smith

secure access made easy

When trying to manage access to systems and data we are faced with unsatisfying trade-offs.

Do we over-protect? Securing systems at the cost of usability and productivity.

Do we over-provision access? Ensuring access at the cost of security and confidence.

Trying to balance these concerns is not feasible when we think of access as all or nothing.
Do we grant access or don't we?

We want to be able to manage access control in terms of when and how someone has access, not just what they have access to.

Access control should be
time and workflow sensitive.

Ephemeral Access with SSH Certificates

What is the danger of a stolen SSH key?

How many keys and users have access to your systems right now?

How many are actually accessing those systems right now?

POSTED ON SEP 12, 2016 TO PRODUCTION ENGINEERING, SECURITY

Scalable and secure access with SSH

https://code.fb.com/production-engineering/scalable-and-secure-access-with-ssh/

NETFLIX

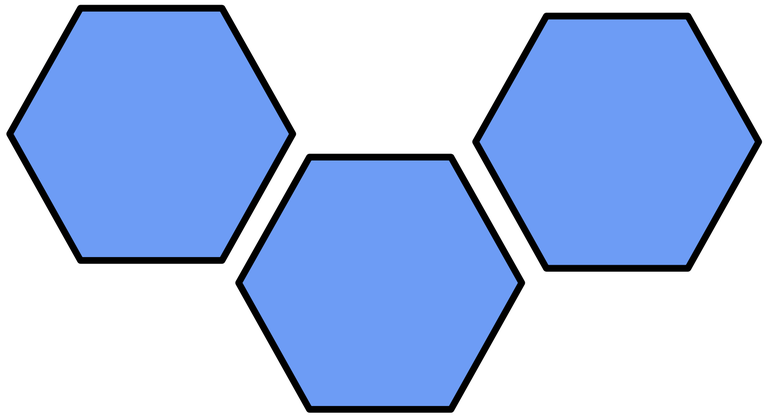
https://speakerdeck.com/rlewis/how-netflix-gives-all-its-engineers-ssh-access-to-instances-running-in-production

smith

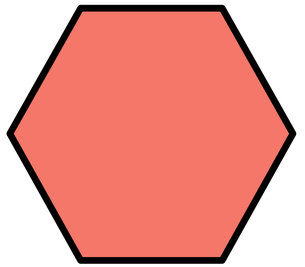
secure access made easy

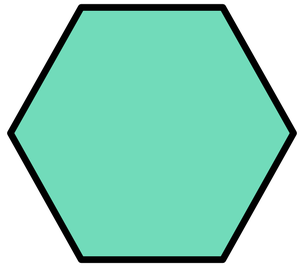
How does it work?

Your servers.



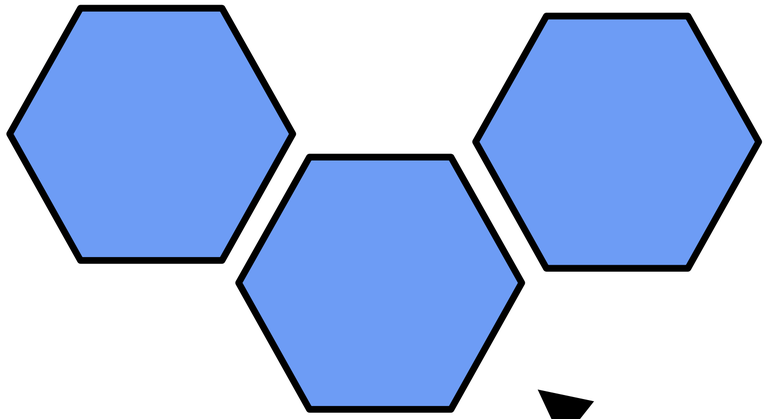
Certificate authority.



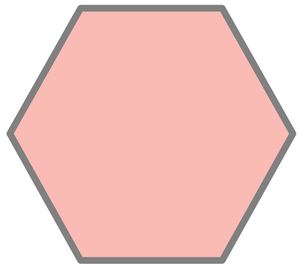


You.

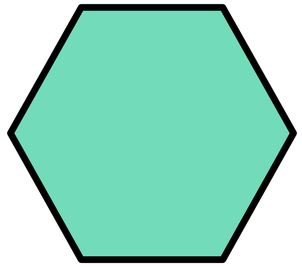
Your servers.



Certificate authority.

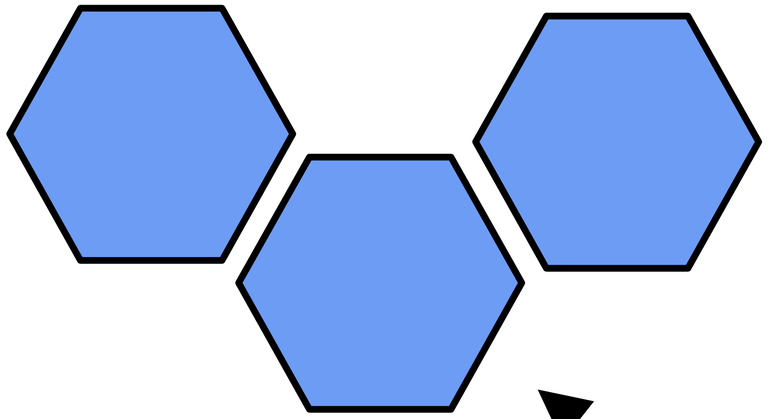


You don't have persistent access to servers.

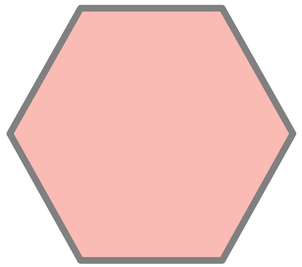


You.

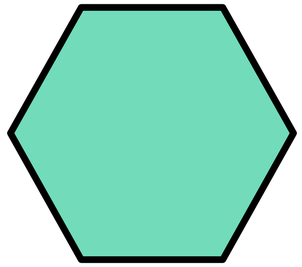
Your servers.



Certificate authority.



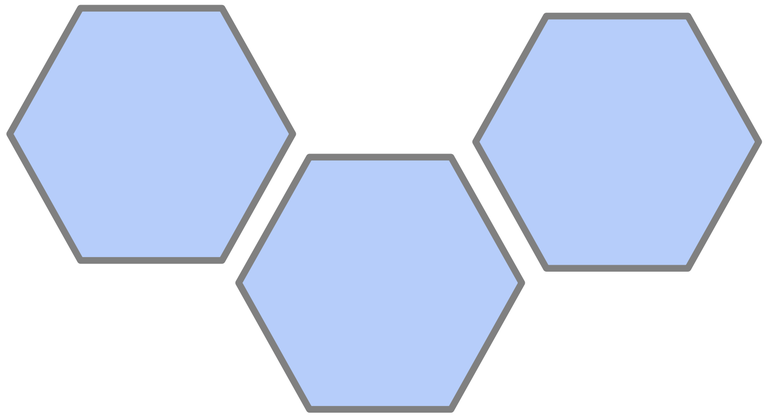
You don't have persistent access to servers.



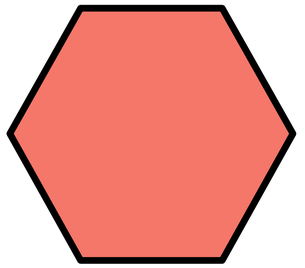
You.

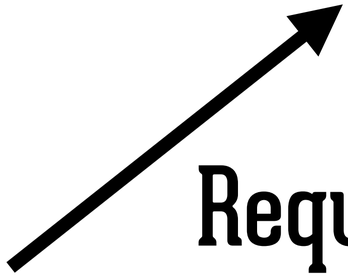
This means minimising risk of leaked SSH credentials from developers and operations.

Your servers.

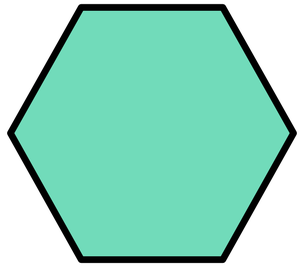


Certificate authority.



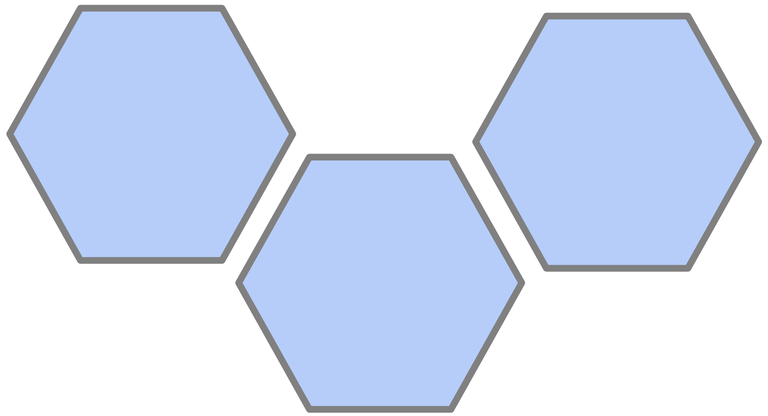


Request server access on demand as a part of your workflow.

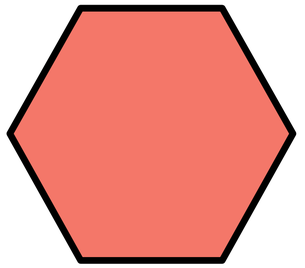


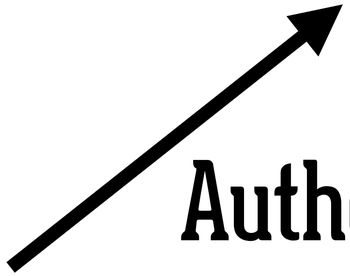
You.

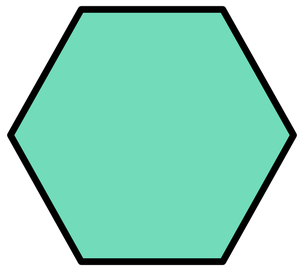
Your servers.



Certificate authority.



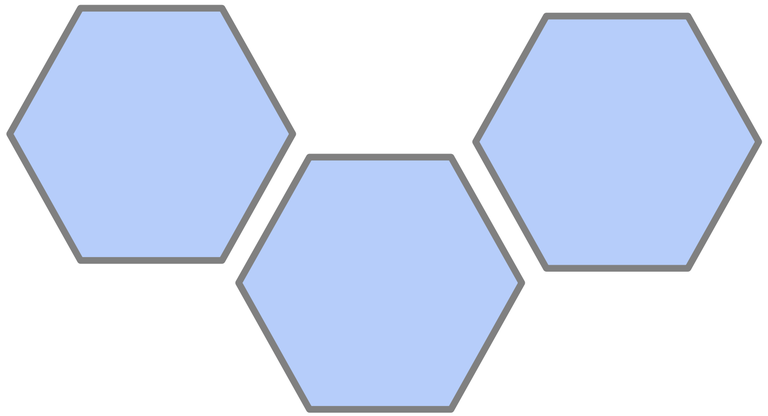




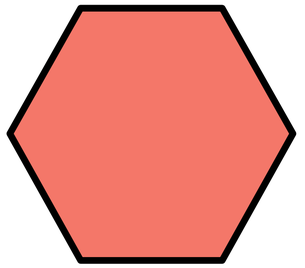
You.

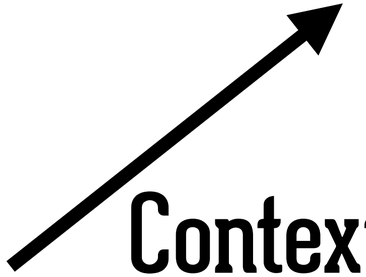
Authority authenticates you, verifies that you have access and performs contextual checks.

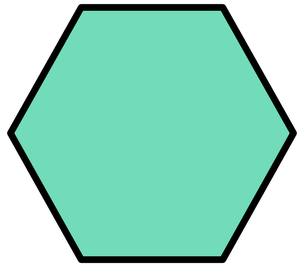
Your servers.



Certificate authority.



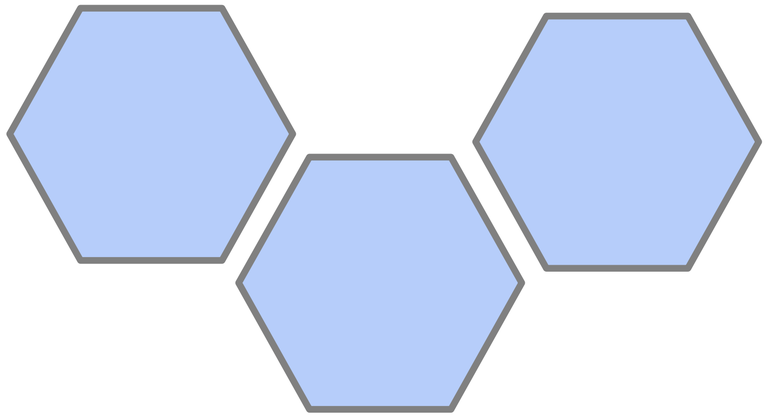




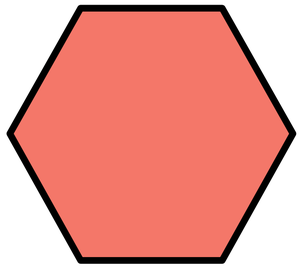
You.

Contextual checks may be your location, network checks, external approvals.

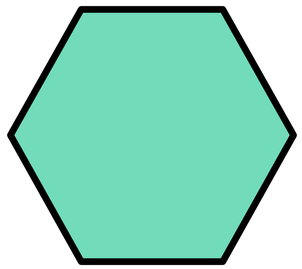
Your servers.



Certificate authority.



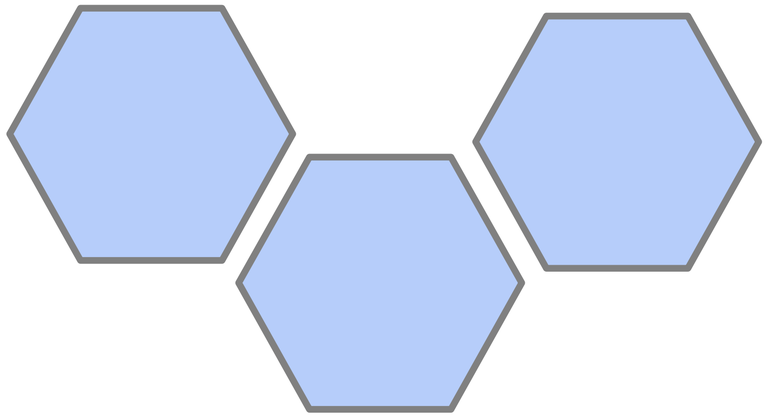
Context means we can provide more meaningful access control options.



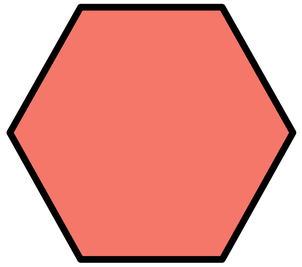
You.

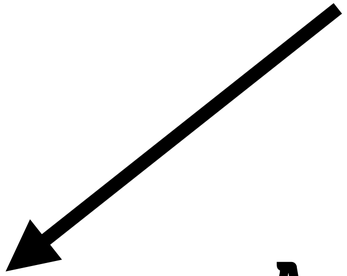
Contextual checks may be your location, network checks, external approvals.

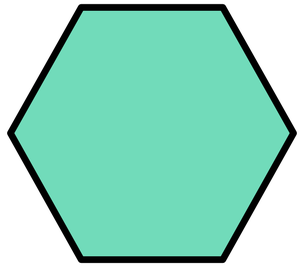
Your servers.



Certificate authority.



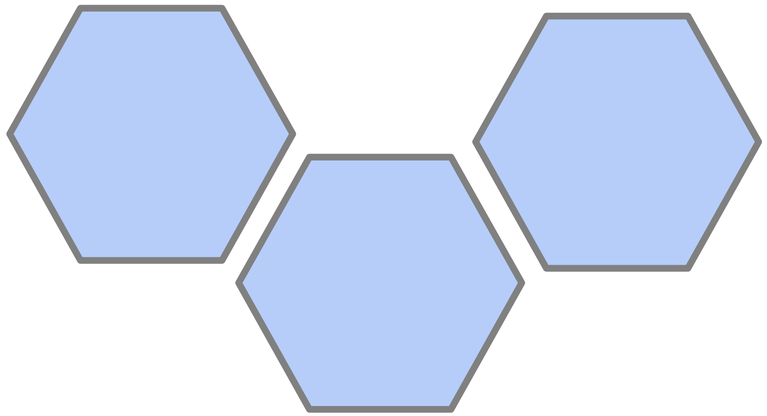




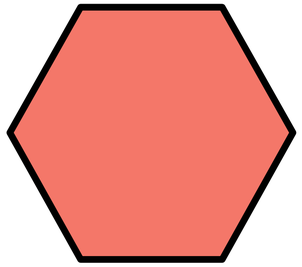
You.

Authority issues a certificate for a single use key, just for this task.

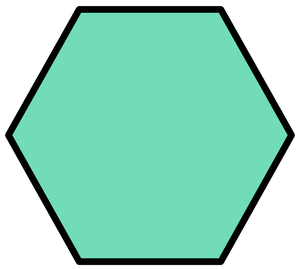
Your servers.



Certificate authority.



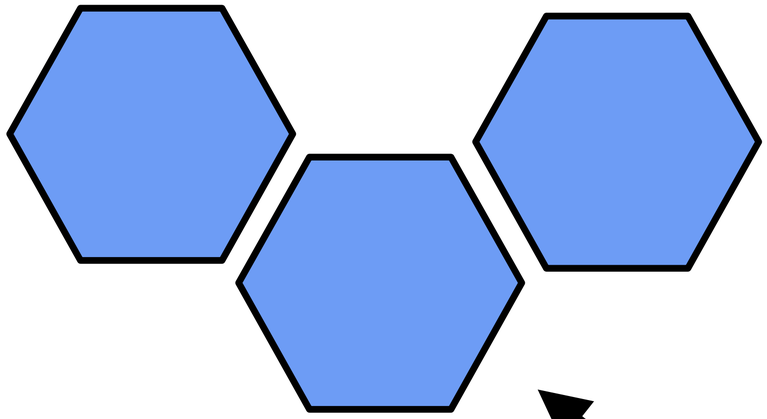
This limits the scope of our access for this request, and allows us to audit when and why access was requested.



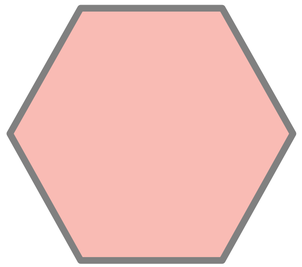
You.

Authority issues a certificate for a single use key, just for this task.

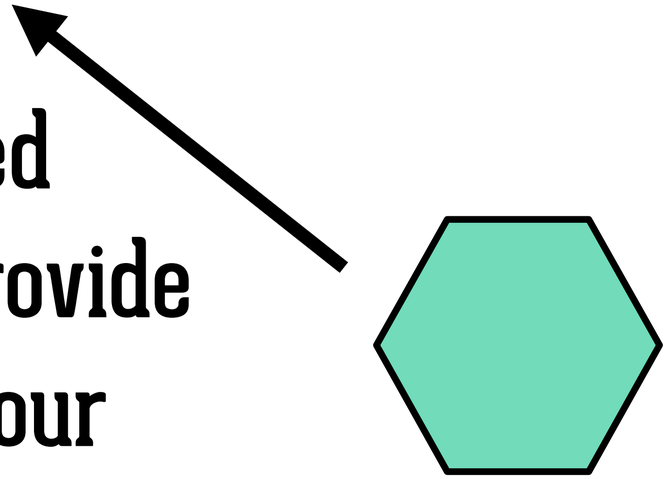
Your servers.



Certificate authority.



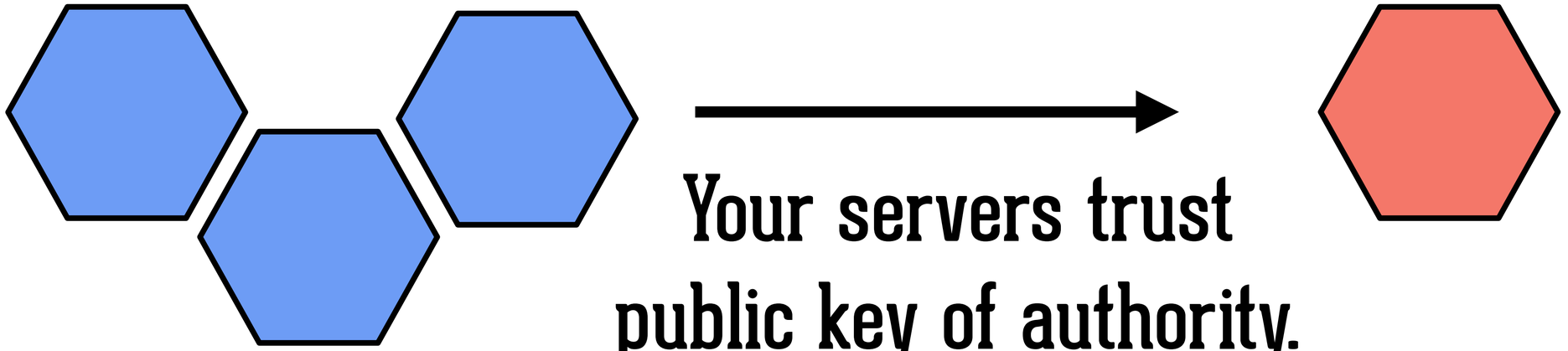
Your short-lived credentials will provide you access to your servers.



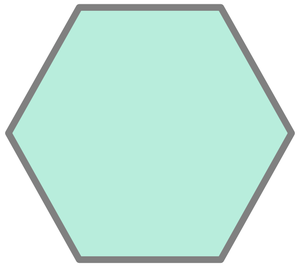
You.

Your servers.

Certificate authority.

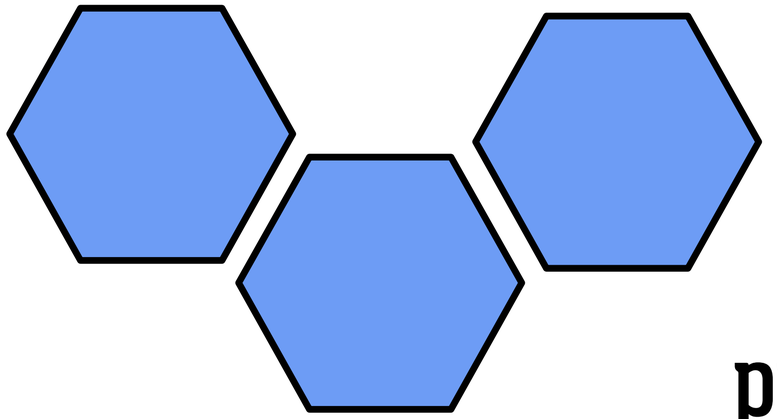


Your servers trust
public key of authority.

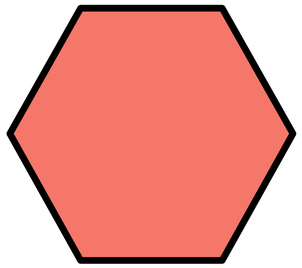


You.

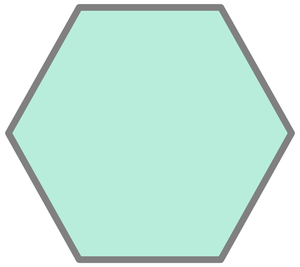
Your servers.



Certificate authority.



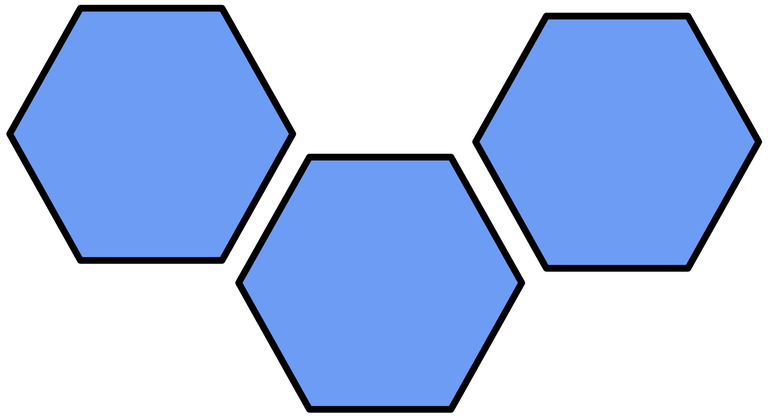
Your servers trust
public key of authority.



You.

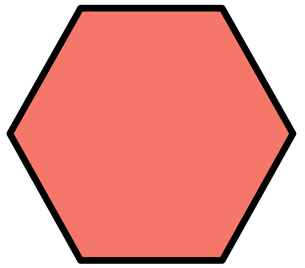
This means no per server configurations that often complicate cloud deployments.

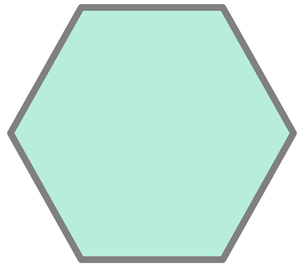
Your servers.



No active network connection required.

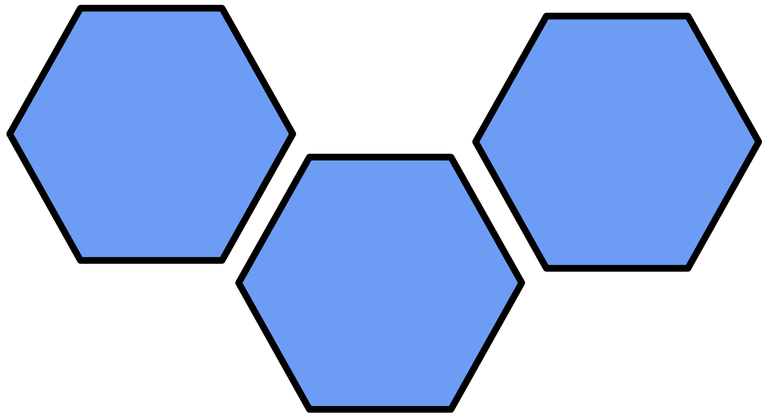
Certificate authority.



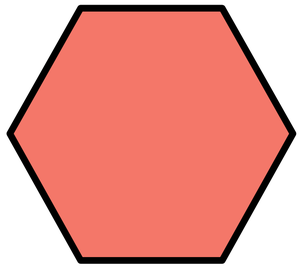


You.

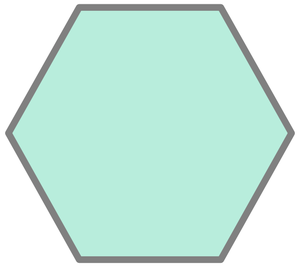
Your servers.



Certificate authority.



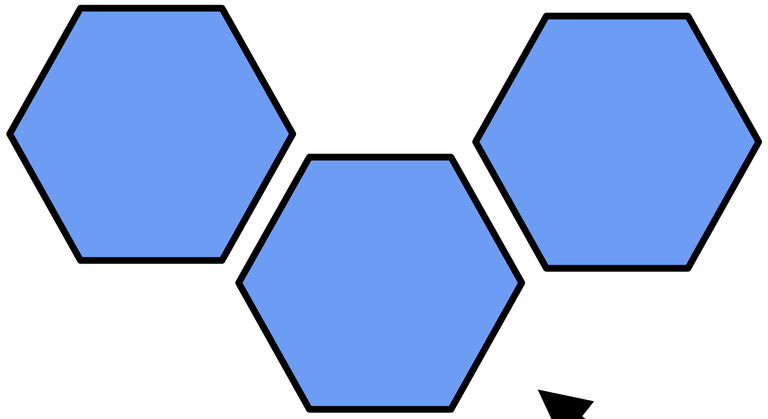
No active network connection required.



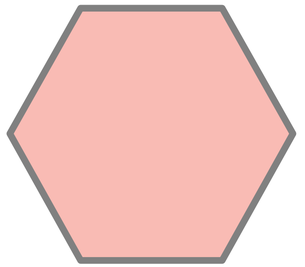
You.

This means reliability and no risk of authentication services impacting production.

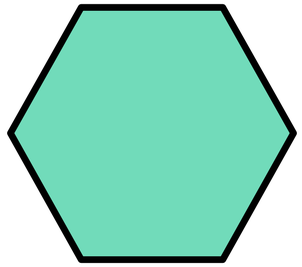
Your servers.



Certificate authority.

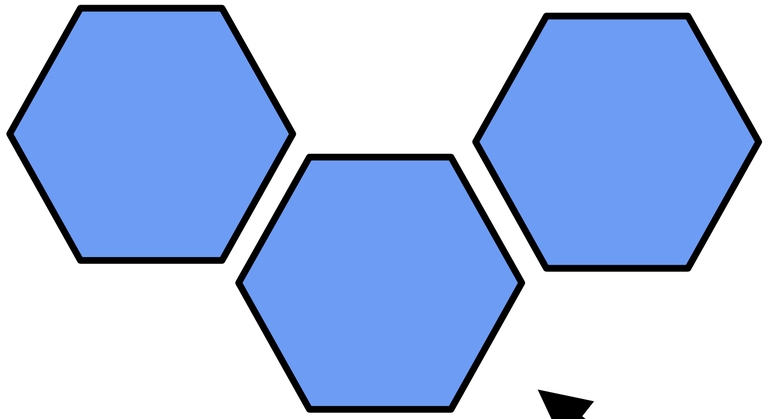


Certificate attributes can be used to limit access to specific servers or purposes.

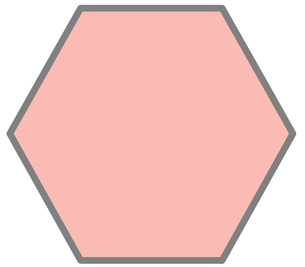


You.

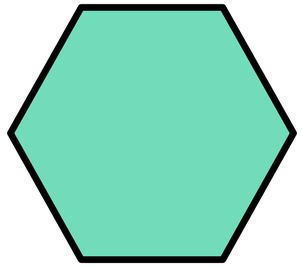
Your servers.



Certificate authority.

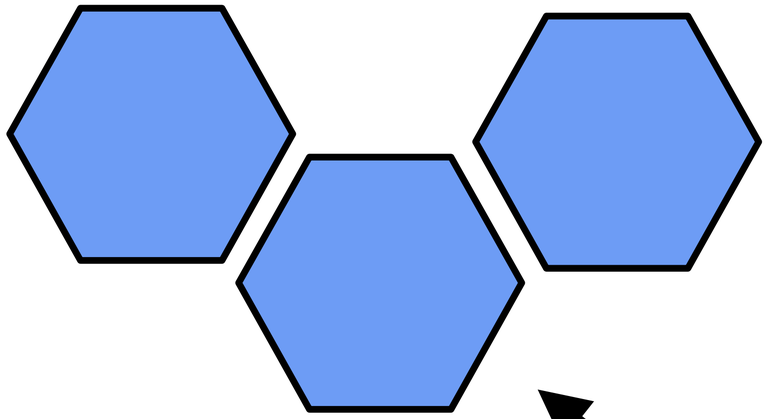


Servers log certificate attributes.

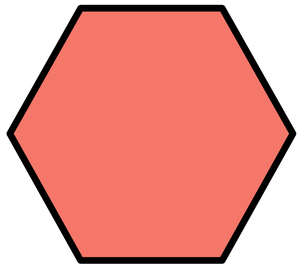


You.

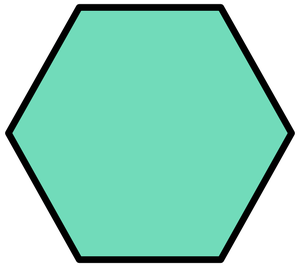
Your servers.



Certificate authority.



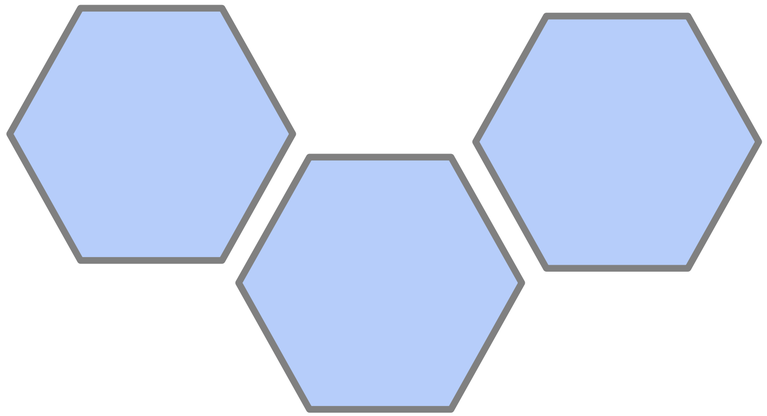
Servers log certificate attributes.



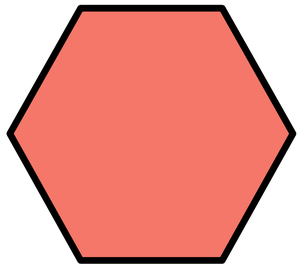
You.

This means the authorities audit records can be matched against actual access to verify behaviours.

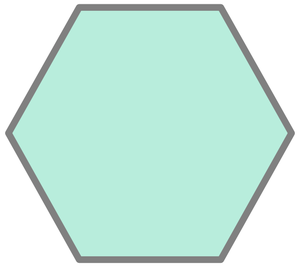
Your servers.



Certificate authority.

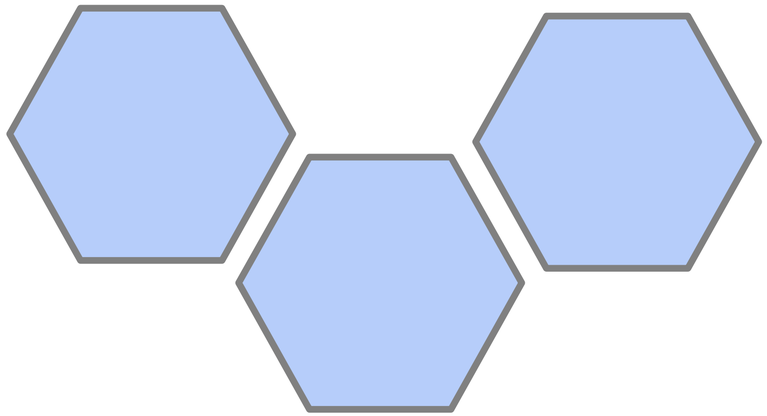


Users and access can be managed at certificate authority.

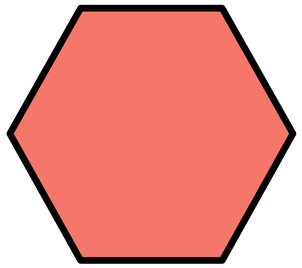


You.

Your servers.

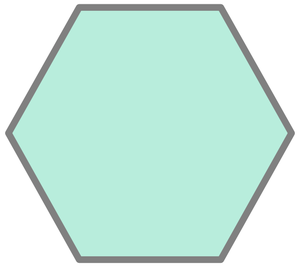


Certificate authority.



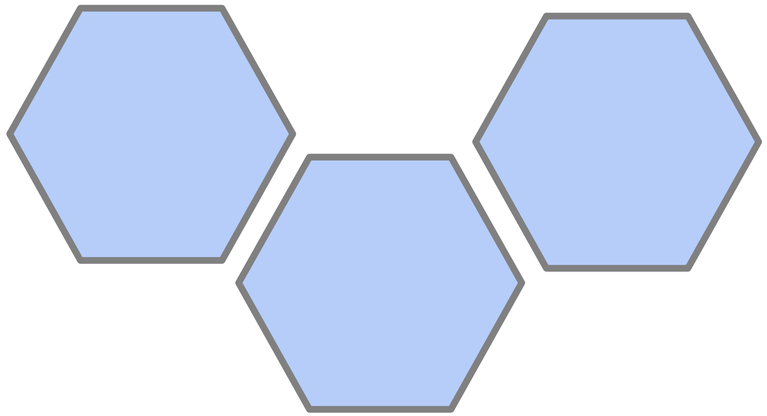
Users and access can be managed at certificate authority.

This means we don't have to reconfigure servers or resort to fragile always-on centralised systems to revoke access.

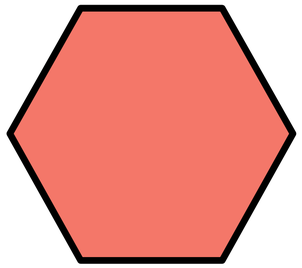


You.

Your servers.

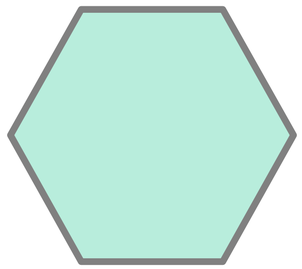


Certificate authority.



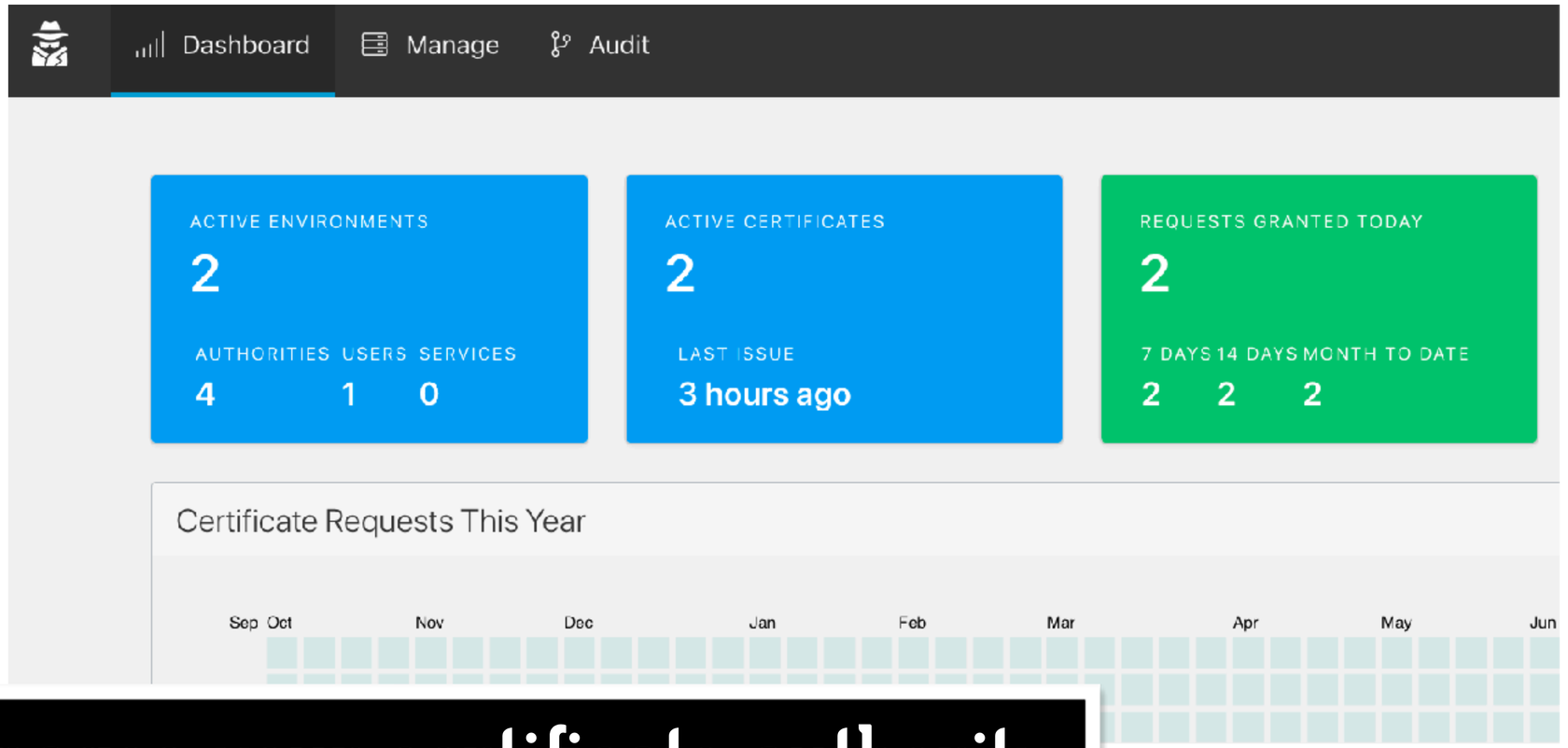
Users and access can be managed at certificate authority.

This means off-boarding users is a single action, no complex update, no forgotten keys.

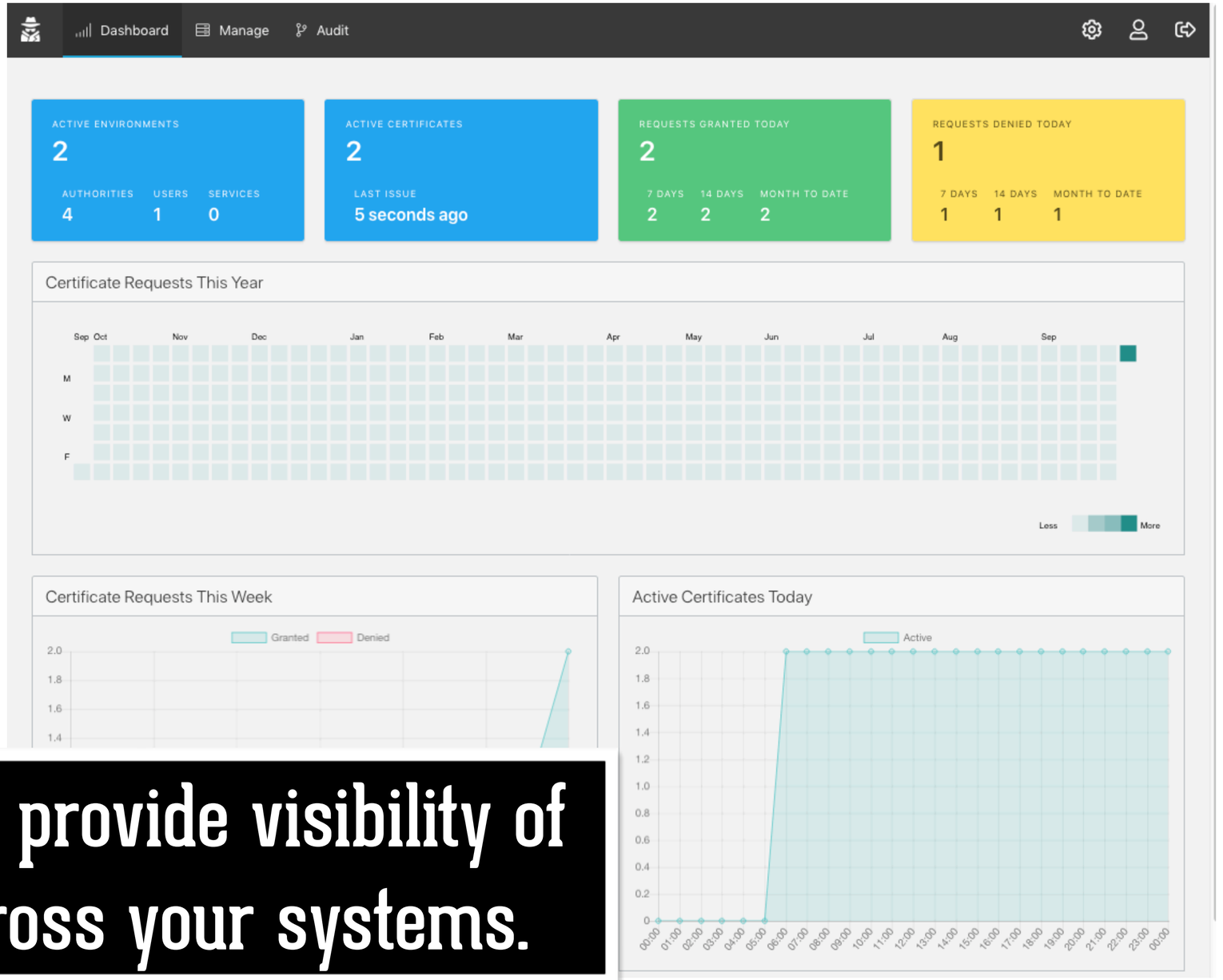


You.

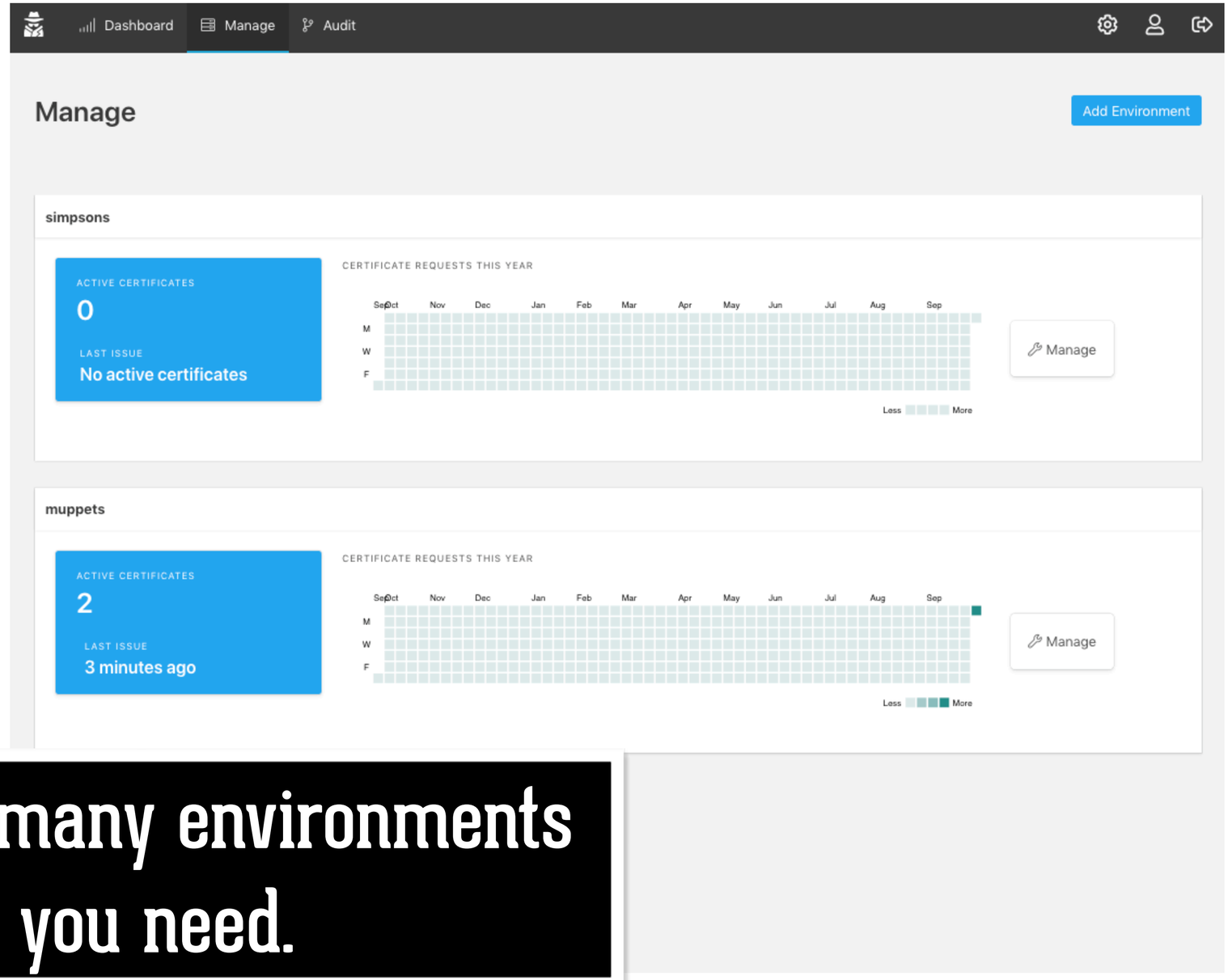
How does Smith help?



Smith manages your certificate authority, verifying access and performing contextual checks.

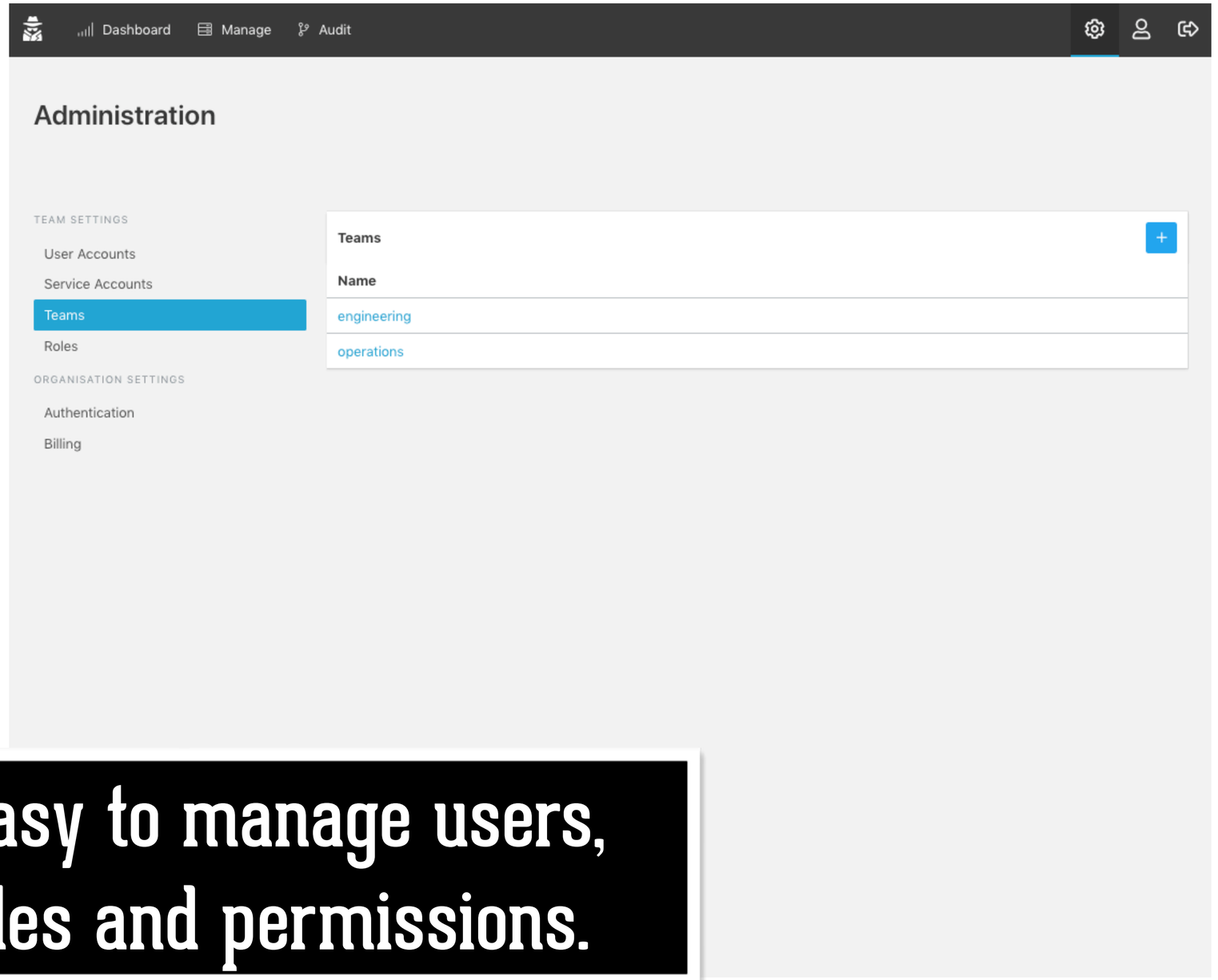


Dashboards provide visibility of access across your systems.



Manage as many environments as you need.

Detailed audit trail of all access.



Flexible, easy to manage users, teams, roles and permissions.

2. mth@space: ~ (docker)

```
darth $ smith
Usage: smith ((-v|--version) | COMMAND)

Available options:
  -v,--version              Version information
  -h,--help                 Show this help text

Available commands:
  issue                     Request a certificate and configure ssh-agent.
  connect                   Request a certificate, configure ssh-agent, run
                            provided command.
  userinfo                  Request userinfo for authenticated identity.
  provision                 Get CA public keys.
darth $ smith connect -- ssh user@server
```

Command line tools that integrate with current workflows.

Overall Smith improves the tools you have for access control. Smith makes things easier for operations, easier for users and more secure for everyone.

smith

secure access made easy

contact us: mark@smith.st or navin@smith.st