FORGEROCK™

An Introduction to User-Managed Access (UMA)

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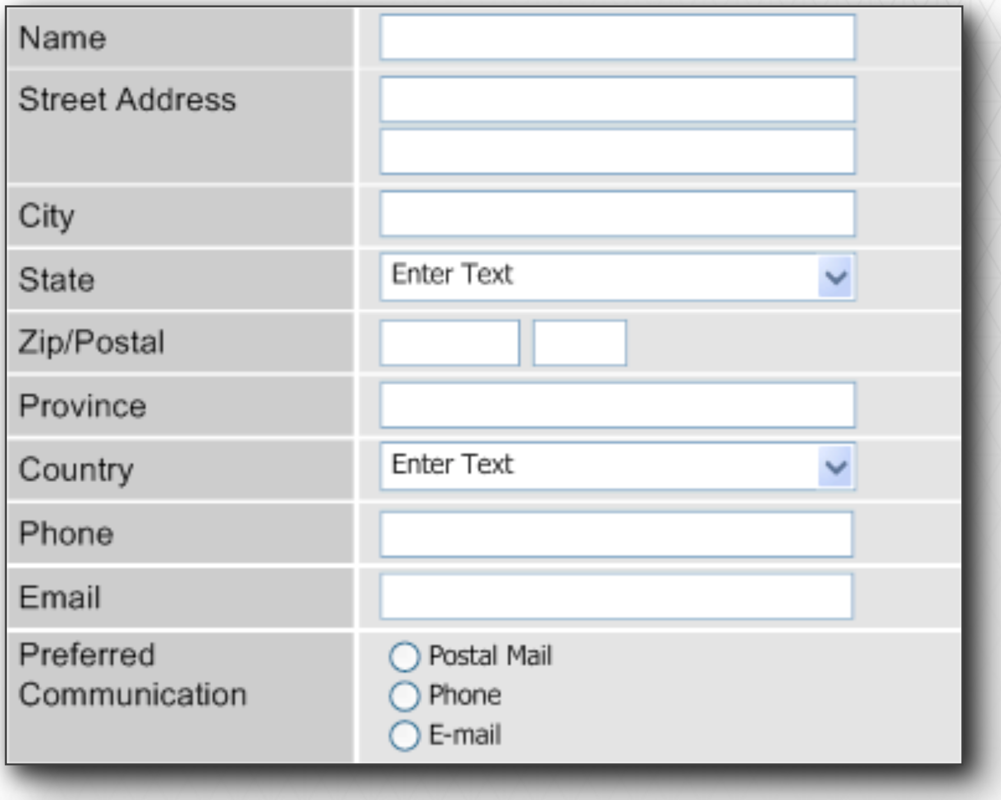
October 28, 2014

Challenges in apps that handle personal data and content

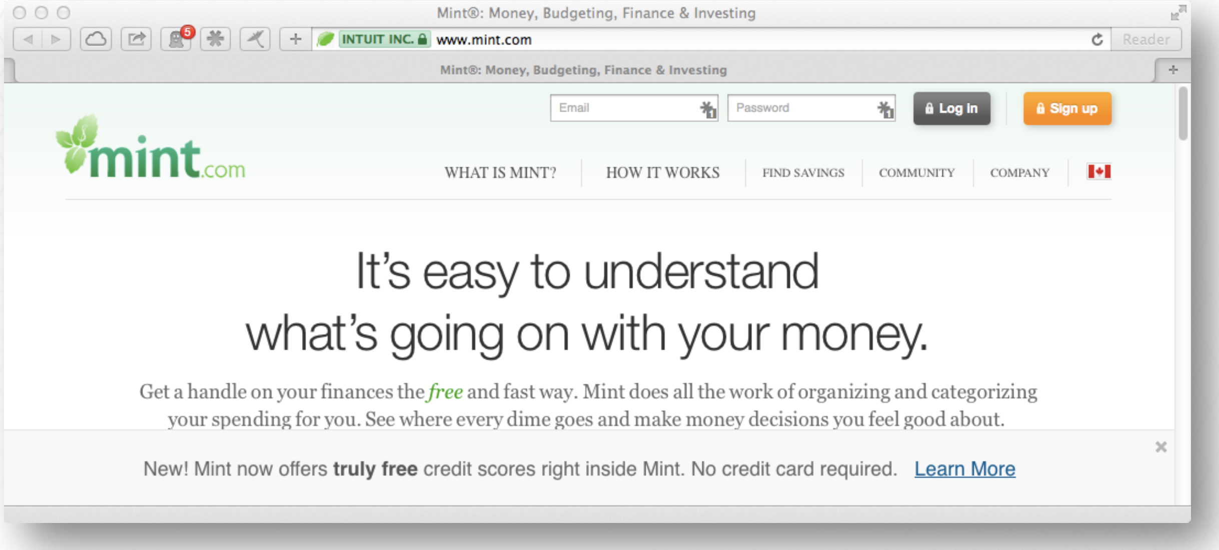
Some apps are still in the Web 1.0 dark ages

- Provisioning user data by hand
- Provisioning it by value
- Oversharing
- Lying!



Name	
Street Address	
City	
State	Enter Text
Zip/Postal	
Province	
Country	Enter Text
Phone	
Email	
Preferred Communication	○ Postal Mail ○ Phone ○ E-mail

Some other apps are still in the Web 2.0 dark ages



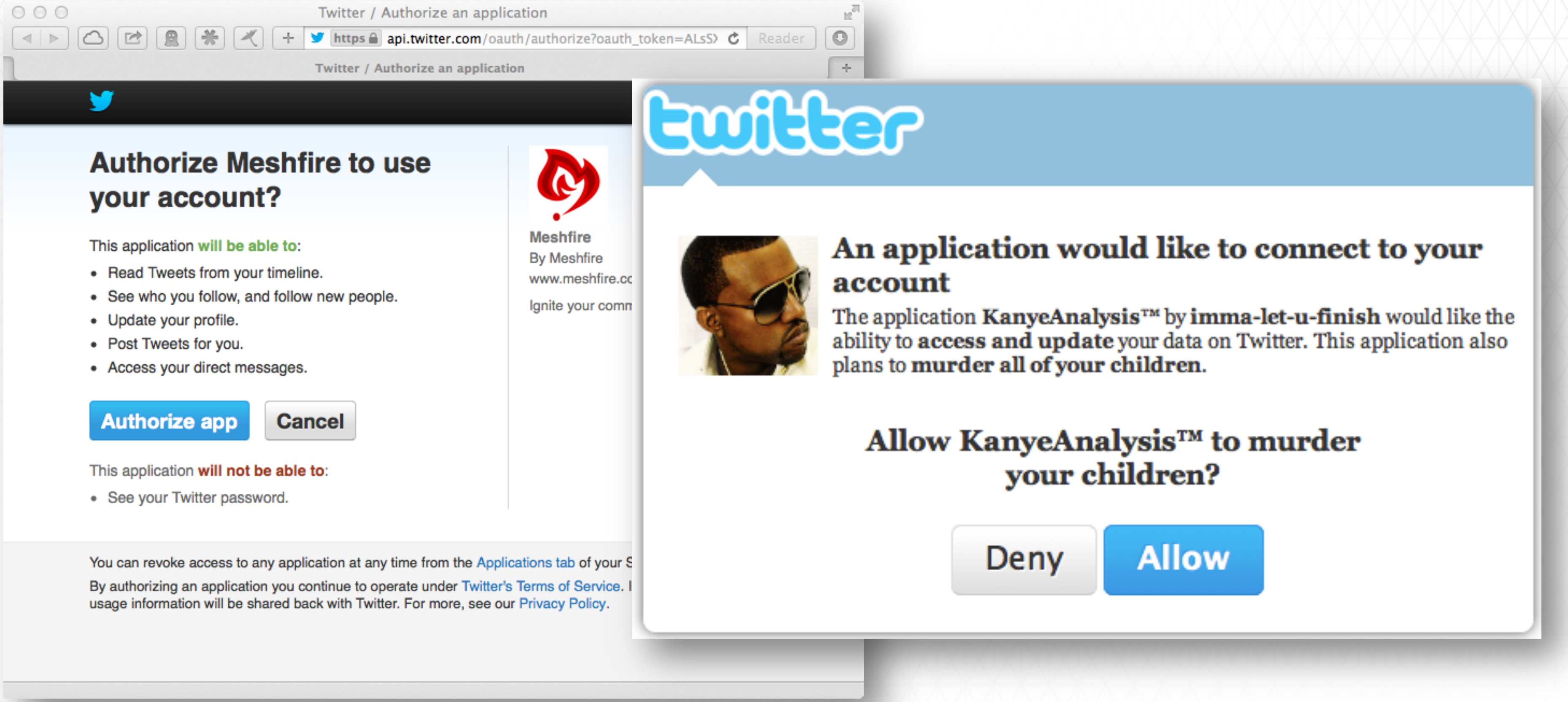
It's easy to understand what's going on with your money.

Get a handle on your finances the *free* and fast way. Mint does all the work of organizing and categorizing your spending for you. See where every dime goes and make money decisions you feel good about.

New! Mint now offers **truly free** credit scores right inside Mint. No credit card required. Learn More

- The "password anti-pattern" – a third party impersonates the user
- It's a shared secret honeypot
- It's a gray-market B2B partner

Apps using OAuth and OpenID Connect hint at a better, if not perfect, way



Twitter / Authorize an application
https api.twitter.com/oauth/authorize?oauth_token=ALsS
Reader
Twitter / Authorize an application

Authorize Meshfire to use your account?

This application **will be able to**:

- Read Tweets from your timeline.
- See who you follow, and follow new people.
- Update your profile.
- Post Tweets for you.
- Access your direct messages.

This application **will not be able to**:

- See your Twitter password.

Meshfire
By Meshfire
www.meshfire.cc
Ignite your comm

You can revoke access to any application at any time from the Applications tab of your S

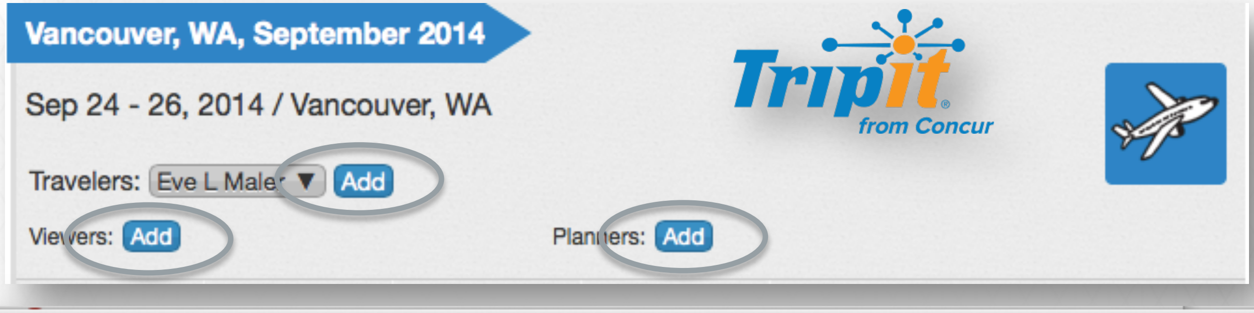
By authorizing an application you continue to operate under Twitter's Terms of Service. I usage information will be shared back with Twitter. For more, see our Privacy Policy.

An application would like to connect to your account

The application **KanyeAnalysis™** by **imma-let-u-finish** would like the ability to **access and update** your data on Twitter. This application also plans to **murder all of your children.**

Allow KanyeAnalysis™ to murder your children?

What about selective person-to-*person* sharing?



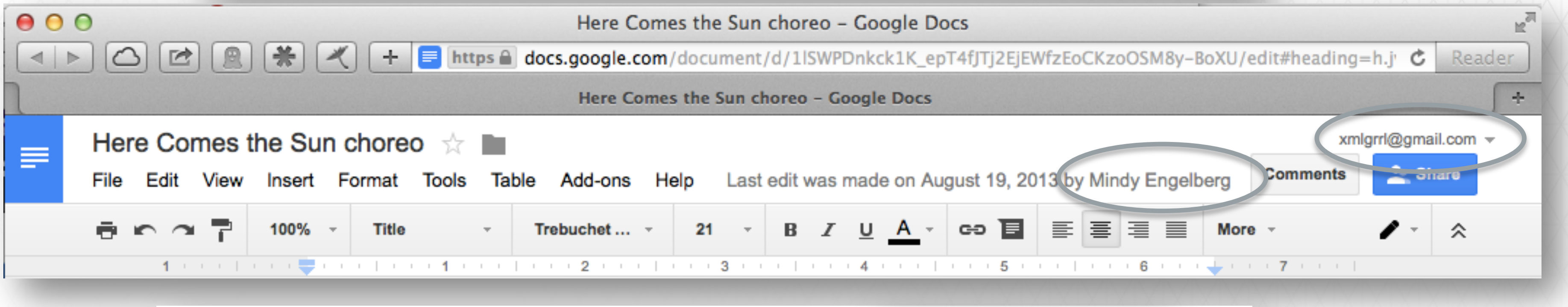
Vancouver, WA, September 2014

Sep 24 - 26, 2014 / Vancouver, WA

Traveler: Eve L Maler ▼ Add

Viewers: Add

Planners: Add



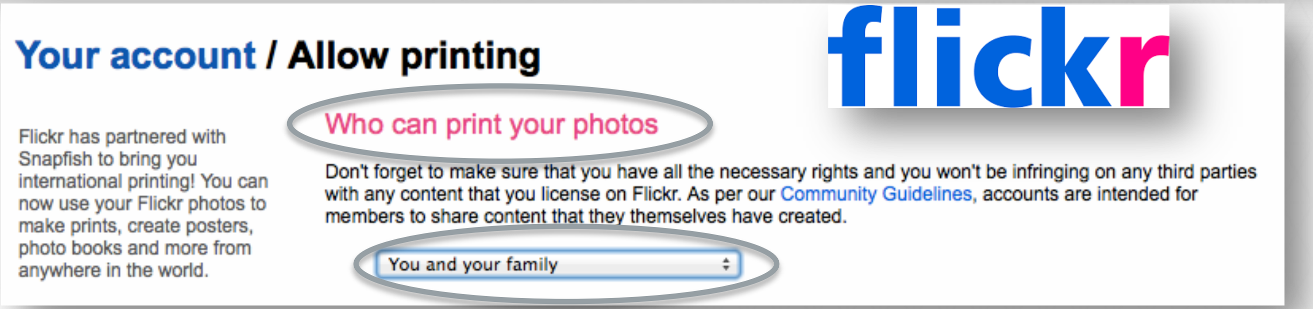
Here Comes the Sun choreo – Google Docs

https docs.google.com/document/d/1lSWPDnkck1K_epT4fJTj2EjEWfzEoCKzoOSM8y-BoXU/edit#heading=h.j

Here Comes the Sun choreo

xmlgrrl@gmail.com

Last edit was made on August 19, 2013 by Mindy Engelberg



Your account / Allow printing

Flickr has partnered with Snapfish to bring you international printing! You can now use your Flickr photos to make prints, create posters, photo books and more from anywhere in the world.

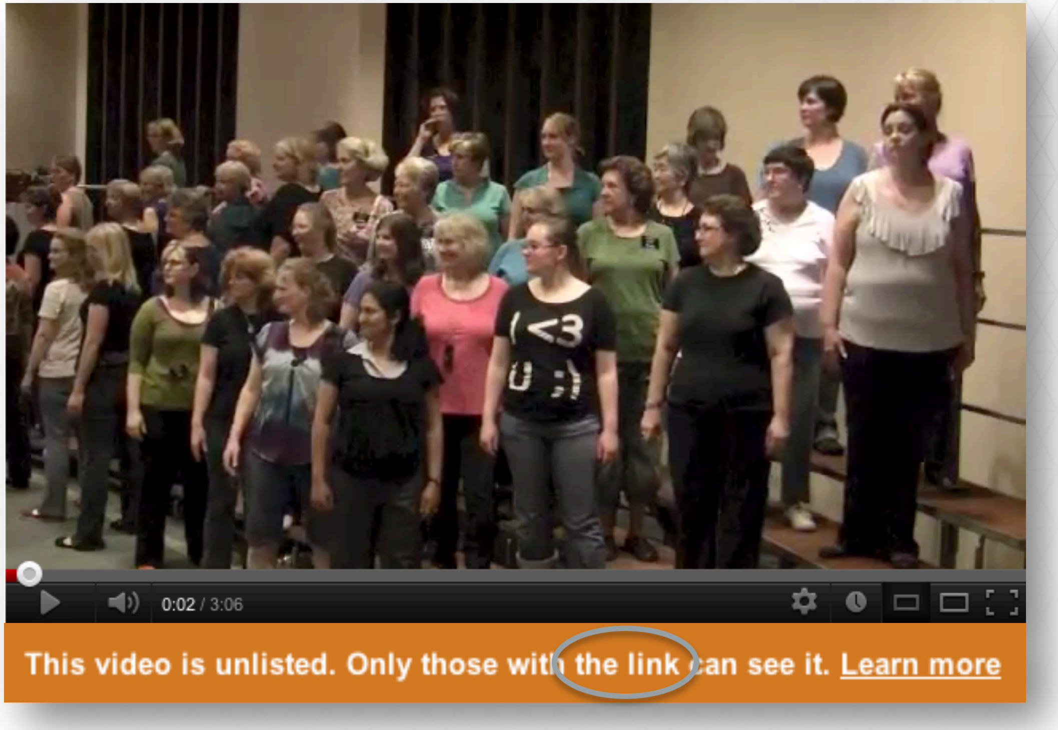
Who can print your photos

Don't forget to make sure that you have all the necessary rights and you won't be infringing on any third parties with any content that you license on Flickr. As per our Community Guidelines, accounts are intended for members to share content that they themselves have created.

You and your family

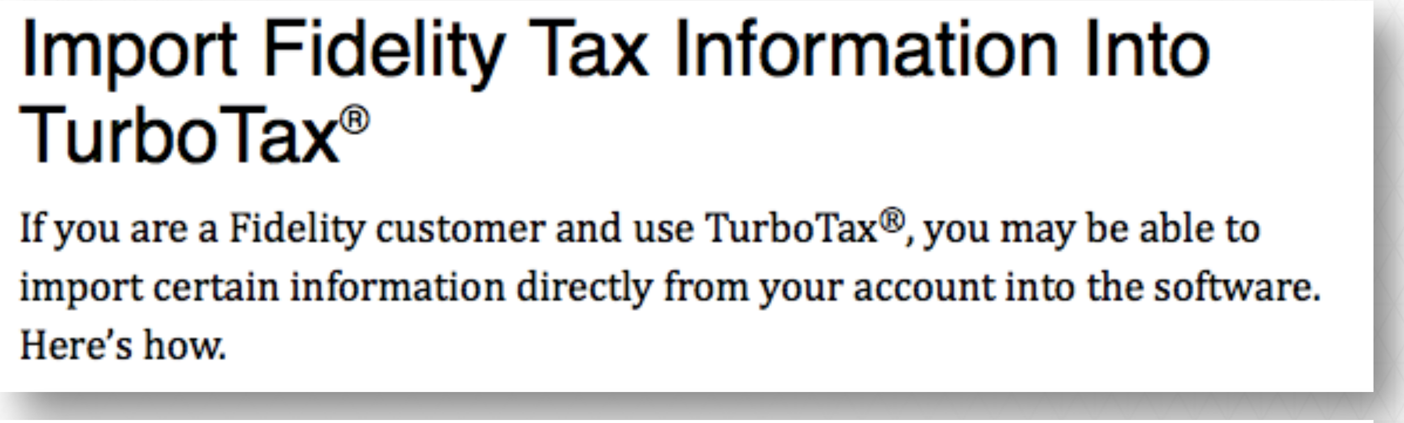
Our choices: send a private URL…

- Handy but insecure
- Unsuitable for really sensitive data



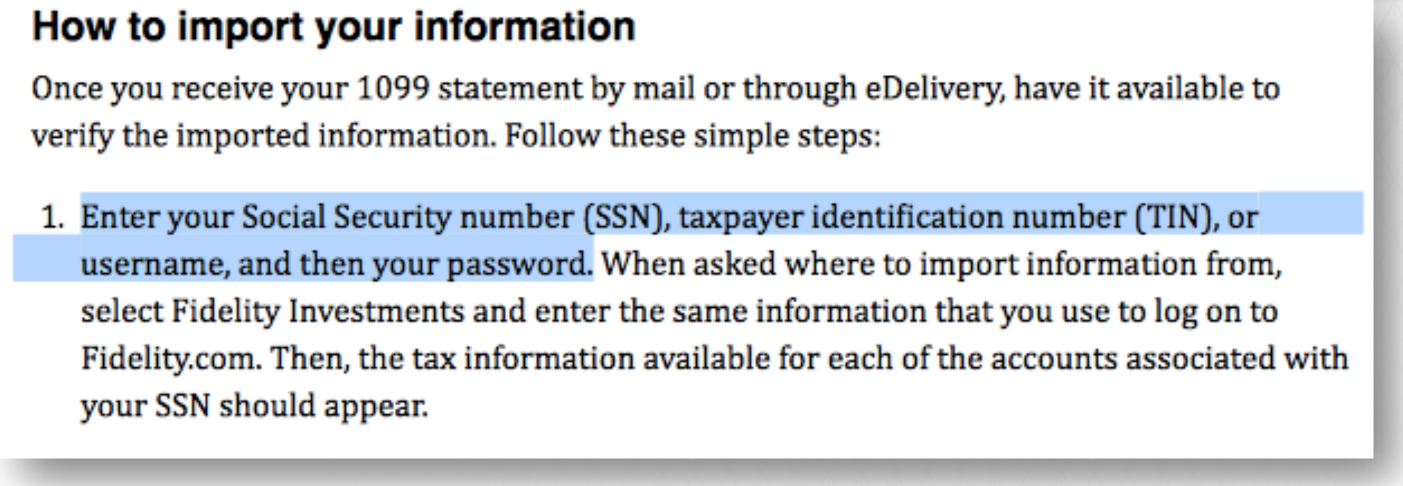
This video is unlisted. Only those with the link can see it. Learn more

…or require impersonation…



Import Fidelity Tax Information Into TurboTax®

If you are a Fidelity customer and use TurboTax®, you may be able to import certain information directly from your account into the software. Here's how.

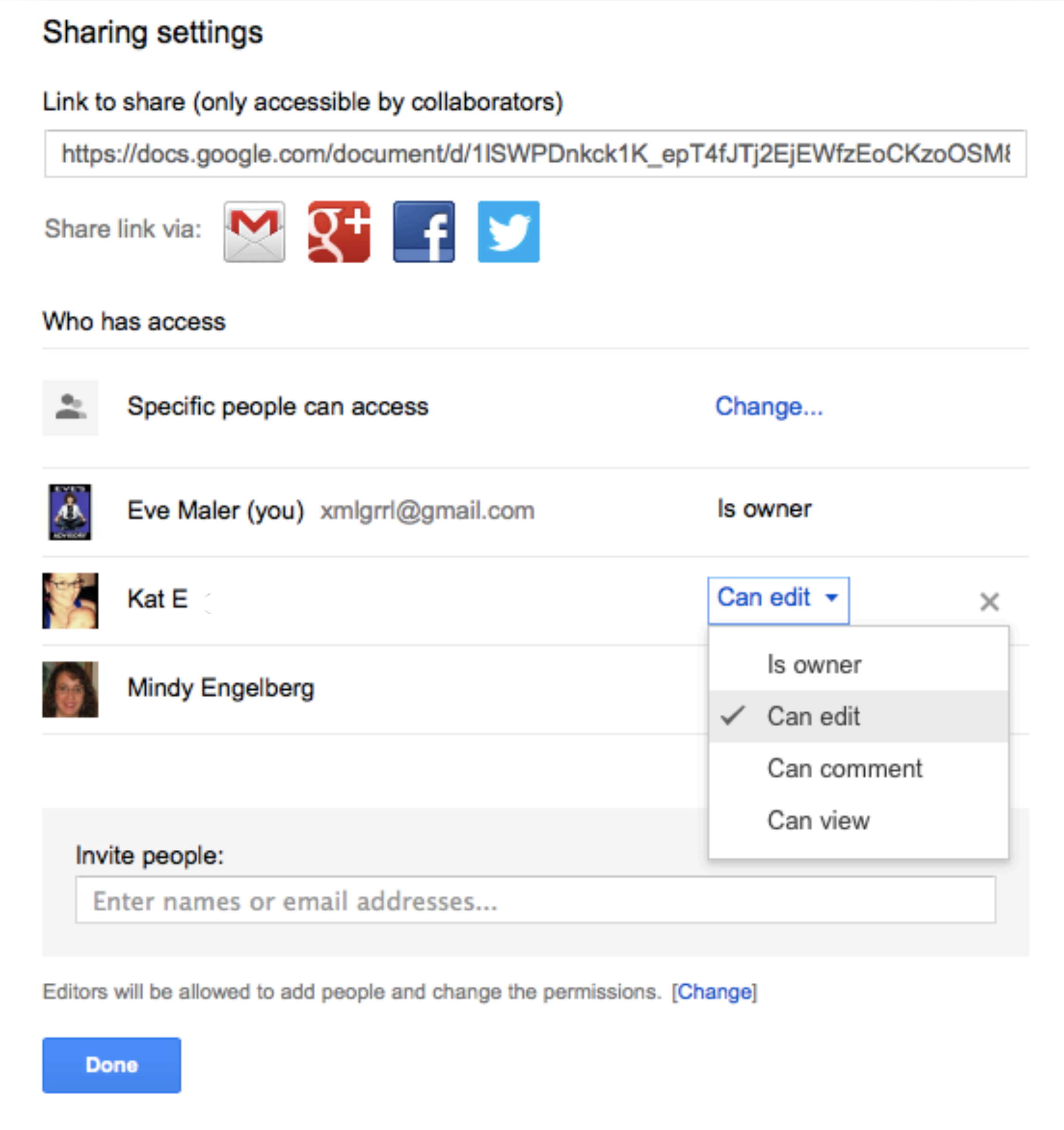


How to import your information

Once you receive your 1099 statement by mail or through eDelivery, have it available to verify the imported information. Follow these simple steps:

1. Enter your Social Security number (SSN), taxpayer identification number (TIN), or username, and then your password. When asked where to import information from, select Fidelity Investments and enter the same information that you use to log on to Fidelity.com. Then, the tax information available for each of the accounts associated with your SSN should appear.

…or implement a proprietary access management system



Sharing settings

Link to share (only accessible by collaborators)

https://docs.google.com/document/d/1lSWPDnkck1K_epT4fJTj2EjEWfzEoCKzoOSM

Share link via:

Who has access

Specific people can access — Change...

Eve Maler (you) xmlgrrl@gmail.com — Is owner

Kat E — Can edit ▾ ✕

Mindy Engelberg

Invite people:

Enter names or email addresses...

Editors will be allowed to add people and change the permissions. [Change]

Killing – or even *wounding* – the password kills impersonation

WISH LIST: 85 GIFTS & GADGETS FOR THE HOLIDAYS

WIRED

Kill the P@55W~~Ø~~rD

Think a jumble of characters can keep your stuff safe? You're wrong.

I was the victim of an epic hack. Here's what it taught me about the illusion of online security.

by Mat Honan

IoT 2.0 is here – and it too needs authorization

We have tough requirements for delegated authorization

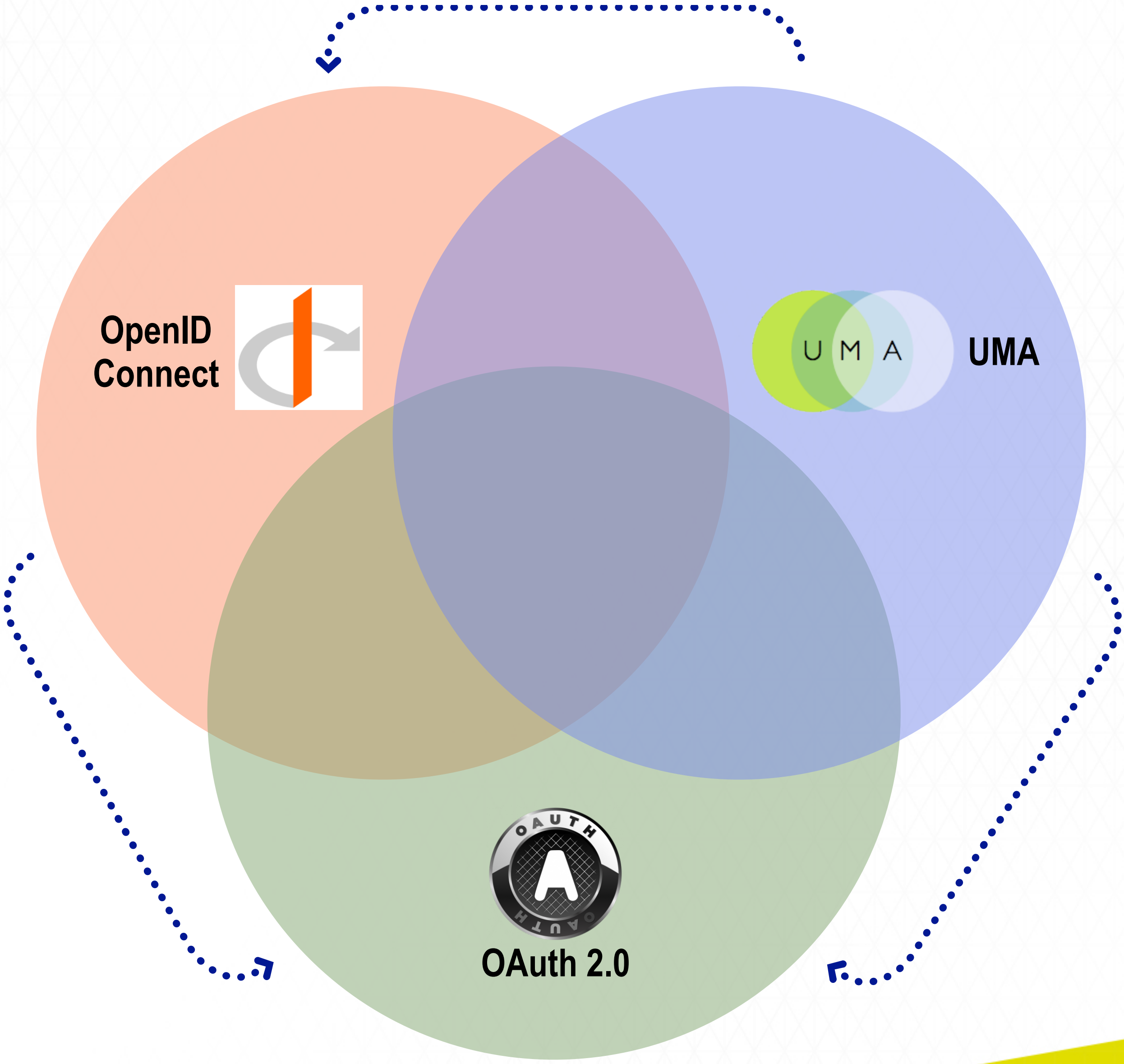
- Lightweight for developers
- Robustly secure
- Privacy-enhancing
- Internet-scalable
- Multi-party
- Enables end-user convenience

Introducing UMA

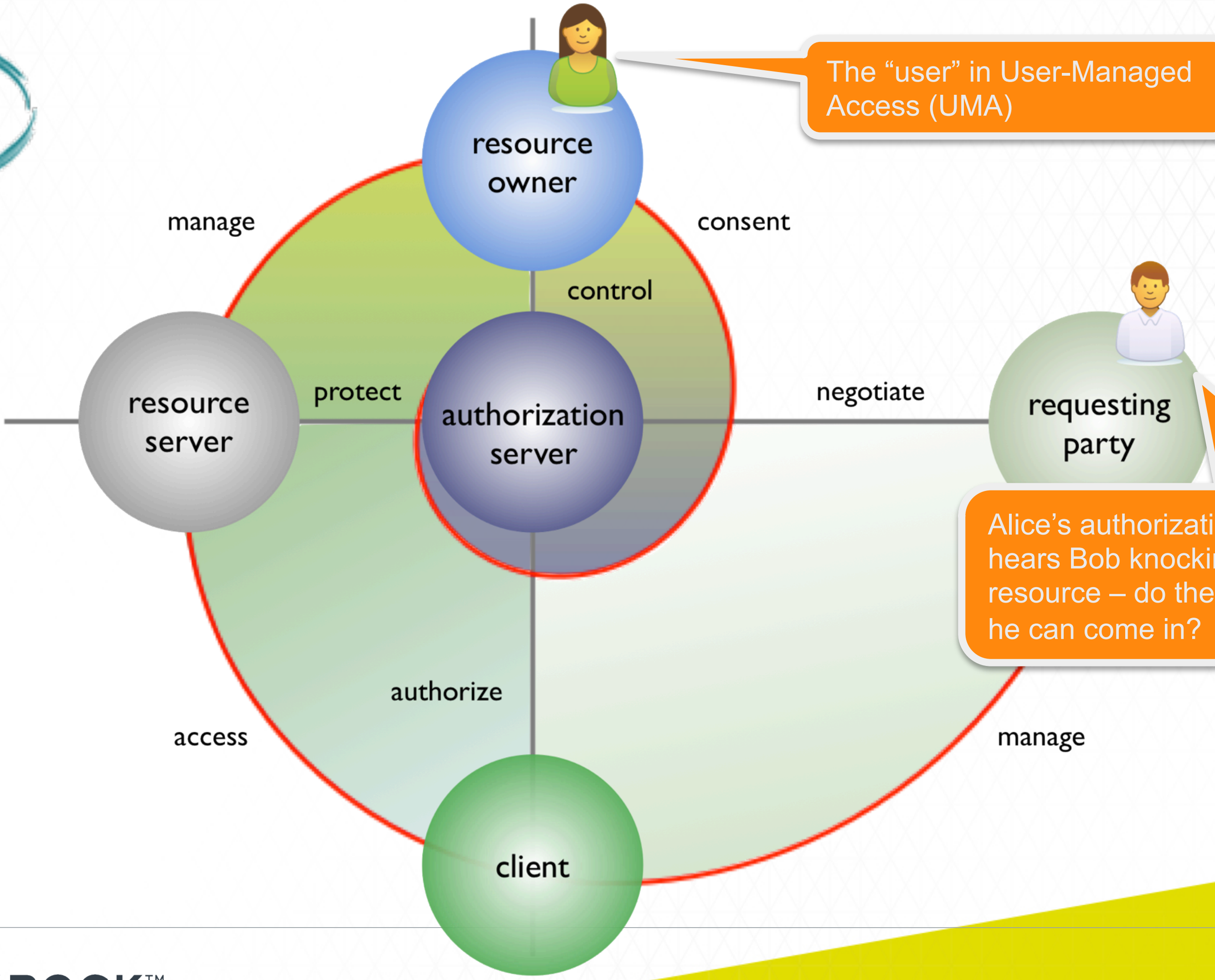
UMA in a nutshell

- It's a draft standard for "authorization V.next"
- It's a profile and application of OAuth V2.0
- It's a set of authorization, privacy, and consent APIs
- It's a Work Group of the Kantara Initiative
- It's not an "XACML killer"
- Founder, chair, and "chief UMAnitarian":
- It's heading to V1.0 in Q1 2015

The new Venn of access control



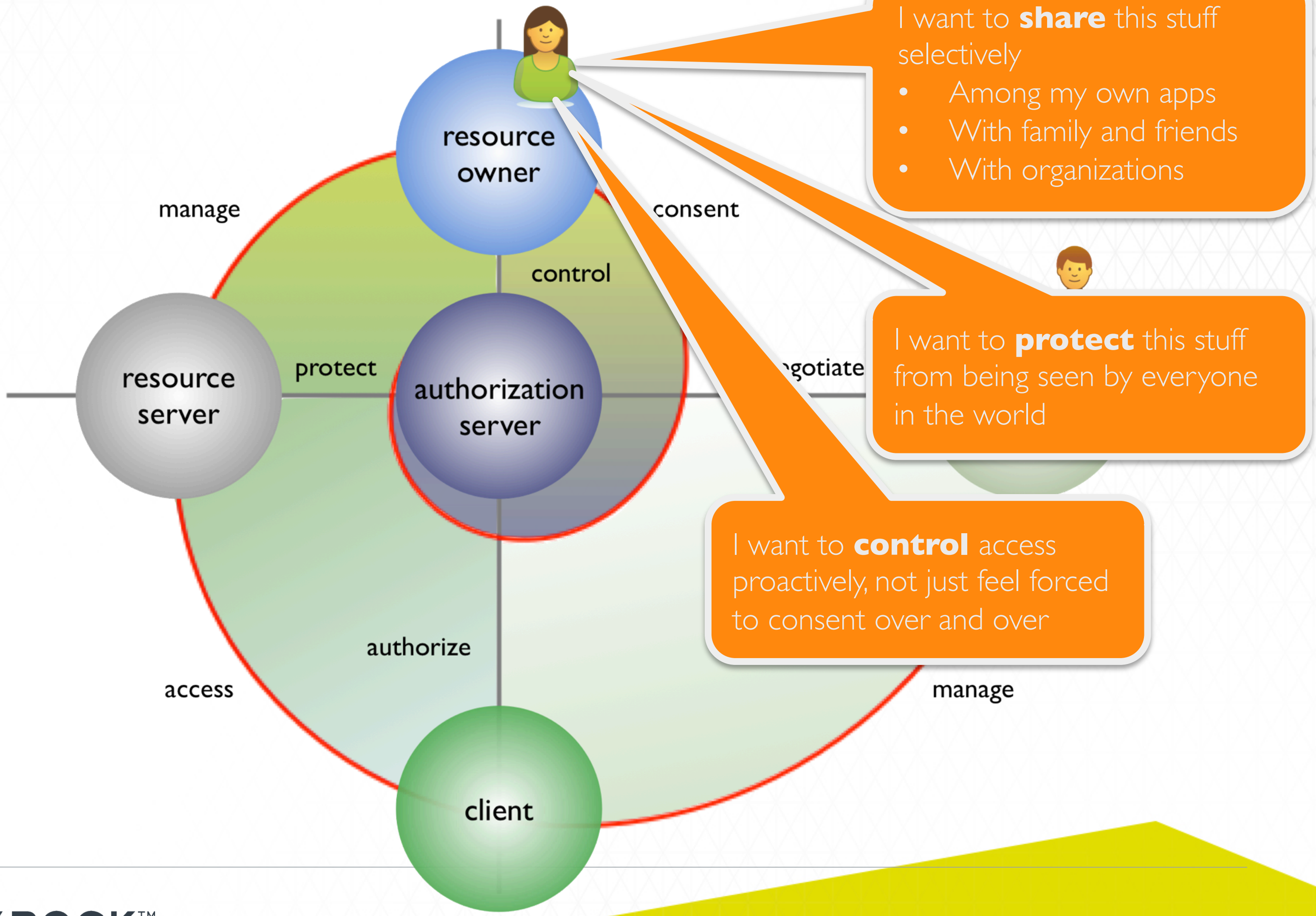
UMA turns online sharing into a Privacy-by-Design solution



The “user” in User-Managed Access (UMA)

Alice’s authorization service hears Bob knocking on the resource – do the rules say he can come in?

The UMA protocol enables key new use-case options



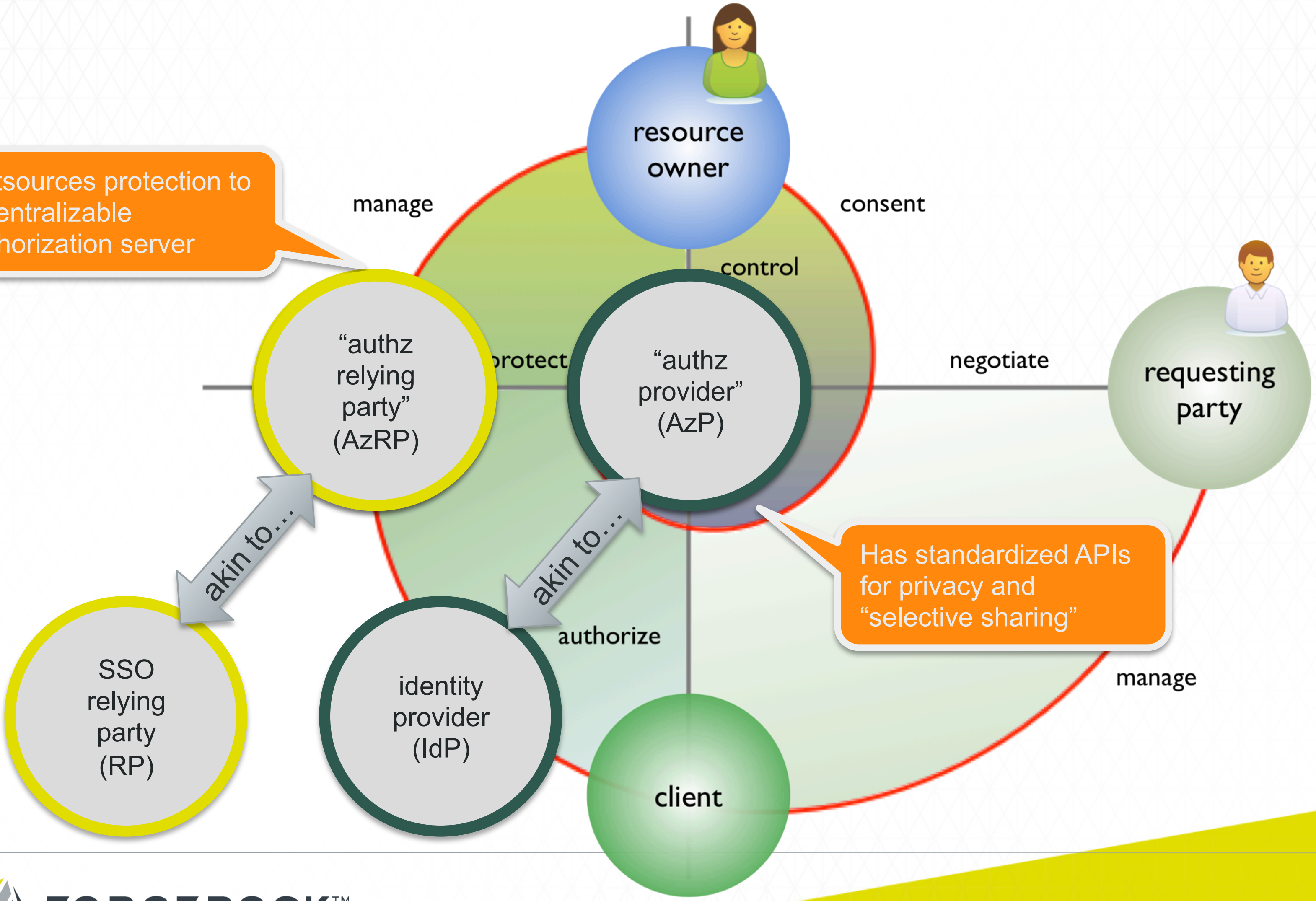
I want to **share** this stuff selectively

- Among my own apps
- With family and friends
- With organizations

I want to **protect** this stuff from being seen by everyone in the world

I want to **control** access proactively, not just feel forced to consent over and over

UMA is about interoperable, RESTful authorization-as-a-service



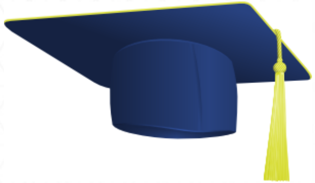
Outsources protection to a centralizable authorization server

Has standardized APIs for privacy and "selective sharing"

Use-case scenario domains

Health

Financial



Education

Personal

REPUBBLICA ITALIANA

MINISTERO DELLE FINANZE

CODICE FISCALE RSS MRA 70A41 F205Z

COGNOME ROSSI

NOME MARIA SESSO F

LUOGO DI NASCITA MILANO

PROVINCIA MI DATA DI NASCITA 01/01/1970

2009 Il Ministro delle Finanze

Government

Media

Behavioral

Web

Mobile

API

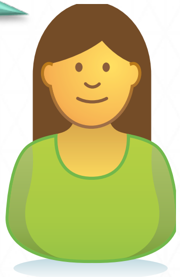
IoT

UMA-enabled systems can respect policies such as…

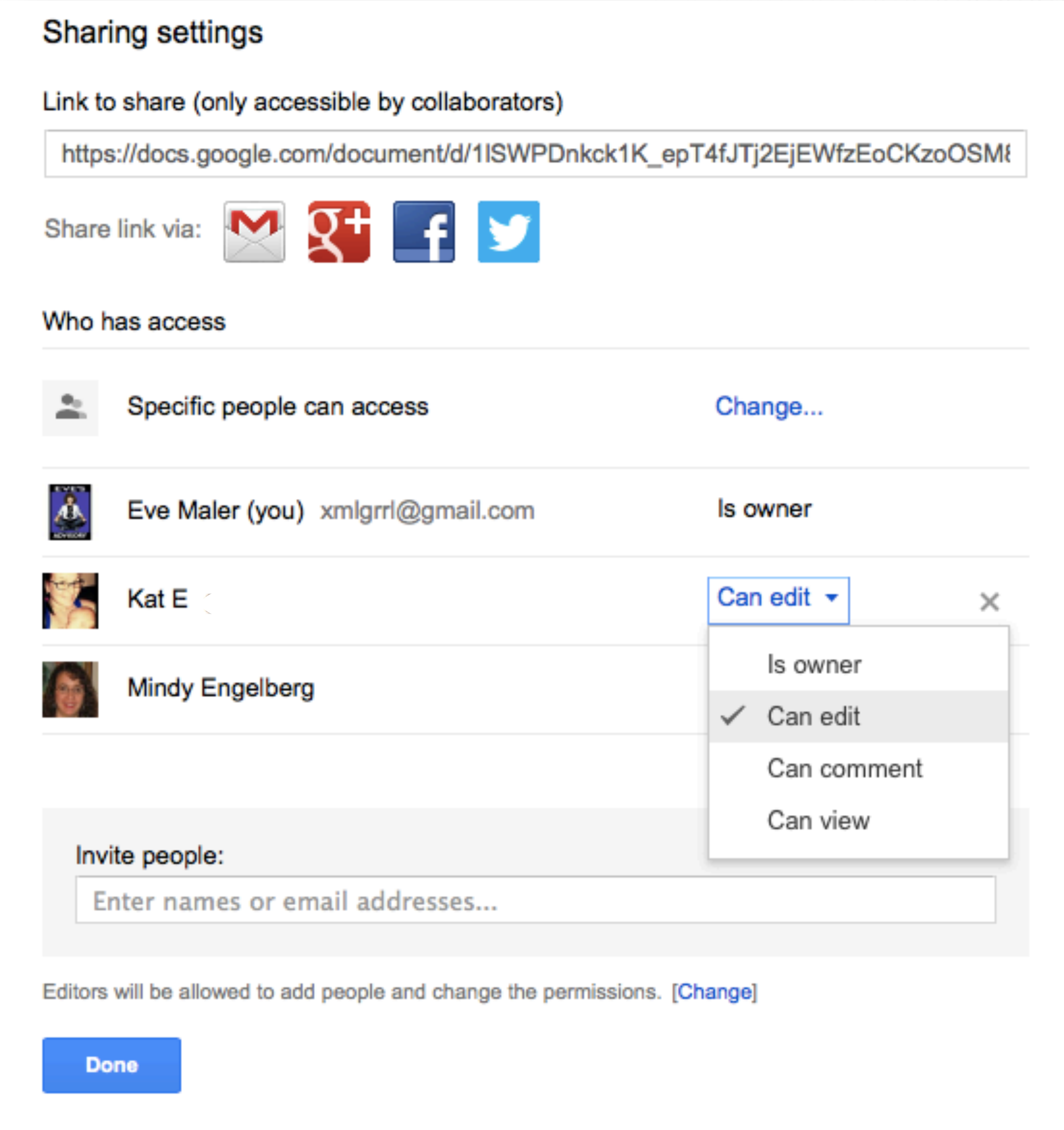
Only let my tax preparer with email TP1234@gmail.com and using client app **TaxThis** access my **bank account data** if they have **authenticated strongly**, and **not after tax season is over**.

Let my **health aggregation app**, my **doctor's office client app**, and the client for my husband's employer's **insurance plan** (which covers me) get access to my **wifi-enabled scale API** and my **fitness wearable API** to **read** the results they generate.

When a person driving a vehicle with an **unknown ID** comes into contact with my **Solar Freakin' Driveway**, alert me and **require my access approval**.



The user experience can simulate OAuth or proprietary sharing paradigms, or even be invisible ("better than OAuth")



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Kat E — Can edit ▾ ✕

Mindy Engelberg

- Is owner
- ✓ Can edit
- Can comment
- Can view

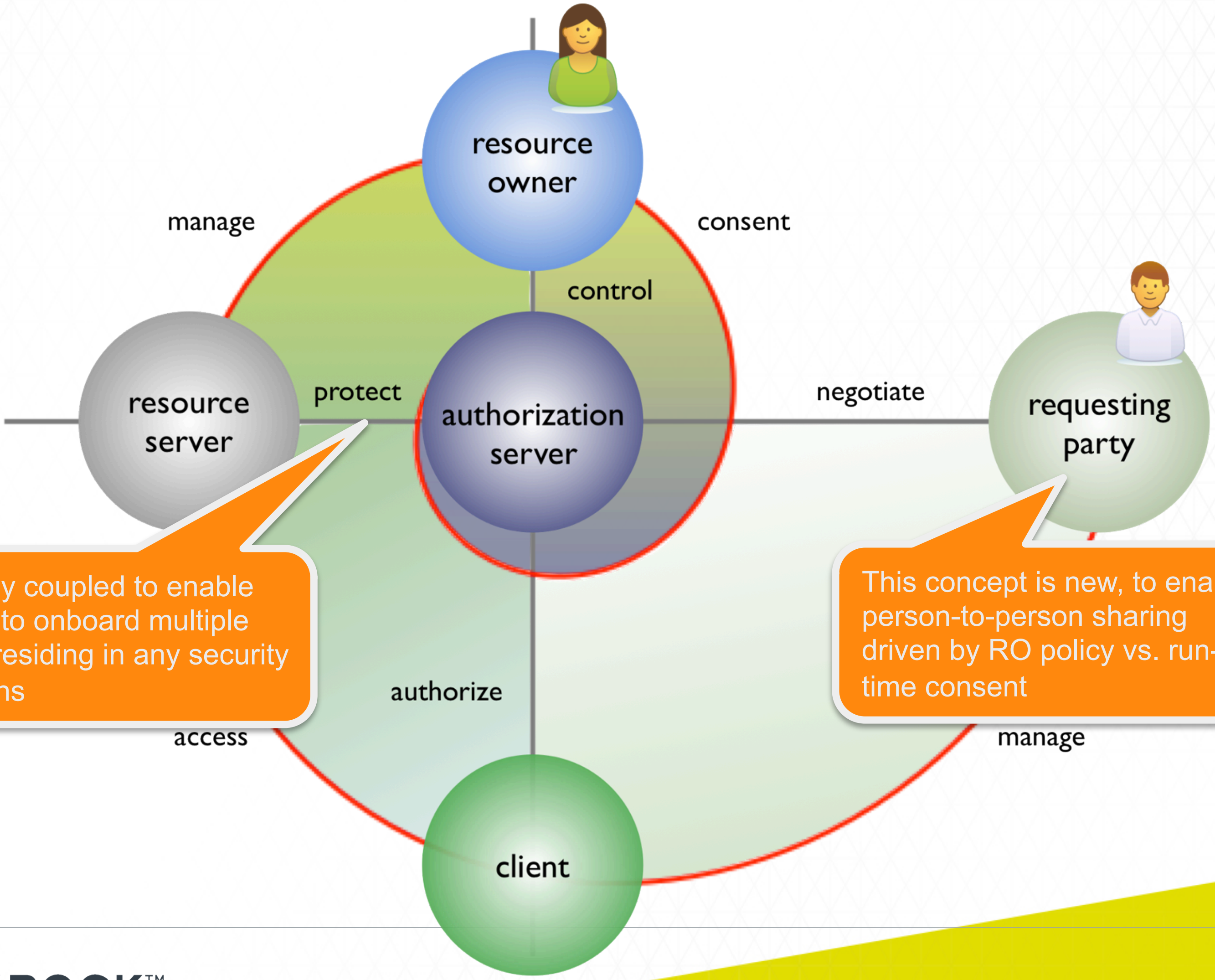
Invite people:

Enter names or email addresses...

Editors will be allowed to add people and change the permissions. [Change]

Done

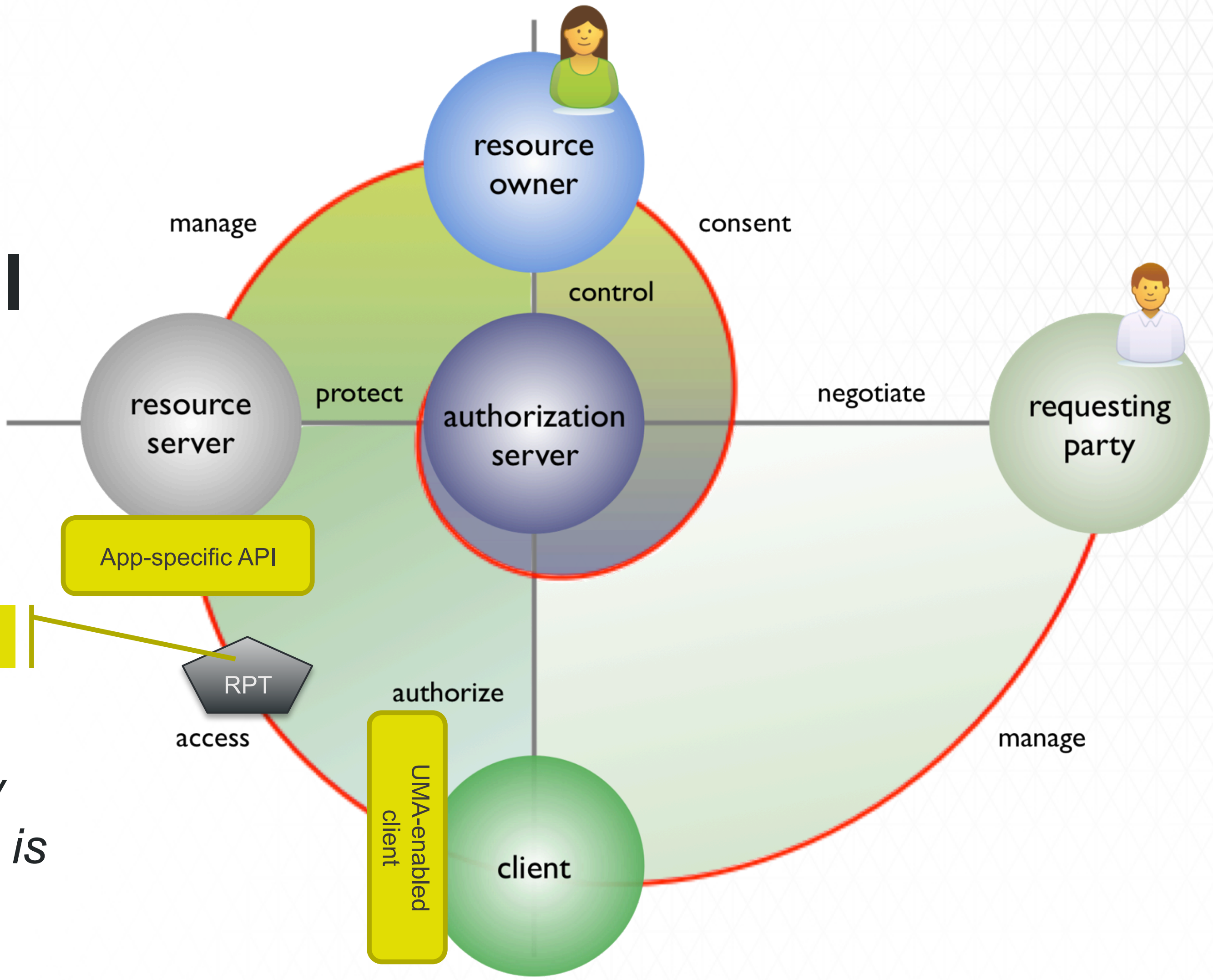
Under the hood, it's "OAuth++"



Loosely coupled to enable an AS to onboard multiple RS's, residing in any security domains

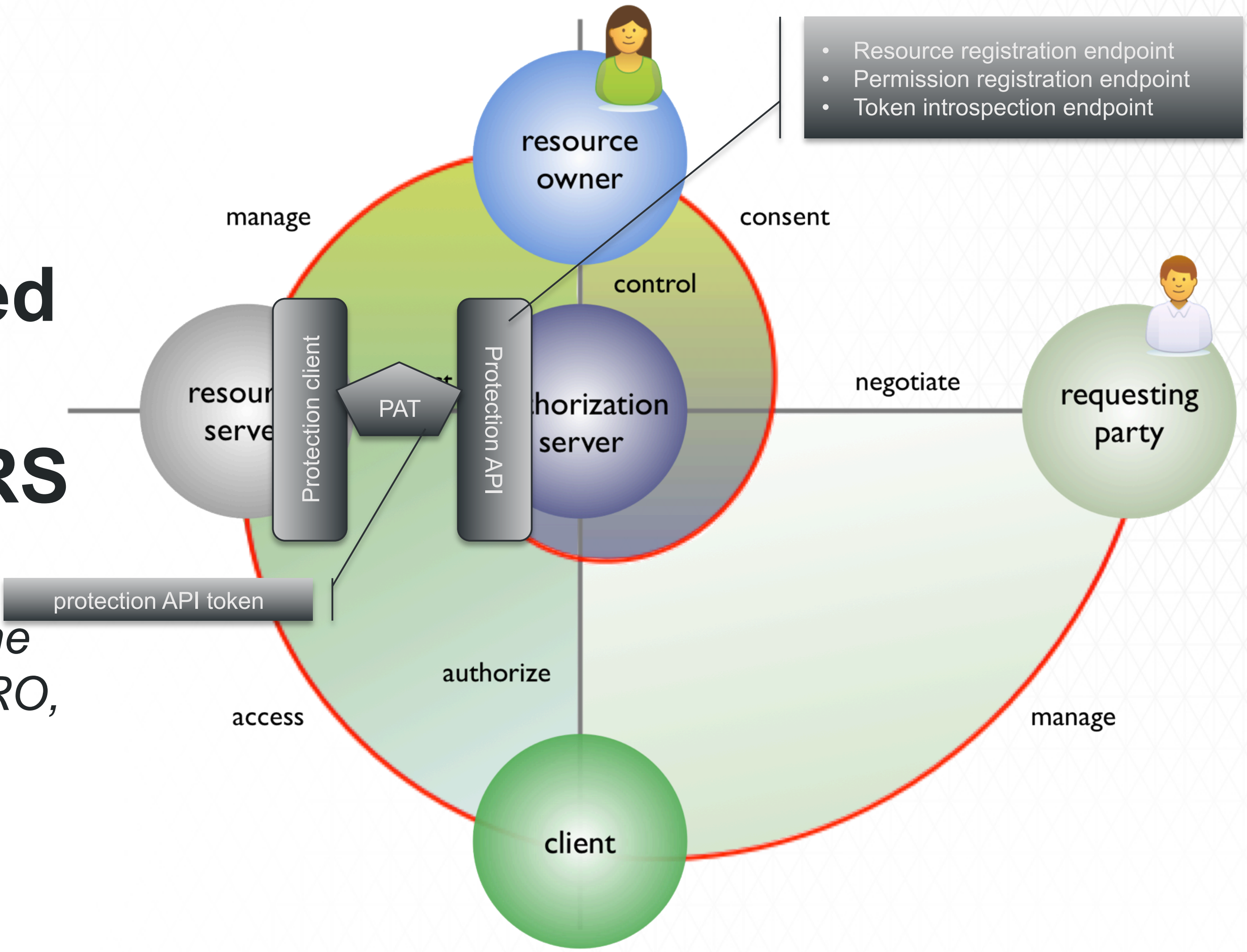
This concept is new, to enable person-to-person sharing driven by RO policy vs. run-time consent

The RS exposes whatever value-add API it wants, protected by an AS



The RPT is the main "access token" and (by default – it's profilable) is associated with time-limited, scoped permissions

The AS exposes an UMA-standardized protection API to the RS

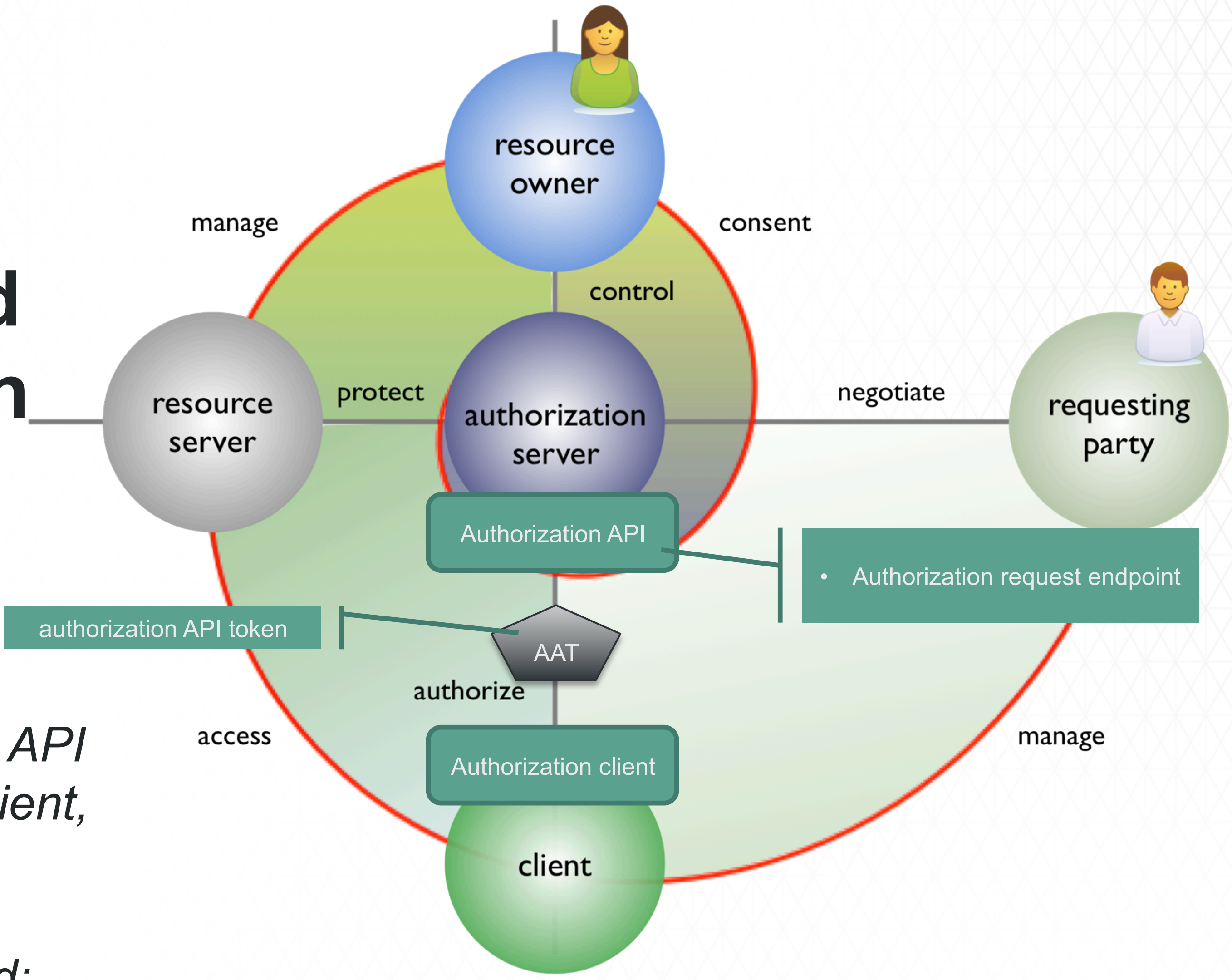


- Resource registration endpoint
- Permission registration endpoint
- Token introspection endpoint

protection API token

The PAT protects the API and binds the RO, RS, and AS

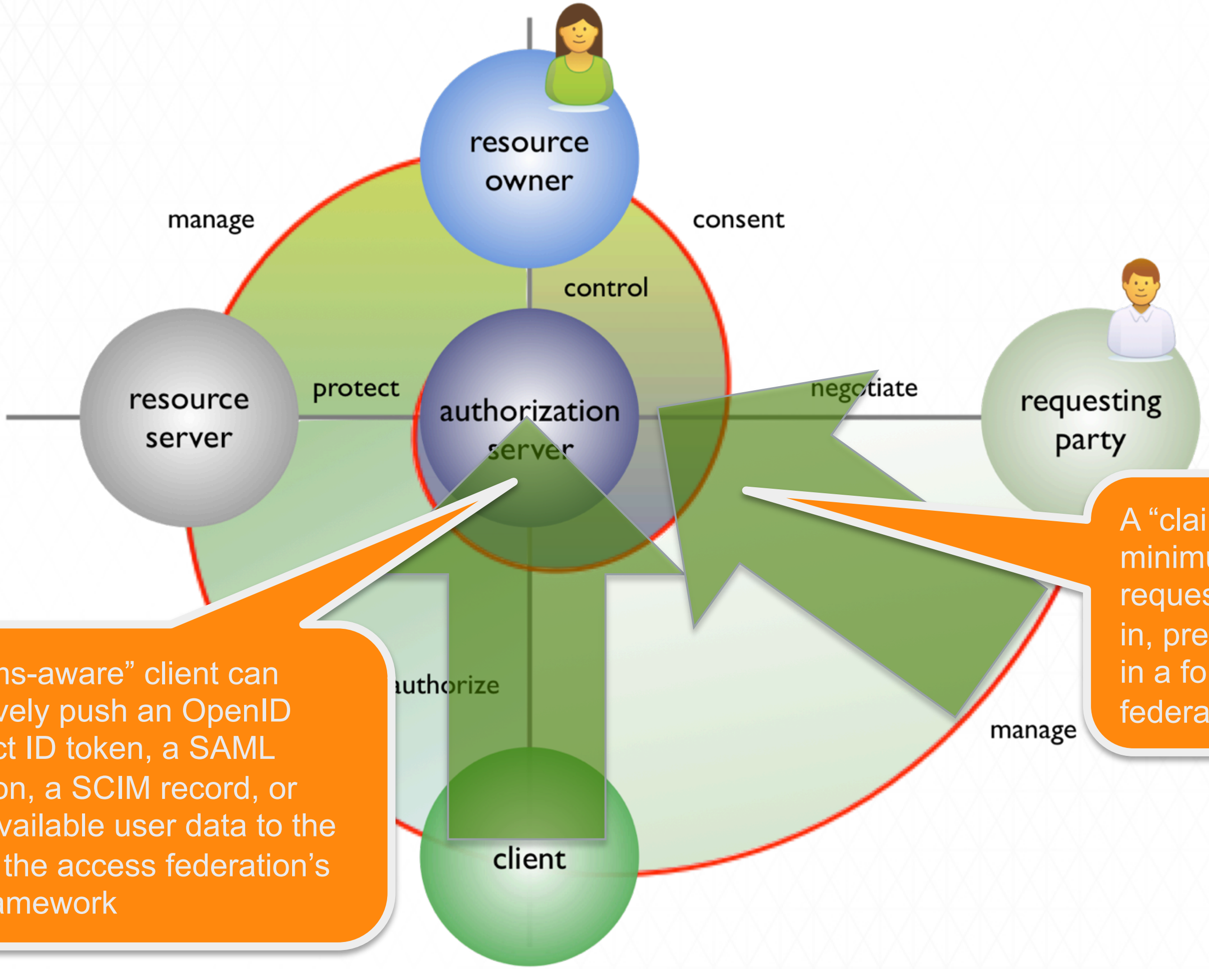
The AS exposes an UMA-standardized authorization API to the client



The AAT protects the API and binds the RqP, client, and AS

The client may be told: "need_claims"

The AS can collect requesting party claims to assess policy



A “claims-aware” client can proactively push an OpenID Connect ID token, a SAML assertion, a SCIM record, or other available user data to the AS per the access federation’s trust framework

A “claims-unaware” client can, at minimum, redirect the requesting party to the AS to log in, press an “I Agree” button, fill in a form, follow a NASCAR for federated login, etc.

UMA enables business logic centralization, even for “classic” access management

Business SaaS SSO today:

- Company X contracts with Salesforce.com
- Employees SSO in from web or native app, passing in role/group attributes
- Company X’s policies at SFDC govern what features users can access
- Company Y does the same at SFDC, etc.
- Company X does the same at Concur, etc.

Central authz tomorrow:

- Company X runs an UMA AS
- SFDC’s UMA RS onboards to that AS and respects UMA tokens issued by it, containing entitlements based on Company X’s policies
- Company X’s keeps central policies for SFDC, Concur, etc. (authoritative “AzP” respected each “AzRP”)
- Company Y keeps central policies for SFDC, Concur, etc. (a different authoritative “AzP” respected by each “AzRP”)

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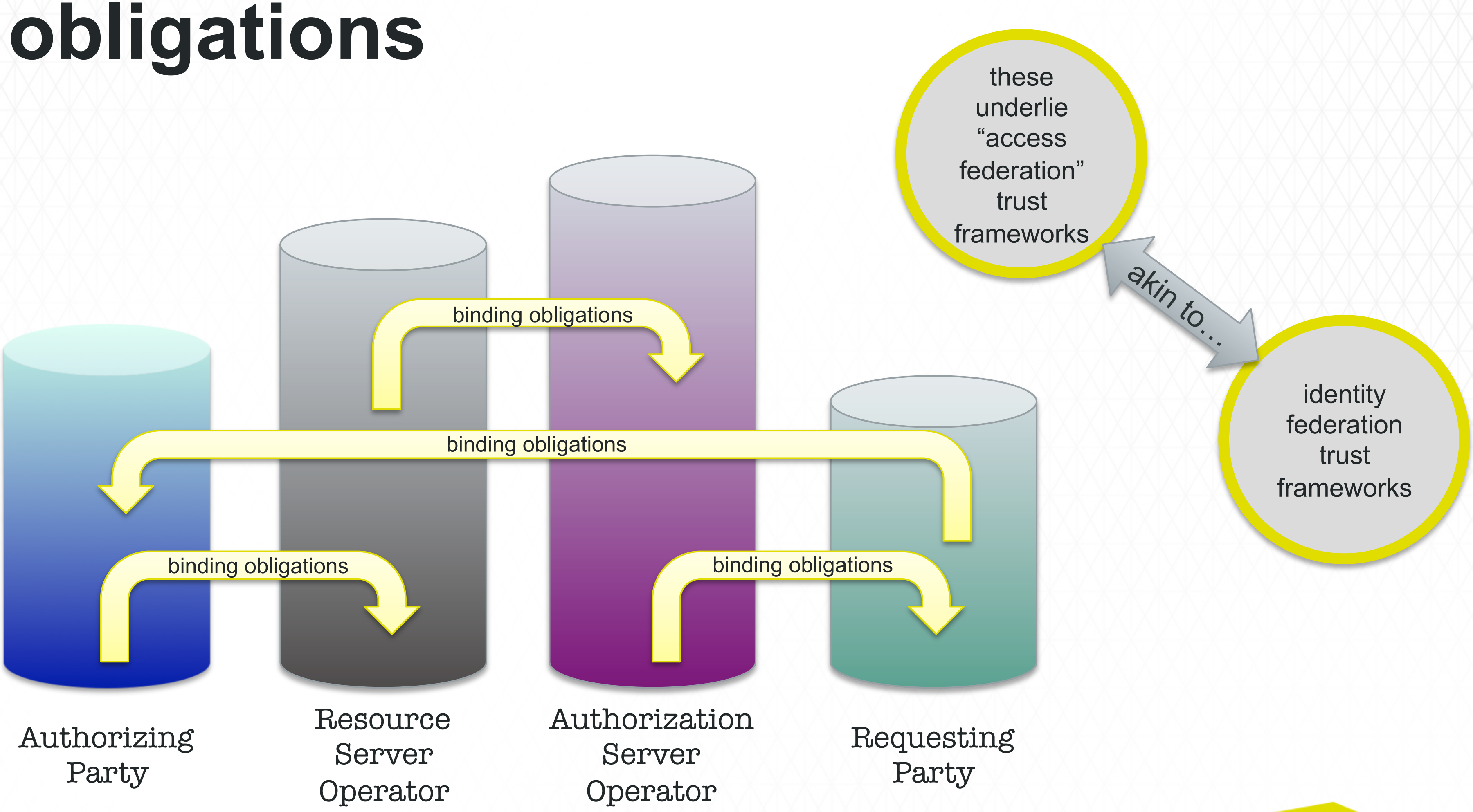
The UMA consent model supports robustly partitioned rights and obligations



Conclusion and next steps

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Thank you!

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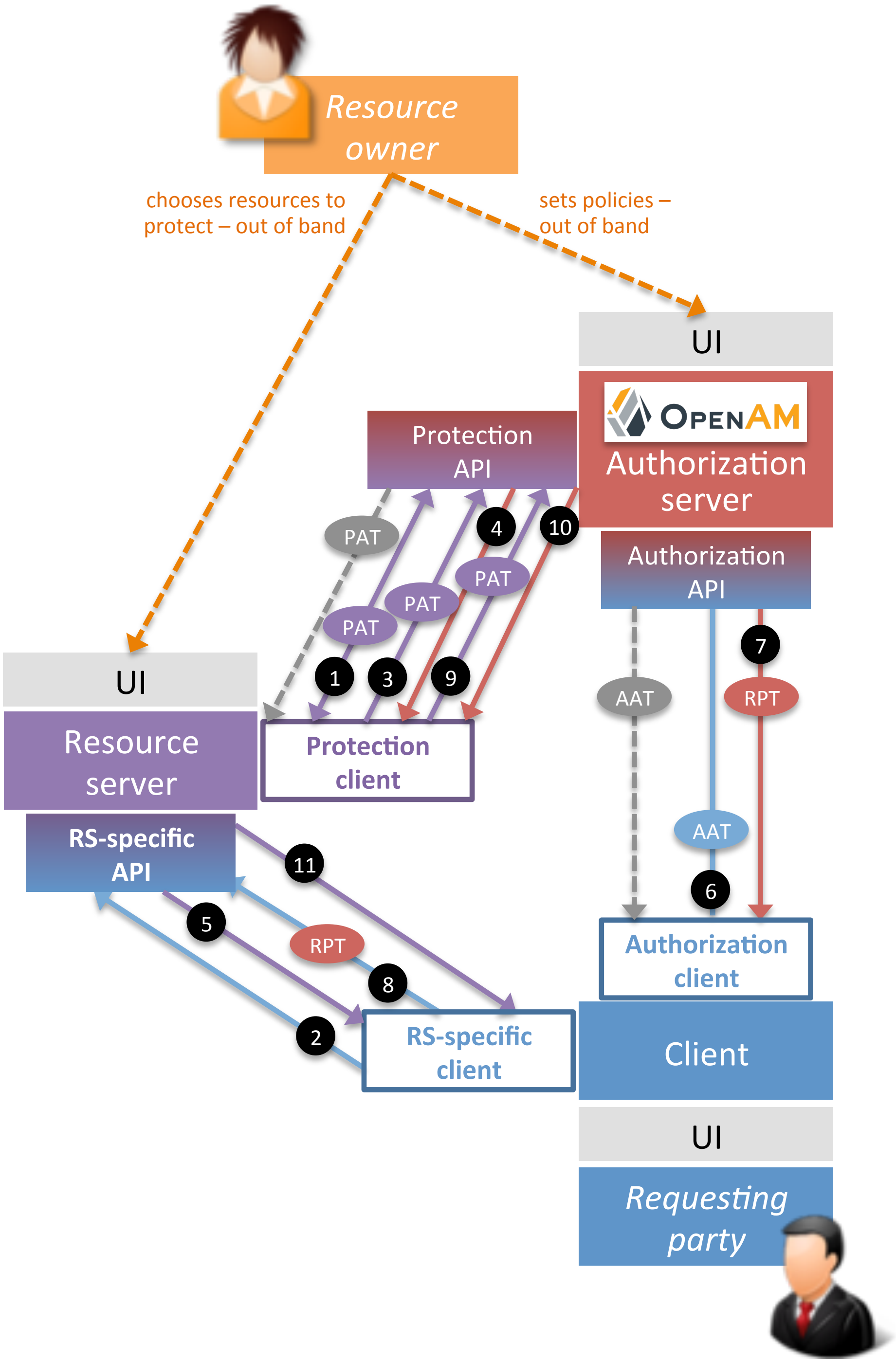
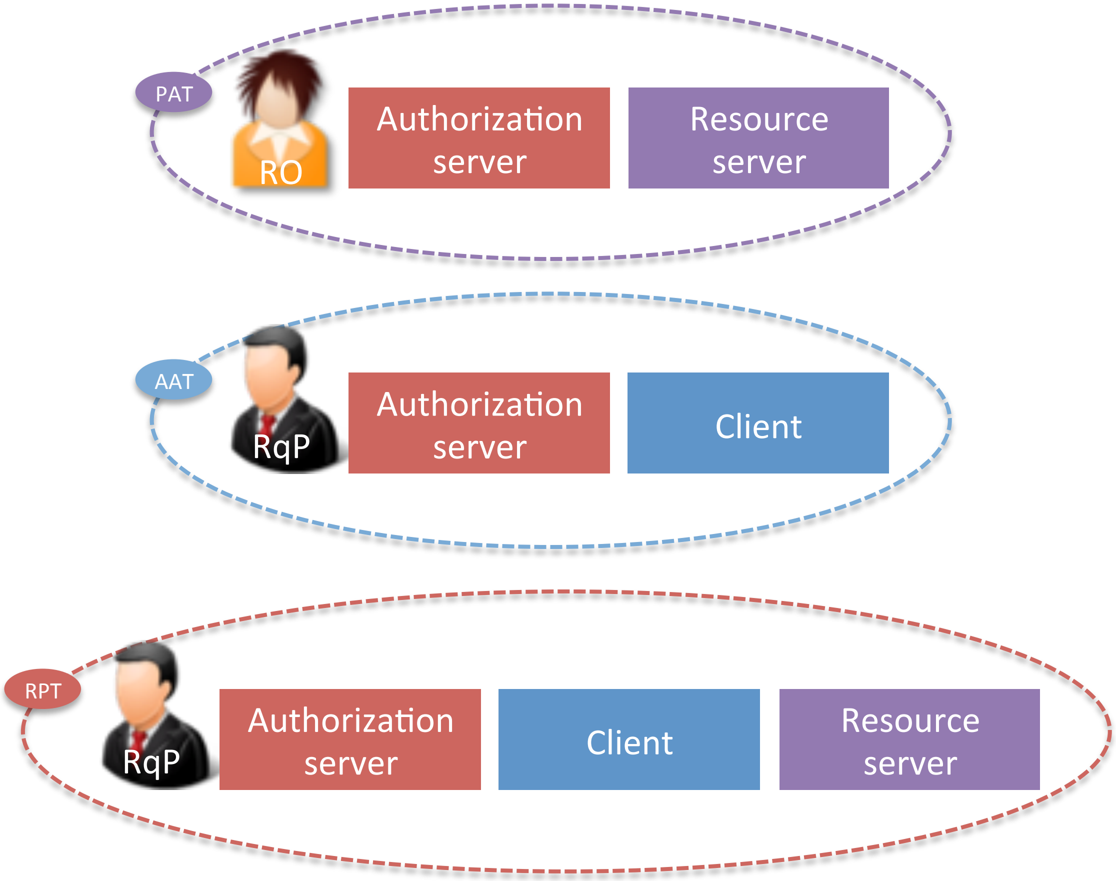
Appendix:
The gory UMA details



RS needs OAuth client credentials at AS to get PAT
C needs OAuth client credentials at AS to get AAT
All protection API calls must carry PAT
All authorization API calls must carry AAT

1. RS registers resource sets and scopes (ongoing – CRUD API calls)
2. C requests resource (provisioned out of band; must be unique to RO)
3. RS registers permission (resource set and scope) for attempted access
4. AS returns permission ticket
5. RS returns error 403 with as_uri and permission ticket
6. C requests authz data, providing permission ticket
7. (After claims-gathering flows not shown) AS gives RPT and authz data
8. C requests resource with RPT
9. RS introspects RPT at AS (if using default “bearer” RPT profile)
10. AS returns token status
11. RS returns 20x

Tokens and the tuples they represent


PAT
RO
Authorization server
Resource server
AAT
RqP
Authorization server
Client
RPT
RqP
Authorization server
Client
Resource server