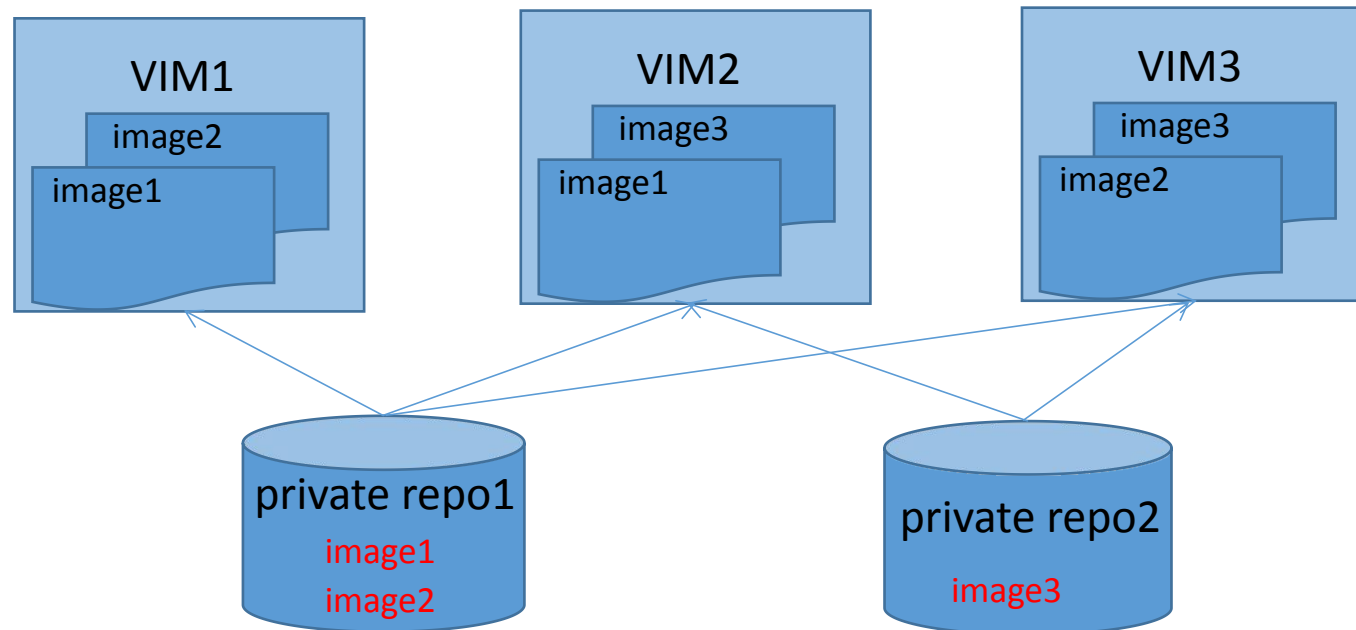# Centralize Image Management for ONAP

2017-11-14

Background

- Image files need to be uploaded to a certain VIM manually.
- Vendors upload images from their private repositories.
- Can not get the image detail infomations easily, e.g vendor/version/disk_format...
- No security/integrity validation before the images used in ONAP, there may be some potential security issue.

Challenges of Image Management

- No uniform method to store both VM/docker images and app binaries.
- No image version management.
- Can not upload images to VIM automatically.
- Images need be checked before used in ONAP.

Requirement of ONAP

- Centralized image management for VM/docker images and app binaries.

- Image infomation detail management.

- Image security/integrity validation before inuse.

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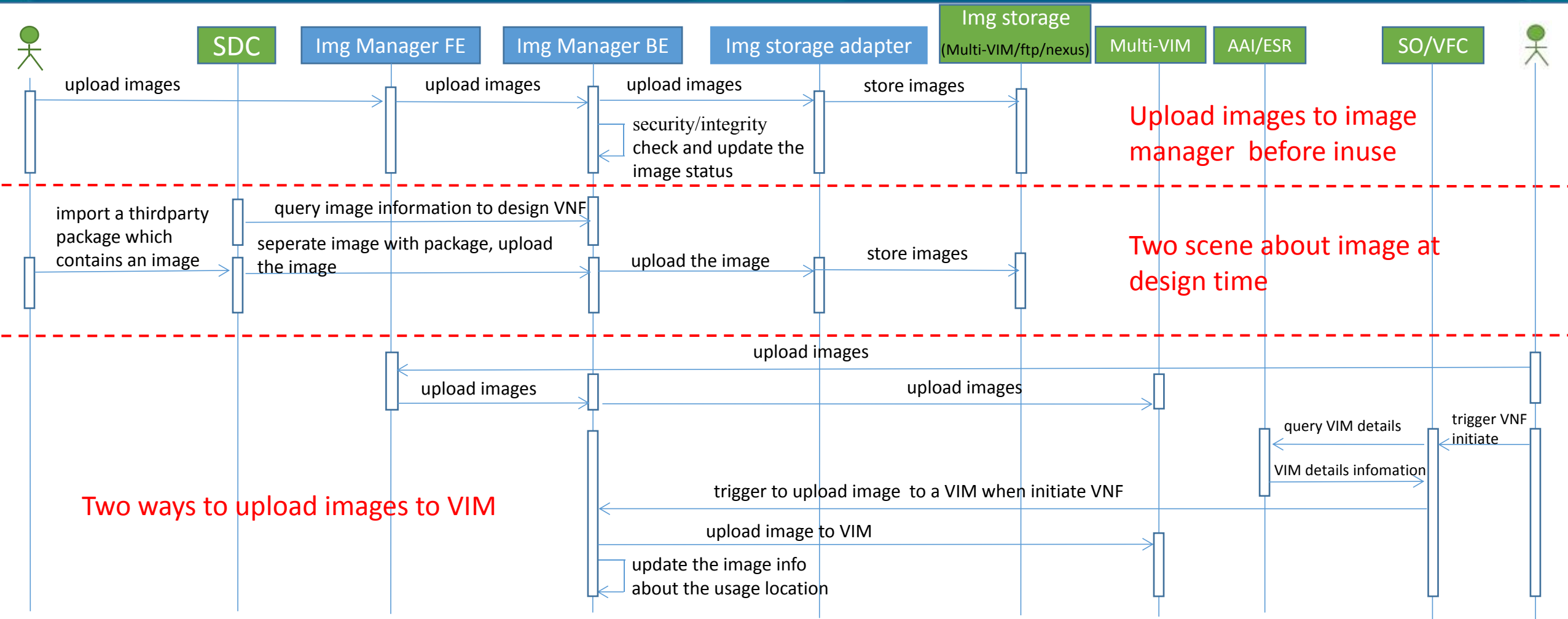
Image Manager Logic Structure
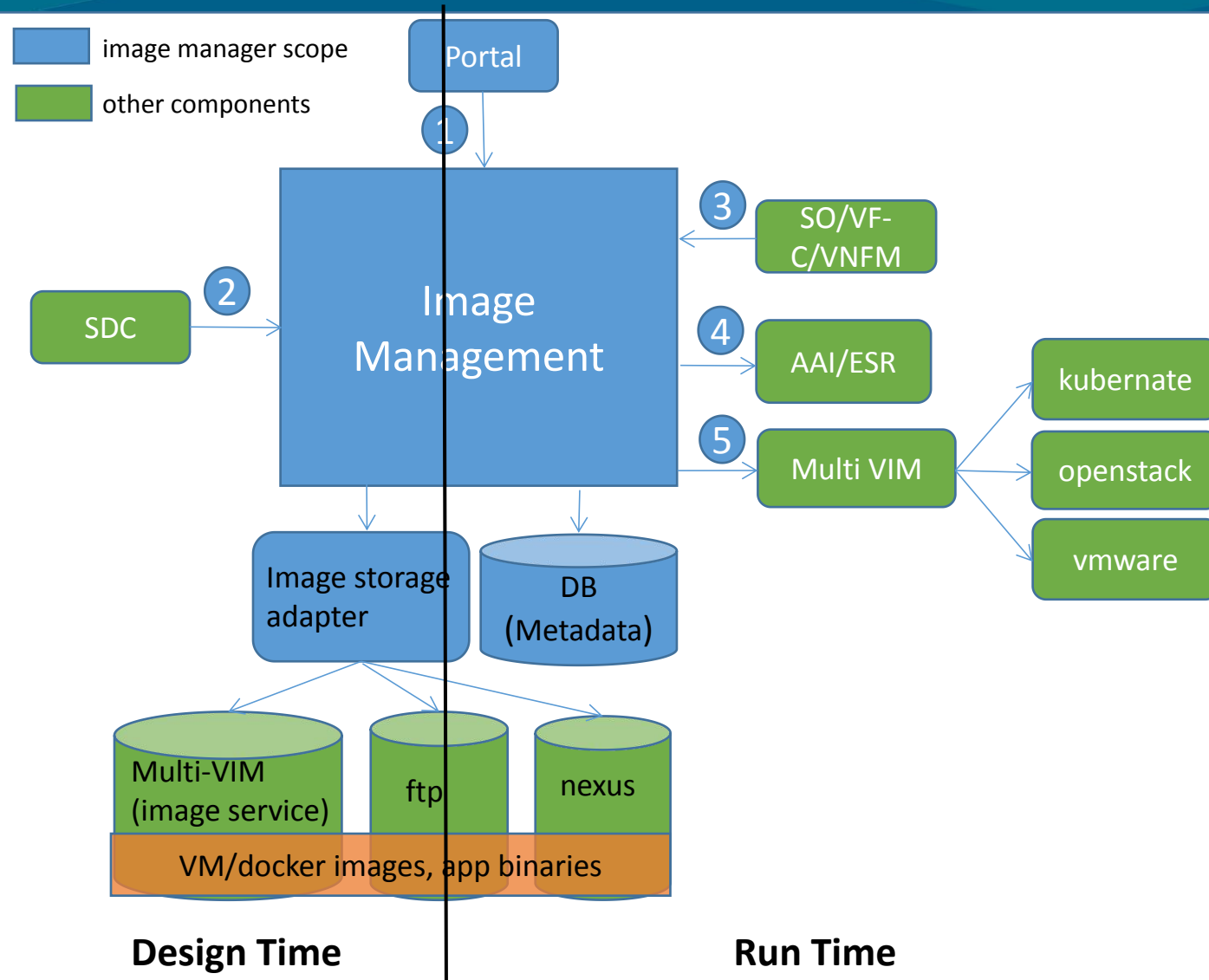
Interfaces
1. Security/integrity validation for images, update image status. Upload/Download/Delete/Modify/query Images.
2. Query image information for VNF design. Upload images.
3. Trigger an image upload to VIM when instantiating a VNF/Service.
4. Query the VIM detail for image upload to.
5. Upload an image to VIM.

Image storage backend: it could be Multi-VIM/Cloud/ftp/nexus to store VM/docker images and app binaries

Metadata DB：uuid, name, description, format, version, vendor, etc.

image manager scope
other components

Portal
1
Image Management
SO/VF-C/VNFM 3
AAI/ESR 4
Multi VIM 5
kubernate
openstack
vmware
SDC 2
Image storage adapter
DB (Metadata)
Multi-VIM (image service)
ftp
nexus
VM/docker images, app binaries

Design Time   **Run Time**

Image Manage High Level Sequence Flow

| SDC | Img Manager FE | Img Manager BE | Img storage adapter | Img storage (Multi-VIM/ftp/nexus) | Multi-VIM | AAI/ESR | SO/VFC |

upload images → **upload images** → **upload images** → **store images**

security/integrity check and update the image status

Upload images to image manager before inuse

import a thirdparty package which contains an image

query image information to design VNF

seperate image with package, upload the image → **upload the image** → **store images**

Two scene about image at design time

upload images

upload images → upload images

query VIM details

trigger VNF initiate

VIM details infomation

trigger to upload image to a VIM when initiate VNF

Two ways to upload images to VIM

upload image to VIM

update the image info about the usage location

- Img Manager FE: image manager portal
- Img Manager BE: provide interface to other modules, also include metadata db

- Image Manager component

- other modules of ONAP

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Image Manager Recommendation

- Provide an uniform managment interface for VM/docker images and app binaries.

- Choose the appropriate way as the backend storage for different kinds of images, e.g: Multi-VIM/Cloud/ftp/nexus.

- Provide a metadata DB to manage the image informations.

- Add security/integrity check for image before it be upload to VIM.

- Provide a portal to promote ease of use.

Improvement of process

- No big changes for other component.
- SDC can reference to image easily when design a VNF at design time.
- A security assurance level will be added for ONAP.
- Images will be uploaded to Multi-VIM from unified server instead of the private repositories.

Plan for Next Step

- Propose image manager as a new project. Because it is a public service, it will be used by SDC/Multi-VIM/VF-C/SO/VNFM

- SDC will not store images, and it may need to reference to images to design VNF.

- SO/VF-C/VNFM will trigger to upload images to VIM when initiate a VNF.

- Multi-VIM can be the image storage backend of image manager.

Thank you !