Celestix Update Services for BMC Appliance

Introduction

Today's OS and platform engineers are between a rock and a hard place. Application and other enterprise dependencies have never been more varied, dynamic and complex, which makes it difficult to standardize on a common OS or middleware platform. At the same time, customized versions of the off-the-shelf options from OS and middleware vendors are extremely difficult to manage over time.

Today, platform groups face two bad choices: They can accept the "plain vanilla" off-the-shelf vendor version or they can customize their own. It's a classic tradeoff between cost and flexibility. When cost wins, business requirements go unmet. When flexibility wins, IT pays a heavy price. The reality is that this is an unacceptable tradeoff. Today's OS and platform groups need to combine the flexibility of a custom platform with the control of a standardized platform. Until now, there hasn't been a good way to achieve both objectives.

Founded by key members of the original technical leadership team at Red Hat— including the author of Red Hat Package Manager (RPM)—rPath provides the most advanced OS and platform packaging and management solution available today.

Celestix COSMOS Appliance Engine is based on rPath Appliance Platform Linux Service 2 (rPL2) operating system.

The Celestix Edge – Software Enhancements

A Celestix appliance offers many benefits over a software implementation on a generic platform. This is true primarily because of the enhancements Celestix Networks has been able to incorporate into the interface which users will use to configure and interact with the Celestix Networks appliance.

Following are the main enhancements you can expect to find:

- **Secure, Harden, Optimize Technology** – The Celestix appliance has been meticulously scrutinized to have as many security concerns addressed starting with the core platform technology. The OS on the appliance consists of rPath Linux based OS. This OS and any resident application have been preconfigured to include hardening and optimization of the following components:
  - Local policies (passwords are set, inter-compatibility tested, etc.)
  - OS component settings (database driven secure system configuration)
  - Services (Only required services for BMC are provided)
  - User permissions (Only one user – Admin)
  - Secured remote access via SSH (Admin)
  - Trusted zones (built-in updates authorization)

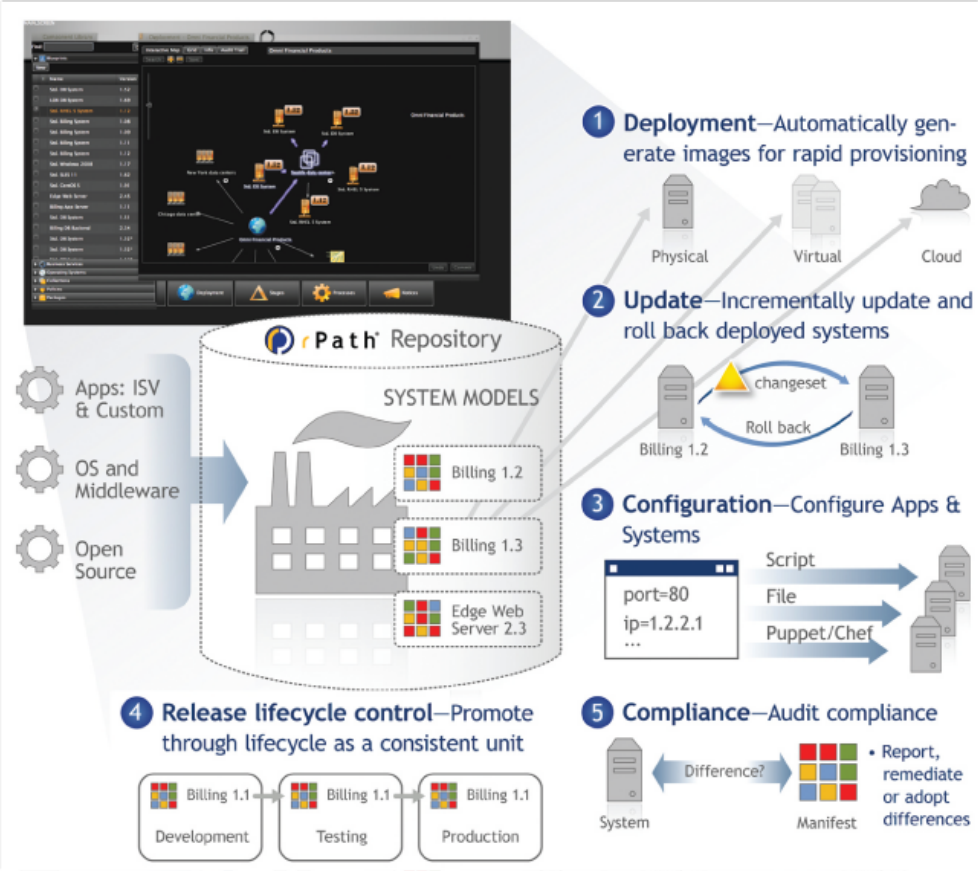
- **Web-based UI and Services**
  - Standardized management console (for intuitive purpose-built appliance administration)
  - Quick Setup (Provides an easily configurable unit in <10 minutes)
  - Self-signed Certificate (Used to provide secure access to the admin UI)
  - Configuration Backup
  - Routing (Simplified interface to manage routes)
  - Configuration of static routes (quick and easy way to add static routes)
  - One button rollback (In disaster recovery scenario, reset to factory image)
  - Software Updates
    - Patch created and published in BMC update channel
    - BMC administrator subscribes to the channel and distributes the updates.

Base Operating System

rPath Linux Platrom Service 2 (rPL2) offers automation and control for enterprise software systems, delivering rapid deployment and conflict-free change for consistent and correct IT services. rPath automates deployment and update of the entire system stack including application, middleware and operating system software and configuration settings, across appliance environments.

rPath takes the unique approach of model-driven, version-controlled automation. The model provides a “blueprint”—a transparent, easily modifiable picture of the desired state for every layer of a system. Since all models are managed under version control, rPath rPL2 offers full lifecycle control and rollback for entire systems and all of their components and configurations.

You may think of rPath rPL2 as a “factory” for constructing systems and services out of software components and managing their lifecycle over time.



Here are the inputs and outputs of that factory:

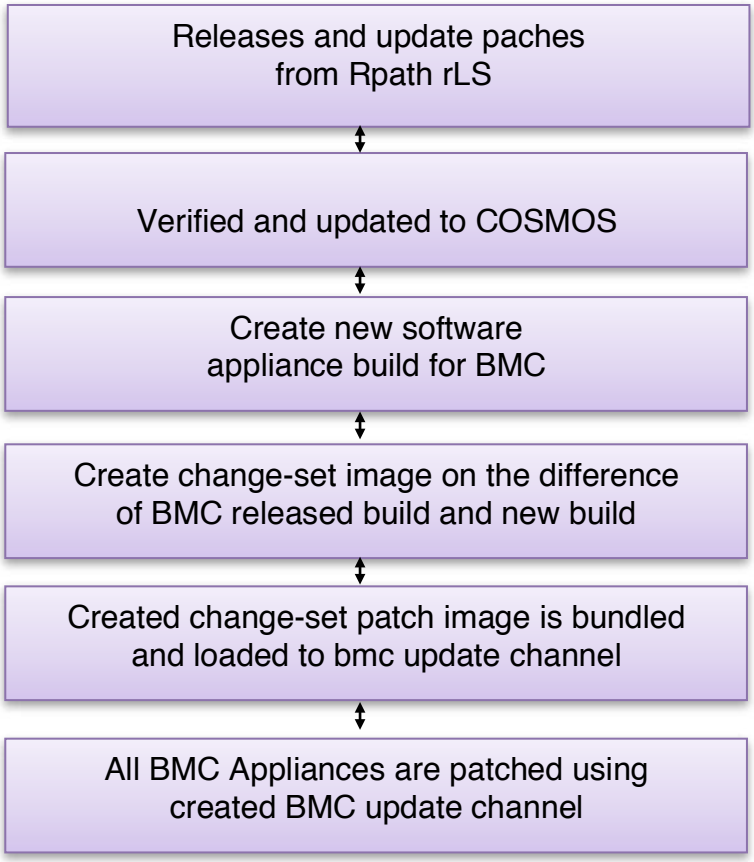
Inputs – Supply Chain

1. Software – rPath rPL2 automatically imports software (binary and source) from upstream repositories, including in-house development organizations, open source projects, and application, middleware and operating system vendors.
2. Dependencies – rPath rPL2 automatically inspects software to resolve and document the entire dependency chain, down to the bare metal. All software and dependencies are then stored and deeply versioned in the rPath rPL2repository for consistency and control throughout their lifecycles.

Outputs – Deployment, Change, Compliance

1. Deployment – rPath rPL2 automatically constructs images that are ready to run in Celestix appliance environment. This accelerates provisioning and allows workloads to be easily retargeted among appliance environments.
2. Update – rPath rPL2 utilizes the same versioned model as the basis for implementing system changes up and down the stack. This allows changes to be targeted, incremental, automatically deployed, auditable and easily rolled back.
3. Configuration – rPath rPL2 provides tools for personalizing and activating software stacks and business services within their host environment. Configuration settings are then managed as part of the same version-controlled blueprint for full lifecycle control of software and configurations
4. Release Lifecycle Control – rPath automates and controls promotion of software systems and configurations through the release cycle. This eliminates the risk of software and configuration drift during dev, test, staging and production release handoffs.
5. Compliance – With its unique model-driven, version-controlled approach to automation, rPath rPL2 ensures software systems and business services are "correct by construction" and remain so throughout their lifecycles. With rPath, a system blueprint is the canonical definition for what a system should look like and it's used to report on system drift and automatically remediate differences over time. rPath also allows you to report on other metadata such as patch levels.

Update Services Process



1. COSMOS, the base platform for Celestix BMC Appliances, is the adapted JeOS from rPath Linux.

2. The kernel, all the binaries that form the COSMOS has its upstream from rPath Appliance Platform Linux Service 2 (rLS).

3. rPath releases patches on rLS for the kernel updates, software and securities updates. rPath notifies us in case of any new releases (through email and rBuilder web-notification).

4. Upon notification about a new release or patches in rLS, they are verified by Celestix engineers.

5. On verification, the necessary patches required for Celestix BMC Appliances are identified and updated to the local development repositories of BMC Appliances in rPath Rbuilder.

6. After updating the patches, new software build of BMC Appliances is created from rBuilder. This build includes all the necessary new patches.

7. A change-set image is created between the old BMC build and new build with the updates. This change-set is the patch update image for previously released BMC build.

8. The change-set image and self-installable update scripts are bundled up to perform an automated installation.

9. In BMC, an update channel is created. The patch is released in the update channel, through which all the BMC Appliances receive the updates. ***Note:*** Currently, this is a manual process. Celestix will notify customers there is a new patch available via email. If customer chooses to apply the update. Customer will copy the image (patch) and upload to BMC channels in the transmitter. The end point will subscribe.

10. Change-log is created in Celestix website for the reference about the released patch.