

The linphone logo, which consists of the word 'linphone' in a white, lowercase, sans-serif font, set against an orange background with a white circuit board pattern.

linphone

OAUTH AUTHENTICATION AND IDENTITY VALIDATION IN SIP SYSTEMS

February 1st, 2025

SPEAKERS AT **FOSDEM**

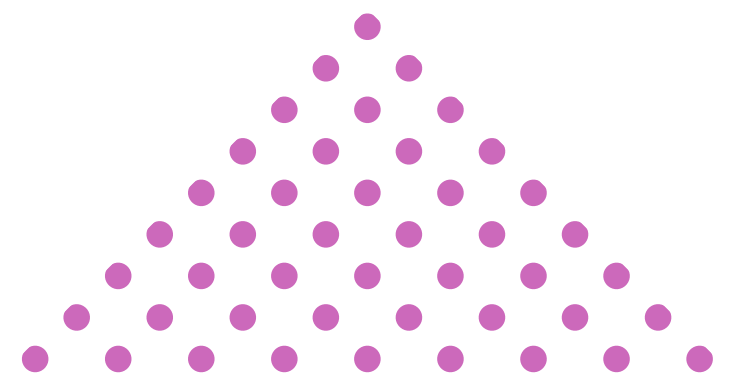
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JEHAN MONNIER
Linphone team

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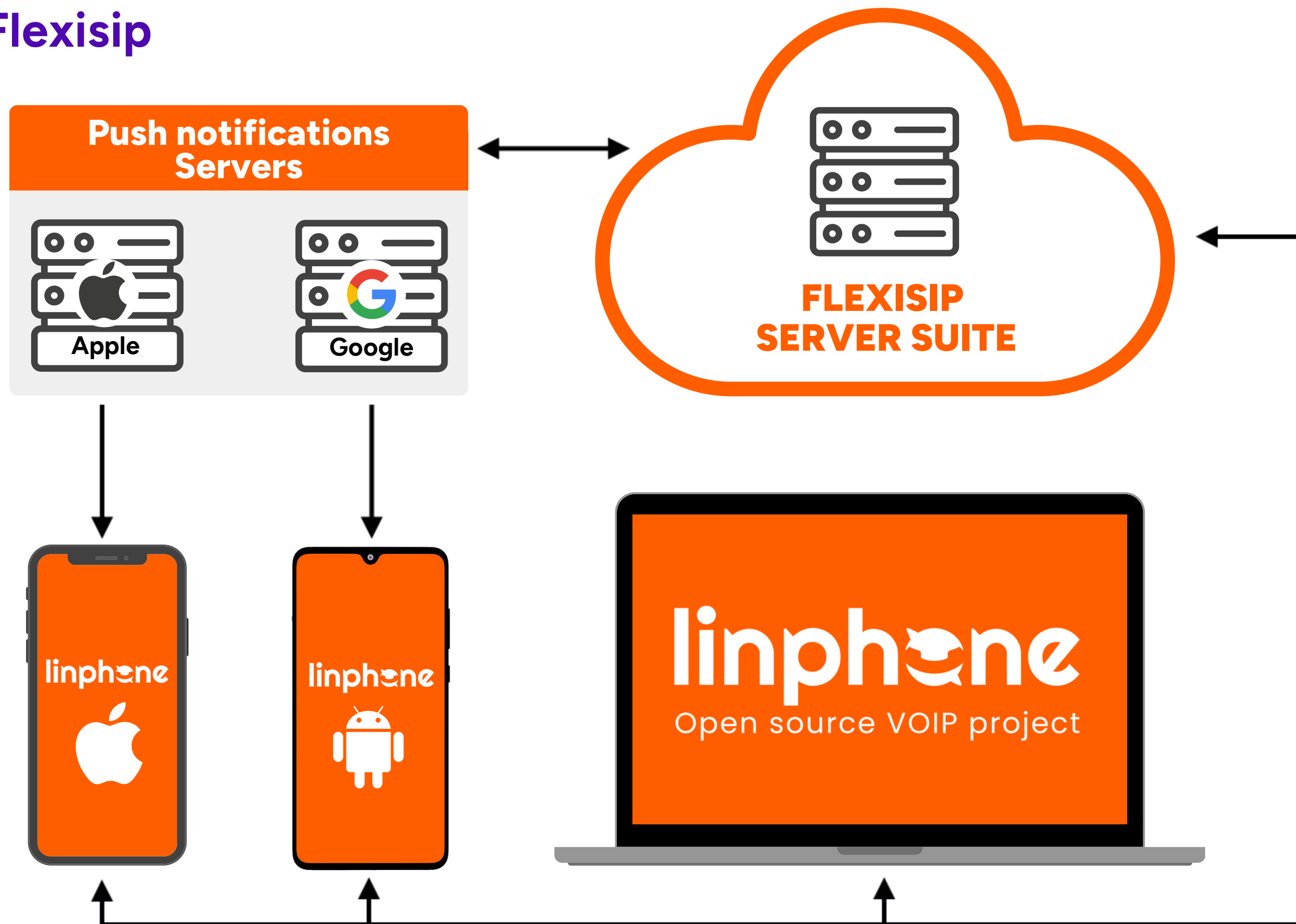
- 1** **Introduction:** What is authentication, and why is it important?
- 2** **History** and **evolution** of authentication solutions
- 3** **Specific case:** OAuth and JWT for VoIP
- 4** **Case studies:** Integration and practical demonstration
- 5** **Conclusion** and **questions**



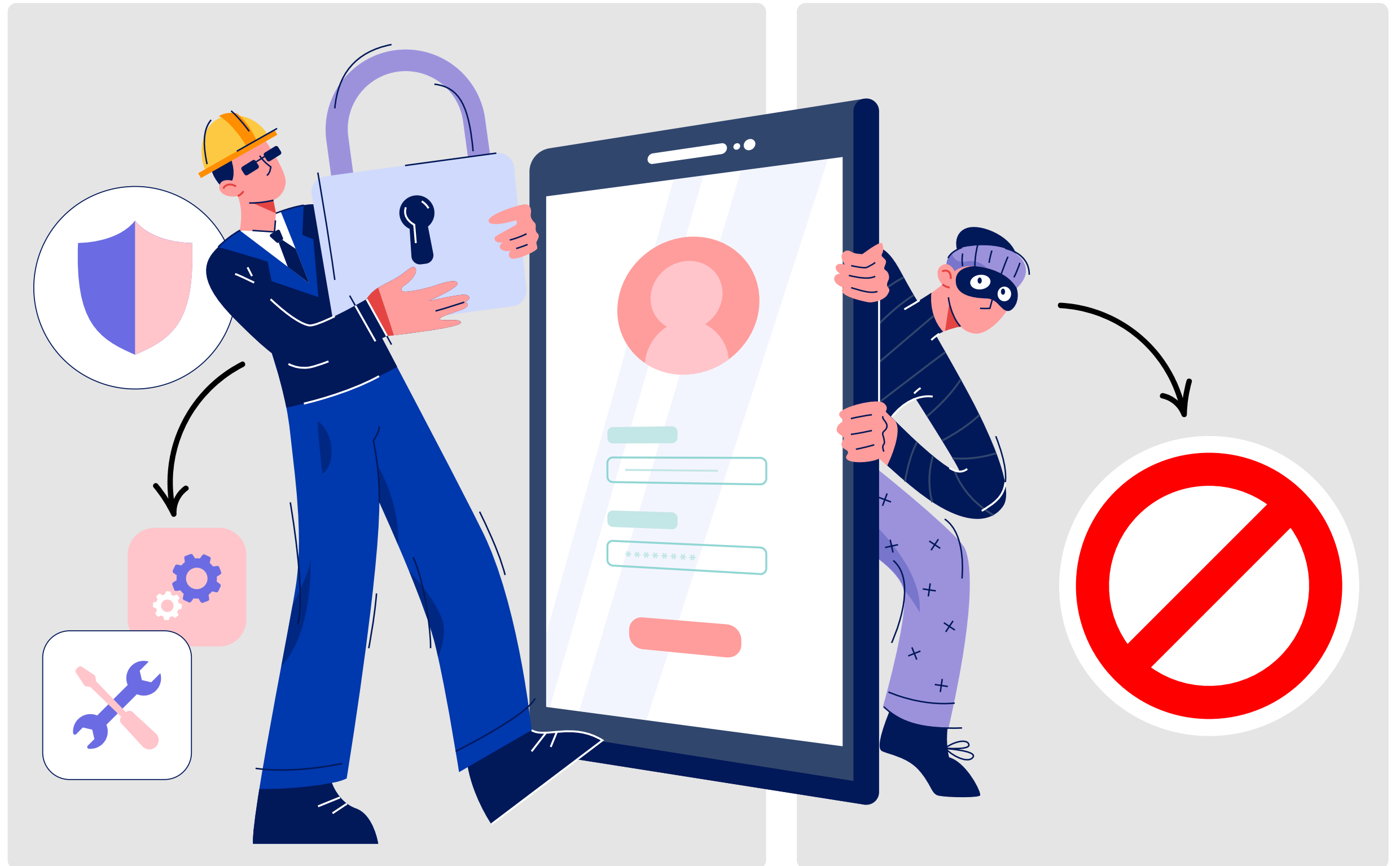
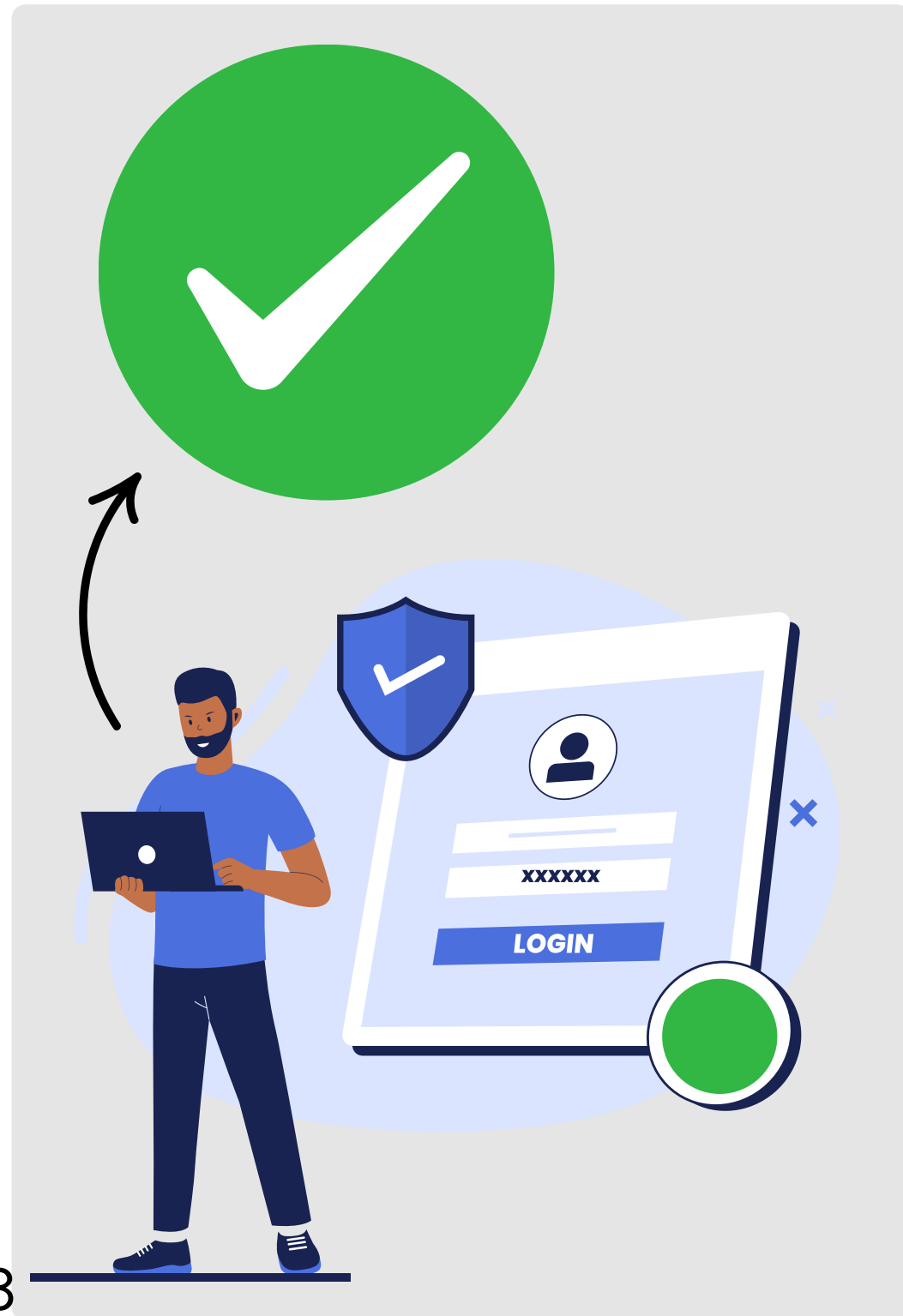
DISCOVER LINPHONE



Zoom on Flexisip

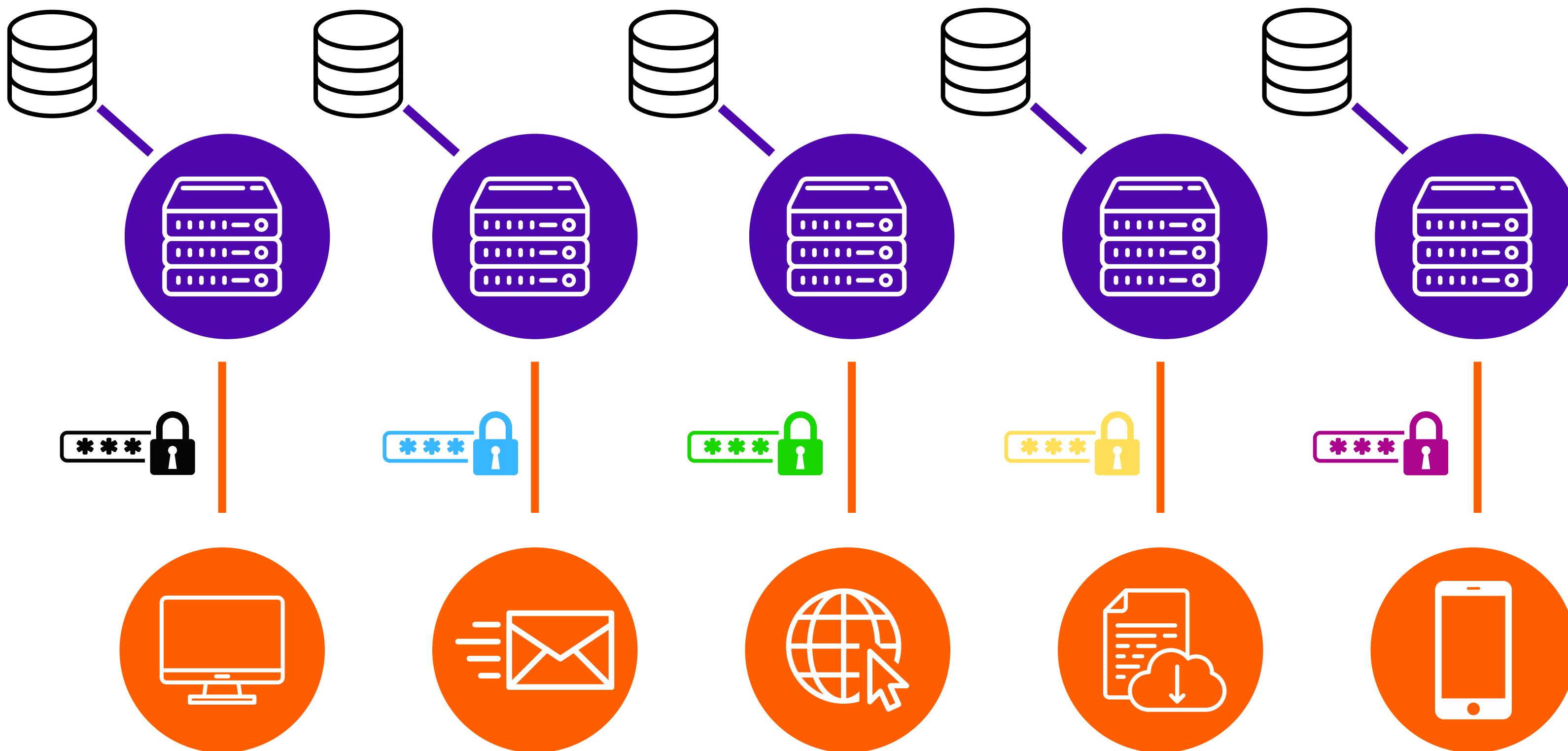


What is authentication?

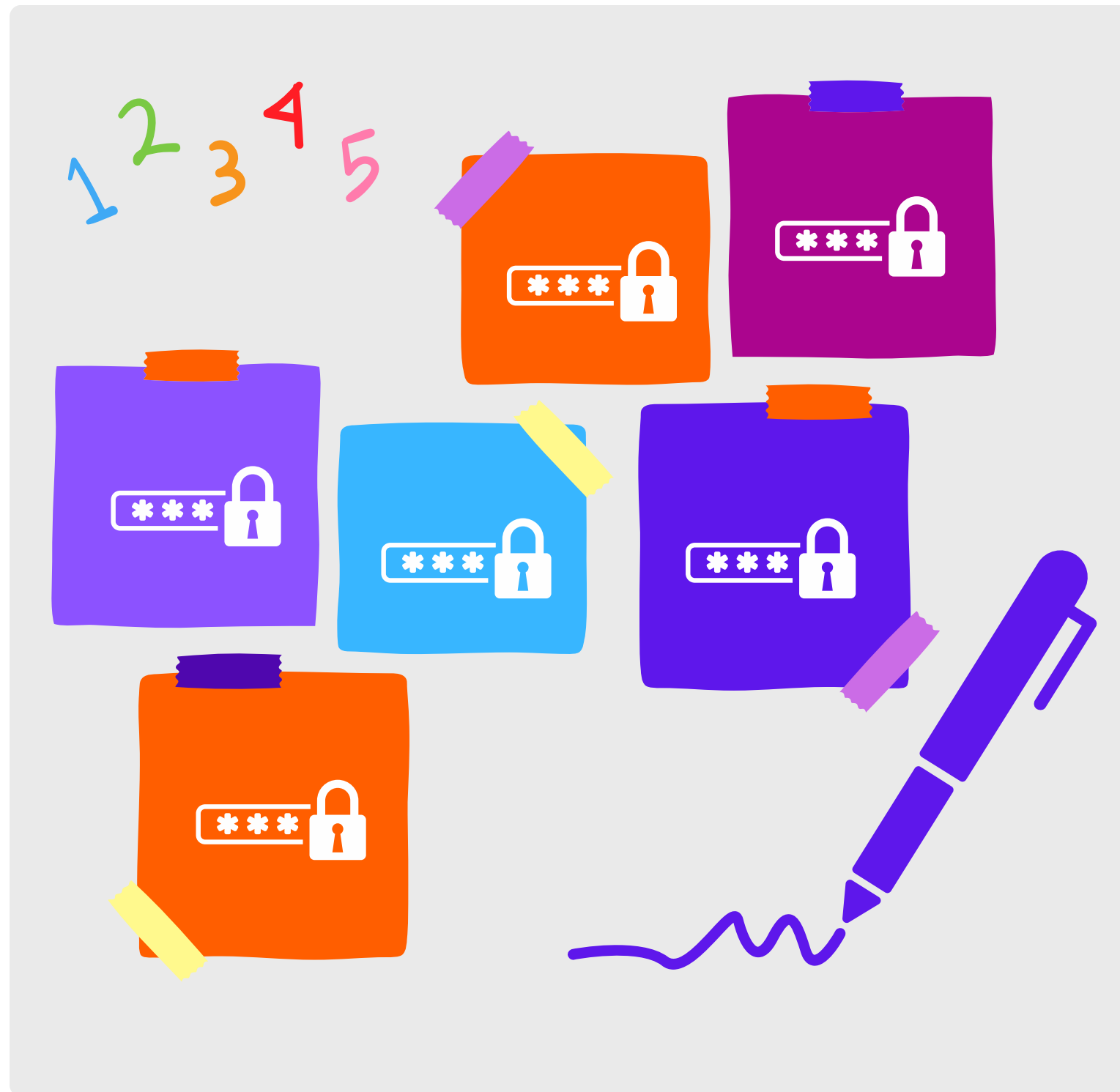


Authentication challenges

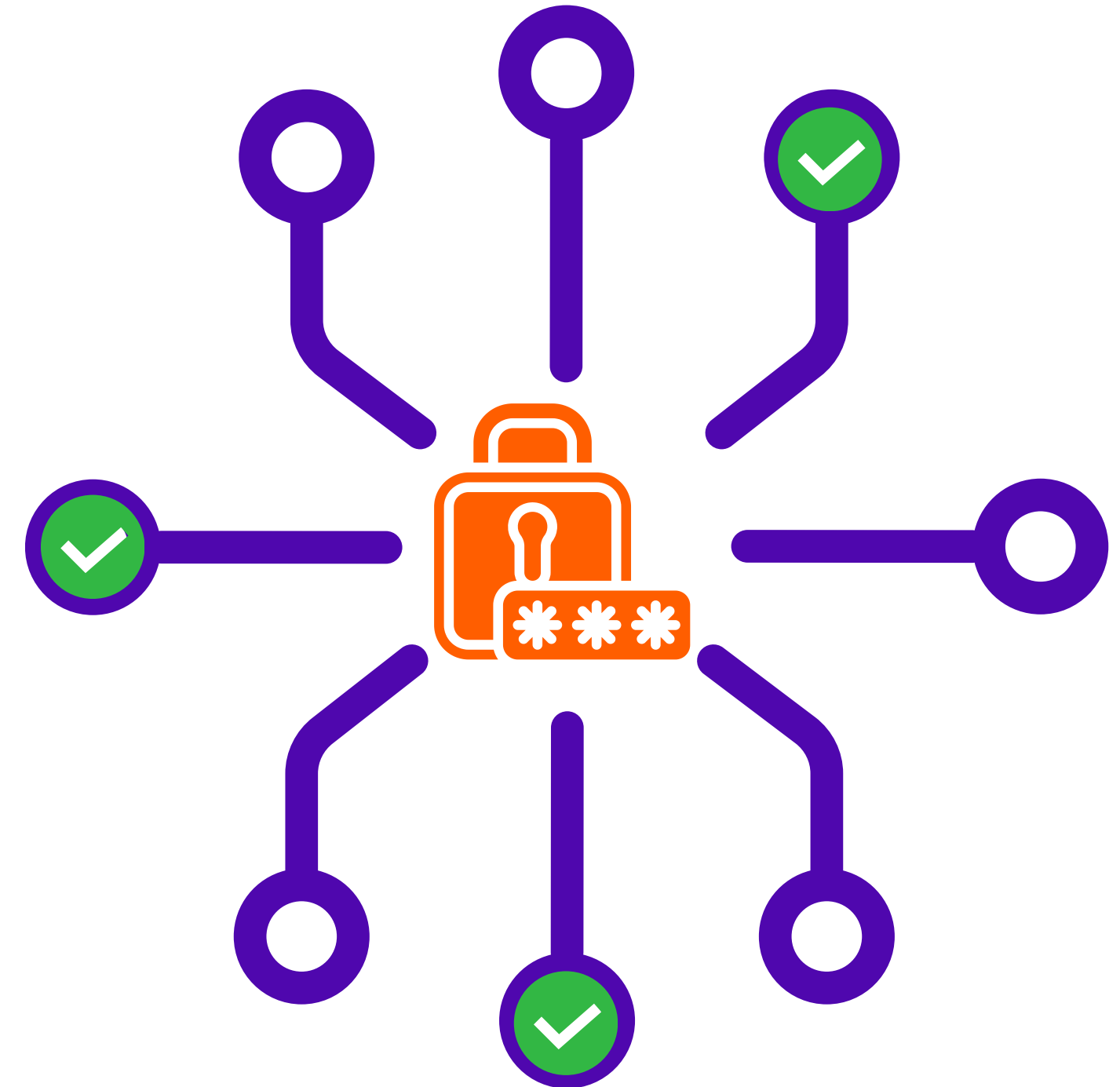
Diagram of the
Compartmentalized Model



Why single sign on ?

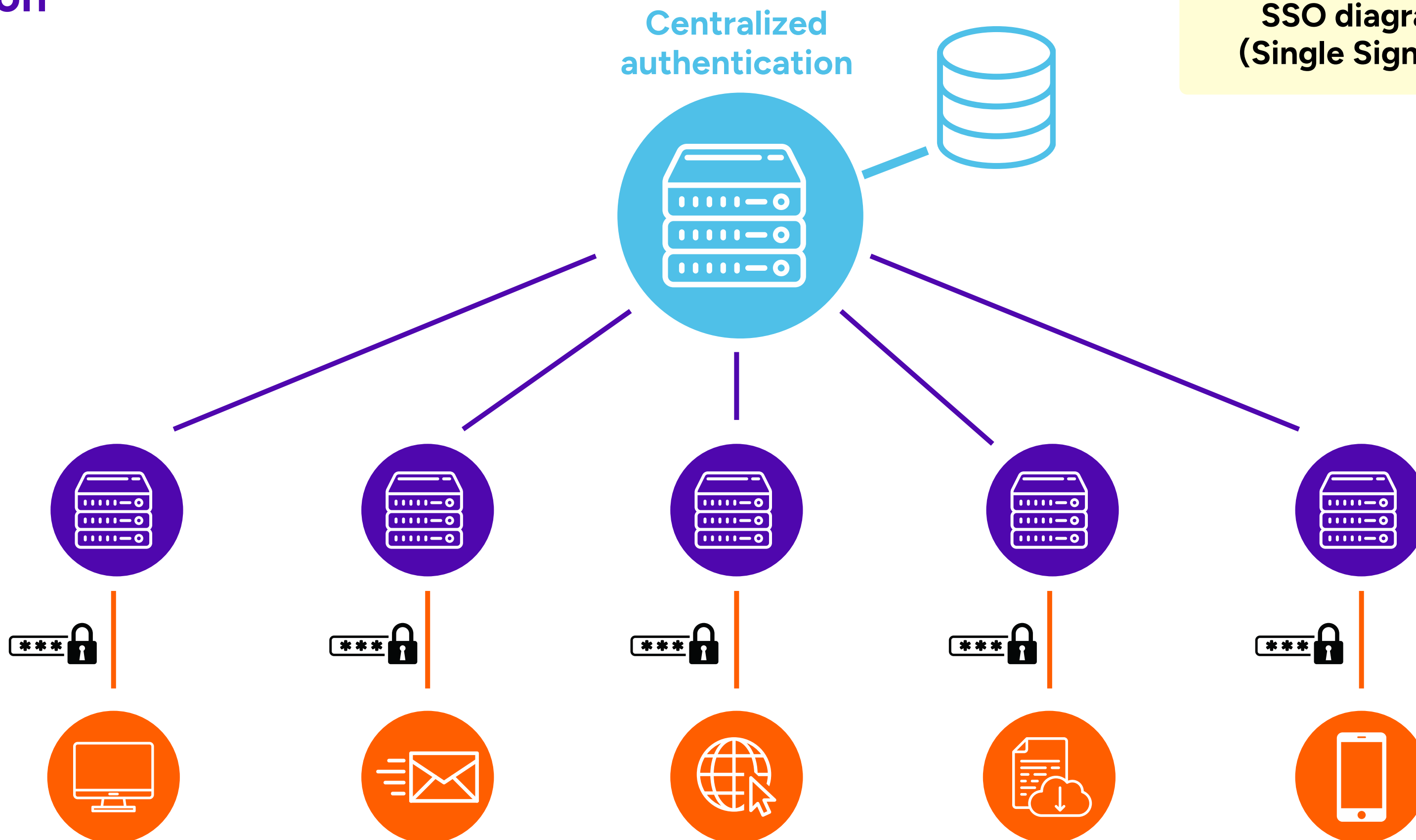


>>>
**CENTRALIZED
SOLUTION**



Single sign on

SSO diagram
(Single Sign-On)



Single sign-on to a page with one password to access all your applications



OAuth basics?

RFC 6749

<https://datatracker.ietf.org/doc/html/rfc6749>

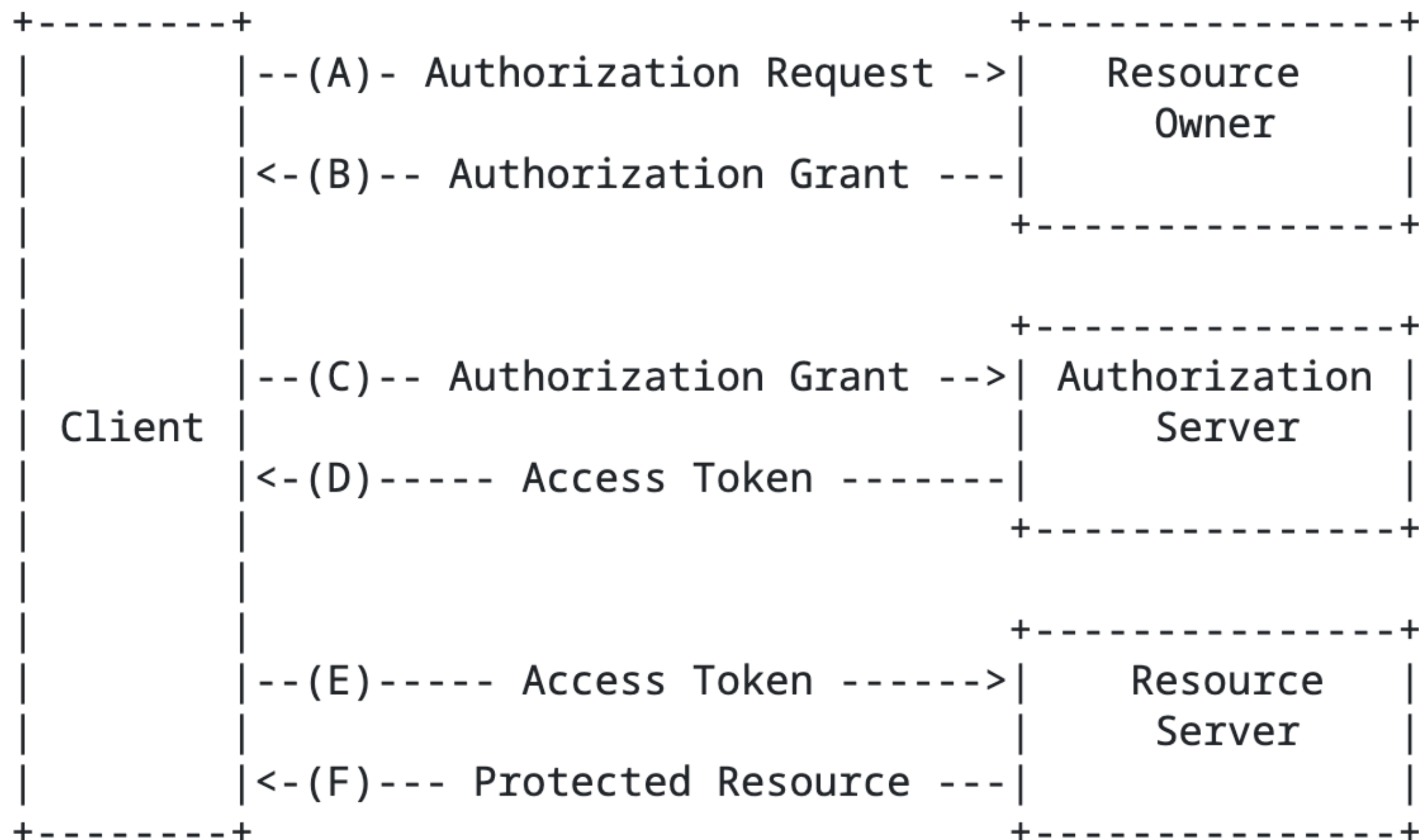
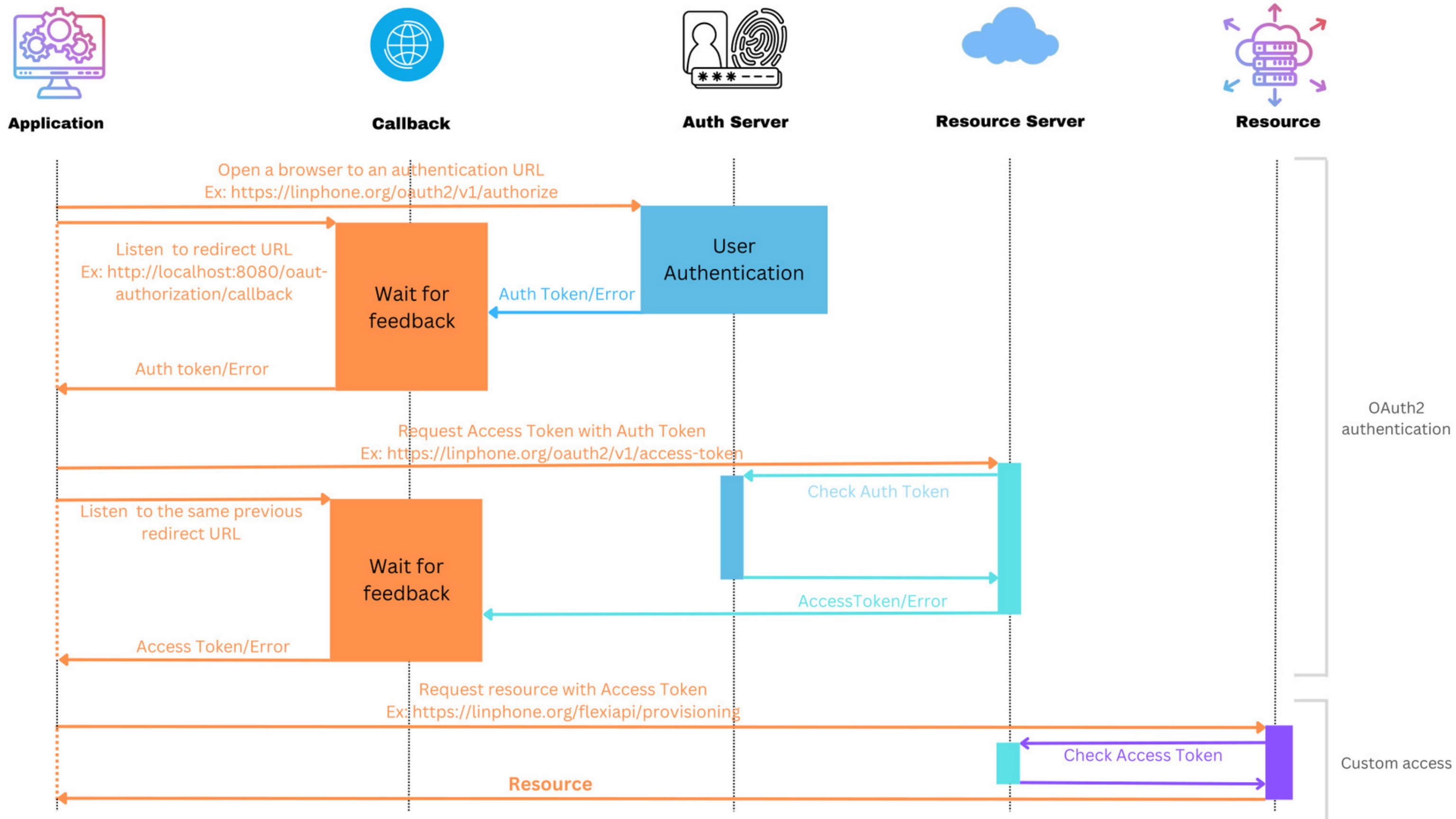


Figure 1: Abstract Protocol Flow

OAuth: http case



Example
with Linphone

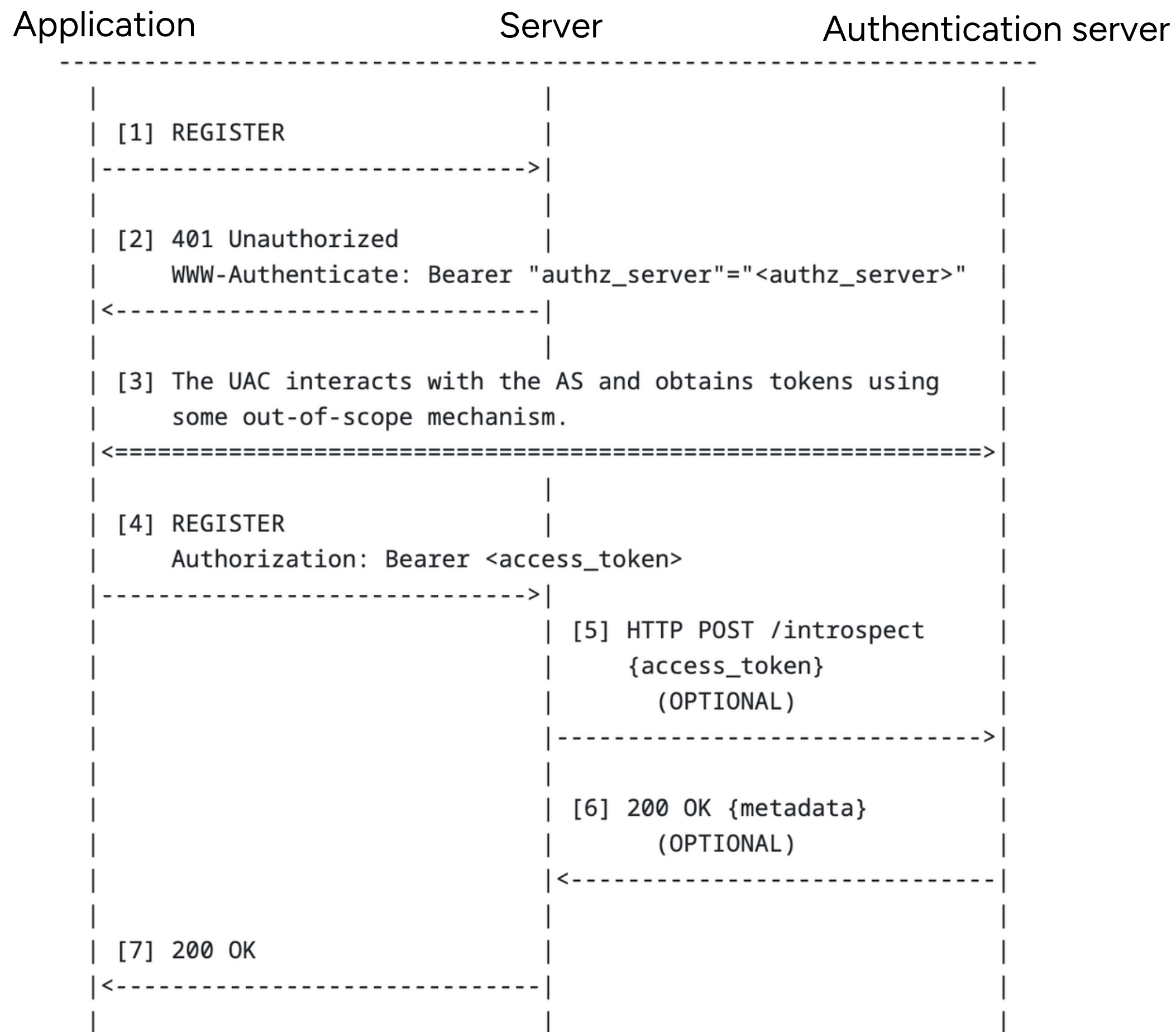
RFC 6749

How OAuth works?

Adaptation to VoIP

RFC 8898

<https://datatracker.ietf.org/doc/rfc8898/>



How OAuth works?

SIP auth headers

RFC 8898

<https://datatracker.ietf.org/doc/rfc8898/>

REGISTER sip:kaamelott.hexagone.test
SIP/2.0

SIP/2.0 401 Unauthorized

• • •

WWW-Authenticate: Bearer

authz_server="https://auth.linphone.org/realms/sip.linphone.org", realm="sip.linphone.org"

REGISTER sip:kaamelott.hexagone.test SIP/2.0

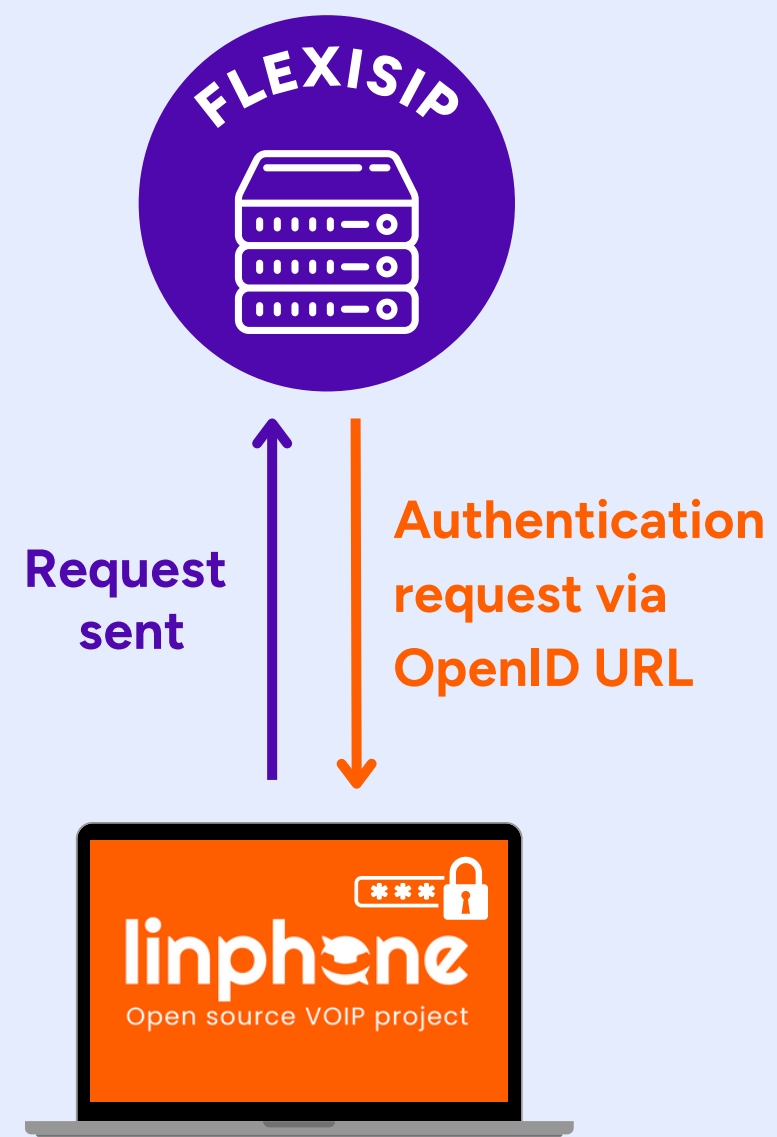
...

Authorization: Bearer
eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXLTUxLWVudC5H9ENGn
sLlnEIRU7rCCjAXRSSqoUh_qFLDqvImKyBw,
realm="sip.linphone.org"

<https://jwt.io/>

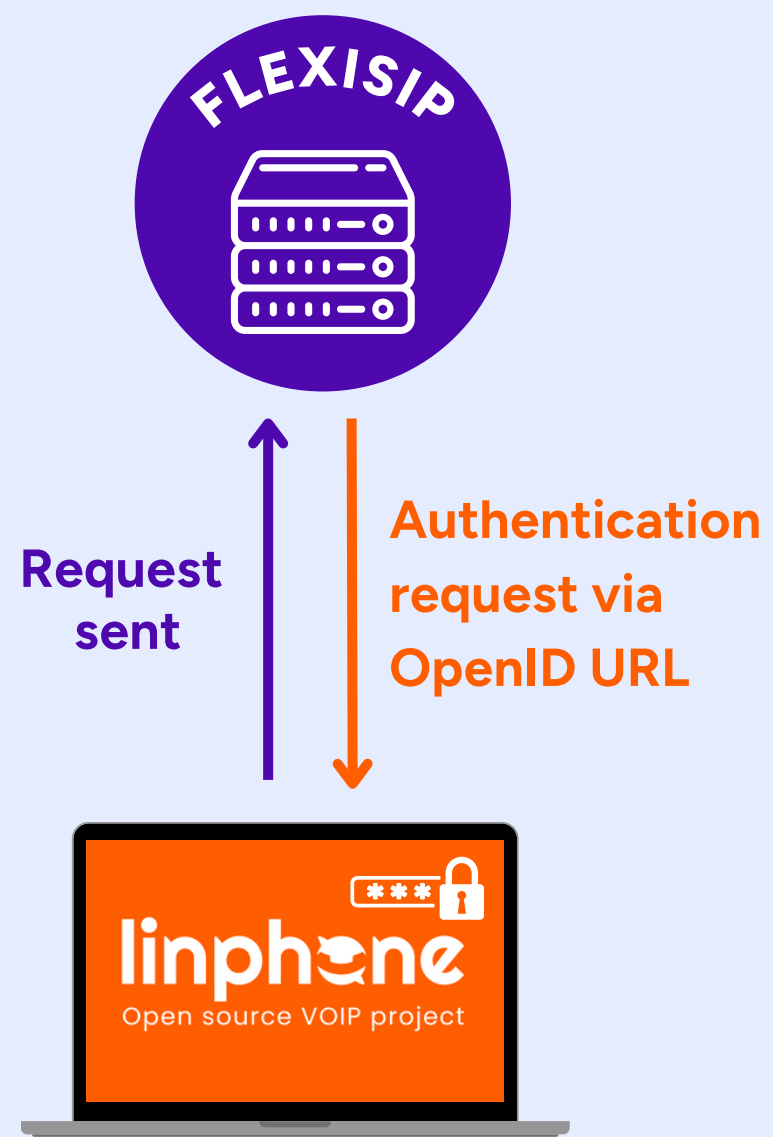
How does it work with Linphone?

First user login

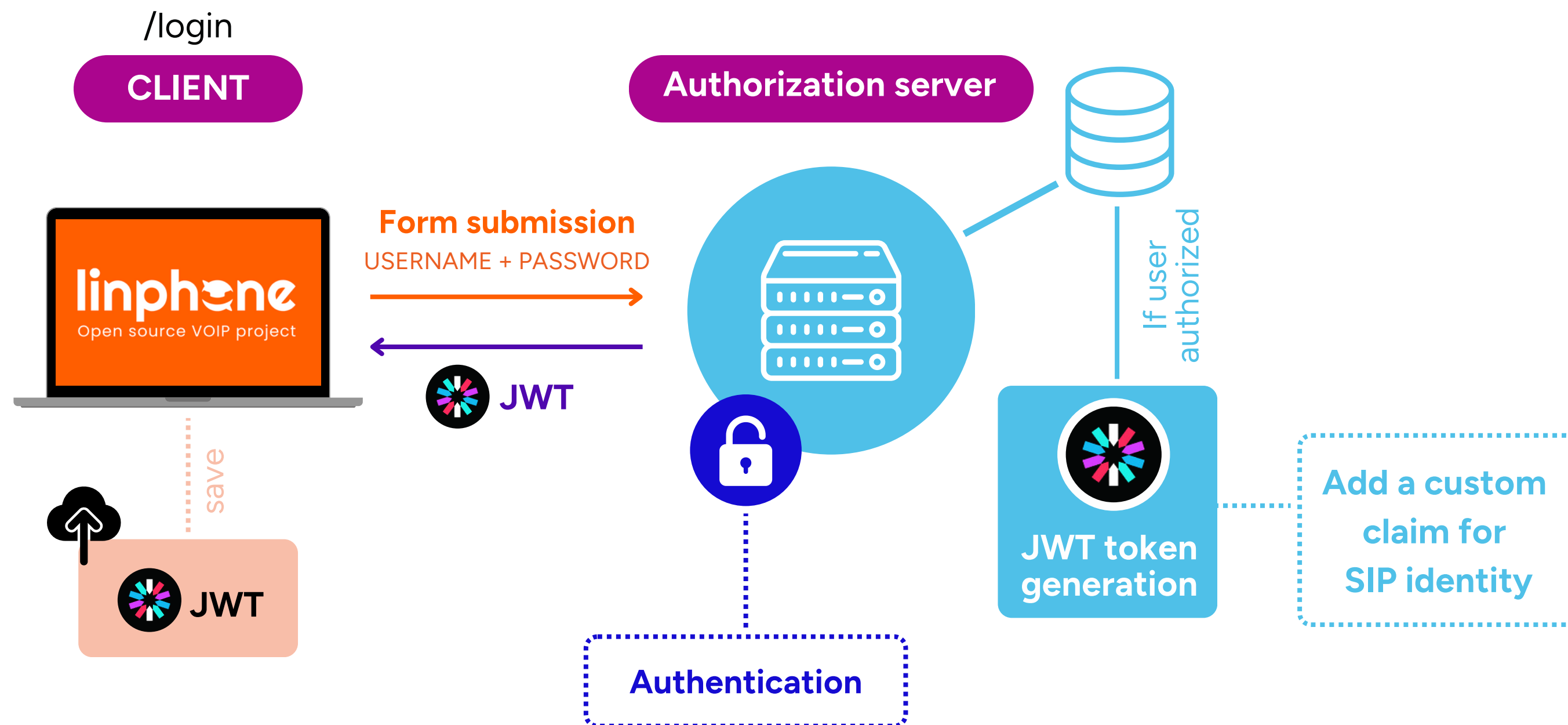


How does it work with Linphone?

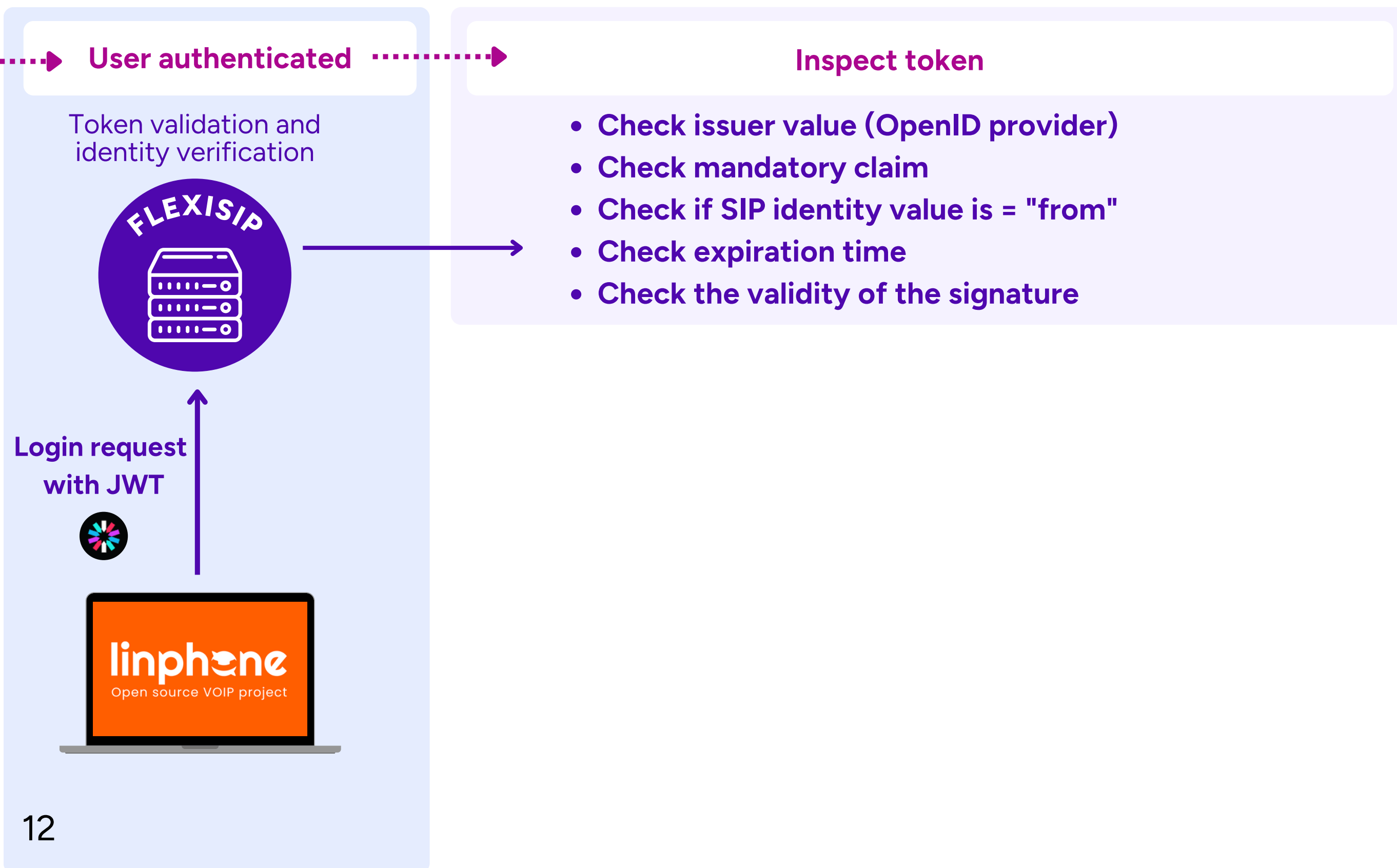
First user login



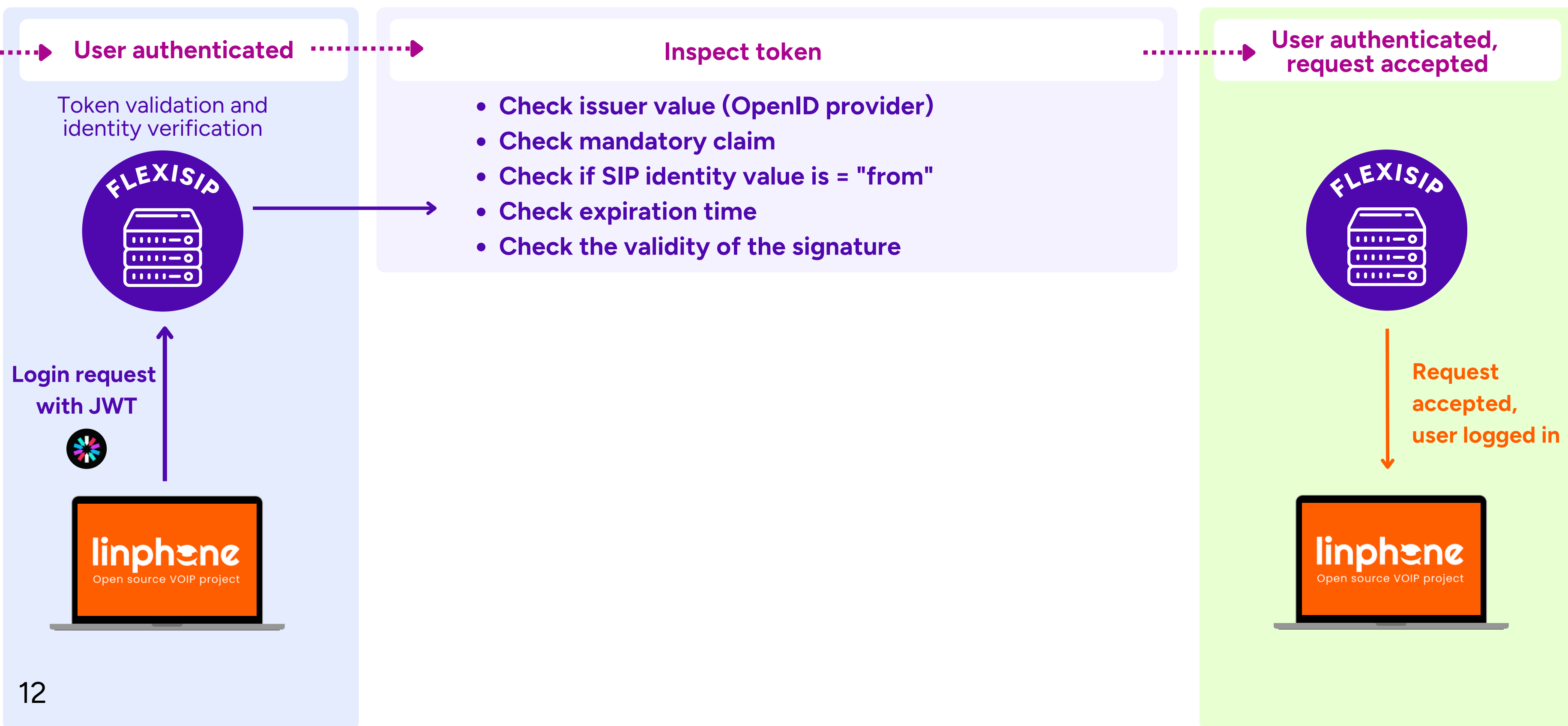
User authentication



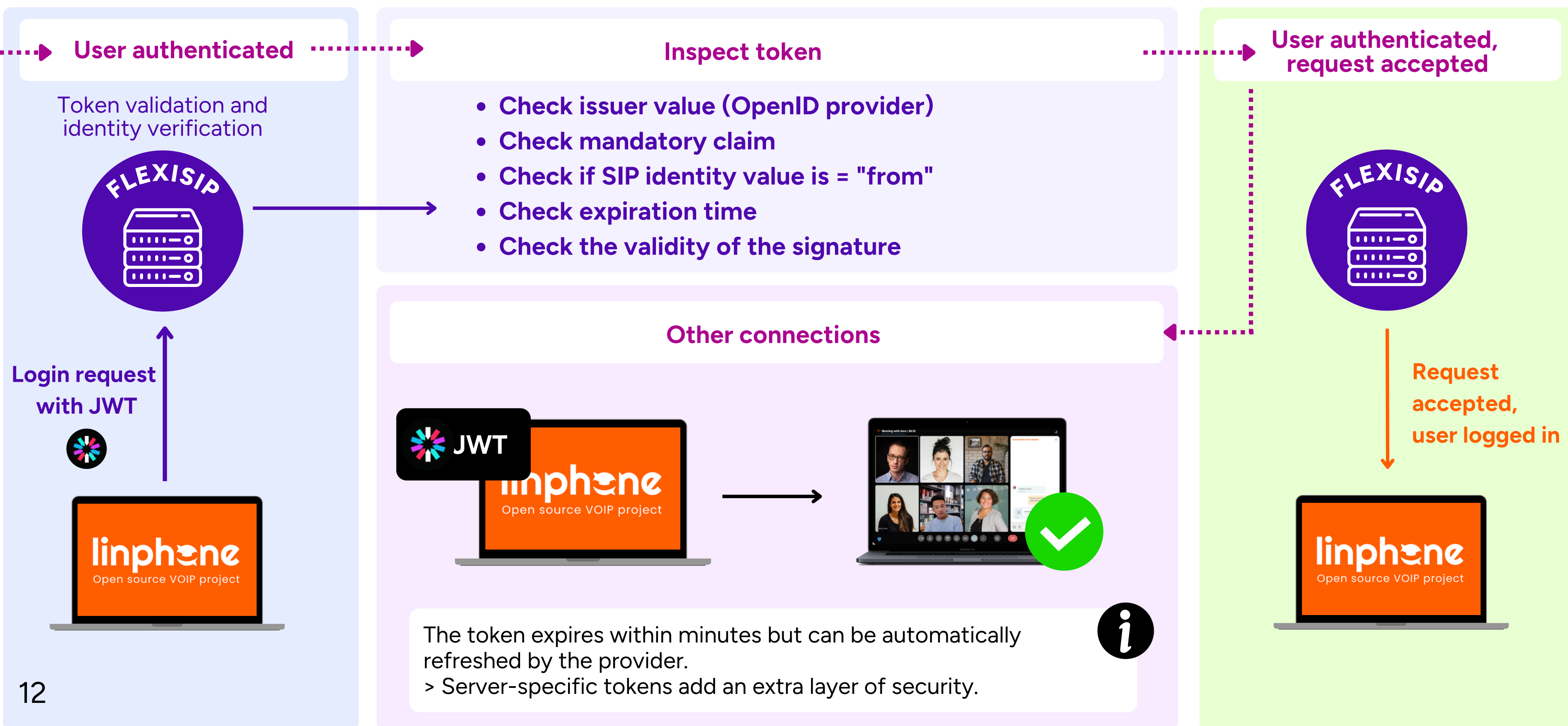
How does it work at Linphone?



How does it work at Linphone?

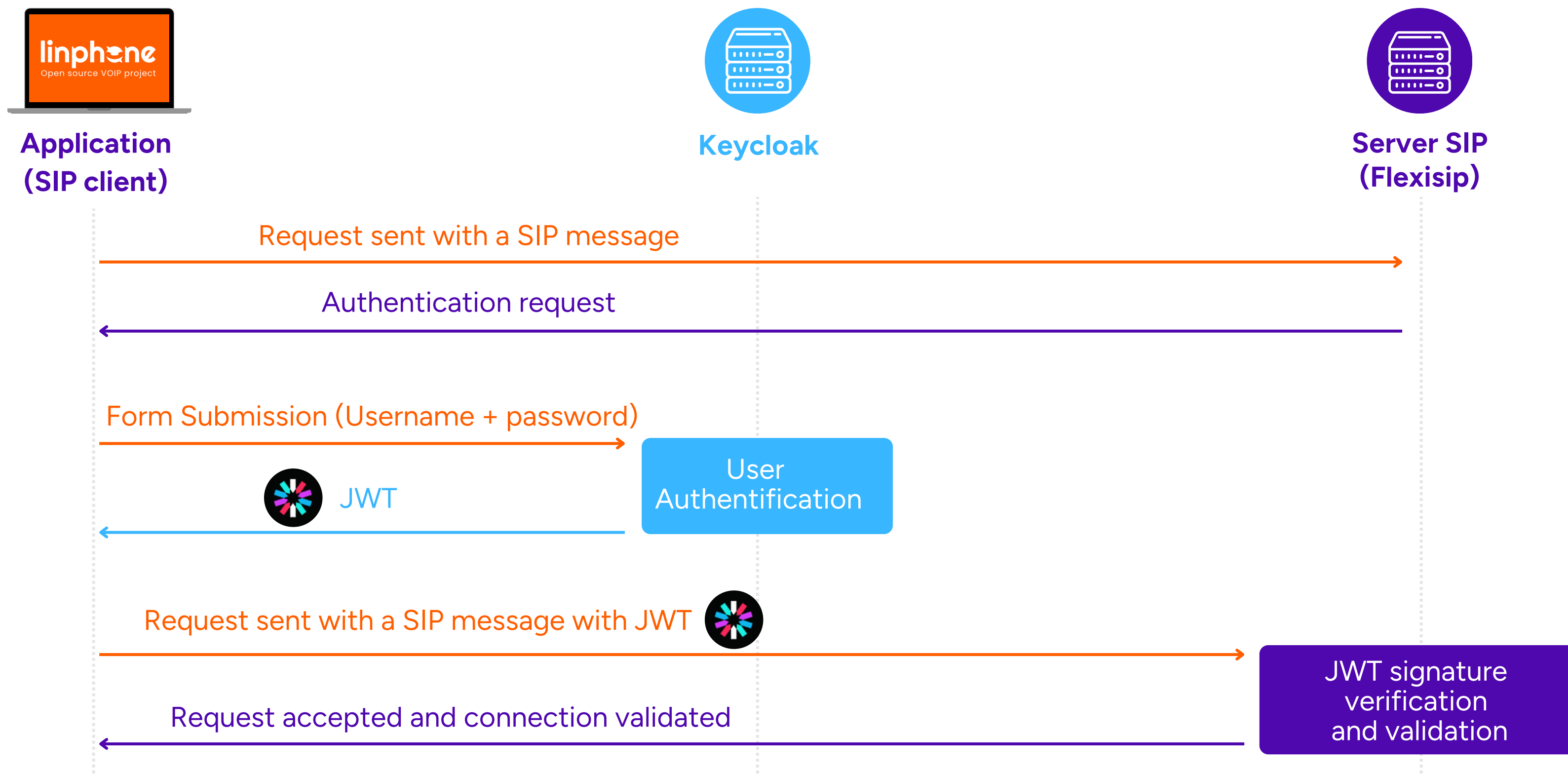


How does it work at Linphone?



Integrating Keycloak with Flexisip? It's possible!

Authentication using JWT & sip account



How do you configure this in Flexisip?

Configuration example, available
starting from Flexisip 2.4

[More information here](#)

[module::AuthOpenIDConnect]

enabled=true

The HTTPS URL of the OpenID Provider.

This parameter MUST be set.

Default:

authorization-server=https://example.org/realms/EXAMPLE

The realm to use for the OpenID Connect authentication.

This parameter MUST be set.

Default:

realm=EXAMPLE

The name of the service to expect in the audience claim.

This parameter MUST be set.

Default:

audience=linphone

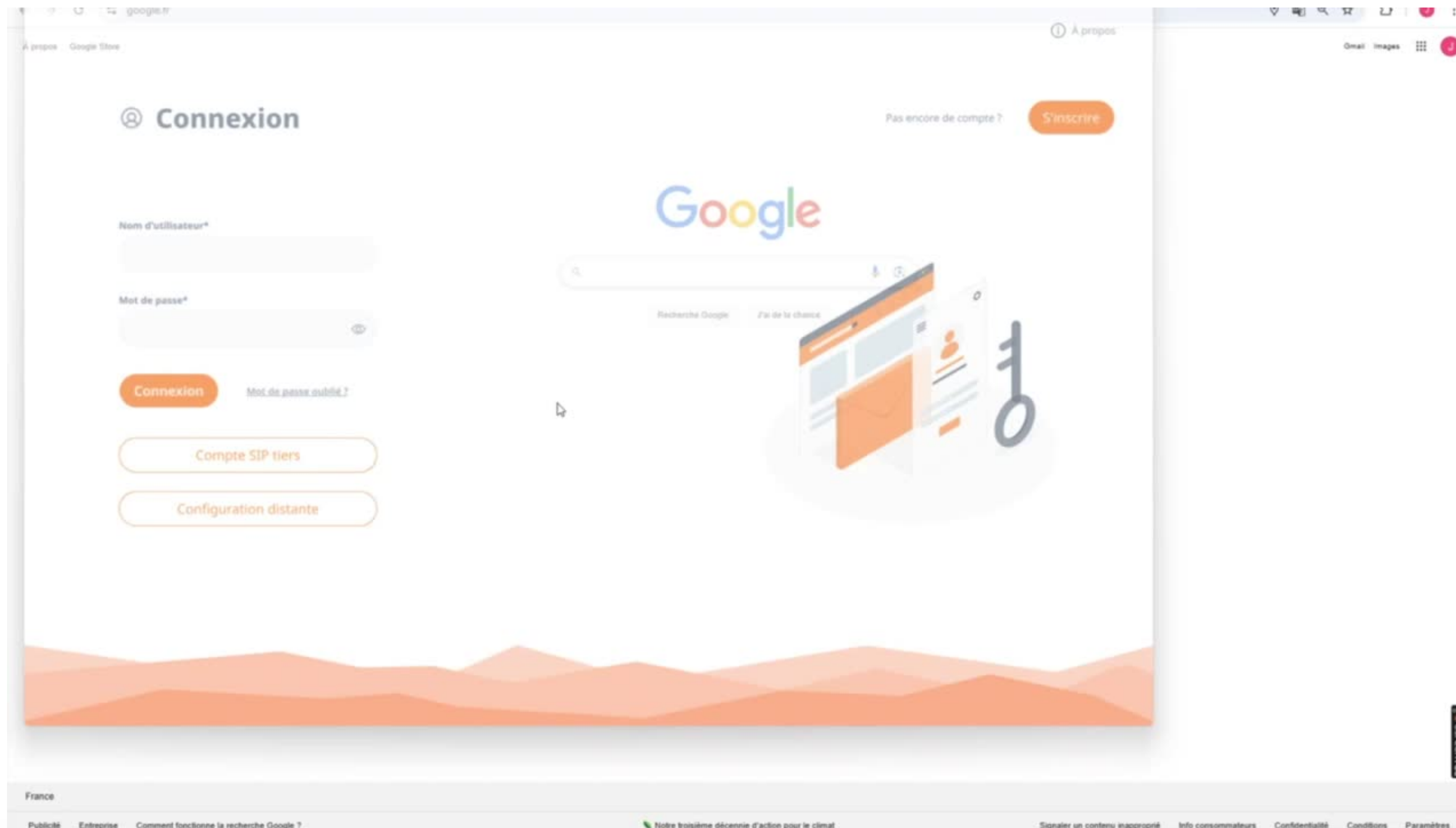
The name of the claim to inspect in the token to extract the user's

SIP identity.

This parameter MUST be set.

Default:

sip-id-claim=sip_identity



CONCLUSION

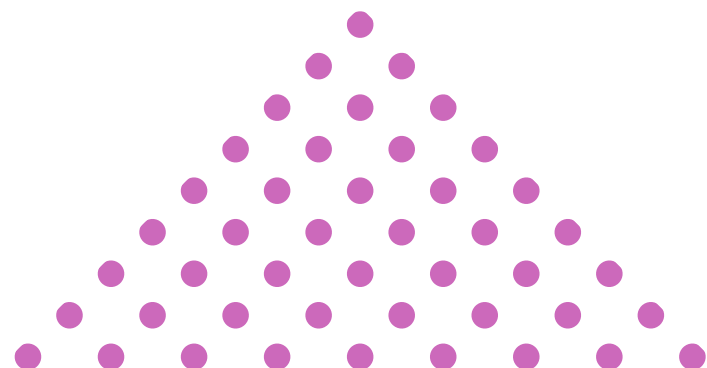
SECURITY

SIMPLICITY

**Single Sign-On is the solution
to authentication challenges**

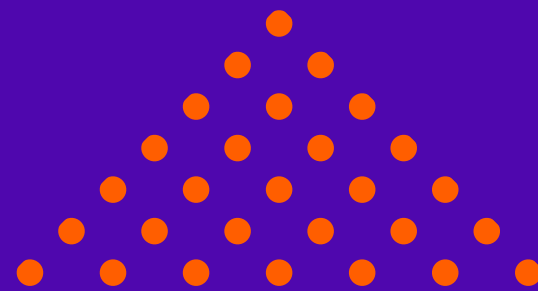
INTEROPERABILITY

SCALABILITY





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DO YOU HAVE ANY QUESTIONS ?



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THANK YOU !





FOR MORE INFORMATION



<https://www.linphone.org>



<https://gitlab.linphone.org/BC/public/flexisip>



<https://datatracker.ietf.org/doc/rfc8898/>