**Pre-Checks and Preparations in GMP**

* GMP checks the necessary prerequisites, e.g. free IP addresses in the relevant access and storage networks.
* IP addresses and hostnames are being reserved by GMP

**Create VM**

* Generate\_vm\_object and lock it
* Reserving installation Resource:
  + CPU
  + memory
  + find suitable\_hypervisors: based on oasis connection status, available resources, hypervisor lock.
* Allocate\_vm\_resources:
  + determine DNS hosts
  + determine bridge name
  + determine NIC device name
  + generate IP MAC addresss and NIC
* Create and attach new VM-BlockDevices
* Restore image:
  + check if image can be retrieved
  + determine use which image
  + determine use which block device
  + get the image size
  + start download image
* Write VM config(/etc/xen/vm/vsa\*\*\*\*\*\*) and target prepare.
* Add security groups
* Customize\_vm:
  + (Special fullvirt VM setup)
  + kernel config: add modules: xen\_vnif, xen\_balloon, xen\_vbd
  + fstab: replace /dev/xvda and /dev/hda to /dev/hda1
  + mkinitrd
  + edit /etc/hosts: 10.68.37.169 vsa6560508.wdf.sap.corp vsa6560508
  + edit /etc/xen/xend-config.sxp
  + edit udev 70 rules
  + write routes to /mnt/tmp/vsa6654602/etc/sysconfig/network/routes
  + edit /etc/inittab
  + write vm ready script sayhello.pl
  + download firstboot and lastboot, and only enable firstboot.
* Mount vmspace under /tmp, deploy\_vm\_xen\_kernel(copy vmlinuz and initrd into vmspace), create\_kernel\_symlinks, then umount them.
* Power on VM:
  + power\_state\_check\_disable first and power\_state\_check\_enable
  + Write current HV to file in VMs vmspace
  + VMM check: check whether VM is reachable via Virtual Machine Manager
  + Waiting for VM start-up
* Update hypervisor's current free memory, cpu and disk values
* Unlock VM object
* Remove resource softlocks and set status to “Installed”
* Go on firstboot…

## Firstboot - The machine reboots for the first time

* Disable service, follow the $Landscape.pm to remove the service.
* Prepare commands, execute at the first.
* After prepare commands, start normal configuration.
* Post commands, instead of prepare commands, execute after the normal configuration.
* Additional Commands and Services:
  + remove packages
  + enableservices
  + restartservices
  + additionalcmds
* Log and Clean up firstboot script and its folder, then execute the {finalize} in the $Landscape.pm.

## Lastboot and notification to GMP

* Set root password
* Set the final state of the VM to 'System available in Pool' in GMP (sayhello.pl)

*case "$1" in*

*"start")*

*perl /root/sayhello.pl "System available in pool"*

*mv /root/sayhello.pl /opt/imal/log*

*chkconfig -d lastboot*

*mv /etc/init.d/lastboot /opt/imal/log*

*;;*

*\*)*

*echo "Usage: $0 { start }"*

*;;*

*esac*

UUID: B30E98E27AD011E9AA64E46E01B73578

## /etc/xen/vm/vsa\*\*\*\*\*\*

*bsa5960:/etc/xen/vm # cat vsa6560508*

*<domain type="xen">*

*<name>vsa6560508</name>*

*<uuid>5C6C7C16-5E83-11E9-BB89-0E7A30AC2A69</uuid>*

*<memory>1048576</memory>*

*<vcpu>1</vcpu>*

*<on\_poweroff>destroy</on\_poweroff>*

*<on\_reboot>restart</on\_reboot>*

*<on\_crash>destroy</on\_crash>*

*<os>*

*<type>linux</type>*

*<kernel>/vmspace/vsa6560508/vmlinuz-xen-vsa6560508</kernel>*

*<initrd>/vmspace/vsa6560508/initrd-xen-vsa6560508</initrd>*

*<cmdline>TERM=xterm xencons=tty root=/dev/xvda</cmdline>*

*</os>*

*<devices>*

*<interface type="bridge">*

*<source bridge="br0" />*

*<mac address="00:16:3e:8a:ad:5f" />*

*<script path="vif-bridge" />*

*<target dev="v0-8aad5f" />*

*</interface>*

*<interface type="bridge">*

*<source bridge="br1" />*

*<mac address="00:16:3e:8a:ad:61" />*

*<script path="vif-bridge" />*

*<target dev="v1-8aad61" />*

*</interface>*

*<disk type="file" device="disk">*

*<source file="/vdev/bd17315915-xvda" />*

*<driver name="file" type="raw" />*

*<target dev="xvda" />*

*</disk>*

*<disk type="file" device="disk">*

*<source file="/vdev/bd17315916-xvdb" />*

*<driver name="file" type="raw" />*

*<target dev="xvdb" />*

*</disk>*

*<disk type="file" device="disk">*

*<source file="/vdev/bd17315918-xvdc" />*

*<driver name="file" type="raw" />*

*<target dev="xvdc" />*

*</disk>*

*<disk type="file" device="disk">*

*<source file="/vdev/bd17315923-xvdz" />*

*<driver name="file" type="raw" />*

*<target dev="xvdz" />*

*</disk>*

*<console tty="/dev/pts/1" />*

*</devices>*

*</domain>*

## All full virtualized adoptions

*### special fullvirt VM setup ###*

*default 0*

*timeout 1*

*title HVM boot*

*root (hd0,0)*

*kernel /boot/vmlinuz root=/dev/hda1*

*initrd /boot/initrd*