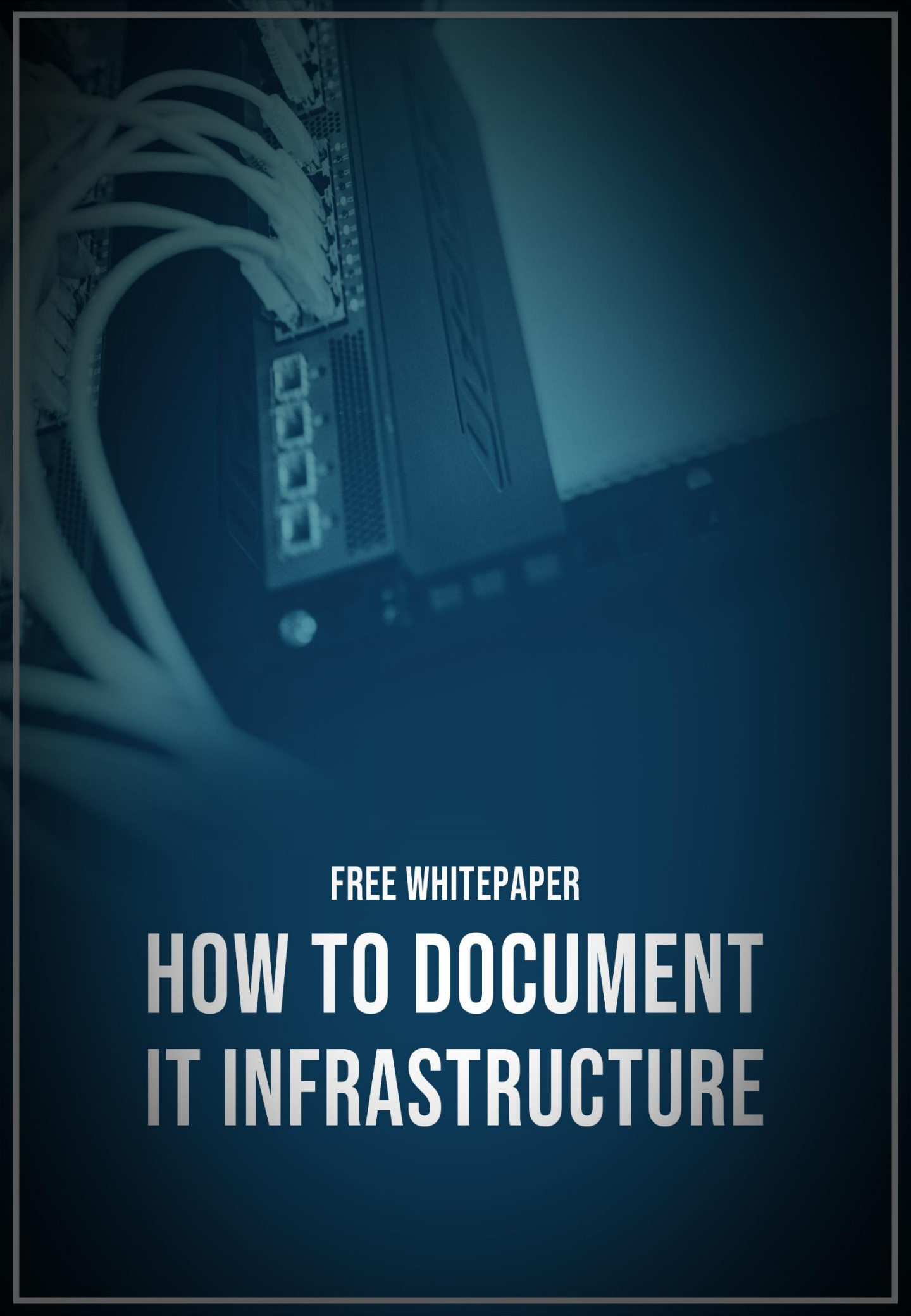


FREE WHITEPAPER

HOW TO DOCUMENT IT INFRASTRUCTURE

Whitepaper Objectives

- Help you understand techniques and practices that make documenting IT infrastructure easier
  - Data Centres
  - Networks
  - Applications, services (ITIL)
  - Cabling, power connectivity
  - Servers and hosts
  - Other – Wireless, SAN, Voice, CCTV, industrial automation

- Help achieve quick wins as well as long term gains
  - Improve the use of existing toolsets – Visio, Excel
  - See the difference with specialist toolsets such as AssetGen

About AssetGen / Square Mile Systems

- We develop technology to make infrastructure management easier
  - AssetGen infrastructure database
  - Visio utilities (free) for data centre / application / services documentation
- Provide methods and processes for site audits, documentation assessment, remediation (compliance) and managing complex infrastructure changes
- Help organizations implement best practices around change management and control in physical and logical infrastructures
  - Supporting ITIL, ISO, ISA, TIA, BICSI, NIST and COBIT and others
- Our projects are associated with data centre migration, transformation projects, infrastructure baselining and automated Visio diagramming.

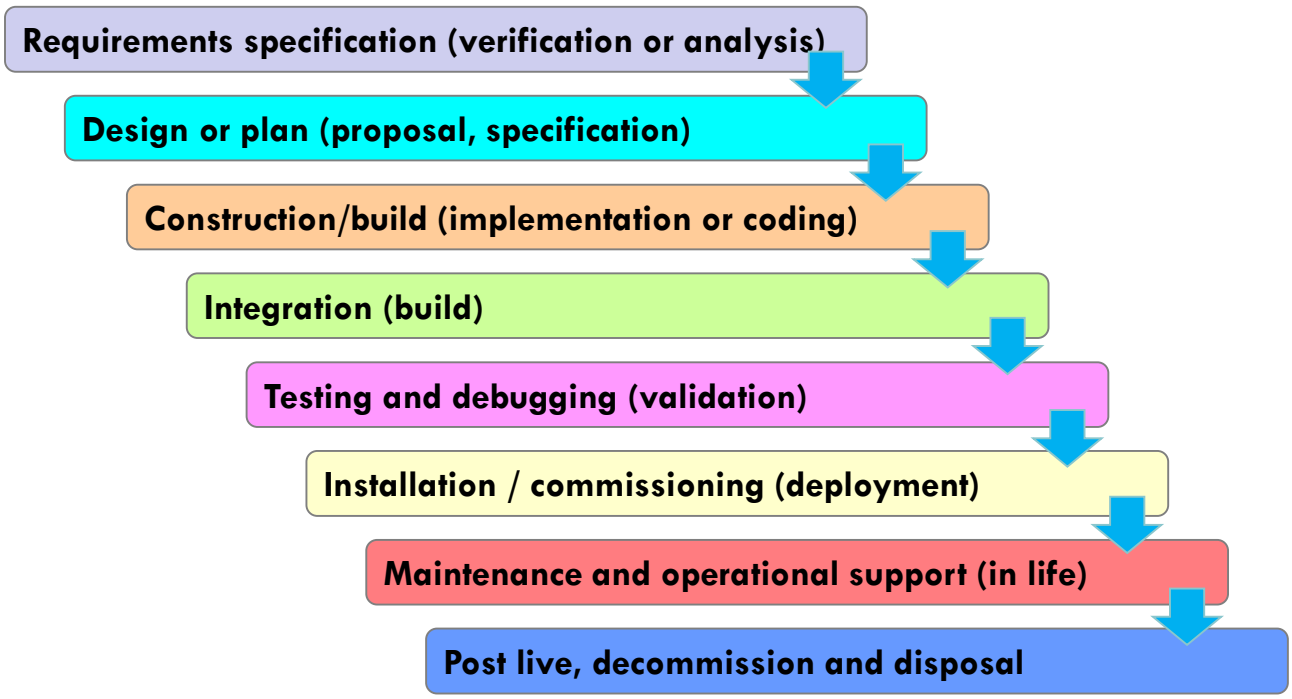
SQUARE MILE

A Question

What do you feel (or know) is the biggest problem of documenting IT infrastructure?

1. Maintaining infrastructure documentation
2. Creating a baseline of shared infrastructure
3. Defining change processes across teams
4. Common understanding of the value of documentation

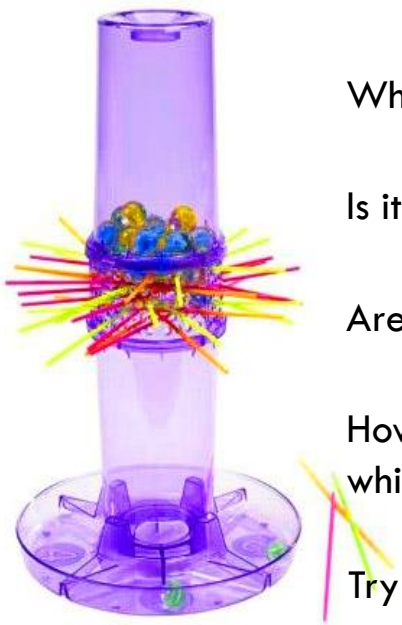
When Do We Create or Use Documents?



What Is The Top Reason To Change?

1. Manage project and operational costs
2. Improve situational awareness – faults, assessment
3. Reduce project delivery timescales
4. Assess risks of planned change and releases
5. Regulatory / contract needs – auditors/customers
6. Improve risk assessment and mitigation – DR, test
7. Increase organisational and individual flexibility
   - Separation of roles and centralisation of control
8. Improve security management processes
   - External / Internal attacks / Avoidance / Recovery

Kerplunk – Infrastructure Planning?



What is the change impact of removing a straw?

Is it more difficult if the straws are the same colour?

Are you more cautious removing multiple straws?

How would you communicate to someone else which straw to pull?

Try it when planner and builder have blindfolds!

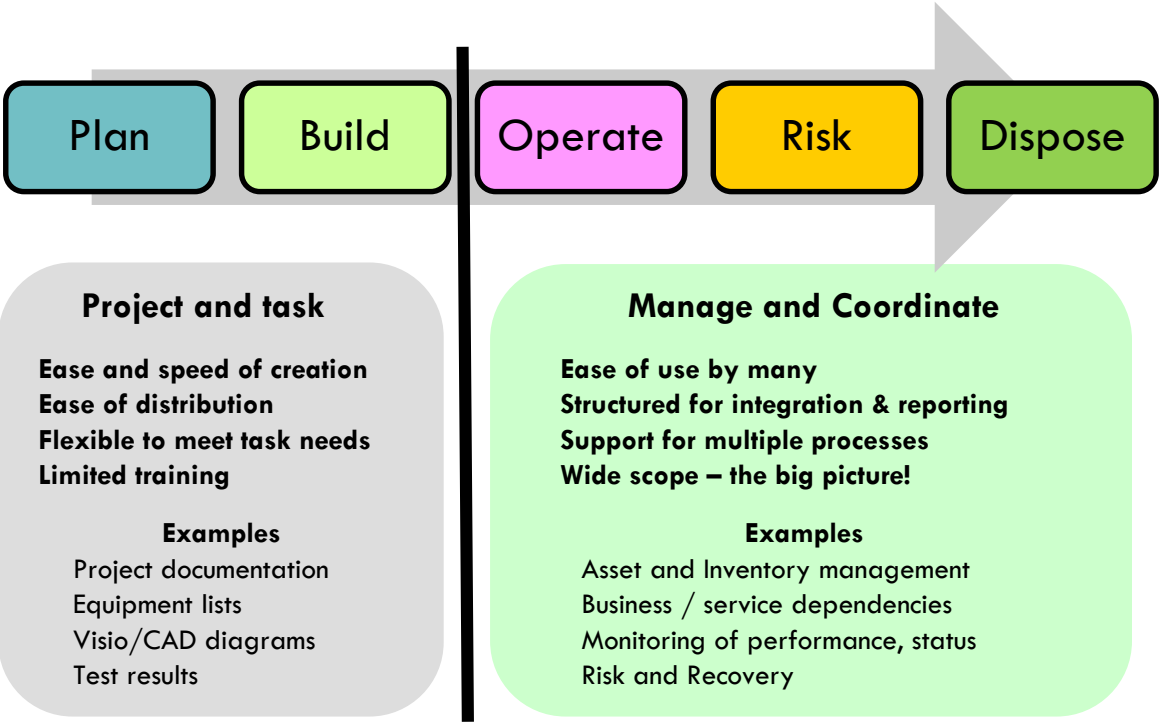
Different Focus Areas

1. Infrastructure management (data centres, networks, cabling, servers)
2. Hardware and software asset management
3. Software development – Application Lifecycle Management
4. IT Service management (ITIL)
5. Major system (building, data centre, ship, oil rig, plane, car)
6. Hardware/software component manufacture
7. Many other forms in other industries

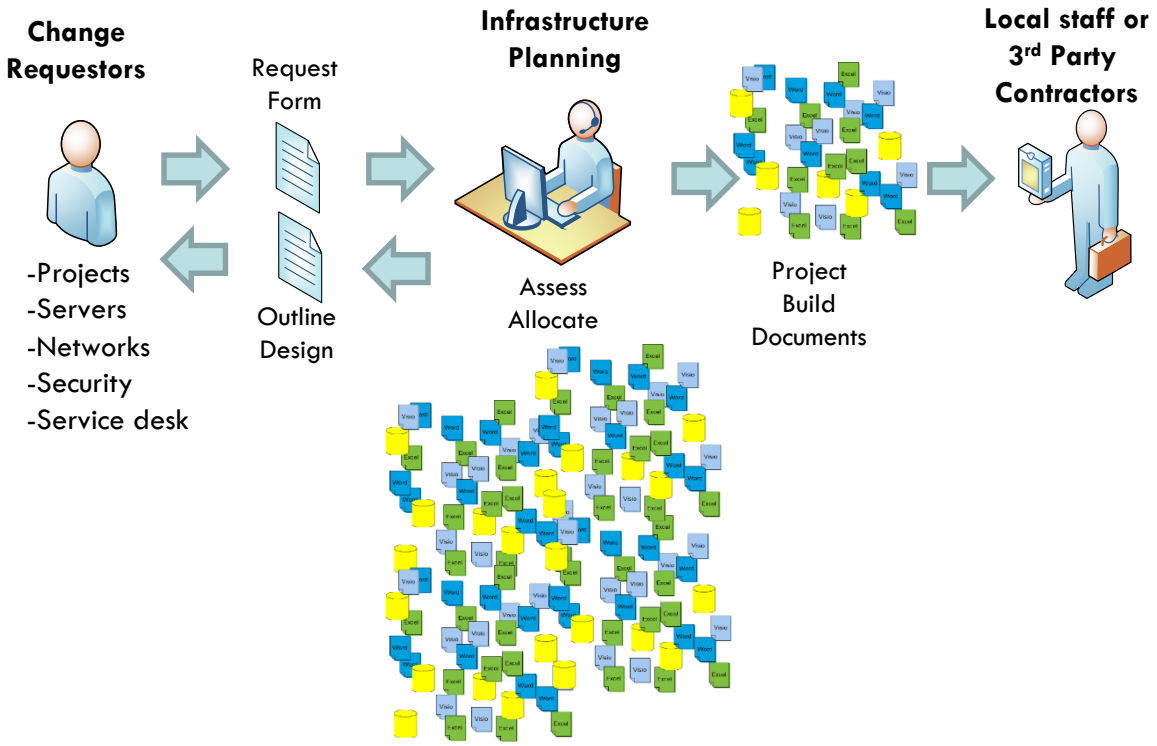
The principles are the same

The issues, techniques, reasons are different

Institutional Infrastructure Knowledge



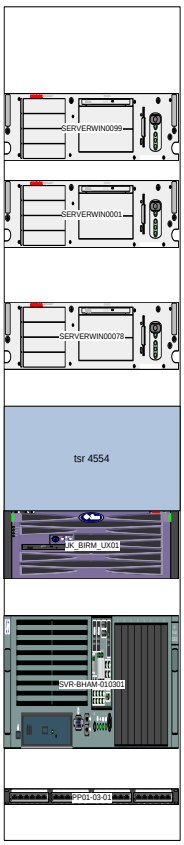
How should we manage change?



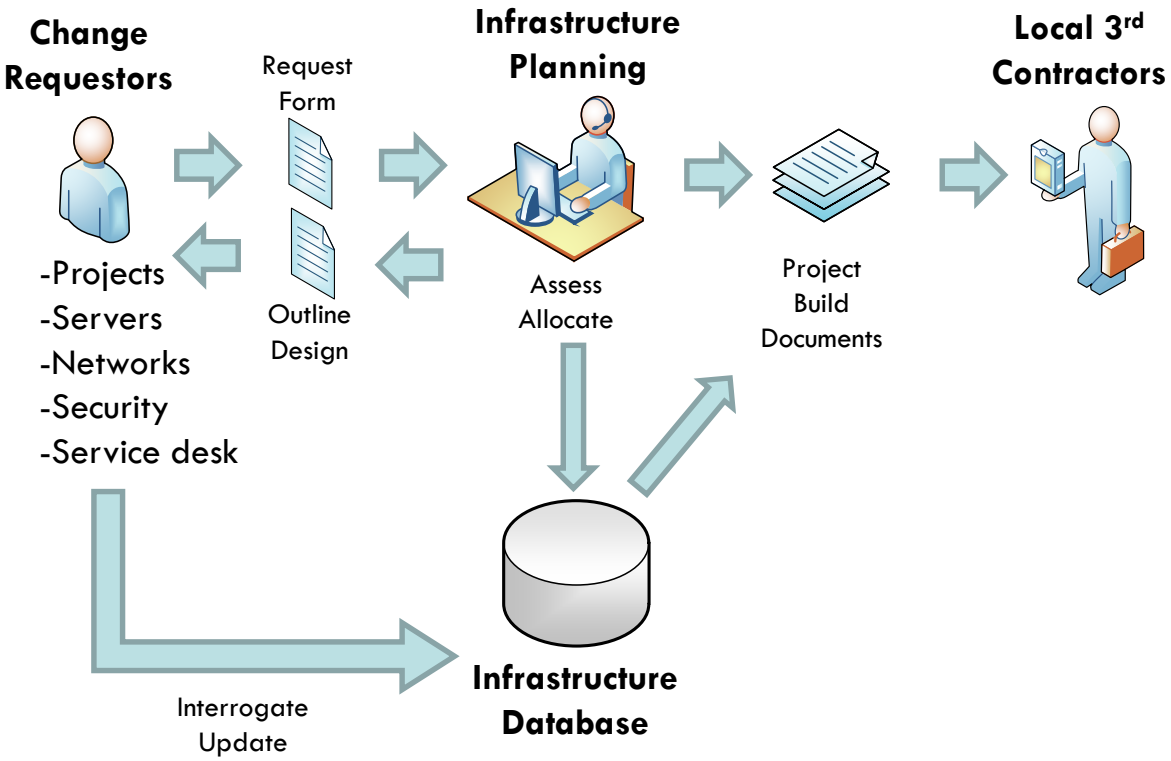
Document Overload!

After a project change, what should be updated?

1. Update asset/inventory list
2. Update rack diagrams
3. Update network diagrams/patching records
4. Update switch port usage and capacity
5. Update floor plan rack capacity
6. Update power usage spreadsheet(s)
7. Update storage / backup system documentation
8. Update systems architecture documentation
9. Update DR lists and documents
10. Update maintenance records
11. Update billing and charging data
12. Update project documentation with the “as built” details



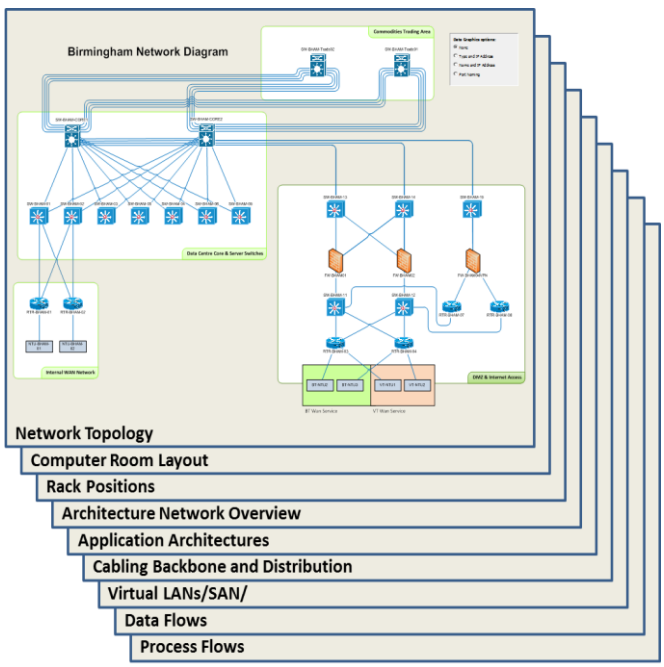
How should we manage change?



Wouldn't it be nice?

While you sleep

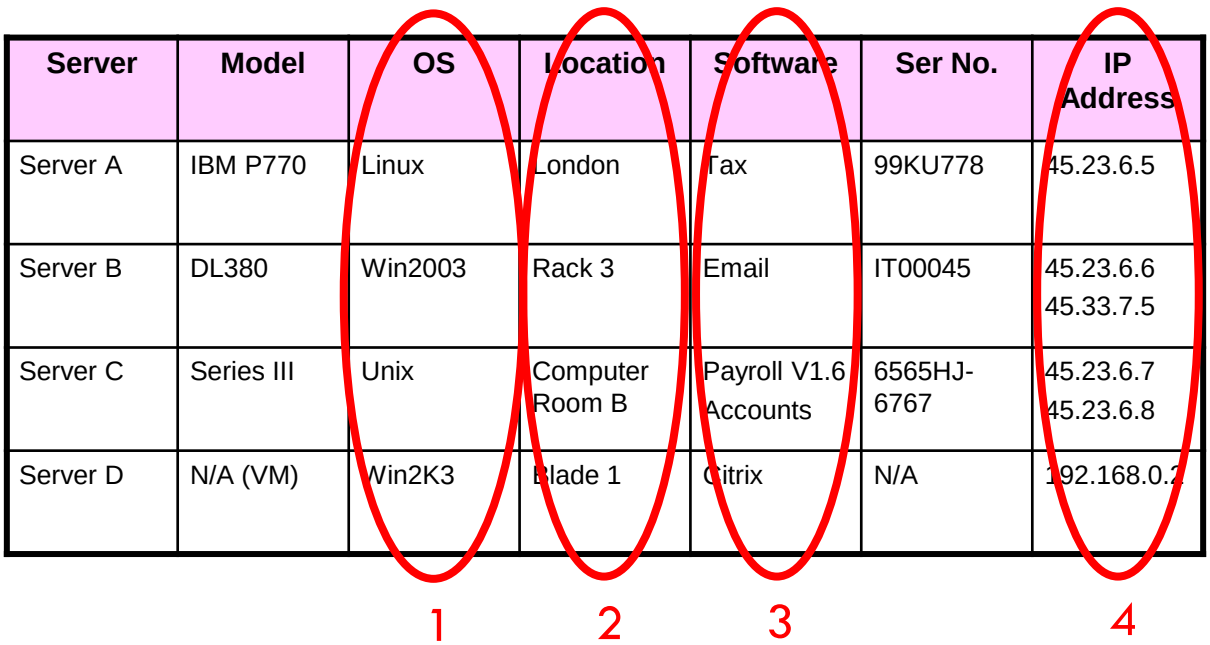
Changes to the IT systems and infrastructure are updated into various Visio diagrams and Excel outputs overnight – automatically!



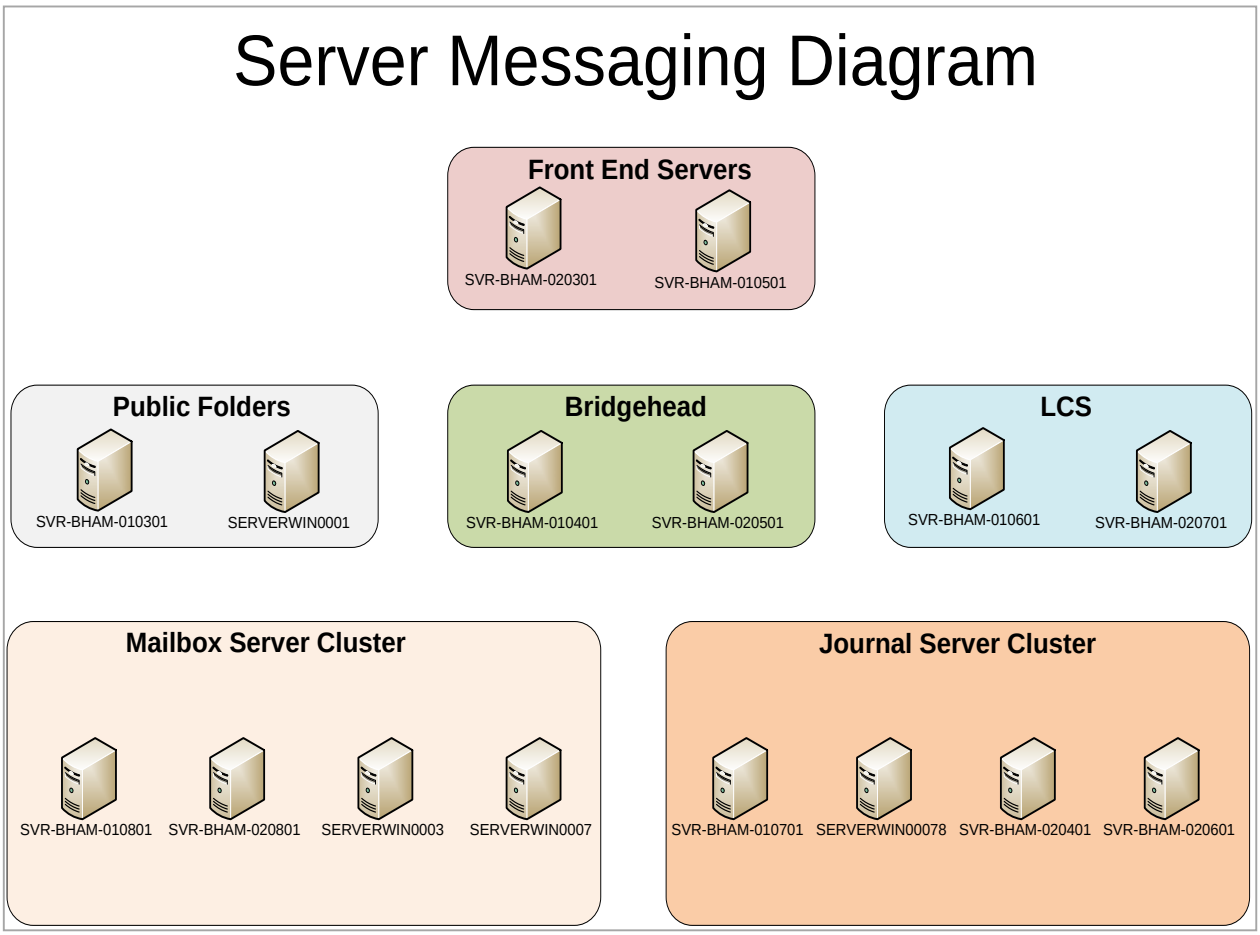
A typical starting point - Excel

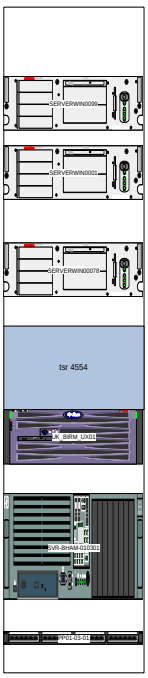
Server	Model	OS	Location	Software	Ser No.	IP Address
Server A	IBM P770	Linux	London	Tax	99KU778	45.23.6.5
Server B	DL380	Win2003	Rack 3	Email	IT00045	45.23.6.6 45.33.7.5
Server C	Series III	Unix	Computer Room B	Payroll V1.6 Accounts	6565HJ-6767	45.23.6.7 45.23.6.8
Server D	N/A (VM)	Win2K3	Blade 1	Citrix	N/A	192.168.0.2

Is this a good starting point?



Different Views - Different Symbols





Infrastructure Configuration Management

1. Standardised naming, conventions and formats
   - Fixed infrastructure, active components, applications
   - Connectivity power, network, SAN, data links
   - Visio templates and stencils

2. Reduce multiple data sets to a reduced set – often database(s)
   - Shared across project, operations, risk, asset, audit, platforms
   - Collected and refreshed by manual and automated processes

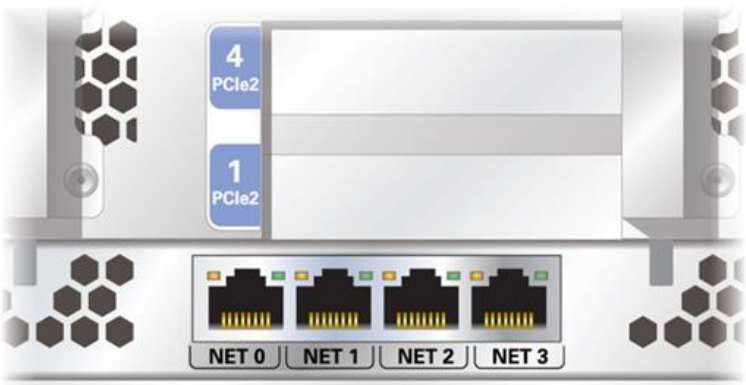
3. Produce multiple outputs from a few sources
   - Rack and floor capacity management
   - Visual views, rack, network, power, system, system, service
   - Inventory and asset management

1 or 01 or 001?

2/1 2\1 2/01 SL2/1 Port 2/1 Gig 2/1 Fe2/1 Slot 2/09

Mgmt MGT Con Console ILO Net Mgmt

NIC 1 Eth A Net 0 hba0 bge1 12F1 primary



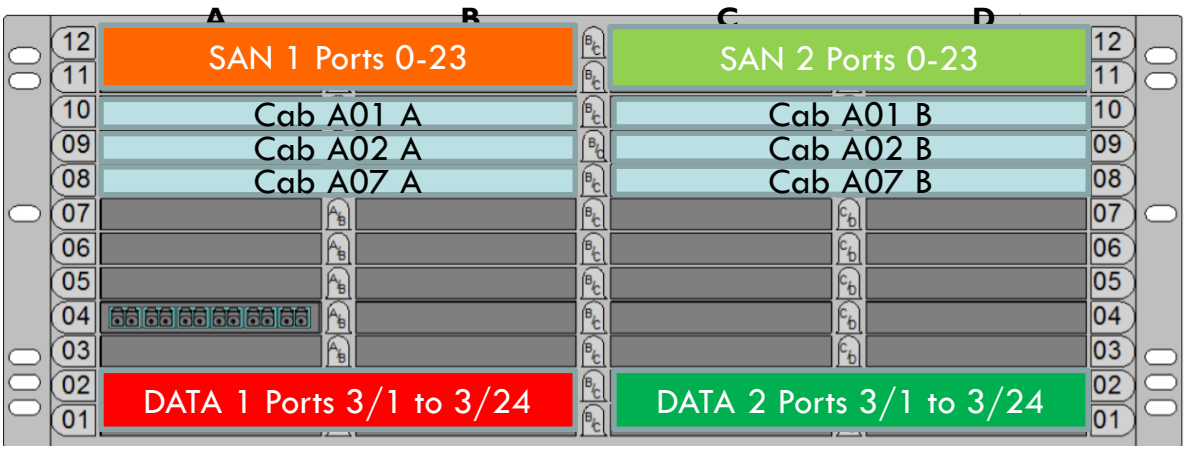
Complex Devices - Chassis

When You Can Put Three of These in Each 42U Rack, You've Got Density

Equipment build

- Chassis
- Cards
- Power supplies
- Connection types
- Firmware
- Software

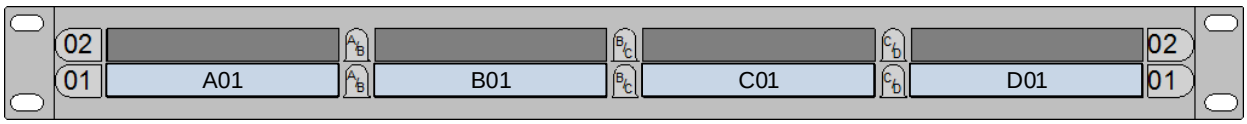
Using Modular



Easy to add, move, re-use modules and connections

Not so easy to document, manage capacity and comprehend

Hmmm.. Naming.. Modules



A01

1. Slot name

A03 U39.A01

2. Rack/Panel and Slot name

DC1-A03 U39.A01

3. Room/Rack/Panel and Slot name

PFI-DC1-A03 U39.A01

4. Type/Room/Rack/Panel and Slot name

DC1-03-10 U39.C01

5. Destination far end and Slot

Hmmm.. Naming.. Modules

- Active Equipment - Easy
  - Use logical name SWNZ66_F301
  - Cards could be SWNZ66_F301.slot04

- Cabling Modules – Often uses location identifiers

  Option A Where it is A05-U05.03A

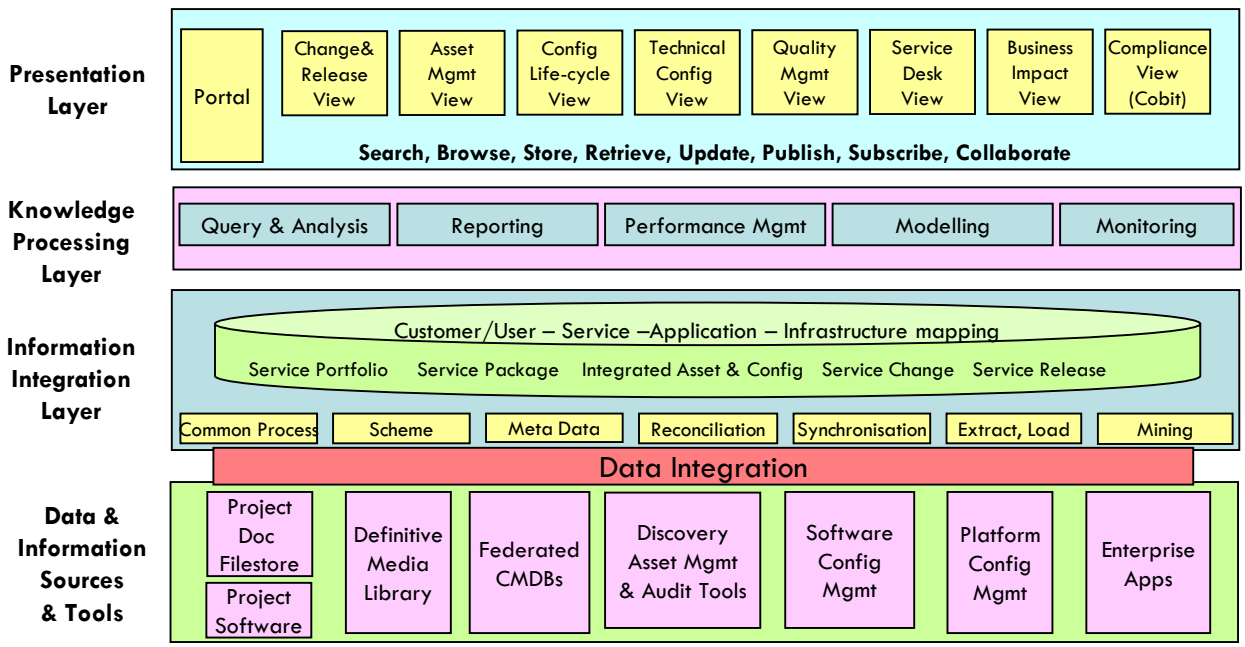
  Option B Where it goes A07-U07.07A

  Option C Both of the above A05-U05.03A to A07-U07.07A

  Option D The end service
  SWNZ66_F301.slot04:Ports 07>12

  Plus module attributes – make, model, port type, orientation

ITIL Version 4 CMS



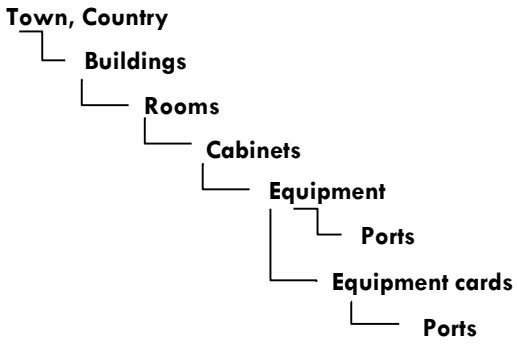
Prepare - Start With Quick Wins

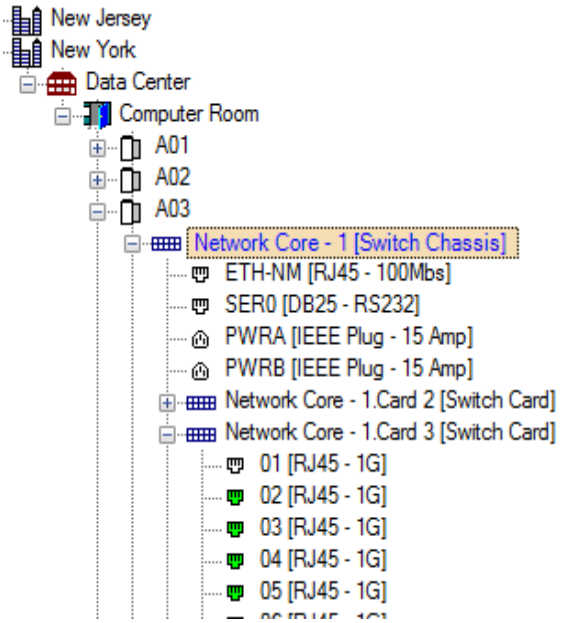
- Town
- Building
- Room / location
- Computer rack
- Backbone fixed Infrastructure – patch panels/ /power strips
- Core infrastructure – network, SAN, voice, wireless
- Hosts and computing systems
- User area fixed infrastructure - floor boxes
- User devices – desktops, printers, voice

Few elements
Low rate of change

Lots of elements
High rate of change

CM For the Physical

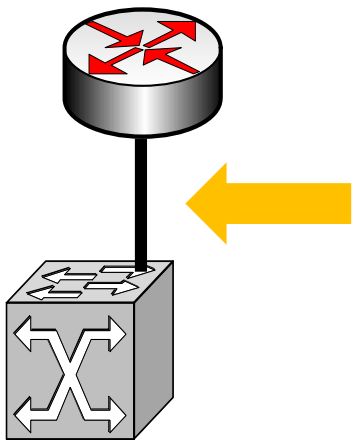




A system suited to hardware configuration management with cabinets often also being enclosures, desks, under floor boxes, etc.

All have their own attributes and conventions

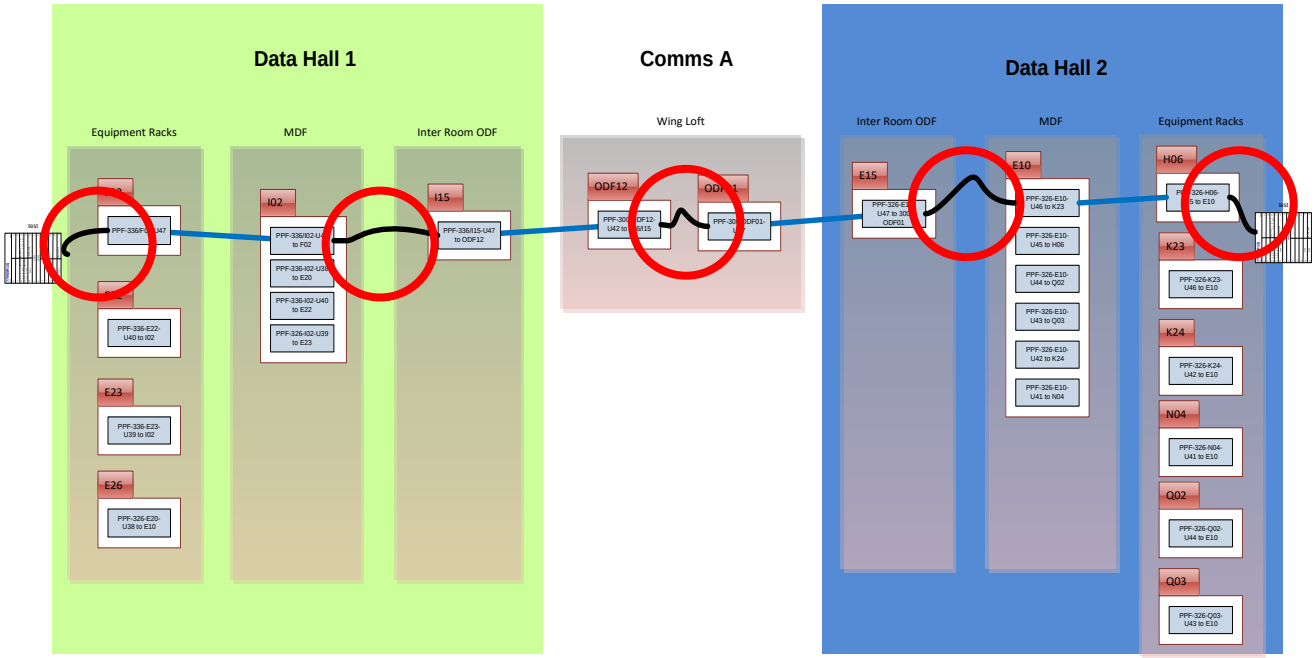
The Logical Dependency View



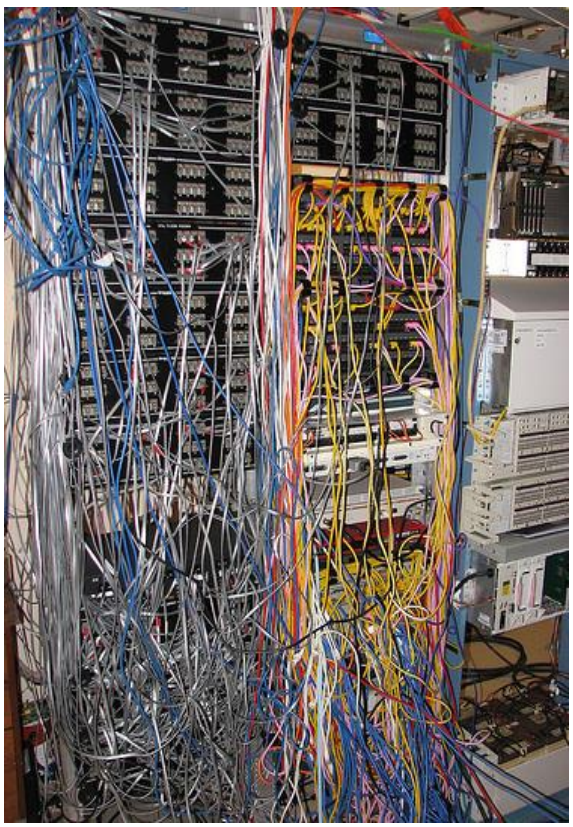
The router has one link to the switch

Easy to Understand!

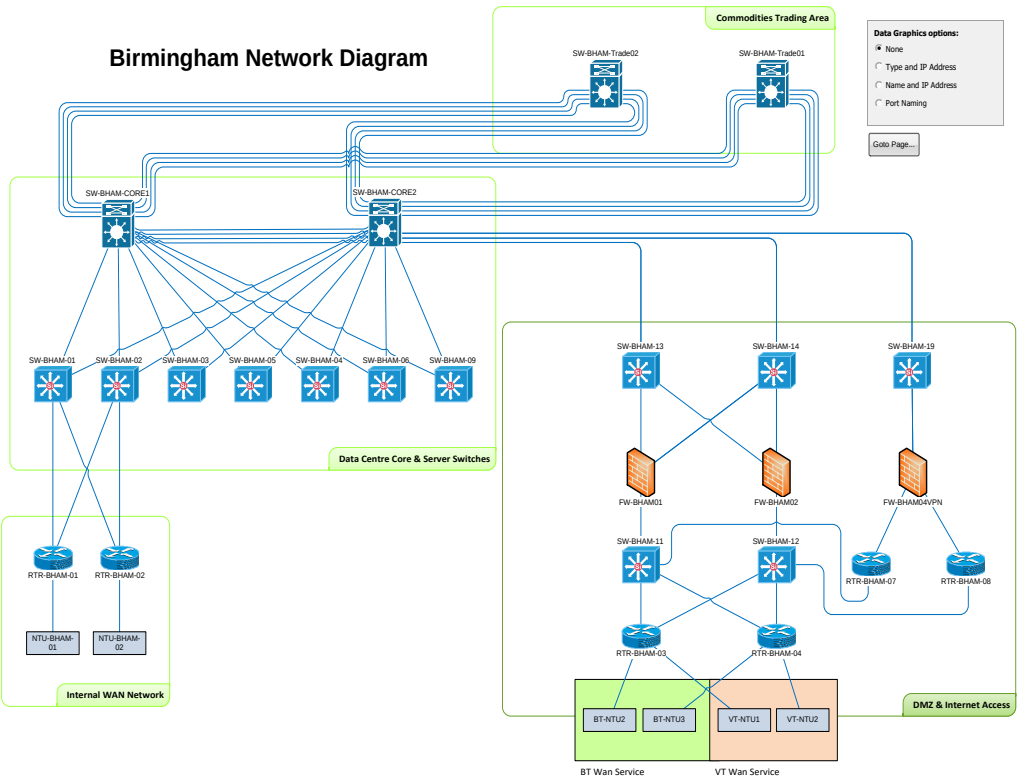
The Physical Connection View



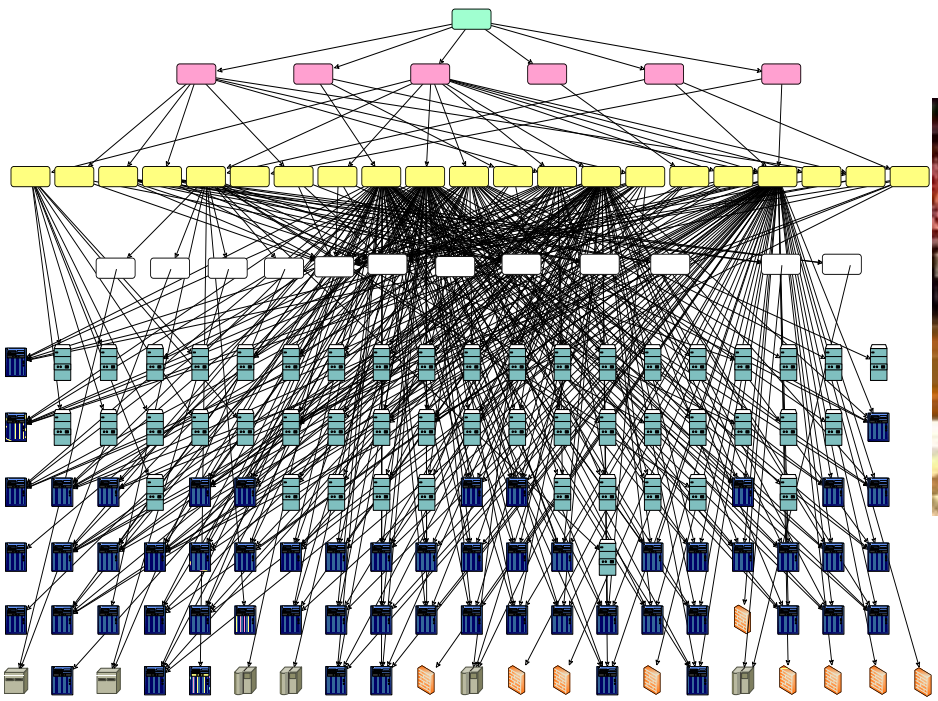
The Physical Reality



Network Mapping



Mapping Software and Services



Preparing For A Baseline Audit

1. Establish policies, standards and clarify ownership
   Make it easy for engineers

2. Have project / operations use common terms & formats
   Supply templates, naming system, labels, etc.

3. Reduce the numbers of documents / files to maintain
   Consolidate into centralised systems and make easy to find - portal

4. Support multiple viewpoints from a set of data
   Link or create Visio diagrams, reports, Excel from databases

5. Update operational systems as part of planning processes

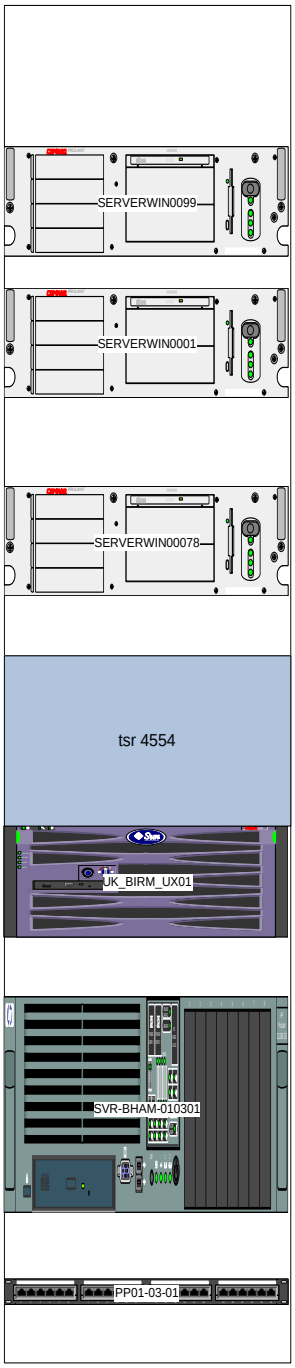
Capture - The Audit Process

- Planning
  - Scope, depth, schedule of visits
  - Develop data capture tools
- Prototype the data capture
  - Check the process works on a trial building, application, environment
- Bulk data capture
  - Capture/upload as soon as possible in case of data or process errors
- Presentation of data
  - Reports, diagrams, portals
- Reconciliation
  - Gaps and inaccuracies across teams and cultures
  - Use of other data sources

Capture - Desired Outputs?

Are we just recreating the same problem we started with?

1. Asset/inventory list
2. Rack diagrams
3. Network diagrams/patching records
4. Switch port usage and capacity
5. Floor plan rack capacity
6. Power usage spreadsheet(s)
7. Storage / backup system documentation
8. Systems architecture documentation
9. DR lists and documents
10. Maintenance records
11. Billing and charging data
12. Project documentation with the “as built” details



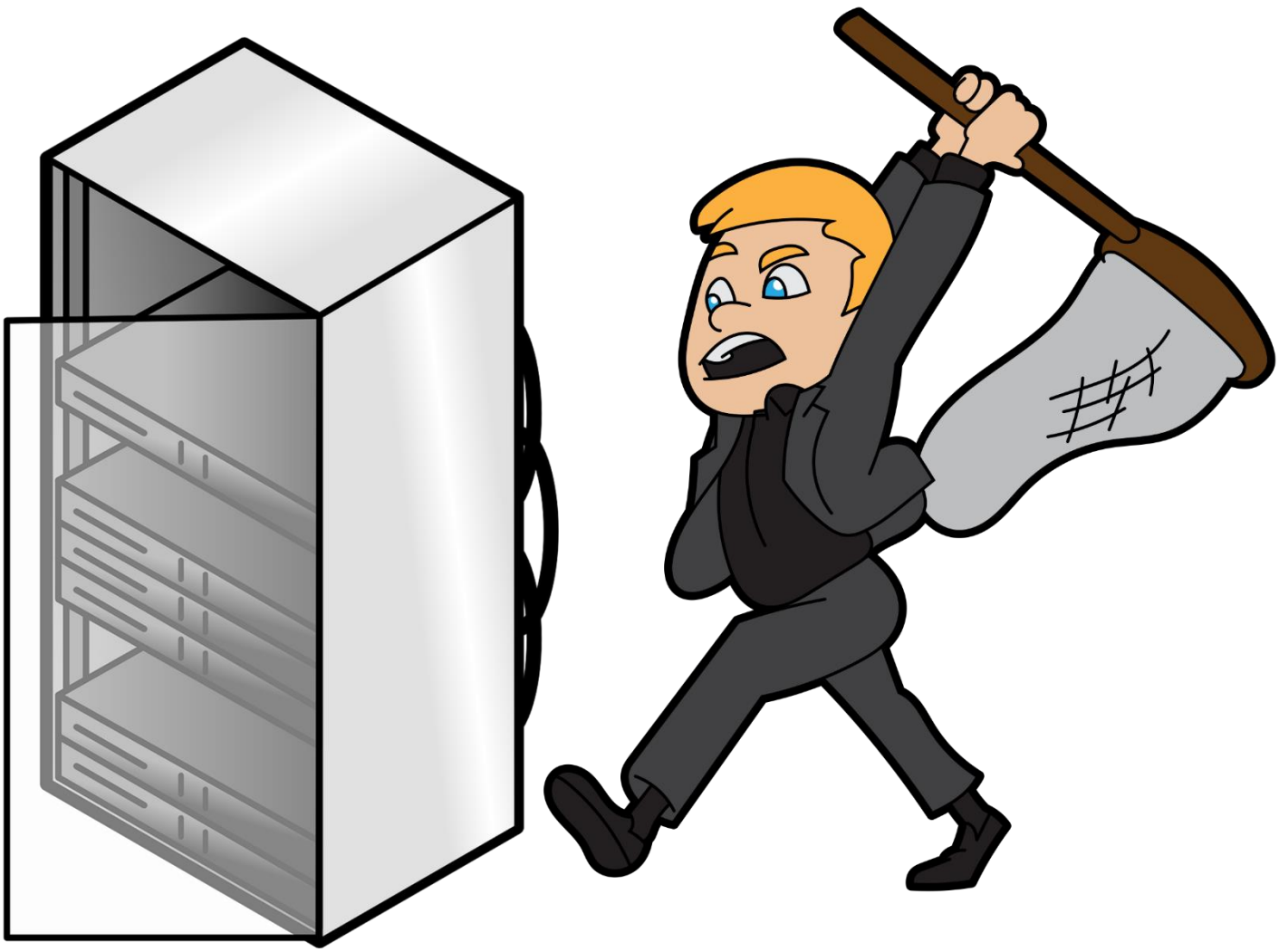
Capture – Physical Infrastructure

1. Document / survey buildings and spaces and put into an infrastructure database (AssetGen)

2. Capture racks and enclosures into spread sheet format.
   Enables production of Visio floor plans and supports audit packs

3. Capture inventory into an upload spread sheet.
   Creates rack diagrams, floor box layouts, architecture maps

4. Capture connectivity into an upload spread sheet.
   Network, path and other topology diagrams



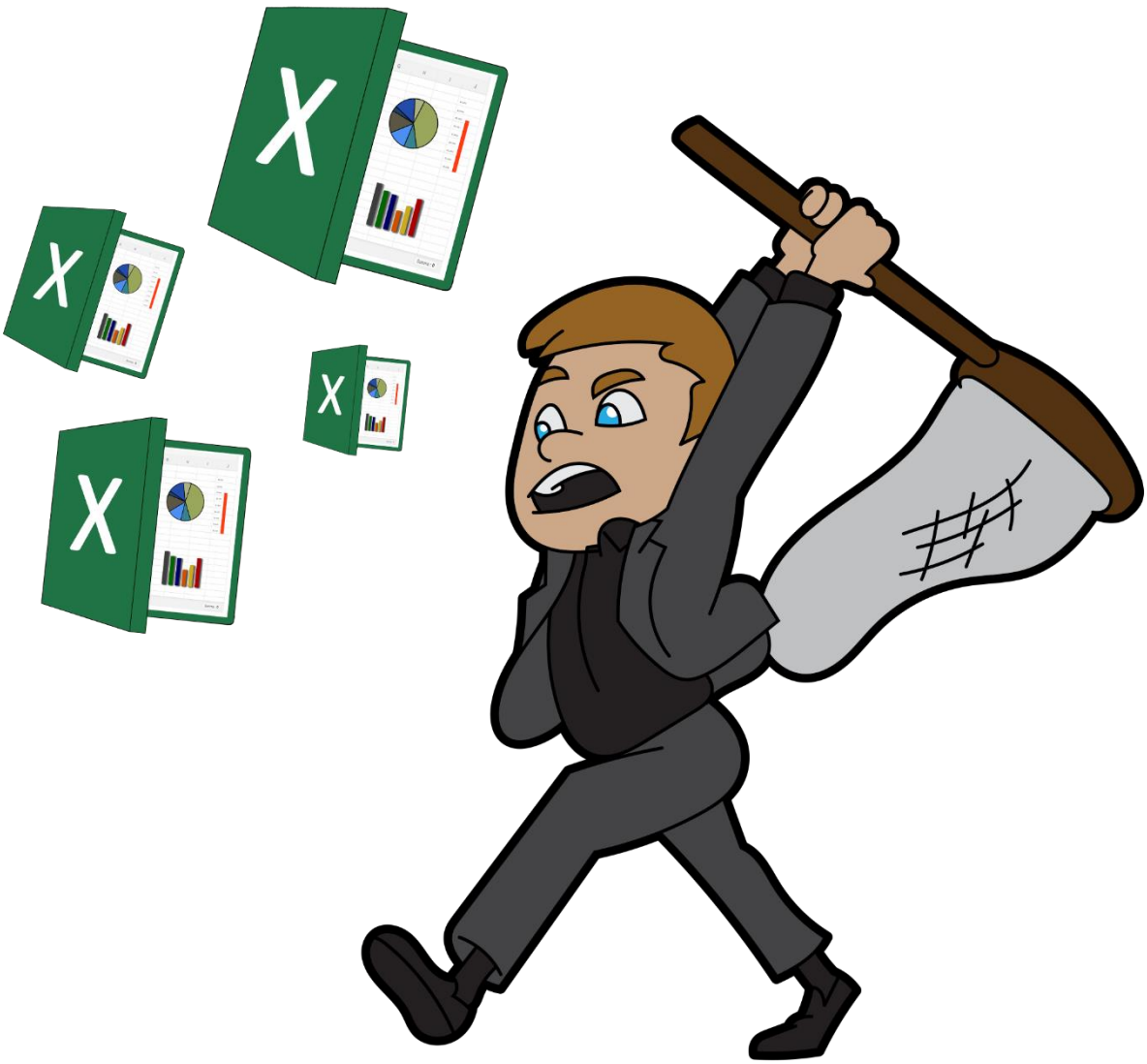
Capture – Logical Infrastructure

1. Define and capture Configuration Items (CIs) into a spreadsheet format.

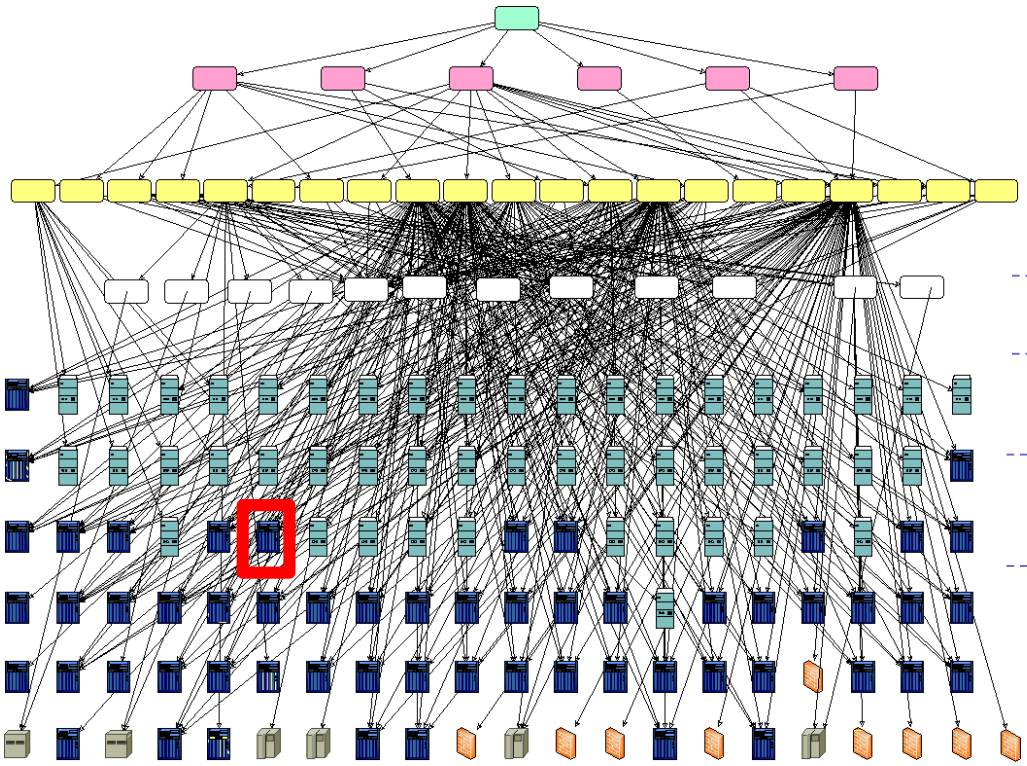
   Enables upload of groups / classes into AssetGen SysMap

2. Map CI dependencies into a spreadsheet format.

   Impact, virtual, service, data flow, batch process,



Logical Mapping



Business Process

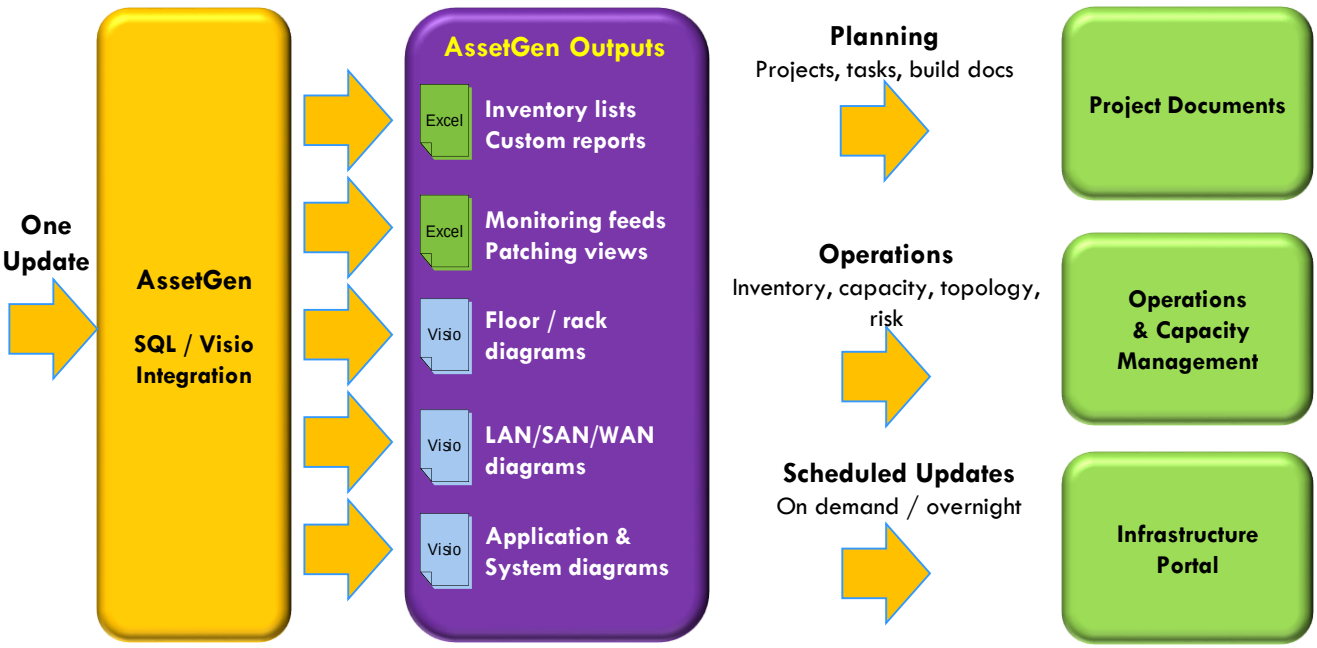
Service

Application

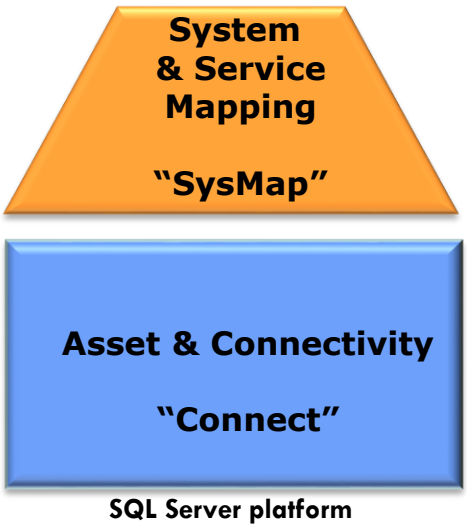
Virtual

Physical

Create Multiple Outputs From Data



The AssetGen System



Business Processes
Departmental, Company

Services
End user, infrastructure, supplier

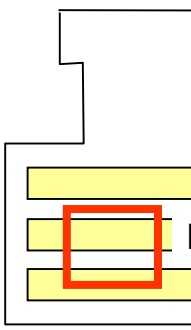
Applications
PC, server, mainframe, SOA

Virtual Infrastructure
PCs, Network, Servers, Storage, DBMS

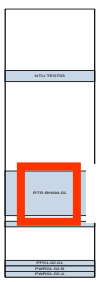
Hardware Infrastructure
PCs, Network, Servers, UPS, Storage, Other

Fixed Infrastructure
(Cabling, Power, Cabinets, Rooms, Buildings)

One Device In Multiple Views

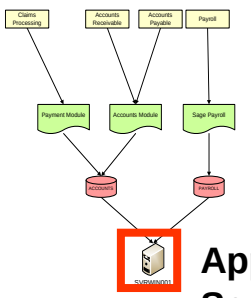


Floor Plan

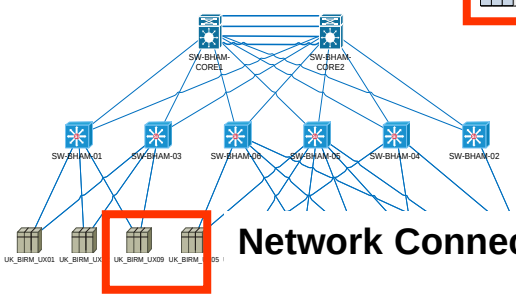


Rack Position

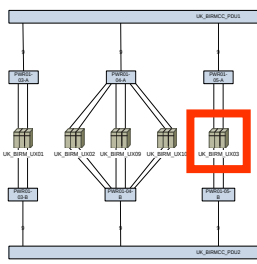
H/W Build



Application/
Service impact

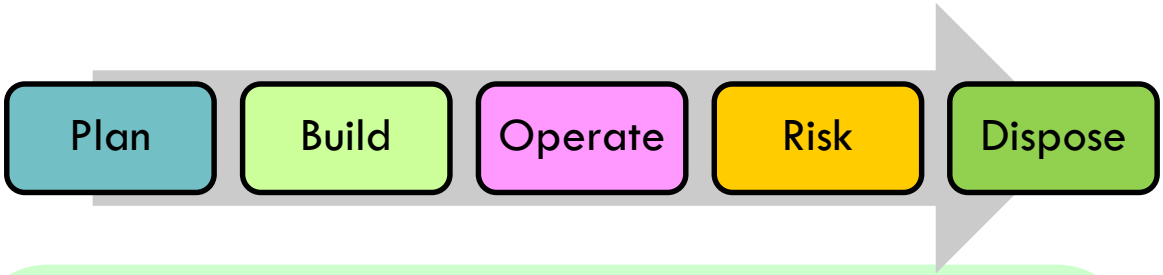


Network Connections



Power Supply

Maintain - Infrastructure Knowledge



Project and task

Ease and speed of creation
Ease of distribution
Flexible to meet task needs
Limited training

Manage and Coordinate

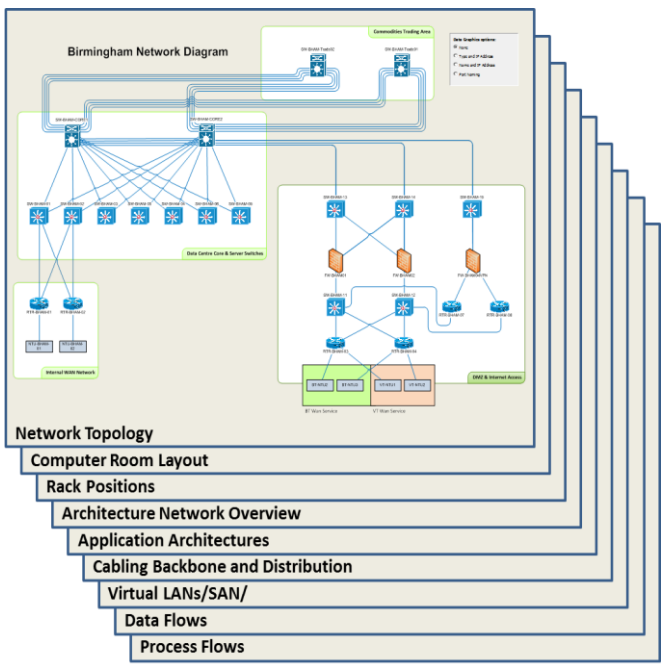
Ease of use by many
Structured for integration & reporting
Support for multiple processes
Wide scope – the big picture!

Record planning decisions in the operational system
Produce project docs for/from the operational system

Now You Know How It is Done

While you sleep

Changes to the IT systems and infrastructure are updated into various Visio diagrams and Excel outputs overnight – automatically!



The End Results

Try to do one data capture exercise – and no more!

- Verification checks only afterwards

Maintain infrastructure knowledge with less workload

- Not by magic, but by a “systems” and best practice approach

Help you achieve the benefits of accurate documentation

- Reduced time and cost to implement changes
- Faster time to identify and resolve faults
- Understand change risks and impacts with minimal effort
- Manage the interfaces with technical teams and suppliers
- Infrastructure capacity management and optimisation
- Maintain risk management and recovery systems