



## An introduction to Landscape

### Executive summary

For many system administrators, working with Ubuntu can mean using manual methods and scripts to update their systems. This approach can be difficult when working with a network of hundreds of machines. Landscape, Canonical's systems management and monitoring service, enables administrators to manage multiple Ubuntu machines through an intuitive web-based interface. Landscape gives administrators automated system administration capabilities such as management, monitoring and provisioning of software packages across a large network.

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## Introduction

Landscape simplifies the complex task of monitoring and administrating multiple Ubuntu desktops and servers. It enables system administrators to manage a network through a single web-based interface, allowing for secure updates and provisioning of packages across numerous (physical, virtual or cloud) machines. Landscape also provides a host of additional monitoring, user control, process management, inventory control and support enhancement tools that help increase productivity immediately.

Landscape is a client-server system that synchronises – in near-real time – package and operating data from managed systems, providing the latest status updates for system administrators.

### **There are two main parts to Landscape:**

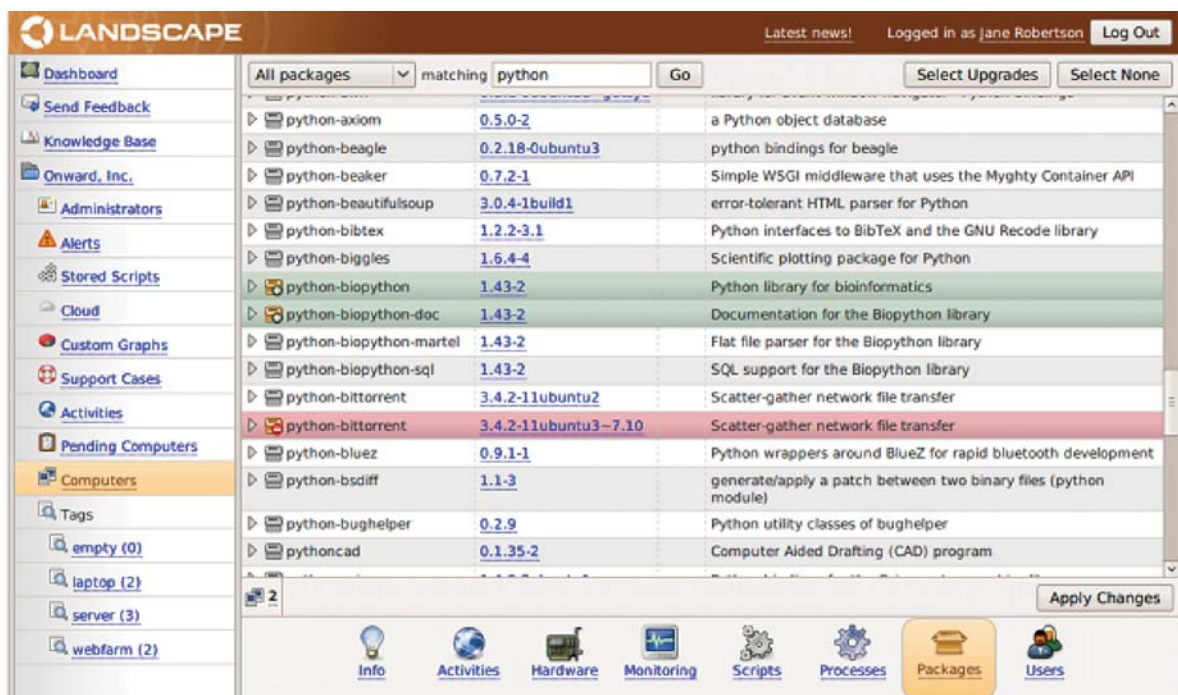
- The Landscape server, hosted by Canonical, collects information on registered Ubuntu systems and processes information about package updates for the Landscape client. The server provides all the functionality of the service such as sending alerts, graphing system parameters, interrogating the Ubuntu package repository for package updates and maintaining a database of system hardware. The server also hosts the Landscape website, which provides the web interface that lets administrators manage and monitor Ubuntu systems from any web browser on any computer.
- The Landscape client is an application that is installed on each system. It registers every system and communicates status information periodically with the server. The Landscape client is distributed with Ubuntu Server Edition (since Ubuntu 8.10 Server Edition) and is available as a package download from the Ubuntu package repository.

Landscape is a hosted service designed to be easy to deploy and use. No special hardware is required to use Landscape. System administrators simply download the Landscape package on each machine they wish to manage and configure it to connect with the Landscape server over a secure connection using the public Internet. The user-friendly GUI interface makes Landscape simple to use and, in general, no specialised training is needed so both experienced and novice Linux system administrators can easily manage their environments.

## Package management

Tracking and updating system configurations is one of the most time-consuming tasks for IT administrators. The ability to quickly view detailed configuration information, histories, updates and enforce standardisation between systems is key to simplifying the job of diagnosing, auditing and ensuring compliance. Landscape provides a simple web interface to view key system parameters, updates, and packages that are deployed to each system or group of systems. Landscape simplifies system administrators' everyday workloads by letting them create scripts that automate routine work such as starting and stopping services, performing backups and profiling hardware.

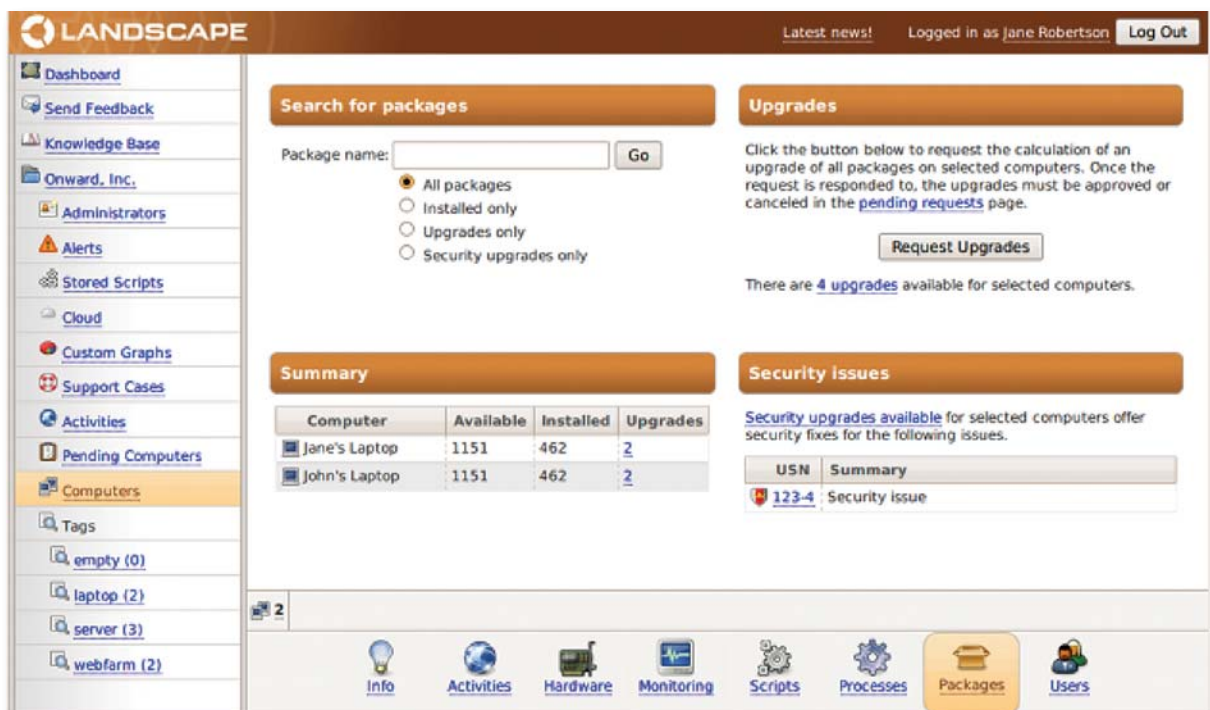
Landscape operates in near-real time. Landscape clients synchronise with the server approximately every 30 seconds (with a very lightweight ping) to determine if new packages are available and retrieve system status. A system administrator who, for example, wants to update packages on a machine selects the packages and clicks 'Apply'. This action is immediately executed the next time the client pings the server – usually 30 - 60 seconds, so users don't need to log back into Landscape hours later to see if an action has been completed – they can see the results immediately. Landscape works just as well with occasionally-connected systems such as laptops. The client on the laptop pings the server the next time it is connected and package information and system updates are exchanged at that time.



**Figure 1:** Landscape enables users to view all packages by system or search for a specific package to rapidly identify which systems they are deployed to.

Landscape is designed to be customised for specific environments by being pointed at custom package repositories. Many users have custom package repositories either because they have unique packages or they have slow Internet connections that would make downloading packages very time-consuming.

Landscape further simplifies a system administrator's life by identifying and highlighting critical security updates separately from standard package updates. This way, users can apply those priority patches now, and wait for a more convenient time or maintenance window to apply routine packages.

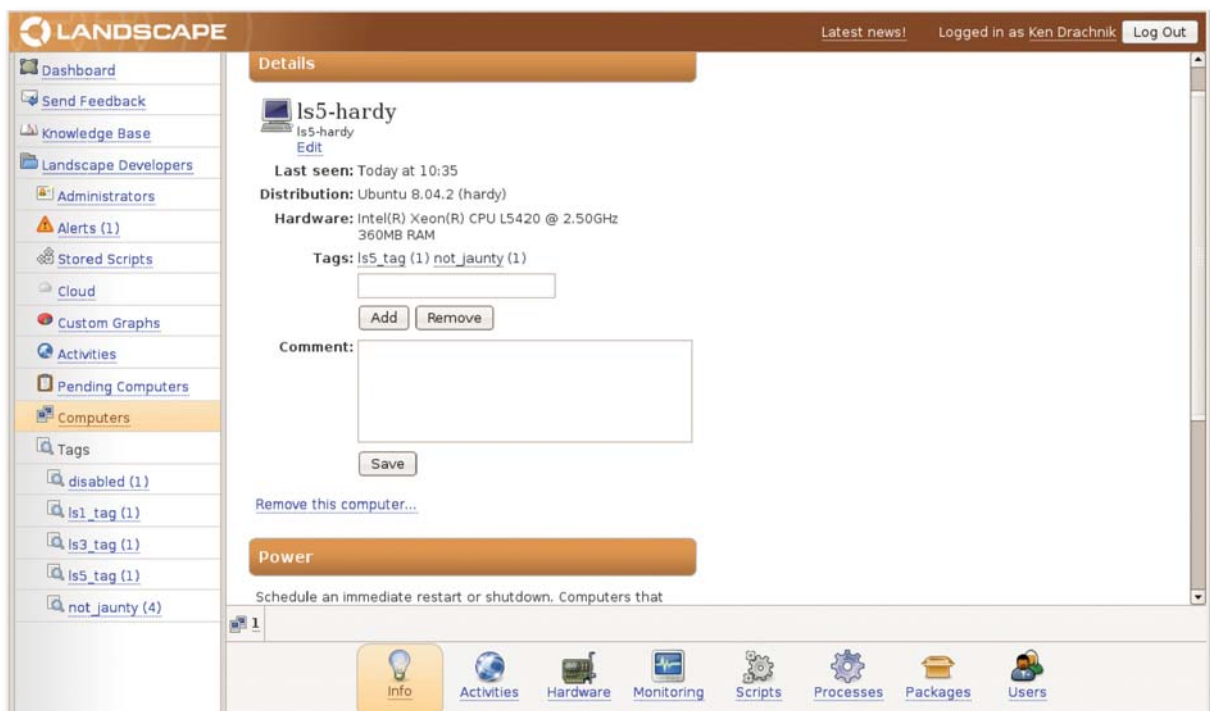


**Figure 2:** The Landscape package page includes a summary of available packages by machine, a package search box and a 'Security Issues' section that highlights the most recent security packages that are available.

## Grouping systems

System administrators typically manage large groups of machines that serve the same purpose and must be kept in the same configuration. Whether these are web servers, application servers, mail servers, desktops, or systems in different geographic locations, they all provide a similar function. If any of the systems is configured differently from the others, it can cause applications to fail. Landscape enables system administrators to group machines that are to be configured in the exact same way so that any task can be applied to all similar machines with a single action – for example, performing an update to a package for a thousand web servers. In Landscape, we use the concept of ‘tags’ to group similar machines that users can then manage as a group.

To designate a machine as part of a group, users simply tag the machine with a description of their choosing (for example, users can use the tag ‘webserver\_wolverhampton’ to tag all the web servers that are part of their Wolverhampton facility). To tag a given computer, users simply click on that computer and a ‘Details’ screen comes up in which they can add a tag to the system. Users can choose from an existing tag or enter a new tag, and they can apply multiple tags to any machine. This gives system administrators the flexibility of managing those systems and applying the attributes they need with a single command. Any machine can have any number of tags, which offers the flexibility of managing or monitoring any system in multiple ways.

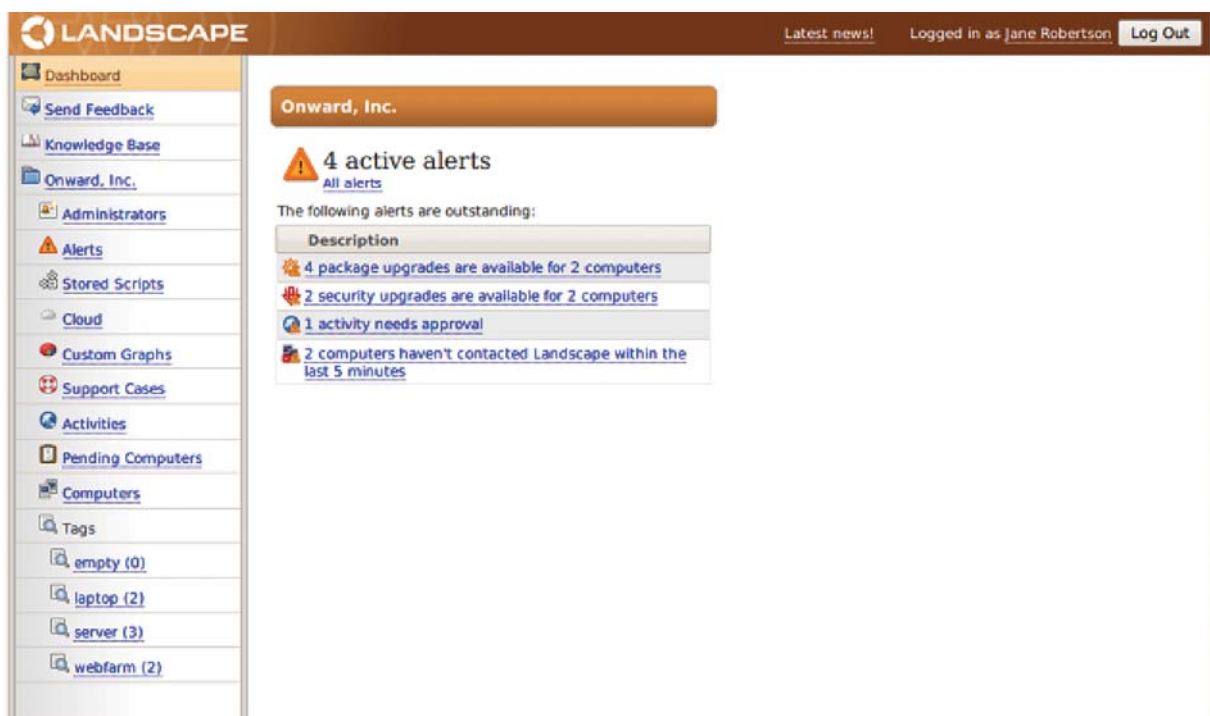


**Figure 3:** Systems that perform similar functions or similar package profiles are grouped with ‘tags’. These enable users to apply the same action across all systems with the same tag. Any system can have multiple tags, making systems management more flexible.

## Alerts

Landscape automatically notifies system administrators of the actions they need to take, through a customisable alerts system.

Typically, alerts are established to notify users when important events occur such as when new security packages are available, when activities require approval or when pending computers require approval. A notification is sent to the user by email who can then log in to their Landscape account and view the computers or packages that require action.

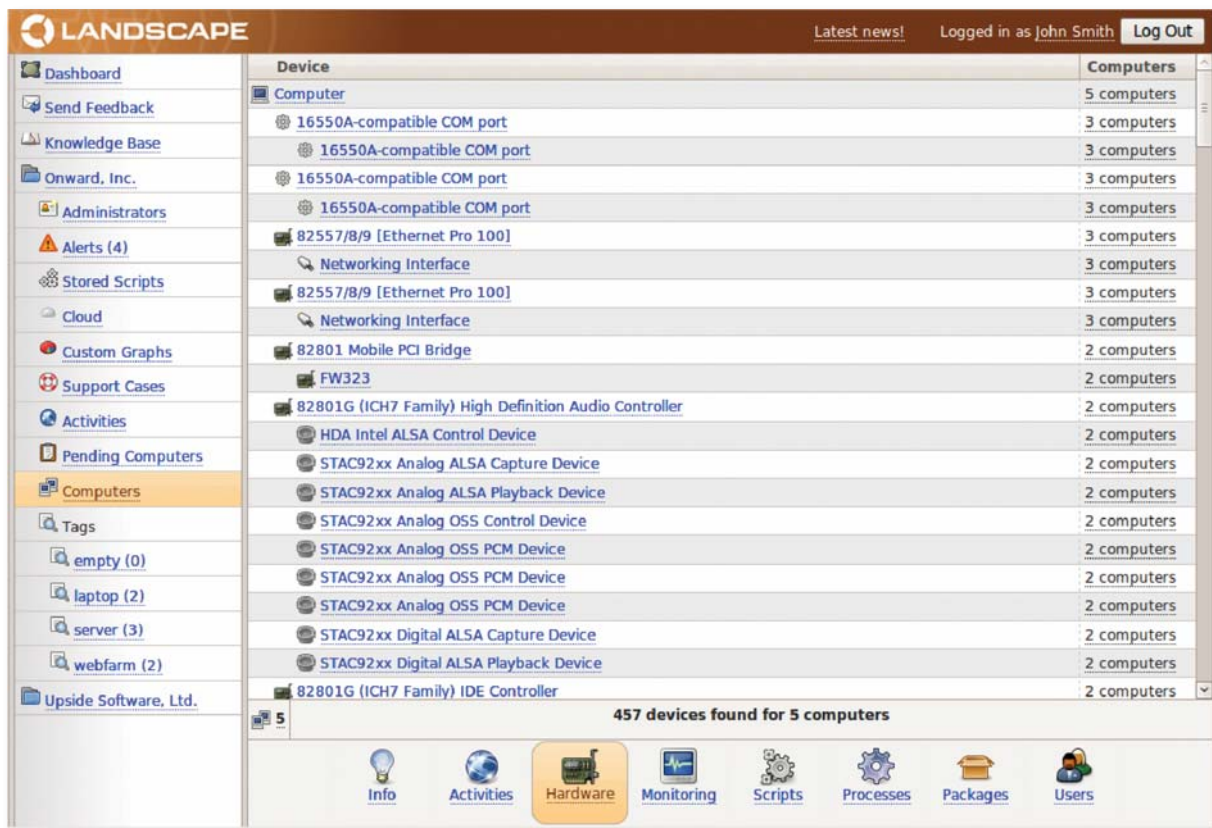


**Figure 4:** The 'Alerts' screen summarises the actions that a system administrator needs to take – such as when there are important security updates available or when pending computers or actions require approval.

## Inventory management

Landscape eases the task of maintaining a hardware inventory through its inventory management feature.

By providing a comprehensive list of the hardware installed on each machine, system administrators can see how each system is configured, providing a mechanism for performing system audits and meeting compliance requirements.



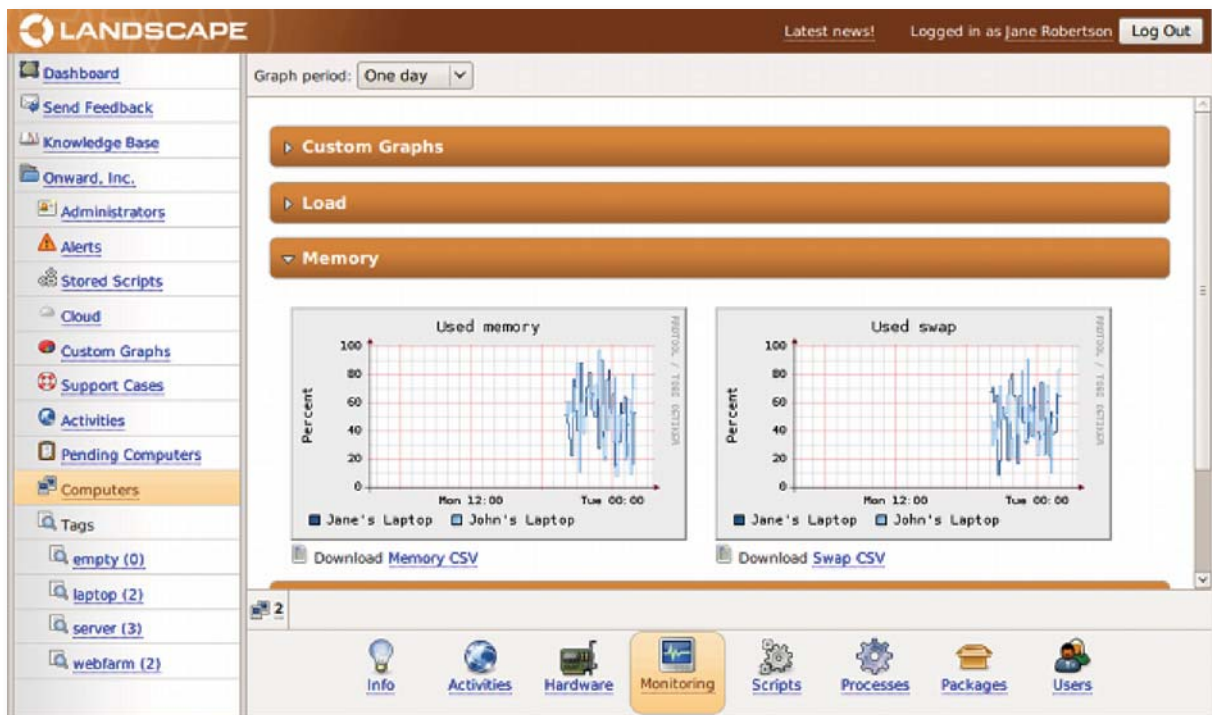
**Figure 5:** Landscape includes a hardware inventory page so users can see how each system is configured, providing a mechanism for performing system audits.

## System monitoring

Using Landscape, users can monitor each machine they manage. The Landscape agent, installed locally on each computer, communicates with the Landscape server, recording the status of machine metrics so administrators can access it from anywhere to analyse system performance over time. Landscape includes a graphical module that makes it easy to plot trends of temperature, disk and memory usage, system load or even custom metrics over time. This helps users to quickly pinpoint bottlenecks or other problem areas.

Landscape now enables users to create custom graphs so they can monitor any machine readable parameter. System administrators enter a script to read the parameters of choice and Landscape automates the process of collecting and displaying that information.

Finally, Landscape simplifies the process of conforming with security audits by providing detailed history logs that display actions performed by all administrators. In addition, it offers full access to all package information: The convenient web interface enables browsing of all packages installed and available for upgrading on all registered machines, including security notices.



**Figure 6:** Trends of system parameters are easily graphed and displayed giving users the ability to quickly pinpoint bottlenecks and issues.

## Enhanced support experience

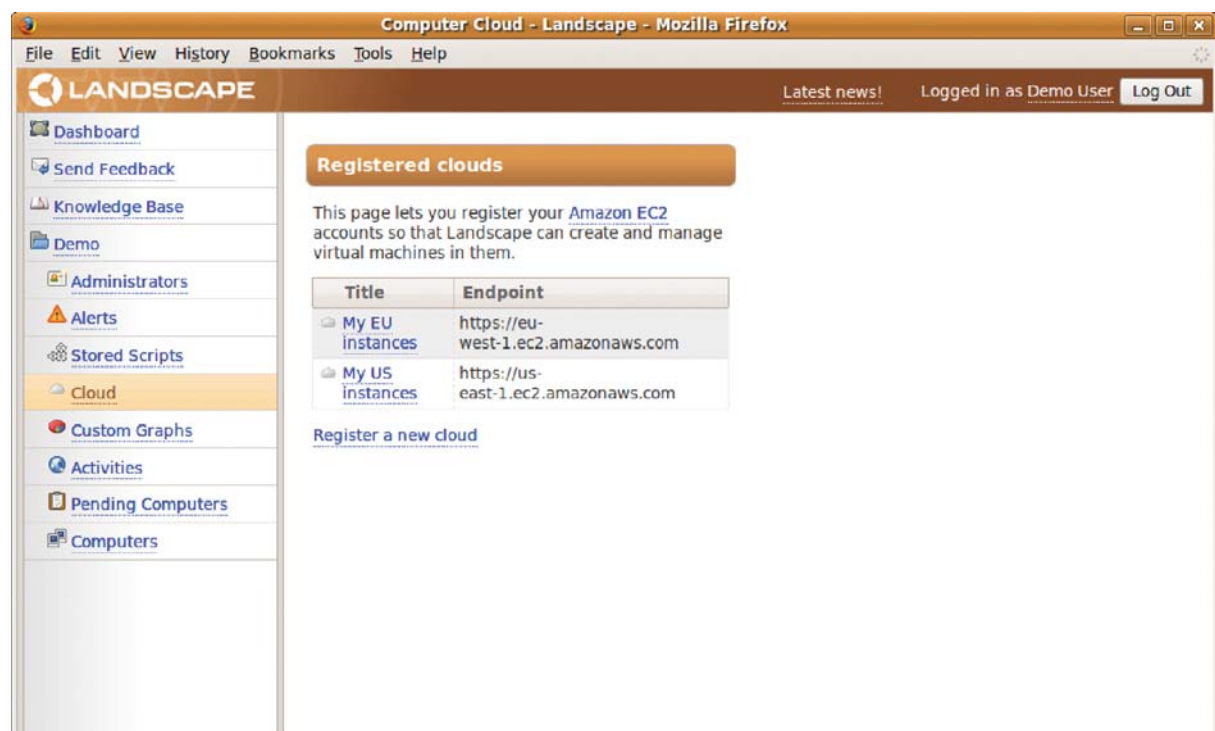
Landscape simplifies the support experience by automating the tedious task of relaying system information to our support experts. Users can choose to send system information directly to our support team. This means that they can analyse and resolve any issues more rapidly. With access to read-only information on hardware and configurations, our support team is better placed to diagnose and resolve trouble tickets more quickly. In addition, users can log into our support portal and view and track support cases in Landscape, thus providing all their management needs in a single convenient location.

All Landscape accounts include access to the Knowledge Base, which provides access to the latest articles that help users quickly optimise their Ubuntu installation and maximise systems performance.

## Managing cloud environments

Managing cloud environments adds an additional layer of systems management complexity for IT administrators. Landscape simplifies the process of managing cloud environments by enabling users to manage them as they would physical machines. Users can now start, stop and upgrade packages, and monitor Ubuntu instances, on the Amazon Elastic Cloud Compute (EC2) cloud environment from within Landscape. These cloud instances will be displayed along with users' physical Ubuntu instances on the same 'Computers' page in Landscape so they can manage all their instances in one location.

To get started, users enter their Amazon security credentials in the Landscape setup page, select an Ubuntu Amazon Machine Image (AMI) that already has Landscape packages installed, and then register that instance with the Landscape server. The whole process is designed to be almost as simple as registering a physical machine. When users connect to Landscape and view their list of machines, they will see a cloud icon along with a list of all the machines associated with Landscape.



**Figure 7:** System administrators can register and manage virtual machines in Amazon's EC2 environment alongside their physical machines in Landscape. This enables users to manage all their Ubuntu instances from a single console.

## Conclusion

Landscape is an easy-to-use systems management and monitoring service developed by the engineers that package and support Ubuntu. The Landscape service provides powerful, automated systems administration capabilities such as management, monitoring and provisioning of packages across multiple machines. As a result, it reduces the per-systems cost of management and administration. Because Landscape is web-based, it is easy to set up and use and requires no special hardware or specialised skills. In summary, Landscape can make Ubuntu system administrators more effective by:

- Automating routine maintenance tasks and eliminating error-prone manual updates that can result in downtime.
- Simplifying patching, configuration and compliance of systems so users can manage many systems as easily as one.
- Alerting system administrators when priority patches are available. This helps users keep their networks up and running – resulting in considerable time savings.
- Working with physical and virtual instances of Ubuntu – even those in the cloud – which gives users control over all of their Ubuntu systems.