



Orchestration, Automation and Virtualisation

A TNC19 AARNet Update

20-June-2019



Customer Line of Sight

We are all individuals

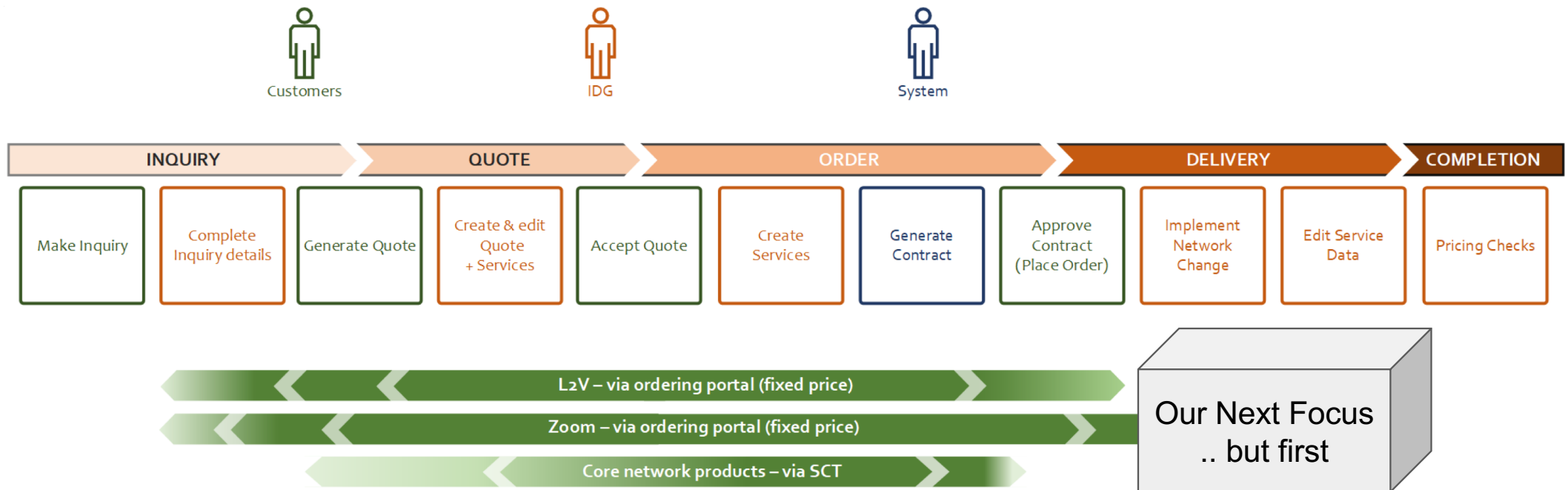
Homogenous Tasks



LINE OF SIGHT TO CUSTOMERS



Line of Sight to Customers



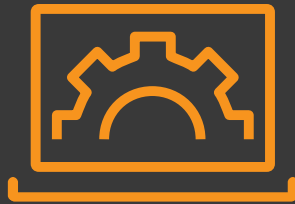
We've been pushing our automation activities outwards from the point of purchase.



WE ARE ALL INDIVIDUALS



AUTOMATION FOR INDIVIDUAL NETWORK SERVICES



Today

Cleansing bad data from our systems!
Automating read-only network activities.
Joining BSS & OSS data together to understand who/how customers are impacted by faults or planned changes.



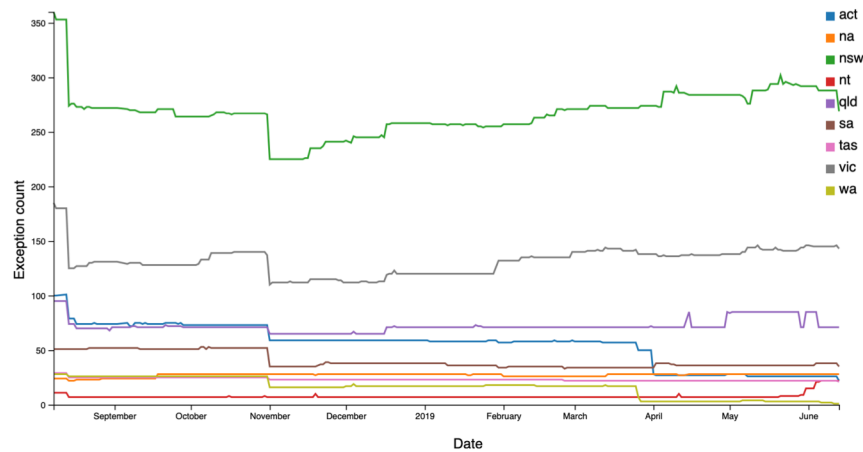
Next

Auto provisioning network services on network devices.
Starting with NTUs at the edge and working our way inwards to core routers.

Network Audit and Reconciliation

Corvu				Network				Error
Connecti...	Service ID	Customer	State	Alias	Name	Description	Interface ...	Error Message
ANS0046...	ANS0037...	[REDACTED]	nsw	na	nsw-pym...	xe-0/0/30	508	NTU interface admin status does not match CorVu
ANS0047...	ANS0037...	[REDACTED]	nsw	L2VPN A...	nsw-mcq...	ae0.1040	771	PE interface admin & operator statuses do not mat
ANS0048...	ANS0037...	[REDACTED]	nsw	L2VPN A...	vic-wmlb-...	ae0.1013	765	Service ID missing from Router port information
ANS0049...	ANS0037...	[REDACTED]	nsw	L2VPN A...	vic-nwbt-f...	Gi0/2	10102	Service ID missing from NTU information
ANS0050...	ANS0037...	[REDACTED]	nsw	L2VPN A...	vic-nwbt-f...	Gi0/2	10102	NTU operator status does not match CorVu

Network Audit and Remediation



We're doing significant work to make sure our systems of record and network match before we start automatic deployments

... otherwise automation will just help us do the wrong thing faster and more consistently.



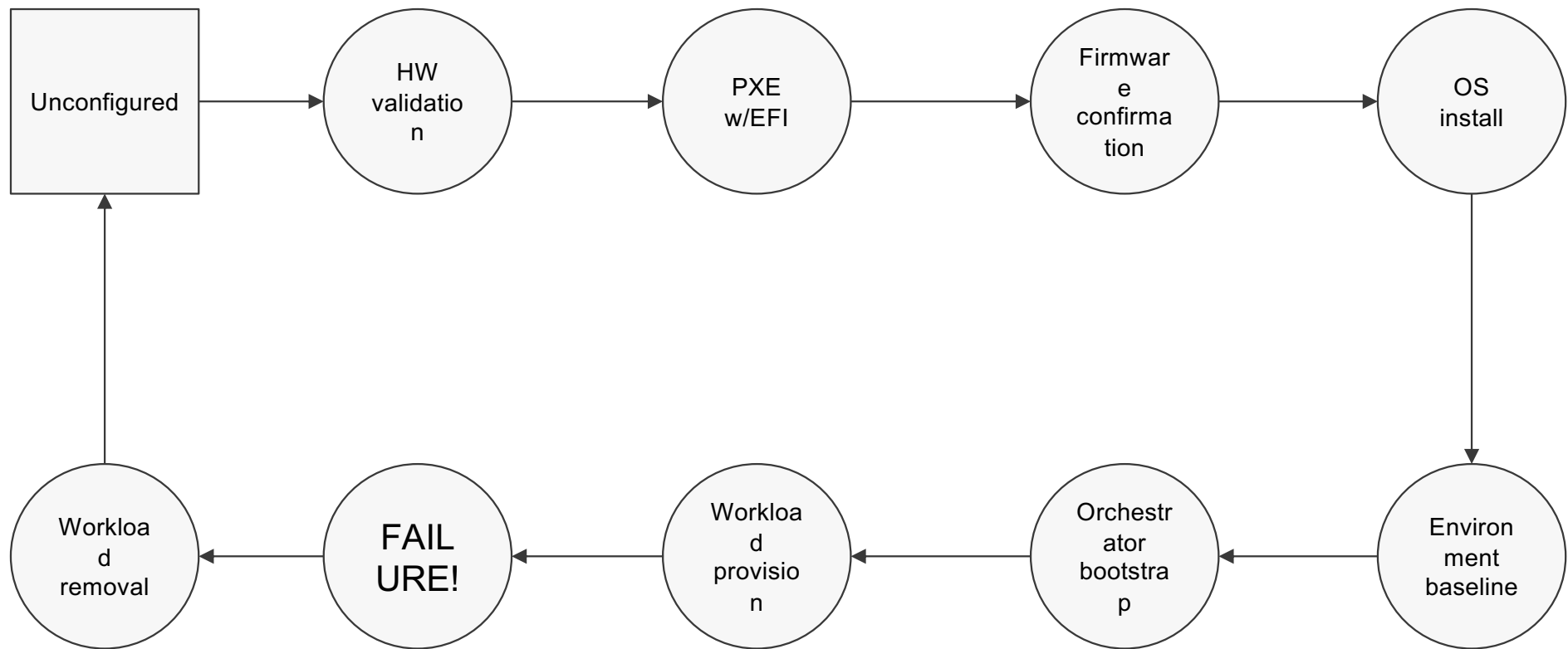
HOMOGENIUS WORK



Automation has existed in the systems and application deployment space for 15+ years

- **From BIOS and firmware standardisation to end of life destruction**
- **No explicit business value**
 - But it allows talented people to focus on doing new and better things
 - Actively focused on shrugging off the yoke of technical debt
 - Logging into a server, implies failure of methodology
- **Heavy code reuse, and branches of common components in git**
 - Across multiple platforms and environments
- **Everything is supposed to be ephemeral**
- **Of course we still have environments with ad-hoc management**
- **And many people need a paradigm shift in thinking**
- **But it doesn't differentiate between bare metal, VMs or cloud instances!**

Full life cycle management for our private cloud



Still a lot of work to go

- True CI/CD and testing
- Making it simple enough that it's intuitive to a non-systems person
- Extending it up and down the stack to network and application configuration
 - Unfortunately we're still in a world where software insists on state
 - Twelve factor app design is a good bludgeon
- Do have to make some firm decisions on capabilities



THANK YOU

