My Background

Personal Experience

Network Troubleshooting

Cabling and Network Installations

Managed Services Voice/Data
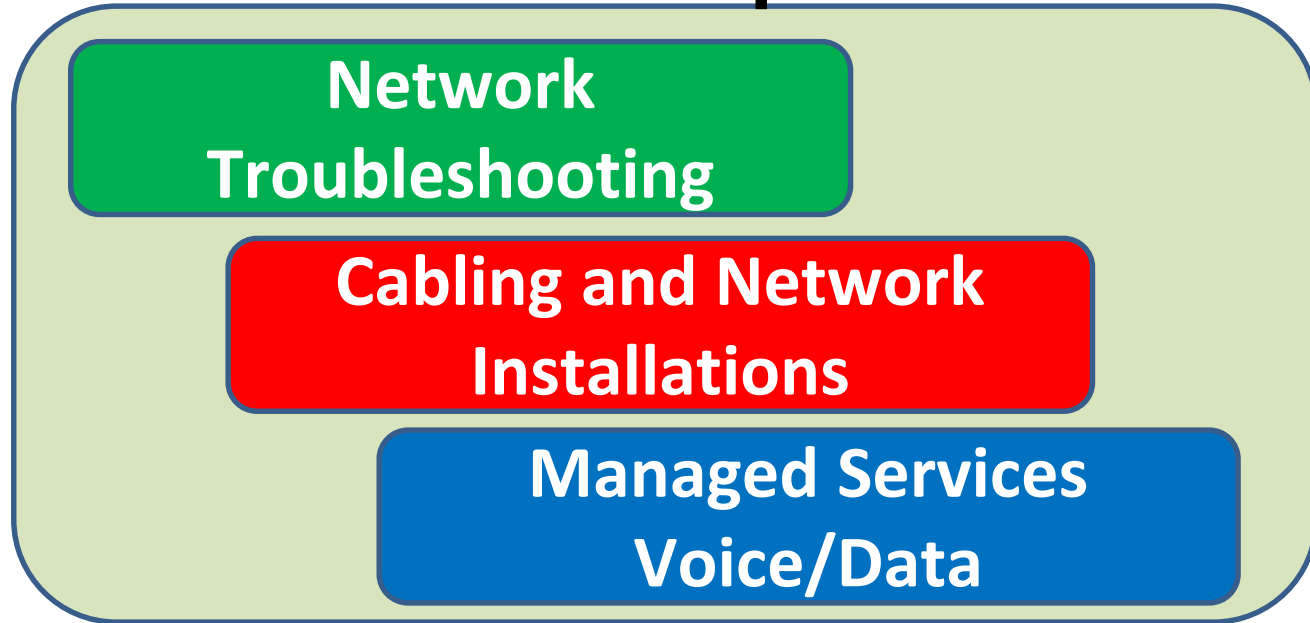
Industry Groups and Frameworks

Process & Methods · Naming & Labelling · Baselining
Toolset Development · Configuration Management
Communication · Change Process · Visio automation

LinkedIn Group Manager
Data Center Engineering
Data Center Operations Management
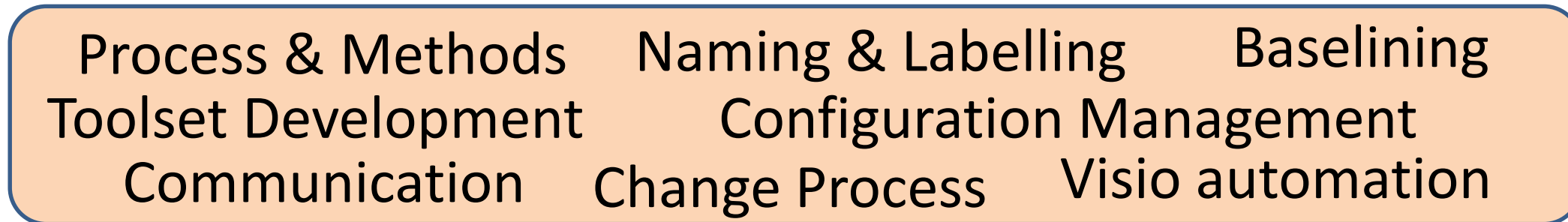
My Focus

Understanding and communicating best practice in configuration management of complex IT systems.

1. Physical infrastructure
   – Data centres, offices, cabling, power, industrial, IOT

2. Logical infrastructure
   – Network, virtual, cloud, applications, services

What Is the Weakest Link To Zettabyte Delivery?

1. Technical design
2. Service disruption (faults / change)
3. Cyber and security attacks
4. Cost and risk of constant technology refresh
5. Governance and control restrictions
6. Supplier stability
7. Our ability to manage all of the above

SQUARE MILE

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Some New Traffic For The Internet – The SKA!

Rome, Italy, Tuesday 12th of March 2019 – Countries involved in the **Square Kilometre Array** (SKA) Project have come together in Rome for the signature of the international treaty establishing the intergovernmental organisation that will oversee the delivery of the world's largest radio telescope.

Founders - Australia, China, Italy, The Netherlands, Portugal, South Africa, the United Kingdom, Sweden and India.

Considering joining the project - Canada, France, Malta, New Zealand, Republic of Korea, Spain and Switzerland

Five More Zettabytes On The Network?

South Africa

SKA1_Mid   350 MHz – 14 GHz
64 MeerKAT dishes
133 SKA1 dishes.

Australia

SKA1_Low   50 – 350 MHz
131,000 aperture array dipole
512 stations of 256 antennas

The Square Kilometer Array
(SKA)

www.skatelescope.org

The dishes of the SKA will produce 10 times the global internet traffic.

The aperture arrays of the SKA could produce more than 100 times the global internet traffic.

On The Ground

- The usual planning and installation issues
  - Power, lots of fibre cabling, cooling, technical rooms
- Project and service delivery
  - Data processing and access globally 24/7
- Management across multiple technologies
  - Hardware and software components
  - Change, capacity, security, continuity, budgeting

And…. Like All IT Systems Everywhere

- The SKA must be supported for many years (50)
  - Technology changes
  - Organisational & people changes
- Multi-location / multi-vendor
  - Data collection and processing
  - External data customers
  - Administration and management

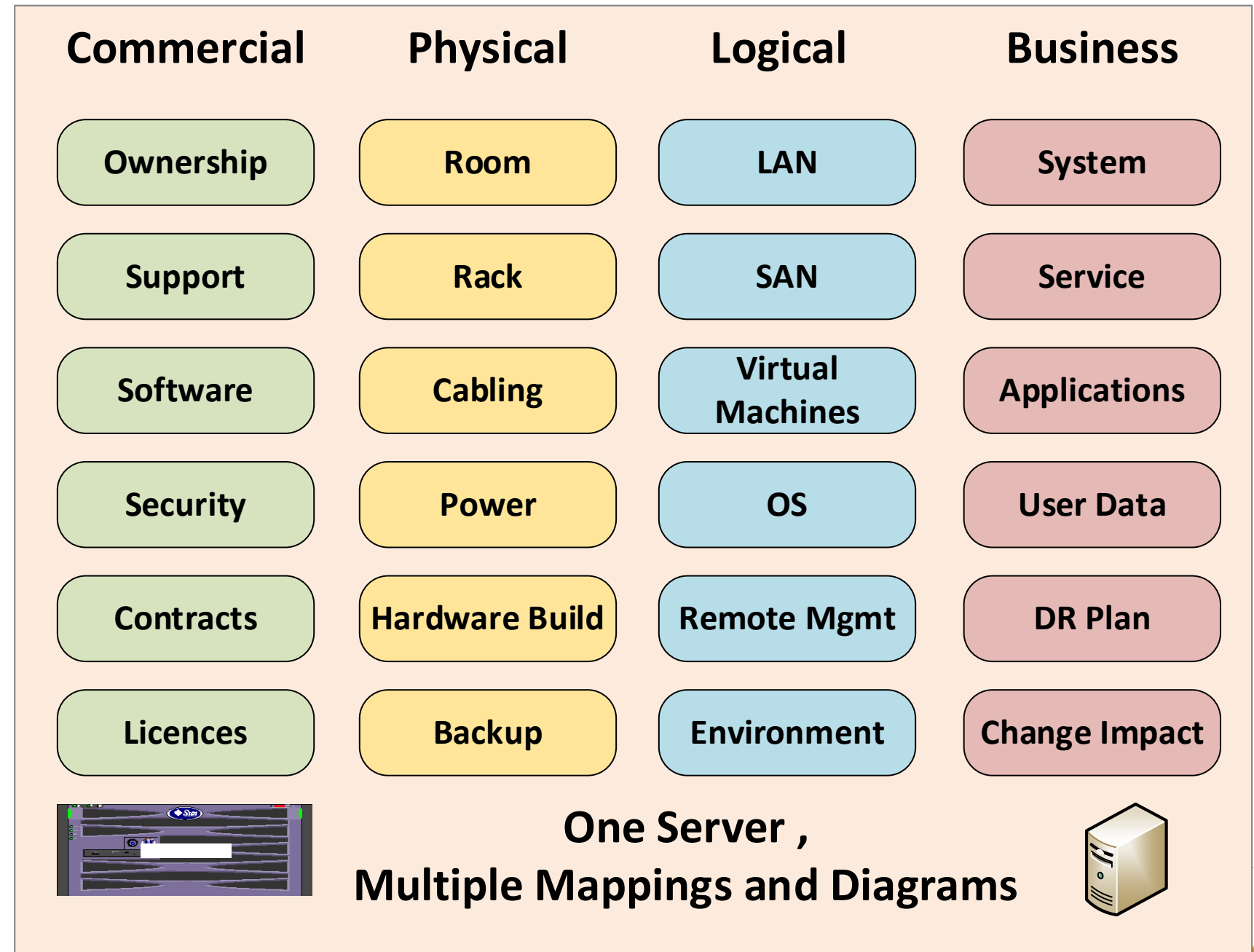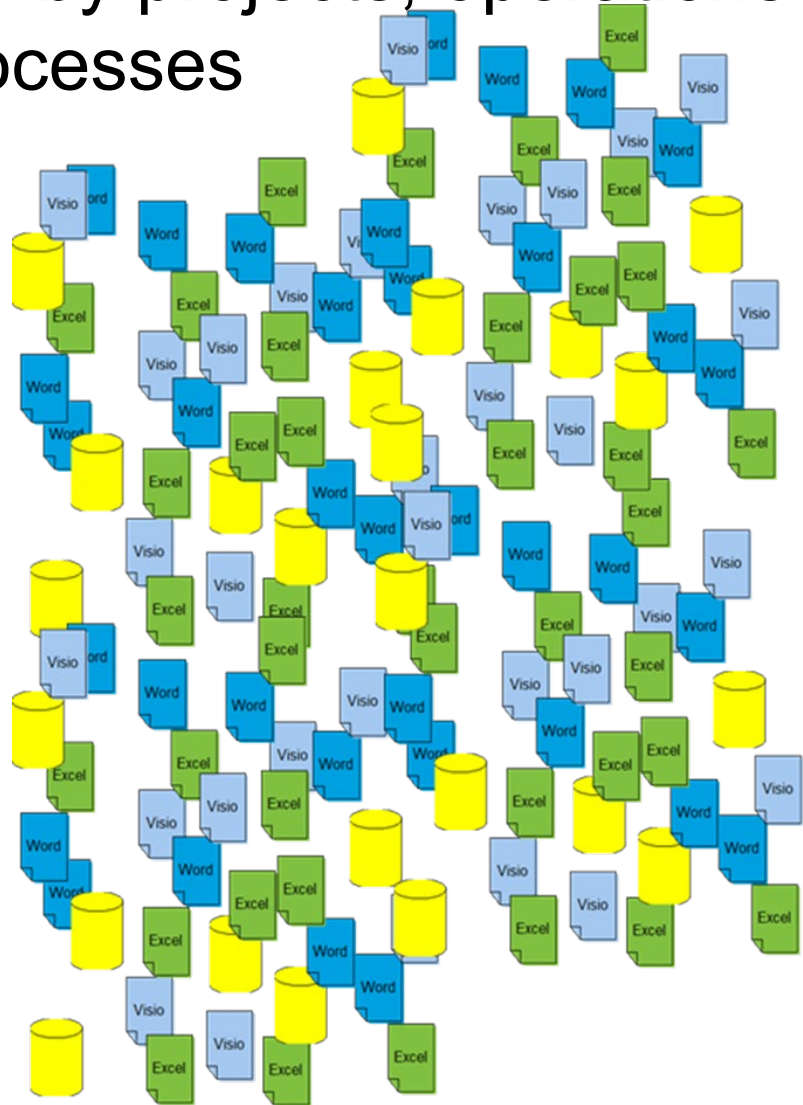# To Deliver Data Constantly They Must -

1. Ensure clarity of roles, authority and practices so change is controlled.
   - Aim to improve control by standards, centralised planning and management

2. Minimise the duplication of information from project activities into operational and risk support systems.
   - Naming conventions and data formats (infrastructure configuration management)
   - Use cross team systems – workflow, databases, monitoring, security
   - Expect to have to create a baseline audit to underpin workflow

3. Continuously improve processes – cost, time, staff rotation, incident management, capacity, cybersecurity, <u>configuration management</u>, etc.

Our ability to manage must not be strong – not weak!

Shared Infrastructure Isn't Simple

Many 1,000s of documents are created by projects, operations and risk processes

Commercial	Physical	Logical	Business
Ownership	Room	LAN	System
Support	Rack	SAN	Service
Software	Cabling	Virtual Machines	Applications
Security	Power	OS	User Data
Contracts	Hardware Build	Remote Mgmt	DR Plan
Licences	Backup	Environment	Change Impact

One Server ,
Multiple Mappings and Diagrams

What Is Infrastructure Configuration Management?

1. A reduction in survey work and work order confusion?

2. A way to manage complexity with constant staff changes?

3. Less spreadsheets to maintain as databases can do both list and visual reports?

4. Common sense – anyone can understand what you have, where it is, what it does, how it is connected, who can approve, what the risks are, etc.
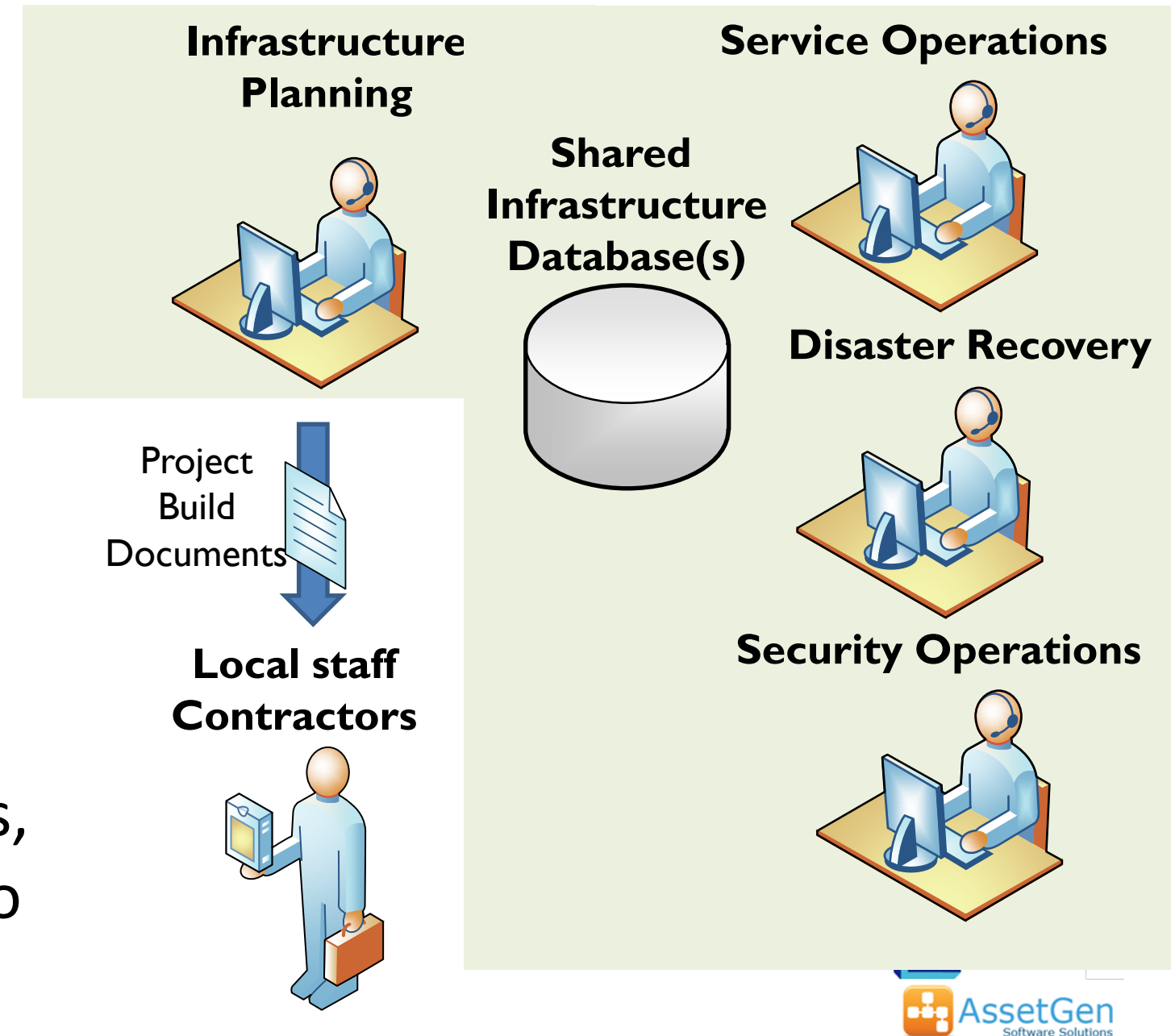
The Basics Of Configuration Management Are....

- Devices, ports, everything can be uniquely identified

- Everything has a status

- There are dependencies between devices and items.
  - Space, connections, cards, software, services

- There are processes to check and verify all of the above.
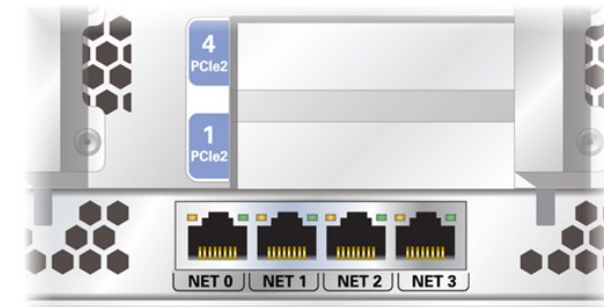
1 or 01 or 001?

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

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Infrastructure Configuration Management - 1

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
   - Formalised workflows to help maintain data

3. Aim to produce multiple outputs from a few sources
   - Rack, floor, device, port capacity (lists and schematics)
   - Visual views, rack, network, power, system, system, service
   - Inventory and asset management, application and business dependencies
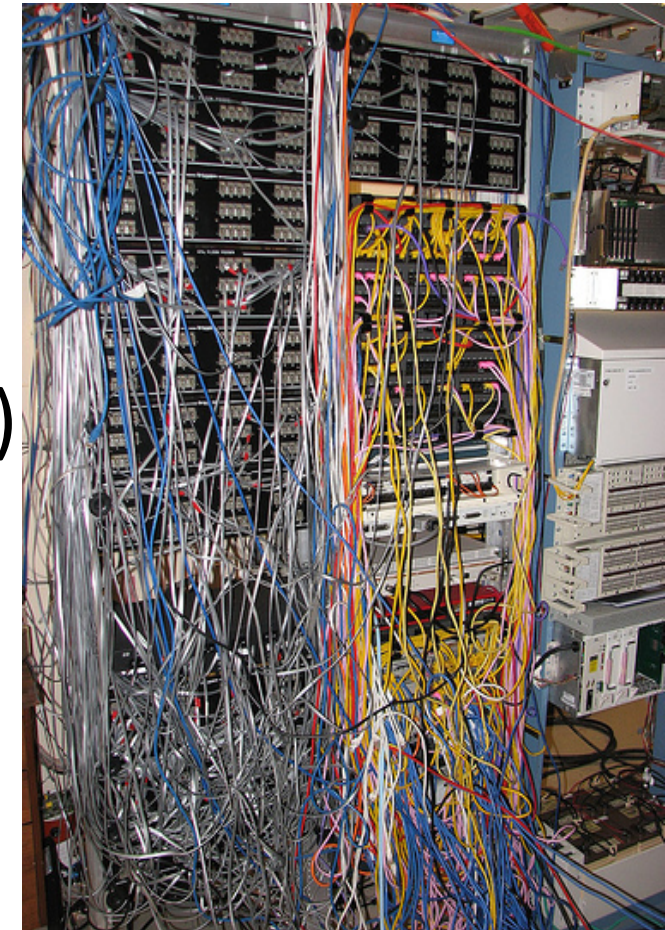
Infrastructure Configuration Management - 2

- ## Assess and define your own best practice and workflows

  - Naming and labelling

  - Change processes

  - Symbols, versioning, layers, scope

- ## Local labels and workflow

  - Cabinets, equipment, connectivity, cables, reservation, decomm

5?

5?
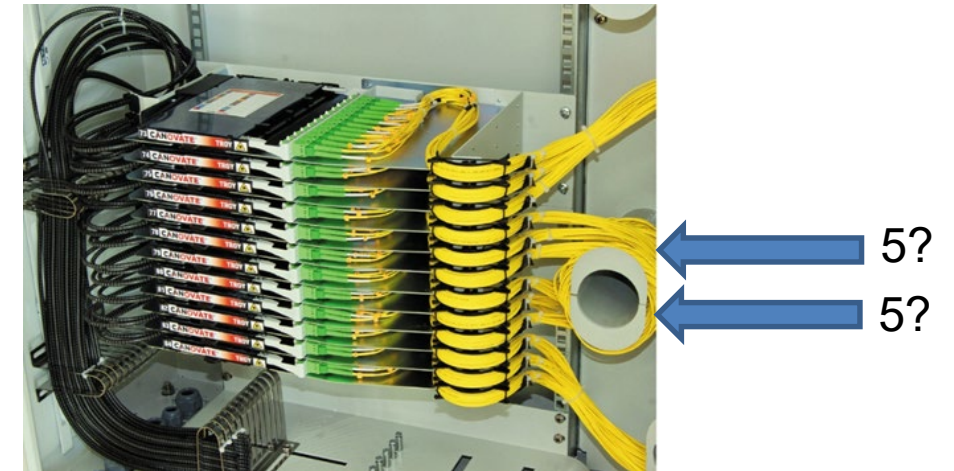
Cassette 5
ODF3.Cassette5
A05.ODF3.Cassette5
HallA.A05.ODF3.Cassette5
DC1.HallA.A05.ODF3.Cassette5
DUBAI.DC1.HallA.AO5.ODF3.Cassette5

To ODF1 Cassette 3

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Infrastructure Configuration Management - 3

- Automated discovery and other tools can help, but are partially useful for physical infrastructure.

- Project 1. 98000 items, 85 data centres, 6500 racks
  - Inventory, floor plans, rack layouts, audit trails

- Project 2. 3 co-lo data centres, 600 racks
  - One person controls all change planning

To Keep Delivering Zettabytes Of Data

1. Improve clarity of roles, authority and practices so change is controlled.
   - Aim to improve control by standards, centralised planning and management

2. Minimise the duplication of information from project activities into operational and risk support systems.
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3. Continuously improve processes – cost, time, staff rotation, incident management, capacity, cybersecurity, configuration management, etc.

Our ability to manage must not be strong – not weak!

Thank You

See us on the AssetGen exhibit stand or visit our web sites

www.assetgen.com

AssetGen System
Infrastructure database
with Visio automation

www.squaremilesystems.com

Documentation methods and audits
Visio automation training
Visio utilities, etc

2019 BICSI Middle East & Africa
District Conference & Exhibition