THREE BIG
USABILITY IMPROVEMENTS
in SELinux tooling

AGENDA

- SELinux improvements from 2015

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- SELinux improvements from 2015
- SELinux team at Red Hat

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- What can SELinux do for you?

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- Discussion

SELINUX IMPROVEMENTS FROM 2015

- performance gains

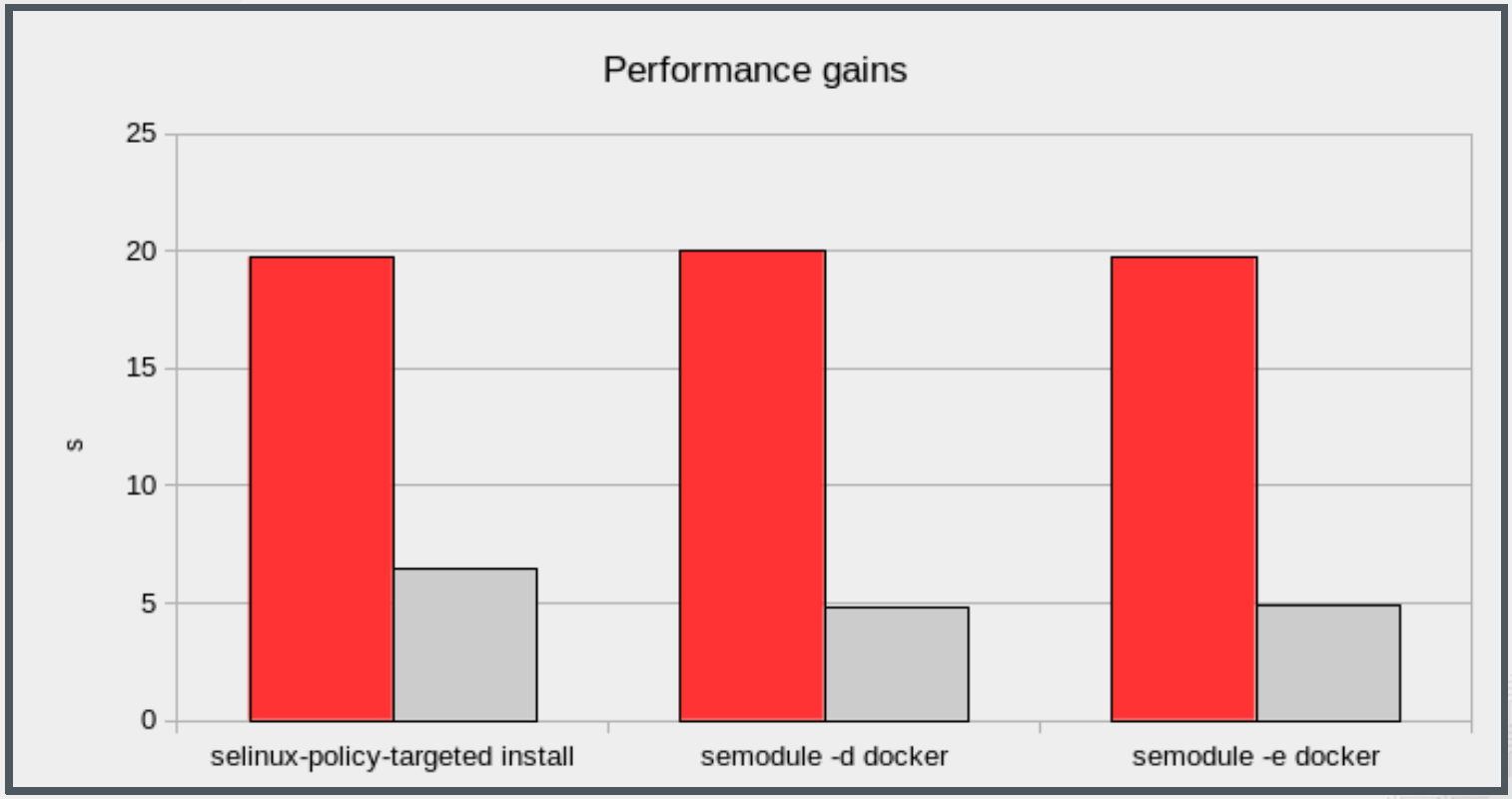
SELINUX IMPROVEMENTS FROM 2015

```
# dnf install selinux-policy-targeted
# semodule -d docker
# semodule -e docker
```

SELINUX IMPROVEMENTS FROM 2015

~ 15 seconds for

SELINUX IMPROVEMENTS FROM 2015



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SELINUX IMPROVEMENTS FROM 2015

```
# dnf install docker-selinux
```

SELINUX IMPROVEMENTS FROM 2015

```
# dnf install docker-selinux

libsepol.scope_copy_callback:docker Duplicate
declaration in module
```

SELINUX IMPROVEMENTS FROM 2015

```
# dnf install docker-selinux
# semodule --list=full | grep docker
400 docker
100 docker
```

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- **new Common Intermediate Language - CIL**

SELINUX IMPROVEMENTS FROM 2015

- HLL vs. CIL

```
# cat mysandbox.te

policy_module(mysandbox,1.0)

require{
 type sandbox_web_t;
  attribute userdomain;
 }

allow sandbox_web_t userdomain:unix_stream_socket co
nnectto;
```

SELINUX IMPROVEMENTS FROM 2015

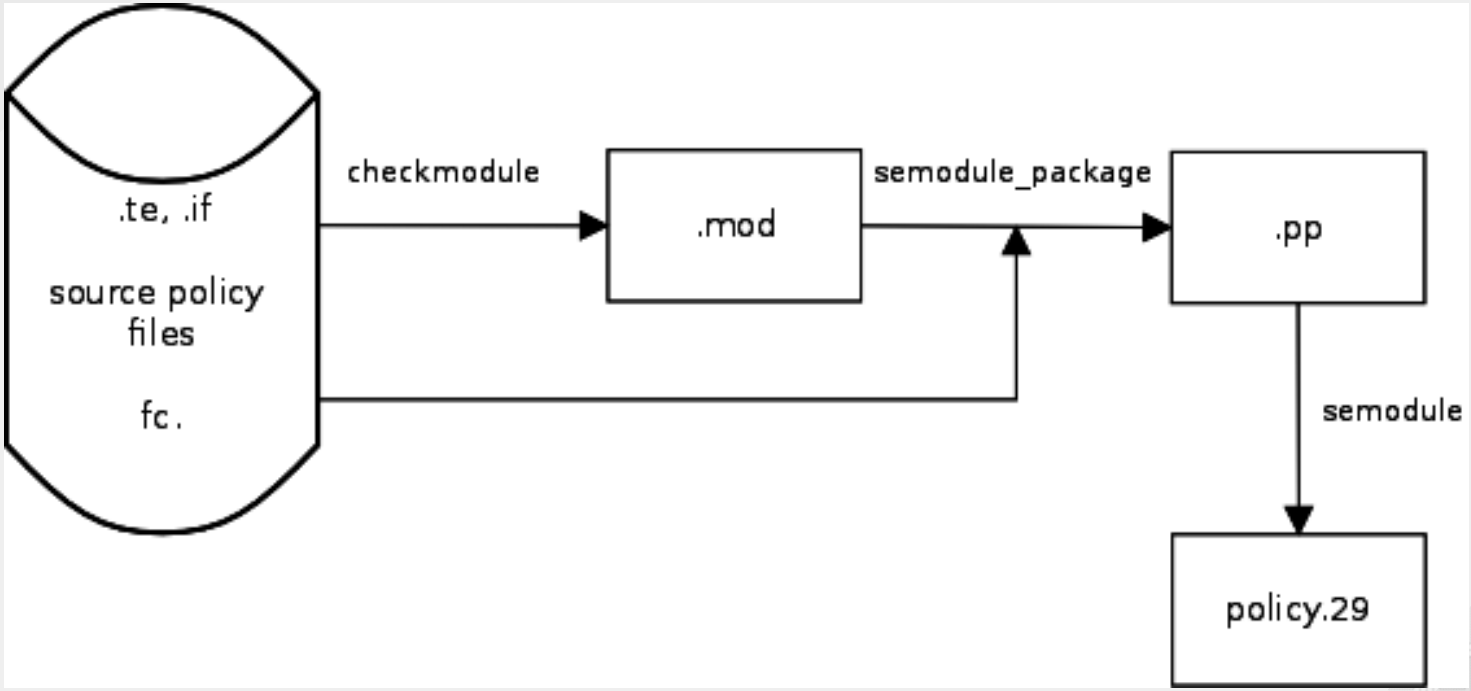
- HLL vs. CIL

```
# make -f ../Makefile mysandbox.pp

# semodule -i mysandbox.pp
```

SELINUX IMPROVEMENTS FROM 2015

- HLL vs. CIL



SELINUX IMPROVEMENTS FROM 2015

- CIL

```
# cat mysandbox.cil

(allow sandbox_web_t unconfined_t (unix_stream_socket (con
nectto)))

# semodule -i mysandbox.cil
```

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- **performance gains**
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  - readable intermediate policy language

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  - readable intermediate policy language
  - potential for new High Level Languages (in Java Script?)

SELINUX IMPROVEMENTS FROM 2015

- **new Common Intermidiate Level Language - CIL**
  - lolpolicy (HLL) from Joshua Brindle

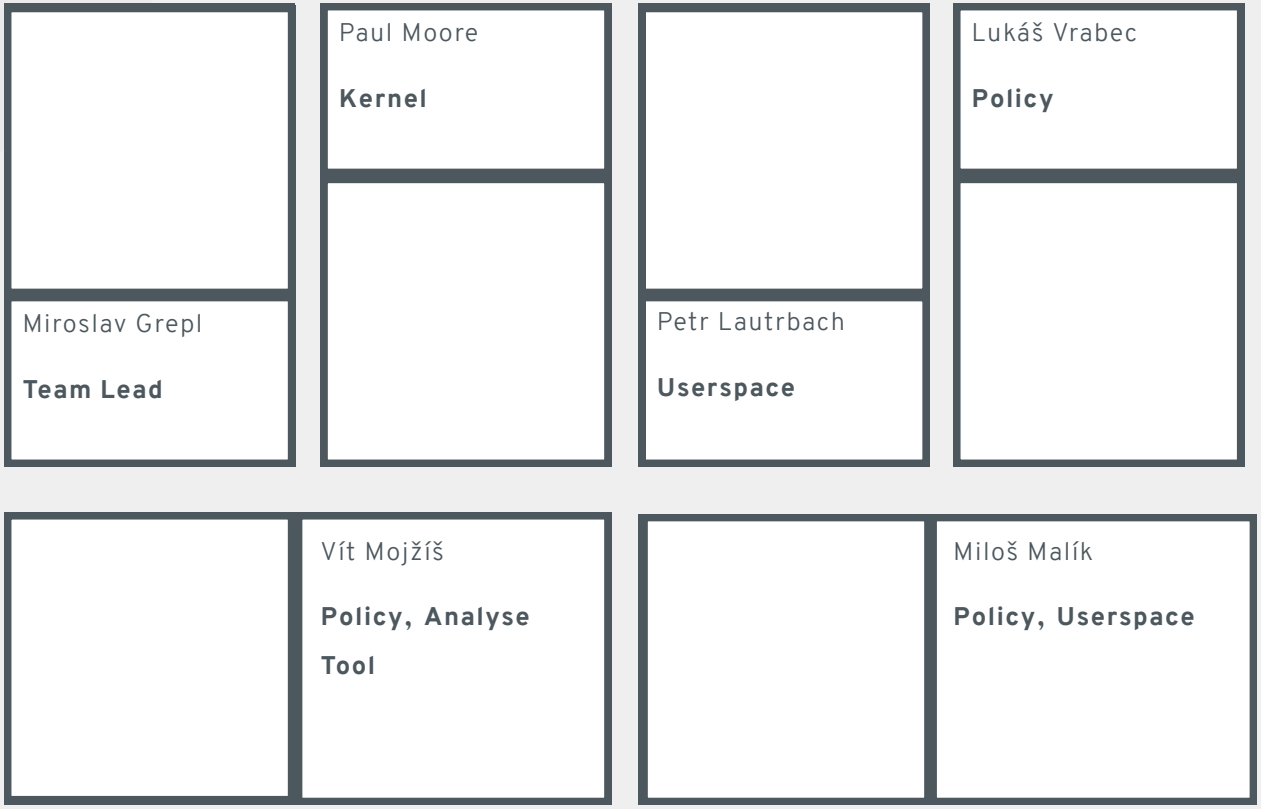
```
I iz logwatch
     in ur webserver
     reading ur logs
```

SELINUX IMPROVEMENTS FROM 2015

It is **HERE.**

FEDORA 23.

SELINUX TEAM AT RED HAT



SELINUX TEAM AT RED HAT

Miroslav Grepl

Team Lead

Paul Moore

Kernel

Petr Lautrbach

Userspace

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Policy

Vít Mojžíš

Policy, Analyse Tool

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WHAT SELINUX CAN DO FOR YOU?

- protect your system from consequences of exploited apps

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- **protect your system from consequences of exploited apps**
  - CVE-2015-5602 aka *Unauthorized Privilege Escalation* in *sudo*

WHAT SELINUX CAN DO FOR YOU?

[usr@localhost ~]$ ln -s /etc/shadow ~/temp/test.txt

[usr@localhost ~]$ sudo -e ~/temp/test.txt

root:$6$0m2y//leQIKDW0cg$f0wGcz/4NhfJo8VEe66SRHz9p8QaaTq8Ldby66692uO04ouqn9D93ECQVIO62Cer3ar2z.ef.365SSInyja3T.::0:99999:7:::

bin:*:16489:0:99999:7:::

daemon:*:16489:0:99999:7:::

adm:*:16489:0:99999:7:::

lp:*:16489:0:99999:7:::

sync:*:16489:0:99999:7:::

shutdown:*:16489:0:99999:7:::

WHAT SELINUX CAN DO FOR YOU?

```
[usr@localhost ~]$ ln -s /etc/shadow ~/temp/test.txt

[usr@localhost ~]$ sudo -e ~/temp/test.txt

sudoedit: /home/usr/temp/test.txt: Permission denied

[usr@localhost ~]$ getenforce

Enforcing
```

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- **protect your system from consequences of exploited apps**
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  - CVE-2015-3456 aka *Venom*

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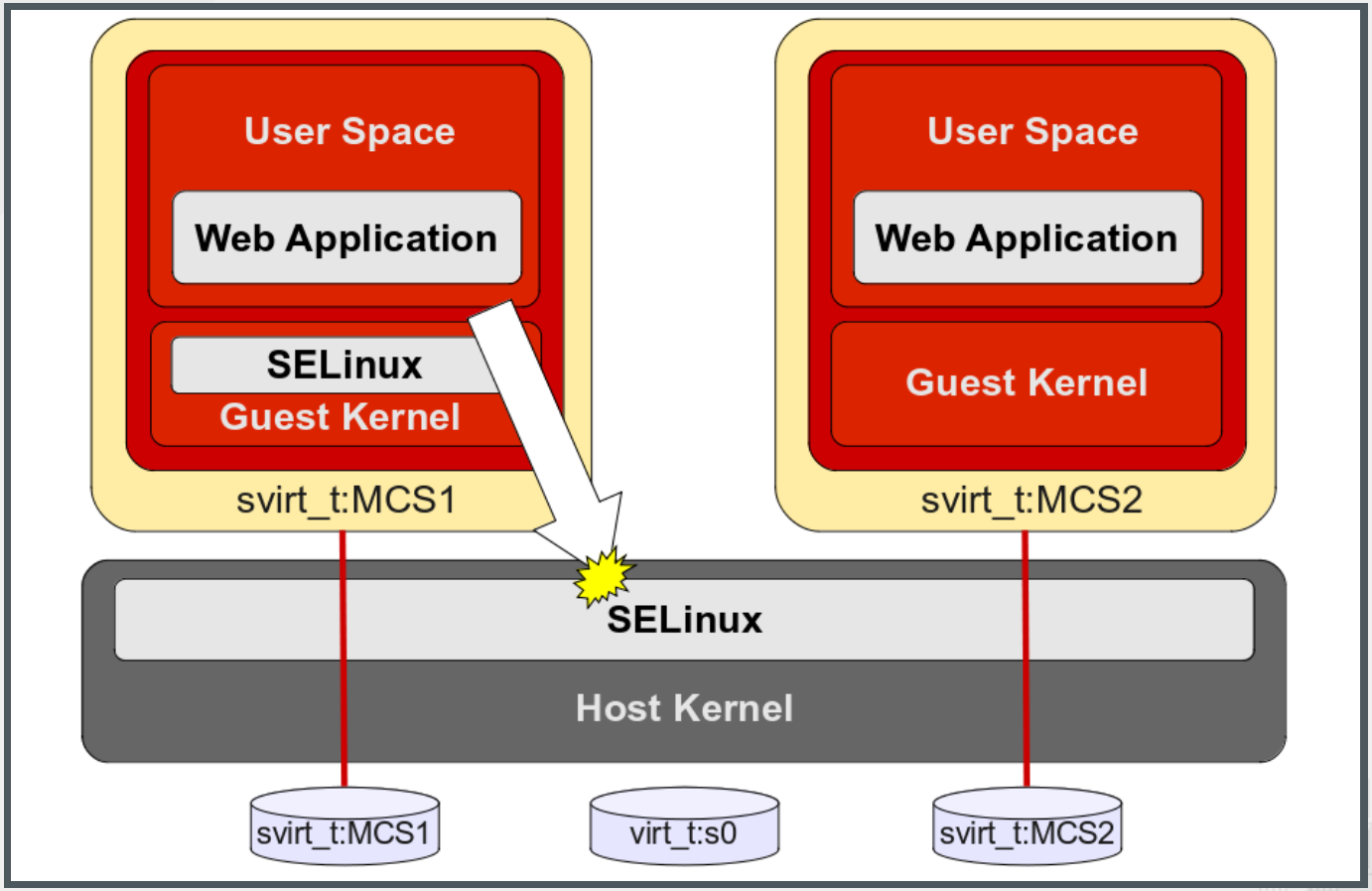

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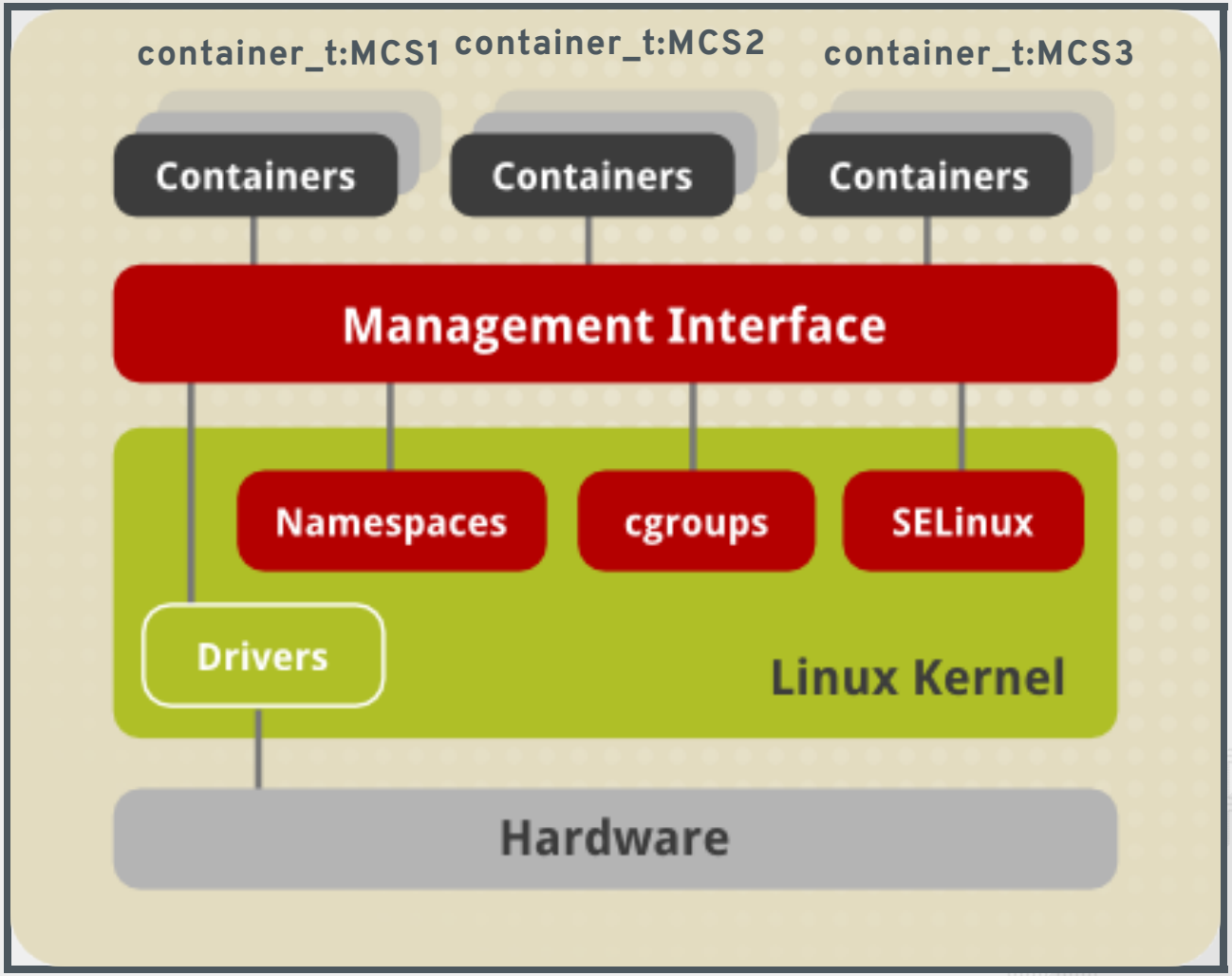

WHAT SELINUX CAN DO FOR YOU?

- keeps your container in its own space
- advanced security for Multitenant Environments

WHAT SELINUX CAN DO FOR YOU?

- **keeps your container in its own space**
- **advanced security for Multitenant Environments**
  - running thousands processes
  - gears in OpenShift
  - containers in OpenShift v3

WHAT SELINUX CAN DO FOR YOU?

Security **WINS**
with **SELINUX**

SELINUX IMPROVEMENTS IN 2016?

- "a new SELinux" on Atomic - seatomic

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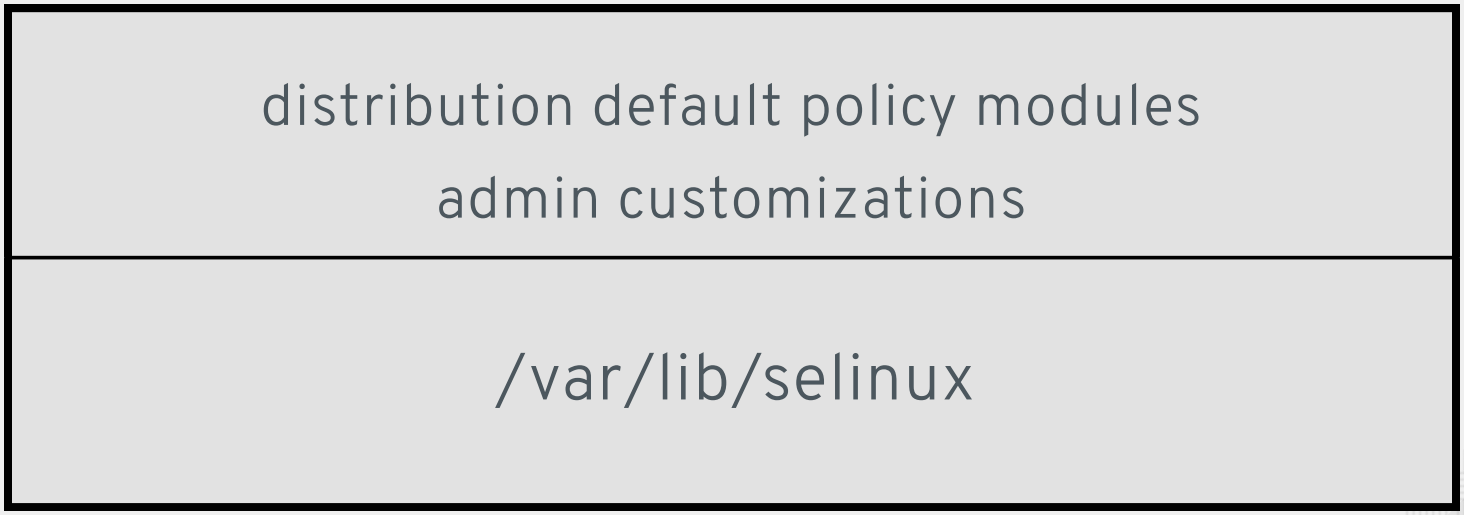

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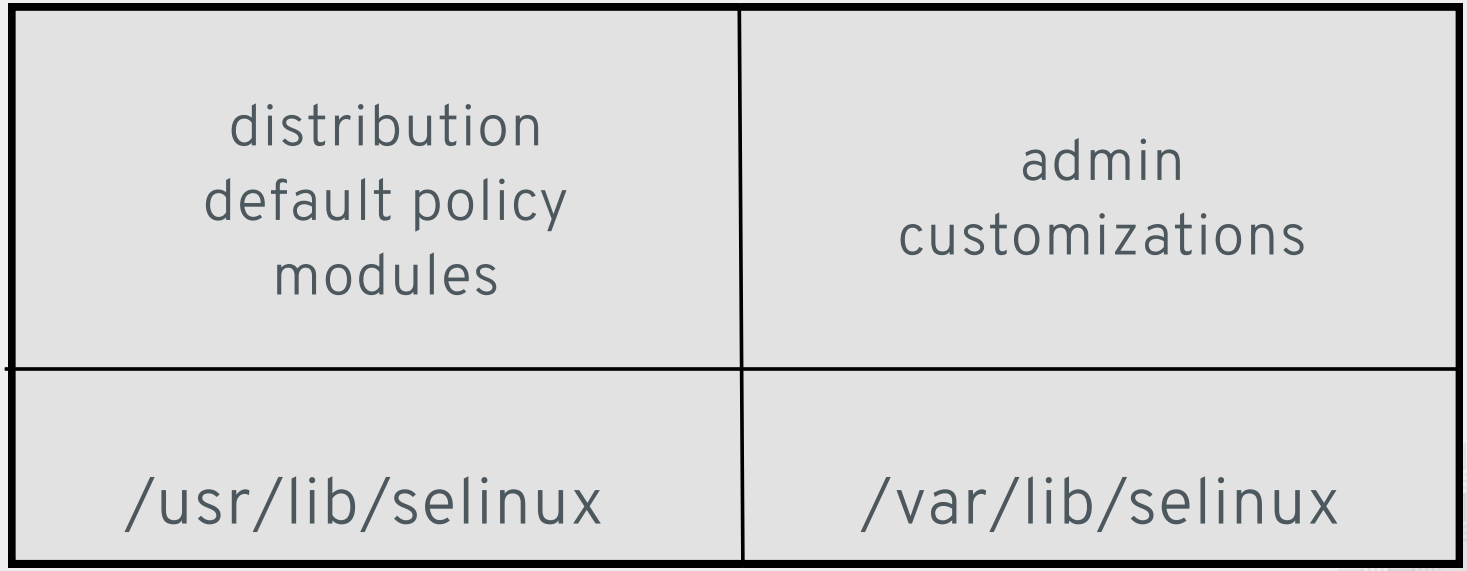

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    - the current huge "workstation" policy - **Targeted**

SELINUX IMPROVEMENTS IN 2016?

```
$ sestatus
Loaded policy name:                targeted
$ seinfo
Types:               4665
Allow:             100393
```

SELINUX IMPROVEMENTS IN 2016?

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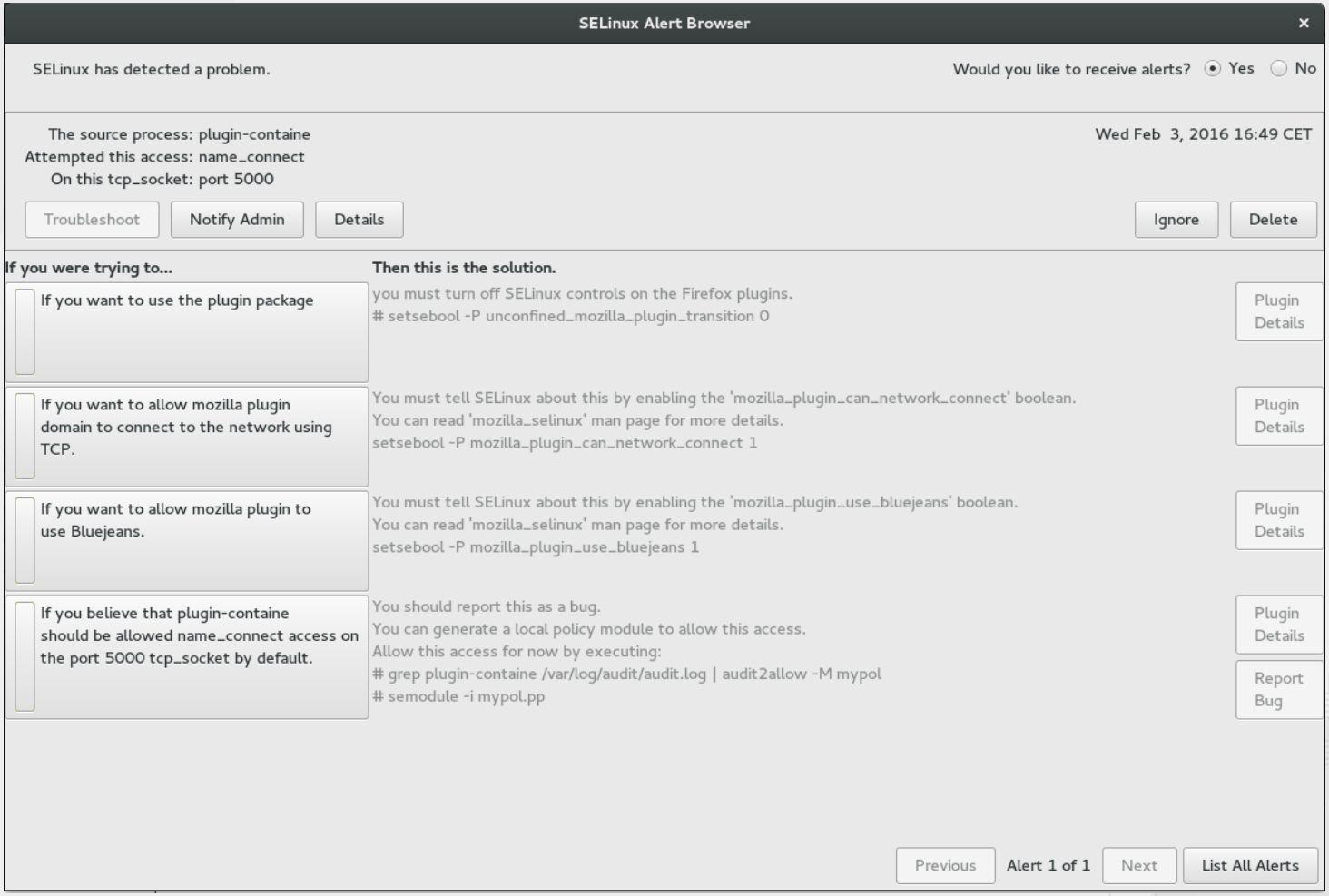
      - **significant speed-up** of tools that performs SELinux policy management

SELINUX IMPROVEMENTS IN 2016?

- SELinux troubleshooting

SELINUX IMPROVEMENTS IN 2016?



SELINUX IMPROVEMENTS IN 2016?

- **SELinux troubleshooting**
  - improved **best practises** suggested by SEAlert
  - SELinux troubleshooting **in Cockpit**

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  - human readable **big picture** of policy

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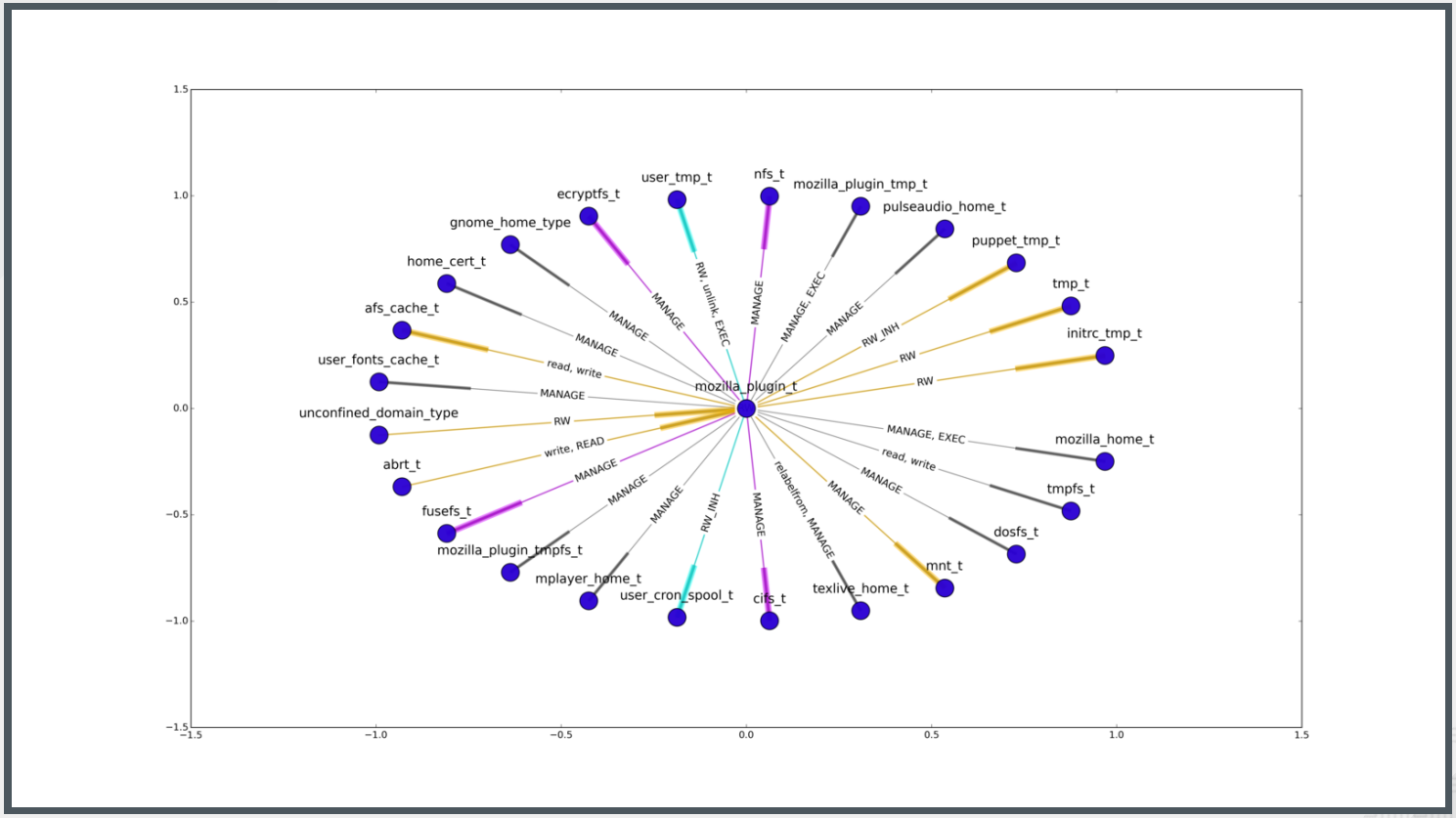

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  - human readable **big picture** of policy
  - SELinux policy integrity

SUMMARY

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- easier to provide your **own** SELinux policies
- **CIL** as a new Intermediate Language
- SELinux helps **mitigate** consequences of exploits
- new SELinux for Atomic Hosts aka **seatomic** is coming soon

SUMMARY

- SELinux troubleshooting integrated with Cockpit

SUMMARY

- SELinux troubleshooting integrated with Cockpit
- Visualization of policy

DISCUSSION AND Q&A

and **THANK YOU!**

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