Infrastructure Configuration Management Techniques

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Agenda

Introduction

Automating Visio infrastructure diagrams

Inventory and connectivity management

Impact analysis and change management

Quick wins and common sense

A Few Questions

1. Who typically documents inventory and/or connectivity data in Excel and Visio?

2. Who creates data center diagrams (rack, floor plans) in Excel and Visio?

3. Who has had a Visio training course in the last 3 years?

Infrastructure Configuration Management – Why?

Strategic

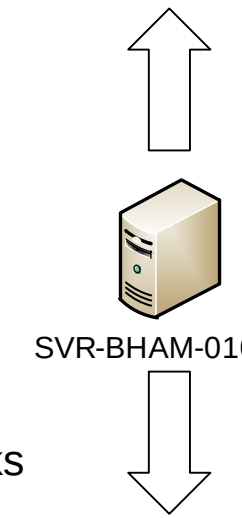
- More projects and tasks with less resource and less cost
- Reduce change risks as infrastructure gets more complex
- Flexible use of partners without losing control
- Centralising expertise to cover multiple locations and technologies
- Optimise use of strategic assets – data center capacity, host systems

Tactical

- Spreadsheet chaos and inconsistent management tools
- Inconsistent and inaccurate Visio diagrams
- Multiple standards, conventions, training
- Repeated audits, reporting/communication of capacity and risks

Key Drivers

- Time
  - Identifying faults and risks
  - Discovery, site survey, workshops
  - Communication across teams
- Cost
  - Site survey / discovery / audit
  - Duplicating resources
  - Communication across teams
- Risk
  - Identifying change impacts / risks
  - Individual / team overload
  - Communication across teams



Business Processes
Departmental, Company

Services
End user, infrastructure, supplier

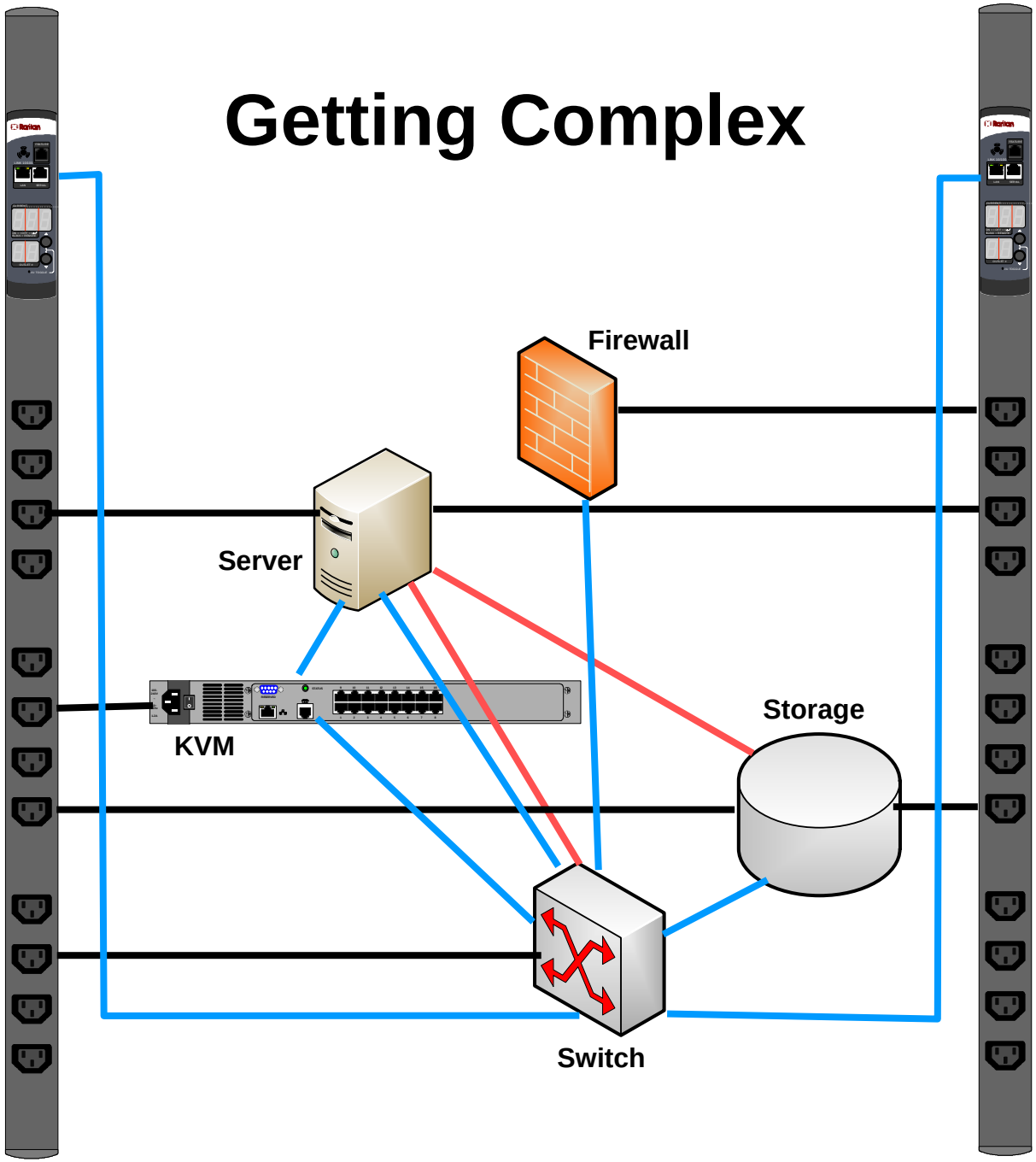
Applications
PC, server, mainframe, SOA

Virtual Infrastructure
PCs, Network, Servers, Storage, DBMS

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

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

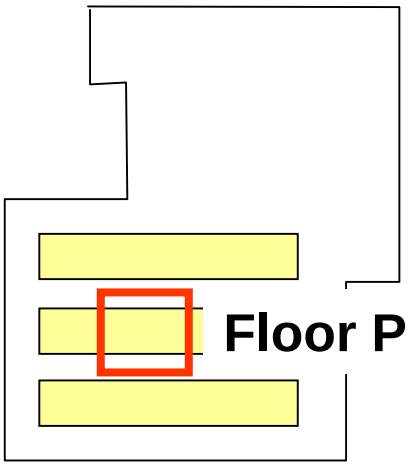
Getting Complex



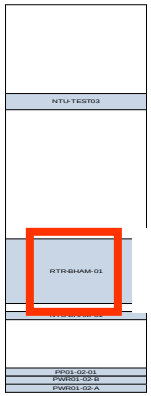
Copper
Fibre
Power

Each team records its own viewpoint separately

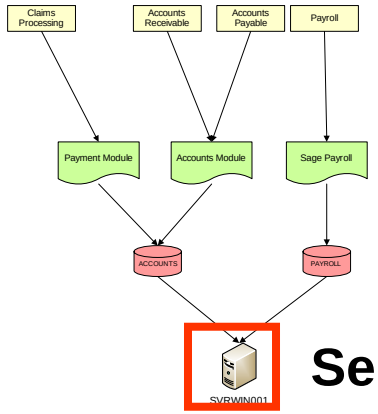
A Few Different Views of A Server



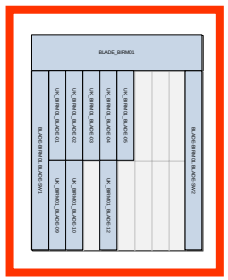
Floor Plan



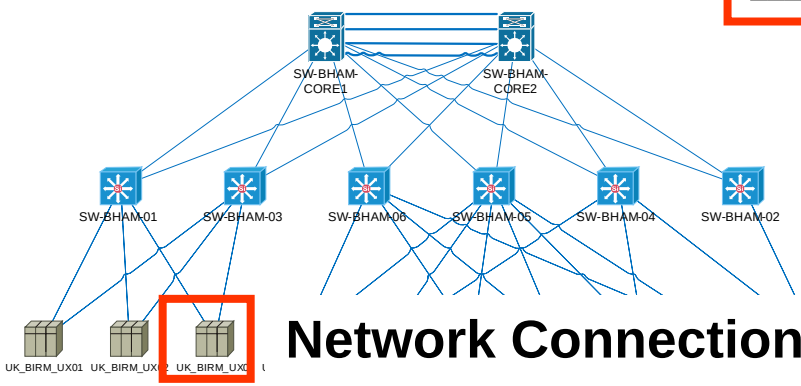
Rack Position



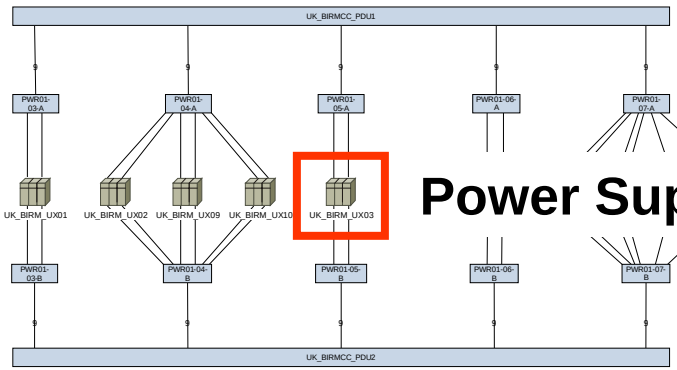
Service impact



H/W Build

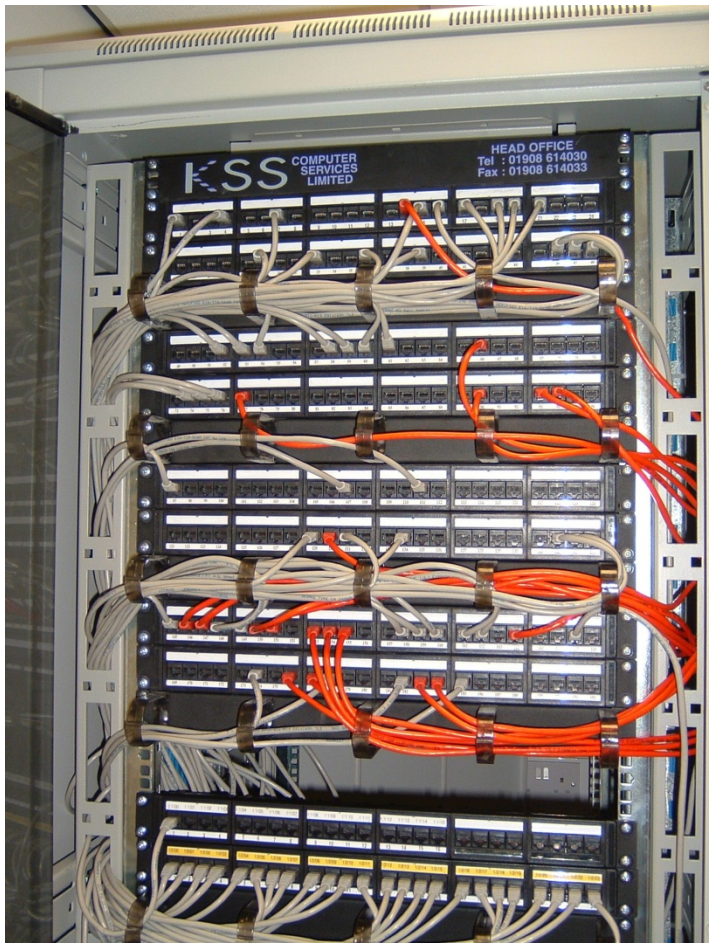


Network Connections



Power Supply

Different Working Practices



Saving Costs With Better Understanding

Know existing costs, practices and resources

- Baseline infrastructure capacity (space, power, connectivity)
- Manage demand and forward planning
- Streamline working practices
- Identify and control external costs – maintenance, contractors, etc.

Reduce costs for change implementation

- Optimise use of equipment
- Better usage of lightly used equipment –servers, switches
- Reduce engineers time and effort to assess, plan, coordinate and deliver projects
- Avoid disruption to services by reducing reliance on key individuals knowledge

Reduce the time and cost for management controls

- Effort required to fill in and coordinate change forms
- Producing documentation of infrastructure to suit operational / business needs
- Providing evidence of assets or controls to 3rd parties or internal teams
- Developing risk and recovery plans

Infrastructure Configuration Management

It’s common sense that you should know what is in your IT infrastructure, how it is configured, how it works

Planning changes is easy

Fault diagnosis is quick

Infrastructure resources are optimized

Information accuracy can be verified

Industry Standards and Frameworks

Data Center & Infrastructure

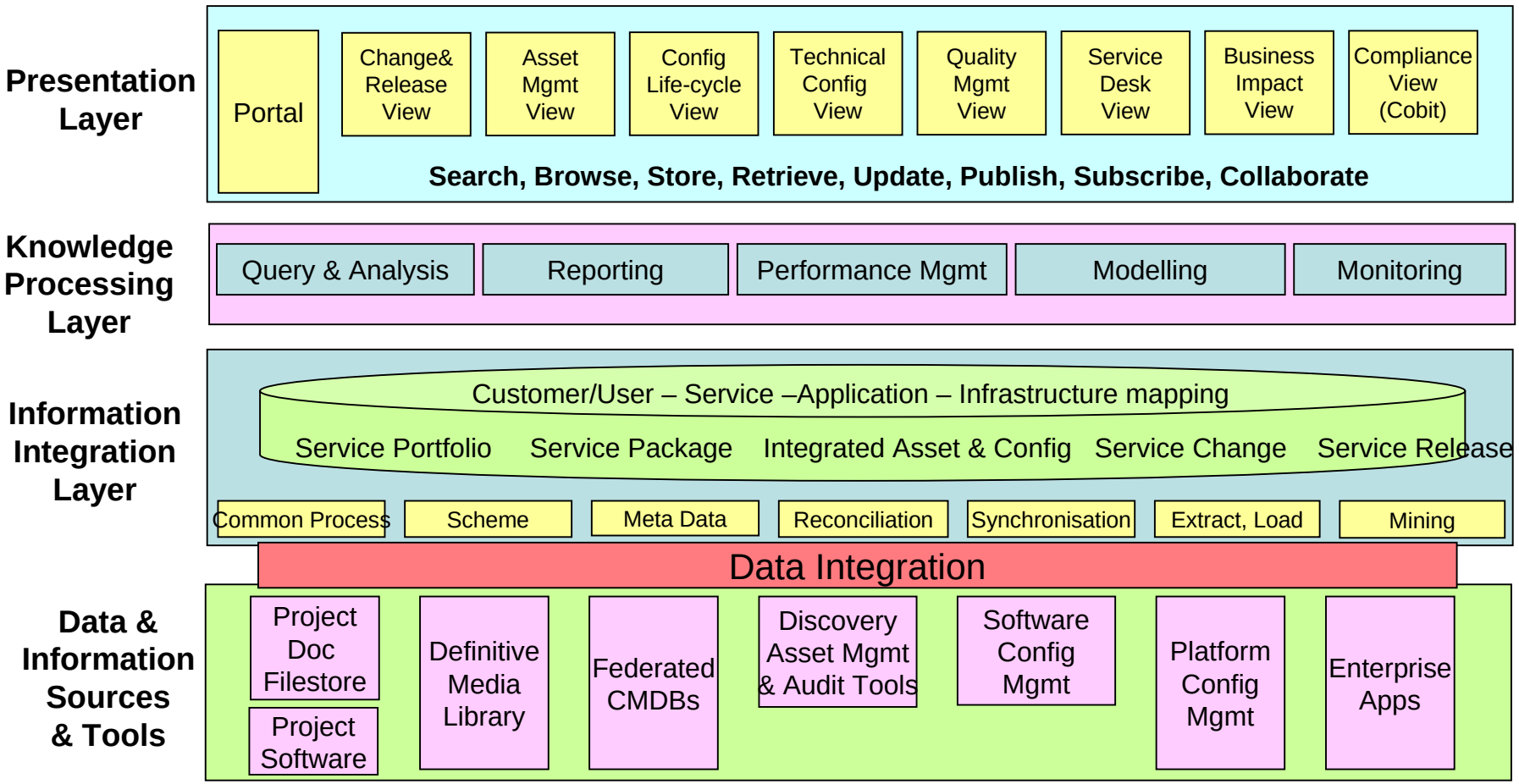
- TIA606A - Cabling installation & administration
- TIA942 - Data Center Design
- ANSI/BICSI-002 - Data Center Design & Implementation

Others

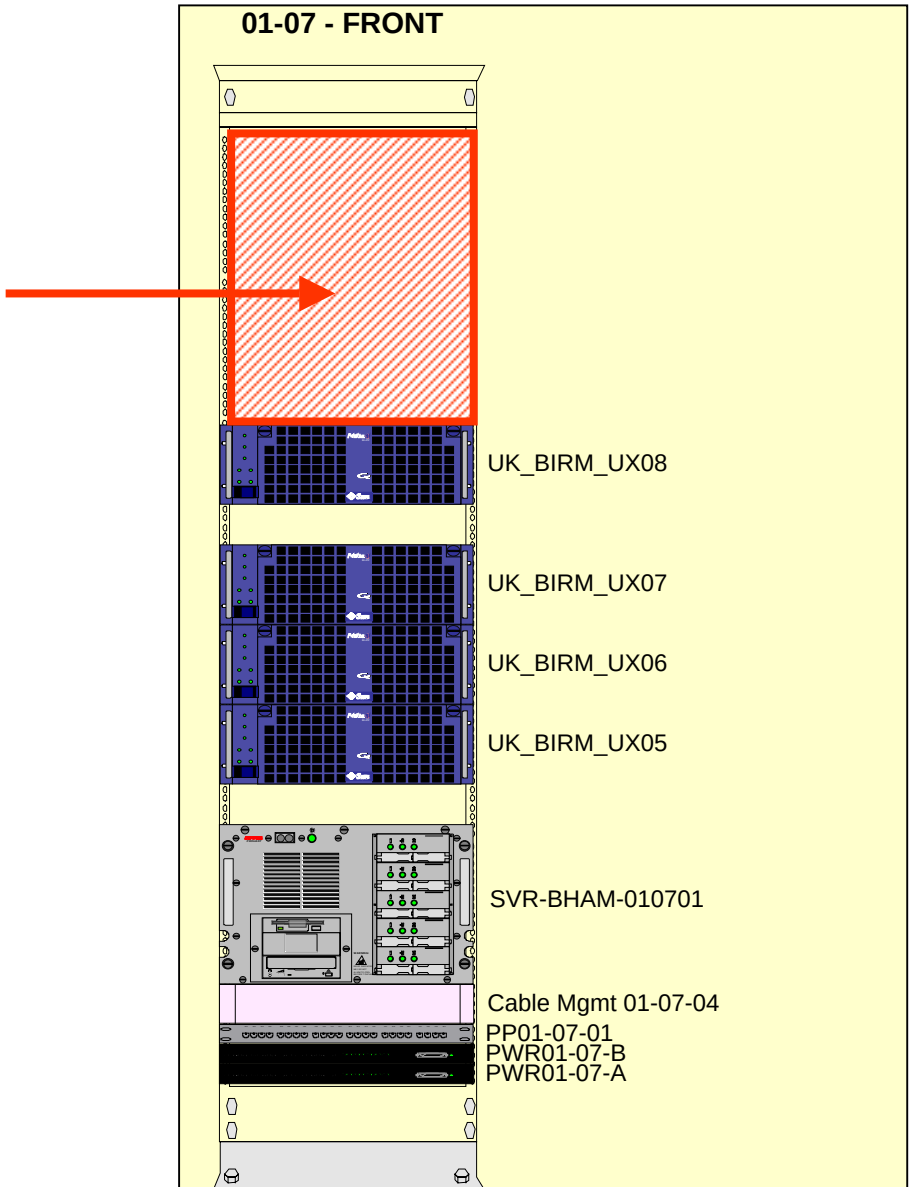
- ISO20000/ITIL - Service Management
- CoBiT - Governance and Control
- ISO27001 - Security

It’s good to document – but you have to find your own approach

ITIL V3 Guidelines - The CMDB/CMS Concept



Can We Put A Server Here?



Technical

- Space
- Weight
- Power
- Cooling
- Connectivity

Business

- Function
- Location
- Cost
- Capacity
- Risk

And Afterwards – Document the Change!

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

Why Me?

What Does Infrastructure CM Look Like?

- Standard naming and conventions
  - Fixed infrastructure
  - Active components
  - Connectivity power, network, SAN
- Multiple outputs from a few sources
  - Rack and floor management
  - Capacity management space, power, connectivity
  - Visual views, rack, network, power, system
  - Inventory and asset management
  - Service and system mapping
- Reduce multiple data sets to a few trusted systems
  - Project, operations, risk, asset, audit, platforms

Implementing Configuration Management

Infrastructure complexity

- Scale and scope – local, end to end
- Understanding risk and dependencies
- Maintaining diagrams – network, power, application, space

Duplication and overlap of infrastructure data

- Multiple toolsets, spread sheets and diagrams
- Distraction - autodiscovery/CMDB/integration

How to change

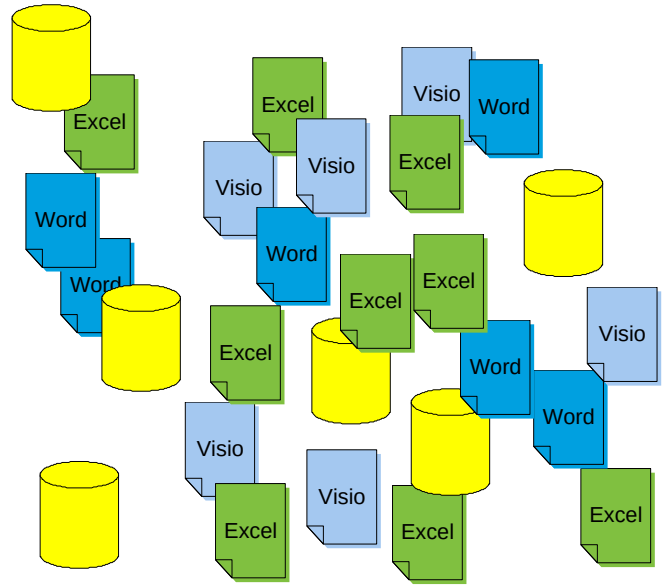
- Knowing the starting point – process, data, benefits
- Reduce data sets and maintenance effort
- Change skills, work process and culture

Automation (1)

1. Don’t look back

1. Buildings & Locations
2. Fixed Infrastructure
   - Racks, cabling, power
3. Inventory
4. Connectivity
5. Presentation

2. Reduce Data Sources

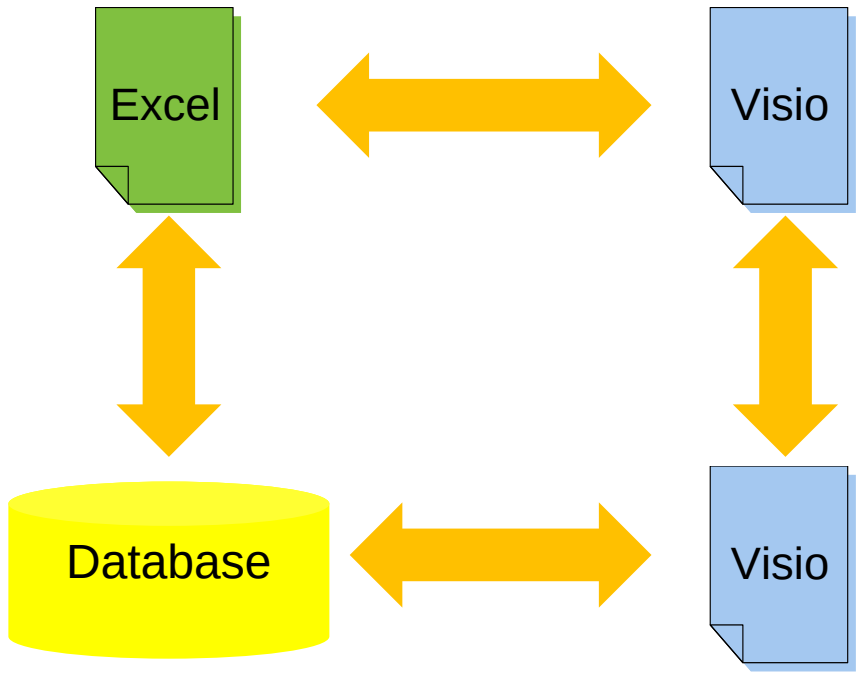


Trusted sources

Automation (3)

3. Use Existing Toolsets More Effectively

Lists/Inventory **Diagrams** **Examples**



Inventory to rack layout

Inventory to network diagram

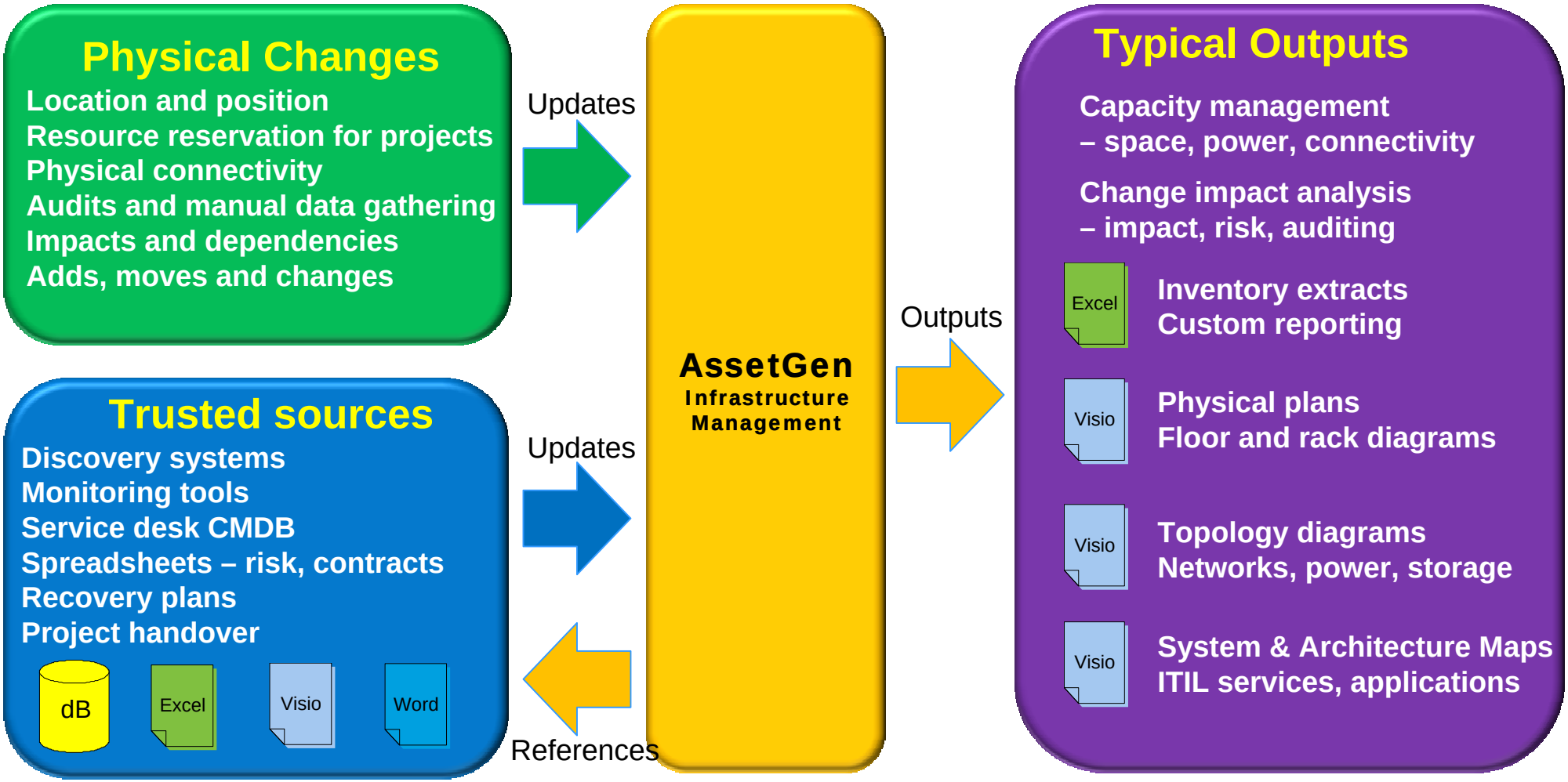
Rack list to floor plan

Power usage to floor plan

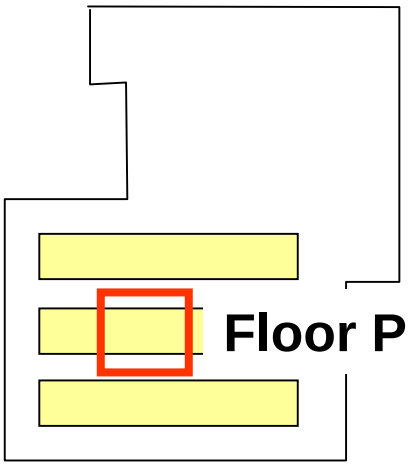
Application list to service map

Switch links to network diagram

Automation (4) – Specialist Toolsets



Automated Visio Diagramming



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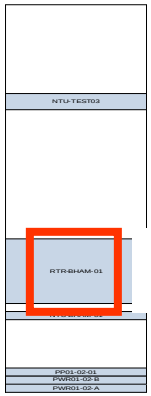

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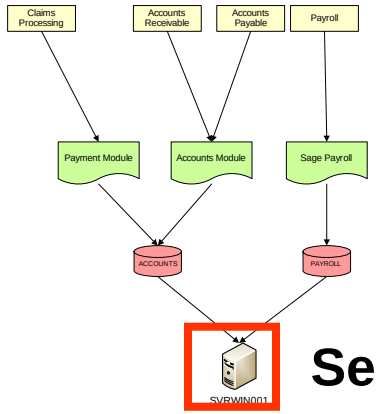

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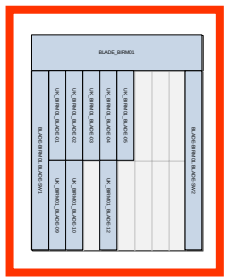

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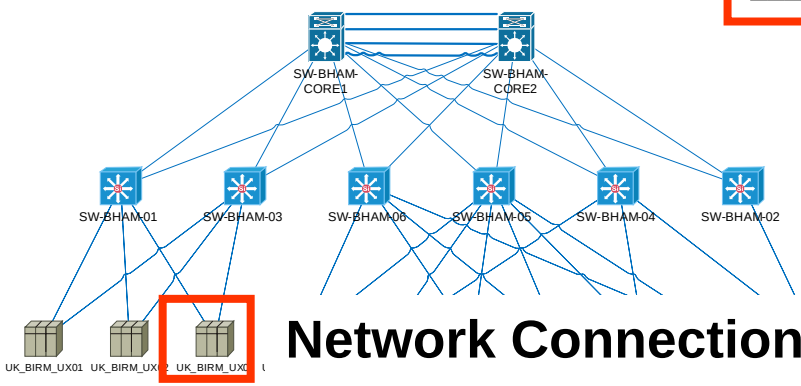

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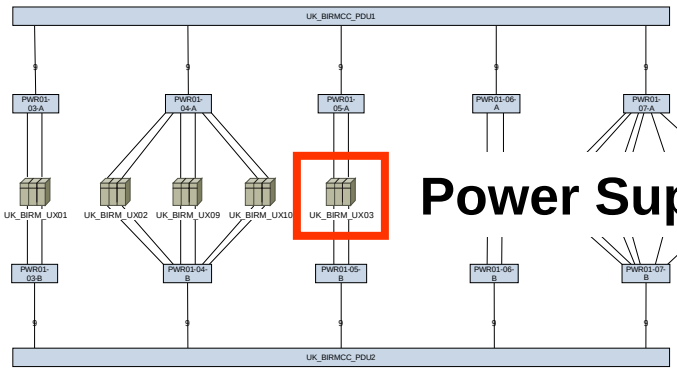
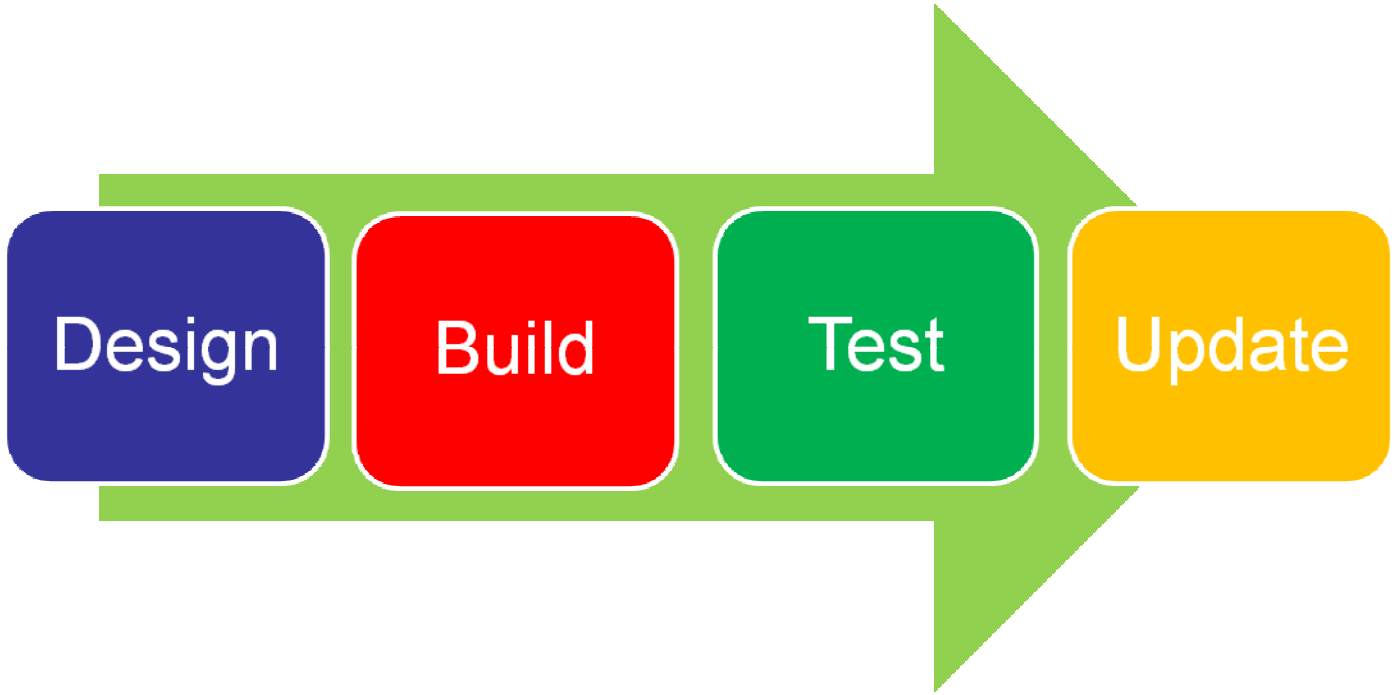


Power Supply

Automation (5) Change The Work Flow



Q. When would a rack diagram be updated with the position of a new server?

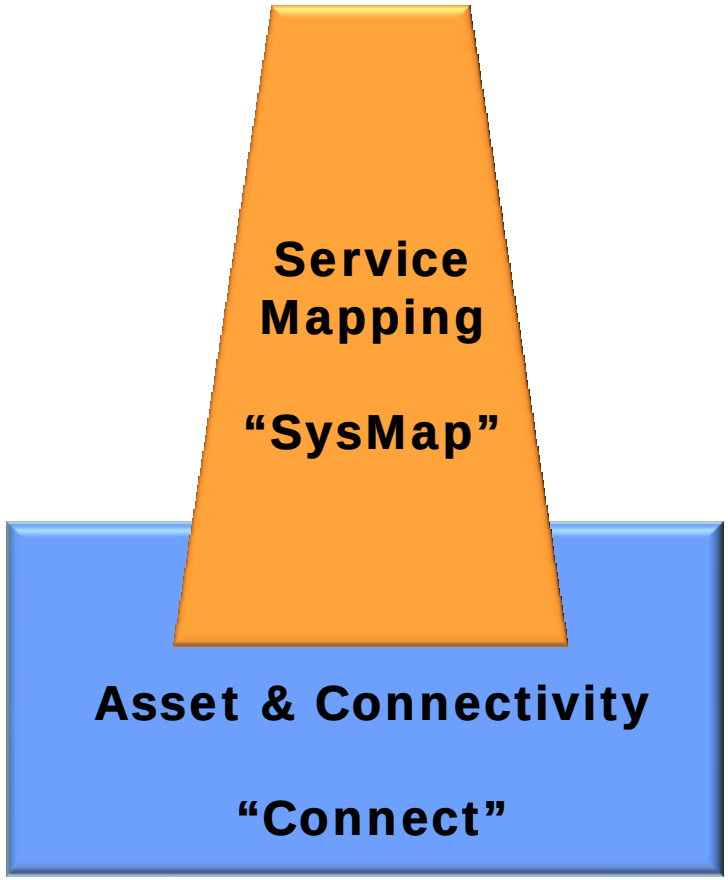
Q. When would patching records be updated for it’s network connections?

Q. Who would update the various documentation sets?

Implementing Infrastructure CM

- You could define your own approach but will be limited by
  - Authority
  - Experience
  - Knowledge of good techniques and practices
  - Best communicators available
  - Existing management information – costs, process, roles
- So you should adopt a pragmatic approach
  - Look for quick wins that all understand
  - The first steps are often setting standards – so they'll take longer
  - Create a POC that shows the benefits as soon as possible
  - Selective use of advisors, training, workshops, tasks
  - It doesn't have to be perfect, just better!

The AssetGen Solution



SQL Server platform

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