RHN 5.x Release Milestones

**RHN 4.9.0 (RHN 5.0.0 Beta) (Nov, '06)**
- Virtualization support (Xen)
  - Para-virtualization only for RHEL5
  - Provisioning of Xen domains
  - Control of Xen domains
  - Retrieving status of domains
- RHN Plug-in for YUM client

**RHN 5.0.0 (Q2, 2007) (in QA)**
- Virtualization final
- Application Improvements – more I18N/L10N
  - Configuration management
  - Search pages
  - Errata Management
- RHEL 5 Support for Installation Numbers

**RHN 5.1 (Q3, 2007)**
- update model/1:N Child Channels
- Multi-Org Satellite
- Virtualization Management, Supporting Different version of OS for para/full
- 32Bit-Satellite on x86_64 RHEL
- API calls – Satellite (Priority Areas)
- UI Enhancements

**RHN 5.2 (Q1, 2008 )**
- Auditing (Priority Areas)
- Satellite certificate process
- Syncing additional packages (source rpms, debug rpms)
- SELinux enabled on Satellite
- ISO sync on Satellite
- Entitlement Management at System Level
- Virtualization Management Guest Migration / Storage Management
- UI Enhancements & 508 Compliant

**RHN 5.3 (Q3, 2008)**
- Enhanced channel management
- Delta-RPM
- Maintenance Windows
- Reporting Features
- MD5SUM file
- ISO Cache Support in Proxy
- UI Enhancements
Technology

- Red Hat Network
  - Software Updates
  - Software Content
  - OS Provisioning
  - Configuration Files
  - Proxy/Cache

- JBoss Operations Network
  - Monitoring
  - Administration
  - Application Configuration
  - Plug-in Architecture

- Conga
  - Cluster Management
  - Storage Management
  - Xen Vms as clustered services

- Fedora
  - Cobbler
  - Koan
  - Puppet
  - Virt-Factory

- Platform for systems management
  - More and more to manage, planning for the future
  - Lot's of common 'platform-like' functionality
    - Inventory
    - User Access
    - Subscription
  - Do A thing really well.

- Open Source
  - More adoption
  - Cross Platform
  - Development Process

- Projects Emerging
  - Existing projects
  - New projects
Why Life Cycle Management?

The one constant of modern computing environments is change. The inventory of compute, storage, application, and user resources are constantly changing in parallel to the evolution of business needs.

- **System Life-cycle** - the ever-changing inventory of compute resource
  - Initial Provisioning
  - HW refresh / retirement
- **Application Life-cycle** - the evolving base of content
  - Upgrade / Rollback
  - Retire / Replace
  - Scale Out / In
- **Enables Lights-Out Management**
  - physically distributed infrastructure, remote administration
Use Cases for Life Cycle Management

These are some examples of the basic problems we are trying to enable users to solve:

- New hardware arrives in a remote office, needs OS + configuration + applications
- We need to shift servers from one application to another
- We need to upgrade to a new base OS + application set
- A server has failed and we need to replace it... NOW!
- We upgraded an application across 5 servers and now we're seeing failures, need to roll everything back
- We're opening a new office and need to bring up core infrastructure
What is RHN Satellite?

Designed for use in the Enterprise.

- Software Updates, Provisioning, & Monitoring
- Content synced w/ RHN Hosted
- Custom RPM deployment
- Push technology
- Behind your firewall – more hands-on control
RHN Satellite Service Modules

Update Module (incl w/RHEL)
- Simple GUI interface
- RPM-based
- Dependency checking
- Instant notification
- Auto update (optional)

Management
- System grouping
- Role-based systems permissions
- Systems search
- Package profile and compare
- Scheduled actions
- Enhanced Functionality w/ Proxy/Satellite

Provisioning (requires Mgmt)
- Kickstart Provisioning
- Existing State Provisioning (Cloning)
- Multi State Rollback (snapshot based)
- Configuration Management
- RPM Based Application Provisioning
- Scheduled Remote Commands
- Enhanced Functionality w/ Proxy/Satellite

Monitoring (requires Mgmt)
- Checks (System, Service, Application)
- Event History
- Reporting
- Notifications
- Probe Suites
Life Cycle Management Functionalities

The previously mentioned Use Cases are implemented through combinations of the following RHN Satellite functionalities:

- **Kickstart Integration** - automating the delivery of kickstart software, dynamic generation of ks.cfg, and automation of connection to RHN server
- **Kickstart Profiles** - Ability to parametrically manage personality of systems generated through kickstart
- **Configuration File Management** - Centralized management of text/binary configuration files
- **Snapshots / Rollback** - Precise time history of system states and ability to revert
- **Profile Capture / Matching** - ability to deploy an exact set of RPMs (not just latest) based on a stored system profile
Example: Provisioning Fresh Hardware

Complete automation of initial system provisioning reduced Red Hat Helpdesk SysAdmin time spent managing desktop configurations by 95%.

- **Preparation:**
  - Build a system which matches the desired state
  - Replicate a “master profile” of RPMs from a system
  - Push custom RPMs into a custom channel
  - Import configuration files into configuration channel
  - Create a kickstart profile, associating channels, keys, etc.
  - Establish an IP Range association for kickstart profile
Example: Provisioning Fresh Hardware (continued)

- Running Workflow:
  - Client system boots and is re-directed to RHN by PXE
  - Client system obtains @Base OS image
  - Server initiates “match this package profile” action
  - Client system obtains, installs exact package set from RHN
  - Server initiates “sync configuration files” action
  - Client system deploys updated config files
  - ... that's it
Example: Adapting Services to Demand

Demand for externally-facing services often shifts. In order to adapt to changing demand conditions, administrators need flexible systems.

- Workflow:
  - Recognize demand increase (see: RHN Monitoring)
  - select a set of underutilized servers
  - kickstart to the desired application profile
  - add new servers to rotation

- Keep in mind:
  - Applications must scale out in a Service-Oriented Architecture (SOA)
  - Response time on the order of 10-30 minutes
Example: OS+Application Upgrade

In migrating from one version of an OS+Application stack to another you need a scalable, repeatable, automated process to roll the changes out.

- **Workflow:**
  - Create reference profiles of both the current state and the desired state
  - Kickstart system from current state to desired state
  - (You can always kickstart back if you've got a stable profile)

- **Data Preservation Options**
  - NAS / SAN
  - Preserve data partition (ks option)
  - Preserve individual (small) files (specialized applications like keys)
Example: Rolling Back a Multi-Tiered App

If you're developing an application which spans multiple tiers (e.g. RHN hosted infrastructure) you often patch/upgrade as a set. Rolling back can be complex. RHN provides a structure to allow a set of systems to be tagged and reverted.

**Workflow:**

- Select systems for System Set Manager, Tag snapshots*
- apply changes to one system or many ...
- oops, something doesn't work
- Reselect system in System Set Manager
- Revert systems through rollback feature

**Keep in mind that rollback is at the package / configuration level, it's not restoring a backup**

*tags can be reused, can set multiple tags to same snapshot*
Benefits of RHN for Life Cycle Management

- More repeatable processes - improves uniformity, compliance, measurability
- More efficient use of SysAdmin resources - focus on policy (profiles, configurations, and changes) rather than action (installing software)
- Decreases risk - easier to revert changes
- Reduces downtime - easier to replicate systems
- Improves responsiveness to business demands - can be more flexible with application mix
- Enables lights-out life cycle management - decreases service calls

= Lower TCO!
Next Steps

- Websites:
  - http://www.redhat.com/software/rhn
  - http://rhn.redhat.com

- Mailing lists:
  - rhn-users@redhat.com
  - rhn-satellite-users@redhat.com

- Sales (toll free)
  - 1-866-273-3428 x45606