Modeling Composable Data Schemas for Data Visibility for Adaptive Planning and Force Sourcing Processes

14th ICCRTS

Track: Collaborative Technologies for Network Centric Operations

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Monday, June 29, 2009

MITRE

- **Net-centricity is the process of connecting people/systems that *have* information with people/systems that *need* information as determined by the organization that owns the data and not constrained by the application handling the data.**

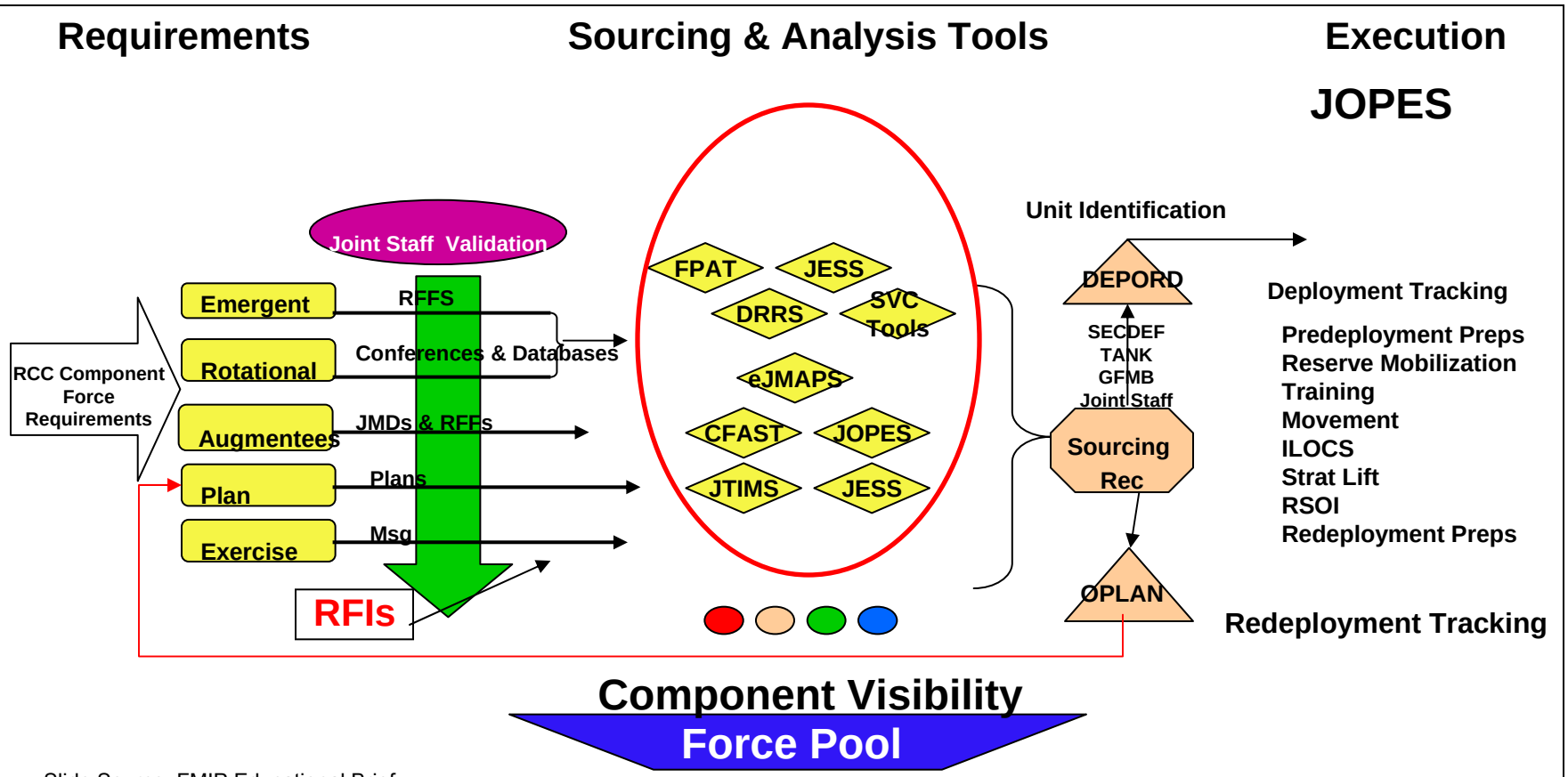
NECC Architecture Framework

Agenda

1. Who needs the Force Sourcing Data
2. Where is the data?
3. Data Modeling Approach
4. Recommendations

WHO NEEDS THE FORCE SOURCING DATA?

Force Sourcing Data Consumers & Producers

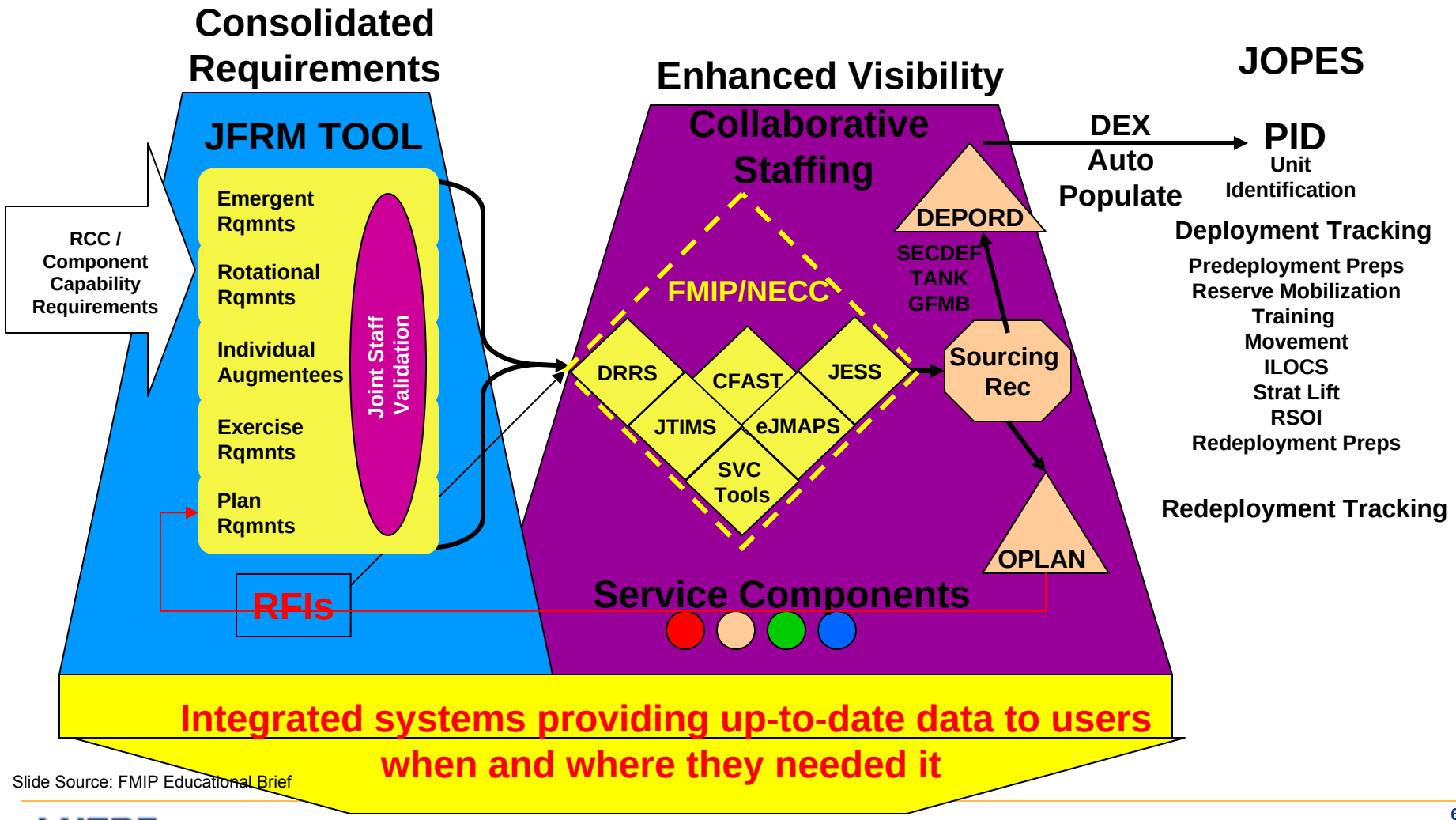


Slide Source: FMIP Educational Brief

No system interoperability.
Data is not visible, accessible or understandable

The End State…

Integrated Services and Processes



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WHERE IS THE FORCE SOURCING DATA?

FMIP Phase 3 - Data Visibility Process

1. Identify the global force management Information Exchange Requirements (IER)
2. Identify the authoritative data sources and tools for each of the IER data elements
3. Model the schemas needed to support the GFM, APEX and Readiness business processes
4. Model the business processes and the tools needed for each activity and decision point

Define the USJFCOM 47 Critical Information Exchange Requirements

1. Current Location
2. Unit Employment Data
3. Service Name
4. Service Component (AC, RC, Reserve/Guard)
5. UIC
6. Abbreviated Unit Name
7. Long Name
8. Major Command
9. Combatant Command
10. Unit Type Code
11. Unit Descriptor Code
12. Unit Level Code
13. Home Location
14. Unit Authorized, Assigned, Deployable Personnel
15. Equipment Type
16. Equipment Model
17. Equipment Description
18. Equipment Quantity Authorized
19. Equipment Assigned
20. Equipment Quantity Available
21. Mapping from High Level Joint Capability Areas (JCA) to low Level Unit Types
22. Force Capability Libraries/Templates
23. Mapping of Service Capabilities to Joint Capabilities
24. Percent Effective
25. Date of Last Record Update (date readiness last reported)
26. Overall Readiness
27. Expected Change/Forecasted Change Date
28. Primary Reason, Secondary Reason, Tertiary Reason (Readiness)
29. Personnel (Readiness)
30. Training
31. Equipment Condition & Supplies On Hand Readiness
32. Readiness of Each Capability Supported
33. Commanding Officer's Comments for Each Capability
34. MOB (Mobilizations, Demobilizations, Extensions, Re-Mob, Mob Authority)
35. Deployments (operational, exercise, redeployments)
36. Maintenance
37. Transformation
38. Unit Capabilities (Service Definitions)
39. Dwell
40. Reset
41. OPS/PERS Tempo
42. Readiness (minimum standards for deployment)
43. PTDO (Prepare to Deploy Orders)
44. Mobilization/Demobilization
45. Reset/Reconstitution
46. JSCP Apportionment
47. OPCON/ADCON Relationships

Data mapping must include not only the authoritative data source but also information on how to link the data elements from disparate tools

Slide Source: JS/J8 MASO Data Summit

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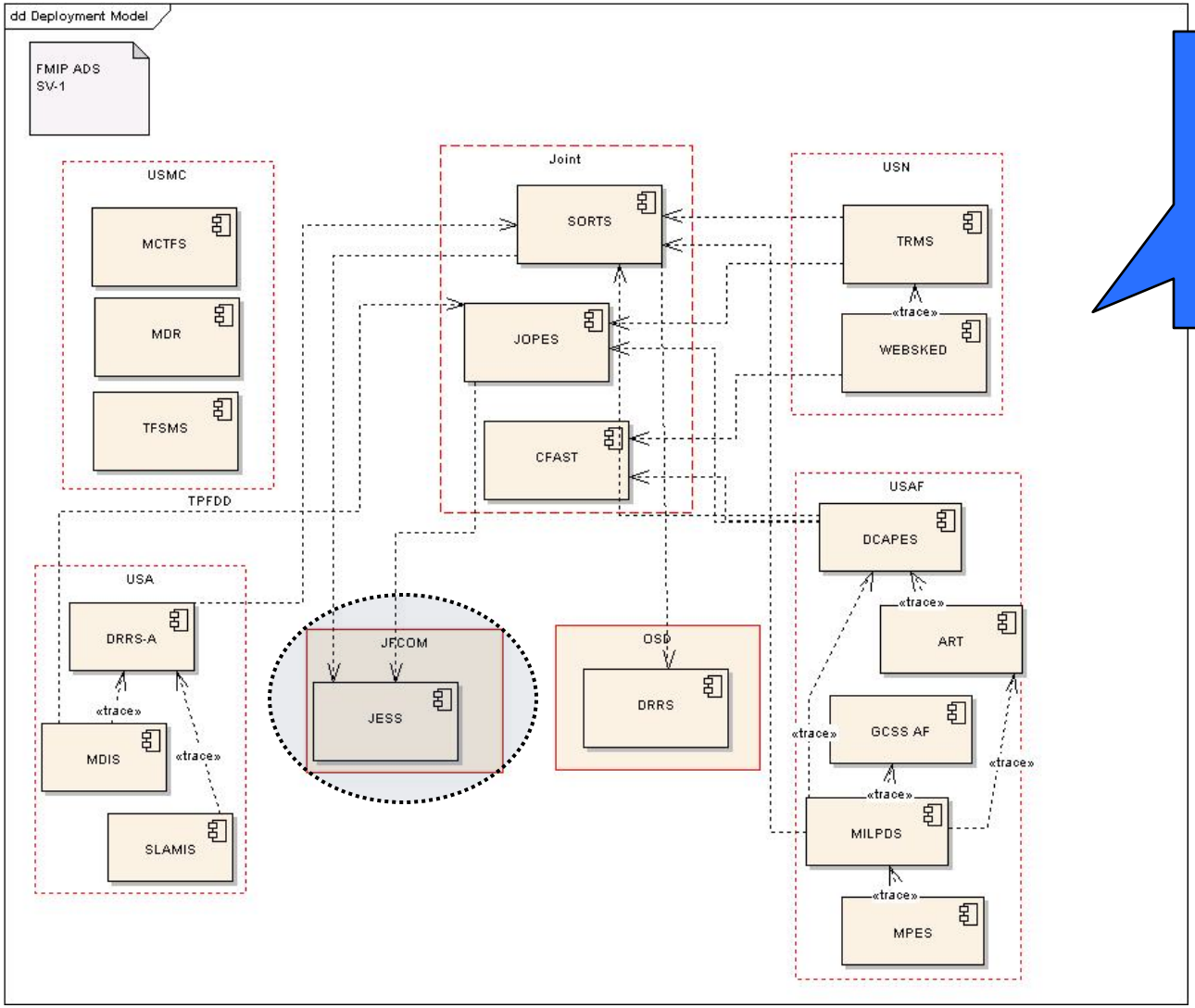
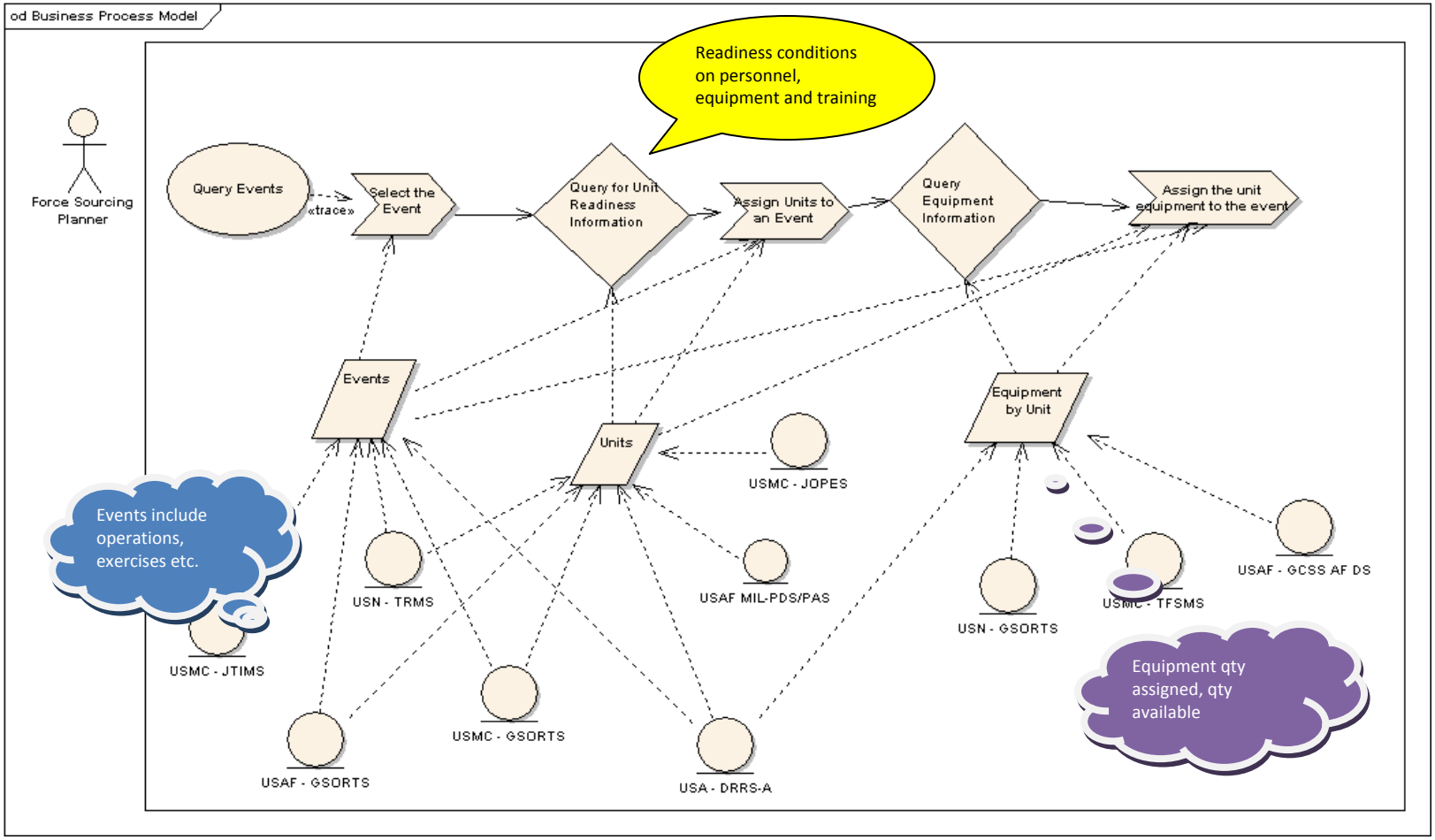
The data is located in these tools



Point-to-Point interfaces exchange data using unique predefined formats.

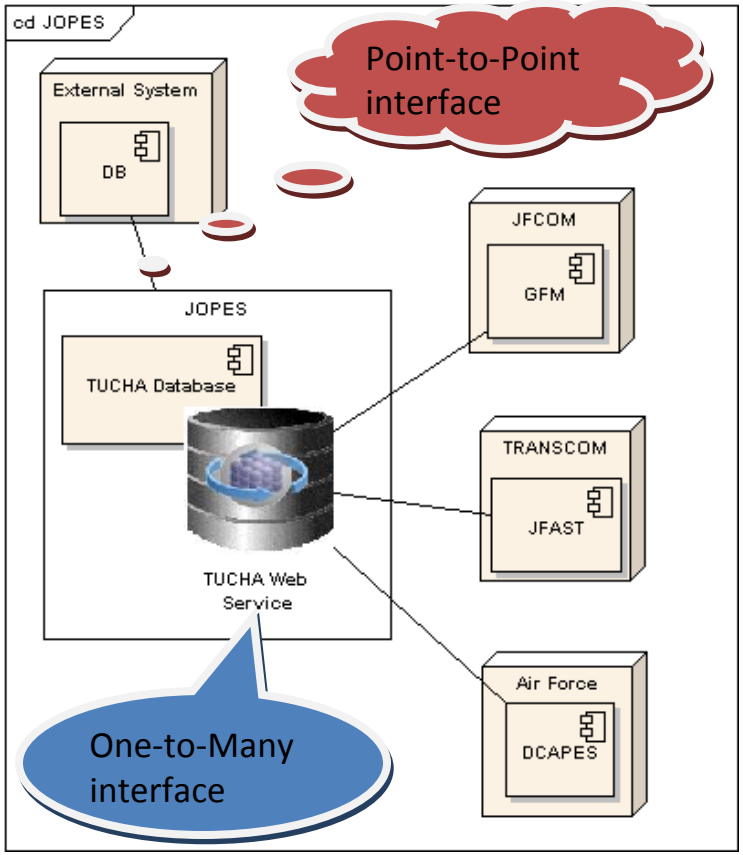
Current systems interfaces are point-to-point, and few are connected to the GFM toolset (JESS)

Business Modeling to understand the IERs workflow



Business process provide a context for the data mapping to identify authoritative sources and how to link the IER data elements

What are composable capabilities?



- **Building a flexible environment to integrate data sources easily to access and distribute information on demand to users**
- **Tag data and data sources to make them visible, accessible, understandable, timeliness, trusted and interoperable**

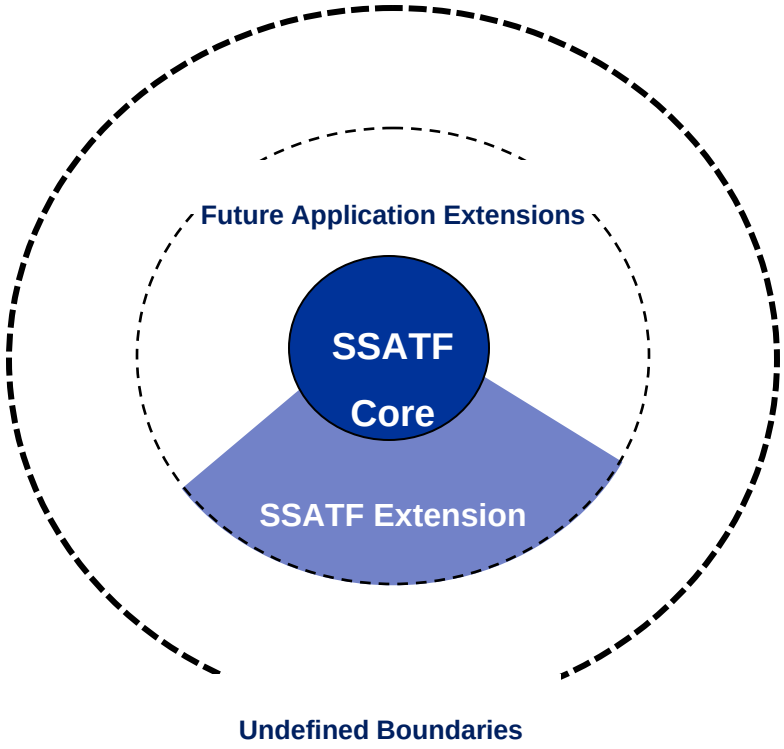
Rather than reengineering what data services should be built to share information, many of the legacy applications simply implement their current interfaces in a XML format and expose them with a Web Services Description Language.

DATA MODELING APPROACH

MODEL INFORMATION EXCHANGE REQUIREMENTS AS DISCRETE INFORMATION RESOURCES

Net Enabled Command Control Data Framework

- Reuses the best aspects of the UCORE approach (V1 and V2)
  - Defines substantive enhancements to the profiled UCORE v1 baseline
    - Adopted GML Profile basis
  - Formalizes the semantics and modeling of the "what" via OWL from UCORE 2.0 "alpha"
    - The framework provides the representational patterns to be used within the core and application extension XSDs
    - Profiled UCORE 2.0 "alpha" Taxonomy



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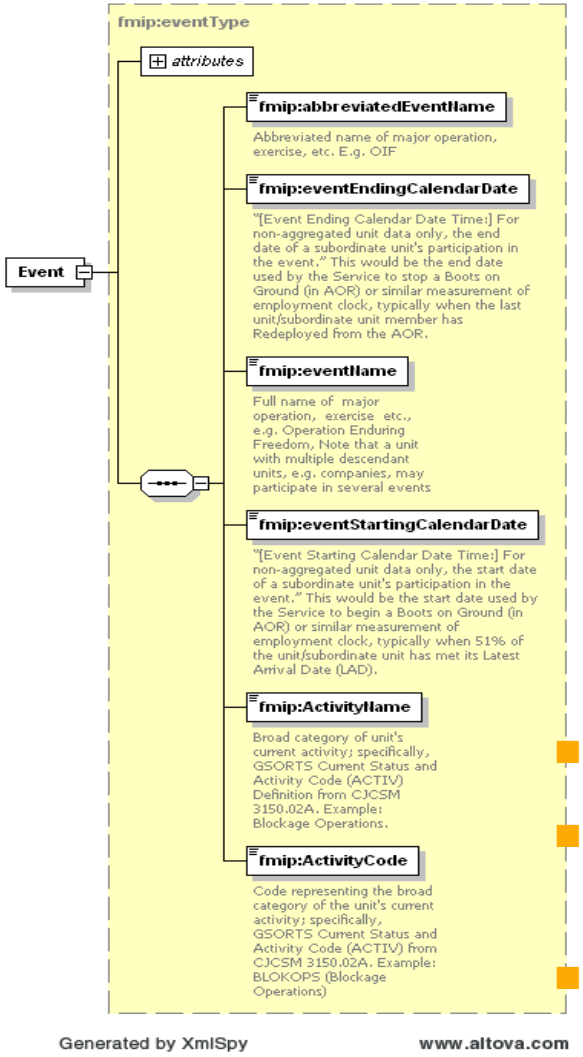
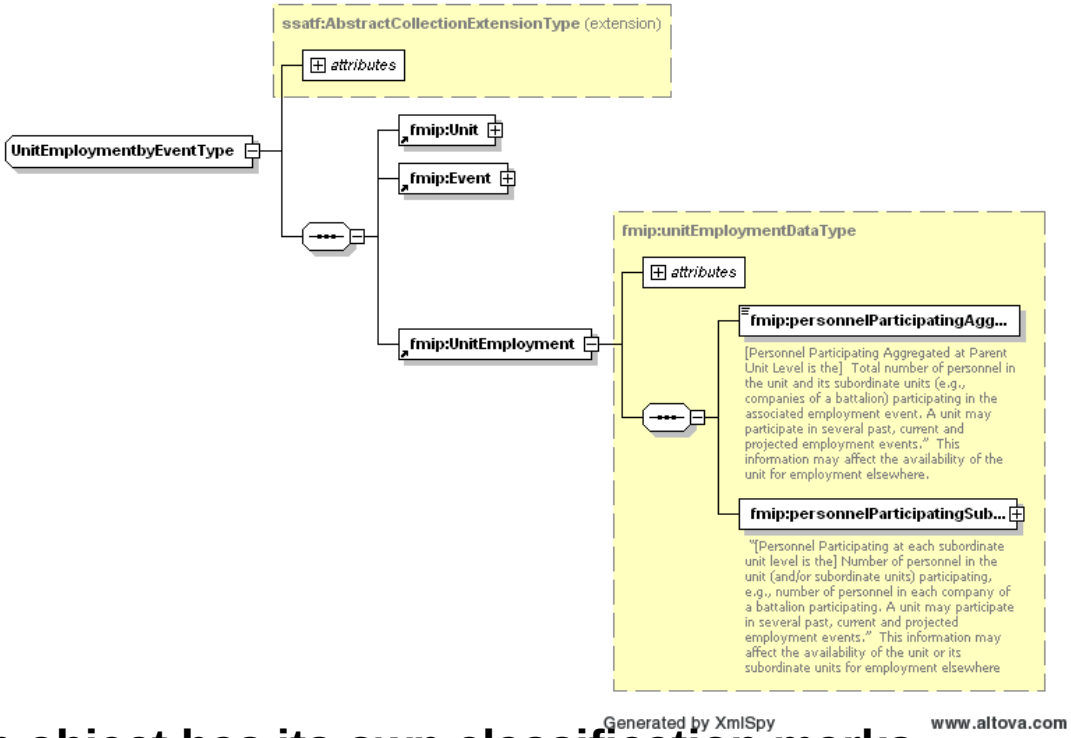
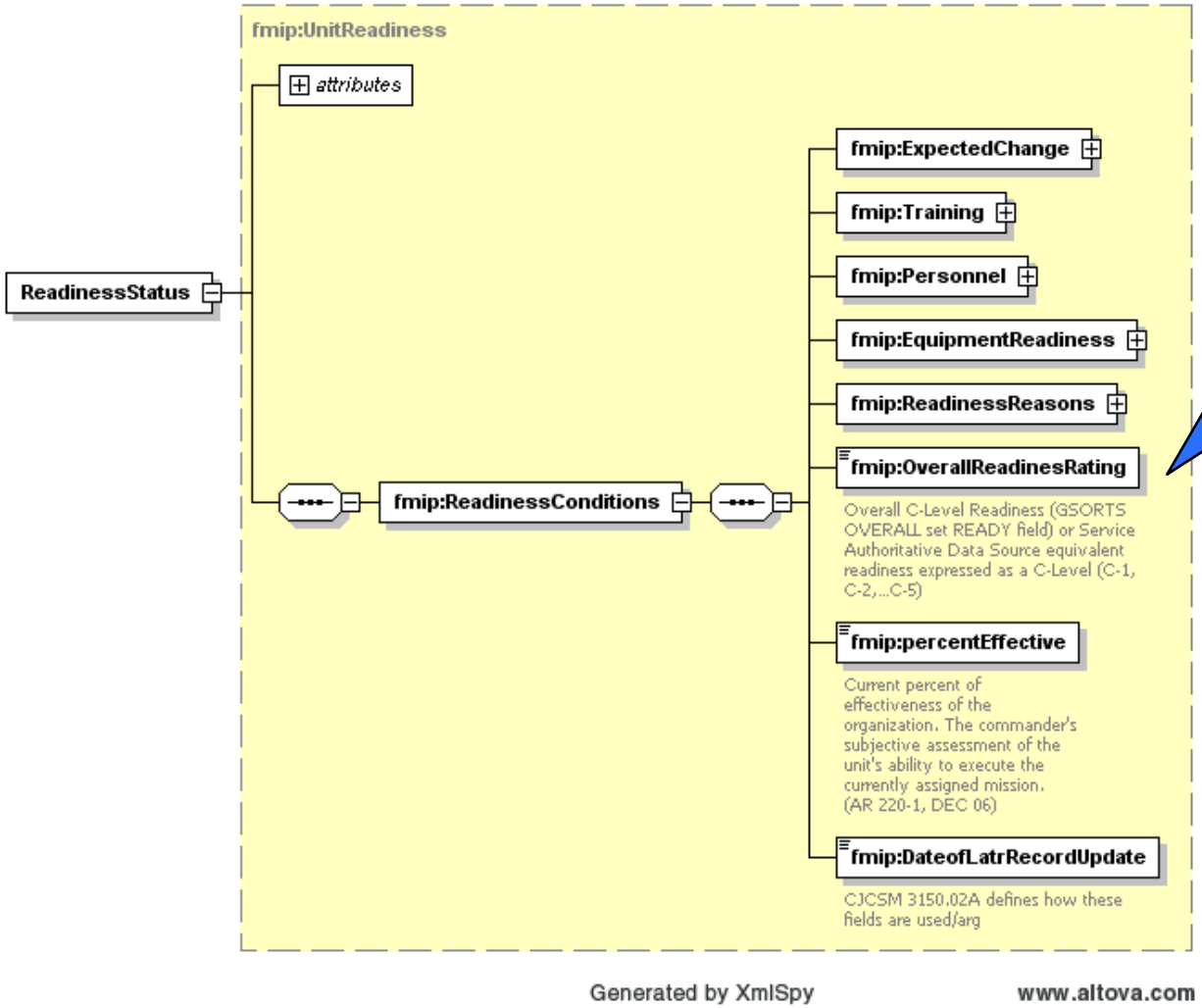
Group related IERs into a single resource





- Each object has its own classification marks
- The Event and the Unit objects are information resources
- These resources are associated in the Unit Employment

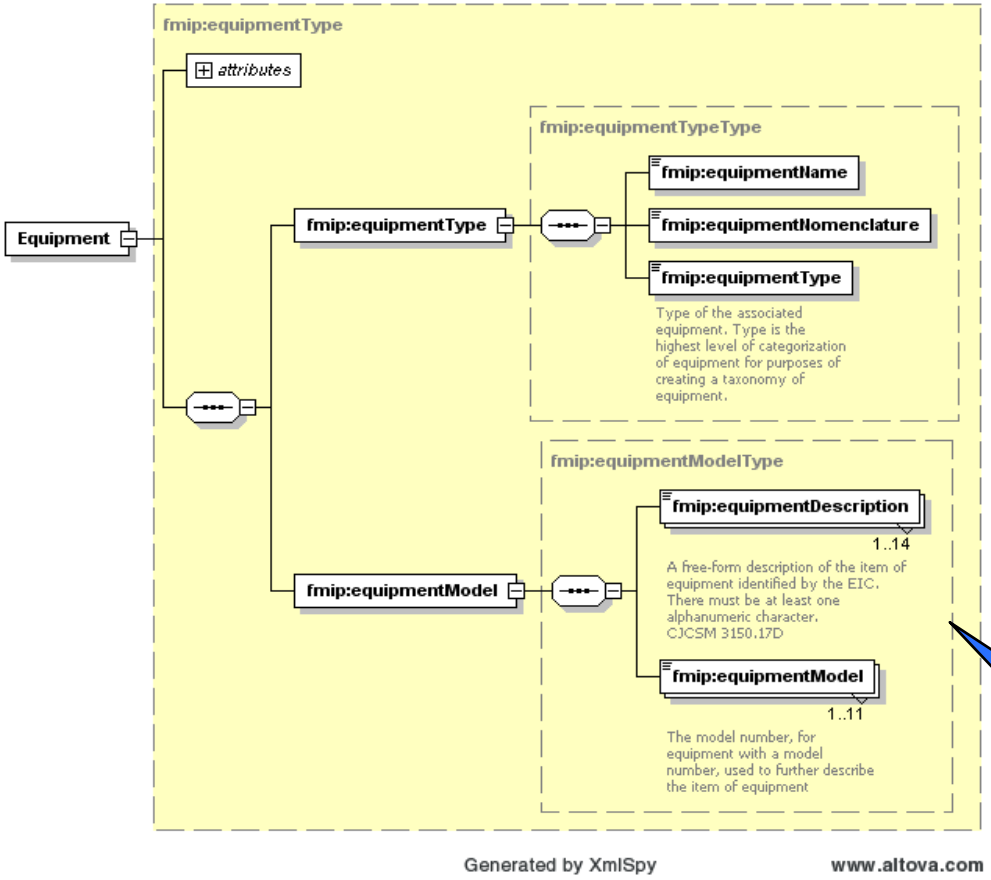
FMIP Vocabulary Object - Readiness



Additional readiness information is available in Military Readiness tools but there is no available links for the data records

The readiness report is part of a collection that include the unit and readiness status objects

FMIP Vocabulary Object - Equipment



- **The overall readiness condition data is reported in SORTS**
- **Specific data attributes for the equipment is available in Services ADSs**

The context and the data elements for the equipment information vary by Military Service

Associate Data Sources

Data values should be defined by reference rather than value to reduce duplication and message size

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  xlink:arcrole="http://.../GFM/Event#HasActivities">PERRECVRY</f
  mip:Activities>
  <fmip:Activities xlink:role="…../Readiness" xlink:type="simple"
  xlink:title="Activity"
  xlink:href="http://../Readiness/REST/getActivity?ACTIV"
  xlink:arcrole="http://.../GFM/Event#HasActivities">AIRTRANSEX</f
  mip:Activities>
</fmip>
```

Use the XLINK to define the source for the information reference

Recommendations for Further Work

- An analysis of IERs already satisfied by current web services or interfaces
- A statement of additional services required for the data that exist
- Clearly defined data elements for the undefined set of IERs