A few words about me

- Tried programming at the age of 10
- First ventures at the same age (and the latter stuck)
- Experience in both Enterprise and start-up worlds
- 2 “formal start-ups” prior StorPool

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“Software Is Eating The World”

Then

Now
“Software Is Eating The World” – Indeed.

Then

Now

Image by Marcin Wichary

Image by George Redgrave

Image by Jeff Geerling

Image by John Karakatsanis

Then

Now

Software +
Infrastructure is not going away...

...but it’s becoming “software defined”
Practice: What Software Defined Is

✓ COTS hardware. Nothing special, still selected for the task:
  ✓ x86 servers, standard NICs, HBAs, HDDs, SSDs. That’s all.

✓ Must provide the full functionality just with software and not depend on an external traditional (specialized) system

✓ In practice Software defined technologies are sensitive to hardware, configurations, firmware versions, etc.

✓ A way to achieve:
  ✓ Scale & agility
  ✓ Simplicity
  ✓ Cost optimization (TCO)
Practice: What Software Defined Is NOT

✓ A lot of vendors are spreading F.U.D.
  ✓ x86 server is as good as a specialized appliance
  ✓ Ethernet is as good as FC; SATA is as good as SAS

✓ “Orchestration”, “storage virtualization”, etc. - if you need another layer of legacy technology underneath – NOT SD

✓ Software-managed is not Software-defined.
  ✓ Connecting your appliance to OpenStack, doesn’t make it Software-defined

✓ Silver bullet
Tools used depend on the task
Practice: Why Software Defined?

Technology

( scalability, flexibility, performance, reliability)

You would do well in the field of computer technology.

Image by Dean Johnson
Practice: Why Software Defined?

Simplicity

Image by Dennis Skley
Practice: Why Software Defined?

Cost (TCO) reduction
Practice: Hardware (HW)

The “converged” concept:

- Unified building blocks
- Standard, cheap, commodity HW
- Redundancy on system level
- All intelligence and functionality in software (SW)
Practice: Hardware (HW)

“White box” server
$6-8k

VS.

“Branded” server
$15-20k

SSD (1.6TB)
$1.2k

VS.

“Branded” SSD
$3.4k
Practice: convergence / hyper-convergence

- Compute, network and storage become one
- Efficiency and TCO reduction
- Standardization and simplicity
- Economical at up to several racks
- VM <$250 (2GB RAM, 1 vCPU, 30GB storage)
Practice: rack-level architecture

- When doing infrastructure on a rack level
- Additional efficiencies over converged/hyper-converged
- There are some counter-intuitive choices – more expensive CPUs, bigger SSDs, etc.
Practice: data-center level architecture

- Applicable if you are operating your own datacenters
- Additional savings over the lifetime
Software defined is the Future

A, B, C

Simple
(all the way)

Scalable

Economical
Thank you