

# GNU/Linux – Milestone on the Way to the GPL Society

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## 1 init 1: About This Contribution

### 1.1 Categorization

This contribution, entitled “GNU/Linux – Milestone on the Way to the GPL Society” is intended to give an overview of work in progress. Some of its content has been discussed in the Oekonux project since it was founded in the middle of 1999. The topics discussed in the project are almost the same as the topics covered in this work. The core of the project is a mailing list, archived on a web-site. The FAQ is especially useful, as it summarizes the debate on the mailing list. In order to honor the work of the people who have contributed some thoughts on the mailing list, and in order to actively respect the spirit of Open Source, a list of their email addresses is included here:

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The essay begins with a brief discussion of the symptoms of crisis in our current societies<sup>1</sup>. A second part will point out what is so special about GNU/Linux<sup>2</sup>. The final section casts an utopian eye on a GPL society, in which important principles of GNU/Linux-development have achieved relevance on a social scale.

By the way, the init number in the section titles is a common nomenclature under Unix for the so-called run levels. These describe the state of the system in the following way:

RunLevelMeaning 0System halt 1Basic running system 2System with network 3System with network and graphical user interface 6System is shutdown and rebooted

### **1.1 About the Author**

To make it easier to judge this work, I would like to tell you a few things about my personal background.

I studied computer science, and have worked as a qualified computer scientist since 1992. However, my computer experience began with a ZX81 before my formal studies.

Besides that, after some prolonged inactivity, I am politically involved in very different contexts since 1989. My political home land is anarchism, enriched with a lot of Marxian analysis. My central motivation was, and still is, a fundamental critique of the existing state of affairs as well as the search for viable alternatives.

Both of these influences merged in the question of whether the development of computers in general, or that of free software such as GNU/Linux<sup>3</sup> in particular, could have a social relevance or even the potential to change society. Thus this contribution is to some extent an intermediate result in answering this question.

## **1 init 2: The End of the Society of Labor**

Preliminary remark: This passage can only cursorily explain very few

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<sup>1</sup>Here, the term our societies relates to the forms of societies that are fully developed in Western Europe, North America, and Japan.

<sup>2</sup>Throughout the text, I am using the term GNU/Linux instead of the common Linux in order to emphasize the meaning of the GNU movement, as without them, a free operating system based on the Linux kernel would not be thinkable.

<sup>3</sup>From this point, I am using the term GNU/Linux as a synonym for free software in general. By the way, I do not like to use the term Open Source very much, as it has a connotation that tries to define away the potential within GNU/Linux. Richard Stallman discusses this topic in his essay Why “Free Software” is Better Than “Open Source”.

aspects of this complex topic. A thorough and worthwhile argument about the topic is being carried out by the Krisis group [mostly German]. This passage is only intended to touch on a few terms that are of particular importance for our topic.

### ***1.1 The Most Important Elements of the Society of Labor***

Our societies are characterized by wage labor<sup>4</sup>. People's work is reduced to an abstract magnitude: in wage labor the concrete way used in the actual work is as unimportant as the product or service that is the result of the activity. This form of activity only justifies itself by the fact that labor-power is exchanged for money. This abstraction of the activity from its meaning and aims results in an alienation of the workers from their own action, most noticeably in assembly line work.

This system of abstract wage labor is closely linked with the principle of commodity production for a market. Under market-economy conditions, economic action only makes sense if the commodity produced can be successfully exchanged for money. Thus an abstraction takes place here, too: the meaning and goal of economic action are not primarily a specific product, a specific quality, or other physical qualities, but the gaining of exchange value<sup>5</sup>.

In addition to both these principles, the principle of competition due to the market puts the actors into a (negative) relationship towards each other, both in the market for commodities and in the labor market. On the commodity producers' side, competition leads to the need for profit maximization. To make a profit requires wage labor, but the business man's aim is to minimize the number of workers needed to produce a given amount of commodities, or, inversely, to maximize the amount of the commodity produced using the same amount of work force.

Historically, in an increasing number of fields these factors more and more have led to the replacement of human labor by machines making it superfluous. It is only logical that this process can only be kept running by continually widening the market. If this widening does not succeed, competition among commodity producers finally forces to move in the direction of completely abolishing wage labor – a move which cannot possibly succeed, as making profits is inseparably connected with the use of wage labor.

It seems that today we have arrived at this historical point, as demonstrated by two well-known phenomena.

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<sup>4</sup>Of course, there are also activities taking place in our societies that are called labor or work, which are however not paid. However, even though these activities are crucial for the survival of the society, they only play a minor role in the social process.

<sup>5</sup>Besides that, the exchange value is only interesting for private actors, if it exceeds the exchange value put into the production. Thus, the entrepreneur has to make profit.

## **1.1 Mass Unemployment and the Stock Market Boom**

For years it has become more and more evident that the high rate of unemployment can never be reduced again. Instead, it is increasingly said that mass unemployment will rise still more<sup>6</sup>. It becomes clear that the replacement of human labor continues fast<sup>7</sup>. If one considers the potential for reduction of the work-force by computerization which still exists in large parts of the service sector such as banks and insurance companies<sup>8</sup>, it has to be assumed that the process has barely started<sup>9</sup>.

While mass unemployment steadily increases, new speculative bubbles continually appear in the global stock markets. Companies that classic business criteria would rate poorly shoot up like rockets on stock markets – often to come down like comets onto the ground of economic reality. When such a speculative bubble bursts, whole states with millions of people can go overboard, as was clearly shown by the example of Indonesia, the biggest victim of the Asian crisis. This phenomenon also shows how the financial capital that was once reinvested in new production is today obviously unable to broaden production sufficiently to gain profits that are higher than the profits that can currently be achieved on the stock markets.

## **1.1 Summary**

There are indications that the labor society, and thus also exchange as the basis of society have come to their historical end. Even if at first sight this has the threatening appearance of a collapse scenario, it does open up the possibility of a new society that overcomes the deficits of the old one; one in which not abstract principles but the wealth of all people on this planet will be the principal goal.

## **1 init 3: The Special Thing About GNU/Linux**

The thesis of this work is that GNU/Linux represents a milestone in an ongoing process. A milestone is recognized by the fact that it has certain special characteristics not shared by other products. People who oppose the idea that GNU/Linux is a milestone try to fit it into other well-known frameworks<sup>10</sup> in order to minimize its importance.

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<sup>6</sup>Even the unions are now starting to acknowledge that full time employment - like in the 70s - will never be possible anymore.

<sup>7</sup>By the way, against this law of society, politicians are powerless - even though they permanently try to convince us that they are not.

<sup>8</sup>The takeover of the Dresdner Bank by the Deutsche Bank, and the related massive loss of jobs may serve here as a recent example.

<sup>9</sup>The theory says that this development can only be stopped if the market can be successfully widened again, i.e. if a commodity is invented that is new, labor-intensive, and at the same time attractive for large masses, like the automobile has been in the middle of the 20th century. Although such a commodity is not entirely impossible, it is not in sight.

<sup>10</sup>Eric S. Raymond, who is quite famous in the GNU/Linux scene, has done a lot on this

In this section we discuss the comparisons that people make with previously existing phenomena or products. In this way we can make it clear what is special about GNU/Linux.

### **1.1 GNU/Linux is not only a Simple Hobby**

Often, people argue that GNU/Linux is just a hobby<sup>11</sup>, and as such it could not have any social relevance. Of course, the development of free software is in many cases a personal hobby, but result of this activity goes far beyond other hobby products<sup>12</sup> in the following aspects.

#### **1.1.1 Extraordinary Benefit for the Society**

GNU/Linux is a large set of programs, including an operating system and numerous applications, useful in the concrete daily activity of ever larger numbers of people. If we observe the evolution of GNU/Linux, we see that its usefulness increases all the time, both in the breadth of possible applications and in the concrete benefits which more and more people derive from it. And it doesn't seem that this tendency will change.

GNU/Linux is, therefore, a product of considerable quantitative and qualitative social utility. This marks an essential difference from the other products which derive from hobbies, which can compete with commodities on grounds of quality, but not of quantity, and whose social utility is markedly less.

#### **1.1.1 Direct Competition with Commodities**

As a useful and widely available product and GNU/Linux competes directly with the commodities created and sold by large firms such as Microsoft. There are certainly other products derived from hobbies which compete with commodities – for example, the vegetables grown in a family allotment which compete with those from the supermarket – nevertheless, there are some differences.

Firstly, it is noteworthy that GNU/Linux has become established in spite of the wide range of products already offered in this sector. And it has not only become established, but promises to surpass and overcome the competition from commercial products<sup>13</sup>.

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field, especially in his paper “Homesteading the Noosphere” in which he tries to press the development of GNU/Linux into traditional market economy forms.

<sup>11</sup>Hobby shall mean any activity that deals with voluntary and self-determined efforts. Whether or not a manifest product is created in such an activity is generally secondary, here however especially such productive hobbies are of interest.

<sup>12</sup>The possible product of a hobby is distinguished from a commodity most of all by the purpose of the production process. While in commodity production the abstract goal of selling is the main purpose, the production of a hobby product is characterized by the *Selbstentfaltung* of the producer and possibly by the immediate use of a product.

<sup>13</sup>Today most notable this is probably in the sector of servers where GNU/Linux currently out-competes Windows NT which Microsoft placed in this sector. It is my firm

Until now no product derived from a hobby had ever achieved this. On the contrary, it is normal for the production of something that begins as a hobby, sooner or later, whether at the initiative of the hobbyists themselves or other people, to turn into the production of commodities, leaving at best only a gap for the product as a hobby.

### **1.1.1 GNU/Linux is very Modern**

It is noteworthy that free software is developed using very modern techniques. Not only because, naturally, the computer is the basic tool for development, but also because, with the Internet, the most recent techniques have an essential importance. In some cases the development of new techniques has actually been driven by GNU/Linux<sup>14</sup>.

In this aspect GNU/Linux is clearly different from normal hobbyist products, which generally are from the sector of crafts. This is a point of the greatest importance in relation to the social relevance of GNU/Linux, since observation of the leading top technology of the present and the way in which it is applied usually provides a good guide to future trends.

### **1.1.1 International Networking**

Another distinctive characteristic of GNU/Linux is that it arises from a wide international network. People from all parts of the technologically well developed world<sup>15</sup> co-operate through the Internet bypassing state borders and cultural barriers.

As well as being a unique case among hobbies, it is also very rare for any multinational company, in spite of their huge infrastructures and their millions, to achieve such a productive and fluid level of co-operation.

### **1.1.1 Summary**

Even if GNU/Linux has its origins in personal hobbies, it has become something much more than a simple hobby product, both in the way in which it is created and in the product it has become. Therefore it is no longer possible to talk of it as a hobby.

## **1.1 GNU/Linux is not a Commodity**

GNU/Linux is a product, but not a commodity. The essential characteristic of a commodity is to be exchanged for something, normally

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conviction that the development on the desktop goes in a similar direction.

<sup>14</sup>As an example the CVS system shall be mentioned which only with the wide-spread use in the development of GNU/Linux matured to the tool we know today.

<sup>15</sup>It can not be explored here that development of free software is an activity which in the countries of the III. world practically not happens - at least not as a mass phenomenon. However, it should be noted that the nonexistent price as well as the availability of source code offers chances to the countries of the III. world which are slowly used by them.

money. GNU/Linux is not exchanged<sup>16</sup> for anything, but is freely available<sup>17</sup> to all as a good.

The fact that GNU/Linux is not a commodity has special consequences.

### 1.1.1 GNU/Linux has Concrete Reasons

As was already said, commodities are primarily produced for sale. This means, in particular, that aspects such as quality, longevity, and maintainability are secondary, or even, when the market is monopolistic on the side of the producers, of no interest at all. The best and most well-known example of this is Microsoft<sup>18</sup>.

Since GNU/Linux is not primarily an object of exchange, thus its development is not driven by the (abstract) goal of profit, only concrete reasons can lead to such an activity. There are two fundamental reasons here<sup>19</sup>.

On the one hand, programming in a free and autonomous way is a kind of Selbstentfaltung, normal for hobbies. There is no doubt that personal achievement and above all pride in ones work is one of the fundamental reasons for the high quality of a large part of free software. At the same time, since production is free and autonomous, there is no alienation – which is always present in wage labor – involved neither in the activity nor the product. As a result the abstraction inherent in wage labor is also overcome.

On the other hand, at the root of the production of free software are real problems faced by real people<sup>20</sup>. Production is not for an anonymous market which only decides with hindsight, based on volume of sales, whether the production made sense or not. The abstraction which the production of commodities brings with it also overcome.

### 1.1.1 GNU/Linux cannot be Taken Over

A large part of GNU/Linux is protected by licenses which prevent the programs from becoming closed source. This simple fact is the basic reason why it is impossible to remove this mass of free software from the public

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<sup>16</sup>That firms like SuSE or RedHat sell GNU/Linux distributions for money is not contradiction to this concept. In this sector the absence of the exchange principle goes as far as it is possible and legal to base another distribution on one which is made for sale.

<sup>17</sup>Under the conditions of having the technical access this even applies to a complete distribution: Debian.

<sup>18</sup>It should be mentioned that for many GNU/Linux proponents an enemyship against Microsoft plays a role emotionally. However, with its products Microsoft makes it easy for its users to adopts such enemyship ;-).

<sup>19</sup>A discussion of the often mentioned economy of reputation must be omitted here. Basically I consider this theory as an desperate attempt to press the phenomenon of free software into categories comprehensible for a capitalist mind.

<sup>20</sup>Many free software projects started because a single person wanted to solve a concrete problem, did it for himself/herself and his/her solution proofed to be useful for others, too.

by privatizing it in order to integrate it in the world of commodities.

This is not affected by the ingenious commercial undertakings which try to profit from the production of free software. It is possible that a few firms like Cygnus manage to profit from free software through secondary effects<sup>21</sup>, but the old saying (here paraphrased) still stands:

Only when the last free filter for a graphic format has been written, the last desktop is conquered by KDE or Gnome, only when GNU/Linux runs on the last most exotic ancient hardware, only then will it be clear that no profit-oriented economy can be built on the basis of the GPL.

### **1.1.1 Some Words on Stock Exchange Hype**

After the Internet-related firms, it is currently the concept of Linux which is making the speculators hearts beat faster. Similar to the Internet hype unleashed by the dot coms this is no more than a speculative bubble which sooner or later will have to return to the solid ground of economic reality. If there is a residue of real-world economic sense in the dot com hype, there is no trace of any at all in the firms that want to live from the production of free software.

Naturally, the danger exists in principle that through such processes the non-commodity nature of parts of GNU/Linux can be damaged. But given that this nature is precisely what gives GNU/Linux its advantage, and that integration in market-led structures would destroy this advantage immediately<sup>22</sup>, I don't believe this to be a real danger<sup>23</sup>.

### **1.1.1 Conclusion**

GNU/Linux is not a commodity and cannot come to be one. This property of GNU/Linux has important consequences, which underlie its success.

## **1.1 Then what exactly is GNU/Linux?**

So far we have seen that GNU/Linux is neither a simple product of a hobby nor a commodity. So what is it? It is a product: that much is clear. But it is a very particular product, for which the methods of production are very different from those of previously known modes of production. It is exactly this property with which the principles of GNU/Linux can open a door to a new world for us.

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<sup>21</sup>Earning money with services around GNU/Linux such maintenance, courses the development of distributions for now is still possible.

<sup>22</sup>With "Die doppelte algorithmische Revolution des Kapitalismus" Stefan Meretz made important contributions about the incompatibility of the development model of GNU/Linux with capitalist structures.

<sup>23</sup>After all even the big distributors like RedHat or SuSe seem to know this who according to their press releases want to hold the principles of free software high even after going to stock exchange. And also big corporations like IBM try to act carefully in the sector of GNU/Linux.



Given the preceding negative characterization, now I shall set out what is positive in GNU/Linux.

### **1.1.1 Free Activity Instead of Labor for the Boss**

GNU/Linux is created on a voluntary basis, unlike any commodity. No one tells the GNU/Linux developers what to do, or pays them in any way<sup>24</sup> for their activity. Everything they do is done through their own initiative and for individually different reasons. No boss tells them what to do. Even when they accept that a project must be coordinated, this is done voluntarily and with understanding of its necessity.

Its voluntary nature marks a fundamental difference from wage labor, where volunteering is a welcome side effect on the side of the employer alone, but never the goal of the whole thing. This volunteering ends the alienation of the producers from their work which is common in wage labor. The producers take control of their own actions<sup>25</sup> in a way impossible in wage labor.

### **1.1.1 The Pleasure Principle Replaces Meaningless Drudgery**

Thus the creation of a useful product on this voluntary basis can only be explained by the developers' pleasure in producing GNU/Linux. Such pleasure can be spread across very different areas. Pleasure in programming<sup>26</sup> can be assumed to be a motivation for all developers, but also the pleasure of communicating with other developers, and of cooperating with them, the pleasure of being responsible for an important project, the delight in giving others a useful present – the individual reasons can be really diverse<sup>27</sup>.

However, this pleasure in doing things has no more place in wage labor than does free will<sup>28</sup>. By definition, the main characteristic of wage labor is that the employees do not ask questions about the content of their work

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24The often mentioned reputation can not be seen as wage since it can not be transformed into material means of living. Also the hope to find better paid jobs by the merits earned in the free software scene is for the very most no realistic goal. This should not be discussed here further.

25In the labor society this control over the own actions is moved to the so-called free time. However, this free time is limited by requirements of the job so one can talk of free time only in a limited sense.

26It is not by chance, that programming is an activity which can create much more pleasure than other activities which have been created in industrial production. This is another hint that the development of productive forces reached a point where the change of the societal overhead is possible and even seems to be on the agenda.

27Similar principals can be seen in science and art. The interesting parallelism can not be discussed here further.

28Indeed new management methods try to move just this free will and its productive potential into capitalist production processes. Because by definition wage labor is done for others there is an absolute structural limit here, which can not be overcome by the most sophisticated management methods.

nor about their working conditions<sup>29</sup>. As the wage is the decisive (abstract) motivation for their activity, it is simply not necessary to make the (concrete) content of the work or the working conditions comfortable. For wage labor, it is quite enough if the lack of involvement of the workers<sup>30</sup> does not make them seriously unproductive.

For the developers of free software this pleasure in their own activity is the motivation that makes them create useful things for others, while at the same time a source of personal satisfaction. In this type of activity, there further reward is not intrinsic, and therefore – and that is important – the principle of exchange has been overcome.

### **1.1.1 Self Organization Instead of Working by Command**

Though it may be obvious after everything that has been said, it should be emphasized again that the activity for GNU/Linux is organized by the developers themselves. To accomplish this, they are not only able but forced to find suitable ways of organizing<sup>31</sup> their collective activity. It has been proven this way that without any instructions from outside, and across political and cultural borders, people can work together, have fun together, and even create generally useful things.

### **1.1.1 Utility Instead of Market Share**

As GNU/Linux is not sold by its developers, there are no monetary reasons for developing GNU/Linux. If now we do not look at the producers but the product, only the use of the product<sup>32</sup> remains as the motive for its production. Only under these circumstances is it possible that quality in all its aspects becomes the central criterion<sup>33</sup>.

When a commodity is produced, it has to attain a level of quality just

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<sup>29</sup>That in the industrialized countries for many humane working conditions have been created at all is only thanks to long lasting social fights. A fact which is often forgotten nowadays.

<sup>30</sup>People need to subscribe to the impertinences of work live. To be ready for this at all, in our societies people are drilled from childhood on for functioning. It is reason for hope that in spite of this drill people are still able to become active in a self-determined way.

<sup>31</sup>This task is even more difficult because the developers can not refer to earlier standards and literally need to invent each little step. It is even more impressing that the organization works so good so quickly.

<sup>32</sup>Actually for the developer it does not matter whether her product is useful for others - her personal pleasure can be accomplished without others being able to derive utility from her activity. For the developer only the utility for her own purposes is relevant. On the other hand this does not hinder her to publish her development. This is probably the inner reason that some Free Software is of bad quality.

<sup>33</sup>The best and most well-known example for the high and multi-aspect quality standard is probably GCC. On the one hand for a long time GCC is known as a faithful compiler, on the other hand its wide availability on virtually every known platform and the resulting uniformity of its usage made it to the basis of the whole GNU movement. No compiler developed under market conditions accomplished this.

good enough not to prevent<sup>34</sup> itself from being sold – a relative quality, in other words. Seen from a marketing point of view, it would actually be counterproductive to build, for example, longevity into a product. So in producing for a market there is absolutely no reason to produce something like absolute quality.

However, the reasons that lead to GNU/Linux can really create just such an absolute quality, as the delight of creating something as good as possible is surely one of the most important motivations for many developers.

### **1.1.1 Cooperation Instead of Competition**

All these aspects mean that in GNU/Linux competition is only useful in very limited ways. While in the world of commodities, an inestimable number of more-or-less equal products have to be made distinguishable artificially<sup>35</sup>, it is not common for widespread competition to establish itself in the GNU/Linux scene. In many cases, similar, competing products gradually disappear<sup>36</sup> – and be it only because nobody cares about them anymore<sup>37</sup>.

This is not a coincidence, as the developers too do not compete against each other. On the contrary, it is more favorable for everyone involved if the developers work together and stimulate each other – and consequently realize the advantages of cooperation.

### **1.1.1 Users Instead of Consumers**

But even the attitude of the users is different from the consumer behavior, typical for commodities. Simply because the users are aware of not being fundamentally different from the developers, their demands too tend to differ<sup>38</sup>. As they know that the product was created on a voluntary basis, it is unlikely that they will have the same demanding attitude here,

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34A practical example for this is the 3-liter-car which for some time now is technical feasible and would make much sense regarding ecology. Because of the lower costs for running it the buyers would have a real advantage the chances on the market for such a car would be good. Nonetheless the car industry consequently and successfully refuses creating and marketing such a car and instead sells their gas guzzlers.

35Anyone of us knows the countless attempts by a special design artificially trying to make something special from otherwise completely uniform and interchangeable products such as washing powder or PCs. This is especially reflected in advertisement, which does not advertise the non-existing special qualities of a product but combines the product with a certain image.

36As one of many examples MHonArc shall be mentioned. This tool archives mail on HTML pages - a task which is common to many people. The MHonArc people themselves know only of one product worth mentioning (Hypermail), which (meanwhile again) is maintained.

37The permanent and lasting maintenance of some Free Software can be taken as a sign of quality - especially when the first developer retired meanwhile. Because only software which is worthwhile is taken over by other developers.

38It must be said, however, that this lesson still needs to be learned by some users.

as they would have towards a bought product. Instead, they might even try to help towards further development – be it only by reporting bugs they have noticed, or by requesting new features.

### **1.1.1 Summary**

The aspects mentioned above positively distinguish GNU/Linux from other products. In their sum, they form a completely different mode of production than the one we know from the world of commodities. As we have seen, this has far-reaching consequences for the producers, as well as the product, and in a limited sense also for the users.

It is also important that all these aspects are tightly interwoven and therefore cannot be separated. As a result it is not possible to reintegrate GNU/Linux into the world of commodities without destroying its success.

All this combined is already very exciting. The success of GNU/Linux, compared with products created the usual way, turns the principles of GNU/Linux into a serious alternative to the classic mode of production<sup>39</sup>. As a result, GNU/Linux is a milestone on the way to a new society – the GPL Society!

## **1 init 6: The GPL Society**

After these more analytic considerations, now a vision of the GPL Society<sup>40</sup>: It's about a society, which is based on the principles that make GNU/Linux successful, some of the most important have already been described above. The main point is that the GPL Society is one in which the needs of people move into the focal point, so that blind mechanisms<sup>41</sup> like the market no longer oppress the people instead of serving them. Instead of this, people will be free to arrange their relations to each other and to things consciously and by free decision.

After the description of this vision, which is intended to show the potential of the principles of GNU/Linux, some considerations about the transition to this society will follow.

### **1.1 Have a Lot of Fun...**

So, what would a world based upon the principles of GNU/Linux look

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<sup>39</sup>In "Software-Guerilla oder mehr? Die Linux-Story als Beispiel für eine gesellschaftliche Alternative" Stefan Meretz looks at the development of the productive forces by Marx' criteria. This shall not be discussed here.

<sup>40</sup>The GNU GPL (GNU General Public License) is the legal basis of most Free Software. The GPL codifies rights and duties which a possessor of a certain software has as far as this software is concerned. It was designed to make sure that software once declared as free stays free, so it is impossible to privatize it or in another way deprive the public from it. It acts basically as the Magna Carta of the GPL Society.

<sup>41</sup>Consciously it is left out whether this new form of society can do without blind mechanisms, or whether there will be just new such mechanisms serve the people. This interesting debate can not be done here.

like? Well, of course, we cannot point out the final result, yet – too much is uncertain and some points will have to be seen from a different angle as soon as new developments occur. However, the things described in the two following sections could form important parts of the GPL Society.

### 1.1.1 Supply of Goods

Like GNU/Linux already today, in a GPL Society, material goods in general would be available, whether stored<sup>42</sup> or produced when needed. Goods that can be produced quickly, easily, and without complications – for example exclusively by using machines – would probably not need to be stored<sup>43</sup> anymore. The produced goods would be accessible for free by everybody who needed them. If one of today's super markets were to be used as a distribution center, the first thing would be to remove the cash desks.

The available goods would, like GNU/Linux, be of high quality. This quality would apply to all aspects of a good. Not only would direct quality criteria, such as usability, flexibility or maintainability<sup>44</sup> play a role, but others such as ecological criteria like longevity and the consumption of resources during production and use could be appropriately considered.

Like GNU/Linux, the goods would be designed based immediately on the potential users<sup>45</sup> need. The producers would determine these needs by getting directly into contact<sup>46</sup> with the users, so the needs would not have to be mediated after the event by an anonymous instance like the market. That point would also concern the variety of available goods.

As with GNU/Linux today, the available goods would allow the user to handle them independently and responsibly. The strict separation of the producer on the one hand, who has control of production, and the consumer on the other hand, who can only passively consume prefabricated things, would be loosened this way. Furthermore, production

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42The general supply of goods includes that goods are distributed to all places they are needed. Ignoring ecological considerations for a moment there is nothing which prevents this.

43This reminds us of the just-in-time principle which since a number of years in industry replaces keeping parts on stock more and more. This principle became possible only because of the wide availability of computers (and communication facilities).

44The principle of modularization known from (not only) production of software could receive new honors here. Modularized goods allow for easy replacement of components and this way contribute a lot to maintainability as well as to the flexible use of goods.

45This is different to commodities which are produced to be sold. Commodities which do not meet demand which is able to pay are not produced at all. The needs of people who can pay little or nothing are ignored by commodities. On the other hand luxury commodities are produced which meet the needs of very few but very able to pay people. A need oriented production of goods would also lead to more democracy on the level of needs.

46This would make advertisement in the form known today unnecessary. The necessity to inform potential users about existing goods would be still there. Moreover a permanent discourse about options to improve and their chances to become reality would exist between producers and (interested) users.

machines would be available to a broad community<sup>47</sup>, because with their assistance, people could manufacture goods completely on their own.

### 1.1.1 Delight and Freedom

People would work autonomously and voluntarily, the same way as they work on GNU/Linux, today. Depending on their motivation and also on present necessities<sup>48</sup>, they would either do leisure or useful activities<sup>49</sup>. Often, both could be combined, so that the separation between spare time and work time would disappear.

The machines would have to be changed in a number of aspects<sup>50</sup>, since orientation to production of commodities has a strong effect on the construction of machines. Production machines would have to be built which can either operate without human assistance, or which can be used with pleasure.

Not being forced anymore to compete against each other<sup>51</sup>, people could take the freedom to cooperate as they please. Similarly as with GNU/Linux, parallel developments are possible, but co-operation between different people or groups of people would dominate. So, competition – and thus a permanent center of conflict – would no longer be built into the social system as it is today. Nevertheless, the quality of the produced goods would not suffer from it, since it would no longer be the need to market the product, impossible without competition, driving production, but personal wishes.

On the basis of cooperation for a common goal, people would – and not only in the area of production – be able to return to humane relationships, ones which are not determined by money. Recognition for special achievements will be experienced directly, and not only by larger sums of money. People who are not forced anymore to waste most of their time with meaningless work, but are free to participate autonomously in

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47For example it is thinkable that high quality and specialized tools up to machines are bundled in a work shop which is available to many people for instance of a residential area. The care for such a work shop and its laymen users could be overtaken by people who gathered the matching competence and who have fun in such supporting activities.

48Humans in all periods made sure that their survival is safe without being forced externally and this way they took the existing necessities into account. Because of this it can be expected that they don't drop this manner under conditions of freedom. In the contrary real freedom raises a feeling for freely chosen responsibility which can not be payed with money. As an illustration may serve the responsibility of parents for their children.

49The existence of hobbies and not at least GNU/Linux proves that humans engage in useful activities on a basis of free will.

50The computer as one of the most universal machines mankind developed so far is more flexible than a normal production machine which can produce only one thing. Instead a computer can be used as a toy. Also in this case the computer as one of the most developed machines points beyond capitalism.

51To be forced to compete has a lot of disadvantages. For example different to GNU/Linux Microsoft products show how the furtherance of development for the users is slowed down by secrets.

meaningful activity have much less need to abandon themselves to any vicarious satisfaction.

### **1.1 Tickets into the GPL World**

The realization of this – maybe quite daring – vision depends, of course, whether the principles of GNU/Linux can be generalized. If the principles of GNU/Linux are actually suitable as the basis for a new form of society beyond money and the market, then these should automatically establish themselves because of their superiority, at least up to a certain degree. Thus it has to be observed whether the principles of GNU/Linux do gain similar significance within other areas than software development. For this it makes sense to differentiate between information goods and material goods.

#### **1.1.1 Let's rock!**

An interesting phenomenon shows up these days in the music industry. Here, several factors interact. First, a basic invention<sup>52</sup> was made, i.e. effective and highly qualitative<sup>53</sup> compression algorithms for audio data, of which the best known is MP3.

Obviously equally important was that the algorithm was widely available<sup>54</sup>. At least the decompression algorithm is freely available, so decoders for all relevant operating systems had been written within a short time. Concerning the compression, at least its fundamental principles are freely available, so that meanwhile there are also free encoder implementations<sup>55</sup>, which meanwhile achieve comparably high quality standards.

And there is, of course, the Internet, which makes possible the global, easy and inexpensive distribution of music in the MP3 format. There are already whole Web sites, which are dedicated exclusively to the spreading of MP3 encoded music.

These three interlinking developments release dynamics which are similar to those of GNU/Linux. A new way of distributing music is arising

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<sup>52</sup>Obviously this basic invention has been the necessary precondition to start the following development. It was possible before to process audio data digitally and to reduce the immense amount of data there have been compression algorithms before the invention of MP3 (for example uLaw and aLaw). However, these older algorithms were not able to combine high compression rates with high quality.

<sup>53</sup>In issue 3/2000 the famous German computer magazine *c't*. *c't* published a test where even trained HiFi ears in their big majority were not able to recognize differences to the CD.

<sup>54</sup>It is interesting that for years the company RealAudio tries to distribute compression technology for audio and other media. Although with their technology they achieved similar results as MP3 and although they distributed the player programs without a price, the commercial RealAudio format was not able to start a dynamic comparable to MP3.

<sup>55</sup>*c't* mentioned mainly the LAME encoder.

which can be considered a serious competition<sup>56</sup> to conventional – and thus market-like – ones. So the music industry as the main beneficiary of the past marketing system immediately gets into a panic and tries everything to stop this development<sup>57</sup>, or, if that is not possible, at least to control it. However, having the development of GNU/Linux in mind, it can be expected that these regulation efforts will not be successful.

It is also exciting to see, how differently musicians as other important beneficiaries of the past marketing system look at this development. While some adopt the view of the music industry and demonize the development, others begin to use this new form for their aims. Among them are stars such as David Bowie or Die Toten Hosen (a German punk band) but mainly countless unknown musicians, which see this as a simple way of bringing their pieces of art<sup>58</sup> – also free of charge – to the major public. Here one can see clear parallels to GNU/Linux<sup>59</sup>, too.

Well, the last battle in this argument has not begun yet, and the starting situation is of course a different one in the music world than it has been in the software world. But there are quite interesting parallels and if a free MP3 continues to push forward, then this is a further step into the direction already so successfully demonstrated by GNU/Linux and thus a further building block for the GPL Society.

### 1.1.1 Internet Contra Profits

Many interested parties claim – and persistently believe – that the Internet has released a new breakthrough in profits<sup>60</sup>. It is generally assumed that the Internet will not only create (net) new jobs, but also that outstanding business will be made possible. The faithful are not even concerned by facts such as the permanent financial losses of the majority of Internet companies.

However, the reality does not prove this faith – at least for now. Apart

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56Another important competition for the music industry arises from the rising availability of CD burners because with them it is possible to copy today's main distribution medium for music without loss of quality.

57With DAT (Digital Audio Tape) music industry succeeded in this. DAT, which has been planned as the digital replacement of the CompactCassette, also had made possible a quality keeping copy of CDs. The music industry were able to block this technology so effectively, that today in the HiFi scene DAT plays virtually no role and at most in the area of computers is used sometimes as a backup medium.

58The artistic aspect of music accounts for an interesting parallelism to the development of software. In both cases from the beginning the artist engages in productive activity for himself or herself and for the sake of art and therefore needs no further incentive for this activity. In both cases the marketing comes from outside. Something which in the area of art is always seen as problematic.

59Looking at the standard soup presented by the music industry more often than not an improvement in quality will for sure be one of the more promising parallelisms of such a development.

60Business processes between companies, made possible by the Internet, are not discussed here.



from a few exceptions<sup>61</sup> there are no examples which prove that the Internet has created independent commercial offerings<sup>62</sup>. The well-known book stores, as e.g. amazon.com or bol.de, operate on the Internet only in addition to their traditional business fields<sup>63</sup>. So no business is known yet, for which the Internet is the indispensable basis<sup>64</sup>.

The reason why the Internet, which made possible the non-commercial GNU/Linux, rejects commercial efforts so much is neither the inability of the participants nor a lack of infrastructure. Rather there is a fundamental reason, which makes it so hard to integrate the Internet into the process of trading, that such efforts are practically impossible.

You see, the Internet is globalization in its purest form<sup>65</sup>. In the Internet, all world-wide providers of a commodity are literally only one mouse-click away from each other. This extreme globalization has crucial consequences.

On the one hand, by this globalization the competition between different providers is intensified so much that very soon only a zero price<sup>66</sup> is competitive. With a price of zero however no business can be built, except by an indirect financing by advertisement or by mixing financings.

On the other hand, the world-wide availability and practically unlimited capacity<sup>67</sup> of the Internet enables a company to be available to potential costumers, in a way which is inconceivable in the conventional market. This leads to the situation that very few companies<sup>68</sup> are

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61As an exception search engines may serve, which achieve income for their offer by advertisement from third parties. However, for the customers this is not a classical exchange of commodity for money but the commodity information is exchanged for bearing the hassel of the advertising. There is not one search engine which accounts for a search.

62However, there is the area of pornography in the Internet where presumably really money is made. However, also this area is not a new one but forms known from real existing red light districts are multiplied in the Internet.

63Also the number of people employed especially for Internet purposes is probably low.

64This also puts the worries - of hopes for some - of a fundamental commercialization of the Internet into relation. Moreover: Even if there were far more commercial sites online there would be no reason to shut down the many non-commercial sites. Thus there would be a non-commercial part of the Internet always. This is a result that contrary to broadcasting frequencies for television and radio the resources for a Internet presentation are not scarce. For the only really scarce good in the Internet - the domain names - consequently there are attempts to commercialize these more.

65This extreme realization of globalization, which after all is a principle built into the capitalist mode of production, seems to be no longer able to modernize capitalism immanently and thus points beyond capitalism.

66An impressing example is the Internet issue of *Britannica*. Since this standard dictionary is available in the Internet at least in the English speaking area it simply makes no sense to offer something similar but with a price.

67By an at least half-way qualitative software a web site can be distributed to arbitrary many computers so upcoming shortages can be resolved quick, cheap and simple.

68GNU/Linux itself is a good example for how the global need of distributions can be satisfied with very little wage labor. The company SuSE as one of the two biggest distributors employs no more than 250 people.

necessary in order to satisfy the world-wide demand<sup>69</sup> with the products they offer.

Under these conditions, independent commercial products in the Internet are permanently only possible for providers of a world-wide unique product. So, the Internet itself may be one of the most important bases for the GPL Society.

### **1.1.1 Status of Industrial Production**

Unemployment, which has to be understood as a profound crisis in our current form of society, is in large part caused by the level of automatization of industrial production already achieved<sup>70</sup>. So, already today, we can see that fewer and fewer people are needed for the production of useful things.

Besides that, the activities of the people still employed in industry are moving away from stupid and monotonous work towards not only monitoring and controlling, but also administering, planning and scientific activities<sup>71</sup>. Especially in the software area, the activities<sup>72</sup> already extend into the artistic area.

Industrial production has thus already achieved a level of development, which lets production almost without human intervention appear possible<sup>73</sup>. At the same time, the character of the remaining activities changes to those which can be executed with pleasure. The conditions for a transition to the GPL Society have thus already been maturing for some time.

### **1.1.1 GPL Products**

An important step on the way into the GPL Society would be the

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69Suppliers hit limitations not before they leave the Internet and for example they need to deliver commodities. For this they need an infrastructure which exists independent of the Internet and can be limited.

70For example in a car which leaves a factory today includes far less working hours than at the times of Henry Ford - not looking at the fact that a modern car has a much bigger use value than a Model T.

71It gets more and more difficult to organize these activities by the traditional methods of command. There is a reason why during the last years among managers concepts of leadership are hyped, which more and more put the traditional hierarchical relationships aside and focus more on motivation and usage of creative resources of employees. However, because of the non-abolished alienation of wage labor there are principia limits to these attempts.

72Already today successful organization of software production has little to do with organizational methods known from traditional industry. Where successful software production takes place there is real team work and orientation to consensus instead of commands. This aspect also visibly points beyond the framework of capitalism and in the end found a matching expression in GNU/Linux.

73As an additional aspect there is that the range of products and services is inflated by the force to market and compete. In a GPL Society products and services which are exclusively used for marketing could be dropped completely.-

transfer of the GPL to other products than software. While this transfer already happens for all kinds of information products<sup>74</sup> and by nature is also relatively easy, such a step for material products is still to be achieved<sup>75</sup>.

The transfer to material products is much more difficult, because they cannot be copied as easily as information<sup>76</sup>. More exactly said, the production of a material good is not copying an already existing product, but a material good is manufactured with specialized tools by using special algorithms. Thus, the process of the production of material goods differs substantially from the process of abstract copying as with a cp instruction, which duplicates a file of any content<sup>77</sup>.

So if the copyability of digital information has made GNU/Linux even possible, then a transfer of the principles of GNU/Linux to material products would require their ease of being copied or produced. While the “multi-duplicator” can be found in various Science Fiction utopias, today, technical development is still far from implementing the operational principles of such a machine.

However, a step in this direction could be the building of universal machines which can manufacture almost any piece under computer control. First developments within this area actually already are in operation. So, there are already machines, which produce a three-dimensional piece by using a laser and special materials fully automatically; these pieces can then be further build on. Such a machine is thus something like a universal materializer<sup>78</sup> of parts. With such a machine, the characteristics of information crucial for the GPL Society can be transferred to material goods<sup>79</sup>, so that such machines could be the base

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74For example for documents there is the Open Content License or since recently the Free Documentation License by GNU.

75However, there are early attempts in for of the Freedom CPU (F-CPU).

76One must not forget, that the simplicity of copying of information is an achievement of modern times. Never before in the history of mankind it was so simple to copy information in nearly arbitrary quantities as is possible with digitized information and computers. Just remind the writers in the monasteries which copied books by hand writing.

77Also the Internet fundamentally depends on the simplicity of digital copy: For instance a web browser needs to have a local copy of the presented page - and be it only in main memory. The crucial feature of the Internet thus is the possibility to copy remote material.

78Naturally more specialized but widely programmable machines are a step in this direction. For example today there are already machines for the processing of metal which once programmed can take over the work of many humans without needing much control. They are programmable in a wide range so a wide range of parts can be produced with them.

79Naturally some problems of material production would stay such as the supply with raw materials. However, this problem also applies to copying information and there today normally disappeared. For the area of information copies the supply of media on which the copies exist is already only an appendage of the main process. This fact is probably fostered by the uniformity of the media and thus the possibility to mass produce them. On a medium time range such effects can be expected for the universal machines

of production in a GPL Society.

### **1.1.1 Information Society Adjusted to its Concept**

For years the term information society has haunted the media, with the variant name of post-industrial society. Unfortunately, especially with the latter term, it remains strangely open what exactly the crucial characteristic of this society should be. The GPL Society and its principles could now fill this term with content.

In the preindustrial agrarian societies subsistence production of goods for immediate living needs was the crucial constant. In industrial society, this agrarian-social constant was replaced by more general material production of commodities, and the production of goods for immediate needs became increasingly just an appendage of industrial production<sup>80</sup>. The entire society was so crucially shaped by this change in the mode of production that we must speak of it as a change in historical epoch.

In the GPL, or information, Society, the production of goods becomes in turn the bare appendage<sup>81</sup> of the production of information. Society would thus be determined by the principles of the production of information – whose first example is GNU/Linux. Such a change would indeed be a new change of epoch of truly historical dimensions.

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mentioned here.

<sup>80</sup>Among other things this is expressed in the share of people who work in the agricultural production for wages. Today in the highly industrialized Germany this share is about 5%.

<sup>81</sup>In the development of industrial societies for some decades now there is already a tendency away from material production. The so called service society is an expression of this. However, the societal form was not able to separate itself from the industrial society.

## **C Front Cover**

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by Stefan Merten

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