

# Mattias Giese

SOLUTION ARCHITECT · SYSTEMS ENGINEER · TEACHER

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## Summary

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Solution Architect at B1 Systems GmbH, a company focusing on consulting, training and software development based on Linux and Free/Open Source Software with countless projects in middle-sized to large Enterprises and a multitude of industries like Automobile manufacturers, media agencies, banks, insurance, financial service providers and also software companies. Enthusiastic nerd that loves Linux and all the freedom that comes with it, is obsessed with automation and enjoys working with config management systems and APIs to glue systems together in order to create awesome infrastructure and processes that people can rely on. Loves to learn about new technologies and tools and likes to spread the knowledge about them.

## Skills

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### TECHNOLOGY

#### Operating Systems

THE THINGS THAT MAKE THE COMPUTER GO BEEP

- Microsoft Windows: XP-10, Server 2003-2016
- Linux:
  - RHEL 4-7
  - CentOS 5-7
  - SUSE Linux Enterprise 10-12
  - openSUSE (since 2011)
  - Debian GNU/Linux 3 and following
  - Ubuntu Linux 4.04 and following
  - Archlinux (since 2007)
  - some CoreOS/Container Linux
- Relevant certifications:
  - RedHat Certified Engineer 6
  - SUSE Certified Linux Engineer 11/12
  - SUSE Certified Instructor
  - SUSE Certified Sales Specialist
  - Windows Server 2008 R2 Server Administrator
  - TS: Windows Server 2008 Active Directory
  - TS: Windows Server 2008 Infrastructure Services
  - TS: Windows 7 Administration

#### Virtualization/Containerization

BECAUSE COMPUTERS CAN RUN INSIDE OF COMPUTERS

- Docker, LXD, lxc
  - docker-compose, docker-machine, docker-swarm
  - LXD on Ubuntu, also used as 'Hypervisor' for OpenStack
- libvirt: KVM/Xen
- VMWare vSphere
- Oracle Virtualbox (mostly for vagrant)

## Tools

### THINGS USED TO MANAGE OTHER THINGS

- Configuration Management:
  - Puppet (including PuppetDB, hiera, r10k, rspec-puppet, beaker/testkitchen)
  - Ansible (with ansible-vault, dynamic inventories)
  - Chef
  - Salt
  - CFEngine
- Systems- and Patchmanagement:
  - RedHat Satellite 5/6
  - Katello
  - Spacewalk
  - SUSE Manager
- Relevant certifications
  - RedHat Certified Architect - Satellite 5
  - RedHat Sales Engineer Specialist - Cloud Automation
  - SUSE Certified Administrator in Systems Management
  - Certified Puppet Professional 2014
- CI/CD:
  - Jenkins
  - Open Build Service (Package building for RPM/deb, Images)
  - packer
  - vagrant

## Programming

### DIFFERENT TONGUES THAT TRANSLATE TO ONES AND ZEROES

- Bash
- Python
- Ruby
- Perl
- In general: OOP practices are known and used when appropriate

## LANGUAGES

In addition to having German as mother tongue i am also able to speak English proficiently as well as having a basic understanding of Spanish (A2)

## PERSONAL

- Attention to detail
- Responsible and well organised
- Able to work autonomously or in a team environment
- Flexible and adaptable
- Hard working and fast learning

## Work Experience

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### KEY PROJECTS

#### Complete reimplementaion of the internal deployment and configuration management infrastructure

##### TELEMATICS SOLUTION PROVIDER

- Complete re-implementaion of the internal deployment and configuration management system based on Foreman (Deployment, Visualization), Spacewalk (Patchmanagement) and Puppet/Ansible (Configuration management, Deployment)
- Implementation of a completely unattend deployment process, including automatic integration into the internal monitoring system as well as inventory management (Kickstart/AutoYaST)
- Migration of old Puppet code (2.x) to a new architecture featuring Puppet 5 and hiera for configuration data storage. Refactoring of old code to new development paradigms. Implementation of a CI pipeline for new Puppet code with automated syntax and lint tests as well as deployment via r10k (Puppet control repository)
- Implementation of several python-based tools to further automate different administration processes like system upgrades (SLES service packs with Spacewalk) and configuration of specialized internal applications. Revamp of pre-existing Ansible playbooks used for the deployment of several key applications
- Integration of the aforementioned deployment infrastructure into a ticket workflow based on Jira where developers/testers may request custom system builds which will be automatically deployed once a request is validated
- Infrastructure landscape: hundreds of systems in several internal networks as well as public facing systems
- Technologies used: SUSE Linux Enterprise Server 11/12, CentOS 7.x, Ubuntu Linux 14.04/16.04, Puppet 5.x, Ansible, Foreman 1.17, Spacewalk 2.8, AutoYaST, Python 2/3, bash, Ruby, Atlassian Jira, Atlassian Bitbucket, Mattermost, Icinga 2, ISC Bind 9, ISC dhcpd

## **Implementation of a streamlined automatic deployment solution for RHEL/CentOS 7 and Windows Server 2012 R2/2016**

### **RETAIL CHAIN**

- Creation of a completely new deployment platform based on the autoinstallation frameworks of Windows Server 2012 R2/2016 (unattend.xml/Windows PE) and RedHat Enterprise Linux/CentOS (Kickstart) based on Katello/Foreman for completely unattend provisioning.
- Windows Deployment was done using a custom Windows PE image, bypassing the regular installation mechanism to better automate the deployment process and for tighter integration into Foreman and its feature set.
- Development of a Foreman smart-proxy plugin (Ruby) in order to orchestrate DHCP/DNS infrastructure (Bluecat DHCP/DNS Server/IPAM)
- Seamless installation of new bare metal as well as virtual machines hosted on VMWare vSphere.
- Integration with the deployed CMDB system i-doit (Automatic creation of records and updating of parameters as well as decommissioning)
- Automatic configuration of both platforms with the help of Puppet 4.x/5.x, including automatic Active Directory Joins and basic application deployment (chocolatey on Windows). Automatic integration with patch management systems (Katello for RHEL/CentOS) and WSUS for Windows Server platforms.
- Infrastructure landscape: several hundred to thousand machines with a multitude of different networks and DMZs
- Technologies used: Puppet 4.x/5.x, Foreman 1.13-1.15, Katello 3.x, Ruby 2.1, Python 3, Kickstart, Windows PE scripting, Windows MDT, chocolatey, RHEL/CentOS 7.x, Windows Server 2012 R2/2016, Bluecat IPAM, DHCP/DNS Server, bash

## **Implementation of an automated patch process for RHEL 5-7 machines with complete audit/backlog**

### **FINANCIAL SERVICES PROVIDER**

- Being bound to security standards like PCI-DSS my company was approached by a german financial service provider to help automate their patch procedures.
- Several tools had to be integrated/orchestrated: RedHat Satellite 5.x (Patch management tool), Atlassian Jira (ticketing system/audit), National Vulnerability Database (nvd.nist.gov).
- Creation of a bridge to nvd.nist.gov in order to better classify security patches from RedHat against the CVSS base score of the NVD because of PCI-DSS requirements
- Development of a bridge from Satellite into the ticketing system. The bridge automatically opens new tickets with specified subtasks (as demanded by the customer). The bridge automatically keeps track of the patching process, updates tickets as systems are getting patched and automatically closes each specific ticket as soon as patching a specific vulnerability is completed.
- Additionally an easy to use text-mode frontend had to be created for the systems engineer to initiate the patching itself.
- Upon completion of this project the overall time needed to manage the monthly patching process was reduced from roughly 2-3 days to around 5 minutes.
- Technologies used: RedHat Satellite 5.x and its APIs, Python 2.7, Atlassian Jira APIs, nvd.nist.gov XML-dumps, bash

## **Implementation of an automatic deployment system for Windows 7 and technical training resources based on Linux/Bittorrent**

### **PROVIDER OF TECHNICAL TRAININGS**

- The training provider i worked at needed a better process to deploy the training materials/virtual machines and configuration needed for new courses. As there are different courses with their own requirements each week, every workstation needed to be deployed at least once a week.
- To work around the limitations of Windows and its deployment process a new (at the time) feature of Windows was used: Direct booting of WMI-Files
- With the help of a custom Linux live system booted via PXE, a new Windows Image will be deployed to the machine
- The live system obtains a list of needed resources for the next course from a central application (developed in PHP)
- Then the relevant courseware (with peer2peer download via bittorrent) is copied to the local machine. The usage of bittorrent is critical here because several Microsoft technical courses are huge in terms of filesize (VM Images, Setups, ISO Files)
- After the first boot, several VBScript and Powershell based scripts configure the machine in order to support the next weeks course. Group policies handle the generic configuration of the machines.
- Technologies used: Debian preseed/liveiso tools, bash, aria2c/bittorrent, Windows WMI Image format, VBS, Powershell, Active Directory Group Policies, PHP

## WORK HISTORY

### B1 Systems GmbH

Vöhrburg, Germany

#### SOLUTION ARCHITECT

May 2011 - PRESENT

- Delivering solutions for infrastructure automation and ease of administration in a variety of companies ranging from banks/insurance companies to automobile manufacturers, digital media agencies and software vendors
- Conducting trainings in the field of configuration management and systems management technologies
- Giving talks about those topics at various conferences as well as writing articles in highly respected german subject literature
- Typical technologies used in projects:
  - OS: RedHat Enterprise Linux 5-7 (including Kickstart), SUSE Linux Enterprise 11+ (with AutoYaST), Debian/Ubuntu Linux (with preseed), some Windows Server 2012-2016, Windows 7-10
  - Puppet (with PuppetDB, hiera, r10k, rspec-puppet, beaker/testkitchen), Ansible (with ansible-vault, dynamic inventories), Chef, Salt
  - Docker (Machine, Compose, Swarm)
  - Python 2/3, Ruby, bash
  - RedHat Satellite/Spacewalk/SUSE Manager
  - Nagios, Icinga(1/2)
  - vagrant, packer, libvirt/KVM/Xen/VMWare
  - openvpn, iptables, Squid
  - Samba, NFS, ownCloud
  - Git, Gitlab, Github
  - Jenkins, Gitlab CI

### signet GmbH

Kassel, Germany

#### SYSTEM ADMINISTRATOR & TEACHER

Oct. 2005 - Apr. 2011

- Managing the whole IT infrastructure of the Office/Backoffice as well as training delivery.
- Implementing Microsoft (Windows Server/Office/Exchange) and Linux-based solutions (Routing/Firewall/Fileserver/Backup/Monitoring) in-house and at customer sites.
- Management of training delivery hardware and server systems (+150 Nodes).
- Conducting trainings in the fields of Linux and general System administration.
- Enduser support for Windows XP-7 as well as the MS Office Suite (2003-2007)
- Typical technologies used in projects:
  - Windows XP-7, Windows Server 2003-2008 R2, Debian Linux 5+, CentOS 5/6
  - Active Directory, Group Policies
  - IPCop, openvpn, Squid, Samba, Nagios, Bittorrent, Clonezilla
  - bash, PHP, Perl, VBScript, Powershell

## Talks

### ContinuousLifecycle 2016

Mannheim, Germany

#### PRESENTER: SYSTEMSMANAGEMENT WITH PUPPET AND FOREMAN

Sept. 2016

- Talked about how Foreman and Puppet can be used to provide a completely unattended way to deploy and configure systems in highly complex landscapes

### Committerconf 2015

Essen, Germany

#### PRESENTER: DEPLOYMENT OF MULTI-TIER APPLICATIONS WITH DOCKER

Nov. 2015

- Introduced docker-machine, docker-compose and docker-swarm and how they can be used to deploy multi-tier applications in a private Swarm cluster

### SUSECon 2015

Amsterdam, Holland

#### PRESENTER: IMPLEMENTATION OF A SUSE-BASED DEPLOYMENT SOLUTION WITH SUSE MANAGER AT APOLLO-OPTIK

Nov. 2015

- Introduced the B1 developed solution used to automate the whole deployment process of new branch servers used by Apollo Optik, a large German-based retail chain selling glasses and related accessories.

### LinuxCon Europe 2014

Düsseldorf, Germany

#### PRESENTER: CONTINUOUS INTEGRATION WITH DOCKER AND JENKINS

Oct. 2014

- Introduced technologies/techniques that can be used to build a CI/CD pipeline based on Docker and Jenkins

### LinuxTag 2014

Berlin, Germany

#### PRESENTER: CREATING A DYNAMIC SOFTWARE DEPLOYMENT SOLUTION USING FREE/LIBRE SOFTWARE

May 2014

- Introduced how freely available software components like Gitlab, Open Build Service, Jenkins, Spacewalk and Puppet/Ansible can be used to create a proper software delivery pipeline

## Publications

### Multi-Tier Applications with Docker Compose, Machine and Swarm

heise Developer

#### WRITER

Nov. 2015

- Described docker and associated technologies and how they can be used to deploy a multi-component application based on containers inside a cluster of machines at several stages

## Harbour Worker - DevOps-Trend Docker

WRITER

- Introduced the new and exciting features of Docker 1.0 and how they can be used.

LinuxMagazin

Sept. 2014

## Stack more intelligently

WRITER

- Introduced docker-compose and showed its usage with different multi-container applications

LinuxMagazin

Sept. 2014

## Order on the construction site - comfortable systems management with Foreman and Puppet

### Puppet

WRITER

- Described how Foreman and Puppet can be used to create a highly automated deployment and systems management solution for the modern Enterprise

heise iX

Dec. 2013

## Education

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### Industrie und Handelskammer (Chamber of Industry and Commerce)

APPRENTICESHIP: INFORMATION TECHNOLOGY SYSTEMS ENGINEER/SYSTEMS INTEGRATION

Kassel, Germany

2009

### Max-Eyth-Schule

GENERAL UNIVERSITY ENTRANCE QUALIFICATION (INFORMATION TECHNOLOGY)

Kassel, Germany

2005