Computer, end program

Making virtual worlds possible

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Holodeck on StarTrek Enterprise TNG

Holodeck

- Star Trek: http://en.wikipedia.org/wiki/Holodeck
- A simulated reality, where 3D worlds could be simulated with force fields and projections.
- Load, run, freeze and store programs.

Final scene of Star Trek: Enterprise

http://youtu.be/pXotJu1CapU

As it was in the beginning

- Mainframe virtualization.
- IBM's CP-40 research system in 1967.
- Compartmentalize large processing capabilities.
- Run processes separately.
- Lease “slices” to different customers.

Too many servers?

- Data center challenges
- One physical server for one application
  - Web
  - Storage
  - Authentication
  - Network

= 4

Power, Cooling, Bandwidth...

Rise of Apache

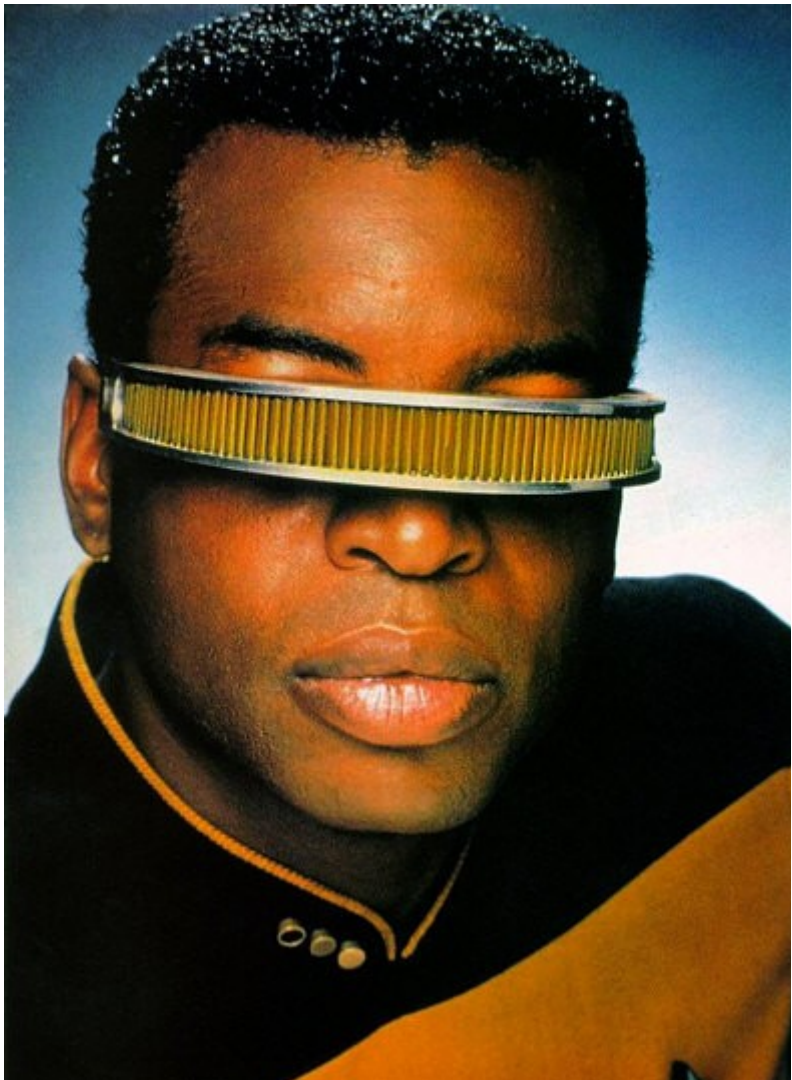
- Apache VirtualHost.
- Multiple virtual web hosts in each physical server.
- Led to the adoption of Apache in server rooms.
- Eventually led to Linux to run these websites.
- Still one underlying OS.

Single point of failure?

Hypervisor

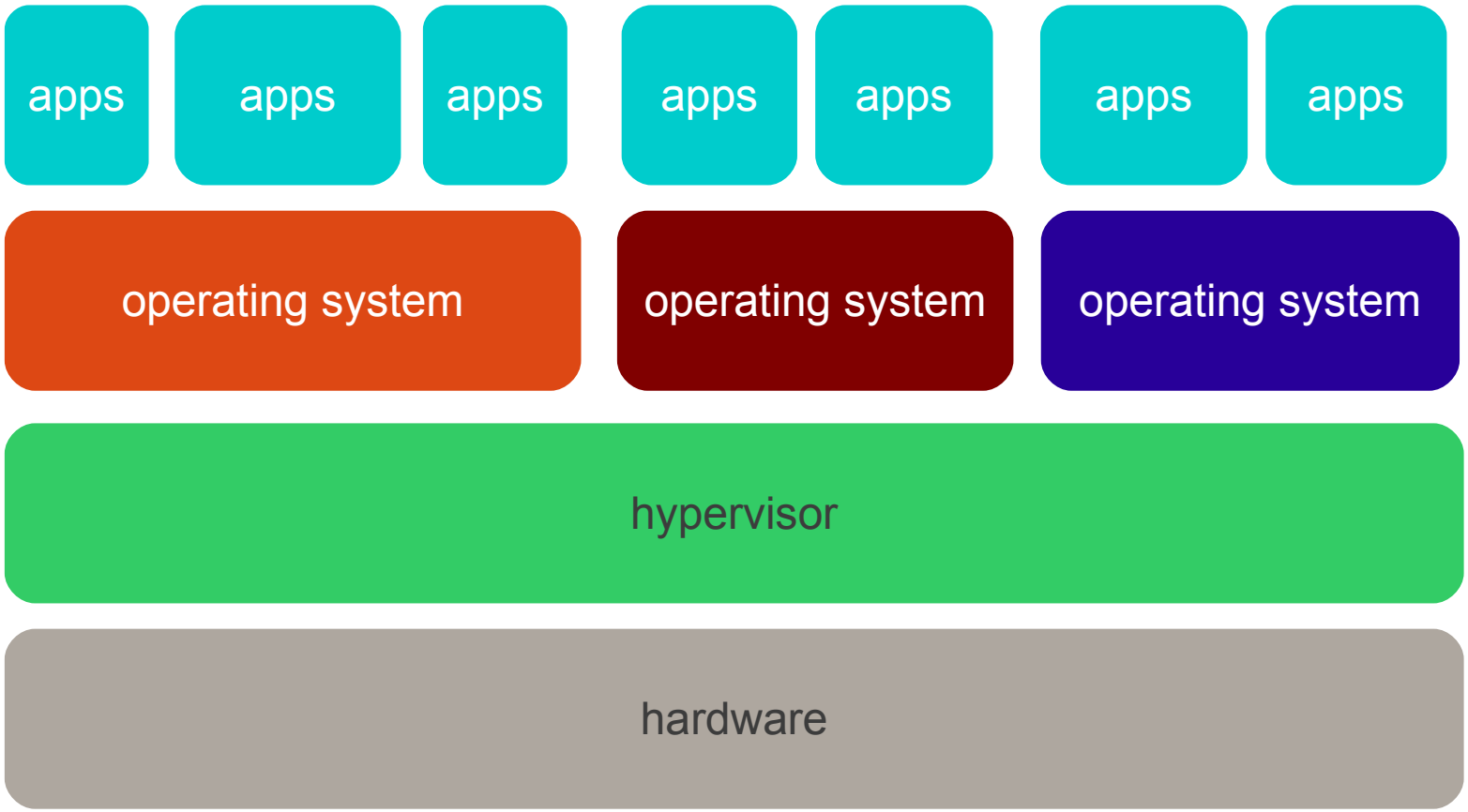
This is **not** a hypervisor

...although it is a VISOR
http://en.wikipedia.org/wiki/Geordi_La_Forge#VISOR



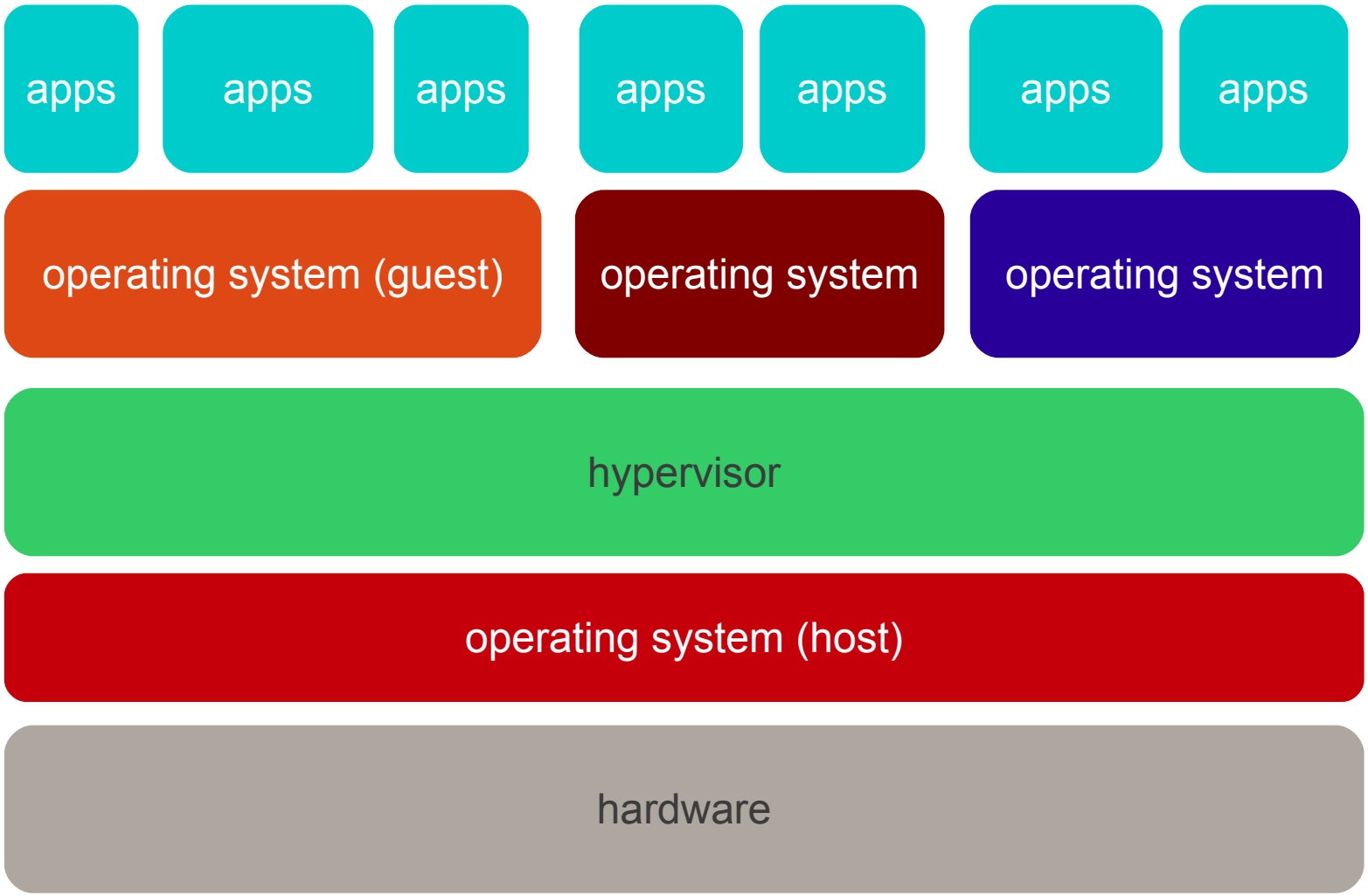
http://startrek.asatem.cz/storage/laforge_geordi01.jpg

Hypervisor



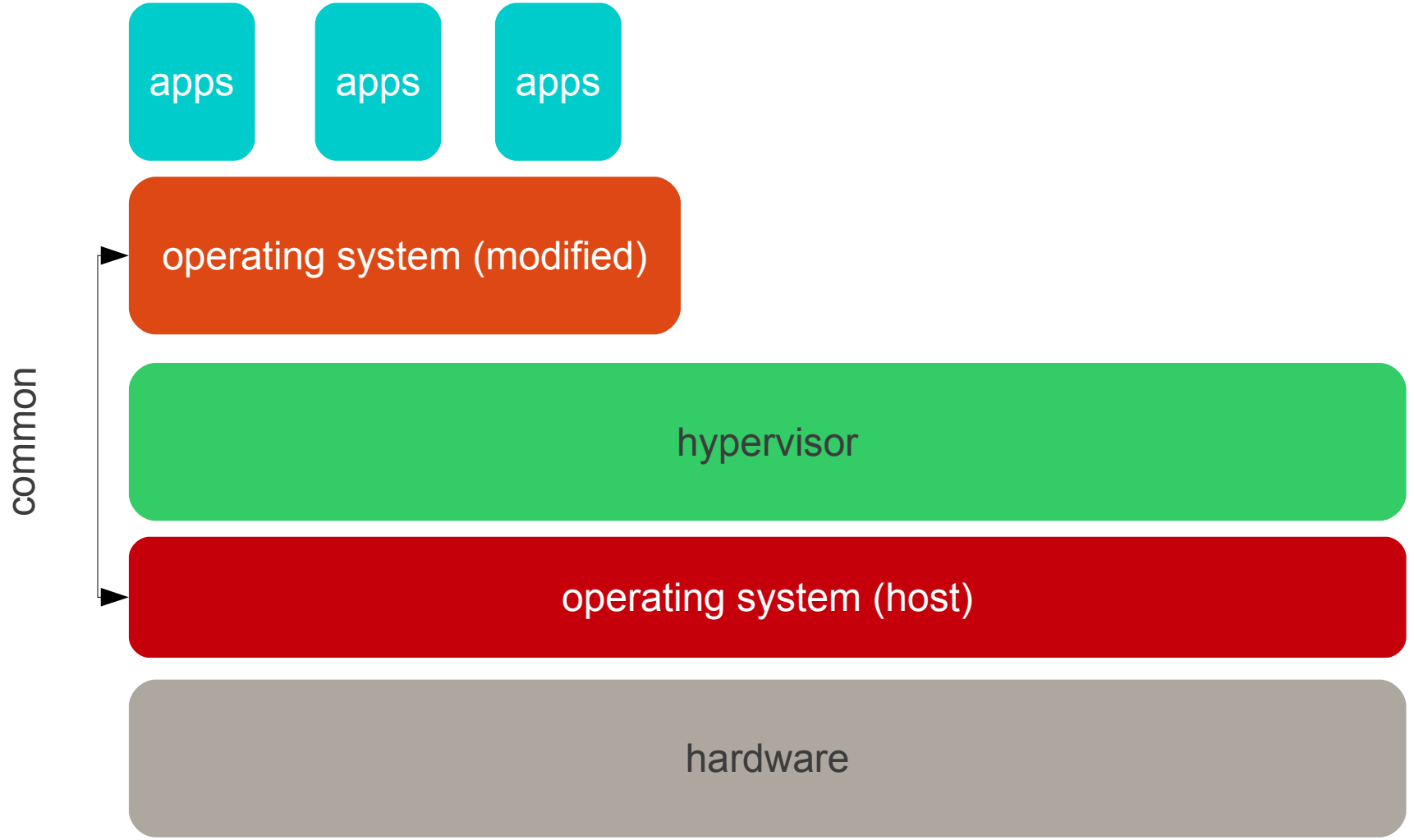
Type 1: Bare Metal

Hypervisor



Type 2: Hosted

Paravirtualization



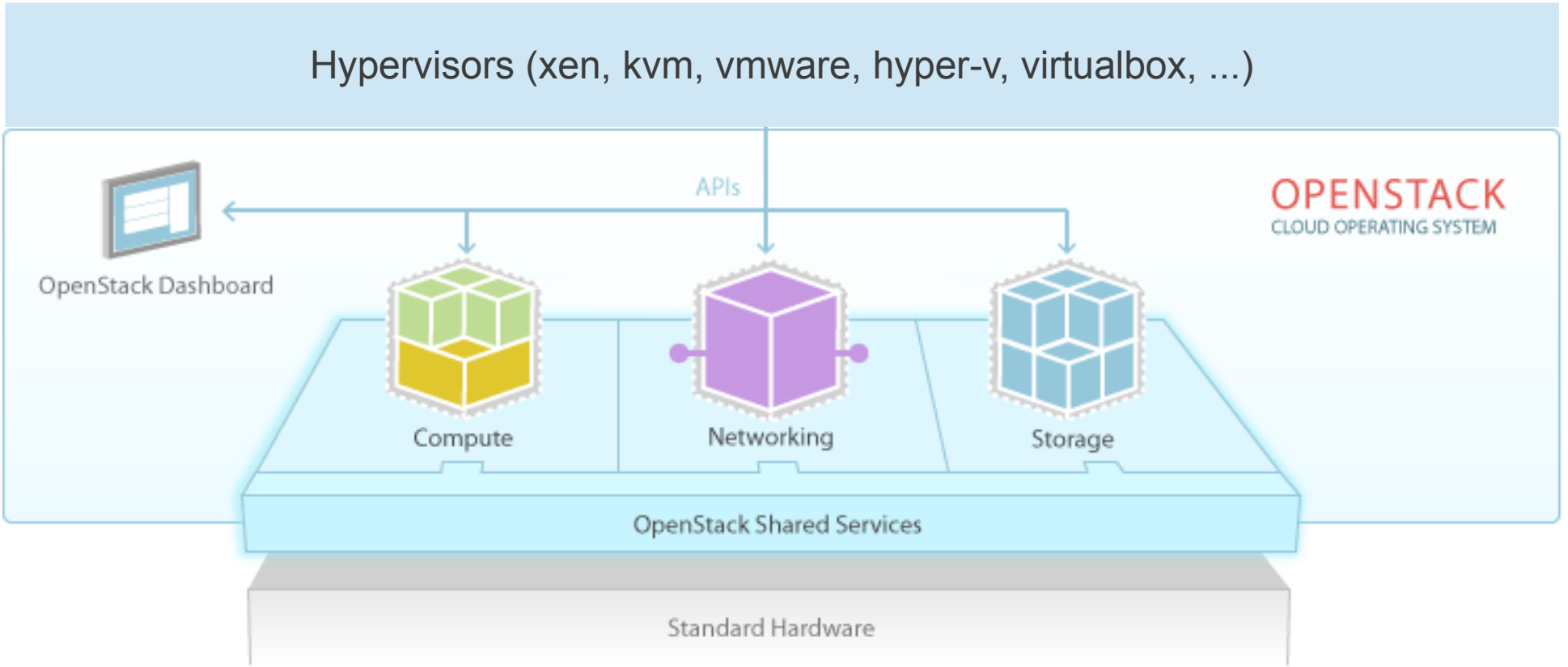
Cloud

Public and Private clouds

Public

Private

Hypervisors galore!



https://www.openstack.org/software/

Let's begin!

http://virtualbox.org