

Daniel Henrique Barboza – Staff Software Engineer at IBM Linux Technology Center

August 17th 2015



Ginger – Open Source HTML5 Host management

CloudOpen 2015



Agenda

- Ginger origins: a few words about Kimchi
- What is Ginger?
- Current features – what can Ginger do?
- Where is Ginger headed?
- Open source, right? How can I contribute?
- Questions

Ginger origins: a few words about Kimchi

- Kimchi: open source HTML5 interface for KVM
- Github project page: <https://github.com/kimchi-project/kimchi>
- Started as an internal IBM project, open sourced in 2013

Brief introduction to Kimchi

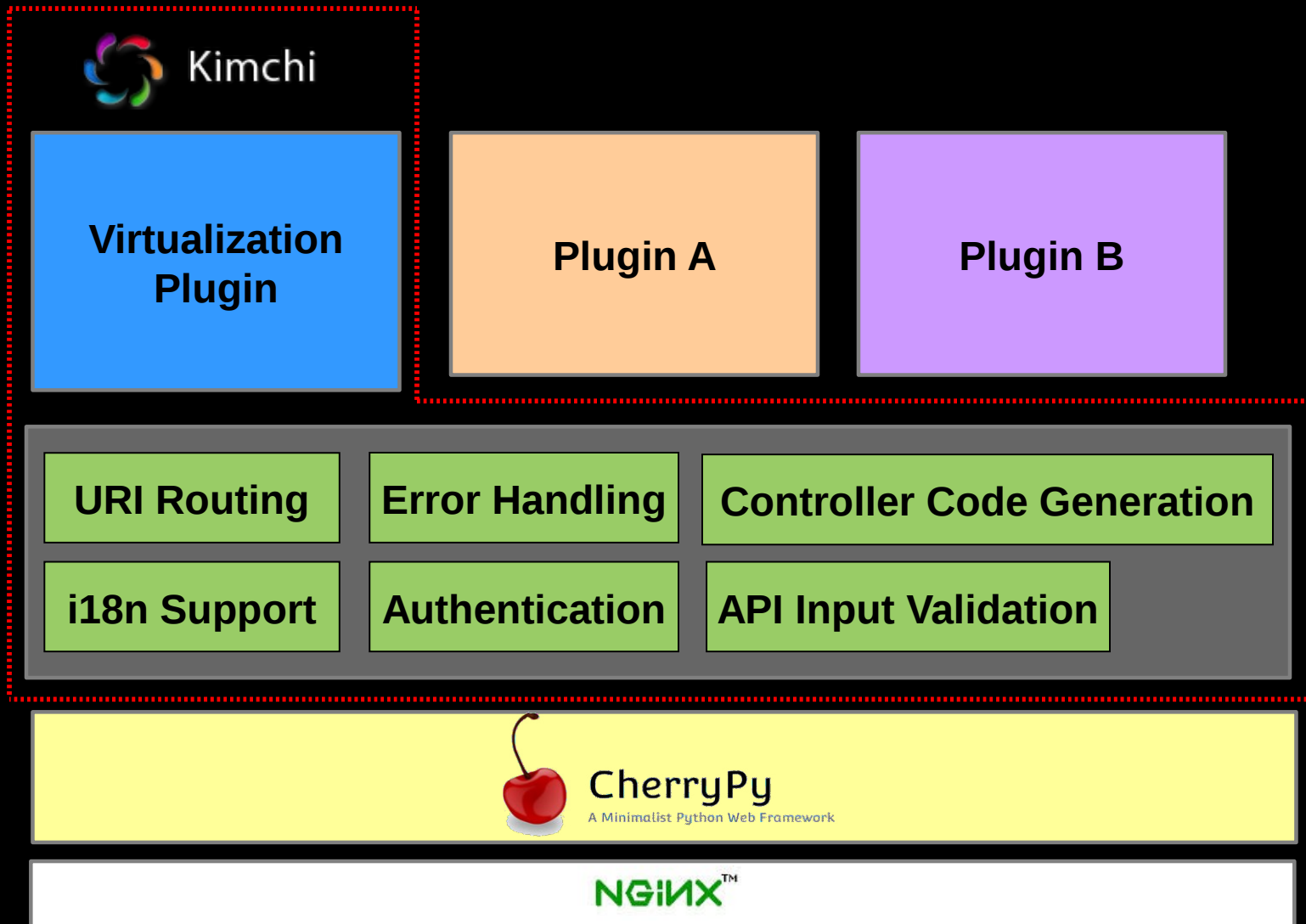
- Idea: user friendly way to create and manage KVM VMs
- Platform independent
 - manage VMs from Mac OS, Windows, mobile
- Extensible through plug-ins

Ginger origins: a few words about Kimchi

The screenshot shows the Kimchi web interface for a host named 'root'. The 'Guests' tab is selected, displaying a table of virtual machines. Each row represents a VM with columns for Name, CPU usage, Disk I/O, Network I/O, Livetile, and Actions.

Name	CPU	Disk I/O	Network I/O	Livetile	Actions
0-bugboot	100%	0 KB/s	0 KB/s		Refresh, Stop, Start, Actions
0-bugboot-edited	1%	0 KB/s	0 KB/s		Refresh, Stop, Start, Actions
0-rotru-qcow2	0%	0 KB/s	0 KB/s	VM	Refresh, Stop, Start, Actions
0-rotru-raw	0%	0 KB/s	0 KB/s	VM	Refresh, Stop, Start, Actions

Ginger origins: a few words about Kimchi



Ginger origins: a few words about Kimchi

- VM management requires host management as well
 - CPU usage, MEM usage
- Include these features in Kimchi was discarded
 - Primary focus is VM management, not host
- A new plugin with these features to complement Kimchi: Ginger was born!

What is Ginger?

- Kimchi plug-in for host management
- Ideal for remote administration of a server (cloud environments)
- Open source and extensible, like Kimchi
 - Python 2.7, cherrypy, python plug-ins

What is Ginger?

- Architecture independent
- Adjusts to current host configuration
- Uses open source tools like tuned-adm, python-libuser

What is Ginger?

- Ginger running in a Intel FC22 machine

The screenshot shows the OpenStack Administration web interface. The top navigation bar includes 'Host', 'Guests', 'Templates', 'Storage', 'Network', and 'Administration'. The 'Administration' tab is active, and the 'Configuration Backup' section is expanded. This section contains three buttons: 'Generate Default Backup', 'New Custom Backup', and 'Batch Delete'. Below these buttons is a table with two columns: 'File' and 'Timestamp'. The table contains one entry with a file path and a timestamp. To the right of the entry are download and delete icons. Below the table are three expandable sections: 'Network Configuration', 'SAN Adapters', and 'User Management'.

File	Timestamp
/home/danielhb/kimchi/kimchi-danielhb/kimchi/data/ginger_backups/af94549a-0922-42d1-bb...	7/27/2015, 8:34:50 AM

What is Ginger?

- Ginger running in a Power 8 host

The screenshot displays the 'Administration' tab of the Ginger management interface. The 'Configuration Backup' section is expanded, showing a table of backup files. The table has two columns: 'File' and 'Timestamp'. A single backup file is listed with the path `/var/lib/kimchi/ginger_backups/799e1160-b472-442a-b975-a9883674fd98.tar.gz` and a timestamp of '8/3/2015, 4:35:22 PM'. To the right of the file name are download and delete icons. Above the table are three buttons: 'Generate Default Backup', 'New Custom Backup', and 'Batch Delete'. Below the backup table, several other configuration sections are visible but collapsed: 'Network Configuration', 'Power Options', 'SAN Adapters', 'Sensor Monitor', 'SEP Configuration', and 'User Management'.

File	Timestamp
<code>/var/lib/kimchi/ginger_backups/799e1160-b472-442a-b975-a9883674fd98.tar.gz</code>	8/3/2015, 4:35:22 PM

What is Ginger?

- Single sentence definition:

" An HTML5 interface for Linux administration tools and tasks"

Current features

- Multi-arch features:
 - Configuration backup
 - Network Management
 - SAN adapters
 - User Management
 - Power Management

- Power systems only features:
 - Firmware Update
 - Sensor Monitor
 - SEP Monitor

Current features

- Configuration backup
 - Easy way to backup configuration files and deploy in another host
 - Customizable




▼ Configuration Backup

Generate Default Backup New Custom Backup Batch Delete

File	Timestamp	
/var/lib/kimchi/ginger_backups/799e1160-b472-442a-b975-a9883674fd98.tar.gz	8/3/2015, 4:35:22 PM	↓ ✕

Current features

- User Management
 - Manage users based on profiles
 - Based on python-libuser

▼ User Management			
Name	Group	Profile	
nfsnobody	nfsnobody	kimchiuser	
danielhb	danielhb	kimchiuser	
			

Add User

User Name

Password

Confirm Password

Group Use Other

Profile Kimchi User Virt User Administrator

Current features

- Power Management
 - Uses tuned-adm to set power profiles
 - Easy way to tune energy consumption in cloud nodes

▼ Power Options

Activated Option Selected Option Unselected Option Activate

<input type="checkbox"/> balanced	<input type="checkbox"/> desktop	<input type="checkbox"/> latency-performance
<input checked="" type="checkbox"/> network-latency	<input type="checkbox"/> network-throughput	<input type="checkbox"/> powersave
<input type="checkbox"/> throughput-performance	<input type="checkbox"/> virtual-guest	<input type="checkbox"/> virtual-host

Current features

- Network Management
 - Change DNS, gateway and IP address of interfaces

Network Configuration

Interface

Name	IP	Mask	
enp0s25	<input type="text"/>	<input type="text"/>	
lo	127.0.0.1	255.0.0.0	
tun0	9.18.200.145	255.255.255.255	
virbr0	192.168.122.1	255.255.255.0	
virbr0-nic	<input type="text"/>	<input type="text"/>	
wlp3s0	192.168.25.42	255.255.255.0	

DNS



Gateway

Current features

- See <https://github.com/kimchi-project/ginger/wiki> for more info about these and other features
- No feature is final – improvements and ideas welcome!

Where is Ginger headed

- Unit testing!
 - Only 1 backend feature covered (user management)
 - New features/patches are 'encouraged' to have tests
 - UI testing with Selenium → aiming high!

Where is Ginger headed

- New UI
 - In discussion within Kimchi community
 - Cleaner and less bloated
 - ETA December 2015
 - Draft available at Github - Kimchi

Where is Ginger headed

- Migrating Kimchi features to Ginger
 - Some kimchi features aren't THAT related to VM management
 - Moving them to Ginger makes sense for both plug-ins
 - Work in progress:
 - Software Updates
 - Repositories

Where is Ginger headed

▼ **Software Updates**

Software Updates

Update All

Package Name	Version	Architecture	Repository
abrt-python3	2.6.1-2.fc22	x86_64	updates
cups-client	1:2.0.3-1.fc22	x86_64	updates
python-dateutil	1:2.4.2-1.fc22	noarch	updates
libwmf-lite	0.2.8.4-45.fc22	x86_64	updates
pam_pkcs11	0.6.8-6.fc22	x86_64	updates
perl-Sys-Guestfs	1:1.29.50-1.fc22	x86_64	updates
rpm-plugin-selinux	4.12.0.1-12.fc22	x86_64	updates

▼ **Repositories**

Repositories

Add Enable Edit Remove

ID	Name	Enabled
fedora	Fedora \$releasever - \$basearch	true
fedora-debuginfo	Fedora \$releasever - \$basearch - Debug	false
fedora-source	Fedora \$releasever - Source	false
fedora-notify	notify17 - Notify	true

Where is Ginger headed

- WoK: Webserver of Kimchi
 - Separate the cherrypy and auth engines from Kimchi
 - Kimchi becomes a plug-in of WoK
 - Ginger independent of Kimchi
 - (under discussion) Ginger will split into 2 plug-ins – basic host info and host management
 - (under discussion) Plug-ins that extends existing plug-ins
 - Current engine must be adapted

Where is Ginger headed

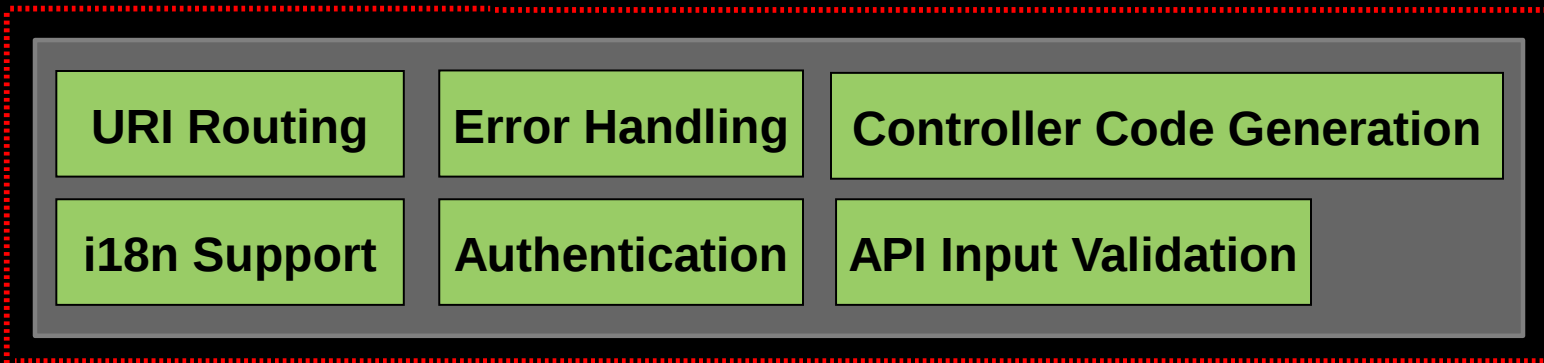


**Virtualization
Plugin**

Ginger

Plug-in A

WoK



 **CherryPy**
A Minimalist Python Web Framework

NGINX™

Where is Ginger headed

- Linux on Z contributions
 - Idea: use Ginger to complement Openstack KVM for Linux on Z
 - Specialized features for mainframe administration
 - Gain momentum in open source community

How to Contribute?

- Join the discussions at ginger-dev-list@nongnu.org
- Open bugs, create feature requests at Github:
<https://github.com/kimchi-project/ginger/issues>
- Send patches!

Questions?

Who am I?

- Daniel Henrique Barboza: Staff Soft. Eng @ IBM
- Ginger maintainer, Kimchi contributor
- Contacts:
 - daniel.barboza at gmail.com (personal email)
 - dhbarboza82 at gmail.com (community/github email)
 - danielhb at br.ibm.com (work email)
 - IRC: 'danielhb' at OFTC #kimchi