EQUINIX

Battle of the Datacenters

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27 August, 2014

Entering a new market can be daunting

- **Why**
  - More business
  - Lower cost
  - Improve performance
- **What**
  - Peering
  - Transit buy/sell
- **When**
- **Where**
- **Who**
- **How**

*Source: Greenpeace Clicking Clean Report, 2015

Colocation provider makes it sound really complicated

But in the end of the day, it's really simple

- **Space**
- **Power**
- **Interconnect**

What should you be looking for?

- **Space & Power**
  - Commodity Service
  - Green is the new differentiator
- **Interconnection is key**
  - On site/campus network providers/carriers
  - On site/campus cloud providers
  - On site/campus exchanges
  - Intra site connectivity cost
  - Intra campus connectivity cost
  - Off site connectivity cost

Turning Potential Difference into Heat

- **Equinix and its customers converted 2200GWh of Electricity into heat in 2014 globally***
  - And pushed some photons around
  - That's roughly 70 EJ (if my maths is correct… Exa = 10e18),
  - Enough to heat 17000 km^3 of water by 1ºC
  - (For reference, Death star's super laser produces 10e32 joules)
- **Still more efficient than most people trying to push photons out of their back room**
  - Economies of scale in cooling and switchgear

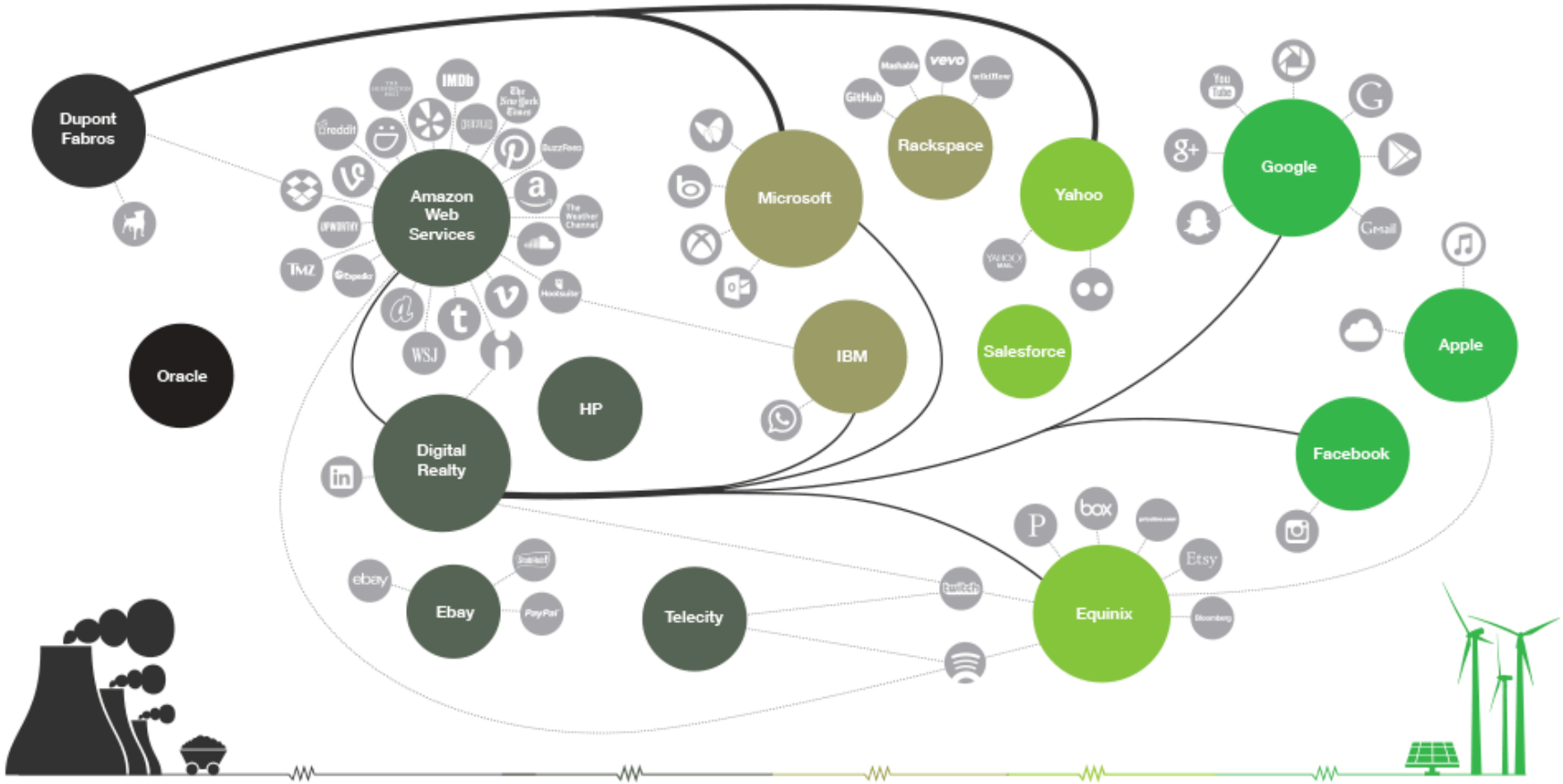
*Source: Greenpeace Clicking Clean Report, 2015

Equinix is focused on being green

- **Energy Cleaniness**
  - Renewable Sources of Energy
  - Equinix has committed to 100% Clean and Renewable Energy
- **Energy Efficiency**
  - Lowering PUE
  - Reduced 13,500kW/year since 2011
    - Equivalent of ~ 72,500 metric tons in CO2 emissions.
    - 14,500 cars off the road, or 11,000 U.S. homes per year.
- **Other Green Features**
  - Water Recycling

Green Certifications and Awards

Is your online world clean or dirty?



Stuck in dirty energy past: Efficiency only, using mostly dirty energy, have taken few or no steps to switch to renewables

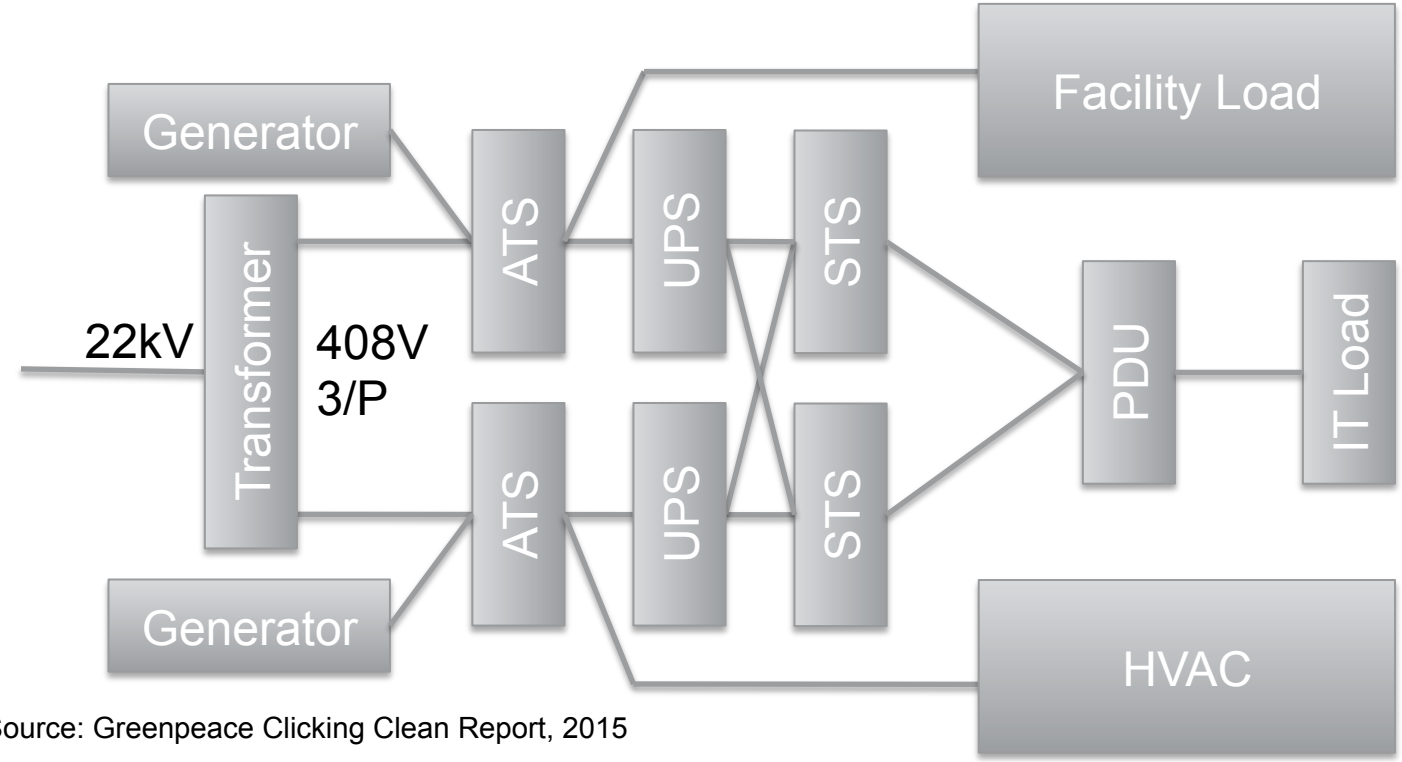
Middle of the Road: Taking steps toward a greener internet, but not leading the way.

Green Internet Innovators: Committed to 100% renewable energy. Their leadership is helping to make our lives, online and offline, greener.

Source: Greenpeace Clicking Clean Report, 2015

Understanding Efficiency

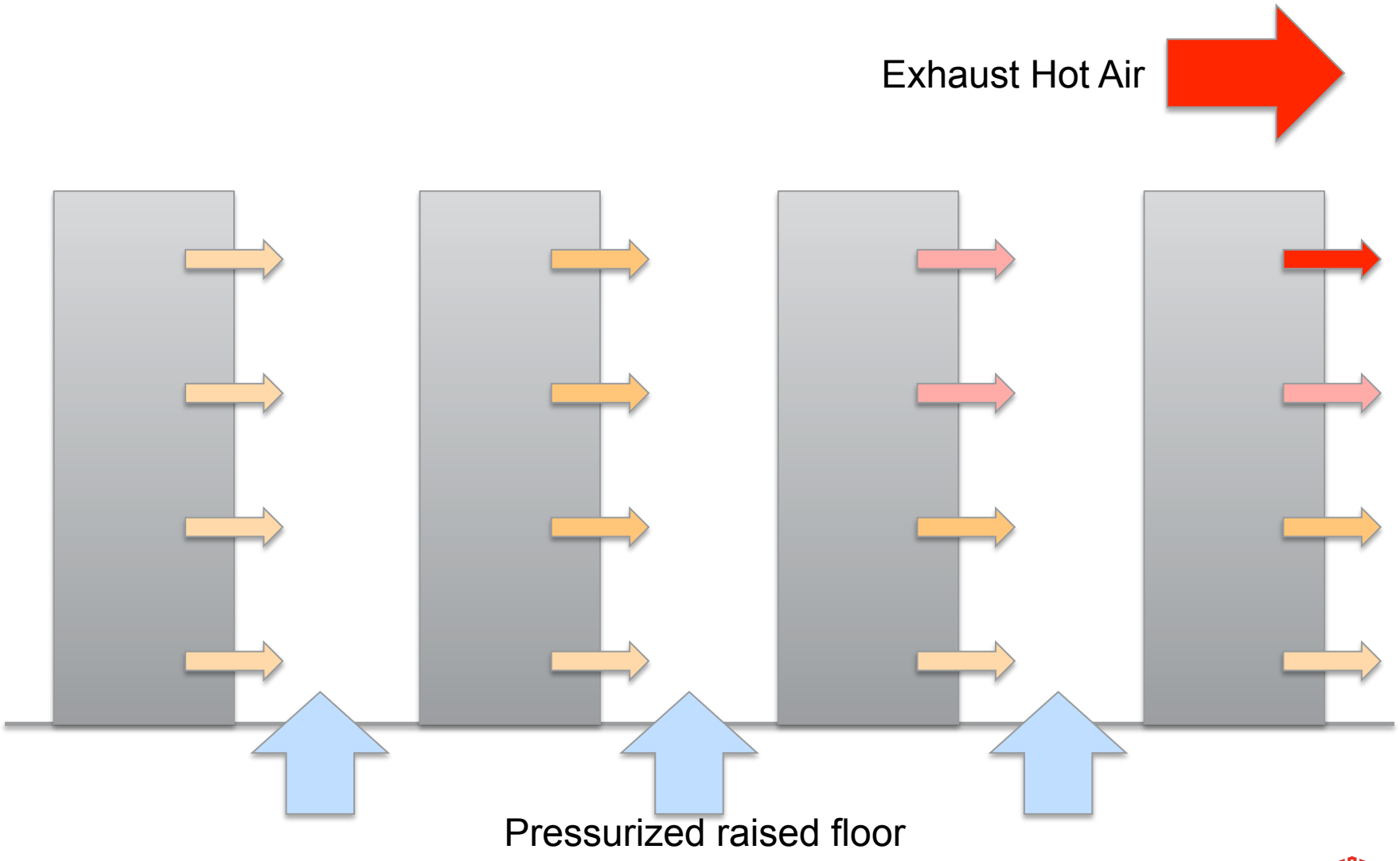
- **PUE = 1**
  - Power Usage Effectiveness = Total Facility Energy/IT Equipment Energy
- **Unfortunately, there's a lot of overhead in the business…**



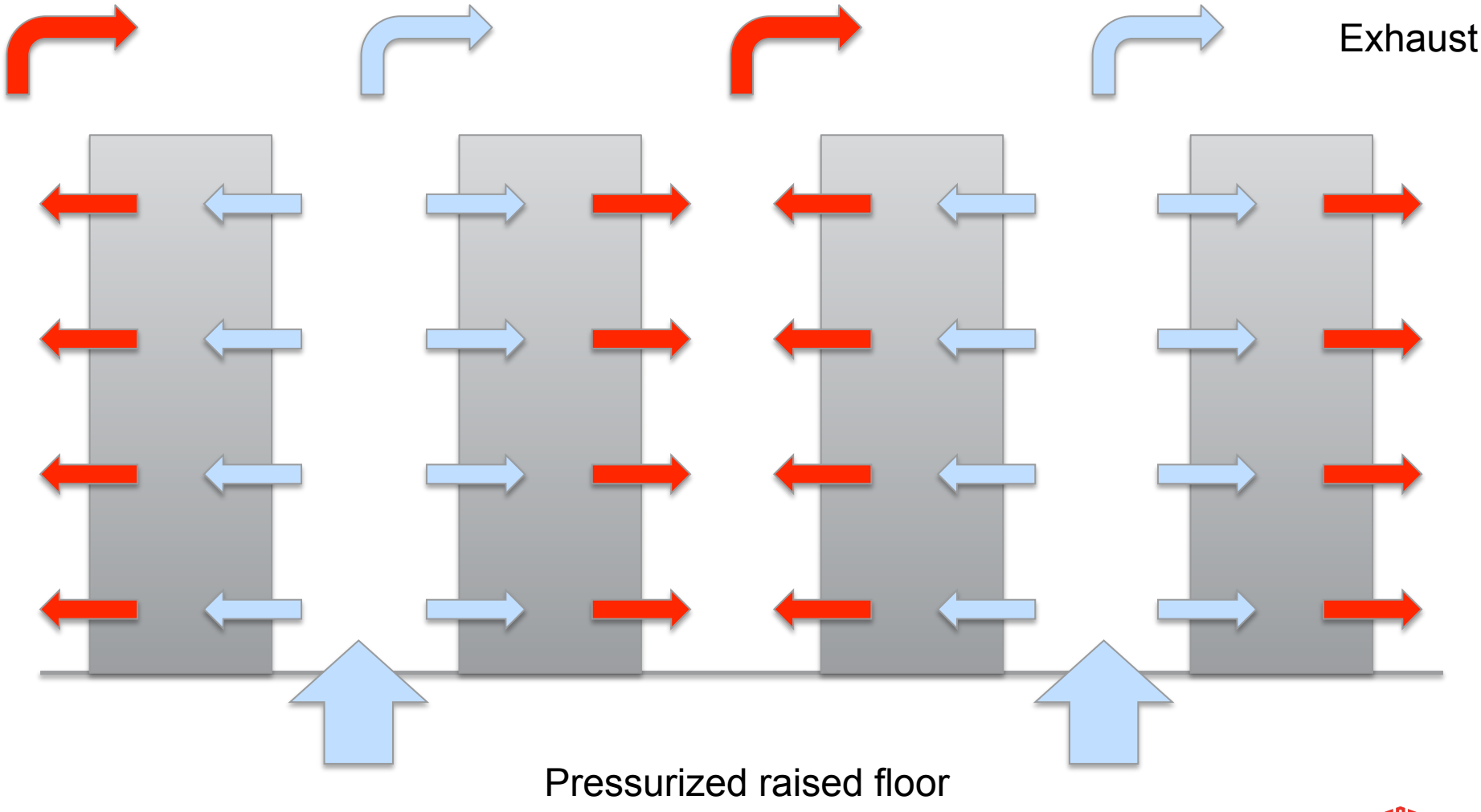
Equinix Published PUE target ~ 1.29 to 1.43*

*Source: Greenpeace Clicking Clean Report, 2015

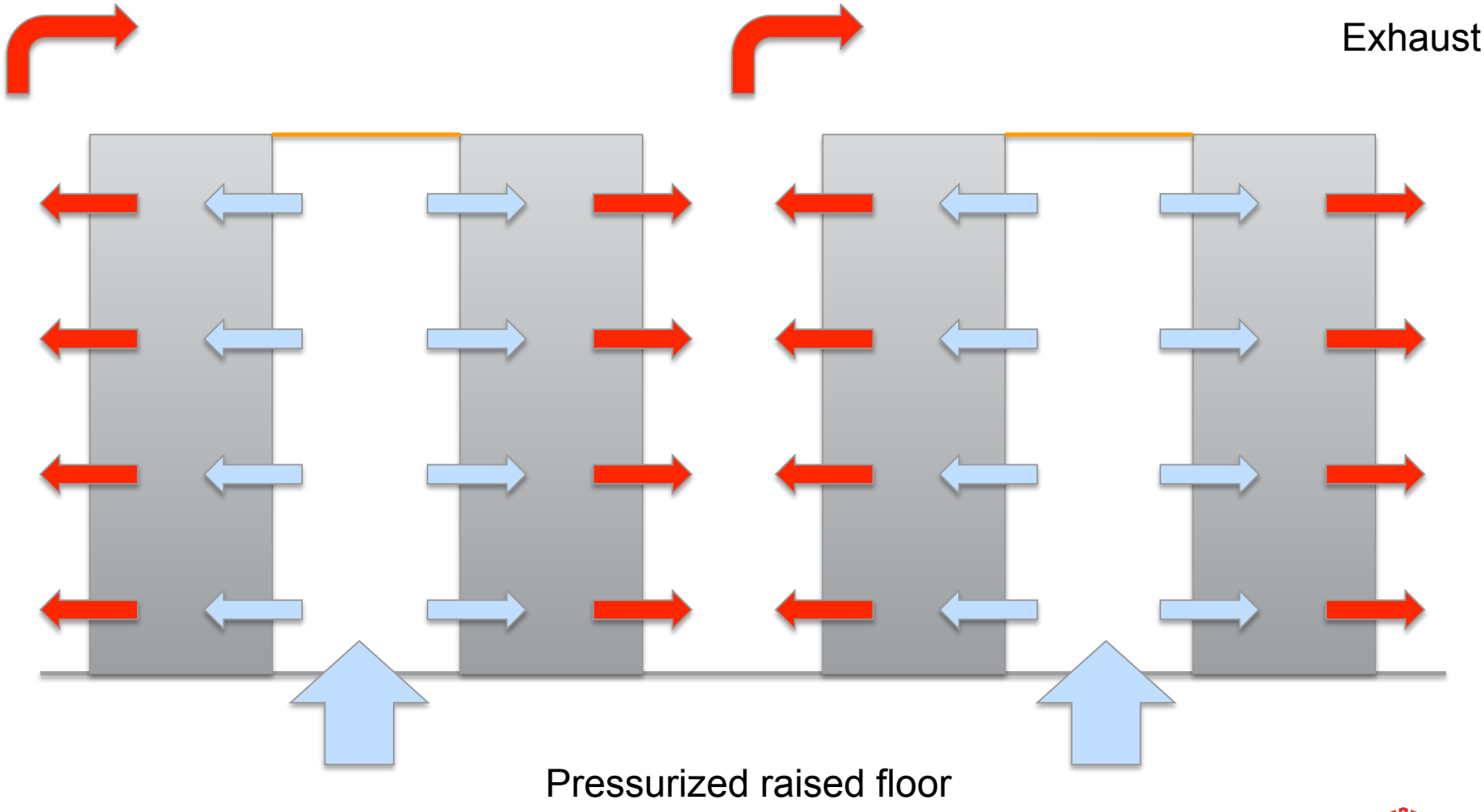
Once upon a time…



Hot Aisle/Cold Aisle

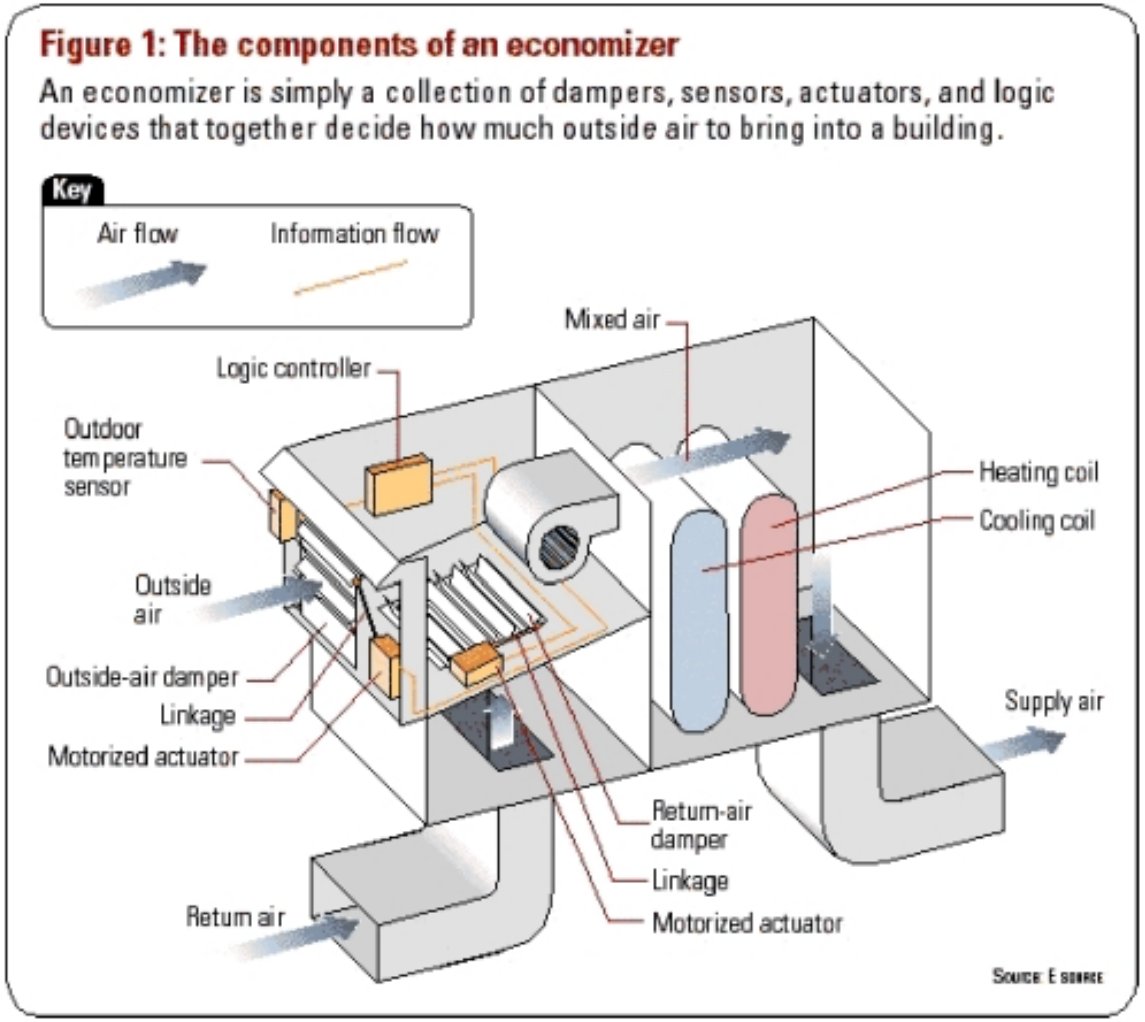


Hot/Cold Aisle Containment

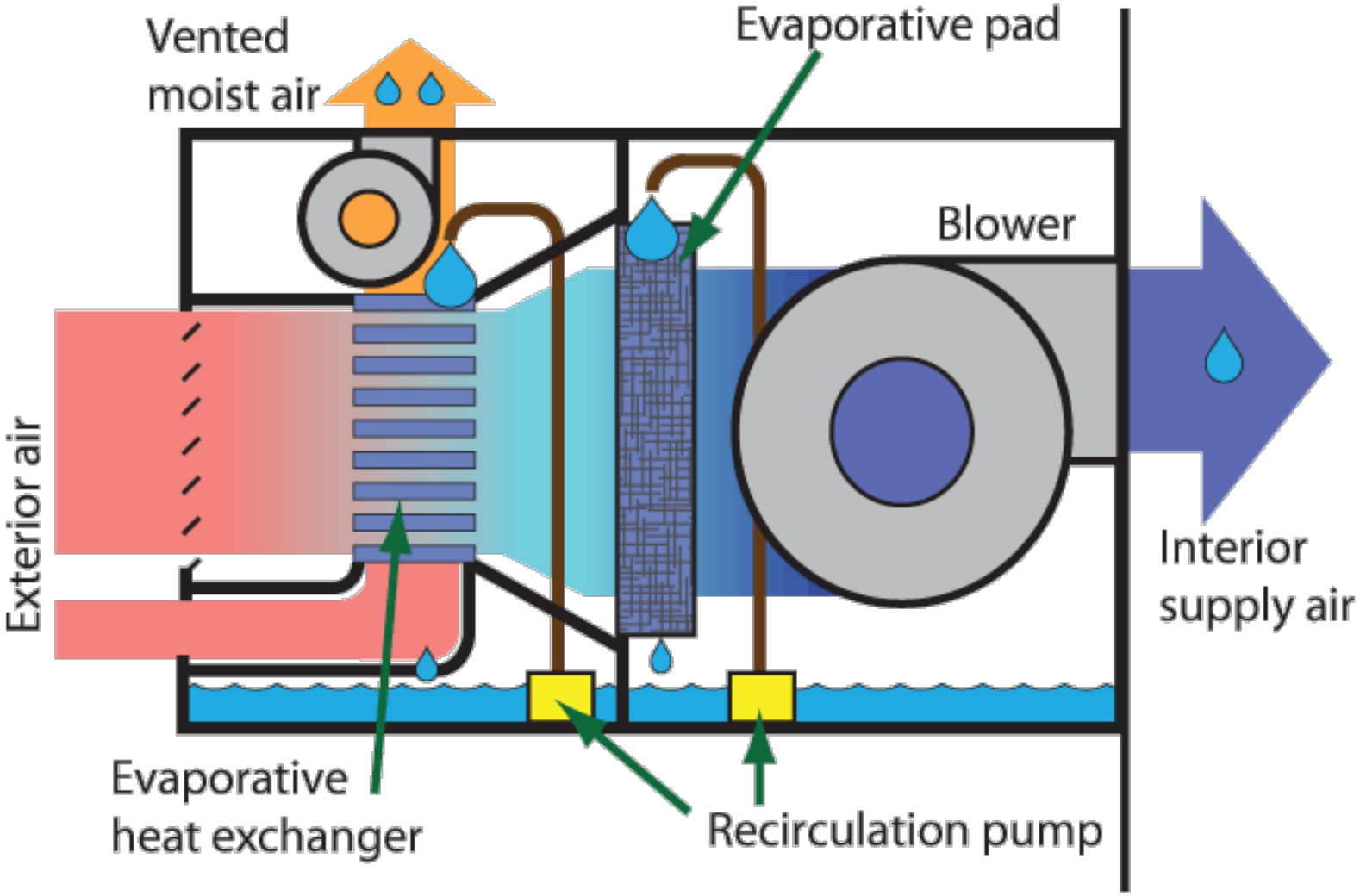


Hot Aisle Containment at ME1

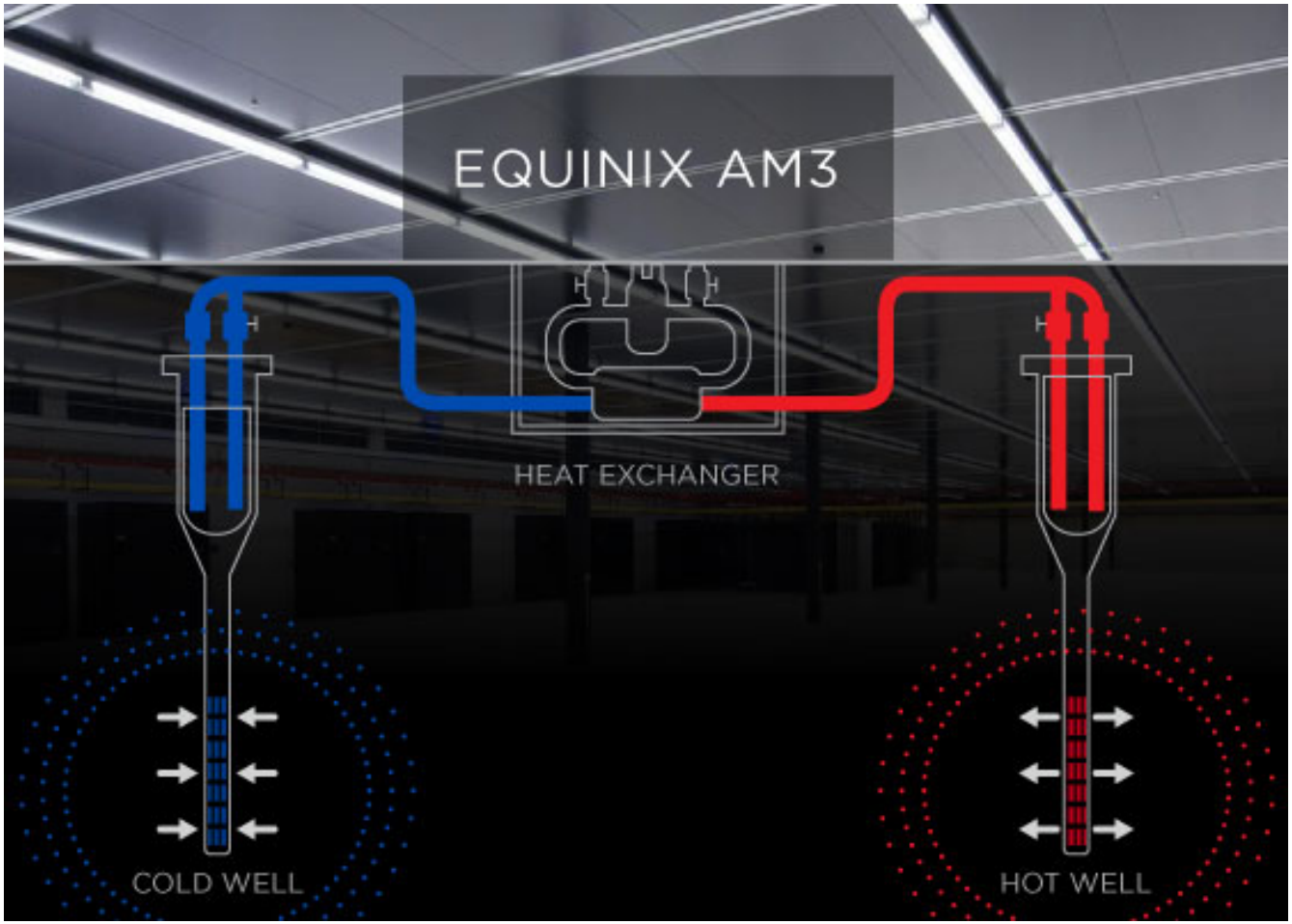
Free Cooling



Direct/Indirect Evaporative Cooling

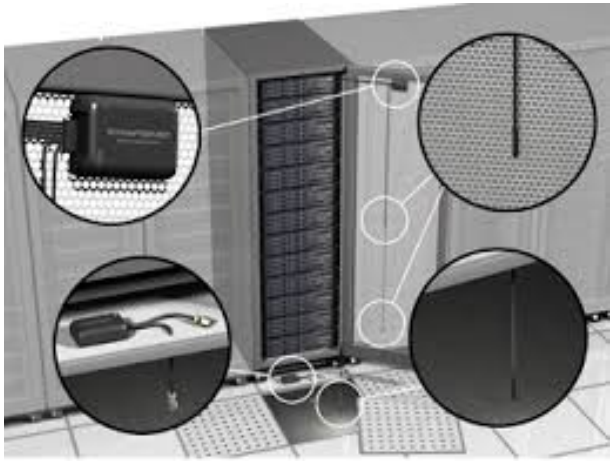


Aquifer Thermal Storage System

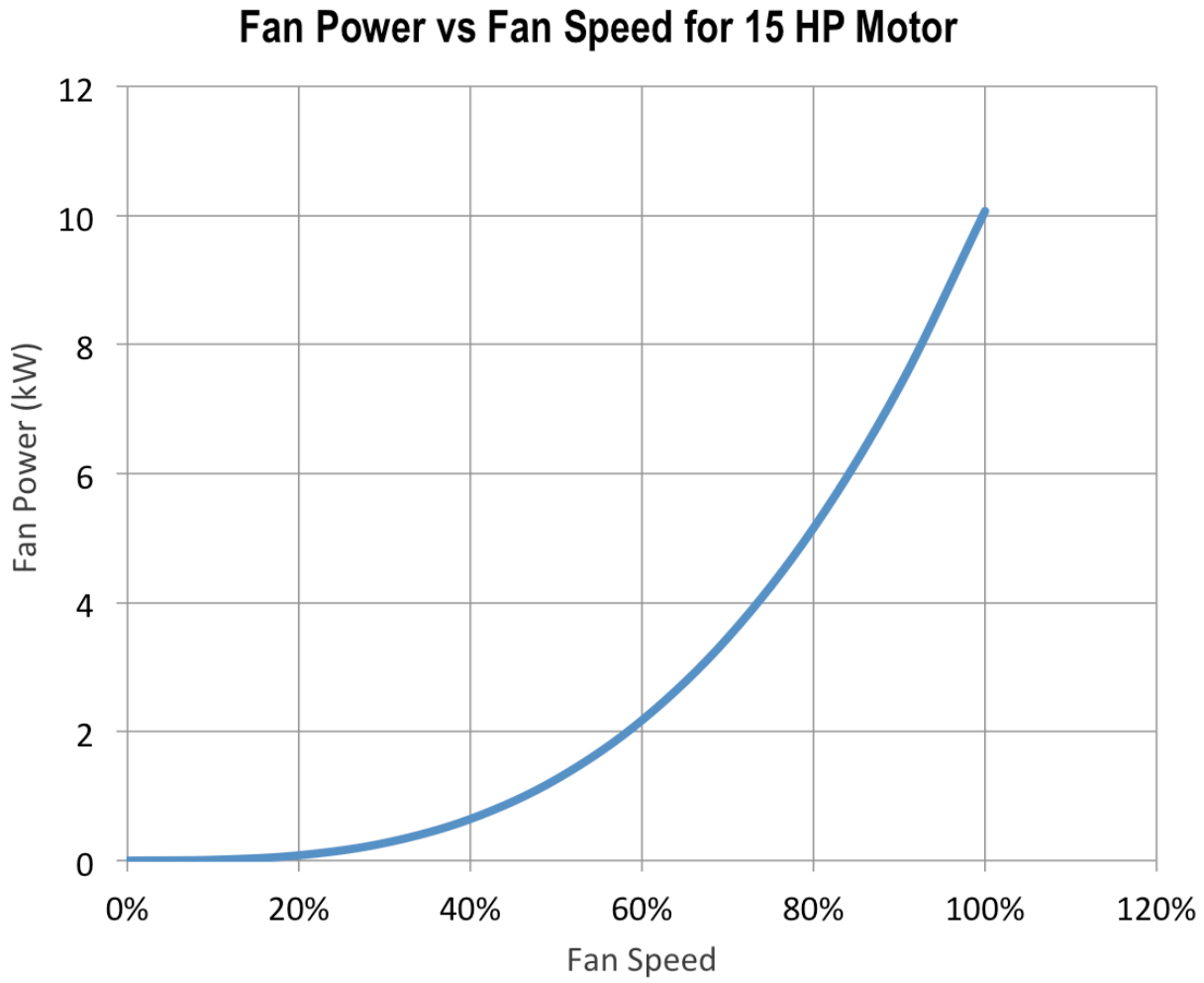


Deep Lake Water Cooling

Granular Temperature Control System



Variable speed drives for CRAC unit



Other stuff

- Energy Efficient Lighting
- Adaptive Control Systems
- Waste Heat Recycling
- Green Rooftops/Water Collection and Recycling
- Fuel Cells
- Solar Panels

EQUINIX

Thank you

http://www.equinix.com/company/green/green-data-centers/