



Consent-informed Attribute Release (CAR): Fixing the Attribute Crisis

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Topics

---- Ken -----

- The problem set and resulting requirements
- The Scalable Consent work
- The CAR architecture – a brief look under the hood and at the two UX
- Positive outcomes
- CAR Management capabilities – how it performs

---- Rob -----

- Demos
 - Cilogon – key national cyberinfrastructure and an attribute responsive app
 - LIGO wiki – an international collaboration
 - User managing their consent choices
- The Duke experience

---- Questions -----

The Problem Set

- A growing set of federated identity challenges
 - Attribute release for R&S and other needs
 - GDPR, the EU privacy regulations
 - Institutional desires for transparency
 - Serving other consent needs, such as in Oauth and OpenId
 - Providing the capstone UI for federated identity – the original placemat
- Results in a set of requirements that motivates CAR
 - Consent-informed attribute release as a IAM service, with tight integration points to Shib IdP
 - Integration of institutional and individual release preferences in a flexible manner
 - A well-engineered UX that allows users and organizations effective, but not intrusive, tools for managing consent decisions both in real-time and while they are away.

GDPR (General Data Protection Regulation)

- Created by EU to manage data protection uniformly across the EU
 - Is binding for every member EU nation
 - With many global impacts
- Passed in 2016, becomes operational May 25, 2018.
- Covers a vast waterfront of issues from tracking to attribute release to right to be forgotten to data breaches to . . .
- Consists of a set of rules (Articles) and then example interpretations of the rules in key areas (Recitations)
- Penalties of up to 4% of global revenue
- Identifies six reasons for attribute release, including contract, consent, national security, legal actions, etc.
 - Specifies when consent is not to be used, when it should be used, the quality of the consent, etc.
- It affects many, perhaps most, US institutions.

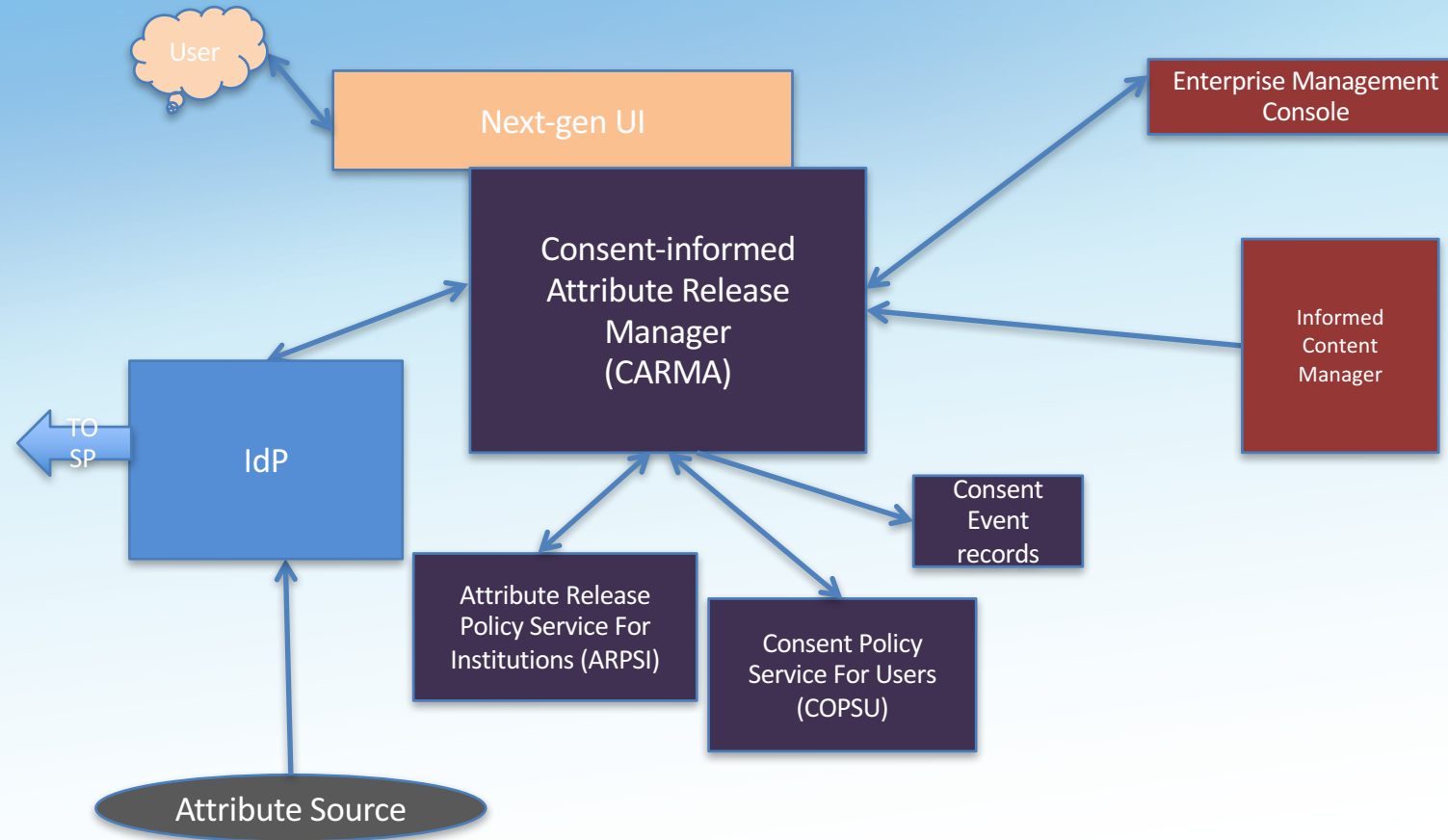
Scalable Privacy

- Multi-year grant by NIST to Internet2 as part of the NSTIC program
- Built on the approach of generalizing the R&E approach to federation and attributes e.g. MFA, citizen schema, fine-grain attribute release, scalable consent, etc.
- Helped drive MFA adoption in R&E
- Catalyzed CAR (Consent Informed Attribute Release)
- May have had influence on the plenary of NSTIC (IDESG) and the revised NIST 800-63 series
- <https://spaces.internet2.edu/display/ScalableConsent/Scalable+Consent+Home>

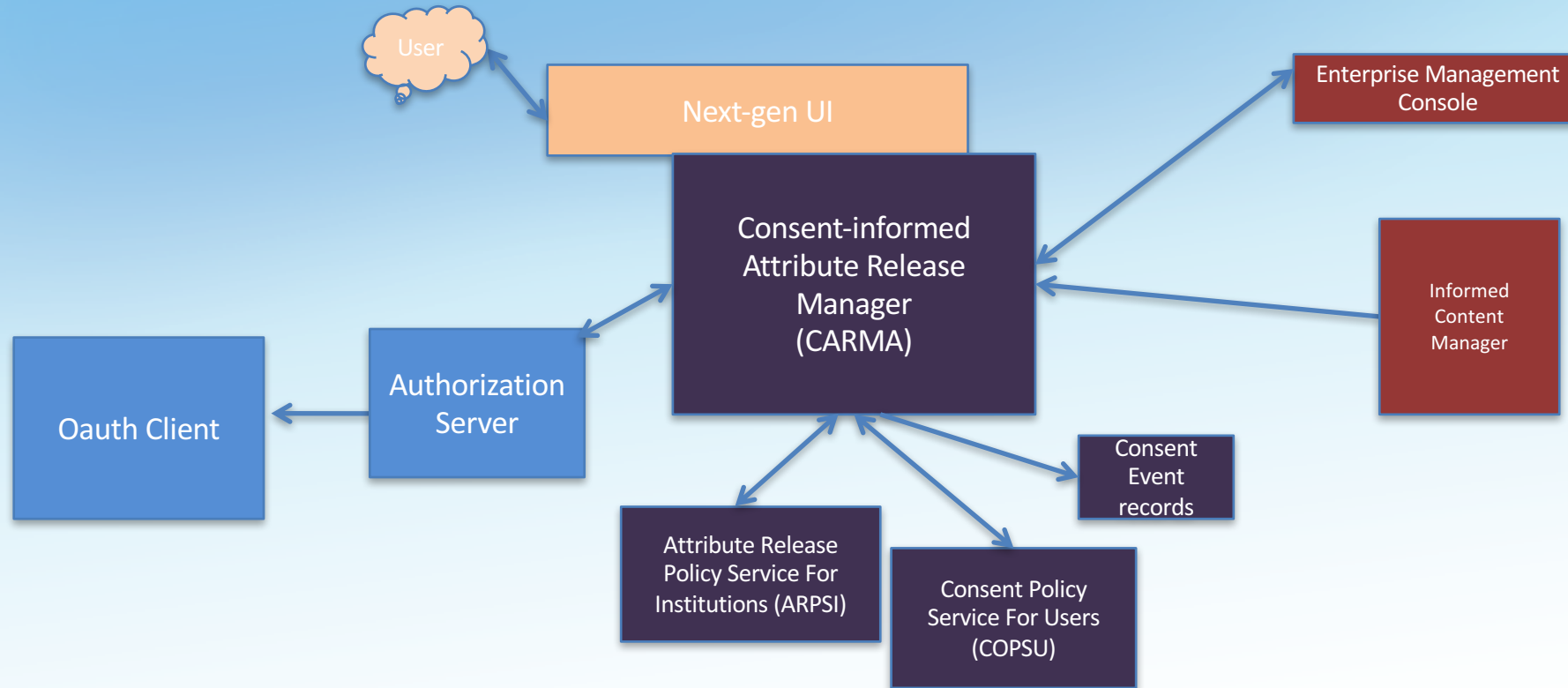
Consent-Informed Attribute Release (CAR)

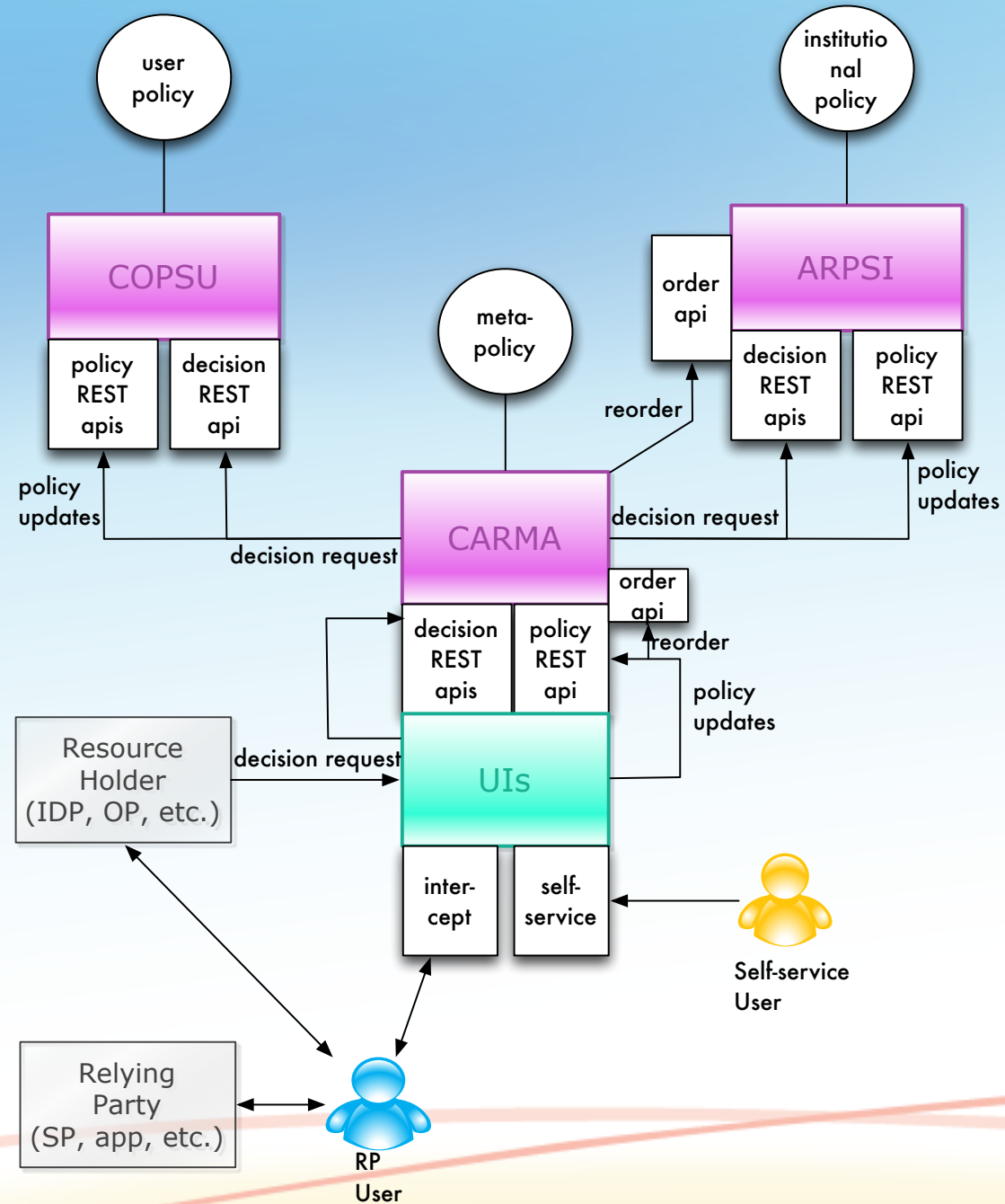
- A system of components that serves attribute release and consent needs across all protocols
 - OIDC and OAuth as well as Shib/SAML.
 - Integrates organizational and individual choices for attribute release
 - Support for user consent decisions that are informed, effective, revocable, accessible, etc.
- Includes UI/UX, enterprise and individual attribute release policy stores, individual and organizational admin interfaces, etc, all accessed through the CARMA API.
- Packaged as a TIER component, in the pipeline for TIER adoption

Under the hood: CAR in SAML use



Under the hood: CAR in OAuth use





User Experience

- UI/UX well researched, well-designed and well-tested. Includes
 - Device and browser independent. Device adaptive - works well with mobile apps. i18n and locale capabilities.
 - Fine-grain controls on attribute release (down to value level for multi-valued attributes), explanations, re consent options, friendly names and values, etc.
 - Capabilities to handle a wide range of policies, such as GDPR
- Two UI for the standard user
 - Intercept – the standard “transaction” interaction, with options to manage suppression of consent for the site again
 - Self-service – users manage their set of consent policies, including revocation, templates for new sites, and “while I’m away” options

Review what you are releasing to CILogon

CILogon is requesting information about you from your TIER record.

You may update your settings for CILogon:

- ✓ **PERMIT** Email Address (kjk@internet2.edu)
- ✓ **PERMIT** Legal Name - Last/Family (Klingenstein)
- ✓ **PERMIT** Name - First/Given (Legal) (Ken)
- ✓ **PERMIT** Name - Full (Preferred) (Ken Klingenstein)
- ✓ **PERMIT** Scoped NetID (kjk1@tier.internet2.edu)

EDIT THESE CHOICES

CONTINUE WITHOUT EDITING

CILogon

CILogon facilitates secure access to CyberInfrastructure (CI).

[privacy policy](#)



Update your preferences: [Consent Manager](#)

Secure <https://carma.testbed.tier.internet2.edu/car/reflex2>

Review what you are releasing to CILogon

CILogon is requesting information about you from your TIER record.

What would you like to release to CILogon?


<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> DENY	Email Address (kjk@internet2.edu)
<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> DENY	Legal Name - Last/Family (Klingenstein)
<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> DENY	Name - First/Given (Legal) (Ken)
<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> DENY	Name - Full (Preferred) (Ken Klingenstein)
<input checked="" type="checkbox"/> PERMIT	<input type="checkbox"/> DENY	Scoped NetID (kjk1@tier.internet2.edu)

[Hide -](#)

Choose one:

- Save my choices; don't show me this screen again unless necessary.
- Save my choices, but show me this screen next time.
- Don't save the choices I made just now. Show me this screen next time.

CANCEL ✕ **ACCEPT AND CONTINUE** >

CILogon
CILogon facilitates secure access to CyberInfrastructure (CI).
[privacy policy](#)


Update your preferences: [Consent Manager](#)

My Sites

logged in as [kjk1@tier.internet2.edu](#)

Manage what information will be shared with these sites:

TIER

Name	URL	Updated	
CILogon	cilogon.org	05/30/2017	manage
G??ANT Service Provider Proxy	terena.org	05/01/2017	manage
Internet2 Collaboration Wiki Spaces	spaces.internet2.edu	05/18/2017	manage
LIGO Wiki	wiki.ligo.org	05/02/2017	manage
TIER CARMA	carma.testbed.tier.internet2.edu	06/15/2017	manage

New Site Policy

[Manage defaults for what information is shared with new sites](#)

Manage information sharing for CILogon

[logged in as Ken Klingenstein](#)

Information Requested by CILogon

You can choose whether the following information is shared with CILogon:

Attribute	Current Value	Current Choice	Duke Recommends
Name - Full (Preferred)	Ken Klingenstein	permit	permit
Scoped NetID	kjk1@tier.internet2.edu	permit	permit
Name - First/Given (Legal)	Ken	permit	permit
Email Address	kjk@internet2.edu	permit	permit
Legal Name - Last/Family	Klingenstein	permit	permit
Additional Settings			
All other information If CILogon requests information not listed above	(any values)	askMe	askMe
While I'm Away If your choice above is "askMe" but you're not available to answer when CILogon requests information about you	(any values)	deny	deny

EDIT **CANCEL**

CILogon

CILogon facilitates secure access to CyberInfrastructure (CI).

[privacy policy](#)

Policy History

Updated: 05-30-17 09:46:16 AM

Policy Version: 5



What is Informed Content

- The fuel that drives effective and informed user consent decisions
- Limited, though extensible sets of marks, assessments, policies, etc. that are part of the UX
 - Icons for IdP and SP
 - SP IsRequired and Optional Attribute Needs
 - Display-names and display-values for attributes
 - Trustmark information
 - Explanatory application-specific dialogue boxes (e.g. why attribute is needed)
 - Privacy and third-party use policy pointer
 - Additional user-centric information feeds
 - Vetted, self-asserted, reputation systems, etc
 - Far-reaching insights - <https://arxiv.org/abs/1608.05661>

Positive Outcomes

- Initiating important policy conversations on campus
- Allowing users to manage consent across applications and consent as a service
 - Ability to offer organizational advice to user during consent
- Consistent, informed user consent experience across a variety of platforms and protocols
 - Good feedback from successive rounds of user testing
- Potential integration of institutional and individual attributes
 - Location, Emergency contact and medical information, etc.
- Providing new options for accessibility
 - Accessibility with Privacy
- Extending organizational attribute release policy from directory/IdP to other systems of record with bio-demographic attributes.
 - Creates institutional policy repository and service for attribute release

Status and Next Steps

- HA, packaged in standard TIER Docker containers. Scheduled to go through alpha/beta/1.0 over the next 6-12 months. Moving from NIST supported down the path towards TIER support.
- CAR is readily integrated into the Shibboleth IdP v3, with it being called for institutional attribute release policy editing and as the decision point for attribute release per transaction
- Enhancements await – e.g. policy editors, more informed content
- The code is in pre-production stage.
 - Central functionalities implemented and tested
 - End-user UI under tweaking; admin and superadmin UI under development
- An operational version is available now for demos. A dabble version should be available by late summer. A deployable version should be available by TechX, but expect the usual chop at that point

Organizational Management for consent

- Policy administration tool
 - Will allow editing of organizational attribute release policies within a decentralized authority environment.
 - Aimed at use by policy administrators, sysadmins of SOR
- Superadmin tool
 - Will manage institution-wide settings
 - Logos and skinning
 - Managing when to reauthorize – e.g. change in value being released; change in RP privacy policy
 - Managing opaque values, sensitive attributes and values, blacklist and persona non grata attributes, friendly names and values
 - Can have additional layers of security
 - Aimed for use by IdP/CAR sysadmins and Resource Server (OAUTH/OIDC) admins
- Migration/maintenance toolkit
 - Repeatable mining/updating of informed content from SAML metadata
 - Generate “starter policies” from IDP configs (attribute-filter.xml)

Managing how to serve R&S and other release needs

- Sample R&S policy:
 - Faculty: Release by default to R&S RP; inform once; provide revocation options
 - Students: Use consent, with recommendations set by the institution
 - Recommendations can vary by student role, group membership, etc.
 - Provide management and revocation options
- Sample student policy:
 - “All students need to visit this alcohol education site. Only FERPA students need to see consent for this site, and we can present advice to them on what to consent to.”
- Policies can be set in a distributed fashion
 - E.g. students on a “manage as a VIP” list can be done by the person who handles students who are children of VIP’s and so subject to special considerations
 - The person who handles GDPR issues (e.g. sensitive attributes) can control those release/presentation issues.
- Time stamps and audit logs to document consent

COPSU (User Policy Repository)

```

student1@my.site
https://cilogon.org
PERMIT
eduPersonPrincipalName:user1@my.site
givenName:User
sn: One
DENY
displayName
AskMe
mail
    
```

ARPSI (Institutional Policy Repo)

```

Rank: 1
user
ePA={staff,faculty}
RP
R&S (InCommon)
Policy
eduPersonPrincipalName
.*: PERMIT
givenName
.*: PERMIT
sn
.*:PERMIT
displayName
.*: PERMIT
mail
.*@secure-mail.my.site: DENY
.*: PERMIT

Rank: 2
user
ePA={student}
RP
R&S (InCommon)
Policy
displayName
.*: PERMIT
givenName
.*: DENY
sn
.*: DENY
eduPersonPrincipalName
.*: PERMIT
mail
.*: PERMIT
    
```



CARMA (Combining Policy)

```

Rank: 5
user
ePA={staff,faculty}
RP
R&S (InCommon)
Policy
displayName, mail: COPSU
givenName,sn,eduPersonPrincipalName: ARPSI
-----
Rank: 8
user
ePA={student}
RP
entityId=.*
Policy
all_other_items: COPSU
    
```



Information	Value	Decision	Recommendation
UserName	student1@my.site	PERMIT	PERMIT
First Name	User	PERMIT	DENY
Last Name	One	PERMIT	DENY
Preferred Name	Yullie One	DENY	PERMIT
Email	123@my.site	ASK	PERMIT

Additional information

- Web sites –
 - CAR
 - <https://spaces.internet2.edu/display/CAR/CAR%3A+Consent-informed+Attribute+Release>
 - Scalable Consent
 - <https://spaces.internet2.edu/display/ScalableConsent/Scalable+Consent+Home>
 - TIER
 - <https://spaces.internet2.edu/display/TWGH/TIER+Working+Groups+Home>
- The CAR Team – Marlena Erdos, Rob Carter, Mary McKee, Ken Klingenstein