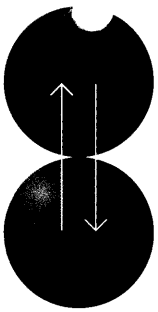

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Mr Nigel Nash
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3rd July 2003

Dear Nigel

Customer Transfer Process – Discussion Document

ElectraLink supports the case outlined In Ofgem's Discussion Document on the need to improve the Customer Transfer Process. ElectraLink is also supportive of the Gas and Electricity Suppliers' project to analyse the problems associated with the customer Change of Supplier and the Change of Agent process.

An important factor that could increase the options available to the industry for improving the Customer Transfer Process is the new Data Transfer Network currently being procured for the Electricity Market, and which is increasingly being used in the gas market.

This new Data Transfer Network, in addition to supporting all the current Data Transfer Catalogue (DTC) flows used in the Electricity Market and the emerging RGMA flows being planned for the gas market, will also support all IP-based protocols which will allow it to be used as a managed Extranet. This new technology will enable the DTN to support the hosting of and access to centrally held databases such as an Universal Record database which would support the concept of an Industry Data manager.

In addition the new DTN will continue to provide the high levels of security, service levels and full audit trails available on the current service but at considerably lower cost.

More information on the options available on the new DTN is detailed in the revised report of June 2003 provided by St Clements Services to Elexon on Technology Options for the Change of Supplier/Change of Agent Project, a copy of which is attached to this letter.

ElectraLink believes that its knowledge and expertise gained over the last 5 years in providing the essential data communication service to the electricity market could be beneficial to this initiative. ElectraLink is already transferring that knowledge and expertise into the gas market, supporting the emerging Meter Operator flows and developing the facility for RGMA flows. ElectraLink would welcome the opportunity to work with the electricity and gas industries to review and develop solutions to the Change of Supplier/ Agent process and to help to harmonise the processes for electricity and gas.

Yours sincerely

Danny Williams

Chief Commercial Officer

ElectraLink Ltd

Enc

St Clements Services report for Elexon on C of S / C of A Project

Report for Elexon on Technology Options for the Change of Supplier / Change of Agent Project

Version: 2.0
Date: June 2003

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1. Introduction

The first version of this report was written by St Clements at the request of the Elexon Change of Supplier / Change of Agent Process Redesign project (CoS/CoA). St Clements was asked to review the draft report from the redesign phase of the project, and to suggest some potential technology enablers for the options outlined in the report. Specifically, St Clements was asked to advise whether there was any technology improvement since the original 1998 design that the CoS/CoA project:-

- should be flexible enough to adopt;
- shouldn't be preventing in any new design;
- should not be missing out on in order to enable further functionality.

In order to help answer these questions St Clements held discussions with representatives from C&C Group, a software development company that has extensive experience of the Electricity Industry and the latest technology available.

St Clements has now also held discussions with ElectraLink to understand how new technology is being introduced into the DTN and the relevance of that to the issues under discussion in this paper. This second version of the paper summarises the outcome of those discussions with both companies and gives a flavour of the technology available.

2. Options

The options outlined in the CoS/CoA Redesign Project Interim report are:

Option 1 – "As is" process;
Option 2 – "As is" process with incremental change; and
Option 3 – Radical change.

St Clements can add little in this report with regard to Option1, although there would be nothing to prevent any of the technology suggested below being used with the existing process.

Option 2 is largely a change to the existing process to include more control over the sending and receiving of data flows in order to improve efficiency and effectiveness. However, the option does propose the *removal* of the Objections process which may prevent a potential solution to the issue of Erroneous Transfers (discussed later). Option 2 also mentions the use of XML and a Universal Record, which are viable solutions from a technological viewpoint whether used on the DTN or the Internet, and again will be discussed below.

Option 3 is the radical redesign, involving the concept of a Supplier Change Agent, Supplier Own Database and Single Point of Contact. This option is the one that is

focussed most on in this report, as we believe this is the option where new technology could have the most significant impact.

3. Technologies

All existing market participants who are involved in the CoS/CoA process use a variety of Data Transfer Catalogue (DTC) flows that are transmitted over the Data Transfer Network (DTN). The current DTN is being replaced with a new service that will use a Multi – Protocol Label Switching (MPLS), IP – based Virtual Private Network (VPN). This will be available from late 2003.
This new service, in addition to supporting all the flows in the DTC, will also support all IP-based protocols which will allow it be used as a managed Extranet. This new technology will enable the DTN to support the hosting of and access to centrally held databases such as the Universal Record database, while at the same time providing the high levels of security, service levels and the full audit trails that have been a requirement of users to-date. Use of more up-to-date technology, such as the Internet or the new DTN technology, may not only provide a more efficient way of transferring data between participants, but may also be more economic.

Since the CoS/CoA processes were designed in 1997, use of the Internet has grown rapidly and is finding uses in the industry. There is a system already in place that provides on line database access; this is the MPAS-Online system that has been developed by NEDL, YEDL and EME distribution businesses. Daily update files are provided via FTP to maintain a central database which provides on-line access to Suppliers, via the Internet, to MPAN data for each of the three distribution businesses. Although this is a read-only system, it is a very useful proving ground, providing details about the sizing of a centralised facility and its feasibility.

The introduction of the MPAS-Online system has demonstrated that a centralised MPAS enquiry service is entirely feasible from a technological viewpoint. Sizing estimates have been produced which show that including data (with Registration history) from all 14 existing distribution businesses, with full indexing required for an interactive enquiry service, would total approximately 150 gigabytes of data. Adding core meter technical details (MOP data) would only increase the volume to around 225 gigabytes. This is a manageable size for modern systems, particularly for data warehouses, where systems are already in place approaching 3000 gigabytes.

It also shows how user id's can be used to control the access to large amounts of data, only allowing users to create, read, update or delete data if their accesses and privileges allow it. This sort of system could be used for both the concept of the Universal Record in Option 2, but also for the Single Point of Contact and Supplier Own Database concept in Option 3.

Whilst the MPAS-Online system is currently being provided via the Internet, it will be possible, when the DTN is upgraded to MPLS, for existing DTN users to run this application on the DTN. This could provide additional benefits, not present on the Internet, of security, guaranteed service levels and audit trails. Non-DTN users could

continue to use the Internet or they could subscribe to the DTN low cost Remote User Service to gain these additional benefits.

4. Web Services / XML / SOAP

Extensible Markup Language (XML) is a simple, very flexible text format derived from SGML (SGML is the Standard Generalized Markup Language , the international standard for defining descriptions of the structure of different types of electronic document). Originally designed to meet the challenges of large-scale electronic publishing, XML is also playing an increasingly important role in the exchange of a wide variety of data on the Internet and across private, managed VPNs.

It is designed to improve functionality by providing more flexible and adaptable information identification. It is called "extensible" because it is not a fixed format like HTML (a single, predefined markup language). Instead, XML is actually a `metalanguage' - a language for describing other languages- which lets you design your own languages for limitless different types of documents. It is a means of defining and constructing structured electronic documents. The structure can be a hierarchy of data items with repeating groups of data items, all tightly data-typed. In other words, ideal for defining a DTC flow. This mirrors the existing DTN where validation of structure is performed centrally.

There are two types of XML documents; stand-alone or with a document type declaration (DTD). In the example of the DTC a DTD could be held for each flow. Each DTD defines the structure of a particular flow. The DTDs are held centrally on one Internet server and referenced in the '!DOCTYPE' header found in the XML document. For example:

```
<!DOCTYPE titlepage SYSTEM
"http://www.gemserv.co.uk/dtc/dtds/flowname.dtd" [<!ENTITY %
active.links "INCLUDE">]>
```

This means that every XML DTC flow can be quickly and simply validated against its corresponding DTD. The DTDs are only held in one place (for example the Gemserv website) meaning that all applications receiving and generating DTC flows as XML would use the same reference point for validating the flows.

In addition to this inherently simple approach, the application logic for validating the XML DTC flows will also be standard across applications. This is where the XML parser comes in. There are a number of providers of XML parsers who conform to the XML standards recommended by the World Wide Web Consortium. Given an XML document and a DTD they will all behave identically; validating the XML against the DTD to tell us if the XML is in the required structure (in this case the structure required for a particular DTC flow).

4.1 Using Web Services / SOAP To Transfer DTC Flows

The World Wide Web Consortium's (www.w3.org) definition for a Web Service is:
" a software system identified by a URI, whose public interfaces and bindings are defined and described using XML. Its definition can be discovered by other software systems. These systems may then interact with the Web service in a manner prescribed by its definition, using XML based messages conveyed by Internet protocols."

In simple terms and considering the existing DTN/DTC structure, this means a system which can talk DTC XML flows to other systems. A Web Service can be implemented via the Internet or on a private network which supports TCP/IP such as the DTN.

Users of the facilities would have to carefully assess the costs and benefits of public and private networks.

Web services can do much more than just transfer data. For example in conjunction with RPC (remote procedure calls) they can instruct other systems to carry out tasks. This might be useful when defining the automated interactions between systems to resolve erroneous transfers for example.

This is where SOAP, Simple Online Access Protocol, may be useful. SOAP is a simple and lightweight XML-based mechanism for creating structured data packages that can be exchanged between network applications. SOAP is currently the de facto standard for XML messaging for a number of reasons. First, SOAP is relatively simple, defining a thin layer that builds on top of existing network technologies such as HTTP that are already broadly implemented. Second, SOAP is flexible and extensible in that rather than trying to solve all of the various issues developers may face when constructing Web services, it provides an extensible, composable framework that allows solutions to be incrementally applied as needed. Thirdly, SOAP is based on XML. Finally, SOAP enjoys broad industry and developer community support.

There are a variety of ways you can implement SOAP including:

1. Fire and forget to single receiver
2. Fire and forget to multiple receivers
3. Request/Response to single receiver
4. Request/Response to multiple receivers

These are self-explanatory and are supported by the new DTN and/or the Internet. XML DTC flows can be sent to multiple receivers using a request/response to ensure they arrived correctly. This is a little similar to a network broadcast; an example of

this is on a Microsoft Network where the Messaging service tells all the computers in a workgroup that a document has finished printing.

4.2 Using Web Services / SOAP / XML

Given the current orientation/interfacing of market participant systems to the DTN, one of the simplest and most cost effective ways to *establish* web based services may be to implement an XML interface onto the DTN.

The Supplier Independent Database (SID) and/or SPC could have two translators; one that translates DTC flows from the flat file format to the new structured XML document, and the second that translates DTC flows from the new structured XML document to the flat file format. Indeed, it may be more cost effective to build these translations into the DTN once.

Any company requiring the new Web Services option would subscribe to the XML part of the SID/SPC, sending and receiving their flows as XML. If the destination system were using the flat-file format then the XML flows would be translated and sent via flat-files. If the destination system were using the new XML format then the XML flows would not be translated but sent as is. XML flows are still essentially files that can be transferred via the DTN gateways; they are just structured files as opposed to flat-files.

Any company requiring the flat file option would subscribe to the non-XML part of the SID/SPC, sending and receiving their flows as flat-files, using the same private network, interfaces and gateways as the DTN.

There would be the potential to phase in the adoption of the services with companies using a mixture of the two types of service.

Operational costs and benefits of a DTN-based system versus a public Internet system would require assessment.

5. Other considerations

Whilst XML and the InternetIP-based services seems to provide the most obvious choice of technology to be looking at for the CoS/CoA redesign project, there are a number of different transport mechanisms (such as ISDN and ADSL) and other options for formatting and structuring the data that might be considered. The scope of this report does not allow detailed consideration of these, but a fuller investigation is advised before committing to any particular technology or product.

One functional area that is not addressed in the CoS/CoA interim report, but which might benefit from options identifed here, is erroneous transfers. With a central source

of MPAS data, such as MPAS-Online, it would be a relatively simple task to create a process for resolving the registration issues of erroneous transfers. Alternatively, rather than removing the objection process, the option of extending the objection window should be examined, such that objections in relation to erroneous transfers could be lodged after the current 5 day limit in order to return a customer to their previous supplier.

6. Conclusions & Recommendations

In the short amount of time that St Clements has spent looking at Elexon's requirements it would seem that there is definitely an opportunity to introduce new technology as part of the overall CoS/CoA improvement process. A number of the problems identified with the existing process could be alleviated by:-

- Providing data services to the industry via the Internet
- Implementing an XML interface on to the DTN;
- Considering the use of the Multi – Protocol Label Switching (MPLS), IP – based Virtual Private Network (VPN) technology being implemented on the DTN to provide Web Based services; and
- Ultimately, perhaps, the centralisation of industry data and data services.

All these measures have the benefit of providing low technology entry cost for market participants into any revised COS/COA processes. There is already a substantial investment in the DTN and the applications that interface to it. ElectraLink has just entered into a new five-year contract to replace the DTN and this will offer a reduction of around 35% on all charges, including the low cost entry option for new entrants, plus the availability of the new technology options.

Whilst it is feasible to provide new technology options via the Internet, the use of the new technology on the DTN could provide added value services (as outlined elsewhere in this report) which may be essential. Further consideration of where market participants wish to be on the cost/robustness continuum will have to be carried out, subject to the overall requirements for security of the settlement process.

The regulatory framework is continuously undergoing change and as a result so are many of the systems that support it. A more flexible approach to the content and structure of the information being transferred between market participants is viewed as a positive step forward in helping to simplify some of the complex and lengthy time based processes. At the same time this keeps operating and entry costs as low as possible. New lower-cost options for transferring data between parties are also available to help this.

We would therefore recommend that Elexon look seriously at the technology outlined in this report, and investigate ways of implementing it either with existing CoS/CoA processes, or as part of a fundamental redesign of the process. St Clements,

ElectraLink and C&C Group would be willing to discuss further details of any approach and participate in any future activity in this crucial industry change.