

## KHRIST HANSEN

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Experienced enterprise systems admin and backend developer focusing on automated cloud deployments+operations.

### KNOWLEDGE & SKILLS

- **Cloud Services:** Advanced knowledge of Amazon Web Services (EC2, VPC, S3, EFS, Route53, CloudFront, IAM, Lambda, CloudFormation) and Microsoft Azure IaaS (incl. ARM templates and Ansible/PowerShell native integrations). Working knowledge of Google Compute Engine and DigitalOcean cloud platforms.
- **Containers:** Lengthy experience building continuous deployments of containerized, security hardened LAMP/Ruby/Node.js application stacks via Ansible+Docker, demonstrating deep knowledge of app config and integration points. Advanced knowledge of Docker, Podman, Kubernetes, LXC, and containerd containers and AWS EC2 Container Service. Some training experience with Docker Swarm.
- **Configuration Management:** Expert knowledge of Ansible (+Vault/Tower/AWX), AIX NIM, AIX SMIT, SuSE YaST, and Novell ZENworks. Working knowledge of Terraform, AWS CloudFormation, Puppet, and Microsoft PS-DSC and SCCM. Limited exposure to Chef, Salt, and etcd.
- **Deployment and Orchestration:** Highly experienced and skilled in orchestrating ad hoc and complex tasks across fleets of systems. Advanced knowledge of Ansible, DSH, MPSSH, GNU Parallel and ClusterSSH. Experience with Cobbler, AutoYaST, Kickstart and VMware vRA/vRO for automated Linux server deployments. Built automated test+deploy procedures in GitLab CI for enterprise Linux/Unix IaC environment.
- **Scripting/Shells:** Advanced knowledge of Unix shells (Bash, BSH, CSH, KSH, ZSH), awk, sed, regular expressions, PowerShell, AutoIt, MS-DOS Batch, VMware PowerCLI, and VBScript. Advanced production experience with init/systemd script development and deployment.
- **Operating Systems:** Highly knowledgeable and skilled with Linux/Unix and Windows OS kernels, services, configuration, performance monitoring/tuning, and automated/self-service deployment. Advanced knowledge of AIX/VIOS, SLES/SUSE, RHEL/CentOS/Fedora, Amazon Linux 2/2023, and Debian deployment and configuration. Limited use of Arch, Gentoo, and Kali Linux. Expert level knowledge of Linux OS internals.
- **Virtualization:** Advanced knowledge of VMware ESX, IBM PowerVM and HMC/Director deployment and configuration. Working knowledge of HyperV, KVM, and Vagrant for versioned/immutable dev environments.
- **High Availability:** Advanced knowledge of PowerHA/HACMP, GPFS, SLES HA Extension, and DB2. Limited experience with OCFS2, Oracle RAC, cLVM2, DRBD, and HAProxy.
- **Programming Languages:** Advanced knowledge of Python 2/3, Visual Basic, and Java. Working knowledge of ASP.NET, Perl, PHP, JavaScript/Node.js. Basic knowledge of C, Expect/Tcl, Go, and Ruby. Strong foundational understanding of object-oriented programming concepts.
- **Data and Markup Languages:** Experience with CSS/HTML, JSON, LaTeX, XML, and YAML.
- **Software Development:** Experience with Git and SVN source control, using GCC and IBM XL C compilers, and debugging source code for compile- and run-time errors. Extensive use of editors like vim, emacs, Notepad++, Atom, VS Code, and full IDEs like Eclipse and Visual Studio. Built GitLab CI/CD with integrated shared secrets.
- **Monitoring:** Advanced knowledge of Ganglia including unicast deployment with RAM disk, gweb interface, custom metrics, and dynamic clustered inventories. Experience with Cacti, CA Nimsoft, Nagios, Prometheus/Grafana, PSUtil, SNMP v1 + encrypted v3.
- **Logging:** Experience with centralized syslog, journalctl, logrotate, auditd, Splunk, and Logwatch. Deployed ELK stack as central syslog server replacement.
- **Capacity and Performance:** Advanced knowledge of Ganglia with gweb frontend and gmetric scripts for custom metrics. Extensive knowledge and experience with metrics-based capacity management and identification of performance bottlenecks in complex systems.

- **File Systems and Storage:** Advanced knowledge of EXT3/4, XFS, BTRFS, JFS1/2, FUSE, NFS3/4, CIFS/Samba, AIX LVM, Linux LVM2, EMC PowerPath, EMC Isilon/OneFS, IBM SVC. Familiar with RAID configurations, performance tuning, snapshots, SAN zoning concepts, and replication solutions like EMC SRDF and VPLEX Metro.
- **Networking:** Strong understanding of TCP/IP and the OSI model, VLANs, subnets, ACLs, firewall rules, swconfig, IP aliasing, DHCP, DNS (BIND/dnsmasq), NTP, load balancing, reverse proxies, unicast/multicast traffic, packet capture and analysis, physical and virtual interface tuning, iperf3, nmap.
- **Security Hardening:** Defensive penetration testing, role-based access control, advanced/safe sudo rules, OpenSSH hardening, fail2ban, PAM, Kerberos, SELinux, iptables, pfSense, ClamAV+SpamAssassin mail filtering, IBM PowerSC, AIX Security Expert.
- **Web apps:** Experience with deploying+operating Apache/Nginx HTTP, Nginx, Node.js, Rails, Dovecot, and Postfix.
- **Databases:** Intermediate knowledge of DB2, MySQL, and PostgreSQL, and familiar with relational database concepts and SQL query syntax.
- **Identity & Access Management:** Advanced knowledge of Active Directory and LDAP integration into Open Systems platforms. Experience with local, NIS, and AD user/group account, policy, and access management. Expertise in SSH key management, secured admin/developer jump hosts, and advanced sudoers policies.
- **OpSec/NetSec/Risk:** Internal threat prevention and response, process/system risk analysis and mitigation, data loss prevention, OpSec best practices, FireEye SIEM automation via API call from MS Excel for ingestion to PowerBI and advanced analytics.
- **Productivity Tools:** Advanced knowledge of Microsoft Office applications and SharePoint services, with a long history of building custom VBA and ASP.NET integrations, and previously referred to as “Excel Wizard”.
- **Advanced Troubleshooting:** 14+ years of L3 systems engineering with 24x7 on-call support rotation; 8+ years of L4 solutions architecture, design, planning, and implementation. Exceptional problem determination and root cause analysis skills. I am a creative problem solver with a big toolbox.
- **Process Improvement:** Consistent history of collaborating across business and IT functions; leads continuous process improvement efforts, flowchart design, RACI matrices, cost-benefit analysis, and KPI dashboard reporting.
- **People, Platform, and Vendor Management:** Lengthy experience as team lead, coaching/training junior team members, resource planning and demand management, 5-year strategic planning, annual budgeting and accounting, vendor comparisons and selection, detailed requests for major expenditure, purchase orders, asset/contract management, meeting facilitation, coordinating lunch-and-learn sessions and team outings.
- **Project Management:** Consistent record of successfully implementing high-priority, high-visibility, cross-functional projects. Experience creating project charters, WBS, task plans, resource scheduling, communication plans, and regular status updates. Transitioned from waterfall to agile/kanban/scrum methodologies.

## PROFESSIONAL EXPERIENCE

### Self-funded Sabbatical .....February 2022 – Present

- Personal pet projects: Ansible AWS app deployment automation suite; python bots for Telegram and Twitter
- Exploring applications of AI to backend infrastructure automation
  - AI-assisted programming: participating in Ansible Lightspeed closed beta
- Estoy aprendiendo a hablar, leer y escribir español

### Associate Manager..... February 2019 – January 2022

Global Information Security – Governance| SC Johnson; Racine, WI

- Digital forensics and incident response subject matter expert
- Assisted with implementation of Internal Threat Prevention and Response and operated in steady state
- Implemented insider threat detection and response platform; automated detection and notification of indicators of attack/compromise
- Technical execution of legal hold and discovery program; tech lead for migration to Zapproved SaaS platform

**Associate Manager (Team Lead) ..... January 2017 – July 2019**

Servers & Storage – Open Systems Engineering | SC Johnson; Racine, WI

- Led DevOps@SCJ program
  - Implemented Ansible with Tower for multiple platform engineering and operations teams
  - Implemented GitLab with CI for version control and continuous deployment of infrastructure as code
  - Led training sessions, workshops, and hackathons with application and infrastructure engineering teams
- Implemented fully-automated, end-to-end Linux server builds using VMware vRA+vRO for VM provisioning and Ansible for post-build customization.
- Fully automated non-disruptive, host-based SAN migration of all AIX servers from end-of-life EMC VMAX arrays to EMC PowerMax arrays with Ansible. Execution was simple and stable enough for L1/L2 Operations staff, implemented with 100% success rate and no application downtime.
- Upgraded all AIX servers from 6.1 to 7.1, automated and fully orchestrated with Ansible.
- Migrated all AIX servers from Power7 to Power8 hardware, fully automated and orchestrated with Ansible.

**Senior DevOps Engineer ..... September 2016 – January 2017**

Building Technologies & Solutions | Johnson Controls; Milwaukee, WI

- DevOps engineering lead for Connected Services Dashboard and Smart Connected Chillers frontends and APIs; led migration of Azure infrastructure from East Asia to East US region and Windows to Linux-based HDInsight cluster.
- Led implementation of configuration management with Ansible and various platform monitoring and operations improvements.
- Contributed to agile software dev process; participated in planning and execution of sprints and daily standups.

**Associate Manager (Team Lead) ..... April 2015 – September 2016**

Servers & Storage – Open Systems Engineering | SC Johnson; Racine, WI

- Server engineering lead for SAP ECC High Availability project. Implementing a hot-standby capability for SAP ERP central database server using IBM PowerHA and EMC VPLEX storage replication.
- Led initiative to implement improved architecture and technology standards for Open Systems administration tools and processes.
  - Systems Access Controls: Implementing secure, auditable, and efficient access controls for servers and privileged accounts.
    - Migrating legacy automations to secured SSH key-authentication
    - Implement server access controls and encrypted shared secrets database
  - Configuration Management and Orchestration: Achieve full control in the audit and enforcement of baseline configurations, operationalize new toolsets, and integrate existing/new automation.
    - Implement Ansible for config management, server build/patch, and task orchestration
    - Document architecture and operational tasks, and train team members in tool usage
  - DevOps@SCJ: Implemented version control and CI tools to support agile development methods with a continuous delivery pipeline.
    - Deployed GitLab+CI server to host code repositories; trained teams in git workflows
    - Implemented continuous delivery pipeline for automated deployment of infrastructure defined as code

**Senior Analyst ..... June 2012 – April 2015**

Servers & Storage – Open Systems Engineering | SC Johnson; Racine, WI

- Implemented Ganglia monitoring system with scripted deployment, automated maintenance, and monitoring custom metrics through use of gmetric scripts. The tool is now a vital component in capacity planning, performance monitoring, and problem determination.

- Implemented new AIX upgrade process using command and control script interface and AIX MultiBOS. Significantly reduced manual effort, enhanced rollback capability, and minimized downtime. Moved from manual one-off upgrades to automated batches. Total timespan to complete all OS upgrades was reduced from 12-16 weeks to 3 weeks.
- Developed and implemented automated marketing artwork processing solution using Exchange to redirect emails to a Unix mailbox alias to scripted pre-processor.
- Implemented solution to mount WebDAV shares on Linux servers to allow SAP to write scheduled business and IT reports directly to SharePoint document libraries.
- Developed structure and content for new team SharePoint site including improved navigation and introduction of platform-specific dashboards, knowledge bases, and on-call/support schedules.
- Implemented end-to-end automation for AIX server builds using custom scripts to remotely call HMC, VIOS, and NIM commands to build, start, update, configure, and partition AIX servers.
- Infrastructure lead for Jive implementation project. Developed new Linux server clone process that enabled rapid delivery of 20 servers within two days.
- Infrastructure lead for Linux SAP CI Migration and Electronic Invoicing projects. Expanded VMware cluster capacity and delivered multi-tiered SAP central instances ahead of schedule. Improved Linux server build process using custom scripts to call VMware vSphere and Novell ZENworks commands to rapidly deploy servers.
- Researched, tested, and deployed numerous performance tuning and service reliability enhancements.
- Developed spreadsheet-based tool to quantify end-to-end hosting costs based on units of compute and storage capacity.
- Developed spreadsheet-based dashboard with scripted backend agents to provide automatic updates of critical system health and version information, improved capacity planning capabilities, and integrations into various internal and external tools.

**Analyst .....June 2009 – May 2012**

Application Hosting – Open Systems Engineering | SC Johnson; Racine, WI

- Infrastructure lead for SAP Finance implementation and SAP ERP/PLM Upgrades; provisioned hardware, deployed and supported AIX and Linux hosting infrastructure.
- Led project to purchase and install new VMware ESX hosts in multiple data centers to expand Windows and Linux server capacity.
- Successfully migrated from NIS to Active Directory authentication on the AIX and Linux platforms to comply with security requirements and improve management and audit of user and group accounts
- Revised, implemented, and tracked care and feeding plan for UNIX platform resulting in more accurate documentation and enhanced security
- Improved efficiency and security of administrative password change procedure
- Improved automation and efficiency of UNIX server decommissions and transferred to managed service
- Led initiative with infrastructure and business teams to develop improved application hosting process and document cross-functional flow chart with linked documentation. This was a great way to meet and learn about a wide variety of people and functions in the organization.

**IT Intern..... May 2008 – May 2009**

Collaboration & Desktop Engineering | SC Johnson; Racine, WI

- Led project to deploy Windows XP SP3, Office 2003 SP3, and Office 2007 Compatibility Pack to all managed workstations resulting in a more secure and compatible global end-user computing environment
- Developed and adhered to project plan; applications testing and deployment was successful

- Researched, tested, and evaluated impact on existing infrastructure; resulting information organized and presented in executive summary, white paper, and technical specification
- Developed passive installation script with rapid testing virtual machine environment
- Presented project and test requirements to NA & HQ COE Leadership Team and Application Testers Orientation meetings; coordinated applications testing effort and issue remediation
- Developed software distribution dashboard in Excel with Visual Basic for Applications (VBA) to monitor progress of SAP GUI 7.10 and Windows XP/Office SP3 deployments via SCCM

Application Hosting – Windows Server Engineering | SC Johnson; Racine, WI

- Managed project to pilot and plan implementation of VMware Lab Manager for self-service temporary sandbox application development environments
- Presented technical and business value details from available VMware conference presentations
- Documented project brief, task plan, communication plan, and application installation

**Project Manager and Lead Developer ..... February 2008 – May 2008**

Solutions for Economic Growth (SEG) Center | UW-Parkside; Kenosha, WI

- Led project team to develop website for local nonprofit organization; provided documented tools and processes for client to easily maintain the website.

**Library Technician ..... October 2004 – May 2008**

RD&E – Research Information Center | SC Johnson; Racine, WI

- Implemented Koha open-source library catalog server
- Developed lab notebook database front-end application in VB.NET; improved data integrity and made frequent tasks easier and faster
- Developed RIC intranet site to repair numerous irregularities, adhere to standards, and utilize new technologies; resulted in improved appearance, usability, and browser compatibility

## EDUCATION

**B.S. in Business Management and Management Information Systems.....May 2009**

University of Wisconsin - Parkside; Kenosha, WI

- Double-major in Business Management and Management Information Systems degrees; coursework emphasized project management, computer science, business programming, enterprise technology, and IT management
- Member of Alpha Sigma Lambda and Beta Gamma Sigma academic honor societies
- Graduated with Cum Laude honors and University of Wisconsin Certification in Project Management

## Certifications

- TOGAF 9.1, February 2015
- ITIL v3, September 2014