ubuntu case study

# Ubuntu helps bridge the digital divide in rural India

## Powering servers and desktops for rural networking pioneer

| Fast Facts | |
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| Organisation: | Airjaldi |
| Industry: | Networking |
| Country: | India |
| Challenge: | Broadband connectivity in rural India<br>Bridge the digital divide in rural areas<br>Minimise operating costs<br>Support mission-critical network infrastructure |
| Solution: | Ubuntu Server in the Network Operations Centre<br>Ubuntu on workstations |
| Results: | No proprietary licensing costs<br>Support for rural broadband services<br>Ease of use<br>Better IT for customers<br>New life for older hardware |


### Summary

Airjaldi's vision is to provide broadband services in rural India where terrain is difficult, the population is sparse, and financial resources are scarce. Success depends on keeping overheads to an absolute minimum – and there is no spare budget for costly, proprietary software. Instead, the company powers its Network Operations Centre (NOC) with free, open-source software Ubuntu Server. To further reduce operating costs, Airjaldi uses Ubuntu on its workstations, where its simplicity and ease of use are great benefits for employees.


### Challenge

Rural network connectivity in developing countries is rarely seen as a viable business proposition among major telecommunications companies. The terrain is difficult, the population sparse, and customers' ability to pay low.

Airjaldi was originally a social enterprise established in Dharamsala, India to provide reliable broadband services for rural communities.

In 2009, Airjaldi set up a commercial division, Rural Broadband Pvt. Ltd., which – under the brand name Airjaldi – builds and maintains networks and provides additional professional services for paying customers. It built, owns and manages four major rural wireless networks in three Indian states (Himachal Pradesh, Uttarakhand and Jharkhand) – providing broadband access for thousands of institutions and individuals. At the same time, its not-for-profit affiliated sister (AirJaldi.org and AirJaldi Research and Innovation in India) runs a number of networking academies and is dedicated to providing grass-roots network skills training; and researching technologies that enable simple, low-cost network deployments.

Working with a challenging business model, and in difficult conditions, Airjaldi's success depends on minimising network deployment and management costs, without compromising on the quality of services for customers. To do this, it needs cost-effective, reliable technologies that are robust and simple to use.

## Solution

To minimise operating costs and realise its vision of rural broadband connectivity in India, Airjaldi relies on free Ubuntu Server software. The technology powers its Network Operations Centre (NOC), supporting major services such as network monitoring, provisioning of client accounts, remote server configuration and more. Michael Ginguld, CEO of Airjaldi.org and Director of Strategy and Operations of Rural Broad Band Pvt. Ltd., says: "Ubuntu is a free, open-source operating system that enables us to manage our servers and networks at a fraction of the cost of proprietary systems."

Each of Airjaldi's networks started running on a single Ubuntu machine, and the company now has eight servers distributed over thousands of kilometres. Network Managers for each of the four networks access the servers on a daily basis and a centralised systems manager undertakes remote trouble-shooting and configuration via VPN and occasional visits to NOC sites.

To provide additional capacity for major one-off projects, Airjaldi deploys extra Ubuntu servers on a temporary basis. "Last year, we ran a streaming project for a large organisation conducting an educational trial," says Ginguld. "We quickly rolled out 10 Ubuntu servers distributed over hundreds of kilometres to manage streaming and packet duplication services and the remote installation features of Ubuntu worked like magic."

As well as using Ubuntu to monitor and manage its networks, Airjaldi employees use Ubuntu on their desktops. "We have a lot of dual-boot systems, and some of our older machines run only Ubuntu," says Ginguld. "We recently saw a patch that makes Ubuntu look like Windows XP, Windows 7 or Mac OS, and this will help drive further take up both internally and among our customers."

As part of its educational remit, Airjaldi runs a periodic four-week wireless networking course. As a key element of the training, two days are dedicated to Ubuntu, ensuring students understand the installation process for the both the server and desktop OSs, as well as their capabilities.

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Michael Ginguld, CEO,
Airjaldi.org

## Results

### Powering broadband services for rural India

Ubuntu has helped Airjaldi realise its vision of delivering affordable broadband services in rural India. Without access to full-featured, free, open-source technologies, its work would be simply impossible. "We are extremely grateful to the open-source community, and to the Ubuntu community in particular," says Ginguld. "Thanks to the hard work of scores of people around the world, we have been able to close the digital divide in the regions where we operate, and bring connectivity to thousands of institutions, businesses and homes."

### Ease of use

Airjaldi chose Ubuntu for its simplicity and ease of use. "At Airjaldi, we take on intelligent people with an aptitude for networking, even if they have no formal IT training," says Ginguld. "The shell on the software really does make it easy for people to interact with it – even if they have no Linux skills whatsoever when they join the company."

### Regular updates

Ubuntu boasts a six-month release cycle, as well as long-term support (LTS) versions released every two years. This ensures that Airjaldi's servers are updated regularly and totally secure. "Regular updates to Ubuntu, and the wealth of support resources available online, provide great stability for our critical network-management processes," says Ginguld.

### Enhancing IT for customers

Ubuntu regularly helps Airjaldi improve IT services for its own customers at campuses and offices across India. "All too often, we find customers using pirated versions of proprietary software that crash all the time and can't be updated properly," says Ginguld. "By replacing this kind of system with Ubuntu, we can help them achieve far better performance and availability at no extra cost."

### Breathing new life into old machines

Airjaldi regularly uses Ubuntu to extend the life cycle of older servers and workstations – which is a great benefit for schools and businesses in developing areas. "Customers bring us old machines that have no chance of running heavy proprietary software," he adds. "We've found that installing Ubuntu breathes new life into old machines, which is great in developing countries like India where resources are scarce. Using Ubuntu, we save around one old machine a week – putting them to work in skills training and other important activities."

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