

Public Cloud

Build, Use, Manage

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Public Cloud – Build, Use, Manage

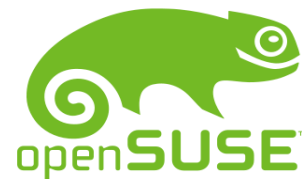
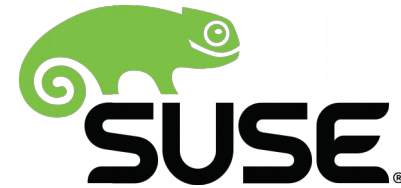
- Introduction
 - About me
 - Disclaimers
- Build vs. Ready made
- What do I...
- Now what?

Introduction

Introduction

About me

- Work at SUSE® – ISV Engineering
 - Public Cloud Architect
 - ISV and integrated systems
- Contribute to KIWI
 - Code, tests, documentation, architecture
- Contribute to openSUSE®
 - Maintain packages
 - Build public cloud images
 - Board member



Introduction

Disclaimer

I am a software developer and by definition I have strong Opinions. I work equally well with all of our Public Cloud Partners. Each framework has it's advantages and disadvantages. My aim in this talk is to remain cloud provider neutral. If one provider or another gets more screen time this does not indicate a personal preference.

Build vs. Ready Made

Build vs. Ready Made

- SUSE® provides ready to run images in:
 - Amazon EC2
 - Azure
 - Google Compute Engine
 - HP Helion



Ready Made?

- The images we provide
 - Are base images
 - May not meet your need
- But
 - They boot
 - Have been tested
- However
 - There is little magic
 - The tools are available to you

Build

- You are the Chef



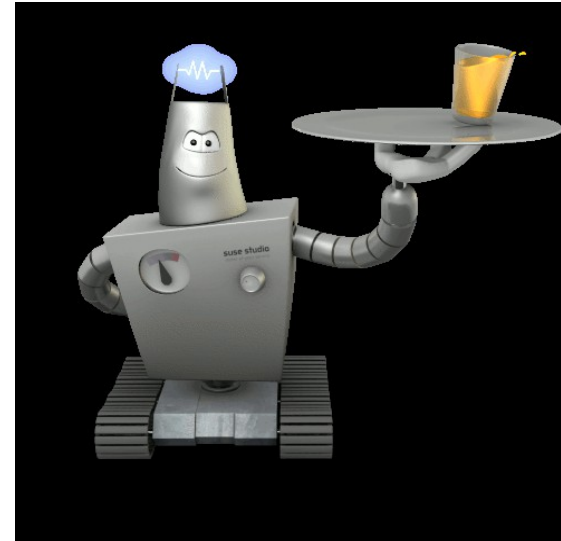
Build

- Creates a custom image that ...
 - Meets your needs
 - Can easily include 3rd party applications
 - Can easily be built for multiple cloud providers
 - Under certain conditions use the same image for virtualization framework, private cloud, and public cloud
 - Better tracking of your resources
- But ...
 - Needs uploading and insertion into the cloud framework

Build

The tools

- SUSE® Studio



- KIWI



- The Open Build service



SUSE® Studio

- Point and click your way to an image
 - Integration with
 - Amazon EC2
 - Azure
 - Pending
 - Google Compute Engine
 - BUT you can still built images for GCE
- Not feature complete with respect to KIWI
 - This is not a goal of SUSE® Studio

SUSE® Studio

- Creates an image with metering
 - But registration to SUSE® infrastructure is not yet automated
 - If you use it for BYOS, you will pay SUSE® twice, thanks
 - There is no way to give you credit, sorry



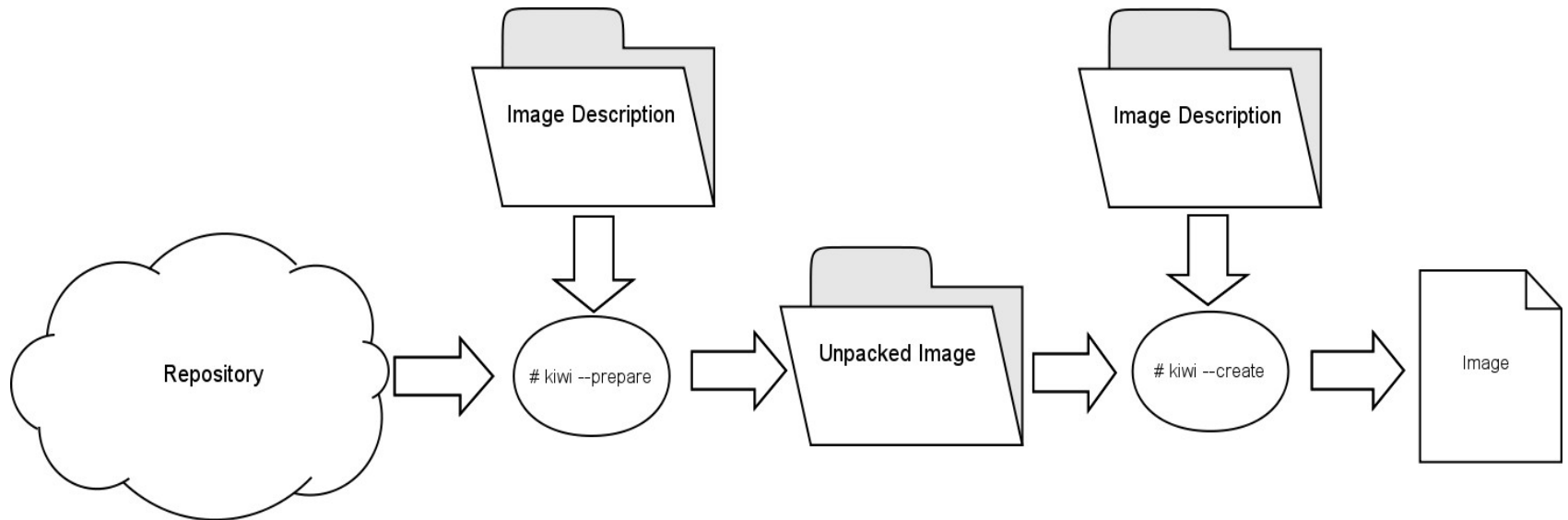
- Upload for integrated frameworks is automated
- **SUSE Studio** (quick demo)
- Also available as Onsite installation

KIWI

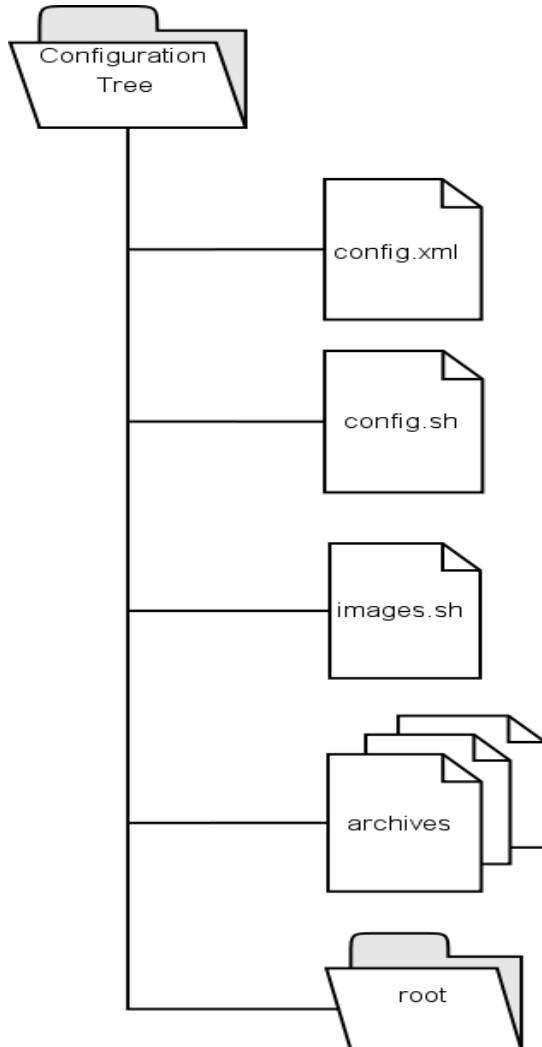
- KIWI is a Linux image build system
 - Hosted on github <https://github.com/openSUSE/kiwi>
 - Backend for SUSE® Studio
- All SUSE® images are built with KIWI
 - Not just our cloud images also install isos, live isos for openSUSE
- KIWI can produce most formats known to man

KIWI

- Two step build process based on configuration tree
 - Prepare step
 - Output is an unpacked image tree (directory)
 - Create step
 - Output is the desired image



KIWI



- Configuration tree

- config.xml → required
- config.sh → optional
- images.sh → optional
- archives → optional
- root → optional

KIWI – Amazon PV Image

```
<type image="vmx"  
  filesystem="ext4"  
  boot="vmxboot/suse-SLES12"  
  bootloader="grub2"  
  bootprofile="ec2"  
  bootkernel="ec2k"  
  kernelcmdline="xencons=xvc0 console=xvc0 multipath=off net.ifnames=0"  
  boottimeout="1" installprovidedefailsafe="false" firmware="ec2"/>
```

KIWI – Amazon HVM Image

```
<type image="vmx"  
  filesystem="ext4"  
  boot="vmxboot/suse-SLES12"  
  bootloader="grub2"  
  kernelcmdline="console=ttyS0,115200n8 multipath=off net.ifnames=0  
    NON_PERSISTENT_DEVICE_NAMES=1"  
  boottimeout="1"  
  installprovidedefailsafe="false"  
  firmware="ec2hvm"/>
```

KIWI – Azure Image

```
<type image="vmx"  
  boot="vmxboot/suse-SLES12"  
  filesystem="ext4"  
  Boottimeout="1"  
  kernelcmdline="USE_BY_UUID_DEVICE_NAMES=1 console=ttyS0  
    rootdelay=300 net.ifnames=0"  
  devicepersistency="by-uuid"  
  format="vhd-fixed"  
  bootloader="grub2">
```

KIWI – Google Compute Image

```
<type image="vmx"  
  boot="vmxboot/suse-SLES12"  
  filesystem="ext4"  
  boottimeout="1"  
  kernelcmdline="console=ttyS0,38400n8 net.ifnames=0"  
  vga="normal"  
  bootloader="grub2"/>
```

For full image description examples see the openSUSE® build service Cloud:Images project

KIWI

- Great for building BYOS images
 - You cannot build your own metered images
- Learning curve, but great public examples
- You have to deal with the uploading

Open Build Service

- OBS
 - Sits above kiwi
 - Runs kiwi with the checked in build description
 - Only need to adjust <repository> definitions compared to local kiwi builds
- Some special stuff but reasonably straight forward

Special Sauce

- All cloud frameworks require
 - Instance initialization code
 - Amazon → cloud-init
 - Azure → WALinuxAgent
 - GCE → compute-image-packages
 - HP → cloud-init

Initialization Code

- ssh key injection
- User script execution
- Basically communication with cloud framework
- As image builder using the right packages is your responsibility

What Do I Do Once I Have Built an Image

What Do I...

- Image needs to be uploaded
 - Cloud frame work dependent
- Amazon
 - Rather difficult but scriptable using python-boto
 - We have a script but that is not public yet, sorry
- Azure
 - Not from Linux yet, you need Powershell
- Google
 - Very simple only needs two commands

Now What?

Now What?

- Fire up and use
 - Once the image is uploaded use the command line tools
- SUSE® Linux Enterprise 12 provides command line tools in Public Cloud Module
 - Amazon
 - aws-cli
 - Azure
 - azure-cli
 - Google
 - google-cloud-sdk

Summary

Summary

- SUSE® Linux Enterprise provides everything to
 - Build
 - Manage
 - Use
- Some things are easier than others
- Provides great flexibility

Shameless Self Promotion

- For more information on what we do
- Join my talk on Thursday at 8:30
- SUSE Makes It Easy To Run Enterprise Linux In The Public Cloud





Questions?



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