



## Redundant Asterisk Solution for Spanish Media Conglomerate

### Overview

Recursos en la Red (RenR [1]) is a Spanish IT company specializing in the press/publishing sector. It is part of Grupo Editorial Prensa Ibérica (EPI [2]), a publishing group comprised of 19 newspapers geographically spread across Spain and several other related businesses including printing press plants, press distribution, graphic design and book publishing companies[3]. EPI is currently expanding into other media such as radio and TV.

RenR manages all the IT needs of the EPI group, including an internal private network connecting all these companies; all the usual TCP/IP services like DNS, FTP, e-mail or web servers; the development of a CMS running the digital editions of all the group's newspapers[3]; the development of a full management and publishing suite for the printed editions, comprising of a workflow manager, a collaborative text editor, a photograph library, a news agency wire service reception and indexing system, etc. All these services have a 24/7 support policy.

Another important product is a POS system for kiosks and other newspaper selling points[4], capable of: recharging prepaid mobile phones of all major operators in Spain; recharging transport carts for several cities' metropolitan transport services; selling admission tickets for theme parks, concerts, and other entertainment events; managing a basic accountability of the kiosk; etc. It currently has a deployed base of around 12000 units with an estimate target of over 25000. RenR has a call center handling the end-user support for this service during business hours.

The Publishing business is a business with very tight schedules: the press plants assign tight deadlines to each newspaper, so they have to be written, *filmed* to high-resolution PDF or EPS files, sent via FTP to the press plant and ready to go to print at that precise moment or they are pushed to the end of the queue. If this happens, the newspaper will not be ready soon enough for the distribution company to get it to the kiosks and other selling points in time. On the other hand, the press plants themselves can also incur heavy penalties if they are responsible for delaying the process because of any technical reasons. This production cycle is repeated 365 days a year.

Obviously, the systems and software RenR is responsible for are mission-critical for its clients. Any error has to be dealt with in minutes or the whole process can fall behind schedule. And the main communication channel during those highly critical moments is the telephone. This makes the PBX as important and crucial a system as the e-mail server or the network itself.

### Asterisk High Availability Requirements

RenR knew of Asterisk by late 2005, and started a careful migration process in mid 2006 by integrating an Asterisk PBX in front of the company's legacy PBX using a 2 ISDN PRI PCI card. This was a way to start testing and benefiting from some of Asterisk's features like call queues, voicemail and programming, while still using the analog phones via the legacy PBX. But shortly after rolling the Asterisk PBX into production, a faulty RAM chip brought it down. A high availability solution was needed.

Given RenR's expertise with Linux clusters, replicating the Asterisk system in an active/passive setup was not a problem. The only missing piece was a way to switch the ISDN lines from one server to the other if one of the servers went down. Enter the Redfone foneBRIDGE2 T1/E1 to TDMoE bridge. This device made it possible to detach the physical ISDN lines from the servers, acting as a "logical switch" sending the TDMoE frames to the "master" server.



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### Current setup and future plans

RenR finished its migration to a full VoIP implementation, removing the legacy PBX and rolling out VoIP phones, in mid 2007. Its current telephony system is comprised of:

- 2 Pentium IV servers with 1Gb RAM running Asterisk in an active/passive fail-over configuration (in-depth technical details here[5])
- 1 foneBRIDGE2
- 1 PRI ISDN line
- ~70 VoIP phones
- several different call queues
- some extensions have a programmed redirection to a mobile phone number outside business hours for 24/7 support
- other extensions are redirected to voicemail outside business hours
- conference rooms, etc.

This system handles an average of 10 concurrent calls at any given time during business hours, with spikes of over 25.

RenR is currently installing Asterisk boxes with a similar setup in the rest of the group's companies. This will allow the EPI group to cut costs to zero in the numerous internal calls. There are plans to route external calls through the resulting VoIP network to the PBX that is nearest to the destination, thus cutting costs on external calls too.

Asterisk is going to help the company improve its telephone support in many ways. It is already providing real-time statistics about the number of incoming calls and queued calls, useful to draw client-support quality metrics. Some ongoing projects include using Asterisk's API to fully integrate it into an existing ticket/support management system, so that it will be able to retrieve all the client's data and show open and past support issues on-screen to the call center operator taking the call; and integrating Asterisk into the company's access control system and the holiday management system, allowing the call center operators to know who is at the office at any given moment, and automatically re-routing direct calls when someone is on holiday.

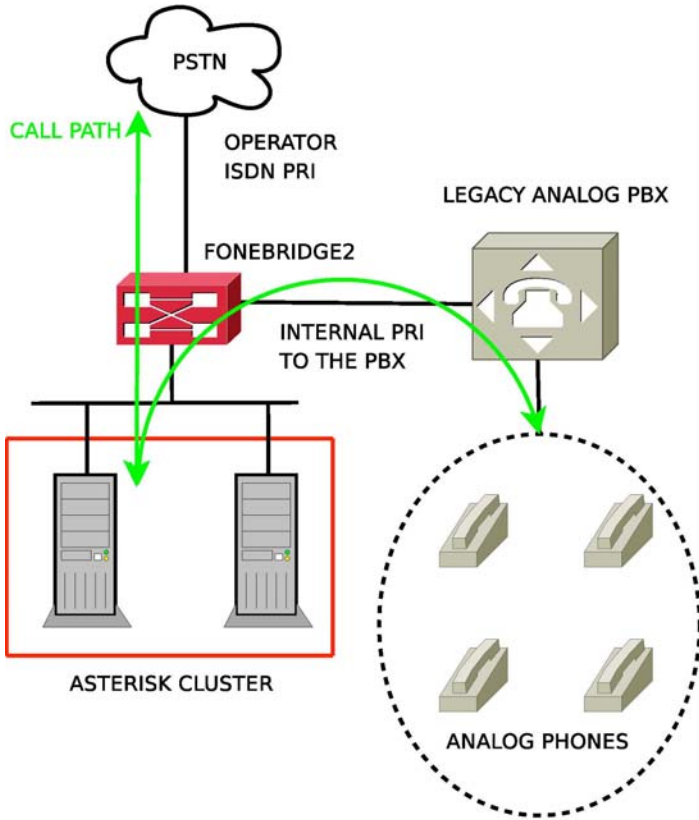
Other Asterisk software in use at RenR include:

- FreePBX for an easy, web-based administration[6]
- Flash Operator Panel[7]
- A set of scripts to run Asterisk via DJB's daemontools[8]
- A dialplan function to easily program different timetables according to a holidays calendar[9]

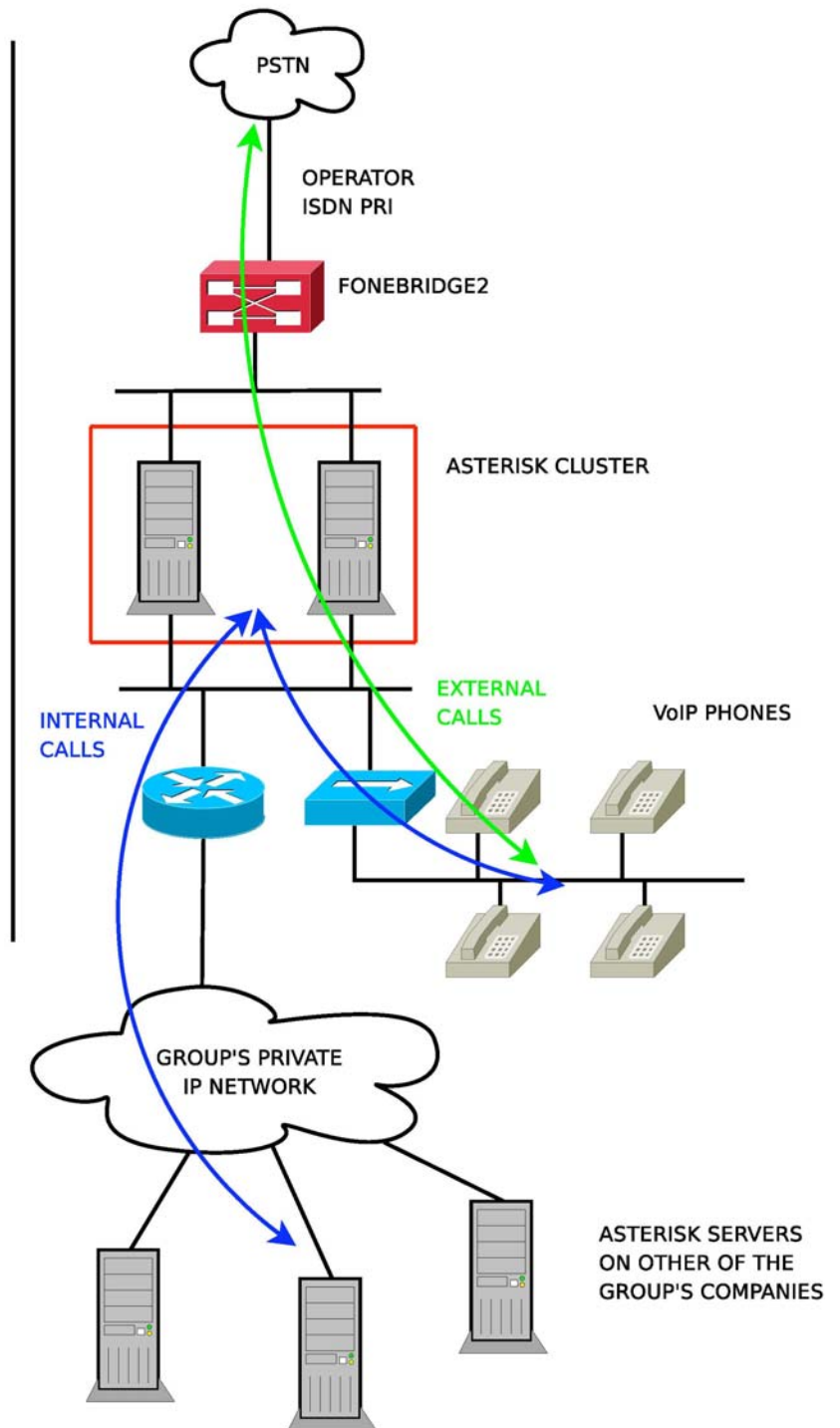


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MIGRATION, 1ST PHASE:  
ASTERISK IN FRONT OF THE LEGACY PBX



CURRENT STATE:  
ASTERISK CLUSTER, VoIP COMMUNICATION  
WITH OTHER ASTERISK DEPLOYMENTS



### Links

- 1: *Recursos en la Red* <http://www.renr.es>
- 2: *Editorial Prensa Ibérica* <http://www.epi.es>
- 3: *Companies of the EPI group* <http://www.epi.es/directorioldiarios.html>
- 4: *Red 30000* <http://www.red30000.es/>
- 5: *Fonebridge2 HOWTO* <http://www.bisente.com/blog/2007/08/26/asterisk-cluster-fonebridge2/>
- 6: *FreePBX* <http://www.freepbx.org/>
- 7: *Flash Operator Panel* <http://www.asternic.org/>
- 8: *Asterisk and daemontools* <http://www.bisente.com/blog/2007/04/27/asterisk-daemontools/>
- 9: *Asterisk holidays* <http://www.bisente.com/blog/2007/04/30/asterisk-holidays/>

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