HOW TO MAP APPLICATIONS SYSTEMS AND CLOUD INFRASTRUCTURE

SQUARE MILE SYSTEMS

Mapping Applications, Systems, Services

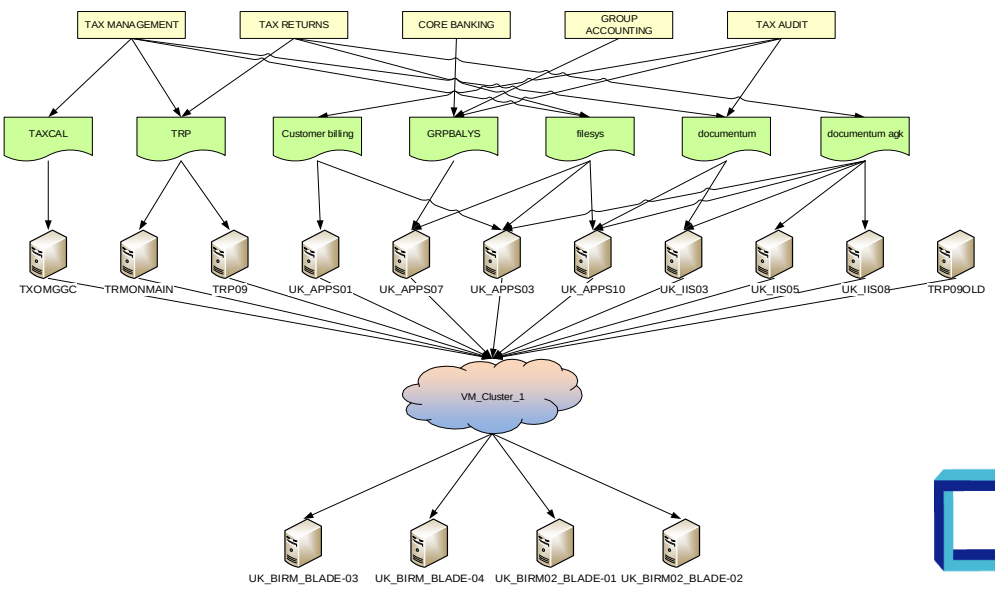
Reduce the workload mapping physical and virtual systems dependencies

- Show different mapping methods and viewpoints
- Simplifying the complex to enable analysis and understanding
- Enabling automation of Visio diagrams from CMDB or other structured data
- Improving consistency and use by project, operations and risk teams

Many benefits

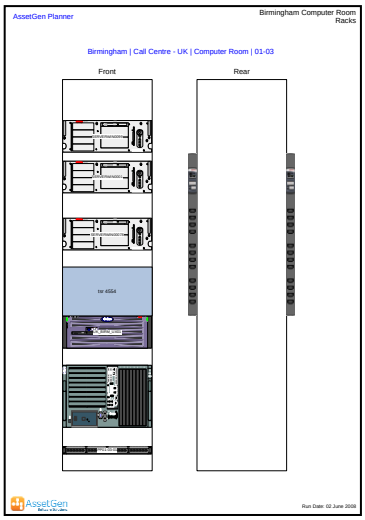
- **Risk awareness** - Change impact, security, incident needs
- **Cost**- Delivery times, gathering and presenting data
- **Skills** - Training minimised
- **One data change** - Multiple mapping changes

Better understanding of dependencies and risk!

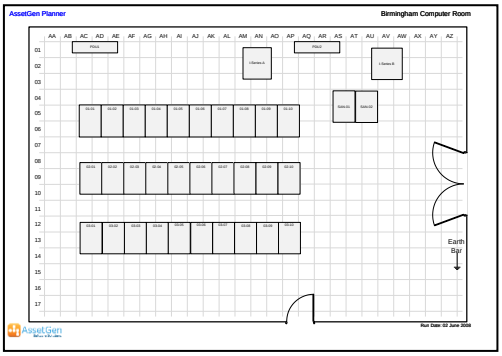


A Few Types Of Dependencies / Mapping

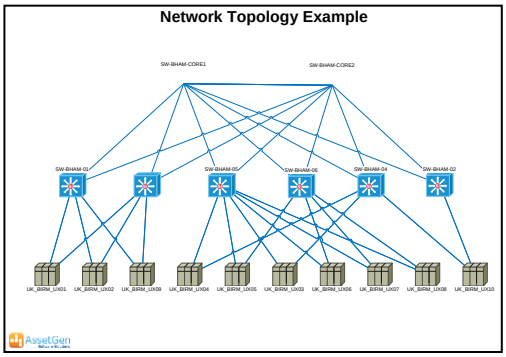
Rack



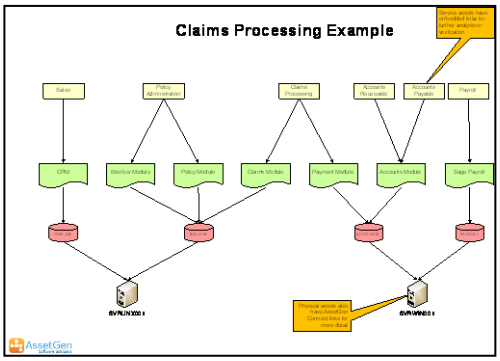
Floor Plan



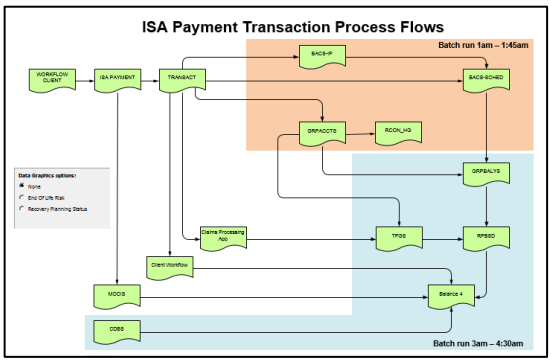
Network Topology



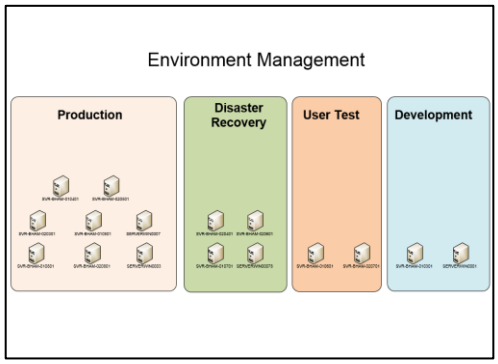
ITIL Service Map



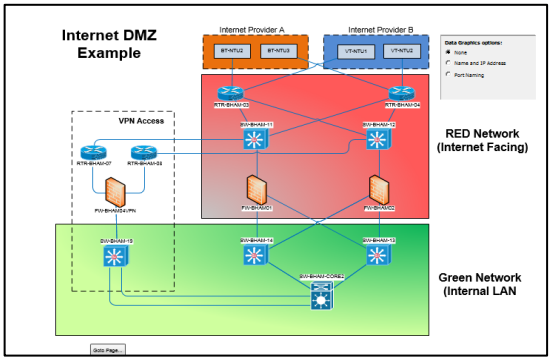
Data Flows



Environment



Zones



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More Mapping Methods – Add your own to the list

- GIS (Geographic information)
- Hierarchy
- Peer to peer
- Architecture blocks
- Data flows / message queues
- Data/Control/Management planes
- PII Data mapping (GDPR)
- Entity tables
- Zoning SDN
- Firewall / permission rule sets and endpoints
- Failover / resilience
- Capacity and transaction
- Clustering
- App services
- Policy, processes, standards

Questions to consider

How many diagrams should you have compared to now (that you trust)

How many diagrams have been created which are not used – the embedded cost of IT changes?

What sources of data are trusted and maintained to support mapping updates?

How easy is it to understand risks and dependencies?

Lots of Tools Are Available

- Whiteboard
- MS Office – Word, Excel, Visio
- Wiki – collated information with links
- Design your own database (Access, SQL, Oracle, etc.)
- Use a workflow system (service desk CMDB, sharepoint, orchestration)
- Dedicated commercial systems – enterprise architecture tools
- Auto-discovery of elements and dependencies
- Monitoring systems with configurable dashboards
- Data visualisation products (business intelligence, analytics)

The AssetGen System

- SQL database with automated Visio diagramming
- Physical and logical mapping

Why Not Rely On Data Autodiscovery?

Is auto discovery of networks, servers, components, VLANs, cloud elements adequate to help understanding of dependencies? Because isn't the best way to understand to see what is currently there and running?

- Autodiscovery has many benefits to help gain control or check quickly
- API interfaces enables collation of data from monitoring or configurations

In practice, gathering technical data and dependencies quickly is a good thing, but we also need to map other data - physical, business, services, processes, risk and impact understanding

- Who, why, what, when, how, where

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Mapping, the basics - Data Capture *(1)*

A. It starts with structuring data simply

Physical Server	Application	User
Accounts	Accounts	Accounts
Sales	CRM	Sales

B. Add in virtual and "service" element – duplication and gaps

Physical	Virtual	Application	Service	User
ESX01	UK_APP_56	Accounts	Cash Mgmt	Accounts
ESX01	UK_APP_56	Accounts	Staff payments	HR
ESX01	UK_APP_57	Payroll	Staff payments	HR
Sales		CRM	CRM	Sales

C. More detail - It becomes difficult to understand

Physical	VM	Virtual	Database	Application	Service	User
ESX01	VM01	UK_APP_56	DB_SQLAC	Accounts	Cash Mgmt	Accounts
ESX01	VM01	UK_APP_56	DB_SQLPY	Accounts	Staff payments	HR
ESX01	VM01	UK_APP_57		Payroll	Staff payments	HR
Sales			ORA56	CRM	CRM	Sales

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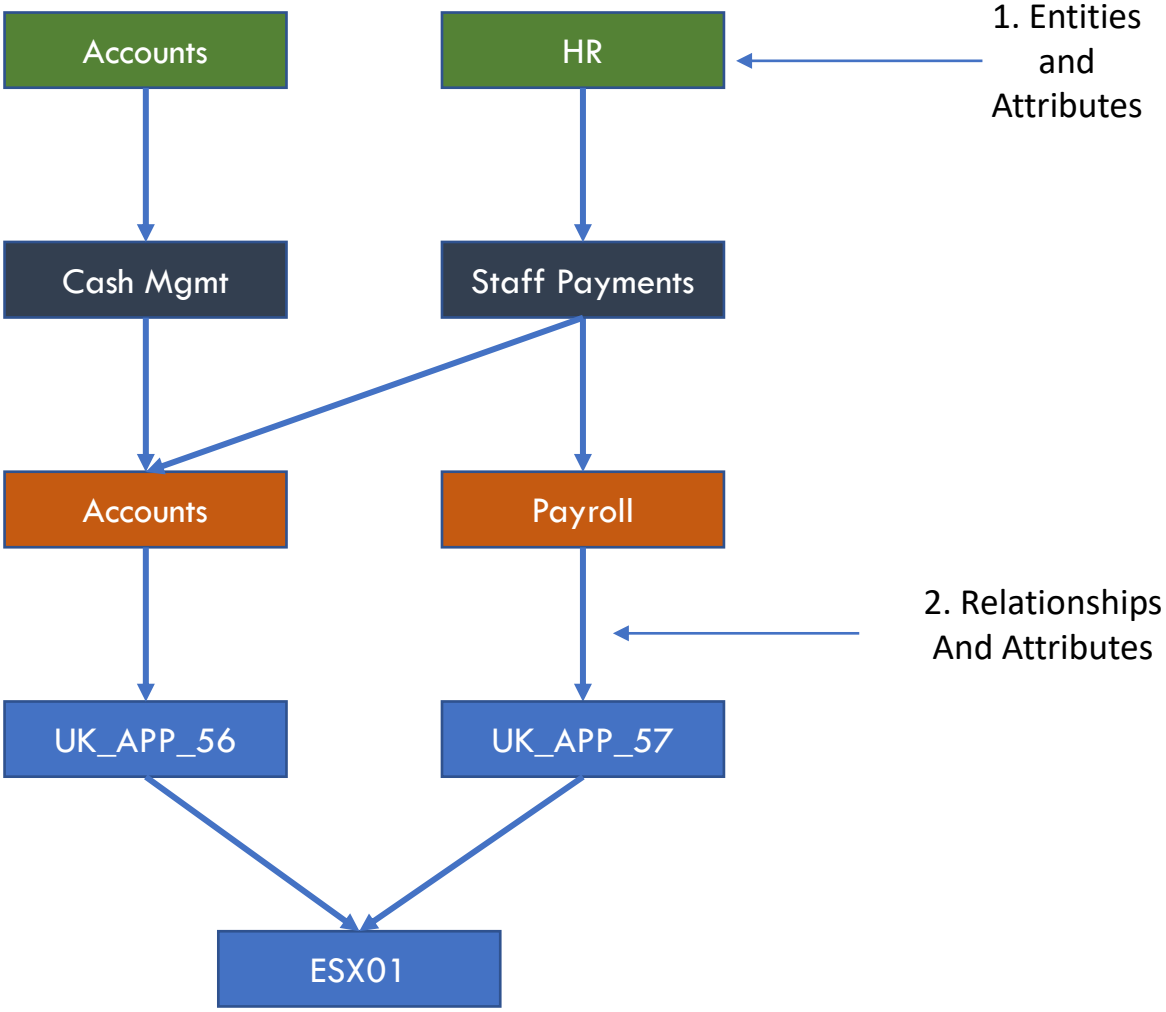
Mapping, the basics - Diagramming *(2)*



Q. Should data be an entity or an attribute?

1. Server name
2. IP address
3. Location
4. Business Owner
5. Application
6. Disk space
7. Port speed

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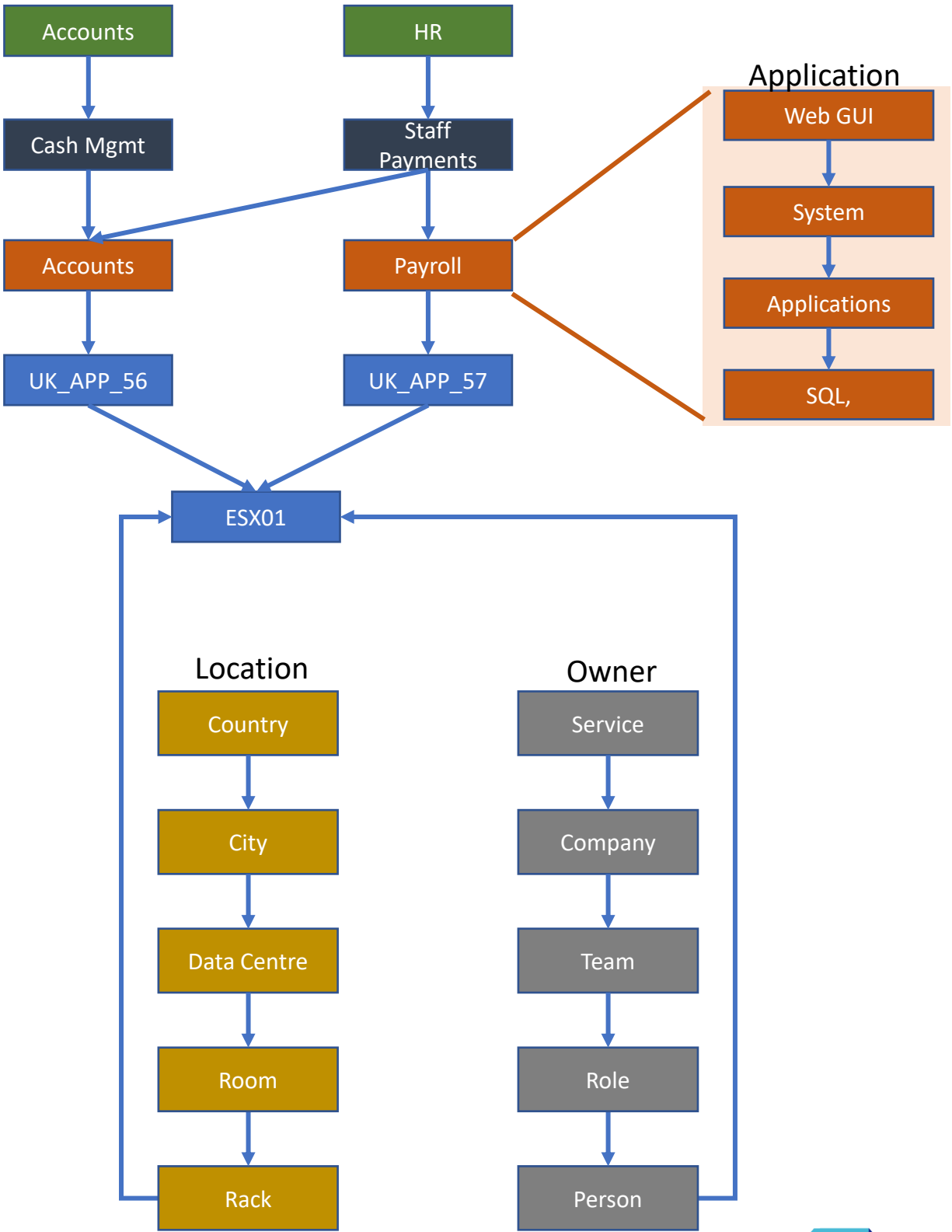
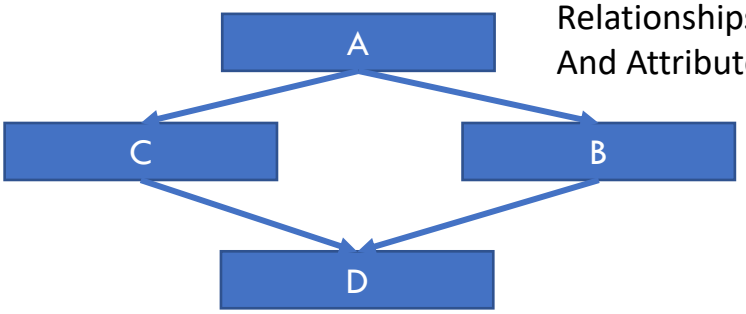
Mapping, the basics - Granularity *(3)*



Mapping, the basics - Focus *(4)*

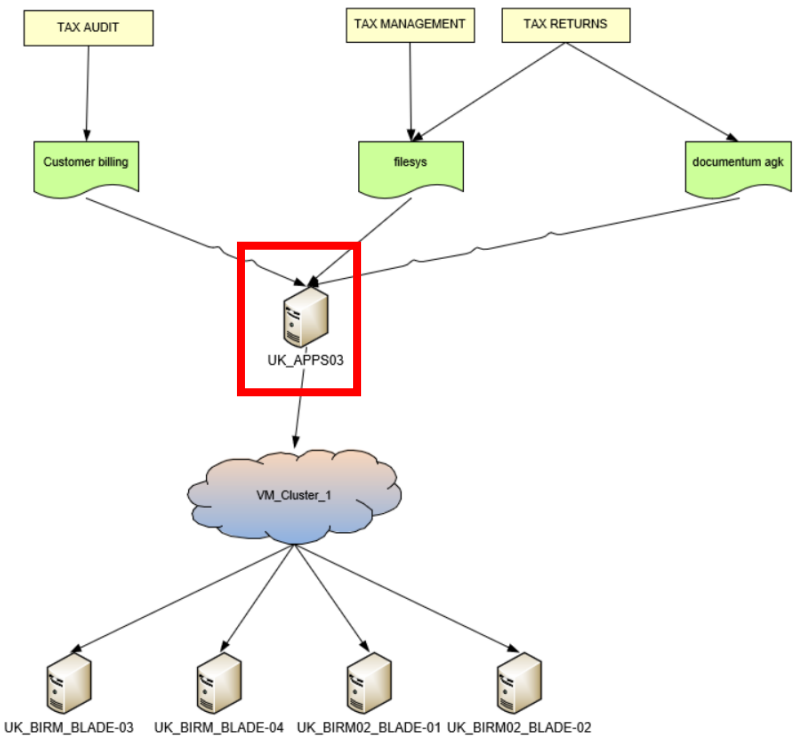
Entities and Attributes



Relationships
And Attributes

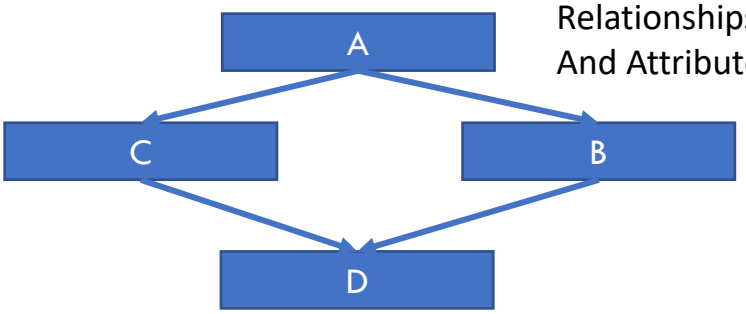
Two spreadsheets is often all you need

1. List Of Cis
2. List Of Relationships



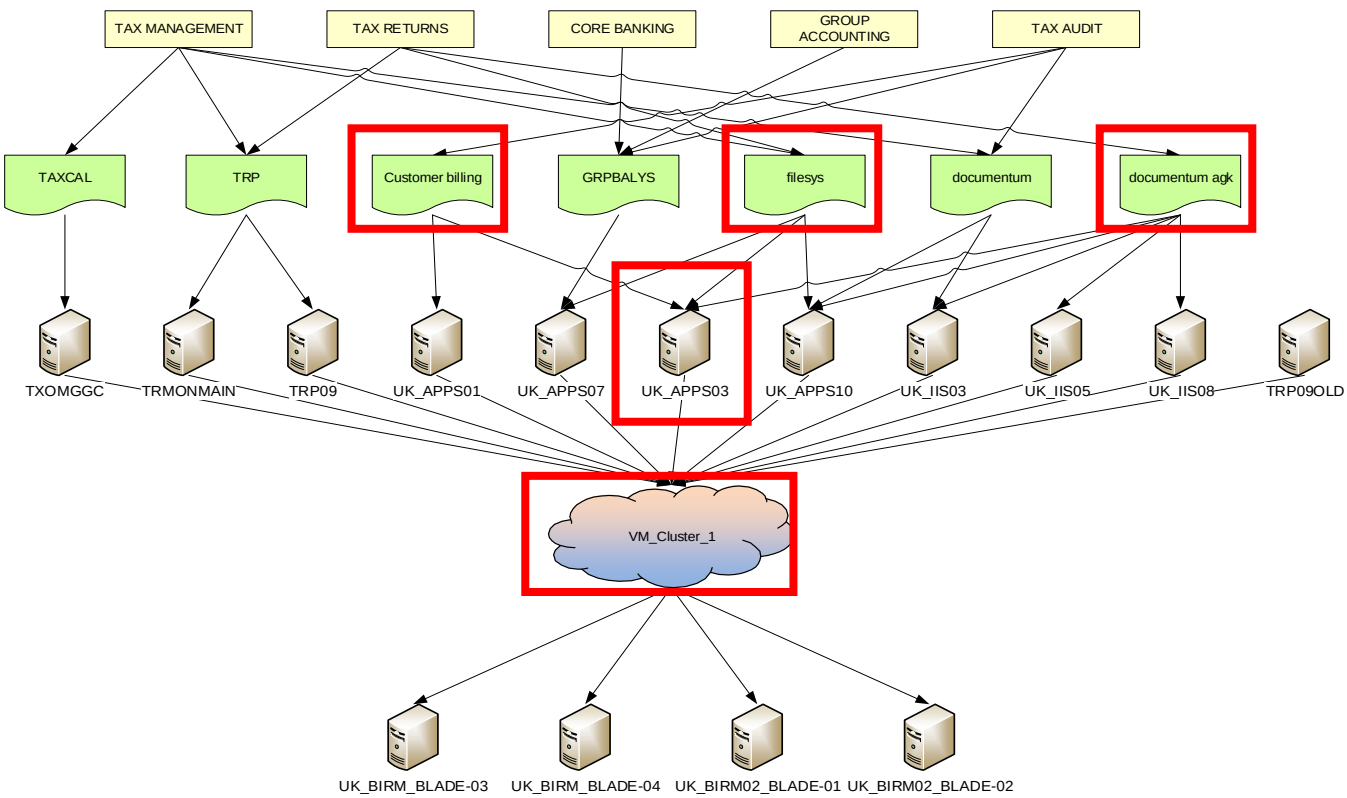
Mapping, the basics
- Situational Awareness *(5)*

Entities and Attributes



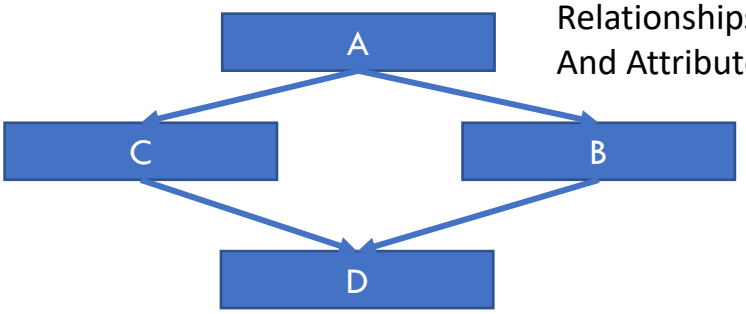
Relationships
And Attributes

Sometimes we need a bigger picture
to show complex dependencies



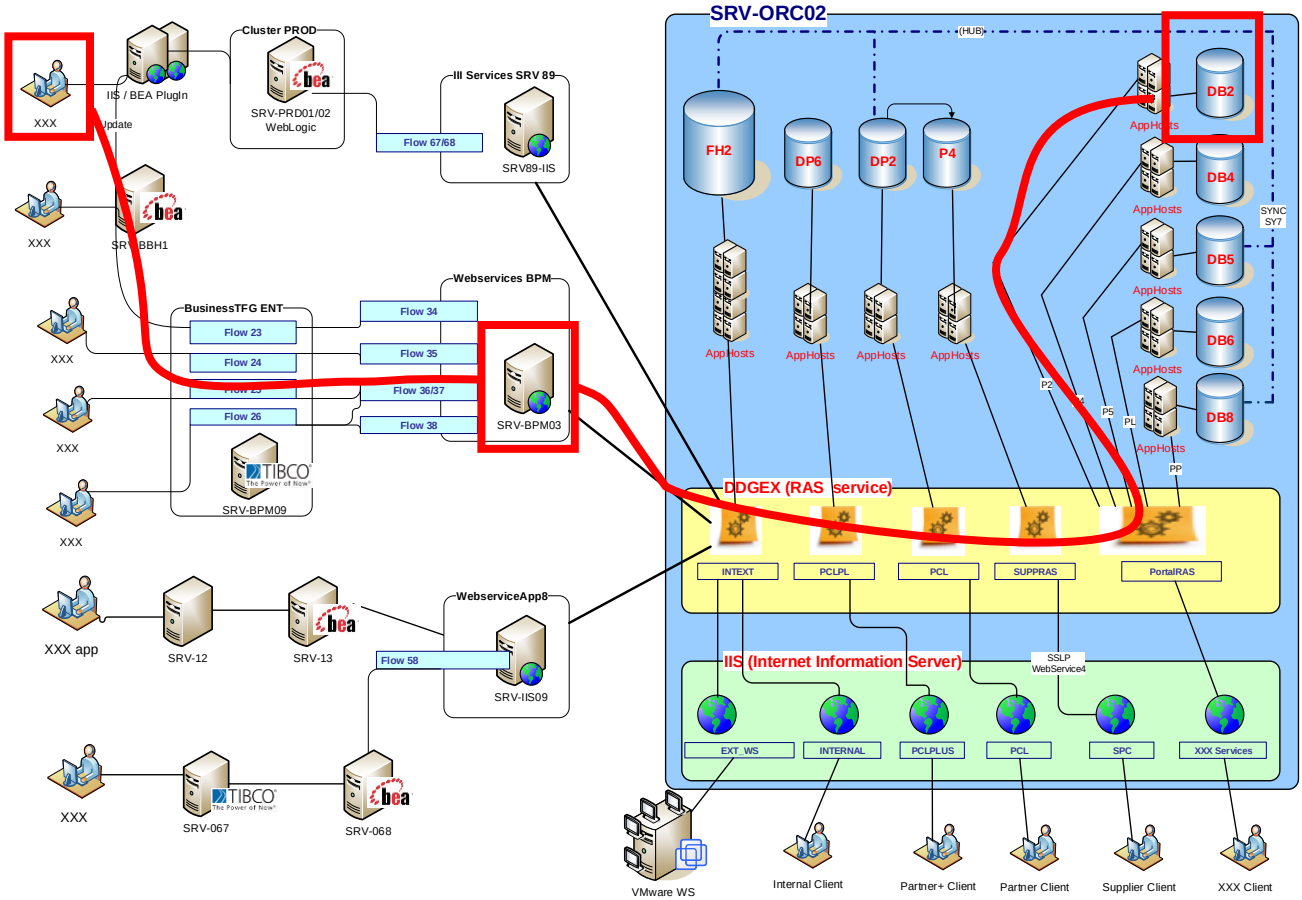
Mapping, the basics - Data Flows *(6)*

Entities and Attributes

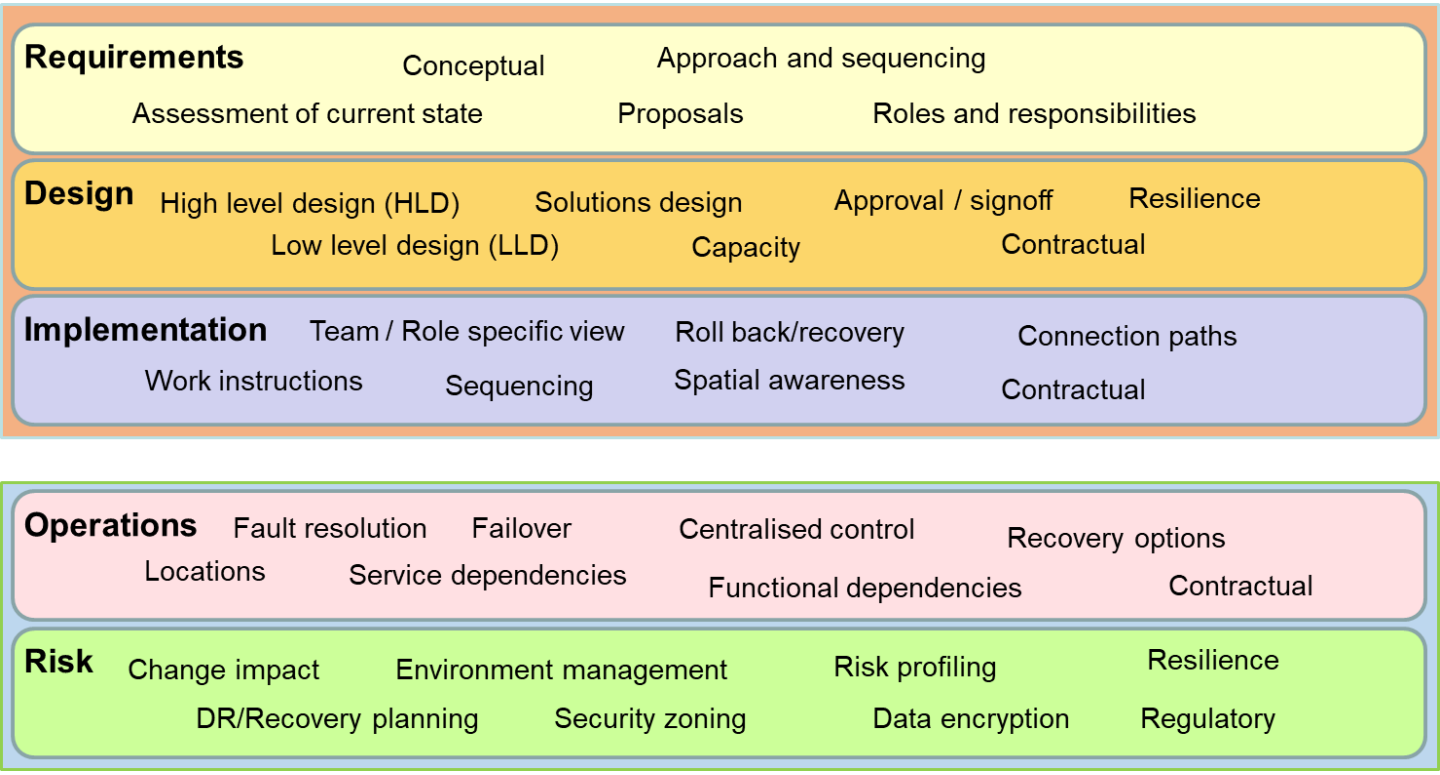


Relationships
And Attributes

Sometimes we need to show paths and end to end data flows



When Do You Use Mapping Information?



1. We create, but rarely maintain any of the data and mappings

2. Different data, naming and symbols are often used. = confusion and lack of integration

3. Tech is getting more complex with virtualisation and cloud infrastructure – nothing to see, but lots of shared dependencies. = less control of risk, cost

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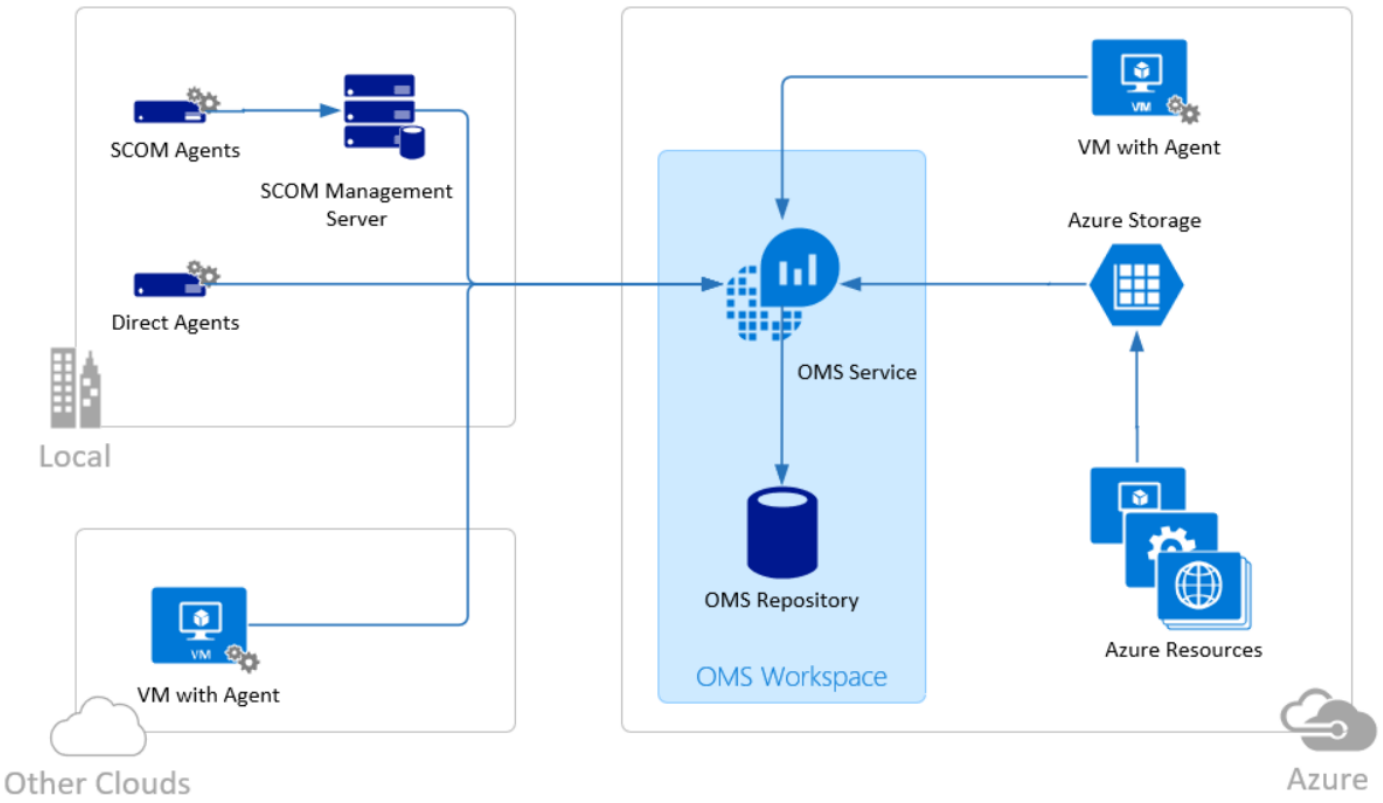
Using Excel/Visio Manually – Link shared data to diagrams



- Lots of drawing packages and symbols sets available
- Search for AWS / Azure / IBM / etc. cloud Symbols within Visio, then standardise into internal solutions/service design packs

SQUARE MILE

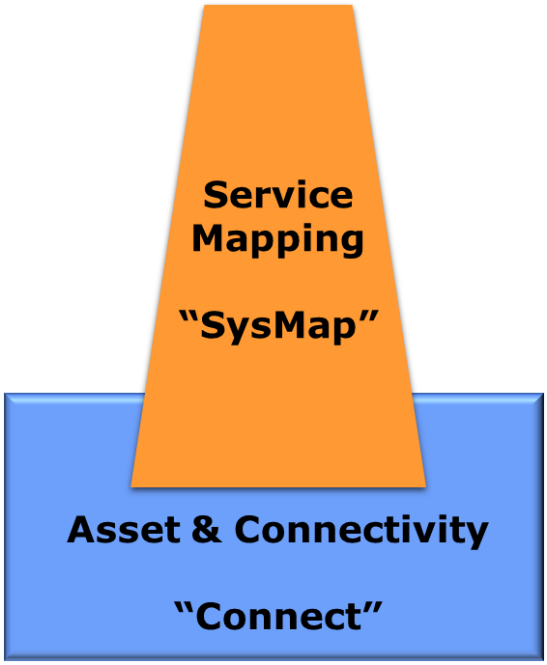
Why Map Dependencies In Documents, why not a WIKI?

- Gain an institutional understanding across the board rather than relying on local knowledge.
- Manage incidents where toolsets/device access are unavailable – in the event of a cyber attack for example.
- Control direct access to systems and configuration toolsets
- Reference for design, operations, risk awareness and governance
- Simplify complexity with different views HLD, LLD
- Need technology and organisational viewpoints – controlling access
- Mitigate risks – environment management, testing
- Process interfaces – approval, handover, milestones, contractual

AssetGen – Database Driven Visio Automation

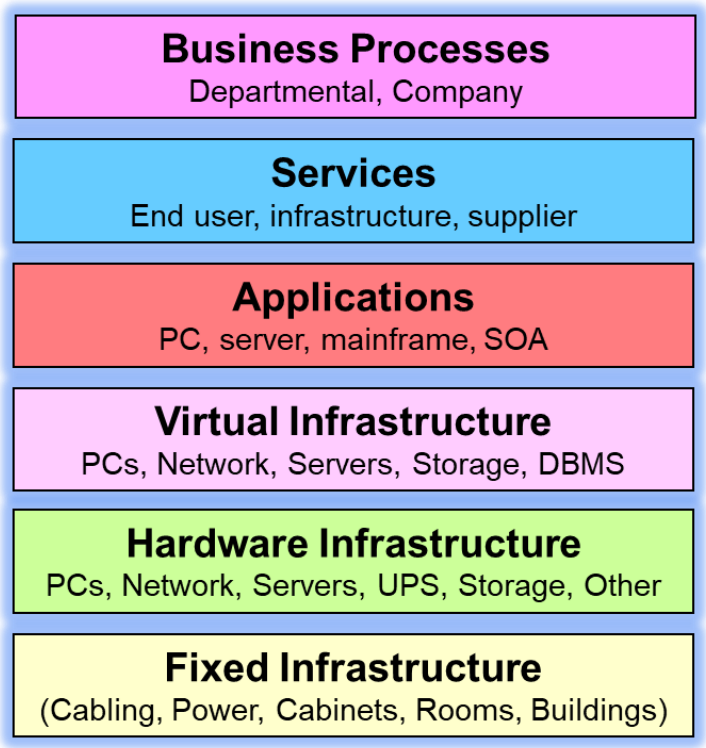
Automated Visio diagramming of physical, logical and system dependencies.

Reduce the mapping data to be managed using a SQL database.



AssetGen SysMap can map dependencies within and between these layers.

- **Change risks**
- **Migration planning**
- **Consolidation projects**
- **Insource/outsource**
- **Environment planning**
- **Cloud interfacing**
- **Policy/regulations**
- **PII data**
- **Zoning and partitioning**



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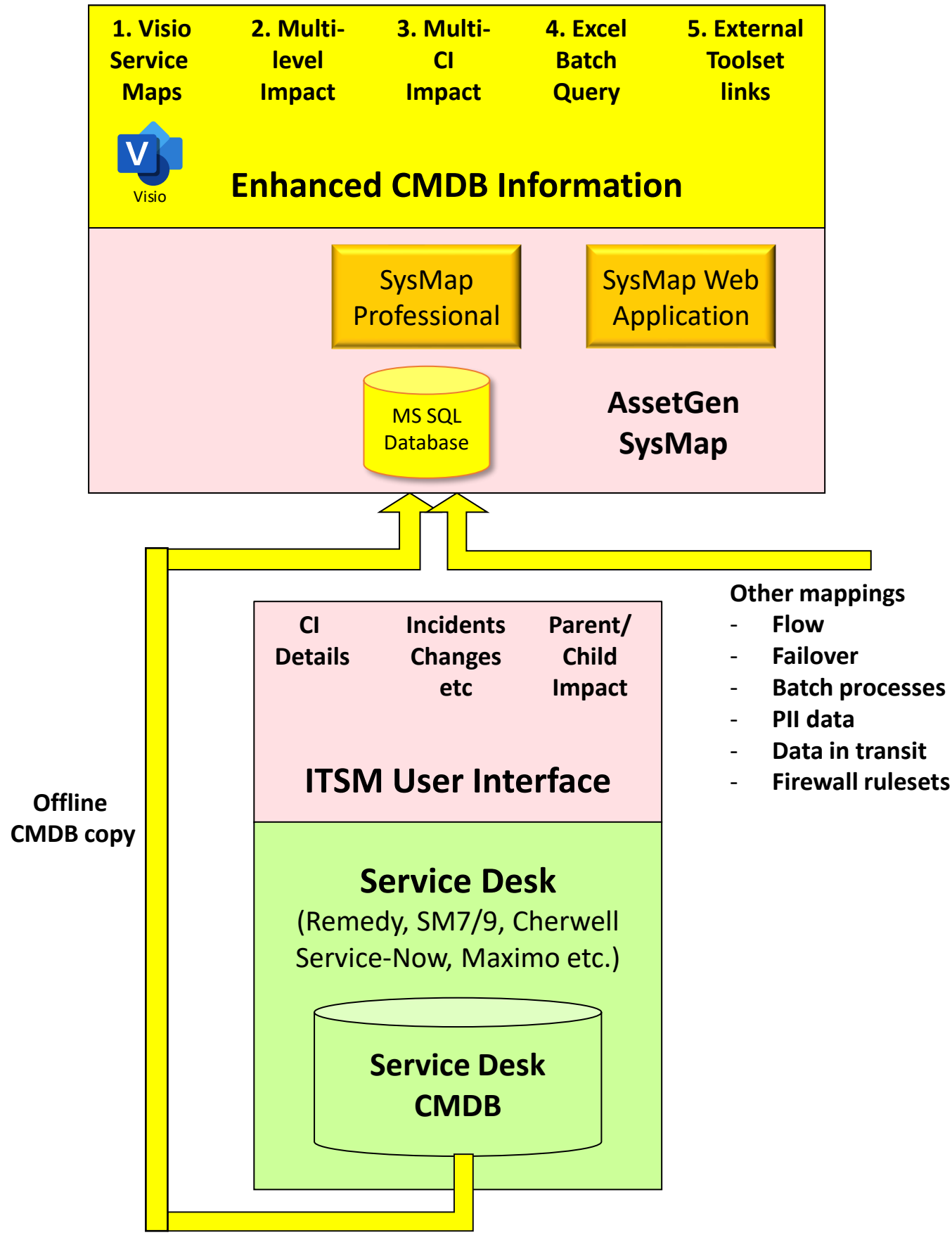
AssetGen – Combining a CMDB with other data sources, more viewpoints



The Webinar Focus – Mapping Applications and Systems

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Many benefits

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One data change	Multiple mapping changes

Better understanding of dependencies and risk!

SQUARE MILE

Next Steps

- **Education**
  - Books, online, conferences
  - Book training (online or remote)

- **Assess the value of anything that simplifies or reduces effort**
  - Training on Visio
  - Re-use of existing data from monitoring / workflow tools
  - Free AssetGen utilities
  - AssetGen infrastructure database

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