

Ofgem

Use of the DTS in Support of Faster and more Reliable Switching

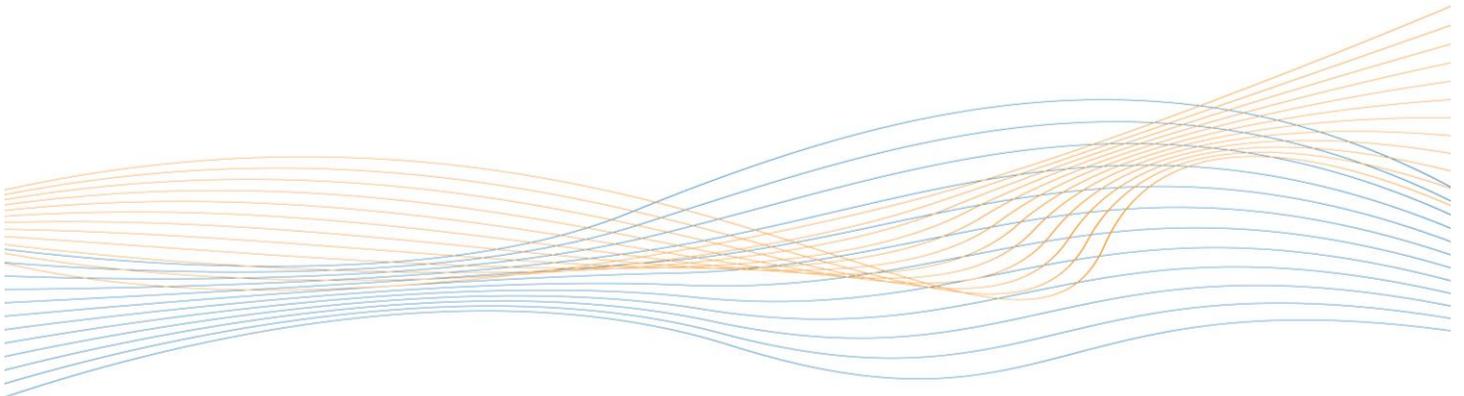
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Commercial in Confidence

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1 Introduction and Summary

1.1 Background

The aim of Ofgem’s Switching Programme is to enable a faster and more reliable change of energy supplier experience for consumers, which in turn strengthens competition in the energy market.

ElectraLink is pleased to support this programme through involvement at various levels of the programme, including the design working groups and user groups.

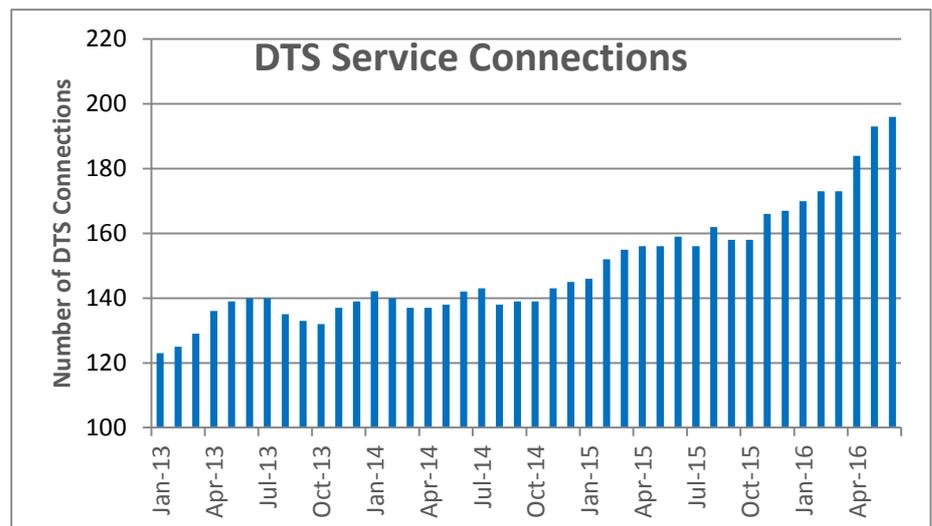
ElectraLink presented to Ofgem on 27 May 2016 and subsequently on 15 June 2016, how existing industry infrastructure and services could be re-used to support this programme. In particular how the use of the Data Transfer Service (DTS) to provide communications between industry, interested third parties and the Central Registration System (CRS), would provide the Programme with a low cost, low risk solution. This paper details a number of options for addressing the requirements of the Programme utilising the DTS.

1.2 The Data Transfer Service (DTS)

ElectraLink was created in 1998 by the UK’s Electricity Distribution Network Operators (DNOs) to provide an independent, secure and low-cost service to transfer data between the participants in the deregulated UK electricity market. The company continues to operate the regulated Data Transfer Service (DTS) that underpins supplier switching, meter interoperability, settlements and other processes critical to a competitive energy market.

In 2015, the Supply Point Administration Agreement (SPAA) introduced a change which mandated the use of the DTS for the Notification of Old Supplier Information (NOSI) flow, to improve the reliability of customer switching. As a result, ElectraLink amended the DTS Agreement (DTSA) in December 2015 to include gas suppliers and the NOSI flow, as well as changes to the DTS Charging Principles to enable domestic gas suppliers to exchange the NOSI flow on the DTS. ElectraLink provided DTS connections to those domestic gas suppliers who did not already use the DTS and the regulated NOSI service went live on time on 1 April 2016. This has transformed the DTS to a true dual fuel service.

The DTS is a growing service both in terms of the number of connections and the volume of data that is processed. This growth is being driven by new market entrants and changes to the industry processes, such as the extension of half hourly settlement to profile classes 5 to 8.



The DTS supports a range of business processes including customer switching, settlement, change of agent, meter installations and inter party billing (DUoS). In June 2016, we successfully processed and delivered 3.7 million messages (27% increase compared to the same month last year), facilitated 582,348 change of supplier events (electricity and gas) and enabled 211,686 meter installations, of which 135,814 were smart.

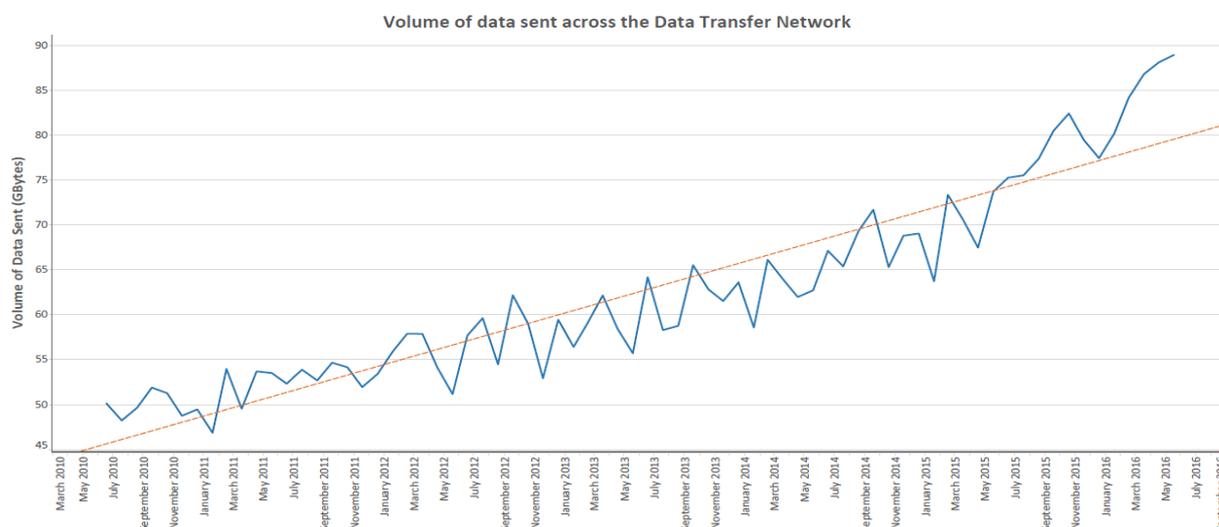


Figure 1: Volume Growth on the DTS Since March 2010

1.3 The Programme Requirement

The requirements of the programme are to enable faster more reliable switching. To achieve this the relevant market actors require a mechanism to exchange data relating to customer registrations and potential objections. This data transfer will need to be reliable, secure and facilitate the delivery of an ‘Amazon like’ customer journey and provide a low risk integration to the CRS architecture.

1.4 Consumer Expectations and the Target SLA for the CRS

Current customer expectations when interacting with services via the internet range from 3 – 20 seconds for confirmation of search results or payment confirmation. From the Amazon experience of 3-4 seconds¹ to the 20 second wait associated to the DVLA or insurance searches. In the latter instances the consumer is prompted to wait whilst certain checks are carried out and such websites utilise timers and icons to show that progress is being made.

When analysing the suitability of the DTS to support the CRS we have set a target SLA of 20 seconds. The SLA refers to the “round trip”, assuming that a request is transferred from participant A to B, processed by B, then a confirmation returned from B to A.

¹ Dynatrace benchmarks – UK Retail performance detail – Internet Explorer – June 2016.

1.5 Option Summary

The following table briefly summarises the options. More details on each option can be found within the document.

Option	Title	Notes
Option 1	No Change to the DTS	The DTS could be used without change, however it would be difficult to achieve the customer experience with this option due to possible delays in messaging.
Option 2	Tuning the DTS	The DTS could be tuned for specific messages to guarantee that customer expectations would be met. This option continues to use existing interfaces.
Option 3	DTS to deliver Web Services	A new web service could be developed to run on top of the DTS infrastructure which could guarantee a faster message delivery, however this would require additional integration by industry and may be more costly.
Option 4	DTS to Support Transport of Middleware	The DTS infrastructure could be used as a transport mechanism for a middleware product which could guarantee a faster message delivery, however this would require additional integration by industry and the ability to provide an independent level of process assurance would be compromised.

1.6 Recommended Option

If a core non-functional requirement is to have a “near real time” switching confirmation for consumers as described above in section 1.4, then ElectraLink recommends Option 2 “Tuning the DTS”, which would enable a fast and reliable messaging capability between market participants. We estimate that this can be achieved for approximately £500k².

If the requirement was not to have a “near real time” switching confirmation, but to provide a reliable confirmation within minutes or hours then Option 1 “No Change to the DTS” would be fit for purpose, with a requirement for users of the DTS to change their current daily batch processing activities to immediate or frequent processing.

² This estimate is provided without prejudice and is subject to a formal impact assessment which will be undertaken by ElectraLink in the summer of 2016.

2. What are the Options for Using the DTS to Support the Programme

ElectraLink has identified four options to re-use the DTS in support of the Programme. These options are detailed in Appendix A.

The SLA of 20 seconds refers to the “round trip”, assuming that a request is transferred from participant A to B, processed by B, then a confirmation returned from B to A. For example this could be the request by a price comparison website (A) to the CRS system (B) for customer registration data after the initial population of customer details. Alternatively this could be a request from the new Supplier (A) to the old supplier (B) for the current objection status to enable confirmation to the customer that the switch can proceed.

Each option has also been assessed in terms of its ability to achieve the SLA with over 200% of today's projected volumes of change of supplier requests. This projection is based on current volumes and an increase in volumes which may occur as a result of the programme's delivery. The current volume of data relating to switching on the DTS is immaterial when compared to settlement data. We do not expect the projected increase in switching data to impact the on-going costs of the DTS, other than those identified in the table below.

Option	Title	Estimated Switching SLA	Comments	Cost to Industry
1	No Change to the DTS	60% in under 20 seconds ³	<p>Use of existing infrastructure, functionality and interfaces.</p> <p>No investment needed.</p> <p>No additional industry integration needed.</p> <p>The existing DTS messaging solution, in place for other industry process, will be shared with the switching solution.</p> <p>A level of process assurance could be provided using ElectraLink's Energy Market Insight (EMI) services.</p> <p>Low risk</p> <p>Unable to guarantee SLA's on switching times, but the expectation, based on analysis of existing traffic, approx. 60% would be done in under 20 seconds and up to 96% in under 2 minutes.</p>	None

Option	Title	Estimated Switching SLA	Comments	Cost to Industry
2	Tuning the DTS	99.9% under 20 seconds ³	<p>Use of existing infrastructure, functionality and interfaces.</p> <p>Minimal investment needed.</p> <p>No additional industry integration needed.</p> <p>The existing DTS messaging solution, in place for other industry process, will be shared with the switching solution, but switching related messaging would be differentiated and prioritised to a higher SLA.</p> <p>A level of process assurance could be provided using EMI services.</p> <p>Low risk.</p> <p>A new instance of the existing application would be implemented on additional virtual servers in the virtual private cloud. Connectivity would be by remote virtual connections across the Internet (existing DTS options).</p>	£500k ⁴
3	DTS to deliver Web Services	99.99% under 20 seconds ³	<p>Use of existing infrastructure.</p> <p>New functionality and interface.</p> <p>Investment needed.</p> <p>Further industry integration needed.</p> <p>It may be possible for ElectraLink to offer a level of process assurance using EMI services.</p> <p>Medium risk.</p> <p>Could offer faster confirmation of switching at higher cost and risk.</p>	Unknown

⁴ This estimate is provided without prejudice and is subject to a formal impact assessment which will be undertaken by ElectraLink in the summer of 2016.

Option	Title	Estimated Switching SLA	Comments	Cost to Industry
4	DTS to Support Transport of Middleware	N/A	<p>Use of existing infrastructure.</p> <p>New Virtual Private Network (VPN) layered on top of existing VPN.</p> <p>Dedicated portion of existing bandwidth allocated to middleware traffic.</p> <p>As the solution will be transmission of IP network traffic, we are unable to offer any delivery SLAs because the network will only see a stream of bytes and we are unable to identify the start or end of any given 'message'. Service Levels will be defined for availability.</p> <p>Similarly, ElectraLink would not be able to offer a level of process assurance with this solution, however most middleware platforms can be implemented in such a way to provide that functionality and the EMI services may be able to add further value from related market processes.</p>	Unknown

ElectraLink believes that Option 2 – Tuning the DTS – represents a low risk, cost effective solution which will support a good consumer experience in support of better engagement with the switching programme. As this solution is based on the existing DTS solution the migration and transition to the new switching solution can be delivered at a lower risk, with less change, to both central system providers and the individual market participants.

Option 1 – No Change – could be used as an interim solution to delay investment if required, or if the non-functional requirements related to switching confirmation are reduced.

Option 3 – Web Services – would enable a faster on-line response but ElectraLink believes that the likely additional cost and risk would outweigh these benefits.

Option 4 – Middleware Solution – could offer advantages in terms of overall business orchestration between parties, however the cost and level of integration change would be high across all market participants.

1.7 Changes to the DTS Agreement

In addition to the technical options, minor changes would be required to the Data Transfer Service Agreement (DTSA) which is the document which governs the DTS. The changes would be required in order that market roles not currently connected to the DTS can accede to the agreement. This would include the DCC (as CRS Service Provider) and consumer switching sites. ElectraLink has implemented similar changes to the DTSA recently both in support of the Green Deal Providers and for Gas Suppliers. We believe that such changes could be delivered within 2 months.

Appendix A – Detailed Description of the Options for Using to the DTS to Support the Programme

Option 1 – No Change to the DTS

Interface and Message Formats

Users would communicate with the CRS using existing DTS interfaces and Gateway options. Organisations who are not currently connected to the DTS would be provided with a Remote Gateway option, which connects to the DTS through a secure tunnel on the public Internet.

Users would communicate with the CRS using existing message formats. For example, to interrogate an objections database (assuming it is held centrally), a small DTS message requesting confirmation would be generated by the sender in flat file format or XML file format, processed by the DTS and delivered to the CRS service provider using existing DTS functionality. Similarly, in response, the CRS service provider would format a message containing the confirmation (or rejection) and send this to the DTS which would process the message and deliver it to the originator of the switch.

Investment

This option requires no investment as it would be re-using existing infrastructure and interfaces. ElectraLink expects message volumes to be small compared to the rest of DTS traffic and therefore no additional capacity on the DTS would be required. New connections and traffic would be charges for using existing, regulated charges.

Integration

No additional industry integration would be required as this option re-uses existing interfaces, including flat file or XML file formats. This would be advantageous as existing “data flows” either out of scope of unchanged could remain “as is” whereas new data flows identified to support switching between existing participants or new solutions could utilise new formats or structure.

Risk

This option provides little risk to the programme.

Service Levels

As this option is based on no additional investment, no formal service levels can be offered in support of the switching confirmation. Analysis of existing traffic, however, indicates that approximately 60% of all DTS traffic is processed and delivered within 5 seconds. This includes all file sizes.

For a request or response message, a network transit time of 5 seconds each could be expected in 60% of cases.

99% of messages are typically processed and delivered in 141 seconds under the current arrangements.

Changing the current “daily batch” transfer of data to a more frequent transfer could enable faster and more reliable switching, but would not support a “near real time” switch confirmation with a high reliability.

Option 2 – Tuning the DTS

Interface and Message Formats

Users would communicate with the CRS using existing DTS interfaces and Gateway options. Organisations who are not currently connected to the DTS would be provided with a Remote Gateway option, which connects to the DTS through a secure tunnel on the public Internet.

Users would communicate with the CRS using existing message formats. For example, to interrogate an objections database, a DTS message requesting confirmation would be generated by the sender, processed by the DTS and delivered to the CRS service provider. Similarly, in response, the CRS service provider would format a message containing the confirmation (or rejection) and send this to the DTS which would process the message and deliver it to the originator of the switch.

Investment

This option requires low investment to the central service, as it would be primarily re-using existing infrastructure and interfaces. A new ‘instance’ of the messaging application would be implemented and tuned, running on dedicated virtual servers. Network traffic would be prioritised to meet the service levels. We estimate that the costs of making these changes would be no more than £500k⁵.

ElectraLink expects message volumes to be small, in comparison to existing settlement and metering interactions, and therefore no additional capacity on the DTS would be required. New connections and traffic would be charges for using existing, regulated charges.

Integration

No additional integration would be required as this option re-uses existing industry interfaces, including flat file or XML file formats. This would be advantageous as existing “data flows” either out of scope of unchanged could remain “as is” whereas new data flows identified to support switching between existing participants or new solutions could utilise new formats or structure.

Risk

This option provides little risk to the programme due to the low level and complexity of change.

Service Levels

As this option is based on some additional investment, formal service levels can be offered in support of the switching confirmation. For a request or response message, a network transit time of 5 seconds each could be expected in 99.99% of cases.

This would enable “near real time” switching confirmation within customer expectations of 20 seconds.

⁵ This estimate is provided without prejudice and is subject to a formal impact assessment which will be undertaken by ElectraLink in the summer of 2016.

Option 3 – DTS to Deliver Web Services

Interface and Message Formats

Although the central DTS infrastructure would remain in place, market participants would communicate with the CRS using new interfaces, whilst still maintaining their legacy interfaces for all other messaging.

Users would communicate with the CRS using a web services interface which would provide the potential to significantly increase the SLA available compared to options 1 and 2.

Investment

This option requires higher investment to the central service, as new interfaces would need to be designed and implemented. In addition the overall industry costs would be high as all existing DTS users would need to design, build and test new interfaces. It may, however, be possible to design the web services in such a way that makes them reusable for other DTS interactions.

Integration

The implementation of Web services interface is the most complex of options discussed and could be potentially more complex to implement or limit options around the transition from the existing solution to the new. The existing integration and infrastructure would also need to remain in place to support processes such as settlements and metering which are out of scope of the CRS delivery.

Risk

This option provides a higher risk to the programme due to the higher complexity of change, via the introduction of a new integration medium across both centralised and competitive participants systems.

Service Levels

As this option is based on some additional investment, formal service levels can be offered in support of the switching confirmation. For a request or response message, a network transit time of 2 seconds each could be expected in 99.99% of cases.

Option 4 – DTS to Support Transport of Middleware

Interface and Message Formats

This solution would map a new Virtual Private Network (VPN) on top of the existing infrastructure, resulting in an industry-wide IP schema for the Middleware application.

Market participants would communicate directly with the CRS using the DTS infrastructure.

Investment

This option requires a medium level of investment to the central service, as a new VPN would be defined, including suitable security provisions. In addition the overall industry costs would be high as all existing DTS users would need to design, build and test the Middleware interface.

Integration

The integration of a Middleware product directly into market participants' systems would have the same complexity as Option 3 and could be potentially more complex to implement or limit options around the transition from the existing solution to the new. The existing integration and infrastructure would also need to remain in place to support processes such as settlements and metering which are out of scope of the CRS delivery.

Risk

This option provides a higher risk to the programme due to the higher complexity of change, via the introduction of a new integration medium across both centralised and competitive participants systems.

Service Levels

As this option is based provision of a network transport mechanism only, it would not be possible to offer switching SLAs as the ElectraLink component of the solution would only see a stream of bytes, not whole messages. Service levels would be provided for availability of the service based on the agreed requirements.