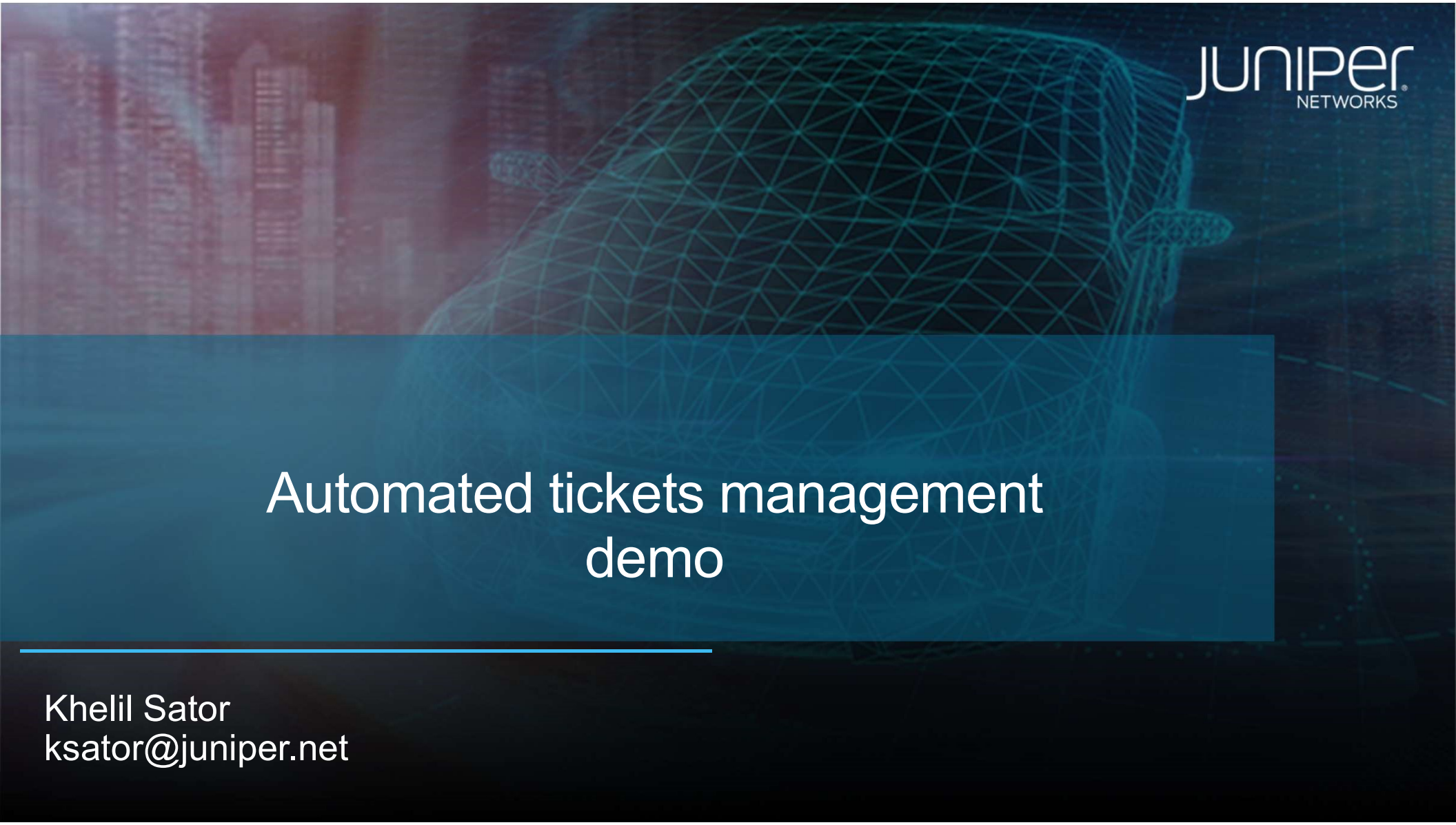


Automated tickets management demo

Khelil Sator
ksator@juniper.net

SALT PROXY for JUNOS

- For help about Junos automation with SaltStack, you can visit this repository https://github.com/ksator/junos-automation-with-saltstack

- SaltStack supports Junos automation with a Salt proxy
  - Proxy controls junos devices without installing salt on device.
  - It uses ZMQ between the Salt master and the proxy
  - It uses NETCONF between the Junos device

- It provides execution modules for Junos so you can run commands on various machines in parallel with a flexible targeting system
  - https://docs.saltstack.com/en/latest/ref/modules/all/salt.modules.junos.html

- It provides state modules for Junos so you can apply sls files
  - https://docs.saltstack.com/en/latest/ref/states/all/salt.states.junos.html

- Junos facts are stored in salt grains

JUNOS SYSLOG SALT ENGINE

- Listens to syslog events
- Extracts events information
- Sends information on the event bus.
- Control the type of events to be sent.
- Salt reactors has the ability to take actions according to these events (event driven automation).

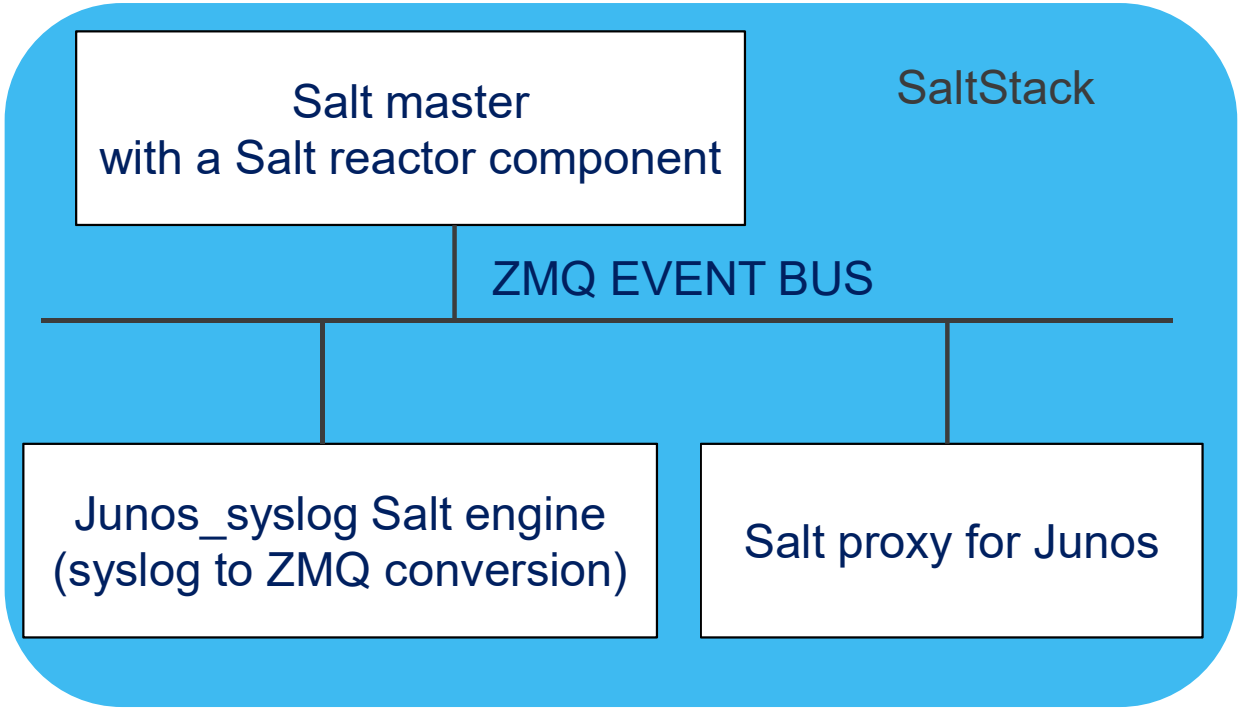
- Junos_syslog engine configuration

```
root@server:~# more /etc/salt/master
...
engines:
  - junos_syslog:
      port: 516
...
```

OVERVIEW OF THE DEMO

- Based on syslog messages from junos devices, SaltStack automatically creates a new ticket or update the existing one. SaltStack also automatically collects "show commands" from junos devices and attach the devices output to the appropriate tickets.

- Code of the demo is available here ttps://github.com/ksator/automated_tickets_management



RT 4
(ticketing system)

Create a new ticket (or update the existing one).
Add syslog messages to the appropriate tickets.
Attach output of junos commands collected to the appropriate tickets.

syslog messages

NETCONF (to collect show commands)

JUNOS DEVICE

SALTSTACK REACTOR CONFIGURATION

This 0MQ topic is pub by junos_syslog salt engine

```
root@server:~# salt-run reactor.list
....
|_
  ----------
  jnpr/syslog/*/SNMP_TRAP_LINK_*:
     -/srv/reactor/show_commands_output_collection_and_attachment_to_RT.sls
```

This reactor file creates a new ticket (or update the existing one).
It adds the syslog message to the appropriate ticket.
It collect junos show commands on the device that sent the syslog message.
It attaches the data collected to the appropriate tickets.

JUNOS SYSLOG CONFIGURATION

- For junos_syslog engine to receive events, syslog must be set on the junos device:
  - The ip address is the one of the server running the syslog engine
  - The port is the port where the engine is listening for events.

```
lab@dc-vmx-2> show configuration system syslog host 172.30.52.150
any any;
match SNMP_TRAP_LINK;
port 516;
```

EVENT DRIVEN AUTOMATION

- The junos device sends a SNMP_TRAP_LINK_DOWN syslog message to SaltStack
  - The SaltStack junos_syslog engine publishes a 0MQ message

- The reactor component of the master is subscribing to this 0MQ topic
  - So it executes the reactor sls file to:
    - create a new ticket (or update the existing one).
    - add the syslog message to the appropriate ticket.
    - collect junos show commands on the device that sent the syslog message.
    - attach the data collected to the appropriate tickets.

JUNOS AUTOMATION RESOURCES

If you are looking for more details about Junos automation, you can visit these repositories
https://github.com/ksator?tab=repositories
https://gitlab.com/users/ksator/projects
https://gist.github.com/ksator/


Thank you