

# Expanding Livmomi

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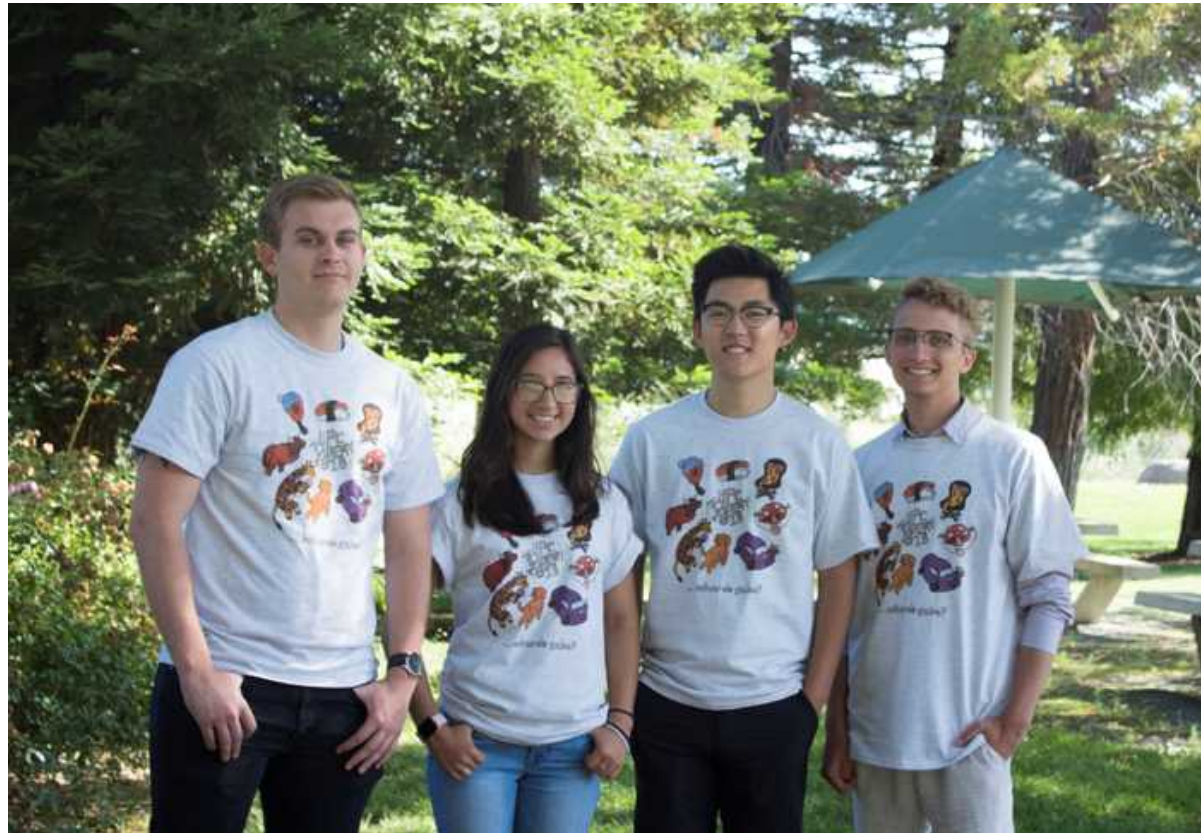
# Our Group

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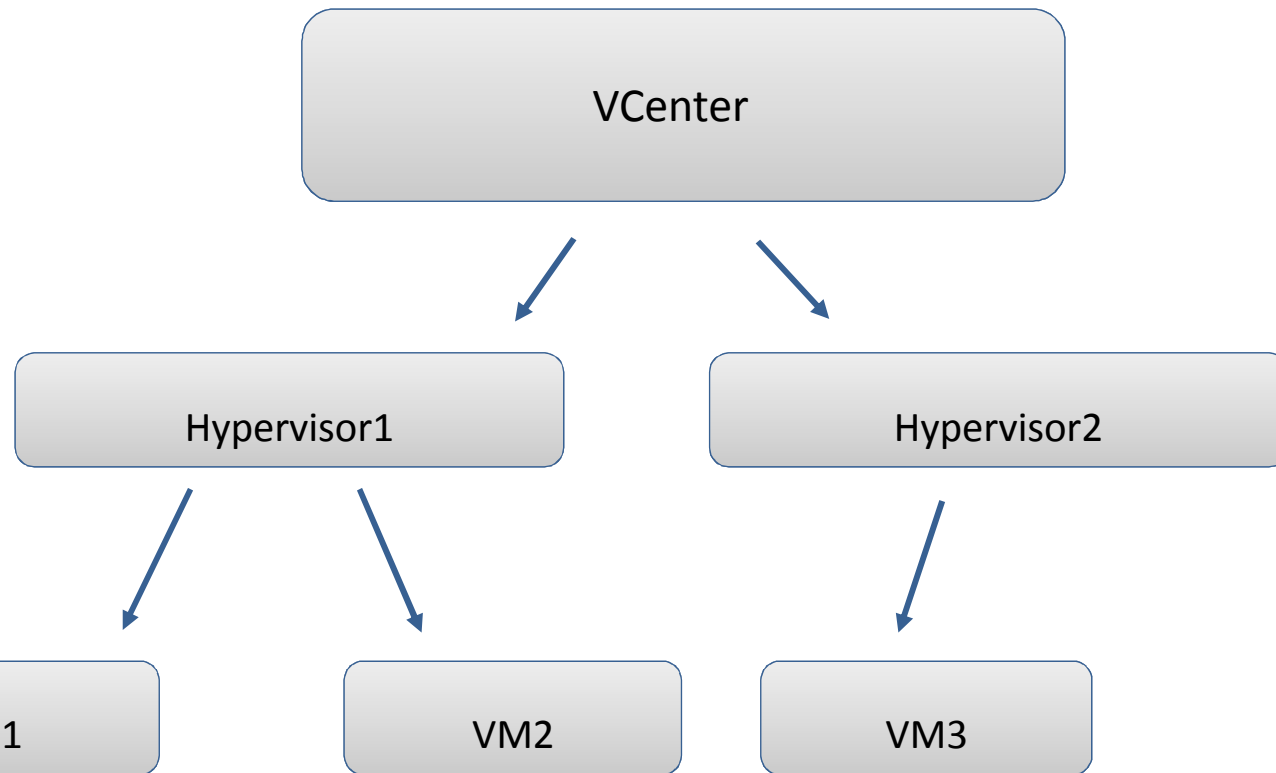


# Overview

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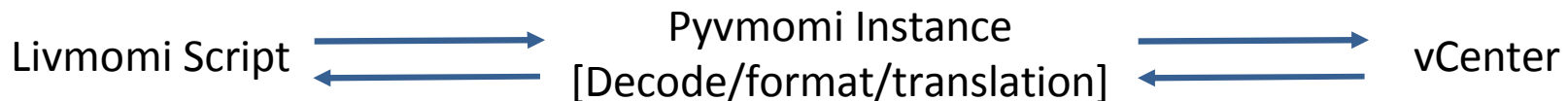
- What is Livmomi?
- Why does it matter?
- Expanding Feature-set Controls
- Challenges
- Research Topics
- Wrap Up

# VMware Environment



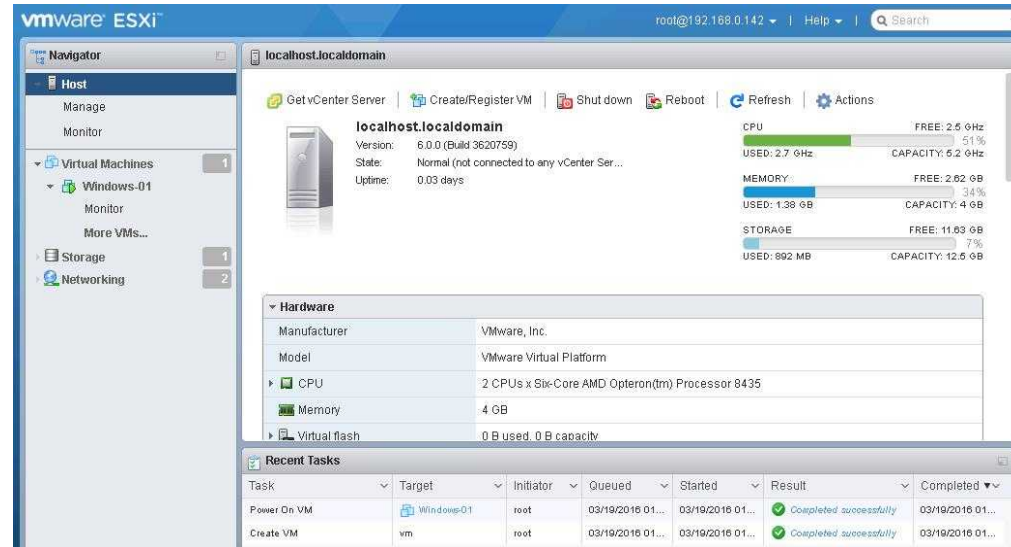
# What is Livmomi?

- Livmomi: Set of scripts (developed within LC) written in Python using the Pymomi open-source API
  - Pymomi: Python VMware Managed Object Management Interface
  - Allows us to manage and gather information about VMs
- VMware environment consist of vCenters and hypervisors used for hosting and monitoring VMs



# Why Does it Matter?

- What used to take minutes using VMware's vSphere GUI is done in seconds with Livmomi
- Increased efficiency and productivity in LC infrastructure clusters
- Various features are not supported via the GUI
- Who's using it
  - SAG, LC



# Powering On and Off VMs

- New script that was added to the Livmomi suite
- Powers on and off VMs
- Supports hostlists and wildcards
- Returns status if operation is already complete

```
(venv)[cardiel2@lgw2:livmomi]$ ./power_vm.py --host 192.168.60.17 --user administrator --password [REDACTED] --vm lt-vm[1-2,6] --operation power_on
Powering on VM:lt-vm1
VM: lt-vm1 has successfully powered on.
VM: lt-vm2 is already on
VM: lt-vm6 is already on
```

# Retrieving Host Info From Specified VMs

- View the power states of VMs

```
(venv)[xie3@lgw2:livmomi]$ ./get_host_vms.py --host 192.168.60.17 --user administrator --password [REDACTED]
--human --state
192.168.60.16
  1t-vm7: PoweredOn
  1t-vm6: PoweredOn
  1t-vm5: PoweredOn
  1t-vm4: PoweredOn
  1t-vm3: PoweredOn
  1t-vm2: PoweredOn
  1t-vm1: PoweredOn
```

- Find a VM's host given its name

```
(venv)[xie3@lgw2:livmomi]$ ./get_host_vms.py --host 192.168.60.17 --user administrator --password [REDACTED]
--human --vm 1t-vm4
192.168.60.16
  1t-vm4
```

- All flags can be combined together



# VM Snapshot Operations by Snapshot ID

- Snapshots previously were being identified by the name
- Now operations can be done by using the snapshot ID

```
Displaying list of snapshots on virtual machine lt-vm1
VM: lt-vm1; Snapshot name: Snapshot-2018-08-08; Snapshot ID: 11; Description: ; CreateTime: 2018-08-08 21:49:00.251965+00:00
VM: lt-vm1; Snapshot name: Snapshot-2018-08-08; Snapshot ID: 12; Description: ; CreateTime: 2018-08-08 21:49:06.031018+00:00
VM: lt-vm1; Snapshot name: Snapshot-2018-08-08; Snapshot ID: 13; Description: ; CreateTime: 2018-08-08 21:49:10.081025+00:00
The total number of snapshots for VM: lt-vm1 is 3
```

```
[shorti@lgw2:livmomi]$ ./snapshot_vm.py --vm lt-vm1 --operation remove --snap_id 13 --host 192.168.60.17
Removing snapshot Snapshot-2018-08-08 from VM: lt-vm1
```

# Other Tasks and Features

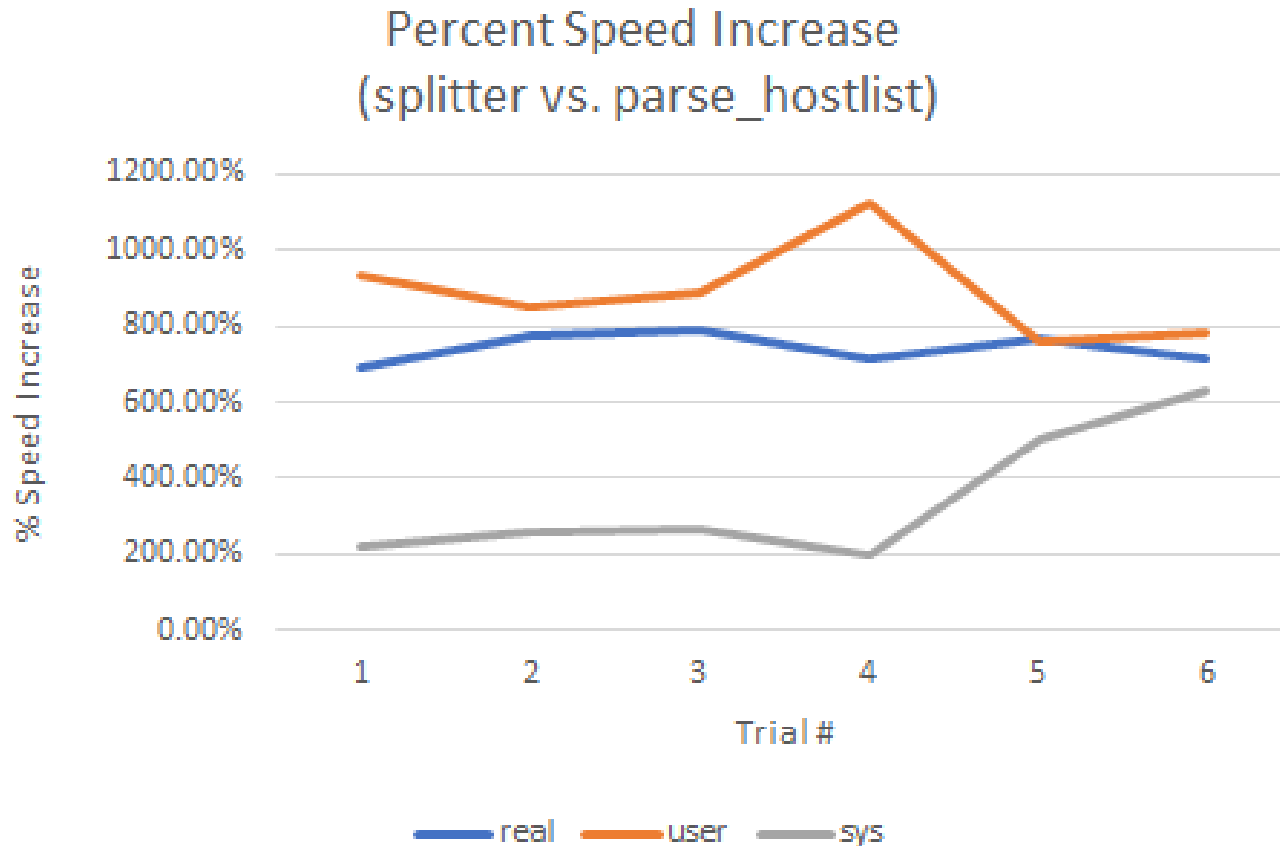
- Created `colorize()` function to add color and highlights to output
- Fixed `parse_hostlist()` function to support lists with names that include dashes
- Created `splitter()` to replace `parse_hostlist()`
  - Faster run times
  - Flexible user input formatting
  - Ordered output



```
lt-vm[1,2,3-5,9-10,50-90]
```

```
['lt-vm1', 'lt-vm2', 'lt-vm3', 'lt-vm4', 'lt-vm5', 'lt-vm9', 'lt-vm10', 'lt-vm50', 'lt-vm51',  
'lt-vm52', 'lt-vm53', 'lt-vm54', 'lt-vm55', 'lt-vm56', 'lt-vm57', 'lt-vm58', 'lt-vm59', 'lt-vm  
60', 'lt-vm61', 'lt-vm62', 'lt-vm63', 'lt-vm64', 'lt-vm65', 'lt-vm66', 'lt-vm67', 'lt-vm68', '  
lt-vm69', 'lt-vm70', 'lt-vm71', 'lt-vm72', 'lt-vm73', 'lt-vm74', 'lt-vm75', 'lt-vm76', 'lt-vm7  
7', 'lt-vm78', 'lt-vm79', 'lt-vm80', 'lt-vm81', 'lt-vm82', 'lt-vm83', 'lt-vm84', 'lt-vm85', 'l  
t-vm86', 'lt-vm87', 'lt-vm88', 'lt-vm89', 'lt-vm90']
```

# Improvement on Host Lists Parsing Time



Real: actual process run time beginning to end

User: time required by CPU to execute user-defined code

Sys: time required by CPU to execute system calls

# Challenges

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- Working with the Pymomi API and figuring out its intricacies
- Some of the Pymomi documentation is outdated
- Unable to use Git in the testing environment due to security limitations

# Research Topics

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- What's the best way to customize the OS on a newly cloned VM?
- Is it possible to migrate one vm to another environment all together?
- Create a script that will update a ESXi/Host

# What's Next

- Wrap Livmomi up into a RPM for easier installation on LC systems
- Expand the Pyvmomi API
- Adding new functionality to Livmomi
- Implement Chris Moussa's parse\_hostlist function



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