

# JBI Agent Based Architecture

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Air Force MOIE

The logo for the MITRE Technology Program, featuring a stylized graphic of stacked blocks in yellow, orange, and blue to the left of the text.

**MITRE**  
Technology  
Program

# Problem

- Intelligence analysts need access to exploited imagery on simple interfaces (e.g., browser)
- Image Product Libraries (IPLs) contain exploited imagery accessible via secure Web but . . .
  - Search process is manually intensive and error prone – need to simplify
  - Need to capture analyst search heuristics in a machine-readable way

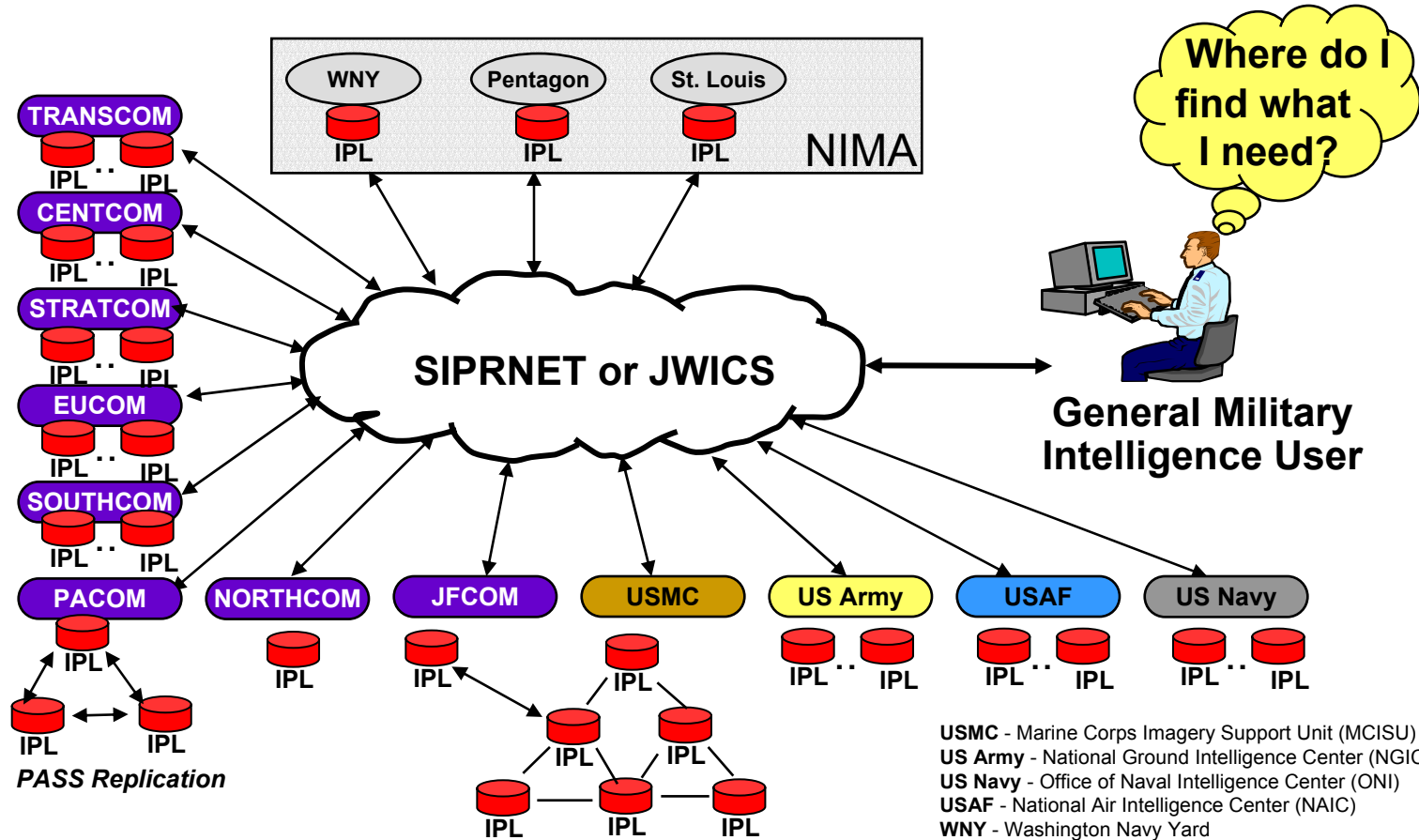
Unexploited Image



Exploited Image

# Background

Combatant Commanders, Services, and Agencies Have One or More Image Product Libraries – over 400 IPLs Planned



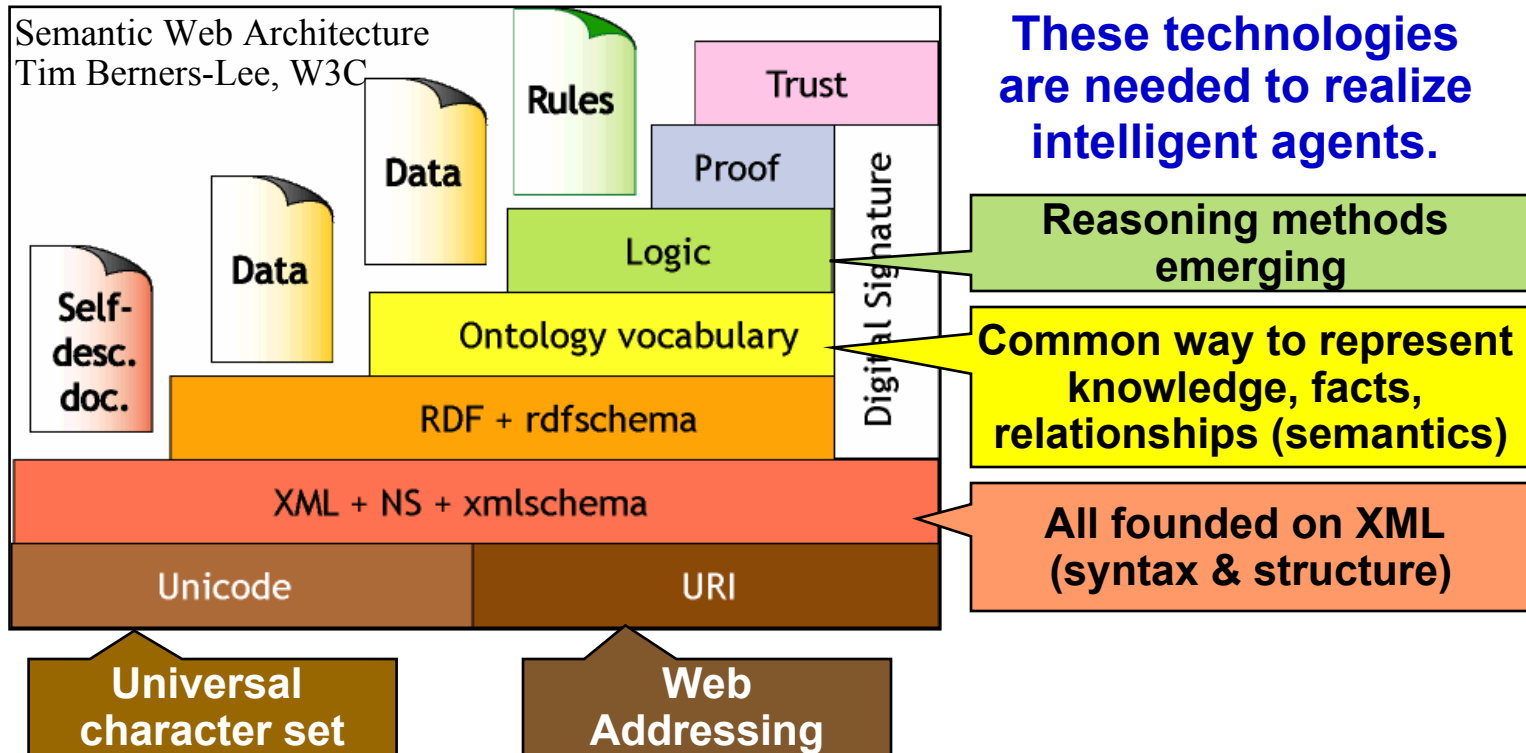
# Objectives

- **Understand how to apply semantic Web and agent technologies to our customers' domains using a practical application**
- **Apply to exploited imagery domain to potentially solve a real-world problem**
- **Determine how to bridge these technologies with a Joint Battlespace Infosphere (JBI) information management approach**
- **Share results widely**

# Activities

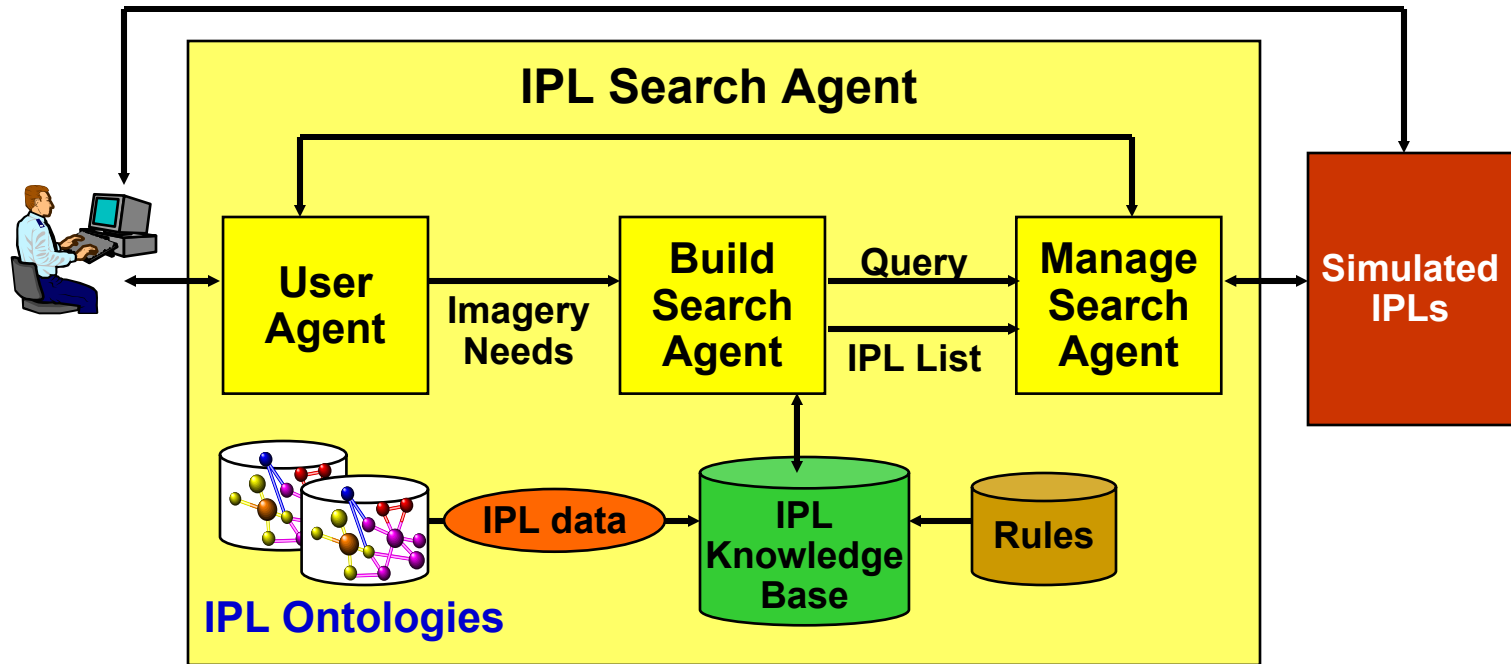
- **Use ontologies to capture IPL architecture and linkage between IPL archives**
- **Capture analyst “rules of thumb” for guiding a search (e.g., where to start, next most likely IPL archive)**
- **Create a software agent to perform “smart searches” on behalf of the user that exploits knowledge in the ontology and rules**
- **Integrate IPL Search Agent with MITRE Enterprise JBI prototype**

# Highlight



**Extensible Markup Language (XML) : international standard for data interchange on the Web**

# Highlight



Web Browser

Protégé, Jess Reasoner, JADE Agent Framework

IPL, Quick Query



# Impacts

- **Develop informed opinions on how semantic Web and agent technologies could be applied to our customers' domains**
- **Understand how to link semantic Web technologies to a JBI publish/subscribe paradigm**
- **Transition findings to:**
  - **Users (IPL domain alone has  $\approx$ 470 IPL owners)**
  - **MITRE**
  - **Research community**

# Future Plans

- **Employ power of agent framework**
- **Integrate with MITRE Enterprise JBI prototype**
- **Consider additional operational benefits of machine to machine interaction**
- **Share results**