

SlapOS Early Success Stories

Agenda:

- What is SlapOS
- SlapOS Success Stories
- SlapOS IaaS Compatibility
- SlapOS PaaS Compatibility
- SlapOS API & Protocols
- SlapOS Alpha Release Program



The screenshot displays the ViFiB user interface. At the top, there is a logo for ViFiB and a navigation bar with links for "Vifib Internet", "Vifib Hosting", and "Vifib Cash". Below the navigation bar, the page title is "Amazon ec2 requester". The main content area features a table with columns for "Title", "Image", "Start", "Stop", "Status", and "Destroy". The table lists several instances:

| Title | Image | Start | Stop | Status | Destroy |
|------------------|---------------------|-------|------|-------------------|---------|
| Amazon EC Image | amazon web services | Start | Stop | Started | Destroy |
| Amazon Requester | amazon | Start | Stop | Stopped | Destroy |
| MySQL | MySQL | Start | Stop | Start in progress | Destroy |
| memcached | memcached | Start | Stop | Started | Destroy |
| ERP5 | ERP5 | Start | Stop | Destroyed | Destroy |

At the bottom of the table, there is a "Last Events" section with a small icon.

SlapOS : Distributed Cloud OS

Install SlapOS

```
> apt-get install slapgrid
```

Use SlapOS

```
> slapconsole  
>>> kvm_instance = request(kvm, 'i1')  
>>> mysql_instance = request(mysql, 'i2')  
>>> kumo_instance = request(kumofs, 'i3')  
>>> wr_instance = request(webrunner, 'i4')  
>>> wp_instance = request(wordpress, 'i5')  
>>> kvm_instance.getParameter('url')  
... connection strings appears here ...
```



The screenshot shows the ViFiB web interface. At the top, there is a logo for ViFiB and a navigation bar with links for 'Vifib Internet', 'Vifib Hosting', and 'Vifib Cash'. Below the navigation bar, there is a section titled 'Amazon ec2 requester' which contains a table with columns for Title, Image, Start, Stop, Status, and Destroy. The table lists several instances: Amazon EC2 Image (Started), Amazon Requester (Stopped), MySQL (Start in progress), memcached (Started), and ERP5 (Destroyed). Each instance has corresponding Start, Stop, and Destroy buttons.

| Title | Image | Start | Stop | Status | Destroy |
|------------------|---------------------|-------|------|-------------------|---------|
| Amazon EC2 Image | amazon web services | Start | Stop | Started | Destroy |
| Amazon Requester | amazon | Start | Stop | Stopped | Destroy |
| MySQL | MySQL | Start | Stop | Start in progress | Destroy |
| memcached | M | Start | Stop | Started | Destroy |
| ERP5 | ERP5 | Start | Stop | Destroyed | Destroy |

SlapOS Success Stories

| User | Market | Application | Stack | Guest | State |
|------------------------|-----------------|---------------------|-------------|------------|----------------|
| Nexedi | Development | KVM | kvm | Bare Metal | Production |
| | | Unit Testing | Test Runner | Bare Metal | Production |
| | | Scalability Testing | Test Runner | Bare Metal | Production |
| Université Paris 13 | Education | Web Runner | LAMP | Bare Metal | Production |
| IFF | Education | UNG Docs | ERP5 | Bare Metal | Production |
| | | Scalability Testing | Test Runner | Bare Metal | Testing |
| | | One Student One ERP | ERP5 | Bare Metal | Testing |
| Central Bank | Banking | Global Banking | ERP5 | Bare Metal | Production |
| Aerospace Company | Aerospace | ERP / CRM | ERP5 | VMWare | Testing |
| Transportation Company | Transportation | ERP / CRM | ERP5 | Bare Metal | Pre Production |
| SANEF Tolling UK | Transportation | Payment system | ERP5 | Bare Metal | Production |
| CompatibleOne | Research | Scalability testing | kumofs | Bare Metal | Testing |
| | | | sheepdog | Bare Metal | Testing |
| | Research | Bin Packing | kvm | Bare Metal | Testing |
| VIFIB | Cloud Computing | IaaS / PaaS / SaaS | KVM | Bare Metal | Alpha |
| | | | LAMP | Any | Alpha |
| | | | Java | Any | Alpha |
| | | | ERP5 | Any | Alpha |

SlapOS IaaS Compatibility

| | Guest | | | | | Host | |
|----------------|----------|---------|-----------|--------|------|-----------|------|
| | Recipe | Planned | Supported | Tested | Used | Supported | Used |
| Bare Metal | N/A | | | | | √ | √ |
| kvm | kvm | √ | √ | √ | √ | √ | |
| xen | N/A | | | | | √ | |
| Bluebox | libcloud | √ | √ | | | √ | |
| Brightbox | libcloud | √ | √ | | | √ | |
| CloudSigma | libcloud | √ | √ | | | √ | |
| Dreamhost | libcloud | √ | √ | | | √ | |
| Amazon EC2 | libcloud | √ | √ | √ | | √ | |
| Enomaly ECP | libcloud | √ | √ | | | √ | |
| ElasticHosts | libcloud | √ | √ | | | √ | |
| Eucalyptus | libcloud | √ | √ | | | √ | |
| Gandi.net | libcloud | √ | √ | | | √ | |
| GoGrid | libcloud | √ | √ | | | √ | |
| HEV | libcloud | √ | | | | √ | |
| IBM Cloud | libcloud | √ | √ | | | √ | |
| Linode | libcloud | √ | √ | | | √ | |
| NiftyName | libcloud | √ | | | | √ | |
| Nimbus | libcloud | √ | √ | | | √ | |
| OpenNebula | libcloud | √ | √ | √ | | √ | |
| OpenStack | libcloud | √ | √ | | | √ | |
| OpSource Cloud | libcloud | √ | √ | | | √ | |
| Rackspace | libcloud | √ | √ | | | √ | |
| RimuHosting | libcloud | √ | √ | | | √ | |
| Slicehost | libcloud | √ | √ | | | √ | |
| SoftLayer | libcloud | √ | √ | | | √ | |
| Terremark | libcloud | √ | √ | | | √ | |
| vCloud | libcloud | √ | √ | | | √ | √ |
| Voxel | libcloud | √ | √ | | | √ | |
| VPS.net | libcloud | √ | √ | | | √ | |



SlapOS Storage Compatibility

| Category | Software | Considered | Planned | Supported | Production | Applications |
|----------|--------------------------|------------|---------|-----------|------------|--------------|
| SQL | MySQL | √ | √ | √ | √ | |
| | MariaDB | √ | √ | √ | √ | |
| | Cubrid | √ | | | | |
| | InfiniDB | √ | | | | |
| | VectorWize | √ | | | | |
| | SQL Lite | √ | √ | √ | | |
| | PostgreSQL | √ | √ | | | |
| NoSQL | KumoFS | √ | √ | √ | √ | |
| | Memcached | √ | √ | √ | √ | |
| | Membase | √ | | | | |
| | Handlersocket | √ | √ | √ | | |
| | Flare | √ | √ | √ | | |
| | Sheepdog | √ | √ | √ | | |
| | NBD | √ | √ | √ | √ | |
| | Ceph RBD | √ | | | | |
| | Ceph S3 | √ | | | | |
| | Tahoe | √ | | | | |
| | OpenStack Object Storage | √ | | | | |
| | Amazon S3 | √ | √ | | | |
| | Monstore S3 | √ | √ | | | |
| | SphinxSearch | √ | √ | √ | √ | |
| | Solair | √ | | | | |
| | Cassandra | √ | | | | |
| | MongoDB | √ | | | | |
| | Redis | √ | | | | |
| | CouchDB | √ | | | | |
| | ZEO | √ | √ | √ | √ | |
| NEOPPOD | √ | √ | | | | |
| PALO | √ | √ | | | PALO Web | |

SlapOS PaaS Compatibility

| Category | Software | Considered | Planned | Supported | Production | Applications |
|---------------|---------------|------------|---------|-----------|------------|---|
| Front End | Apache | √ | √ | √ | √ | |
| | Varnish | √ | √ | √ | √ | |
| | Traffic Serve | √ | | | | |
| | Postfix | √ | √ | √ | √ | |
| | stunnel | √ | √ | √ | | |
| | hookbox | √ | √ | √ | | |
| | nginx | √ | √ | | | |
| | ha proxy | √ | √ | √ | √ | |
| Conversion | Cloudooo | √ | √ | √ | √ | OpenOffice, ffmpeg, Imagemagick, tesseract, ghostscript |
| Stack | LAMP | √ | √ | √ | | Wordpress, Dotclear, PHPMyAdmin, Joomla, Lighforum |
| | Zope | √ | √ | √ | √ | ERP5, Plone |
| | Perl | √ | √ | √ | | |
| | Java | √ | √ | √ | | Xwiki |
| | ProActive | √ | √ | √ | | |
| | WSGI | √ | √ | √ | √ | Cloudooo, WebRunner |
| | OSGI | √ | √ | | | |
| | Node.js | √ | √ | | | Cloud9 |
| | Django | √ | | | | |
| Ruby on Rails | √ | | | | | |

SlapOS API & Protocols

API

XML-RPC + XML

REST + JSON

```
class IOpenOrder(Interface):
```

```
    def request(software_release):
```

```
        """
```

```
        Request the instantiation of  
        a given software release
```

```
        """
```

Request a SlapOS instance !

Software Release URL :

Instance reference :

Instance type :

Instance parameters (optional) :

```
<?xml version="1.0" encoding="utf-8"?>
<instance>
  <parameter
    id="nbd_ip">2a01:e35:2e27:460:e2cb:4eff:fed9:48dc</parameter>
  <parameter id="nbd_port">1024</parameter>
</instance>
```

Computer parameters (optional) :

```
<?xml version="1.0" encoding="utf-8"?>
<computer>
  <parameter id="country">Brasil</parameter>
  <parameter id="hardware">High</parameter>
</computer>
```

```
POST /software_instance_module/
```

```
Host: vifib.net
```

```
Content-Length: nnn
```

```
Content-Type : application/json
```

```
{
  "software_release" :
    "http://link/to/the/software/release.cfg",
  "instance_id" : "My first instance",
  "instance_type": "production",
}
```

libslap-python

libslap-java

slapos-proxy

slapos-master

slapos-proxy (*done*)

slapos-master (*planned*)

SlapOS Developer Prerelease Program



register on <http://www.vifib.net>

Test Plaform

+

Online Support

=

Faster Time to Cloud

+

Packaging Solved

SlapOS Early Success Stories

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- SlapOS Success Stories
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This document provides a presentation of early success stories of SlapOS as of June 7th 2011. SlapOS success stories were first introduced at the OSCi workshop of the Compatible ONE collaborative research project to an audience of consisting of representatives of companies such as Bull, Intel, Alcatel Lucent, Thales, Orange, Nuxeo, Xwiki, Nexedi, Activeon, eNovance, Mandriva and VIFIB. Success stories were then announced officially during FISL, the largest open source conference worldwide, organized in Porto Alegre (Brazil).

SlapOS early success stories provide an overview of the future of Open Source Cloud Computing. This presentation highlights in particular how SlapOS can perfectly complement private Cloud implementations including VMWare and increase productivity for Enterprise information systems.

This presentation provides a simple description of SlapOS from a user perspective. A list of success stories is then provided in the field of aerospace, banking, transportation and IT industry. The presentation then list existing solutions for Infrastructure as a Service (IaaS) which are compatible or supported by SlapOS. It provides a list of already supported and planned storage for SlapOS. SlapOS itself can be used as a Platform as a Service (PaaS) to port existing applications to the Cloud. SlapOS already provides numerous software components and stacks. Components and stacks can be combined thanks to a simple API supported by REST/JSON protocol.

Last, SlapOS Alpha Developer Program is introduced to help software companies move to the Cloud in short time and deliver their software as SaaS or PaaS with a full subscription and billing platform solely based on Open Source Software.

SlapOS : Distributed Cloud OS

Install SlapOS

```
> apt-get install slapgrid
```

Use SlapOS

```
> slapconsole
>>> kvm_instance = request(kvm, 'i1')
>>> mysql_instance = request(mysql, 'i2')
>>> kumo_instance = request(kumofs, 'i3')
>>> wr_instance = request(webrunner, 'i4')
>>> wp_instance = request(wordpress, 'i5')
>>> kvm_instance.getParameter('url')
... connection strings appears here ...
```



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SlapOS is a distributed cloud operating system. It aggregates servers located worldwide in data centers, in offices or at home into a large Cloud resource pool which developers can access to run any software. Developers can contribute their own servers or laptops to SlapOS distributed cloud and specialize them for specific applications or closed groups of users.

From a user perspective, SlapOS is beautifully simple.

To add your own server or laptop to SlapOS cloud, simply install **slapgrid** daemon on your favourite GNU/Linux distribution (soon BSD, MacOS and possibly Windows). Register your computer to a **SlapOS Master** such as www.vifib.net. Your server or laptop will then contribute to the worldwide pool of SlapOS resources. You may restrict access to your own laptop... only to yourself and use SlapOS while disconnected from the network thanks to **SlapOS Proxy**. Having your own server or laptop registered onto SlapOS Cloud simplifies greatly the development of new SlapOS components.

To use SlapOS, launch **slapos-console**. You may then invoke the **request()** method to create instances of about any software: **kvm** for virtual machines, **mysql** database, **kumofs** NoSQL database, **Web Runner** online IDE, **WordPress** blog, etc. There is no limit to the number of software, components or stack which SlapOS can support. It is even possible to use SlapOS as a broker between developers and pure Cloud resources such as Amazon EC2 or Amazon S3 and unify Cloud resource allocation through a single API.

SlapOS Masters such as www.vifib.net provide a Web overview of all resources allocated by developers through a friendly user interface. They also implement a general purpose metering, accounting and billing platform for Cloud providers.

SlapOS Success Stories

| User | Market | Application | Stack | Guest | State |
|------------------------|-----------------|---------------------|-------------|------------|----------------|
| Nexedi | Development | KVM | kvm | Bare Metal | Production |
| | | Unit Testing | Test Runner | Bare Metal | Production |
| | | Scalability Testing | Test Runner | Bare Metal | Production |
| Université Paris 13 | Education | Web Runner | LAMP | Bare Metal | Production |
| IFF | Education | UNG Docs | ERP5 | Bare Metal | Production |
| | | Scalability Testing | Test Runner | Bare Metal | Testing |
| | | One Student One ERP | ERP5 | Bare Metal | Testing |
| Central Bank | Banking | Global Banking | ERP5 | Bare Metal | Production |
| Aerospace Company | Aerospace | ERP / CRM | ERP5 | VMWare | Testing |
| Transportation Company | Transportation | ERP / CRM | ERP5 | Bare Metal | Pre Production |
| SANEF Tolling UK | Transportation | Payment system | ERP5 | Bare Metal | Production |
| CompatibleOne | Research | Scalability testing | kumofs | Bare Metal | Testing |
| | | | sheepdog | Bare Metal | Testing |
| | Research | Bin Packing | kvm | Bare Metal | Testing |
| VIFIB | Cloud Computing | IaaS / PaaS / SaaS | KVM | Bare Metal | Alpha |
| | | | LAMP | Any | Alpha |
| | | | Java | Any | Alpha |
| | | | ERP5 | Any | Alpha |

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SlapOS is still alpha quality software as of June 30th 2011. Yet, it is no longer in its early development stage. SlapOS has reached a good level of stability thanks to a wide coverage by unit tests and functional tests. It is stable enough to be used on production systems and deploy mission critical ERP applications.

SlapOS early success stories include the provisioning of virtual machines at Nexedi for developers who use a network PC instead of a laptop, unit testing of software, scalability testing of software. SlapOS was used to teach Cloud computing and PaaS to students at Paris 13 University. It was also used to deploy UNG Docs open source Web Office, teach scalability testing and teach ERPs at Instituto Federal Fluminense (IFF) in Brazil.

Four major customers of ERP5 open source ERP have moved their production systems to SlapOS. A Central Bank has been using ERP5 for currency issuing and global banking since May 30th 2011. An aerospace company is finalizing tests of ERP5 over SlapOS for ERP/CRM applications. ERP5 has been implemented on SlapOS for SANEF UK tolling as well as in another highway tolling company.

Compatible ONE collaborative project uses SlapOS to run scalability tests on NoSQL storages and gather results. SlapOS implementations of sheepdog and kumofs were made for this purpose.

Last, VIFIB hosting company has started alpha testing of SlapOS for developers of SaaS and PaaS applications which may be based or not on IaaS. VIFIB supports various stacks such as LAMP, Java or ERP5. It provides Billing as a Service (BaaS) to any software publisher looking for the shortest time to market solution to offer their solutions on the Cloud.

SlapOS IaaS Compatibility

| | Recipe | Guest | | | | Host | |
|----------------|----------|---------|-----------|--------|------|-----------|------|
| | | Planned | Supported | Tested | Used | Supported | Used |
| Bare Metal | | | N/A | | | ✓ | ✓ |
| kvm | kvm | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| xen | N/A | | | | | ✓ | |
| Bluebox | libcloud | ✓ | ✓ | | | ✓ | |
| Brightbox | libcloud | ✓ | ✓ | | | ✓ | |
| CloudSigma | libcloud | ✓ | ✓ | | | ✓ | |
| Dreamhost | libcloud | ✓ | ✓ | | | ✓ | |
| Amazon EC2 | libcloud | ✓ | ✓ | ✓ | | ✓ | |
| Enomaly ECP | libcloud | ✓ | ✓ | | | ✓ | |
| ElasticHosts | libcloud | ✓ | ✓ | | | ✓ | |
| Eucalyptus | libcloud | ✓ | ✓ | | | ✓ | |
| Gandi.net | libcloud | ✓ | ✓ | | | ✓ | |
| GoGrid | libcloud | ✓ | ✓ | | | ✓ | |
| HEV | libcloud | ✓ | ✓ | | | ✓ | |
| IBM Cloud | libcloud | ✓ | ✓ | | | ✓ | |
| Linode | libcloud | ✓ | ✓ | | | ✓ | |
| NiftyName | libcloud | ✓ | ✓ | | | ✓ | |
| Nimbus | libcloud | ✓ | ✓ | | | ✓ | |
| OpenNebula | libcloud | ✓ | ✓ | ✓ | | ✓ | |
| OpenStack | libcloud | ✓ | ✓ | | | ✓ | |
| OpSource Cloud | libcloud | ✓ | ✓ | | | ✓ | |
| Rackspace | libcloud | ✓ | ✓ | | | ✓ | |
| RimuHosting | libcloud | ✓ | ✓ | | | ✓ | |
| Slicehost | libcloud | ✓ | ✓ | | | ✓ | |
| SoftLayer | libcloud | ✓ | ✓ | | | ✓ | |
| Terremark | libcloud | ✓ | ✓ | | | ✓ | |
| vCloud | libcloud | ✓ | ✓ | | | ✓ | ✓ |
| Voxel | libcloud | ✓ | ✓ | | | ✓ | |
| VPS.net | libcloud | ✓ | ✓ | | | ✓ | |



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SlapOS is compatible with most if not all IaaS providers.

SlapOS can be hosted on any bare metal server or on any virtualized server. Success stories of SlapOS show two major use cases: bare metal and **VMware**. Bare metal is used by 90% SlapOS users since it is the most cost efficient and the only way to compete in price with companies such as Google on collaboration software. VMWare is used by some large corporations which already purchased a virtualization infrasture based on VMWare and on Storage Area Network (SAN). The addition of VMWare increases costs by a magnitude of two to four with few if no benefits: the theoretical reliability of virtualized server and storage is often killed by human errors which put down the whole IaaS infrastructure at once for a couple of hours. We have observed until now that many private IaaS infrastructures are less reliable overall than a collection of bare metal dedicated servers running at home.

SlapOS can host various IaaS infrastructures. It is possible for example to allocate **qemu-kvm** virtual machines directly on SlapOS bare metal servers. This possibility is used by Nexedi developers to create servers and package ERP5 for different GNU/Linux distributions. It is also possible to allocate virtual machines on existing public or private clouds thanks to libcloud library. SlapOS plays in this case the role of a broker between a unified resource allocation API and a collection of IaaS providers, each with its own API.

It would be possible also to use SlapOS as a way to automate the deployment of open source Cloud stacks such as NiftyName, OpenNebula, Eucalyptus or OpenStack. This has been already implemented for some storage backends used by IaaS.

SlapOS Storage Compatibility

| Category | Software | Considered | Planned | Supported | Production | Applications |
|----------|--------------------------|------------|---------|-----------|------------|--------------|
| SQL | MySQL | ✓ | ✓ | ✓ | ✓ | |
| | MariaDB | ✓ | ✓ | ✓ | ✓ | |
| | Cubrid | ✓ | | | | |
| | InfiniDB | ✓ | | | | |
| | VectorWize | ✓ | | | | |
| | SQL Lite | ✓ | ✓ | ✓ | | |
| | PostgreSQL | ✓ | ✓ | | | |
| NoSQL | KumofS | ✓ | ✓ | ✓ | ✓ | |
| | Memcached | ✓ | ✓ | ✓ | ✓ | |
| | Membase | ✓ | | | | |
| | HandlerSocket | ✓ | ✓ | ✓ | | |
| | Flare | ✓ | ✓ | ✓ | | |
| | Sheepdog | ✓ | ✓ | ✓ | | |
| | NDB | ✓ | ✓ | ✓ | ✓ | |
| | Ceph RBD | ✓ | | | | |
| | Ceph S3 | ✓ | | | | |
| | Tahoe | ✓ | | | | |
| | OpenStack Object Storage | ✓ | | | | |
| | Amazon S3 | ✓ | ✓ | | | |
| | Monstore S3 | ✓ | ✓ | | | |
| | SphinxSearch | ✓ | ✓ | ✓ | ✓ | |
| | Solair | ✓ | | | | |
| | Cassandra | ✓ | | | | |
| | MongoDB | ✓ | | | | |
| | Redis | ✓ | | | | |
| | CouchDB | ✓ | | | | |
| | ZEO | ✓ | ✓ | ✓ | ✓ | |
| NEOPOD | ✓ | ✓ | | | | |
| PALO | ✓ | ✓ | | | PALO Web | |

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SlapOS provides SQL and NoSQL storage.

MySQL and MariaDB are supported and already used in production by SlapOS systems. SQL Lite is also provided. Addition of PostgreSQL is planned. Cubrid, InfiniDB and VectorWize are considered for future addition.

A couple of NoSQL stores are already part of SlapOS, some of which are used in production. The memcached protocol is supported both in non persistent form with **memcached** and in persistent form with **kumofs** and **flare**. Block storage publication is possible through **NDB** server and **sheepdog**. Full text search and document storage is possible with **sphinxsearch**. **HandlerSocket** provides high performance key-value store. **ZEO** provides an object database.

More NoSQL stores are planned. Various implementations of S3 will be added soon. PALO cube server will also soon become part of SlapOS standard distribution. NEO distributed transactional object database will provide in SlapOS one of the only implementations of “always consistent” NoSQL.

Other NoSQL stores which are considered will be added through community effort or based on user requirements. This includes more options for the memcached protocole with **membase**, more options for block storage with **ceph**, encrypted object store with **tahoe** and a couple of rich NoSQL stores such as **Cassandra**, **MongoDB** or **Redis**.

SlapOS PaaS Compatibility

| Category | Software | Considered | Planned | Supported | Production | Applications |
|------------|---------------|------------|---------|-----------|------------|---|
| Front End | Apache | ✓ | ✓ | ✓ | ✓ | |
| | Varnish | ✓ | ✓ | ✓ | ✓ | |
| | Traffic Serve | ✓ | | | | |
| | Postfix | ✓ | ✓ | ✓ | ✓ | |
| | stunnel | ✓ | ✓ | ✓ | | |
| | hookbox | ✓ | ✓ | ✓ | | |
| | nginx | ✓ | ✓ | | | |
| | ha proxy | ✓ | ✓ | ✓ | ✓ | |
| Conversion | Cloudooo | ✓ | ✓ | ✓ | ✓ | OpenOffice, ffmpeg, Imagemagick, tesseract, ghostscript |
| Stack | LAMP | ✓ | ✓ | ✓ | ✓ | Wordpress, Dotclear, PHPMyAdmin, Joomla, Lighforum |
| | Zope | ✓ | ✓ | ✓ | ✓ | ERP5, Plone |
| | Perl | ✓ | ✓ | ✓ | | |
| | Java | ✓ | ✓ | ✓ | | Xwiki |
| | ProActive | ✓ | ✓ | ✓ | | |
| | WSGI | ✓ | ✓ | ✓ | ✓ | Cloudooo, WebRunner |
| | OSGI | ✓ | ✓ | | | |
| | Node.js | ✓ | ✓ | | | Cloud9 |
| | Django | ✓ | | | | |
| | Ruby on Rails | ✓ | | | | |

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SlapOS includes its own Platform as a Service: SlapOS Web Runner, a.k.a. SlapIDE.

Through a simple web based interface, developers can create SlapOS profiles and recipes to port their applications to the Cloud. Applications are normally based on a front-end, a stack and sometimes file conversion services.

SlapOS provides HTTP, SMTP and Web Socket/COMET front-ends. This includes **Apache** for general purpose applications, **Varnish** for HTTP caching, **Postfix** for SMTP and **ha-proxy** for load balancing. All of which are already in production. **Hookbox** provides an elegant solution for Web Sockets and COMET applications so that developers can turn their application into a real time application in a matter of hours. More front-ends are considered: **Apache Traffic Server** for caching and **nginx** for HTTP.

stunnel can secure any protocol between virtual machines hosted on a public clouds and thus remove the need to create complex virtual networks or virtual switches spanning over multiple public clouds. Through a single X509 certificate, all communications between the difference services of a SlapOS application can be secured.

SlapOS provides **cloudooo** to convert files from any format to any format. Cloudooo supports more than 200 file formats including office files, images, videos, audio and raw data.

SlapOS is compatible with LAMP, Python/Zope, Python/WSGI, Perl, Java and ProActive stacks. More stacks are considered ot planned to be added: OSGI, Node.js, Django and Ruby on Rails. The LAMP stack has been used by students to port a couple of PHP applications to SlapOS, including Wordpress and Dotclear.

SlapOS API & Protocols

API

```
class IOpenOrder(Interface):
    .....
    def request(software_release):
        .....
        Request the instantiation of
        a given software release
        .....
```

libslap-python
libslap-java

XML-RPC + XML

Request a SlapOS Instance :

Software Release URL : <https://github.com/SlapOS/slapos-software-svm/blob/master/software.cfg>

Instance reference : Myfirstinstance

Instance type : production

Instance parameters (optional):

```
<?xml version="1.0" encoding="utf-8"?>
<instance>
  <parameter
    id="hd_gp">2a01:e35:3c27:460:23b:4eff:fe49:48d</parameter>
  </instance>
```

Computer parameters (optional):

```
<?xml version="1.0" encoding="utf-8"?>
<computer>
  <parameter id="country">Brazil</parameter>
  <parameter id="hardware">High</parameter>
</computer>
```

Request Reset

slapos-proxy
slapos-master

REST + JSON

```
POST /software_instance_module/
Host: vifib.net
Content-Length: nnn
Content-Type : application/json

{
  "software_release" :
    "http://link/to/the/software/release.cfg",
  "instance_id" : "My first instance",
  "instance_type": "production",
}
```

slapos-proxy (done)
slapos-master (planned)

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The core of SlapOS is the SLAP protocol. SLAP stands for “Simple Language for Accounting and Provisionning”. With SLAP, every computer part of a Cloud publishes on so-called SlapOS Master the list resources which are available to others then receives from SlapOS Master resources to allocate and notifies to SlapOS Master resource usage for a given period of time. Thanks to SLAP, IaaS, PaaS and SaaS are unified together with metering, accounting and billing.

SLAP is implemented in SlapOS by SLAPGRID, the accounting and provisioning runtime of the Compatible ONE R&D project. Developers can use SLAP either through the SLAP API or by implementing the SLAP Procol.

The SLAP API mainly consists of the **request()** method. Python and Java libraries are provided to developers. PHP, Javascript, Ruby and Perl libraries are considered.

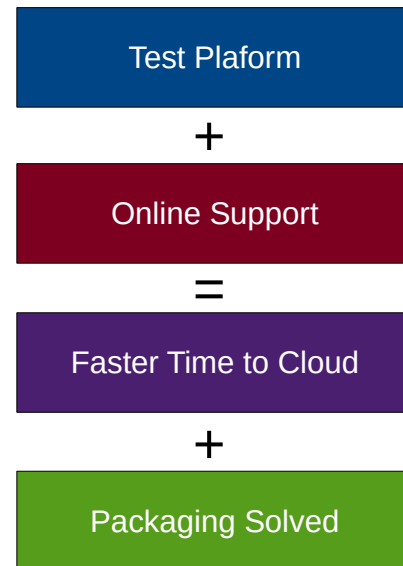
The SLAP protocol exists in two form: **XML-RPC** and **REST**. The SLAP payload can either be XML or JSON. XML-RPC is the easiest for integration to existing web sites, since it mimics HTML form data and requires practically no coding. REST is the modern way to use the SLAP protocol with a documentary approach. The choice of XML vs. JSON is mostly a question of taste. XML provides more mature tools for data validation in most environments while JSON is preferred for its lighter syntax in other environments.

SlapOS Developer Prerelease Program



register on <http://www.vifib.net>

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SlapOS is ready for developers who are planning to port their applications to the Cloud. It can help them save tremendous time to turn an existing application into PaaS or SaaS, and start billing new customers. In addition, SlapOS can also solve the increasingly complex problem of software packaging for multiple GNU/Linux distributions by providing a simple way to create universal RPM/DEB packages and test them.

SlapOS Developer Program was created to support developers in the current context of SlapOS which can be currently (June 30th 2011) characterized by a relative lack of documentation. By teaming with SlapOS core development team and using the existing VIFIB.net platform, developers can benefit from online support and port their applications to SlapOS in a matter of hours. Our experience and success stories show that third party developers who teamed with SlapOS core developers could bring their software to the Cloud while others faced difficulties to understand SlapOS due to lack of tutorials. We thus recommend for the time being to subscribe to www.vifib.net and request (Free) membership to the **SlapOS Developer Release Program**. Nexedi can also provide commercial support for very tight time-to-market requirements.

In a couple of months, based on current developer experience and questions, documentation and tutorials will be extended to help other developers join SlapOS without the need to be in contact with SlapOS core developers. In order to make this happen faster, we are looking for contributors ready to write documentation and explain the specification of SLAP and SlapOS. The best way to help us is to send your staff to our office or to define joint collaboration projects. SlapOS is a community project. We need your support.