Case Study

Automating Data Centre Infrastructure Diagrams

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ICM Business Continuity
ICM Overview

- Phoenix IT Group
  - 2400 employees
  - Other group companies Trend, Servo, Phoenix IT Services

- ICM Business Continuity
  - 18 Business continuity centres across UK
  - With data centres, hosting centres and recovery suites
  - 8000 recovery positions

- Internal structuring changes
  - ICM responsible for physical infrastructure of data centres in Phoenix IT Group 2009
  - Dan Nunn promoted to UK Data Centres Manager
Primary Role - Business Continuity

Work area continuity services
- dealer suites
- mobile & telephony
- call centre

Professional services
- managed server recovery
- continuity planning

Continuity services
- high availability services
- data centre hosting

Farnborough
Hampshire
Changes in My Role

• Originally started as London South-West recovery centre manager (Farnborough)
• Responsibilities expanded to include other data centres as part of business growth
  – Multiple data centres
  – Develop management processes and supporting systems
  – Commissioned a new DC operations centre
• Responsible for managing the hosting space and interface to business
  – Cost control – people, energy, etc.
  – Capacity management and optimisation
1. Keep costs under control
   - Energy, process & other operating costs (people)
2. Manage and report on capacity / utilisation
   - Space, Power, Cooling, Staffing
3. Optimise data centre resources
   - Layout, customers, group companies and their customers
4. Streamline operational processes
   - Planning, provisioning, flexible use of NOC / staff
5. Prepare for increased customer reporting – carbon tax
Our Data Centre Environment

- A customer gets
  - Rack with dual managed power
  - Connectivity
  - Managed access, including cages if desired
- We provide
  - Contracted power on a cabinet basis – flexible
  - Monitoring power usage and environment
- Provisioning investment
  - Pre provision all power under floor
  - Pre provision patch panels for monitoring / connectivity underfloor
  - Build rooms
Excel Chaos

- Planned floor layouts and naming conventions
- Actual floor layouts showing fitted racks and customers
- Power monitoring results for all power strips
- Contracted vs actual power consumed by rack
- Patching connections for all internal systems
- Rack diagrams – one per worksheet
- Hardware assets
- IP address lists and allocation
- Contacts and contract details

A new installation could change all of these!
Some legacy CAD diagrams and Powerpoint topology maps
Example Floor Plan

• Excel 10cm x 10cm grid
• 60cm x 60cm grid
• Took a long time to do!
• Takes a long time to update
• Takes longer to validate

• Racks link to contacts
• Shows configuration details
Concept

Data Repository

Inputs
- Manual Updates
- Refresh from other sources

SQL Database
- AssetGen
  - Connect

Outputs
- Excel
  - Capacity
  - Asset lists
- Visio
  - Floor plans
  - Rack layouts
  - Topology diagrams

Multiple Excel spreadsheets
Our Approach

• Develop internal “best practices”
  – Data centre management training (Square Mile)
  – Increase staff skills and team productivity
• Develop common documentation – (reduce Excel)
  – Space, hardware assets, connectivity, power
  – Enhance reporting for group and “customers”
• Support from board to invest in specialist management toolsets and supporting services
  – AssetGen as a repository with Visio reporting
  – Data migration from existing Excel sources
Automation Results

All floor plans in a building are updated as a set after changes
- rack changes
- data changes – contacts, power

The floor plans serves many needs using data graphics – customer, power, status

Rack diagrams created automatically from same data
In Hindsight

We used what we knew – Excel

Visio was different
  – Didn’t know existing Visio features
  – Lack of team skills
  – Didn’t want more documents to maintain in addition to Excel

We had to reduce the number of infrastructure data sets and then create Visio diagrams from one source.
  - Standards, templates, data formats
The Benefits

- Workload reduction maintaining documentation
- Time taken to update a diagram from a change
- Standardised Visio diagrams are drawn for us
- Less diagrams in total! (thanks to data graphics)
- Time to manage expanding team

- Currently rolling out the same system to all BC sites
- Developing Visio as a dashboard for power, cooling, etc.
- A management framework to apply across other facilities