



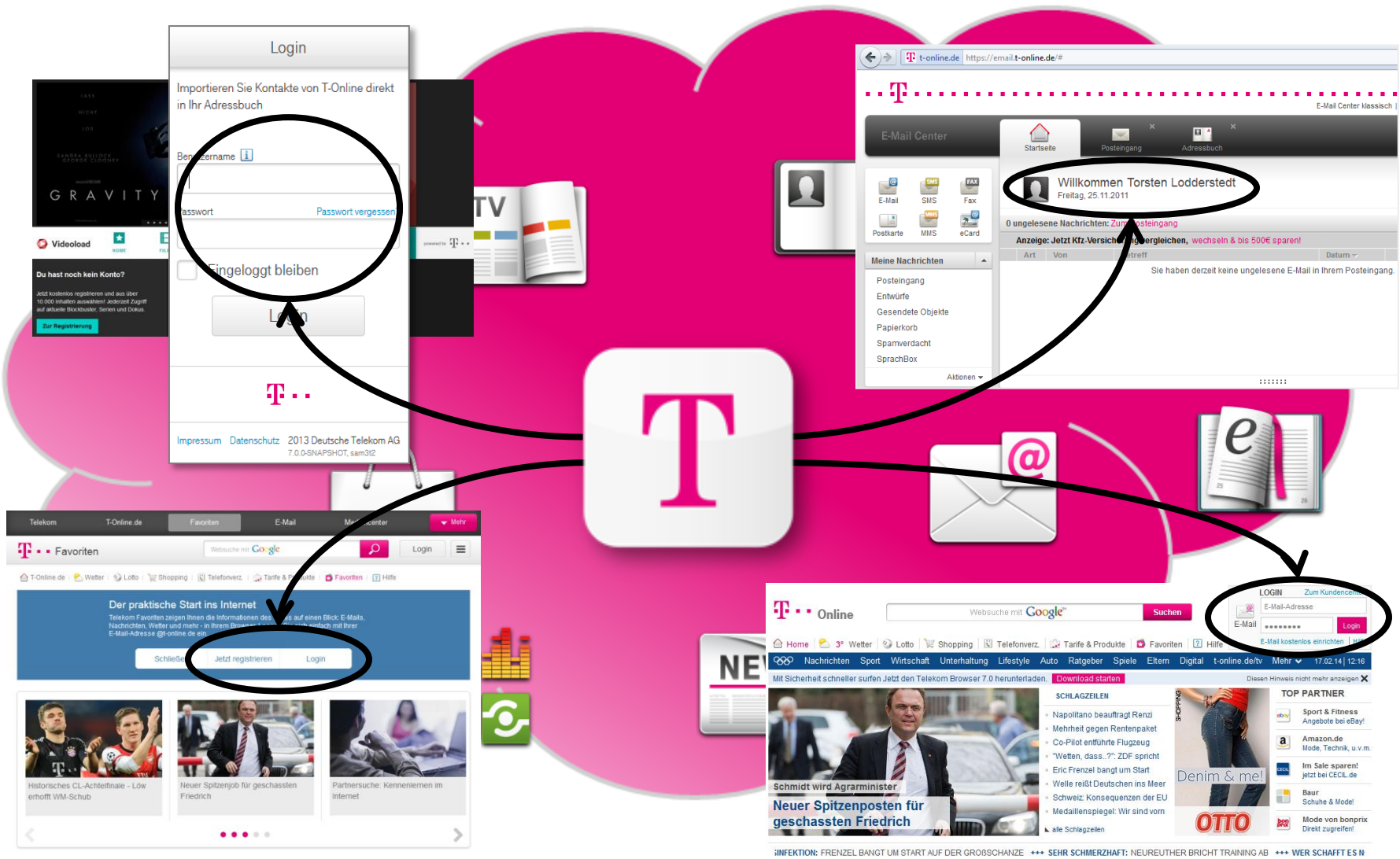
OPENID CONNECT @ DEUTSCHE TELEKOM

Dr. Torsten Lodderstedt, Deutsche Telekom AG



LIFE IS FOR SHARING.

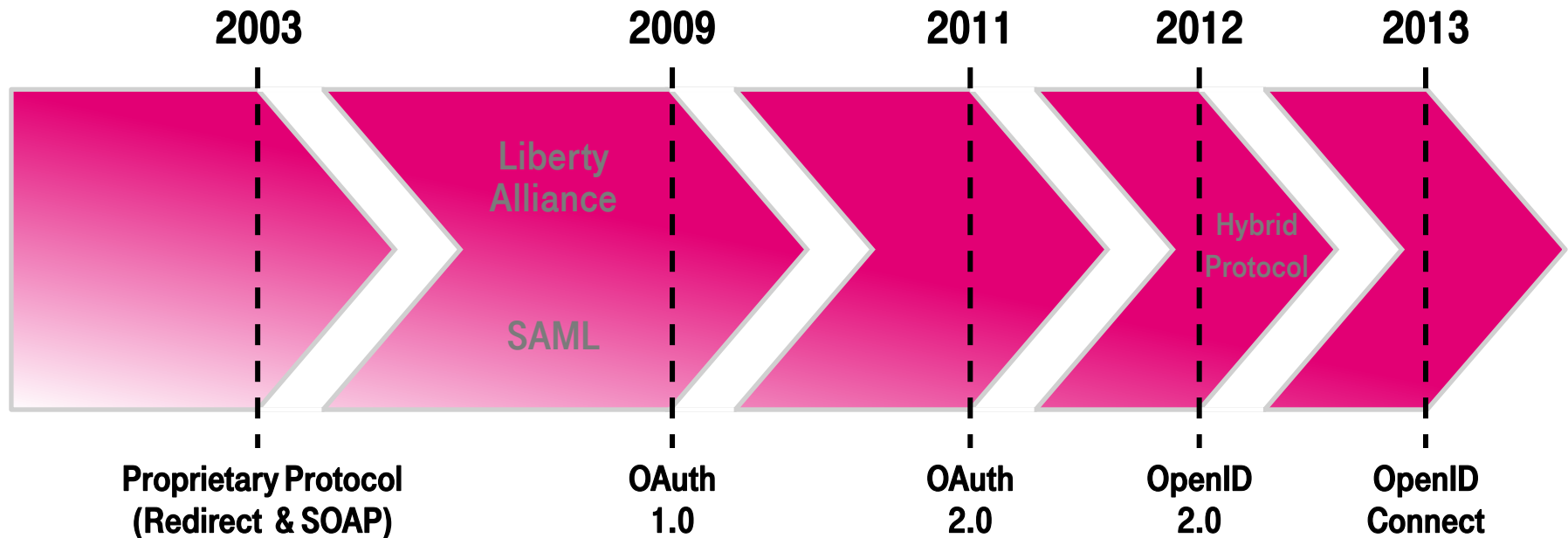
SERVICE ECOSYSTEM AND TELEKOM LOGIN



TELEKOM LOGIN (INTERFACES)

We strive to offer our services and partners interfaces that are

- easy to understand and to implement
- secure
- based on open standards



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

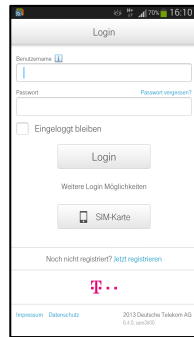
- | | | Connect | 2.0 |
|----------------------------------|----|---------|-----|
| ▪ User Authentication/ User ID | ✗ | ✓ | ✓ |
| ▪ Resource Authorization (Token) | ✓ | ✓ | ✗ |
| ▪ Provides User Attributes | ✗ | ✓ | ✓ |
| ▪ Web Flow | ✓* | ✓ | ✓ |
| ▪ App Support | ✓ | ✓ | ✗ |
- **OpenID Connect allows 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

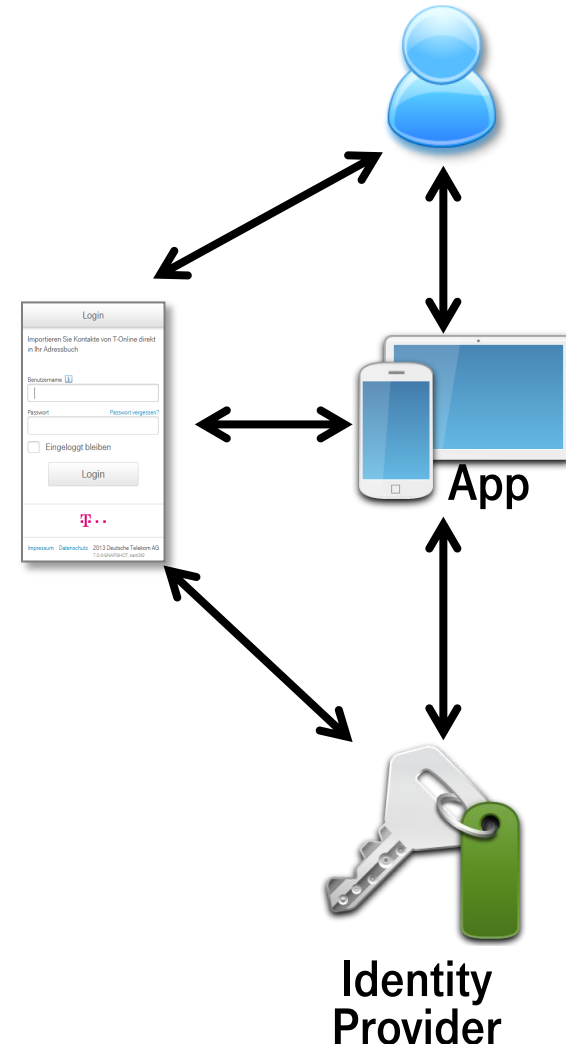


<myapp://openid-connect/callback?code=3741057699>

- 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 OPENID CONNECT IMPLEMENTATION

- **Extension of existing OAuth 2.0 implementation**
- **Starting with basic feature set and extending it demand-driven**
 - grant type “authorization code”
 - 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
- **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 or mobile TAN/OTP

The screenshot shows a mobile login interface for Deutsche Telekom. The title is "Login". It features a "Benutzername" field with a search icon, a "Passwort" field with a "Passwort vergessen?" link, and a checkbox for "Eingeloggt bleiben". A "Login" button is positioned below these fields. Underneath, there is a section titled "Weitere Login Möglichkeiten" with a "SIM-Karte" button. At the bottom, there is a link for "Noch nicht registriert? Jetzt registrieren" and the Deutsche Telekom logo. The footer contains "Impressum Datenschutz" and "2013 Deutsche Telekom AG 6.4.0, sam31100".

Annotations: Three pink circles highlight the "Benutzername" field, the "Eingeloggt bleiben" checkbox, and the "SIM-Karte" button. Three pink arrows point from the text in the list to these elements: one from "username and password" to the "Benutzername" field, one from "stay logged in" to the "Eingeloggt bleiben" checkbox, and one from "SIM authentication" to the "SIM-Karte" button.

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

The top screenshot shows the 'Telekom Telefonnummer' page. It includes a 'Zurück' button, a message about associating a mobile number, and a form to 'Telekom Telefonnummer zuordnen'. The form asks for a 'Mobilfunk-Rufnummer' (with a '+49' prefix) and an 'SMS-Code' from the number. A 'Speichern' button is at the bottom.

The bottom screenshot shows the mobile login screen. It has fields for 'Benutzername' and 'Passwort', a 'Login' button, and an option for 'Eingeloggt bleiben'. A pink oval highlights the 'SIM-Karte' option under 'Weitere Login-Möglichkeiten'.

Authorization Request

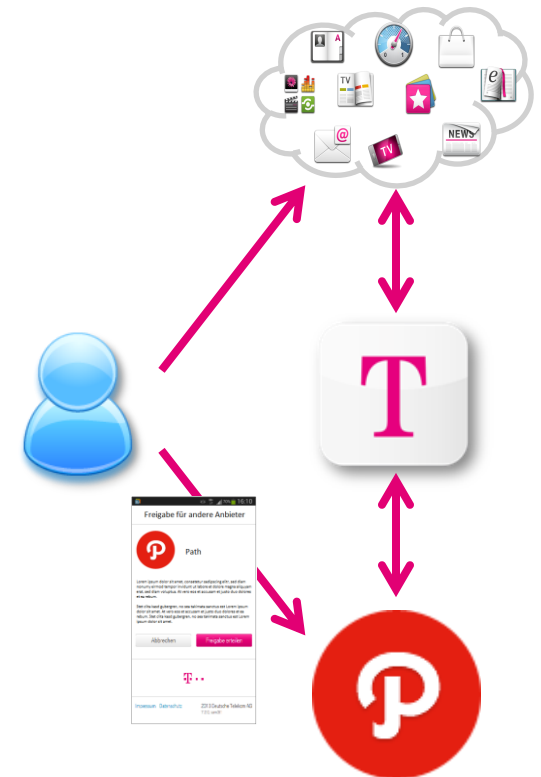
```
http://accounts.login.idm.telekom.com/oauth/authorize?response_type=code&[...]&scope=openid+phone&[...]
```

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 our contribution to the ongoing GSMA efforts on cross-operator identity providing.



ANY QUESTIONS?