

**Server Upgrades  
And  
Ongoing Maintenance**

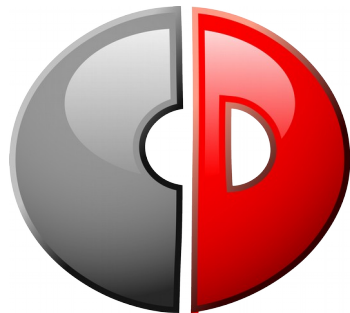
**Prepared for**

**The Linux Foundation  
for  
The Xen Project**

**By**

**Oscar M.**

**Herrera**



**creativ**

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### 1. EXECUTIVE SUMMARY

The project is broken down into multiple phases;

Phase 1 will meet an immediate need of identifying an online backup that will provide for the continuous integration of servers, this phase will also consist of an onsite review of all currently running hardware for the existing CI Servers. This review will provide a gap analysis of the existing environment and suggest recommendations of changes to the existing environment. The second phase will be the implementation phase. This phase will be conducted remotely, and will consist primarily of implementing the client agent and backup strategy as outlined in Phase 1. In addition to implementing the backup solution, this phase will consist of a review of all existing software and operating environments for the existing CI servers. At the completion of this phase the Xen project will have functioning backups for its CI Servers as well as recommendations for changes and implementation timelines for those changes. Finally phase 2 also includes a remote handover of all systems to the remote operations team.

In phase 3 creativ will aid the Xen project in operating their CI Servers by taking over operation tasks as deemed needed by the Xen project. Also included in phase 3 is operations support for the whole environment of the Xen project.



### 2. CONSULTANT CREDENTIALS

credativ group is a global consulting services and support company founded in 1999 that operates from seven centers in the US, UK, Germany, Canada, India and the Netherlands. With a team of over 65 experts in free software, Credativ offers a vast knowledge base that can be tapped into at any time by our clients.

credativ focuses on the support and implementation of Open Source software and quality assurance. Our comprehensive range of services includes strategic consulting, sound technical advice, qualified training and personalized support up to 24 hours per day for all your IT needs.

The company is recognized for its specialized development and experienced deployment of free software, as well as its certification in the Windows arena. The credativ team is involved in many free, open source software projects, including the Debian operating system, PostgreSQL and the KDE desktop.

Our customers benefit from our sound know-how and wide ranging experience in consultancy and implementation capability. We have in-depth knowledge and technical expertise that enables us to provide customers with a high quality consultancy service and seamless implementation of their projects. Our customers range from SMEs to large enterprises and organizations in the public sector.

credativ provides service and support for Open Source software as used by the customer.

This support includes the following Linux distributions and Open Source projects:

(Extract)

Debian Ubuntu RedHat Fedora SuSe OpenSuSe CentOS Gnome KDE OpenOffice LibreOffice Firefox Thunderbird MySQL PostgreSQL Open Security Filter Postfix Exim Sendmail Cyrus Dovecot ClamAV SpamAssassin Sympa Mailman OTRS Redmine RT KVM XEN Qemu Virtualbox OpenVZ Proxmox Nagios NagVIS Icinga Hobbit Xymon Keepalived Ipv6 HAProxy Heartbeat Pacemaker Corosync Amanda Bacula Apache Squid Tomcat Drupal Django Samba Bind NFS4 OpenSSH GnuPG OpenSSH OpenVPN Iptables Subversion Git Puppet Cfengine Watchdog OpenLDAP DRBD Rsyslog Cups FreeRadius Kerberos Asterisk vTiger OpenERP FAI Lustre

Further open source projects can be included by prior arrangement at no additional cost.

credativ provides support to the system administrators of the customer. All levels of support are available, see below for details, although in general it is expected the system administrators of the customer provide level 1 support internally.

## Review and Upgrade and Ongoing Maintenance



creativ service and support services offer the following advantages:

- Support for Linux distributions and Open Source applications
- Support for ALL servers and desktops in a company
- INDEPENDANT of number of users, CPU's, systems, ...
- Direct support by the relevant specialist
- No call centre
- Support from experienced Open Source developers
- Telephone and email support, remote support, on site support
- Unused support hours can be exchanged for other services
- Administration
- Installation
- Training
- Consulting

### 3. PROJECT DETAILS

#### 3.1 The osstest CI system

This system runs in the EarthLink datacentre in Marlborough, MA. It currently consists of one cabinet containing

- internal and external switches
- two identical main servers hosting a number of VMS
- 24 x86 test boxes in pairs of identical machines
- one custom 4U ARM rackmount box
- two serial concentrators connected to the main servers.

It runs the following software

- Debian (currently wheezy) and Xen (Debian wheezy's)
- osstest (our own test control software)
- PostgreSQL, Apache, ISC DHCPD, BIND (all Debian's)
- Some use of ansible, although most setup is not automated

Tasks for this system would include:

- Reviewing software and hardware arrangements;
- proposing and implementing plans to remedy suboptimal
- arrangements left by our previous contractors
- Making appropriate arrangements for backups (!)
- Routine software and hardware maintenance
- Helping specify and procure, and setting up and
- installing about another cabinet's worth of hardware
- to be purchased with our 2015 hardware budget of ~\$80K
- Liaising with our hardware supplier with respect to outstanding hardware faults

The following will outline the work that will be performed for phases 1 and 2 of this project for the osstest CI system.

Phase 1 - Design and Analysis Hardware and Backup implementation

- Identify and Select online backup provider
- Onsite (Duration 3 Days)
  - o Review of all current hardware running on existing CI Servers
    - Provide current status of existing state of servers
    - Identify changes and upgrade to existing hardware platforms that will improve environment
      - Identify change windows
      - Create change plans for each change window
        - o Create back out plans for each change
      - Develop change/upgrade timelines

## Review and Upgrade and Ongoing Maintenance



- Implement Backup agent software
- Acquire approval of all changes and timelines
- o Perform online successful backup of all servers

### Phase 2 - Analysis of Software and Operating Environment

- Remote (Duration 5 Days)
  - o Remote review of operating system, system software, and application software currently operating on all CI servers.
    - Identify current state of existing operating environment and software.
    - Identify upgrades and configuration changes to existing operating system, operating software, and application software to improve existing environment.
      - Identify change windows
      - Create dependency map for software changes
      - Develop change/upgrade timelines
    - Acquire approval of all changes and timelines

### 3.2 Online Services

The Xen Project has a number of online services which support the Xen community. These are all running on public cloud systems, currently Rackspace. They include:

- List server (mailman)
- Wiki (mediawiki)
- Blog (wordpress)
- "xenbits" (git hosting, shell accounts, etc.)

These are mostly running Debian, mostly wheezy. Tasks include:

- Routine software maintenance
- Updating to new versions of Debian
- Some user account management etc.
- Rationalising and/or automatic administration

### 3.3 Handover

The Xen project will hand over the systems to the remote operations team and make sure that existing documentation is transferred as needed.

### 4. IMPLEMENTATION AND ONGOING MAINTENANCE

#### 4.1 Scope

Phases 1 and 2 lay the groundwork for an implementation and operations phase and will be contracted as part of an on-going service and support contract to cover ongoing maintenance and other needs. Please refer to section 6 for terms and conditions about service and support contracts.

Ticket dispatching and ongoing remote work will be handled out of creativ's German office while on-site work will be handled by US specialists.

The Implementation will be Scoped and Proposed at the completion of phase 2 and, upon agreement, executed as a one-time maintenance job.

- Hardware (Onsite) Duration to be determined
  - o Multiple onsite visits and implementation of hardware changes based on change windows
    - Develop, get approval and communicate maintenance outage
    - Identify change for this window
    - Identify back out plan for this window
    - Implement changes for this window
    - Test change
  - o Client signoff that all systems are functioning as expected
- Software (Offsite) Duration to be determined
  - o Implement software changes based on change windows
    - Develop, get approval and communicate maintenance outage
    - Identify change for this window
    - Identify back out plan for this window
    - Implement changes for this window
    - Test change
    - Once all tests pass initiate backups
  - o Client signoff that all systems are functioning as expected

#### 4.2 Service and Support Contract

This quotation includes a standard service and support contract. Both parties agree that the exact number of hours needed can only be determined while operating the servers. Therefore, contrary to section 6, all hours not used in the first year will be carried over into year number two. For year two the number of included hours will be adjusted accordingly. At any point in time it is possible to increase the number of hours if needed.

The base of the calculation is a standard service and support contract with a reaction time of one business day. The contract is prepaid for a year, thus all hours included

## Review and Upgrade and Ongoing Maintenance



are available whenever they needed throughout the whole year. The discount for this is 6%.

The hourly rate is a blended rate between on-site and remote work to make handling easier for both sides. Therefore 6.2.8.2 and 6.2.8.3 only apply if both parties agree to send a specialist from a different credativ office to the Marlborough datacenter, or if the datacenter is moved elsewhere.

### 4.3 One-time work

Work needed for phases 1 and 2 will be taken out of the total number of hours, too. The estimate for these two phases is a total of 64 hours. Work needed for a new rack of servers and the implementation as defined in phase 2 can be taken out of the existing bucket of hours as well. This includes not only setup, installation and integration, but also help with procurement.

### 4.4 Ongoing work

The parties agree to communicate about usage of hours on a regular basis and adjust the scope if and when needed to make sure the work is performed in budget and the bucket of hours is not exceeded.





**5. COST ESTIMATE**

credativ's quote is based on delivered phase 1 and 2 as outlined in the project detail section, and does not include the additional equipment or software licenses. The quote breaks down as follows:

Phase	Duration	Deliverable	Quote
Phase 1 - Design and Analysis Hardware and Backup implementation	3 Day	Hardware Gap Analysis and Recommendations, Backup Strategy and Implementation and Hardware Recommendation Timelines	
Phase 2 - Analysis of Software and Operating Environment	5 Days	Software Gap Analysis, Recommendation and Timelines.	
Implementation, Operations, Maintenance, Support	2.5 Days per Month	Work as needed	
Subtotal	38 Days		\$42,560
Support	12 months	Service and Support SLA Reaction time: One Business Day	\$948
Subtotal			\$43,508
One Year Prepayment		6% discount	\$-2,610.50
Total			\$40.897,50

### 6. SERVICE AND SUPPORT MODELS

#### 6.1 Definition of terms

##### 6.1.1 Service Levels

###### 6.1.1.1 Level 1 Support

Frontline support including assistance with software usage, general knowledge or knowledgebase-level question, and known errors. This includes initial troubleshooting, bug confirmation, information gathering, and figuring out the underlying problem.

###### 6.1.1.2 Level 2 Support

Advanced support including more advanced troubleshooting, confirming the validity of the problem, the reproduction and characterization of any errors. A best effort will be made to resolve or provide a short-term workaround for any error.

###### 6.1.1.3 Level 3 Support

Escalated support including further expert level troubleshooting and analysis methods, possible remote troubleshooting and consultation with developers for research and development of solutions to new or unknown issues.

###### 6.1.1.4 Developer Support

Developer assistance to provide code-level resolutions to critical problems. May result in a patch or hot-fix for the software in use or escalation of an issue into an upcoming release.

##### 6.1.2 Availability

creativ service and support is directly available via our support number, the support email address or the ticket system during the contractually agreed times.

##### 6.1.3 Support period

###### 6.1.3.1 Office hours

Office hours are defined as 9:00 – 17:00 German time on working days. Working days are defined as any day other than a Saturday, Sunday, or a public holiday in Germany.

###### 6.1.3.2 On call periods

On call periods are defined as all times outside office hours as defined above.

###### 6.1.3.3 Response time

The response time is the time taken for our technicians to start working on your problem once your request has been acknowledged by creativ. This is to mutual benefit that your instruction shall be so confirmed. In the absence of such acknowledgement from creativ, you are invited to contact us for confirmation the issue receiving our attention has arrived. This would however be regarded as the exception rather than the rule. creativ's ticket system confirms receipt automatically.

### 6.2 Monthly flat rate

The monthly flat rate is made up of a fixed service charge and includes several hours of support. These inclusive hours can be used for all forms of support or consultation. This includes administration, installation and strategy consultation. Please refer to the current credativ service and support price list for the rates that apply.

#### 6.2.1 Premium support

credativ Premium support has a maximum response time of one hour. This does not cover on site response times. The response period for service and support requests received by email begins when a request is acknowledged by one of credativ's service and support staff. credativ's acknowledgement is proof we have received your e-mail, and of our attention to the same in the time stipulated. This relates to phone calls and voice messages, our acknowledgement of the same applies.

Phone options are available during German business hours, but can be extended by our on call support option to add support availability outside of office hours. With this option we will be accepting phone calls 24x7 and start working on your immediate problems within the one hour reaction time.

#### 6.2.2 Basic support

credativ Basic support has a maximum response time of eight hours. This does not cover on site response times. The response period for service and support requests received by e-mail begins when a request is acknowledged by one of credativ's service and support staff. credativ's acknowledgement is proof we have received your e-mail, and of our attention to the same in the time stipulated. This relates to phone calls and voice messages, our acknowledgement of the same applies. Phone options are only available during German business hours.

#### 6.2.3 Service charge

The service charge covers the cost of the technical provision of support. This includes items such as the support telephone number, your company issue tracker and telephone costs.

#### 6.2.4 Inclusive hours

Our service and support agreement includes at least 2 inclusive hours. Further inclusive hours can be added on request. Inclusive hours are only available for work carried out during office hours.

##### 6.2.4.1 Billing units

Inclusive hours are billed in units of 15 minutes.

##### 6.2.4.2 Accumulated inclusive hours

Inclusive hours are cumulative: at the end of each month, half of the available inclusive hours can be carried over into the next month. Unused inclusive hours can be used for open source services such as installation, administration, training and consultation. If your company has accumulated more than 8 hours and wishes to use them all at once we ask that you provide 14 days notice. Accumulated inclusive hours must be used by the end of the current quarter.

### **6.2.5 Additional work not in inclusive hours**

Additional service and support hours which are over your monthly quota of inclusive hours will be invoiced at the rate given on our price list.

### **6.2.6 Advance order of additional hours**

Additional packages extend the support agreement by a defined number of hours. These hours will be invoiced as soon as we receive your order. Additional support hours are valid for 6 months, and will expire at the end of this period.

### **6.2.7 Billing units during on call periods**

During on call periods, service and support will be billed in units of 60 minutes. Each support request received during on call periods will be billed with a minimum of one billing unit.

### **6.2.8 On site support**

On site assignments should be arranged with reasonable notice.

#### **6.2.8.1 On site support days**

Additional on site consulting days can be ordered at any time, and are valid for a period of 6 months, after which they will expire. On site days are used in blocks of 4 hours.

#### **6.2.8.2 Travel costs**

Travel time is working time and will be charged at half the hourly rate of office based time charges, unless mutually agreed otherwise. Time spent on site shall be charged at the full hourly rate applicable to credativ's current price list.

#### **6.2.8.3 Expenses**

Our rates do not include travel expenses, which will be calculated based on the cost of peak second class rail travel from Moenchengladbach, Germany. We reserve the right to charge for private hire taxi services from the nearest rail station/airport to you, and the location of any meeting or site visit required. Receipts or proof of purchase of the same, shall be made available upon written request.

## **6.3 Duration and Terms of Payment**

### **6.3.1 Commencement date of Contract**

Upon receipt of your order, credativ shall send in return a 'Support Service Confirmation' (SSC) document which provides all relevant details applicable to the contract, including start and end dates of the initial period so ordered. Note, where a specific start date is required by the client, this must be mutually agreed prior to receipt of your order.

### **6.3.2 Cancellation periods**

The support contract in principle is for an unlimited period and begins on the day stipulated on the Support Service Confirmation (SCC) document referred to in 6.3.1. The contract may be terminated by submitting written notice at least one month prior to the expiration of a 6 month period. If notice of cancellation is not received in the time stipulated, the support contract shall be automatically extended for a further 6

months. This is done to provide customers a continuous service if no intent to cancel is pending.

### 6.3.3 Changes to the support schedule

An upgrade of the support contract, for example to 24/7 support, is possible at any time. Unused prepaid invoice amounts will be credited to your new schedule. Support contract upgrades should be ordered in writing at least 14 days in advance and take effect with our confirmation of your order.

A downgrade of the support contract is only possible when submitted in writing by the principal one month prior to the expiration of the current 6 month period.

### 6.3.4 Price list and price validity

Support and service agreements are based on our current price list.

The prices on which this offer and connected documents are based are valid for one year. After this, credativ reserves the right to adjust the prices twice yearly. In the event of a price increase, the principal has the right to cancel the contract by writing to us. If the principal does not make use of this right to cancel within one month after the price increase is announced, the price increase will be considered to have been accepted.

### 6.3.5 Terms of payment

The prices given do not include VAT, which will be charged at the standard rate (currently 19 %). Work will be invoiced as follows:

- The monthly flat rate is invoiced at the end of the month. Service and support agreements that begin in the middle of the month will be invoiced on a pro rata basis at the end of the month.
- Additional support hours not included in your inclusive hours will be invoiced at the end of the month.
- Additional support options or blocks of hours will be invoiced on receipt of your order.
- On site work will be invoiced at the end of the month.
- On site days block ordered in advance which have not been used during the 6 month period will be invoiced at the end of the 6 month period.

Invoices are payable in full, 10 days after the invoice date.

### 6.3.6 Duration of agreement

Service and support agreements have a minimum duration of 6 months. Options are available for 12 and 24 month contract durations. Unless stated otherwise an initial duration of 6 months will apply, and automatically extended a further 6 months in the absence of any notification to terminate. See 6.3.2 This is to ensure the provision of a continuous service without prejudice.

### 6.3.7 Payment

A discount is available for 1 and 2 year contract terms.



### 6.3.8 Late payment and disputes

credativ may charge interest on outstanding invoices at 8% over the prime rate unless credativ and the organization to whom services and support is provided, are in written dispute over the said invoice(s). In such cases of dispute, the plaintiff must communicate such dispute in writing to credativ giving right of reply. In the event such dispute is deemed accepted and correct by credativ, the said invoice(s) may be amended without prejudice and to mutual agreement prior to any re-issue of invoice(s) so disputed. Upon receipt of a re-issued invoice so described, the late payment clause shall be deemed to apply following 0 days of receipt of the same. In the event there are outstanding unpaid invoices, credativ reserve the right to suspend its services until the outstanding amount has been settled in full.

## 6.4 Other

### 6.4.1 Set off and counterclaim

The buyer may not withhold payment of any invoice or other amount due to credativ by reason of any right of set-off or counterclaim which the buyer may have or allege to have or for any reason whatsoever.

### 6.4.2 Force majeure

credativ shall not be liable for any default due to any circumstance beyond the reasonable control of credativ including, but not limited to, Acts of God, war, civil unrest, riot, strike, lock-out, acts of civil or military authorities, fire, flood, earthquake or shortage of supply.

### 6.4.3 General

If any term or provision of these Conditions is held invalid, illegal or unenforceable for any reason by any Court of competent jurisdiction, such provision shall be severed and the remainder of the provisions hereof shall continue in full force and effect as if these Conditions had been agreed with the invalid, illegal or unenforceable provision eliminated.

The headings in these Conditions are for ease of reference only and shall not affect the interpretation of any of the Conditions.

### 6.4.4 Right to sub-license

credativ may without your consent sub-license its rights or obligations or any part of these Conditions to ensure the the service and support you have purchased from credativ, is delivered seamlessly with all probity and to your satisfaction. Although credativ reserve this right, the organization receiving such sub-license under credativ's remit, shall be informed by credativ describing reasons for the same. credativ provide full assurance that such provision if used, shall be project managed by credativ and no other.