



Brian Tilburgs

Technical
Consultant/ Architect

PROFILE

I am a broad oriented and certified professional in the Datacenter Infrastructure Technology. My speciality is to integrate multiple building blocks (Datacenter Networking, Security, Compute and Virtualization, Storage) in the Datacenter and preferably with an SDN layer like Cisco ACI.

My main Focus is on infrastructure projects with Cisco ACI, I prefer to run the project from Design till Implementation/ Migration (gathering requirements, discussing the design, explaining technologies, planning migrations, racking and cabling) and always with focus on the 5-year dot on the horizon.

I have deep knowledge about Cisco Networking (ACI & Nexus), Cisco Compute, VMware Virtualization and firewalling. To understand the complete Datacenter Infrastructure, I did follow an EMC and a NetApp implementation training. In the past I have been working with Security components for Ten years, this is not my focus anymore but the knowledge about security designs does help me to integrate security in the Datacenter.

The last 7 years I have build advanced knowledge of Python programming for network automation via API's, all configurations I make and all information gathering I do will be with Pyton scripting and REST APIs.

WORKEXPERIENCE

RWS

TECHNICAL CONSULTANT/ ARCHITECT

Mar 2021 - Current

Design + Implementation, Rijkswaterstaat Datacenter network.

Restructure the datacenter network to meet 5-year future dot on the horizon requirements. New Security design for application segmentation and the possibility to automate application deployment **including** application segmentation.

Design MultiPod/ MultiSite ACI Fabric: The extension to new datacenter rooms required to scale the fabric within the datacenters with maintaining the possibility to use network services between the rooms. The second requirement that arose due to changes in the VMware NSX-T design was security policies over multiple datacenters. To meet these requirements in the near future I have created MultiPod/ MultiSite design that will create the scalability and security requirements.

Redesign of security topology for better security and automation.

The security design in the existing fabric was mostly network centric and was a blocking factor for securing and segmenting applications. Parts of the datacenter applications are secured with NSX-T but due to the problems with this product and configuration a new security structure is needed. Together with the Domain architect I have worked on a design for North-South firewall services in Cisco ACI, East-West security policies in Cisco ACI, with a possibility to keep NSX-T for segmentation within the application chain.

Automate configurations Cisco ACI, Checkpoint Firewall and Infoblox DDI with Python. From the need of configuring objects in a

consistent/ faultless way I started working on the creation of what became a Web+API portal that is an interface for gathering information and creating configurations.

Written Multiple Python scripts for automating configurations in the following building blocks:

- Cisco ACI
- VMware NSX-T
- Infoblox DDI

All in Docker containers running in self deployed **Kubernetes** cluster.

PERSONALIA

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TECHNICAL SKILLS

PRODUCTS

- Cisco ACI (expert)
- Cisco Nexus 2k, 5k, 7k, 9k (expert)
- Cisco UCS (expert)
- Cisco ASR (Advanced)
- Cisco ASA (Advanced)
- Juniper SRX (Advanced)
- Fortinet FortiGate (Advanced)
- VMware ESX, vSphere (Advanced)
- VMware NSX (Basic)
- VMware NSX Routing (Advanced)
- F5 Loadbalancer (Adv. Routing + Basic AD)
- EMC/ NetApp Storage (Basic)

TOOLS

- Python (Advanced)
- REST API (Advanced)
- RESTCONF/ YANG (Advanced)
- PowerShell (Basic)
- Linux shell scripting (Basic)
- Rundeck/ Puppet (Basic)

DICTU

TECHNICAL CONSULTANT/ ARCHITECT

Sept 2019– Mar 2021

Automate configurations Cisco ACI, Checkpoint Firewall and Infoblox DDI with Python. From the need of configuring objects in a consistent/ faultless way I started working on the creation of what became a Web+API portal that is an interface for gathering information and creating configurations.

Design MultiPod/ MultiSite ACI Fabric, to improve the availability of network and other infrastructure our team proposed a multisite ACI network that separates fault domains but keeps the flexibility and speeds needed for applications. This Fabric is in the Build phase now.

Integration of Kubernetes Containers in Cisco ACI. The new application landscape demands for new faster deployment techniques, that is the main reason for using containerplatforms. Kubernetes can integrate with Cisco ACI to exchange information about the Pods and their functions so ACI can apply policies and exchange information with firewalls to get the complete network working around the application.

Redesign of security topology for better security and automation. The security design in the existing fabric was mostly network centric and was a blocking factor for securing and segmenting applications. This concrete model made the automation of application deployment almost impossible, the new model wil deploy network policies with and per application.

Multiple Python scripts:

- Cisco ACI
 - Find/ Create contracts between EPG's
 - Find/ Create Service Graphs
 - And more...
- Checkpoint Firewall
 - Find/ Create Firewall policies from ACI contract information
- Infoblox DDI
 - Find/ Create networks
 - Register next available IP
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VECOZO

TECHNICAL CONSULTANT/ ARCHITECT

Jul 2016–Sept 2019

Checkup of the security model in Cisco ACI. After rolling-out a new infrastructure bases on Cisco ACI, EMC VPLEX/ VNX and Microsoft Hyper-V requested a review of the infrastructure before going life. After the review we migrated the production environment together from the existing datacenter to the new dual on the new infrastructure.

Integration of Cisco Firepower Firewalls in ACI, From the need to tighten security policies the customer wanted to integrate Cisco ASA firewalls into Cisco ACI. For this project I created the Design and implemented the solution together with the customer.

Integration of Cisco ASR in Cisco ACI. The new cisco ACI infrastructure still used an old routing core that didn't meet performance and security requirements. In this project I created a design and implemented four new ASR routers as a Datacenter Core

Integration van NetScaler in Service Graph in ACI. The current project I'm working on is the integration of Citrix NetScaler into Cisco ACI service Graphs. The goal is to be able to add load balancing functions per protocol transparently for different types of servers.

Multiple Python scripts:

- Create drawings of ACI structures into OmniGraffle (Visio for Mac)
- Applications for moving traffic and Changing NAT rules and ACLs
 - Cisco ASR RESTCONF/ YANG
 - Cisco ASA (REST API)
 - All in a GUI for non-network admins

BAUHAUS/ ARTITECH

TECHNICAL CONSULTANT

March 2019–

Together with Bauhaus we created a High-Level Architecture for Connectivity in two new datacenters for their customer. The HLAC includes a new Cisco ACI Multi-POD design and a complete migration scenario for the move to new Datacenters.

March 2019– 5day

I gave a 5-day training for Network Engineers/ Consultants to learn automating Cisco ACI with Python scripting. The training contained:

- Basic Python knowledge
- Cisco ACI APIs
- GIT Basics and Using
- Tools for exploring APIs
- From 0 to Deployment and More

The Training was for 5 persons and the goal was to let the group deliver a Script and Library for deploying Cisco ACI configurations from user input or an Excel file.

TELINDUS/ VITENS

TECHNICAL CONSULTANT

Jul 2018–okt 2018

This project was a project sold by Telindus to Vitens, a water company in Netherlands. I did this project on behalf of Telindus

Implementation of Cisco ACI: For this project I finished the design and gathered all the network configurations, partially with Python/ XML, I formatted all information for the new deployment in one big excel file.

The goal was to deploy all customer configuration with python scripting in a structured way. After the scripts were finished every change in the excel file was pushed into the fabric by running the script again. The **complete deployment took only a few minutes** to complete. After deployment we migrated L2 and L3 functions from Nexus 7k with Python scripting to minimize the impact for L3 migration.

DEPT OF JUSTICE & SAFETY

TECH ARCHITECT

May 2015–mar 2018

Dual datacenter move to new dual datacenter: In this project I designed and build the complete network infrastructure for the new datacenter. After completing the new network infrastructure, we connected the four datacenters and moved applications and storage in two steps without downtime. In this project I implemented Cisco ACI, ADVA dwdm and integrated these with the existing platforms.

Design of security model for Cisco ACI. In this project the customer asked me to create a design and automation for rolling out new Oracle 12c multi-tier applications. We created templates for rolling out 1-2-3 tier application with Load balancing etc. from now on every new application is rolled out fully integrated with Cisco ACI policies.

Integration of F5 Load balancers with ACI. The creation of a design and the implementation for integrating Multi VRF Loadbalancer one armed with OSPF/ BGP.

Integration van Cisco ASR in Cisco ACI. Due to limitations in the combination of routing protocols and the Fortinet firewall there were a few problems with manipulating traffic paths. To enable all traffic manipulation features needed we implemented Cisco ASR routers with VRF/ MP-BGP/ Route leaking.

Design and implement of a CI/ CD structure. In this project I am responsible for integrating the deployment tools for all building blocks from Storage to Application. The building blocks contain: Networking, Security, Virtualization, OS deployment, Middleware deployment and application deployment. The tools that are used for the deployments are: Python scripting, Puppet, SALT stack, Jenkins, Rundeck and a self-created API server for communication between all platforms.

Multiple Python scripts:

- Deployment of new Application Network Profiles with templates for multiple application structures
- Multiple Cisco ACI functions
- Create drawings of ACI structures (Tenant/ ANP/ EPG/ contracts, complete routing, etc.)
- Configuring new VIPs into Cisco ACI and F5 Loadbalancer (complete configuration)
- Multiple others

CERTIFICATION

Cisco Certified Network Professional - Data Center	Dec 2014 – May 2021
Cisco Certified Network Professional - Enterprise	May 2001 – May 2021
Cisco Certified DevNet Associate	March 2020 – sept 2023
VMware Certified Advanced Professional 5 - Data Center Design (VCAP-DCD)	Feb 2014 – Present
VMware Certified Professional 6 - Data Center Virtualization	Jan 2012 – Present
Fortinet FCNSA + FCNSP	Feb 2012
EMC Installation Engineer (EMCIE)	Jul 2011- Present
NetApp Certified Data Administrator (NCDA)	May 2001 – Dec 2017

EDUCATION

Learn python the hard way	Dec 2015
Cisco Advanced ACI Troubleshooting at Cisco Systems	Mar 2018
Cisco Application Centric Infrastructure (ACI) at Cisco Systems	January 2015
VMware NSX Technical Bootcamp at VMware	June 2014
Bachelor of Science, Elektrotechniek/ Telematica at Hogeschool van Utrecht	1996 – 2000
MBO Elektrotechniek/ Telematica at Versfelt-Ruygenhoek College	1993 – 1996

HOBBY'S

- In my free time I try to spend some time sailing, having vacation with my family or joining the 24-hour race on the IJsselmeer.
- Four years ago, I started riding on the motorbike to work, that made me feel free on the road. I bought my own motor for traveling to work and the holidays.
- Playing the Bagpipes at Saint Anthony Pipe Band since 2019.

LANGUAGE

Dutch	Native
English	Advanced
French	Basic

DRIVERS LICENSE

- Motor
- Car

