



## herbertgeer's Virtualisation Experience



## herbertgeer – Background

- Legal firm
- 3 states, 300 staff
- 65 servers
- Hardware end of life
- Very low on disc space
- Lots of out of hours work to maintain
- Had been testing / using the free VMware server for approximately 2 years (2007/08)



# Virtualisation

---

- Amazing technology. Changed the face of server deployment, recovery and administration
- Undisputed environmental benefits
- Herbert Geer deployed in 2009, with 5 Sun servers (3 Melbourne, 2 Brisbane) replacing approx 25 physical servers

---

herbertgeer  
Melbourne Sydney Brisbane

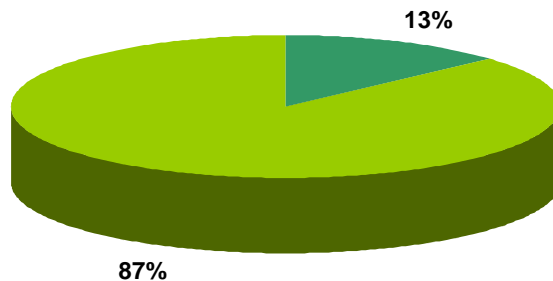
## herbertgeer's current environment

---

Virtual Machines: 65

Physical Machines: 10

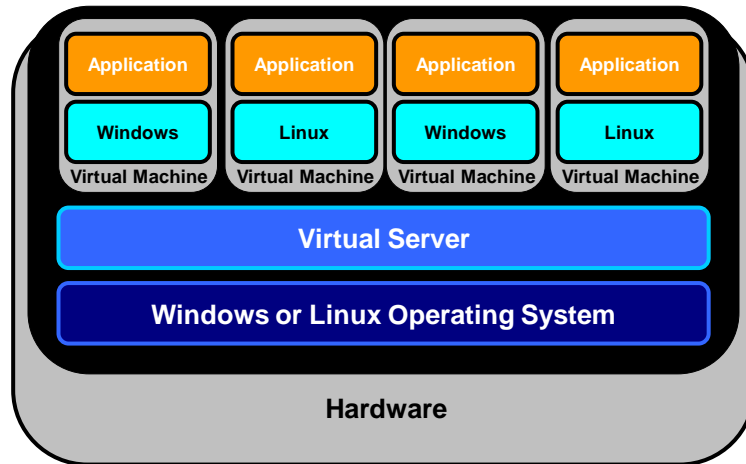
■ Total Physical Machines ■ Total Virtual Machines



---

herbertgeer  
Melbourne Sydney Brisbane

# Virtualisation



herbertgeer  
Melbourne Sydney Brisbane

## Benefits

- Power / Management
- Cooling
- Uptime
- Space
- Administration
- Overtime
- DR
- Licensing
- Maximise hardware investment



herbertgeer  
Melbourne Sydney Brisbane

## Heat Output

---

- 6 year old 1RU server – 1076 BTU/Hr
- New 1RU server – 775 BTU/Hr running 8 VM's
- 8 x 1076 = 8608BTU/Hr
- I produce 250 BTU/Hr
- Webber “Q” produces 8500BTU/Hr




---

**herbertgeer**  
Melbourne Sydney Brisbane

## The Savings

---

- Based very conservatively on single CPU servers –  
**before virtualisation:**
  - 65 x 1 CPU = \$30,875 per year
- and after:**
  - 6 x Quadcore CPU = \$4,620 per year
- A saving of \$26,255 per year**
- (Conservatively based on \$0.125 per kW per hour, 1 CPU \$522 pa, quad CPU \$770 pa)

---

**herbertgeer**  
Melbourne Sydney Brisbane

## The Environmental Impact

---

Based very conservatively single CPU servers –

A conservative estimate of 265,647kw\* saving per year

- This equates to:
  - 64.1 passenger cars not driven for 1 year
  - 69.7 acres of Pine Forests storing carbon for one year
  - 327 Tons of CO2 Gas
  - 1.8 railcar of coal
- 
- Based on calculations from <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>  
\*(65x1CPU-5xquad CPU)

---

**herbertgeer**  
Melbourne Sydney Brisbane

## SAN vs Traditional storage

---

- Storage Area Network storage provides a pool of disc
- 1 to 1 is replaced by 1 to many
- DAS (below) is limited by its chassis



---

**herbertgeer**  
Melbourne Sydney Brisbane

Before virtualisation our servers occupied 3 racks



- After our virtualisation project we were able to consolidate our servers to half of 1 rack.