

The joy of Six...

Mark Charlton
Paul Catchpole

THE UNIVERSITY OF
WARWICK

To keep in mind!

- Sideways? Backwards?
- Communication? Pardon?
- RFC1925, section 2, paragraph 8
 - (It really is. More than we expected!)

(7) It is always something

(7a) (corollary). Good, Fast, Cheap: Pick any two (you can't have all three).

(8) It is more complicated than you think.

(9) For all resources, whatever it is, you need more.

(9a) (corollary) Every networking problem always takes longer to solve than it seems like it should.

(10) One size never fits all.

(11) Every old idea will be proposed again with a different name and a different presentation, regardless of whether it works.

In the beginning...

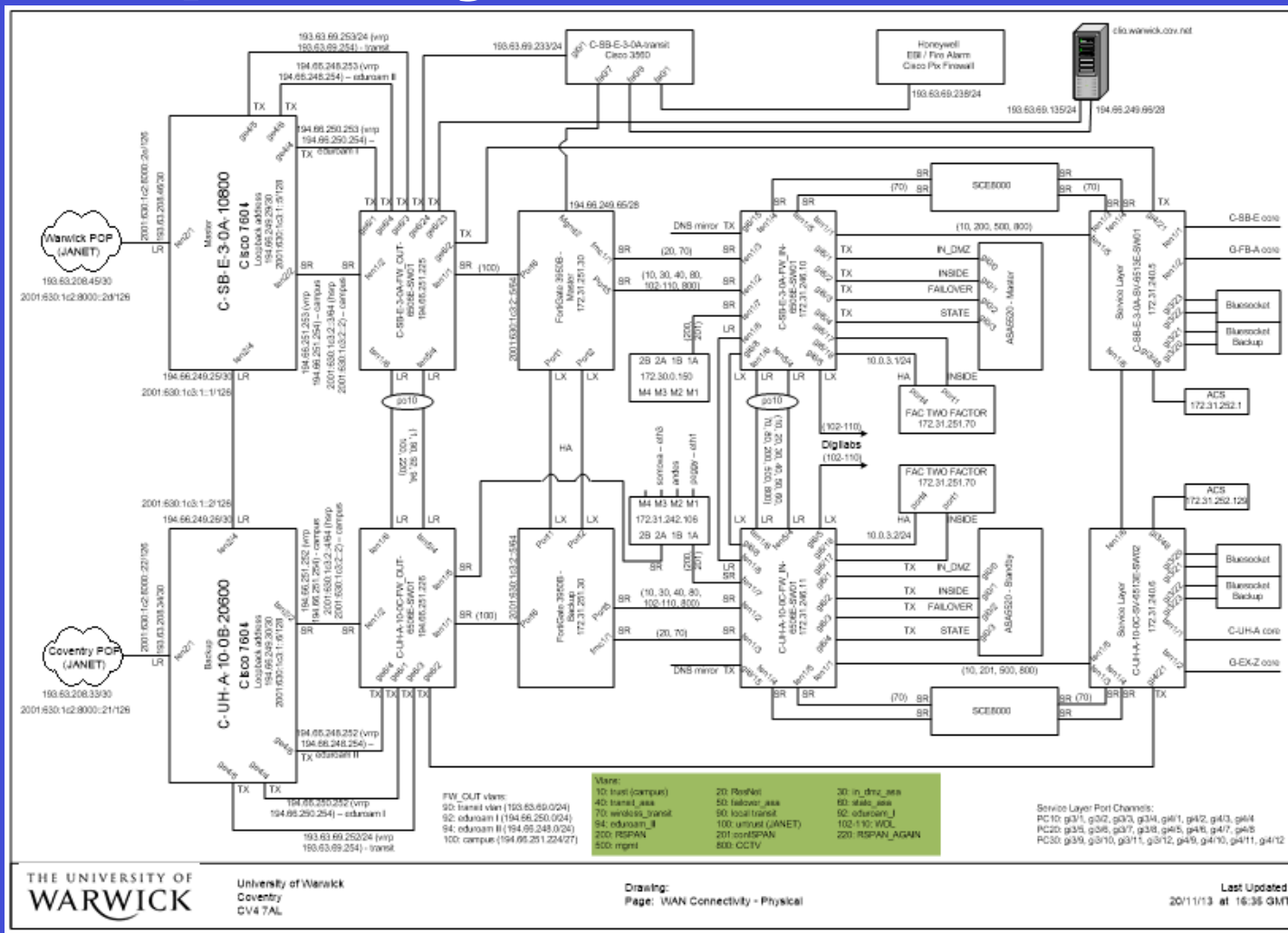
- Mostly Cisco network
- Mix of Nexus / Cat6k / 3750
- 95000 physical ports
 - Today, maybe, well actually...

Details, details...

- /16 v4 block
- Dual Janet connections
- RFC1918 residence & wireless networks
- VRF-lite routing infrastructure
 - Why? Don't ask...

You asked?!

Complexity? Nah...



Why bother?

- V4 exhaustion?
- Reputation?
- Business need
 - Globalisation?
 - Research?
- Hey, there's always PAT

He looks happy now, but just you wait...



2001:630:1C3::/48

- Assault!

- (Batteries not included)
- Need one of these? >>>>
- Phone a friend
- Do you have a map?



→ PERFECTION ←



Janet – The really useful people

- 7600 routers (S720)
 - Reboots, change management, needing a holiday...
 - BGP + statics
 - VRRP
 - (Woah there, 12.2?)
 - *standby 1 ipv6 autoconfig*
 - NLRI configuration
 - *bgp upgrade-cli ☺*



Don't set fire to it just yet!

- It Just Works TM
 - No, really...
- Well, mostly - remember HSRP?
- Caveat: the value added stuff...



I demand service over here!

- 6513 S2T
 - Functionality: everything
 - VRRP (again)
 - No problem, IOS 15
 - fhrp version vrrp v3
 - *When VRRPv3 is in use, VRRPv2 is unavailable*
 - BGP
 - No NLRI here, no problem?
 - Ah, but this is a per-vrf address-family...

It goes on...

- ip vrf, or vrf definition?
 - *The MPLS VPN—VRF CLI for IPv4 and IPv6 VPNs feature introduces the **vrf upgrade-cli multi-af-mode {common-policies | non-common-policies}** [vrf vrf-name] command that forces VRF configuration migration from a single-protocol VRF model to a multiprotocol VRF model*
 - Undoes your v6, doesn't kill your v4!
- OSPFv3 side by side with v2?
 - Probably!



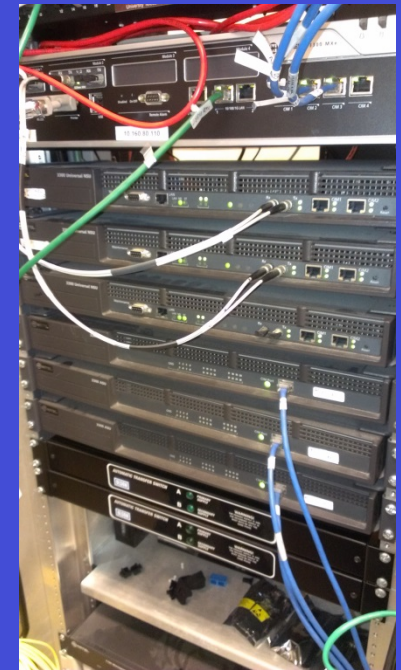
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No slac-ing please...

- Choose your own adventure?
 - Did you get his registration?
- IP Address Management
- DNS: It Just Works TM
- DHCP: Looks like it will work!

- Proteus v4 / Adonis v7

Thought about these?



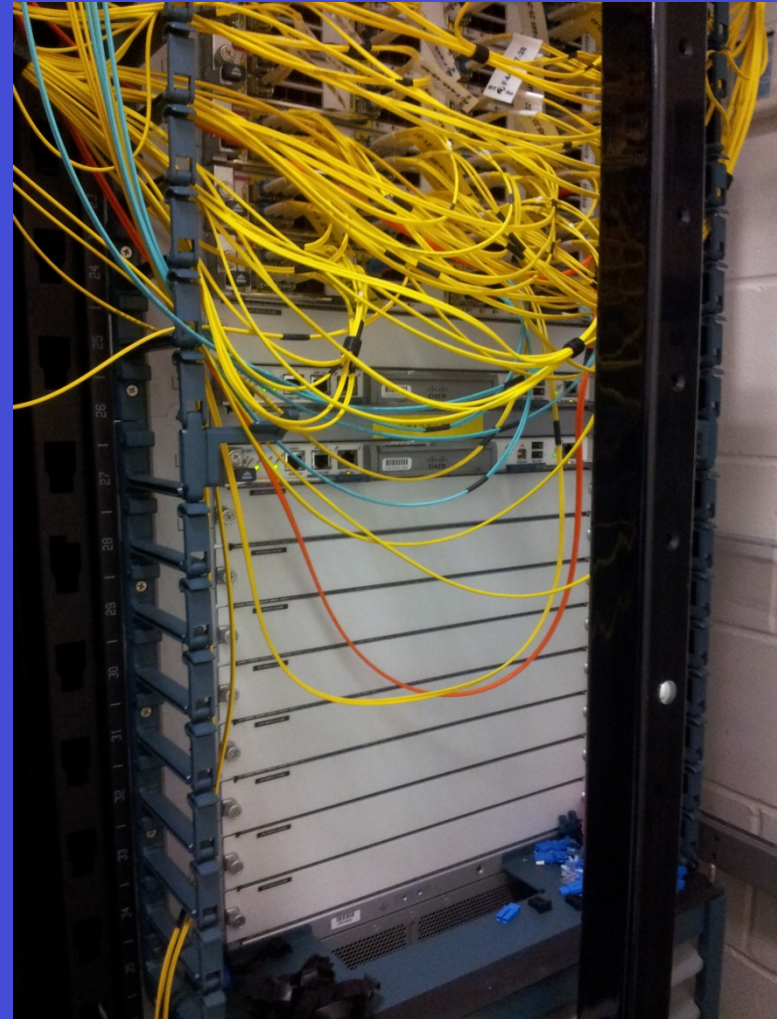
(No, nor us...!)

And now!

Mr Mark Charlton

Core Switches

- Cisco Nexus 7018
- Seamless upgrade
- IPv6 ready
- Many point-to-point links (/126)



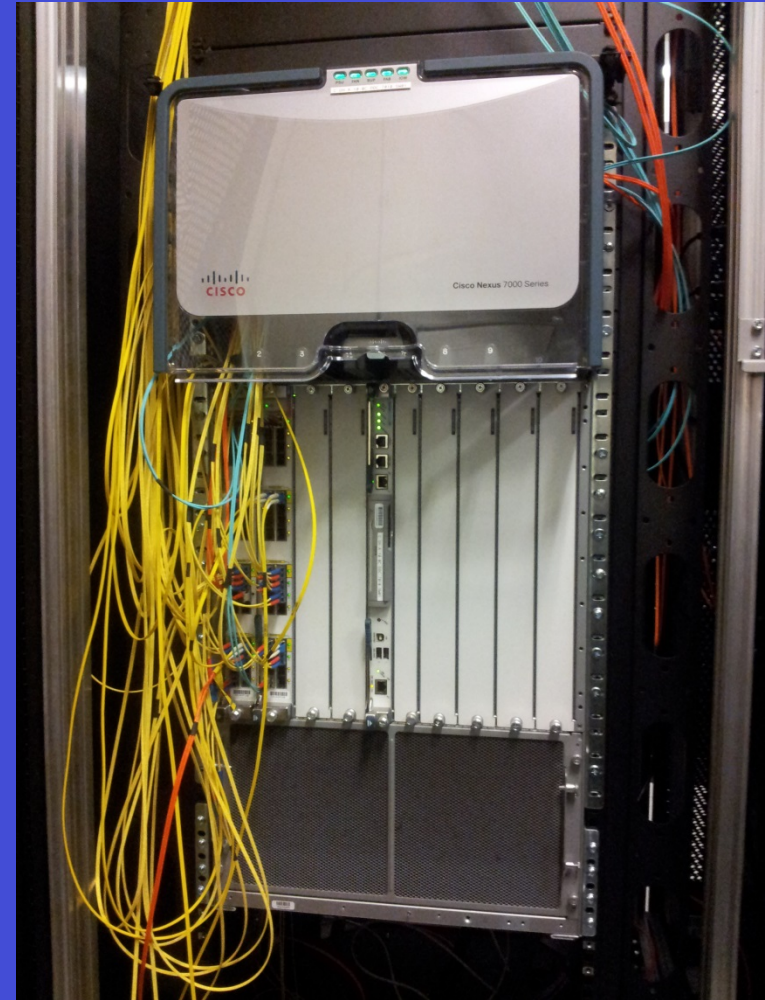
Distribution Switches

- Mostly VSS pairs
- v12 – v15
- Can't do ISSU upgrade – outage of ~2m30s due to cold standby



Data Centre

- Nexus 7010 pair
- Non resilient
- VRRP – HSRP
- Nexus 5k & 2k



Access Layer

- Only layer 2
- v15 to give full security features
 - RA guard
 - DHCPv6 snooping
- Reboot for new code & IPv6 memory allocation



Problems

- So many documents
- Finding the right versions of code & getting them
- Far too many code upgrades & disruptive reboots

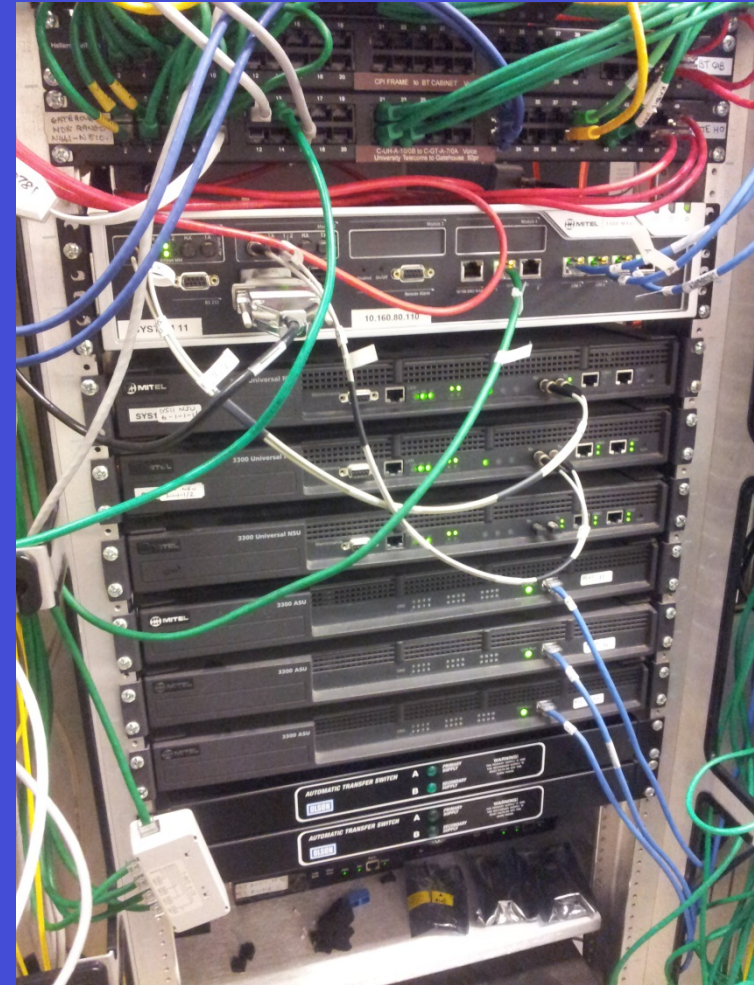


Problems

- Training courses assume greenfield site
- Rolling out across a live network
- Addressing scheme
- Don't subnet
- VRRP -> HSRP

Device Readiness

- IPAM – DNS – DHCP
- Telephony
- SCE
- Wireless



RFC1925

- “Some things in life can never be fully appreciated nor understood unless experienced firsthand. Some things in networking can never be fully understood by someone who neither builds commercial networks nor runs an operational network.”

RFC1925

- “Some things in life can never be fully appreciated nor understood unless experienced firsthand. Some things in networking can never be fully understood by someone who neither builds commercial networks nor runs an operational network.”
- IPv6 is one of these

Thankyou for listening

Questions?