

# Building a science lab

with ContainerSSH

*It's colorful, but it's not a sales presentation. ContainerSSH is fully open source.*

What is ContainerSSH?



# ContainerSSH

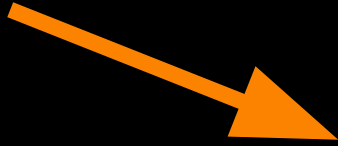
Launch containers on demand

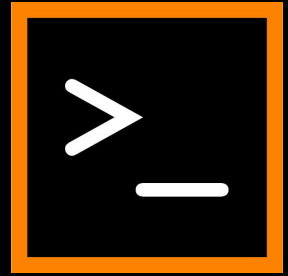
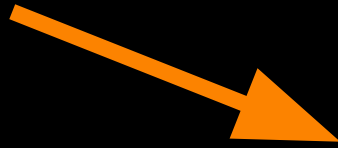


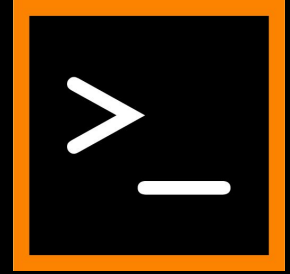
# ContainerSSH in a nutshell

- It's an SSH server
- When someone connects, it starts a container
- It doesn't run in the container
- You can configure it dynamically with webhooks



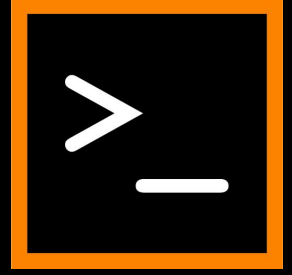
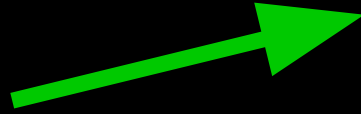
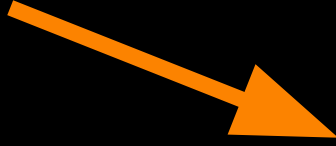


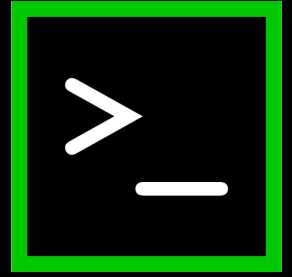
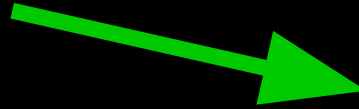
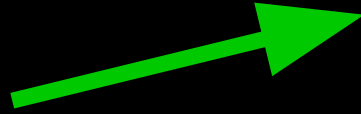
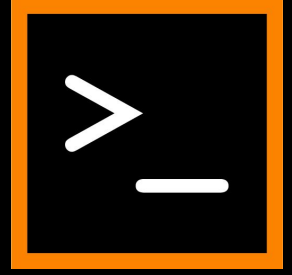
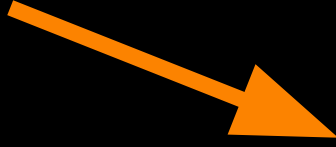


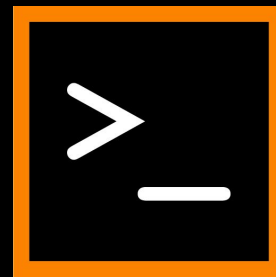




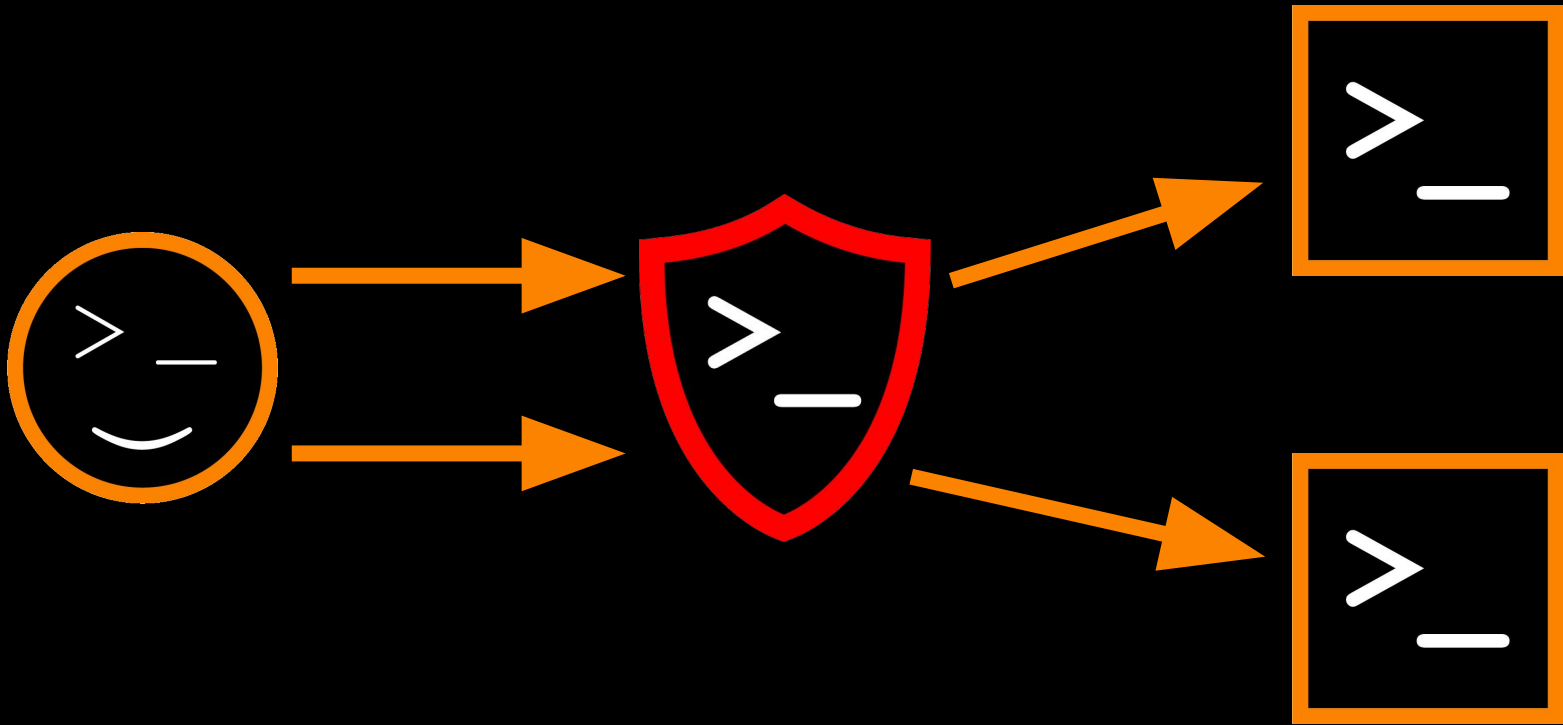




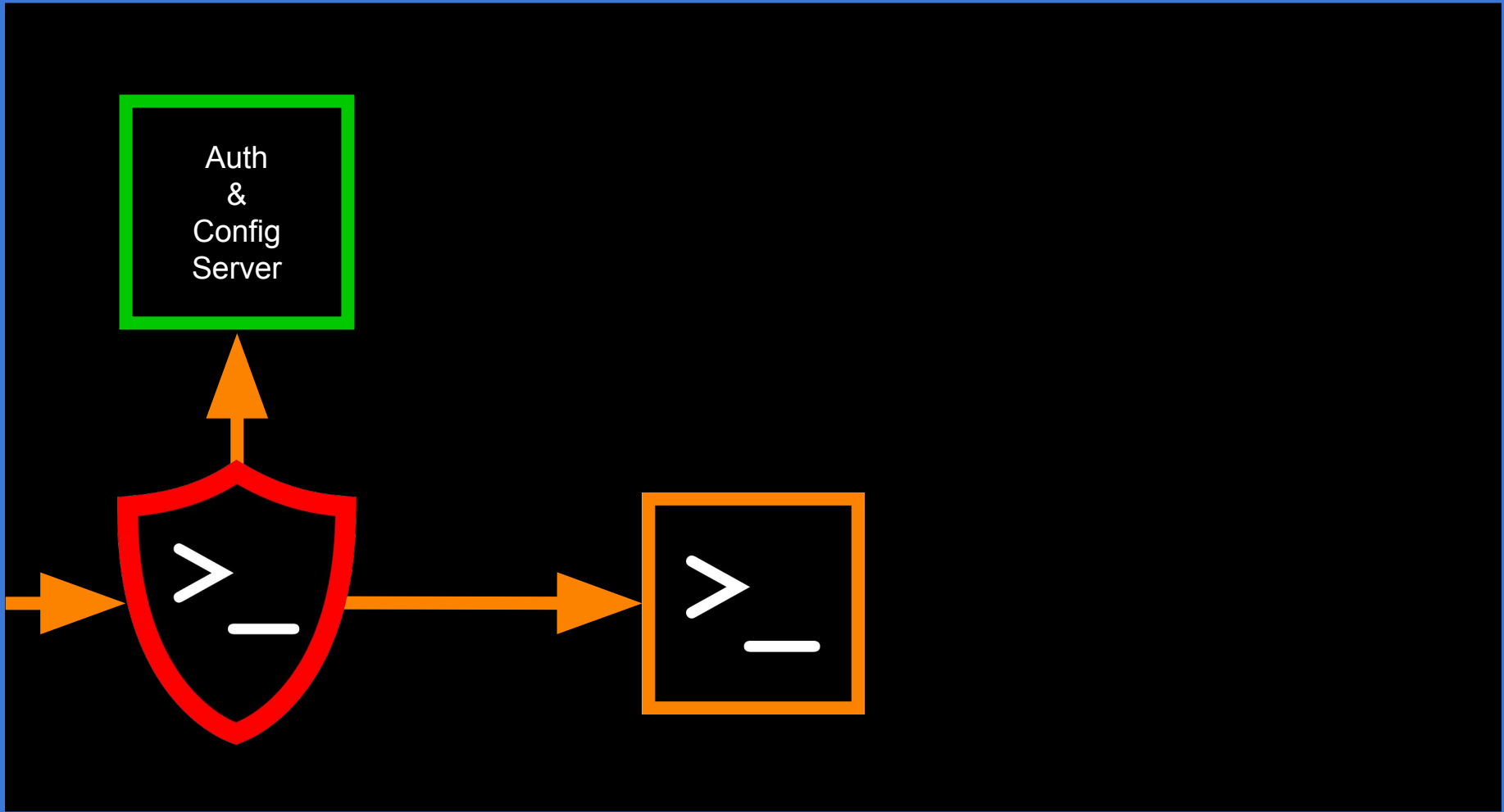




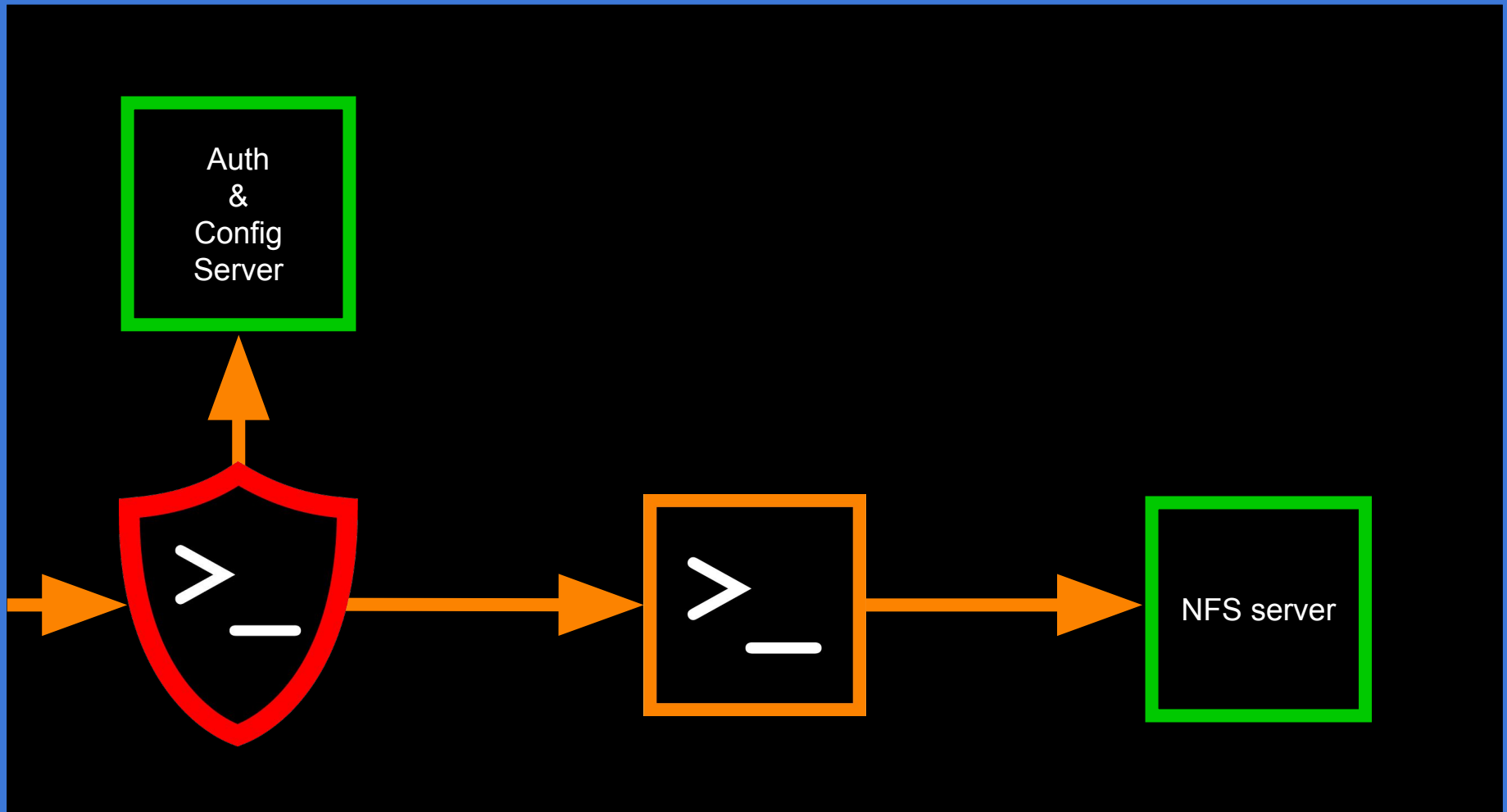












# Why ContainerSSH?

- Ease of **access**
- Simple **resource-constrained** environments
- Automatic **cleanup**
- It can record a detailed **audit log**
- ... and it's fully **open source!**

## Where can I get it?

- Quick start tutorials, reference guide, and development documentation are available at [containersssh.io](https://containersssh.io)
- Click the [Slack link](#) on the website for quick help or guidance.
- The source code is available at [github.com/ContainerSSH](https://github.com/ContainerSSH)

ContainerSSH @ CERN

# LxPlus Service @ CERN

- LxPlus: Linux Public Login User Service
- Set of Linux machines with SSH access
- Used for code writing, job submission and file operations on remote file systems
- ~ 100 VMs, ~2000 logged in users at any moment

# ContainerSSH & LxPlus

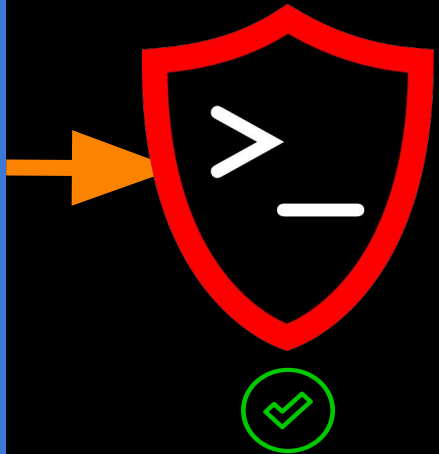
- Investigating ContainerSSH integration
- Developed and contributed upstream native AD/Kerberos integration
- Pilot service has already been set up

# Why containerize?

- Privilege escalation vulnerabilities are common
- Shared resources like /tmp and network interfaces provide a big attack surface
- Resource fair-share is problematic

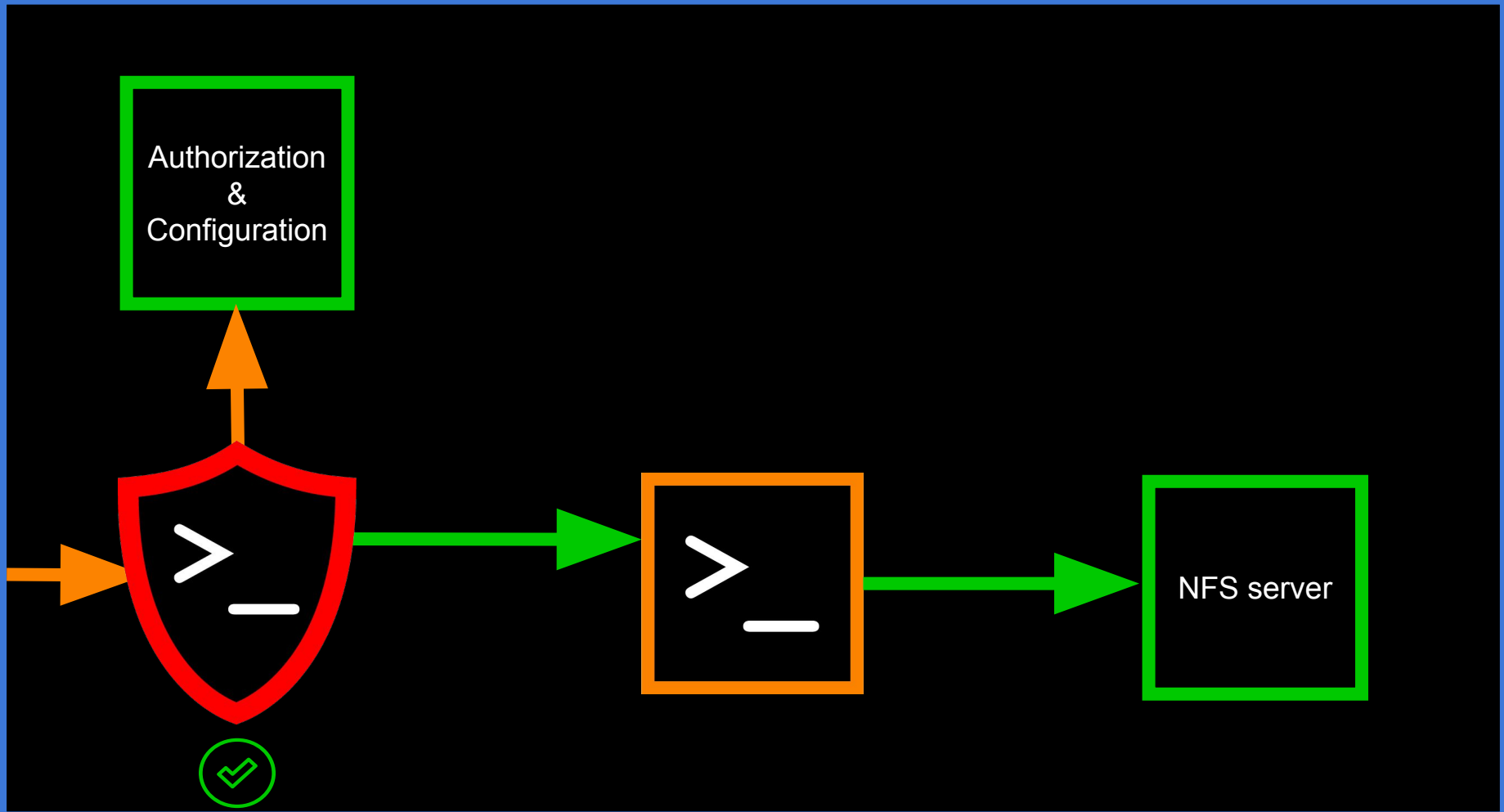
# Authentication flow via Kerberos

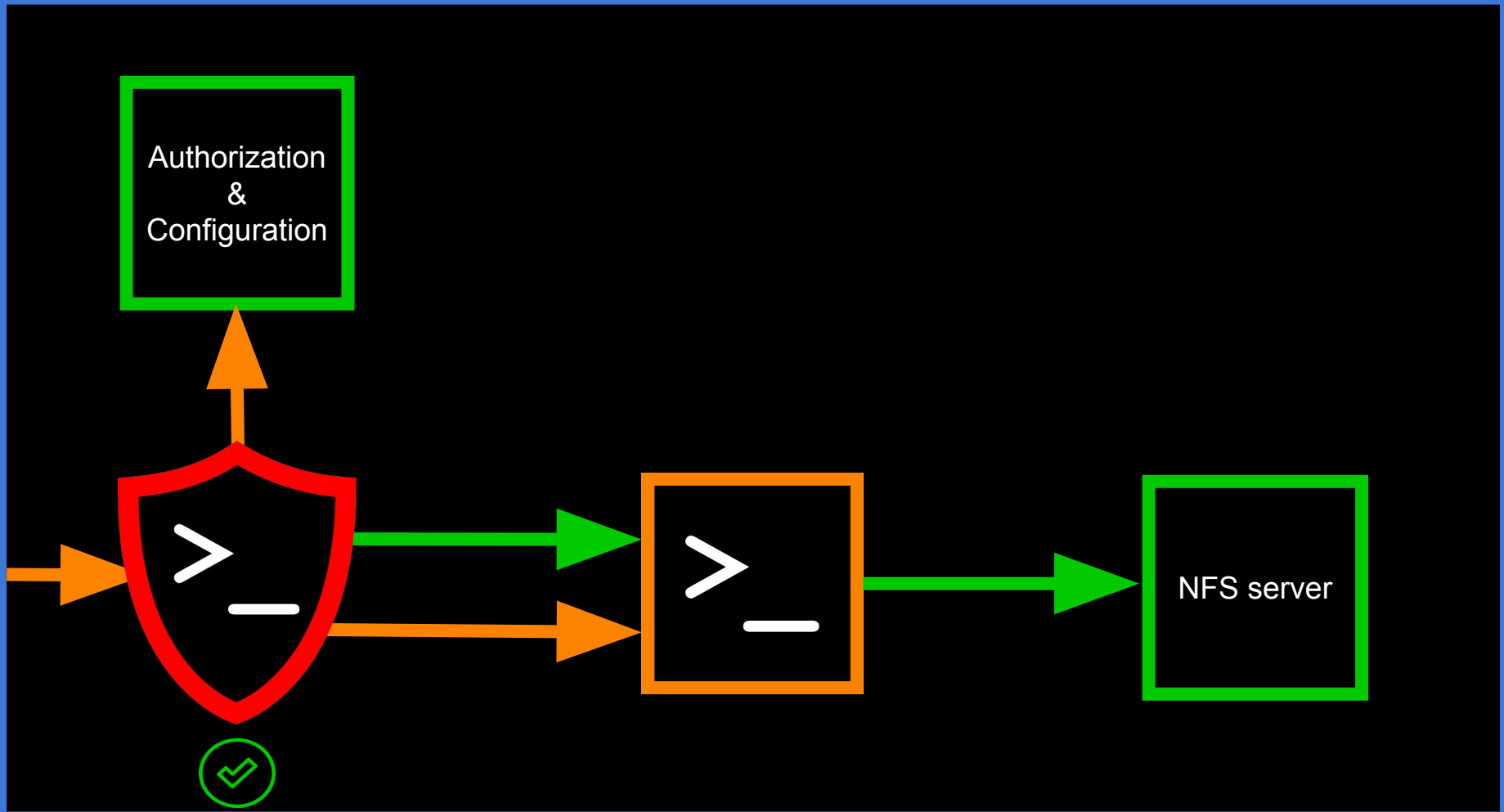




Authorization  
&  
Configuration







What is the future of ContainerSSH?

# oAuth 2.0 authentication for SSH

- Passwordless login using a browser
- Works with most SSH clients
- Coming in ContainerSSH 0.5

Stop! Demo time!

# Demos

- ContainerSSH with **normal credentials**
- Auditing in **honeypot mode**  
*(Audience participation!)*
- Logging in **via GitHub** (oAuth2)



Questions?