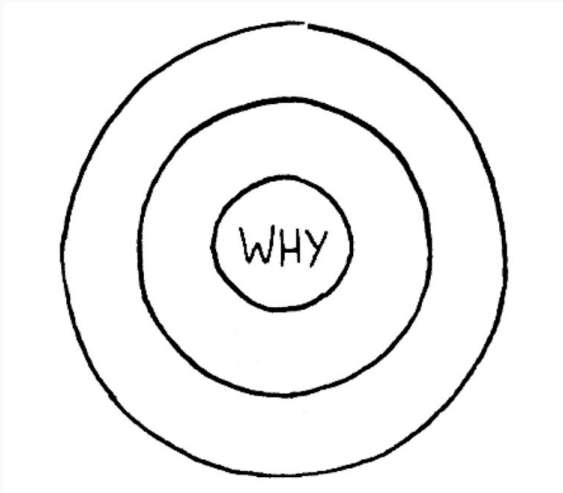


The Universal System Description

How to keep track of different Linux systems without dying in the process

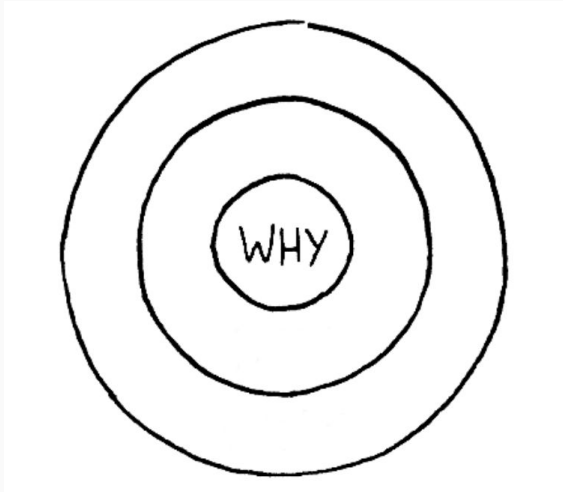


Different Systems



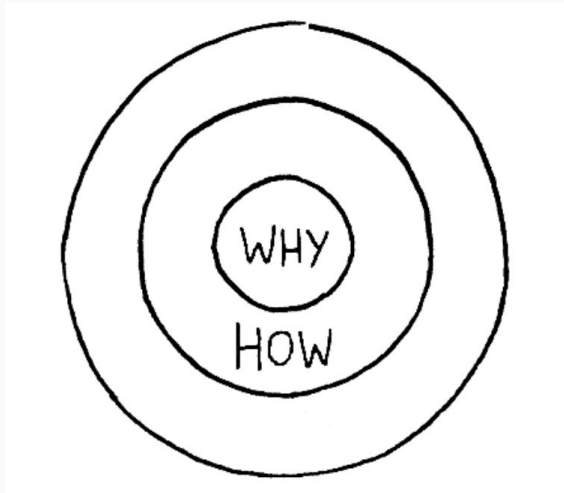
No matter which distribution we might prefer, external constraints can dictate us to keep different versions of it or even different distributions.

... which can be
in different
states



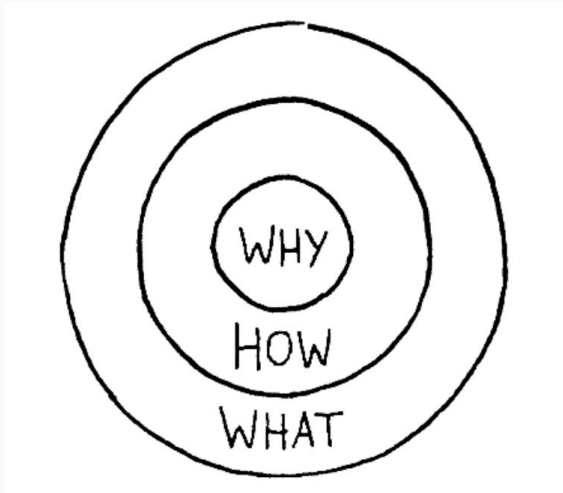
A system doesn't stay in a
known/well defined
system through it's
lifetime.

Offline System Management



Not monitoring or dealing with the system on real time but instead allowing to do forensics and analysis of states.

The Universal System Description



A way to consistently define Linux systems as a base for reliable and repeatable IT processes.

Scopes

Instance of a given element, which can but doesn't need to be simplified.

Anything can be implemented as a scope.

```
{
  "os": {
    "name": "openSUSE Leap",
    "version": "42.1",
    "architecture": "x86_64"
  },
  "packages": {
    "_attributes": {
      "package_system": "rpm"
    },
    "_elements": [
      {
        "name": "bash",
        "version": "4.2",
        "release": "76.4",
        "arch": "x86_64",
        "vendor": "openSUSE",
        "checksum": "561f9d9e35793b8420bf38be8b3ee922"
      }
    ]
  }
}
```

Challenges

Diversity

- 273 Distros according to <http://distrowatch.com>
- Stable / Rolling
- Package manager
- Init system
- Root / Sudo
- ...

Embrace Diversity

Criticize the bad ... but also
praise the good

Tailor-made

Os information inside /etc/os-release

```
NAME="openSUSE Leap"  
VERSION="42.1"
```

...

```
NAME="Ubuntu"  
VERSION="14.04.3 LTS, Trusty Tahr"
```

...

Design & Prototyping

Time well spent during the design phase will save you time and frustrations during implementations.

Managing the Unmanaged

In the ideal world we wouldn't need to have different distributions and our systems would always be in manageable states.

Keep It Simple

Be pragmatic and don't implement every feature under the sun.

Machinery

System Descriptions

created by Machinery

Name	Last update	Scopes	Host
leap	2016-01-11 08:42:43 UTC	os, packages, patterns, repositories, users, groups, services, config-files (extracted), changed-managed-files (extracted), unmanaged-files (extracted)	192.168.121.170
trusty	2016-01-11 08:46:20 UTC	os, packages, patterns, repositories, users, groups, services, config-files (extracted), changed-managed-files (extracted), unmanaged-files (extracted)	192.168.121.250
tumbleweed	2016-01-11 08:44:50 UTC	os, packages, patterns, repositories, users, groups, services, config-files (extracted), changed-managed-files (extracted), unmanaged-files (extracted)	192.168.121.50

Comparing 'leap' with 'tumbleweed'

Scopes: OS PK PT R U G S CF CMF UF



Collapse all

created by Machinery

PK



Packages leap: 18 packages (rpm) tumbleweed: 20 packages (rpm) changed: 200 packages both: 1 package

Only in 'leap':

Name	Version	Release	Arch	Vendor	Checksum
btrfsprogs	4.1.2	8.1	x86_64	openSUSE	6c402497faf...
dirmngr	1.1.1	5.2	x86_64	openSUSE	b9474382c5...
dmraid	1.0.0.rc...	37.3	x86_64	openSUSE	e73db7b224...
fipscheck	1.2.0	7.2	x86_64	openSUSE	576b4b85fb...
kpartx	0.5.0	48.3	x86_64	openSUSE	b1b4377979...
libext2fs2	1.42.11	10.2	x86_64	openSUSE	0f06977a3e9...
libfipscheck1	1.2.0	7.2	x86_64	openSUSE	ae58f0bbe2c...
libgdbm4	1.10	3.5	x86_64	openSUSE	7a6a9015c08...
liblua5_1	5.1.5	11.4	x86_64	openSUSE	3d70c542cf8...
libncurses5	5.9	53.4	x86_64	openSUSE	bd07381497...
libprocps3	3.3.9	4.1	x86_64	openSUSE	1eb77bbae7...
libpth20	2.0.7	141.1	x86_64	openSUSE	f46f7a18608...
libreiserfscore0	3.6.24	7.1	x86_64	openSUSE	eae1c65bc25...
libsgutils2-2	1.41	6.1	x86_64	openSUSE	e33ceadb54...
libtirpc1	0.2.3	7.1	x86_64	openSUSE	87af35eb8c5...
libxtables10	1.4.21	4.1	x86_64	openSUSE	6686e71702...
os-prober	1.61	13.1	x86_64	openSUSE	2a5914bf642...
perl	5.18.2	3.5	x86_64	openSUSE	fec639f3772...

Only in 'tumbleweed':

Name	Version	Release	Arch	Vendor	Checksum
binutils	2.25.0	6.1	x86_64	openSUSE	d26cc3b047...
kbd-legacy	2.0.2	11.1	noarch	openSUSE	b48a36ade0...
libICE6	1.0.9	3.3	x86_64	openSUSE	a353cac1017...
libSM6	1.2.2	5.3	x86_64	openSUSE	11aed2d351...
libXt6	1.1.5	1.2	x86_64	openSUSE	333299ec542...
libfdisk1	2.27.1	2.1	x86_64	openSUSE	f9c32cba572...
libgnutls30	3.4.4	1.1	x86_64	openSUSE	a6ceccdd2a2...
libhogweed4	3.1.1	2.2	x86_64	openSUSE	3d0940fae5e...
liblua5_3	5.3.1	3.2	x86_64	openSUSE	36ae562b0d...
liblz4-1_4	1.4.0+...	1.4	x86_64	openSUSE	6b471ca339...
libmicrohttpd12	0.9.47	1.1	x86_64	openSUSE	2cfe72cfeaf6...
libnettle6	3.1.1	2.2	x86_64	openSUSE	eb76dbe0ac...
libnghttp2-14	1.5.0	1.1	x86_64	openSUSE	b533d7cf6b4...
libnpt0	1.2	1.3	x86_64	openSUSE	4ae9efad469...
libprocps5	3.3.11	2.1	x86_64	openSUSE	97dcd7ef5ee...
libsgutils2-1_41-2	1.41	3.1	x86_64	openSUSE	19fc27ac209...
libsystemd0	224	3.1	x86_64	openSUSE	6e308c56dd...
libtirpc3	1.0.1	1.1	x86_64	openSUSE	8605e74cb0...
libverto1	0.2.6	3.1	x86_64	openSUSE	cd3660a403...
libxtables11	1.6.0~	1.1	x86_64	openSUSE	59d167346f0...

In both with different attributes:

Changes for '/etc/sudoers'

4 additions & 0 deletions

		@@ -81,3 +81,7 @@	
Show diff	81	81	## Read drop-in files from /etc/sudoers.d
	82	82	## (the '#' here does not indicate a
Show diff		83	comment)
	83	83	#includedir /etc/sudoers.d
		84	
Show diff		85	# added by veewee/postinstall.sh
		86	vagrant ALL=(ALL) NOPASSWD: ALL
Show diff			machinery ALL=(ALL) NOPASSWD:
		87	/usr/bin/find,/usr/bin/cat,/bin/cat,/usr/...
			-Va *,/bin/tar --create *,/usr/bin/stat

Questions?

Thanks.

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