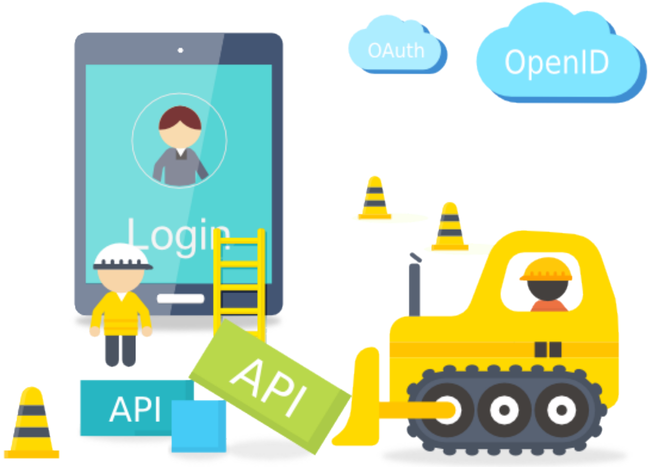
connect2id

CONNECTING APPS TO IDENTITIES



OpenID Connect & OAuth 2.0 Server for the Enterprise

Your enterprise server for

single sign-on (SSO)

identity provision

identity federation

API access management

The four IdM pillars

Based on the latest standards

OpenID Connect

for ID tokens

OAuth 2.0

for access tokens

Modern token based security for web, mobile and native apps

Identity and security profiles

Financial API

(Read & Write API Security)

HEART

(OAuth 2.0, OpenID Connect, FHIR)

iGov

(International government assurance profile for OAuth 2.0 and OpenID Connect)

others to follow

...

Supported industry profiles for Open Banking, government / eID and health care

Engineered for

easy
integration

100%
uptime

scaling +
performance

agile
dev ops

Move fast and with confidence

Providing identity services to

every **100th** person*
on the planet,
and growing...

* 90 mio end-users as of July 2017

Easy integration

UI / UX

User auth

Authz logic

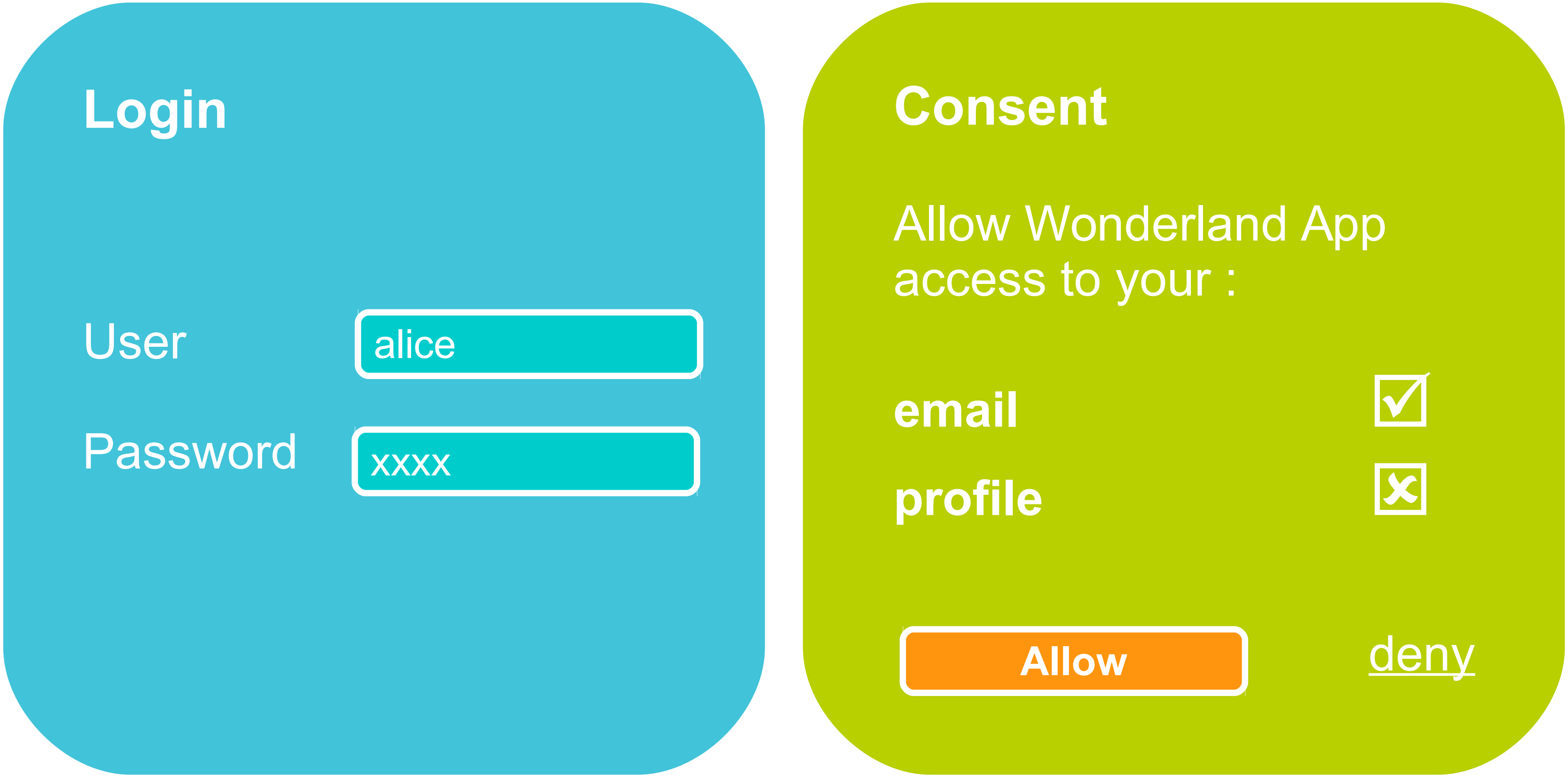
Claims src

Admin

Monitoring

We want to liberate our customers. Simple web-based integration (REST + JSON) give you lots of power and flexibility.

Sign-in experience



Login

User alice

Password xxxx

Consent

Allow Wonderland App access to your :

email ☑

profile ☒

Design your own branded user experiences around login and consent

Sign-in experience

- A powerful web API lets you integrate a sign-in experience branded and tailored specifically for your enterprise or online service.
- Choose any language or framework for your UI and logic. Save time and money, leverage your existing competence and resources.
- Zero service downtime for updates to the login page.
- You can even have multiple dedicated login pages, e.g. one for your employees and another for your customers.

User authentication

- Arbitrary user authentication methods can be plugged in via simple web API to match your security needs.
- MS-AD / LDAP authentication is supported out-of-the box.
- You're free to integrate any other authentication method, such as hardware tokens or biometrics.
- The Connect2id server never has to deal with passwords directly, which is good for security.

User authentication

```
{
  "sub"       : "alice",
  "auth_time" : 12345678,
  "acr"       : "c2id.loa.high",
  "amr"       : [ "pwd", "otp"]
}
```

Example authentication methods

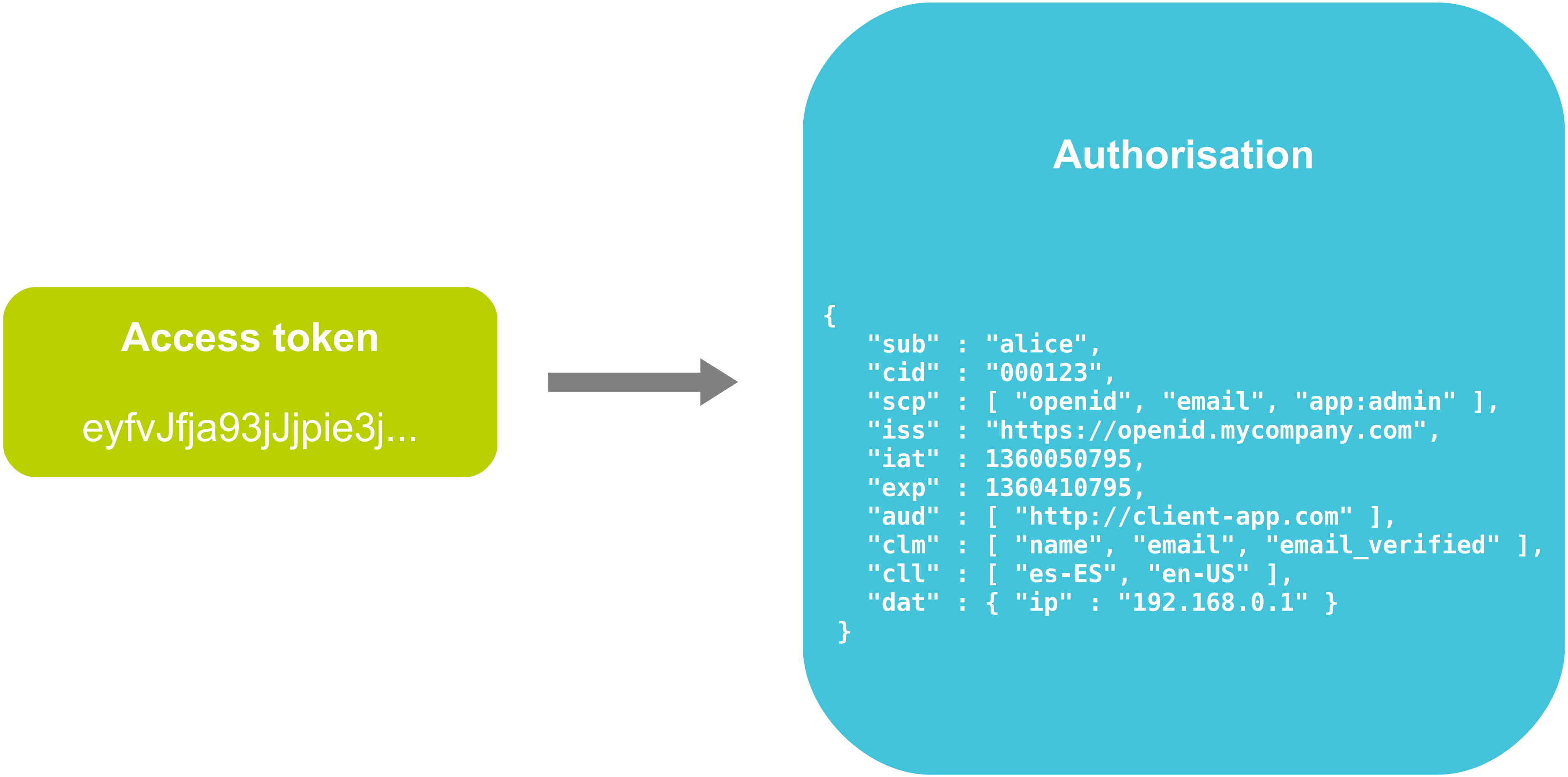
- LDAP *
- hardware tokens
- x.509 certificate
- SQL DB
- secure remote password
- biometrics

* Supported out of the box

Your OAuth 2.0 authorisation server

- The Connect2id server can act as an OAuth 2.0 authorisation server to issue access tokens to clients.
- Supports all core OAuth 2.0 grants: code, implicit, password, client credentials.
- Additional grants, such as SAML and JWT Bearer may be accepted via special endpoint.
- Can generate self-contained (JWT) as well as identifier-based bearer access tokens. JWT access tokens are ideal for distributed applications.
- You can plug in arbitrary logic for consent (explicit / implicit) and to customise tokens.

Access token attributes



Access token

eyfvJfja93jJjpie3j...

Authorisation

```
{
   "sub" : "alice",
   "cid" : "000123",
   "scp" : [ "openid", "email", "app:admin" ],
   "iss" : "https://openid.mycompany.com",
   "iat" : 1360050795,
   "exp" : 1360410795,
   "aud" : [ "http://client-app.com" ],
   "clm" : [ "name", "email", "email_verified" ],
   "cll" : [ "es-ES", "en-US" ],
   "dat" : { "ip" : "192.168.0.1" }
 }
```

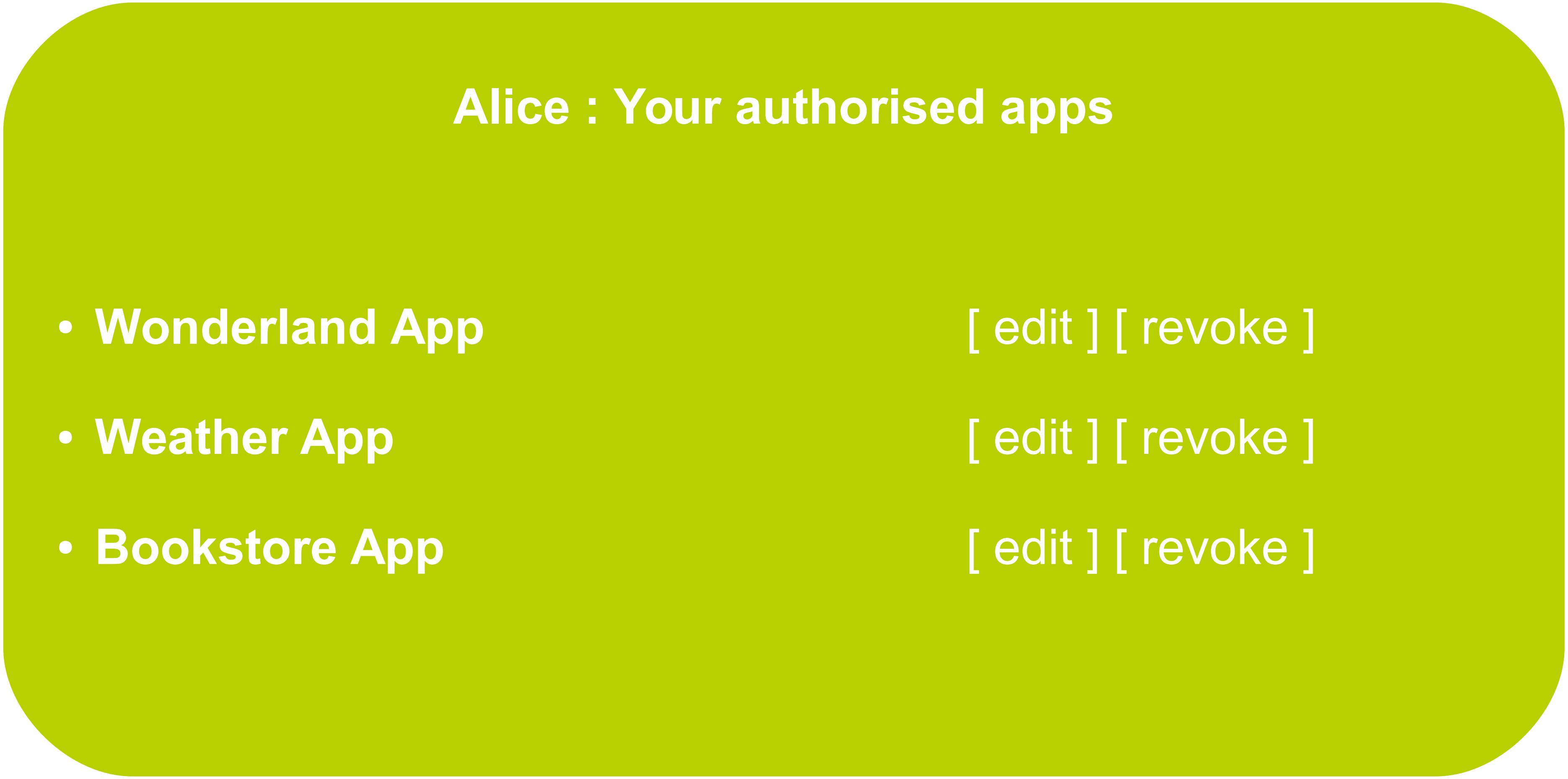
Access tokens can be decoded and verified on the spot (JWT)

or inspected at a Connect2id server endpoint

Managing existing authorisations

- You can query and manage the authorisations for each user and client application via dedicated web API.
- Authorisations can be persisted so that the user is not asked again for previously consented scope values and claims.
- You can build an UI or a risk management agent to revoke tokens for a user, client or combination thereof.

Revocation UI



Alice : Your authorised apps

- **Wonderland App** [edit] [revoke]
- **Weather App** [edit] [revoke]
- **Bookstore App** [edit] [revoke]

Design your own UIs and tools for managing authorisations

UserInfo

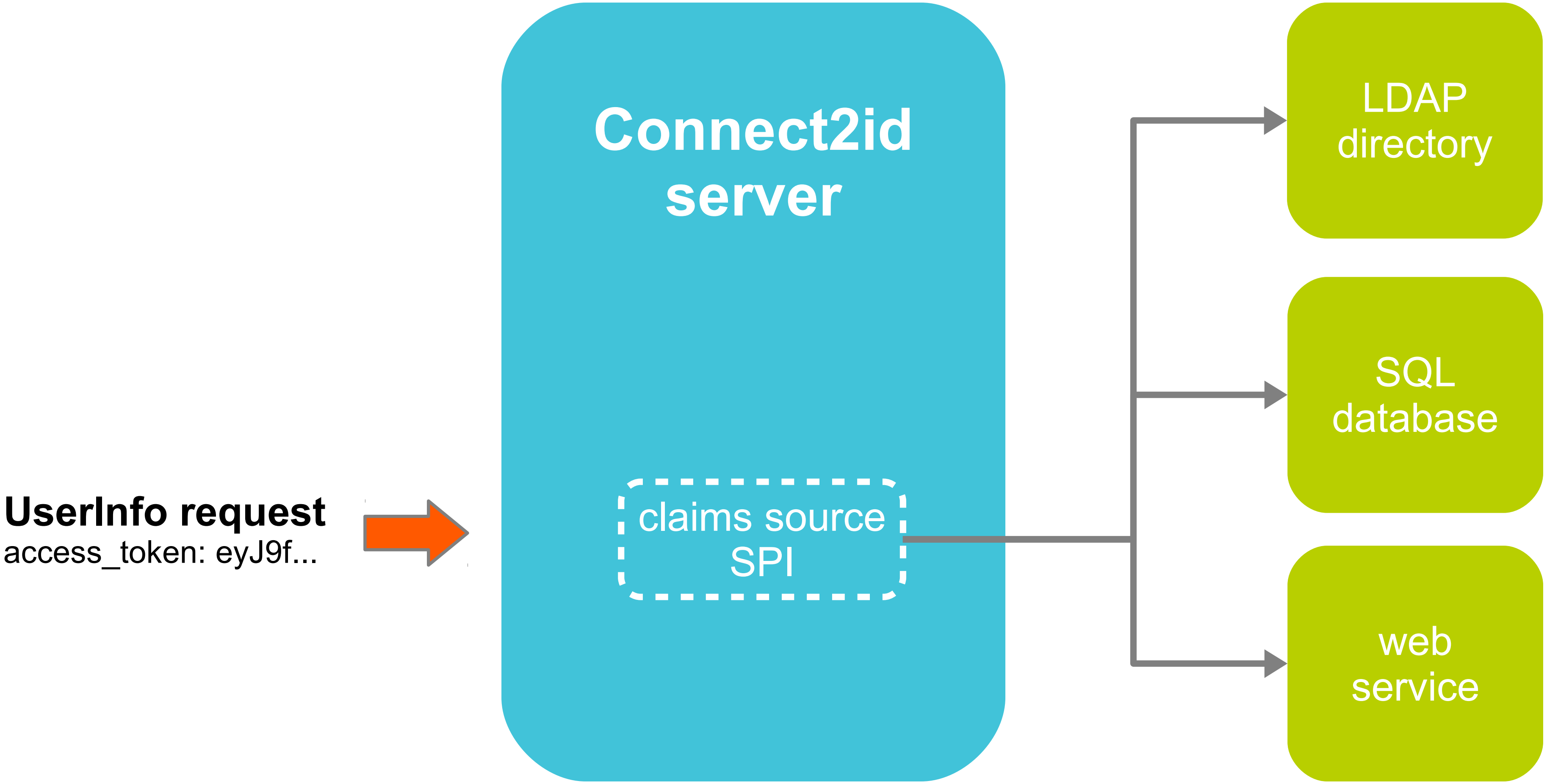
```
{
   "sub"            : "alice",
   "name"           : "Alice Adams",
   "given_name"     : "Alice",
   "family_name"    : "Adams",
   "email"          : "alice@wonderland.net",
   "email_verified" : true,
   "phone_number"   : "+359 (99) 100200305",
   "profile"        : "https://c2id.com/users/alice",
   "ldap_groups"    : [ "audit", "admin" ]
 }
```

OpenID Connect defines an extensible JSON schema for releasing consented user details to client applications

UserInfo claims sources

- OpenID Connect defines a simple JSON schema for releasing consented user information (claims), such as name, profile and contact details, to client applications.
- The claims can be included in the ID token or returned at the UserInfo endpoint (requires an access token).
- The Connect2id server supports aggregation of UserInfo claims from one or more data sources (LDAP directory, HR database, etc.)
- Claims sources can be integrated via a Java SPI or web interface.
- MS-AD / LDAP directories are supported out of the box.

Claims source aggregation



Claims aggregation from multiple data sources

Managing user sessions

- User sessions can be queried, monitored and managed via a dedicated web API (e.g. who is online?)
- The login page may store arbitrary attributes in the user session, to personalise the UI or for other purposes.
- Custom logout callbacks / agents may be implemented (on the roadmap).

User session object

```
{
   "sub"             : "alice",
   "auth_time"       : 12345678,
   "acr"             : "c2id.loa.high",
   "amr"             : [ "pwd", "otp" ]
   "creation_time" : 1234567,
   "max_life"        : 20160,
   "auth_life"       : 1440,
   "max_idle"        : 15,
   "data"            : { "name"  : "Alice Adams",
                         "email" : "alice@wonderland.net" }
 }
```

Rich session attributes with support for arbitrary data

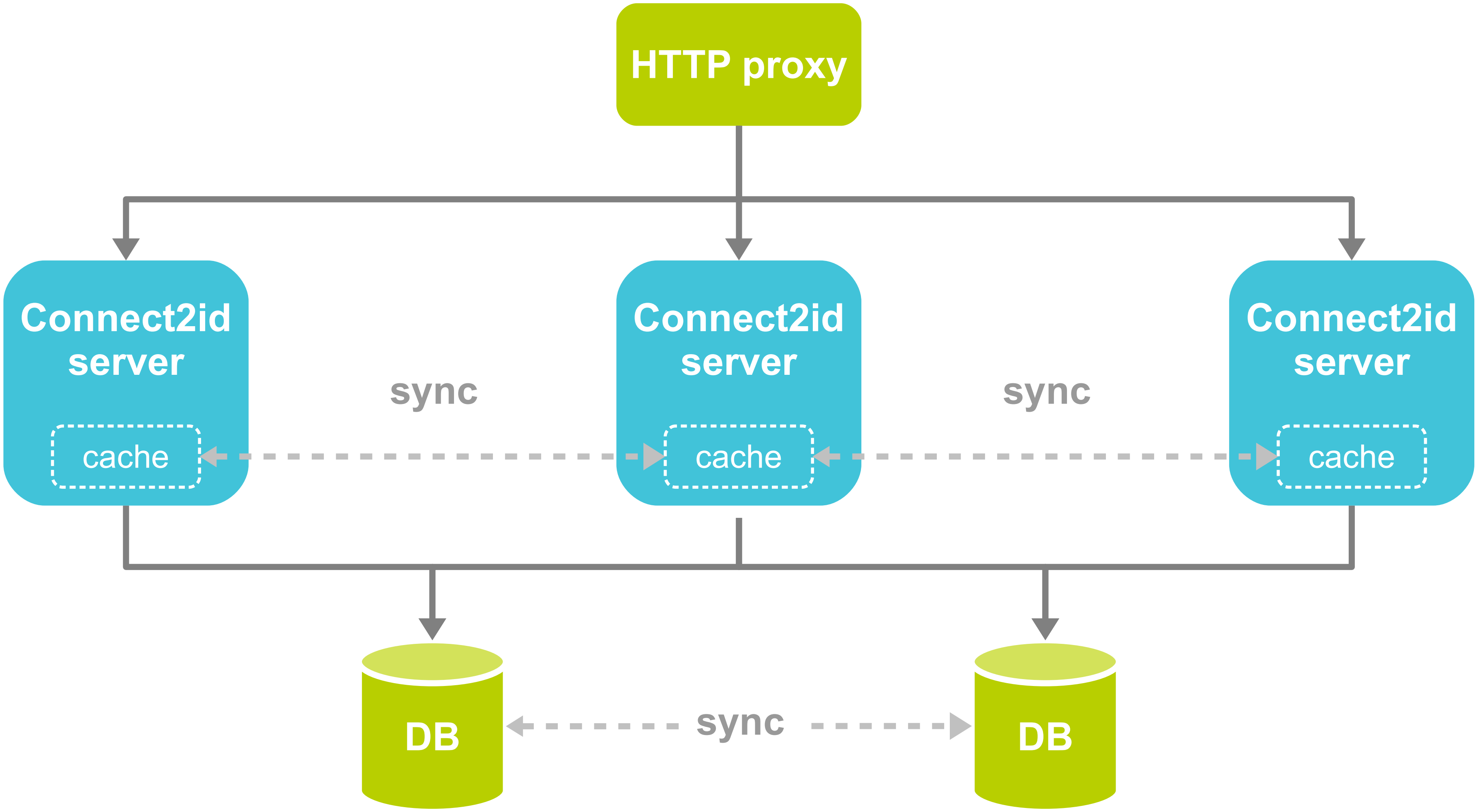
Engineered for 100% uptime

Identity services can be critical to relying applications.

The Connect2id server is designed from the ground up for continuous availability:

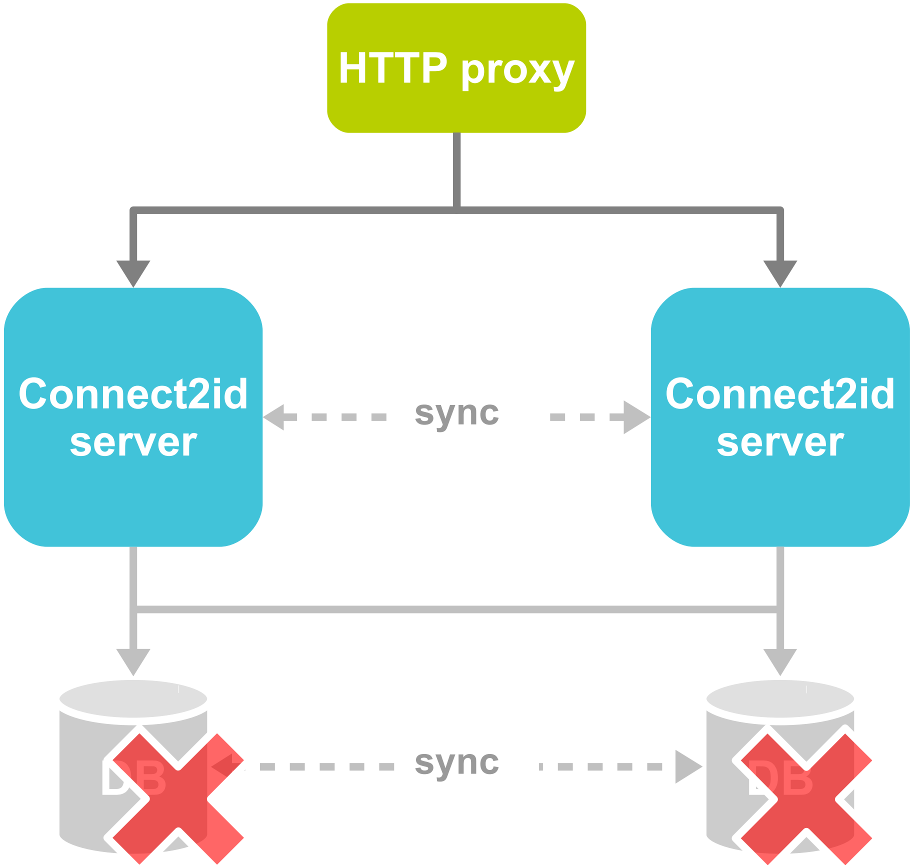
- Avoiding single points of failure: the web service layer and the underlying database can be clustered for high-availability (HA).
- Seamless scaling: server and database nodes can be added or removed to / from the cluster when required.
- Seamless upgrades: the software is designed for upgrades with zero disruption to service.

Connect2id server cluster



The Connect2id server supports clustering at the web service and DB tiers

For your peace of mind



- In case of a database or storage layer crash the Connect2id server can maintain indefinitely key OpenID Connect / OAuth 2.0 services.
- The server nodes cache all important client registration and authorisation data. This not only makes the service more responsive, but also protects it against DB outages.

Scaling + performance

- For small and medium organisations (~ thousands of users) the Connect2id server can run on a host with as little as 1 core and 2 GB RAM.
- Large user bases can benefit from a Connect2id cluster where the OpenID Connect / OAuth 2.0 requests are load-balanced over multiple nodes.
- The nodes communicate asynchronously which greatly improves responsiveness.
- Connect2id server nodes can be dynamically added or removed to / from the cluster to match demand.

Server monitoring

- Database backend health checks
- Monitoring endpoint providing over 100 metrics:
  - sign-in activity
  - detailed endpoint stats
  - OAuth 2.0 grant handler stats
  - claims sources latency and performance

DevOps friendly

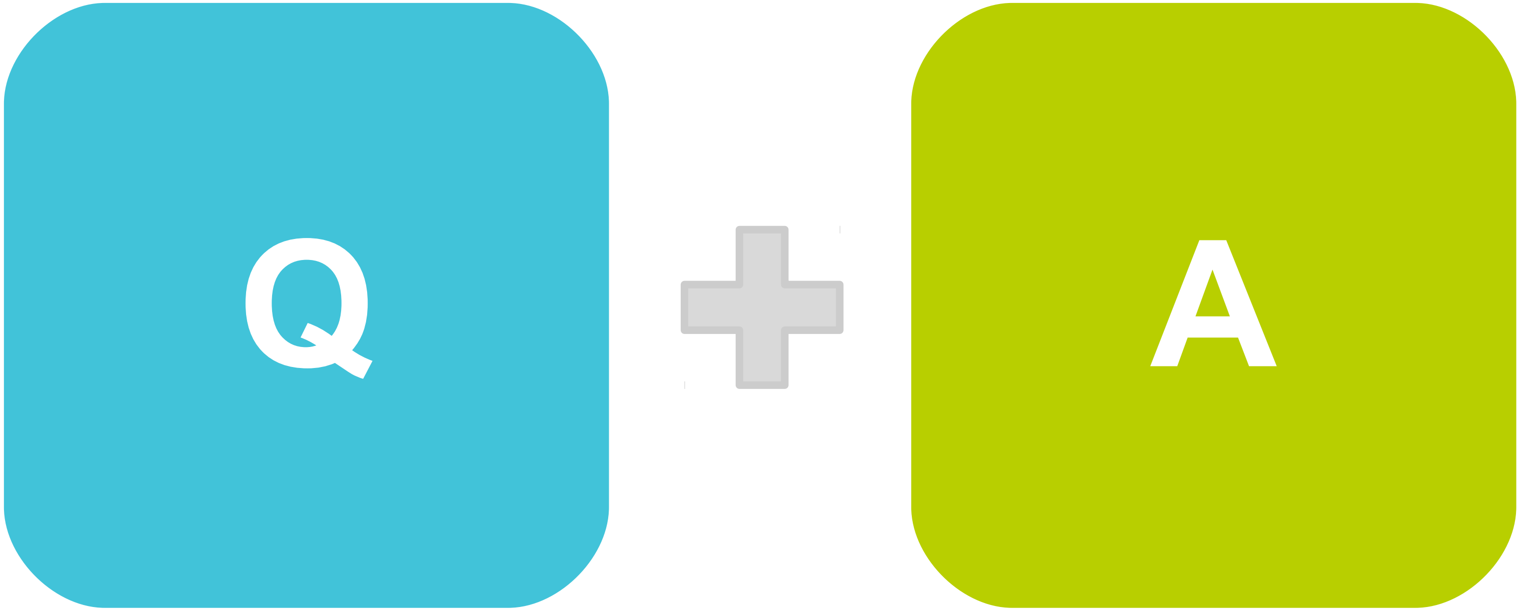
Key DevOps jobs can be done safely and without impacting the uptime of a running Connect2id server / cluster:

- Updating the OpenID Connect login UI or testing new ones;
- Upgrading the authentication method or incorporating a new one (e.g. hardware tokens);
- Updating the user and administrative interfaces for the service or introducing new ones;
- Updating UserInfo claims sources (for web-based ones).

To find out more about the Connect2id server

http://connect2id.com/server

Thank you!



Q + A