Linux on the Desktop:
Why Digital Sovereignty Starts Here

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Introduction

About B1 Systems

- Founded in 2004, operating nationally and internationally
- Specializing in Linux & Open Source topics
- ~200 employees, 180 OSS Experts
- Independent service provider
  - Supplier for Canonical, Red Hat, and SUSE
- Concept development, consulting, training, managed services & support
- All employees are based in the EU and are subject to EU data protection regulations

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Digital Sovereignty

Digital Sovereignty: Goals

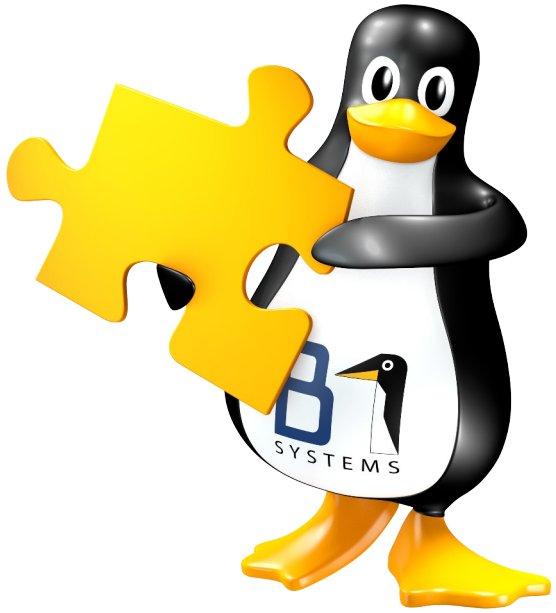
Digital Sovereignty begins with the individual, but affects society at large.

We focus on the desktop as the bridge between humans and information technology:

- **independence,** financially as well as politically
- better data protection
- freedom of choice & decentralization

Sovereign Workplace – OSS Desktop

- a Linux desktop is the logical choice for sovereign applications
- using LCM, we can deploy and manage desktops including:
  - pre-installed apps (e.g. VPN for home office use)
  - pre-configured & **secure browsers** tailored for specific usage
  - enforcement of required security guidelines
    - e.g., BSI IT-Grundschutz
- bundling of further lcoal software when necessary



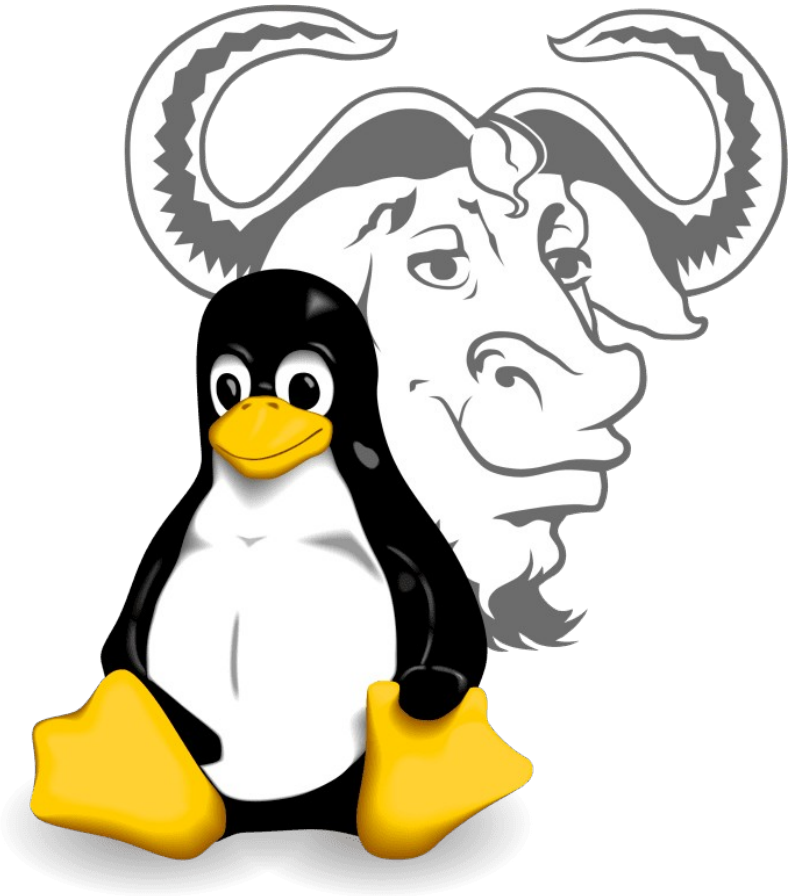
LCM: Concept & Features

Linux as the Sovereign Operating System

Governed by communities,
not single corporations

Highly Customizable

Lower Hardware Requirements



Challenges for Linux clients

Many different distributions

Time-consuming configuration

“Everyone does what they want.”

Difficult integration with infrastructure

Complex desktop installation

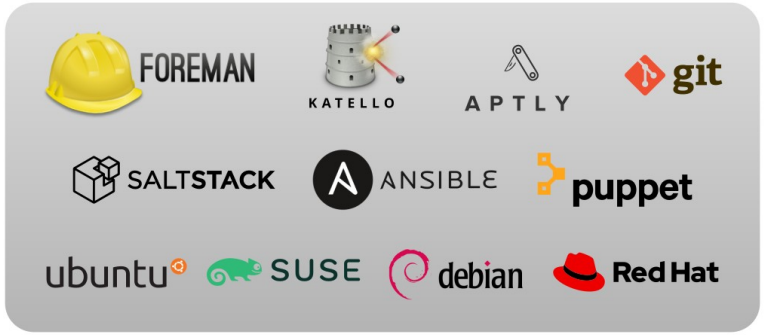
No built-in management

IT security policies

- system hardening requirements NIS 2, BSI, NIST
- restricted access via MFA to corporate networks
- only trusted software sources
- limit administrator rights while empowering users

What is Linux Client Management?

- Based on Open Source components
- Container images for easy upgrades
- Suitable for managing various Linux distributions
- Successful implementations for managing laptops, workstations, servers, VDAs, IoT, etc.
- Git as the “single source of truth” (GitOps)
- Allows for sovereign, on-prem management



- systems management for Linux clients and servers
- easily scalable (more than 1000 clients possible)
- repository and patch management with CVE analysis

Development for ZenDiS

Primary service provider for “The Center for **Digital Sovereignty of Public Administration**” in Germany (ZenDiS)

- Our main task is to develop a new platform called *openDesk:* a secure, Open Source, all-in-one office and collaboration suite designed specifically for the public sector.
- We have also started a pilot project to develop a sovereign and secure desktop operating system for use with openDesk and other sovereign platforms.

openDesk – Features & Partners

openDesk

Product Owner	Service Provider
Zentrum Digitale Souveränität	B1 SYSTEMS

Cloud Platform	Documents	Chat	File Manager	Project Management
STACKIT	Collabora Online	element by the creators of Matrix	Nextcloud	OpenProject

Video Conferencing	Wiki	E-Mail	Identity Management
Nordeck	XWIKI	Stay Open. OX	univention be open.

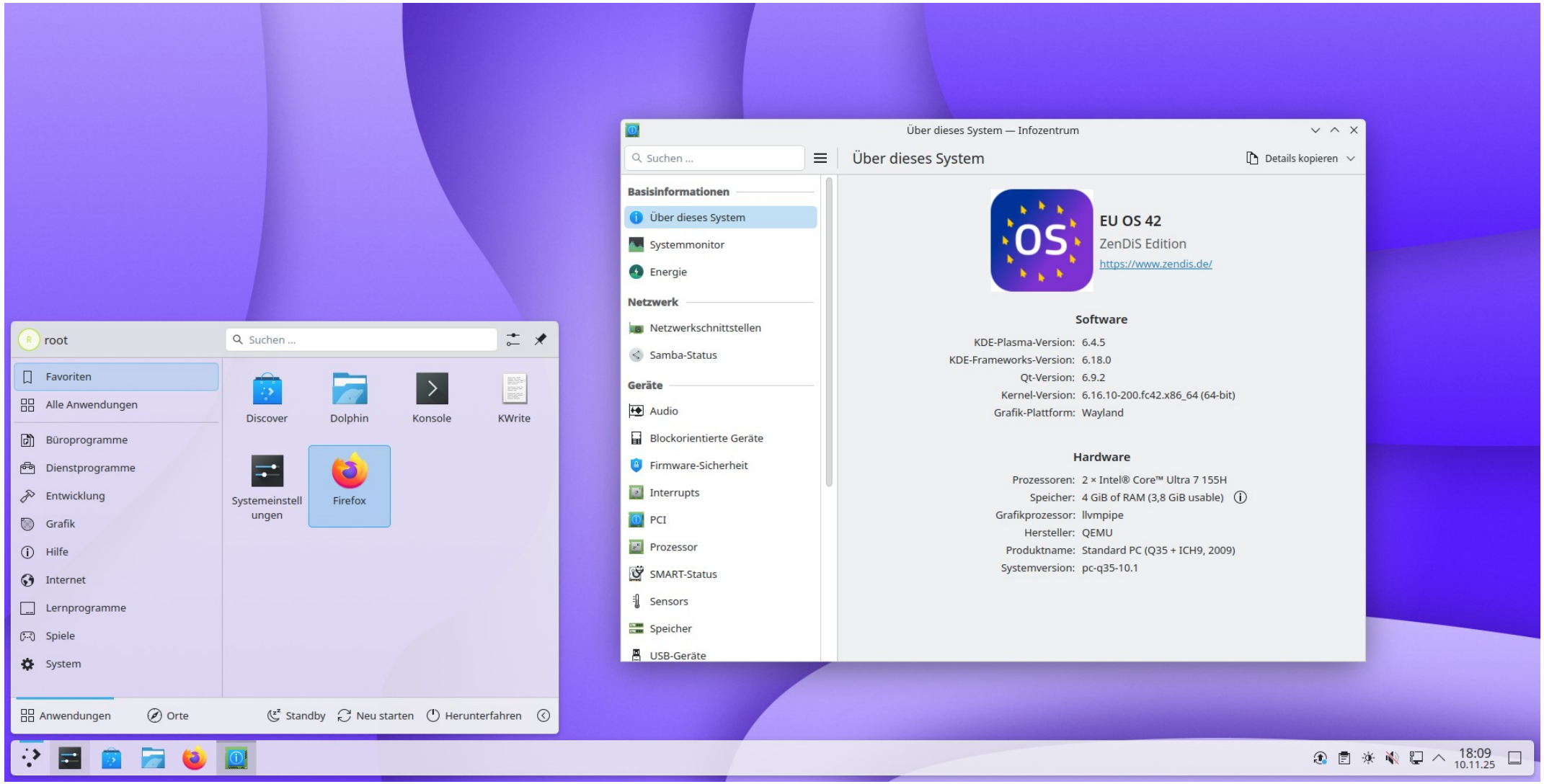
Leading technology providers are collaborating to develop an enterprise-grade collaboration suite

EU OS

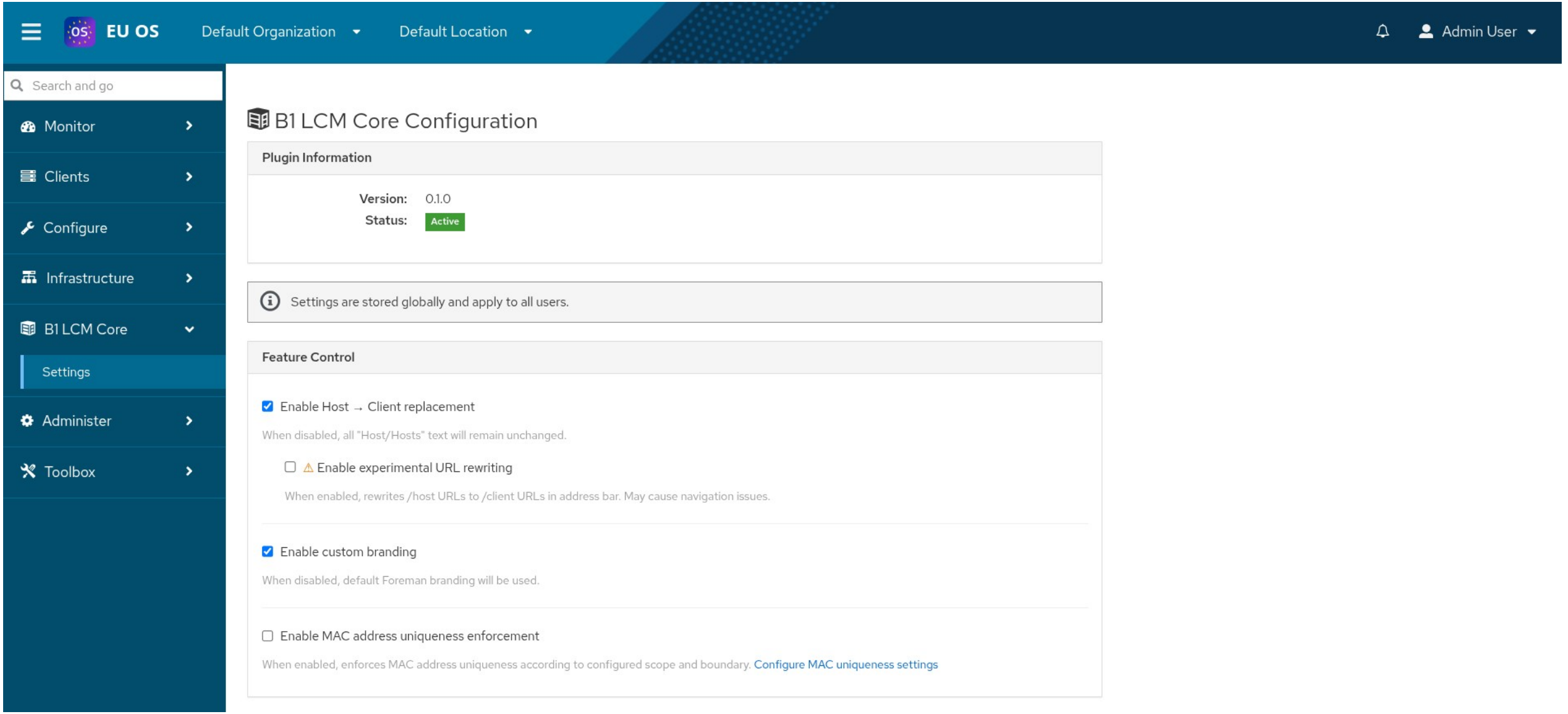
“EU OS is a Proof-of-Concept for the deployment of a Fedora-based Linux operating system with […] ***bootable container technology*** *in a typical public sector organization”*

(https://eu-os.eu/goals)

Screenshot

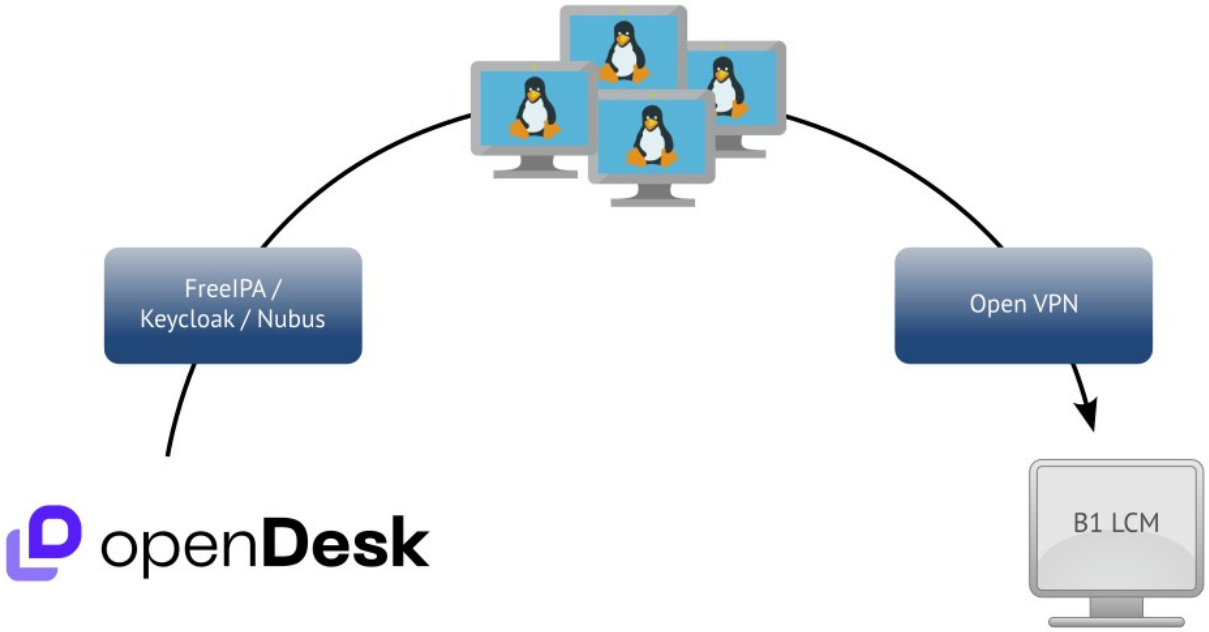

root
Suchen ...
Favoriten
Alle Anwendungen
Büroprogramme
Dienstprogramme
Entwicklung
Grafik
Hilfe
Internet
Lernprogramme
Spiele
System
Discover
Dolphin
Konsole
KWrite
Systemeinstellungen
Firefox
Anwendungen
Orte
Standby
Neu starten
Herunterfahren
Über dieses System — Infozentrum
Suchen ...
Über dieses System
Details kopieren
Basisinformationen
Über dieses System
Systemmonitor
Energie
Netzwerk
Netzwerkschnittstellen
Samba-Status
Geräte
Audio
Blockorientierte Geräte
Firmware-Sicherheit
Interrupts
PCI
Prozessor
SMART-Status
Sensors
Speicher
USB-Geräte
EU OS 42
ZenDiS Edition
https://www.zendis.de/
Software
KDE-Plasma-Version: 6.4.5
KDE-Frameworks-Version: 6.18.0
Qt-Version: 6.9.2
Kernel-Version: 6.16.10-200.fc42.x86_64 (64-bit)
Grafik-Plattform: Wayland
Hardware
Prozessoren: 2 × Intel® Core™ Ultra 7 155H
Speicher: 4 GiB of RAM (3,8 GiB usable)
Grafikprozessor: llvmpipe
Hersteller: QEMU
Produktname: Standard PC (Q35 + ICH9, 2009)
Systemversion: pc-q35-10.1
18:09
10.11.25

Screenshot - LCM



Case Study: Sovereign Workplace

Case study together with ZenDiS to manage a Linux based sovereign workplace with LCM



Case Study: Government Research

LCM has been deployed for a federal research agency of Germany

- in this deployment, the security & hardening of clients (BSI Grundschutz) plays a crucial role
- virus & vulnerability analysis possible

Intentional Limiting of USB Functionality:

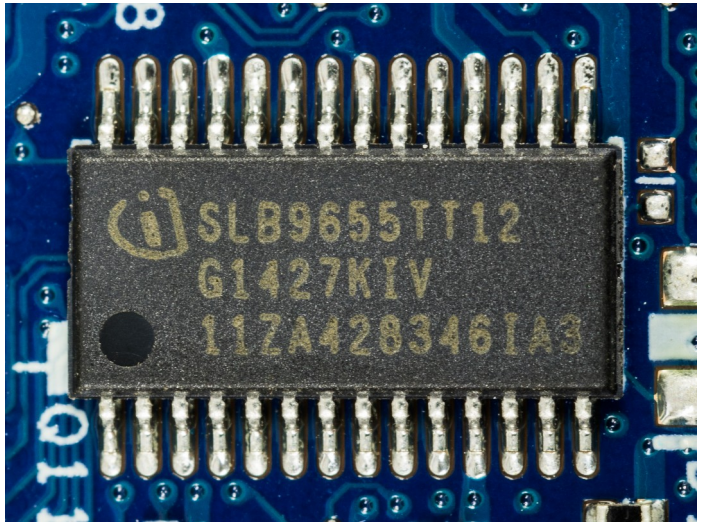
- USB Mass storage restricted for *most* workstations
- filtering by device class for scientific equipment

Case Study: Automotive Industry

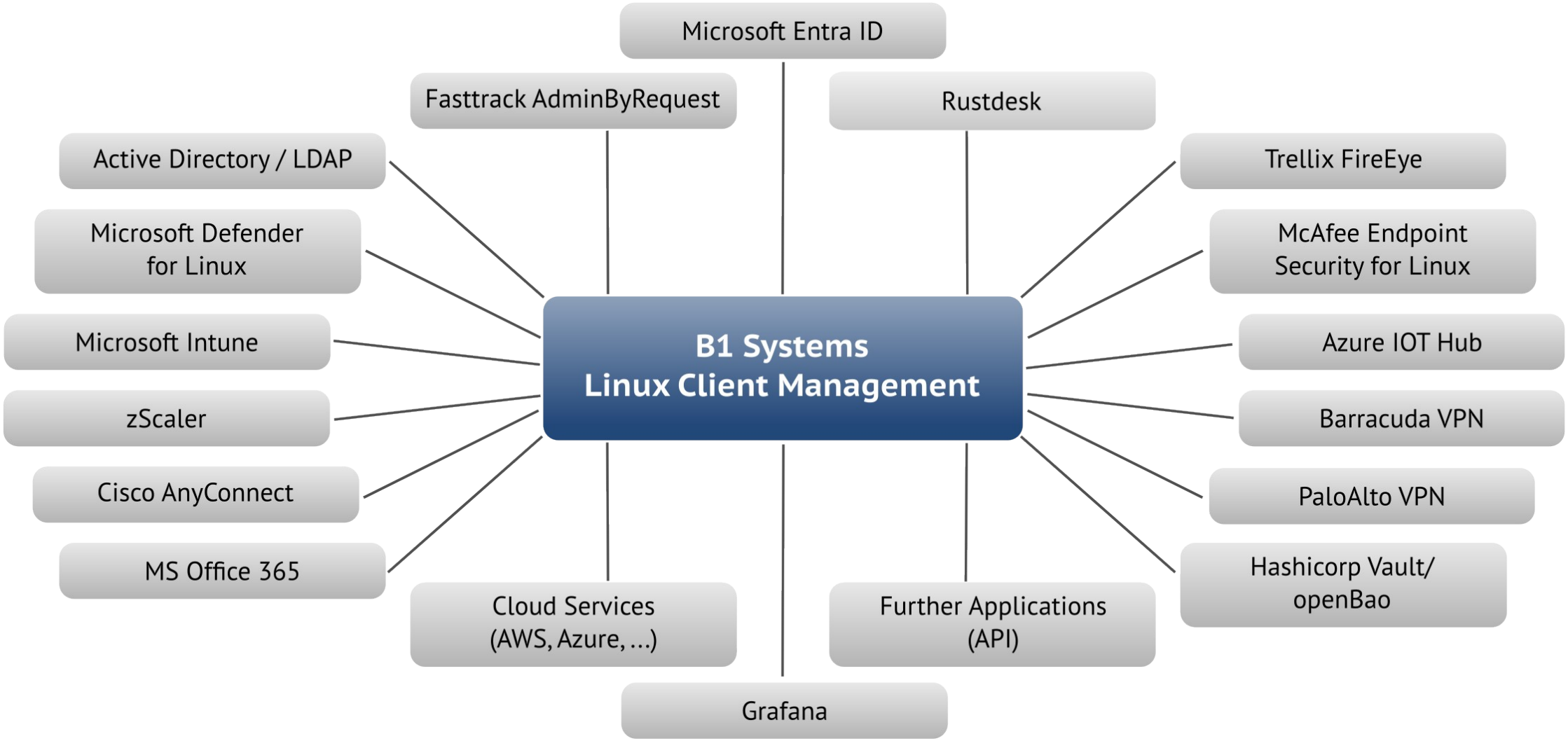
B1 has major clients in the automotive sector using desktop Linux

- developers, engineers, technicians
- software development, data analysis, AI
- including laptops, workstations, VDIs and Jetsons
- compliance and endpoint security enforced
  - hardware-based security with TPM, PKI, NAC
- empowering DevOps practices
- integration with existing IT infrastructure

Almost 10.000 clients across Europe



Integration with existing Infrastructure

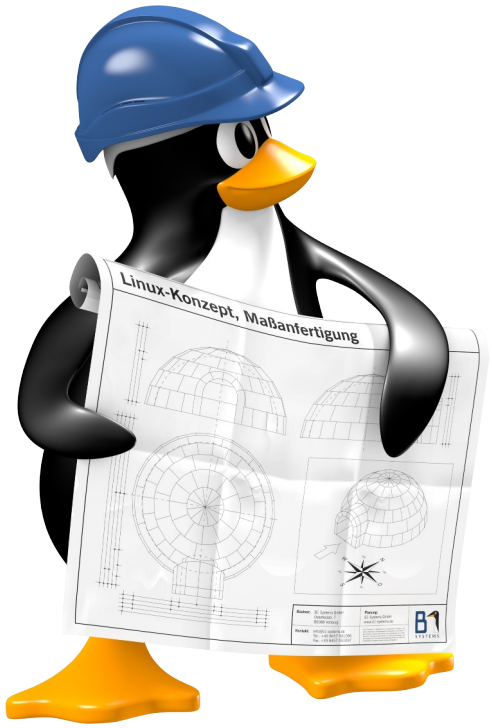


Case Study: Gendarmerie

- The Gendarmerie are long-time sucessful adopters of Open Source
- Switched to OpenOffice in 2005, later to LibreOffice
- Migration to a Linux-based OS in 2008
- 97% of workstations run GendBuntu (over 85,000)
- Approx. 50.000.000 € saved

Outlook & Developments

Immutable Operating Systems



- *immutable* = unchangeable
- core of the root file system is read-only
  - has long been the norm with embedded, macOS and Android systems

Advantages?

- A/B updates + rollbacks
- managed control over system configuration
- prevents accidents
- all computers have identical base OS

Secure & Modern Sign-Ons

Currently in the Works: OIDC-based logins

- extend Sovereignty to Identity Management
- freedom of choice with providers

Enhanced Security:

- 2FA for desktop login
- Centralized Identity Management

HIMMELBLAU FROM SAMBA

sssd

Full Sovereignty across IT

Complete Sovereign Stack:

1. Sovereign Log-In (IdM, IAM)
2. Linux Desktop & Secure Browser
3. Workspace Software from a sovereign cloud (e.g. openDesk)

Thank You!

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