



Opsi als allgemeines Tool zum Softwaretesting

opsi testet opsi

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Sprecher

Mathias Radtke

- ▶ M.Sc. Informatik
- ▶ Entwickler bei uib gmbh seit 2015
 - ▶ <http://www.uib.de>
 - ▶ Entwicklung der Netboot-Produkte
 - ▶ Entwicklung des opsi Bootimages
 - ▶ Aufbau und Betreuung der internen Testumgebung



Wer ist die uib ?

Gegründet im Jahr 1995

Firmensitz in Mainz

Wurzeln in der OS Verteilung seit Win 3.11

Entwickler und Maintainer von opsi

Schulungen und Support

18 Mitarbeiter



Was ist opsi?

opsi.org

Client-Management Werkzeug für Windows/Linux Clients

- ▶ Open-Source
- ▶ Installiert auf einem Linux Server

Betriebssysteminstallation

- ▶ Windows: 7 bis 10 + Server-Varianten
- ▶ Linux: Ubuntu, Debian, UCS (Master, Slave, ...), CentOS, SLES, RHEL und openSUSE

Softwaredeployment

Hard- und Softwareinventarisierung

Erstes öffentliches Release: 2004



Was ist opsi?

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Betriebssysteminstallation

- ▶ Bootimage (PXE / CD / USB)
- ▶ Vorbereiten des Clients
- ▶ Automatischer Start des Installers
- ▶ Configuration-Management

Softwaredeployment

- ▶ opsi-client-agent
- ▶ opsi-script
 - ▶ Betriebssystemübergreifend



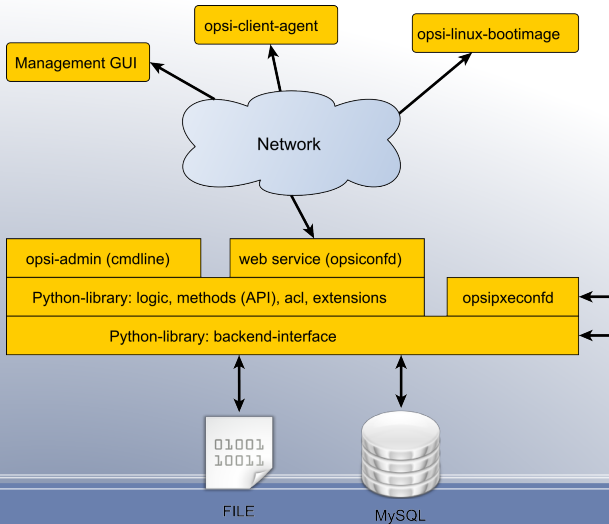
Was ist opsi?

Inventarisierung

- ▶ Hardware
 - ▶ Windows: WMI
 - ▶ Linux: lshw
- ▶ Software
 - ▶ Windows: Registry auslesen
 - ▶ Linux: Paketmanager



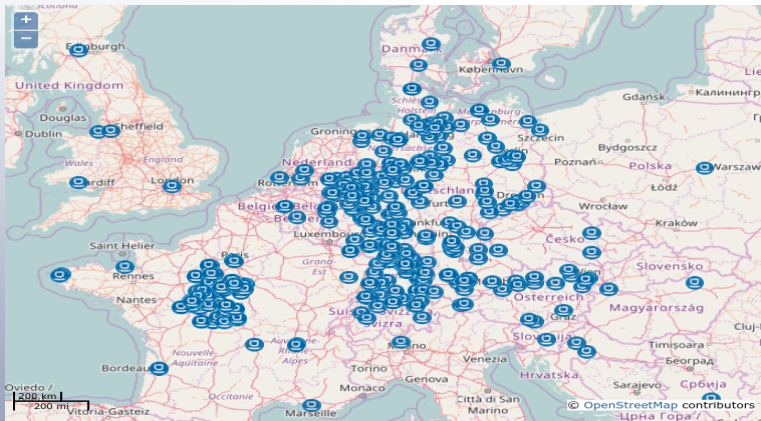
Was ist opsi?





Wo ist opsi?

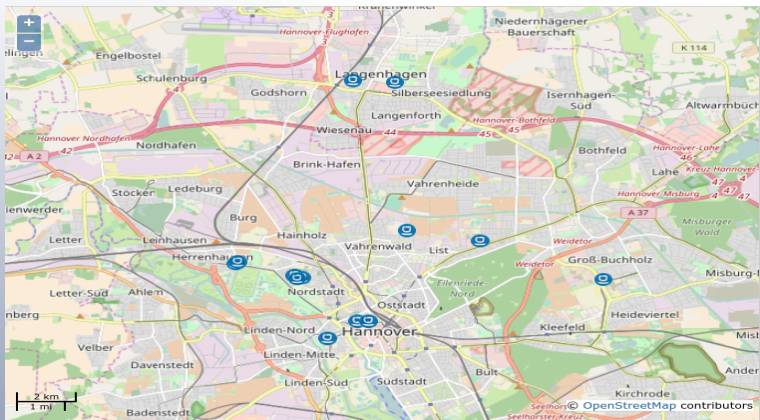
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Wo ist opsi?

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Herausforderung

Breites Spektrum an:

- ▶ Server-Betriebssystemen
- ▶ Client-Betriebssystemen
- ▶ Softwarepaketen
- ▶ Paketständen (stable, testing, experimental)

Manuelle Tests:

- ▶ Langwierig
- ▶ Zeitintensiv
- ▶ Fehleranfällig
- ▶ kosten Ressourcen



Lösung

Gewünschtes Ziel:

- ▶ Standardisierte Plattform
- ▶ Automatisierter Test eines opsi Systems
- ▶ Einfache Aussage über Funktionalitäten
- ▶ Pakete für Kollegen einfach zu testen
- ▶ Hilfe beim Qualitäts- und Releasemanagement



Komponenten

opsi

- ▶ Buildknoten
- ▶ Betriebssysteminstallation
- ▶ Produktinstallation
- ▶ Rückmeldung der Installationen
- ▶ Logging



Komponenten

Jenkins

- ▶ Server zur Automatisierung von Build Prozessen
- ▶ Pipelining
- ▶ Ablaufsteuerung (Scheduler)
 - ▶ Starten der Tests
 - ▶ Steuerung von opsi
 - ▶ Sammeln von Logs
 - ▶ Monitoring

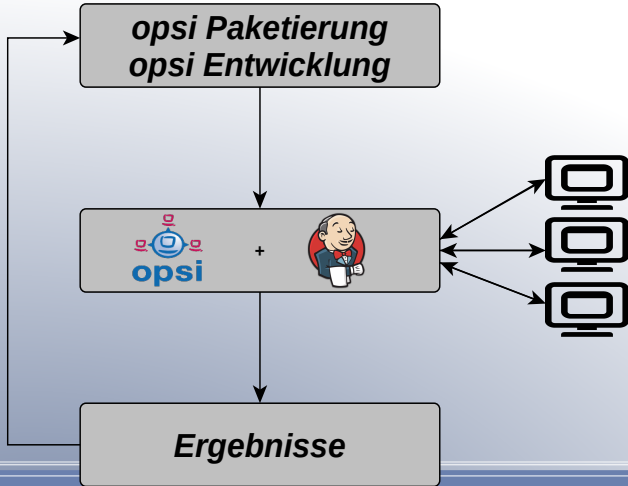


Komponenten

Virtualisierung

- ▶ Proxmox (KVM)
- ▶ KVM Nativ
- ▶ VMWare ESXi
- ▶ VirtualBox (WIP)

Ansteuerung über Herstellertools



Reset target	install xenial	Server preconfig	Install opsi	Test server...	Win7-x64	Win81-x64	Win10-x64
10s	45min 21s	2min 2s	8min 4s	3min 54s	54min 18s	32min 40s	33min 15s
10s	20min 2s	2min 2s	10min 46s	4min 4s	59min 15s	33min 27s	33min 6s



Die Praxis - Jenkins Codebeispiel

```
node('opsiServer') {
    stage 'Reset target'
    sh 'opsi-admin -d method resetClient xenial.server.
        stable'

    stage 'install xenial'
    sh 'opsi-admin -d method setProductActionRequest
        ubuntu16-04 xenial.server.stable setup'
    sh 'fab -f esxifab.py powerOn:vmName=xenial.server.
        stable'
    sh 'python waitUntilFinished.py xenial.server.stable
        ubuntu16-04'

    ...
}
```

Pipeline all.product-test.nightly

Dieser Build erfordert Parameter:

ACTIONREQUEST

setup / uninstall or patch(MSHOTFIX + abo products)

PRODUCTS

welche Produkte sollen installiert werden? Mehrere Produkte bitte mit Leerzeichen trennen.

Build



Die Praxis

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Stage Logs (run) ✕

Print Message (self time 1ms)

Print Message (self time 2ms)

```
javavm firefox thunderbird google-chrome-for-business adobe.reader.dc.classic swaudit
```

Building win7-products.nightly (self time 23min 29s)

Building win7-x64-products.nightly (self time 13min 42s)

Building win81-products.nightly (self time 10min 47s)

Building win81-x64-products.nightly (self time 12min 54s)

Building win10-products.nightly (self time 27min 23s)

Building win10-x64-products.nightly (self time 15min 21s)

Building win2008-r2-products.nightly (self time 26min 6s)

Building win10-1511-products.nightly (self time 24min 8s)

Building win10-x64-1511-products.nightly (self time 30min 35s)

Building win10-1607-products.nightly (self time 23min 34s)

Building win10-x64-1607-products.nightly (self time 15min 27s)



Die Praxis

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Stage Logs (run) ✕

Print Message (self time 2ms)

Print Message (self time 1ms)

opsi-winst-test

Building win7-products.nightly (self time 31min 38s)

Building win7-x64-products.nightly (self time 13min 3s)

Building win81-products.nightly (self time 11min 48s)

Building win81-x64-products.nightly (self time 25min 50s)

Building win10-products.nightly (self time 14min 34s)

Building win10-x64-products.nightly (self time 27min 47s)

Building win2008-r2-products.nightly (self time 12min 16s)

Building win10-1511-products.nightly (self time 30min 49s)

Building win10-x64-1511-products.nightly (self time 39min 47s)















Building win10-1607-products.nightly (self time 38min 46s)

Building win10-x64-1607-products.nightly (self time 17min 35s)

Pipeline all.product-test.nightly



Last Successful Artifacts

 win10-1511.nightly.test.log	63.76 KB view
 win10-1607.nightly.test.log	63.76 KB view
 win10-x64-1511.nightly.test.log	77.83 KB view
 win10-x64-1607.nightly.test.log	77.83 KB view
 win10-x64.nightly.test.log	78.26 KB view
 win10.nightly.test.log	64.18 KB view
 win2008r2.nightly.test.log	77.34 KB view
 win2012.nightly.test.log	8.49 KB view
 win2012r2.nightly.test.log	77.34 KB view
 win2016.nightly.test.log	77.77 KB view
 win7-x64.nightly.test.log	77.29 KB view
 win7.nightly.test.log	492.58 KB view
 win81-x64.nightly.test.log	3.65 MB view
 win81.nightly.test.log	3.61 MB view



Fazit

Erfolgreich vollautomatisierte Tests:

- ▶ Provisionierung des Betriebssystems
- ▶ Configuration-Management
- ▶ Deployment von Software
- ▶ opsi Komponenten getestet
- ▶ gemeinsamer Integrationstest



May the source be with you

Vielen Dank für Ihre Aufmerksamkeit

- ▶ <http://www.uib.de/>
- ▶ <http://www.opsi.org/en>
- ▶ <https://forum.opsi.org/>
- ▶ <https://github.com/opsi-org>
- ▶ <https://blog.opsi.org/>