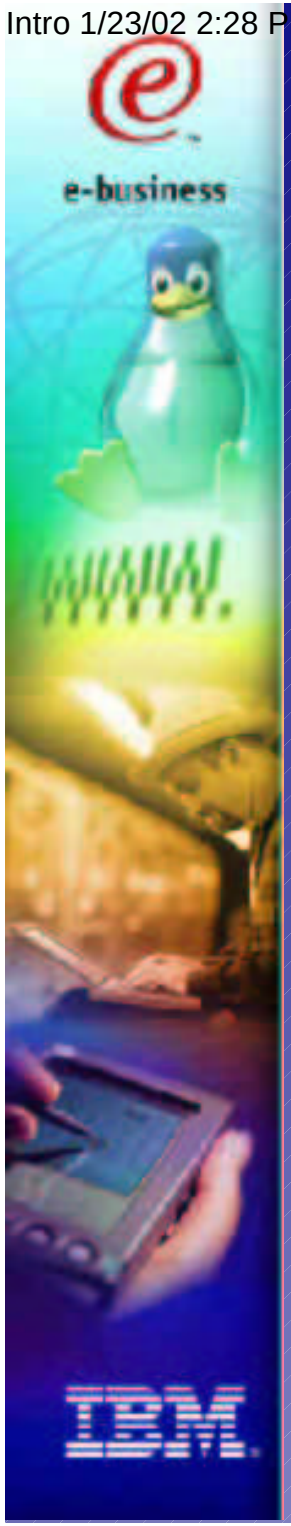
Implementing HA Servers on Linux™



Implementing HA Servers on Linux™

A brief tutorial on the Linux-ha heartbeat software

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Agenda

- What's an HA system?
- Installing the Software
- Configuration Considerations
- Configuring it
- Testing it
- Using it

Purpose: *To give a brief overview of how to implement HA systems on Linux using heartbeat*

Getting the Software

- **Go to: http://linux-ha.org/download/**
- **Retrieve the *Getting Started Guide*, and the *faqntips* documents.**
- ***Read them* <8-O**
- **Get the RPMs, and install them on your system. Use the source RPM if necessary, or use the tar ball if not on an RPM-based i386 system**

Installing the Software

- rpm install heartbeat 0.4.9.1 tar.gz
- **Install the STONITH and ldirectord RPMs if needed**
- **The STONITH code needs the UCD-SNMP package for one kind of STONITH device**

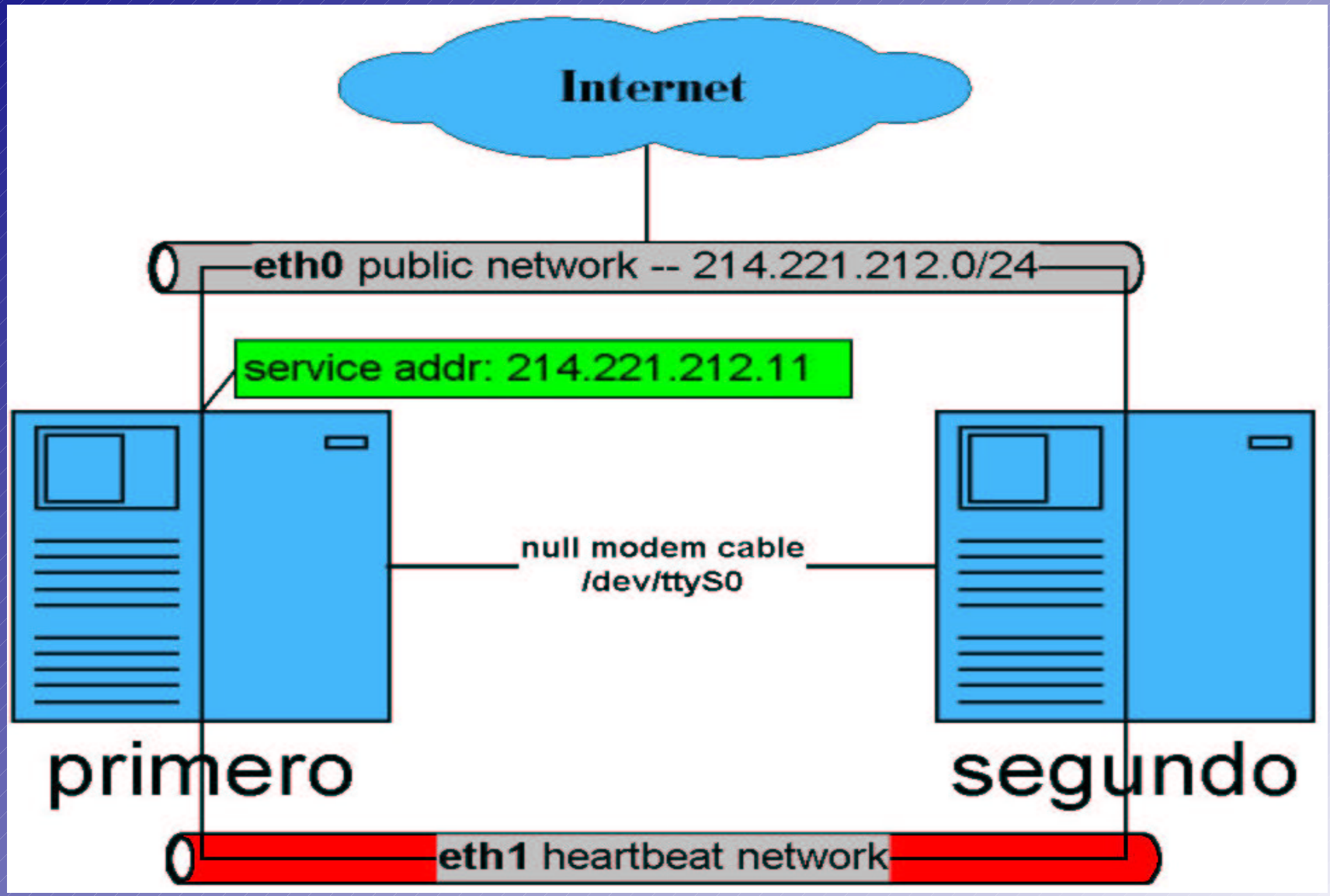
Configuration Considerations

- What kind of heartbeat communication?
- How are you going to provide the data to both sides?
- Shared disk?
  - (requires a STONITH device)
- Replication?
  - automatic?
  - manual?
- Not enough time to go into detail :–(

Our Simple Example Configuration

- Static content HA web server providing service on 214.221.212.11 (eth0)
- Cluster nodes are named primero and segundo.
- Heartbeat communication via eth1 and /dev/ttyS0.
- Replication of web server content performed by administrative tools (rcp, rsync) not discussed further here

Our Simple Example Configuration



Heartbeat config files in /etc/ha.d

- *ha.cf*
  - General cluster configuration – list of nodes, timeouts, communication paths, etc.
- *authkeys*
  - Security sensitive cluster authentication information
- *haresources*
  - Definitions of service (resource) groups

Configuring heartbeat

- Copy *haresources*, *authkeys* and *ha.cf* from */usr/share/doc/packages/heartbeat* to */etc/ha.d*
- chmod 600 /etc/ha.d/authkeys
- Add two lines to /etc/ha.d/authkeys:
  - auth 1
  - 1 sha1 *My Secret Key Shhh!*

Configuring heartbeat (continued)

- Add these lines to ha.cf:
  - `logfacility local0  # use syslog for logging`
  - `node primero segundo # names of our nodes`
  - `udp eth1  # broadcast heartbeat on eth1`
  - `serial /dev/ttyS0  # serial heartbeat on /dev/ttyS0`
  - `deadtime 15  # 15 secs to declare dead`
  - `keepalive 1  # heartbeat once/sec`
- Add this line to /etc/ha.d/haresources
  - primero 214.221.212.11 httpd

Testing

- /etc/init.d/heartbeat start (on *segundo*)
- Check logs to make sure *segundo* starts web server and takes over the IP address
- wget 214.221.212.11
  - telnet should also be directed to *segundo*.
- /etc/init.d/heartbeat start (on *primero*)
- It will take the IP address over from segundo.
- wget 214.221.212.11
  - telnet should now be directed to *primero*.
- /etc/init.d/heartbeat stop (on *primero*)
- segundo should take the services back

Conclusions

- Setting up a Linux–HA cluster is pretty straightforward
- We have hundreds of live installations
- Read the documentation
- Give it a try!

References

- **http://linux-ha.org/**
- **http://linux-ha.org/download/**
- ***A High-Availability File Server w/heartbeat***
  http://www.sysadminmag.com/articles/2001/0109/0109c/0109c.htm
- **Non-stop Authentication with Linux Clusters**
  http://www-1.ibm.com/servers/esdd/articles/linux_clust/index.html

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