

# Opportunities and Challenges in the Market Place

Peter Christy  
Internet Research Group  
Los Altos [pchristy@irg-intl.com](mailto:pchristy@irg-intl.com)

# The Internet Research Group

- A “boutique” firm in beautiful, downtown Los Altos
- We do market research and strategic marketing consulting
- We’ve focused on “infrastructure” – the intersection between networks and systems
- We specialize in disruptive markets where the answers aren’t obvious.

# Who am I?

- Was an O/S designer and programmer in a previous century, ran large software and systems teams.
- Involved in networking since the birth of DECnet
- I personally know little, but I have friends who collectively know an amazing wealth
- For the last ten years I've worked at the boundary of networks and systems
- Have the fairly rare strength of being “bilingual” (able to talk either to network-centric people or system-centric people)

# OpenFlow/SDN and Me

- Began over a year ago when Simon Crosby asked me if I had heard about OpenFlow.
- I hadn't but started learning.
- Perfect analyst topic.
  - Identify a person of interest
  - Ask them “so what do you think about OpenFlow.”
  - Let them explain in their own words.
- My objectives:
  - Follow the money.
  - How will people make money on OpenFlow?
  - How will OpenFlow change the existing network business?



# My Conclusions to Date ...

- I completely embrace the disruptive potential of SDN, and the key enabling role of OF.
- I understand the role SDN has and will continue to play in Greenfield mega Web properties.
- I understand the value of SDN to the network research community with the enablement of OpenSource and OF.
- But how the enterprise business evolves is a still a puzzlement.

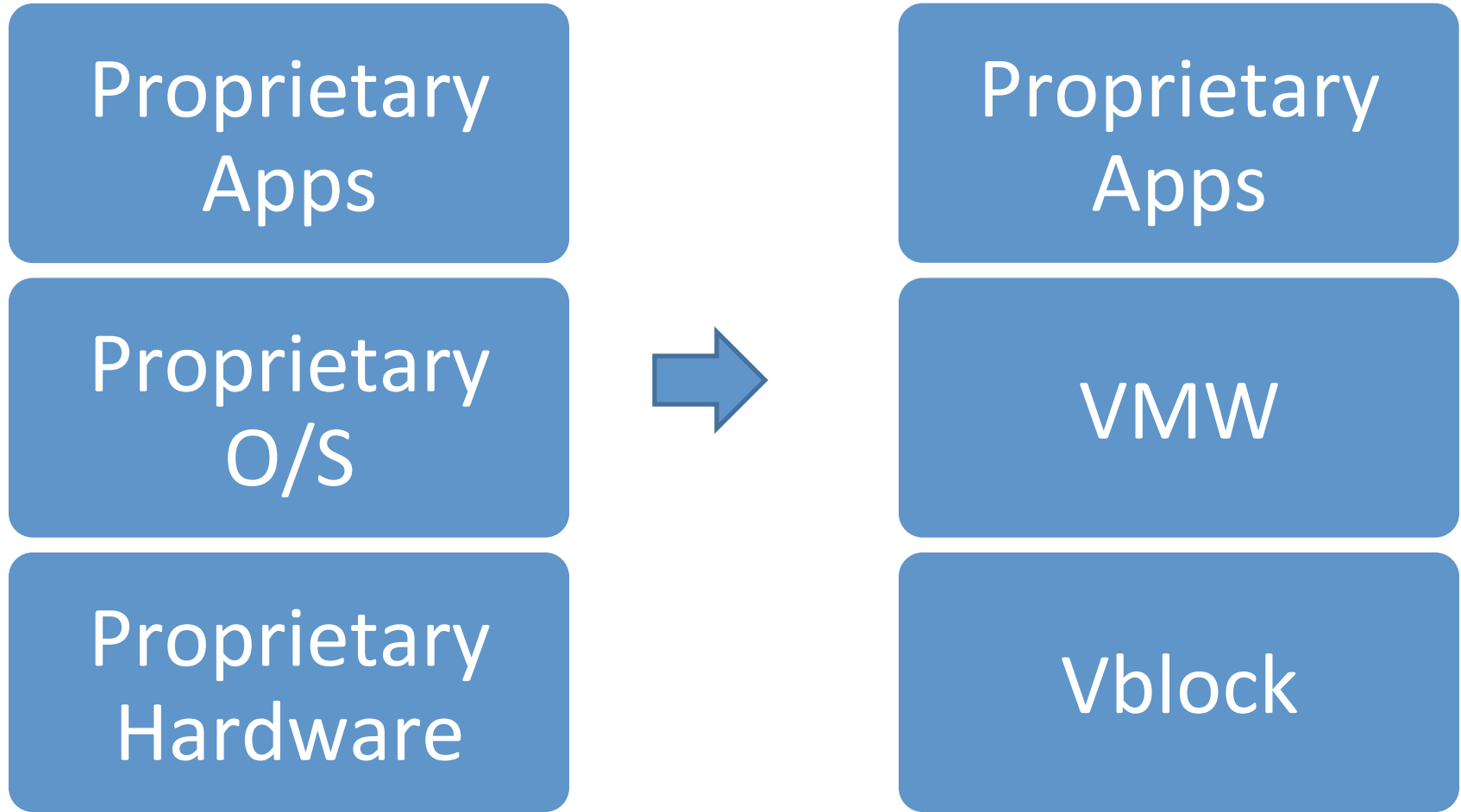
# What Makes the Enterprise Puzzling

- The enterprise is the biggest part of the networking market
- SDN/OF is disruptive
  - Certainly as White Box switches
  - But even as the transfer of value from hardware to software
  - Building a performant and reliable SDN controller is a challenging task
- Networking is complicated
  - “porting” to SDN is a big deal
  - Customers don’t value reproducing the same thing with new technology
- There have been few OF/SDN “killer” apps so far

# Peter's Top Issues

- “Horizontalization”
- OpenSource
- Dev/Ops

# Horizontalization



IBM Mainframe

Private Cloud



# OpenSource

- Free for the largest and smallest
- Clear support model for the middle
- Enterprise IT doesn't build mission critical systems from OpenSource bits
- Enterprise networking is very different than RedHat Linux
- OpenSource works best where the goal is well-specified (UNIX, Web Server, GFS/MapReduce)
- Historically OpenSource does not address complex system implementations

# DevOps

- What
  - One of the most exciting changes in practical systems
  - The way that the Big guys all operate
  - Brilliant system engineers that create solutions at any level in the stack
  - Continuous introduction of functionality
  - Holistic view of performance and infrastructure, development and operations
  - Build systems from the bare metal up, often leveraging OpenSource
- Won't happen in the enterprise (with exceptions including fin svcs)
  - Value chain completely different (vendor leverage)
  - Most enterprises wouldn't know how to hire or retain the right folks
  - For an enterprise networking must be done well but is rarely differentiating ("context" not "core")
- In this sense, the enterprise is very different from research, large web properties and large network operators

# The Enterprise

	research *	Enterprise	Network Operators *	“Google” *
Market Size	Tiny	Large	Medium	Inaccessible
Importance of Networking	High	Not Differentiating	Differentiating	Differentiating
Dev/Ops?	Sort of	No!	Possible	Yes!
OpenSource	Yes!	No!	Possible	Yes!

\* OF Drivers

\* ONF Drivers

# My Conclusions

- SDN not ready for enterprise markets yet
  - Need more complete research solutions for SDN of complex network systems (1 year?)
    - Fleshing out of SDN system abstractions (e.g., how is multi-tenant factored in?)
  - Need a vendor who would be trusted by businesses
    - Really demanding product definition (like storage?)
    - Requires top notch 24x7 support (what Cisco has excelled in)
    - Not a startup without a big brother
    - Not an OpenSource support model
  - I think an economic ecology is needed (e.g., Windows) where platform providers and “application” developers can profit
    - These are high-value, mission-critical applications; people will pay for them!