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Technical Writing Samples

LBMX Document Management Process

London Life HelloLife Overview

Simpli Data Center Redundancy Work Scope Proposal

LBMX Document Management Process

This document describes the process by which documents are received, processed, audited, and retransmitted through LBMX. Please see the diagram in the appendix for details.

1. **Sender:** The sender can transmit the document in any format.
2. **Transport Protocol:** This term refers to the format (defined as a specification) and mechanism by which files are transmitted from the sender to LBMX, and from LBMX to the receiver. Common transport protocols include FTP (File Transfer Protocol), AS2 (Applicability Statement 2), and VAN (Value-Added Network) + Translator (for [ANSI X12](#) files).
3. **Map:** A parsing schema that allows LBMX's software to read the information from the sender's document, and place it in the database; or that takes the information from LBMX's database and turns it into the format required by the receiver.
4. **LBMX:** Once a document is in our database, it can be viewed in the Document Management Console, either as a search result showing its information, or as the stored data in the document (right-click in search results > Preview > Data Dump).
5. **Document Management Console:** This is internal LBMX software for searching documents, viewing document and validation statuses, checking application uptimes and statistics, and other features.

The document flow described in the diagram is as follows:

The **Sender** sends a document, which is carried over the **Transport Protocol**, translated into storable data by the **Map**, and received by **LBMX**. **LBMX** performs document validation, which can be viewed and audited in **Document Management Console**. The document remains in validation and LBMX's **Live database** until all validation processes are complete, at which point it is translated through the **Map** to the receiver's desired format, and transmitted to the **Receiver** using a **Transport Protocol** of the receiver's choice. Afterwards, the document is stored in LBMX's **Backup** and **Archive databases**.

Transaction Structure

An X12 interchange containing a single document as sent from the sender to LBMX has the following large-scale structure:

```
Transport Protocol (X12) ==> COMMUNICATIONS LAYER
    Interchange Control Header (ISA)
        Functional Group Header (GS)
            Transaction Set Header (ST)
                Transaction Set (Individual Document)
            Transaction Set Trailer (SE)
        Functional Group Trailer (GE)
    Interchange Control Trailer (IEA)
Transport Protocol ==> COMMUNICATIONS LAYER
```

This structure works like an envelope, with the Transport Protocol containing the entire interchange, including the functional groups and transaction sets, then the functional groups containing one type of transaction per set, and the transaction sets containing single documents. If the interchange contains multiple documents, it will contain multiple ST/SE indicators.

Definition of terms:

Transport Protocol: The means and mechanism (defined by a standard) by which EDI documents are transmitted from one entity to another. This example refers strictly to the X12 structure, as shown in the example above.

Interchange Control Layer (includes Header/Trailer): This layer specifies the beginning and end of the sent or received document(s). It specifies the sender and receiver, and contains a control number that uniquely identifies this interchange. This layer is denoted by the abbreviations ISA (header) and IEA (trailer).

Functional Group (includes Header/Trailer): This layer specifies the beginning and end of a grouped series of documents (transaction sets). Each functional group may contain multiple documents of a single type (e.g. invoices), and all documents are grouped into units containing only one document type at a time. Each of these units containing a single document type is one functional group. An EDI exchange may contain more than one functional group, so different types of documents can be sent in the same exchange. The functional group layer indicates the document type, the sender and receiver of the document(s), and contains a control number that uniquely identifies the functional group. This layer is denoted by the abbreviations GS (header) and GE (trailer).

Transaction Set (includes Header/Trailer): This layer specifies individual documents within the functional group. These documents are all the same type. Each individual document is surrounded by a transaction set layer, which specifies the document type, and contains a control number. This layer is denoted by the abbreviations ST (header) and SE (trailer).

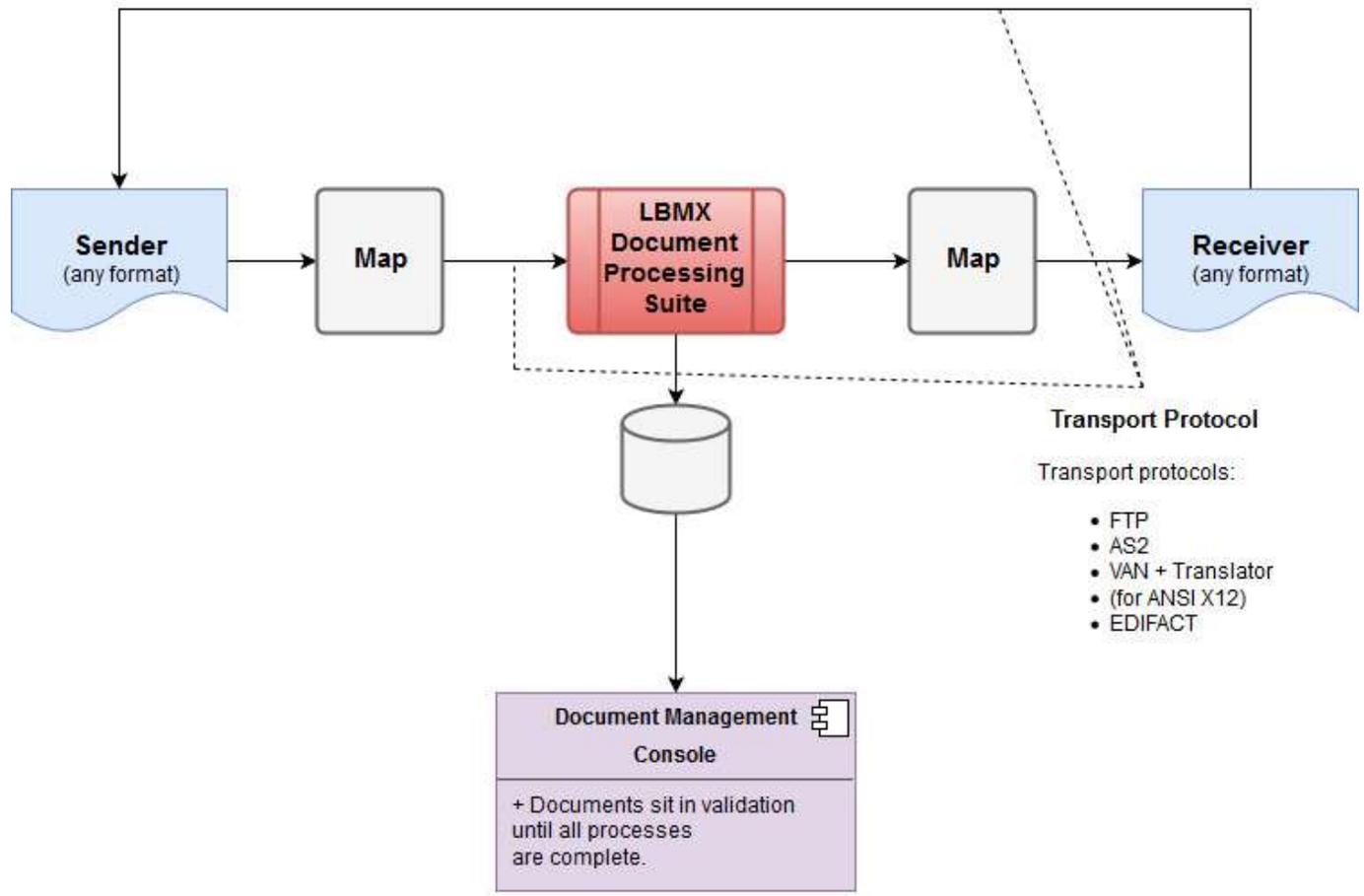
Document Management

Document Types Tab

This table shows all the document types as they appear on the tabs, and their names. Usually the type indicator on the tab is the transaction set number.

Tab Name	Document Type
810	Invoice
850	Purchase Order
864	Text Message
AR	Accounts Receivable Statement
820	Remittance Advice
Pass Thru.	N/A
ASN	Advance Ship Notice
947	Warehouse Inventory Adjustment Advice
180	Return Merchandise Authorization and Notification
855	Purchase Order Acknowledgement
812	Credit/Debit Advice, Claim
824	Application Advice
860	Purchase Order Change Request
852	Product Activity Data
940	Warehouse Shipping Order
943	Warehouse Stock Transfer Shipment Advice
945	Warehouse Shipping Advice
Promo	Promotion/Event
Pr. Res.	Promotion/Event Response

Document Handling Diagram



These processes appear as the status indicator numbers in the Console, and are described briefly in the Last Process box in the Console.

HelloLife Overview

Spending in Retirement

This section allows the client to add expenses and configure “must-have” versus “nice-to-have” expenses (basic and lifestyle). Users can have up to a total of 30 expenses in each of the Retirement Lifestyle expense profiles. The three different Retirement Lifestyle scenarios allow users to add greater detail to their retirement expenses.

1 Your information 2 Income and assets 3 Retirement income goals 4 Spending in retirement

Edit and prioritize your retirement expenses. ?

- Make sure the amounts you enter are before taxes. Change an expense's priority using the arrow buttons. The closer the expense is to the top of your list, the more important the expense is to you.
- Drag and drop expenses between the **Basic living** and **Lifestyle** expense categories.
- When you're done, click the **Can you afford it?** button to see how likely you are to afford that expense in retirement.

Basic living		Lifestyle	
Groceries	\$400.00	Recreation and leisure	\$250.00
Joint	Monthly	Joint	Monthly
Housing	\$100.00	Travel	\$5,000.00
Joint	Monthly	Joint	Annual
Household operation	\$350.00	Savings	\$200.00
Joint	Monthly	Joint	Monthly

Fig 7 : Adding retirement expenses, showing test data

Users may add additional expenses using the Add Expense button at the bottom of the page, and may also opt to leave any expense items with a \$0.00 value if they are not applicable, or just delete them using the X button on the item listing.

Note: After selecting one of the Retirement Lifestyle options, to tell the calculator how to prioritize the expenses, the client can drag expenses up, down, or between the lists, or use the arrow buttons to reposition them. (See below for more information on how the planner calculates basic and lifestyle spending.)

Editing Expenses

Expense	Control Type	Definition
Expense name	Text input	Enter a name for the expense, if the field is not one of the prepopulated expense fields, as shown in the screenshot above. Users may type over prepopulated field entries.
Amount	Numerical input	Enter an amount for the expense.
Frequency	Drop-down list	Select from Monthly, Annually, or One-time. The planner will sum monthly expenses into one yearly lump sum, and deduct that amount (plus yearly inflation, as set on the main basic information page) each year of the projection. The planner will also deduct yearly expenses each year of the projection, plus inflation. The planner will only deduct a one-time on the specified date (configurable under Expense starts). If the user selects One-time, all fields other than Expense starts disappear.
Owner	Drop-down list	Select the owner (who pays) of the expense. For a single client, this field cannot be changed. Where a user has entered information for a partner, they may select between Primary, Secondary, and Joint
Expense starts	Radio buttons	Select from At expense owner's retirement or Future date. If the user selects "Future date," month and year selection fields appear. Enter the income start date using the selection controls. The retirement date is equal to the last selected retirement date, and the future date cannot be prior to the associated retirement date. If it's a joint expense, the earliest start date is the last retirement date.
Expense ends	Radio buttons	Select from Doesn't end, On death (for partnered clients) or Future date. If Future date is selected, month and year selection fields appear. Enter the income start date using the selection controls. The retirement date is equal to the last selected retirement date, and the future date cannot be prior to the associated retirement date. If it's a joint expense, the earliest start date is the last retirement date. For On death, the planner will remove the expense on the death of one partner.
Reduce by	Input field	Enter a percentage in this field if the expense will reduce. (Values can be from 0.00 to 100.00%.) Note: You must select Future date under Reduction type FIRST before this field will become active.
Reduction type	Radio buttons	Select from Doesn't reduce, On death (for partnered clients), or Future date. If you select Future date, use the date controls to pick a date for the reduction, then add a percentage in the Reduce by field above. For On death, the planner will remove the expense on the death of one partner.
How much do you expect this expense to change over time?	Radio buttons, numerical input	Select from Your default inflation rate (set to 2.00 in the application, but can be changed on the Basic Information page), or Change the inflation rate to. If the user selects the latter field, the percentage field activates, and the user can enter a percentage there. (Values can be from -25.00 to 25.00%.)

Note: Use the grey action buttons at the bottom of the window to **Cancel** (completely undo changes and close the window), **Reset** (undo changes to the default settings if it is a new profile, or the last saved configuration for an existing profile or if you have previously entered details in the edit box in the same session), and **Save** (update the database with the new information).

This information is

- Used in the calculation of the income gap
- Used along with information from previous screens (asset and income information, age, sex, risk profile, etc) to show affordable, semi-affordable, and non-affordable expenses, after clicking the Can You Afford It button, as described in the section below.
- Passed to the planner’s graphing functions for display in the “Do you have enough?” screen
- Used with start and end dates (where applicable) to calculate income/expense graphing and affordability

Can You Afford It?

When the user clicks the Can you afford it? button, the planner colour-codes the expenses listed, as shown below. If the user makes any changes to the retirement expenses list, they must click Can you afford it? each time to update the colour coding.

1 Your information 2 Income and assets 3 Retirement income goals 4 Spending in retirement

Edit and prioritize your retirement expenses. ?

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- Drag and drop expenses between the **Basic living** and **Lifestyle** expense categories.
- When you're done, click the **Can you afford it?** button to see how likely you are to afford that expense in retirement.

Category	Amount	Frequency	Priority
Groceries	\$400.00	Monthly	High
Housing	\$100.00	Monthly	High
Household operation	\$350.00	Monthly	High
Transportation	\$850.00	Monthly	High
Clothing	\$200.00	Monthly	High
Health and personal care	\$200.00	Monthly	High
Income tax personal	\$4,000.00	Annual	High
Recreation and leisure	\$250.00	Monthly	High
Travel	\$5,000.00	Annual	High
Savings	\$200.00	Monthly	High
Loan payments (interest)	\$350.00	Monthly	High
Charitable donations	\$100.00	Annual	High

+ Add expense

Can you afford it?

Fig. 8: Colour-coded expenses

Simpli Data Center Redundancy Work Scope Proposal (Border Gateway Protocol Project)

Section 1: Overview

This document provides a basic framework outlining the scope of work for Simpli's plan to create data center redundancy. This document will cover the following areas:

1. Overview
2. Business Rationale
3. History
4. Problems
5. Remediation
6. Timeframes

Section 2: Business Rationale

Implementing this plan will increase availability, redundancy, and security of Simpli's hardware and network resources, allowing aggressive company growth in the future, and increasing client satisfaction, and decreasing downtime.

Section 3: History

Simpli has historically had a flat layer2 network, which means that there has been no IP-based routing done by Simpli. Simpli has therefore been dependent on upstream providers for redundancy and reliability. If these upstream providers go out for any reason, all the clients on that IP space go down until service is restored. These upstream providers handle all the routing; up until the implementation of this plan, Simpli has done nothing but provide connectivity to the ISPs.

Section 4: Problems

As mentioned above, Simpli's lack of IP-based routing has been problematic, necessitating the changes outlined in this document. Its drawbacks are that it compromises clean traffic, redundancy, and server security. Obviously this situation is unacceptable in a business-critical environment. Simpli feels the need to make our infrastructure fully redundant so that the loss of any ISP, hardware, or provider-specified IP space will not affect our clientele, and we will remain always available. By implementing this plan, we remain online and clients remain online.

The summary of problems is as follows:

- availability
- redundancy
- security

Section 5: Addressing The Problems (Remediation)

Since these problems have been accurately diagnosed, this document can introduce a solution. The solution presented here (as follows) is composed of three parts: redundant hardware, ARIN IP space, and multihoming.

Simpli will bring in a redundant network infrastructure to get IP space from ARIN so to avoid being reliant on provider IP space (as described in the previous sections) and then multihome that IP space over multiple providers using BGP (Border Gateway Protocol).

Phase 1: Redundant Hardware

Simpli needs at least two of every device, including redundant BGP-capable routers. The routers should be capable of handling our sustained network traffic; in other words Simpli needs routers big enough to handle all of the pushed traffic. Simpli then needs redundant switches which are capable of supporting multiple VLANs (virtual LANs) and a routing protocol called OSPF (Open Shortest Path First, an interior gateway routing protocol). With redundant switches and routers, there will always be one device capable of handling the traffic, even if one goes down. Having multiple switches is important for the same reason – if the switch with incoming links goes down, it causes problems, and redundant switches also allow you to stagger incoming links across switches, so that if a switch goes offline, there is still a backup. The reason for implementing OSPF on the switches is that it allows the switches to communicate with the routers in a fashion such that it can use the routers actively, that is, it can use both routers at the same time. Without using OSPF, the routers would not allow the switches to be used in a redundant manner. Since it is critical to use both routers, implementing OSPF is mandatory.

To complete this phase, Simpli must have:

- redundant BGP-capable routers that are capable of handling sustained network traffic
- redundant OSPF-capable switches that can support multiple VLANs.

Once Simpli has obtained these, the phase will be complete.

Phase 2: ARIN IP Space

After implementing redundant hardware, Simpli needs to get IP space from ARIN, but there are several things that must be done:

First, Simpli must get an AS (Autonomous System) number. BGP (the key component of the redundant data center plan) cannot run on a system without an AS number. Then Simpli must request a /20 (16 of what were formerly called “Class C” networks), which is 4096 IP numbers. Simpli currently has 9.5 Class C networks (between a /21 and /20, in current nomenclature). Simpli requires a /20 in order to have space to migrate its current clients to new IP space.

To complete this phase, Simpli must have:

- an AS number
- a /20 (both assigned by ARIN)

Once Simpli has obtained these, this phase will be complete.

Phase 3: Multihoming

Multihoming uses a routing protocol (in this case, BGP version 4) to announce multiple links from multiple sources to an IP space. Simpli needs to use its BGP-capable routers (as described in the previous section) to

create BGP sessions with upstream providers to tell them that Simpli is a /20 (as described in the previous section). This process is called “peering,” and consists of announcing specified routes to a particular IP space through Simpli’s upstream providers, who then announce routes to their upstream providers, which advertises that a given route is available through that network. Simpli must announce its routes through multiple providers in order to provide network redundancy. Without these multiple links, any break in the network will result in a loss of connectivity, and subsequent downtime. Simpli needs multiple providers, then multiple BGP sessions with them, then to verify that BGP sessions work.

However, with multiple BGP sessions, Simpli can control access to its IP space over various routes. Since if the BGP sessions are turned off, the ISP stops displaying routes, so control over who comes in from where can be established by turning sessions on and off. This works to mitigate the effects of damage or downtime on the network: Simpli can withdraw a BGP session if links go bad or ISP is down, so there is no loss.

In order to fully implement BGP, once all the hardware, IP space, and multihoming are in place, the BGP sessions need to be verified. In order to verify, the ISP space must be pinged, each ISP in sequence, then each router in sequence. The entire network should remain up and pingable through the entire verification process, despite the in-turn removal of one component at a time.

To complete this phase, Simpli must have:

- BGP-capable routers with BGP sessions running to upstream providers
- IP spaces announced to multiple ISPs
- a completed verification cycle (as described above).

Once Simpli has obtained and performed these, this phase will be complete.