**Required Input/Output**

We identified multiple input/output pairs required to support Common Data Services

1. Document exchange
   1. Package - Any properly formatted document being sent to another member of the CDS network
   2. Acknowledgement – confirmation that the document has been received by the CDS server.

Note: At this level (client to CDS server) there is just one acknowledgement for the WSDL batch interaction. For batches containing multiple documents the acknowledgment may list each of the intended transactions. Later, at the institution to institution level there could be either acknowledgements (e.g. to each transcript) or responses (e.g. to each request) from the destination institutions.

1. Transaction History Reporting
   1. Requests with variables (subject to authorization) for reporting single or multiple institutions
   2. Response may be an extensive report
2. Delivery Options Inquiries
   1. Requests for information describing the routing and delivery options for particular transactions to particular destinations
   2. Responses to the delivery options inquiry
3. Members updates to central server
   1. Additions, modifications and deletions of network members profiles on the central directory server
   2. Confirmation of central server member update
4. Members updates to distributed servers
   1. Distribution of member updates to distributed network servers
   2. Confirmation of member updates to distributed network servers
5. Options Updates to central server
   1. Additions, modifications and deletions of delivery options information for network members profiles on the central directory server
   2. Confirmation of central server delivery options update
6. Options Updates to distributed server
   1. Distribution of delivery options updates to distributed network servers
   2. Confirmation of delivery options updates to distributed network servers

**Two Approaches To Server Architecture**

To accommodate these input/output pairs we identified two approaches to server architecture.

1. Each input/output pair is a separate web service with associated processing within the server.
2. A single web service supports the receipt and transmission of XML documents representing these input/output pairs while a process management program within the server recognizes the nature of the document and coordinates the associated processing.

**Reasons For Choosing (B) The XML Document Approach**

Disadvantages of multiple WSDL interfaces

1. Because of the way web services works, when a wsdl is changed then all of its clients must change at the same time. Clients that have not changed will not be able to connect at all. This approach is tightly coupled.
2. Changes to input/output structure affect both the WSDL and the process programming and is inherently more complicated than the only changing the process programming

Advantages of using XML Documents as inputs/outputs

1. Changes to input/output document structure affect only the process programming, not the WSDL.
2. Minor changes to the transaction structure may be able to be ignored. This approach is loosely coupled.
3. XML documents provide easily styled, human-readable inputs and outputs which are also machine-readable.
4. As XML documents the inputs and outputs can be manipulated as files (for example archived or forwarded).
5. The one WSDL interface will be relatively simple to maintain.
6. XML schema easily supports hierarchical and well-defined data structures
7. Having a single web-service supporting various types of documents allows us to be fully data-agnostic both for transactions targeting another institution and for those targeting the local CDS server.
8. This approach is more in-line with the approach of PESC itself (ie XML transactions).
9. More tools are available for XML support.