

Way Ahead for xAPI

Mr. Andy Johnson
ADL Initiative

In 15 Seconds, What is xAPI?



- Technical Specification (Targeting Standardization)
- Actor-Verb-Object Structure
- Human and Machine Readable

What is a Learning Record Store (LRS)?



- ← This, but digital
- Sharing Across Systems
- Mandates Retrieval

What can xAPI Do?



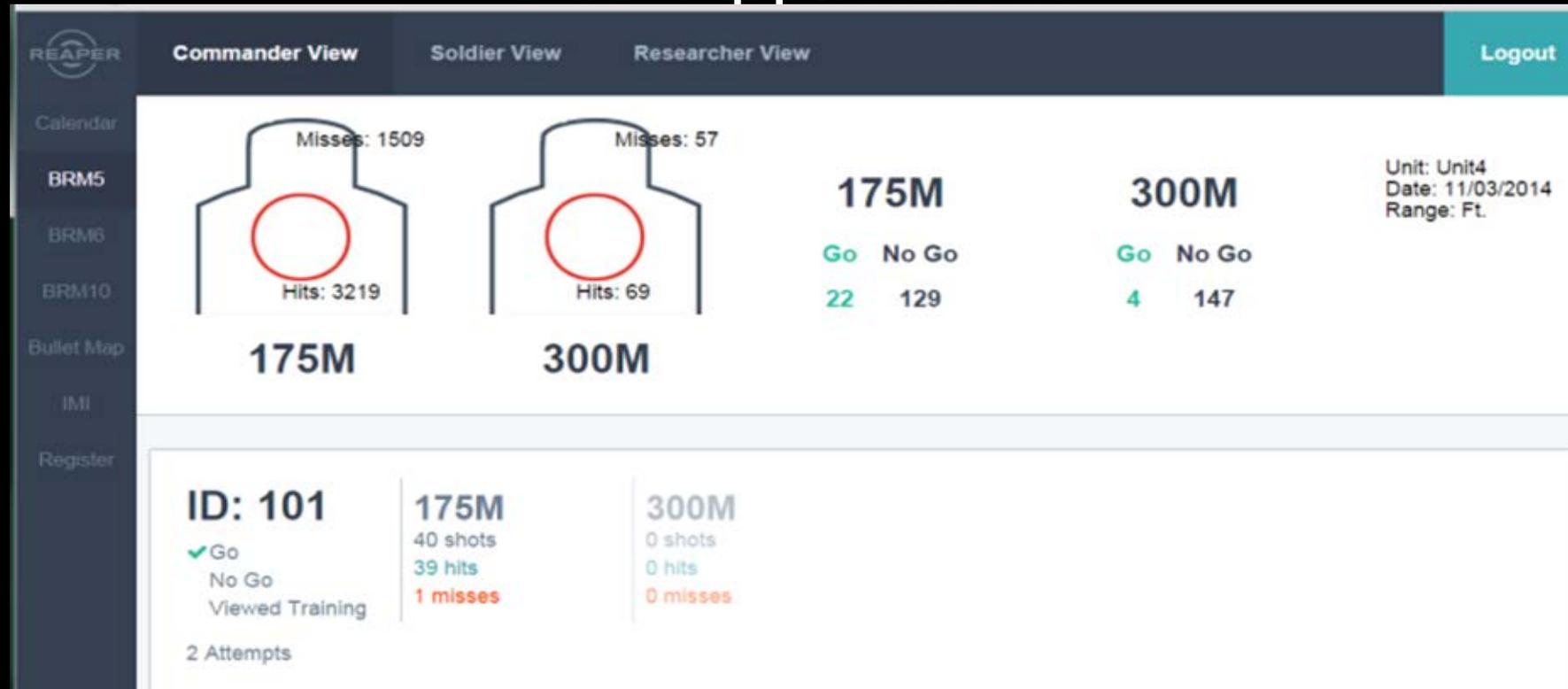
- Limitless Interaction Types
- Separate Data from PII
- Sensor + Performance + Learning Data = Win

What Can xAPI Do?



- Enable ROI Data
- Improved Instruction
- Find Outliers

DoD Applications



- Enable Instructors
- Enable Visualizations and Analytics
- Insight into Competency

DoD Applications



Home Maintenance Checklist:

Task:	Q1	Q2	Q3	Q4	YTD
Foundation and Basement					
Inspect for signs of moisture and water damage					<input checked="" type="checkbox"/>
Check grout to ensure that water will drain away from foundation					<input checked="" type="checkbox"/>
Check basement for dampness or mold following heavy rain					<input checked="" type="checkbox"/>
Doors and Windows					
Check doors, windows and lock for smooth function					<input checked="" type="checkbox"/>
Check glass-paning for loose panes					<input checked="" type="checkbox"/>
Check for broken glass and damaged screens					<input checked="" type="checkbox"/>
Take dead screens, clean and store them					<input checked="" type="checkbox"/>
Lubricate window hardware					<input checked="" type="checkbox"/>
Check weatherstripping for damage and tightness					<input checked="" type="checkbox"/>
Check caulking of doors, windows, and all other openings and joints between different materials					<input checked="" type="checkbox"/>
Exterior Walls					
Check exterior for cracks and other damage					<input checked="" type="checkbox"/>
Check general condition for water leakage					<input checked="" type="checkbox"/>
Check siding and trim for damage or decay					<input checked="" type="checkbox"/>
Check all areas for signs of mold or insect damage					<input checked="" type="checkbox"/>
Roof					
Check for damaged or loose shingles					<input checked="" type="checkbox"/>
Check underside of roof where accessible for signs of rot or damage					<input checked="" type="checkbox"/>
Check for damaged flashing around vents and chimneys					<input checked="" type="checkbox"/>
Check for damaged gutters, downspouts, hangers, downpipes, and splash blocks					<input checked="" type="checkbox"/>
Clear gutters, downspouts, downspouts, and splash blocks					<input checked="" type="checkbox"/>
Check vents, downspouts, and splash blocks and hangers for cracks and damage					<input checked="" type="checkbox"/>
Check fascia and soffits for paint failure and decay					<input checked="" type="checkbox"/>
Check exterior gas water and septic					<input checked="" type="checkbox"/>
Inspect roof for future replacement					<input checked="" type="checkbox"/>
Tasks: Interior Surfaces					
Check finished surfaces for dirt, dust before and after painting					<input checked="" type="checkbox"/>
Check all joints, corners, risers, finished glass and similar surfaces					<input checked="" type="checkbox"/>
Check cracks or grouting around bathtubs, showers, and tiles					<input checked="" type="checkbox"/>
Floors					
Check for wear and damage, particularly where use is excessive, heavy, or uneven					<input checked="" type="checkbox"/>
Check for moisture and mold					<input checked="" type="checkbox"/>
Electrical System					
Check condition of all work to appliances and outlets					<input checked="" type="checkbox"/>
Check areas where wiring is exposed and replace if not up to code					<input checked="" type="checkbox"/>
Check smoke detectors					<input checked="" type="checkbox"/>
If alarm blows or indicates fire frequently, call an electrician to locate the cause and make needed repairs					<input checked="" type="checkbox"/>
Heating and Cooling Systems					
Change or change air filters					<input checked="" type="checkbox"/>
Check systems checked by qualified person					<input checked="" type="checkbox"/>
Remove window air conditioning for winter					<input checked="" type="checkbox"/>
Clean A/C and duct from annual furnace, conditioning units, and registers					<input checked="" type="checkbox"/>
Service humidifiers and dehumidifiers					<input checked="" type="checkbox"/>
Plumbing System					
Check faucets, hot water, flush valves and valves for leakage and operation					<input checked="" type="checkbox"/>
Check water pressure for leakage, drainage or obstructions					<input checked="" type="checkbox"/>
Grounds and Yards					
Check outside water lines and hoses					<input checked="" type="checkbox"/>
Check area with, window wells, and eaves of roof					<input checked="" type="checkbox"/>
Check drainage and sidewalks for cracks					<input checked="" type="checkbox"/>
Check yard for soil erosion					<input checked="" type="checkbox"/>

DoD Applications



- More Refined Data
- Across Sims and HR Systems
- Pinpoint Knowledge / Performance Gaps

DoD Applications



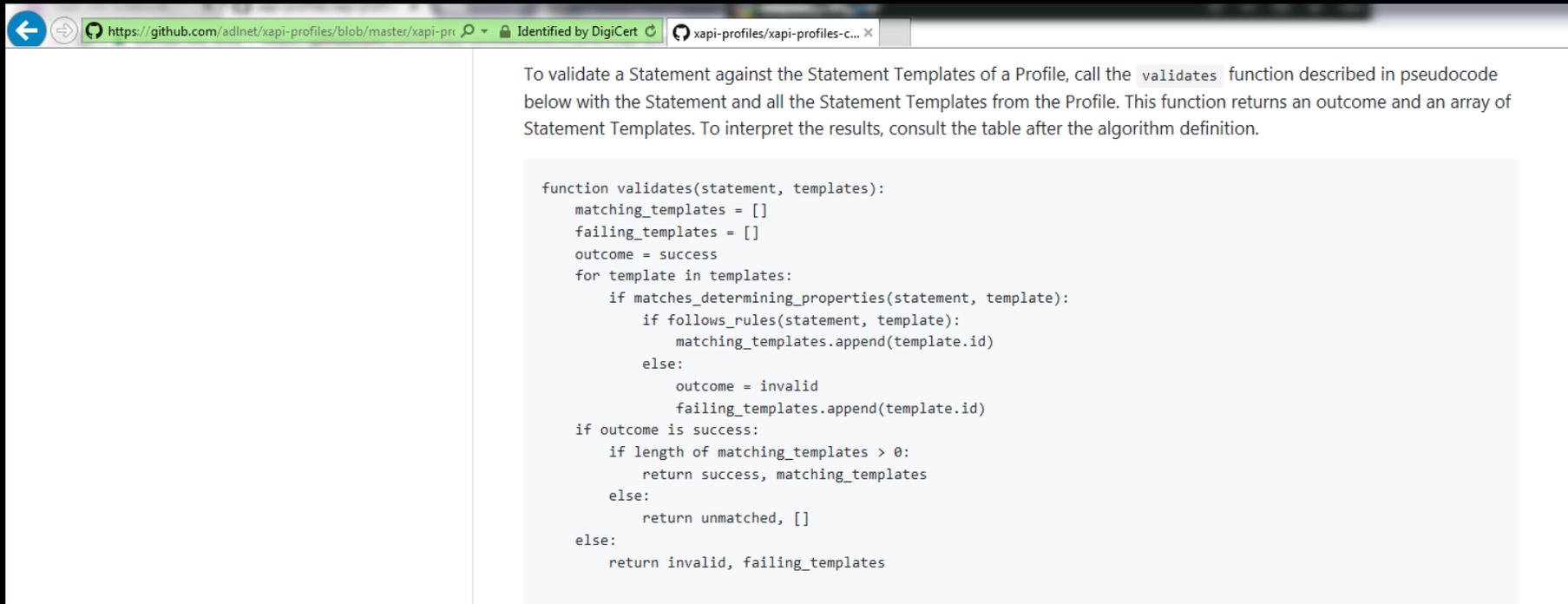
- Considerable Need for DL
- Most Generated by Authoring Tools
- More Reaching To Assist Vendors

Cmi5 for Content Authoring



- Look for cmi5 in Authoring Tools
- LMS + xAPI = cmi5
- Cmi5 Support INCLUDES xAPI Support

xAPI Profile Specification



To validate a Statement against the Statement Templates of a Profile, call the `validates` function described in pseudocode below with the Statement and all the Statement Templates from the Profile. This function returns an outcome and an array of Statement Templates. To interpret the results, consult the table after the algorithm definition.

```
function validates(statement, templates):
  matching_templates = []
  failing_templates = []
  outcome = success
  for template in templates:
    if matches_determining_properties(statement, template):
      if follows_rules(statement, template):
        matching_templates.append(template.id)
      else:
        outcome = invalid
        failing_templates.append(template.id)
  if outcome is success:
    if length of matching_templates > 0:
      return success, matching_templates
    else:
      return unmatched, []
  else:
    return invalid, failing_templates
```

- Template of Technical Rules
- Validates Sets of Statements
- Employs Semantic Web Principles

What Are These Profiles?



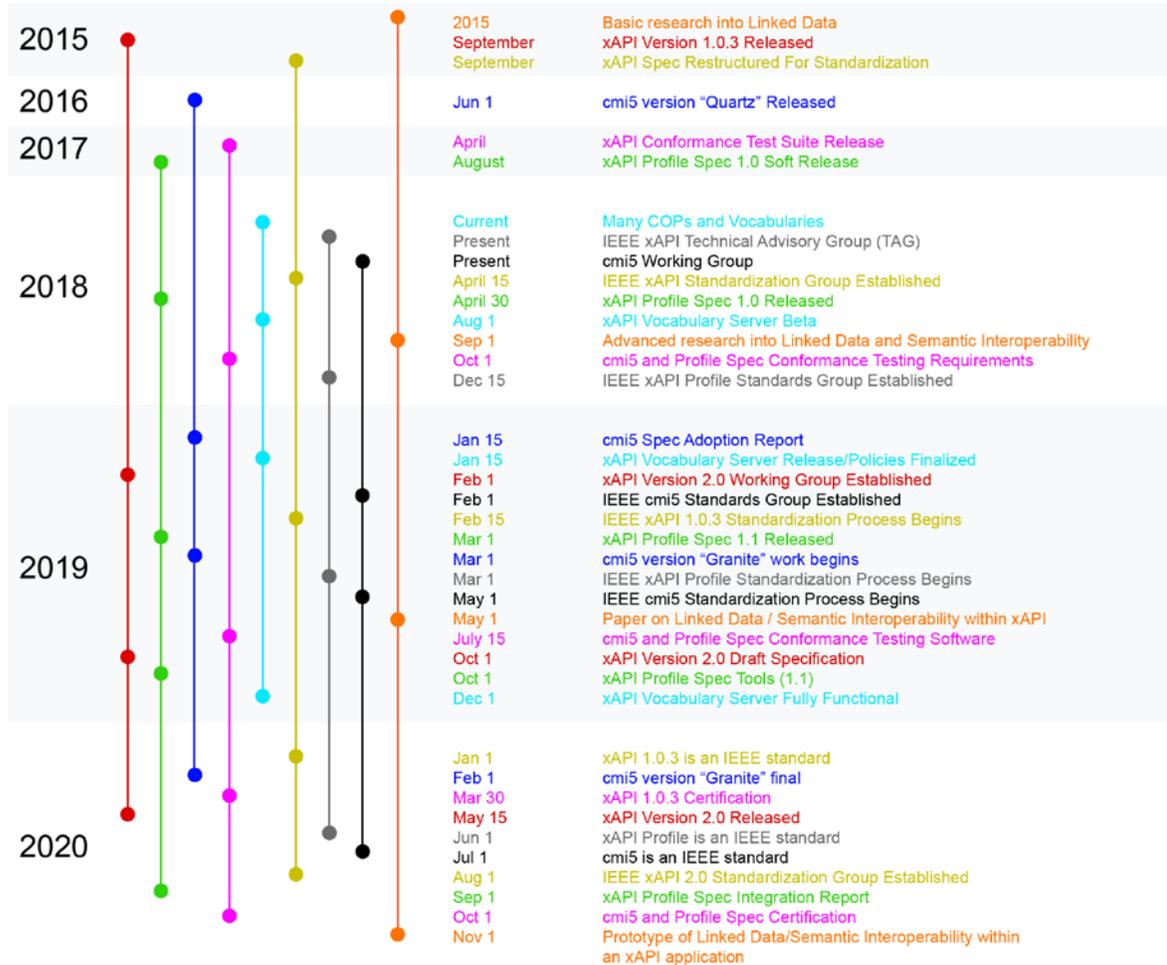
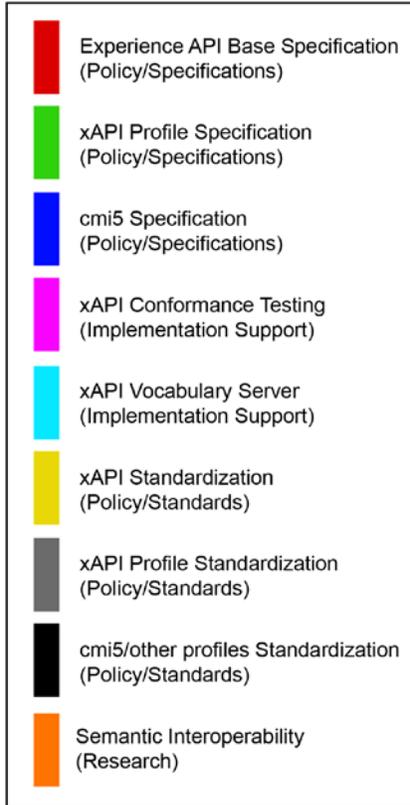
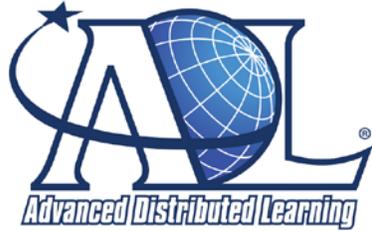
- Traditional Distributed Learning
- Specific Modes of Delivery
- Instructional Types

DoD Instructional Design Profile

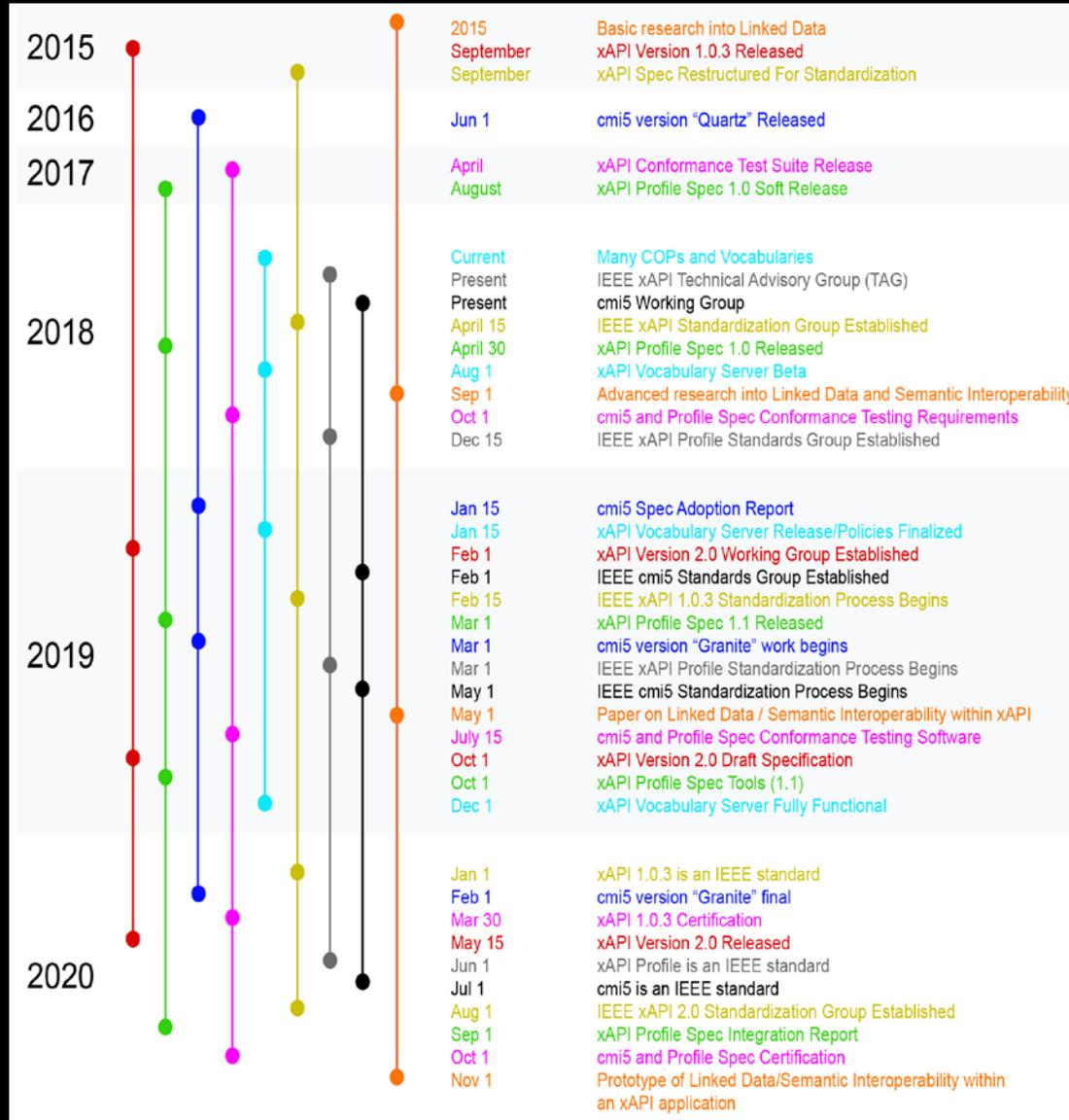


- Profile Developed for the U.S. Air Force
- Focus is Verbs in Conjunction with IMI Levels
- Suggest Open Collaboration for Revision and Adoption

xAPI Modernization Timeline

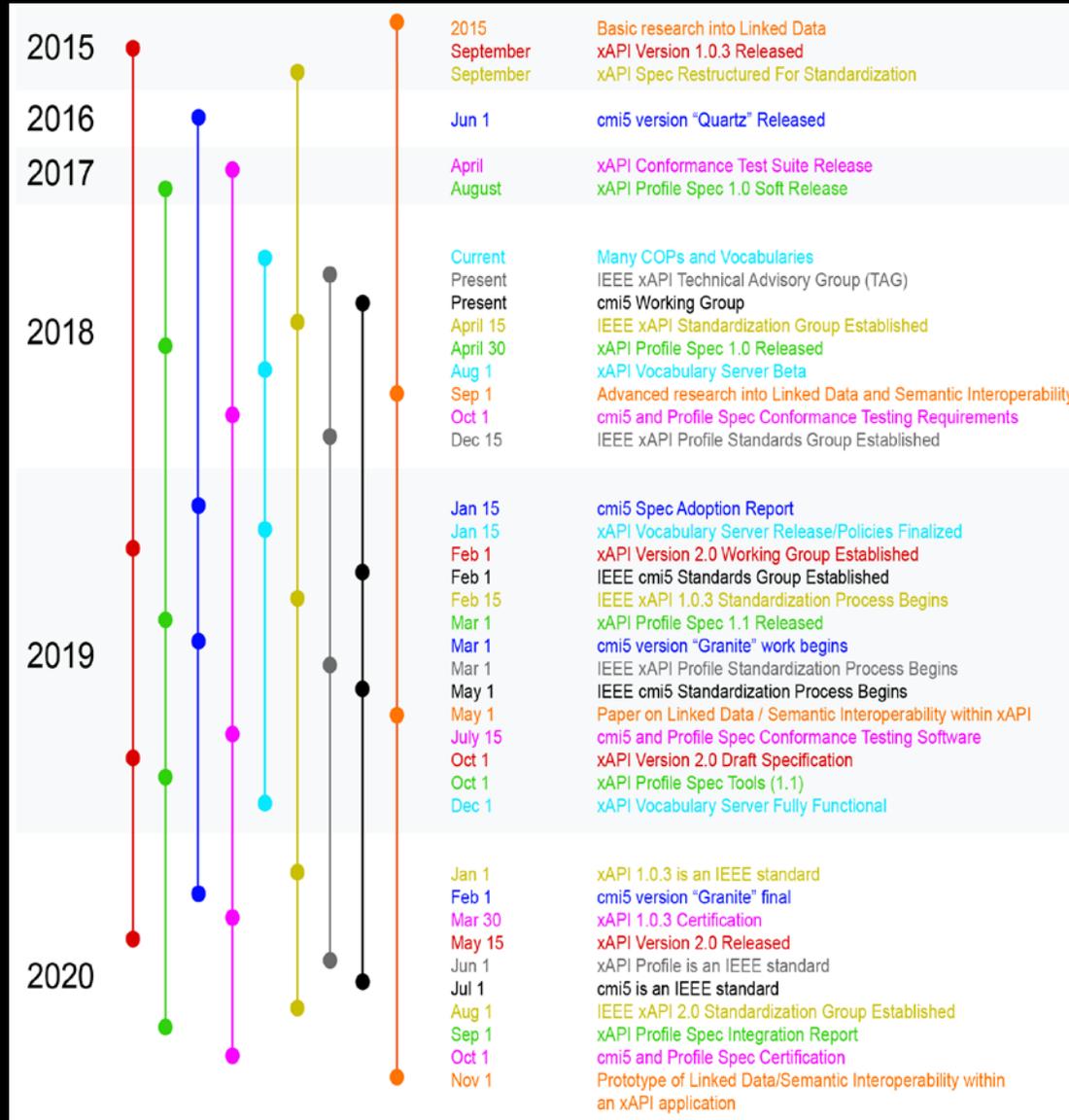


xAPI Standardization (Yellow)



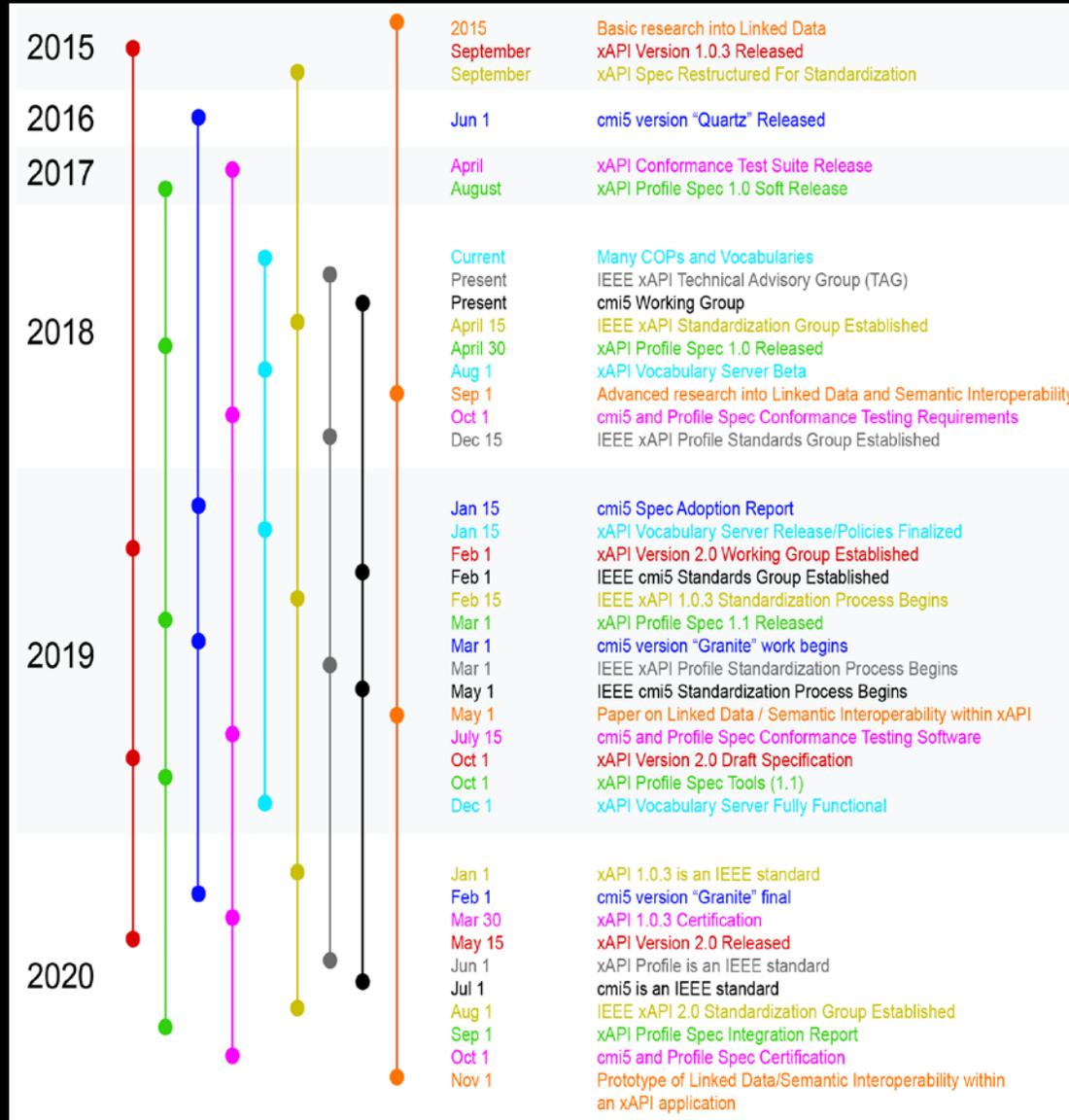
- IEEE Approved Working Group
- By Early 2019, re-Issued for Ballot
- xAPI a Standard by Ball-drop 2019

cmi5 Standardization (Black)



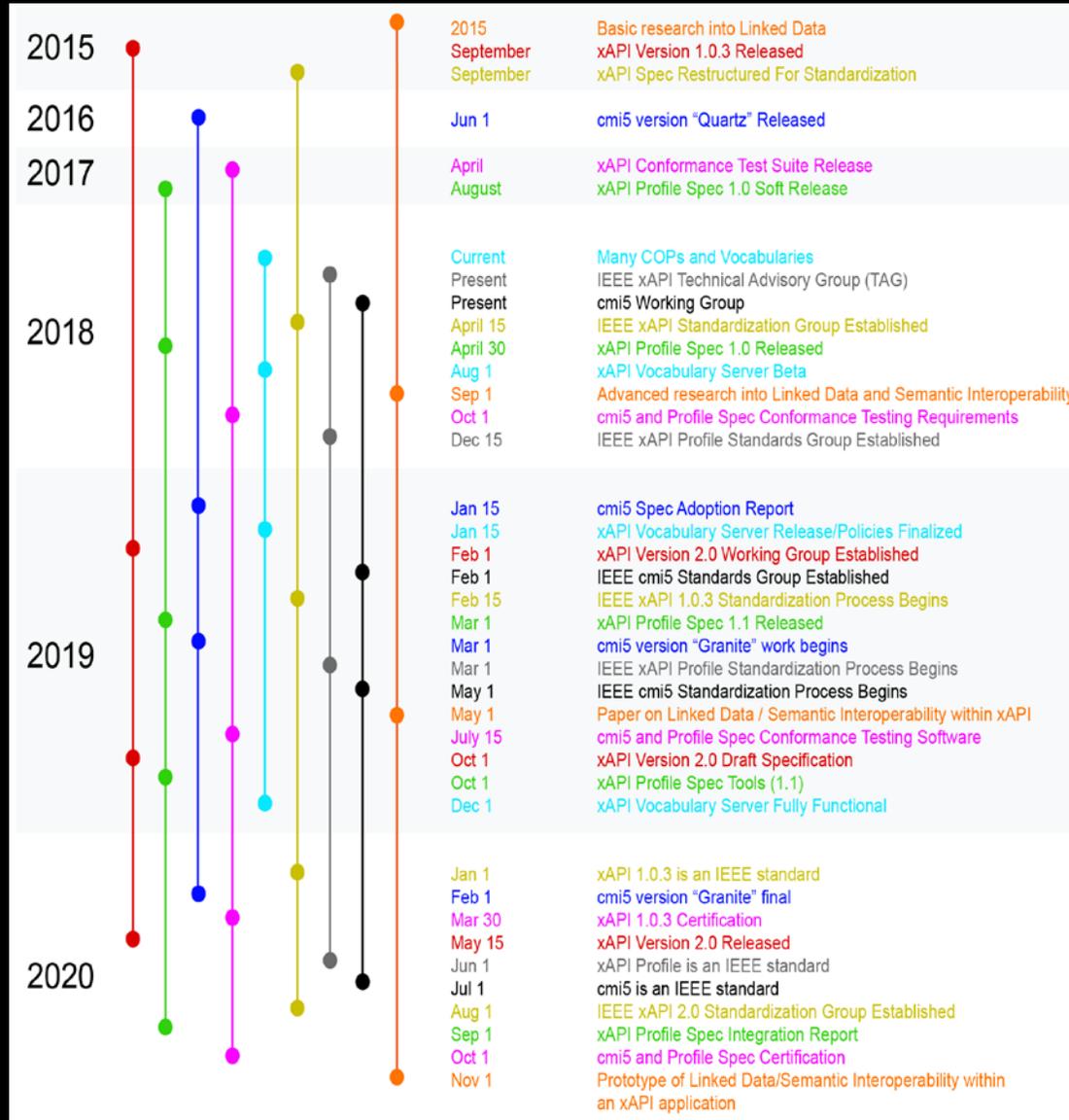
- Finalized Requirements and Procedures
- Establish IEEE group in 2019
- Summer of 2020 – a Standard

xAPI Profile Standardization (Grey)



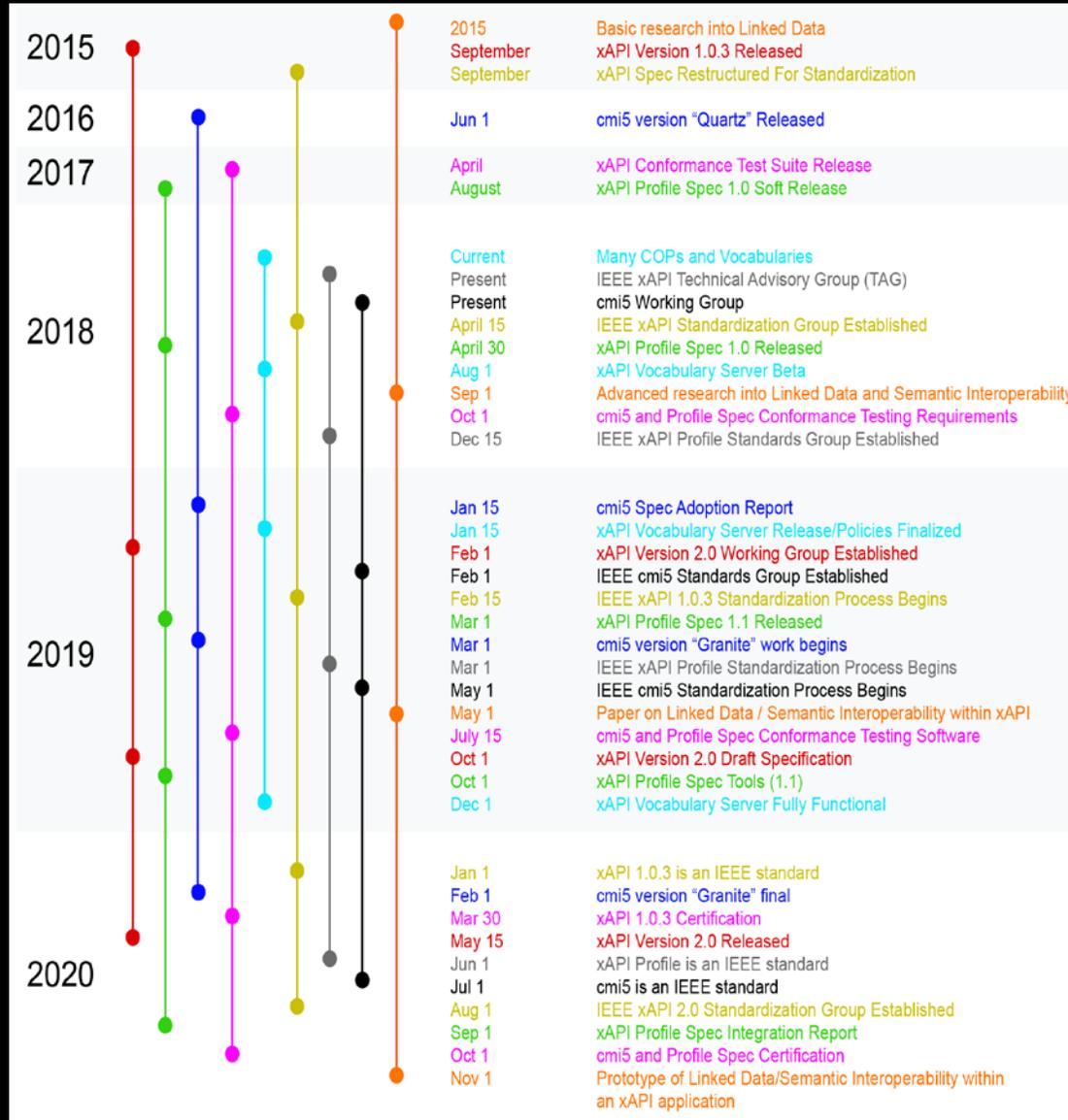
- Slow Evaluation
- IEEE will Give it a Kick in late 2018
- Summer of 2020 – a Standard

xAPI Conformance Testing (Pink)



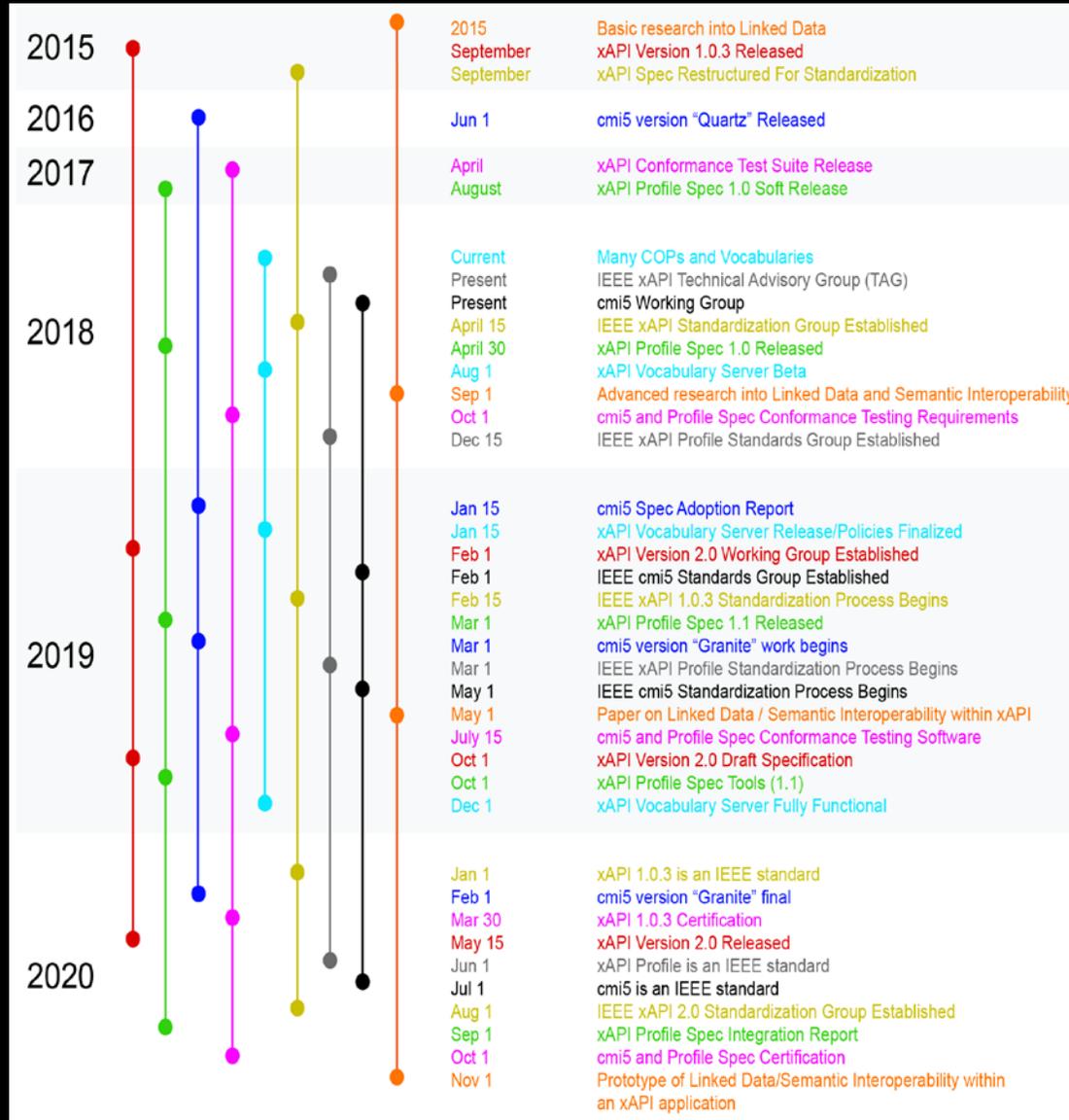
- LRS Test Suite Exists
- Cmi5/Profile Requirements 2018
- Cmi5 and Profile Software in 2019
- Certification Processes in 2020

xAPI Vocabulary Server (Light Blue)



- Vocabulary Server in Beta
- Policies in place early 2019
- Full capacity end of 2019

xAPI 2.0 (Red)



- Benefits of 2.0 Established
- IEEE Working Group Early 2019
- Draft Version by Oct 2019
- Release in May 2020

xAPI – The Time Is Now





Andy Johnson

Specs and Standards Manager

Andy.johnson.ctr@adlnet.gov

@AndyJohnsonADL

608-318-0049

Thank You!