It’s the Ecosystem Stupid

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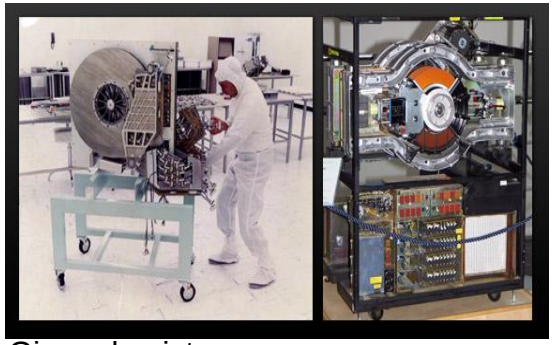
First Some History…

Disks Commoditized

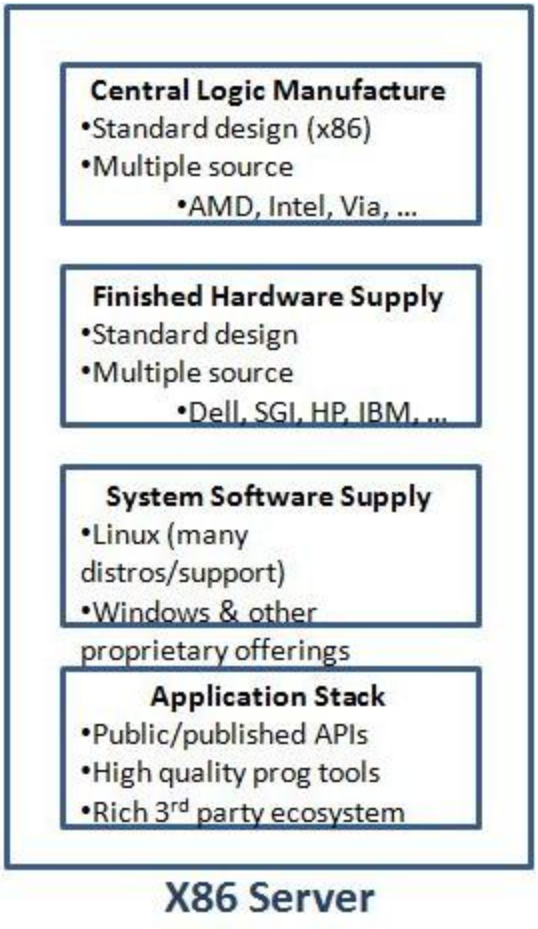
- Mainframe DASD was both reliable & fast
- Commodity disk slow and error prone
- Redundant Array of Inexpensive Disks
  - 1987: Gibson, Patterson, & Katz
- More reliable in aggregate, less costly, better supply chain, small unit of scaling, business model driven by device volumes, open ecosystem, fast pace of innovation, …



Gizmodo pictrure

Servers Commoditized

- 35 years ago proprietary vertically integrated mainframes:
  - IBM, Burroughs, UNIVAC, NCR, CDC, Honeywell,…
- 15 years ago mostly proprietary Unix servers :
  - Sun, MIPS, IBM, …
- Current servers: open & multi-sourced at all layers:
  - **X86 CPU**: Intel, AMD (and others specialist)
  - **Servers**: Dell, HP, IBM, SGI, Silicon Mechanics,…
  - **O/S**: Many Linux variants & proprietary choices
  - **App Stack**: wide open with great tooling
- Healthy eco-system with rapid innovation



The Next Step…

Open Networking Ecosystem

- The time is (nearly) right:
  - Merchant silicon:
    - ASICs: Broadcom, Fulcrum, Dune, Marvell, Fujitsu, ..
  - Competing contract manufactures & OEMs
- What's missing?
  - Common server hardware interface definition:
    - Equivalent of x86 Arch (ISA, ROM, & h/w arch)
  - Open protocol & mgmt stack
    - Equivalent of Linux in the x86 world
- OpenFlow is our best chance for common network h/w interface layer
  - Below layer we want multiple competing h/w system assembled from competing merchant silicon
- With a common h/w interface, a high quality protocol and management stack may emerge