



Politics, Religion and Naming Conventions

**Prepared For:
The Dark Fiber Workshop**

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Who am I?

- I have a bachelor degree in Computer Systems
- Have been working in the OSS area since 1992
- I am passionate about NOC's and the application of computer systems to this challenging Domain
- In many ways it can be argued that a NOC is an exercise in data management
 - Instant access to circuit, fiber and customer relations
 - Data mining of alarm history to discover potential network problems
 - AI systems to perform root cause analysis of alarm streams



Everyone Has an Opinion!

- The move to dark fiber involves a degree of magnitude more NEs, fibers and cross connections which need to be handled operationally in a consistent and reliable manner.
- It became obvious during the start up phase that everyone, (regardless of prior knowledge) has an opinion about what network objects should be called according to their specific view of the network, be it 1st or 2nd line, planning or operations etc.
- We need a working naming convention to ensure that we are unambiguous when communicating with each other
- We are mindful that the naming convention should not paint us into a corner further down the track as the network expands and we add different and more complex services



Elements of a Naming Convention

- **Named objects & users** – An introduction to naming issues
- **What have i got? What's it do? Where is it? Who needs to know?** - Why a naming convention is one of the basics of telecom infrastructure management
- **Why OSS requires mnemonic naming** – Manual processes are being replaced by process automation, however multi-skilled human users are still required and need support
- **What's important in a name** – Characteristics of a good naming scheme
- **Naming & data models** – Why the emphasis should be on catalogues rather than data models
- **Conclusion** – Naming is one of the basics of sound Network Infrastructure management, it provides the foundation for successful OSS deployment
- **Questions**



Example - Named objects & users

```
10101 11110  
01101A 10101  
100110A 10010  
0101010010001  
1111010101001  
11010 0101010  
00000 101010  
01100 01101
```

Who are we? Who needs to know?

My name is Terrence, also known as Dad, Terry, Boss, NOC Manager, terry@nordu.net

We are known by different names to different “users”, who have separate interests

Family

Colleagues

Officials

This leads to a multiple names and records which would be very ineffective if we were trying to run Family, Colleagues & Officials as a single enterprise – such as a Telecommunications Company

```
10101 11110
01101A 10101
100110A 10010
0101010010001
1111010101001
11010 0101010
00000 101010
01100 01101
```

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What do I have?

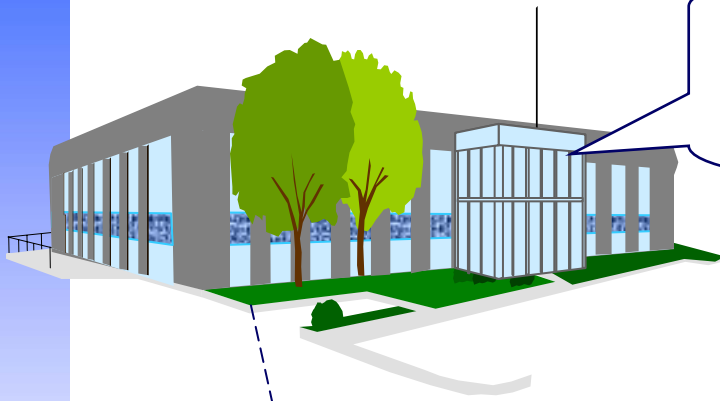
What's it do?

Where is it?

Who needs to know?



Sites & Equipment

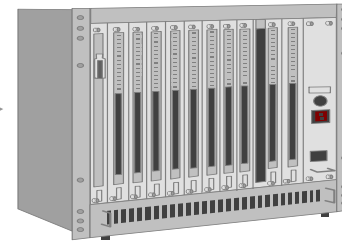


Telecommunication sites
We need to know **where** they are by using a standard location name



Who needs to know?

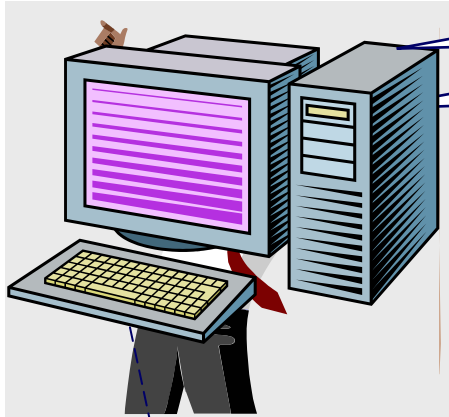
Building Services
Network Planning
Provisioning
Fault Analysis
POP Access



Equipment
We need to know **what** it's capabilities are by using a standard functional name



Equipment Management

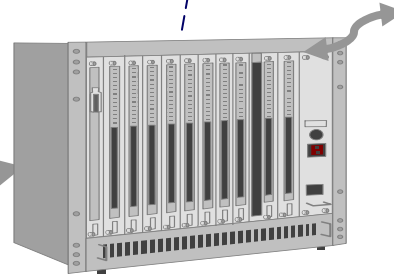


Sorry!! I mean Element Manager



Element management naming pitfalls

Many of these schemes build parenting into the naming scheme – mixing Objects & Relationships

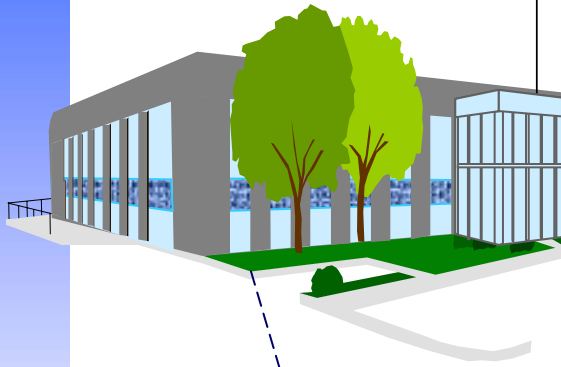


For example if a NE is used with a particular customer and the NE is named “IKEA_Kastrup-4350” then when the NE is used for another customer, even partly, or moved then ambiguity results.

Objects & their Locations should be linked in an application **NOT** in the naming scheme



Facilities & Services



Facilities

We need to know what a facility is, (fiber, copper, radio) and where it is between (the a & z ends)

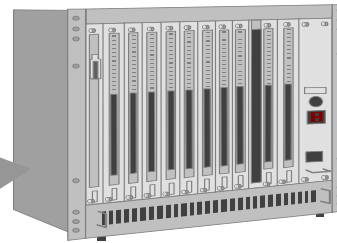
Who needs to know?

Facilities:

Network Design,
Fault Analysis,
Fiber Supplier

Services/Circuits:

Customer Assignment,
Fault Analysis,
Network Provisioning



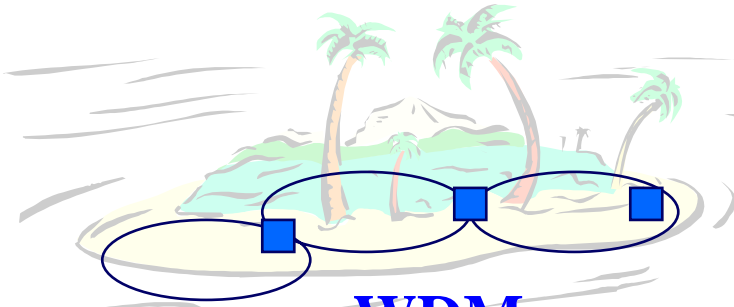
Services

We need to know what services or circuits. (channels, customer circuit, permanent circuit), are running over the Facilities

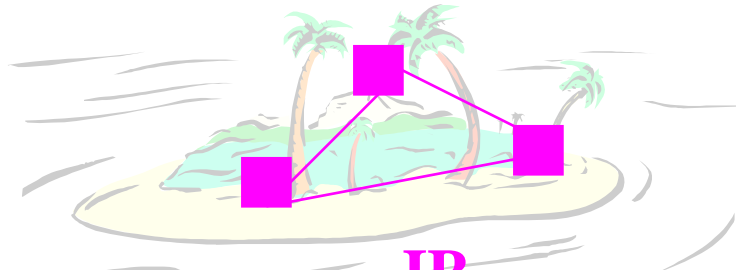
The *relationship* between physical Facilities, logical links, circuits & services should be kept in an *inventory application*, not the naming convention



Technology and Domain Islands



WDM



IP

Name Islands – the bane of flow through



Provisioning



Fault Analysis



Customers



Standard names - the key to process flow through

Why OSS requires mnemonic naming

From the Wikipedia:

“A **mnemonic** is a memory aid, and most serve an educational purpose.”

“The sequences must have some connection to a person's existing semantic associations; if a random mnemonic is made up, it is not necessarily a memory aid.”

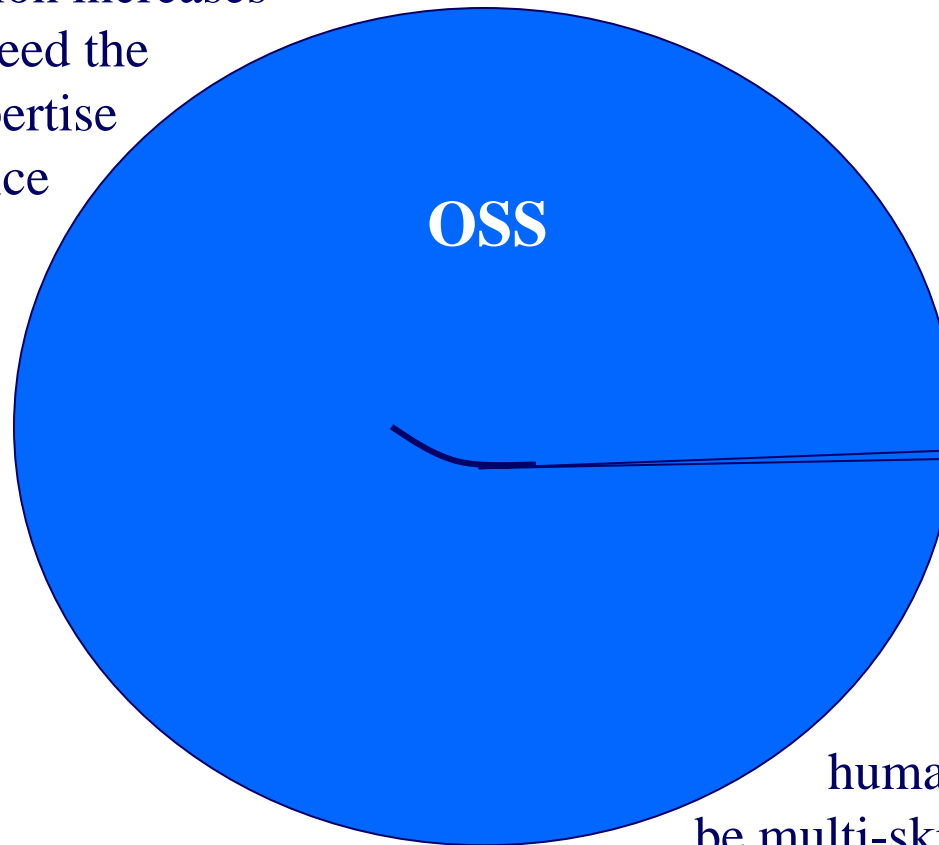


OSS Remove Manual Processes

As mechanisation increases
we no longer need the
specialised expertise
in the back office
& the field

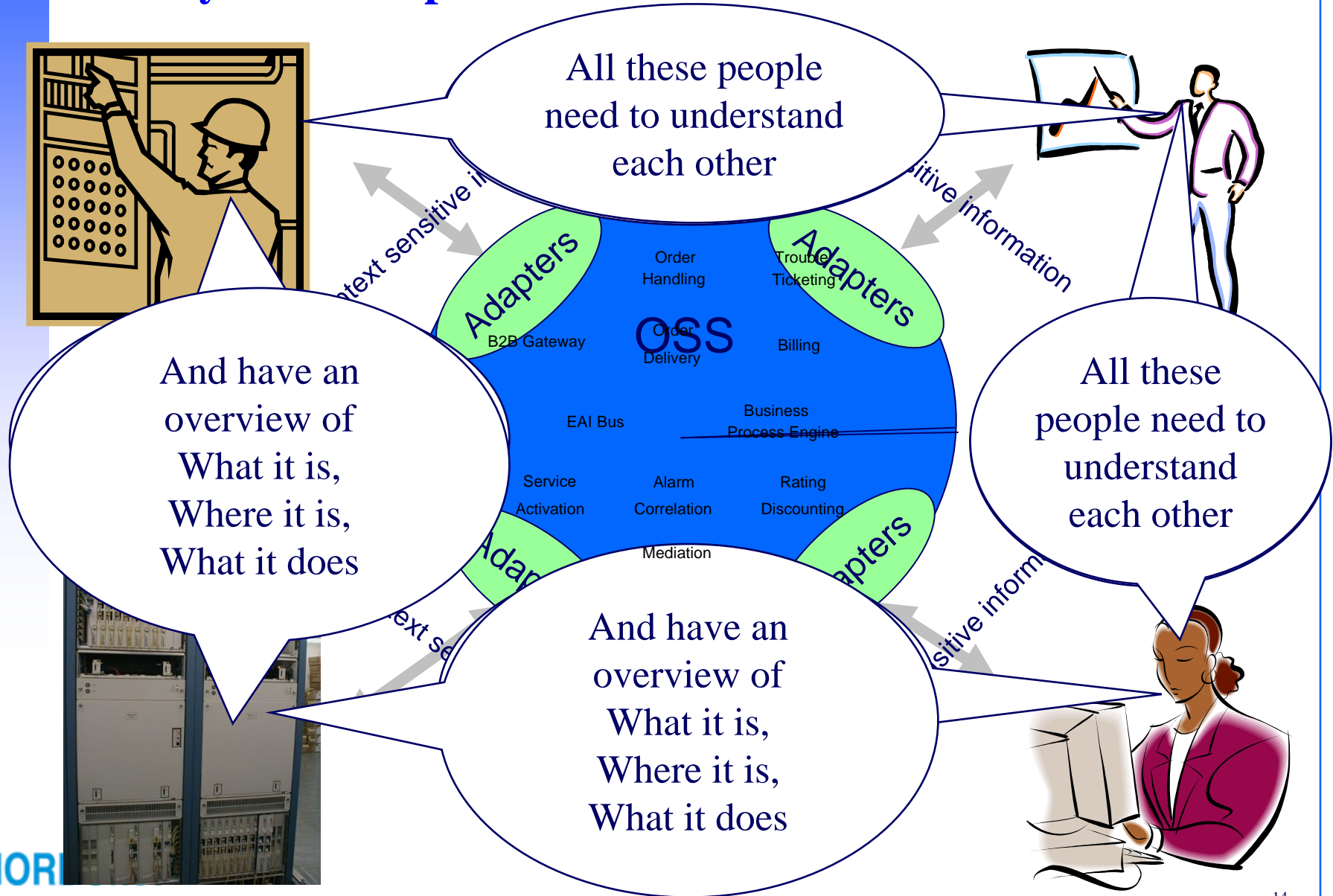


```
01101 10101
100110 10010
0101010010001
1111010101001
11010 0101010
00000 101010
01100 01101
```



The remaining
human users have to
be multi-skilled, managing
different technologies &
functions and need supporting

Many different parties need to communicate!



What's Important in a Name

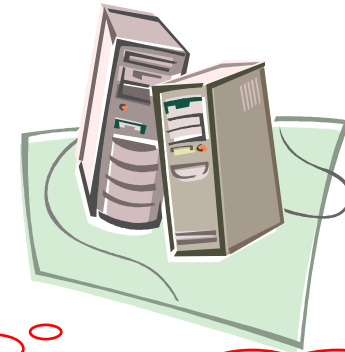


Meet the needs of People & OSS

P
E
O
P
L
E



A name that helps me do my job – one I can remember and use



An identifier that's unique and exact

A number is all I need!

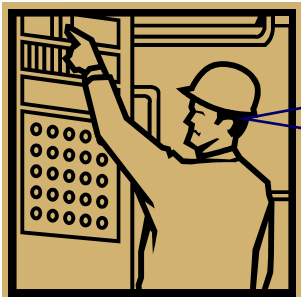


What's the Brand name?
Cherrios

A stock identifier

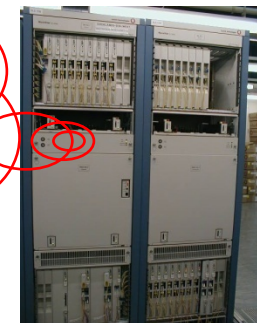


O
S
S



Detailed information associated with the name

Information I sometimes need associated with the name

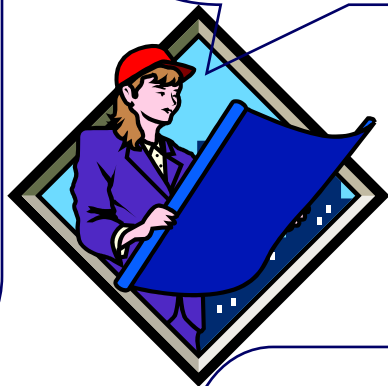


Simple & Clear Classification, Future proof



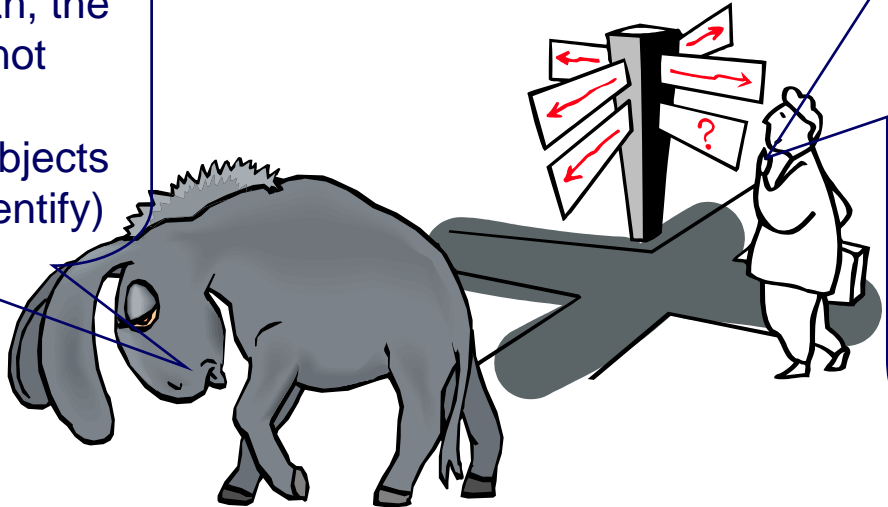
Future Proof
Longevity
Once you choose a direction, it's hard to change it. Names propagate everywhere ... Will your naming design stand the test of time

Clear/useful concept
(What's a location?
What's a "piece of equipment"?)



Future Proof
must cope with growth, the convention must not exhaust
(too many complex objects for this scheme to identify)

Clear context
What will this name be used for?
Network Management
Planning & Engineering
Customer Orders
Core Network
Access Network
...
all of the above?

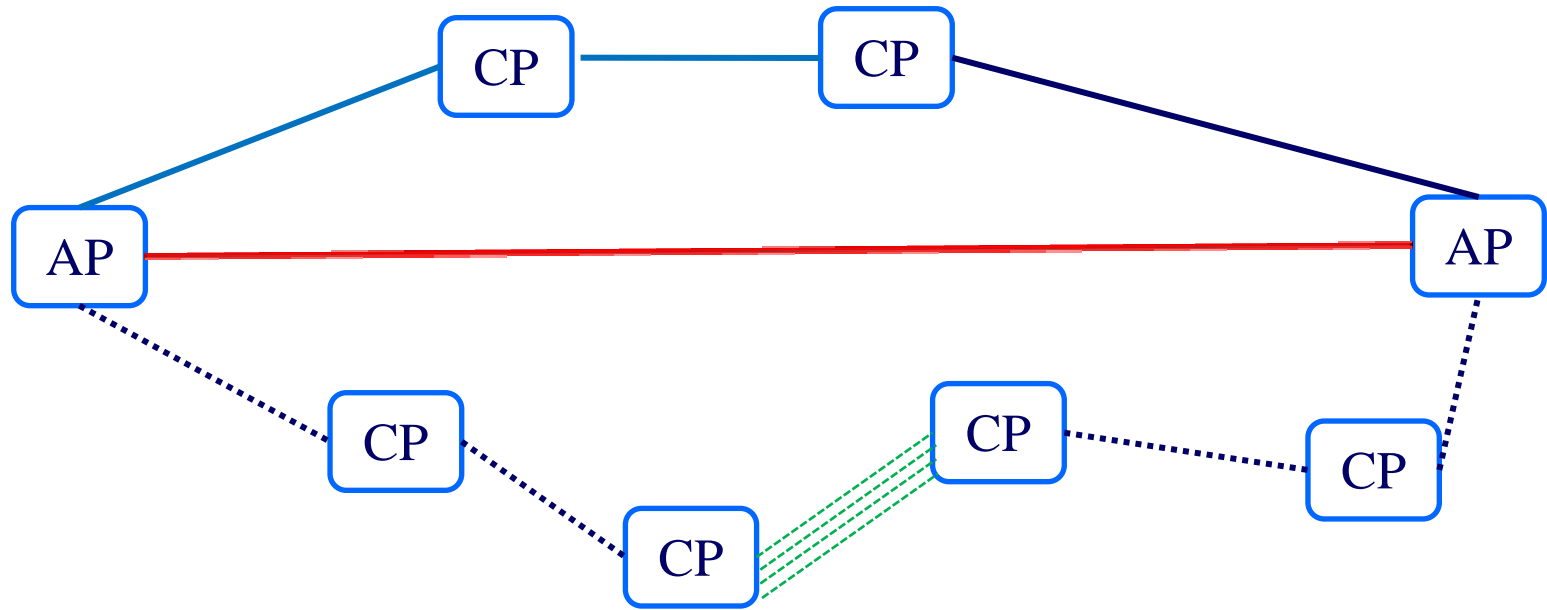


What's a Circuit?

- Services
 - Customer buys a service delivered on a circuit
- Circuits (well defined “connection”)
 - A Circuit consists a one or more (protection) paths
- Path (well defined route from here to there)
 - A Path consists of one or more logical links
- Trail (vague partial path “forest trail”)
 - Part of a Path
- Link (logical link)
 - Atomic channel between 2 nodes
- Facility (physical link)
 - Atomic Physical Transport Medium between 2 nodes
- Channel
 - Logical Transport within the Physical Facility



Suggestion for a Classification Convention



Circuit	
Path	
Trail	
Link	
Facility	



Eventual Scenarios to Consider

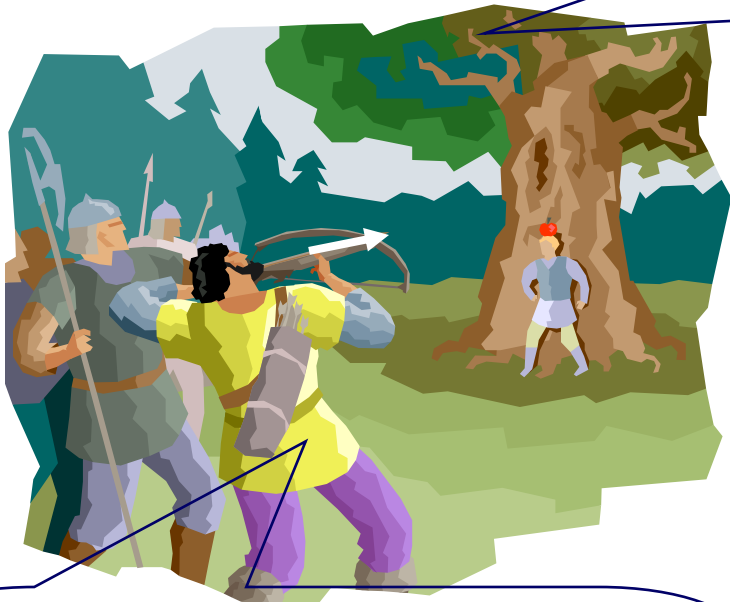
- A fiber is labeled “loc_A-loc_B” within a POP but a field technician in a hurry and without any free fiber moves the fiber from “loc_A” to “loc_Z”.

The next technician to use the fiber will see that it is mislabeled which immediately throws the complete naming convention into doubt requiring ongoing external confirmation that the labels are indeed correct

- It is better to have no information (i.e. need to look up the catalogue on a laptop or printout) than to have the wrong information with an outdated naming convention which is misleading
- A NE is labeled according to customer name “ABC” or location “loc_W” if the NE is partly used for another customer or subsequently moved then the NE name is now “ambiguous” and worse than useless as it is misleading.
- The main fiber from Stockholm to Goteberg is named “Stckhlm_Gtbrg” and is OK as it cannot be moved however the patch inside the POP is named “POP0_Rck1_Shlf2--POP0_Rck2_Shlf2” so now there are two different naming conventions for the same fiber link which is difficult to handle in the network inventory or topology database and is confusing for the users.



Objects, Attributes, Relationships



Objects & Attributes

The **Crossbow** is an **object** with **attributes** such as range & speed.

The **apple** is an **object** with **attributes** such as colour & flavour

The **object name** must be accurate for LIFE, its meaning must be true for the entire life of the object (short in the case of the apple)

The **object name** provides the key to the catalogue. The **attributes** in the catalogue can be updated as required. The **catalogue** provides all of the other information relevant to the Object also including object history

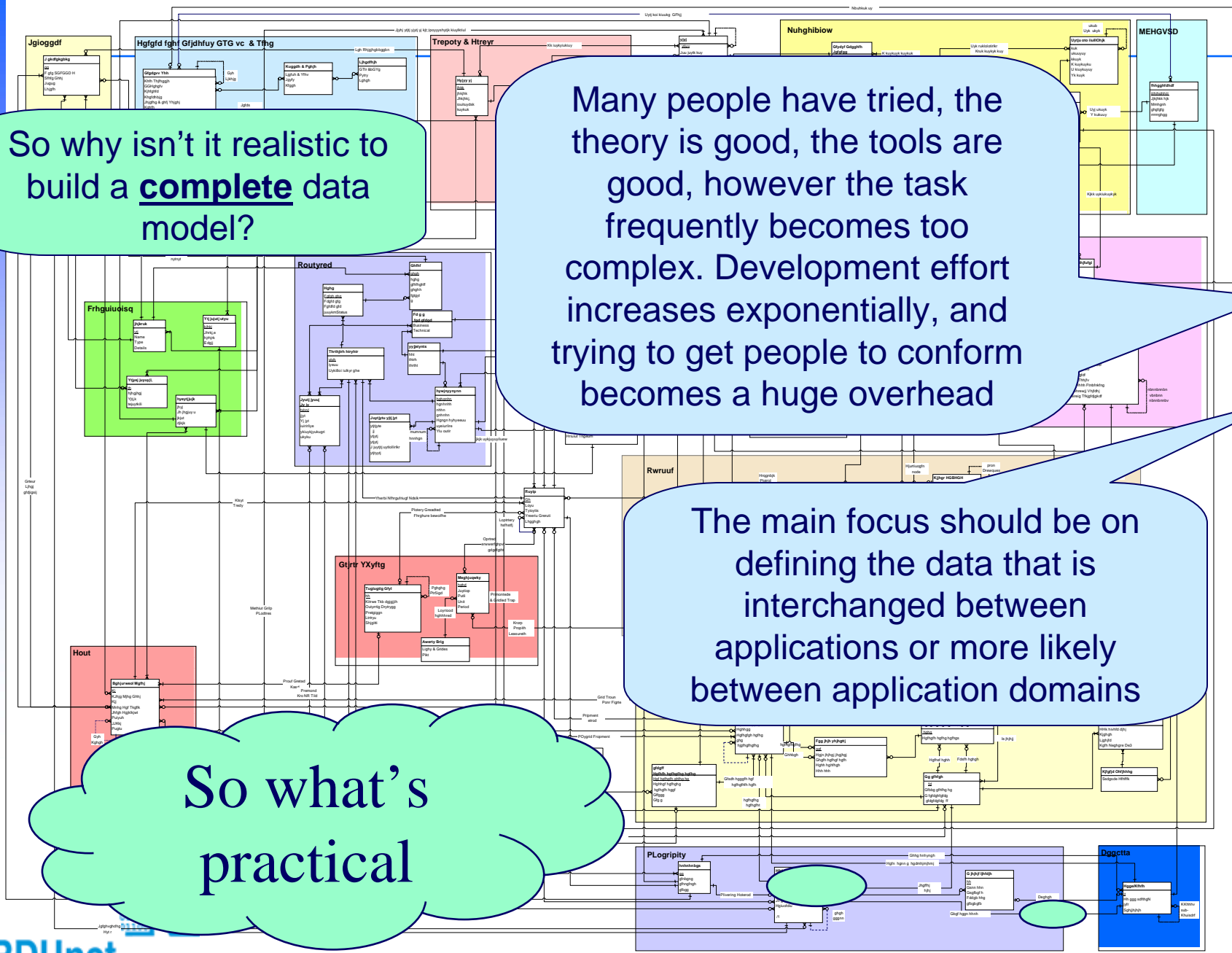
Only the **name** needs to be passed between interested parties and OSS applications

When an application or party requires further information, it is provided by the catalogue

Relationships The Crossbow and the apple are about to have a short lived connectivity relationship through the **Arrow** (and the apple is likely to undergo a status change)



Relationships between objects should be held in applications, not in the naming scheme, as relationships can change with the speed of an arrow



So why isn't it realistic to build a **complete** data model?

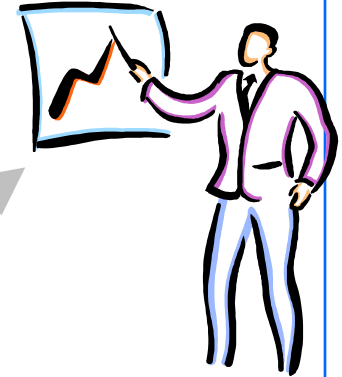
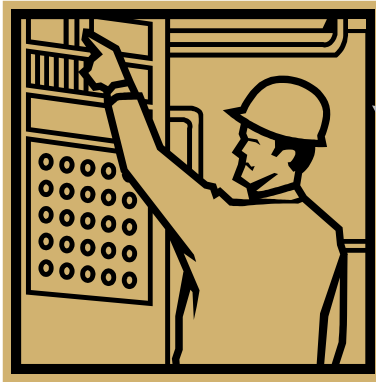
Many people have tried, the theory is good, the tools are good, however the task frequently becomes too complex. Development effort increases exponentially, and trying to get people to conform becomes a huge overhead

The main focus should be on defining the data that is interchanged between applications or more likely between application domains

So what's practical

Catalogues

That's where a naming convention comes in, it provides a catalogue of information via a name "key" that's understood by all interested parties, and provides a basis for inter-application interchange



Conclusion

- Focus on the basics of infrastructure management, **What have I got? What does it do? Where is it? Who needs to know?**
- Ensure **standard names** are developed for use by **all interested parties** as a foundation for automation and OSS deployment, rather than relying on internally generated system specific identifiers
- Good naming will improve
 - problem diagnostics,
 - reduce human error,
 - allow for the creation of detailed documentation and
 - reduce the dependency on individuals.
- Use name **catalogues** as a proven and accepted way of managing data, data change and data history, rather than trying to build a complex data model to cover everything



Questions?

Thank you & Questions please



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