

Linux Certifications: a comparison

1. What is this talk about?

- different types of certification
- differences between two opposite parties: employers and employees. *Ask who is employee and who attends out of interest as employer. Laughingly send home employees who already have a job.*
- Very short: comparison between Linux and non-Linux certs (MS, UNIX, Cisco)

2. Why is Linux certification all of a sudden important?

- Break the myth of Linux offering no support.
- Ease and fasten adoption of Open Source in business world: match companies that are using or that want to use Linux with people who are up to the task of managing a Linux environment.

-> Chicken and egg problem: Linux offers no support, hence companies do not like it, hence no interest in supporting Linux, but the tipping point is near.

- Need for (standard) objectives for training centers, course developers and publishers. A (standard) certification encourages development of course materials.
- Companies need help when hiring Linux people. To put it blunt, we need to point out for them with words to do a search on in CV.
- Linux market share keeps on growing, e.g. IDC sees a continuous growth -> more Linux professionals that one needs to be able to judge. A test that can compare skills would be ideal, and whoever scores higher, will get the job easier.
- Revaluation of IT professionals: after the boom of the nineties, we now get the lash-back of the phenomenon where everybody went into IT without really knowing what they were doing. Now, IT environments are running slow and are badly managed, because most IT professionals are not up to the job. As a result, they are always busy and as a result of their busy schedule, they do not want to change, update or migrate to better solutions.

Problem with traditional certs that we don't want for a Linux cert:

- Certs are made to sell software
- Accompanied by official course material that examinees more or less are forced to buy, no free docs, not freely distributable, not easy to find.
- Expire in order to sell upgrades
- knowledge of tools is tested instead of knowledge of techniques
- no input from examinees.

Think about this when purchasing a Linux certificate.

3. Value of certification for employers

Ask who attempts in their function of employer. Ask who has already thought about asking for a cert when hiring new people, tell that you will try to shed some light and give them some things to think about.

Some reports, trivially from Microsoft but also from members of more or less independent analyzing businesses, like for instance IDC, point out that Linux employees on the average cost 30% more than “normal” employees. Hence they jump to the conclusion that the total cost of ownership of Linux is more expensive, even though Linux is cheaper in almost every other respect. However, these reports fail to mention (on purpose?) that Linux professionals have a much wider knowledge, while e.g. Microsoft “professionals” tend to be niche specialists – and that you need only 1/3 of the people normally required to maintain a Microsoft environment, when you have a Linux environment.

Employers tend to forget that finding adequate personnel, not so much as costs, is the real problem. Somebody who knows his/her job, somebody who can start on the job right away, rather than going through a learning period, is to be preferred by far above someone who has to learn on-the-job. Without wanting to be an evil gossip aunt, whom would you prefer: the freshman (or worse, the graduate-to-be who quit college) who installed Linux at home and who has learned everything on his/her own, or the veteran who has enough practical experience to get a certificate?

The problem with certificates, of course, is that there is no consensus. Which certificate proves that a candidate has a professional Linux experience? Remember not to always believe in the hype. For instance, I was asked once to talk about SAIR in this speech. I ignored that request, and I will explain why I did so. SAIR was started at the end of the nineties, in 1998 if I'm not mistaking, but it was always a “for-profit” company. First, Wave Technologies acquired the company, which was in turn taken over by Thomson Learning. Thomson finished SAIR for ever by closing down Wave Technologies and firing all employees, staff included. The Linux Professional Group (LPG) then half-heartedly tried to take over, with lots of promises of innovation and dynamism. More for show than anything, as they ran their site on Microsoft Windows servers.

So in short: SAIR is completely outdated, LPG left the original people, who were rather good in what they did, without a nail to scratch their butt, and SAIR has thus no credibility whatsoever.

For more or less the same reasons, I am not going to talk about Comptia's Linux+ certification: it is ridiculously easy to pass the exam and it is completely static. The questions in an exam have to be rotated regularly, least they be made available on the net by braindumpers. And once you can learn an exam by heart, its only added value is to test how good your memory really is. It says nothing about your skillset and is totally without value.

How about a RedHat certified professional, then? Somebody with such a sheet of paper must be good, because the training is rigorous and the exam severe. RedHat is a well-known name and the tests are respected.

While RedHat does its very best to adhere to standards (be it only on the level of organization and development of their system and not so much in the field of “which tool do you need to configure this or that?”), the popularity of the training and the certificate is mainly the result of massive investments of their marketing machine. And to no surprise, as training and certification are RedHat's primary sources of income. RedHat's biggest concurrent has only a fraction of that marketing budget and those resources, and that will be determining the certification landscape for years to come. But that does not mean that RedHat is the only solution.

Ever more students opt to take the LPI exam (Linux Professional Institute), which is, according to some sources at least (Certification Magazine), the fastest-growing on the Linux certification market. The reason? LPI exams are way much cheaper, available all over the world and most importantly: LPI exams are more difficult and are thus a better test for the candidate's experience. LPI not only uses multiple choice questions, but raises the level of difficulty by inserting 25-30% fill-in-the-blank items: open questions to which the candidate has to supply the answer, instead of choosing the answer from a traditional list. This makes it nearly impossible to pass the exam without at least one year of hands-on experience.

Moreover, LPI values community input and candidates can provide new questions or new objectives through regular update requests, the so-called objectives-reviews. And probably the most important advantage: LPI is vendor-independent. This fact combined with the community input results in a much larger item pool and more variation in the questions, which has in turn a positive effect on the level of difficulty of the exams.

The disadvantage lies in the fact that there is no practical test, as is the case for RedHat and SuSE/Novell exams. Some people think that an exam should ideally be a combination of theoretical and practical tests. The bad news is that for such practical tests, the time is limited, so they have to be focused on a subset of skills. They also cost more, as extra infrastructure is needed. The extra costs will of course be charged to the candidates. For LPI, a practical test is against the philosophy of the company for the additional reason that it would pinpoint the exam onto a specific distribution, as it is near-impossible, both practically and economically, to build a practical test for different platforms and also provide that set of platforms in all exam centers on the entire world. It is very important for LPI to be accessible all over the world, because one of the goals of the organization is to have a certification for everybody, and not just for the rich who can afford the travel to one of the few test centers that have the full Monty setup.

So while the goal is noble, we should get rid of the whole idea of performance based testing and move towards performance based learning: learn students to use their experience, rather than their memory.

And should the person who applies for the job have a Novell certificate, is that something useful?

Once again, the tests for this certification are very specific to the distribution and even to the version of the distribution, SuSE. And I have the feeling that Novell, at least in Belgium, has difficulties organizing exams.

So far this Pandora's box.

Even though we have to deal with all these little details, a Linux certification remains a good investment if you don't know yet what additional bonus you can offer your employees. The whole Linux system is focused on evolution, contrary to for instance Microsoft, which is based on revolution. Linux competence hardly becomes outdated: you can build on it and what you learned in the past will still be valuable in ten years time from now. Knowledge acquired is not invalidated because of new things that you have to learn now in order to survive in today's IT world. Exams become exponentially more difficult and standards are raised, guaranteeing that fiascos like the one with the MCSE certification can not occur in our world.

4. Pro and cons for employees

The most important reason for certification remains of course that you will acquire an extra asset when compared to that other applicant. Especially when you just finished school or university, a certificate is a nice addition to your education. But let's be honest, among you, the working crowd, who really needs a certificate? Linux people know what they know and they don't need to prove anything to anybody, isn't that so? Who here has ever needed to provide prove of what he or she knows? (ask the audience to raise their hands) Right, nobody needs a certification. Once you have a job and experience, the rest follows.

Another reason, which is becoming more fashionable as we speak, is that your employer asks you to get the certificate. That is also one that is easy to understand. But if we want to find more reasons, things get harder. Maybe you could say that you want to get a certificate in order to prove your knowledge, or maybe you want to know for yourself where you stand, or you decide with a couple of friends to do a contest and see who gets the highest score. If you have to pay for a certification out of your own pocket, LPI and Brainbench are the most popular. You can get the certificate virtually on-the-fly and you know immediately whether you passed or failed.

You might also get a certificate because you are confident as to what the future will bring, or because you want to protect your career. If we believe the predictions of economic analysts, which I like to do, Linux is going to expand dramatically during the decade to come. We are already past the file and print server phase, and well into the database or Java development platform stage, as more and more companies admit to. You can probably name some cases of adoption right off the top of your head. Even the newspapers are telling everybody who wants to hear that Linux might well make it to the desktop market. It is obvious that we have reached a tipping-point: there will be more Linux systems, more Linux professionals or people claiming to be so, and more incentive to divide them into "the good" and "the bad". If you are smart, you will make sure that when that time comes, you fall into the right category and make sure that you can show some paper.

I'd have to think really hard to come up with more reasons to certify... When it comes from your own pocket, it is still an investment, however small it may

be. After the boom of the nineties, wages in IT are back to normal or at least seriously reduced. You'll probably want to study a bit, too, and that takes time. Time off from work, be it with the approval of your boss, or you'd have to sacrifice your own free time. And all that to prove something that you know for yourself you're capable of...

And then there is the risk that you **don't** pass, and maybe you will have to explain that mishap to your boss, who meant so well with you.

One of the less evident disadvantages of certification is that you force an upper limit onto your own competences. Imagine: Another applicant has a master level certificate, while you only have an entry level certificate because you never felt like going further. Who will be chosen for the job? The candidate who is more experienced, or the candidate who has more certificates? So once you start on a given certification path, you need to go through to the highest level that you can reach, or you run the risk to ruin your chances on the job market. Isn't that tragic?

5. Overview

Given the risks connected to certification, we'll now compare the ones that are currently most important. We already talked about some of the features.

In order to keep it simple, we will only discuss the entry level exam of the three most popular certificates of the moment: RedHat Certified Engineer (RHCE), Novell Certified Linux Professional (CLP) and the Linux Professional Institute Level 1 Certification (LPIC-1).

Feature	RHCE	CLP	LPIC-1
Expiration	Never	Never	10 years
# certified	10.000	Unknown	100.000
Availability	Selected RH test centers	Pearson Vue and Prometric test centers all over the world	Pearson Vue and Prometric test centers all over the world
Performance based	Yes, + theoretical exam	Yes	No
Distribution	RH	SuSE	independent
Psychometrics	Unknown	Unknown	yes
Cost	+/- 200\$ + course	+/- 200\$	+/- 100\$ + exam labs at Linux events
Course materials	RH-centric	SuSE-centric	Approved 3 rd -party docs
NOCA certified	No	No	yes

Notes:

- Availability: LPI test labs at reduced price, for instance at FOSDEM: 50 Euro, at LinuxWorld Utrecht: 35 Euro. Both Novell and LPI are easily accessible all over the world, which is very important for the local acceptance of an exam. Going for a RHCE in Africa, for instance, might prove difficult.
- Course materials: For RH and Novell there is really a conflict of interest. RedHat will also try very hard to sell its own courses, at \$700+.
- What are psychometrics? According to the dictionary: "Mathematical analysis of psychological processes". Explanation: psychometrics is the science that measures human variables: not only knowledge, also practical experience; this science is also devoted to the development of tests by means of statistics.

A psychometrician has a university degree in psychology and usually additional degrees in the measurement of the human mind, in industrial psychology or in quantitative psychology. He or she is trained in the development of questions that test human features, including those features that indicate mastery of a given field of competence.

A trained psychometrician is the difference between a bunch of questions and a tool that accurately measures and documents knowledge and experience. For the development of their tests, psychometricians use scientific methods to assure that the exam complies with the four rules of a good test:

- the questions are fair: no trick questions, only objective answers are possible, braindumpers and others who don't play the game in a fair way stand no chance.
- The questions are accurate: they are updated regularly, especially in the volatile world of IT
- the questions are clear and the wording specific, they can not be misinterpreted and all candidates can understand them without difficulties.
- The questions allow the test body to perform precise measurements of the competence of the examinees.

The psychometrician also uses scientific methods to determine the following:

- Scoring procedures: when do you get point for a good answer, and how many?
- Passing score levels: how much do you have to score in order to pass the test? Subject matter experts assist the psychometrician to determine this.
- Different versions of a test are equal: by means of statistical calculations the exam is compiled. New questions are piloted first: the answers to those questions are not scored until the validity of the question has been proved statistically, during this test phase the statistical information about the quality of the item is gathered.
- Planning of the rotation scheme, which is important for the security of an exam (again a measure against braindumpers).

While the other certifications might also use psychometrics (they did not answer my questions), given the lower numbers of certified examinees, it is unsure whether the use of psychometrics is useful.

- Cost of RedHat: RedHat tries to sell as many trainings as possible. While

you can just take the exam, this fact is obscured by their advise to attend at least three courses, total value \$2200.

- NOCA: National Organization for Competence Assurance: defines standard for certification bodies; not only for IT, which is in fact a minority, even though there is a wide range of IT certifications available and people tend to think about that type of certification in the first place, when asked about it.

6. Conclusion

There sure is a lot of fish in the sea. If you are smart, you look ahead and don't restrict yourself for the future. Chose a certification that will also be valid next year. If anything, chose a certification that tests your knowledge of the back-ends, as opposed to one that tests your capability of handling a mouse.

I hope I gave you some things to think about.

6. More information:

The certification roadmaps and schemes are available at the sites of the vendors:

- <http://www.redhat.com>
- <http://www.novell.com>
- <http://www.lpi.org>

They all have FAQs about their certifications, the objectives are laid out and there are links to free and non-free course materials and trainings.

For those who are interested, I have those FAQs with me, along with some other documentation.

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