

Credential
Engine™

Metadata for Improving Transparency in the Credentialing Marketplace

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Credential
Engine



Topics

- Making Sense of the Credentialing Marketplace
- Credential Engine Family of RDF Specifications
- Connecting Credentials to Other Entities
- 1st, 2nd and 3rd Party Assertions
- The Role of Competencies and Their Frameworks
- Questions and Answers

Making Sense...



The problem...

- Growing number and type of labor market credentials
- Growing uncertainty about their meaning, content, quality, and value



The problem...

- Lack of a common language for describing and comparing credentials confuses employers, students, job seekers, educators, regulators, and certifiers
- Misalignment of what industry says they need, what education produces and what the industrial credentialing organizations test

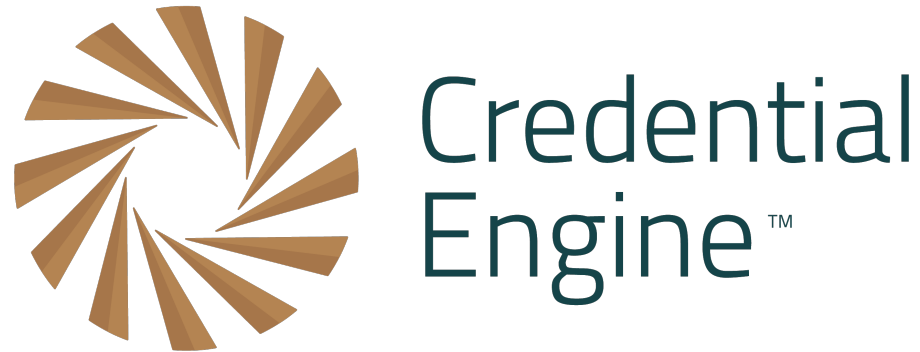
The problem...

- Concept of “stacking” credentials to support career pathways is inefficient, does not prevent undue duplication of learning
- No mechanism for stacking credentials based on “competencies”



Credential Engine: Addressing the Problem

Credential Engine is a 501C3 non-profit organization dedicated to the mission of promoting transparency and credential literacy in the marketplace to reveal the world of credentials and inform the public.



Credential Engine: Addressing the Problem

- Developed a common language, Credential Transparency Description Language, for credentials based on the W3C specifications for semantic metadata
- Community-based, transparent approach with a large Technical Advisory Committee and over 100 credentialing organizations

Credential Engine: Addressing the Problem

- Reused existing, publicly available properties and classes
- Offered for re-use via a Creative Commons International License
- Modeled to take into account Schema.org, providing the means for some of the work to serve as an extension for schema.org credential description

Transparency through Credential Engine Technology

**Credential Transparency
Description Language (CTDL)
and CTDL ASN-DL** provides a
common language to describe key
features of credentials, credentialing
organizations, competency
frameworks, and quality assurance
(QA) bodies based on the principles
of Linked Data.



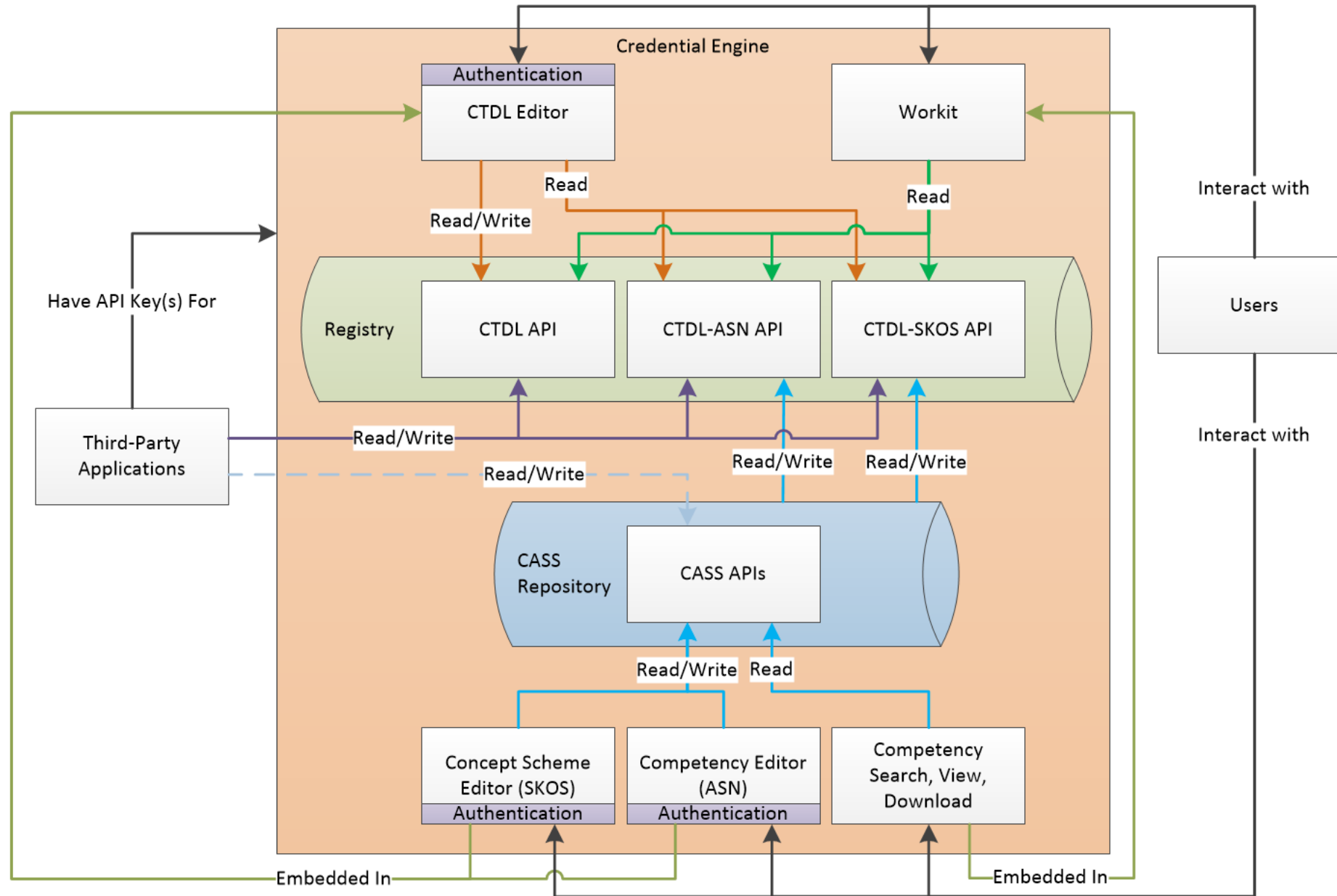
**Credential and Competency
Framework Registry** continuously
capture, connect, archive, and share
metadata about credentials,
credentialing organizations, QA
bodies, and competency
frameworks, supporting an open
applications marketplace.



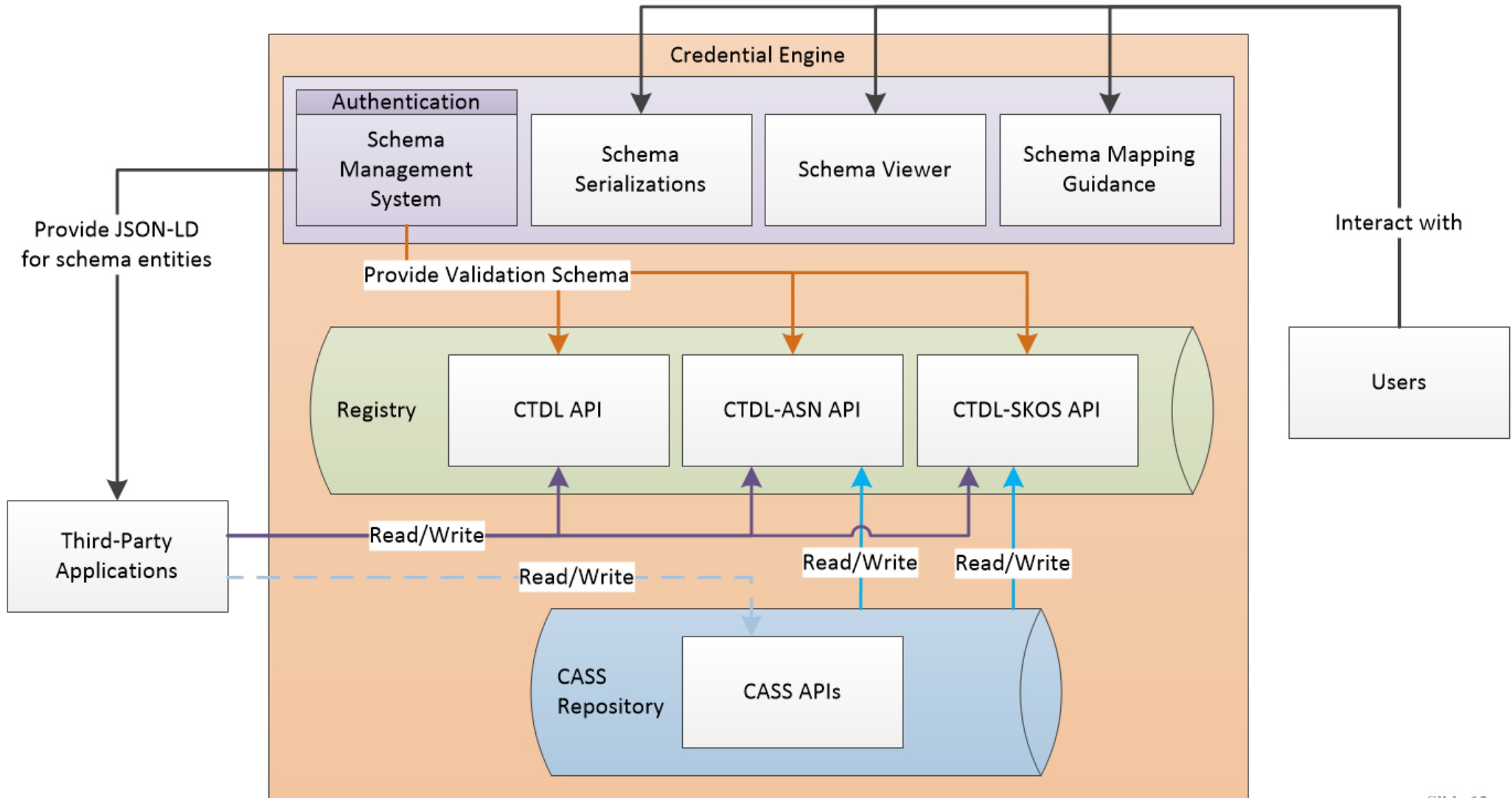
Credential Finder search app
designed to demonstrate the power
of the registry and foster a
competitive apps marketplace.

**CREDENTIAL
FINDER** ^{BETA}

Credential Engine Infrastructure



Schema Management



Credential Engine Family of RDF Specifications

Credentials	Competency Frameworks	Concept Schemes
Credential Transparency Description Language (CTDL)	Credential Engine Profile of the Achievement Standards Network Description Language (CTDL-ASN)	Simple Knowledge Organization System (SKOS)
<i>50 Classes</i> <i>236 Properties</i>	<i>3 Classes</i> <i>49 Properties</i>	<i>18 Concept Schemes</i> <i>128 Concepts</i>

Description Fundamentals

- Directed graphs through W3C's Resource Description Framework (RDF)
- Built off schema.org's types and properties
- Leverages schema.org's lightweight semantics; e.g.
 - Uses
 - schema:domainIncludes
 - schema:rangeIncludes
 - Instead of
 - rdfs:domain
 - rdfs:range
- Properties and classes declared in *Credential Engine* namespaces
 - Identifies property and class equivalencies (e.g, to Schema.org, Dublin Core etc.)

Credential defined...

“A qualification, achievement, personal or organizational quality, or aspect of an identity typically used to indicate suitability.”

Educational and Occupational Credentials: diplomas, academic degrees, certifications, qualifications, badges, that a person can obtain through learning, education and/or training. Typically awarded on successful completion of an assessment of relevant capabilities

CTDL credential subclasses...

Badge

Digital Badge

Open Badge

Certificate

Apprenticeship

Certificate

Journeyman

Certificate

Master Certificate

Certification

Degree

Associate Degree

Bachelor's Degree

Master's Degree

Doctoral Degree

Professional

Doctorate

Research

Doctorate

Diploma

General Education

Development

Secondary School

Diploma

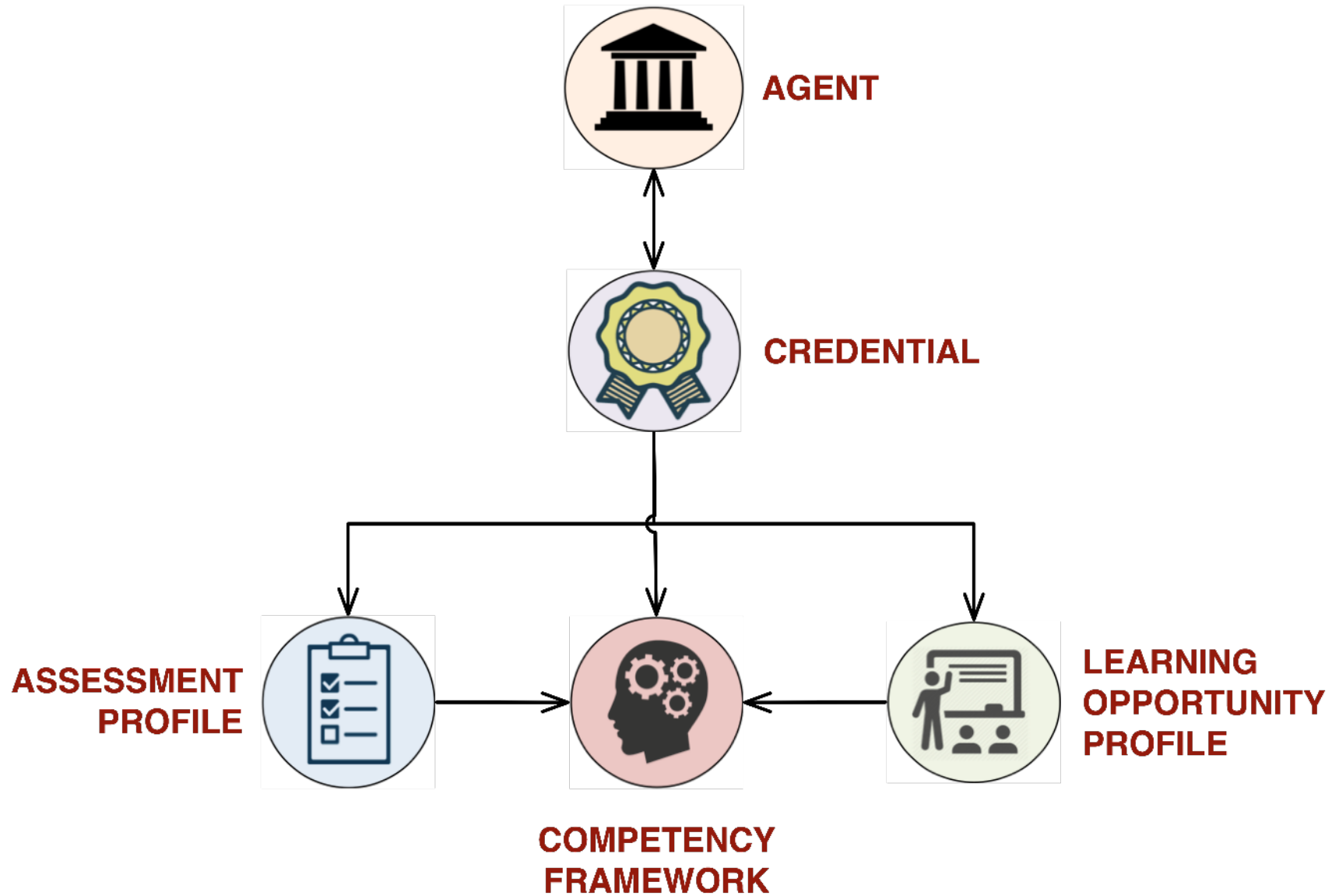
License

MicroCredential

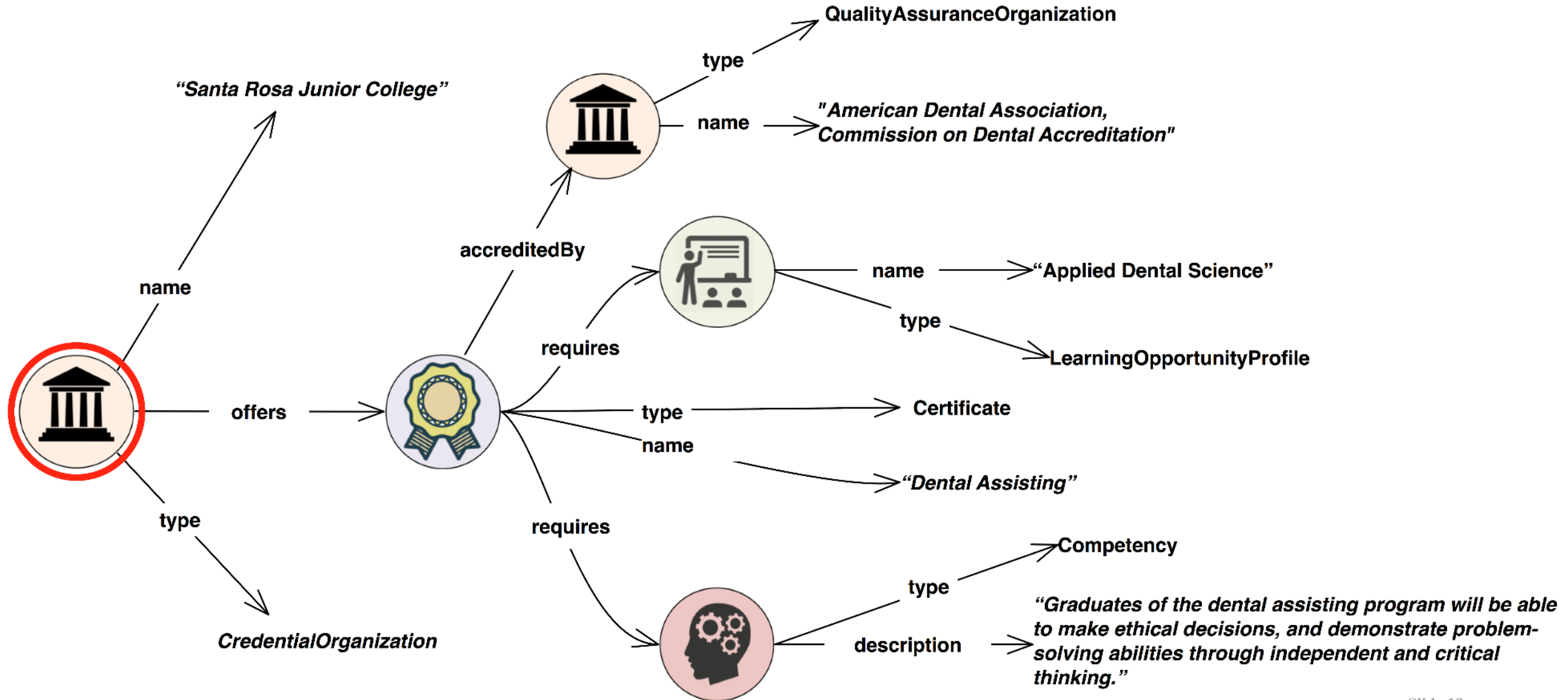
Quality Assurance

Credential

Model: The simple case...



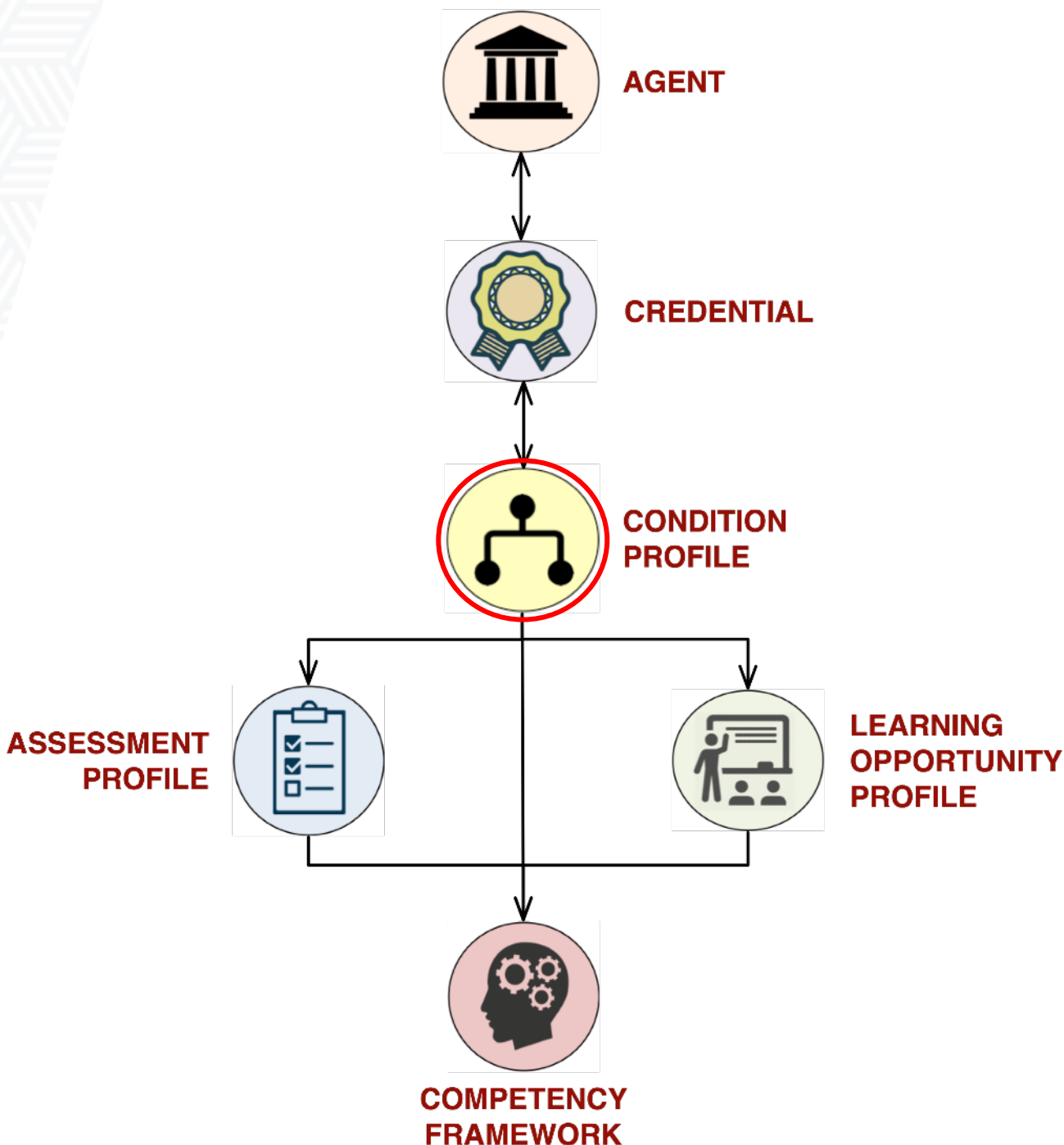
Simple case example...



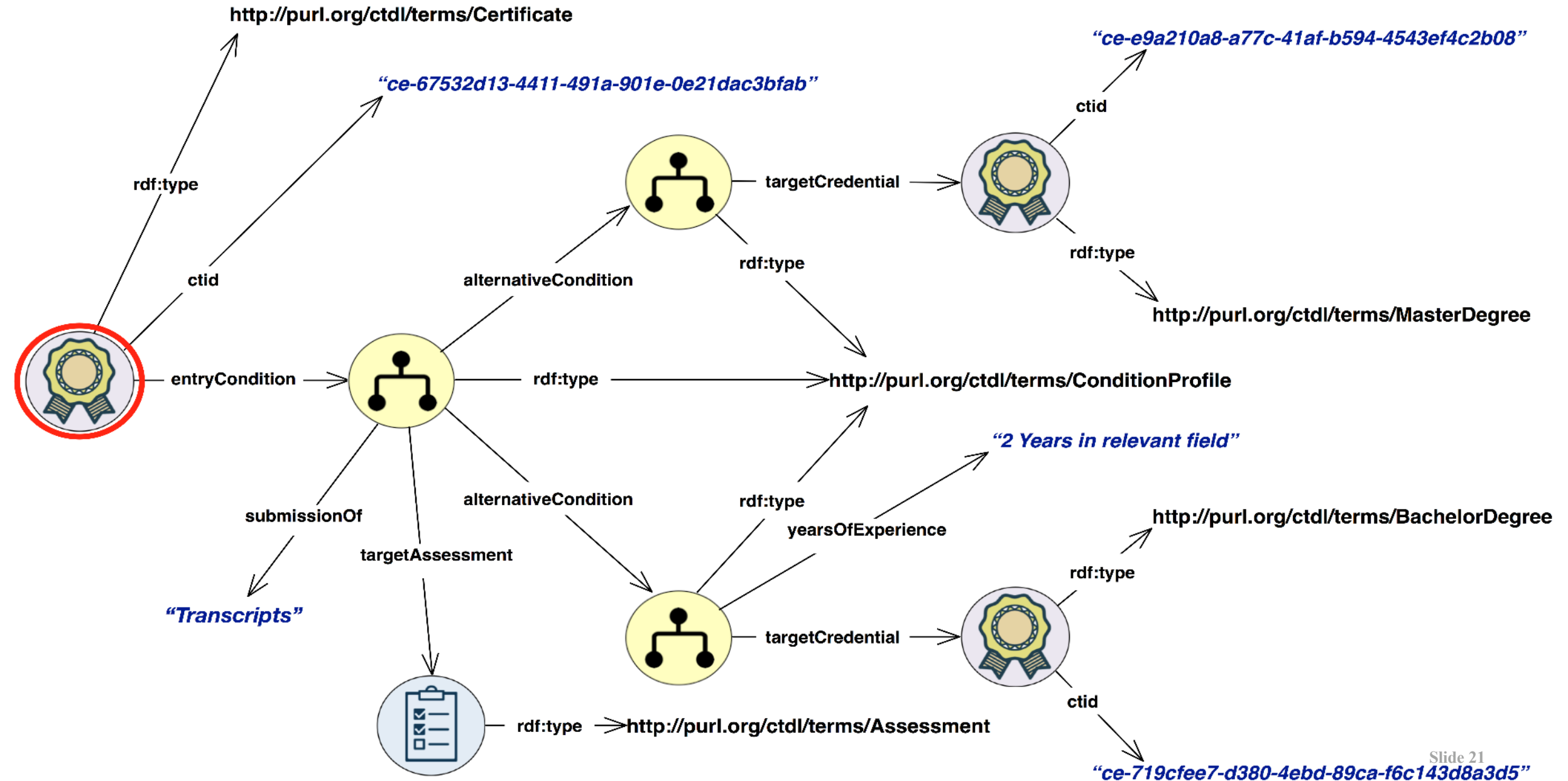
Model: The not so simple case...

- Relationship between Credential and other entities may be qualified by:

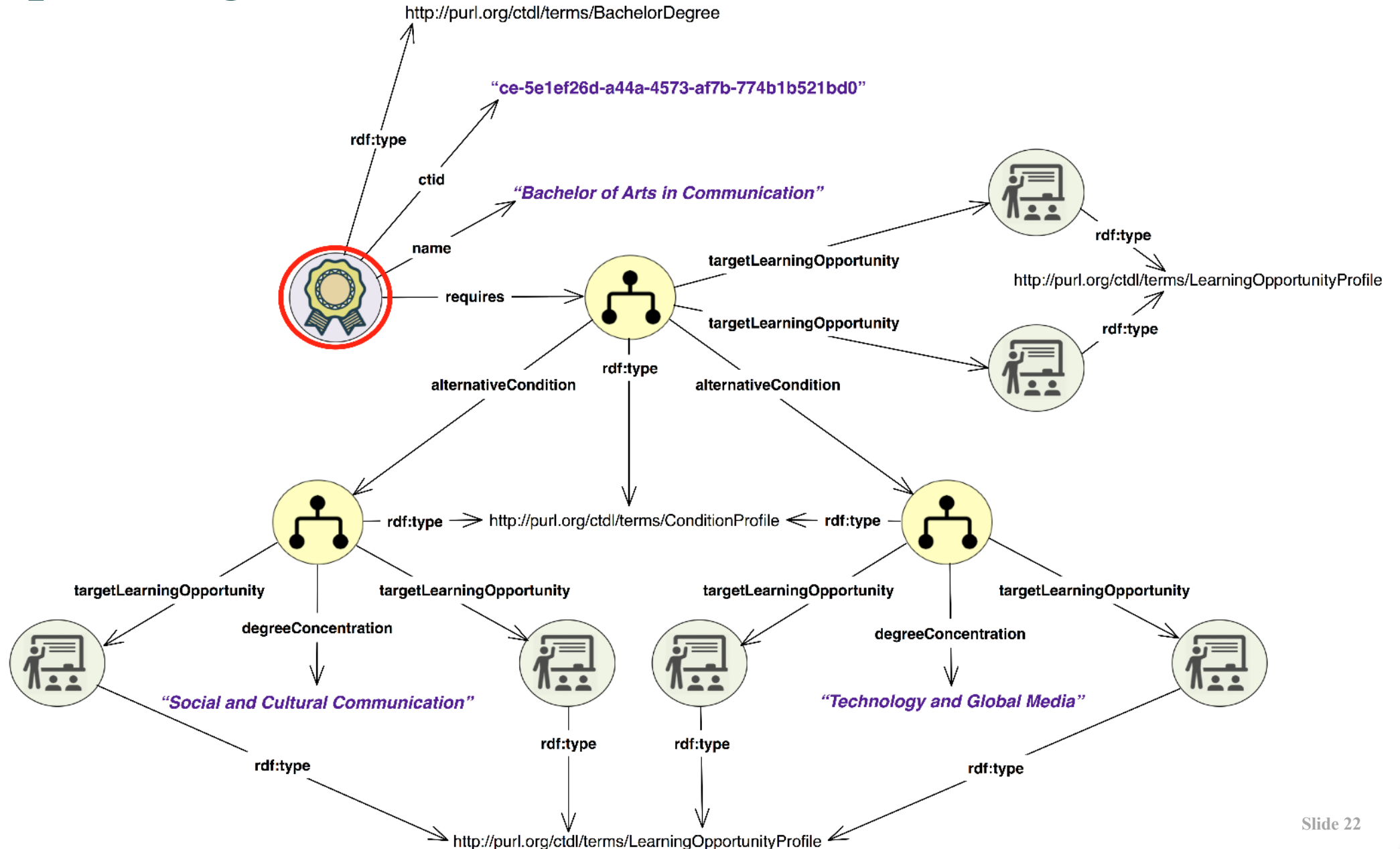
- different types of credential seekers (audience)
- different regions of applicability (jurisdictions)
- different timeframes



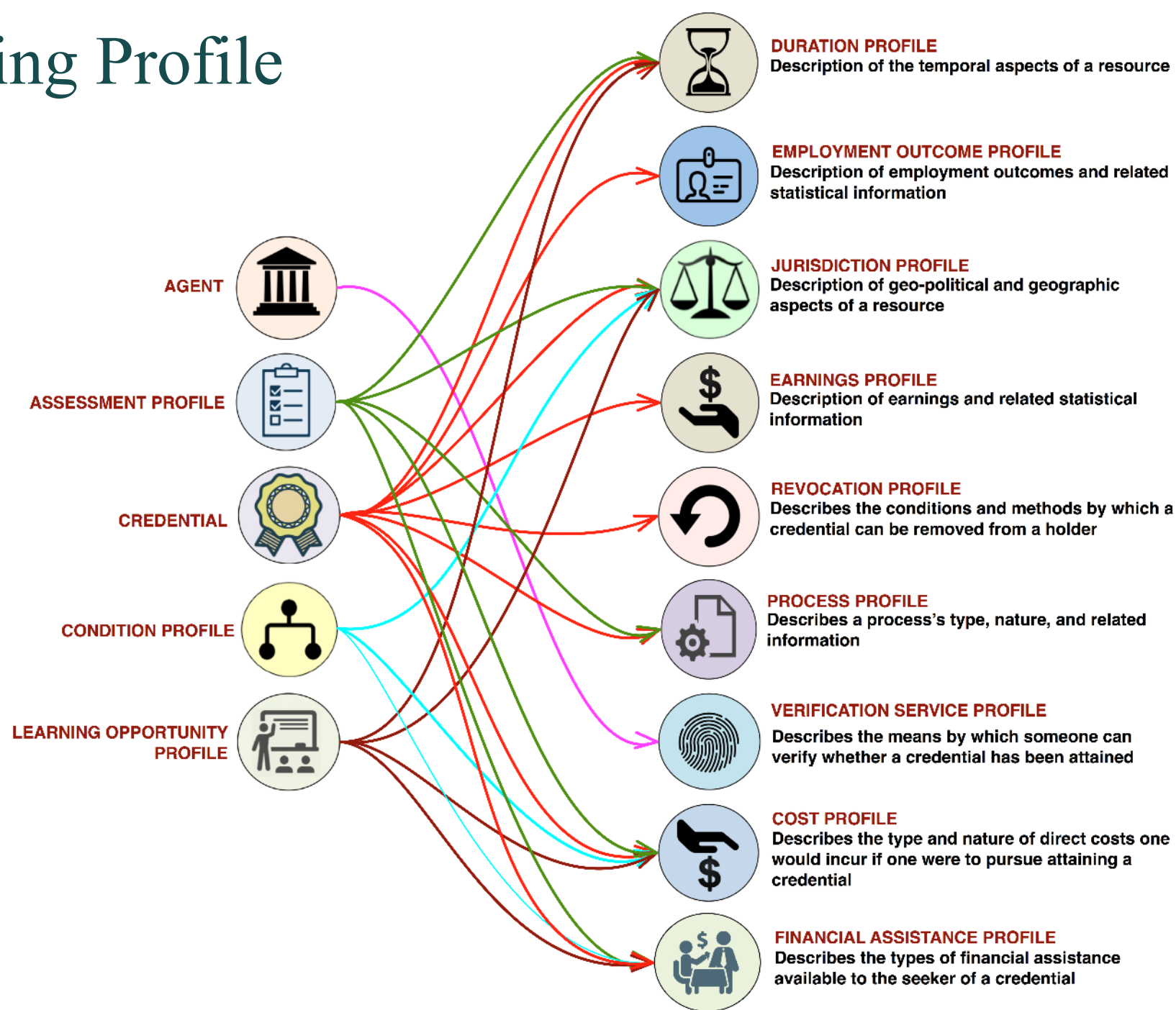
Example: Alternative entry conditions



Example: Degree with various concentrations



Supporting Profile Classes

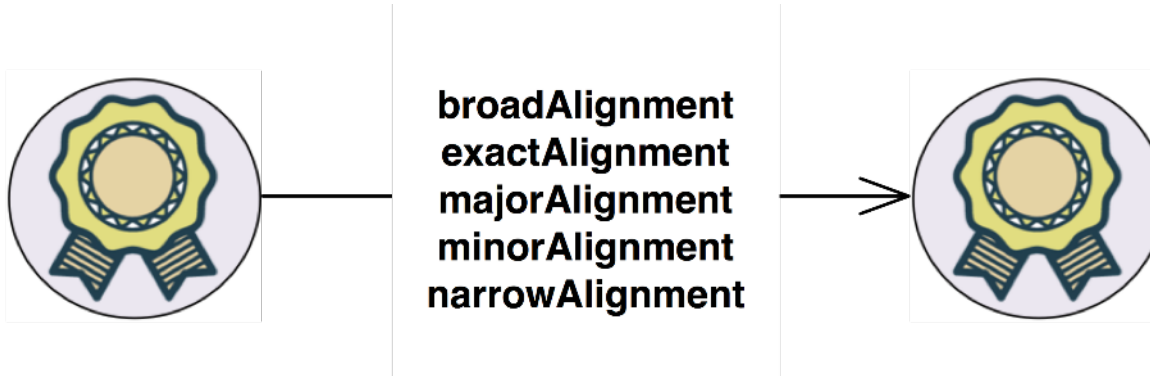


Connecting Credentials to Other Entities

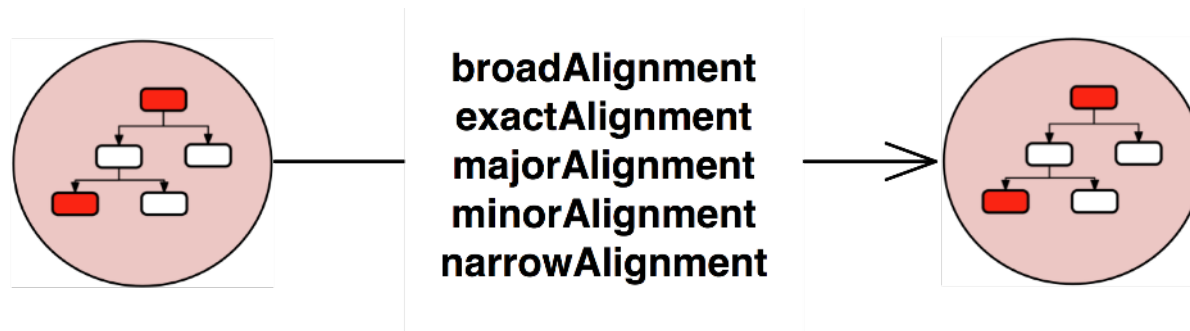
Relationships of identity & purpose
Required & recommended relationships

Relationships of Identity

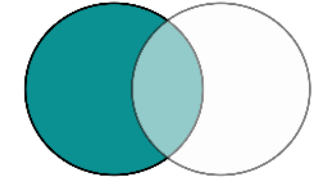
Credential to Credential Alignment



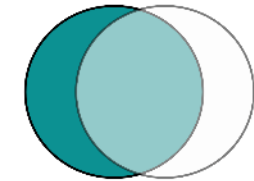
Competency to Competency Alignment



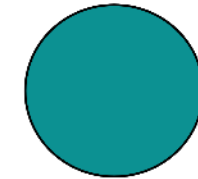
Minor Alignment



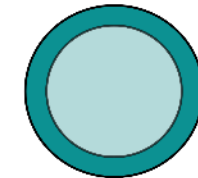
Major Alignment



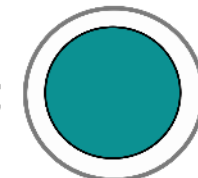
Exact Alignment



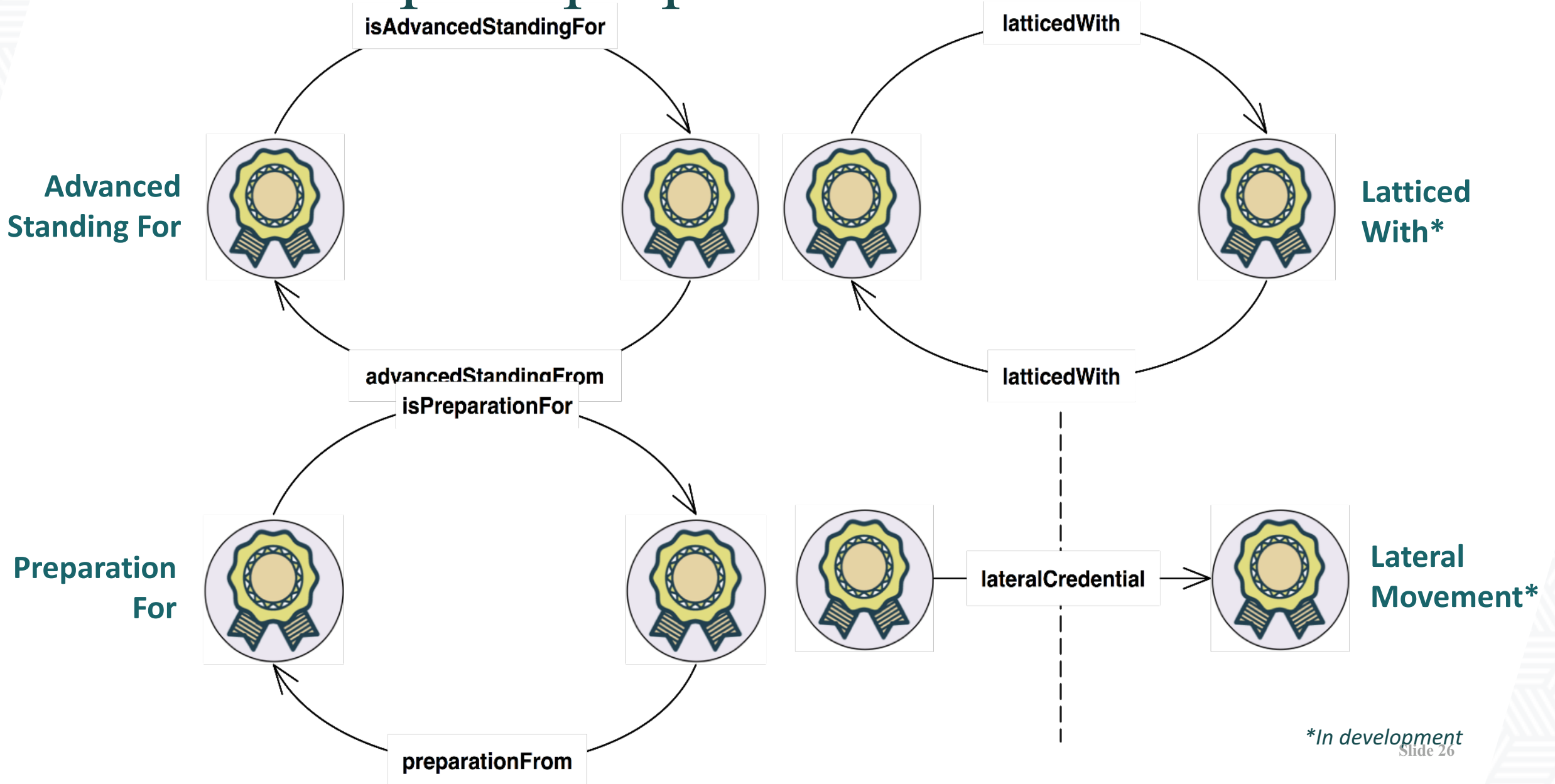
Broad Alignment



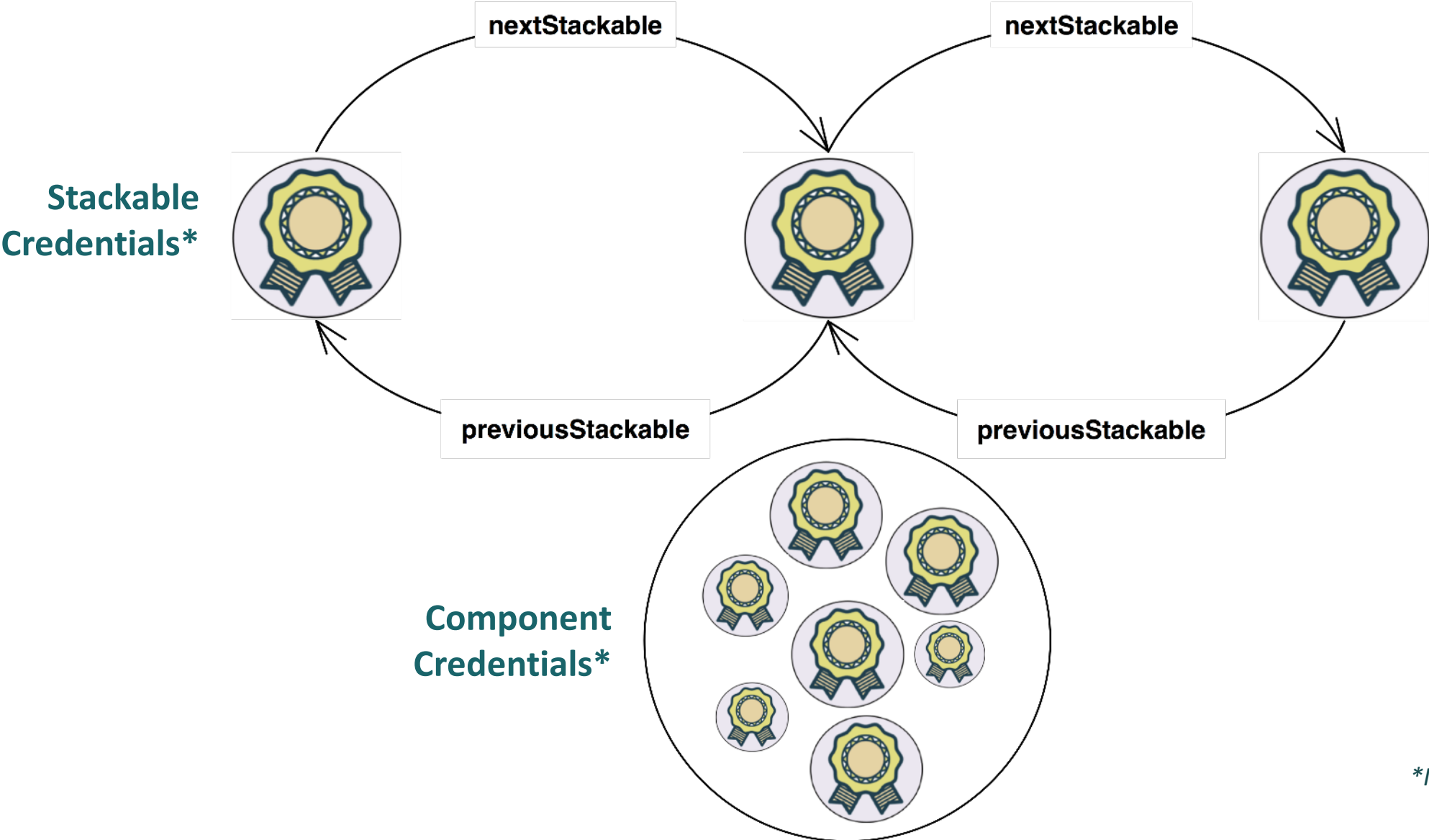
Narrow Alignment



Relationships of purpose^[1]

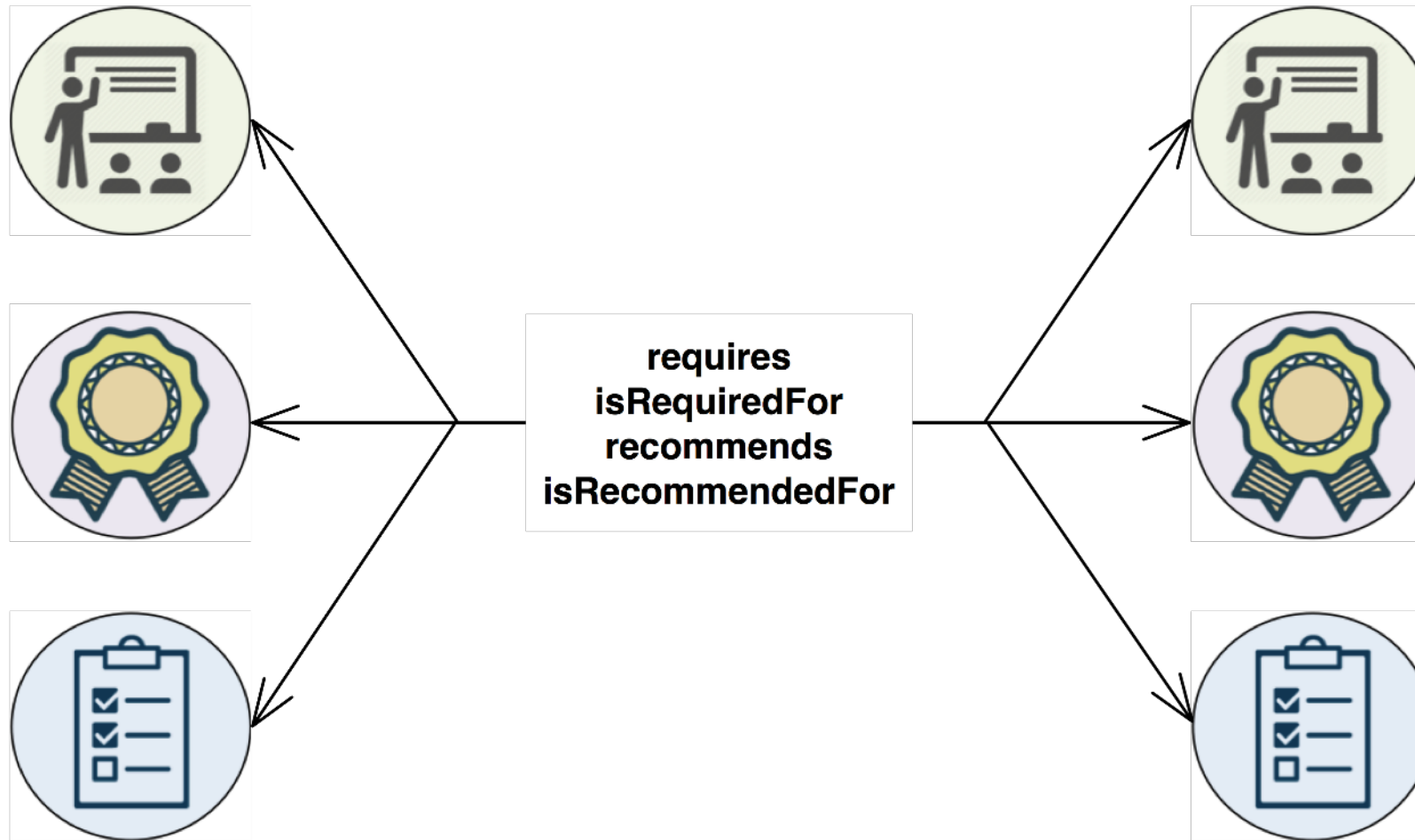


Relationships of purpose^[2]

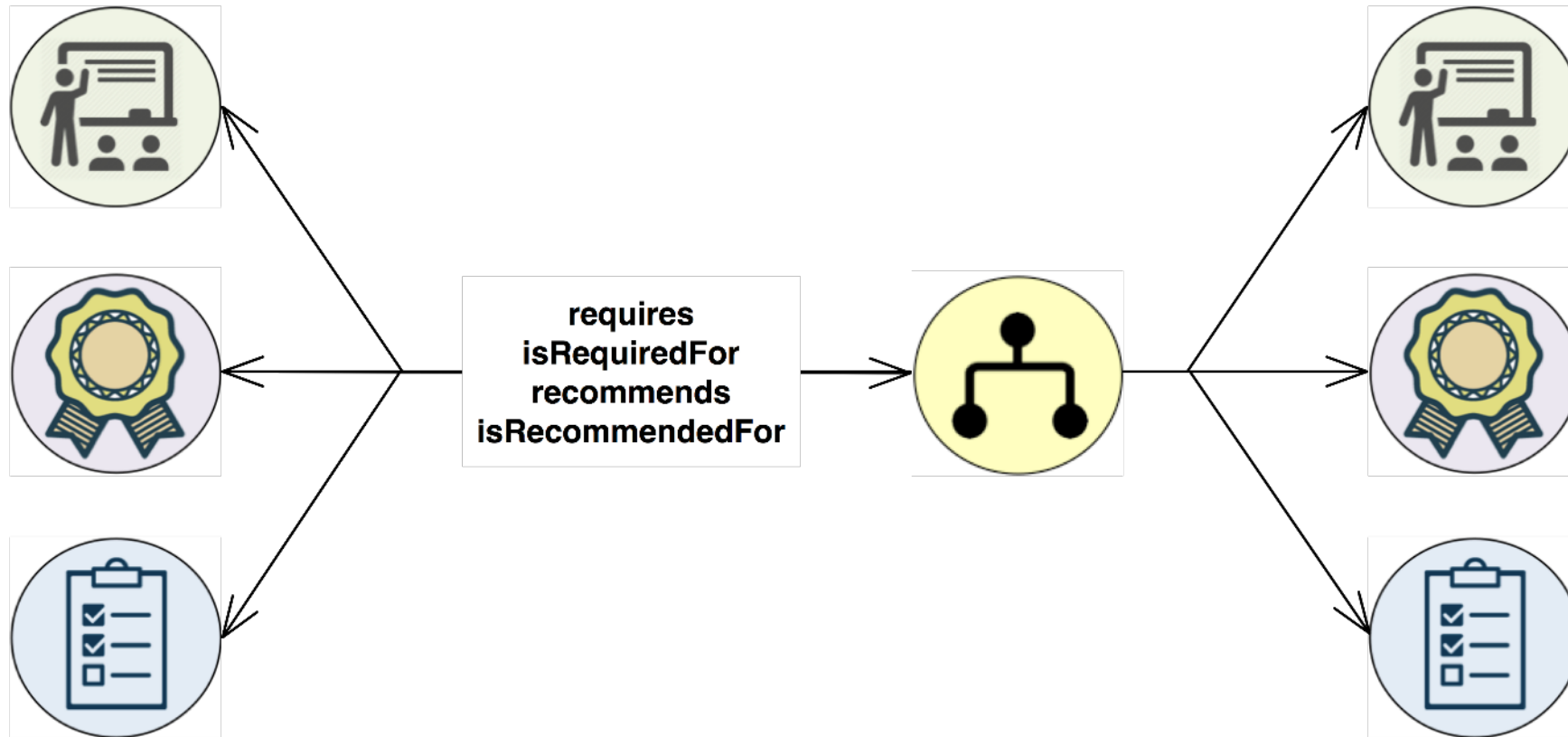


**In development*

Required/recommended relationships

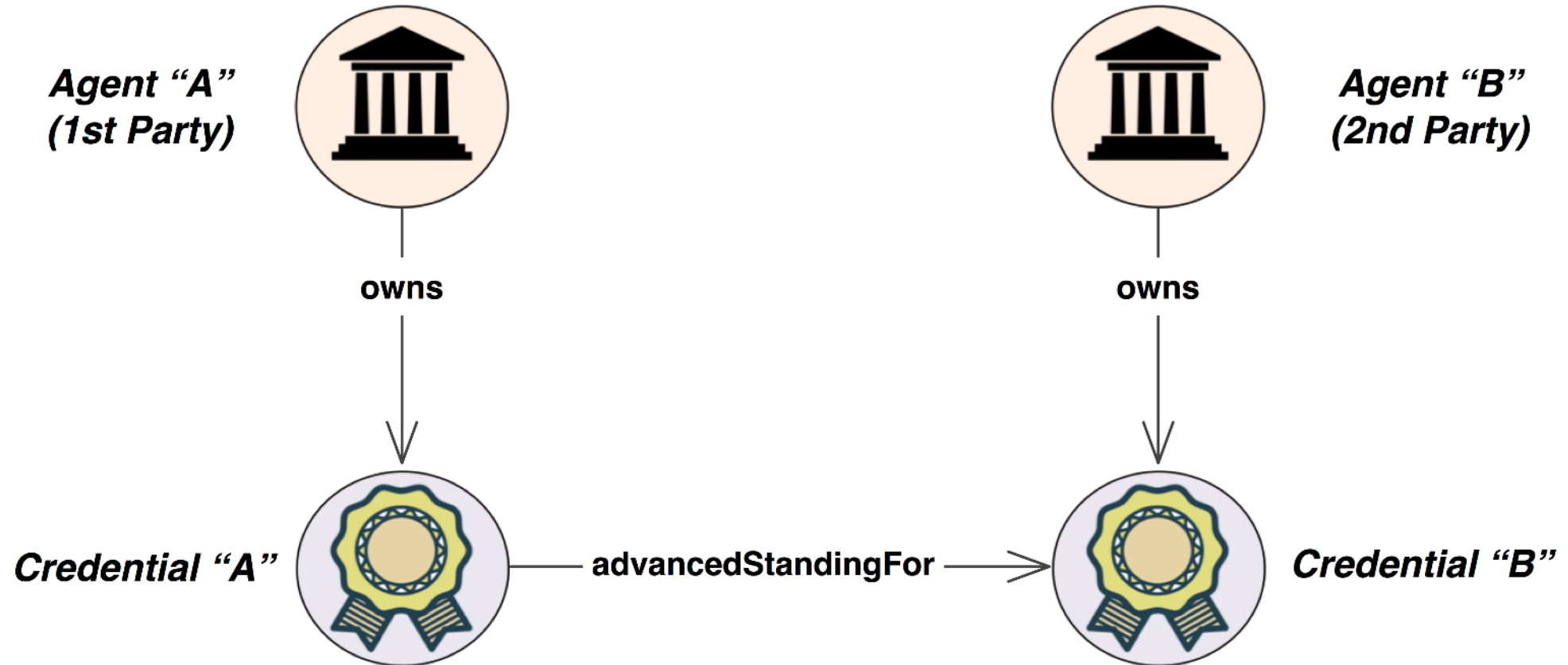


Required/recommended relationships

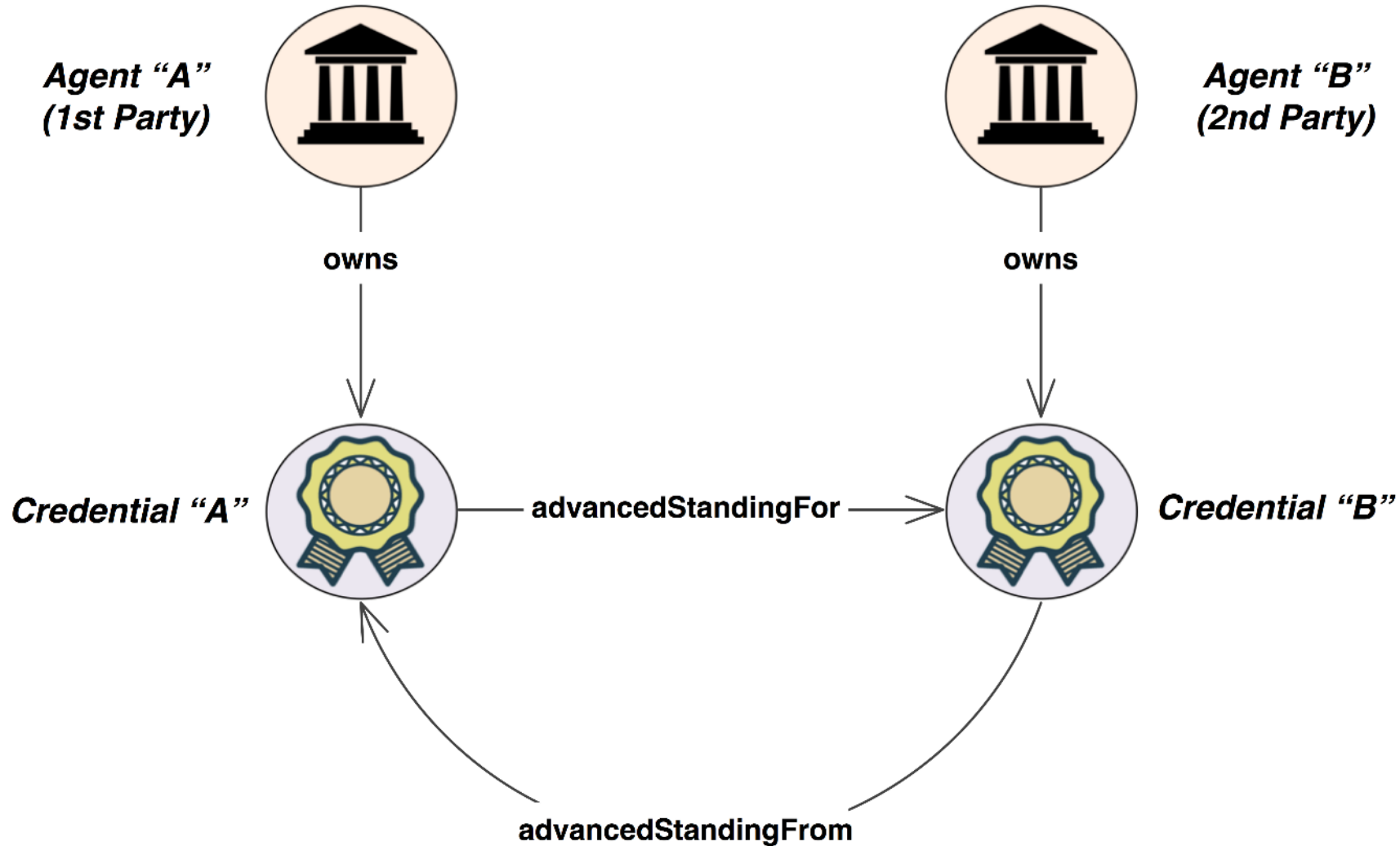


1st, 2nd and 3rd Party Assertions

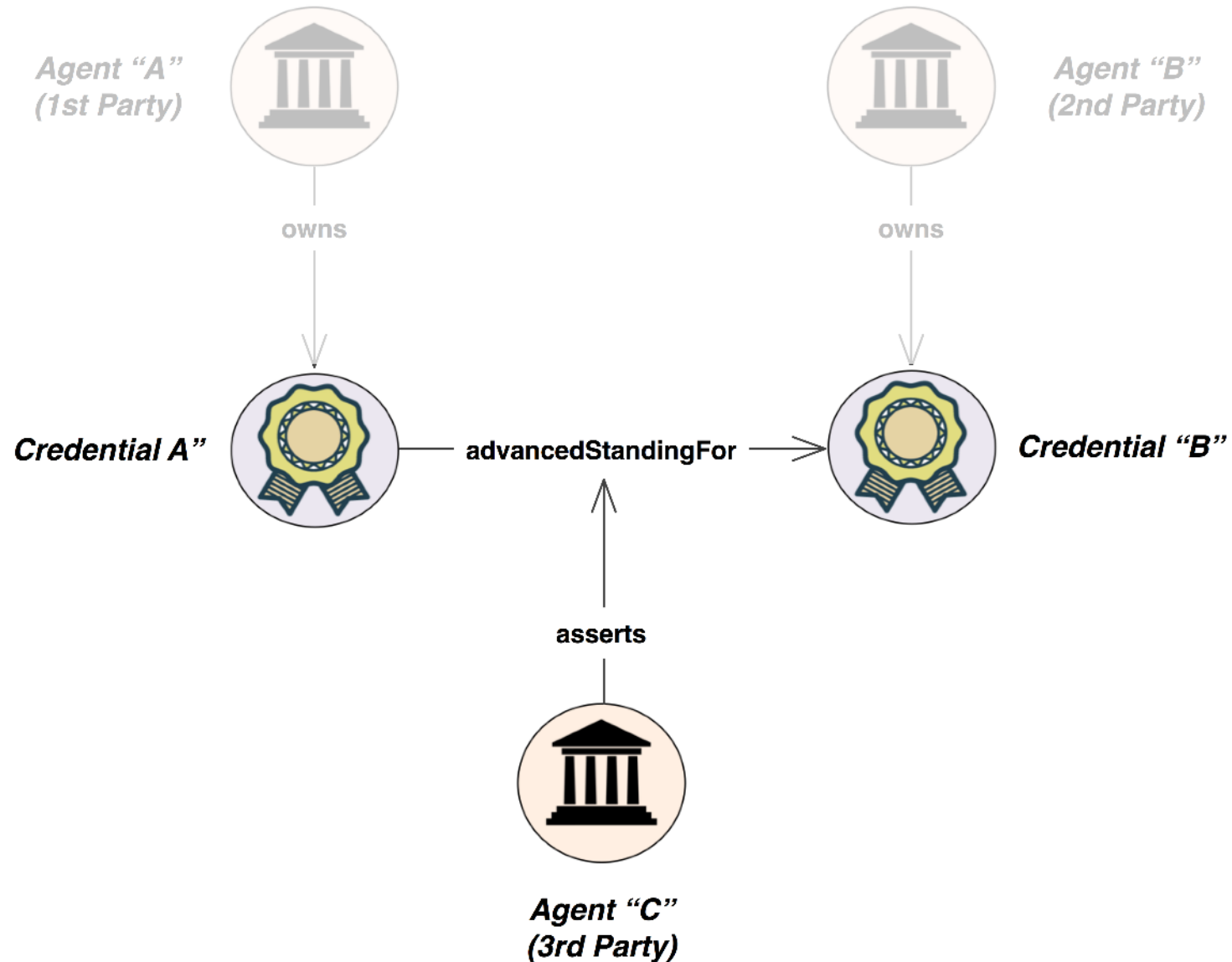
First Party Statements (Assertions)



First & Second Party Assertions



Third Party Assertion (Map)





Military Bridge Program Roadmap

Branch: US Army

School Name: Vincennes University

Degree Plan: A.S. Career/Tech Degree in Pharmacy Technician

MOS/Rating: 68Q Pharmacy Specialist

Degree Requirements	Credits Required	MILITARY CREDIT EARNED						Alternative Completion Options		ACE Exhibit Number / Notes
		E4	E5	E6	E7	E8	E9	Testing Credit	SOC Course Transferability	
University Core Curriculum	24									
ENGL 101: English Composition I	3									
MATT 109: Business Mathematics	3									
COMM 148: Interpersonal Communication	3		3	3	3	3	3			
CHEM 100: Elementary Chemistry	3									
CHEM 100L: Elementary Chemistry Lab	1									
PSYC 142: General Psychology	3									
BIOL 108: Principles of Human A&P I	3									
ENGL 108: Technical Writing	3									
PFWL 100: Lifetime Fitness/Wellness	2	2	2	2	2	2	2			
Major Program Requirements	36									
ACCT 100: Basic College Accounting	3									
BIOL 109: Principles of Human A&P II	3									
COMP 110: Intro to Computer Concepts	3									
HIMT 110: Medical Terminology	3									
PHRM 105: Pharmacology I	3									
PHRM 106: Pharmacology II	3									
PHRM 110: Dispensing Lab I	2									
PHRM 111: Dispensing Lab II	3									
PHRM 115: Pharmacy Law for Technicians	3									
PHRM 120: Pharmacy Calculations	3									
PHRM 125: Practicum	2									
PHRM 200: Pharmacy Management	3			3	3	3	3			
Elective	2	2	2	2	2	2	2			
Total Required for Degree Completion	60	4	7	10	10	10	10			

Notes

Course Offering: Online, At designated sites, On campus
University Residency Requirement: 6 semester hours with Vincennes University

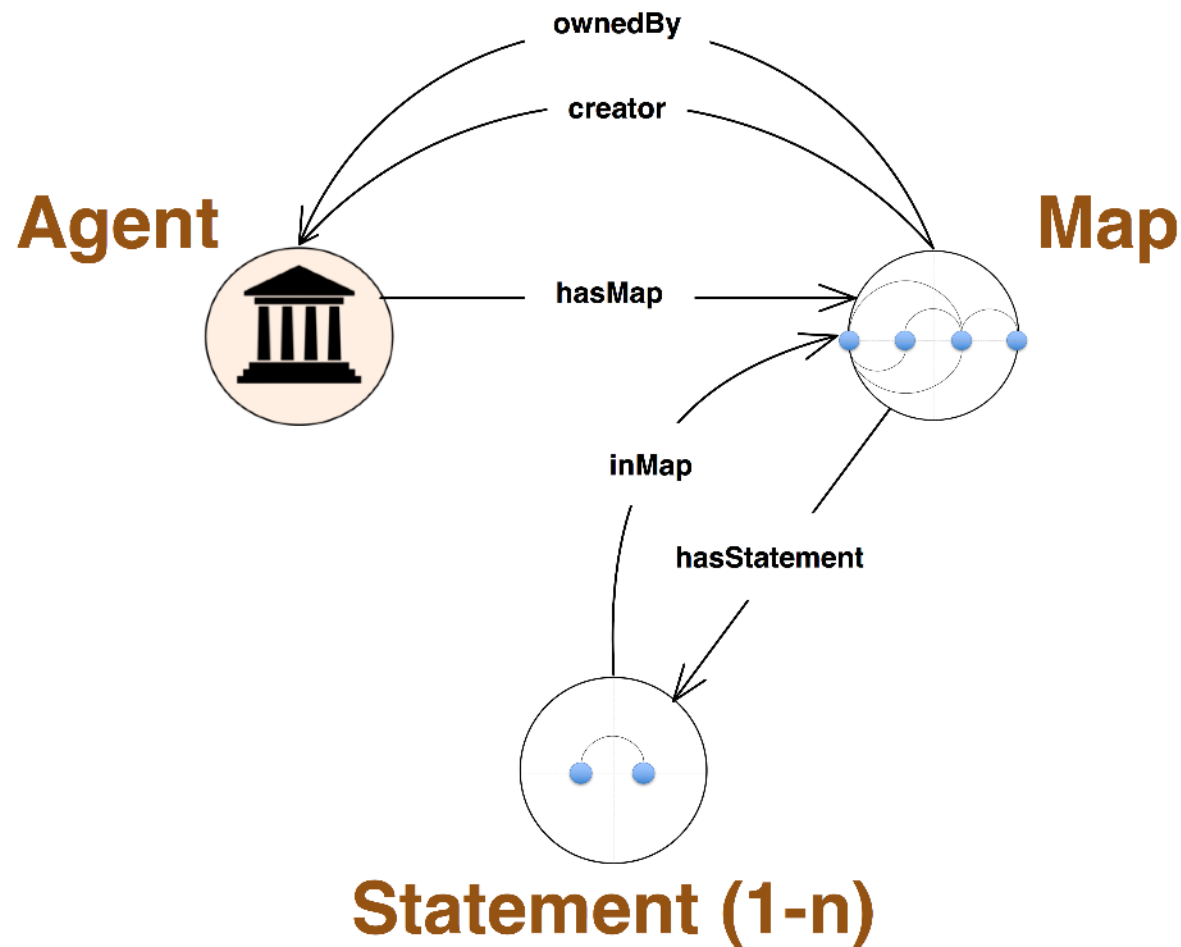
ACE Review last done: 8/27/2015

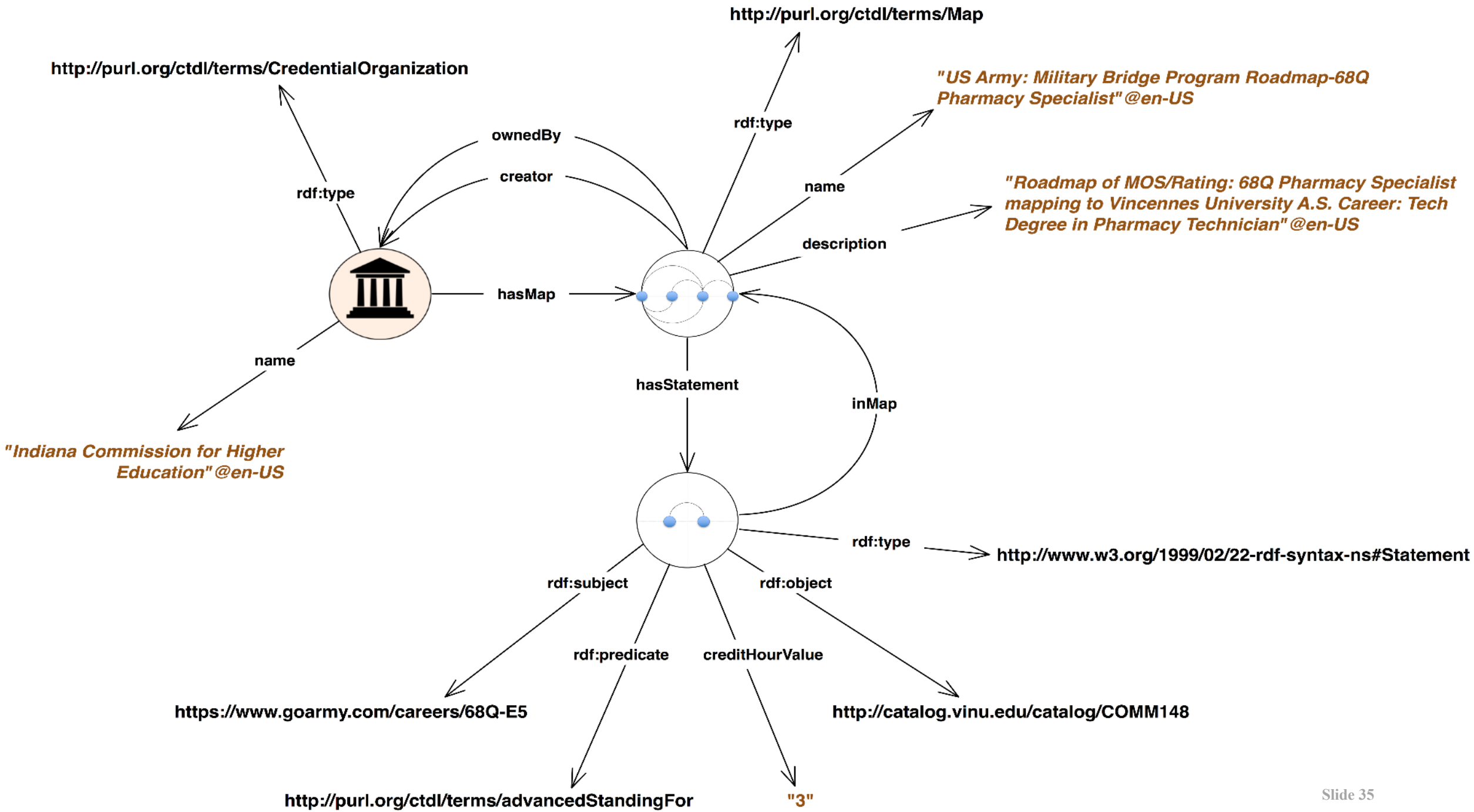
Institutional Review Last Done: 8/27/2015

** Testing Credit Vincennes University accepts all CLEP, DSST, ECE, College Board Advanced Placement and Prof.

This Roadmap is for planning purposes only. Students should not view this degree map as an official evaluation of credit.

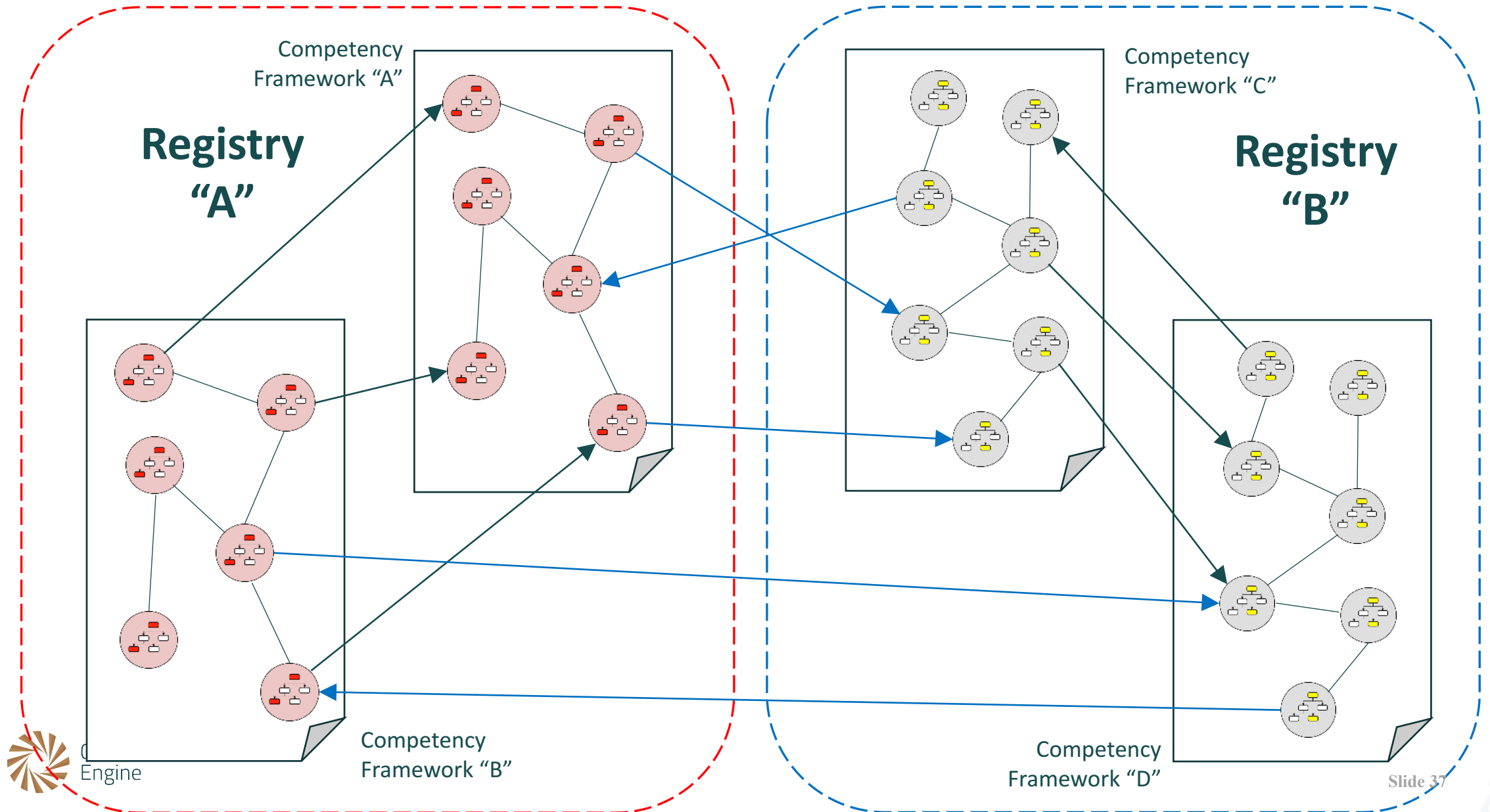
3rd Party Map Structure





The Role of Competencies and Their Frameworks

Inter- and Intra-Registry Competency Mapping

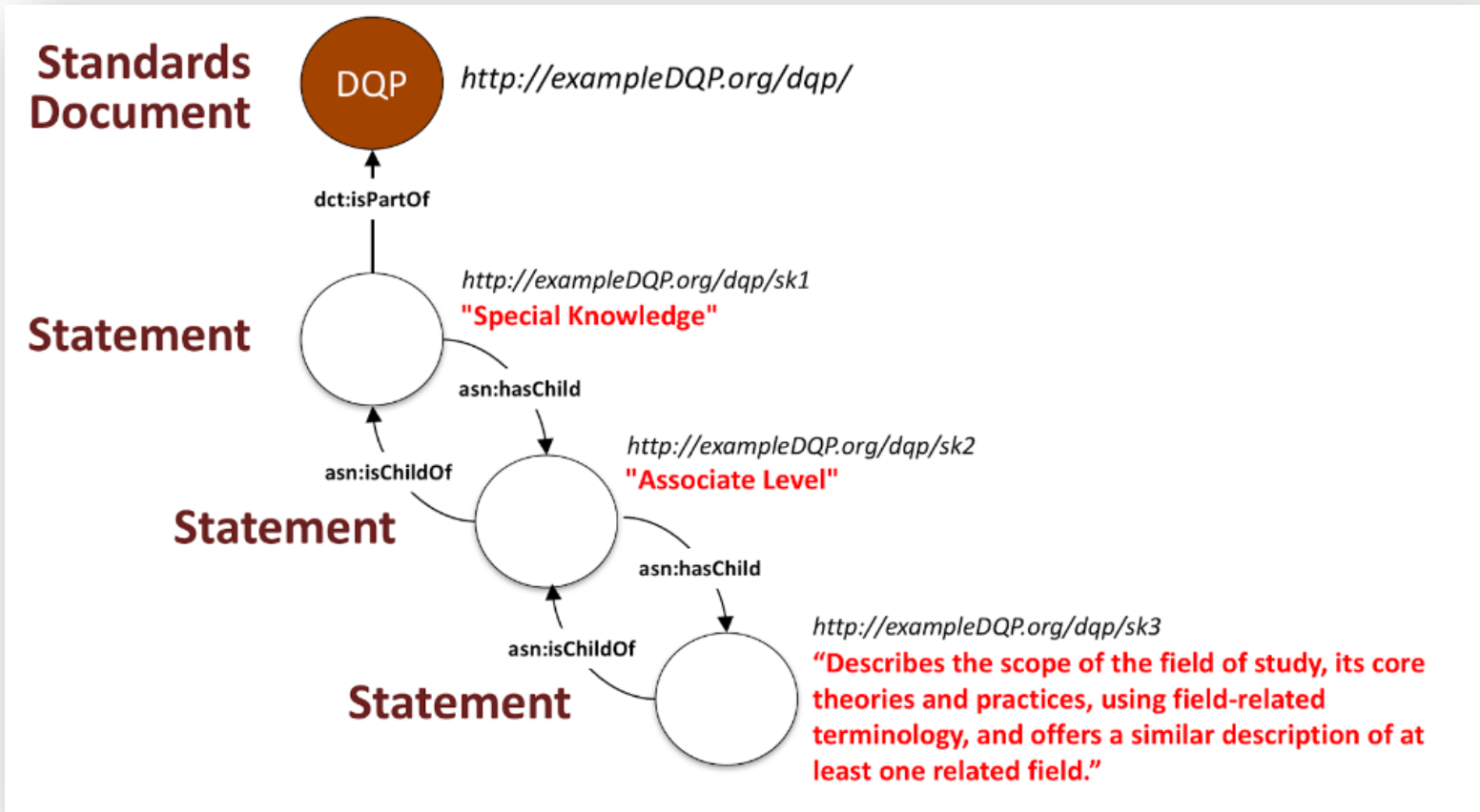


Basic Competency Architecture

CTDL/ASN-DL is made up of two fundamental entities:

1. Standards Document—a competency framework as a whole, and
 2. Statement—the individual assertions of knowledge, skill, and abilities of which a Standards Document is comprised.
- These two entities—documents and statements—are modeled in terms of an entity-relationship model (ER) and embodied as a directed graph using W3C's [Resource Description Language](#) (RDF).

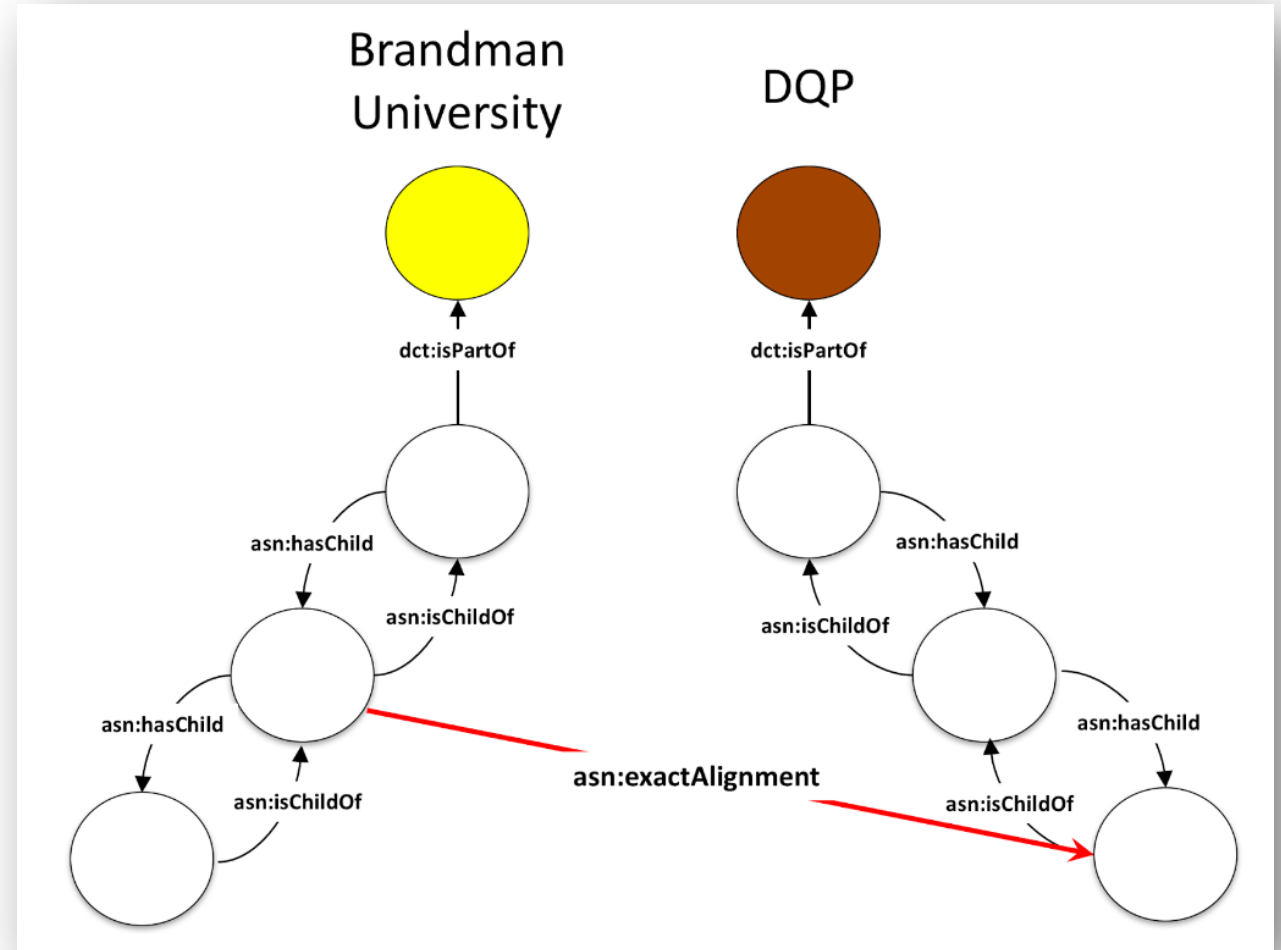
The diagram below illustrates the use of the Standards Document and Statement entities using an example encoding of a competency in the Degree Qualification Profile (DPQ).



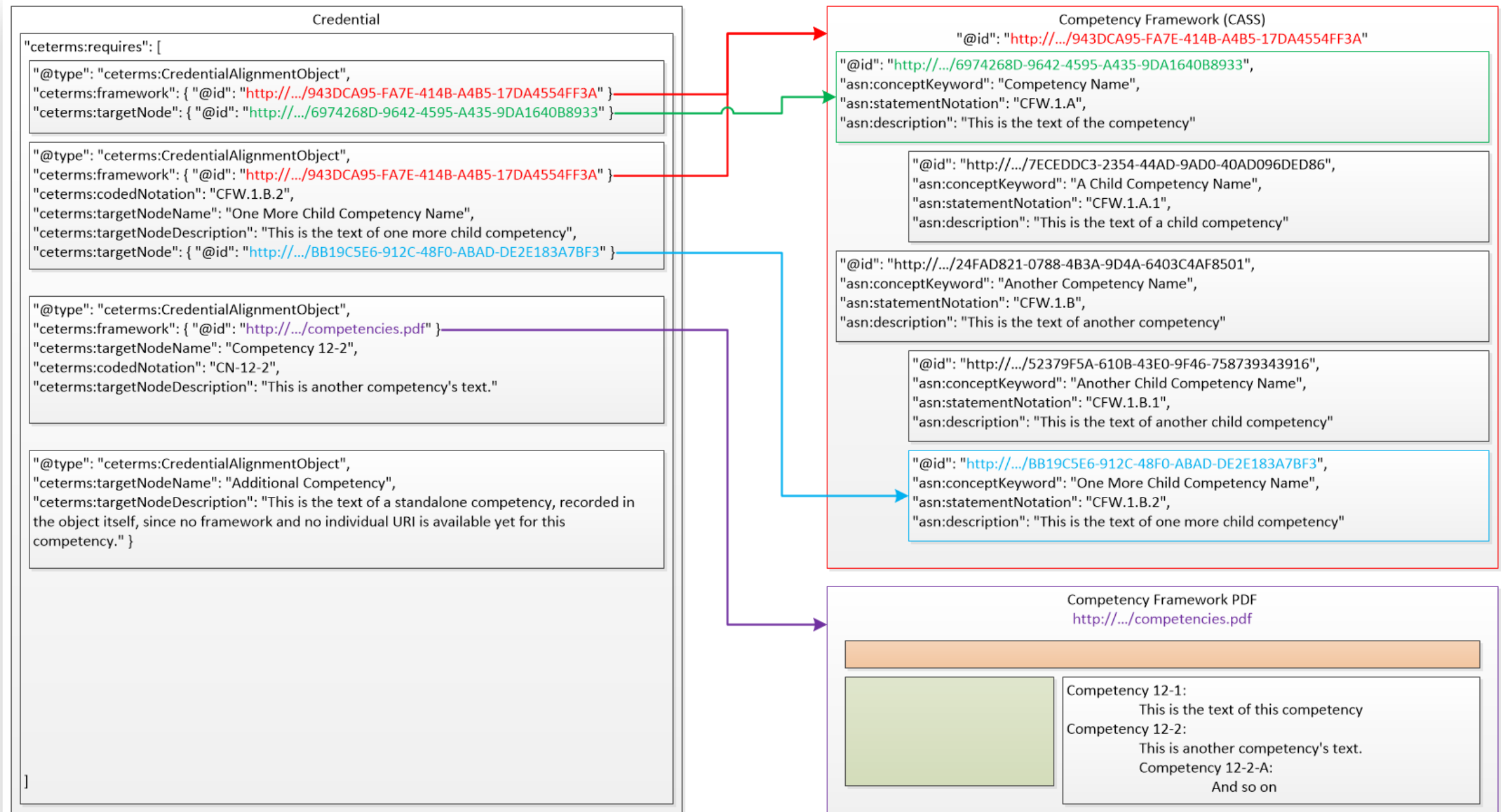
Basic Competency Architecture

Because every CTDL/ASN-DL resource and every ASN Statement resource is identified by URI, competency frameworks and their individual competencies can be mapped to each other regardless of where the Frameworks are located on the open Web.

The figure to the right, is an example that asserts an exact match relationship between a competency in a Brandman University competency framework and a competency in the Degree Qualification Profile (DQP).



Competency Framework References



Credential Engine References

Questions?

- Credential Engine Informational Site
<http://credentialengine.org>
- Credential Engine Technical Website:
<http://credreg.net/>
- Technical Advisory Committee
<http://credreg.net/tac>
- Technical Approach:
<http://credreg.net/tac/technicalapproach>
- Namespace Policy:
<http://credreg.net/page/namespacepolicy>
- CTDL Guide: <http://credreg.net/ctdl/handbook>
- CTDL Terms: <http://credreg.net/ctdl/terms>
- CTDL Serializations:
<http://credreg.net/ctdl/schema>
- CTDL Mapping Guide:
<http://credreg.net/ctdl/mapping>
- CTDL Release History:
<http://credreg.net/ctdl/release>
- CTDL ASN Guide:
<http://credreg.net/ctdlasn/handbook>
- CTDL ASN Terms:
<http://credreg.net/ctdlasn/terms>
- CTDL ASN Serializations:
<http://credreg.net/ctdlasn/schema>
- CTDL ASN Mapping Guide:
<http://credreg.net/ctdlasn/mapping>
- CTDL ASN Release History:
<http://credreg.net/ctdl/release>
- Credential Engine Registry Introduction:
<http://credreg.net/registry>
- Registry Assistant API Guide:
<http://credreg.net/registry/assistant>
- Credential Registry Search Query Builder Tool
<http://credreg.net/registry/search>
- GitHub Repository
<https://github.com/CredentialEngine>
- Use Cases <http://credreg.net/tac/usecases>
- Credential Finder Search App Prototype:
<http://credentialfinder.org>

Contact Information

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