Chair of Network Architectures and Services
School of Computation, Information and Technology
Technical University of Munich

HiWi

Building a Hardware Provisioning Pipeline

Motivation

Our chair operates a diverse fleet of machines for research and teaching, ranging from small mini PCs to large servers with several hundred gigabytes of RAM. Setting up or reinstalling these systems is still a largely manual process, from firmware settings and OS installation to network and software configuration. This is time-consuming, error-prone, and leads to inconsistent configurations. A semi-automated provisioning pipeline would make it possible to bring new hardware into service quickly, reproducibly, and with minimal manual intervention.

Your Task

As a student assistant (HiWi), you will design and develop a pipeline that semi-automatically provisions and configures computers of all sizes. Possible work items include:

- Automated network-based installation (e.g., PXE/iPXE boot) and unattended OS setup
- Hardware detection to apply suitable configurations per machine type
- Configuration management of the installed systems (e.g., Ansible, NixOS, or similar)
- Remote management of servers via out-of-band interfaces (e.g., IPMI, Redfish)
- Hands-on hardware work, such as assembling servers, installing components, and racking machines
- Documentation and testing to ensure reproducible and maintainable deployments

We are looking for multiple students to join the team. Each position is available for up to 20 hours per week. Working hours are flexible and can be arranged around your studies.

Requirements

You should have solid experience with Linux system administration and scripting (e.g., Bash or Python) as well as a basic understanding of computer networks. Experience with configuration management tools, network booting, or server hardware is a plus. You should be able to work independently and reliably. Please submit your application via email, including a short CV and a current transcript of records.

Contact

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