OPENID CONNECT @ DEUTSCHE TELEKOM

Dr. Torsten Lodderstedt, Deutsche Telekom AG

LIFE IS FOR SHARING.

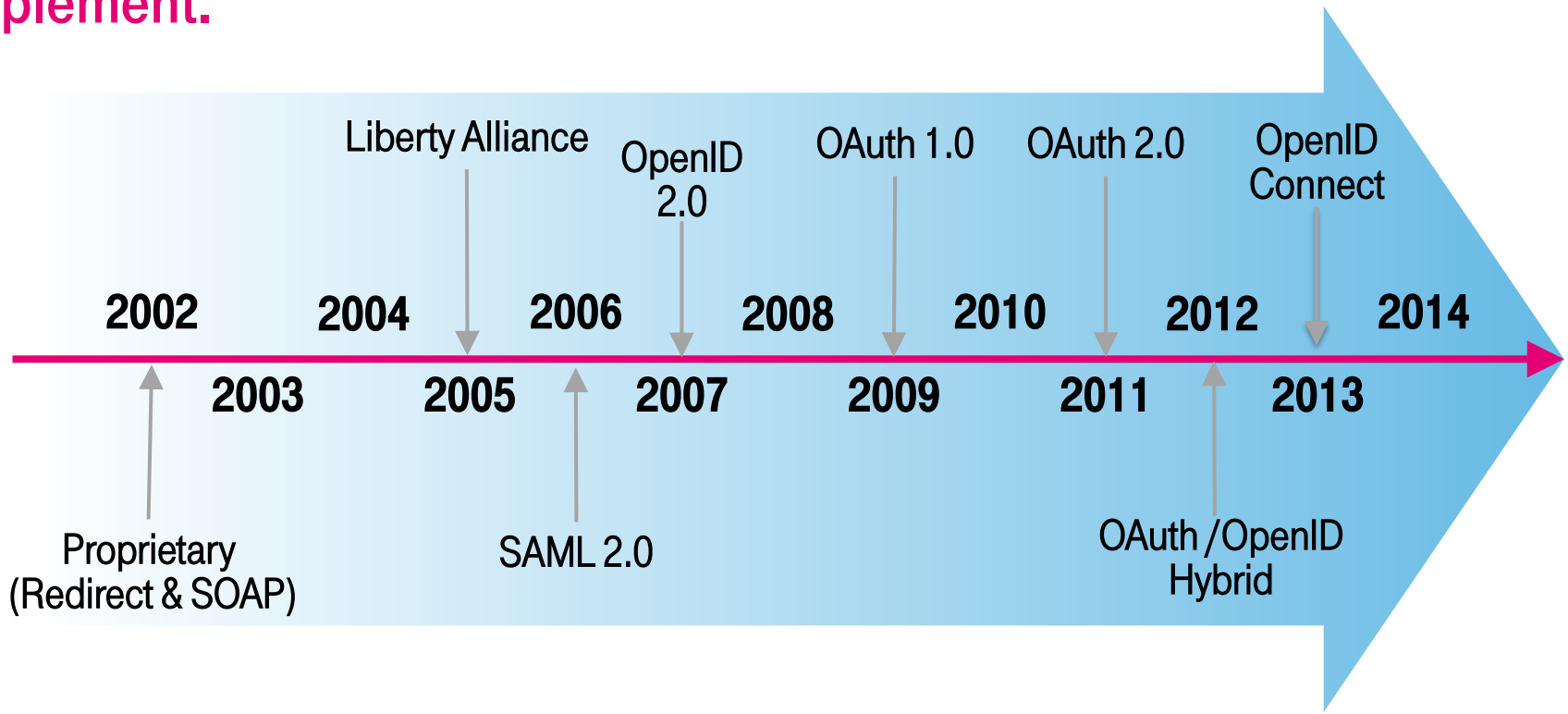
SERVICE ECOSYSTEM AND TELEKOM LOGIN

OPEN STANDARDS: OUR HISTORY

We rely on open standards whenever they are secure, easy to understand, and to implement.

Therefore, we

- follow the standardization processes
- implement emerging standards
- involve in standardization bodies



WHY OPENID CONNECT?

IT'S SIMPLE AND SECURE

- Simple Identity Layer on top of OAuth 2.0
- REST and JSON instead of SOAP and XML
- No signatures (for lower levels of assurance)
- Protocol Complexity, e.g. Message Format
  - Authentication request in OpenID Connect

    https://accounts.login.idm.telekom.com/oauth2/auth?response_type=code&client_id=MEDIASTORE&scope=openid+profile+phone&redirect_uri=https%3A%2F%2Fsamtestt1.toon.sul.t-online.de%2Fmedia-store%2Flogin%2F%3Fmode%3Doic
  - Authentication request in OpenID 2.0

    https://accounts.login.idm.telekom.com/idmip?openid.ns=http%3A%2F%2Fspecs.openid.net%2Fauth%2F2.0&openid.claimed_id=http%3A%2F%2Fspecs.openid.net%2Fauth%2F2.0%2Fidentifier_select&openid.identity=http%3A%2F%2Fspecs.openid.net%2Fauth%2F2.0%2Fidentifier_select&openid.return_to=https%3A%2F%2Ffavoriten.t-online.de%2Fdashboard%2Fverification_openid.html%3FproviderId%3Dcdb-de&openid.realm=https%3A%2F%2Ffavoriten.t-online.de&openid.assoc_handle=S01995598-f734-4660-be3e-e09fb9cf4124&openid.mode=checkid_setup&openid.ns.ext2=http%3A%2F%2Fidm.telekom.com%2Fopenid%2Fext%2F2.0openid.ns.ext3=http%3A%2F%2Fspecs.openid.net%2Fextensions%2Fui%2F1.0&openid.ext3.x-name=true&openid.ext3.icon=true&openid.ns.ext4=http%3A%2F%2Fopenid.net%2Fsrv%2Fax%2F1.0&openid.ext4.mode=fetch_request&openid.ext4.type.displayname=urn%3Atelekom.com%3Adisplayname&openid.ext4.type.msisdn=urn%3Atelekom.com%3Amsisdn&openid.ext4.type.usta=urn%3Atelekom.com%3Austa&openid.ext4.required=displayname%2Cmsisdn%2Custa

THE ONE PROTOCOL

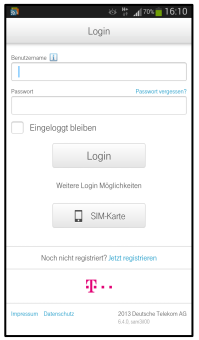
Features		Connect	2.0
User Authentication/ User ID	✘	✓	✓
Resource Authorization (Token)	✓	✓	✘
Provides User Attributes	✘	✓	✓
Web Flow	✓*	✓	✓
App Support	✓	✓	✘

- OpenID Connect allows us to use the same protocol for all use case since it adds OpenID features to OAuth
  - no need to understand different protocols
  - no need for proprietary hybrid protocol: OpenID 2.0 with OAuth 2.0 token handling

IT WORKS GREAT FOR MOBILE APPS
OPENID CONNECT INTEGRATION PATTERNS

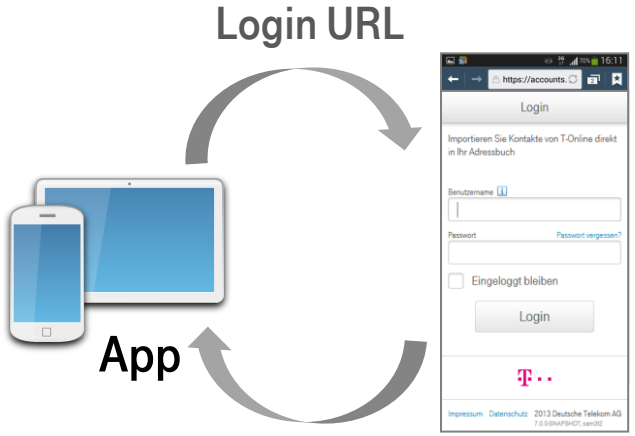
- Supports the typical OAuth 2.0 integration patterns for Web Flows: web-based for login and REST calls for token exchange and user data access

Alternative 1: In-App Browser



http://localhost/myapp/callback?code =3741057699

Alternative 2: External Browser

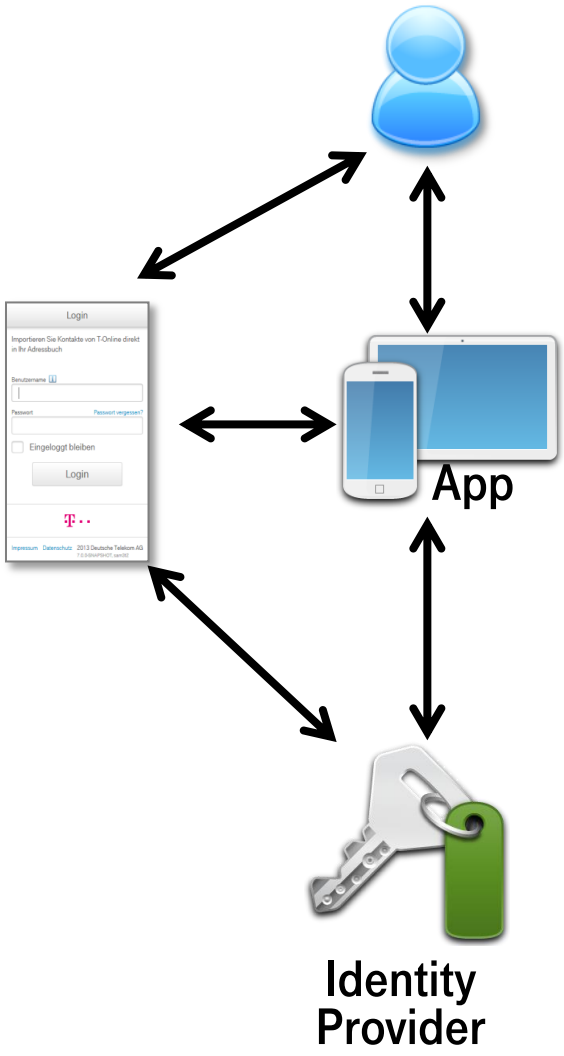


myapp://openid-connect/callback?code=3741057699

- No hassle with RP Discovery, form-encoded Login Response, ...
- And it's getting even better with the upcoming results of the Native Applications Working Group

IT WORKS GREAT FOR MOBILE APPS
STAY LOGGED IN

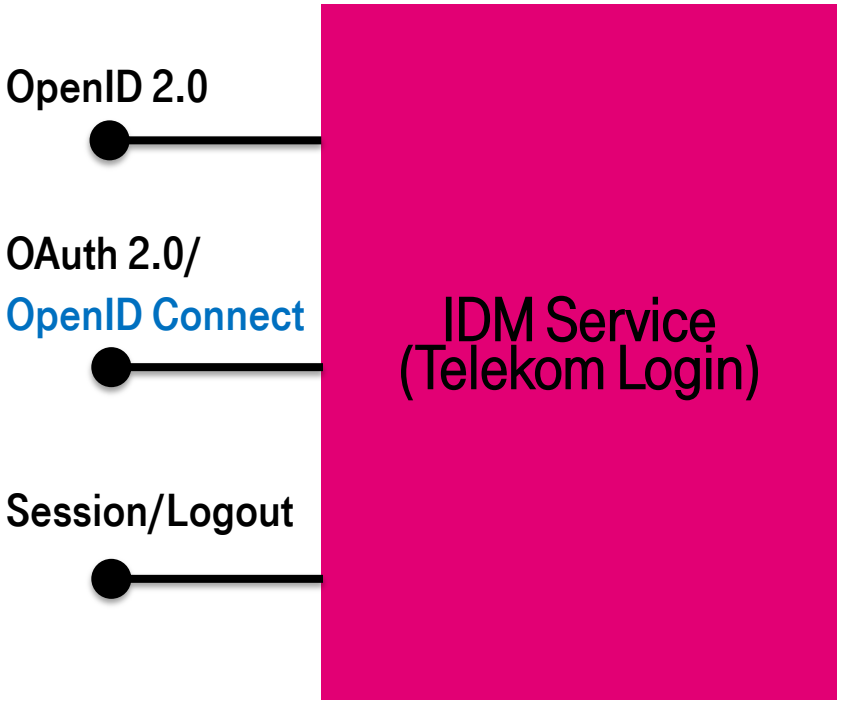
- Long-term access to ID data can be requested using a scope value of “offline_access”
- OpenID Provider issues a Refresh Token
- App stores Refresh Token permanently and uses it for sub-sequent “login” requests
- Simplifies flow by eliminating user interactions
- Works for any grant type, e.g. authorization code



OUR IMPLEMENTATION

HOW?

- **Another interface of our IDM service**
- **Extension of existing OAuth 2.0 implementation/interface**
  - Same client_id can use both OAuth and OpenID Connect
- **Core logic is shared among OpenID 2.0 and Connect implementation**
  - Authentication methods
  - User interfaces
  - User consent management
  - Session management and single logout

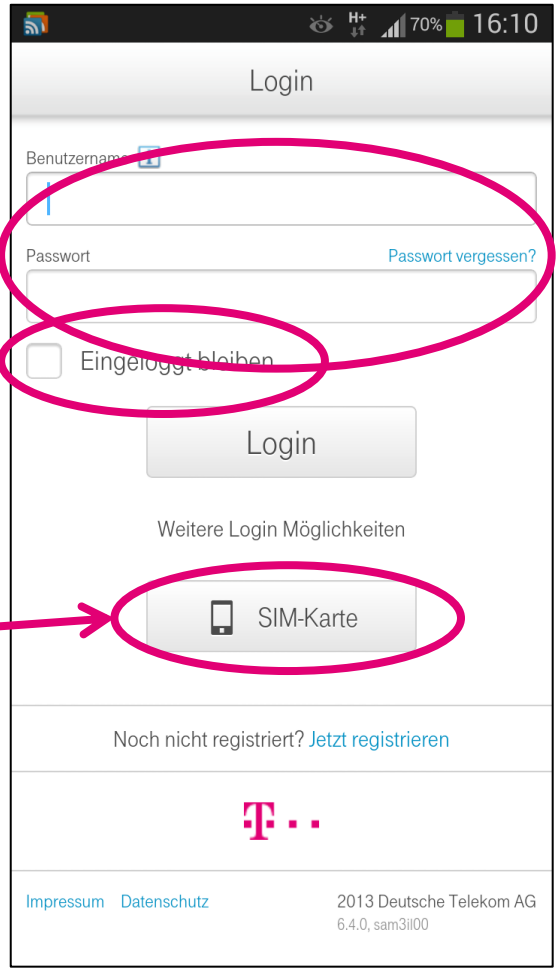


WHAT?

- **Starting with basic feature set and extending it demand-driven**
  - Grant types: code, refresh token, resource owner password, and JWT bearer
  - ID token signing algorithms: none, hmac, rsa
  - Control of authentication process: prompt, max_age, login_hint, acr_values
  - UI optimized for Web and mobile (display parameter)
  - offline_access
  - claim requests by scope values and claims parameter
  - combined authentication & authorization requests
  - discovery document
- **DT-specific session management & single logout**
- **Telco-specific functions**
- **3rd party login and attribute providing**
- **All kinds of security measures**

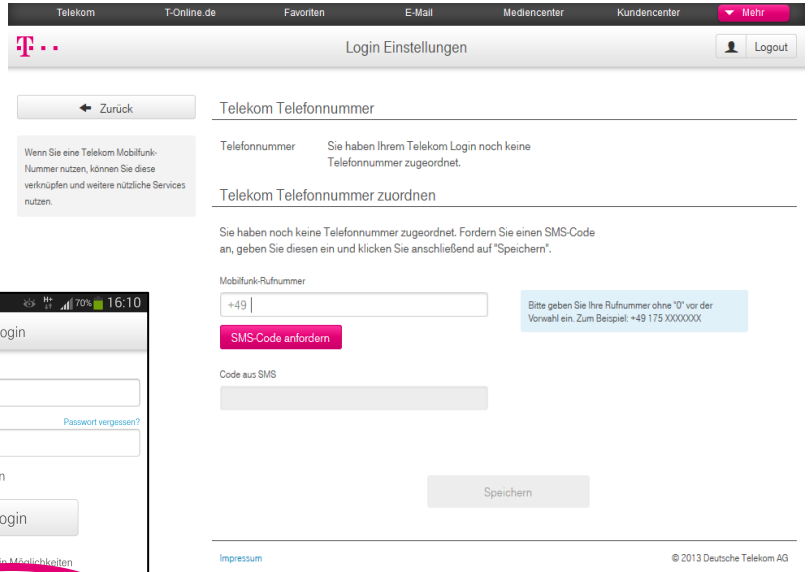
AUTHENTICATION

- **App may specify requirements regarding the authentication process**
- **Authentication process itself (methods, user interaction, etc.) is at the discretion of the OP**
- **Deutsche Telekom uses**
  - username and password
  - stay logged in
  - SIM authentication
  - In some scenarios, we also use PIN and/or mobile TAN/OTP



HANDLING OF MSISDN

- Customers may associate their MSISDN(s) to their user account.
- Network authentication based on associated MSISDN
- Applications may retrieve associated MSISDN's in login response and in access token content
- e.g. OpenID Connect



Authorization Request

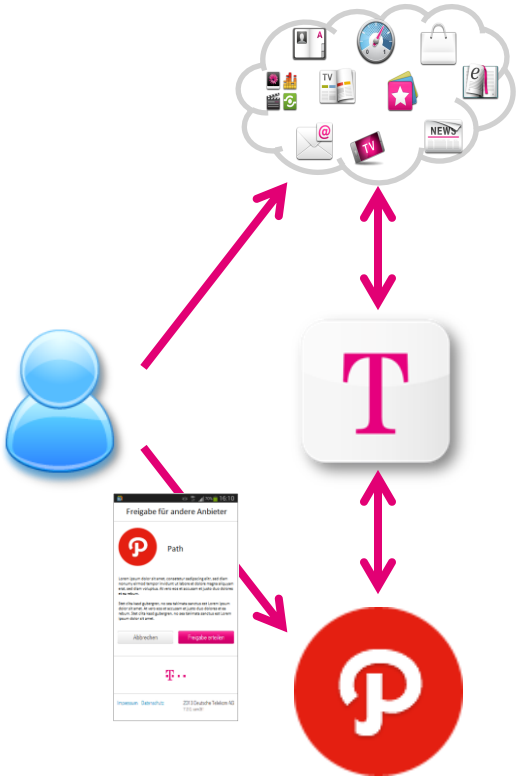
```
http://accounts.login.idm.telekom.com/oauth/auth
  ?response_type=code
  &[...]
  &scope=openid+phone
  &[...]
```

UserInfo Response

```
{
  "sub":"120049010000000046553883",
  "name":"Dr. Torsten Lodderstedt", [...],
  "phone_number":"+491711234567"
  "phone_number_verified":"true"
}
```

3RD PARTY APPS

- **Our customers shall use their Telekom Login**
  - for any Telekom application/service
  - for web-based and mobile applications
  - for 3rd party apps and portals
- **Benefits for our**
  - customers: simple access to additional services
  - partners: simple access to a large user base
- **User has to consent to data transfer to a 3rd party application (at least once per partner)**
- **Partner-specific user IDs to prohibit tracking across applications**



OPENID CONNECT @ DEUTSCHE TELEKOM

OpenID Connect

- Secure, easy to understand and implement
- Versatile in its usage
- Covers all our use-cases or may be easily extended to do so

Deutsche Telekom Timeline

- Mid of 2013: first adoption of OpenID Connect
- Today: standard API for partner integrations is OpenID Connect
- Mid of 2014: switch of our largest service to OpenID Connect

This is also our contribution to the ongoing GSMA efforts on cross-operator identity providing (Mobile Connect).

ANY QUESTIONS?