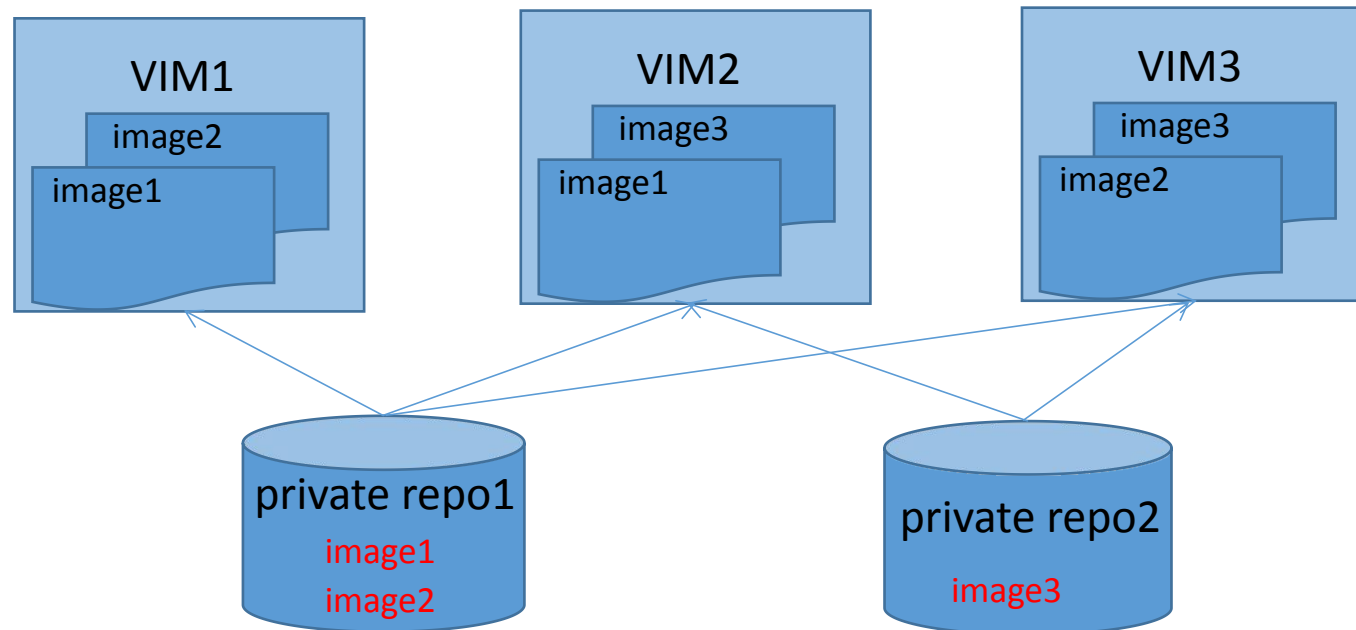# Centralize Image Management for ONAP

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.
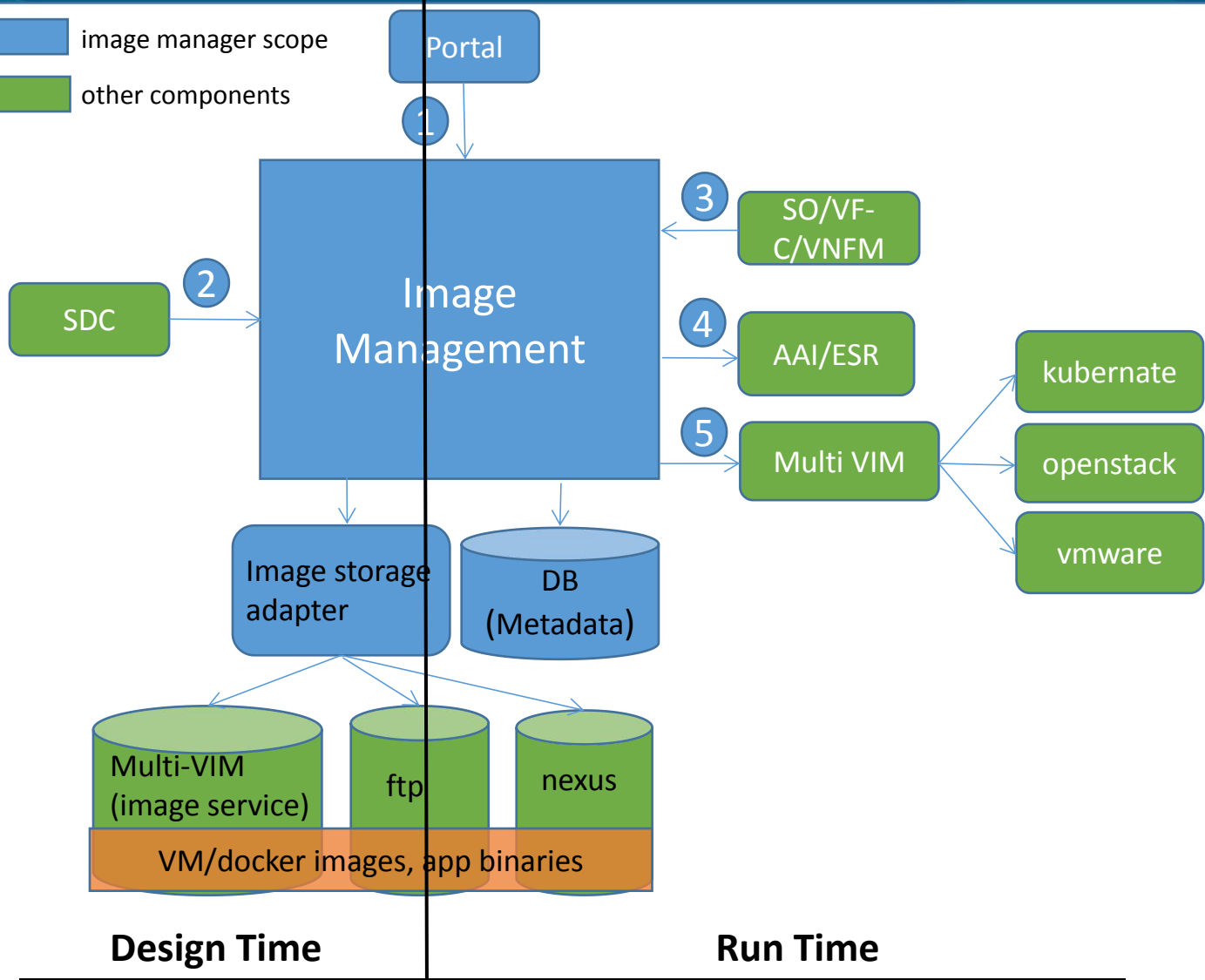
Challenges of Image Management

- 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.
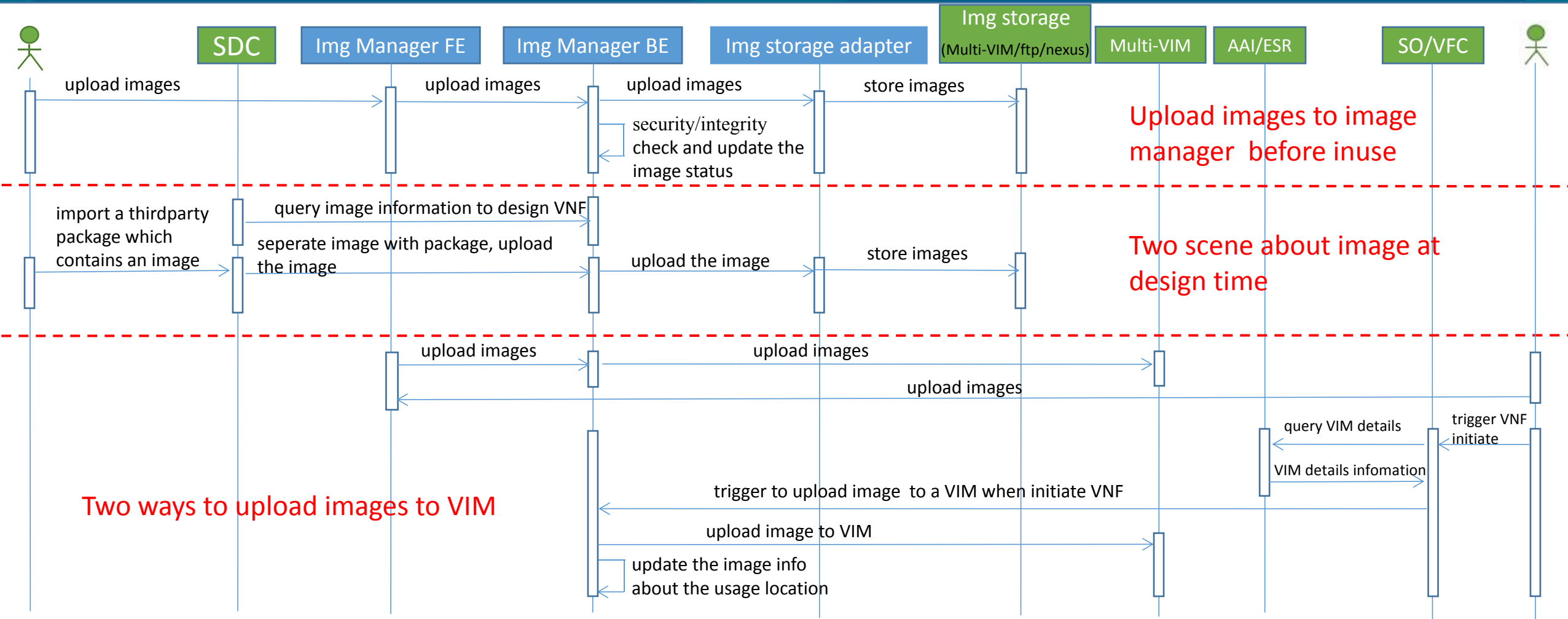
Image Manager Logic Structure

Legend:
- image manager scope
- other components

Diagram labels:
- Portal
- Image Management
- SDC
- SO/VF-C/VNFM
- AAI/ESR
- Multi VIM
- kubernate
- openstack
- vmware
- Image storage adapter
- DB (Metadata)
- Multi-VIM (image service)
- ftp
- nexus
- VM/docker images, app binaries
- **Design Time**
- **Run Time**

Interfaces

1. Security/integrity validation for images, update image status. Upload/Download/Delete/Modify/query Images.
2. Query image information for VNF design.
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.

ONAP
OPEN NETWORK AUTOMATION PLATFORM

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

Two ways to upload images to VIM

query VIM details

trigger VNF initiate

VIM details infomation

trigger to upload image to a VIM when initiate VNF

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

THE LINUX FOUNDATION

ONAP
OPEN NETWORK AUTOMATION PLATFORM

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.

ONAP
OPEN NETWORK AUTOMATION PLATFORM

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.

ONAP
OPEN NETWORK AUTOMATION PLATFORM

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 !