



Australian Government
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Defence Science and
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Coalition Interoperability Architecture

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Background



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“The sharing of information with potential coalition participants is crucial to building trust and confidence among possible coalition partners.”

Typical Approaches (1)



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- Purchase of Foreign System,
 - Requires additional training,
 - Difficult to integrate with National processes, data, policies, system requirements,
 - Using the same software does not guarantee interoperability,
 - Updates must be synchronized.

Typical Approaches (2)



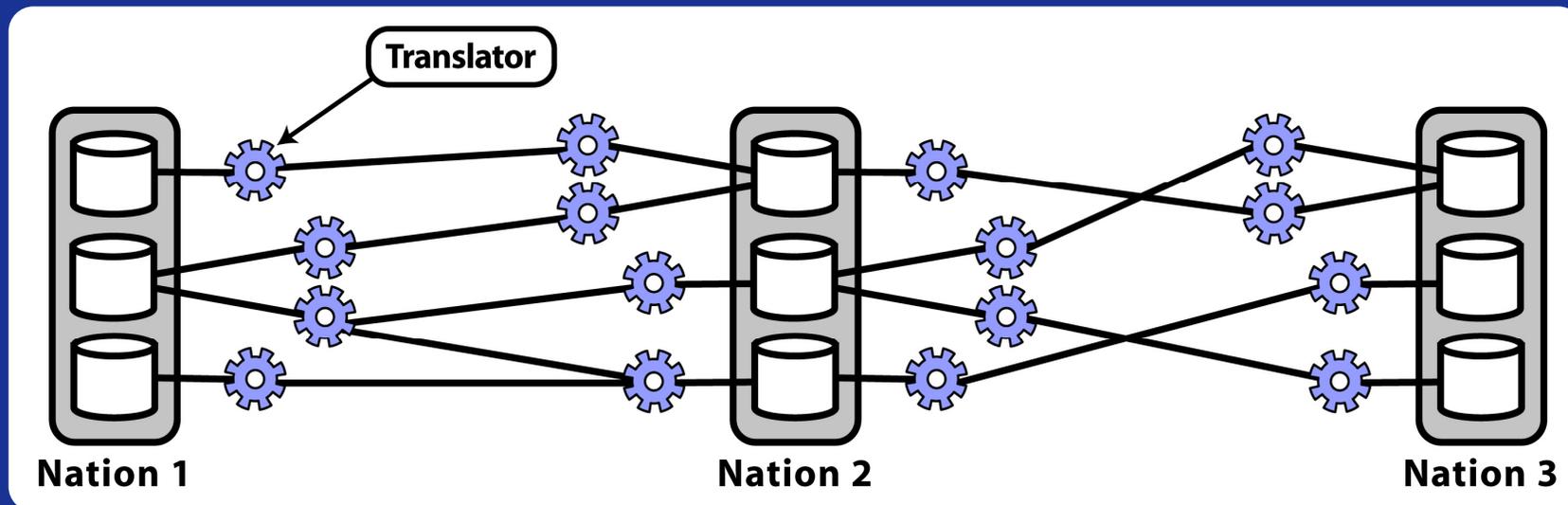
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- New Coalition System,
 - Requires additional training,
 - Difficult to integrate with National processes, data, policies, system requirements,
 - Centralized data store,
 - Does support the coalition requirements.

Typical Approaches (3)



- Individual System Integration,
 - Fragility and dependence on numerous integration translators,
 - Large maintenance overhead,
 - Dependence on multiple foreign acquisition cycles.



Requirements



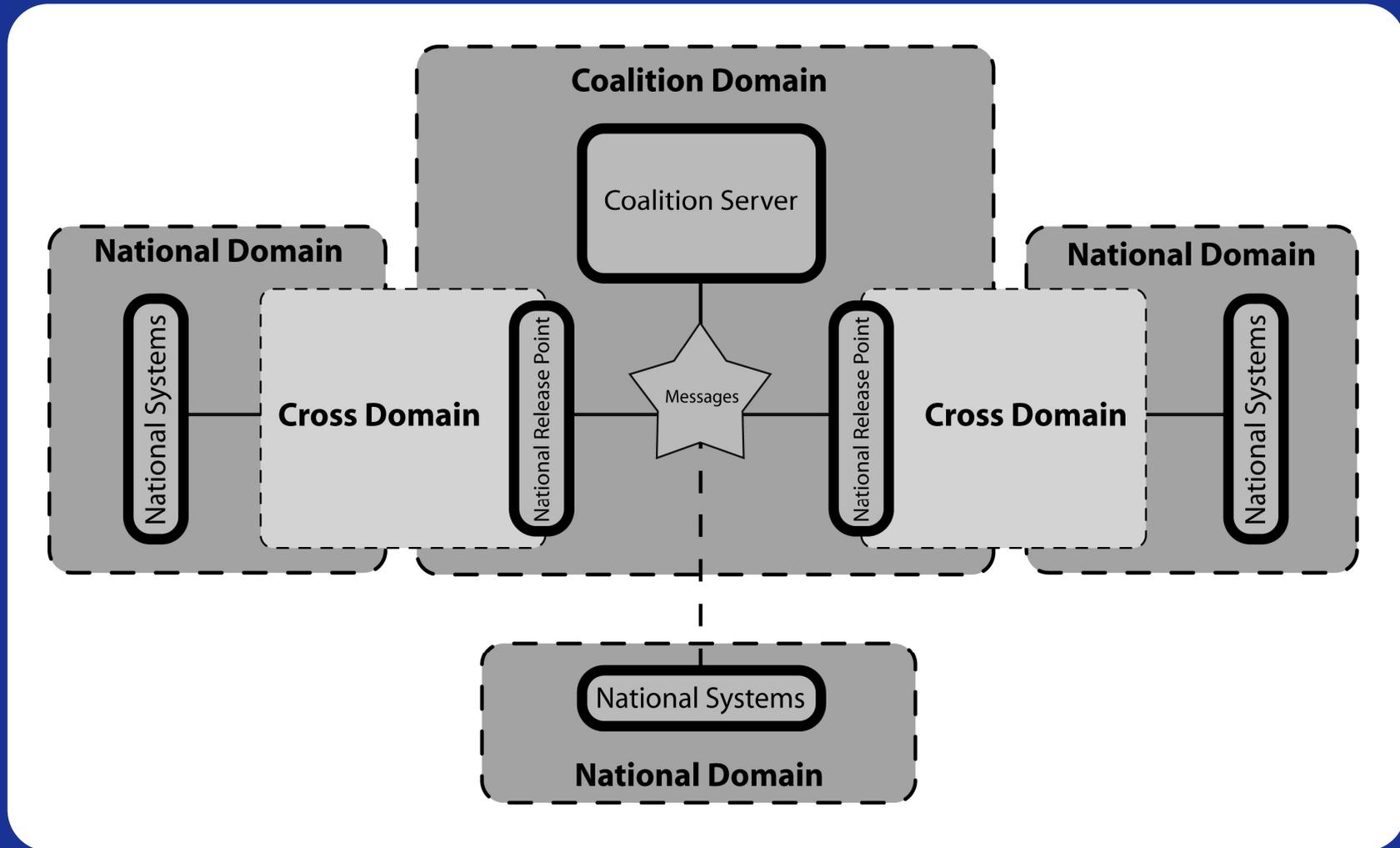
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- Data release,
- Authoritative data sources,
- Dynamic coalition membership,
- Multiple concurrent coalition operations,
- System ownership/administration/maintenance,
- Coalition agility,
- Integration flexibility,
- Extensible.

Architecture – Overview



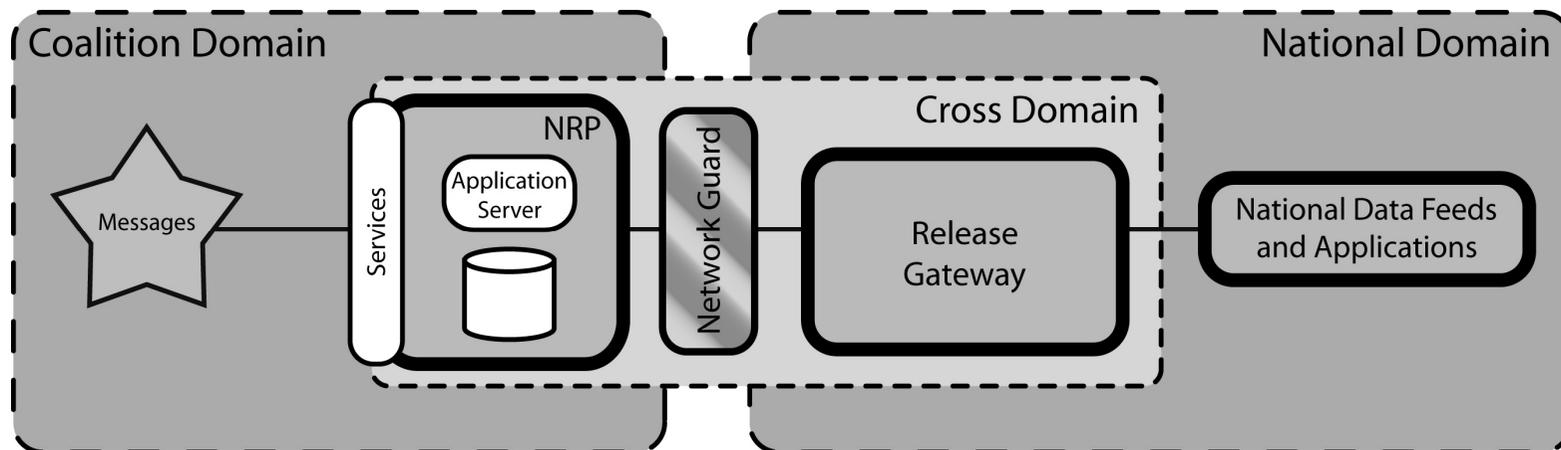
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Architecture – Cross Domain



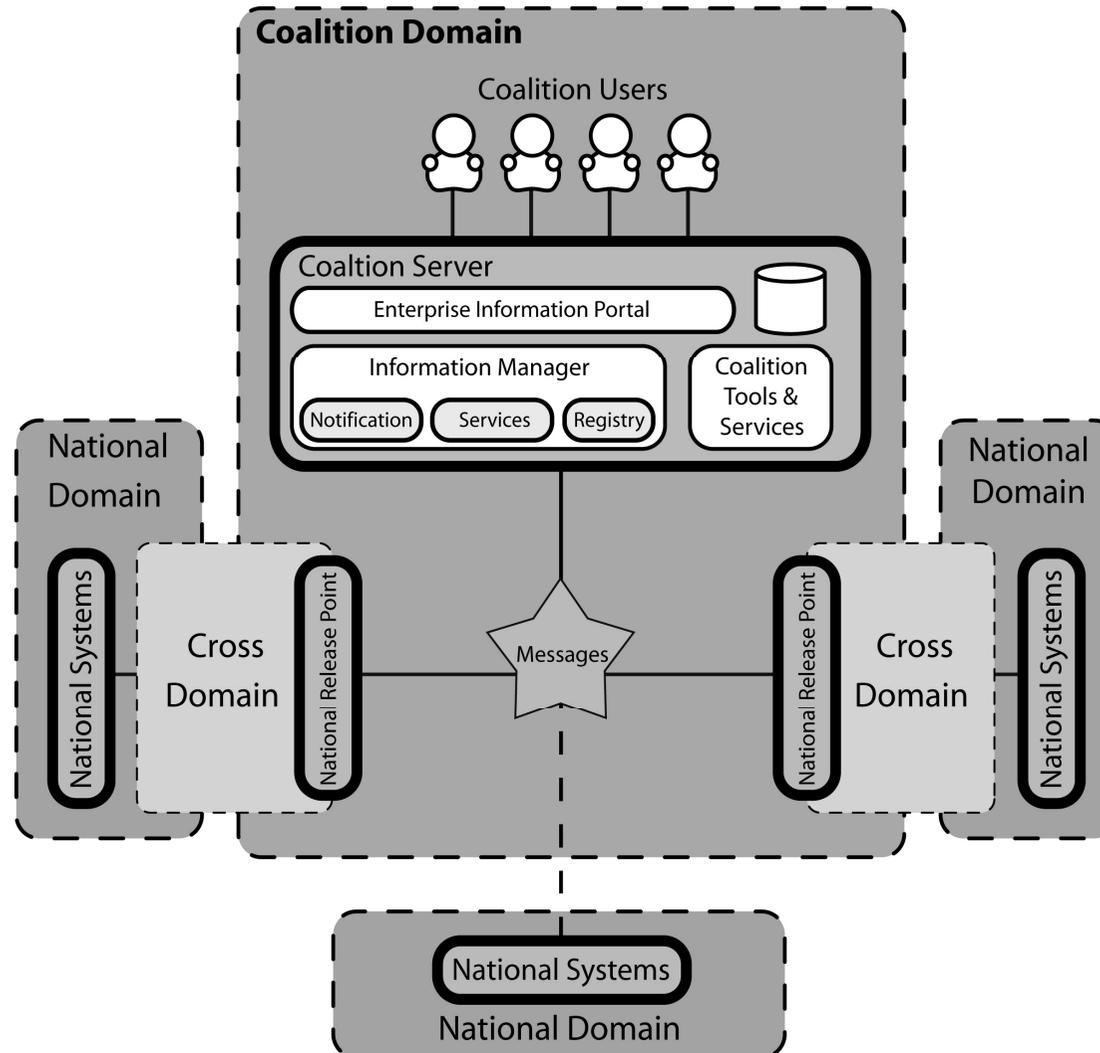
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Architecture – Coalition Domain



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Data Management (1)



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- Coalition Data Standards
 - Self Describing
 - Core Data Set
 - Extensible
- Coalition Interface Standards
- Authoritative Data Sources

Data Management (2)



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- Message Orientation
- Pull versus Push
- Data Release

Distributed Control



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- Ownership of Architectural Components
- Responsibility for:
 - Maintenance,
 - Administration,
 - Compliance.

Multiple and Dynamic Coalitions



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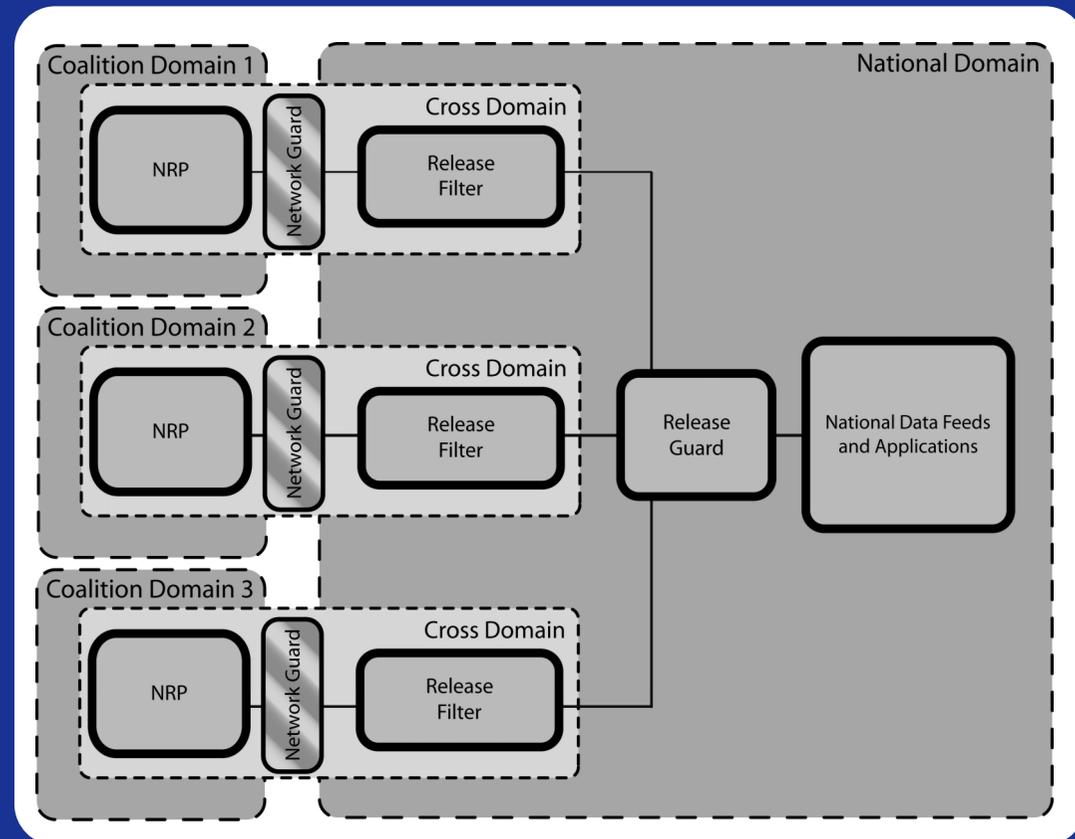
- Data contained in the National Release Points (NRP).
 - Remove the NRP removes the data.

Dynamic and Multiple Coalitions



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- Dynamic Coalitions
 - Data contained in the National Release Points (NRP).
 - Remove the NRP removes the data.
- Multiple Coalitions
 - Many networks
 - Many Cross Domains



Scalability and Performance



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- Distributed Data Storage
- Coalition Network is the biggest bottleneck
 - Data Pull Mode only transfers required data
- NRP is another potential bottleneck
 - Many examples of high load and availability Web Service solutions.
- Use of XML
 - XML translators and parsers are extremely quick.
 - Possible of using XML hardware technologies (if required).

Issues



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- Predefined structured data.
- Coalition network support
- Dynamic discovery of services
 - Potential use of WS-Discovery
- Maintaining data standards

Future Work



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- Semantic Web and Semantic Service Oriented Architectures (SSOA).
- Use of WS-Discovery of similar
- Improvement of Coalition Networks
- Autonomic Coalition Systems
- Quadrilateral In-Transit Visibility (ITV)



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Questions

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