kvmctl
Linux KVM controller

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kvmctl is how we manage our small ”virtual datacenter”.

It is experimental software, as the user interface is not stabilized yet.

1 The kvmctl environment

kvmctl makes the the following assumptions about its environment:

- Each virtual machine has its own parent directory (DRBD mountpoints in our case).
- In each directory resides the image and a kvm.cfg configuration file

2 kvm.cfg format

In kvm.cfg, the following options are mandatory:

- IMAGE (Mandatory) The absolute path to the image file.
- MAC (Mandatory) A unique MAC address for the VM.
- NUMID (Mandatory) A unique ID which is used for calculating VNC and monitor ports.
- MEMORY (Mandatory) Amount of memory that will be assigned to the VM.
- MOREOPTS (Optional) Additional options that will be passed to KVM.

```
IMAGE=/drbd/foo/foo.vmdk
MAC=00:16:3e:12:34:56
MEMORY=512
NUMID=4
MOREOPTS="-cdrom /path/to/cd.iso -boot d"
```

Listing 1: kvm.cfg example

3 kvm.cfg syntax

Currently, there are two possible invocations for kvmctl:

- `kvmctl list` - Prints a list of all VMs that are currently under control of `kvmctl`.
- `kvmctl <image_dir> <command>` - Applies *command* to the image contained in *image_dir*.

The syntax for the ”command” invocation is subject to change in the near future.

4 `kvmctl` commands

4.1 start

`kvmctl <image_dir> start` boots the image contained in *image_dir*.

The started VM is backgrounded. VNC is available at (5900+NUMID) and the KVM monitor in raw TCP mode is available at (1000+NUMID).

4.2 stop

`kvmctl <image_dir> stop` sends a poweroff signal to the VM running from the image in *image_dir*, usually resulting in a clean shutdown.

4.3 kill

FIXME: Not implemented.

`kvmctl <image_dir> kill` kills the VM running from the image in *image_dir*.

4.4 status

`kvmctl <image_dir> status` prints a brief summary of the status of the VM running from the image in *image_dir*.

4.5 vnc

`kvmctl <image_dir> vnc` launches a VNC viewer and connects it to the VM running from the image in *image_dir*.

4.6 monitor

`kvmctl <image_dir> vnc` connects to the KVM/Qemu monitor of the VM running from the image in *image_dir*.

5 Bugs and Limitations

- Support for live migration is not planned.
- The syntax for the ”command” invocation is subject to change in the near future.

A Links

- Python script for generating random MAC addresses
  http://tinyurl.com/macgen-py
- Qemu-Documentation
  http://www.qemu.org/qemu-doc.html
- Qemu-KVM-Wiki
  http://qemu-buch.de/de/index.php/Hauptseite
- KVM Howto
  http://www.linux-kvm.org/page/HOWTO
- KVM FAQ
  http://www.linux-kvm.org/page/FAQ

B FYI: Interface configuration

Here's how we configure our interfaces on CentOS 5:

```
DEVICE=eth0
TYPE=Ethernet
ONBOOT=yes
BRIDGE=br0
HWADDR=00:...
```

Listing 2: ifcfg-eth0 - The ethernet interface

```
DEVICE=br0
TYPE=Bridge
BOOTPROTO=static
ONBOOT=yes
TYPE=Bridge
BROADCAST=192.168....
IPADDR=192.168....
NETMASK=255.255.255.0
NETWORK=192.168....
```

Listing 3: ifcfg-br0 - The bridge

Scripts for pulling up *tap* devices are in the *tapscripts* directory. These should go to */etc*.

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