

## **Active Line Access: NICC B2B L2C ALA Interface Standard**

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## Foreword

This NICC Document (ND) has been produced by the NICC Ethernet Working Group in collaboration with the Broadband Stakeholder Group (BSG) COTS project.

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## Introduction

Active Line Access provides a network solution to enable Next Generation Access (NGA) networks to provide connectivity between residential and business consumers and their respective Service Providers in an open and flexible way. It provides a technology agnostic connectivity solution, being applicable to DSL, PON and also Active Ethernet access networks. It provides a solution that allows a Tier one network provider to offer logically unbundled access solutions and it can also be used by a small community network operator as an industry standard interconnect to allow their community to connect to any number of Service Providers.

This document contains the Business to Business interface definition for the Lead-to-Cash process. This interface is used between an ALA User (referred to as the service buyer) and an ALA Provider (referred to as the service supplier) in order to order services that are provided over an Open Access Network that supports ALA.

This document is a profile of ND1627 [5]. It should be read in conjunction with the ALA management architecture defined in ND1417 [6].

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## 1. Scope

ALA has been defined by NICC to satisfy requirements from Ofcom and NGN UK and UK industry, the full set of ALA requirements are described in [i.2].

ALA is fully defined in the following NICC documents.

- The ALA Architecture document [1]
- The ALA Service definition [2]
- The ALA UNI definition [3]
- The ALA NNI definition [4]

By deploying ALA the access network operator not only ensures that they can wholesale services to multiple service providers but also that Service Providers can connect to their networks because the underlying services are compatible with the Service Providers service models.

In order for this to be practical however it is essential to define the Business to Business (B2B) OSS interface between the ALA provider and the ALA User (i.e. the open access network operator and the Service Provider) so that the Service Provider can use the same OSS to connect subscribers to any number of different ALA provider networks. This requires a defined set of B2B processes and an agreed machine to machine interface.

Previous NICC work has produced a set of B2B specifications to support Next Generation Networks, of which the most relevant are the NICC B2B Trouble to Resolve (T2R) interface [i.3] and the NICC B2B Lead to Cash (L2C) interface [5].

The ALA B2B standards are defined in the following documents.

- The ALA Management Architecture [6]
- The NICC B2B ALA L2C interface standard (this document)
- The NICC B2B L2C ALA XML Standard [7]

This document provides a profile of the existing NICC L2C B2B interface standard, as defined in ND1627 [5] to enable support for an ALA B2B interface. This document sets out which sections of ND1627 apply to an ALA B2B and which sections do not apply, and it sets out new procedures and processes that apply specifically to ALA.

This profile of ND1627 is by design more prescriptive than the base document because it forms the basis for a tightly specified provisioning interface that can be implemented by multiple ALA providers independently of each other and the ALA users. This means options are closed down to minimise the chances of interoperability problems between independent implementations.

---

## 2. References

For the particular version of a document applicable to this release see ND1610 Next Generation Networks, Release Definition

NOTE: While any hyperlinks included in this clause were valid at the time of publication NICC cannot guarantee their long term validity.

### 2.1 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] NICC ND1644 Architecture for Ethernet Active Line Access (ALA), 2010
- [2] NICC ND1030 Ethernet ALA Service Definition, 2010
- [3] NICC ND1031 Ethernet ALA UNI, 2010

- [4] NICC ND1036 Ethernet ALA NNI 2010
- [5] NICC ND1627:2007 NICC B2B Lead-To-Cash (L2C) Interface Standard.
- [6] NICC ND1417:2012 Active Line Access Management and Provisioning Architecture
- [7] NICC ND1651:2012 NICC B2B ALA Lead-To-Cash (L2C) XML Standard

## 2.2 Informative references

- [i.1] Sr 001 262 (V2.0.0): “ETSI drafting rules Section 23:- Verbal Forms For The Expression of Provisions”
- [i.2] NICC ND1642 Requirements for Ethernet Interconnect and Ethernet ALA, 2010
- [i.3] NICC ND1626:2007 NICC B2B Trouble-To-Resolve (T2R) Interface Standard
- [i.4] NICC ND1417 ALA Management and Provisioning Architecture

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## 3. Key Words, Definitions and Abbreviations

### 3.1 Key Words

The key words “shall”, “shall not”, “must”, “must not”, “should”, “should not”, “may”, “need not”, “can” and “cannot” in this document are to be interpreted as defined in the ETSI Drafting Rules [i.1].

### 3.2 Definitions

For the purposes of the present document the following terms and definitions apply.

**ALA provider:** Operator of the access network segment supporting Ethernet ALA

**ALA user:** Direct user of Ethernet ALA

**Buyer:** The party placing the order for service, in an ALA compliant network this will be the ALA User.

**Supplier:** The party receiving the order for service and providing the service, i.e. the access network operator. In an ALA compliant network this will be the ALA provider.

**Touchpoint:** A business transaction between the buyer and the supplier. This is in effect a point of interaction between their two OSS systems, and typically at the lowest level results in a command or message being passed between two automated systems using a mechanism such as XML.

### 3.3 Abbreviations

ALA	Active Line Access	(Ofcom)
AUC	ALA User Connection	
CRUD	Create, Read, Update, Delete	(ND1627)
DSL	Digital Subscriber Line	(G.992)
MAC	Migration Authorisation Code	(Ofcom)
NNI	Network Network Interface	(ND1644)
OAN	Open Access Network	(Ofcom)
OSS	Operational Support Systems	
PON	Passive Optical Network	
PONR	Point Of No Return	(ND1627)
SLA	Service Level Agreement	
UNI	User Network Interface	(ND1644)
XML	Extensible Markup Language	

## 4. Summary of changes to ND1627 defined by this profile.

This document is a profile of the original NICC L2C interface standard as defined in ND1627. ND1627 defines an L2C business to business interface for a range of types of networks and services.

This profile defines those aspects of ND1627 that are required for the ALA L2C interface. It also defines additional functionality that is specifically required to support ALA, and it updates ND1627 in those cases where industry practise has superceded it.

Table 1 defines which parts of ND1627 apply to the ALA L2C business to business interface.

Sections of ND1627 that are described as Normative apply subject to the parts of ND1649 that apply, as set out in the right hand column.

Sections described as informative apply but provide background, or historical information only.

Sections that are described as not applicable are either not required for ALA L2C or are superseded by text in this document.

**Table 1 ND1649 profile of and updates to ND1627**

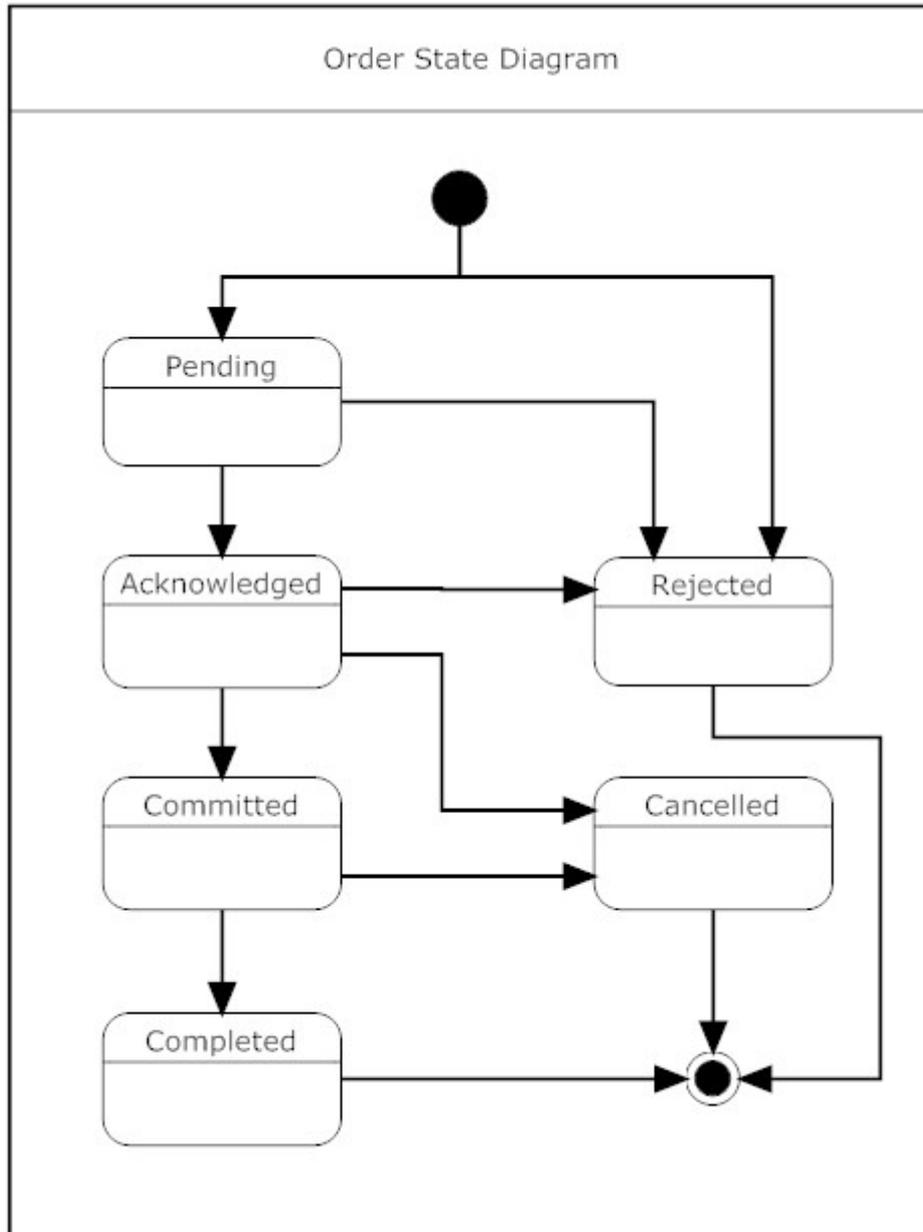
<b>ND 1627 Section</b>	<b>Applicability to ALA L2C profile</b>	<b>Relevant ND1649 sections</b>
Sections 1 to 5	Informative	N/A
Section 6.1 to 6.3	Normative	N/A
Section 6.4	Not applicable	Replaced by Section 5 of this document
Section 6.5	Not applicable	Replaced by section 5 of this document
Section 7	Normative	Additional terms are defined in this document
Section 8	Informative	N/A
Annex 1	Normative	Modified by section 4 of this document
Annex 2	Normative	Modified by section 5 of this document
Annex 3	Informative	N/A
Annex 4	Not applicable	Replaced by section 6 of this document

## 5. ALA L2C Components and States

This section replaces section 6.4 of ND1627.

## 5.1 ALA L2C Order State machine

The ALA L2C order state diagram is shown in figure 1 below.



**Figure 1 Order State Diagram**

The definitions of each of the states are as follows.

### 5.1.1 Pending

In this state an order has been received by the supplier from the buyer. The protocol has been validated and the order is syntactically correct. The supplier is in the process of validating the order.

### 5.1.2 Acknowledged

The order has been confirmed as valid by the supplier and they are now in the process of determining when the order could be fulfilled.

### 5.1.3 Committed

The supplier has undertaken to fulfil the order at a given time. Any appointments that are required have been scheduled. It is possible while in this state that issues may arise during the fulfilment of the order resulting in delays which may break the SLA (indicated by a Delay notification), appointments may be re-scheduled and the order may be amended which may again require re-scheduling. However regardless of the subsequent scheduling of the order it remains in the committed state until either the order is cancelled, rejected or completed. It should be noted that some third party applications may present a delayed order as being in a delayed state to their buyers, however this state is not currently modelled in the underlying business logic of the supplier.

### 5.1.4 Completed

The order has been completed by the supplier.

### 5.1.5 Cancelled

Either the buyer or supplier has cancelled the order and the supplier has confirmed that the order has been cancelled. For example an order may be cancelled by the supplier because the buyer has not responded to requests for additional information required to progress the order in a timely manner.

### 5.1.6 Rejected

The order has been rejected by the supplier because it failed validation or because they are unable to commit to the order for business or operational reasons.

## 5.2 Touchpoints and state transitions

The Touchpoints required to support the ALA L2C process are described in section 6. These touchpoints are used by the buyer and supplier to place an order, report on progress and to raise delay notifications. Some of the touchpoints can occur at any point in an order and do not change the state of the order. Other touchpoints are state dependent, they may only be valid in certain order states and they may cause the transition of an order between two states. This behaviour is shown in the touchpoint – state transition diagram in figure 2.

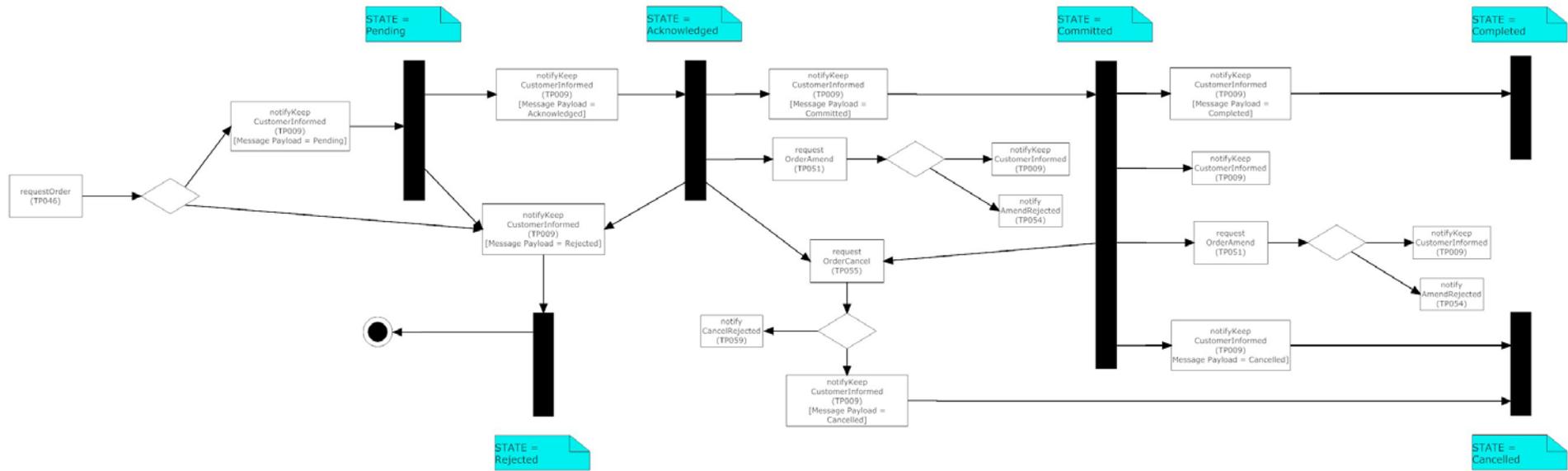


Figure 2 State transition diagram

## 5.3 The SLA Clock

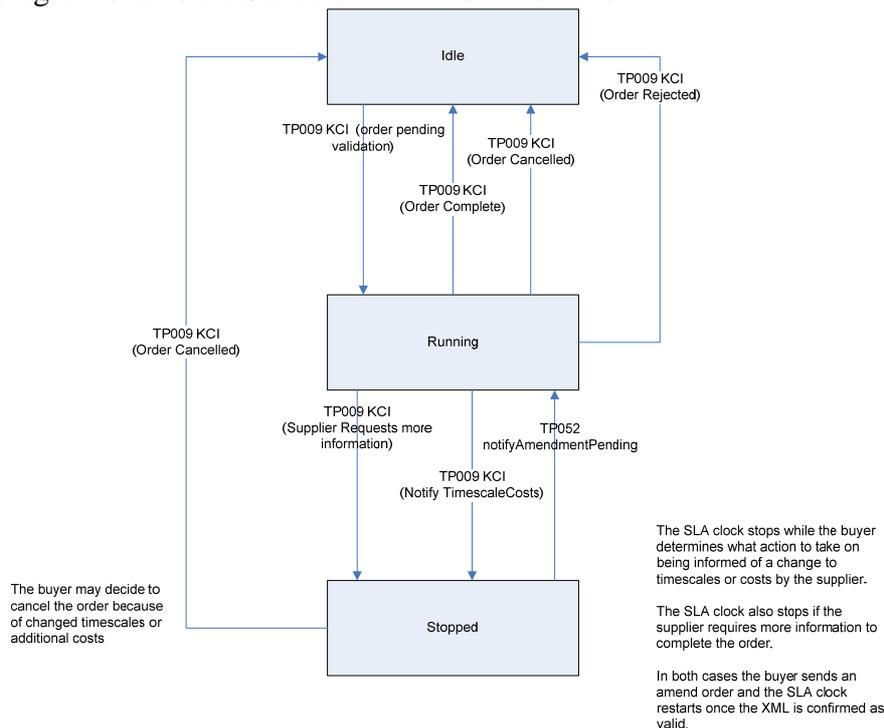
The nature of the commercial agreement between the buyer and the supplier is outside the scope of this standard. However this section describes a generic mechanism by which a clock that can be used as a basis for SLA enforcement shall operate.

Support for the SLA clock is an option for the ALA provider. If they choose to support an SLA clock then it shall operate as described in this section.

The existence of an SLA clock does not imply any associated SLA exists; the SLA clock may simply be used for performance monitoring. The definition of SLAs, the products to which they apply, and the points in the order process where they apply is a commercial agreement between the ALA provider (supplier) and the ALA user (buyer). It is possible that an ALA provider may decide to offer an SLA only for part of the order process, for example the supplier may only offer an SLA between the point at which the order becomes committed and the point at which it is completed. Each ALA order has an ALA clock associated with it which is used to measure the time elapsed to commit an order (an order SLA) and deliver an order ( a delivery SLA). The SLA clock starts when an order is received with valid XML and stops when the order is delivered to the customer. While the order is in process an SLA clock may be in one of two states: running, where the supplier has the responsibility to complete an action; or stopped, where the buyer has the responsibility to complete an action to enable the supplier to complete subsequent actions.

The SLA clock may be started and stopped multiple times within a given order.

The following diagram shows the SLA clock and its transitions.



**Figure 2 SLA Clock state transition diagram**

As soon as it becomes apparent to the supplier that a committed date will not be met then they must issue TP009 Keep Customer Informed (Notify Delay).

The SLA clock itself provides the basis for time dependent elements of any commercial SLA that exists between the buyer and supplier. For example an SLA may be violated when the SLA clock exceeds a pre-defined value for an order. There may be multiple SLAs associated with an order, for example a buyer might guarantee a maximum time from placement of order to committing the order and it may also guarantee a maximum time from placement of order to delivery of order.

To avoid running timers per order, and hence impacting scalability, the SLA clock should not be maintained as a running real time clock but should be constructed from timestamps recorded during

the order processing. The value of the SLA clock at various times during the process can be derived from the timestamps at any given point.

The value of the SLA clock and its status (running or stopped) shall be passed by the supplier when a message either:

- Changes the state of the order.
- Changes the state of the SLA clock.

The value of the clock shall be expressed in minutes.

## 6. L2C touchpoints required for ALA

This section sets out the set of touchpoints that are required to support the L2C process for an ALA based OAN.

This profile defines one new touchpoint and modifies a number of touchpoints previously defined in [5] where necessary to simplify the business patterns. The most significant change is to collapse a number of previously separate touchpoints into the more generic Keep Customer Informed touchpoint.

All touchpoints are as defined in [5] unless otherwise indicated in table 1 below. Touchpoints defined in [5] but not listed in table 2 are not required to support an ALA Open Access Network and shall not be used.

**Table 2 List of touchpoints used for the ALA L2C interface.**

Touchpoint ID	Touchpoint Component	Notes
TP001	requestAppointmentAvailability	
TP002	requestAppointmentReservation	
TP004	requestCancelAppointment	
TP009	notifyKeepCustomerInformed	This touchpoint is enhanced to include additional state information not previously supported in [5], see section 6.1
TP046	requestOrder	
TP051	requestOrderAmend	
TP052	notifyAmendmentPending	
TP054	notifyAmendmentRejected	
TP055	requestOrderCancel	
TP056	notifyCancelPending	
TP058	notifyCancelRejected	
TP069	requestMAC	This touchpoint is enhanced to permit multiple services to have the same MAC see section 6.2
TP071	queryAddressSearch	
TP070	queryMACStatus	This touchpoint is enhanced to permit multiple services to have the same MAC see section 6.3
TP075	queryLineAvailability	The use of this touchpoint has been refined since it was originally described in [5]. See section 6.4
TP083	queryInstallationDetails	
TP088	queryOrderStatus	
TP100	queryProductsForLocation	Defined in section 6.5

### 6.1 TP009 Notify Keep Customer Informed

The ALA L2C interface simplifies the business patterns by collapsing a number of touchpoints into the more general notification Keep Customer Informed. This message is used to inform the buyer of

the status of the order including changes of state, the progress of an amendment, or a delay impacting on an SLA.

This component definition replaces the definition of TP009 in [5].

<b>Component Ref</b>	TP009								
<b>Component Name</b>	notifyKeepCustomerInformed								
<b>Description</b>	A notification from the Supplier of change of state (see State Diagram), progress milestone, attribute, action required, or information on an Order. Attribute can be e.g. appointment date/time. Action can be e.g. reappoint required. Information can be e.g. textual notes.								
<b>User Story</b>	L2C26								
<b>Business Transaction Type</b>	Notification								
<b>Direction</b>	Supplier-Buyer			<b>Sub-Process</b>		Manage Progress			
<b>Non-functional Criteria</b>									
<b>Right First Time</b>					<b>Cycle Time</b>				
Buyer receives KCI first time  %times manual exceptions occur %times the KCI milestones or SLA timescales breached					KCI updates based on process milestones/task completions to be agreed by Buyer and Supplier KCI message sent to Buyer >x seconds of process milestone being.  This can stop the SLA clock if appropriate (this will be conveyed in the message)				
							<b>Document Security</b>		
Response Required	Time To Perform	Legal Intent	Guaranteed Message Delivery Required	Non-repudiation Receipt	Non-repudiation of Origin & Content	Authorisation Required	Confidential	Tamper Detectable	Authenticated
No		No	Yes	Yes	Yes	No	Transient	Transient	Transient
<b>Notification</b>									
<b>Technical Standards</b>			<p><b>Conditional:</b> KCI will convey the following information Order change of state:</p> <ul style="list-style-type: none"> <li>• notifyOrderPendingValidation, previously TP047</li> <li>• notifyOrderAcknowledged, previously TP048</li> <li>• notifyOrderCommitted, previously TP049</li> <li>• notifyOrderComplete, previously TP050</li> <li>• notifyOrderCancelled, previously TP060</li> <li>• notifyOrderRejected, previously TP059</li> </ul> <p>Order requests for action or information</p> <ul style="list-style-type: none"> <li>• notifyInfoRequired, previously TP062</li> <li>• notifyTimescaleCosts, previously TP065</li> </ul> <p>Order status notifications</p> <ul style="list-style-type: none"> <li>• notifyAmendmentCompleted, previously TP053.</li> <li>• notifyAmendmentRejected, TP054 see Note 1 below.</li> <li>• notifyCancelComplete, previously TP057</li> <li>• notifyCancelRejected, TP058 see Note 2 below.</li> <li>• notifyDelay, previously TP089</li> </ul> <p><b>Optional:</b> None</p>						
<b>Data Standards</b>			<p><b>Required:</b> Customer; Account; Service Identifier, Problem Report Identifier</p> <p><b>Conditional:</b> Order State; Milestone (name); Appointment Slot Identifier; Appointment Slot Date/Time; Action Identifier; Information Notes (free format)</p> <p><b>Optional:</b> None</p>						

Note 1 TP054 notifyAmendmentRejected is used if the amendment is rejected as a result of XML validation (i.e. the amendment is immediately rejected by the system). Once the Amendment has passed validation then if the supplier subsequently rejects it (for example because of a failed survey) then this is communicated against the ongoing order using TP009 (AmendmentRejected).

Note 2 TP058 notifyCancelRejected is used if the cancel is rejected as a result of XML validation (i.e. the cancel is immediately rejected by the system). Once the cancel has passed validation then if the supplier subsequently rejects it (for whatever reason) then this is communicated against the ongoing order using TP009 (CancelRejected).

## 6.2 TP069 requestMAC

Because ALA services, as sold to the end user, may be built from multiple services that were ordered from the ALA provider it is possible for a single customer migration to impact multiple services. The ALA user is aware of which services are being migrated and must inform the ALA provider using TP069.

The ALA L2C interface has been enhanced to permit a list of services to be included in TP069. See section 10 for additional information.

In addition to this change the data returned by the response has been updated to reflect current practice.

<b>Component Ref</b>		TP069							
<b>Component Name</b>		requestMAC							
<b>Description</b>		A MAC (Migration Authorisation Code) is requested from a supplier.							
<b>User Story</b>		L2C8							
<b>Business Transaction Type</b>		Commercial Transaction							
<b>Direction</b>		Buyer-Supplier			<b>Sub-Process</b>		Sell Service		
<b>Non-functional Criteria</b>									
Right First Time					Cycle Time				
Message delivery is successful first time The response contains the MAC If the back-end systems cannot provide a MAC at this time, then the response is a business failure - this should indicate that the service is temporarily unavailable %times manual exceptions occur in sending/acknowledging the message					Transaction response time <x seconds (expectation is transaction is real-time) - % Automation – 100% - % System Availability to be determined by specific implementations				
							<b>Document Security</b>		
Response Required	Time To Perform	Legal Intent	Guaranteed Message Delivery Required	Non-repudiation Receipt	Non-repudiation of Origin & Content	Authorisation Required	Confidential	Tamper Detectable	Authenticated
Yes		No	Yes	Yes	Yes	No	Transient	Transient	Transient
<b>Request</b>									
Technical Standards			<b>Conditional:</b> Buyer controls services for end user identified <b>Optional:</b> Date for Mac to be active?						
Data Standards			<b>Required:</b> Service IDs <b>Conditional:</b>  <b>Optional:</b> Date						
<b>Response</b>									
Technical Standards			<b>Conditional:</b>						

	Unable to give MAC – services not owned by buyer or supplied to end user <b>Optional:</b>
Data Standards	<b>Required:</b> MAC <b>Conditional:</b> Error code/message (End User or Services not buyers) <b>Optional:</b>

### 6.3 TP070 queryMACStatus

The ALA L2C interface has been enhanced to permit a list of products to be included in TP070. See section 10 for additional information.

In addition to this change the data returned by the response has been updated to reflect current practice.

<b>Component Ref</b>		TP070							
<b>Component Name</b>		queryMACStatus							
<b>Description</b>		Check if a MAC supplied by the Buyer is valid							
<b>User Story</b>		L2C11							
<b>Business Transaction Type</b>		Query/Response							
<b>Direction</b>		Buyer-Supplier			<b>Sub-Process</b>		Sell Service		
<b>Non-functional Criteria</b>									
Right First Time					Cycle Time				
Message delivery is successful first time %times manual exceptions occur in sending/acknowledging the message					Response time to respond with MAC status - as defined for specific implementations (expectation is transaction is in real-time) - % Automation – 100% - % System Availability to be determined by specific implementations				
							<b>Document Security</b>		
Response Required	Time To Perform	Legal Intent	Guaranteed Message Delivery Required	Non-repudiation Receipt	Non-repudiation of Origin & Content	Authorisation Required	Confidential	Tamper Detectable	Authenticated
Yes		No	No	No	No	No	Transient	Transient	Transient
<b>Query</b>									
<b>Technical Standards</b>		<b>Conditional:</b>  <b>Optional:</b>							
<b>Data Standards</b>		<b>Required:</b> MAC <b>Conditional:</b> <b>Optional:</b> Date range							
<b>Response</b>									
<b>Technical Standards</b>		<b>Conditional:</b> MAC may not exist, MAC may be for another end-uder/bueyer <b>Optional:</b>							
<b>Data Standards</b>		<b>Required:</b> MAC valid / Invalid indicator Location							

	Products <b>Conditional:</b> MAC <b>Optional:</b> Date valid until
--	--------------------------------------------------------------------------------

## 6.4 TP075 queryLineAvailability

This touchpoint was originally defined in [5], however it has been adapted to return information related to the services active on a line rather than just the basic line availability. The updated touchpoint definition is provided below.

<b>Component Ref</b>		TP075							
<b>Component Name</b>		queryLineAvailability							
<b>Description</b>		Check the availability and services on a line plant at a given location							
<b>User Story</b>		L2C41							
<b>Business Transaction Type</b>		Query/Response							
<b>Direction</b>		Buyer-Supplier			<b>Sub-Process</b>		Availability & Capability		
<b>Non-functional Criteria</b>									
Right First Time					Cycle Time				
Message delivery is successful first time Query input parameters to be agreed between Supplier and Buyers %times manual exceptions occur in sending/acknowledging the message					Response time <x secs for reservation transaction (expectation is transaction is real-time) - % Automation – 100% - % System Availability to be determined by specific implementations				
							<b>Document Security</b>		
Response Required	Time To Perform	Legal Intent	Guaranteed Message Delivery Required	Non-repudiation Receipt	Non-repudiation of Origin & Content	Authorisation Required	Confidential	Tamper Detectable	Authenticated
Yes		No	No	No	No	No	Transient	Transient	Transient
<b>Query</b>									
<b>Technical Standards</b>		<b>Conditional:</b> None <b>Optional:</b> None							
<b>Data Standards</b>		<b>Required:</b> Location details (Supplier specific location key) <b>Conditional:</b> None <b>Optional:</b> None							
<b>Response</b>									
<b>Technical Standards</b>		<b>Conditional:</b>  <b>Optional:</b>							
<b>Data Standards</b>		<b>Required:</b> List of active services existing at the given line. <b>Conditional:</b> None <b>Optional:</b> None							

## 6.5 TP100 queryProductsForLocation

<b>Component Ref</b>		TP100							
<b>Component Name</b>		queryProductsForLocation							
<b>Description</b>		The buyer requests from the supplier the products that can be supported for a given location.							
<b>User Story</b>									
<b>Business Transaction Type</b>		Query/Response							
<b>Direction</b>		Buyer-Supplier			<b>Sub-Process</b>		Availability & Capability		
<b>Non-functional Criteria</b>									
<b>Right First Time</b>					<b>Cycle Time</b>				
<p>Message delivery is successful first time</p> <p>Query input parameters to be agreed between Supplier and Buyers</p> <p>Products are presented in clear, simple terms</p> <p>%times manual exceptions occur in sending/acknowledging the message</p>					<p>Response time &lt;x secs for reservation transaction (expectation is transaction is real-time)</p> <p>- % Automation – 100%</p> <p>- % System Availability to be determined by specific implementations</p>				
							<b>Document Security</b>		
<b>Response Required</b>	<b>Time To Perform</b>	<b>Legal Intent</b>	<b>Guaranteed Message Delivery Required</b>	<b>Non-repudiation Receipt</b>	<b>Non-repudiation of Origin &amp; Content</b>	<b>Authorisation Required</b>	<b>Confidential</b>	<b>Tamper Detectable</b>	<b>Authenticated</b>
Yes		No	No	No	No	No	Transient	Transient	Transient
<b>Request</b>									
<b>Technical Standards</b>			<b>Conditional:</b> None <b>Optional:</b> None						
<b>Data Standards</b>			<b>Required:</b> Location details, full or partial address <b>Conditional:</b> None <b>Optional:</b> None						
<b>Response</b>									
<b>Technical Standards</b>			<b>Conditional:</b> None <b>Optional:</b> None						
<b>Data Standards</b>			<b>Required:</b> A set of locations with their available products <b>Conditional:</b> None <b>Optional:</b> None						

## 7. L2C Business Patterns required for ALA

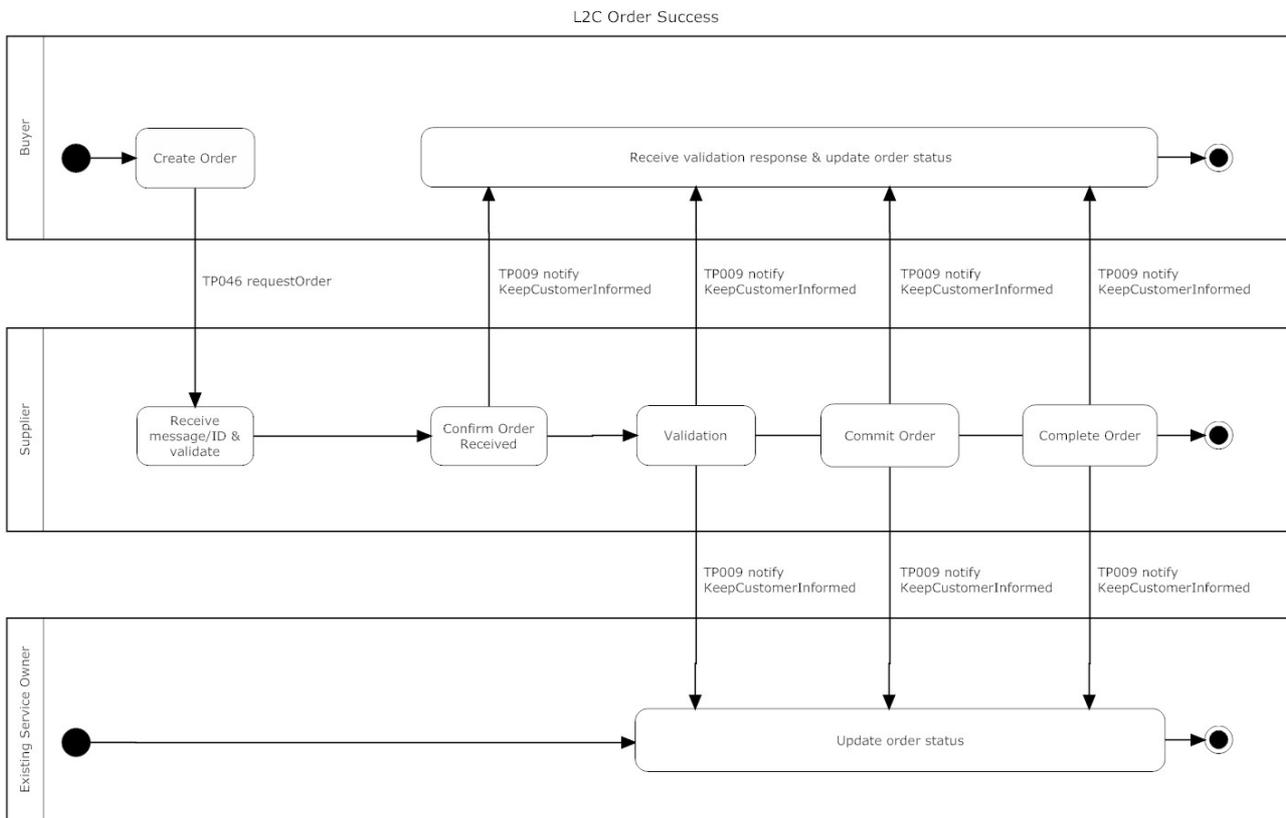
This section sets out the set of business patterns that are required to support the L2C process for an ALA based OAN.

**Table 3 list of business patterns used for the ALA L2C interface.**

<b>Business Pattern</b>	<b>Name</b>	<b>Modified</b>	<b>Defined</b>
BS031	Buyer views availability and reserves Appointment	N	[5]
BS032	Buyer cancels existing appointment	N	[5]
BS033	Supplier cancels appointment	N	[5]
BS038	Supplier Rejects Order	N	[5]
BS039	Supplier informs Delay	N	[5]
BS054	BuyerRequestsOrderStatus		[5]
BS100	L2C migration order success path	New Business Pattern, no equivalent in ND1627	Section 7.1
BS101	L2C Migration pre-order	New Business Pattern, replaces BS052 Buyer Requests MAC	Section 7.2
BS102	ALA L2C order success path	New business pattern used instead of BS034	Section 7.3
BS103	ALA Buyer Amends Order	New business pattern used instead of BS035	Section 7.4
BS104	ALA Buyer Cancels Order	New business pattern used instead of BS036	Section 7.5
BS105	ALA Supplier Cancels Order	New business pattern used instead of BS037	Section 7.6
BS106	ALA Supplier changes Timescales and/or Costs	New business pattern used instead of BS044	Section 7.7
BS107	ALA Get Address Key for Location for Order	New business pattern used instead of BS053	Section 7.8
BS108	Query Products For Location	New business pattern used instead of BS055	Section 7.9

### 7.1 BS100 L2C migration order success path

<b>Pattern Ref</b>	BS100
<b>Pattern Name</b>	L2C migration order success path
<b>Description</b>	The buyer submits an order that is complete and valid and has a valid MAC (obtained by completing BS101). The supplier raises an order and informs the buyer of its receipt and acceptance as valid. The supplier informs the existing owner of the service of the order. The supplier then ensures that delivery is possible and sends a delivery commitment to the buyer and informs the existing service owner of the committed date. Finally the supplier will inform the buyer and the previous service owner that the order has been completed.
<b>Components Used</b>	TP046 requestOrder, TP009 notifyKeepCustomerInformed



Message payload:  
STATE = Pending

Message payload:  
STATE = Acknowledged

Message payload:  
STATE = Committed

Message payload:  
STATE = Completed

Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
1. BS101 L2C Migration pre-order has been executed		
<b>Technical Hand-offs</b>		
1. Buyer initiates TP046 requestOrder. Because this is a migration this order must contain a valid MAC.		

2. Supplier receives the XML document and responds with either:  
 TP009 notifyKeepCustomerInformed (order pending) and sets order status to pending  
 or  
 TP009 notifyKeepCustomerInformed (order rejected) and sets order status to rejected  
 depending on initial XML structural type of validation
3. Detailed validation of the Order is performed to ensure product service is valid and for a valid combination of products etc.  
 acknowledges the order is valid by sending TP009 indicating order acknowledged  
 Sets the order status to acknowledged.
4. Supplier ensures that the product/service can be supplied (this may require site survey or additional planning activities) and calculates the committed delivery date etc. The commitment to delivery is notified to the buyer using TP009 (notify order committed)  
 Set the order status to committed.  
 (This is the point at which Buyer has confirmation that the product/service will be delivered and all the appropriate SLA's for deliveries apply – until this point only the order processing SLA have been valid i.e. time to respond to an order request.)
5. When the supplier has completed the order the order status is set to completed and TP009 notifyKeepCustomerInformed (order status = Completed) is sent to both the existing (previous) service provider and the buyer (new service provider). Following receipt of these messages, the Buyer may initiate billing of the End User and the existing (previous) service provider should cease billing the End User (subject to any contractual notice periods).

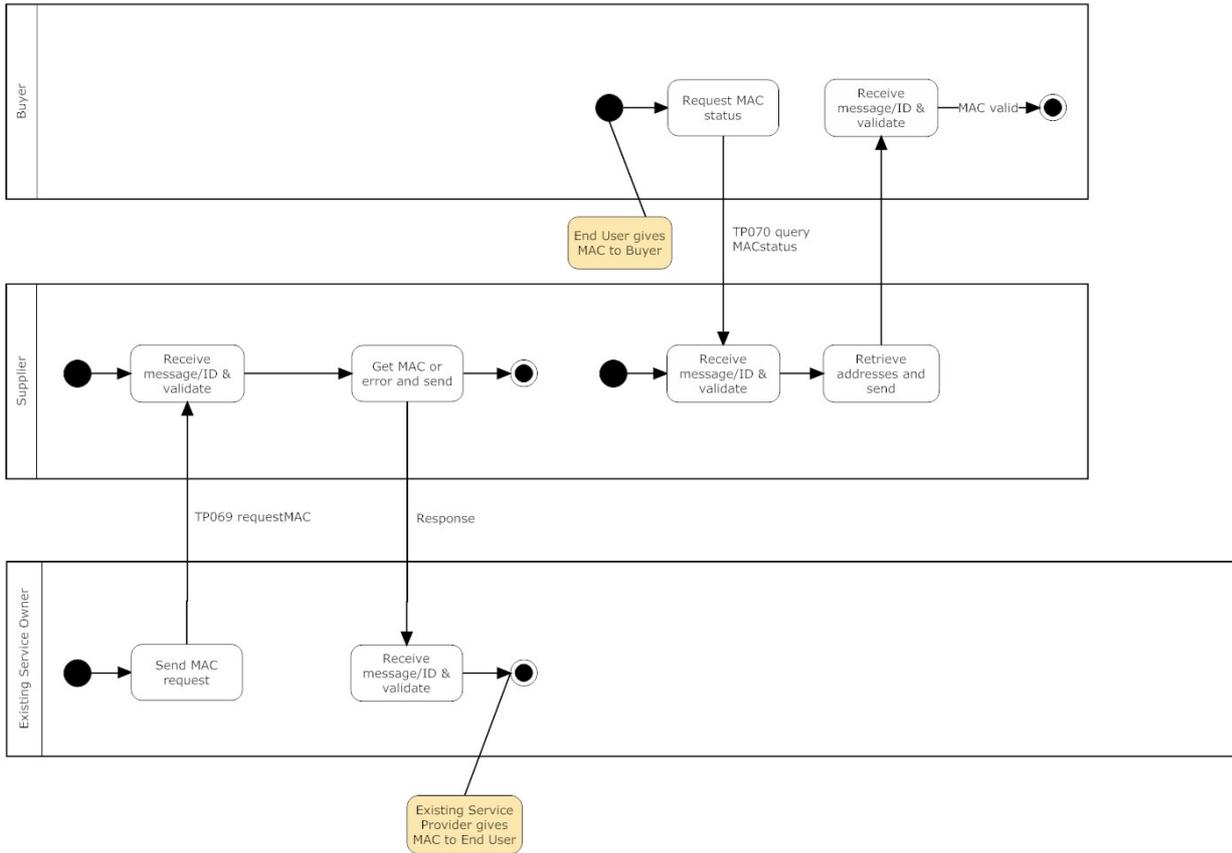
Data Flows			
Component	Input/Output	CRUD	Data
TP046	Input	C C C C	Order Order id (number) Appointment id (if pre booked) MAC
TP009	Output - Success	C	KCI Order Status = Pending
TP009	Output - Reject	C	KCI Order Status = Rejected
TP009	Output	C	KCI Order Status = Acknowledged
TP009	Output	C	KCI Order Status = Committed
TP009	Output	C	Order Status = Completed

## 7.2 BS101 L2C migration pre-order

This business pattern caters for the case of a migration from one access network provider to another. This was not included in the original L2C use cases.

<b>Pattern Ref</b>	BS101
<b>Pattern Name</b>	L2C migration pre-order
<b>Description</b>	The actions taken by the existing service owner, the buyer and the supplier before a service can be moved from one service provider to another service provider.
<b>Components Used</b>	TP069 requestMAC, TP070 queryMACstatus

L2C Migration - pre-order activities



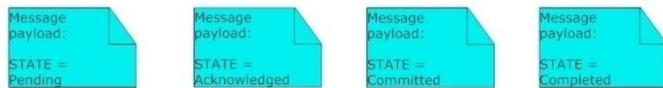
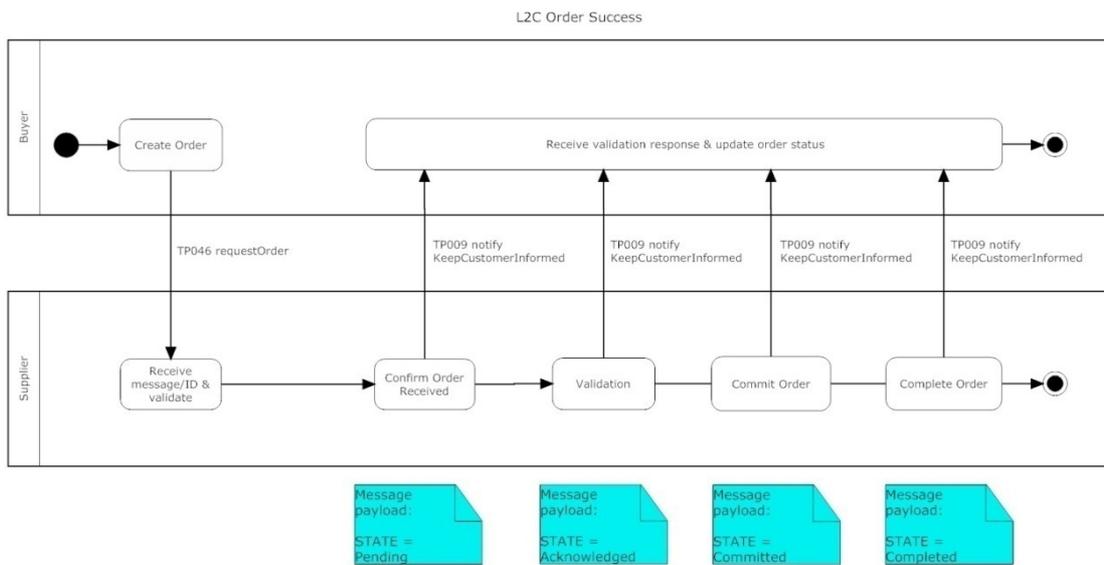
Success Path		Alternative Outcomes	
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)	
1. End user already has a service and has requested a MAC from their existing service owner to move their service.	1. The supplier has provided a MAC to the existing service owner. 2. The new service owner (buyer) has successfully validated the MAC they were given by the end user with the supplier.		
<b>Technical Hand-offs</b>			
1. Existing service owner requests a MAC from the supplier executing TP069 2. Supplier provides the MAC. 3. The buyer requests MAC verification from the supplier executing TP070 4. The supplier returns the MAC status to the buyer.			
<b>Data Flows</b>			
Component	Input/Output	CRUD	Data
TP069	Input	C C	End User ID Service IDs
TP069	Output	R R C	End User ID Service IDs MAC
TP070	Input	C	MAC
TP070	Output	R C	MAC Service IDs

### 7.3 BS102 ALA L2C Order Success Path

The ALA L2C order success path is a simplified version of the L2C Order Success Path defined in BS034 [5]. It The ALA business pattern has also been modified to reflect the use of TP009 notifyKeepCustomerInformed to report state changes.

Note This business pattern can be used to build a new service, to modify an existing service, or to cease a service. Where the order is a service migration from one ALA User to another then BS100 shall be used.

<b>Pattern Ref</b>	BS102
<b>Pattern Name</b>	ALA L2C Order Success path
<b>Description</b>	The buyer submits an order that is complete and valid. The supplier raises an order and informs the buyer of its receipt and validity. The supplier then ensures that delivery is possible and sends a delivery commitment to the buyer. Finally the supplier will inform the buyer that the order has been completed
<b>Components Used</b>	TP046 requestOrder, TP009 notifyKeepCustomerInformed
<b>Process Pattern</b>	



Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
1. Order does not already exist	1. Product/service delivered and working 2. Order complete in both Supplier and Buyer systems	1. Order Invalid. 2. Duplicated order. 3. Unable to fulfil order.
<b>Technical Hand-offs</b>		
1. Buyer initiates TP046 requestOrder 2. Supplier receives the XML document and responds with either: TP009 notifyKeepCustomerInformed (order pending) and sets order status to pending or TP009 notifyKeepCustomerInformed (order rejected) and sets order status to rejected depending on initial XML structural type of validation 3. Detailed validation of the Order is performed to ensure product service is valid and for a valid combination of products etc.		

acknowledges the order is valid by sending TP009 indicating order acknowledged  
Sets the order status to acknowledged

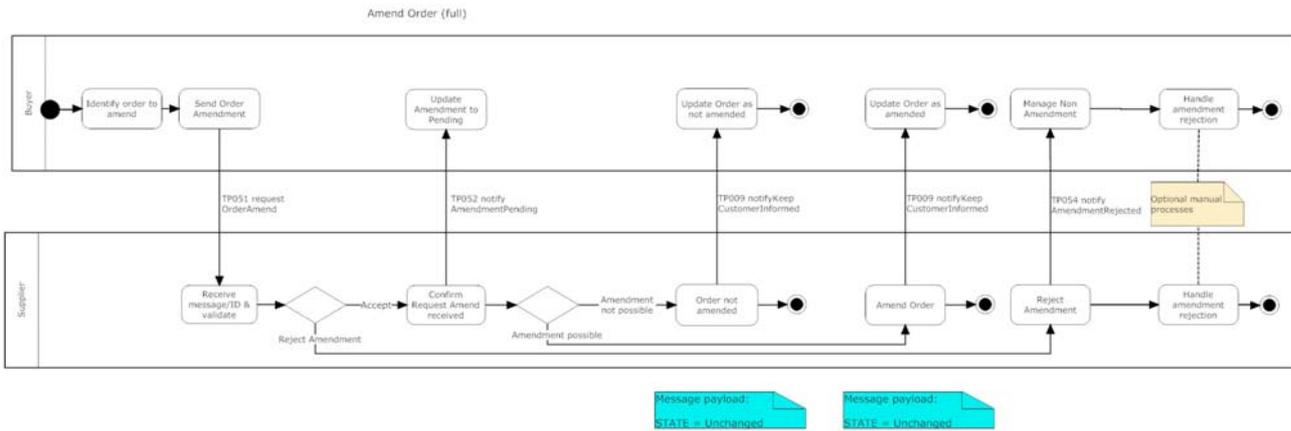
4. Supplier ensures that the product/service can be supplied (this may require site survey or additional planning activities) and calculates the committed delivery date etc. The commitment to delivery is notified to the buyer using TP009 (notify order committed)  
Set the order status to committed.  
(This is the point at which Buyer has confirmation that the product/service will be delivered and all the appropriate SLA's for deliveries apply – until this point only the order processing SLA have been valid i.e. time to respond to an order request.)
5. When the supplier has completed the order the order status is set to completed and TP009 (notify order complete)
6. At various points in the order the supplier may wish to inform the buyer of relevant events, for example the dispatch of an engineer. This can be achieved by the use of TP009 notifyKeepCustomerInformed containing the relevant information. These additional KCI messages do not trigger changes in the order state but may assist the buyer.

Data Flows			
Component	Input/Output	CRUD	Data
TP046	Input	C C C	Order Order id (number) Appointment id (if pre booked)
TP009	Output - Success	C	KCI Order Status = Pending
TP009	Output - Reject	C	KCI Order Status = Rejected
TP009	Output	C	KCI Order Status = Acknowledged
TP009	Output	C	KCI Order Status = Committed
TP009	Output	C	Order Status = Completed

## 7.4 BS103 ALA Buyer Amends Order

This is a modification to BS035 in [5] to simplify it and to reflect the use of TP009 notifyKeepCustomerInformed in the ALA L2C process.

<b>Pattern Ref</b>	BS103
<b>Pattern Name</b>	ALA Buyer Amends Order
<b>Description</b>	The buyer amends an existing Order
<b>Components Used</b>	TP051 requestOrderAmend, TP052 notifyAmendmentPending, TP054 notifyAmendmentRejected, TP009 notifyKeepCustomerInformed
<b>Process Pattern</b>	

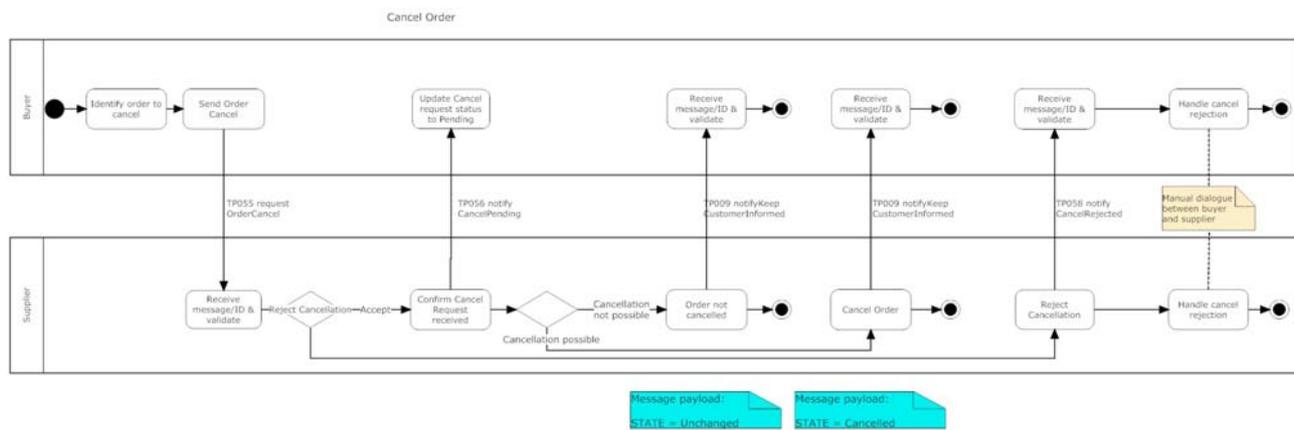


Success Path		Alternative Outcomes	
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)	
<ol style="list-style-type: none"> <li>The order exists</li> <li>The order has not been completed, rejected or cancelled</li> </ol>	<ol style="list-style-type: none"> <li>The Order has been amended on both the Buyer and Supplier's systems.</li> <li>The order has not been amended but the buyer is aware of the reason and mutual manual processing occurs</li> </ol>	<ol style="list-style-type: none"> <li>Order does not exist on suppliers system</li> <li>Order has been completed, rejected or cancelled</li> </ol>	
<b>Technical Hand-offs</b>			
<ol style="list-style-type: none"> <li>Buyer identifies an Order to be changed</li> <li>Buyer creates the order amendment message and sends to the Supplier using TP051 requestOrderAmend.</li> <li>Supplier receives the XML document, validates it is structurally valid and responds with an acknowledgment TP052 notifyAmendmentPending. (This is not acceptance to execute the amendment.) If the amendment request fails the validation then the explicit message TP054 notifyAmendmentRejected is returned.</li> <li>If the amendment request can be met (i.e. the Order may be amended, it is not past PONR, etc.) the Order is amended on the supplier's system and executes TP009 notifyKeepCustomerInformed to send the completion of amendment to the Buyer.</li> <li>If the amendment request can not be fulfilled (i.e. the Order process is past the PONR, the order is complete, etc.) the supplier executes TP009 notifyKeepCustomerInformed (notify Amendment Rejected) and the process reverts to a manual process to explain the failure and the Supplier will contact the buyer to ensure that they are aware of the failure and to allow them to correct their system.</li> </ol>			
<b>Data Flows</b>			
Component	Input/Output	CRUD	Data
TP051	Input	R C	Order ID Amended Order
TP051 / TP052	Output	R C	Order ID Amendment reference ID
TP009	Output	R C	Order ID Completion confirmation
TP009 / TP054	Output	R C	Order ID Rejection

## 7.5 BS104 ALA Buyer cancels order

This simplified business pattern replaces BS036 the one defined in [5].

<b>Pattern Ref</b>	BS036
<b>Pattern Name</b>	Buyer Cancels order
<b>Description</b>	The buyer wishes to cancel an existing order
<b>Components Used</b>	TP055 requestOrderCancel, TP056 notifyCancelPending, TP009 notifyKeepCustomerInformed, TP058 notifyCancelRejected



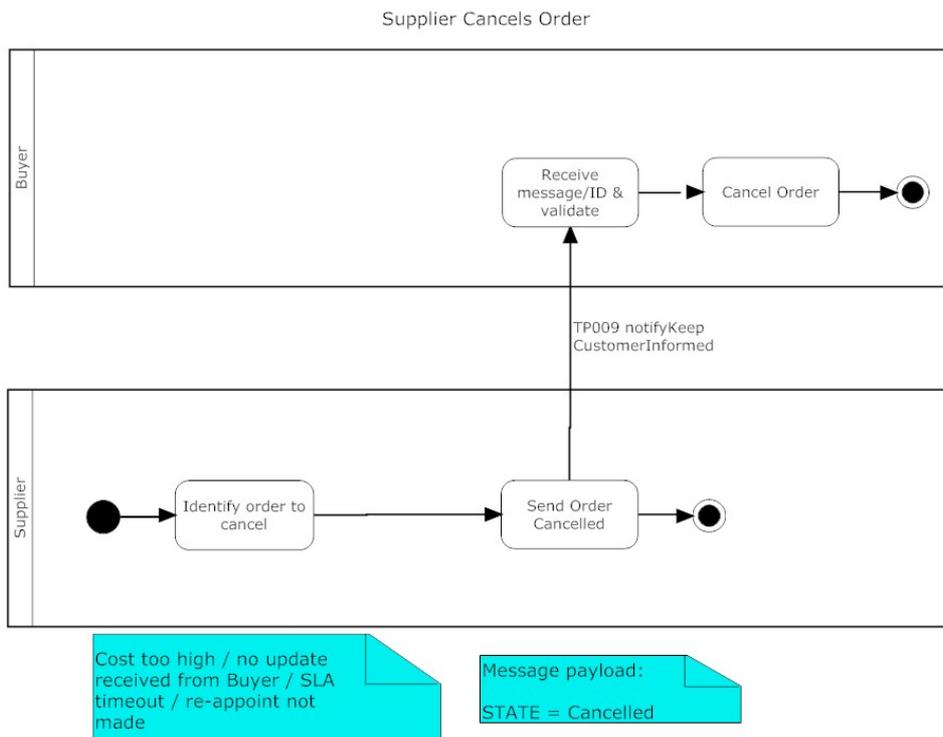
Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
<ol style="list-style-type: none"> <li>The order exists</li> <li>The order has not been completed, rejected or cancelled</li> </ol>	<ol style="list-style-type: none"> <li>Order has been cancelled</li> <li>Order has not been cancelled but buyer is aware or reason</li> <li>Order has been cancelled but via manual intervention</li> </ol>	<ol style="list-style-type: none"> <li>Rejected as Order is complete</li> <li>Rejected as Order is beyond an cancellable point</li> <li>Rejected as Order does not exist</li> </ol>
<b>Technical Hand-offs</b>		
<ol style="list-style-type: none"> <li>Buyer initiates TP055 requestOrderCancel</li> <li>Upon receipt the Supplier executes TP056 notifyCancelPending to inform the buyer the request to cancel has been received and will be processed. This is not acceptance – only acknowledgement. If the request is not valid the supplier responds with TP058 notifyCancelRejected</li> <li>Supplier validates that the order details are valid.</li> <li>Supplier checks that the order is not passed the point at which it can not be cancelled (i.e. completed)                             <ul style="list-style-type: none"> <li>The order is cancelled in the suppliers system</li> <li>The Supplier send the completion notification by executing TP009 notifyKeepCustomerInformed</li> </ul> </li> <li>If the Order cannot be cancelled                             <ol style="list-style-type: none"> <li>The supplier sends the rejection notification by executing TP009 notifyKeepCustomerInformed</li> <li>A manual process between the Supplier and buyer explain why the order could not cancelled and any necessary actions taken on either or both sides.</li> </ol> </li> </ol>		
<b>Data Flows</b>		

Component	Input/Output	CRUD	Data
TP055	Input	C C	Order ID Reason text and code
TP056	Output	C	Acknowledgment
TP009	Output	C	Cancel completed
TP058 / TP009	Output	C	Cancel rejected

## 7.6 BS105 ALA Supplier Cancels Order

This business pattern is a modification to BS037 defined in [5] to replace TP060 notifyOrderCancelled with the more generic TP009 notifyKeepCustomerInformed.

<b>Pattern Ref</b>	BS105
<b>Pattern Name</b>	ALA Supplier Cancels Order
<b>Description</b>	<p>The supplier informs the buyer that the order has been cancelled. This may be due to appointment failure, unavailability of equipment, cost overrun etc.</p> <p>Also the supplier has requested information or action form the buyer to enable the order to be progressed/completed and the wait has exceed that specified in the SLA for the product so the supplier cancels the order and notifies the buyer it has been cancelled.</p>
<b>Components Used</b>	TP009 notifyKeepCustomerInformed



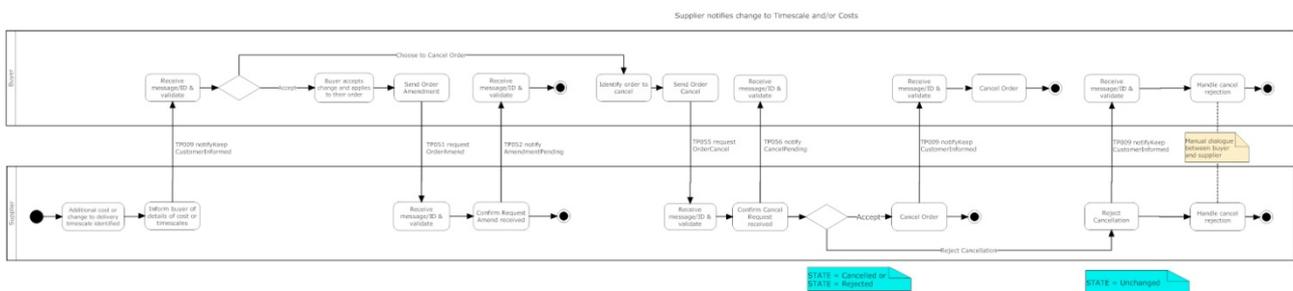
Pre-conditions	Post-conditions	Alternative Outcomes
(assumes Buyer registered as a customer)		(note: these do not cover messaging failures)

1. Valid order exists 2. The order is not complete	1. The order is cancelled on both Buyer and supplier systems		
<b>Technical Hand-offs</b>			
1. Supplier Identifies an Order to be cancelled due to a number of reasons including appointing failure, unavailability /failure of equipment/resource, cost over run etc. 2. Supplier executes TP009 notifyKeepCustomerInformed (order cancelled) to send the cancellation information to the buyer this will contain the reason for the cancellation 3. Buyer receives and validates the cancellation information. 4. Buyer either cancels the Order on their system or, falls back to manual escalation to re-instate the order			
<b>Data Flows</b>			
<b>Component</b>	<b>Input/Output</b>	<b>CRUD</b>	<b>Data</b>
TP009	Output	R C	Order ID Reason for cancellation

## 7.7 BS106 ALA Supplier changes Timescales and/or Costs

This simplified business pattern is a modification to BS044 defined in [5]. It removes the option for the buyer to reject charges, since this represents an exception handling process that is beyond the scope of an automated interface.

<b>Pattern Ref</b>	BS106
<b>Pattern Name</b>	ALA Supplier changes Timescales and/or Costs
<b>Description</b>	The supplier has identified that the order can not be fulfilled within the standard, previously agreed or quoted timescales or costs and informs the buyer of the changes. The Buyer may accept the changes and amend their order on their system. If the Buyer rejects the changes either a manual process is triggered or the supplier will either reject or cancel the order depending on the status of the order at the time of receipt of the rejection of the changes.
<b>Components Used</b>	TP009 notifyKeepCustomerInformed, TP051 requestOrderAmend, TP052 notifyAmendmentPending, TP055 requestOrderCancel, TP056 notifyCancelPending



Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
1. The order exists and has been validated	1. The Order has been updated on the buyer's systems	

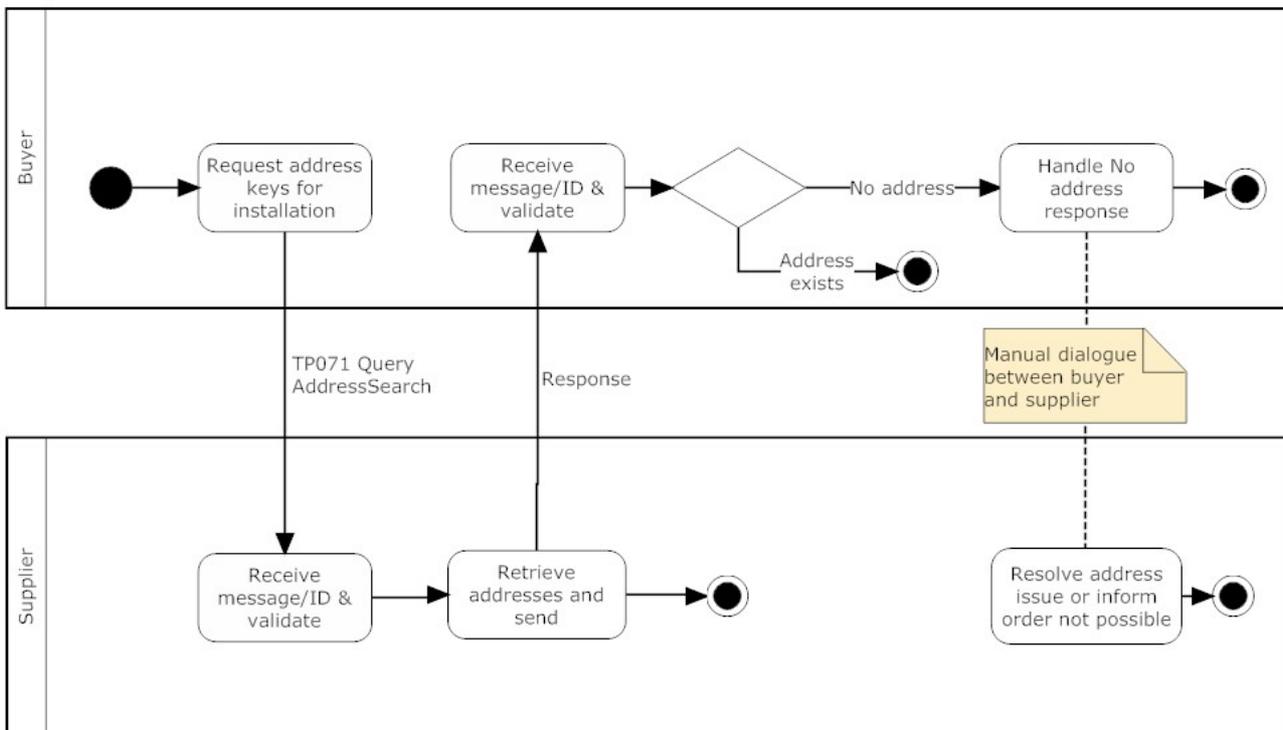
	2. The Order has been cancelled 3. The Order has been Rejected		
<b>Technical Hand-offs</b>			
<ol style="list-style-type: none"> <li>1. Supplier identifies the Order can not be fulfilled within the standard, previously agreed or quoted timescales or costs.</li> <li>2. Supplier executes TP009 notifyKeepCustomerInformed informing the buyer of the change including the reason and either the new cost or the new date(s).</li> <li>3. Buyer receives and validates the message containing the change information.</li> <li>4. Buyer Accepts the change of cost or date(s) <ol style="list-style-type: none"> <li>a. Buyer executes TP051 requestOrderAmend to send a confirmation of acceptance of the changes.</li> <li>b. Supplier sends a response TP052 notifyAmendmentPending if the XML is valid and . If the request is invalid the supplier sends TP054 notifyAmendmentRejected</li> </ol> </li> <li>5. Buyer Rejects the change of costs or dates <ol style="list-style-type: none"> <li>a. Buyer executes TP055 requestOrderCancel to cancel the order.</li> <li>b. Supplier sends a response TP056 notifyCancelPending if the XML is valid. If the request is invalid the supplier sends TP058 notifyCancelRejected.</li> </ol> </li> <li>6. Supplier checks that the order has not passed the point at which it can not be cancelled (i.e. completed) <ol style="list-style-type: none"> <li>a. The order is cancelled in the suppliers system</li> <li>b. The Supplier sends the completion notification by executing TP009 notifyKeepCustomerInformed</li> </ol> </li> <li>7. If the Order cannot be cancelled <ol style="list-style-type: none"> <li>a. The supplier sends the rejection notification by executing TP009 notifyKeepCustomerInformed (cancel rejected)</li> <li>b. A manual process between the Supplier and buyer explains why the order could not cancelled and any necessary actions taken on either or both sides.</li> </ol> </li> </ol>			
<b>Data Flows</b>			
<b>Component</b>	<b>Input/Output</b>	<b>CRUD</b>	<b>Data</b>
TP009	Output	R C C C	Order Id Reason Cost New dates
TP051	Input	R C	Order ID Amended Order
TP052	Output	R C	Order ID Confirmation
TP054 / TP 009	Output	R C	Order ID Rejection
TP009	Output	C	Cancel completed
TP058/TP009	Output	C	Cancel rejected

## 7.8 BS107 ALA Get Address Key for Location for Order

This business pattern is a modification to BS053 defined in [5]. It replaces the address specific TP073 queryAddressMatch with the more flexible TP071 queryAddressSearch and it removes TP074 requestTempAddress which is not used in ALA provisioning.

<b>Pattern Ref</b>	BS107
<b>Pattern Name</b>	ALA Get Address key for location for order
<b>Description</b>	The buyer needs the key for a location to place an order and request the key for the structured address supplied to the supplier. If no matching address is found the buyer requests a temporary address be created and assigned a key so the order may be placed.
<b>Components Used</b>	TP071 query AddressSearch
<b>Process Pattern</b>	

Address key for installation



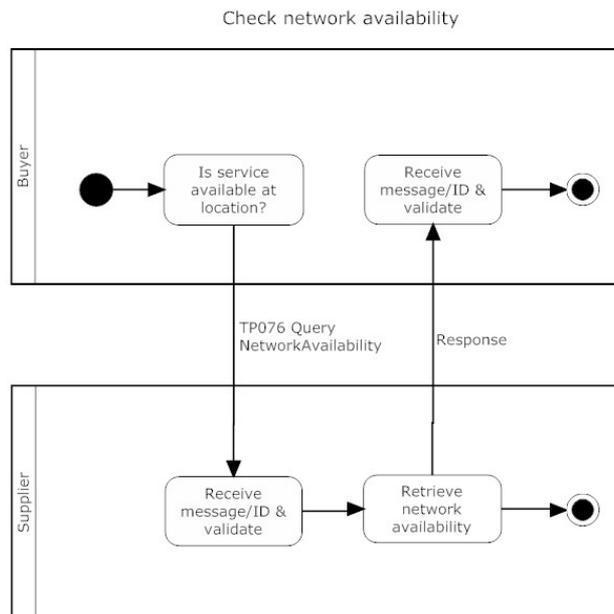
Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
1. Buyer does not know the location key for an address	1. Buyer has a key for the location to store in their system for future use and inclusion in other processes.	1The buyer is unable to get an address key because it is either not recognised or not served.
<b>Technical Hand-offs</b>		
1. Buyer enters a structured address for the location they want a service delivered to by executing TP071 queryAddressSearch 2. Supplier validates the request and searches for a matching addresses in its database. 3. Supplier returns : 4. a) the full address details and those keys for addresses that satisfy the search criteria b) returns an error to say it cannot match the address. 5.		
<b>Data Flows</b>		
<b>Component</b>	<b>Input/Output</b>	<b>CRUD</b> <b>Data</b>

TP071	Input	C	Structured Address
TP071	Output (Success)	C C	List of the following: Location Key Structured Address
TP071	Output (Failure)	C	Error

## 7.9 BS108 Query Products For Location

This business pattern performs a similar function to BS055 in [5] but provides additional functionality and removes the capacity reservation function that is not supported in ALA networks. It allows a ALA User to provide full or partial location information and to get a list of products available at one or more matching locations.

<b>Pattern Ref</b>	BS108
<b>Pattern Name</b>	Query Products For Location
<b>Description</b>	The buyer wishes to check what products are available at a given location (or locations) prior to placing an order.
<b>Components Used</b>	TP100 queryProductsForLocation



Success Path		Alternative Outcomes
<b>Pre-conditions</b> (assumes Buyer registered as a customer)	<b>Post-conditions</b>	(note: these do not cover messaging failures)
1. Buyer has details for the required service delivery location	1. Supplier has confirmed that the service can be supported at the delivery location.	1. Service not available at the required location
<b>Technical Hand-offs</b>		
1. Buyer identifies the service requested at a location. 2. Buyer executes TP076 QueryNetworkAvailability with the service and location as parameters to establish if network availability exists to supply the requested service to the location.		

3. Supplier responds with a confirmation of availability or a notification if it is not available.			
<b>Data Flows</b>			
<b>Component</b>	<b>Input/Output</b>	<b>CRUD</b>	<b>Data</b>
TP076	Input	C C C C	Request ID Service Type Location ID Service specific network parameters
TP076	Output (Success)	R C	Request ID Network capacity available indicator
TP076	Output (Failure)	R C C	Request ID No capacity available indicator Optional reason

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## 8. Addressing in ALA

The nature of the UK industry is such that for many services (e.g. PSTN phone and DSL) a phone number can be used as an address location. However ALA has been designed to cater for new networks being deployed using fibre optic cable, or radio technologies such as LTE as well as copper based solutions such as VDSL. In addition there are problems related to new build that need to be considered.

### 8.1 ALA address formats where the property has a post code

Where the property has been allocated a post code and has become part of the UK postal database then a standard UK address can be used to locate the premises.

The ALA L2C interface supports the use of a partial address match, permitting the user to enter partial or incorrectly formatted information and choose the nearest match.

### 8.2 ALA address formats where the property has no post code (new build)

In the case of new build properties the situation is more complex because the end user may wish to purchase a broadband service prior to the address having been entered into the UK database. While the end user may be aware of the address that they will eventually be given any attempt to map this to the ALA provider (seller) systems is likely to fail.

The builder themselves will have a plot identifier which uniquely identifies the property in their systems but it is not matched to a national database.

Typically the builder has already selected the ALA provider for the property and the ALA provider will be able to match the builders plot identifier to a location in their system. Therefore the end user (who will order the service) must be provided with a reference that identifies the ALA provider who will be providing the service and a location identifier that is meaningful to the ALA provider.

This key should be an ALA address key format the first part of which should be the DUNS of the ALA provider and the second part the physical location reference understood by the builder and the ALA provider.

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## 9. The requestOrder Touchpoint for ALA

Supplementary information relating to the 'requestOrder' Touchpoint

## 9.1 Introduction

The text in Annex 4 of ND1627 does not reflect the current industry practice which has been refined over a number of years since the original standard was produced. In particular the complex order constructions proposed in ND1627 have not in reality been implemented.

The ALA L2C Interface definition reflects this industry experiences and the following text replaces the text in Annex 4 of ND1627.

## 9.2 L2C B2B schema standard

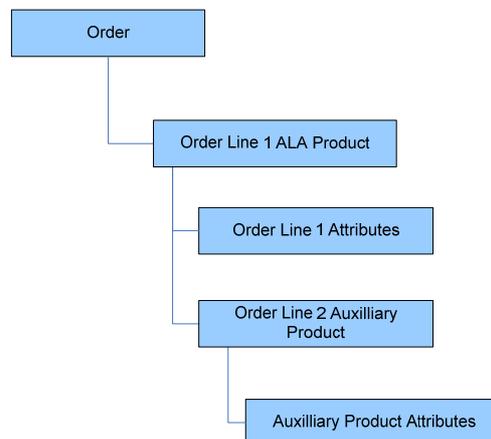
### 9.2.1 Order construction considerations

The ALA L2C interface is built according to the following assumptions.

1. A single order is placed against a single product. If multiple orders are required then they should be submitted as a number of atomic orders. ALA provides an optional mechanism for identifying dependent orders.
2. ALA supports the concept of auxiliary services. These are services not directly related to the network but which may be offered as part of a value added service by the ALA provider. These auxiliary orders would typically be related to the customer premises installation and are in effect an extension of the original order. It is an ALA provider (supplier) and ALA User (buyer) specific decision as to what the failure to complete the home installation aspects of an order means to the overall order. For example it could result in an order rejection or a KCI indicating the order was completed but that the full home installation had not been done.

### 9.2.2 Order construction proposal

The order at the B2B interface is described in the following diagram:



## 9.3 Linked Orders

The ALA L2C interface requires that all orders are atomic. In the case of an auxiliary product then this product must meet the following requirements.

- It does not alter the state or configuration of the UNI or services supported from the UNI
- It must be possible to complete the provision of the ALA product order irrespective of whether the auxiliary product order was successfully provided.

Any exception handling caused by the failure of the auxiliary product is dependent on the individual ALA provider. A likely scenario is that the UNI is deployed and configured in the home but the end customer cannot connect their equipment to the UNI at their requested location because of a home

wiring problem. Service credits may be applied by the ISP in this case until such time as the auxiliary order is completed.

Where multiple ALA orders are required to build a service the ALA L2C provides a mechanism to identify orders that are part of a single service build and orders that are dependent on other orders having been completed. The support of these mechanisms is an option for the ALA provider.

### 9.3.1 Related and dependent orders

The ALA L2C interface provides a number of different order references. The first two are the buyer and seller order references.

The buyer order reference is mandatory and is unique within the buyers systems. This is used to identify the order and the supplier (ALA provider) must use this reference in any responses or updates to the order.

The seller order reference is generated by the supplier (the ALA provider) and is used in any responses or updates for the given order.

Two optional order references may also be supported and are used for related orders, these are the project order reference and the required order reference.

The project order reference is provided by the buyer (ALA User) and it allows the buyer to indicate that a number of orders are grouped (by providing the same project reference). The supplier will pass the project order reference back to the buyer in any response or update messages. This mechanism can be used where a buyer builds a complex product requiring multiple ALA services (for example a triple play product) and wishes to track when they have all be provided so that they can activate the service.

The required order reference is provided by the buyer. It is used when the buyer is aware that a previously submitted order must be completed before the subsequent orders. For example the first order will result in the building of physical infrastructure and the subsequent orders will build additional ALA services to the end user, or the first order provides a service and the subsequent orders are related to non ALA services such as a home PC or communications hub installation. In these cases the supplier (ALA provider) is responsible for ensuring that if for whatever reason the first order is delayed KCIs are also issued for its dependent orders (if the delay runs beyond the appointment dates for the dependent orders). Similarly cancelling the required order must generate cancellations of the dependent orders.

### 9.3.2 Orders from multiple ALA Users

In the case where an ALA provider receives orders from multiple ALA users for the same customer premises then it is possible that a dependency may be generated without the buyers of the service being aware of the other orders. For example one buyer's order will result in the installation of equipment at the customer premises while other orders will simply add services on top of the installation. In this case it is the responsibility of the ALA provider's OSS to identify any linkages and this is out of scope of the ALA L2C interface.

## 9.4 Bulk Migration Orders

The ALA L2C interface does not support bulk migration orders. All orders are atomic and these would be submitted as a series of independent orders.

## 9.5 Progress Reporting

Because the ALA L2C interface supports simple orders progress reporting via KCIs is simplified and KCIs always relate to a single order at a single order level.

## 10. The use of MAC for service migration

The ALA B2B L2C interface uses the existing MAC mechanisms to achieve service migrations. A service migration occurs where an end user who takes service from one ALA User, wishes to move their service to another ALA User delivered over the same ALA provider network.

This will achieve service migration smoothly where, as today, the end customer purchases a single broadband product from a single broadband supplier.

However Next Generation Access services delivered using ALA are more powerful and also more complex than the previous generation of broadband services that they replace.

An ALA User may offer a complex triple play product delivered over a number of ALA services which they purchase from an ALA provider. For example they may offer a triple play service made up of a point to point ALA AUC service for broadband and voice services, and a multicast AUC for broadcast video services. Additionally different ALA users may offer or bundle services differently; for example another ALA user could offer a separate voice service delivered over a dedicated AUC. It is possible to envisage that end users may also purchase different services from different ALA users; for example broadband and video from one and voice from another. They may also wish to swap between bundled packages and stand alone services.

These issues, while beyond the scope of this interface definition require consideration in order to prevent future service migration issues. In order to ensure flexibility without risking the end user experience the following approach is recommended.

The ALA user and ALA provider treats each ALA service as separate from the point of view of migration, any network service explicitly provisioned may have a MAC allocated to it.

When an end user wishes to migrate service then the ALA User requests a MAC from the ALA provider as currently done. If the end user is moving a complex service which is fulfilled with multiple ALA AUCs (which have been purchased from the ALA Provider) then the ALA User performs the following actions.

1. Identify exactly which services that they have bought from the supplier are to be ceased on migration.
2. Request a MAC including all of the service identifiers of the services that are to be ceased on migration.
3. For each of the additional services to be ceased pass the MAC obtained in step 2 to the supplier so they may be associated with the migration.

If and when the migration takes place the supplier will cease all services tagged with the MAC.

## History

Document History		
Version	Date	Milestone
1.1.1	11/02/13	Initial full version