

# **Novell's Open Source Evolution: a case study in adapting open source business strategies**

Mini-dissertation by

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## **Abstract**

Novell International was a leading network operating system provider in the 1980's and 1990's. In the mid 1990's Novell lost market share in the network operating system market. To counter this loss, Novell made a strategic decision to go open i.e. to make use of open standards and open source business strategies. Since then Novell has managed to successfully change from being a proprietary network operating system provider to being a leader in Linux and open source solutions. Its primary business model makes use of a subscription strategy, selling subscriptions to its Linux desktop operating system called SuSE. This has been instrumental in turning their business around. For example, comparing the financial results of Novell's fourth quarters of 2004 and 2005 shows an increase of 418% in Linux revenue to \$61m. Novell has proven that this open source business strategy is feasible and profitable.

## **Keywords**

Open source, business model, Novell, and business strategy

## Introduction

Novell International is one of only a few multinational organisations that originally produced proprietary software and are now driving and successfully implementing a free/libre open source software (FLOSS) business strategy. Since 1994 Novell is actively making use of open standards and open source software from both technical as well as business point of view. Today, Novell uses open source as a primary driver in their business strategy.

In recent years researchers have taken a keen interest in open source and how it can be applied to business strategies and business models. (Koenig, 2004; Raymond, 2000, August; Raymond, 2000, September)

A concern exists within the academic world that there is little substantial evidence on whether the processes and practices of open source business models are effective within the business environment and whether the theories are not prematurely adopted in an enthusiastic manner (IPJ, 2004; IJoIO, 2004). Goode & Golden (2004; 2004) suggest that many organisations are reluctant to be initial adopters of open source strategies without knowing whether open source software can bring substantial financial benefit to the organisations' business.

Raymond (2000, August) points out that by studying these questions one will gather some valuable insight into the economics of open source. Therefore, there exists a requirement for studies to be done on organisations that have successfully implemented an open source software strategy (Raymond, 2000, August). Not enough practical core studies have been done based on the successful use and implementation of effective open source strategies and business models (IPJ, 2004; IJoIO, 2004).

This research aims to fulfil the need for such a study and will subsequently prove that an open source business strategy is a feasible and profitable option. The outcome will be based on a practical case study.

Apart from any studies done, Raymond (2000, August) suggests that organisations releasing their products as open source, compel information technology organisations to focus on the service industry rather than on the product manufacturing industry.

Specifically, he suggests that Linux distributors should compete with each other in a manner which benefits us all. Due to the open nature of their core products, they are required to compete on service and support rather than product and price. Legally and ethically Linux distributors can only sell service, administration, support, distribution, media, training and their brand to consumers and clients who are willing to comply with the terms and conditions of the GPL licence under which the Linux kernel is licensed (Lerner & Tirole, 2002; Raymond, 2000, August).

Seemingly following his advice, Novell has followed a route that has allowed them to enter the open source market more effectively by providing a Linux distribution, Linux support, and selling proprietary software along with open source Linux distribution. This has allowed them to still profit from selected proprietary products, as well as entering the service industry. We believe that Novell has effectively entered the service market and is a successful open source provider, and has done this by primarily a systematic approach.

The study intends to look at several factors to determine whether Novell has made a success of its one Net strategy (a world without information boundaries), which is mainly driven by open source software.

To do this we will show that Novell actively changed from being a proprietary software provider to mainly a services provider, open source in particular, changing their strategy to deliver business solutions by making use of Linux and open source software.

## **Problem statement**

This project will attempt to show how a software vendor (Novell) can successfully switch from a proprietary based product model to primarily a service-based model via open source software.

To fulfil the need for such a study, we will look at Novell's history, financial statements and strategy changes to prove that switching to an open architecture and open source software may have substantial financial benefit for proprietary software based companies.

As described by the Improvement and Practical Journal (2004, October), the International Journal of Industrial Organisation (2004, October), as well as Raymond (August, 2000) a need exists for a study to show whether open source and the service model are effective and profitable. We propose to fill the need for such a study and to conduct a case study based on Novell International's planning, implementation, and successful execution of their open source strategy. By conducting a case study on Novell, We intend to study 1) how Novell is assuming a stable, secure and cooperative leadership role in the open source market place, and 2) how a large multinational company can successfully switch from a proprietary software business model to an open source business model and be more financially successful.

The study aims to prove that using an open source business model can be a feasible, economical and a profitable alternative to the traditional proprietary software model.



## **Methodology**

Yin (1994) stresses that a case study protocol is essential to increase the reliability of the case study research.

The research will be based on a case study of Novell and its open source business strategy. The case study will be a single case study design that will ensure quality by doing construct validity testing. This allows the researcher to use multiple sources of evidence, to establish a chain of evidence, and to have the case study report reviewed by key informants. (Yin, 1994)

### ***Case study protocol***

#### **Overview of case study project**

To ensure transparency in the case study project, we conducted interviews with senior executives of Novell South Africa as well as Novell Africa. Based on financial, media and other reports we believe that Novell's open source strategy lead not only to its ultimate survival, but also contributed to its current success as an industry leader in open source software.

In this research, we will study the growth of Novell by looking at the following factors, amongst others:

1. Number of Employees working for Novell
2. Number of Novell Offices around the world
3. Novell Share prices
4. Mergers and acquisitions (Dates, company names, and reasons)
5. Annual and Quarterly Financial Statements
6. Novell History
7. Novell OSS History
8. Novell OSS strategy (Business models)
9. Any changes in strategies (When, Why and Effects)

Thought these, we intend to prove that open source software was and still is the dominant factor for Novell's come back and current success.

## **Field procedures**

We established, contacted, and interviewed key figures within Novell South Africa as well as Novell Africa. The interviews were used to gather further insight into Novell's open source strategy. Sufficient resources were in place to ensure successful interviews and other meetings.

Careful consideration was taken to ensure that a documented procedure was in place to ensure all data collected can be traced to a source, interview date and time. Provision was made for unanticipated events such as unavailability of interviewees or reluctance to participate.

## **Case study questions**

We see the questions as constant reminders to ensure that the information collected is relevant, including how and why it will be used. In order to get the desired results, questions are grouped together with probable sources of data, and sample strategies.

## **Audience for the case study report**

The results of the case study are focused on senior executives of traditional proprietary information technology firms, as well as other researchers in the field of open source business strategies.

Ideally the results will be presented at an academic conference as well as published in an academic journal. The case study report will be based on a linear-analytical methodology.

## Open source software

Cornell Theory Centre (2004, December, p. 1) defines open source software (OSS) as “software for which the underlining ‘source’ code is readily available for inspection and modification by any interested person”. Similarly, UCDavis Information and Education Technology (2004, December, p. 1) defines open source as “computer programs or operating systems for which the source code is publicly available” and states that “inherent in the open source philosophy is the freedom of a distributed community of programmers to modify and improve the code”. Open Source Software is software where the source code is freely available to read, modify, build upon, and redistribute (C-Library, 2005; OSI, 2003).

In the same way, the Open Source Initiative (OSI) (2004, December, pp. 1-4) portrays open source as not only being about access to the source code, but also about distribution, derived works, integrity, lack of discrimination, and licensing conditions. Free (libre) software is about the freedom to use, modify, and redistribute the source code as apposed to “open source” not necessarily allowing these basic freedom conditions. The OSI explains that the open source definition allows for greater freedom with licensing, and greater promiscuity, than free software, when mixing open source software with proprietary software or source code.

According to Bretthauer (2004, November, pp. 9-10) the term “open source” is a relatively new term and was decided upon at a meeting convened by Eric Raymond in early 1998 after an agreement that the term “free software” was inadequate and misleading. It was Christine Peterson who suggested the term “open source”.

Open source can be easily explained by making use of an analogy to water, Hatfield (2002, April). Like rain water, free to all to collect with a container, so is open source software free to download using an Internet connection.

For more convenience, water is supplied through a municipal link, at a minimal cost. Similarly open source software can be bought from a distributor only charging for the media it is stored on.

For additional benefit water can be purchased bottled as spring water with added vitamins and minerals. Likewise open source software can be purchased with user and software manuals, technical support and future upgrades.

### ***Free as in beer vs. free as in freedom***

Stallman (2005, July, p. 1) describes the term “free software” in the following manner “‘Free software’ is a matter of liberty, not price”. He completes the statement by stating the following “To understand the concept, you should think of ‘free’ as in ‘free speech’, not as in ‘free beer’”. Stallman and the GNU foundation prefer the use of “Free Software” rather than “Open Source Software”. In this document the use of the more inclusive term Free/Libre and Open Source Software (FLOSS) is preferred.

Inspired by Stallman’s (2005, July, p. 1) definition, comparing “free software” with speech rather than beer, Students at the IT-University in Copenhagen have brewed an open source beer named Vores Øl, which means “Our Beer”. The beer itself is not free but the formula for making the beer is. The formula or recipe for the beer is released under a creative commons licence. (Vores Øl Group, 2004, p. 1)

### ***Open source - the revolution***

Osterloh, Rots, & Kuster (2003, pp. 3, 4, 24) describe the open source production model as only one of many examples of “virtual communities of practice“. In this model, volunteers contribute to an activity for other than financial reasons. Other well-known examples of virtual communities of practice operating in a similar fashion include NASA’s Clickworkers, Slashdot (news for nerds), and project Gutenberg.

Raymond (2000, August, pp. 1-3) highlights the fact that the “gift culture of open source developers can sustain itself in an exchange economy“. He supports his theory by mentioning that software products have two economic values, a use value and a sale value. He explains that the price a consumer will pay for computer software is directly related to the “expected future value” of vendor service, upgrades, enhancements, and future releases rather than the development cost of the product itself. In essence he argues that software does not fit into the product manufacturing industry, but rather the service industry.

Nonetheless, Raymond (2000, September, pp. 2, 8) also describes the way proprietary software is developed by a small group of paid employees as inferior to the way open source software is developed by many volunteers across the world. He supports his statement by stating that making use of decentralised cooperative software development, software created in this way is superior to proprietary software, or as he describes it: “Given a large enough beta-tester and co-developer base, almost every problem will be characterised quickly and the fix obvious to someone.”

He (1999, November) explains that open source software developer’s work as volunteers for reasons other than financial gain. Reasons such as good reputation among their peers, attention and co-operation with other open source developers, and higher status in the open source community and so being acknowledged as an expert in their particular field.

As explained by Lerner & Tirole (2000, February, p. 2), the interest in open source software processes has been encouraged by three factors: “the rapid diffusion of open source software”, “the significant capital investments in open source projects”, and “the new organisational structures”.

Overby (2004, January, p. 17) suggests that since open source software development process research has already covered the process' understanding and the appreciation of the model, researchers should focus more on the process' effectiveness and appropriateness compared to more traditional processes for conducting work.

Raymond (2000, September, p. 2) makes use of an analogy to explain the significant differences between the open source and the proprietary software development life cycle models. He refers to these differences as being similar to those between “the cathedral and the bazaar”.

In the traditional commercial model (the cathedral), one or a small group of paid software developers works in isolation and only releases the software once it is completed. The FLOSS model (the bazaar) is developed by a large number of volunteer software developers working in a virtual community. The software is designed, developed, debugged, and peer reviewed in parallel. This process allows for software developers to add functionality and fix software bugs at a rapid pace. The project leader controls and qualifies the functionality and bug fixes, only allowing and implementing the best solutions which will benefit the most number of users (Raymond, 2000, August). Kahn (2002) confirms that open source software is considerably different in the way it is developed from conventional proprietary software.

## ***OSS business models***

According to Young (1999, January, p. 2) making money with open source software is very similar to making money with proprietary software. Both are achieved by constructing a good product, marketing the product properly, taking care of your customers' needs, as well as building a brand that represents excellent service and quality.

Hendry (2002, May, pp. 52-60) explains that by using open source one is able to make money, save money and form better business partnerships compatibility by means of various credible business models.

Similarly, Dahlander (2004, December, p. 1) affirms the fact that contributions to the open source software process are public, although it should not be misinterpreted that innovators are prohibited from capturing private returns from their contributions. i.e. an enterprise can make money from open source.

The benefits of using Linux, according to Young (1999, January, p. 5) are not its ease of use, the operating system's robustness, its high reliability, or the open source software tools with which Linux is distributed but the benefit of control it provides to use, change and redistribute the source code, as well as the freedom it represents in allowing access to the source code for understanding and modification or customisation.

Gacek, Lawrie, & Arief (2004, January, p. 3) describe the most prominent way of obtaining private returns from open source software as providing services and distribution packages for open source software. Another means of commercialising open source software is by using open source as a basis on which other proprietary software can be built.

Hawkins (2003, December, pp. 4-7) specifies that open source business models can be subdivided into two categories: business models for the software consumer, and business models for the software producer. When referring to the models for consumers it comes down to the total cost of ownership (TCO) of the chosen software solution. When referring to the models for software producers and in particular the revenues of the company, there are a few prospective sources of revenues, such as: sale of complementary software, support of software, increased hardware sales, training, consulting, customisation, distribution, and the value of internal use.

Also, McKelvey (2001, pp. 23-27) proposes that there are three idealistic business models which assess advances in "knowledge-

intensive” products and services. She asserts these models as being firm-base control, network-based and a hybrid model. Each of these can then be subdivided into the two sides of innovation, namely economic value and creation of novelty.

Hecker (1999, January, p. 50) suggests in order to implement an effective open source strategy, an organisation should consider the implications of, and manage the following factors: code sharing, third party technology, source code sanitisation, export control and a new software development process.

By providing solutions on time to the business’ customers according to Raymond (2000, August, p. 5) a business can make money using any one or more of the seven open source business models as described by him.

Koenig (2004, May) highlights seven business strategies that can give any hardware or software vendors a competitive advantage. The seven suggested business strategies are: the optimisation strategy, the dual licence strategy, the consulting strategy, the subscription strategy, the patronage strategy, the hosted strategy and finally the embedded strategy.

He describes the optimisation strategy as one layer of software that is “modular and conformable”, allowing adjacent software to be optimised. The modular and conformable layers are commodities, which are normally unprofitable. An example of this strategy would be Oracle providing a Real Application Cluster (a cluster database) solution. By running the Oracle database on inexpensive hardware with a free operating system such as Linux, Oracle allows the client to invest more with Oracle while still saving on the TCO of the solution.

Another profitable open source business strategy is the dual licence strategy. A company would release its software under two distinct licences, the first as an open source licence and the second as a proprietary licence. The second licence would be used for an advanced version of the software or to limit the commercial use of the software. An example of this strategy would be QT from Trolltech. QT is a Graphical User Interface (GUI) library. Trolltech licence the library under Gnu Public Licence (GPL) for everyone that might want to use it for non-commercial use, like the KDE project. However for commercial use, an organisation would require a QT public Licence (QPL).

The patronage strategy is used for standards adoption and to crack entrenched markets. In this strategy a company would contribute to an open source project in the hope that it would become a de-facto standard. The strategy can only be used when the organisation provides alternative solutions, as it is not a primary income strategy. As an example, IBM is using this strategy by systematically replacing all of its proprietary



operating systems with Linux. This way there can be one operating system running on all of IBM's hardware, one operating system to develop, maintain, and support. This allows IBM to contribute to the Linux kernel development and steer progress where it is required while still spending less than when providing multiple operating systems.

The hosted open source business strategy is a "hidden services business model" (Koenig, 2004, May, p. 9). In this business model, organisations do not sell software. Instead an organisation allows the use of the software and then sells a service providing the software. Examples of successful implementations of this strategy are e-bay, Amazon, and Google. Amazon provides an infrastructure based on open source to be used free of charge to sell commodities.

The embedded strategy is where an organisation provides free software with the hardware it sells. IBM originally used this strategy in the 1960's. Today organisations do not want to write new software for every type of hardware they release. Instead the organisation would make use of open source software and allow the community to develop and support the non-profitable software, while its primary interest is the sale of the hardware. A recent example of this strategy is the release of the Nokia 770 tablet PC.

A somewhat questionable strategy reserved for the large enterprise, is dubbed the cheap seat strategy. In this strategy the enterprise uses its sheer number of licensable seats to change the prices charged by a specific vendor. The enterprise would use its buying power to bargain for significantly lower licence fees for proprietary software by speculating to migrate to open source software, but never actually considering switching. In a response to enterprises "switching" to Linux and open source software, Microsoft unveiled the Open Value Initiative Licensing. (Maguire, 2002, November, p. 1)

A business strategy that is not unique to open source is the consulting strategy. This is a pure service business model. Hoch, et al. (1999, p. 36) stipulates that not since 1962 have software related services cost less than 70% of the total software investment, which makes this a very profitable business strategy even if the software is provided as free and as open source. An example of this strategy used by 10X software that provides consultation around various open source products.

The subscription strategy, also known as the "revenues for services" strategy, is a strategy where a provider charges a licence fee for software mainly to provide maintenance and consultation services.

A particular approach, as described by Covey (2000) highlights a way to make money with open source software. Covey specifies that the trick is not to sell a support contract but an administration contract. He explains that users of systems do not need support all that often, but require their systems to be administered on a regular basis. For example, users of computing systems require their computers to be updated with the latest security patches and application updates, something users do not want to do or do not have the relevant experience or knowledge to do.

In another characterisation, Hohensohn & Hang (2003, p. 7) specifies that open source service providers can be subdivided into five categories; distributors as open source software service providers, large hardware producers, large software firms, global system integrators and specialised open source service providers. Novell would be characterised as a distributor of Linux and open source software products.

Equally, Mantarov (1999, August) illustrates how a small firm such as Red Hat Software Inc. could enter a mature market by implementing an innovative strategy and turning threats and barriers into opportunities.

Novell acquired SuSE in an attempt to supplement its declining NetWare maintenance revenue and to enter the Linux desktop market where the adoption rate is very promising (Koenig, 2004, May, p. 6). Novell makes use of the subscription strategy.

Novell traditionally made use of proprietary software and supporting business strategies. By going open, Novell makes use of open source software and open source business strategies. The strategic decision to go open is attested in the next section, which summarises Novell's corporate and open source history.

## Short overview of Novell's business

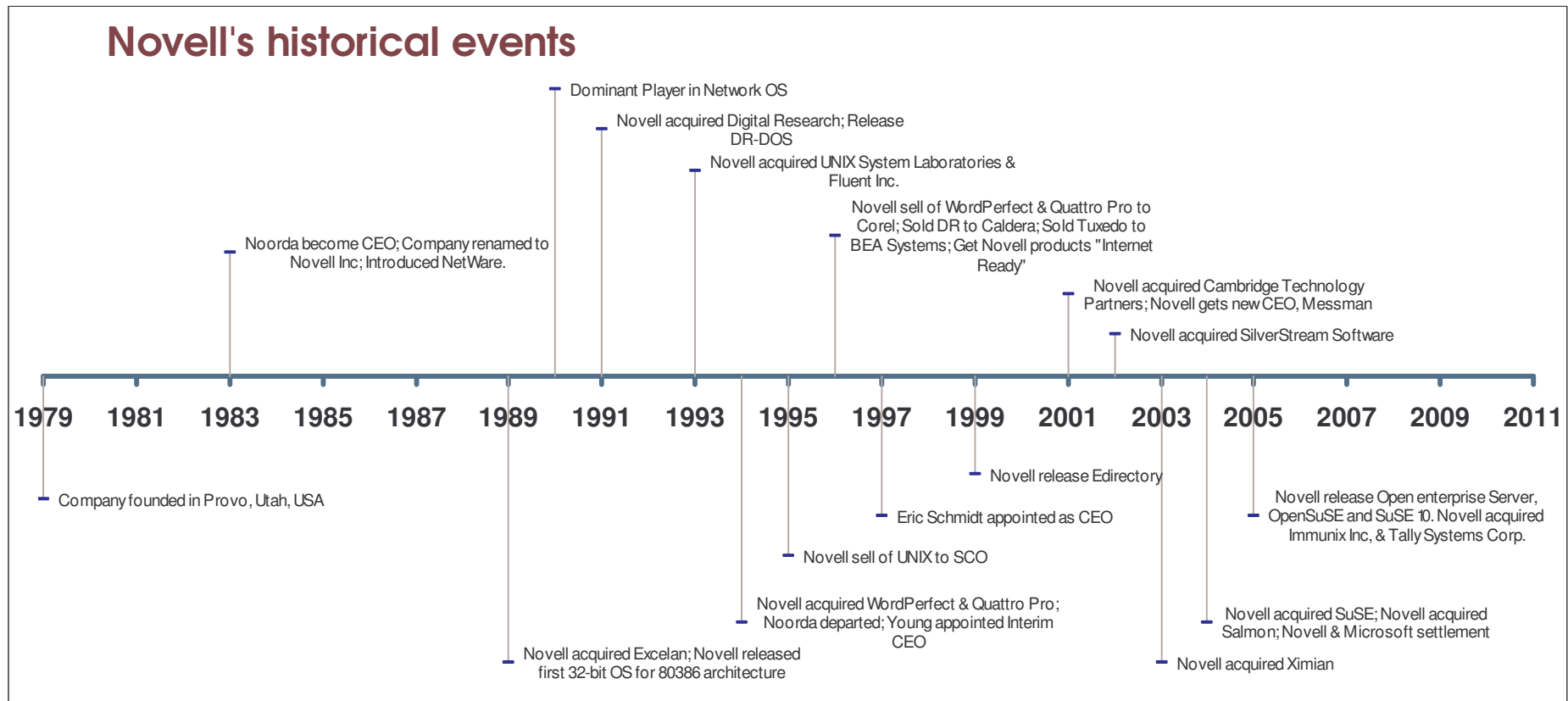


Figure 1: Novell timeline graph of major events

Novell (often called Big Red) is traditionally known as the manufacturer of communications and networking products. They are well known for their secure identity management, and Netware products based on the IPX and SPX network protocols. Novell's Netware, a network operating system, was designed for client server networks providing file and print sharing services. (Ncrel, 2005) Novell also pioneered IT certification.

### ***Novell history***

The company was founded in 1979 in Provo, Utah, USA as Novell Data Systems Inc. At the time Novell was a computer hardware manufacturer producing CP/M based systems. The company was co-founded by Jack Davis and George Canova. The name "Novell", suggested by Canova's wife, was a misinterpretation and was originally thought to mean "new" in French. Safeguard Scientific provided the seed capital for the company start-up. The company did not initially do well and both founders left the company soon afterwards. Victor Vurpillat who originally organised the seed capital for the company did not want the company to liquidate, and found Raymond Noorda to join the company as president. (Novell Pressroom, 2004; Wikipedia, 2005)

During January 1983, the firm was renamed to Novell Inc, and Raymond Noorda was subsequently appointed as CEO in May 1983. Under Noorda's guidance Novell helped to establish the corporate network market with the introduction of the local area network (LAN). That year, Novell Inc introduced a multiplatform network operating system (NOS) called Novell NetWare, the first LAN software based on file-server technology. The NOS made use of proprietary standards, developed by Novell, called IPX (Internet Packet eXchange) and SPX (Sequenced Packet eXchange) which were based on XNS and created the standards from IDP, and SPP. (Novell Pressroom, 2005; Wikipedia, 2004)

In the 1980's, network software started with sharing files and printers within the LAN and expanded to include the management of wide area networks (WANs), which enabled enterprise-class computing. During the 1980's Novell did extremely well, aggressively increasing market share by selling costly Ethernet network cards at a reduced price. In 1989, Novell acquired Excelan to gain valuable experience and TCP/IP related software technologies. That year, Novell also released the very first commercially available 32-bit operating system for the 80386 CPU series processors. (Novell Facts, 2004; Novell Pressroom, 2005; Wikipedia, 2005)

By 1990, Novell was the dominant player in providing NOS for any businesses that required a computer network. In 1991, Novell acquired Digital Research and released Novell DOS (also known as DR-DOS). This was done in order to try to break the Microsoft monopoly in the operating system market. Novell also moved further away from their original market, smaller companies, to target larger corporations. Unfortunately, at the same time, Novell underinvested in research and development, which resulted in their key products being complex to administer and control.

In May 1991 Microsoft announced that they would be discontinuing the OS/2 partnership and would focus their time and resources on the Windows platform. This included the Windows NT kernel. This allowed them to enter the local area network market. During June in 1993, Novell acquired Unix System Laboratories from AT&T, which resulted in then acquiring the rights to the UNIX kernel as well as Tuxedo (Transactions for UNIX, Extended for Distributed Operations), a transaction orientated middleware platform used to manage distributed transaction processing. This was done apparently to compete again directly against Microsoft in the enterprise networking and distributed transaction area. A month later, in July 1993, Novell acquired Fluent Inc. (a multimedia software company). In the 1990's Novell's NetWare operating system was updated to add key features for distributed enterprises.

During February 1994, Novell released the first commercially available, distributed, secure authentication system and enterprise-wide directory service. That same year, in June, Novell acquired WordPerfect and Quattro Pro from Borland Inc to gain entry into the office suites, workgroup, and the standalone desktop applications market.

However, Novell was losing the network operating system market to Microsoft. With Novell losing market share and strained by competition, Noorda departed from Novell in 1994. John Young was appointed as the interim CEO. Novell was subsequently forced to sell UNIX to Santa Cruz Operation (SCO) in 1995. By 1996 Novell sold WordPerfect and Quattro Pro as a packaged deal to Corel. DR was sold to Caldera Systems and Tuxedo was also subsequently sold to BEA systems in 1996 due to Novell being financially strained.

In 1996 Novell interim CEO John Young realised that the Internet would make a tremendous impact on the traditional network market. He made a strategic decision to make all the company's products Internet ready by supporting standard Internet protocols, such as the TCP/IP protocol stack.

Eric Schmidt was appointed as CEO in March 1997. He continued to drive the current strategy to get Novell's products portfolio Internet ready. The result was NetWare 5 and Novell Directory Services.

In the last months of 1999, Novell released a high-availability cluster system as well as E-Directory. E-Directory, a cross platform directory service, was a key requirement to ensure true interoperability, allowing for effortless exchange and use of data across the Internet.

In a strategic move, Novell acquired consulting firm Cambridge Technology Partners in July 2001, in an effort to deliver both products as well as quality services to its customers. This partnership allowed Novell to deliver networking solutions that assisted companies with their business challenges. In 2001 CEO Eric Schmidt moved to Google Inc, and was subsequently replaced by Jack Messman, then CEO of Cambridge Technologies Partners.

July 2002 saw another bold step by Novell, with the acquisition of SilverStream Software, a web services-oriented applications development firm. With the acquisition of SilverStream Software, Novell acquired the expertise to convert business processes to web services. The business area, called Novell exteNd, contains XML and Web Service tools based on J2EE (Java 2 Enterprise Edition).

In August 2003, Novell acquired Ximian, an open source Linux desktop management solution. With this acquisition, Novell acquired two open source visionaries, Nat Friedman and Miguel de Icaza, and two key open source projects, Mono (an open source Microsoft .NET implementation), and Gnome (a Linux desktop management platform). This gave Novell tremendous exposure in the open source community.

In January 2004, Novell acquired SuSE, Europe's leading commercial Linux distribution. With this acquisition, IBM invested a bold \$50 million in Novell to show its support for the acquisition.

Novell acquired another IT consultancy firm, UK-based Salmon, in July 2004, in order to strengthen its consultancy delivery. In November 2004, based on the SuSE distribution, Novell released the enterprise desktop, Novell Linux Desktop 9. Also in November, Novell and Microsoft settled a legal antitrust case for \$536m based on Microsoft's efforts in the mid 1990's to eliminate competition in the office productivity applications market.

Later, in February 2005, Novell released e-Directory developer interfaces to the open source community. At that time, Novell also launched the “open source collaboration server initiative” (an open source project providing calendar and mail functionality). In March 2005, Novell released the "Open Enterprise Server" (a secure suite of services that provides networking, communication, and application services). A month later, in April 2005, Novell acquired Tally Systems Corporation (an IT asset management solutions company). In May, Novell announced the acquisition of Immunix Inc. (a host-based application security solutions provider). Later that year, in August 2005, Novell released SuSE as an open source project and named this project openSuSE (Novell Facts, 2005, p. 1). Shortly afterwards, Novell released SuSE 10.



## ***Today***

Today (2005, December), Novell's corporate headquarters is in Waltham, Massachusetts. With about 100 offices around the world, and close to 6000 employees worldwide, they are big supporters of open source software and are ready to defend the open source community against those who might assert patents against open source products. (Novell Patent Policy, 2005; Novell Press, 2004)

Currently Novell is a leader in the move towards open-platform computing, delivering Linux solutions for the server and the computing desktop. (Novell Press, 2004)

## ***Novell's strategy***

“Novell will accelerate the adoption of Linux by working with its partners to remove barriers to Linux adoption”. (Novell Keynote Presentation, 2005, May, p. 9)

It is apparent from the published works on open source business strategies that Novell acquired SuSE in an attempt to increase its depleting NetWare maintenance revenue, and aims to get aboard the fast adoption rate of the Linux operating system. (Koenig, 2004)

According to an internal McKinsey consultancy study, 30% of the income from enterprise solutions comes from licence fees and about 70% from implementation of the solution (Koenig, 2004). In addition, a 2000 U.S. department of commerce report states that not since 1962 has software package cost exceeded 30% of the total software investment (Hoch, et al., 1999, p. 36). Supporting these figures Novell's software licence net revenue for 2004 and 2005 was 25% and 22% respectively. (Novell Press, 2005, December) This affirms that the other 70+% of the software investment goes towards consultation, maintenance, and other related services.

Novell was forced in the mid 1990's to radically change the way they operated, as well as to change the direction of the business due to Microsoft's entrance into their market. They accomplished this by making sure their software products were Internet ready by guaranteeing the products supported the IP protocol and other related Internet protocols. Since then, Novell has invested readily in acquisitions, to make sure their diminishing Netware services income could be boosted.



With the rapid adoption of the ever increasingly popular Linux operating system, Novell made a firm decision to supplement their Netware income with that from Linux. This became apparent when Novell acquired SuSE Linux. This move allowed Novell to make use of an open source subscription strategy, and enter the increasingly lucrative desktop operating system market.

Careful study of the yearly and quarterly reports, over the last 7 years shows that open standards and open source did assist Novell to slow down their diminishing income from the Netware operating system and related services. We believe that Novell's main goal is not to make their primary income from Linux server licences or related services but rather to invest into the desktop market and try to acquire a fair share of the lucrative desktop operating system market. This is noticeable by looking at the acquisitions of Ximian in 2003, and SuSE in 2004.

The acquisition of Ximian allowed Novell entrance into the desktop management solution arena, and with the acquisition, acquired two mainstream desktop projects, the Mono project (a .NET framework for the Linux desktop), as well as the GNOME project for managing the Linux desktop.

In 2005, Novell was actively driving the Mono development, which we believe is an effort to convince the Microsoft Windows' developers that all of their software development efforts can easily run on a Linux desktop solution. If Novell implements this strategy well, they might be able to convince a large enough developer base to convert over to Linux and open source. On the other hand, they could also only succeed in creating a second limited adoption solution, similar to the situation of Microsoft Office and Open Office.org.

Later, in 2005, Novell released SuSE as an open source project, to gain widespread community support and adoption from the open source community as well as to capitalise on the development of SuSE by the community. Naturally, Novell wants SuSE to become the Linux desktop of choice.

Close to the end of the study, there were complaints by a minority shareholder that Novell was not focusing on its core business, and that expenditure was too high. The shareholder suggested to Novell that they should cut back on their spending on R&D, their Netware expertise and non-core business areas and invest more into Linux and open source. (Computer Business Review, 2005, September)

Just a few weeks later, Novell released a press statement stating they would reduce annual run rate expenses by more than \$110 million by looking at the concerns of that minority shareholder. (Novell Press, 2005, November)

## Analysis of financial data

### *Earnings per share vs. free cash flow*

| <i>Free cash flow/Year</i>            | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Earnings per share</i>             | 0.13        | -0.70       | -0.63       | -0.42       | 0.08        | 0.98        |
| <i>Free CF per share leveraged</i>    | 0.12        | -0.07       | -0.14       | -0.69       | -1.44       | 0.9         |
| <i>Free CF per share un-leveraged</i> | 0.12        | -0.07       | -0.14       | -0.69       | -1.44       | 0.9         |

**Table 1: Earnings per share vs. free cash flow 2000 - 2005**

### **Earnings per share**

EPS, calculated in \$, measures the return made on behalf of each issued ordinary share. For example, a company that made \$100 million last year and has 10 million shares outstanding would state earnings of \$10 per share. This value is calculated after paying preferred shareholders and bondholders, as well as taxes.

From 2001 to 2004, Novell's earnings per share took a bit of a plunge from previous years. Between 2001 and 2004 Novell made significant investments in acquisitions that could have contributed to the fall in earnings per share. In 2005 Novell did improved on the results of 2004 and showed a slight profit.

### **Free cash flow per share leveraged**

Free cash flow is defined as the amount of cash a company made after all deductions (tax, dividends, interest,) have been made. Free cash flow is used to allow all companies to be evaluated on a cash basis. In many countries around the world, and the U.S., interest expense is tax deductible at business level. Leveraged cash flow includes this tax benefit.

Analysing the earnings per share and free cash flow per share it is clear that Novell did struggle to show pure profits. It is however understandable since a large amount of the profits was reinvested into acquisitions. 2005 results showed a positive cash flow result and an improvement on that of the last four years.

### **Free cash flow per share un-leveraged**

Un-leveraged cash flow is similar to leveraged cash flow with the exception that it does not include the tax benefit. Looking at the free cash flow of Novell from 2000 to 2005, the leverage was not large enough to influence the free cash flow per share.

### **Profitability ratios**

| <i>Profitability/Year</i> | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Gross margin</i>       | 71.8%       | 67.8%       | 60.4%       | 60.3%       | 64.3%       | 63.0%       |
| <i>Operating margin</i>   | 6.1%        | -26.3%      | -8.1%       | -5.0%       | 6.4%        | 38.9%       |
| <i>After tax margin</i>   | 4.3%        | -26.0%      | -21.8%      | -14.6%      | 2.7%        | 31.1%       |

**Table 2 : Profitability ratios 2000 - 2005**

#### **Gross margin**

The gross margin, also called the gross profit margin, specifies the contribution from the company's core business towards covering the company's operating expenses, in essence in many industries the higher the better.

Between 2000 and 2005, Novell kept the gross margin in a comfortable and acceptable margin, showing good profits.

#### **Operating margin**

The operating margin is used to measure the performance and the profitability of the company.

Novell took an initial dip in operating margin in the year of the dot.com bust (2001). Also, in that year Novell made a significant investment in Cambridge technology. Since then Novell has started to improve their profitability where in 2004 Novell showed a small profit. In 2005 Novell showed a significant improvement on that of 2004.

#### **After tax margin**

The after tax margin is similar to the profit margin with the exception that it takes tax into account. This is also a good indicator of the company's profitability and performance.

Novell's figures for after tax margin follow a similar trend to that of the operating margin, which implies that a lot of profit was absorbed by the operating expenses during 2001 to 2005.

### **Liquidity ratios**

| <i>Liquidity/Year</i>     | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Inventory turnover</i> | 125.92      | 376.22      | 4494.00     | -           | -           | -           |
| <i>Current ratio</i>      | 2.214       | 1.681       | 1.555       | 1.645       | 2.215       | 266.8       |
| <i>Quick ratio</i>        | 1.966       | 1.526       | 1.438       | 1.571       | 2.137       | 258.8       |

**Table 3 : Liquidity ratios 2000 - 2005**

#### **Inventory turnover**

The inventory turnover ratio determines a company's activity or liquidity. The inventory turnover can be compared to industry averages. This ratio indicates how many times an inventory has been sold and replaced, the higher the value the better the inventory is being managed.

With reference to Novell there is almost an exponential growth in the inventory ratio between 2000 and 2002. It appears Novell did manage their inventory exceptionally well.

#### **Current ratio**

The current ratio indicates the degree to which assets cover the claim of short-term creditors. A value of above 1 is desirable as it allows for the company to meet its short-term debt obligations. A high value may also indicate that assets are not used effectively to generate new revenue.

Novell appear to have the current ratio well under control since 2000, with usually high results in 2005 compared to that of previous years. Which would indicate that Novell is not managing its assets correctly.

#### **Quick ratio**

The quick ratio, also referred to as the acid test, is similar to the current ratio with the exception that it excludes inventory from current assets. The value can indicate if the company can meet its obligations in difficult times. A value of greater than 1 is normally expectable, but it should be compared to industry averages.

Here again, the quick ratios over the years are well within a comfortable range, similar to that of the current ratios. Again the 2005 results are well above previous years.

**Debt ratios**

| <i>Debt/Year</i>                             | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Debt to total invested capital</i>        | 1.0%        | 1.7%        | 0.7%        | 0.7%        | 38.2%       | 30.5%       |
| <i>Operating cash flow to long term debt</i> | 32.2%       | 69.2%       | -2324%      | -7109%      | -55.9%      | 55.0%       |

Table 4 : Debt ratios 2000 - 2005

**Debt per total invested capital**

This ratio indicates the level of financial leverage a company has, which is the total amount of external investments used to finance a company's business. The debt used in the ratio is the total debt obligations of the company. The ratio provides a better insight into the company's long-term leverage and risk.

Novell showed low figures between 2000 and 2003, which implies that they did not use their debt effectively to generate new returns. In 2004 and 2005 the debt was used more effectively, which produced better results.

**Operating cash flow per long term debt**

This ratio is calculated by using the previous four quarters of operating cash flow (rolling cash flow) divided by long-term debt. This ratio indicates how well operating cash flow covers debt. A low ratio suggests a potential solvency problem.

After Novell made significant investments in acquisitions in 2001 – 2004, the operating cash flow per long-term debt was significantly affected. Novell had a serious solvency problem in 2003, but started to rectify the problem by 2004. By 2005 the problem was rectified and showed a significant improvement on that of 2004.

## **Earnings**

| <i>Earnings/Year</i> | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>ROE</i>           | 4.0%        | -21.5%      | -23.2%      | -17.3%      | 3.2%        | 26.9%       |
| <i>ROC/ROIC</i>      | 3.9%        | -21.1%      | -23.0%      | -17.2%      | 1.9%        | 18.5%       |
| <i>ROA</i>           | 2.9%        | -14.3%      | -14.8%      | -10.3%      | 1.4%        | 13.5%       |

**Table 5 : Earnings 2000 - 2005**

### **Return on average common equity**

The ROE percentage shows the rate of return on the investment for the company's common shareholders. This ratio can be used to determine how well an organisation reinvested income to generate additional income.

For most of the financial figures for Novell between 2001 and 2003, it shows Novell had a very difficult time. Looking at the ROE it is no exception, with unacceptable ROE figures for that period of time. 2004 showed a slight positive and a great improvement on that in 2005.

### **Return on investment capital**

The ROC percentage shows how effectively a company is utilising its capital to generate profits. The indicator can be used to evaluate companies in terms of viability of products and management efficiency. It is also widely used to evaluate mainly financial institutions but is not limited to the financial sector.

Again The ROC figures are alarming for the period between 2001 and 2003. This can be contributed to the depleting Netware sales and Novell heavily investing in new acquisitions to replace the depleting Netware income with that of Linux. 2004 showed signs of improvement, with 2005 resulting in a good ROC figure.

### **Return on assets**

The ROA percentage also sometimes referred to as ROI (return on investment) is used to determine how profitable a company's assets are in generating revenue. In essence it defines how many dollars in profit can be made from each dollar of assets the company controls.

Although the figures for 2001 to 2003 are unacceptable, a noticeable change was reflected for 2004 and 2005. This clearly shows that Novell made the appropriate changes to ensure the company is solvent and showed some good profits.

## **Turnover**

| <i>Turnover/Year</i>      | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Retention Ratio</i>    | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      |
| <i>Sustainable Growth</i> | 4.0%        | -21.5%      | -23.2%      | -17.3%      | 3.2%        | 26.9%       |
| <i>Asset turnover</i>     | 93.3%       | 82.7%       | 106.4%      | 118.3%      | 121.0%      | 86.4%       |

**Table 6 : Turnover 2000 - 2005**

### **Retention ratio**

The retention ratio is the exact opposite of the dividend payout ratio. The ratio indicates the proportion of net income that is not paid out as dividends to shareholders.

By making use of all the profits to reinvest into acquisitions, it is clear to see that Novell did not pay out any dividends to its shareholders for the past 6 years.

### **Sustainable growth rate**

This ratio defines the growth rate of which a company can grow without having to increase financial leverage. If the growth of the company passes this rate, the company needs to finance the growth through external means.

The figures indicate that Novell only in 2004 started showing that the company can grow without the growth being financed. 2005 showed a significant improvement showing that the company can grow with 26.9% before it requires external funding for expansion.

### **Asset turnover**

This ratio indicates the amount of sales generated from each dollar of assets. By using the company's assets, the ratio can be used to determine a company's efficiency in making sales. The ratio is indirectly proportional to the profit margin.

With high asset turnovers, it can be interpreted that Novell have low after tax profit margins. This is also an indication of Novell focusing on a service model rather than a product model.



## **Conclusion**

Looking at the financial data, it is easy to see that during the dot.com boom, Novell did well in terms of earnings per share vs. free cash flow. After the crash of the market, it is noticeable that Novell suffered and had to actively change their strategy, this contributed to Novell actively pursuing an open source strategy, after already strained due to competition.

Although their Gross profit margin was above 60% from 2000 to 2005, the operating profit margin went down below 0% to a minimum of -26.3%, due to the number of acquisitions they made since 2001.

In terms of liquidity ratios, since 1999 Novell has always kept the current ratio above 1.50 and the quick ratio above 1.40. In 2005 the ratios rocketed to 166.8 and 158.8 respectively.

After the first acquisitions made by Novell in 2001, the long term debt was significantly effected, dropping from about 128% in 1999 and 69% in 2001, to -2324% in 2002 and -7100% in 2003, only to return to -56% in 2004, and 55.0% in 2005.

The ROE, ROIC, and ROA figures support the interpretation of the debt ratios, the liquidity ratios, and the operating profit margins. The ROE, ROIC, and ROA took a significant dip in 2001, from being around 10% in 1999, and around 3.5% in 2000, to about -20% in 2001, 2002, and 2003. Novell did see a recovery in these figures in 2004 with a ROE ratio of 3.2% and 26.9% in 2005.

Again the same pattern is noticeable by comparing sustainable growth from 12% in 1999, to -23% in 2002, and a return to 3.2% in 2004 and 26.9% in 2005.

Looking at the net income, it went down from \$190m in 1999 to -\$272m in 2001, recovering from -\$246m in 2002 to \$31m in 2004. In 2005 the net income rose with 1210% to \$372.6m

In early December 2005, the financial results for the full fiscal year 2005 were released. Novell showed the Linux revenue going up by 418% to \$61m for the fourth quarter in October 2005 compared to the fourth quarter in October 2004 (Novell Press, 2005, December)

From these observations, it is apparent that although Novell initially did start to lose income from their traditional sources, they managed to change their strategy, which in the long term has resulted in successfully replacing their losing NetWare income with that of Linux, open source software, and related services. Novell has managed to build, yet again, a profitable enterprise, this time by making use of open source business models (an open source subscription strategy) rather than traditional proprietary software business models.

## Findings

It is obvious that Novell makes use of open source strategies as part of its One Net strategy.

By looking at the major events in Novell's history between 1994 and 2005, it is clear that the change to open source software was recently a tale of success. For two years, 1995 & 1996, after Novell lost the battle against Microsoft, it struggled to keep solvent. That was until Novell switched to open standards and included open source as part of the main business strategy.

In the late 1990's the information and communication technology (ICT) sector was booming, it was the area of the dot.com boom, which was later followed by a market crash. Eric Schmidt was at the time the CEO of Novell, and Novell did well. It is difficult to determine the effect the ICT boom had on Novell, but what is unmistakable is that without open source software and an open source business strategy, Novell would probably not be here today.

With a steady decline in the Netware income, Novell had to do something to replace the income. Knowing the ICT market was changing, Novell made a strategic decision to focus more on service delivery than the selling of product licences. This is apparent by the acquisitions made shortly afterwards. The strategy Novell is following according to Koenig (2004, May) is that of an open source subscription strategy. This would allow Novell to sell SuSE Linux subscriptions and provide a support service bundled with the package, thus supplementing the decreasing maintenance income from Netware.

We do not believe that Novell is making use of the traditional strengths of Linux as a server in their business strategy. We believe that Novell's primary focus is in the lucrative Linux desktop market by applying the open source subscription strategy. It does appear that Novell is making use of Linux servers to get an entrance in the door of the Linux desktop.

## ***Novell in Republic of South Africa***

*The author's geographic location is in the Republic of South Africa*

Specific to the Republic of South Africa, Novell RSA is following a similar strategy to one that failed against Microsoft, when Microsoft entered the network operating system market. In the mid 1990's Novell catered mainly for the small to medium enterprise (SME) market but started to focus on large enterprises. Microsoft introduced their desktop operating system and office productivity suite for the home and SME market. At that time, this resulted in Novell losing most of their market to Microsoft. Their current strategy is similar, with the exception that Novell South Africa is focusing on local government and large public enterprises rather than the large private enterprises.

So far, this appears to be working well in South Africa, where Novell has won several key government tenders. It appears Novell RSA is missing a worthy competitor when implementing their Linux strategy. It is yet to be seen whether Novell will be able to keep its dominance in the South African government with the inception of a local Linux distribution called Ubuntu (a Zulu and Xhosa word roughly translated to "humanity towards others"). It appears that the project owner, Marc Shuttleworth is following exactly the opposite strategy to Novell South Africa, focusing on SMEs, schools, and non-governmental organisations (NGOs) rather than focusing on large government contracts. This was a very similar strategy Microsoft followed that allowed them to gain market share against Novell in the mid 1990's.

Shuttleworth is entering very successfully into schools and community based projects and appears to be gaining wide support within developing countries such as South Africa and Brazil. The Ubuntu Linux distribution, at the time of the study, was the number one Linux distribution for several months running according to distrowatch.org. Ubuntu is actively competing against larger distributions such as Red Hat and SuSE. eWeek (2005, October) rated both Ubuntu 5.10 and SuSE 10.0 high in being mature, polished, innovative, and ready for the organisation's desktop.

### ***Future trends***

At the end of the study, the ICT sector was experiencing what could easily be interpreted as déjà vu. Instead of having a repeat of the dot.com boom, it appears there is an increased interest and speculation in the business of open source. It is likely that venture capital companies are investing millions of Dollars into open source start-ups, because of the widespread belief that the open source service model is the model that will replace the current proprietary product licence model (ZDNet UK Insight, 2005, November). However a significant boom is unlikely as less than twenty companies secured venture capital in 2005 as open source companies, compared to the hundreds of thousands of companies that develop proprietary software for commercial and internal use.

During 2004 and 2005, Novell has made significant investments in acquisitions. This could be exactly the exact same strategy they followed about 10 years earlier, when Novell went into a spending frenzy. Novell's acquisitions during 1993 and 1994 were short lived, and today the same scenario should ring warning bells. Novell should carefully monitor this pattern as it could lead to another selling spree, similar to that of the mid 1990's.

### **Future Research**

During our work we realised that future research is required into the study of open source business models, particularly service based business models and case studies. Research is also required to determine how other open source business models are implemented and how successful the business models and companies are that choose to implement them. Further research is also required in determining whether open source will become the new way of doing business for software vendors.

## Conclusion

After careful study of Novell's corporate and open source history, and Novell's financial statements of the last 7 years, it is evident that they have found open source as a viable alternative to proprietary software. Novell was able to rebuild the company after its lows in the mid 1990's and has grown into one of the biggest contenders in Linux, and open source software today, or as eWeek (2005, June, p. 2) states "Novell is pulling itself out of its NetWare grave with SuSE Linux sales and support."

Open source software and open source business strategies have assisted Novell in, not just supplementing their depleting NetWare income, but have also allowed them to substitute their proprietary software income with that from Linux and open source software.

Today Novell is making Linux and SuSE an alternative and attractive option for using Linux in business. Novell has shown the world that switching from a proprietary based model to an open source software model is viable, feasible and indeed profitable.

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## Appendix A

### Summary: Novell yearly financial reports 2000 – 2005

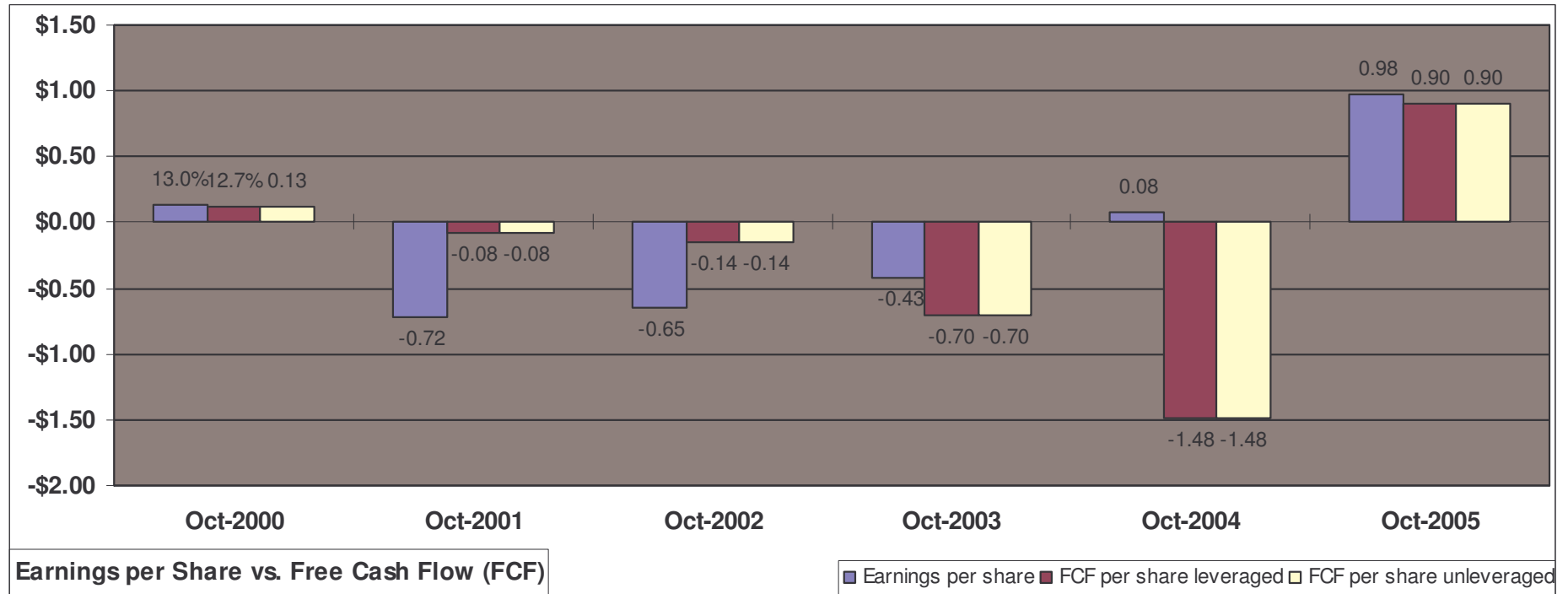


Figure 2: 2000 - 2005 Earnings per Share vs. Free Cash Flow

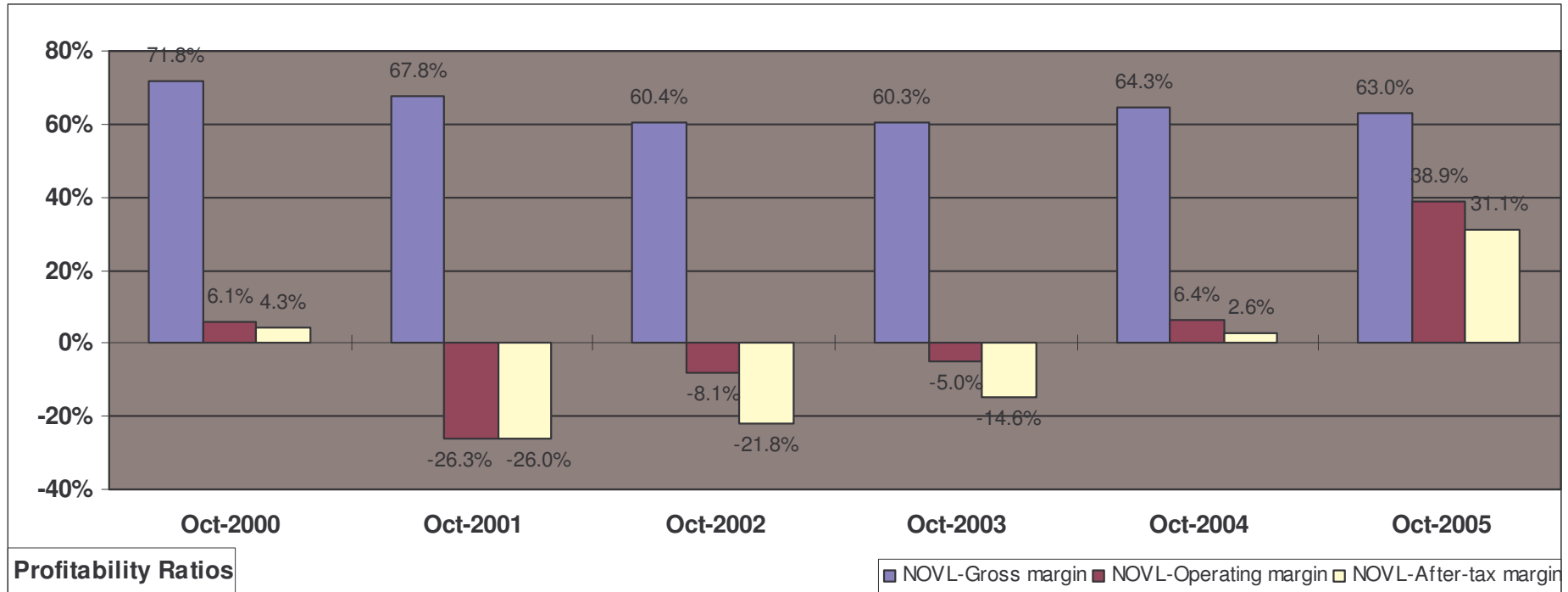


Figure 3: 2000 - 2005 Profitability Ratios

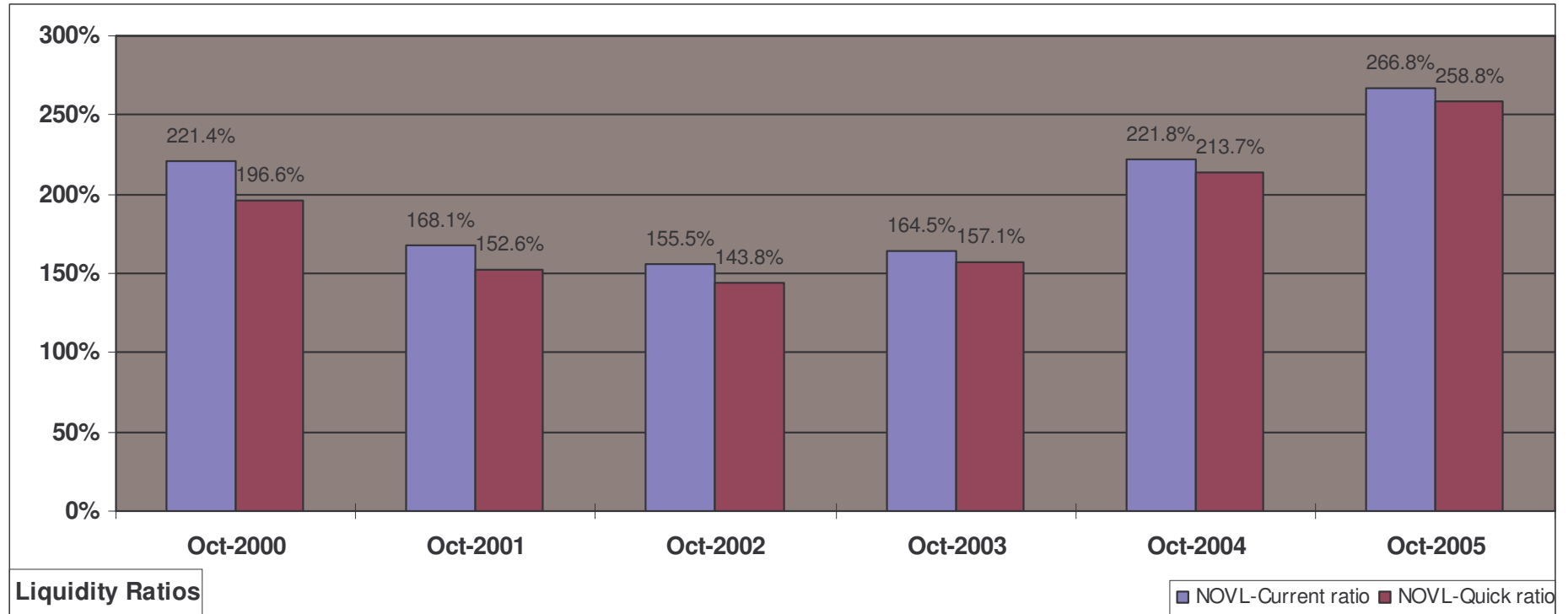


Figure 4: 2000 - 2005 Liquidity Ratios

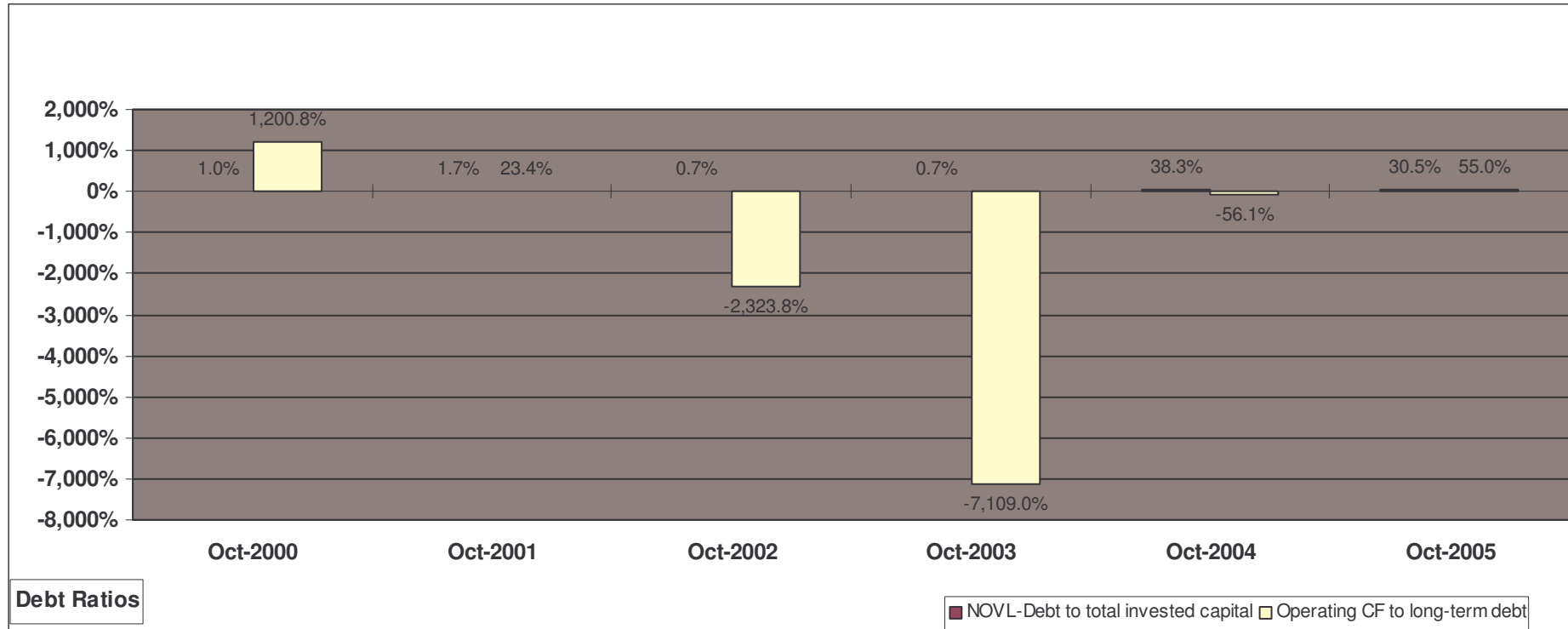


Figure 5: 2000 - 2005 Debt Ratios

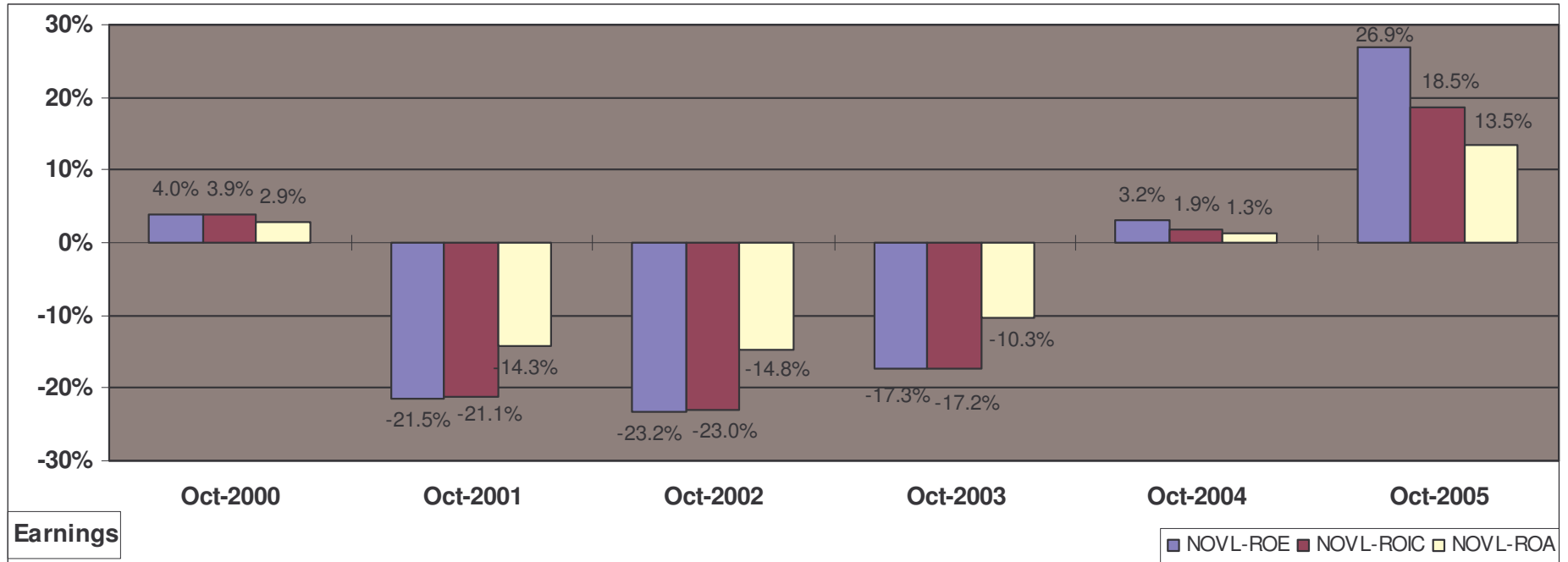


Figure 6: 2000 - 2005 Earnings (ROE, ROIC, & ROA)

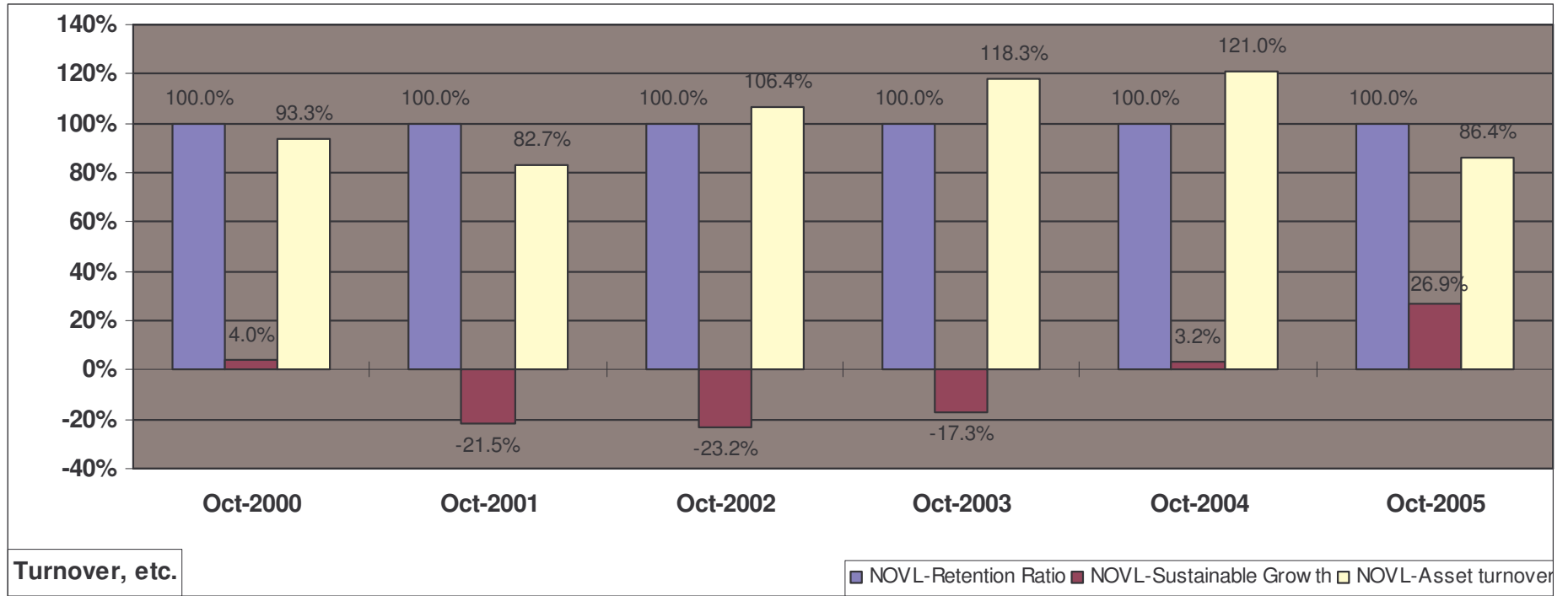
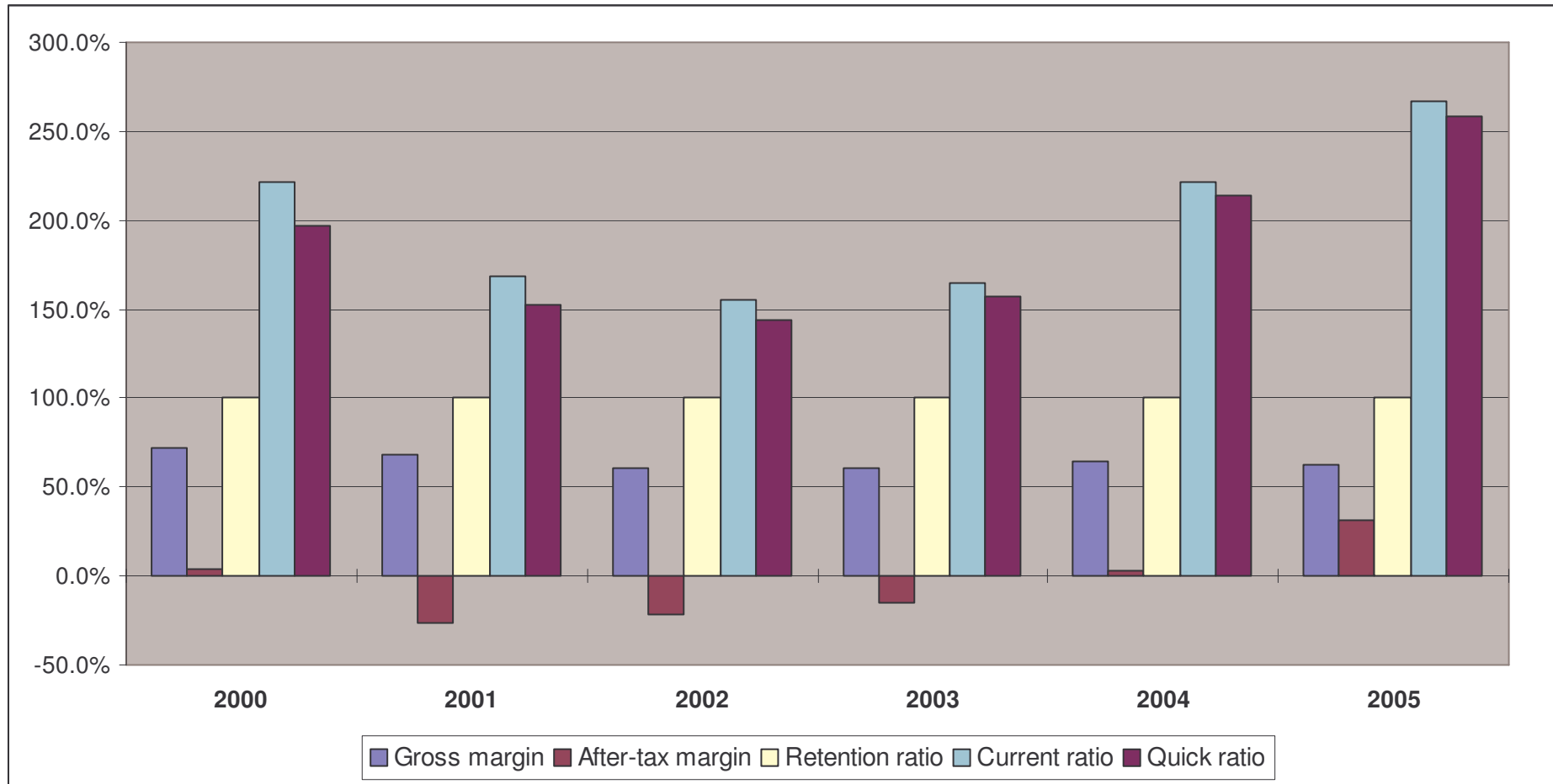


Figure 7: 2000 - 2005 Turnover



**Novell summary of financial figures and ratios 2000 - 2005**



**Figure 8: Summary financial figures and ratios 2000 - 2005**

## Appendix B

### *Interviews*

| <b>Name</b>                 | <b>Designation</b>                                  | <b>Date</b> | <b>Topic</b>  |
|-----------------------------|---|-------------|---|
| <i>James Thomas</i>         | Novell RSA<br>Business<br>Solutions<br>Architect    | 24/11/2004  | Business Strategy<br>(Novell History)                     |
| <i>James Thomas</i>         | Novell RSA<br>Business<br>Solutions<br>Architect    | 17/02/2005  | Business Strategy<br>(Global Overview)                    |
| <i>Stafford Masie</i>       | Novell RSA<br>Managing<br>Director                  | 11/03/2005  | Business Strategy<br>(Large Organisations)                |
| <i>Stafford Masie</i>       | Novell RSA<br>Managing<br>Director                  | 16/05/2005  | Business Strategy<br>(Government)                         |
| <i>Graham<br/>Hallworth</i> | Novel Sub<br>Saharan Africa<br>Managing<br>Director | 02/12/2004  | Business Strategy<br>(Open Source in<br>Africa)           |
| <i>Graham<br/>Hallworth</i> | Novel Sub<br>Saharan Africa<br>Managing<br>Director | 19/01/2005  | Business Strategy<br>(Intellectual Property<br>& Patents) |

**Table 7: Summary of Interviews**

**Novell quick facts**

| Year | Chief Executive Officer (CEO)             | Number of Offices | Number of Employees | Total Assets (\$M) | Cash & Short Term Investment (\$K) | Fiscal Year Sales (\$M) |
|------|---|-------------------|---------------------|--------------------|------------------------------------|-------------------------|
| 1992 | Raymond Noorda                            | ???               | ???                 | 1,430              | 632                                | 1,512                   |
| 1993 | Raymond Noorda                            | ???               | ???                 | 1,745              | 719                                | 1,830                   |
| 1994 | Raymond Noorda / John A. Young (Interim)  | ???               | 8,457               | 1,963              | 862                                | 1,998                   |
| 1995 | John A. Young (Interim)                   | ???               | 7,762               | 2,416              | 1,321                              | 2,041                   |
| 1996 | John A. Young (Interim)                   | 40 US – 63 Int.   | 5,870               | 2,049              | 1,025                              | 1,375                   |
| 1997 | John A. Young (Interim) / Eric E. Schmidt | 36 US – 60 Int.   | 4,770               | 1,911              | 1,033                              | 1,007                   |
| 1998 | Eric E. Schmidt                           | 37 US – 64 Int.   | 4,557               | 1,924              | 1,007                              | 1,084                   |
| 1999 | Eric E. Schmidt                           | 38 US – 64 Int.   | 4,530               | 1,942              | 895                                | 1,273                   |
| 2000 | Eric E. Schmidt                           | 34 US – 74 Int.   | 4,893               | 1,712              | 698                                | 1,162                   |
| 2001 | Eric E. Schmidt / Jack L. Messman         | 50 US – 85 Int.   | 7,003               | 1,904              | 705                                | 1,051                   |
| 2002 | Jack L. Messman                           | 45 US – 83 Int.   | 6,233               | 1,665              | 636                                | 1,134                   |
| 2003 | Jack L. Messman                           | 35 US- 76 Int.    | 5,634               | 1,567              | 367                                | 1,105                   |
| 2004 | Jack L. Messman                           | 29 US- 78 Int.    | 6,186               | 2,293              | 434                                | 1,166                   |
| 2005 | Jack L. Messman                           | 21 US – 99 Int.   | 5,066               | 2,761              | 819                                | 1,198                   |

**Table 8: Novell quick facts**