**Initial data (subject to change):**

**------------------------------------------------------**

Logical structure of the system

Structurally, the system consists of the following segments: 3 network segments:

* external (in.com)
* internal (vp.com)
* isolated (ac.com)

Segments can be added in the "domain" dictionary of «backup.py» and «restore.py» files.

The fault tolerance of the segments is ensured by the presence of a main data center (OCOD) and reserve data center (RCOD). RCOD accepts connections in the event of a failure of the hardware and/or software of the main data center.

2 data centers:

* OCOD (01)
* RCOD (02)

Data center names and their numeric identifiers can be added to the "codid" and "codname" dictionaries of the backup.py and restore.py files

All segments operate within the same data center. The interaction of technical means between segments is excluded.

The interaction of technical means between data centers within the same segment is allowed.

The belonging of a server to a segment/data center can be determined by the domain name/number that is in the FQDN name of each server (should be written in /etc/hostname). For example, the server bd1iz01.ac.com belongs to an isolated segment of the main data center.

For each segment of the data center, 1 server for storing backups is allocated. A total of 6 storage servers (2 in each segment - one in the OCOD and the other in the RCOD)

* outer segment - 10.111.15.54, 10.111.15.63
* internal segment - 10.111.16.54, 10.111.16.63
* isolated segment - 10.111.17.54, 10.111.17.63

The IP addresses of the backup storage servers can be added to the "domain" dictionary of the «backup.py» and «restore.py» files.

In each segment, a DBMS cluster is deployed, which includes the database servers of the OCOD and RCOD. 3 PostgreSQL DBMS clusters.

The following is the correspondence between the cluster servers and the virtual IP address of the cluster:

* bd1iz01.ac.com, bd1iz02.ac.com, bd2iz01.ac.com, bd2iz02.ac.com - 10.111.15.80
* crsvn01.vp.com, crsvn02.vp.com - 10.111.16.80
* crsin01.in.com, crsin02.in.com - 10.111.17.80

The names of the servers included in the cluster and the virtual IP address of the cluster can be added to the "vipcluster" dictionary of the «backup.py» and «restore.py» files

The servers are running Linux.

The number of servers with backup storages in 1 segment is 2.

The number of PostgreSQL DBMS backup storages for one data center and 1 segment is 1.

The backup storage is a Samba resource deployed on a Linux server.

On each server with PostgreSQL DBMS, a network resource of the main and backup data centers is mounted.

If the redundant server is part of a cluster, then directories with backup copies of all servers included in the cluster must be mounted on it in order to be able to restore from a backup copy of another server included in the cluster. The mount point is a directory with the FQDN of the server.

For example, server bd1iz01.ac.com will have mount points /mnt/dbbackup/OCOD/bd1iz01.ac.com, /mnt/dbbackup/RCOD/bd1iz01.ac.com, /mnt/dbbackup/OCOD/bd2iz01.ac.com , /mnt/dbbackup/RCOD/bd1iz02.ac.com and /mnt/dbbackup/RCOD/bd2iz02.ac.com.

The backup archive includes the DBMS structure (the contents of the main directory) and the WAL segment files generated during file copying.

The WAL file archive includes the WAL segment files generated during the file backup and for the next 15 minutes.

PostgreSQL DBMS cluster based on Corosync + Pacemaker

The total number of PostgreSQL database clusters is 3. The clusters are independent of each other.

For servers included in the PostgreSQL DBMS cluster, the following is created:

* PostgreSQL DBMS backup archive. The naming format is backupdb-"server name"-"creation date".tar.gz;
* WAL file archive. The naming format is wal-"server name"-"creation date".tar.gz.

For servers not included in the PostgreSQL DBMS cluster, the following is created:

* PostgreSQL DBMS backup archive. The naming format is backupdb-"server name"-"creation date".tar.gz.

PostgreSQL DBMS is restored from a backup archive.

**Versions:**

* Python version - 2.7.13
* PostgreSQL DBMS version - 9.6
* OS: Linux
* Corosync: 2.4.2-3
* Pacemaker: 1.1.16-1
* SMB: 3.0