Managing Change in Critical IT Infrastructure

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Housekeeping

- Fire evacuation
- Toilets
- Refreshments
  - 11:00 Mid morning break
  - 12:30 Lunch
- Mobile phones
15 Years Ago….

RATBERT THE CONSULTANT

...THEN WE'LL TURN OFF THE EXISTING COMPUTER SYSTEMS AND FIRE UP THE NEW ONE.

WHAT IF THE NEW SYSTEM DOESN'T WORK ON THE FIRST TRY? WON'T THE ECONOMIC IMPACT BE DEVASTATING?

LET ME CHECK MY CONTRACT...

NOPE. I GET PAID EXACTLY THE SAME.

Yeah, same here.
Introduction & Square Mile Overview

Implementing and Maintaining a Successful CMDB
  Paul Dixon, Lloyds Banking Group

Enhancing the Support Service Experience
  Barry Horgan, Ashraff Khan, Excel IT

Reducing Spreadsheet Chaos and Visio Overload
  David Cuthbertson, Square Mile
A Few Questions

1. Who has created or viewed more than 10 Visio diagrams this year?

2. Who typically documents inventory data in Excel and diagrams in Visio?

3. Who has had a Visio training course in the last 3 years?
Develop the AssetGen toolsets, training and techniques for operational management of complex IT infrastructure

UK based, customers worldwide - mainly finance and outsource/hosting

Focus areas
- Data center & connectivity management
- Automated documentation techniques
- Change impact analysis
- Infrastructure visualisation using Visio

Training
- Data center management practices
- System mapping techniques
- Visio techniques and automation

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)
Managing Change...

Managing change in critical IT Infrastructure

Managing – culture, processes and support systems

Change – systems, projects / tasks, operations

Critical – risk to business functions / processes

IT Infrastructure - servers, software, power, cabling
Common Change Issues

- **Time**
  - Identifying faults and risks
  - Discovery, site survey, workshops
  - Communication across teams

- **Cost**
  - Discovery / audit effort
  - 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)

SVR-BHAM-010301
Infrastructure Change Support

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

So planning changes is easy

Fault diagnosis is quick

To optimise infrastructure resources

To check with other information
In ITIL V3 - The CMS Concept

Presentation Layer
- Portal
- Change & Release View
- Asset Mgmt View
- Config Life-cycle View
- Technical Config View
- Quality Mgmt View
- Service Desk View
- Business Impact View
- Compliance View (Cobit)

Knowledge Processing Layer
- Query & Analysis
- Reporting
- Performance Mgmt
- Modelling
- Monitoring

Information Integration Layer
- Customer/ User – Service – Application – Infrastructure mapping
- Service Portfolio
- Service Package
- Integrated Asset & Config
- Service Change
- Service Release
- Common Process
- Scheme
- Meta Data
- Reconciliation
- Synchronisation
- Extract, Load
- Mining

Data Integration
- Project Doc Filestore
- Definitive Media Library
- Federated CMDBs
- Discovery Asset Mgmt & Audit Tools
- Software Config Mgmt
- Platform Config Mgmt
- Enterprise Apps

Search, Browse, Store, Retrieve, Update, Publish, Subscribe, Collaborate
But…. Does the CMS/CMDB

- Make it easy to find equipment and connectivity?
- Produce the project and operational diagrams we need?
- Identify spare and underused racks and infrastructure?
- Provide appropriate lists and diagrams to suit projects/ops?
- Have a user interface that makes it easy for users?
- What is practical and realistic?

Paul Dixon – Lloyds Banking Group
Hosts/Services/Systems mapping

Barry Horgan / Ashraff Khan – Excel IT
Infrastructure tasks/projects
Avoiding Excel & Visio Chaos

• Infrastructure is complex

• The risk of disruption increases with complexity

How do you manage complexity?
Avoiding Excel and Visio Chaos
Why Infrastructure Configuration Management?

- **Time**
  - Reducing project and change delivery times
  - Identifying faults and recovery risks
  - Providing management information / evidence of control

- **Cost**
  - Reduce workload on project teams – site survey, discovery
  - Identify consolidation / resource utilisation opportunities
  - Operational management change/incident/reporting/billing

- **Risk**
  - Individual / team overload due to experience/skill set
  - Identify change impacts / risks
  - Communication across teams
Can We Put A Server Here?
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

Basic Information Needs

1. What we have and what we have planned for
2. Where a device or component is
3. The current attributes or parameters
   Technical, process data, organisation, commercial
4. How it is built – chassis/card/modules
5. What a device connects to
6. How it connects – LAN/WAN/SAN/KVM/Voice/Power
7. What changes to devices or data sets have occurred
8. What it does
9. Presented in views that explain the configuration
   Form, list, report, physical / logical / build / service diagram
Different views of a server

- Floor Plan
- Rack Position
- H/W Build
- LAN, SAN Connections
- Power Impact
- Service impact

Processing
Payment Module
ACCOUNTS
Accounts Module
SVRWIN001
Accounts Payable
Accounts Receivable
PAYROLL
Sage Payroll
Payroll

Network diagrams showing various connections and components.
Take a server… and “document it fully”
But..

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
Infrastructure Configuration

- Recovery Risk/ Plans
- Application Software
- System Architecture
- Service Architecture

SERVERWIN0001

- Supplier Customer
- Network
- Hardware Config
- Software Config
- Monitoring
- Asset Financial
- KVM
- Power
- Storage
- Location
Documentation – Too Much Effort?

Lifecycle

- Design
- Bid
- Project
- Build
- Handover
- Operate
- MACD
- Controls
- Risk management

Formats

- Paper
- Word
- Excel
- Visio
- CAD
- Databases
- Monitoring systems
- Data centre toolsets
- Cable management
- Internal web portals
- Work flow/service desk
- Test results
- And so on….

I'm still around!

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Why is Infrastructure CM Different?

- 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 reduced set
  - Project, operations, risk, asset, audit, platforms
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
3. Use Existing Toolsets More Effectively

**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
Physical Changes
Location and position
Resource reservation for projects
Physical connectivity
Audits and manual data gathering
Impacts and dependencies
Adds, moves and changes

Trust sources
Discovery systems
Monitoring tools
Service desk CMDB
Spreadsheets – risk, contracts
Recovery plans
Project handover

AssetGen Infrastructure Management

Outputs
Capacity management
– space, power, connectivity
Change impact analysis
– impact, risk, auditing
Inventory extracts
Custom reporting
Physical plans
Floor and rack diagrams
Topology diagrams
Networks, power, storage
System & Architecture Maps
ITIL services, applications

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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 documentation?
Implementing Infrastructure CM

• You could define your own approach but will be limited by
  – Authority
  – Experience
  – Technical qualifications
  – Best communicators available
  – Management information

• 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!
Automated Infrastructure Views Using Visio

Floor Plan

Rack Position

Network Connections

Service impact

Power Supply

H/W Build

Network Connections

Service impact

Power Supply

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Service Desk CMDB Integration

**User Interface**
- CI Details
- Incidents Changes etc
- Parent/Child Impact

**Service Desk** (Remedy, SM7, Peregrine etc.)

**Service Desk CMDB**

**Enhanced CMDB Information**
- 1. Visio Service Maps
- 2. Multi-level Impact
- 3. Multi-CI Impact
- 4. Excel Batch Query
- 5. External Toolset links

**Offline CMDB copy**
- Visio
- SysMap Professional
- SysMap Web Application
- MS SQL Database
- AssetGen SysMap

**Other mappings - flow, etc**
Reducing Infrastructure Data Sources

Coordinated database, multiple viewpoints

- Services
- Software
- Servers
- Storage
- Cabinets
- Networks
- Cabling
- Power
- Voice

- Capacity and connectivity reports
- Change impact analysis and audit trails
- Spreadsheet outputs
- Service maps
- LAN/SAN/WAN/Power diagrams
- Rack, floor plans

AssetGen
Software Solutions

SQUARE MILE
<table>
<thead>
<tr>
<th></th>
<th>Desktop</th>
<th>Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Users</td>
<td>1</td>
<td>Many</td>
</tr>
<tr>
<td>Up to 500 Devices</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Up to 1000 Devices</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Up to 2000 Devices</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Unlimited no. of Devices</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Single building</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Campus – many buildings</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Unlimited – many sites</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
## SysMap Professional Licensing

<table>
<thead>
<tr>
<th></th>
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<th>Server</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Users</strong></td>
<td>1</td>
<td>Many</td>
</tr>
<tr>
<td><strong>Up to 300 CIs</strong></td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td><strong>Up to 1000 CIs</strong></td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Up to 3000 CIs</strong></td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Unlimited number of CIs</strong></td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Infrastructure Configuration Management

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

It’s not difficult if you use the techniques we’ve shown today.
Additional Material

AssetGen
Software Solutions
www.assetgen.com
AssetGen Connect
Data Center & Infrastructure Management
AssetGen SysMap
System mapping for change / risk control
“How to” videos, datasheets, etc.

www.squaremilesystems.com
Training courses
Technical / management aspects of data centers
White papers
Capacity, visualisation, change impact
Conference papers
BICSI, ITSMF, BCS-CMSG