**LaaS: Open Source Evaluation**

The table below covers the features required for the LaaS. Also, adding the open-source possible for these features.

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature List** | **Open Source** | **Feature Coverage** | **Comments** |
| **Service Requests** | Yes | OK | [Details](#_Service_Requests) |
| **Change Management** | Yes | OK | [Details](#_Service_Requests) |
| **Connection Management** | Yes | OK | [Details](#_Connection_Management) |
| **Inventory Management** | Yes | HIGH | [Details](#_Inventory_Management) |
| **Asset Management** | Yes | HIGH | [Details](#_Inventory_Management) |
| **Process Automation** | Yes | HIGH | [Details](#_Process_Automation) |
| **Blueprint Orchestration** | Yes | HIGH | [Details](#_Blueprint_Orchestration) |
| **Capacity Management** | No |  | * Open source tools are available with GPL license only. * No tool found with apache license. * Awaiting inputs from Vatroslav for the feature. * Previously handled using ngWorm tool |
| **Reservation Management** | No |  |

**Legends:**

| **Coverage** | **Approximate %** |
| --- | --- |
| **OK** | 91% - 100% |
| **HIGH** | 76% - 90% |
| **MEDIUM** | 26% - 75% |
| **LOW** | 0% - 25% |

# **Service Requests/Change Management**

|  |  |  |
| --- | --- | --- |
| **Tool Name** | **Bugzilla** | **Trac** |
| **Features** | * Web based architecture * Mobile app available * API available * Email Notification * Customizable workflow and fields * Indexed full-text search * Integrated reports and charts * Capable of handling large projects | * Web based architecture * Mobile app available * API available * Email Notification * Customizable workflow and fields * Inbuilt reporting * Integrated wiki * Version control system is handy |
| **Limitations** | * Tough to install on non-Linux platforms * It is hard to manage the logged in errors * Bug numbers are unique in a particular installation. | * No Indexed full-text search * Not capable to handle large projects |
| **Technology** | Perl | Python |
| **Data sources and integrations** | MySQL, Oracle, PostgreSQL, SQLite | SQLite, PostgreSQL, MySQL |
| **Operating systems** | * Linux * OS X * Windows | * FreeBSD * Linux * NetBSD * OS X * Windows |
| **Authentication mechanism** | Password, LDAP, Radius | Password, LDAP |
| **Input interfaces** | Web, Email, GUI, CLI, API, | web, Email |
| **Plugin/APIs available** | Yes, multiple plugin available | Yes, many plugins available |
| **Community** | Strong, Mozilla Public License | Medium, BSD license |
| **Documentation** | Highly documented | Highly documented |
| **Links** | * <https://www.bugzilla.org/> * <https://www.bugzilla.org/docs/> * <https://github.com/bugzilla/bugzilla> | * <https://trac.edgewall.org/> * <https://trac.edgewall.org/wiki/TracGuide> * <https://github.com/edgewall/trac> |

# **Connection Management**

|  |  |
| --- | --- |
| **Tool Name** | **Netbox** |
| **Features** | * Exposed REST APIs * Virtual Routing and Forwarding * Caching for performance improvement * Change Logging * Supports rest API * Token-based authentication. |
| **Limitations** | * No Network monitoring * No DNS and RADIUS server * No Configuration management * No facilities management |
| **Database supported** | PostgreSQL database |
| **Technology** | Python |
| **Authentication** | LDAP authentication |
| **Community** | Apache 2.0, strong |
| **Documentation** | Average documented |
| **Links** | * <https://netbox.readthedocs.io/en/stable/> * <https://github.com/netbox-community/netbox> |

# **Inventory Management/Asset Management**

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| --- | --- | --- |
| **Tool Name** | **Openboxes** | **inoERP** |
| **Features** | * Stock movements * Inventory Tracking * Dashboard * Reporting * Permission levels by role * Email notifications * Record metadata required for proper handling of particular items. * Supports API | * Dynamic Pull Based System * Custom Report Builder * Multi-Device Usage * in-Built CMS & Collaboration * Flexible Architecture |
| **Limitations** | Paid features:   * Cloud hosting * On-Premise solution * Monitoring * Backup | * Limited records can be uploaded in a single transaction * High complexity |
| **Supported OS** | Ubuntu 14.04+  Mac 10.6+  Windows 10  Ubuntu  Docker | Cross-platform |
| **Database supported** | MySQL | Oracle 12c, MariaDB, MySQL |
| **Technology** | Grails, Spring, Hibernate, REST API | PHP, JavaScript |
| **Authentication method** | Cookies | sessions |
| **Community** | Medium, Eclipse Public License 1.0 | Low, MPL 2.0 |
| **Documentation** | Well documented | Medium documentation |
| **Links** | * <https://openboxes.com/> * <https://openboxes.readthedocs.io/en/develop/> * <https://github.com/openboxes/openboxes> | * <http://inoideas.org/> * <http://inoideas.org/content.php?content_type=documentation&category_id=30> * <https://github.com/inoerp/inoERP> |

# **Process Automation**

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| --- | --- | --- |
| **Tool Name** | **Chef** | **Puppet** |
| **Features** | * Application Deployment * Infrastructure Configuration * Network configuration management * Code-driven approach and has greater flexibility and control of configurations * The “Knife” tool lessens installation headaches * Provides extensive collection of configuration and module recipes * High scalability | * The complete User Interface * Powerful reporting capabilities * Grants access to a well-established support community * High scalability * Scaling-up and scaling-down of machines dynamically * Provide centralized control over all machines * Any changes made in the configuration can be easily propagated to all related machines |
| **Limitations** | * Does not support push functionality * Knowledge of Ruby and procedural coding is must * Steep learning curve * High complexity | * Support for pre-Ruby versions is in the process of being scaled back * Its model-driven approach and has less control of configurations * Advanced tasks require CLI * Requires knowledge of Ruby at later stage |
| **Technology** | Ruby | PuppetDSL |
| **Availability** | If primary server goes down, a backup server takes up the slack. | Incorporates a multi-master architecture |
| **Platform supported** | AIX, RHEL/CentOS, Solaris, Ubuntu, and all Linux flavors | Microsoft Windows Server, CentOS, Linux or Oracle Enterprise Ruby need to be installed |
| **Interoperability** | High | High |
| **Ease of Setup/Management** | Complex | Complex |
| **Key Concept** | Recipes and cookbooks | Manifests and modules |
| **Methodology** | Uses an imperative language. | Uses a declarative language |
| **Community** | Strong, Apache 2.0 | Strong, Apache 2.0 |
| **Documentation** | Highly documented | Highly documented |
| **Links** | * <https://www.chef.io/> * <https://docs.chef.io/> * https://github.com/chef/chef | * <https://puppet.com/> * <https://puppet.com/docs/> * <https://github.com/puppetlabs/puppet> |

# **Blueprint Orchestration**

|  |  |
| --- | --- |
| **Tool Name** | **Cloudify** |
| **Features** | * TOSCA-Based Blueprint Modeling * Drag-And-Drop Graphic Editor * Access and Manipulate Data Using Templates * Custom Widgets * Snapshot Creation and Restoration * Role-Based Access Control * Tenant Management * Orchestrate Network Functions Virtualization Infrastructures * Virtualize and Orchestrate Your Infrastructure Incrementally |
| **Limitations** | * Complex UI * Complex installation and configuration * Complex learning curve |
| **Technology** | Python, YAML, TOSCA |
| **Authentication** | LDAP |
| **Platform supported** | * Windows * Linux * Mac * Web-based |
| **Deployment** | * Cloud Hosted * Open API |
| **Integrations** | * Google Cloud Platform * Docker * Kubernetes * Amazon Web Services * OpenStack * Microsoft Azure * ELK-Stack |
| **Community** | Strong, Apache 2.0 |
| **Documentation** | Well documented |
| **Links** | * <https://cloudify.co/> * <https://docs.cloudify.co/5.0.0/> |