|-------------|
|  | 1997                   | 1998        | 1999        | 1999                      | 2000        |
| 1 REVENUE:   |                        |             |             |                           |             |
| 2 Software and related products.....   | 1,116,794              | 1,057,088   | 2,772,878   | 508,305                   | 394,840     |
| 3 Services.....  | --                     | --          | 277,429     | 29,908                    | 158,359     |
| 4 Total revenue.....   | 1,116,794              | 1,057,088   | 3,050,307   | 538,213                   | 553,199     |
| 5 COST OF REVENUE:   |                        |             |             |                           |             |
| 6 Software and related products.....   | 1,142,187              | 1,016,682   | 2,388,601   | 220,523                   | 294,802     |
| 7 Services.....  | --                     | --          | 537,877     | 52,499                    | 255,284     |
| 8 Write-off of prepaid royalties.....  | --                     | 1,381,695   | --          | --                        | --          |
| 9 Total cost of revenue.....   | 1,142,187              | 2,398,377   | 2,926,478   | 273,022                   | 550,086     |
| 10 GROSS MARGIN (DEFICIT).....   | (25,393)               | (1,341,289) | 123,829     | 265,191                   | 3,113       |
| 11 OPERATING EXPENSES:   |                        |             |             |                           |             |
| 12 Sales and marketing (exclusive of non-cash<br>compensation of \$0, \$0, \$177,050, \$0 and<br>\$487,132, respectively)        | 4,619,341              | 2,223,814   | 4,767,508   | 412,680                   | 2,030,556   |
| 13 Research and development (exclusive of non-cash<br>compensation of \$0, \$0, \$103,070, \$0 and<br>\$363,959, respectively)   | 2,136,118              | 1,489,041   | 2,302,302   | 391,125                   | 964,740     |
| 14 General and administrative (exclusive of non-cash<br>compensation of \$0, \$0, \$129,176, \$0 and<br>\$691,776, respectively) | 796,806                | 1,798,872   | 1,748,087   | 272,890                   | 1,078,510   |
| 15 Amortization of deferred compensation.....  | --                     | --          | 409,296     | --                        | 1,542,867   |
| 16 Total operating expenses.....   | 7,552,265              | 5,511,727   | 9,227,193   | 1,076,695                 | 5,616,673   |
| 17 LOSS FROM OPERATIONS.....   | (7,577,658)            | (6,853,016) | (9,103,364) | (811,504)                 | (5,613,560) |

|   | Year-ending October 31 |             |             | Quarter-ending January 31 |              |
|---|------------------------|-------------|-------------|---------------------------|--------------|
|   | 1997                   | 1998        | 1999        | 1999                      | 2000         |
| 18 OTHER INCOME (EXPENSE):  |                        |             |             |                           |              |
| 19 Interest expense.....  | (593,182)              | (1,081,179) | (225,657)   | (167,830)                 | (547)        |
| 20 Other income (expense).....  | 22,923                 | 4,838       | (2,792)     | (7,715)                   | 113,374      |
| 21 Other income (expense), net.....   | (570,259)              | (1,076,341) | (228,449)   | (175,545)                 | 112,827      |
| 22 LOSS BEFORE INCOME TAXES.....  | (8,147,917)            | (7,929,357) | (9,331,813) | (987,049)                 | (5,500,733)  |
| 23 PROVISION FOR INCOME TAXES.....  | --                     | (33,780)    | (34,775)    | (5,390)                   | (12,650)     |
| 24 NET LOSS.....  | (8,147,917)            | (7,963,137) | (9,366,588) | (992,439)                 | (5,513,383)  |
| 25 DIVIDENDS RELATED TO CONVERTIBLE PREFERRED STOCK   | --                     | --          | --          | --                        | (11,123,000) |
| 26 NET LOSS ATTRIBUTABLE TO COMMON STOCKHOLDERS.<br>.....   | (8,147,917)            | (7,963,137) | (9,366,588) | (992,439)                 | (16,636,383) |
| 27 BASIC AND DILUTED NET LOSS PER COMMON SHARE.....   | (.51)                  | (.50)       | (.51)       | (.06)                     | (.67)        |
| 28 WEIGHTED AVERAGE COMMON SHARES OUTSTANDING....   | 16,000,000             | 16,000,000  | 18,457,543  | 16,000,000                | 24,779,808   |
| 29 BASIC AND DILUTED SUPPLEMENTAL PRO FORMA<br>NET LOSS PER COMMON SHARE<br>(unaudited).....                      |                        |             | (.79)       |                           | (.81)        |
| 30 BASIC AND DILUTED SUPPLEMENTAL PRO FORMA<br>NET WEIGHTED AVERAGE COMMON SHARES OUTSTANDING<br>(unaudited)..... |                        |             | 11,861,397  |                           | 20,477,974   |
| 31 OTHER COMPREHENSIVE LOSS:  |                        |             |             |                           |              |
| 32 Net loss.....  | (8,147,917)            | (7,963,137) | (9,366,588) | (992,439)                 | (5,513,383)  |
| 33 Foreign currency translation adjustments.....  | --                     | 3,991       | (8,356)     | 2,385                     | (15,766)     |
| 34 COMPREHENSIVE LOSS.....  | (8,147,917)            | (7,959,146) | (9,374,944) | (990,054)                 | (5,529,149)  |

*Caldera's income statement*

---

## About this Case

---

This teaching case was taken from the [Product Management by Case](http://pmbycase.com) collection, a collection of free cases for teaching product management, available at <http://pmbycase.com>.

Conceptual guidance and teaching notes are available to lecturers. To receive those, please send an email to [case-requests@group.riehle.org](mailto:case-requests@group.riehle.org) or [dirk@riehle.org](mailto:dirk@riehle.org).

### Case Copyright

© 2016 Maria del Carmen Romero Aranibar. Licensed under CC BY 4.0.

© 2016-2018 Dirk Riehle. Licensed under CC BY SA 4.0.

© 2017 Friedrich-Alexander-University Erlangen-Nürnberg. Licensed under CC BY 4.0.

### Case Credits

Contributions by Maria del Carmen Romero Aranibar, Dirk Riehle.

Copyediting by Grace Ting and Dirk Riehle.

### Case Data

Short code: Case-2016-02-Caldera-Stock-Options

Case license: CC BY SA 4.0

Case revision: 180807

### More Cases

Case 2012-01: Ensuring innovation at Method Park

Case 2013-02: Two-sided markets at Netdosis

Case 2014-01: User experience design at Immowelt

Case 2014-02: Switching suppliers at Nokia

Case 2014-03: Specifying ‘wow!’ at Elektrobit

Case 2016-01: Licensing choices at ownCloud

Case 2016-02: Stock options at Caldera

Case 2016-03: Hard software marketing choices at ownCloud

Case 2016-04: Pricing at Everest SARL

Case 2017-01: The case of SUSE Manager