RHUG MONTREAL - AGENDA JANVIER 2014

1. Mot de bienvenue et annonces

2. **Red Hat Enterprise Linux 7** - Présentation et démonstration
2.1 Nouvelles fonctionnalités (Michael Lessard, Red Hat)
2.2 Introduction et démonstration d'Open vSwitch (Sylvain Lavoie, Desjardins)
2.3 Démonstration de LXC (Linux container) et Docker (Michael Lessard, RH)

3. **JBOSS** par Dan Hodge, Red Hat (présentation en anglais)
3.1 Courte introduction au portfolio Jboss
3.2 Introduction au provisioning avec Jboss Operations Network (JON)


redhat
RED HAT
ENTERPRISE LINUX
RED HAT ENTERPRISE LINUX 7
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Note that features available in Red Hat Enterprise Linux 7 Beta do not guarantee inclusion in a future release of the product.

Agenda

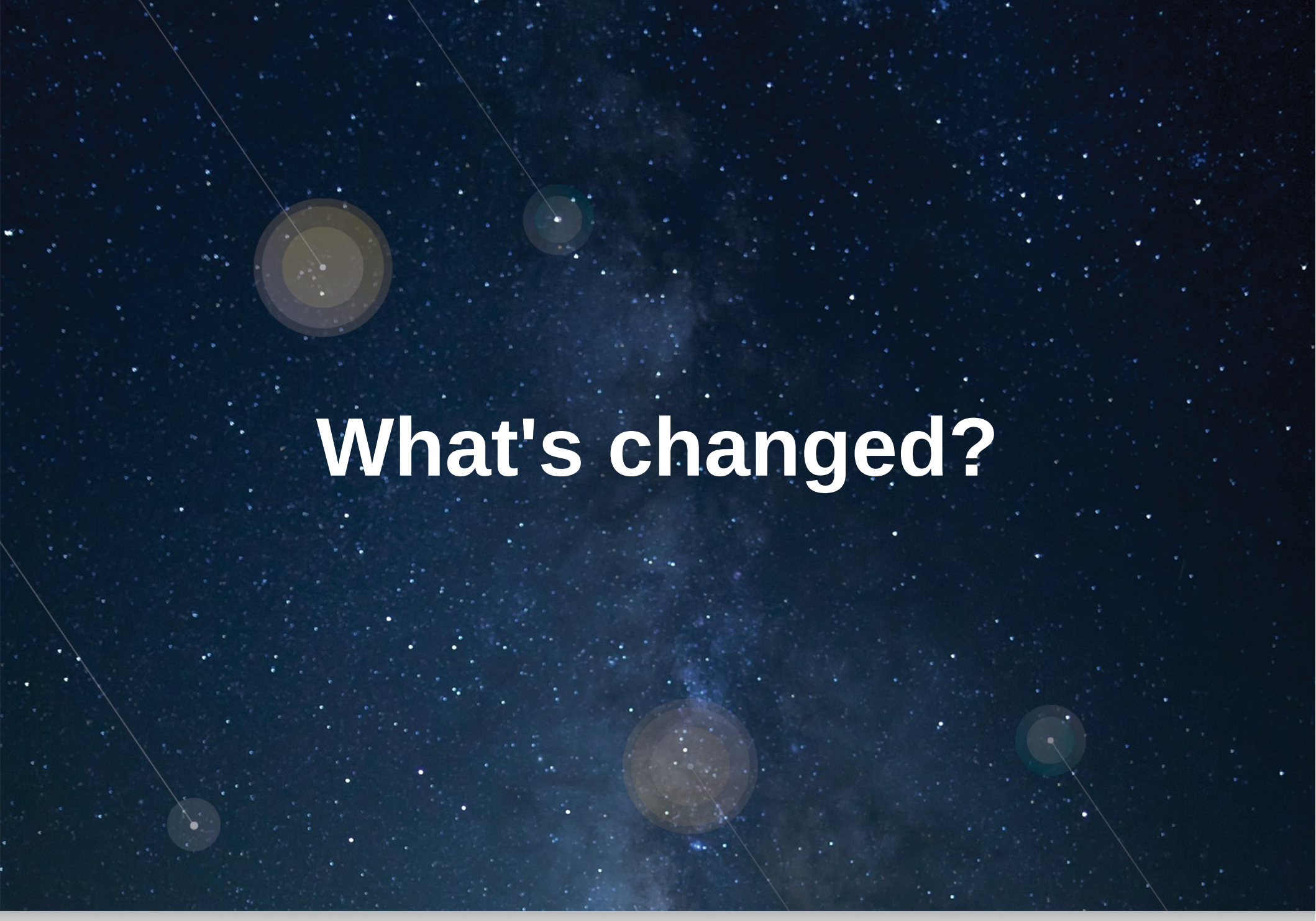
- Red Hat Enterprise Linux 7
  - Key facts
  - What’s changed?
  - Enhancements
  - Summary
- Demos

Red Hat Enterprise Linux 7: Enterprise Platform

- One agile distribution for all deployment types
- Preserves customer investment and enables new deployment models
- Fully tested and stable features on Day 1
- Security
- Latest hardware features and support

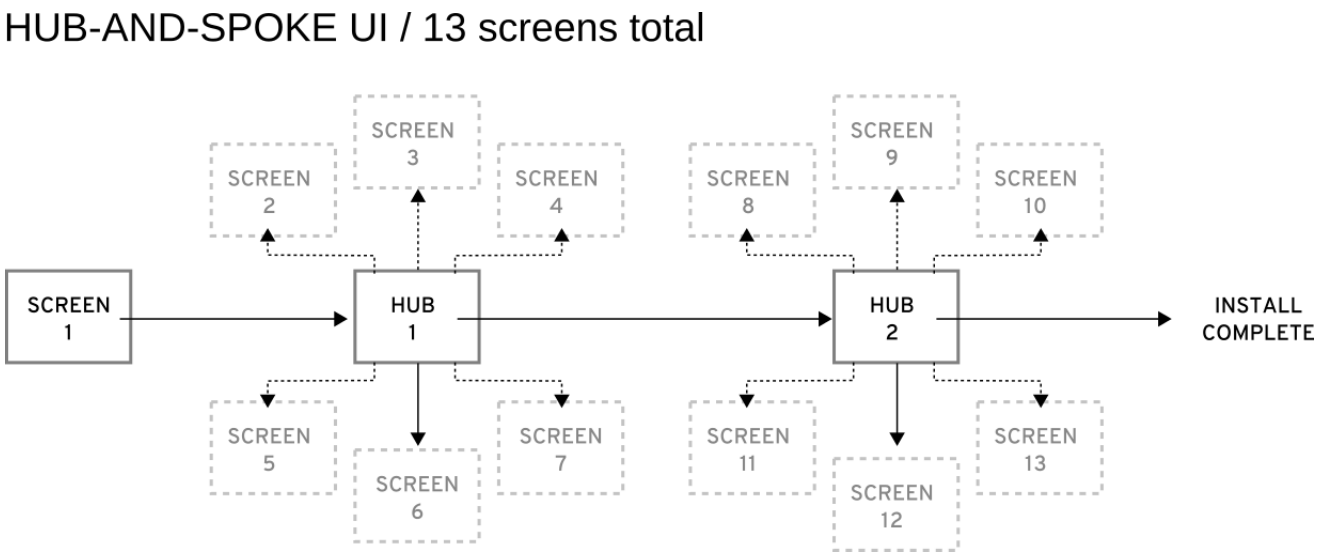
Red Hat Enterprise Linux 7: Basic Facts

- Based on Fedora 19 and 3.10 kernel
- Supported architectures : x86-64, POWER, System 390
- What about 32-bit?
  - No ISOs. However 32-bit libraries will be made available.
  - Can use multilib toolchain to create (32-and) 64-bit binaries.


What's changed?

Red Hat Enterprise Linux 7: Installer

- The RHEL 7 installation procedure presents a user friendly interface that allows RHEL to be installed using 3, rather than 13 linear, screens
  - Easy to go back to a main page
  - Warnings and errors provided to guide the user



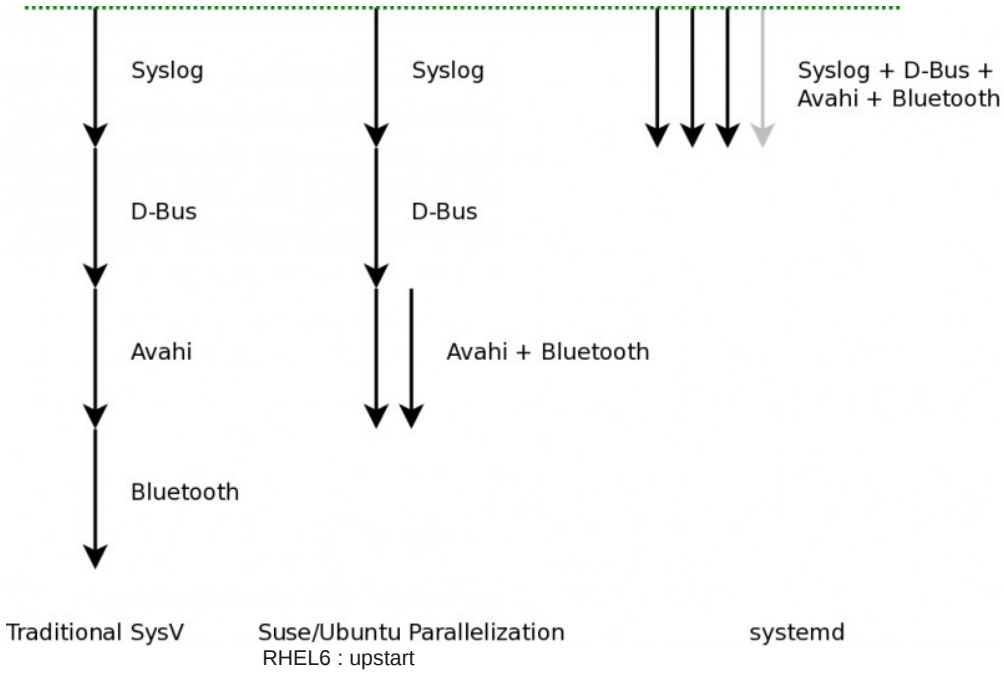
Red Hat Enterprise Linux 7: New Installation Capabilities

- Support for installing to image files [bare metal/virt/cloud]
- Support for installing from image files in addition to yum repositories [bare metal/virt/cloud]

Red Hat Enterprise Linux 7: System Initialization

- RHEL 7 will be based on Systemd, a system and service manager
  - Compatible with SysV and LSB init scripts
  - Allows more work to be done concurrently (possibly in parallel) at system startup. Result: Faster system boot times.
  - Integrates chkconfig + service
  - More than just init!

systemd provides aggressive parallelization capabilities, uses socket and D-Bus activation for starting services, offers **on-demand starting of daemons**, **keeps track of processes using Linux cgroups, supports snapshotting and restoring of the system state, maintains mount and automount points** and implements an elaborate transactional dependency-based service control logic.



https://access.redhat.com/site/videos/403833

http://0pointer.de/blog/projects/why.html

SYSTEMD CRASH COURSE

- SERVICES
  - service httpd start -> systemctl start httpd.service
  - chkconfig httpd on -> systemctl enable httpd.service
- RUNLEVEL
  - init 3 -> systemctl isolate multi-user.target (or) systemctl isolate runlevel3.target
  - Init 5 -> systemctl isolate graphical.target (or) systemctl isolate runlevel5.target
- DEFAULT RUNLEVEL
  - /etc/inittab -> systemctl enable graphical.target --force

SYSTEMD CRASH COURSE

service sshd status

openssh-daemon (pid 3051) is running...

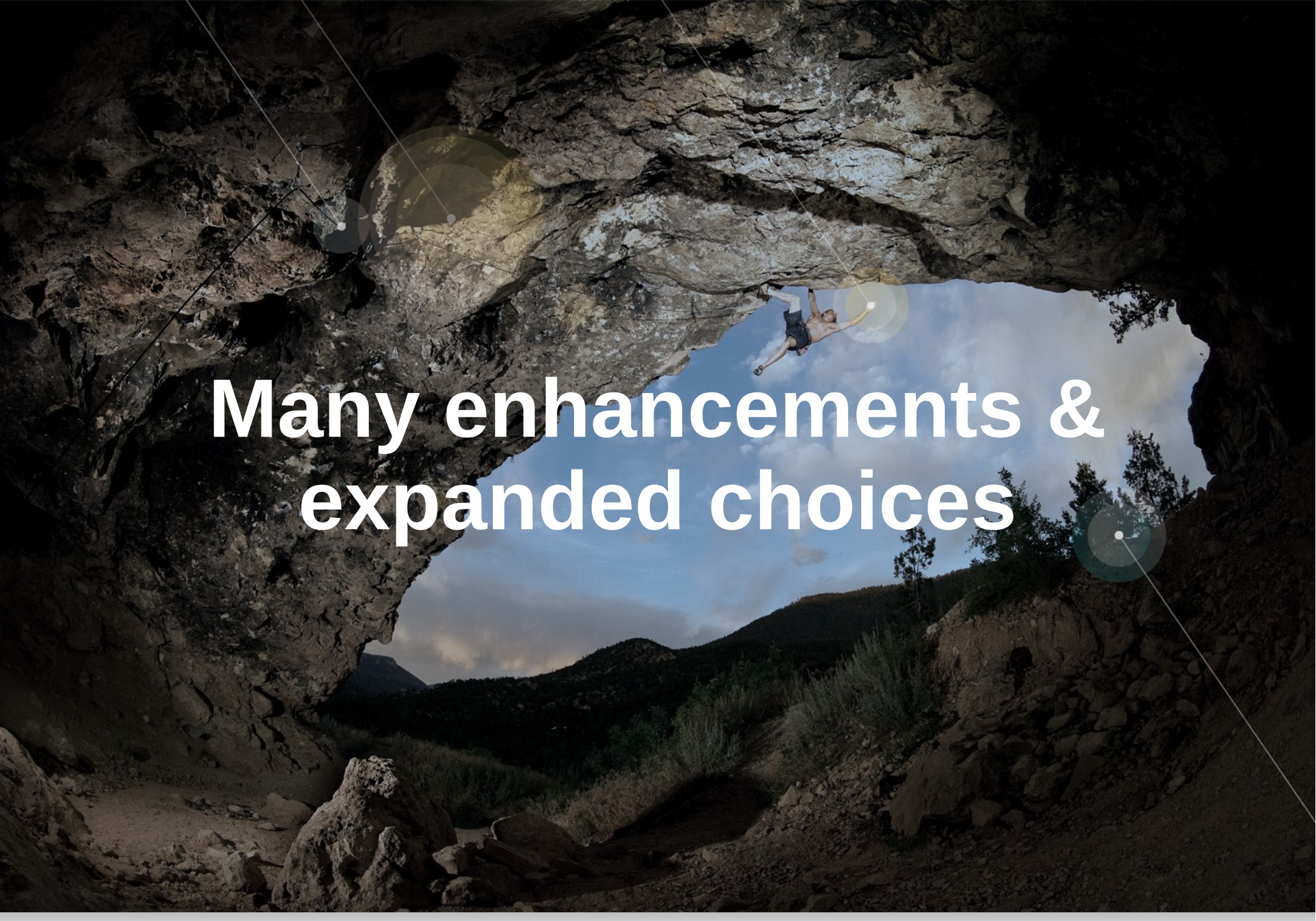
systemctl status sshd

```
[root@rhel7-mlessard cloud-user]# systemctl status sshd
sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled)
   Active: active (running) since Thu 2014-01-09 12:03:35 EST; 21h ago
  Process: 705 ExecStartPre=/usr/sbin/sshd-keygen (code=exited, status=0/SUCCESS)
 Main PID: 706 (sshd)
   CGroup: /system.slice/sshd.service
           └─706 /usr/sbin/sshd -D

Jan 10 09:12:03 rhel7-mlessard sshd[11023]: error: Could not load host key: /etc/ssh/ssh_host_ecdsa_key
Jan 10 09:12:06 rhel7-mlessard sshd[11023]: Invalid user mlessard from 10.35.201.32
Jan 10 09:12:06 rhel7-mlessard sshd[11023]: input_userauth_request: invalid user mlessard [preauth]
Jan 10 09:12:08 rhel7-mlessard sshd[11023]: Connection closed by 10.35.201.32 [preauth]
Jan 10 09:12:14 rhel7-mlessard sshd[11025]: error: Could not load host key: /etc/ssh/ssh_host_dsa_key
Jan 10 09:12:14 rhel7-mlessard sshd[11025]: error: Could not load host key: /etc/ssh/ssh_host_ecdsa_key
Jan 10 09:12:20 rhel7-mlessard sshd[11025]: Accepted publickey for root from 10.35.201.32 port 55286 ssh2: RSA 65:21:09:12:bb:a1:d
Jan 10 09:12:30 rhel7-mlessard sshd[11033]: error: Could not load host key: /etc/ssh/ssh_host_dsa_key
Jan 10 09:12:30 rhel7-mlessard sshd[11033]: error: Could not load host key: /etc/ssh/ssh_host_ecdsa_key
Jan 10 09:12:35 rhel7-mlessard sshd[11033]: Accepted publickey for cloud-user from 10.35.201.32 port 55287 ssh2: RSA 65:21:09:12:b
Hint: Some lines were ellipsized, use -l to show in full.
```

Red Hat Enterprise Linux 7: GRUB2

- Meet the new menu.lst : grub.cfg
- Should not be directly edited by human
- Changes are applied with update-grub or new kernels are installed
- To customize Grub2
  - /etc/default/grub (default parameters)
  - /etc/grub.d/ (custom parameters)
- Why ? Non x86 platform, Secure boot (UEFI)


Many enhancements &
expanded choices

Red Hat Enterprise Linux 7: File Systems

- Many Choices
  - Ext4, XFS and btrfs (boot/root & data)
    - Ext4 provides backwards compatibility
      - Ext2/3 will use the Ext4 driver, which is mostly invisible to users
      - 50 TB
    - XFS – New default filesystem
      - Scalability ~500 TB
    - Btrfs: Focus is on stability over scalabilty
  - NFS v4.1 & 3
  - Full support for all pNFS client layout types
    - Add in support for vendors NAS boxes which support the pNFS file, object and block layouts

Red Hat Enterprise Linux 7: Storage

- Storage
  - Upgrade/rollback with btrfs or LVM+xfs/ext4
    - Available with RHEL 6.4
    - Use in conjunction with in-place upgrade
  - Storage system manager provides a unified easy to use CLI for all supported file systems

```
# ssm list filesystems
-----------------------------------------------------------------------------------------------------------------------
Volume                          Volume size  FS     Free      Used     FS size  Type   Mount point
-----------------------------------------------------------------------------------------------------------------------
/dev/device_pool/lvol001         100.00 GB  ext4  93.25 GB  1.75 GB  100.00 GB  linear
/dev/dm-0                         78.12 GB  ext4   2.11 GB  72.11 GB  78.12 GB  crypt  /home
btrfs_loop3                       11.05 TB  btrfs 11.05 TB  36.00 KB  11.05 TB  btrfs  /mnt/test
btrfs_loop3:2011-11-29-T113552    11.05 TB  btrfs 11.05 TB  36.00 KB  11.05 TB  btrfs  /mnt/test/2011-11-29-T113552
btrfs_loop3:new_subvolume         11.05 TB  btrfs 11.05 TB  36.00 KB  11.05 TB  btrfs  /mnt/test/new_subvolume
/dev/sda1                         19.53 GB  ext4  3.79 GB  14.77 GB  19.53 GB  part   /
```

Red Hat Enterprise Linux 7: Networking

- Network Manager
  - New CLI interface

```
# nmcli g
STATE      CONNECTIVITY  WIFI-HW  WIFI      WWAN-HW  WWAN
connected  full          enabled  disabled  enabled  disable
```

  - Support more configuration options, including Bridging, Bonding, VLANs, IPoIB, FCoE, DCB, DNSEC and Trust Zones
- Team Device
  - Mechanism for bonding multiple network devices into a simple logical interface at the data link layer *(Alternative to the existing Linux Bonding driver)*
- *40 GB ethernet support*

Red Hat Enterprise Linux 7: Virtualization and Cloud

- NUMA capabilities in KVM for better virtualization performance (numabalance)
- VM live migration across RHEL 6 and RHEL 7 hosts
- Strengthening security isolation and fine-grained capabilities in the virtualization layer
  - Sandbox (see lxc demo)
  - Kiosk

Red Hat Enterprise Linux 7: Security

- SELinux
  - Simplified tool chain for troubleshooting
  - Rich documentation set
- Firewalld
  - firewalld provides a dynamically managed firewall with support for network/firewall zones to define the trust level of network connections or interfaces.

```
# firewall-cmd --state
# firewall-cmd --get-active-zones
# firewall-cmd --reload
# firewall-cmd --panic-on
# firewall-cmd --zone=home --remove-service=http
# firewall-cmd --permanent --zone=home --add-port=443/tcp
```

Red Hat Enterprise Linux 7: Windows Interoperability – Server

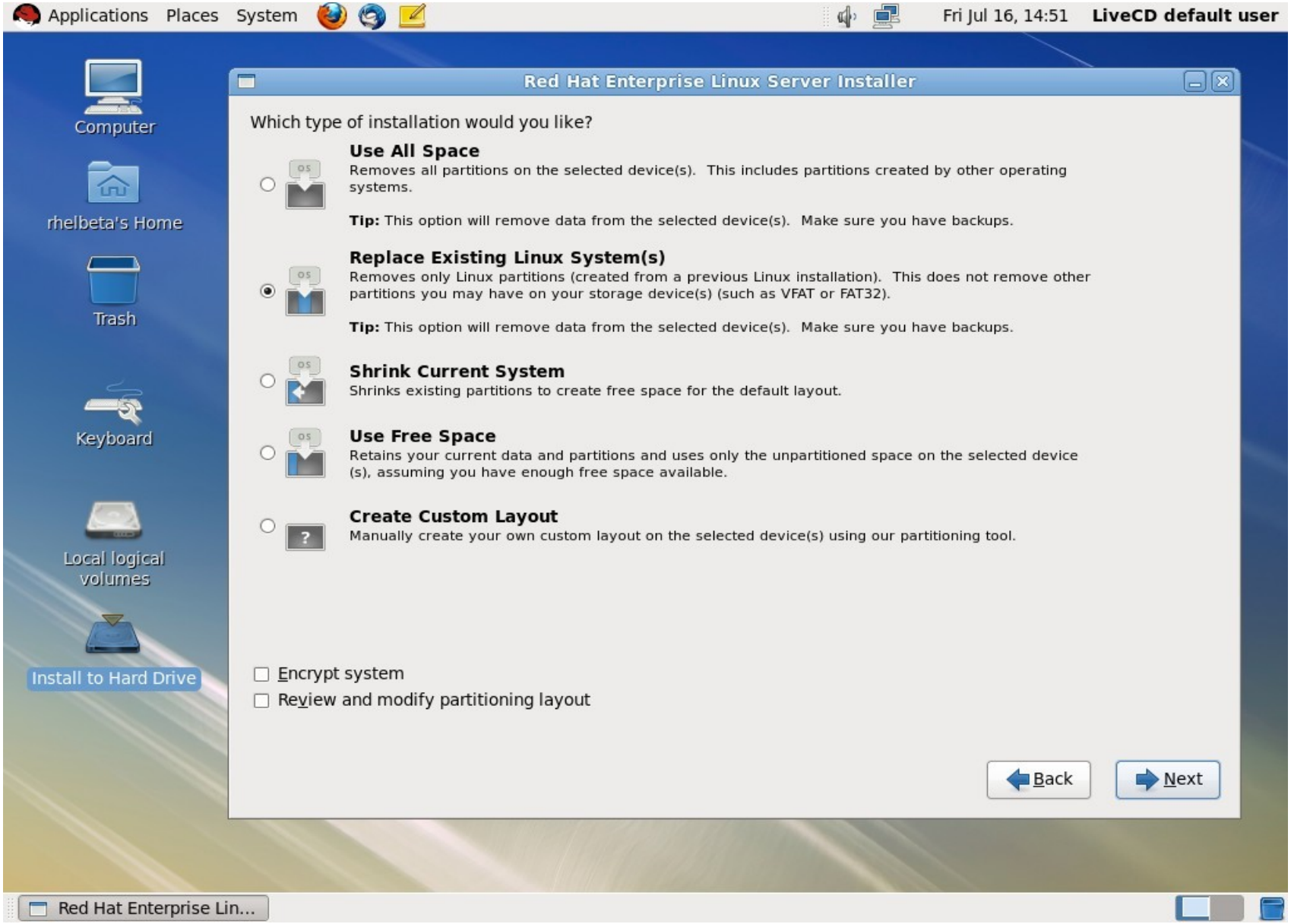
- Cross realm Kerberos trust between Idm and Active Directory
- Out-of-the-box Linux support of direct interoperability with Active Directory
  - Automatic detection of the domain controller to join (AD/IdM)
  - Simple, integrated set-up of the authentication configuration
- Samba file server adds support for the SMB 4.0 file sharing
- Kernel support for SMB 2.1 clients of SMB servers
- IPv6 & Windows 7 domain support

Red Hat Enterprise Linux 7: Windows Interoperability – Client

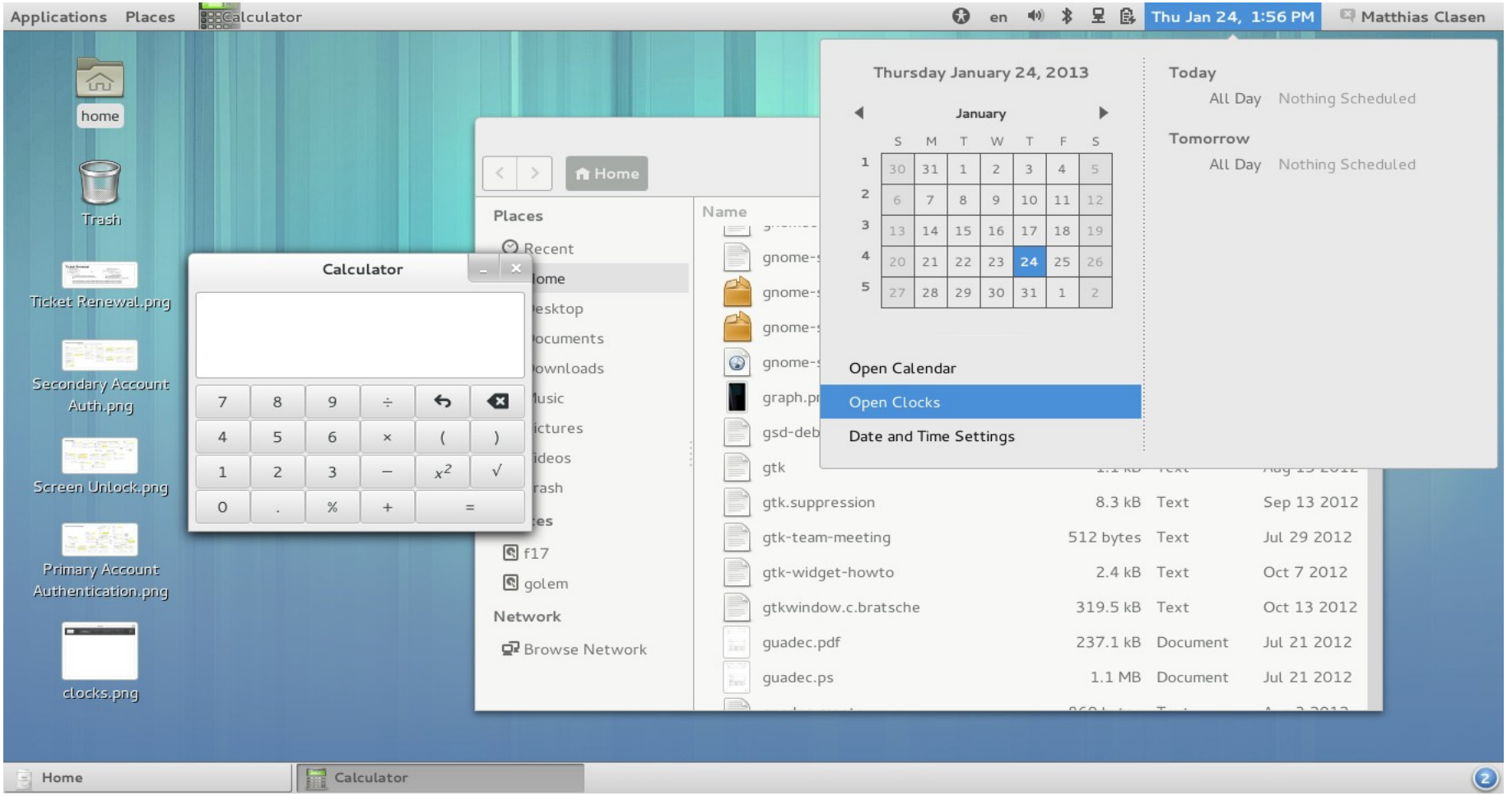
- Active Directory
  - AD enrollment support (Realmd)
- Desktop
  - Exchange integration with Evolution improvements
  - Gnome-Online-Accounts
- LibreOffice 4
  - Visio import
  - CMIS protocol support for documentation management systems (Sharepoint)

Red Hat Enterprise Linux 6: Gnome Desktop

RHEL 6

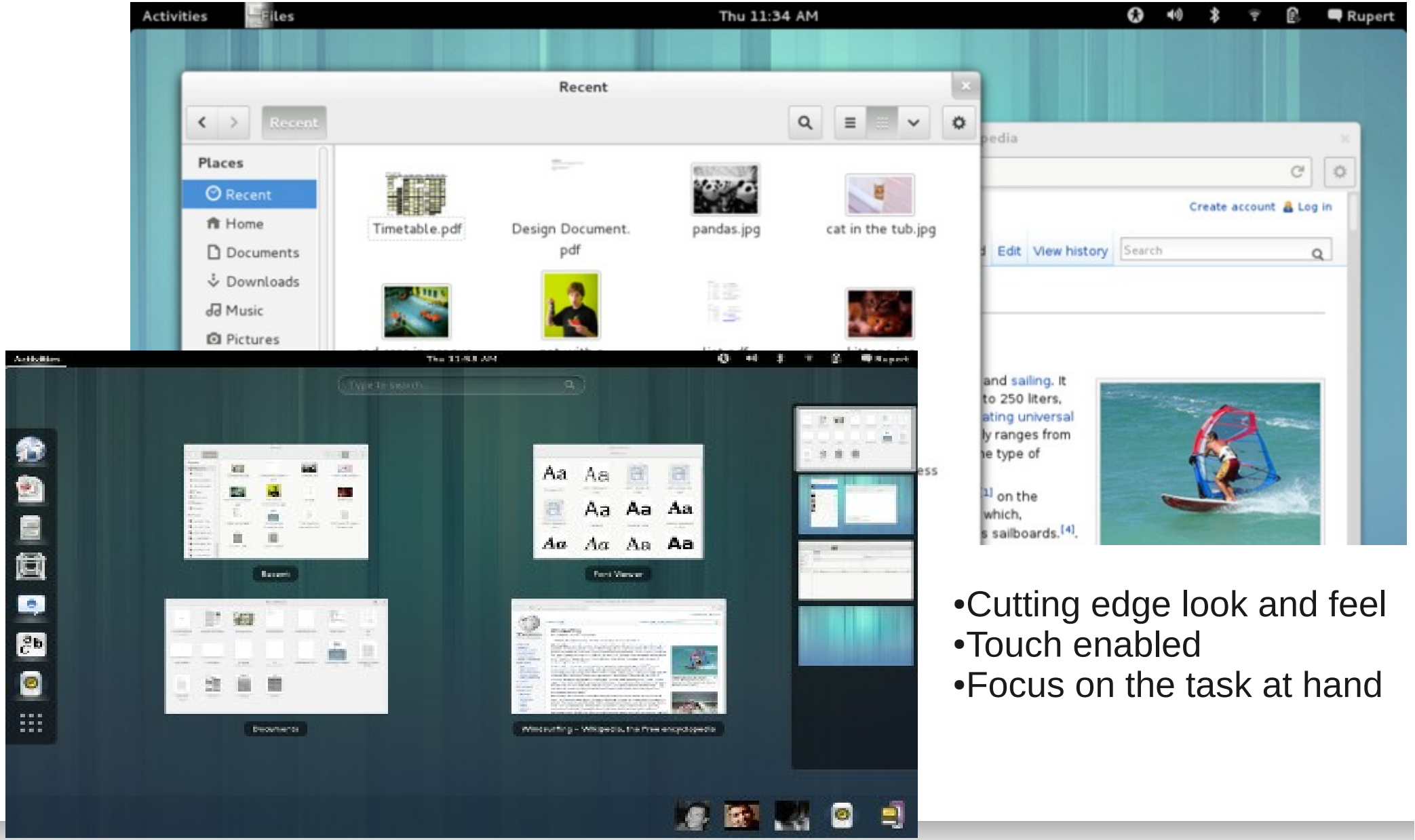


Red Hat Enterprise Linux 7: Gnome3 “Classic” Desktop



Familiar & Intuitive: More traditional look and feel with the benefits of Gnome Shell

Red Hat Enterprise Linux 7: Gnome 3 Desktop



- Cutting edge look and feel
- Touch enabled
- Focus on the task at hand

Red Hat Enterprise Linux 7: Gnome 3 & Extensions

Tailor the desktop to your desires!

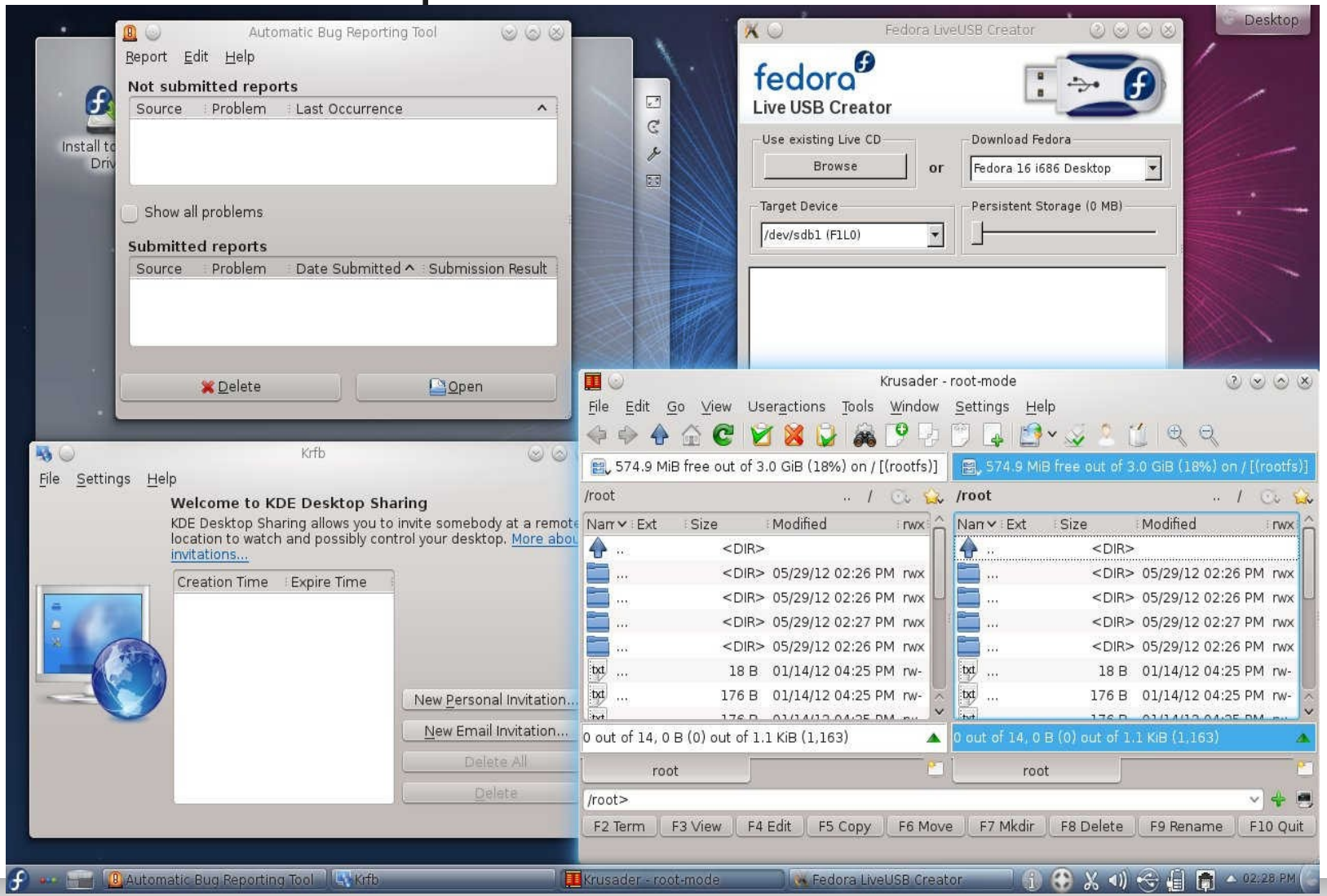
Is this Gnome 3???

Yes, with extensions!

Some people like the look of other Operating Systems.
Creating the look in RHEL 7 is easy with Gnome Shell.

Red Hat Enterprise Linux 7: KDE 4.10

- Plasma 3 Desktop



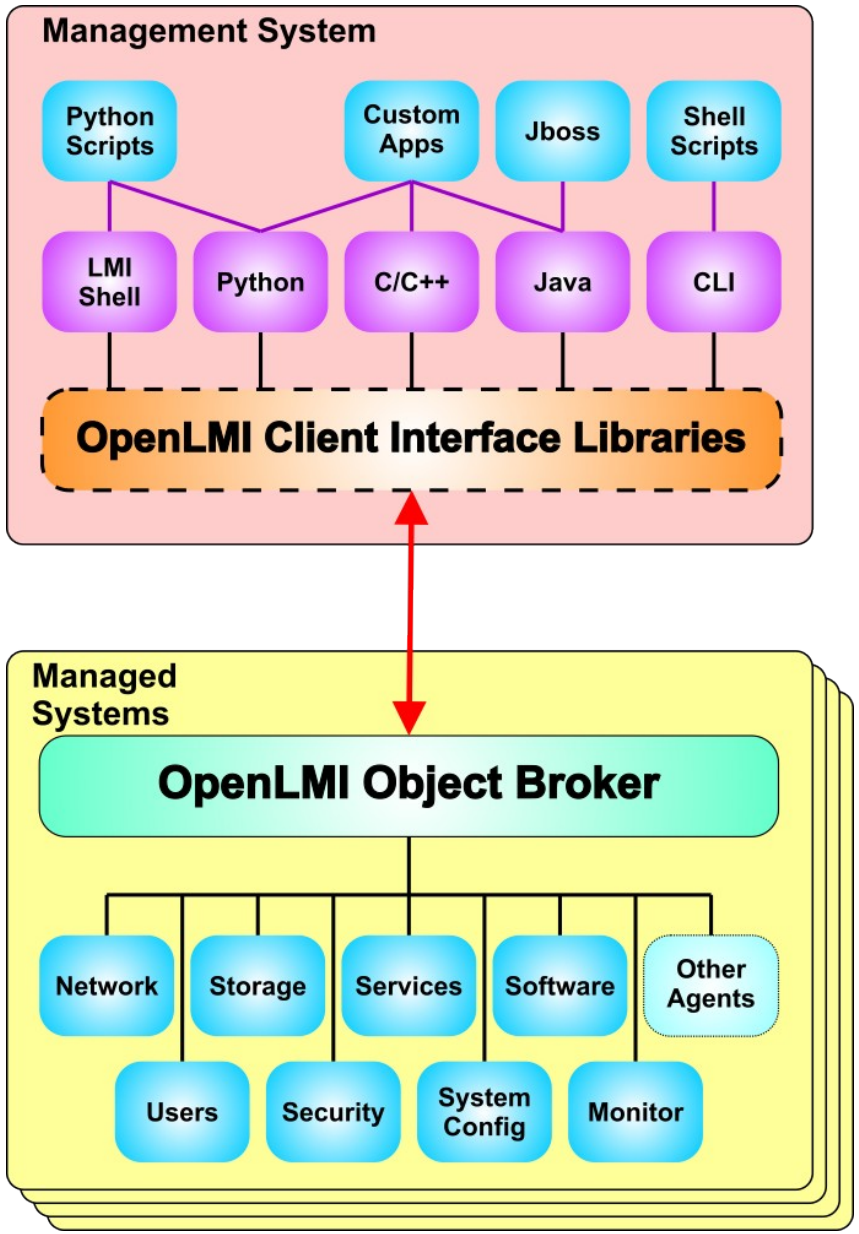
In-place Upgrade: Red Hat Enterprise 6 --> Red Hat Enterprise 7

- Planned support for in-place upgrades from RHEL 6.latest to RHEL 7.latest for well-defined, supported configurations
- Also delivered with RHEL 7:
  - Assessment tool – run on RHEL 6
  - Improved documentation to help customers plan upgrade
- Plugin based architecture to support frequent updates

```
# redhat-upgrade-tool-cli --network 7.0 --instrepo
http://download.devel.redhat.com/nightly/latest-RHEL-
7/compose/Server/x86_64/os/
```

Red Hat Enterprise Linux 7: Manageability

http://rhelblog.redhat.com/2013/12/20/managing-linux-with-openlmi/



- **Goal**

Provide a standardized remote interface to configure, manage, and monitor bare metal production Linux servers.

- **Initial Agents**
  - Storage
  - Network
  - System Services
  - Power Management
  - Local User Management (basic)
  - Software Management
  - System Monitoring (basic)
  - System Configuration & Information

Red Hat Enterprise Linux 7: Performance Management

Monitoring and automation

- Performance profiles (ktune and tuned)

```
# tuned adm-list
- balanced
- desktop
- latency-performance
- powersaver
- sap
- throughput-performance
- virtual-guest
- virtual-host
```

- Thermostat
  - Monitoring, profiling, instrumentation and management of java-based applications running in bare metal, virtualization, and cloud deployments (https://fedoraproject.org/wiki/Features/Thermostat1.0)

Red Hat Enterprise Linux 7: Linux Containers

- Application isolation mechanism for light-weight, multi-tenancy environments with a single underlying OS
  - Benefits
    - Fast Startup and shutdown
    - Easy creation of container environment for isolated application deployment
    - Scale out of applications
    - Manage one RHEL system
  - Key Elements of RHEL Containers
    - Process Isolation – namespaces
    - Resource Management – cgroups
    - Security – SELinux
    - Management - libvirt

Red Hat Enterprise Linux 7: Other new features

- MariaDB replaces MySQL
- Yum - download in parallel
- Journald
  - less /var/log/message -> journalctl
  - tail -f /var/log/message -> journalctl -f
  - journalctl _COMM=sshd
- Subscription-manager only (no more rhn_register)

Red Hat Linux 7: Summary

- New installation & deployment
- XFS default filesystem
- Performance profiles
- In place upgrade
- LXC
- SystemD
- OpenLMI
- Cross Realm Kerberos Trust
- Samba 4.1
- Gnome 3
- Network Manager CLI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