

# Vmbkp Overview (Java code)

HOSHINO Takashi

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# What is Vmbkp?

- Backup software for Virtual Machines in VMware vSphere environment
  - Online full/differential/incremental backup
  - Multi-generation backup management
  - Efficient archive access with sequential IO and reverse diff.
  - Command-line I/F for scheduling by Cron
- Written in Java (ver 1.6 or above)
- Uses VI-Java library to talk with VMware soap server

# Commands

- Update:
  - Get and save information of all available VMs
- Backup:
  - Execute backup of the specified vm/group or all
- Restore:
  - Execute restore of the specified archived generation as a new VM
- Check: (not implemented)
  - Check backup archives are valid
- Summary: (not implemented)
  - Summarize backup archives

# Workflow

## Backup

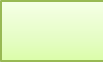
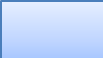
Prepare recipe/config  
(Register to cron)

Read recipe and config  
Get vSphere information  
Backup target VMs  
Export ovf (without disks)  
Create snapshot  
(Get changed block info)  
Backup vmdk files  
Delete snapshot  
(Delete previous dump)  
Update config files

## Restore

Prepare recipe/config

Read recipe and config  
Restore target VMs  
Import ovf  
Add disks to new VM  
Restore vmdk files

 User task  
 Vmbkp task

# Configuration files

- Global (required)
  - Global configuration of the tool
    - Backup directory
    - Number of generations to keep
    - ...
- Group (optional)
  - Group setting for convenient use

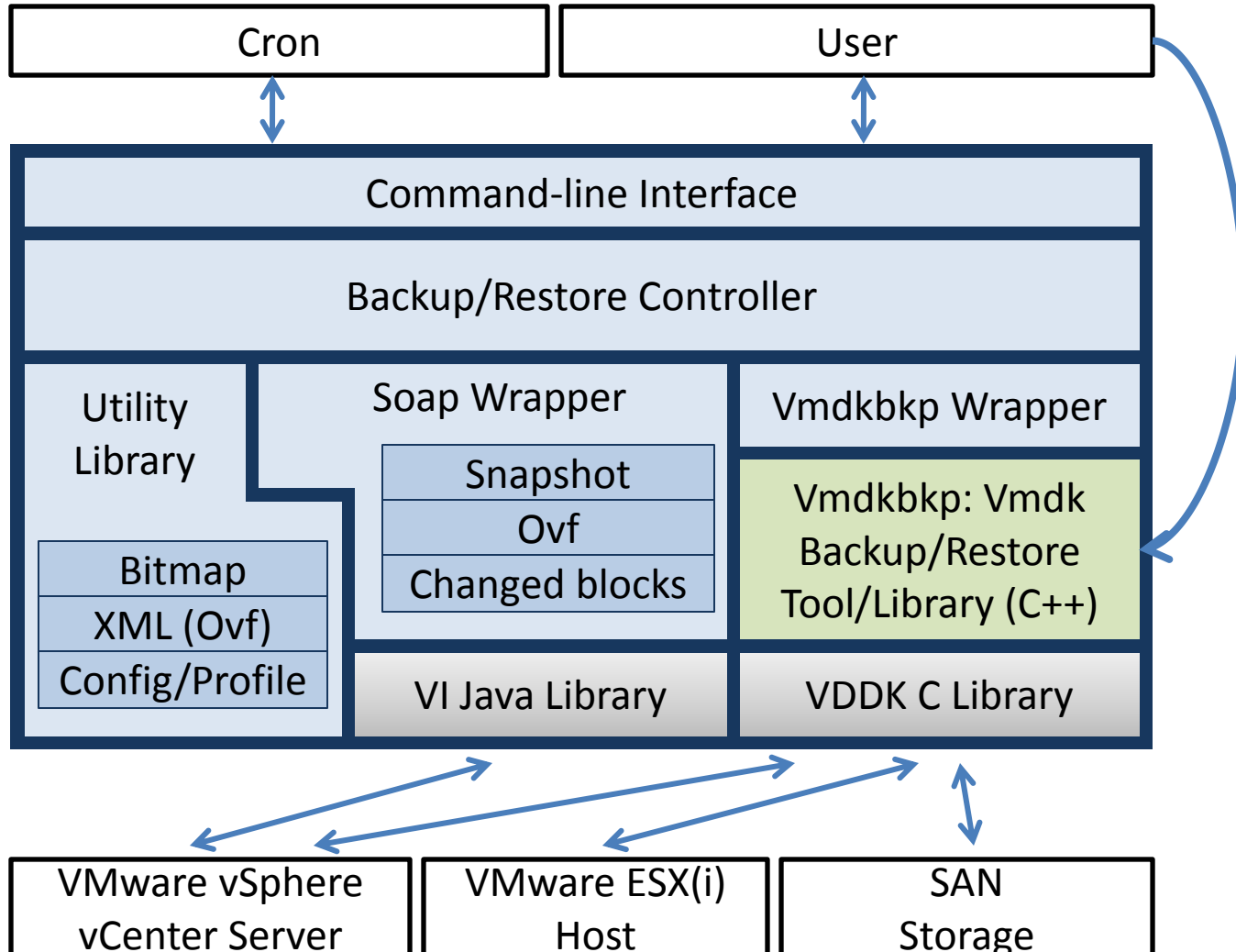
# Layout of Archive Files

- <backup dir>
  - AllVM profile
- <backup dir>/<vm>/
  - VM profile
- <backup dir>/<vm>/<generation>/
  - Generation profile
  - Ovf file for VM configuration
  - Dump/digest/rdiff/bmp files for each vmdk

# Profiles

- Allvm
  - Information/status of all VMs in the target vSphere environment
  - Updated by update command
- Vm
  - Information/status of archives of a VM
  - Created/updated by backup command and referred by restore command
- Generation
  - Information/status of each generation of backup of a VM
  - Created by backup command and referred by restore command

# Software Architecture





# Source Code Overview

- `com/vmbkp/*`
  - Command-line I/F
  - Backup/restore Controller
  - Vmdkbkp wrapper
- `com/vmsoap/*`
  - Soap wrapper
- `com/utility/*`
  - Utilities for Ovf, Bitmap, Command line, etc.
- `com/config/*`
  - Config/profile parser and accessor
- `com/profiles/*`
  - Semantic-level config/profile managers

# 進捗 (Java)

- ■ VMを指定してフル/差分/増分バックアップの実施機能
- ■ VMを指定してフルレストアの実施機能
- ■ グループ機能 (複数 VM の一意指定, 'all' で全 VM 指定)
- ■ リファクタリングとユニットテスト
- □ コマンドライン I/F 実装
  - ■ Update, Backup, Restore
  - □ Check, Summary
- □ コードレビュー (途中)
- □ 環境テスト (途中)