



Monitor
Real-time & Historical



Automate
Alerts & Notifications



Analyze
Performance & Health



Access Anywhere
With Tailscale

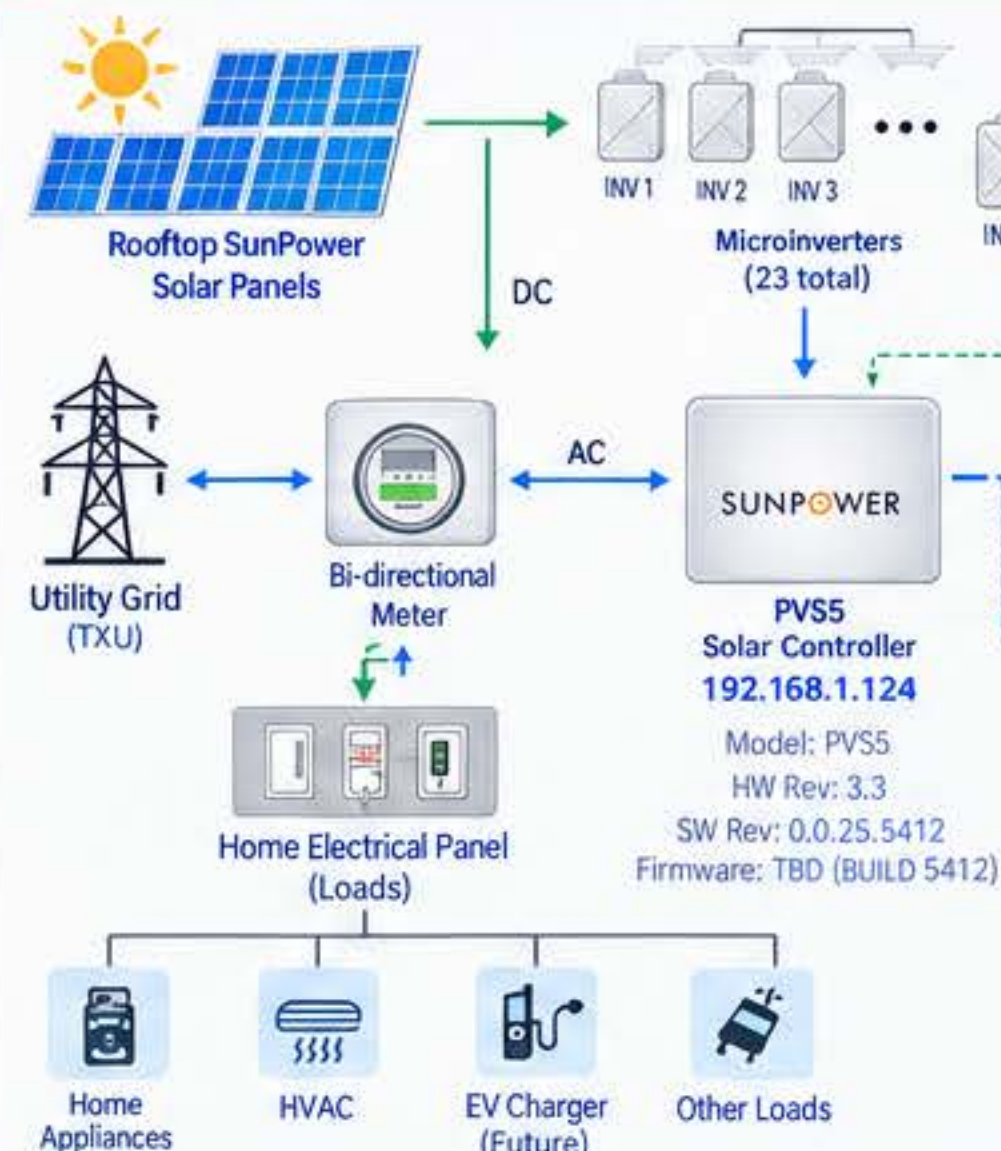


Repurpose Hardware
Give Old PCs New Life



"Good hardware
never dies.
It just gets a new purpose."

1. SOLAR SYSTEM (Existing at Home)



2. NETWORK INFRASTRUCTURE (Home Network)



3. HOST HARDWARE (Notebook PC)



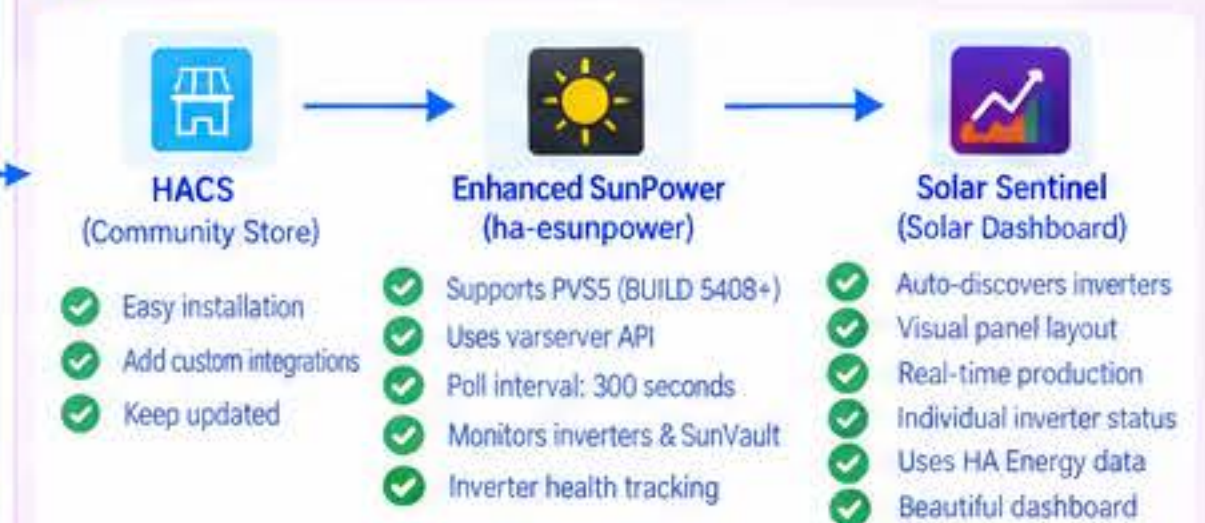
4. VIRTUALIZATION LAYER (Hyper-V on Windows)



5. HOME ASSISTANT OS (VM)



6. INTEGRATIONS & DASHBOARDS



7. DATA FLOW & SYSTEM ARCHITECTURE



9. DEPLOYMENT WORKFLOW (New House / Another Site)

- 1 Prepare notebook (Windows + Hyper-V)
- 2 Install HAOS and configure
- 3 Connect to customer's network
- 4 Configure PVS5 (find IP, verify API)
- 5 Install HACS and Enhanced SunPower
- 6 Add inverters and configure Energy Dashboard
- 7 Install and configure Solar Sentinel
- 8 Set up Tailscale for remote access
- 9 Configure notifications and alerts
- 10 Create backup and documentation
- 11 Test, reboot, and finalize deployment

10. MULTI-SITE DEPLOYMENT



11. SYSTEM CAPABILITIES



12. OPTIONAL / FUTURE EXPANSION



13. KEY LESSONS & NOTES

- ✓ PVS5 firmware BUILD 5412 works with Enhanced SunPower
- ✓ Some old CGI endpoints return 403 (normal)
- ✓ Use varserver API with Enhanced SunPower
- ✓ Recommended polling interval: 300 seconds
- ✓ Add each inverter's "Lifetime Power" sensor to Energy
- ✓ Solar Sentinel reads from HA Energy data
- ✓ Use 2.4 GHz WiFi for PVS5 if connecting via WiFi
- ✓ Tailscale provides secure remote access (no port forwarding)
- ✓ Repurposed HP ENVY works great for Hyper-V
- ✓ Keep the setup simple and reliable

"From almost Goodwill to a Solar Monitoring Server."