



The Green Button Initiative

white house inspired.
industry led.

In response to the Obama Administration's call to action, 150+ utilities and service providers commit to provide 60+ million homes and businesses with their own energy usage information in the consensus industry standard Green Button format
www.greenbuttondata.org



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Green Button Technology

-- Consistency

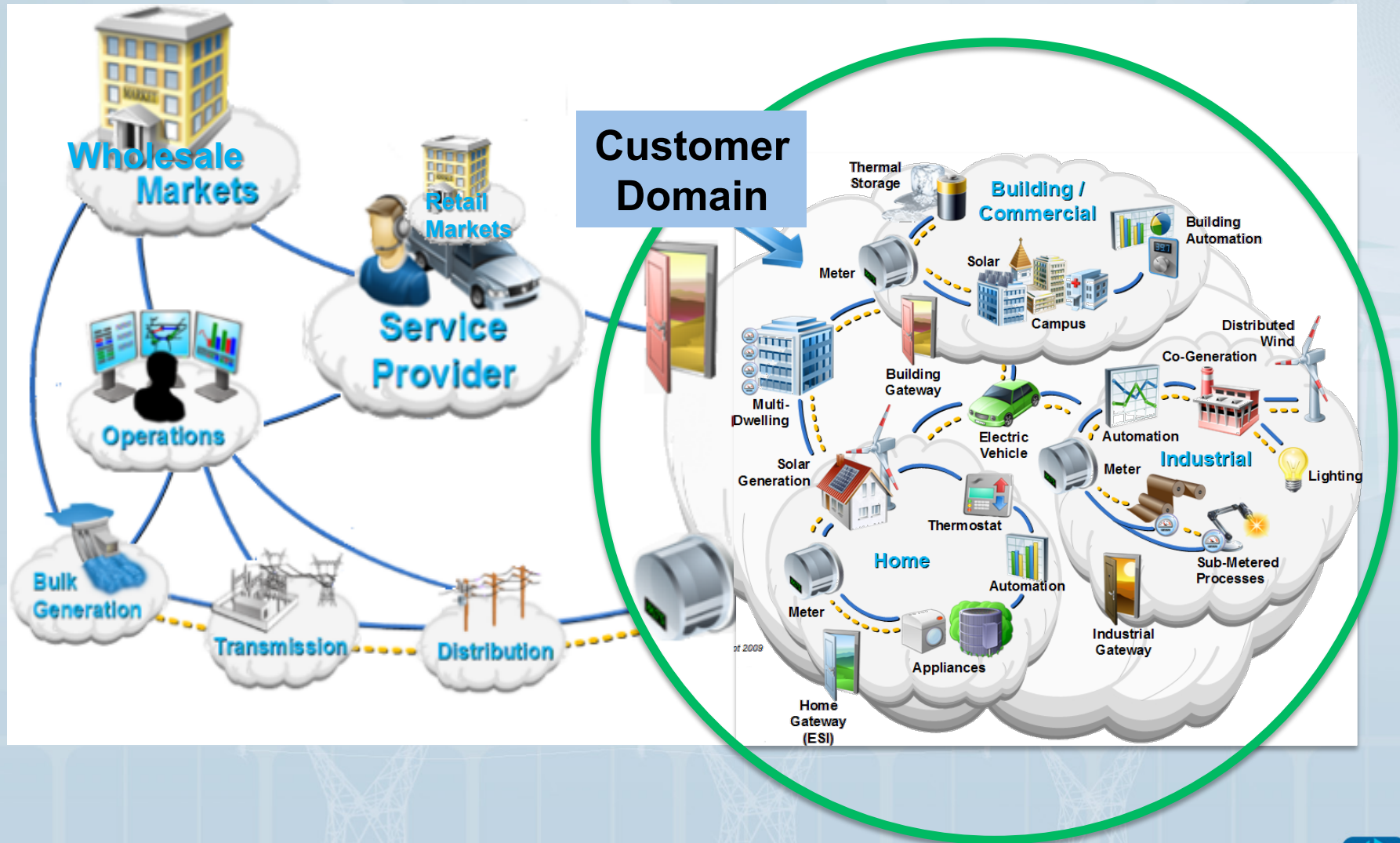
– Interoperability

- Scaling to Market





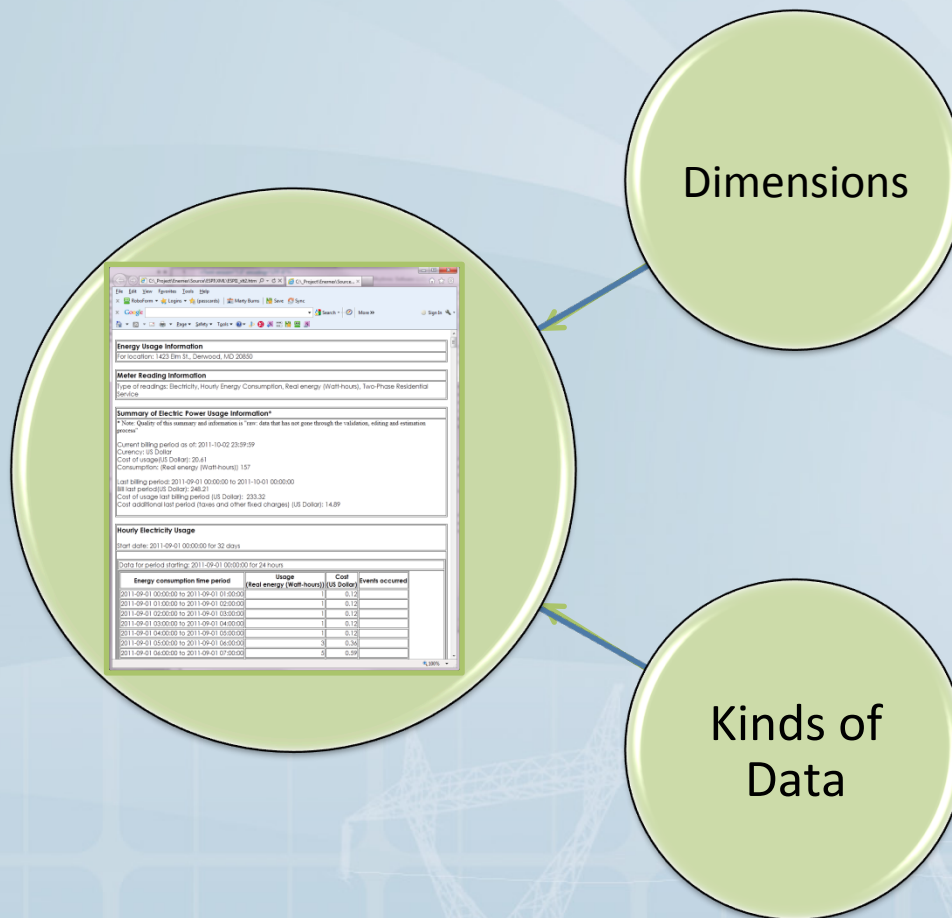
Customer Domain





Diversity of information in EUI

4



- Measurements of power, energy, gas, water, ...
- Quality: Raw, validated, estimated, ...
- Source: Meter near real-time, utility back end, third party
- Economics: Consumers need to know the cost of their consumed power (but we did not construct a pricing model)
- Identification: by customer, device, location
- Readings
- Interval data
- Summary Information
- Power Quality Metrics





Smart Grid Data Privacy: Voluntary Code of Conduct

- A multistakeholder process initiated by the US Department of Energy to develop a Voluntary Code of Conduct (VCC) for utilities and third parties providing consumer energy use services. The code will establish common practices that protect the access, use, and sharing of customers' electricity usage and related data.

- Participants: Utilities, consumer advocates, vendors, third parties, state and federal governments

- Key Elements

- Convened first meeting in Washington, D.C. in February 2013
- All meetings are open to the public and are webcast to ensure the widest participation possible.
- Intended to be applicable to, and voluntarily adopted by, both utilities and third parties
- VCC will be adopted in its entirety, but limited exceptions allowed (due to laws, regulatory guidance, governing documents) if clearly noted.
- Work Groups have been established and are in the process of drafting principles.
- Expected completion in 2014

Work Groups

- Mission Statement
- Notice/Awareness
- Choice/Consent
- Access/Participation
- Integrity/Security
- Management/Redress

Slides courtesy of Eric Lightner,
DOE OE (Office of Electricity
Delivery and Energy Reliability)



Consumer Privacy Seal



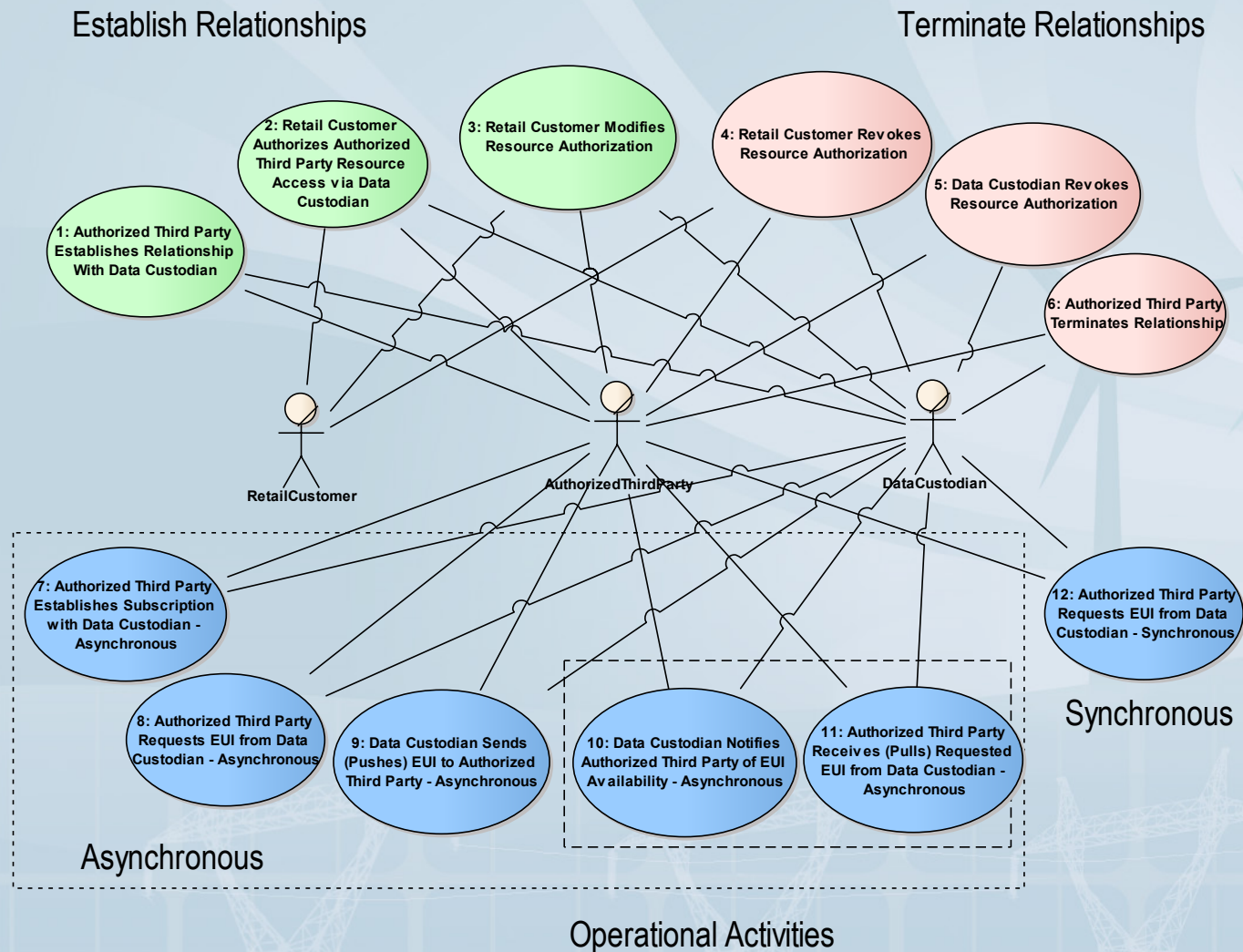
- Third party access to consumer energy data enables a wide range of benefits, but also raises legitimate concerns
- Responsible companies that provide exciting new products and services such as home security, smart appliances, remote home management will generate positive consumer interest and help advance consumer engagement with energy management, demand response and smart meters.
- It is essential that a flexible framework exists that ensures consumer privacy protections are in place and that responsible businesses can responsibly access the data needed to serve consumers.
- Risk to utilities, consumers if inadequate process for obtaining consumer permission
- Risk to consumer engagement and innovation if consent process is burdensome and ineffective

To learn more visit www.truste.com/smartgrid



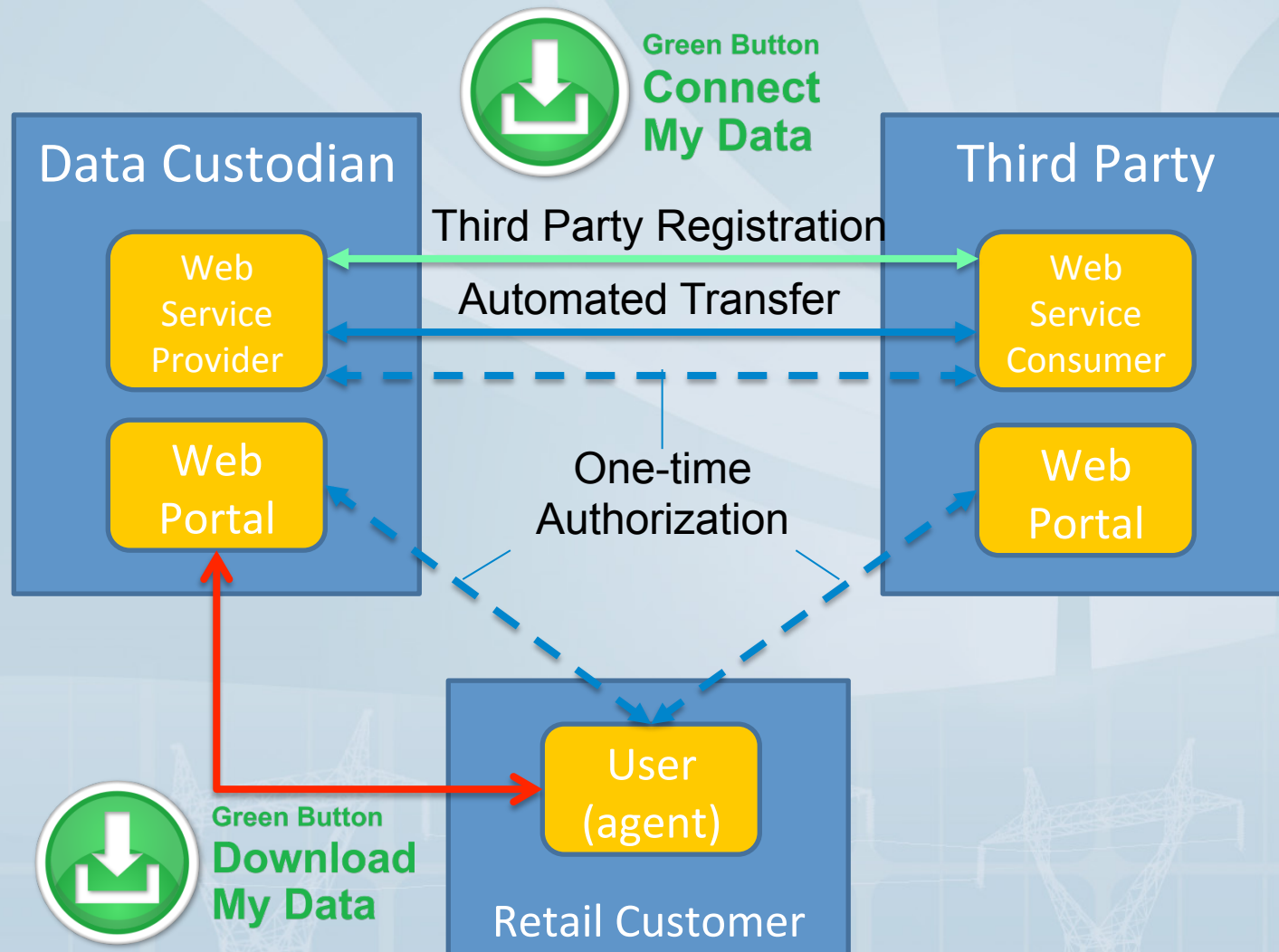


Green Button Connect My Data



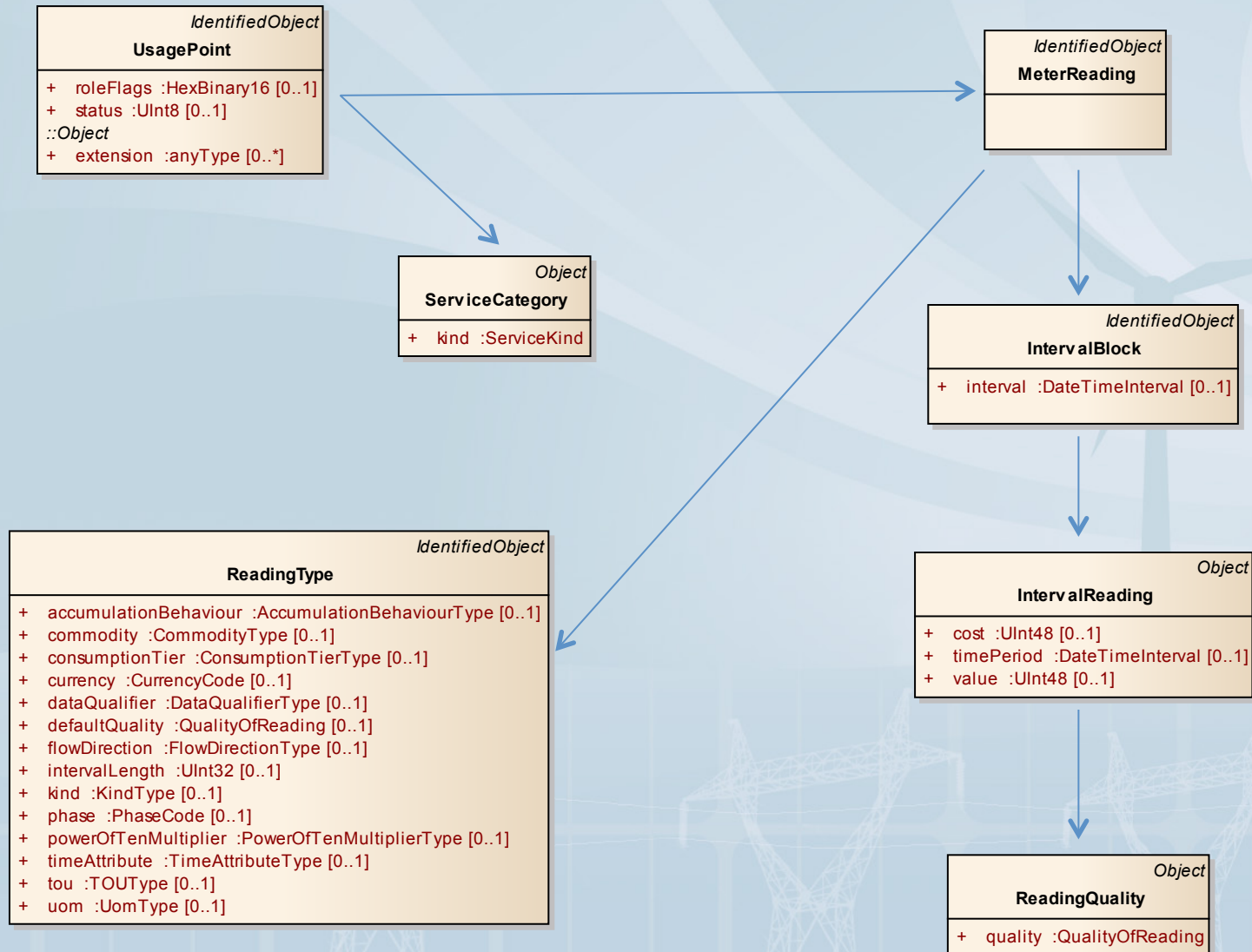


Green Button Data Exchange





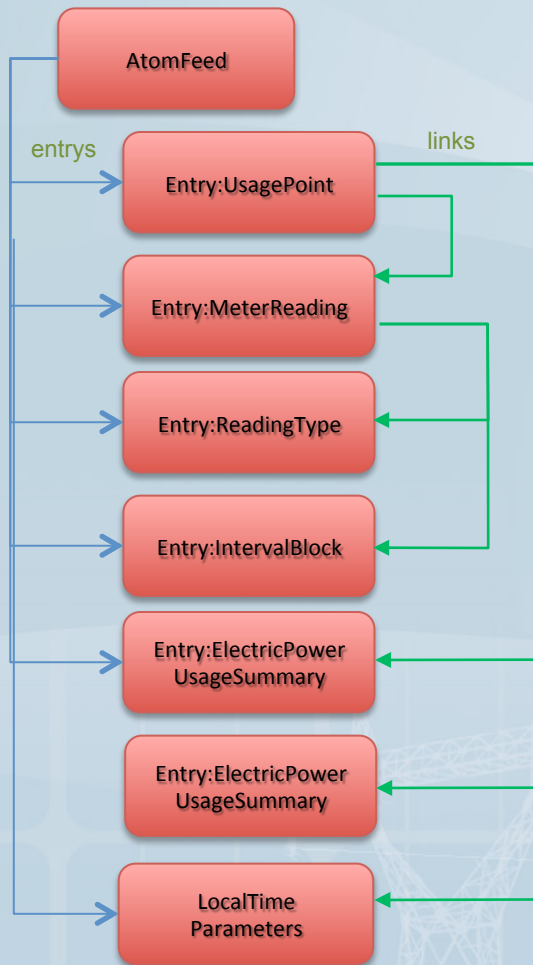
NAESB ESPI REQ.21 aka Green Button



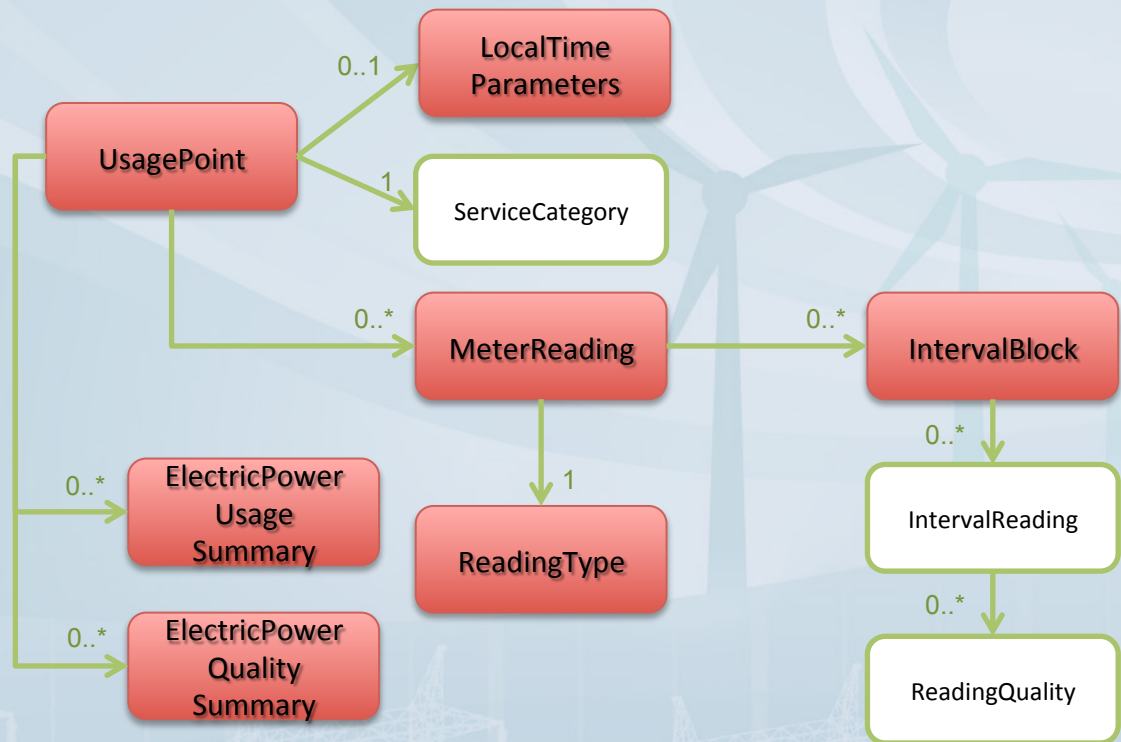


Composition and Atom Feed

Syntactic Model Atom Feed View



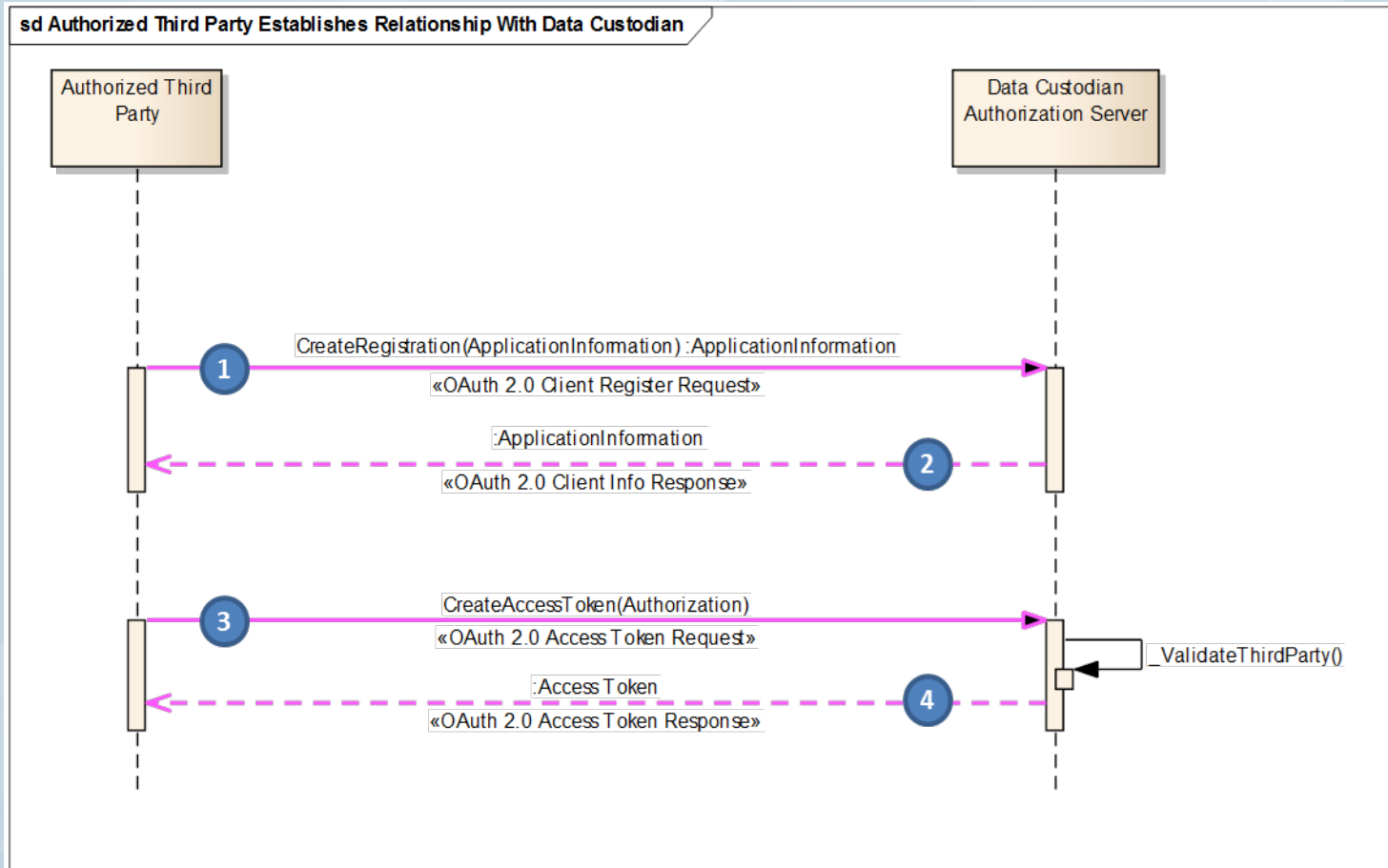
Information Model Profile View



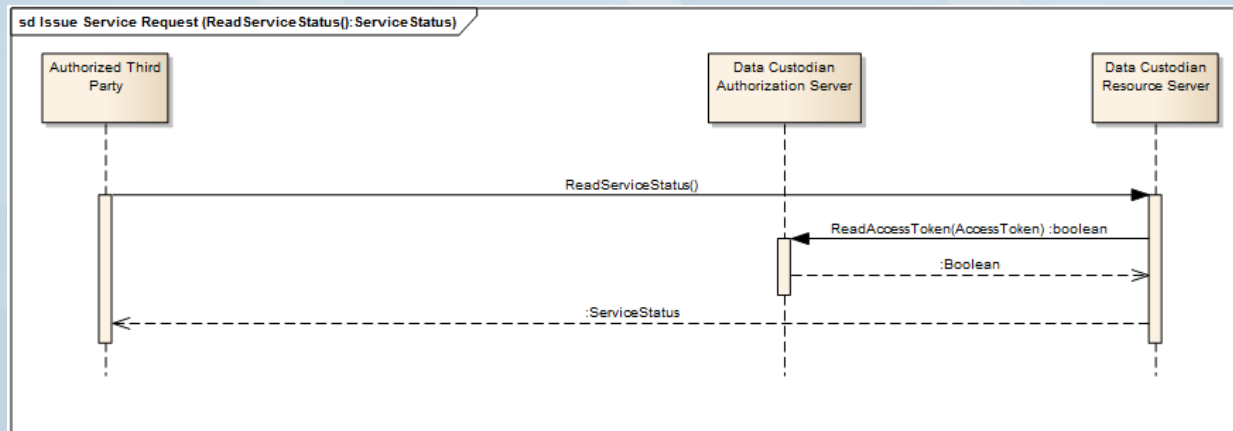
Note: This information is multidimensional. Many different reading types, summaries, and readings possible. i.e. not “flat”



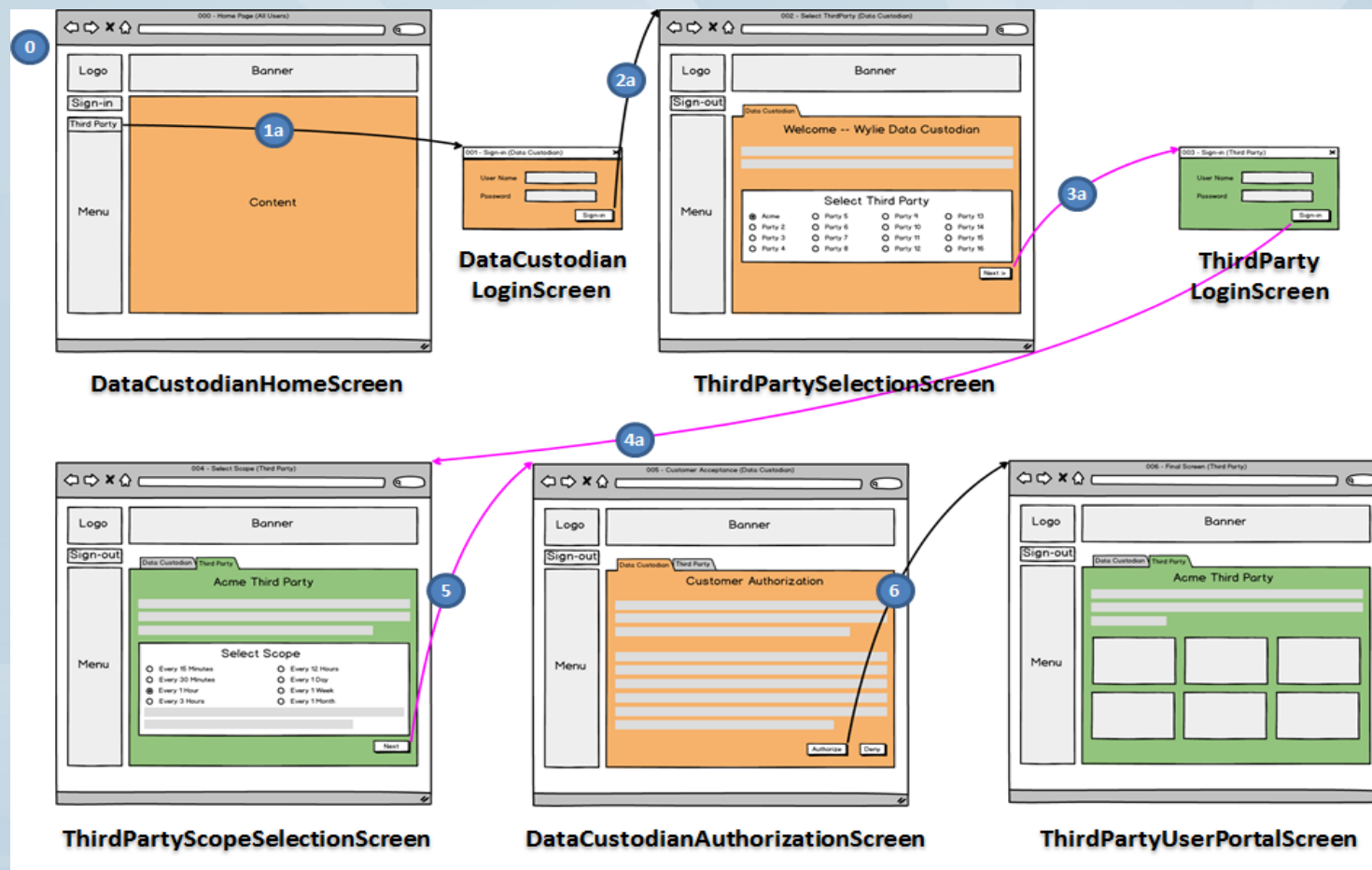
Green Button Connect My Data Registration



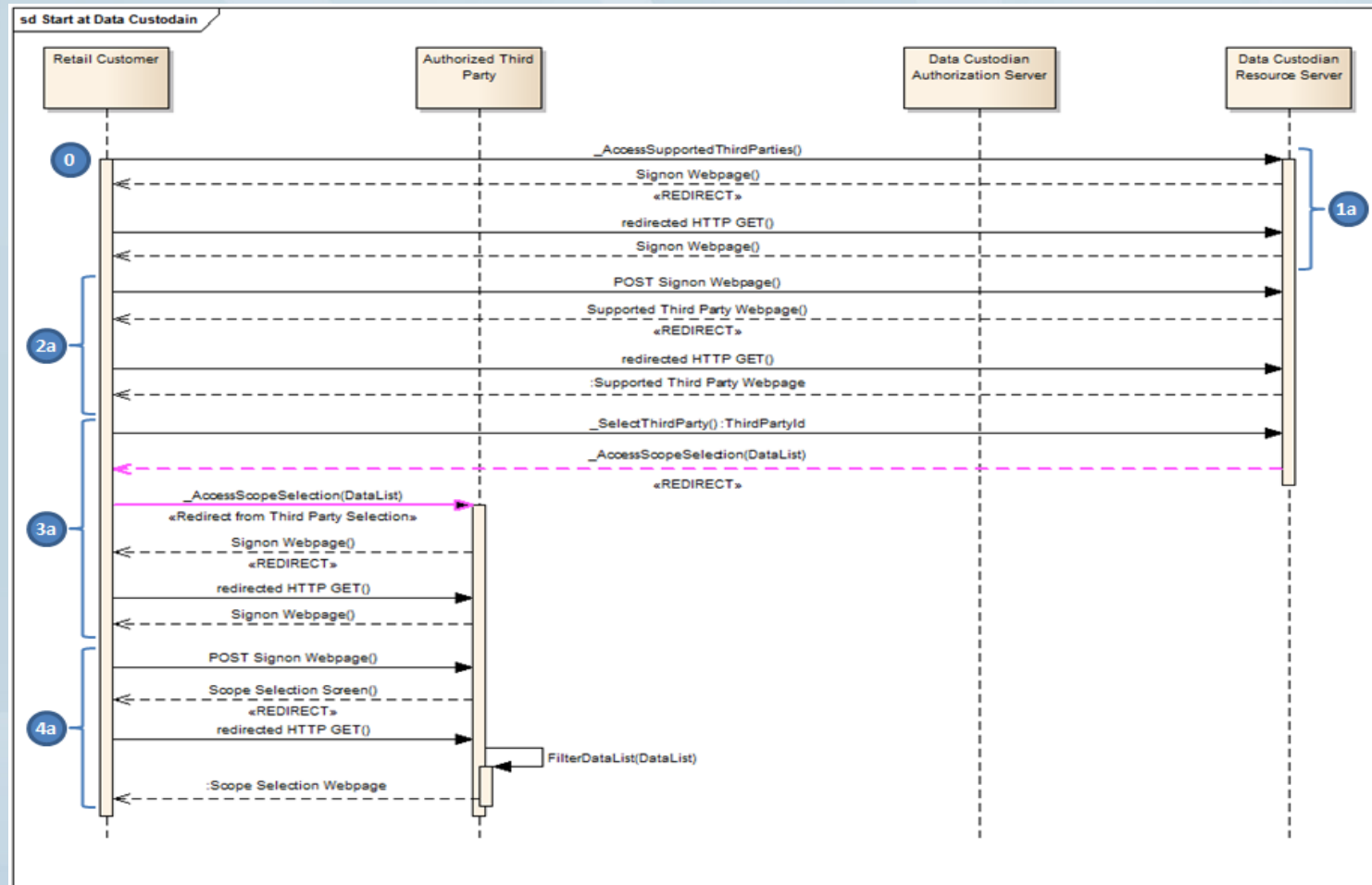
Green Button Connect My Data Status and Notification



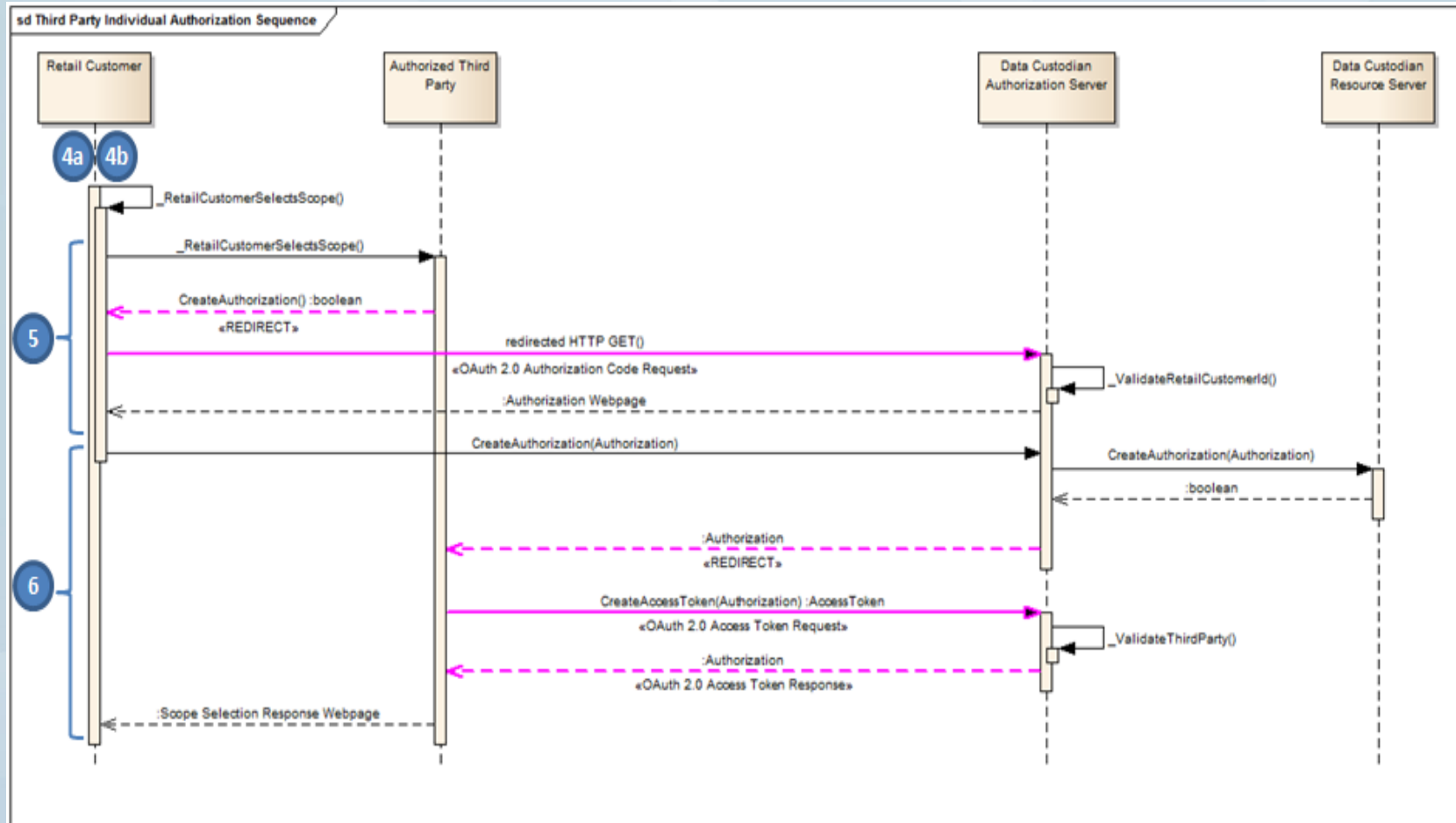
Green Button Connect My Data User Experience Guidelines



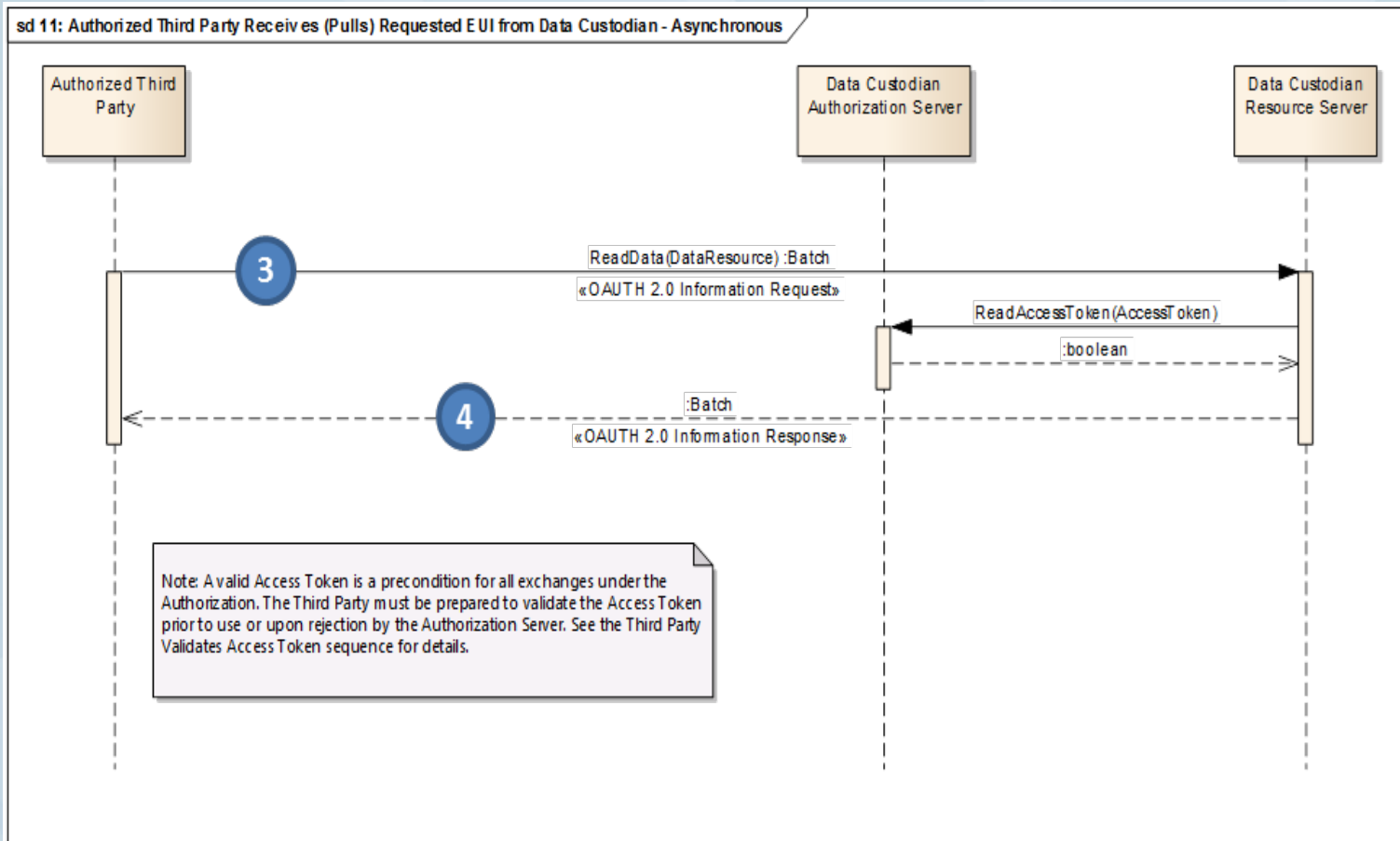
Green Button Connect My Data RetailCustomer Authorization



Green Button Connect My Data RetailCustomer Authorization



Green Button Connect My Data Data Flows





Open Source Green Button

<https://github.com/energyos>

The screenshot shows the GitHub profile for 'energyos'. The left sidebar features a large green triangle logo with text inside, and the profile information for 'energyos' (Master Admin, joined Sep 27, 2011). The main content area lists three repositories: 'OpenESPI-DataCustodian-java', 'OpenESPI-Greenbutton-java', and 'OpenESPI-ThirdParty-java'. Each repository entry includes its name, last update time, language (Java), star count, and fork count. A bar chart is visible to the right of each repository name.

EnergyOS.org Master Admin
energyos

Global
<http://www.energyos.org>
Joined on Sep 27, 2011

Repositories Members

Find a repository... Search

All Public Private Sources Forks Mirrors

OpenESPI-DataCustodian-java
Last updated 14 hours ago
Java ★ 2 🍴 3

OpenESPI-Greenbutton-java
Last updated 20 hours ago
Java ★ 1 🍴 2

OpenESPI-ThirdParty-java
Java implementation of the ThirdParty for OpenESPI
Last updated 21 hours ago
Java ★ 1 🍴 2



Green Button Connect My Data Sandbox

<http://services.greenbuttondata.org/>



Green Button Sandbox

Help Login

Green Button Developer Sandbox

[Developer Guide»](#)

[Examples»](#)

[API Testbed»](#)

[DataCustodian»](#)

[ThirdParty»](#)

Welcome to the EnergyOS Green Button Data Custodian

EnergyOS has, with the support of Pivotal Labs, prepared a reference Green Button implementation. This implementation supports a full complement of Green Button facilities and, as an Open Source project, is freely available for download by any interested parties.

This sandbox web site gives Green Button developers a Data Custodian populated with numerous sample data files. This Green Button information is available to download and/or access directly through the EnergyOS RESTful API. Please feel free to test your Green Button skills by playing in our sandbox!

Complements of The Green Button for America Team and our Sponsors

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[Learn more about EnergyOS Open Source »](#)

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www.energyos.org

NIST smart grid program

engineering laboratory





Green Button CMD Live API

http://energyos.github.io/OpenESPI-GreenButton-API-Docume Green Button API

File Edit View Favorites Tools Help

RoboForm Search Logins Bookmarks (logins) Marty Burns Save Generate Sync

DataCustodian.ApplicationInformation

Show/Hide List Operations Expand Operations Raw

DataCustodian.Subscription

Show/Hide List Operations Expand Operations Raw

GET /espi/1_1/resource/Subscription [ESPI] Finds all Subscriptions

POST /espi/1_1/resource/Subscription Add a new Subscription to the Data Custodian

GET /espi/1_1/resource/Subscription/{SubscriptionID} [ESPI] Retrieve a Subscription Using its ID

Implementation Notes

Returns a Subscription

Response Class

Model Model Schema

Subscription

Response Content Type application/xml+atom

Parameters

Parameter	Value	Description	Parameter Type	Data Type
Authorization	Bearer {access_token}	Access Token	header	String
Accept	application/atom+xml	Accept type for the Request	header	String

100%



Where is More Technical Information

- Base Standard
 - http://www.naesb.org/ESPI_Standards.asp
- Developer Info
 - Content, Generation, and Samples (DMD)
 - <https://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/GreenButtonSDK>
 - Open Source (DMD/CMD)
 - <http://energyos.github.io/OpenESPI-GreenButton-API-Documentation/API/>
 - <http://energyos.github.io/OpenESPI-GreenButton-API-Documentation/>
 - <https://github.com/energyos/OpenESPI-Common-java>
 - <https://github.com/energyos/OpenESPI-DataCustodian-java>
 - <https://github.com/energyos/OpenESPI-ThirdParty-java>
 - SandBox (alpha)
 - <https://services.greenbuttondata.org/DataCustodian>
 - <https://services.greenbuttondata.org/ThirdParty>
- Testing and Certification
 - Download My Data Self-test tool
 - <http://www.greenbuttondata.org/greentest.aspx>
 - UCAIug OpenADE Task Force Testing Artifacts
 - [OpenADE Test Plan Files](#)



Information for YOU!
Thank You