

Cisco, F5, Arista, Juniper,.... alle machen mit bei NetDev

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SLAC

Secure Linux
Administration
Conference 2016

15.-17. Juni 2016 | Berlin

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example42 GmbH
Puppet Expert Network

Puppet seit 2007

Puppet Trainer, Consultant

Co-Autor “Puppet 4
Essentials”

iX Puppet Tutorial (7-9)



NetDev

- Was ist NetDev?
- Warum NetDev?
- One API to rule them all?
- Lösungsansätze der Hersteller
- Gemeinsame Lösungsansätze
- Wie ist der aktuelle Stand?

Was ist NetDev?

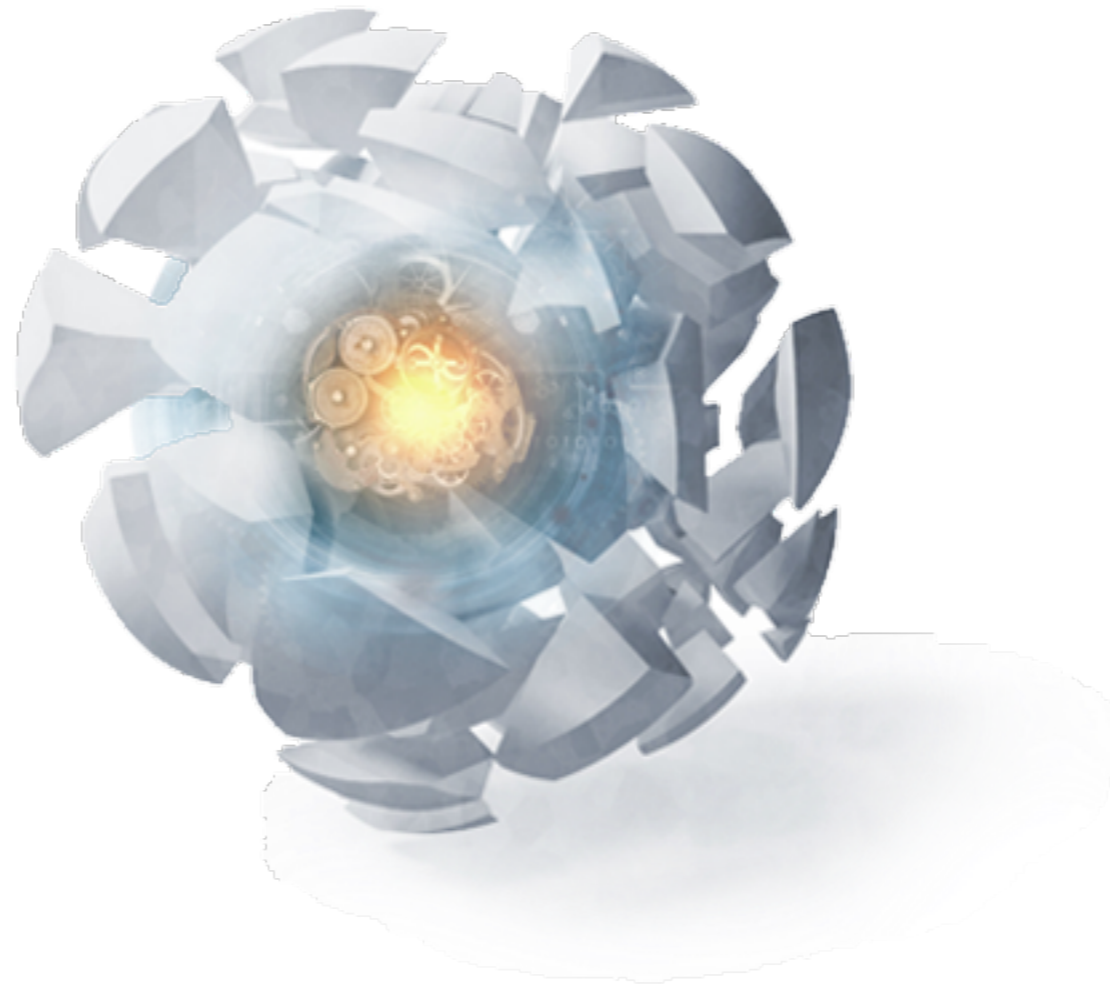


Image: Tatlin - tatlin.net

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DevOps

- Zusammenarbeit Entwickler und Admins
 - Culture
 - Automation
 - Measurement
 - Sharing

DevOps

- Ziele:
 - Automatisierung in der System Administration
 - Gemeinsame Verantwortung
 - Entwicklung und Analyse von Metriken

NetDev / NetOps

- Zusammenarbeit Entwickler & Admins und Netzwerker
 - Culture
 - Automation
 - Measurement
 - Sharing

NetDev / NetOps

- Ziele:
 - Automatisierung in der Netzwerk Administration
 - Gemeinsame Verantwortung
 - Entwicklung und Analyse von Metriken

Warum NetDev?



Image: Tatlin - tatlin.net

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Warum NetDev?

- Hardware Einbau - Manuell
- OS Installation - Automatisch
- VM Deployment - Automatisch
- OS Konfiguration - Automatisch
- Applikation Konfiguration - Automatisch

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- Switch/Router Konfiguration - Manuell?
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Warum NetDev?

- Switch/Router Konfiguration - Manuell?
- OS Installation - Automatisch
- VM Deployment - Automatisch
- OS Konfiguration - Automatisch
- Applikation Konfiguration - Automatisch
- LoadBalancer Konfiguration - Manuell?

Was mit NetDev?

- Interface Konfiguration
- VLAN Tag
- Bonding / Channel
- Balancer Konfiguration / Member Node

Was mit NetDev?

- Leaves und Spines
- TACACS (Zugangs Kontrolle)
- OSPF
- BGP
- ...

One API to rule them all?



Image: Tatlin - tatlin.net

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Warum API?

- proprietäre Tools
- Telnet/SSH + Config Paste
- Spezial Wissen notwendig
- keine Abstraktion / keine Idempotenz

API

- dedizierte Schnittstelle
- Remote erreichbar
- Autorisierung / Authentifizierung
- SSL

API

- einheitliche Syntax
- Detailimplementierung übernimmt API
- Restriktionen / Beschränkungen

API

- direkt auf dem Device
- auf einem “Proxy” System
 - Proxy System muss Zugang zum Device haben

Lösungsansätze der Hersteller

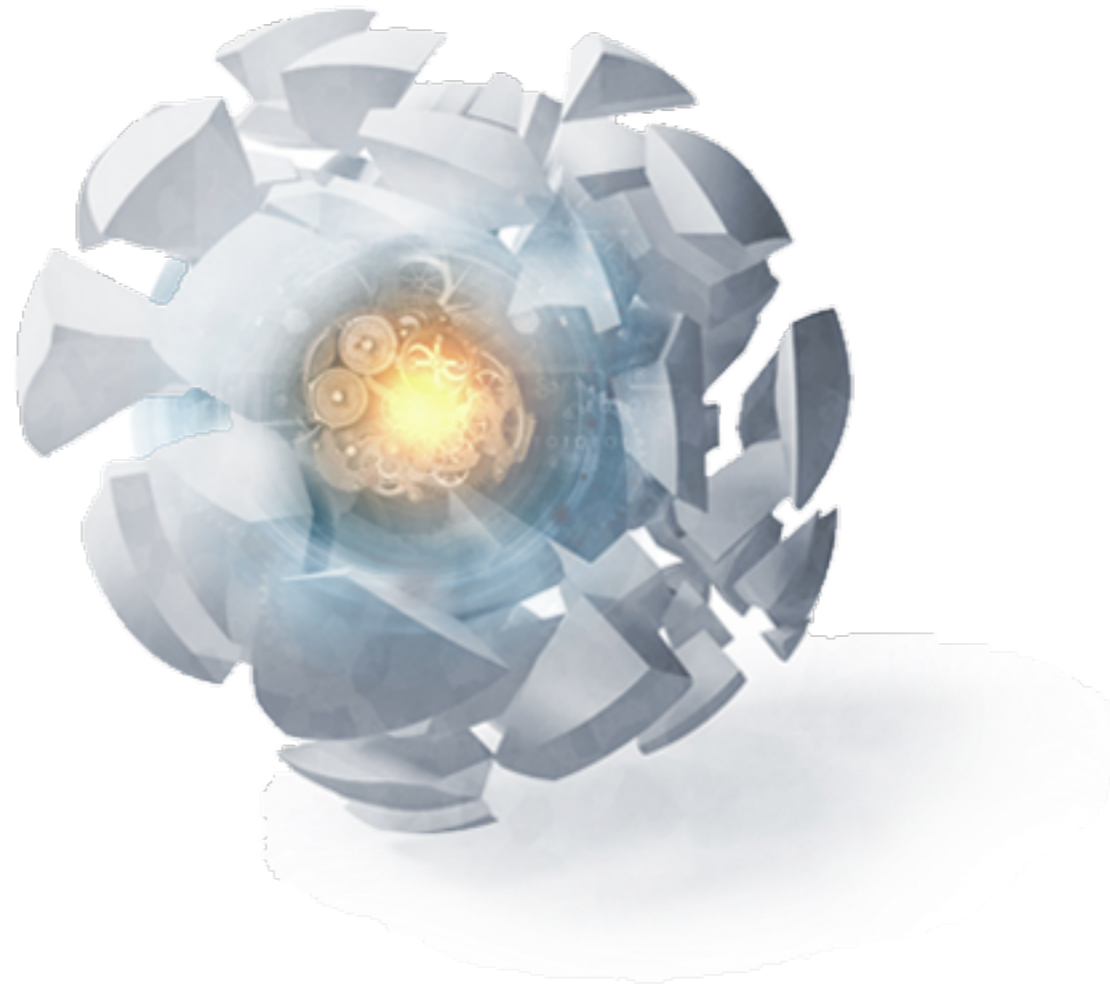


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Cisco



- Nexus - lokale Konfiguration
- Guest Shell, CentOS Baseroom oder Container
- NXAPI / SSH

Arista

- EOS Command API
- SSH oder eAPI
- native Ruby / native Python

The Arista logo consists of the word "ARISTA" in a bold, blue, sans-serif font. The letters are closely spaced and have a modern, clean appearance.

Juniper

- RPC oder CLI
- Management via NetConf



F5

- REST API
- tmsh Shell

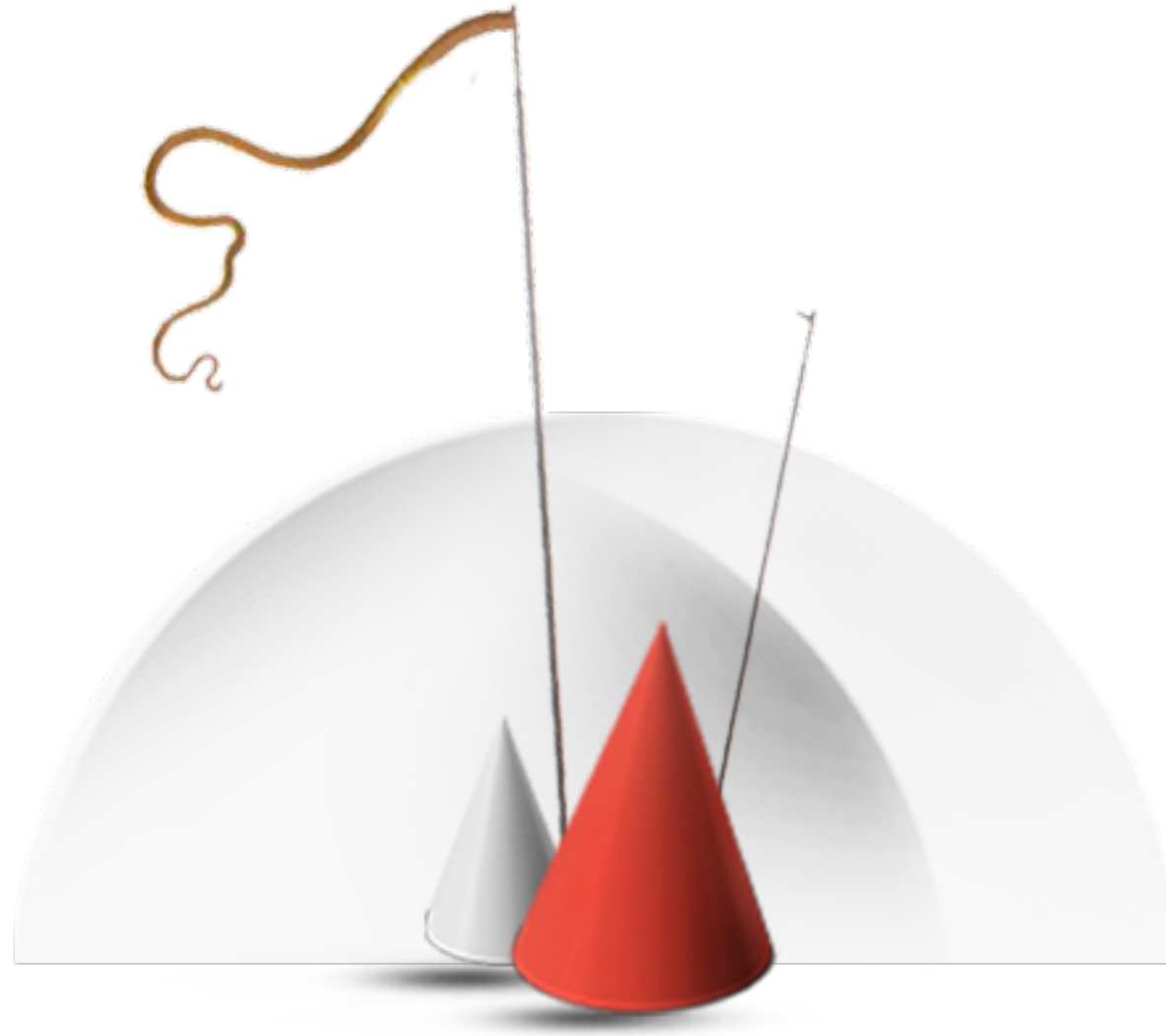


Palo Alto

- PAN Api
 - XML
 - Wildfire cloud & appliance
- <https://github.com/kevinsteves/pan-python/>



Gemeinsame Lösungsansätze

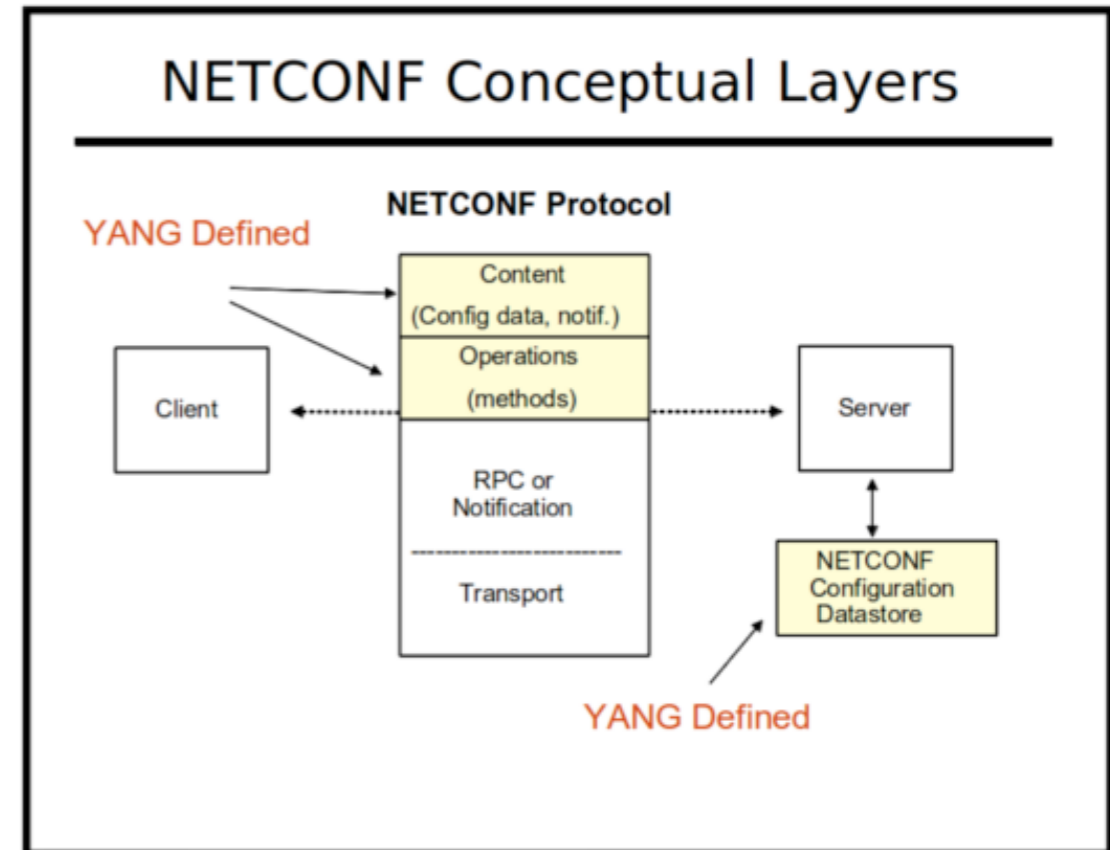


Gemeinsame Lösungsansätze

- NetConf Initiative (seit 2003 - in 2006: RFC 4741)
- NetDev Initiative (seit 2013)
- Zusammenarbeit von Netzwerk Herstellern (Cisco, Juniper, Arista, F5, ...) mit CfgMgmt Herstellern (Puppet, Chef, Ansible, Saltstack)

NetConf

- NetConf Initiative (seit 2003)
- XML Beschreibung
- RPC
- YANG (RFC 6020)



- Data Model Language for Network Configuration

NetDev

- NetDev Initiative (seit 2013)
 - Juniper + Puppet
 - Netzwerk Automatisierung

Wie ist der aktuelle Stand?

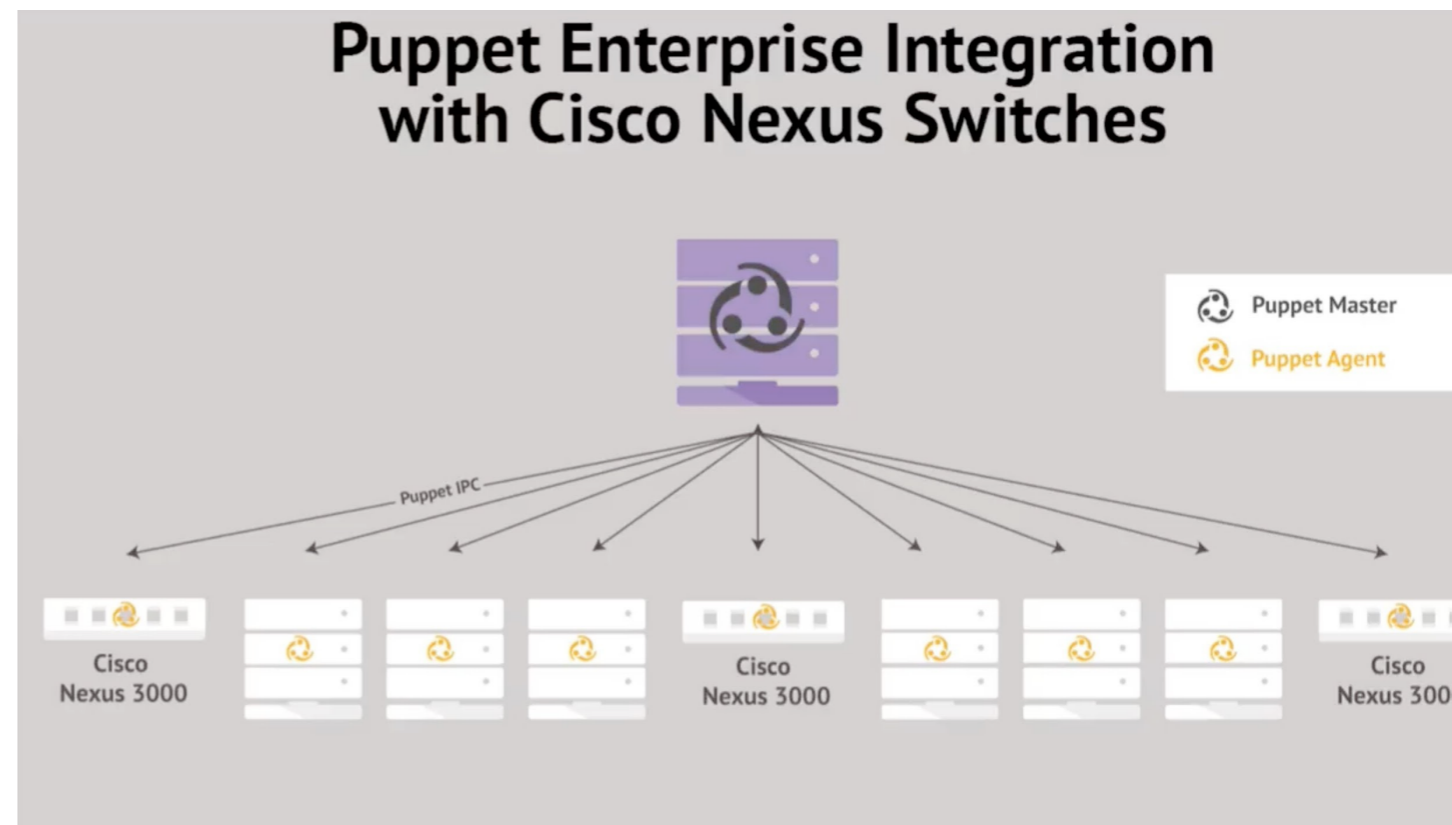


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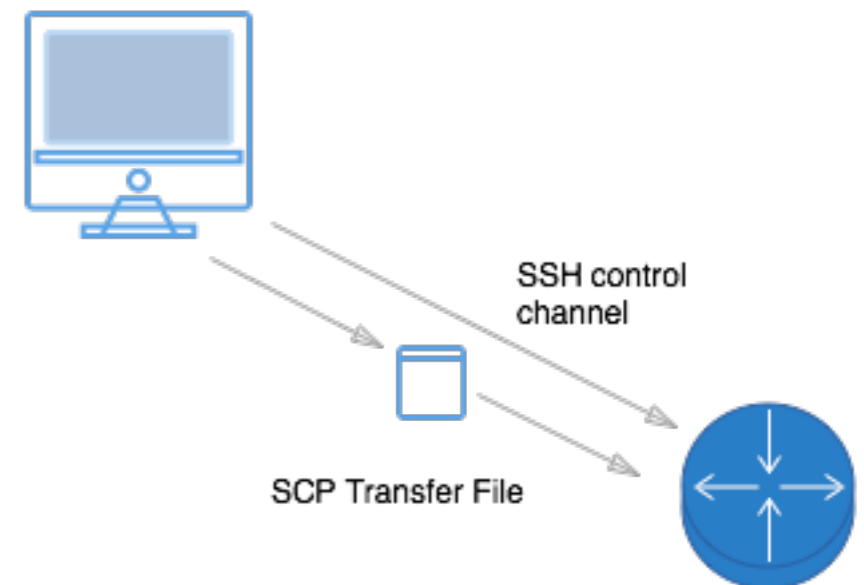
Cisco + Puppet

- <https://github.com/cisco/cisco-network-puppet-module>
- TACACS, BGP, Bridge, Fabric, Interface, OSPF, Multicast, Portchannel, SNMP, VLAN, VRF, VXLAN



Cisco + Ansible

- <https://github.com/jedelman8/nxos-ansible>
- IGMP, Interface, VRF, VPC, SNMP, VTP, VLAN, HSRP, VRRP



Cisco + Chef

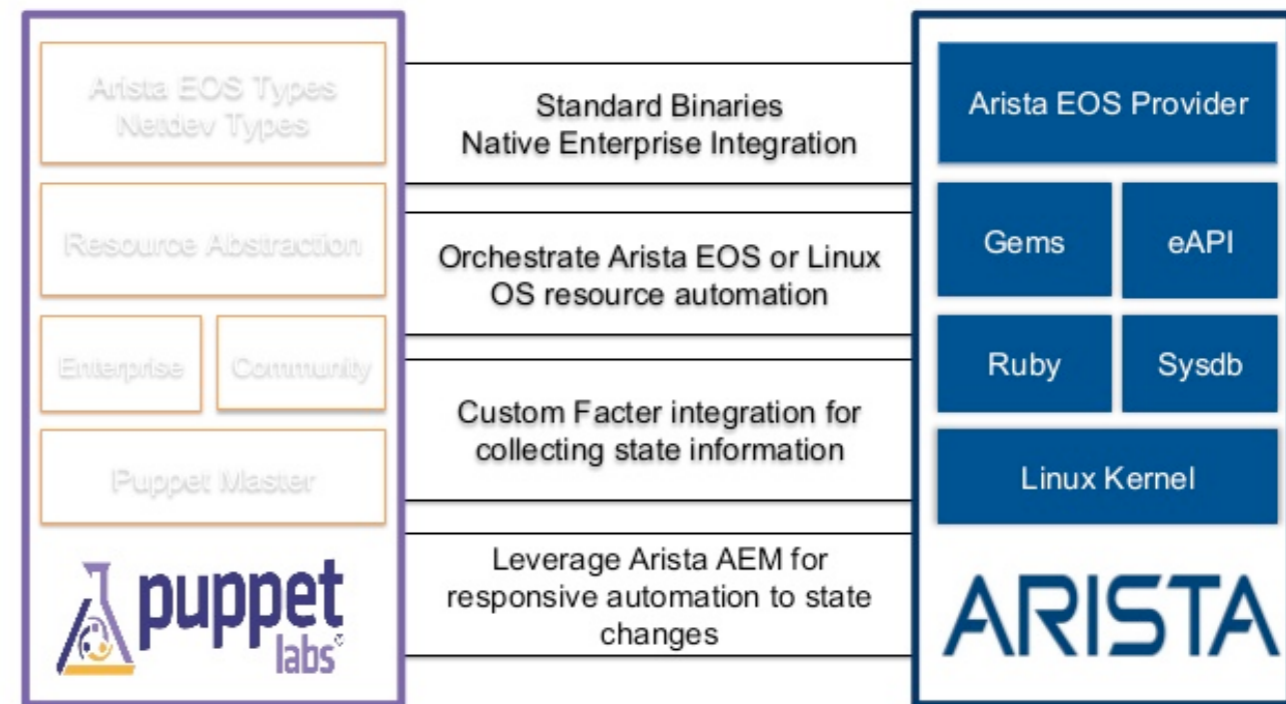
- <https://github.com/cisco/cisco-network-chef-cookbook>
- Interface, OSPF, Package, Command, SNMP, TACACS, VLAN, VTP



Arista + Puppet

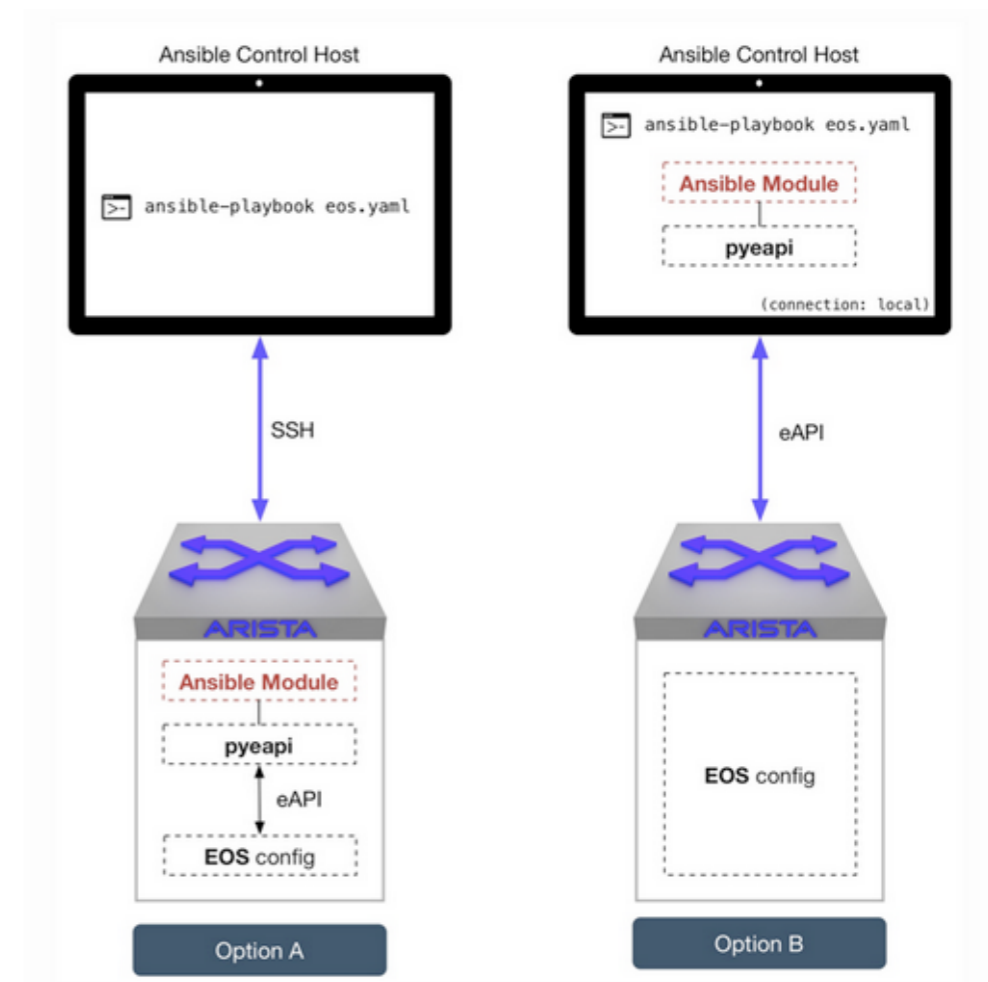
- <https://github.com/arista-eosplus/puppet-eos>
- swix Paket (PE)
- BGP, Interfaces, MLAG, Route Maps, VXLAN, SNMP, VRRP, VARP

Automation with Puppet and EOS



Arista + Ansible

- <https://github.com/arista-eosplus/ansible-eos>
- Bestandteil von Ansible Core Modules
- BGP, Bridging, Interfaces, MLAG, Route Maps, VXLAN



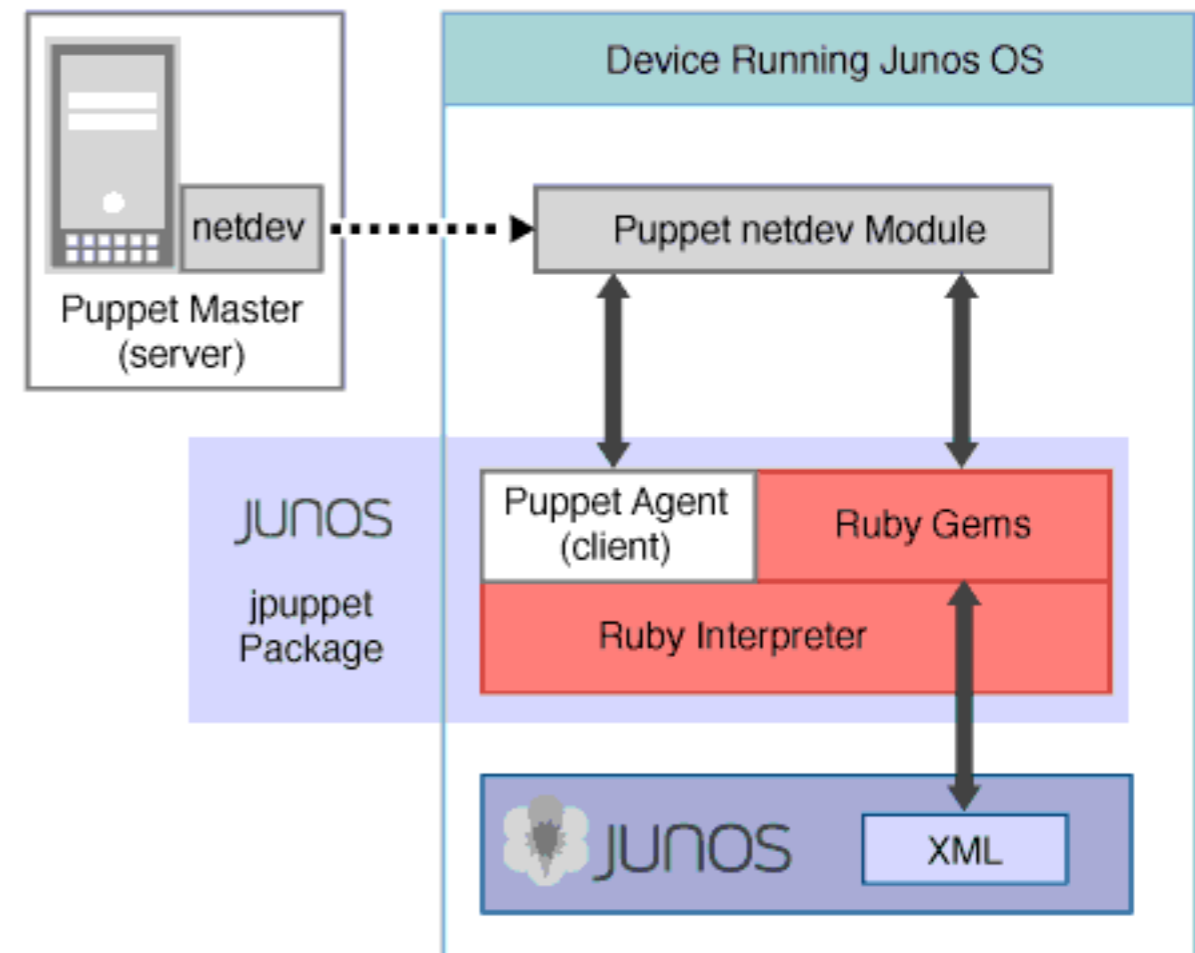
Arista + Chef

- <https://github.com/chef-partners/netdev>
- Interface, L2 Interface, Link Aggregation, VLAN, Group



Juniper + Puppet

- <https://github.com/Juniper/puppet-netdev-stdlib-junos>
- https://github.com/puppetlabs/netdev_stdlib
- netdev_stdlib Types
- L2 Interface, DNS, Trunk, VLAN, Radius, SNMP, TACACS



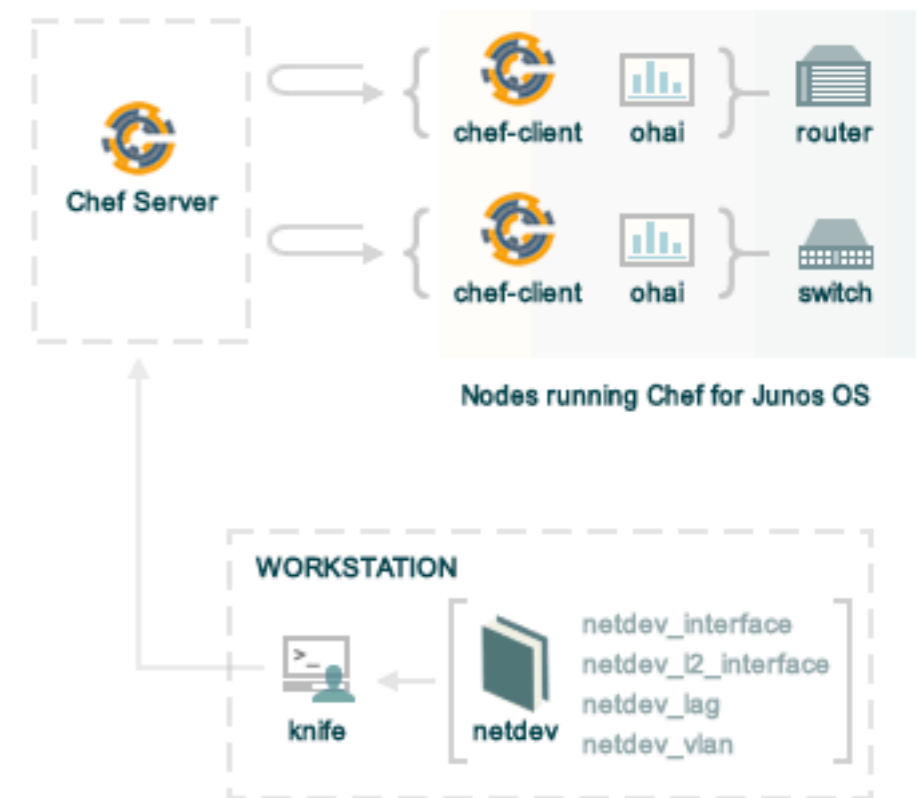
Juniper + Ansible

- <https://github.com/Juniper/ansible-junos-stdlib>
- Install_OS, Install_Config, Rollback, Shutdown, SRX Cluster, Zeroize



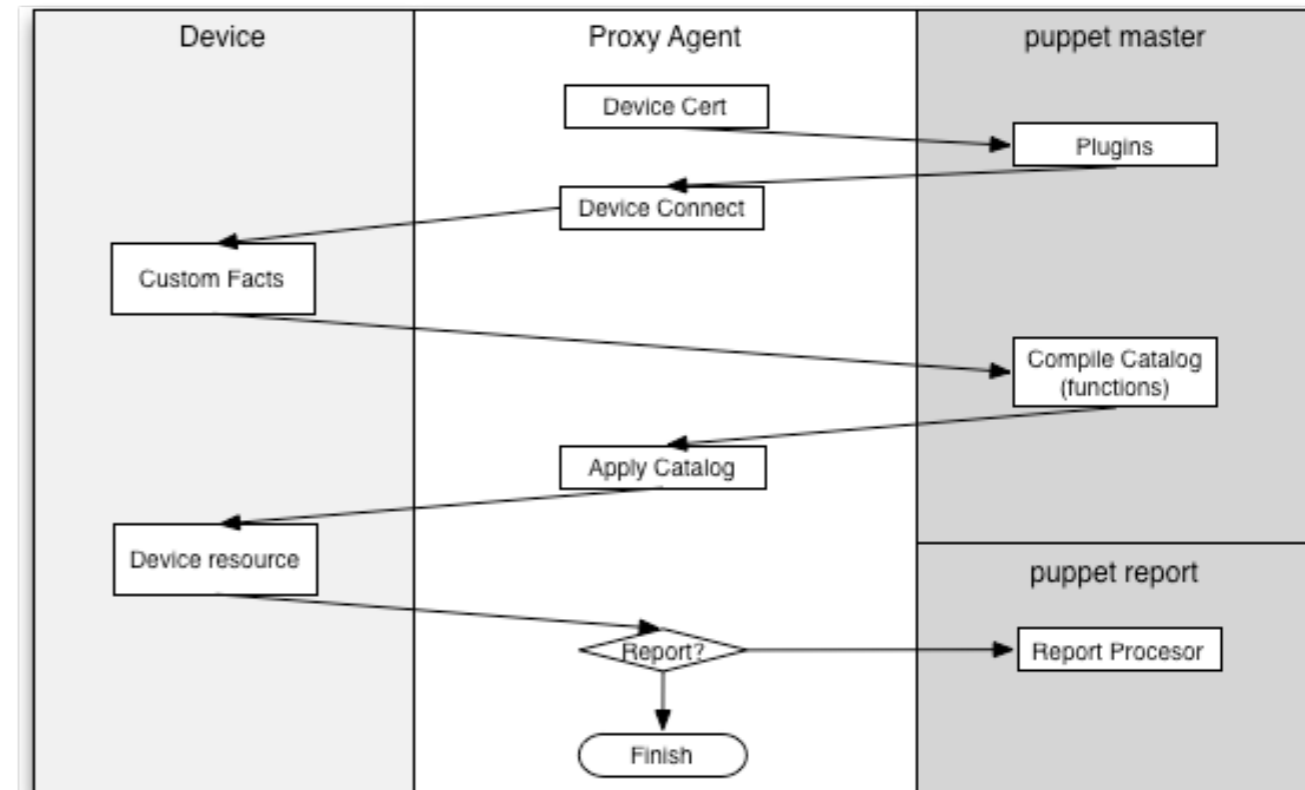
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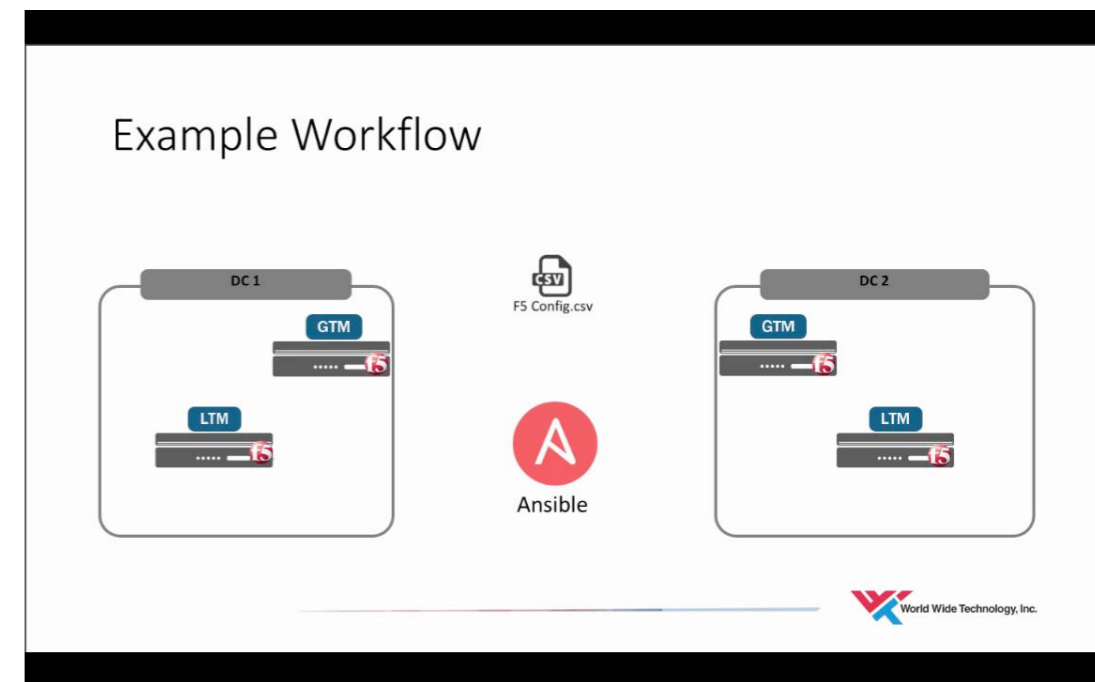
F5 + Puppet

- <https://forge.puppet.com/puppetlabs/f5>
- Konfiguration via Proxy Host (puppet device)
- f5_node, f5_pool, f5_virtualserver, f5_iapp, f5_irule, f5_monitor, f5_partition, f5_vlan, f5_selfip



F5 + Ansible

- <https://github.com/F5Networks/f5-ansible>
- GTM, iApp, iRule, LTM Monitor, Partition, Pool, License, SelfIP, User, Virtual Server, VLAN, Zone



F5 + Chef

- <https://github.com/target/f5-bigip-cookbook>
- Config, Monitor, Node, Pool, Virtual Server



CHEF™



PaloAlto + Puppet

- Offenes Ticket: “Add new module support for Palo Alto devices”



puppet

- <https://tickets.puppetlabs.com/browse/MODULES-3380>



PaloAlto + Ansible

- <https://github.com/PaloAltoNetworks/ansible-pan>
- DHCPPIF, DAG, DNAT, GP Portal Gateway, SNAT, SSHKey, Tunnel If, ...



PaloAlto + Chef

- ??????



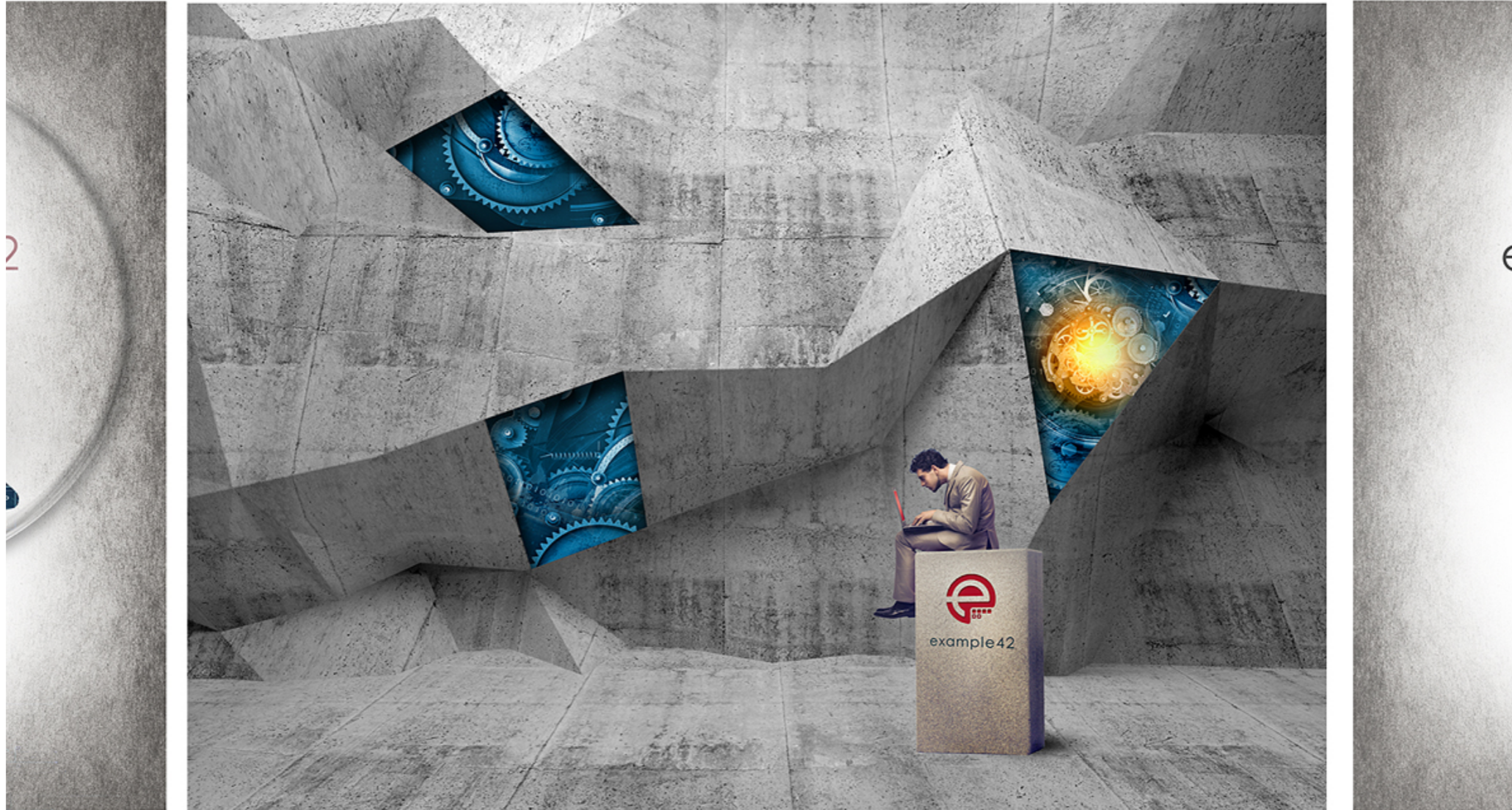


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Demo - Puppet & Cisco

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Fragen?

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