

# Practical Data Centre Management

David Cuthbertson  
Square Mile Systems

[david.cuthbertson@squaremilesystems.com](mailto:david.cuthbertson@squaremilesystems.com)

[www.squaremilesystems.com](http://www.squaremilesystems.com)

Tel +44 (0)870 950 4651

Mob +44 (0) 7717 883177



# Square Mile Overview

## Training

- Practical data centre management
- How to map systems & services

## AssetGen Toolsets

- Data Centre management
- Mapping services to systems

## All technologies!

- Cabling, networks, power, space, servers storage, firewalls, software, etc

### **Business Processes**

Departmental, Company

### **Services**

End user, infrastructure, supplier

### **Applications**

PC, server, mainframe, SOA

### **Virtual Infrastructure**

Network, Servers, Storage, DBMS

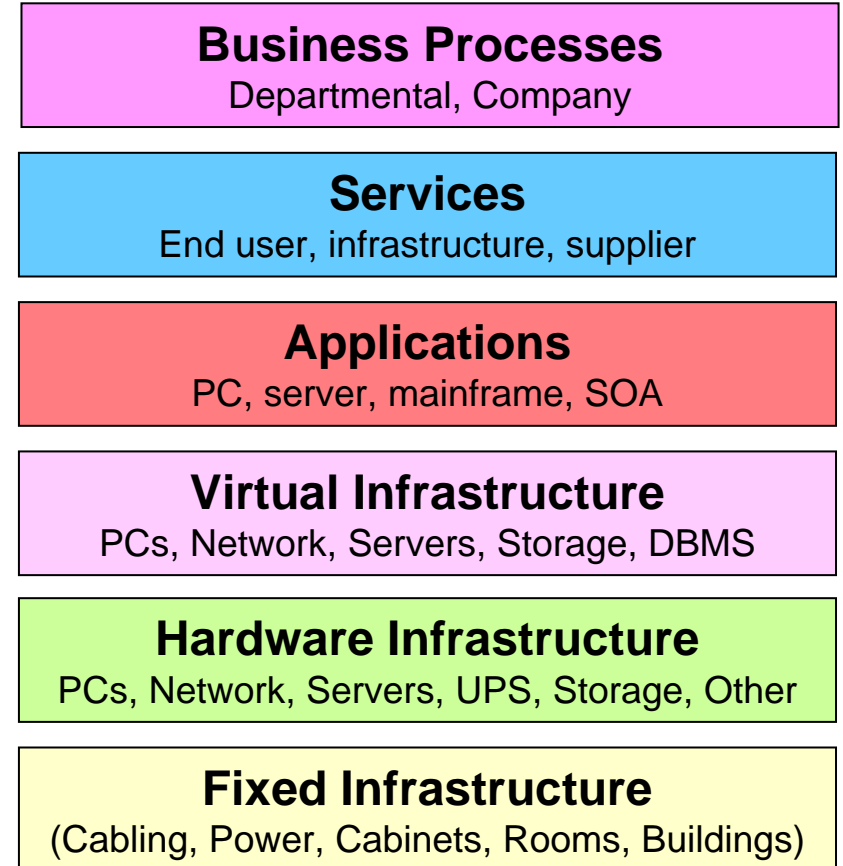
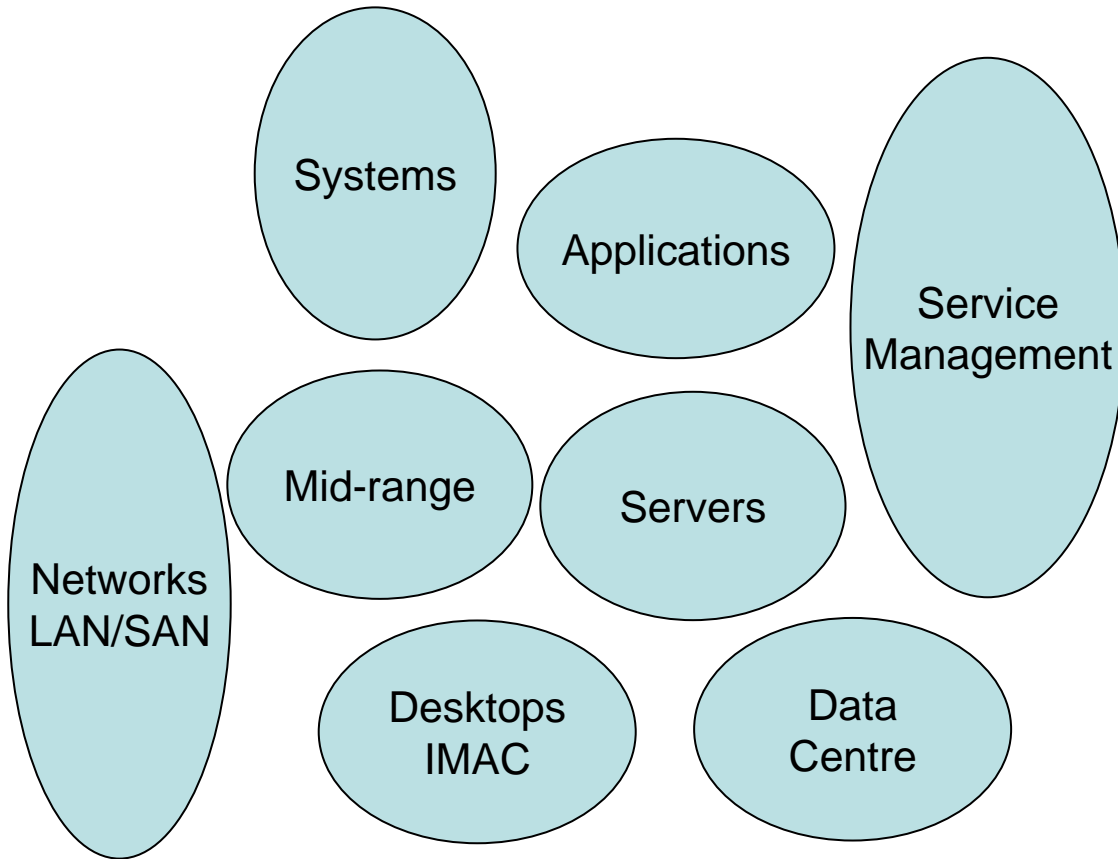
### **Hardware Infrastructure**

Network, Servers, UPS, Storage, Other

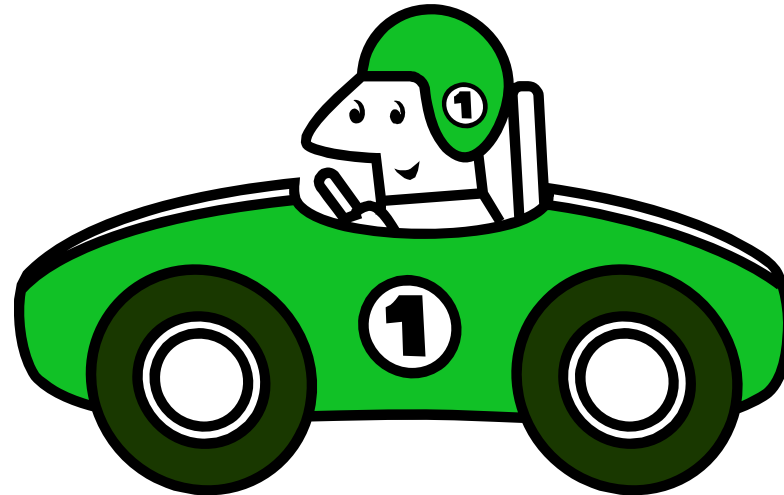
### **Fixed Infrastructure**

(Cabling, Power, Cabinets, Buildings)

# Different Teams, Different Data



# Why do cars run out of petrol?



# Same components, different approach



# Many Current Issues in Data Centres

- Technology
  - Challenges, opportunities
- Capacity
  - Space, power, cooling, connectivity, people
- Risk
  - Change, recovery, security, resilience, support
- Organisational
  - People, policies, processes, communication, cost

# Typical Data Centre Issues

1. Heat and power
2. Operating costs
3. Speed of provisioning
4. Optimising space
5. Decommissioning
6. Forward planning
7. Reacting to failures / emergencies
8. Communication with other teams



**Top two issues?**

# New Technology Challenges

## Sun Blade 8000 Blade Chassis

- 4 Power supplies (N+1) 9kW
- 3 chassis per rack



## HP C7000 Blade Chassis

- Up to 6 Power Supplies 13kW
- 4 chassis per rack



## Cisco Nexus Data Centre Switch

- 3 Power Supplies 12kW

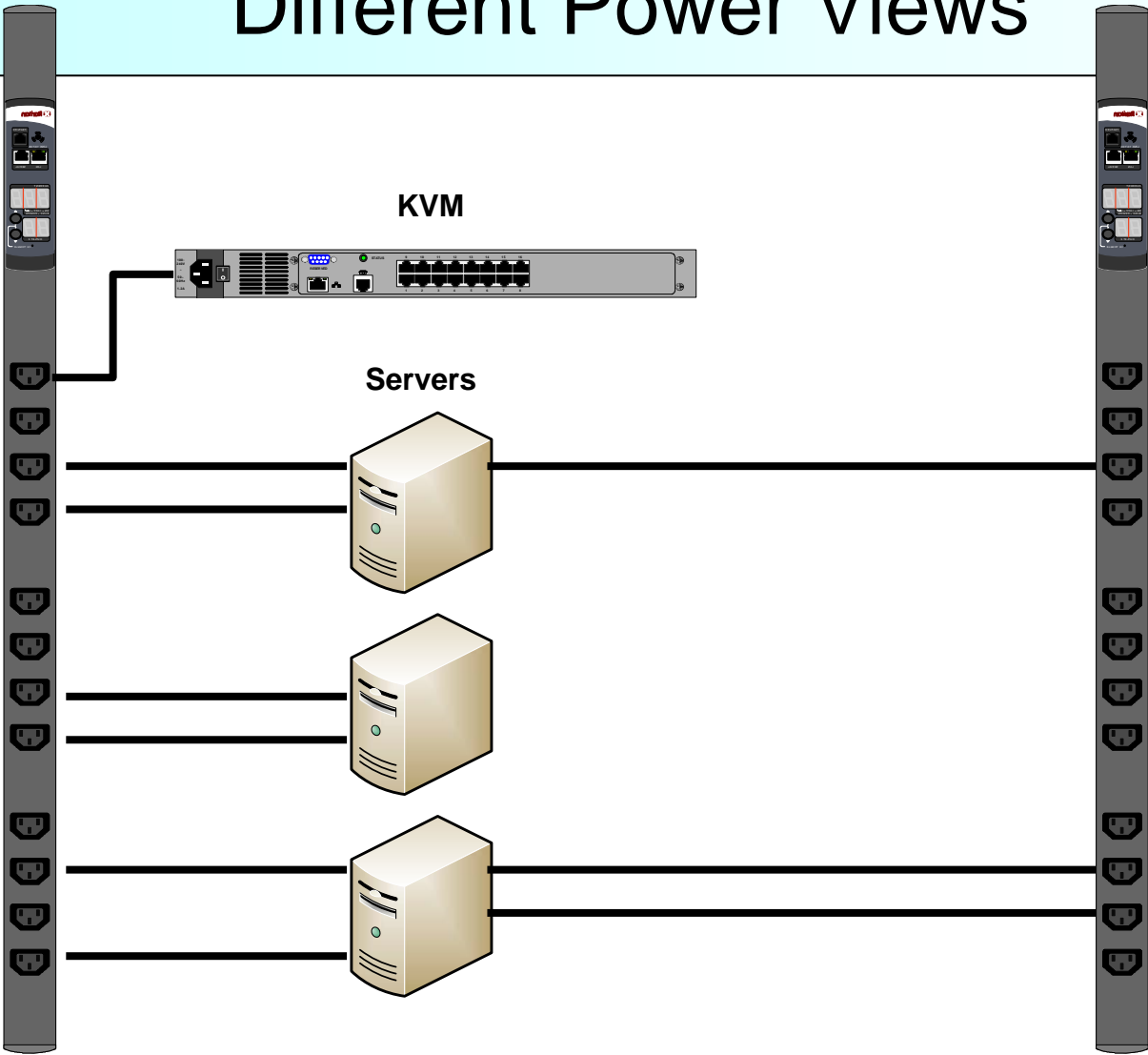


# Power Calculations

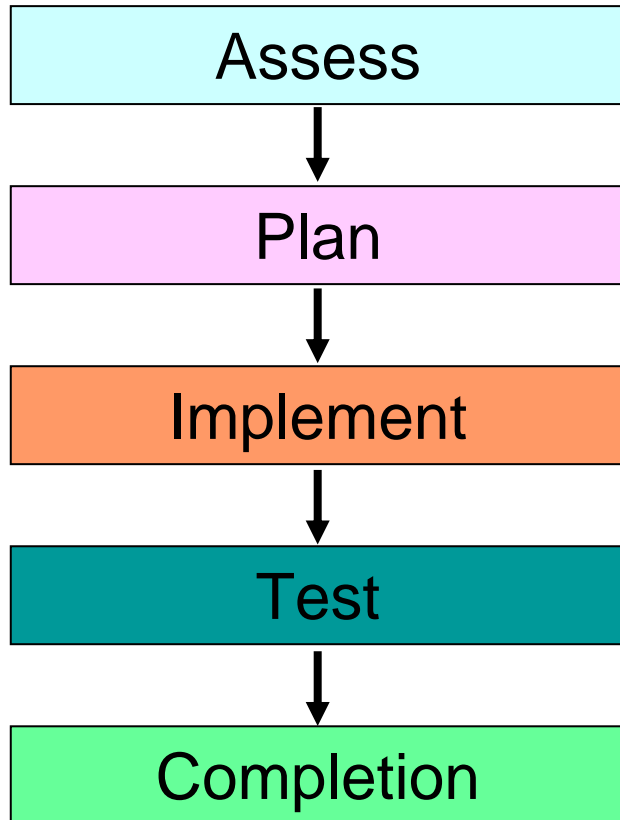
What equipment power/current rating should be known and used when assessing and planning changes?

1. Manufacturer specification
2. Actual power/current consumed
3. Design value
4. Other

# Different Power Views



# Provisioning



**How long does it take to plan and install 5 blade chassis?**

# Reducing Provisioning Times

- Reduce discovery time
  - Management toolsets
- Remove the “physical” aspect
  - Virtualisation
- Optimise Processes
  - Formalise workflow into “best practices”
  - Use common knowledge bases

# Roles/responsibilities matrix

|           | Design | Install | Change | Maintain | Monitor | Document |
|-----------|--------|---------|--------|----------|---------|----------|
| Power     |        |         |        |          |         |          |
| Cooling   |        |         |        |          |         |          |
| Racks     |        |         |        |          |         |          |
| Cabling   |        |         |        |          |         |          |
| Servers   |        |         |        |          |         |          |
| Storage   |        |         |        |          |         |          |
| Network   |        |         |        |          |         |          |
| Mid-range |        |         |        |          |         |          |

# Change Forms

1. Install a new empty cabinet
2. Install power strips and connect to PDU
3. Decommission old, powered off servers
4. Patch in a server (off) to a network switch (on)
5. Reboot a KVM
6. Move a test server to another rack
7. Move a virtual server between hardware platforms
8. Install a Blade chassis

**What would we log in central change control?**

# Improving Control

- Environment limits
- Information sets - formal and informal
- Working practices - formal and informal
- Roles / responsibilities
- Current issues
- Establish priorities

**1. Set a baseline**

**2. Manage change using process and practices**

**3. Review constantly**

# To Finish With

Data centres are becoming more complex, densities of cabling and equipment are increasing and the business impact of a failed change is greater. Plus the “green” issue

## Changes in data centre management

Data centre teams (and managers) need additional skills

Complexity needs managing – capacity, connectivity, services

Working practices must evolve

Evidence of control over critical systems will be demanded!

Thank you

**People manage technology, never forget!**