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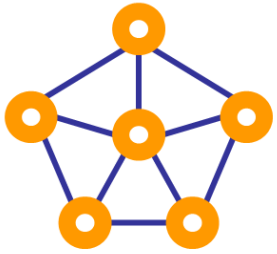

SMF in OpenSAF 4

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Developer Days May 2010

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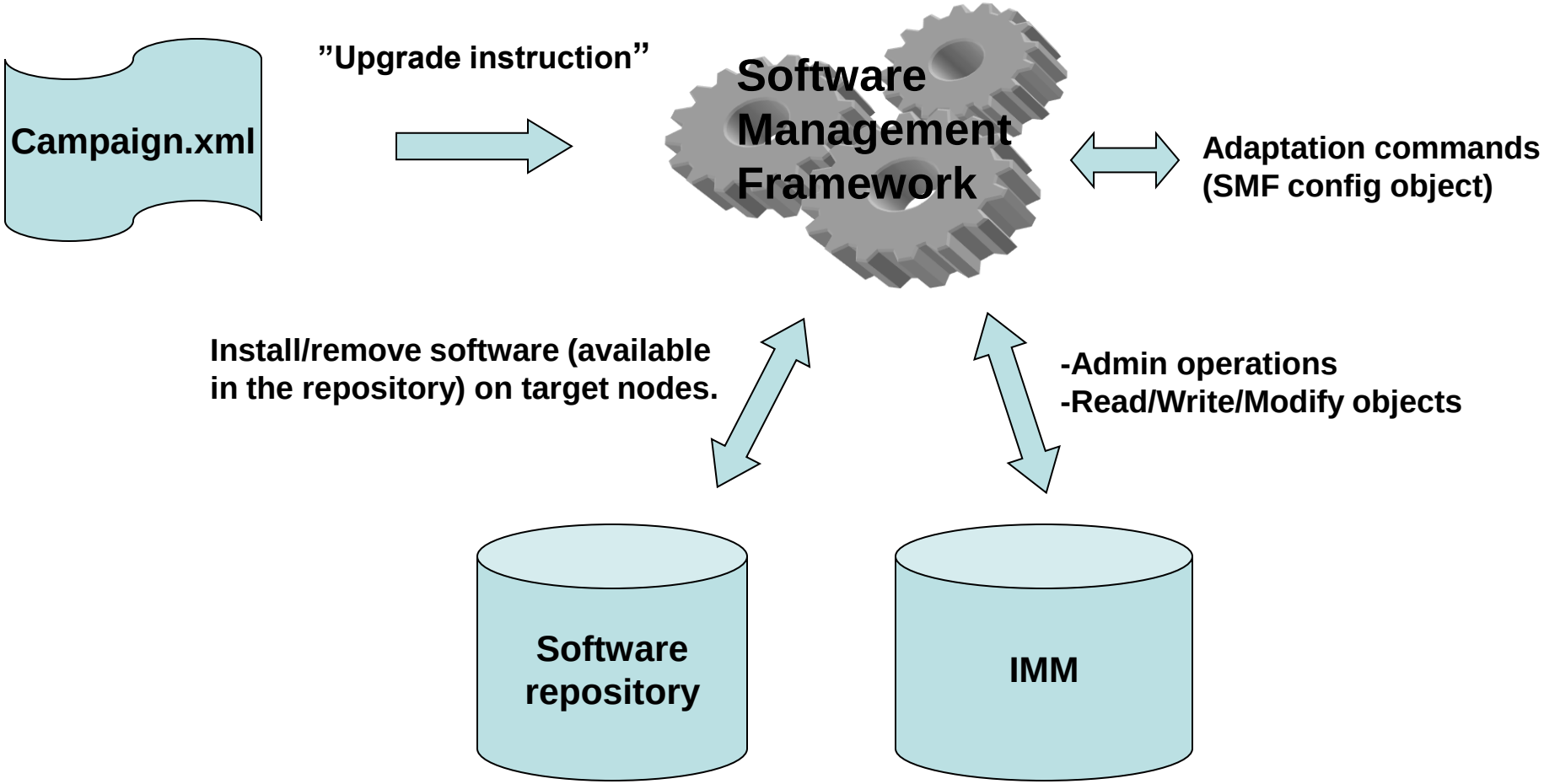
Presentation outline

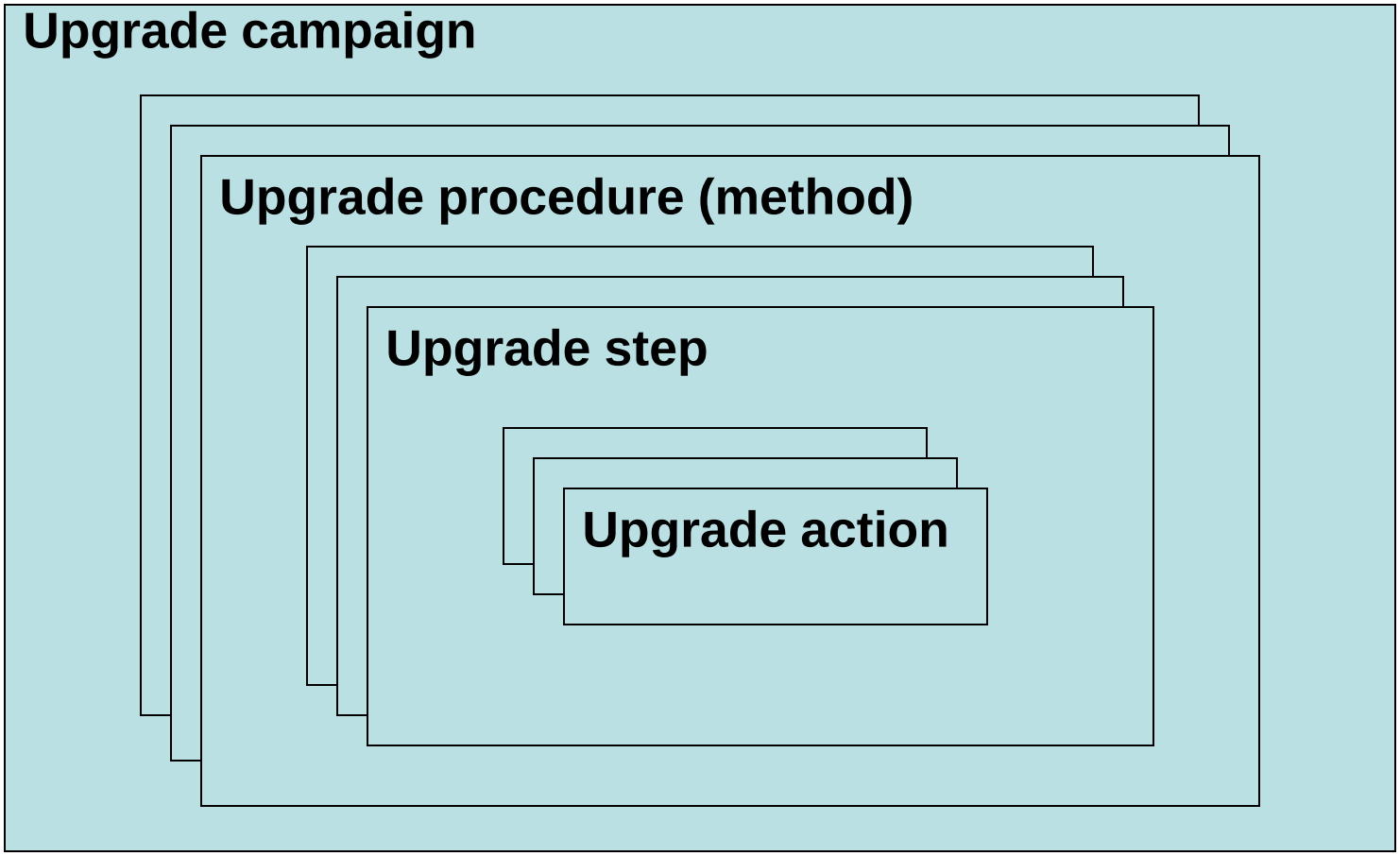
- SMF overview
- SMF contribution so far

- SMF demonstration
  - -Single step upgrade (installation)
  - -Rolling upgrade

SMF overview



The upgrade campaign structure



XML syntax. Schema (.xsd) available at SA Forum home page.

Upgrade methods

- **Rolling upgrade**, used to update compatible entities e.g. components
  - **Iterates the same upgrade step over a set of similar units e.g. Nodes, until the entire upgrade scope is covered.**
  - **Different versions of components must be able to coexist in the system without restrictions.**
  - **System provide service during upgrade.**
- **Single-Step upgrade**, used to add/remove entities or to update incompatible entities e.g. components.
  - **The upgrade step is applied to all units in the upgrade scope simultaneously e.g. all SU's of a certain type.**
  - **Units provide no service.**

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Implemented

Upgrades according to SMF spec

- Rolling upgrade (AMF application)
- Single step upgrade (AMF application)

Using standard set of ***step*** actions (set 1)

Detailed description in
opensaf-4.x-documentation/OpenSAF_SMFSv_PR.odt

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Implemented cont.

Non standard set of ***step*** actions (set 2)

- Rolling upgrade (OS type software, reboot)
- Single step upgrade (OS type software, reboot)

  Used when the software needs reboot to install and/or remove e.g. OS/MW

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Implemented cont.

Non standard set of ***step*** actions (set 3)

- Rolling upgrade (Single point SW activation)
- Single step upgrade (Single point SW activation)

Used for e.g. RAM disc based systems where the SW changes are queued and activated with a single operation.

E.g. at activation time the system calculates RPM dependencies applies the changes to the system. The system handles the active configuration which is reinstalled at every reboot.

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How to select procedure step actions?

- By default procedure ***step*** actions according to the SMF standard (set 1) are used.

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How to select procedure step actions (cont.)

Set 2, ”Reboot” ***step*** actions is choosen if:

- If attribute **saSmfBundleInstallOfflineScope** is set to SA_SMF_CMD_SCOPE_PLM_EE in the software bundle object
- If attribute **saSmfBundleRemoveOfflineScope** is set to SA_SMF_CMD_SCOPE_PLM_EE in the software bundle object

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How to select procedure step actions (cont.)

Set 3, ”Single point activation” ***step*** actions is choosen if:

- If attribute **smfNodeBundleActCmd** is set in SmfConfig object, the “single point activation” **step** actions are used.

The installation/removal commands are supposed to use functionality which queues the SW changes. The changes are then activated via the ”activation command” or a node reboot.

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Not implemented

- SMF API
- Rollback

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SMF impl. specific classes

- **OpenSafSmfConfig** (conf object)
  -configuration of SMF

- **OpenSafSmfRestartInfo** (RT object)
  -to avoid infinite cyclic reboots

- **OpenSafSmfSingleStepInfo** (RT object)
  -to navigate within a single step set of actions which installs/removes software needing reboot

SMF OpenSAF configuration class OpenSafSmfConfig

smfConfig=1,safApp=safSmfService

smfRepositoryCheckCmd	SA_STRING_T	/usr/local/lib/opensaf/smf-repository-check
smfRebootTimeout	SA_TIME_T	600000000000 (0x8bb2c97000, Thu Jan 1 01:10:00 1970)
smfNodeCheckCmd	SA_STRING_T	/usr/local/lib/opensaf/smf-node-check
smfNodeBundleActCmd	SA_STRING_T	
smfConfig	SA_STRING_T	smfConfig=1
smfClusterRebootCmd	SA_STRING_T	/usr/local/lib/opensaf/smf-cluster-reboot
smfCliTimeout	SA_TIME_T	600000000000 (0x8bb2c97000, Thu Jan 1 01:10:00 1970)
smfBundleCheckCmd	SA_STRING_T	/usr/local/lib/opensaf/smf-bundle-check
smfBackupCreateCmd	SA_STRING_T	/usr/local/lib/opensaf/smf-backup-create
smfAdminOpTimeout	SA_TIME_T	600000000000 (0x8bb2c97000, Thu Jan 1 01:10:00 1970)
SaImmAttrClassName	SA_STRING_T	OpenSafSmfConfig

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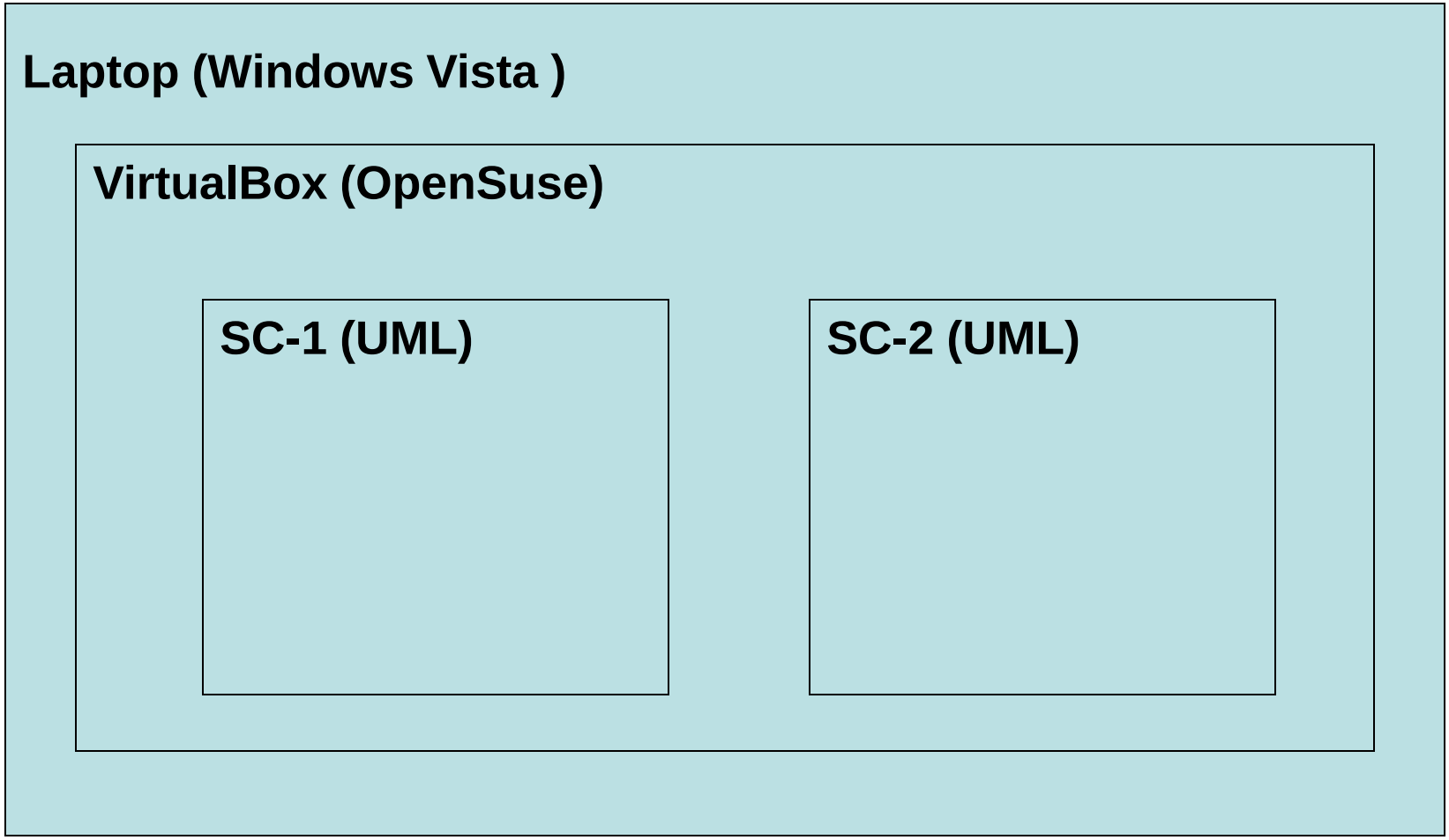
The demos

- Single step installation of application
- Rolling upgrade of component

The campaigns are available in OpenSAF source code three in **samples/smfsv/campaigns** directory.

The demo environment



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Demo 1, Single Step Upgrade (application)

Installation of Demo application on SC-1 and SC-2

- Campaign initiation

  -Add new versioned types

- Procedure initiation

  -Add all new objects for the application i.e. Components, SU's etc

- Activation unit

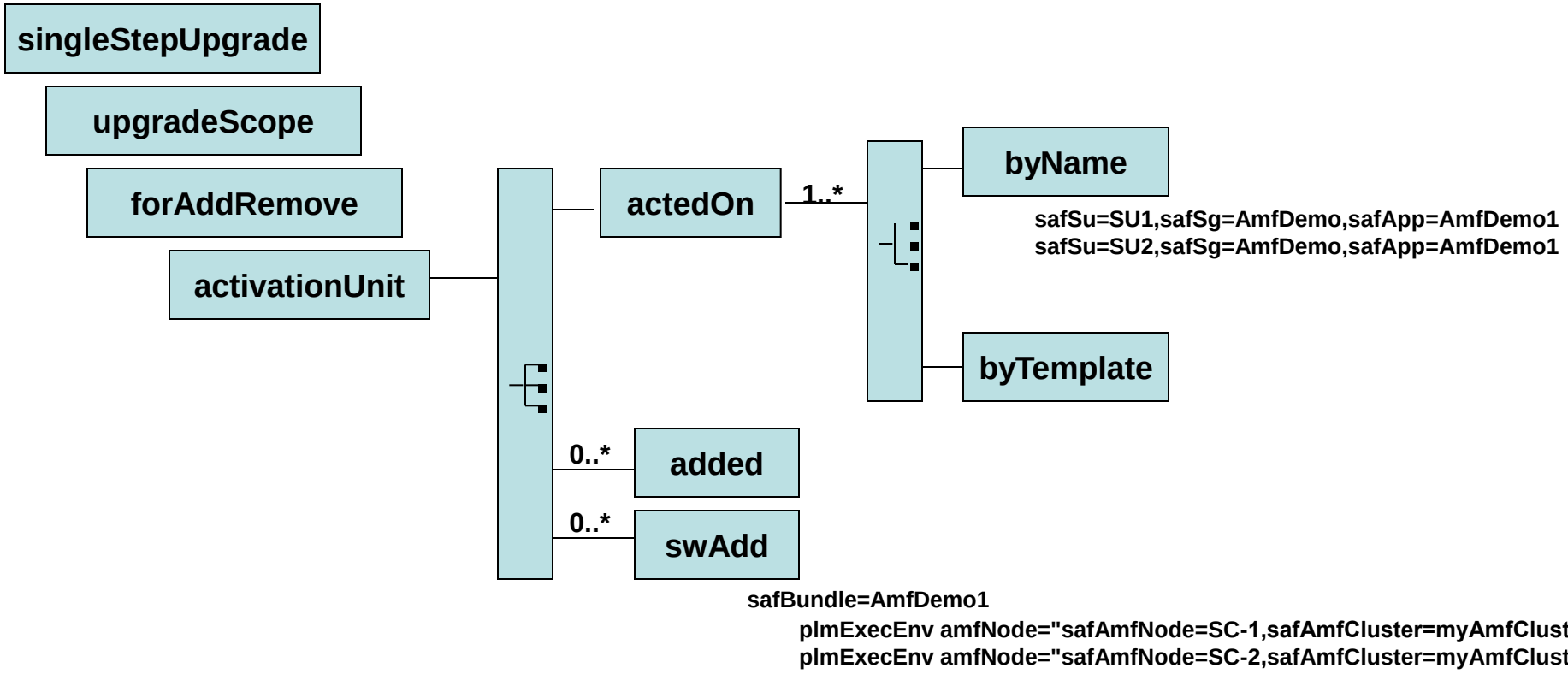
  -Install DemoApp bundle on nodes

  -Unlock SU's (by name)

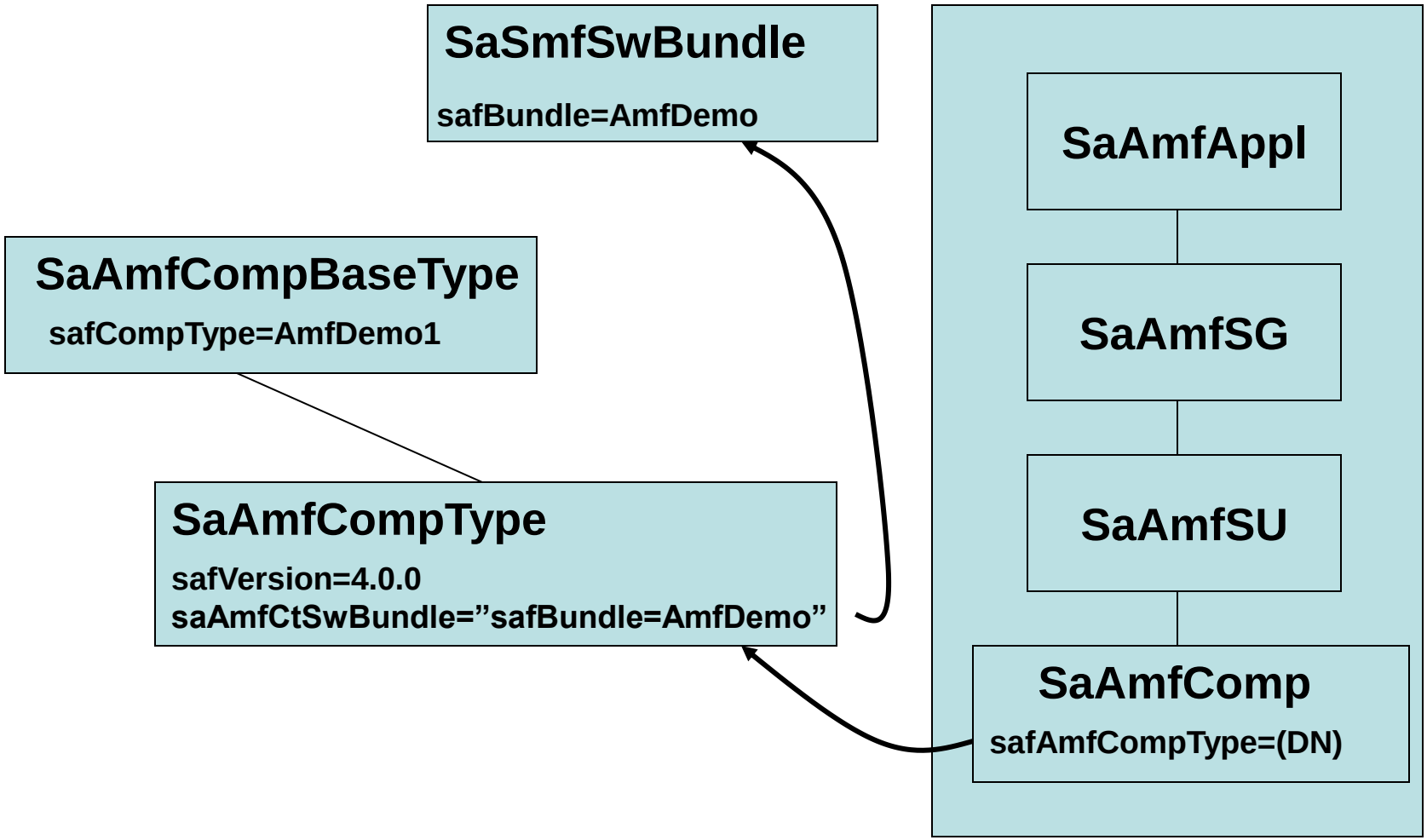
Demo 1, the campaign

campInitAction — Create all base types and versioned types

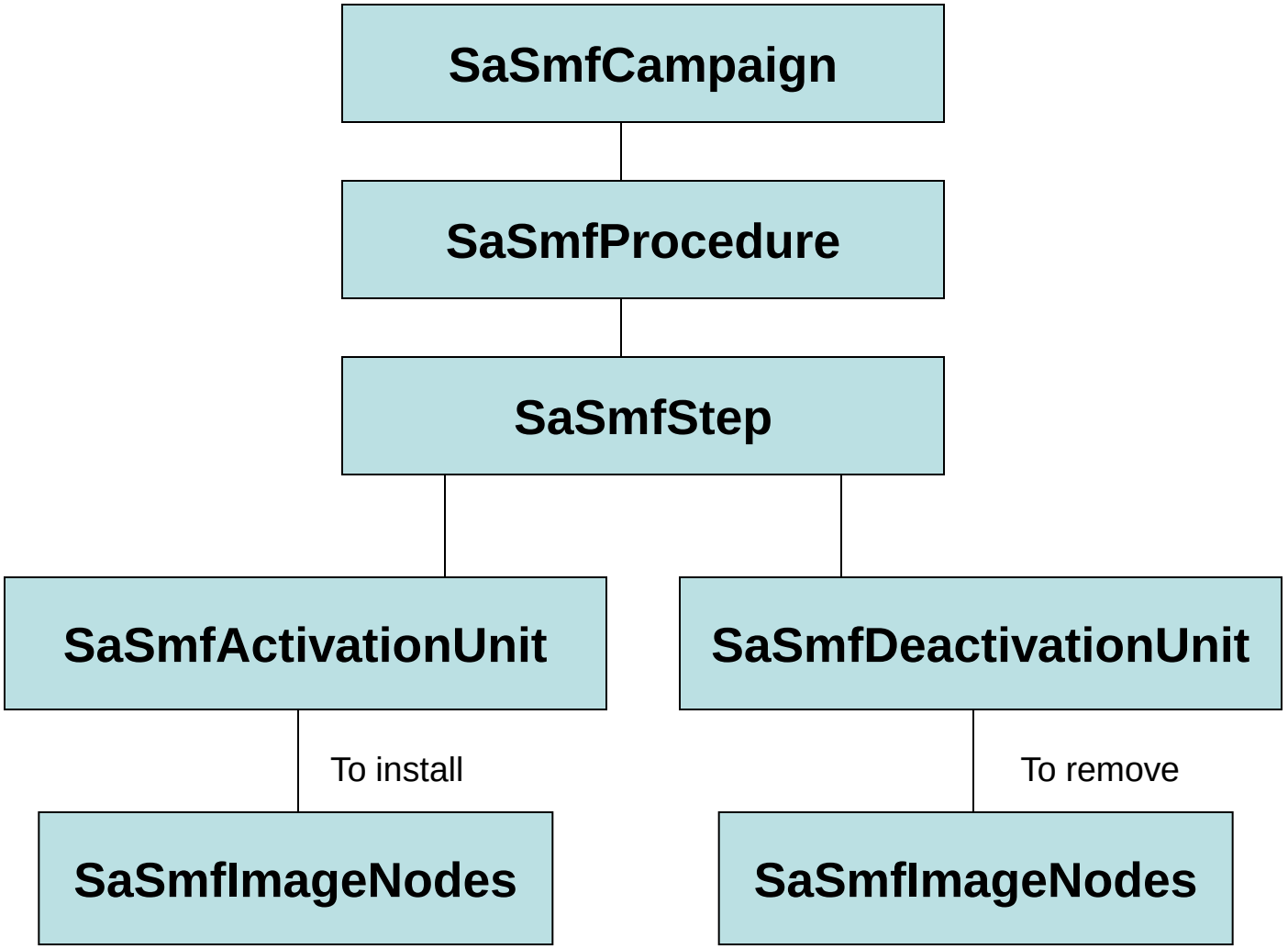
procInitAction — Create all instances of the application



Demo1, result



Campaign classes (upgrade history)



The campaign

For each procedure
witin the campaign

For each step
witin the procedure

For each unit
(node/su/component
witin the step

For each Sw bundle
to be installed/uninstalled
within the step.

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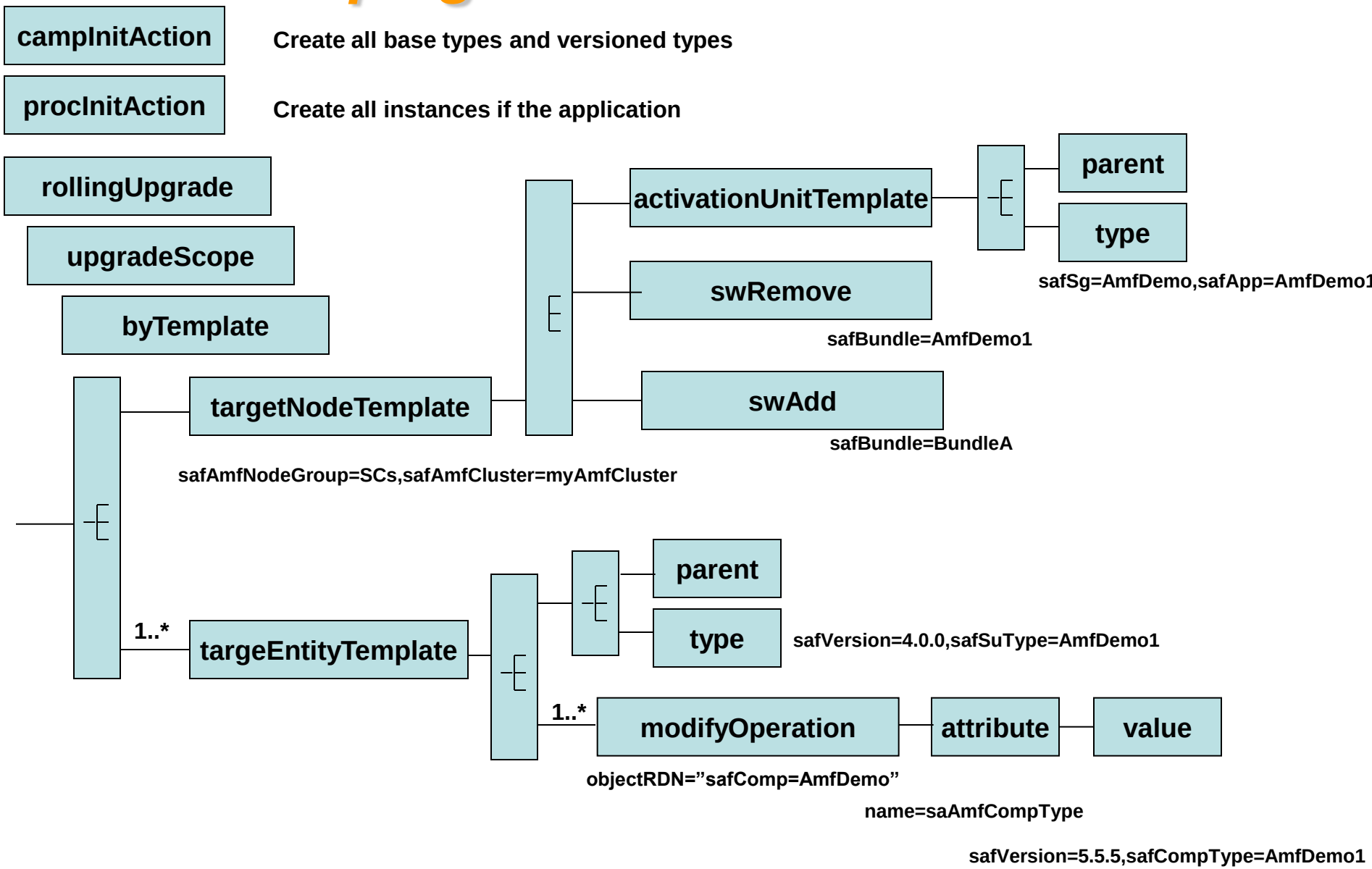
Demo 2, Rolling upgrade (application)

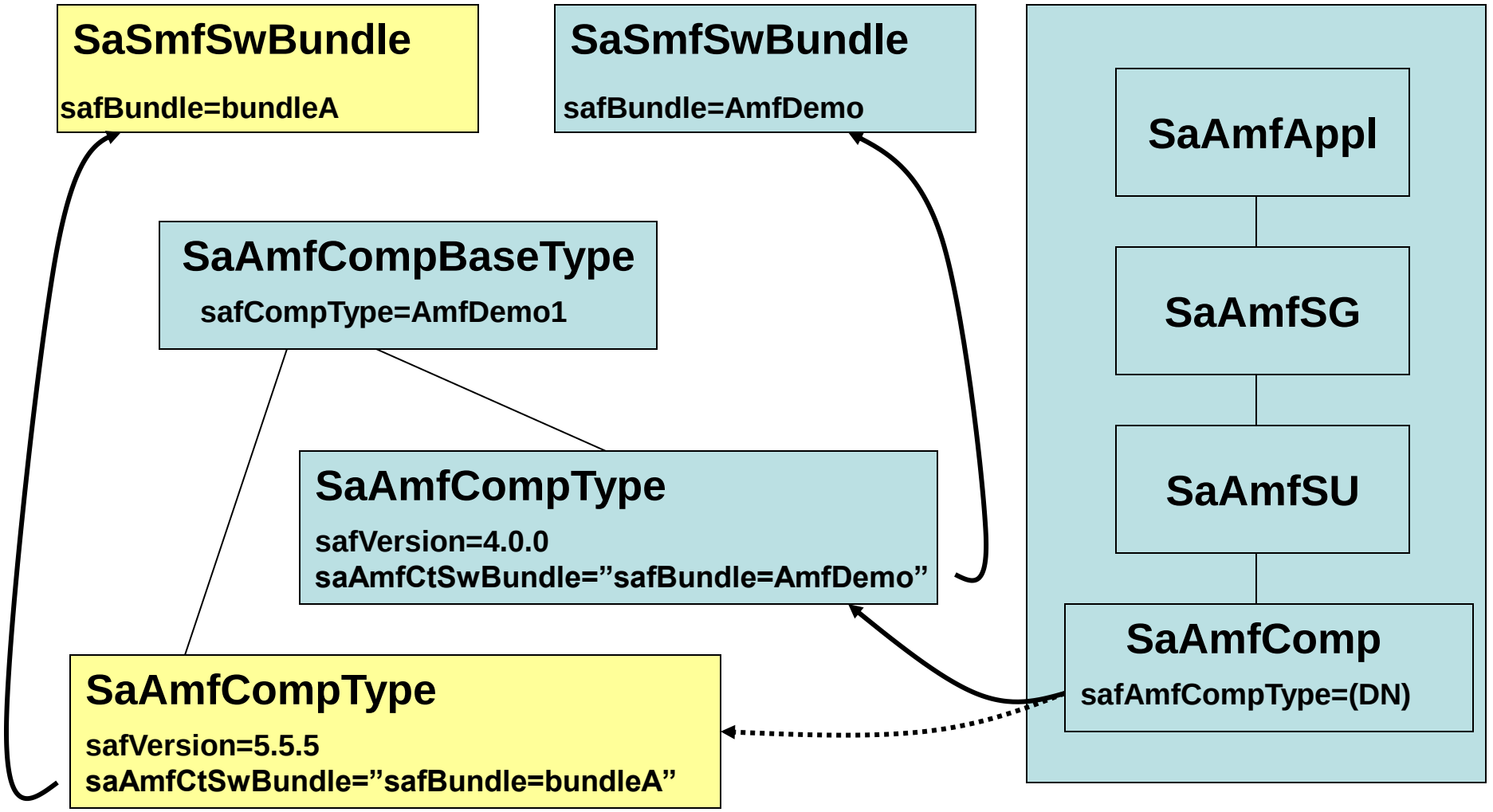
Change DemoApp component type from 4.0.0. to 5.5.5

- Campaign initiation
  -Add new SW bundle and component type type to IMM.
- Target node template
  -In node group ”SCs” find childrens to SG DemoApp.
- Target entity template
  -Find instances of SU type AMFDemo1 version 4.0.0
  -Change the component (by RDN) types to 5.5.5

The campaign xml



The AMF information model (component)



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Thank You!