SV Rolling Upgrade CT

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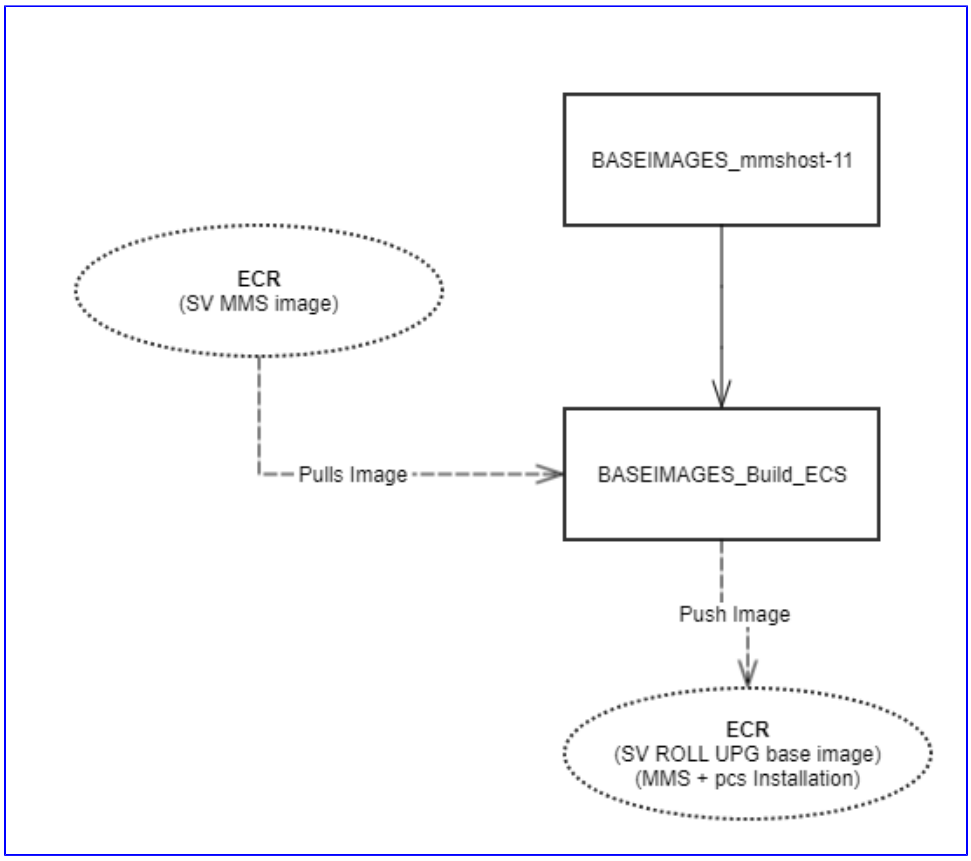
Intent

Document outlines the SV Rolling Upgrade CT infrastructure and its execution flow. The document focusses and refers versions belonging to SV major version 11 but same setup is applicable for V12 as well.

Base Image pipeline

Base Image: SV Rolling Upgrade CT utilizes the env based on SV MMS image. The upgrade CT requires multi-instance setup and need pacemaker running to manage the resource but these pacemaker tools are not present in SV MMS image. Hence a new image is created based on SV MMS image with the installation of pacemaker tools. This new image becomes the base image for SV Rolling Upgrade CT.

Jenkins job: A jenkins job has been setup to create the base image for SV Rolling Upgrade CT. This job spins an env based on SV MMS image, performs the installation of Pacemaker software and pushes the new image to ECR. This job always uses the latest SV MMS image. The base image is tagged as `latest-svmms-base-rollupg-app-main-SV_VERSION` where SV_VERSION is the Singleview version the MMS image is created with.
Note that SV MMS image is created out of SV Minor release (e.g. 11.00.18.01) and the latest SV MMS image will have latest SV minor release for a major version installed on it.



SV Rolling Upgrade CT pipeline

Build Job (MMS_MI_Build_ECS)

Build job is responsible for creating a multi-instance environment for sv rolling upgrade tests. This job pulls the base image, performs the multi-instance setup and pushes the new image to ECR. As part of build, it spins three containers using the base image and convert them to three singleview instances and performs all the necessary database changes e.g. partitioning the database, creating config items, populating instance DAs. Once build is complete, it pushes' both APP and DB images back to ECR with new tag. This image will be use by test job to perform the tests.

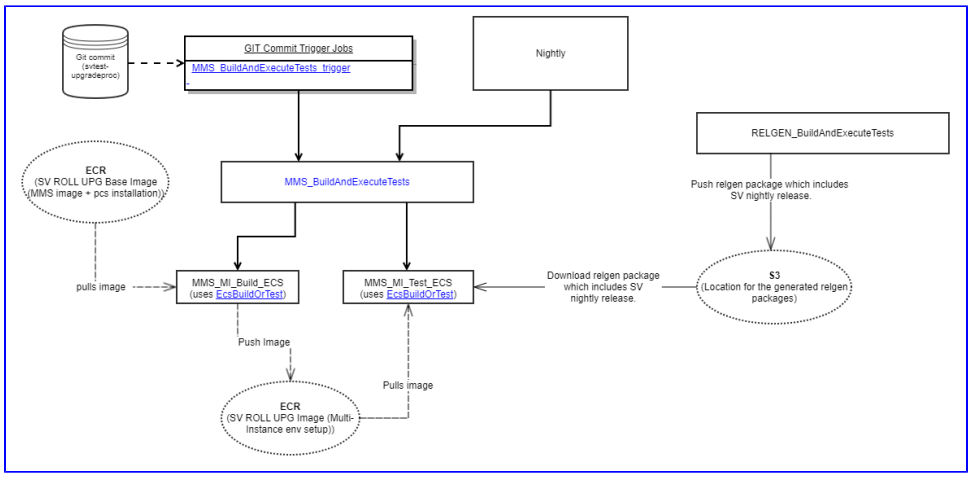
Test Job (MMS_MI_Test_ECS)

Test job performs following

1. Spins a multi-instance container with the SV ROLL UPG image.
2. Downloads relgen release packages.
3. Performs test (upgrade along with live traffic.)

There are two more jobs in this pipeline.

1. The MMS_BuildAndExecuteTests Jenkins job is used to create the TestDB test run and drive the flow of the test run by calling the MMS_MI_Build_ECS and MMS_MI_Test_ECS.
2. The MMS_BuildAndExecuteTests_trigger Jenkins job is a multi-branch pipeline. It is used to Poll SCM for changes and triggers MMS_BuildAndExecuteTests job.



Test Run (Nightly and Commit trigger)

Upgrade scenario

In CT, upgrade will be performed to latest nightly release i.e. 11.00.19.00.

There will be two upgrade scenarios tested

1. Upgrade to the next version i.e. from 11.00.18.01 to 11.00.19.00. For this, SV Roll UPG base image with SV version 11.00.18.01 is required.
2. Upgrade to a version which is 2 version later than the installed version i.e. from 11.00.17.01 to 11.00.19.00. For this, SV Roll UPG base image with SV version 11.00.17.01 is required.

Note: SV MMS image of SV version 11.00.18.01 is required for this. Also note that these values are applicable in this PI. Going forward when the next nightly release is available, values should be switched accordingly.

Relgen release for regular CT runs:

Test requires one relgen release which contains the SV package for the desired version. Here relgen release with SV nightly package is required. For regular test run this package is created in the relgen CT. A new test has been added to generate the relgen release with SV nightly package. Follwoing are the job and test detail which is responsible for generating relegen release.

Job name: RELGEN_BuildAndExecuteTest

TestName: test_Gen010_MI_SVMinorPackage (Under test group generate-PKG)

Relgen package URL:

CT execution

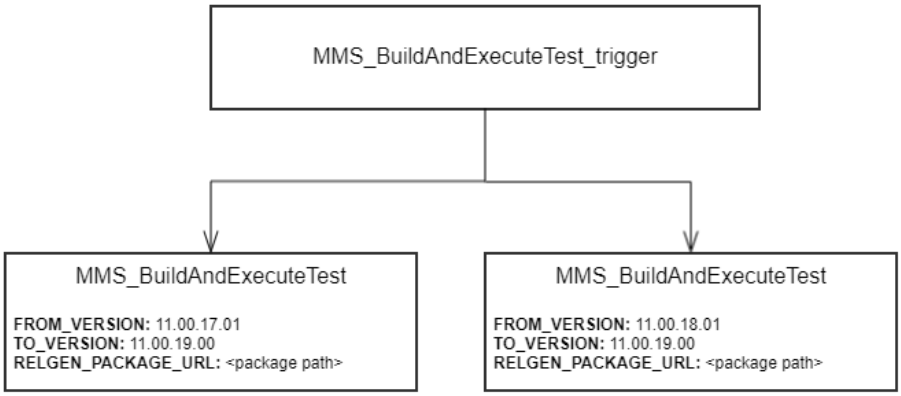
To perform the two scenarios, trigger job (MMS_BuildAndExecuteTest_trigger) will trigger the build and execute job (MMS_BuildAndExecuteTest) twice. The trigger job will identify the current nightly version (probably referring CB version.h file) and derive the two FROM versions. e.g. if nightly version is 11.00.19.00 then two FROM versions will be 11.00.18.01 and 11.00.17.01.

Once two from version is derived, trigger job will trigger build and execute job for both the FROM version. While triggering build and execute job, trigger job will specify following parameters

FROM_VERSION

TO_VERSION (In regular run this will always be set to the current nightly version i.e. 11.00.19.00)

RELGEN_PACKAGE_URL (This is the url to download the relgen package. For regular CT runs it will be package location of relgen mainline CT.)



Note: Approach for inserting the test result and showing it in radiator with links to log artifacts are yet to be investigated.

Test run (Arbitrary versions)

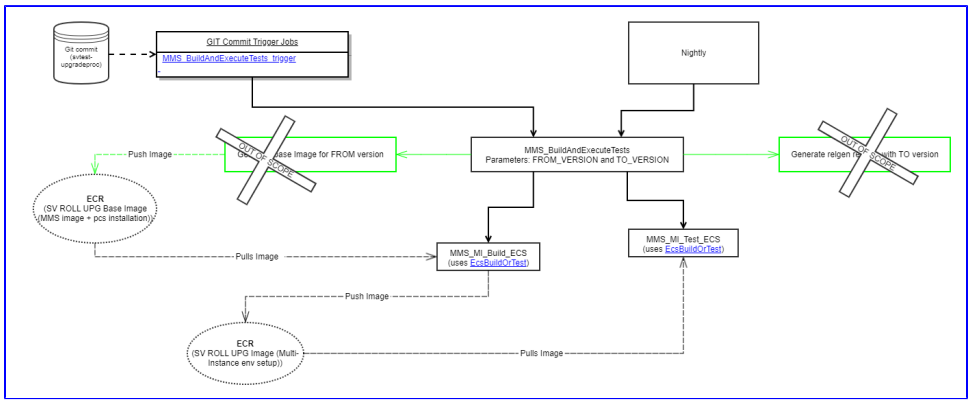
This is to give flexibility in the job so that ad-hoc job can be run to test rolling upgrades with any two arbitrary versions. This will require option in jenkins job to provide `FROM` and `TO` version parameter. This requires additional work in the job. Following are those additional work (additional jobs in CT pipeline.)

Generating Base image: Since `FROM` version will be known at run time, we would need to generate that base image at run time. Prerequisite here is MMS image, the MMS image for `FROM` version should exist.

Generating Relgen Package: Since `TO` version will be known at run time, we would need to generate the relgen package (with corresponding SV package) to perform upgrade at runtime. This will require path for the SV package.

Since, FROM and TO versions would be specified at run time, we need provision in our CT infra to perform above activity in run time.

Following is the CT infrastructure for supporting run with arbitrary versions.



Implementation

1. Job is updated to have following parameters
    a. FROM_VERSION - Specify the version with which env to be created to perform the upgrade.
    b. TO_VERSION - Specify the version to which env will be upgraded to.
    c. RELGEN_PACKAGE_URL - Specify the URL of the relgen release package which is generated for SV TO version release.
2. SV Rolling Upgrade CT will not be responsible for generating base image based on MMS image of specified FROM version and relgen release package which includes SV TO version release. It is assumed that these are already available when the job is triggered with specific FROM and TO version.
3. FROM and TO version should belong to the same major version e.g. 11 or 12. If it differs failure will happen.
4. Any version can be specified in FROM and TO version parameters provided that
    a. They belong to same major release.
    b. FROM version is less than the TO version
5. When specifying patch versions in FROM_VERSION and TO_VERSION parameters the
    a. FROM and TO versions can be the patch versions of same minor release. (Relgen package should be generated with all the necessary SV patch packages)

b. FROM and TO version can belong to different minor release. (Relgen package should be generated with SV minor release package and subsequent patch packages of specified TO version.)

Examples for running Job with arbitrary versions

Upgrading from a minor release to another minor release

Run job to perform upgrade from given minor release to a given minor release. E.g. 11.00.17.01 to 11.00.18.01. Specify following parameters in the job

FROM_VERSION - 11.00.17.01

TO_VERSION - 11.00.18.01

RELGEN_PACKAGE_URL - URL for the relgen package which is generated for SV release 11.00.18.01.

Assumptions:

1. SV ROLL BASE image (app and db) exist based on MMS image of version 11.00.17.01. The image name format is as follows. (SV_VERSION is the value specified in FROM_VERSION)
    a. APP Image: latest-svmms-base-rollupg-app-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/ct/sv_upgrade)
    b. DB Image: latest-svmms-db-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/scde/sv)
2. Relgen package is already generated.

Upgrading From a patch release to another patch of same minor release

Run job to perform upgrade from given patch release to a given patch release of same minor version. E.g. 11.00.17.03 to 11.00.17.07. Specify following parameters in the job

FROM_VERSION - 11.00.17.03

TO_VERSION - 11.00.17.07

RELGEN_PACKAGE_URL - URL for the relgen package which is generated with with all the SV releases starting from the next patch release from the FROM_VERSION up to the patch release specified in TO_VERSION i.e. 11.00.17.04, 11.00.17.05, 11.00.17.06 and 11.00.17.07.

Assumptions:

1. SV ROLL BASE image (app and db) exist based on MMS image of version 11.00.17.03. The image name format is as follows. (SV_VERSION is the value specified in FROM_VERSION.)
    a. APP Image: latest-svmms-base-rollupg-app-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/ct/sv_upgrade)
    b. DB Image: latest-svmms-db-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/scde/sv)
2. Relgen package is already generated.

Upgrading From a patch release to another patch level of a different minor release

Run job to perform upgrade from given patch release of a minor version to a given patch release of a a different minor version. E.g. 11.00.17.03 to 11.00.18.04. Specify following parameters in the job

FROM_VERSION - 11.00.17.03

TO_VERSION - 11.00.18.04

RELGEN_PACKAGE_URL - URL for the relgen package which is generated with with all the SV releases starting from the minor release package of the minor version specified in the TO_VERSION up to the desired patch package of that minor release. i.e. 11.00.18.01, 11.00.18.02, 11.00.18.03 and 11.00.18.04.

Assumptions:

1. SV ROLL BASE image (app and db) exist based on MMS image of version 11.00.17.03. The image name format is as follows. (SV_VERSION is the value specified in FROM_VERSION.)
    a. APP Image: latest-svmms-base-rollupg-app-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/ct/sv_upgrade)
    b. DB Image: latest-svmms-db-main-<SV_VERSION> (Image URL: 785148479268.dkr.ecr.ap-southeast-2.amazonaws.com/csg/scde/sv)
2. Relgen package is already generated.