

Don't forget to
sign in!

signin.ritlug.com



níc vím /proc/mem ls rm

The RITlug Cloud Infrastructure!



By Solomon Rubin, CC

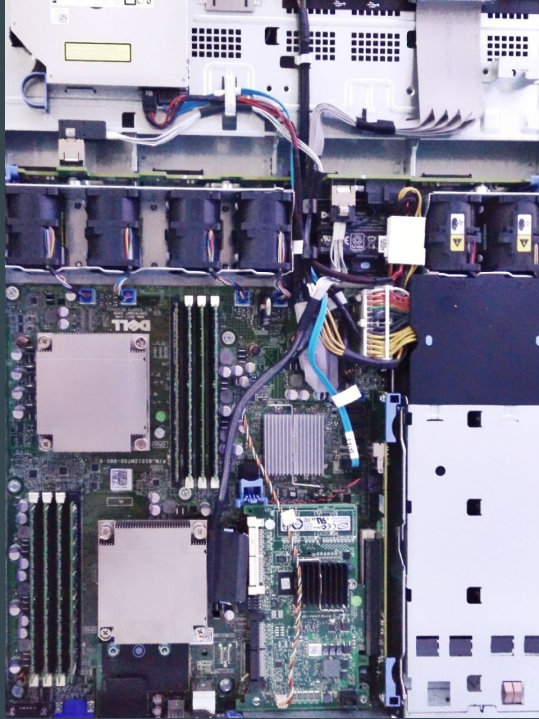
Gee Wiz, We have a Cloud?



There is no cloud

it's just someone else's computer

... And this is our “cloud.” We call it Titan



Specs!

- CPU
 - Xeon X5560 @ 2.80Ghz
 - 2 Sockets
 - 16 Cores! (4c, 2t/c)
- RAM
 - 32GBS
- Hard Drives (Raid 10)
 - 2x 1TB Raid 1
 - 2x 4TB Raid 1 (limited to 2TB)
- Network
 - Dual 1gb NICs
 - RIT's 1Gbps network



How do we run this?

- Location
 - Colocated at RIT
- Software
 - KVM host
 - Proxmox!
- And a little love

The screenshot displays the Proxmox VE interface for Node 'RITLUG-Titan'. The left sidebar shows a tree view of the server hierarchy, including a Datacenter and several virtual machines. The main content area shows system statistics and a CPU usage graph.

PROXMOX Virtual Environment 4.3-12/6894c9d9

Server View: Datacenter > RITLUG-Titan

Node: 'RITLUG-Titan'

Package versions

RITLUG-Titan (Uptime: 212 days 19:06:56)

CPU usage	0.90% of 16 CPU(s)	IO delay	0.00%
Load average	0.04,0.07,0.12		
RAM usage	24.56% (7.71 GiB of 31.41 GiB)	KSM sharing	0 B
HD space(root)	12.62% (3.45 GiB of 27.37 GiB)	SWAP usage	3.07% (234.21 MiB of 7.45 GiB)

System menu: Summary, Shell, System, Network, DNS, Time, Syslog, Updates, Firewall, Disks, Ceph, Task History, Subscription

System Information:

- CPUs: 16 x Intel(R) Xeon(R) CPU X5560 @ 2.80GHz (2 Sockets)
- Kernel Version: Linux 4.4.8-1-pve #1 SMP Mon May 9 10:47:21 CEST 2016
- PVE Manager Version: pve-manager/4.3-12/6894c9d9

CPU usage

Legend: ● CPU usage ● IO delay

RIT's Network

- Let's talk about the RIT Network
- DHCP
 - Even for servers
- Reserved IPs attached to MAC Addr
 - Generated MAC addrs for our servers.
- Weird network Domain



Warning. Boring Slides with no Pictures

Provisioning

- As automated provisioning.
 - Kind of
- OS Templates
 - Debian
 - Fedora (in progress)
- Friendly Scripts to help setup and resize
- Combination of
 - LVM
 - Standard Partitions
- 1-2 Cores
- 1-4Gbs of RAM
- Storage is in surplus
- No network limiting

Security

- The Host is IP locked
 - Can only be accessed from specific IPs
 - No root logins (duh)
 - No passphrase logins
 - Fail2ban
- The VMs
 - No root logins (duh)
 - No passphrase logins
 - Fail2ban
 - Ping response disabled
 - IPTables locked to only allow needed ports
- The Physical Machine
 - Behind two biometric locks
 - Inside locked cage
 - Closely monitored environment
 - Temp
 - Humidity
 - Entry

Data Integrity

- On Host
 - RAID 10
 - This is NOT a backup.
- Basic data integrity checks
 - Ie. is there any disk/raid errors
- Off site
 - Incremental backups, every 6 hours.
 - Archived once a week
 - Archives are encrypted
 - Stored recently on 15 unique servers

What do we host?

- Not as much as we have room for.
- IRC Bots
 - Teleirc (Telegram <-> IRC)
- Gitlab
 - For private projects and class assignments
- Distro Build Box
- Student VMs (On request)
- Shared VMs (Coming soon?)



What else?

- You tell me!
 - We're always looking for new ideas of stuff to do with our servers.
- Want a VM?
- How do we feel about shared VMs?

Other questions?