



Telecommunications Carriers' Forum

Ultra-Fast Broadband BSS / OSS Business Interaction Framework

Version Number and Status: Final
Version Date: 11 February 2011

This document sets out the minimum standards that the TCF Working Party recommends an LFC and Access Seeker should meet for their business interactions for UFB. The Working Party gives its support to this document, but recognises that changes may be required following negotiation with the CFH to take account of matters such as interoperability considerations, technical feasibility, and service capability/cost trade off decisions. It is the intention of the Working Party to consolidate all UFB Operations Manuals and Service Level Terms into this document subsequent to public consultation. The TCF UFB BSS / OSS Business Interaction Framework has been approved by the following Working Party members: Crown Fibre Holdings, Northpower, Telecom/Chorus, TelstraClear, Vector, and Vodafone.

The following exclusion or caveat to this approval has been noted:

It is TelstraClear's view that the activity diagrams within the document are illustrative and for guidance purposes only, and that optimal implementation of processes may differ from those implied by the diagrams. TelstraClear view that the diagrams in section 4.2.4 Customer Transfer are a fair representation of the processes required to support provision of services over a scarce resource.

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BSS / OSS Business Interaction Framework

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1 Preface

The TCF Working Party developing standards for the Ultra-Fast Broadband Initiative (UFBI) has agreed principles that should apply to the development of the Operational Support Systems (OSS) and Business Support Systems (BSS) as well as some key aspects that Access Seekers should experience when using them. These are summarised as follows:

1.1 International Best Practise Frameworks

There are recognised international best practice frameworks governing OSS/BSS development within the telecommunications industry, and these should be used as a guide for the UFBI Initiative. Accordingly the TM Forum Framework and ITIL reference models will provide the basis for development of the UFBI business process and technical architecture.

1.2 Consistent User Experience

An End User, Access Seeker and Access Provider should each have a consistent experience across the country when using the UFBI OSS/BSS regardless of their location.

1.3 OSS/BSS Implementation

The technical architecture for the OSS/BSS could be implemented either through a “club” operation of a centralised system, or through the development of a “virtual” system with each party developing their own system and interconnecting to each other through standard interfaces. However the business processes and standards developed by the Working Party are developed independently of the method chosen for their implementation.

2 Introduction

2.1 Scope

The government’s objective for the ultra-fast broadband investment initiative (UFB Initiative) is to accelerate the roll-out of ultra-fast broadband by investing in open access infrastructure. To facilitate “openness” at a business transaction level the TCF is working to provide standard definitions for the different interactions that are required to take place between Access Seekers and Local Fibre Companies (LFC), alias Access Provider. Standard definitions for all business interactions with the LFC will not only make it easier to do business with them, but will promote equivalence of inputs (Eol) to all Access Seekers.

2.2 Document Purpose

This document specifies the business interaction framework and the specific interactions of an Access Seeker with an Access Provider, where the Access Provider is the group of LFC established by Crown Fibre Holding. The requirements model describes business level functions that are technology independent, focusing on business needs and outcomes. The design of system capability to enable these business functions is outside the scope of this specification.

2.2.1 Process Context

End to end processes where the End User is the primary focus are presented to provide the context and drivers of each business interaction. The processes are designed to be “all inclusive” and generic to ensure nothing is missed, while allowing for steps to be omitted if not required. It is not the purpose of these processes to prescribe any more than the Access Seeker, Access Provider interactions. All interactions with other commercial entities within these processes are illustrative, non prescriptive, and for context only.

2.3 Notation

Unless otherwise stated, all diagrams and system views conform to the Unified Modelling Language, (UML 2.1) as specified by the Object Management Group (OMG). Refer; <http://www.omg.org>

2.4 References

- [1] Integration Framework, Business Services (Contracts) Concepts and Principles; Release 2.1, GB942CP, Version 2.07, March 2010; TM Forum.
- [2] Business Process Framework, Enhanced Telecom Operations Map (eTOM), Release 8.0, GB921, Version 0.9, January 2009, TM Forum.
- [3] ITU-T M.3343, Requirements and analysis for NGN trouble administration across B2B and C2B interfaces, January 2007; International Telecommunication Union.
- [4] UFB Co-location Operations Manual, v9, 25 June 2010, TCF.
- [5] UFB Co-location Service Level Terms, v13, 20 July 2010, TCF.
- [6] UFB Intra-LFC Area Access Fibre Backhaul Operations Manual, v8, 25 June 2010, TCF.
- [7] UFB Intra-LFC Area Access Fibre Backhaul Service Level Terms, v6, 20 June 2010, TCF.

2.5 Version Control

Version Number	Date Issued	Reason for Update
0.1	29 April 2010	Initial draft for review and feedback.
0.2	27 May 2010	Included end to end process workflows to provide the context for the interactions.
0.3	02 June 2010	Updated end to end process workflow to incorporate CFH feedback.
0.4	10 June 2010	Added reference [3] and Updated Assurance Section accordingly.
0.5	28 July 2010	(1) Added Forecasting and Billing as supplied by Vodafone. (2) Updated Assurance with feedback from working group. (3) Updated Order Fulfilment Sequence diagram and Premises Class as supplied by Chorus.
0.6	09 August 2010	(1) Updated Forecasting and Billing with feedback from working group. (2) Added further items to Access Provider Order.
0.7	25 August 2010	Updated Fulfilment section with 12/08 workshop output.
0.8	31 August 2010	(1) Updated document with 26/08 workshop output. (2) Included Preface section supplied by CFH. (3) Overlaid TCF document template.
0.9	09 September 2010	(1) Updated document with 06/09 workshop output. (2) Included first draft Transfer Code Business Interaction.
0.10	16 September 2010	(1) Included Compliance Section provided by TCF. (2) Updated the Glossary. (3) Included first draft Business Interaction for Service Transfer.
1.0	23 September 2010	Submitted to TCF Board for approval.
1.1	27 September 2010	Removed Daily Invoice Item passing for Billing, pre TCF Board Approval.
1.2	28 September 2010	Approved by TCF board, for public consultation.

2.0	28 October 2010	Incorporated the following documents: - UFB Co-location Operations Manual, v9, 25 June 2010 - UFB Co-location Service Level Terms, v13, 20 July 2010 - UFB Intra-LFC Area Access Fibre Backhaul Operations Manual, v8, 25 June 2010 - UFB Intra-LFC Area Access Fibre Backhaul Service Level Terms, v6, 20 June 2010
2.1	04 November 2010	Updated document with 04/11 workshop output.
2.2	23 November 2010	Updated document with 18/11 workshop output, for final agreement with members.
2.3	03 December 2010	Incorporated Public Consultation feedback as per 02/12 Workshop.
2.4	22 December 2010	Updated customer transfer interactions as per 21/12 workshop.
2.5	12 January 2011	Update as per final review session, for submission to TCF Board for approval.

3 Business Interaction Framework

3.1 Business Service

A Business Service (aka NGOSS Contract) represents a specification of capability to achieve a stated business purpose. The aim is to produce an interface specification for business transactions that is expressed in the language of the business and can be implemented with a range of different technologies, i.e. The Business Service is a technology neutral specification of interface behaviour from an operational perspective.

3.2 Business Service Specification. Business View

3.2.1 Objective

Statements that describe the desired outcomes to be achieved by the Business Service.

3.2.2 Preconditions and Trigger

Each Business Service has a set of preconditions that must be true in order for the Service to be carried out by the Provider. Preconditions are specified in a logical expression, consisting of zero or more logical clauses. The expression is evaluated by the Provider and if it resolves to true, then the Business Service will be carried out. If it resolves to false, then the Business Service request fails with a 'preconditions failure status' and an explanation as to which clause or clauses were responsible for the failure.

The preconditions should act as a simple gate, or sanity check, to ensure that the Provider is able to start the Business Service. It is entirely acceptable that while the Business Service is being carried out, the Provider finds it cannot successfully complete the Task and has to return a failure status.

3.2.3 SLA Features

SLA features specify how the Provider behaves with regard to the Business Service. It enriches the Business Service with metrics that are essential for its operational use, controlling features such as performance (time to execute), feedback, volumes, security etc. The Business Service Specification will define SLA features that are relevant to the particular business purpose and subject that the Business Service is specified for.

3.2.4 Tasks

Tasks provide the description of the discrete activities along with their sequence and flow. Tasks may define; Policies - description of the governance and/or decision-making behaviour of the Business Service, and Entities - description of the information/data required supporting the Business Service. This provides the specification of the behaviour of the Business Service.

3.2.5 Post-Conditions

The post-conditions for the Business Service are declarations of the properties which are guaranteed upon completion of the Business Service execution. The post-condition offers assurance to potential callers that in cases in which the Business Service is called in a state in which its preconditions hold, the properties declared by the post-conditions are assured.

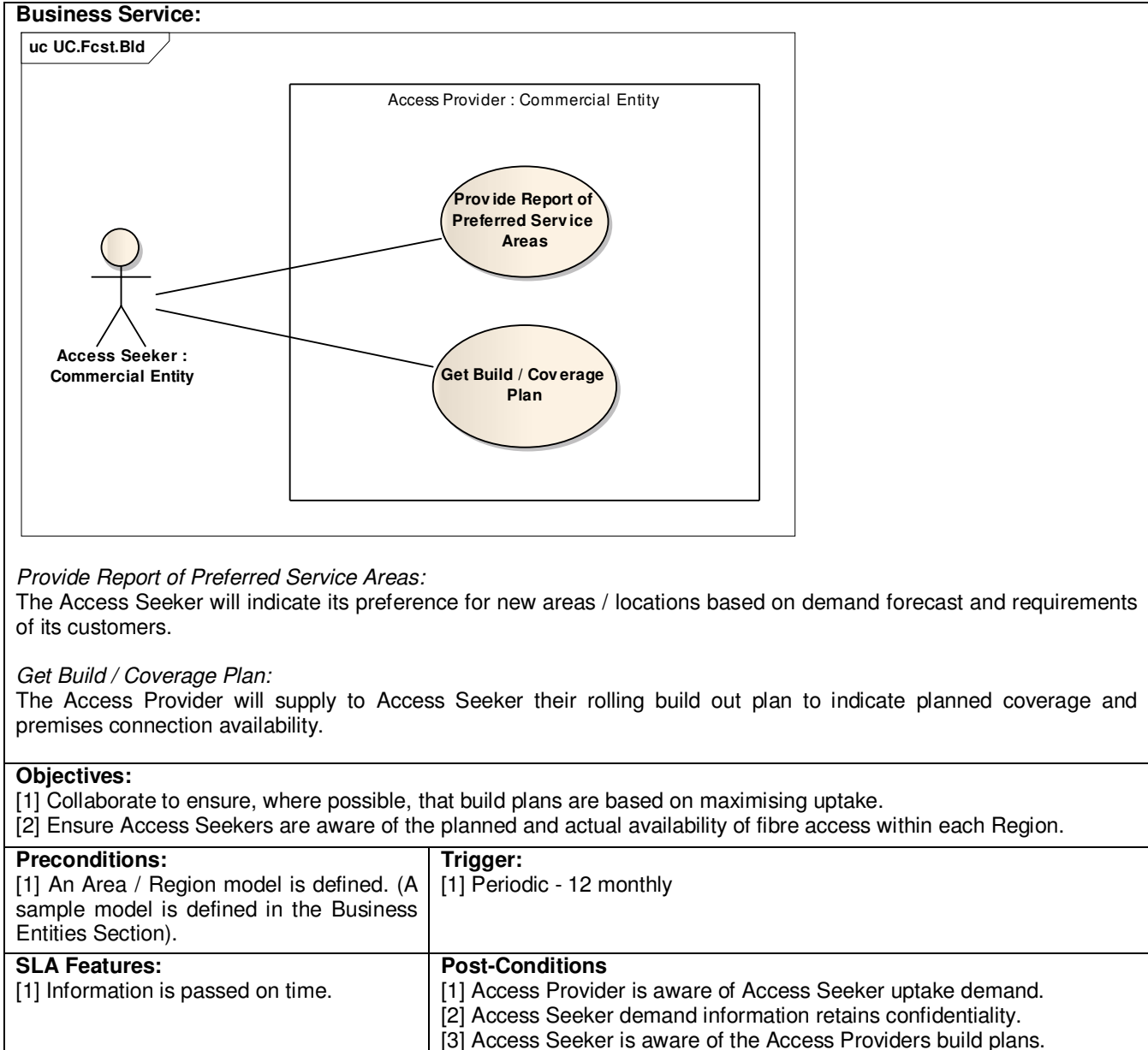
4 Business Service Specifications

4.1 Forecasting

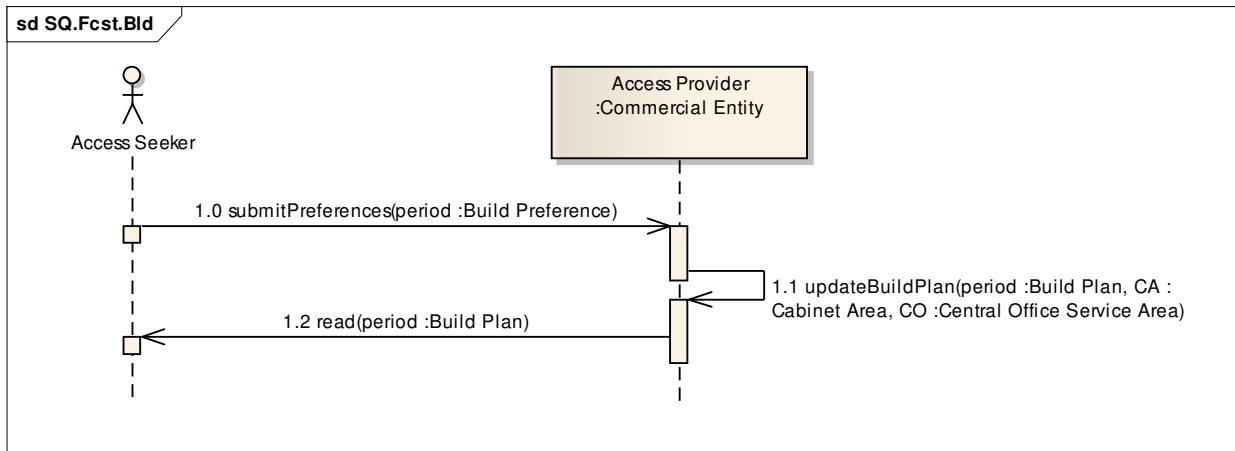
The Forecasting process grouping is responsible for sharing both Access Seeker demand and capacity requirements with the rollout and expansion activities of the Access Provider. The services to be forecast during the concessionary period are;

- 1) Layer 2 Broadband
- 2) Layer 1 Point to Point Dark fibre between CO and Premises
- 3) Central Office and Point of Interconnect Collocation
- 4) Backhaul and Tie cables

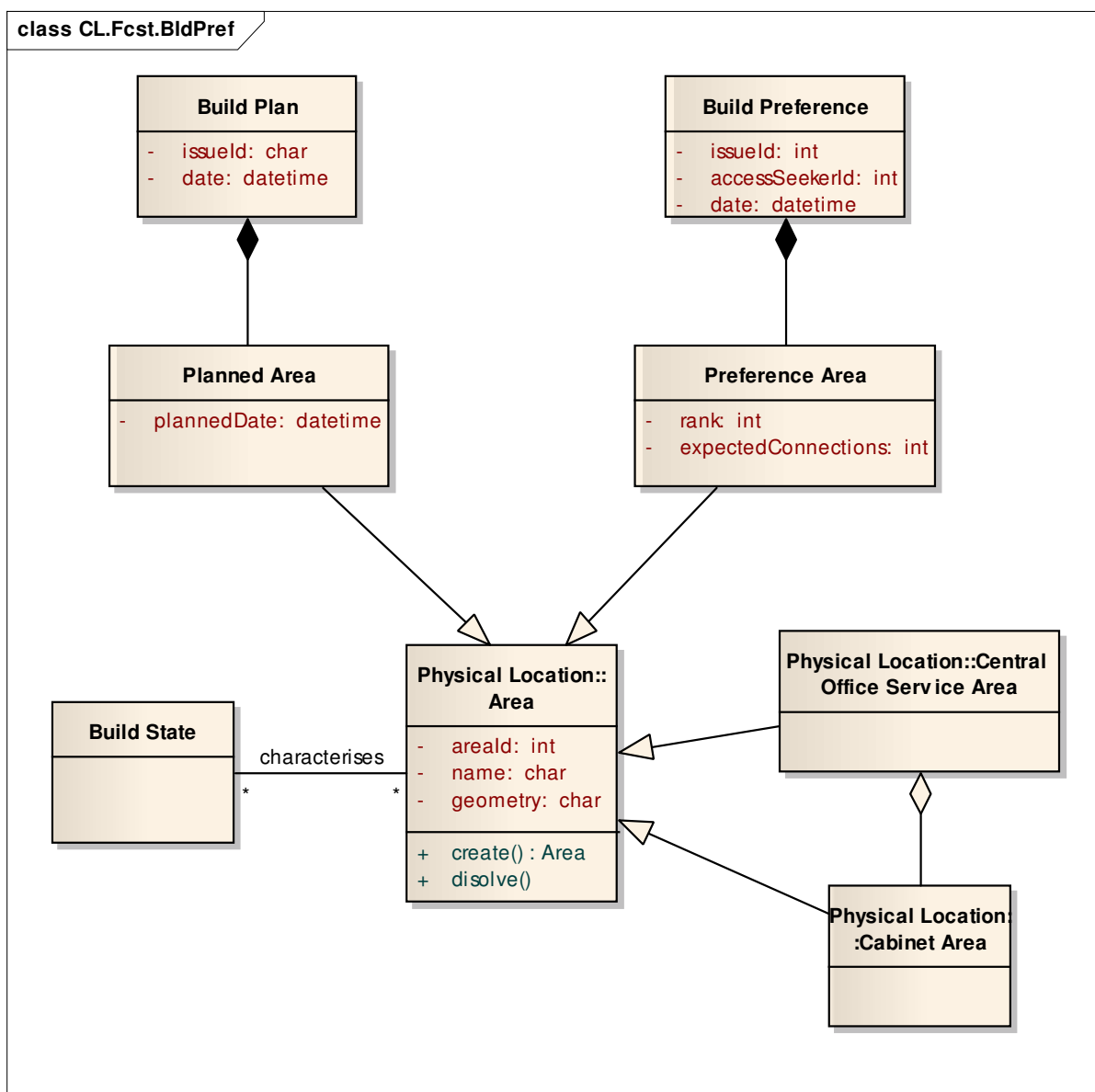
4.1.1 Build Planning



Tasks:

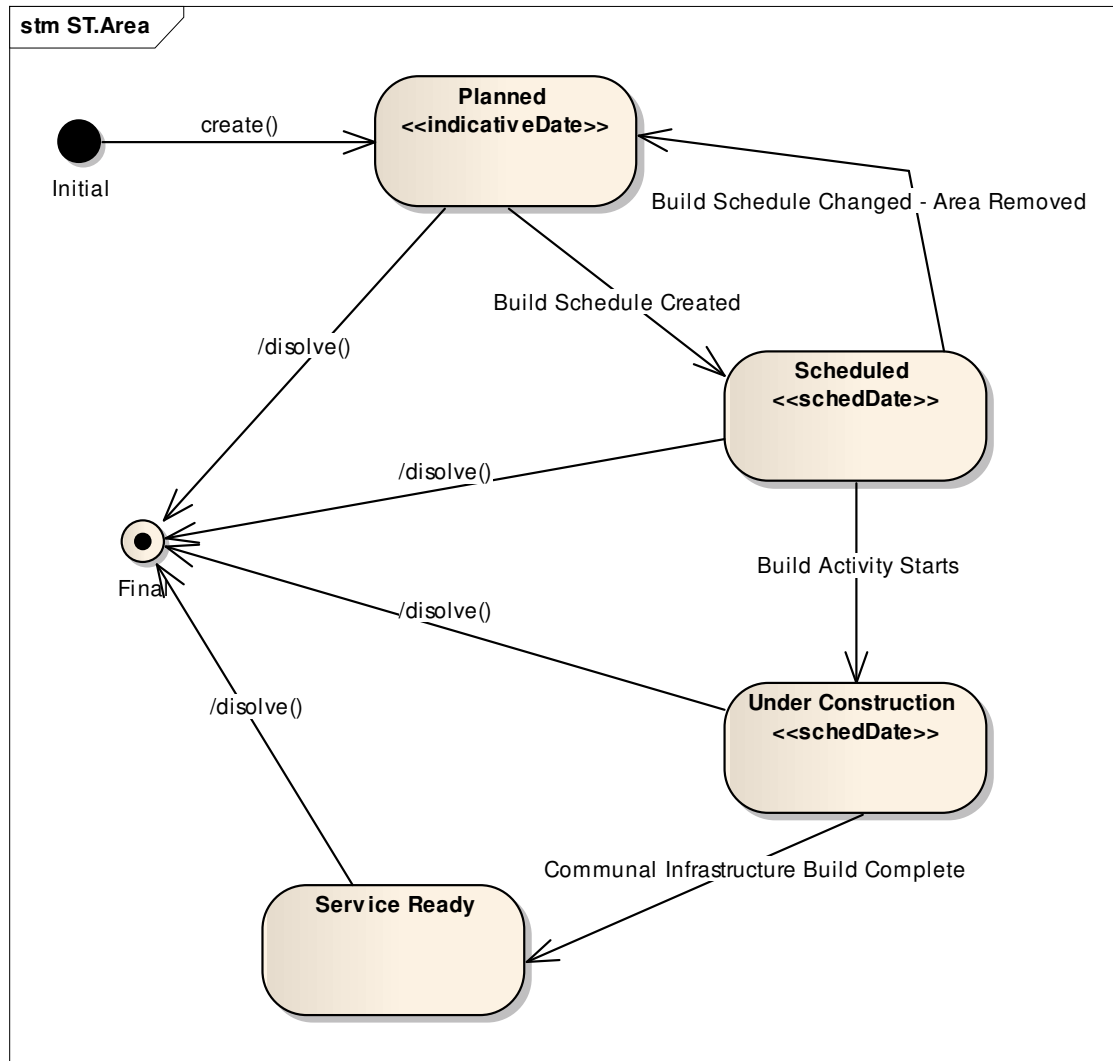


Business Entities – Static Structures:



Area.geometry: This is an abstract placeholder to provide for the description of the area in unambiguous terms. Essentially it will be a boundary traced on a geographic street map.

State Transition Diagram: Area



Planned: The area is included in an overall build plan, however the work has not yet been incorporated into a project or schedule so dates are indicative only and subject to change.

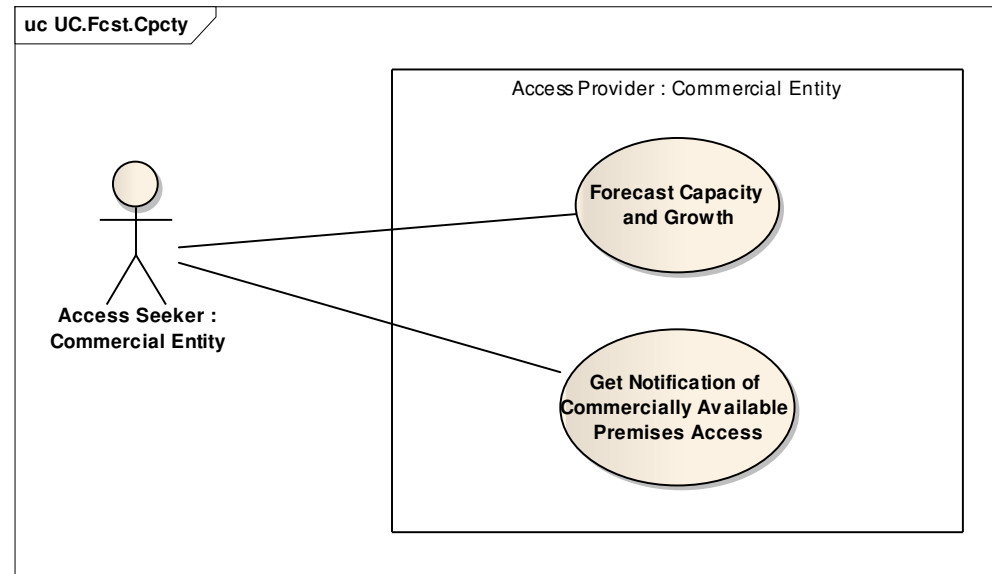
Scheduled: The area is included in a build project with a committed schedule, although the work has not been started. The date can be relied upon within the context of a civil works build project.

Under Construction: The build project for the area has started with work likely to be completed on time.

Service Ready: The area has communal infrastructure in place and is subject to operational service levels for placing orders.

4.1.2 Forecasting

Business Service:



Objectives:

- [1] Collaborate to ensure, that demand in existing areas can be fulfilled on time.
- [2] Ensure Access Provider has sufficient infrastructure capacity and operational resource to fulfil orders on time.
- [3] Ensure Access Seekers are aware of the planned and actual availability of fibre access within each Area and to each Premises, so they can execute sales activity as early as possible.

Preconditions:

- [1] Region and Premises State transition model is defined. (A sample model is defined in the Business Entities Section).
- [2] Access Seeker is active, submitting forecasts and registered to receive updates.

Trigger:

- [1] Periodic - Monthly for connections, otherwise Quarterly.
- [2] Change of Region or Premises status within the Access Providers records.
- [3] Access Seeker Request.

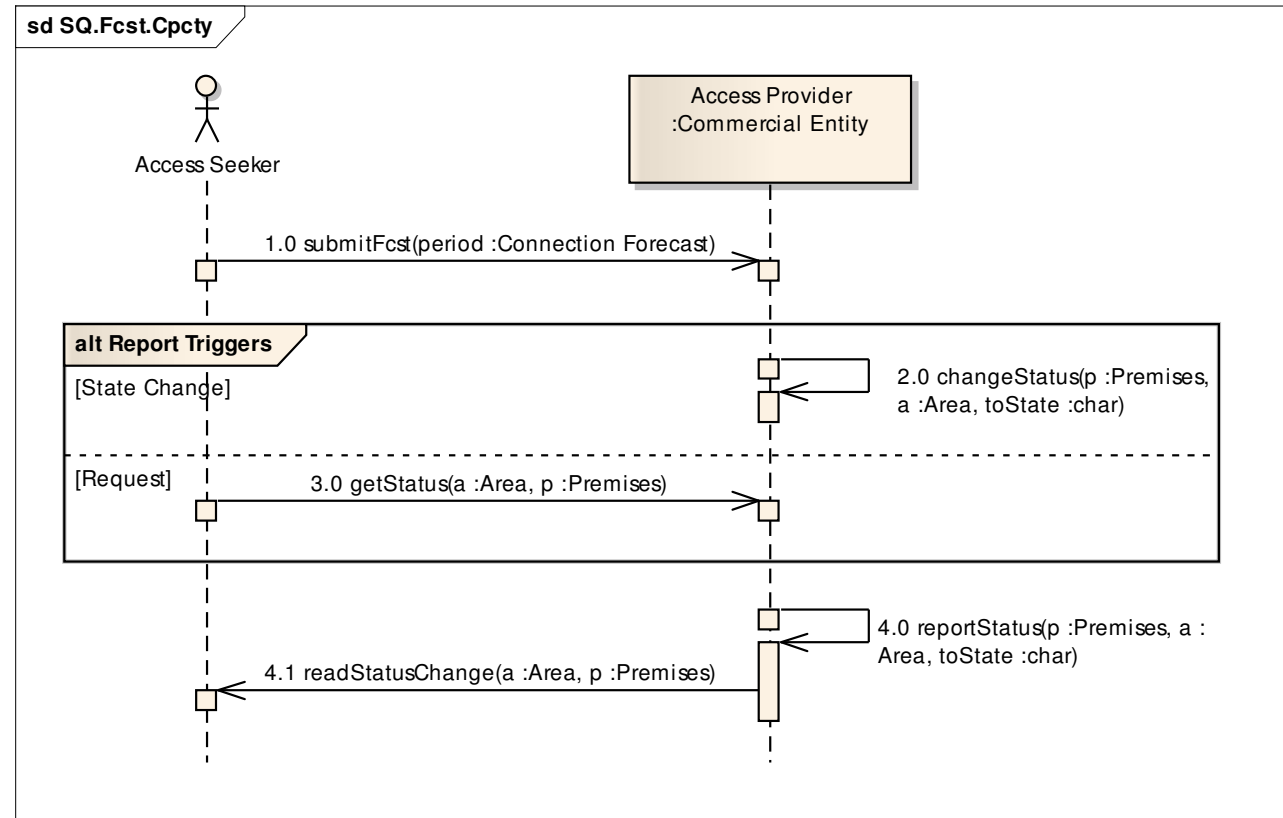
SLA Features:

- [1] Information is passed on time.
- [2] Forecast accuracy is within 10% of actual.
- [3] Status reported immediately on request.

Post-Conditions

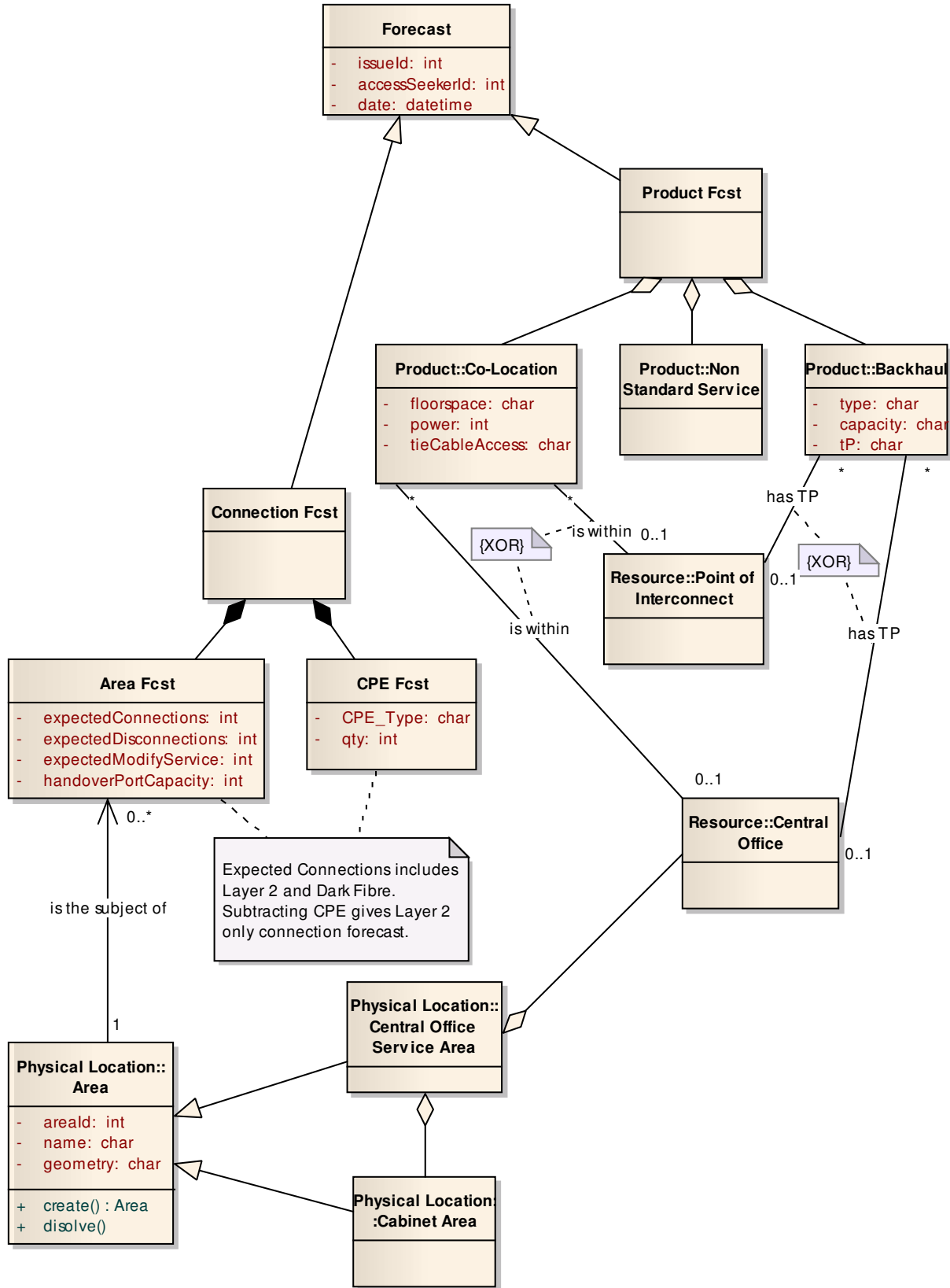
- [1] Access Provider is aware of Access Seeker order forecasts.
- [2] Access Seeker Area and Premises Information = Access Provider Area and Premises Information.
- [3] Access Seeker demand information retains confidentiality.

Tasks:



Business Entities – Static Structures:

class CL.Forecasting

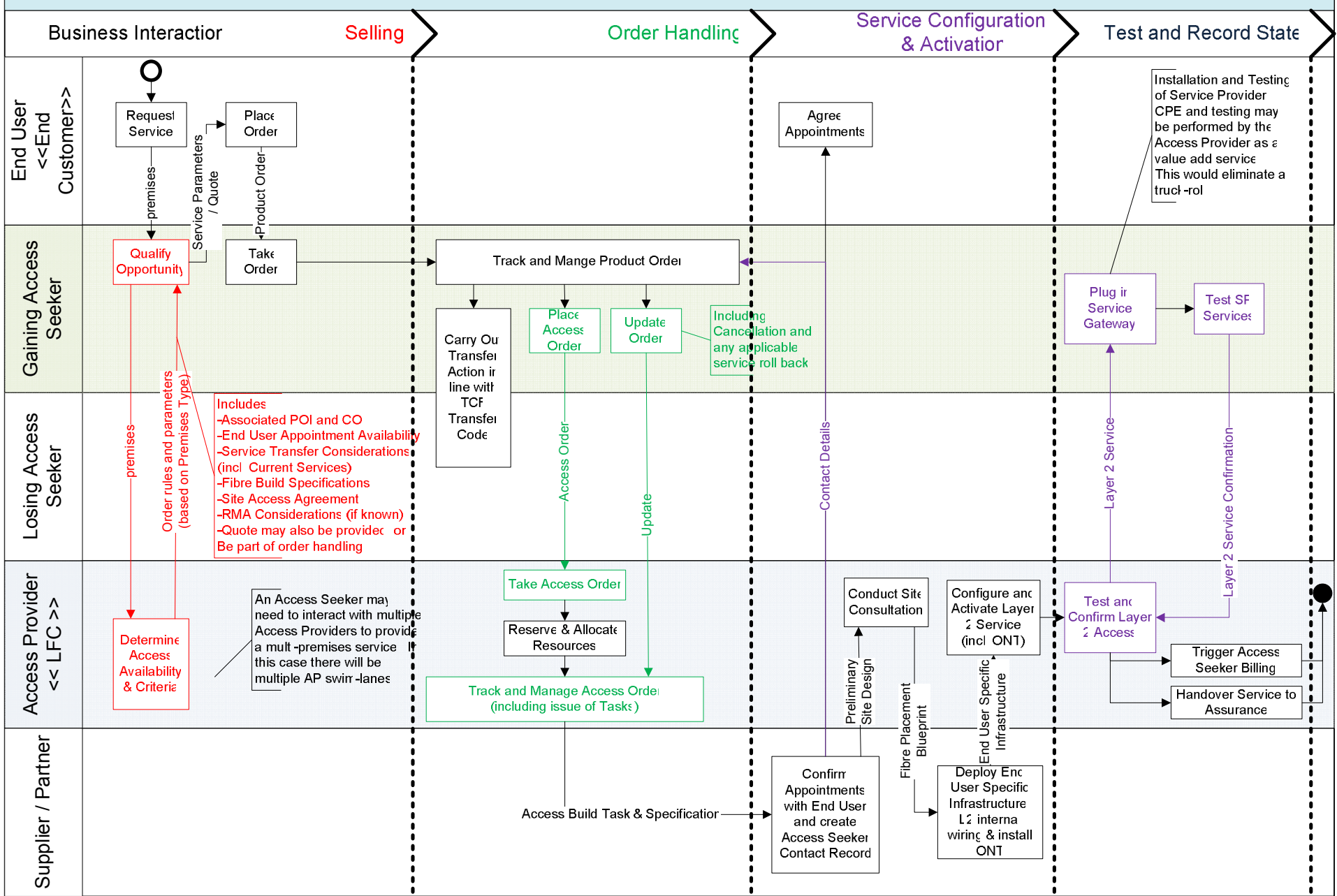


4.2 Fulfilment

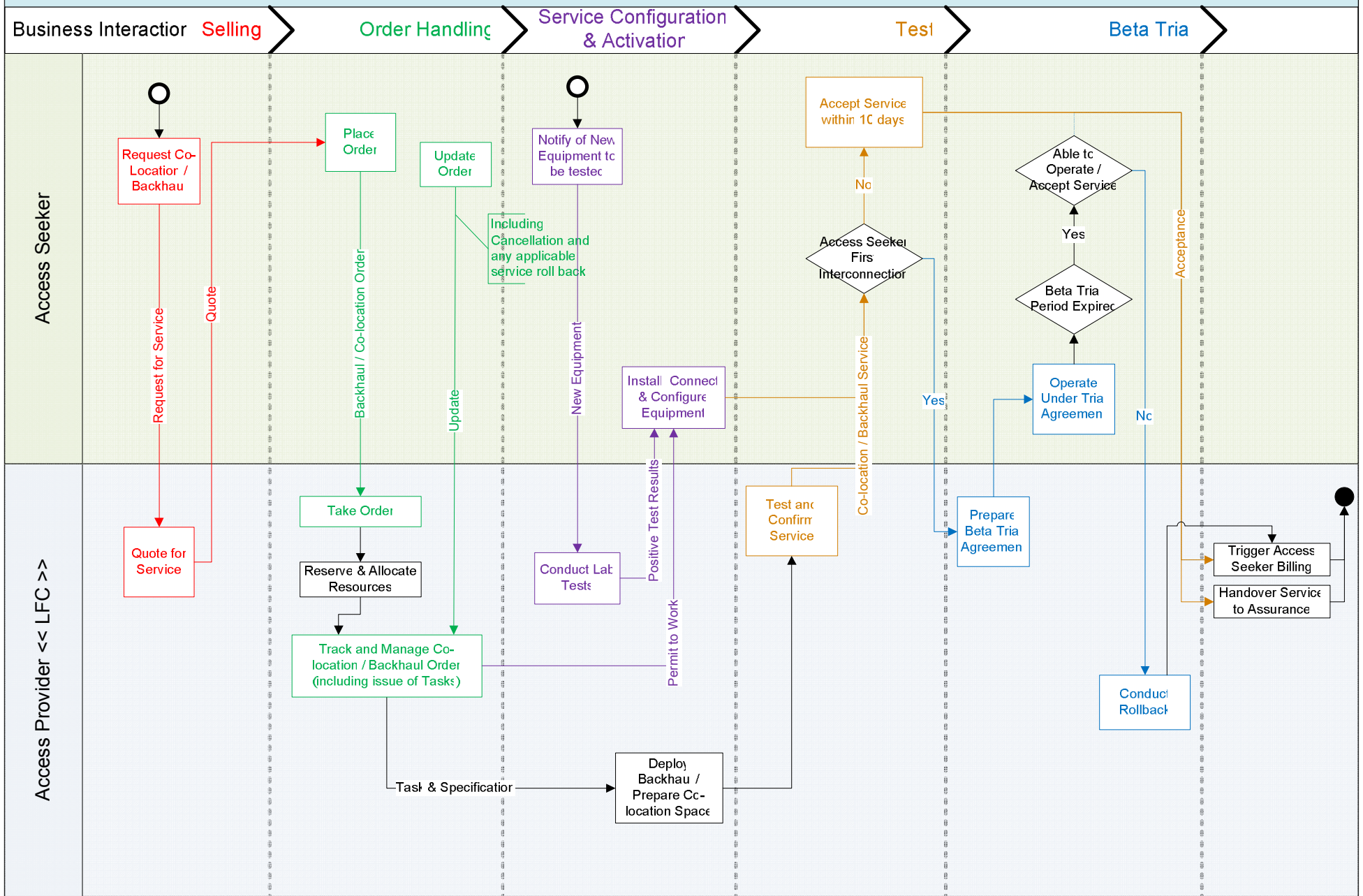
The Fulfilment process grouping is responsible for selling to the Access Seeker and providing them with their requested products in full, on time and to specification. This process is also responsible to ensure the Access Seeker is fully informed of the status of their order throughout the process.

The following workflow shows the required Access Seeker, Access Provider Business Interactions in the context of the overall End User Fulfilment process.

Fulfilment Layer 2 Service where no End User Infrastructure exists

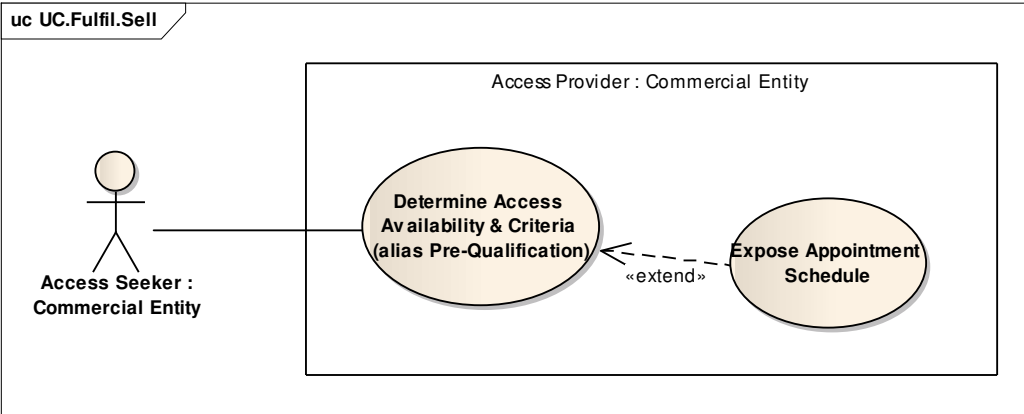


Fulfilment Cc-location / Backhaul Services



4.2.1 Selling

Business Service:



Objectives:

- [1] Ensure Access Seekers are equipped to place a Premises Access Order.
- [2] Ensure Gaining Access Seeker owns the customer relationship and coordination of service transition. (there should be no proactive RQ orders received from the Losing Access Seeker).

Preconditions:

- [1] Access Seeker is recognised and Eligible.
- [2] End User is eligible to receive service from the service provider and authorised to approve cable installation by the Access Provider.
- [3] Building cabling is available or there is authorisation to provide it.

Trigger:

- [1] Access Seeker Request.

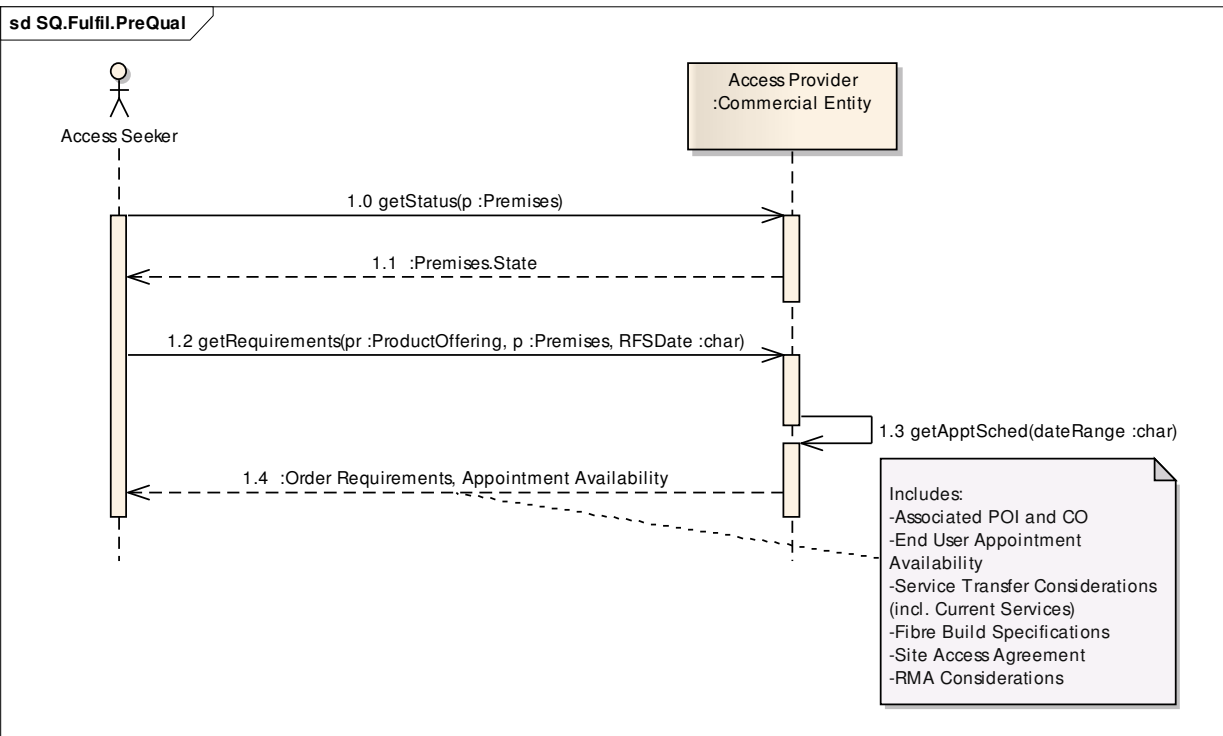
SLA Features:

- [1] Order Requirements and Appointment Availability reported immediately on request.

Post-Conditions

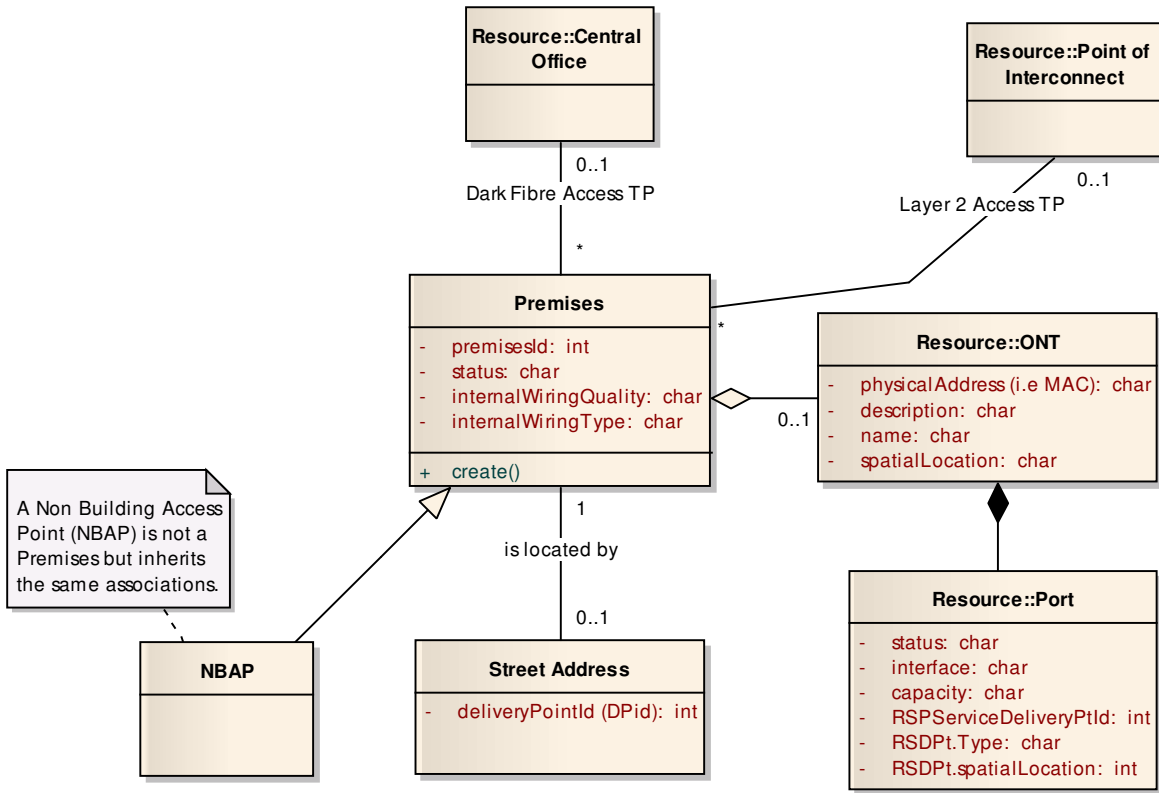
- [1] Access Seeker has a valid "Order Form" for the premises (i.e. Understands what information and documentation is required to place an order for that premises).
- [2] Access Seeker has current appointment availability around the RFS Date that can be booked against.

Tasks:

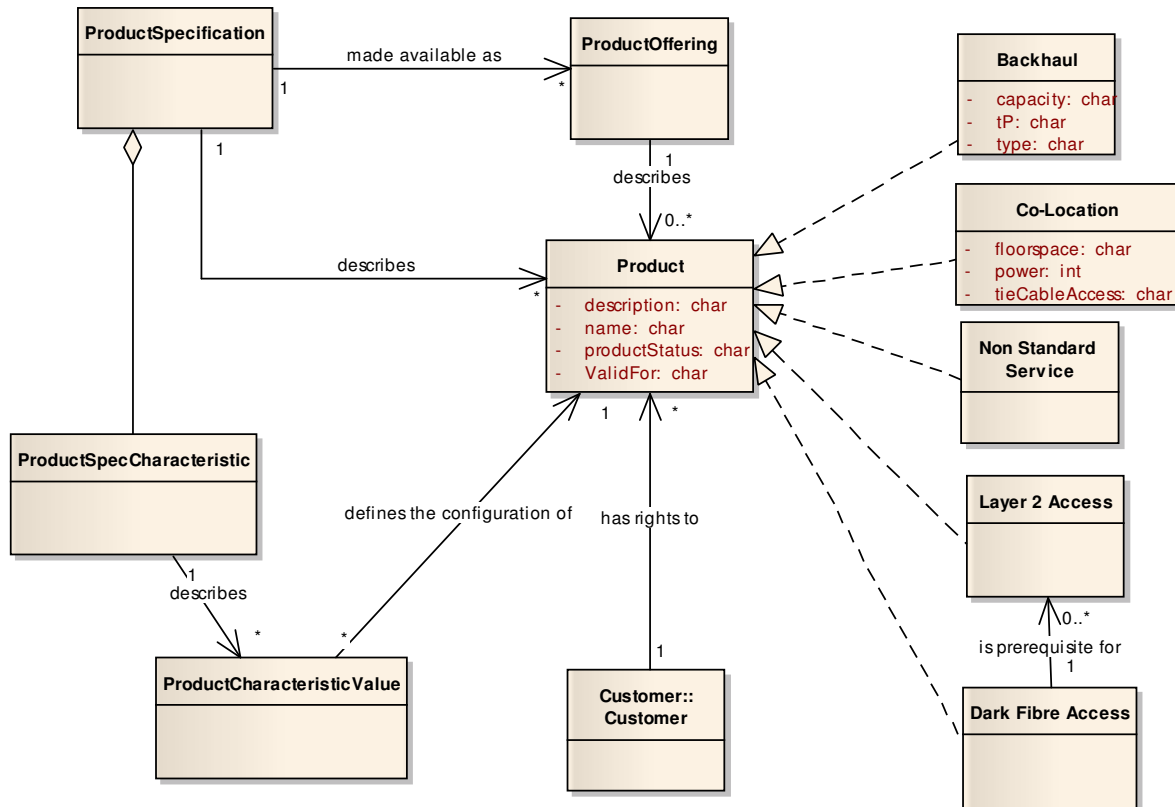


Business Entities – Static Structures:

class CL.Physical Location

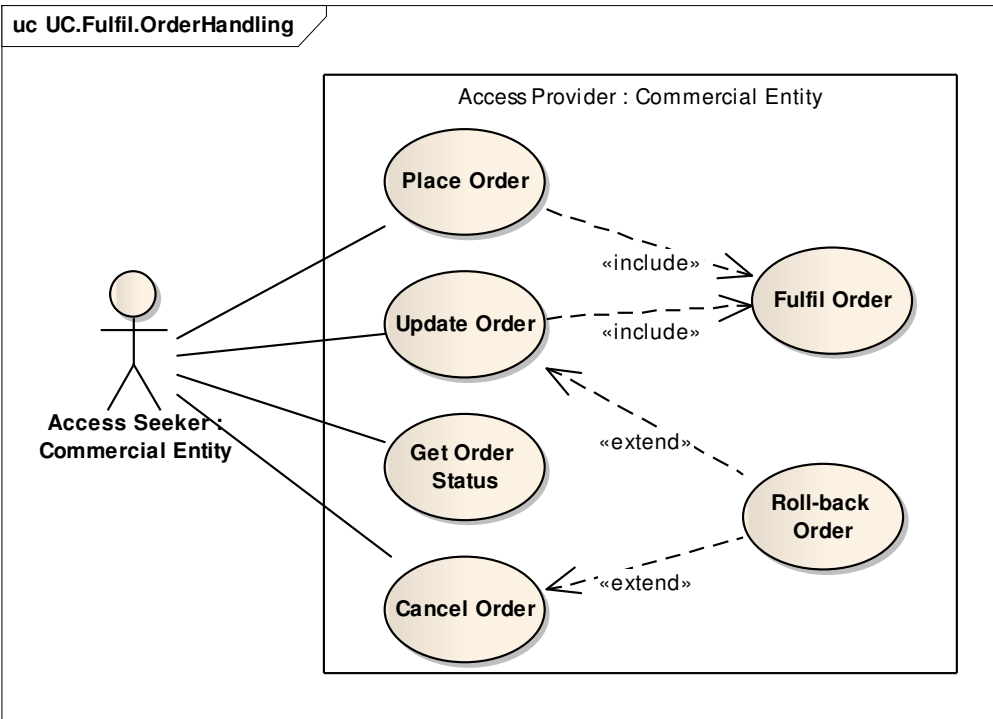


class CL.Product



4.2.2 Order Handling

Business Service:



Objectives:

- [1] Ensure accuracy of order before submission.
- [2] Fulfil Access Seeker orders on time and to specification.
- [3] Provide Order Status visibility to Access Seeker.
- [4] Provide for order updates and rollback.
- [5] Where applicable, ensure continuity of service to End User.
- [6] Ensure irregularities (i.e. & used for "and") that do not create ambiguity are not rejected.

Preconditions:

- [1] Premises has an Orderable status.

Trigger:

- [1] Access Seeker Request.

SLA Features:

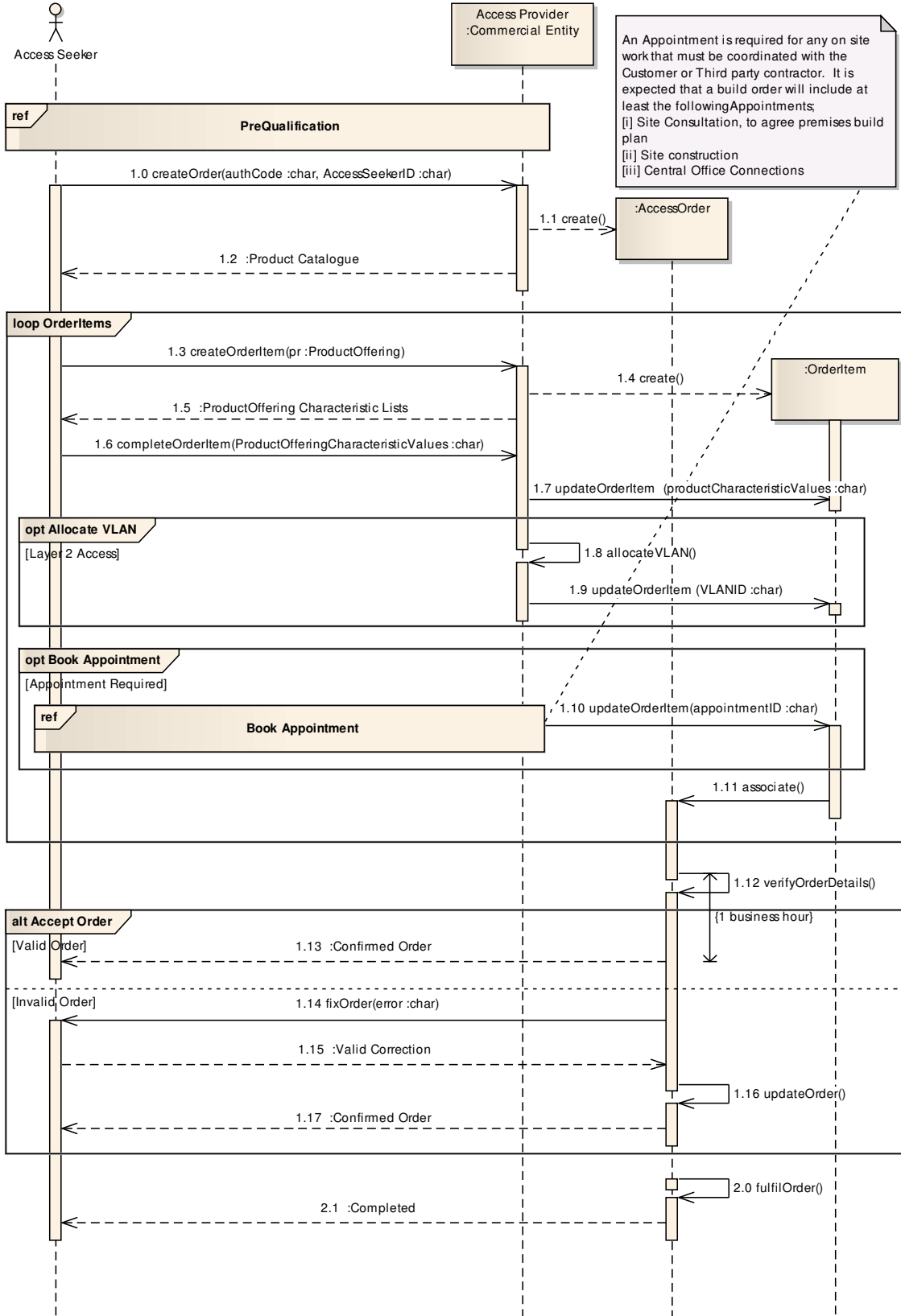
- [1] Validate Orders within 1 business hour.
- [2] Meet RFS date.

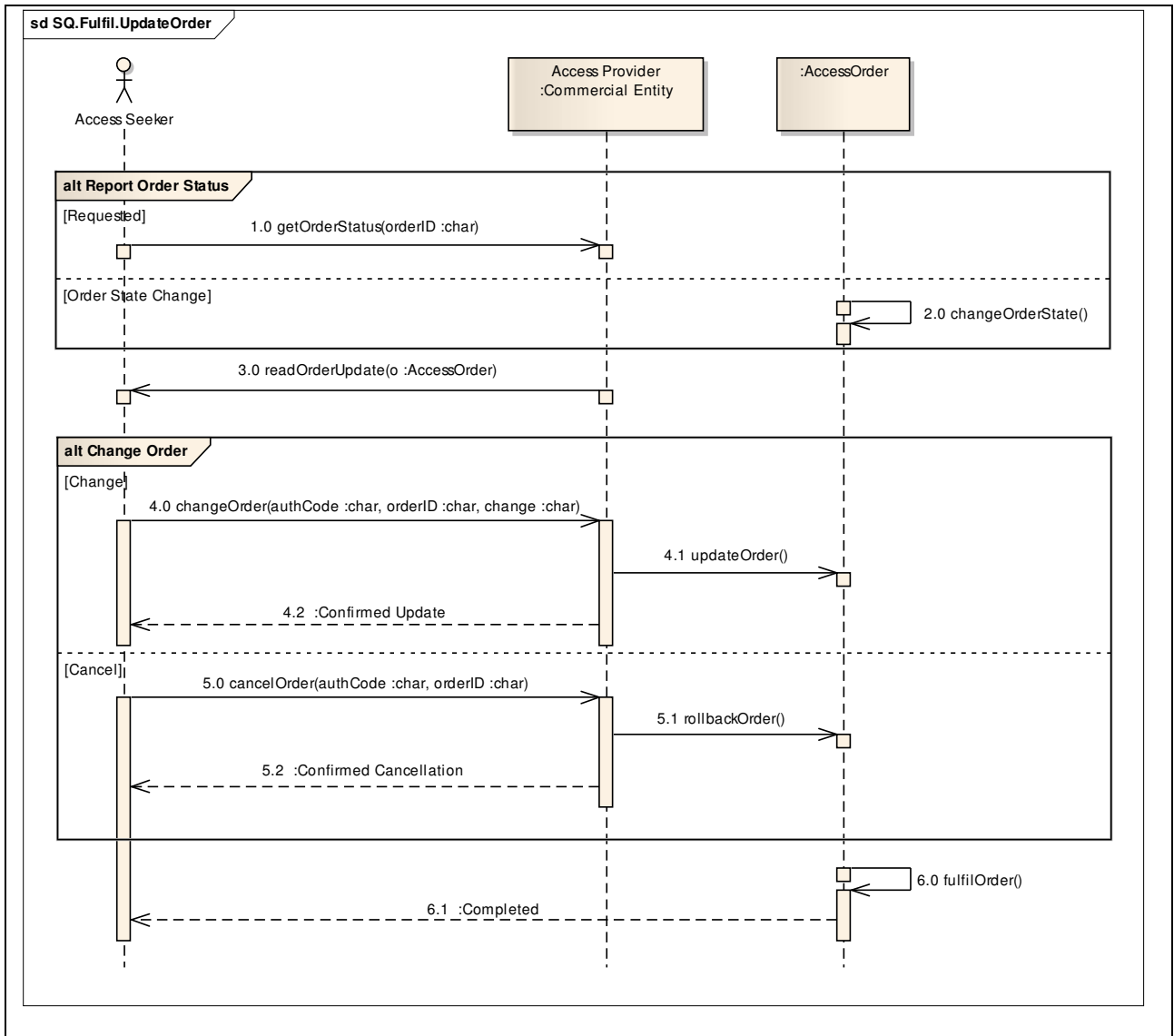
Post-Conditions

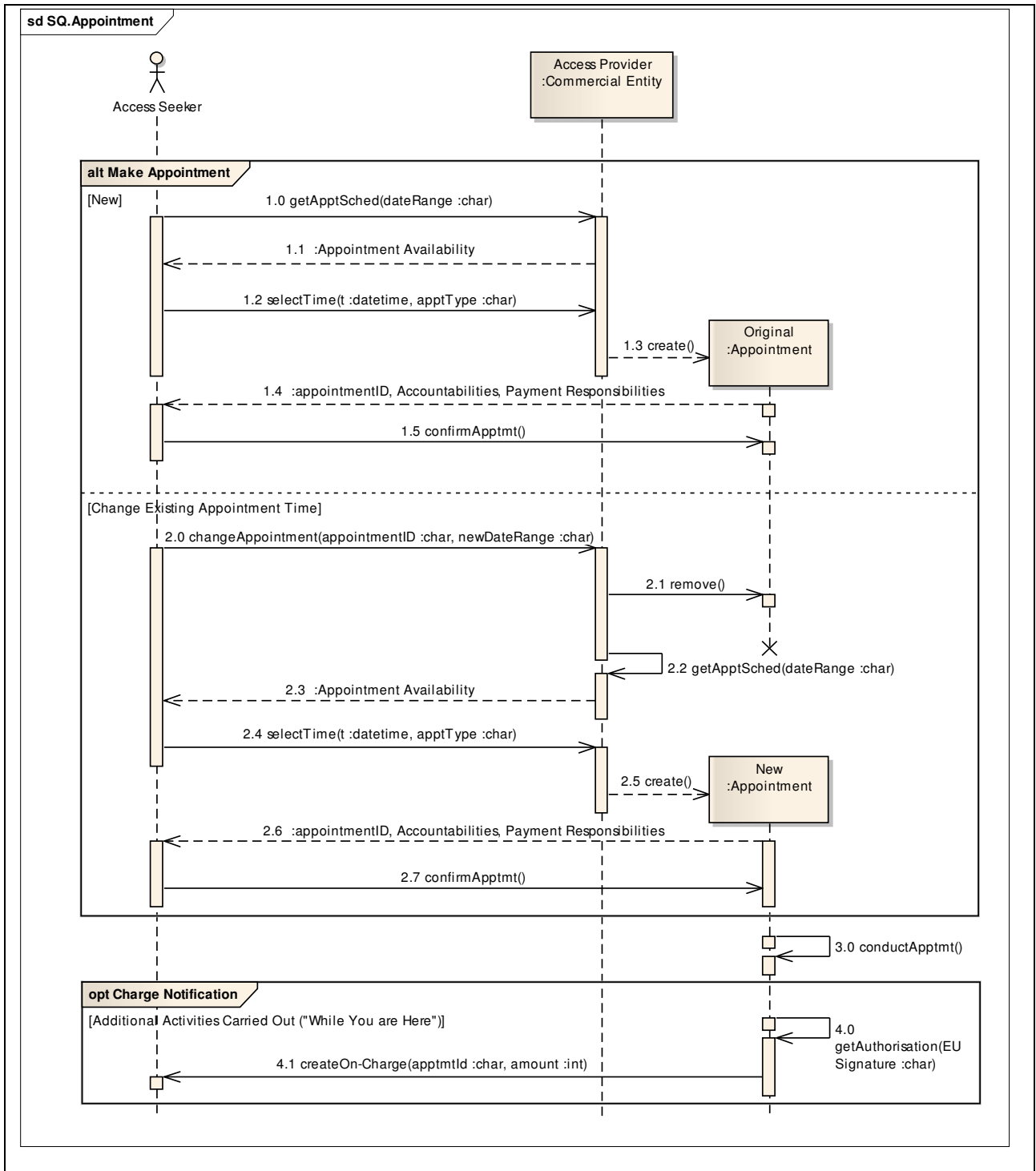
- [1] Fulfilled Order.
- [2] Order record and associated change records documenting Order events.

Tasks:

sd SQ.Fulfil.PlaceOrder

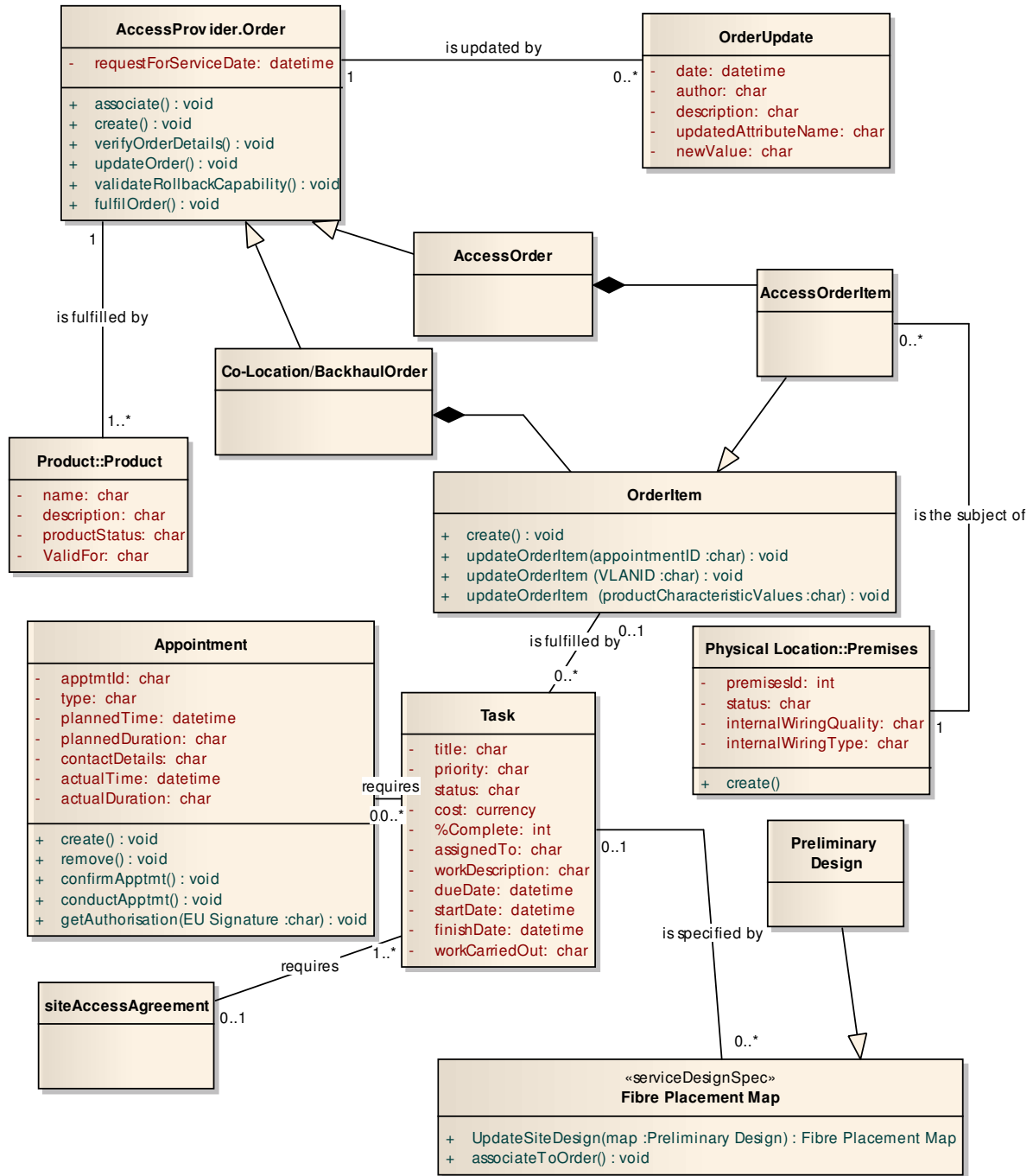






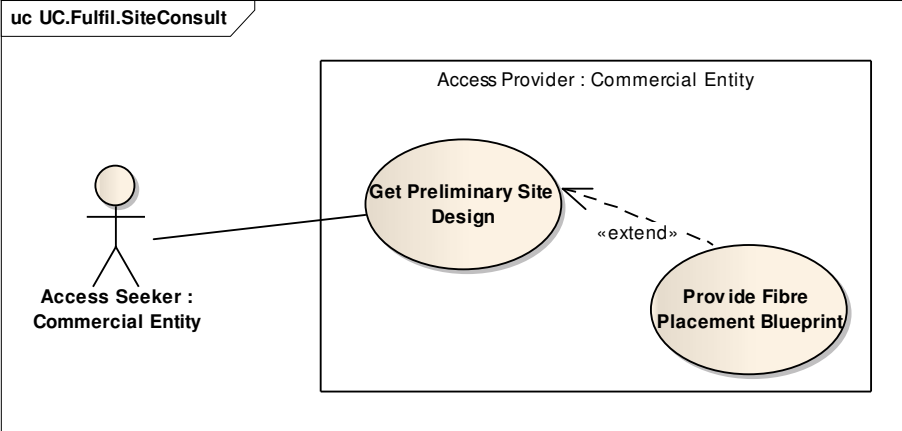
Business Entities – Static Structures:

class CL.Fulfilment



4.2.3 Site Consultation

Business Service:



Objectives:

- [1] Agree the specifics of any construction and drilling work with the Premises owner prior to carrying out such work.
- [2] Provide preliminary access seeker designs as the baseline for construction and drilling work.
- [3] Agree an internal cabling arrangement to service the End User within an MDU.

Preconditions:

- [1] Premises has a Need End User Infrastructure status.
- [2] Access Order placed.

Trigger:

- [1] Use Case: Place Order

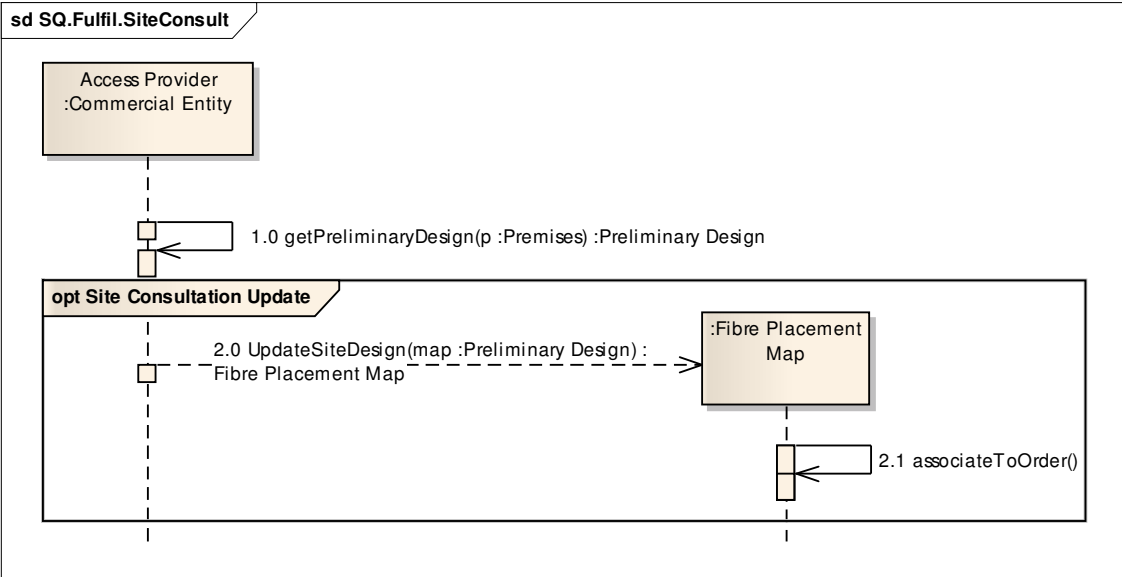
SLA Features:

- [1] Immediate Transactions.

Post-Conditions

- [1] Specification exists that has been agreed by the Premises owner and the Access Provider.
- [2] The specification is part of the Order.

Tasks:



Business Entities – Static Structures:

As per section 4.2.2

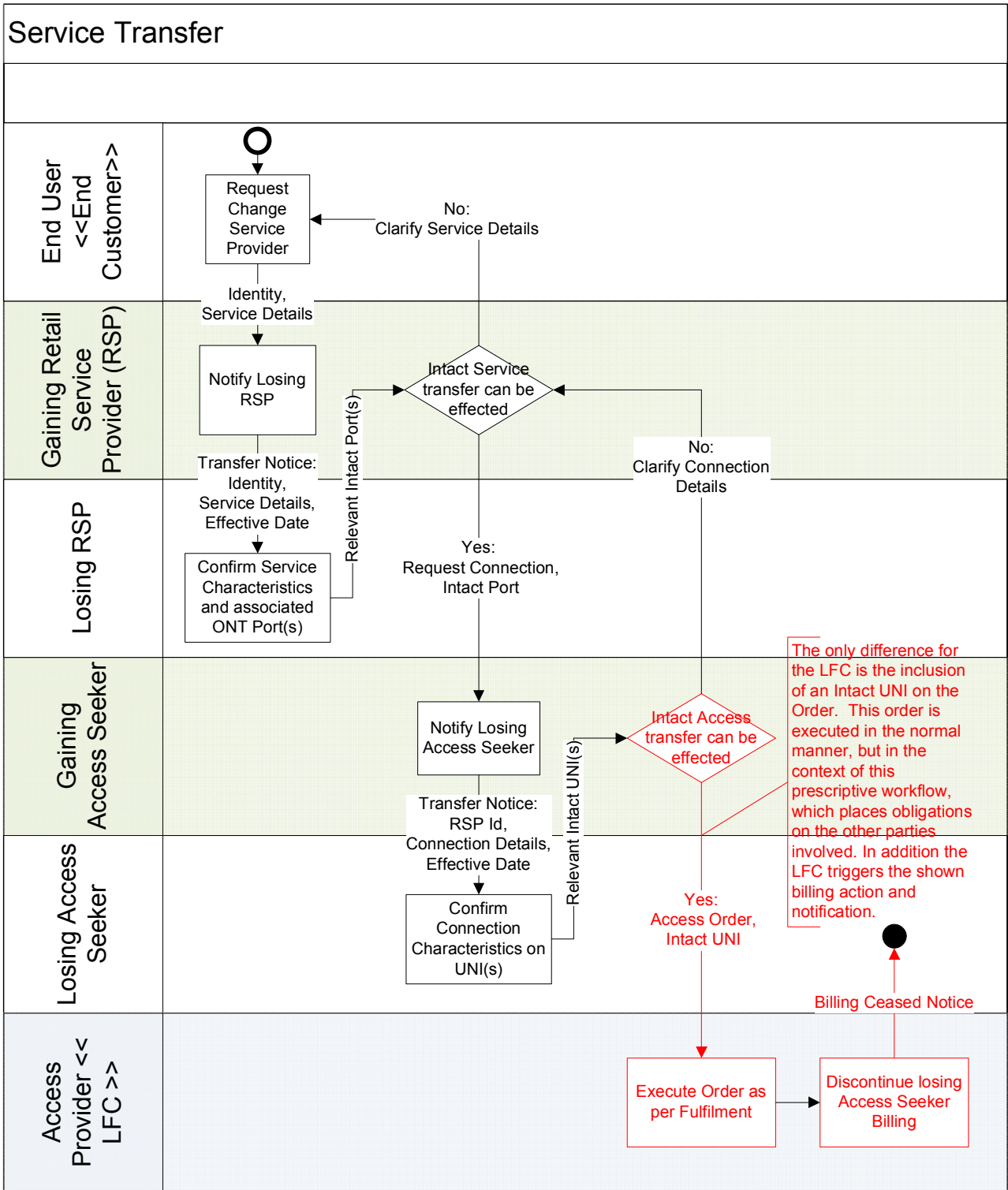
4.2.4 Customer Transfer

The Customer transfer process is a fulfilment process overlay to cover the scenario where an intact transfer of existing service is required. This process is to ensure a seamless transfer to the End User. This scenario should be considered exceptional under a UFB paradigm where there is multiple access points (UNI) at the end user premises and service providers seeking to differentiate based on their residential gateway. Note also that a Losing Access Seeker can retain access to the port; the Gaining Access Seeker cannot compel the Losing Access Seeker to relinquish a port.

The following workflow shows the required Access Seeker, Access Provider Business Interactions in the context of the overall End User transfer process with the added complexity of the requirement to also transfer between Access Seekers. Note this workflow is prescriptive for all parties.

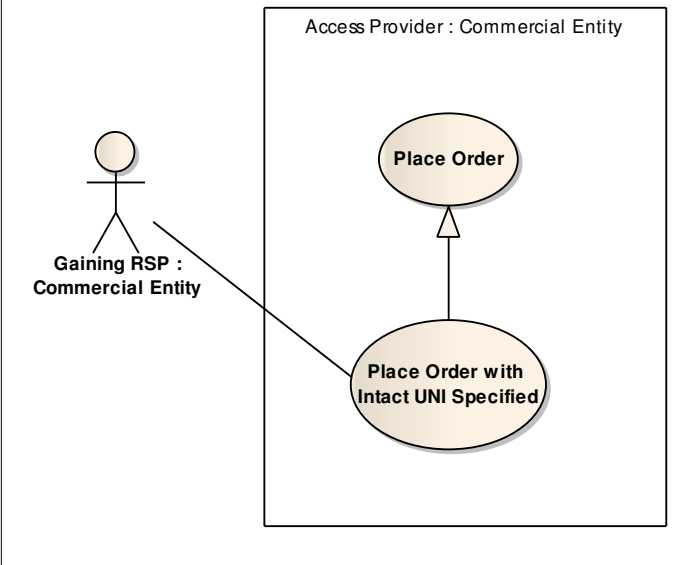
Overriding principles for the transfer of service are;

- (1) The gaining provider is accountable for, and primes the activities for transfer.
- (2) As the End User agent the gaining provider has the right to request the specification of the services being transferred and can file a relinquishment order against those services.
- (3) A gaining provider may only specify an intact port or UNI within an order where a transfer notice (incl. Relinquishment) has been sent to the losing provider, and the order recipient will execute the order with this understanding without further verification from the losing provider.



Business Service:

uc UC.CustTransfer



Note: This Use Case inherits all parts of the Order Handling business interaction, refer to section 4.2.2.

Objectives:

- [1] Ensure a smooth transition of End User Services from one Service Provider to another, over the LFC network. Specifically; Broadband, Voice and Broadcast Television.
- [2] Ensure Services not being transferred are not dropped.

Preconditions:

- [1] End User is provided Services by a Retail Service Provider from an LFC ONT Port or Ports.

Trigger:

- [1] Access Seeker Request.

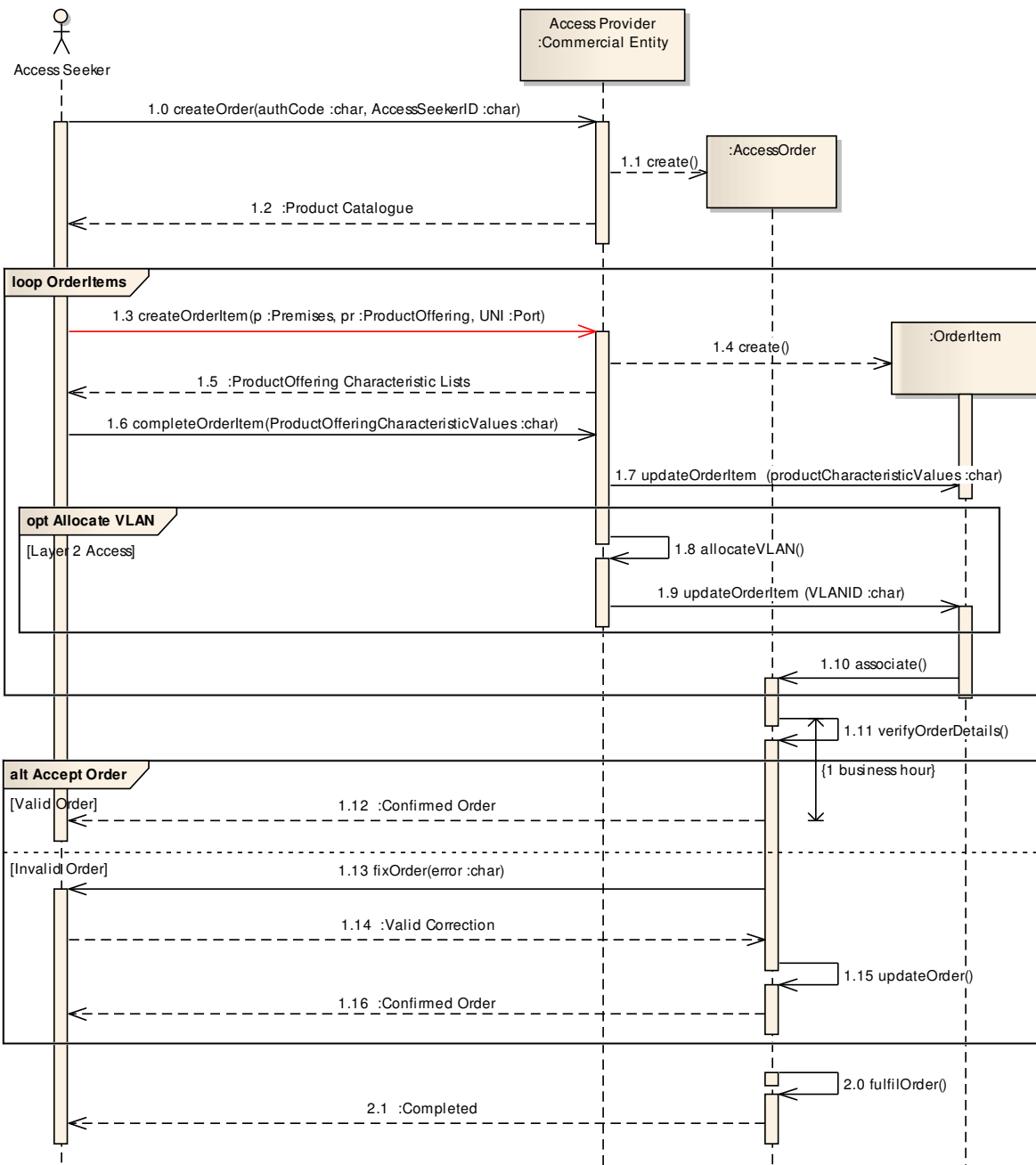
SLA Features:

Post-Conditions

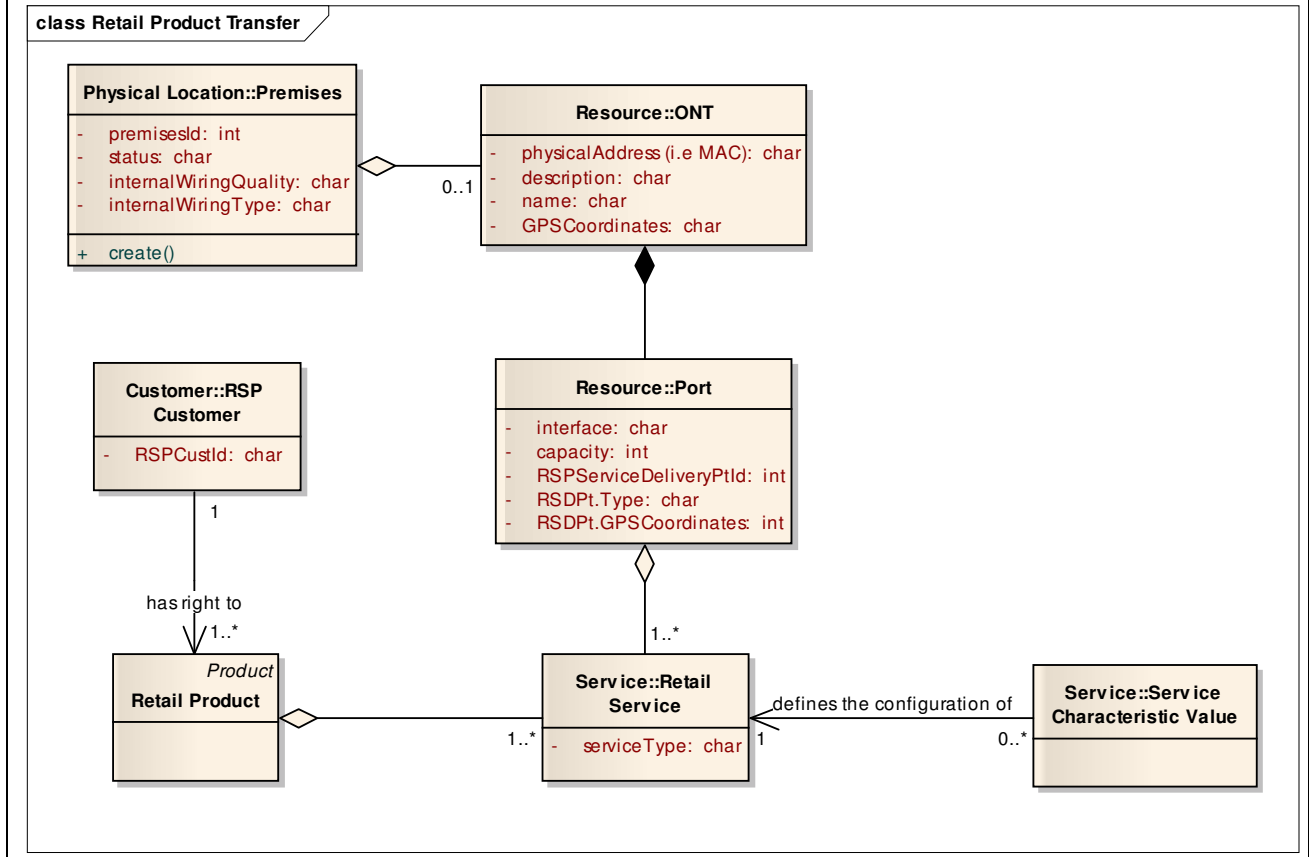
- [1] Billing of the service to the Losing Access Seeker is discontinued.

Tasks:

sd SQ.Fulfil.Transfer

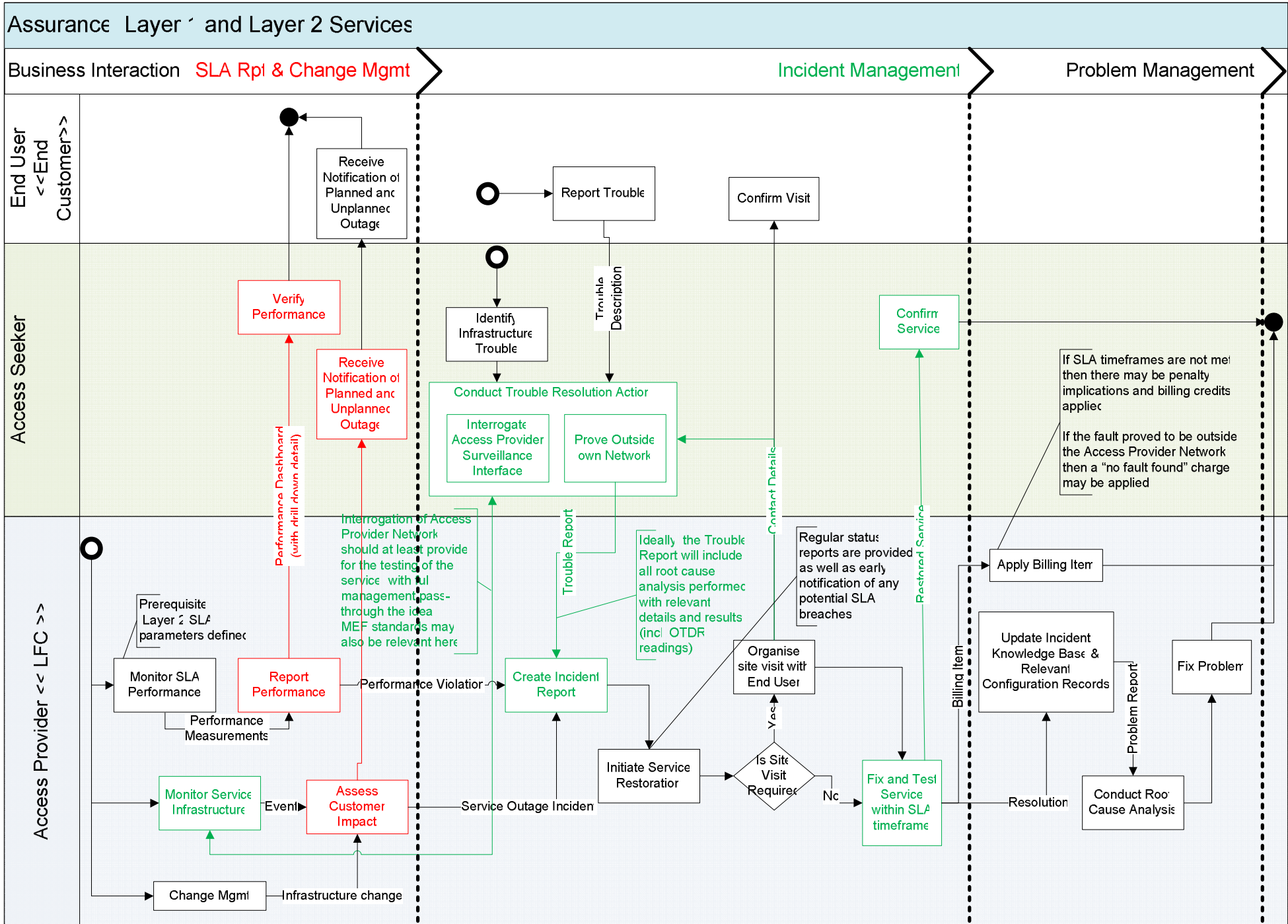


Business Entities – Static Structures:



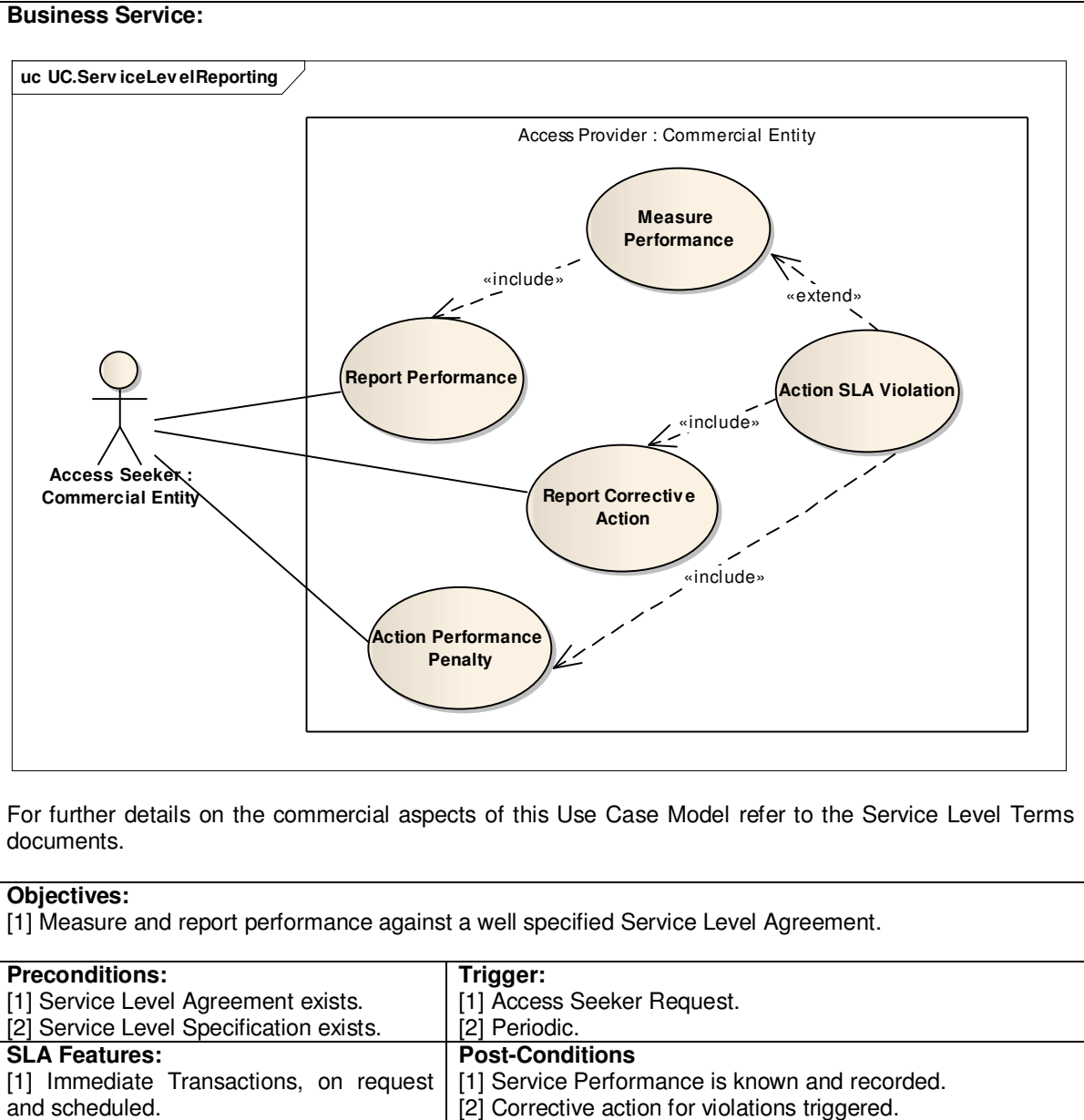
4.3 Assurance

The Assurance process area is responsible for the execution of proactive and reactive maintenance to ensure that services provided to Access Seekers are performing to agreed performance levels. This process manages the SLA and reports service performance to the Access Seeker. It receives trouble reports from the Access Seeker, informs them of the trouble status, and ensures restoration and repair within the agreed service levels.

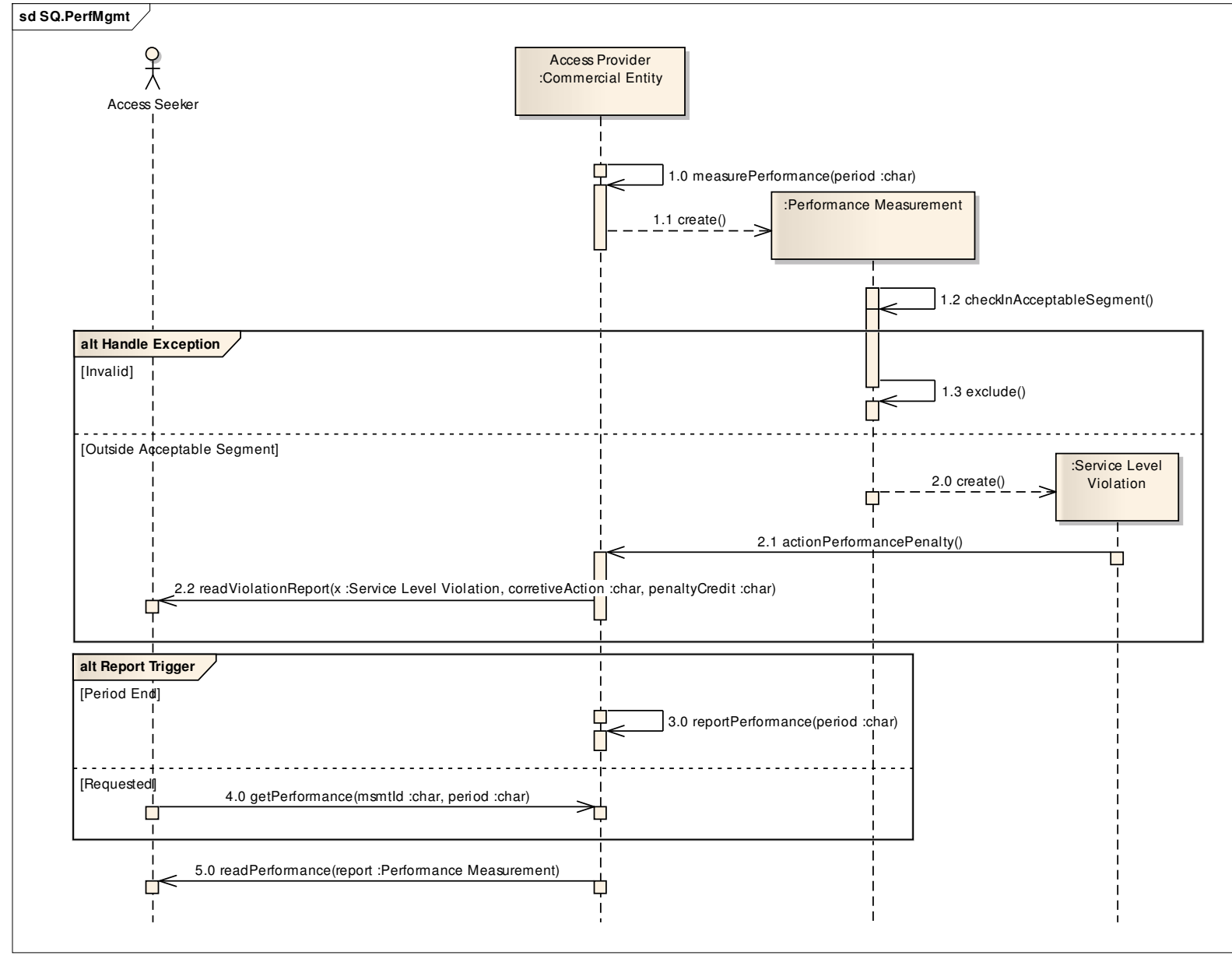


The functions relating to root cause analysis and customer impact reporting are effectively made possible by recording network inventory and configuration at both physical and logical layers. As the UFB network is designed and built, due consideration should be given to capturing this information with national consistency. Geographic details about the network should also be made available to the public for “before you dig”. There is also a need for naming standards for Premises and Service Delivery Points so that Access Seeker – Provider interactions are unambiguous.

4.3.1 SLA Reporting

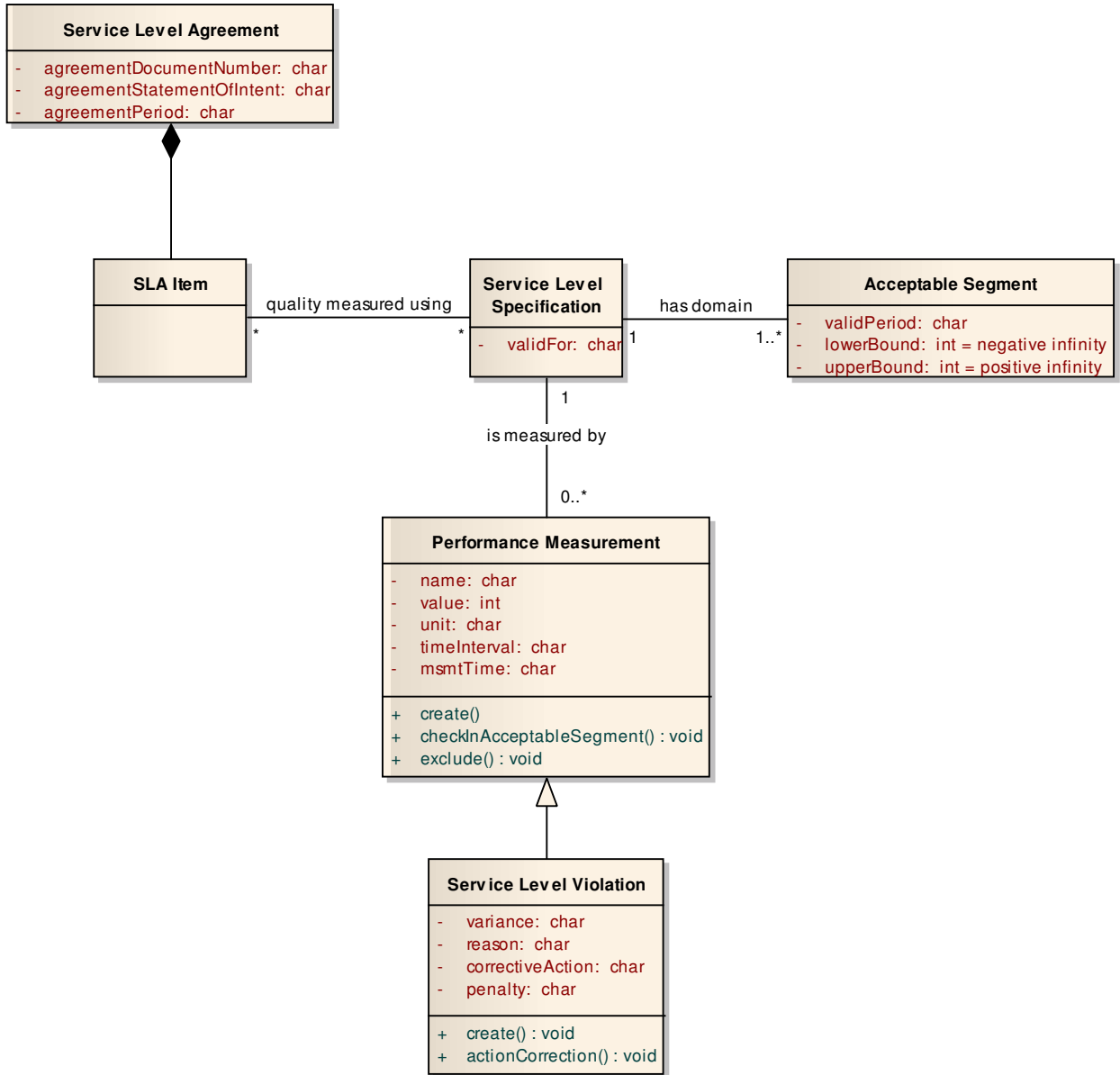


Tasks:



Business Entities – Static Structures:

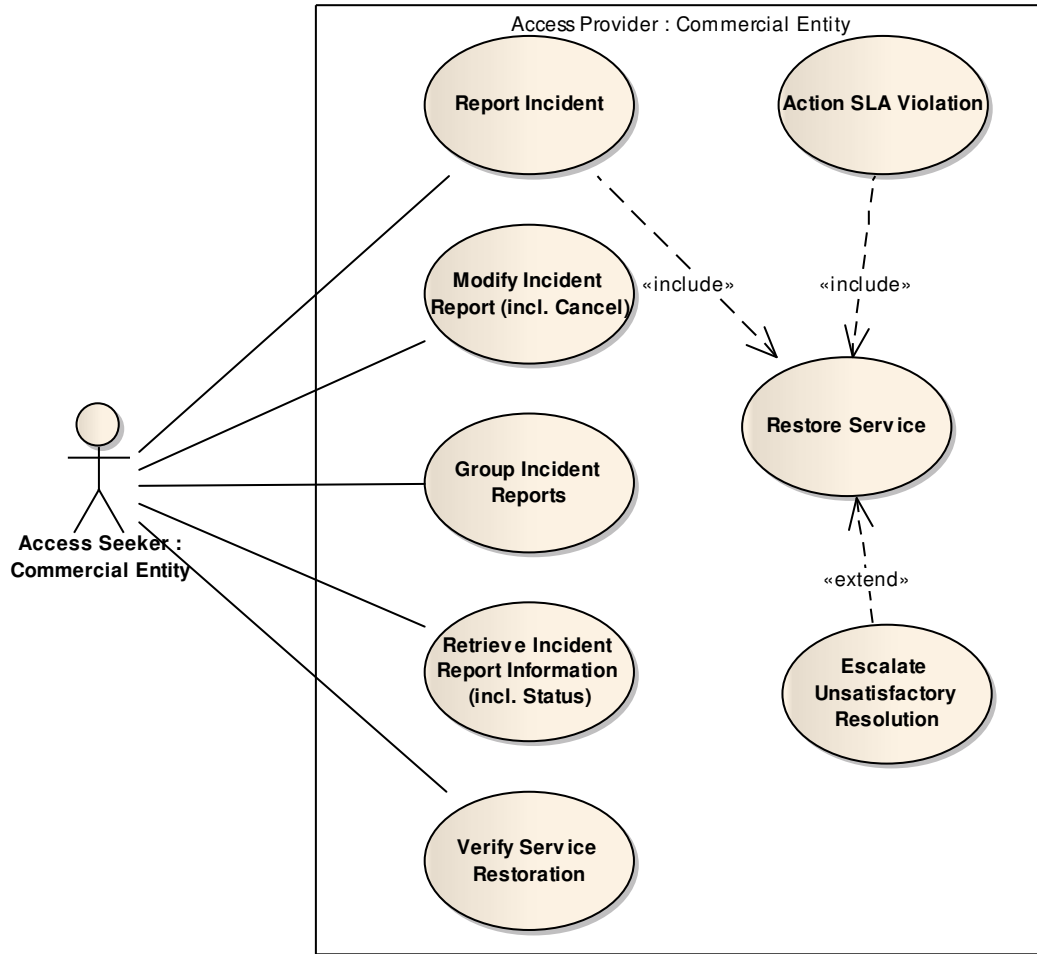
class CL.PerfMgmt



4.3.2 Incident Management (incl. SLA Violation)

Business Service:

uc UC.IncidentMgmt



Report Incident:

When the Access Seeker issues a request for an Incident report creation, the Access Provider will specify certain parameters as part of the request (e.g., ID, subject, trouble type, severity, priority, contact person, etc.).

NOTE – The AP may require the AS to provide evidence and results of contractually agreed pre-incident reporting processes and results such as diagnostic tests, etc.

The AS may modify the incident report parameter values at a later time using the "modify incident report" use case. When the incident report has been created, the AP should return the result to the AS.

Modify Incident Report (incl. Cancel):

It may be necessary for the Access Seeker to change some parameters of the incident report that has been created by the Access Provider. For example, the possible problem cause, additional information, the information of contact person, etc., may need to be modified to help restore service. Modify incident report may also be used to change the priority or escalation level of the current incident report in response to business needs.

It is assumed that the state of the incident report for which Incident Report parameters are being modified is "open/active".

Group Incident Reports

In some cases, several created incident reports may be caused by a common problem. So, once the problem has been resolved, all the related incident reports can be closed. The Access Seeker can initiate a grouping.

Retrieve Incident Report Information (incl. Status)

The Access Seeker can retrieve the complete information of one or more incident reports at any time. Including historic closed incident reports.

When the AS issues a request to get complete information of specific incident reports, the AS will specify certain parameters as part of the request (e.g., a distinct ID of an incident report or a filter definition for the specific Incident Report set, etc.). When the requested retrieve has completed, the Access Provider returns the complete list of Incident Report information.

Verify Service Restoration

Prior to closure of the incident report by the Access Provider, it may be necessary for the Access Seeker to verify that the service has been restored. But in the event that the customer denies or delays closure verification, then the AP should have the option of closing the trouble report.

When the restoration verification has finished, the AS informs the AP of the person doing the verification. The AP then can close the incident report.

Objectives:

- [1] Restore Service within the agreed service levels.
- [2] Provide Incident Status visibility to Access Seeker.
- [3] Grow an Incident Resolution Knowledge Base.
- [4] Ensure Resolutions are permanent.

Preconditions:

- [1] Incident proved to be outside of Access Seeker environment.

Trigger:

- [1] Access Seeker Report.

SLA Features:

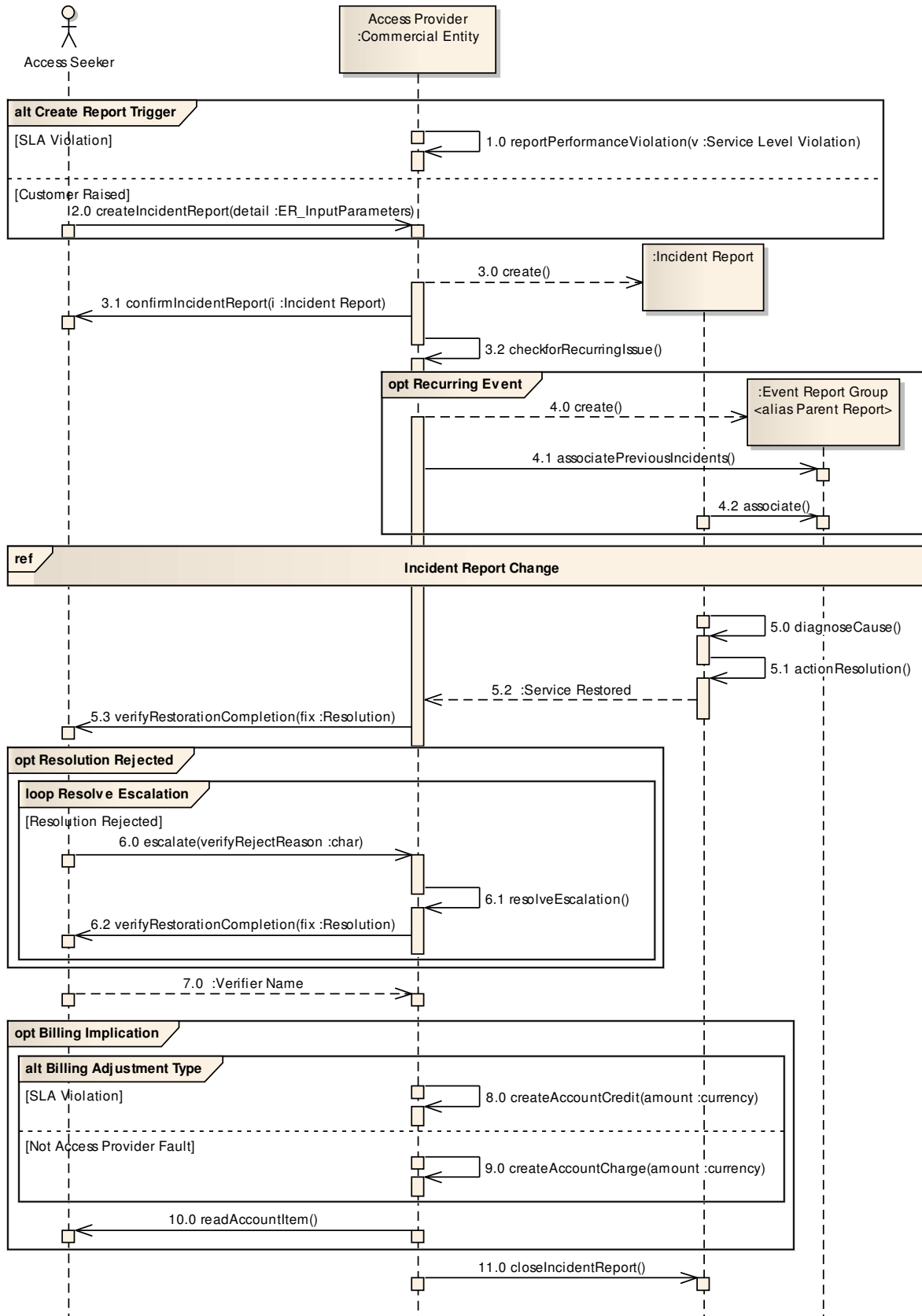
- [1] Acknowledge Incident Report immediately on receipt.
- [2] Meet SLA to restore service.

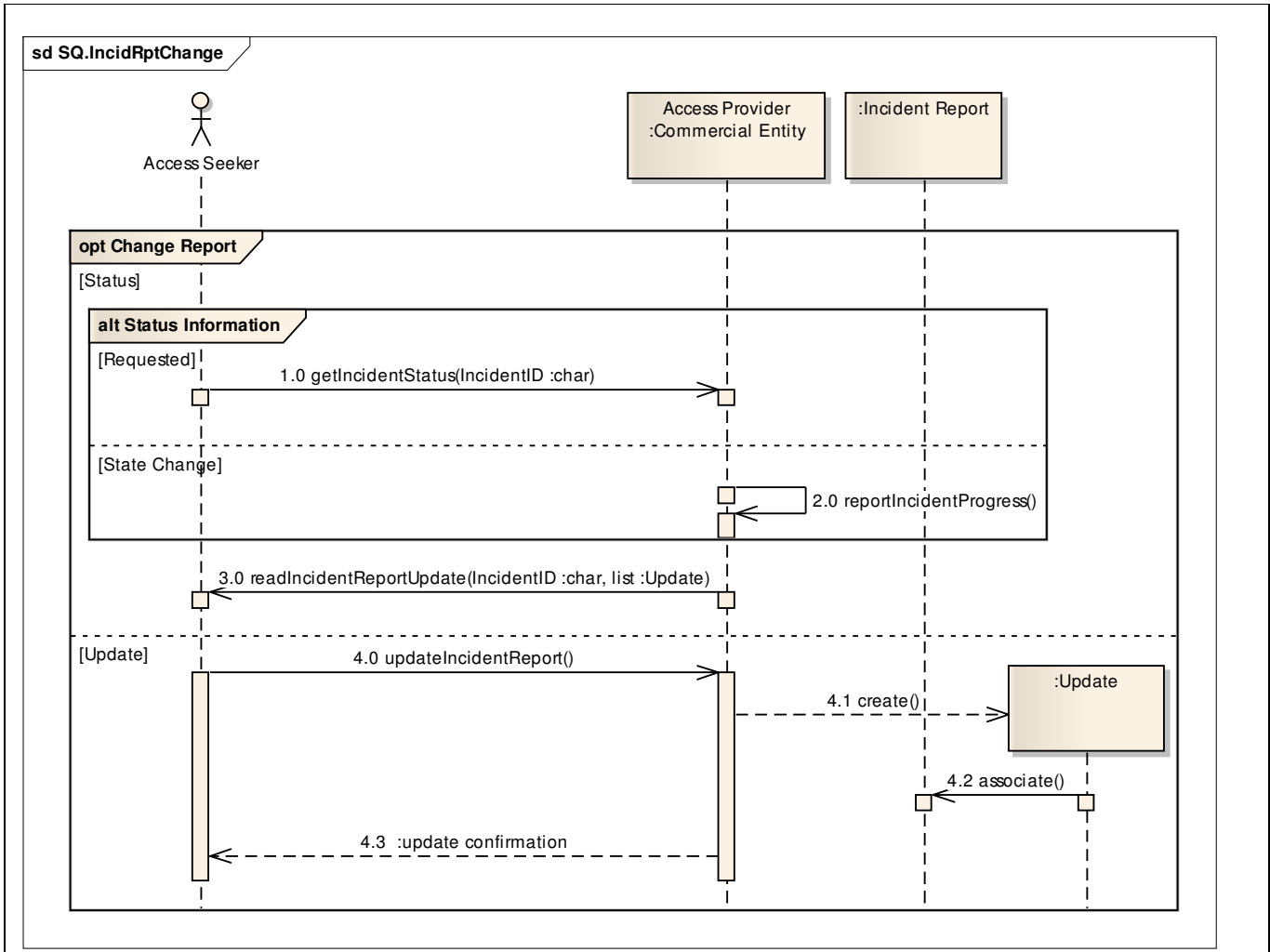
Post-Conditions

- [1] Restored Service.
- [2] Incident Report record and associated update records documenting Restoration events.

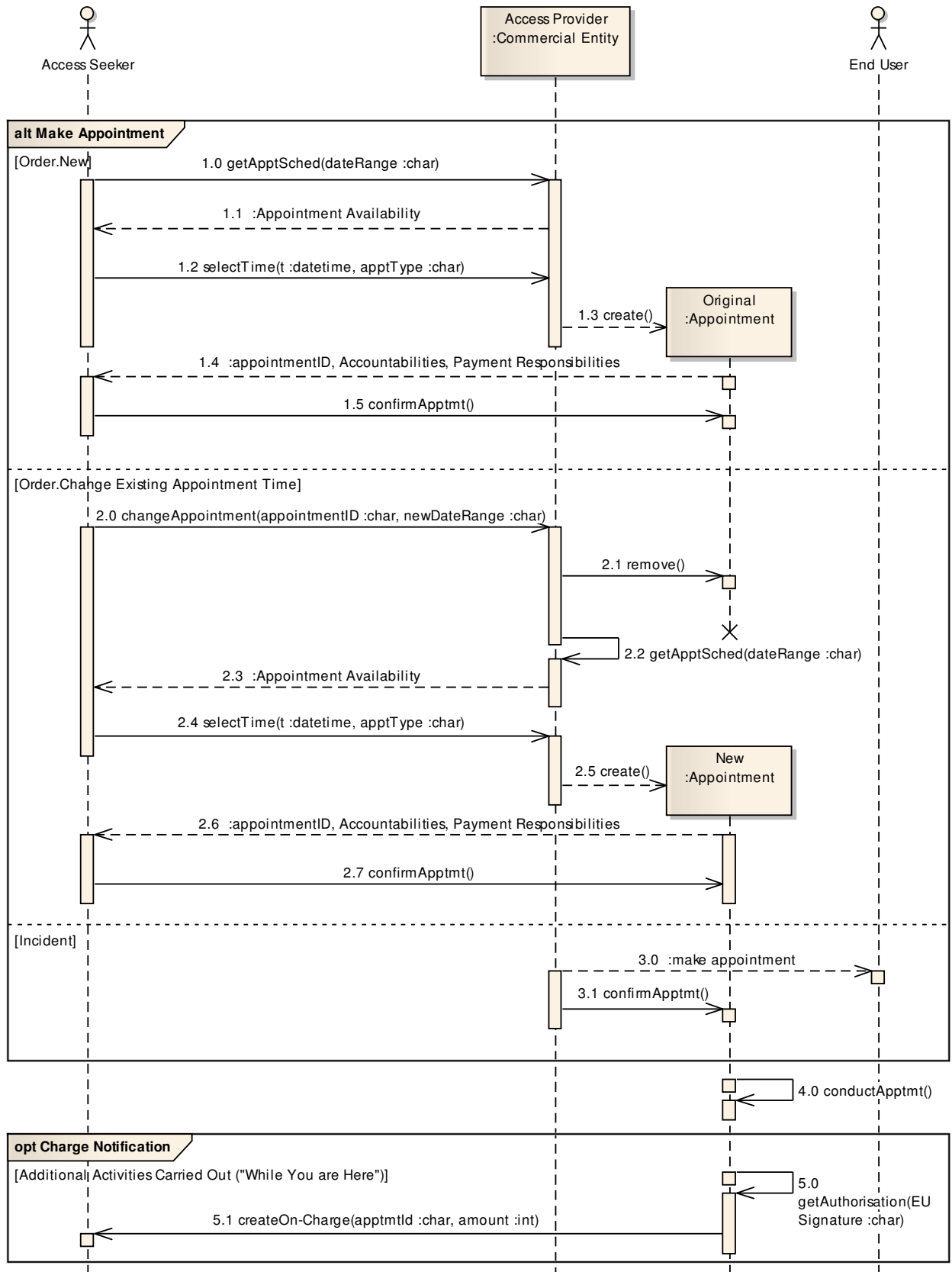
Task:

sd SQ.IncidentMgmt



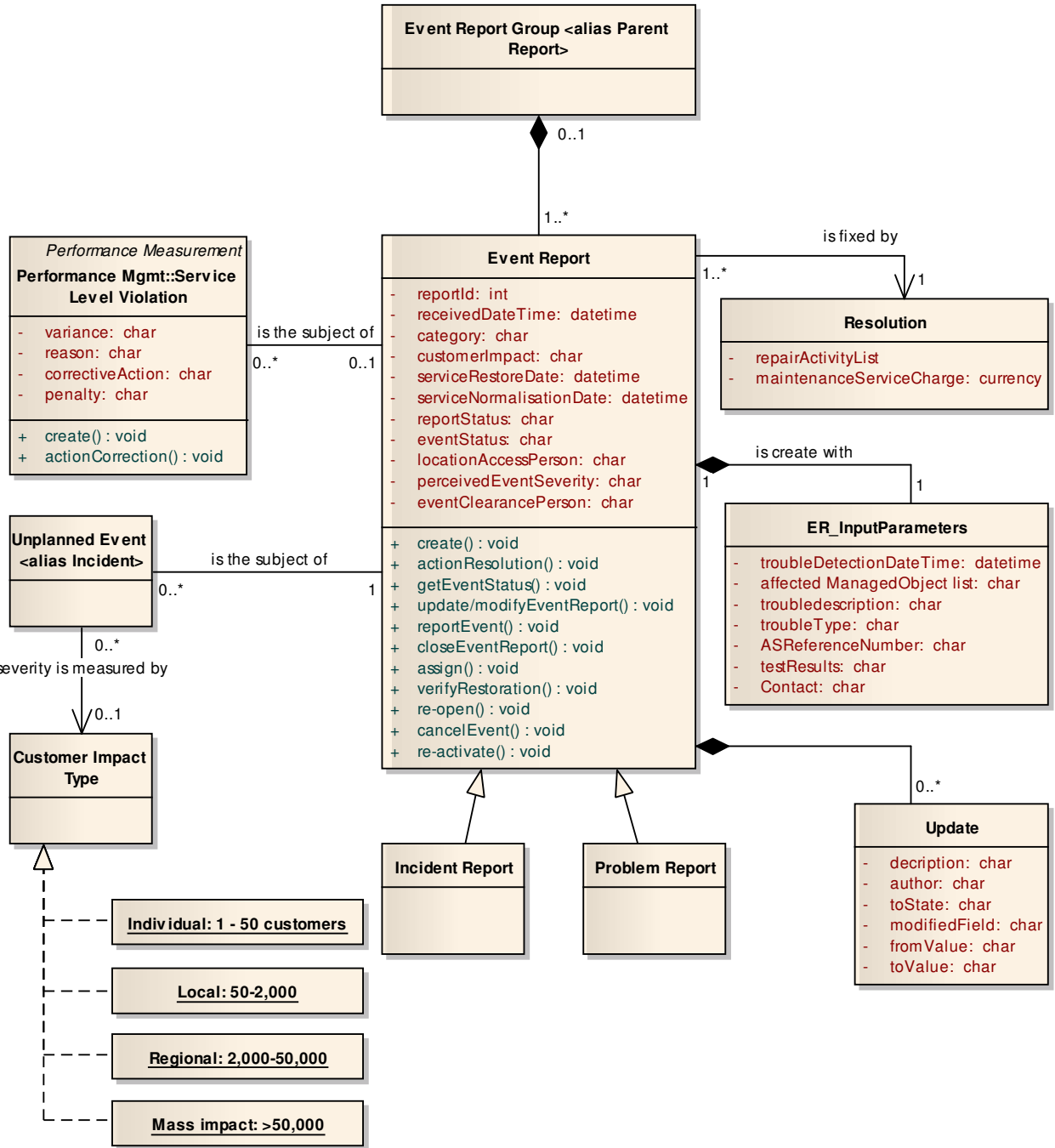


sd SQ.Appointment

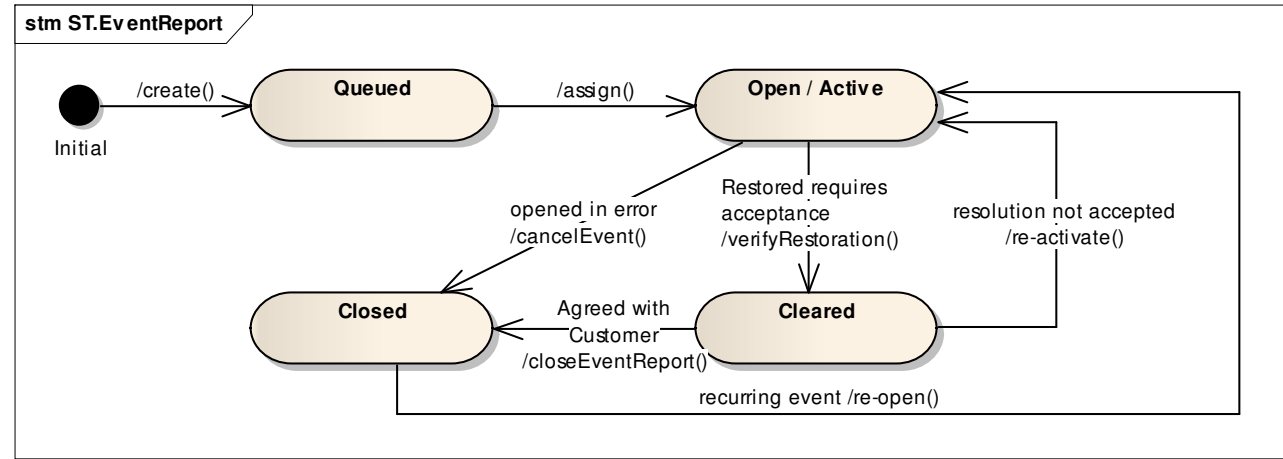


Business Entities – Static Structures:

class CL.IncidentMgmt

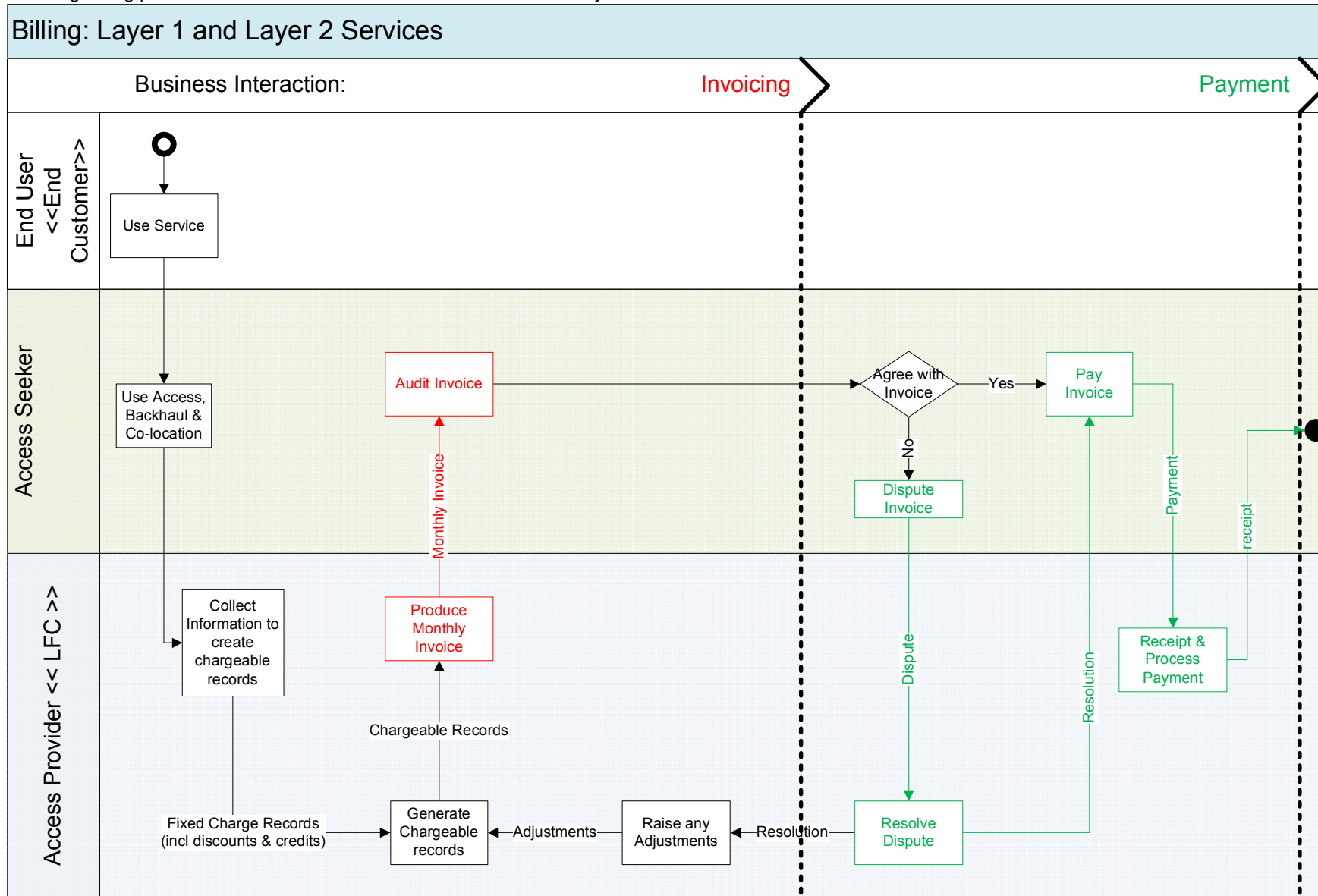


Event Report State Transition Model:



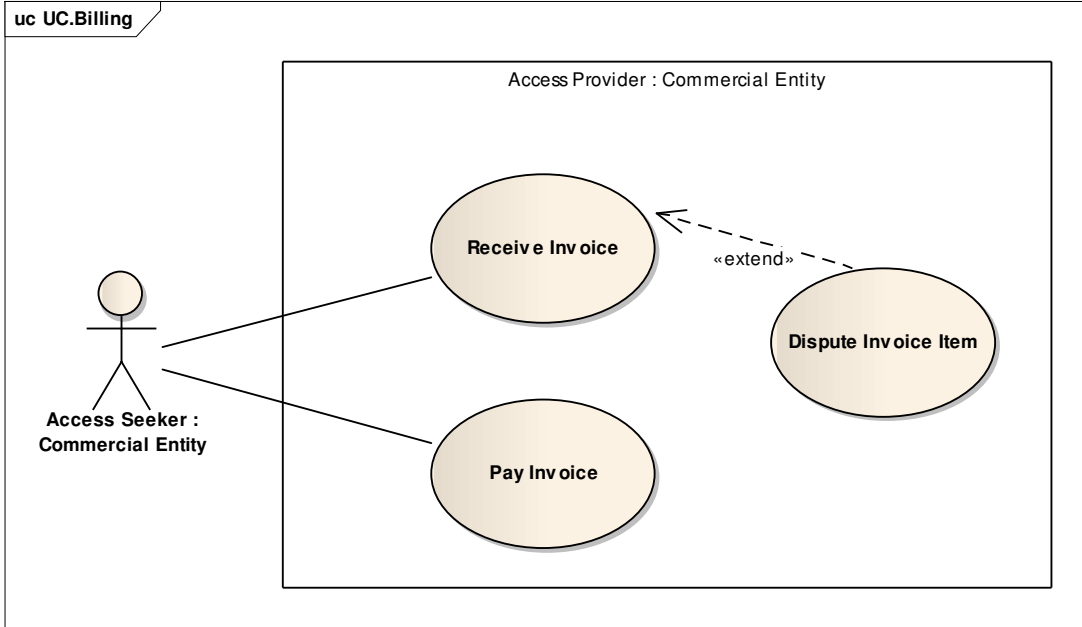
4.4 Billing

The Billing processes are responsible for; (possibly, the collection of appropriate chargeable records), production of timely and accurate bills, for providing pre-bill information and billing to Access Seekers, and for processing their payments. In addition, it handles Access Seeker account inquiries, provides billing inquiry status and is responsible for resolving billing problems to the Access Seekers satisfaction in a timely manner.



4.4.1 Billing

Business Service:



Objectives:

- [1] Provide accurate and agreed billing for services provided.
- [2] Provide accurate and agreed credits for service level violations.
- [3] Provide for up to date and verifiable End User Invoicing.
- [4] Pay Invoice on Time.

Preconditions:

- [1] Service agreed and provided.
- [2] Any element of charges that include time and materials will have been agreed between the Access Seeker and Access Provider.

Trigger:

- [1] Periodic - Monthly Invoice

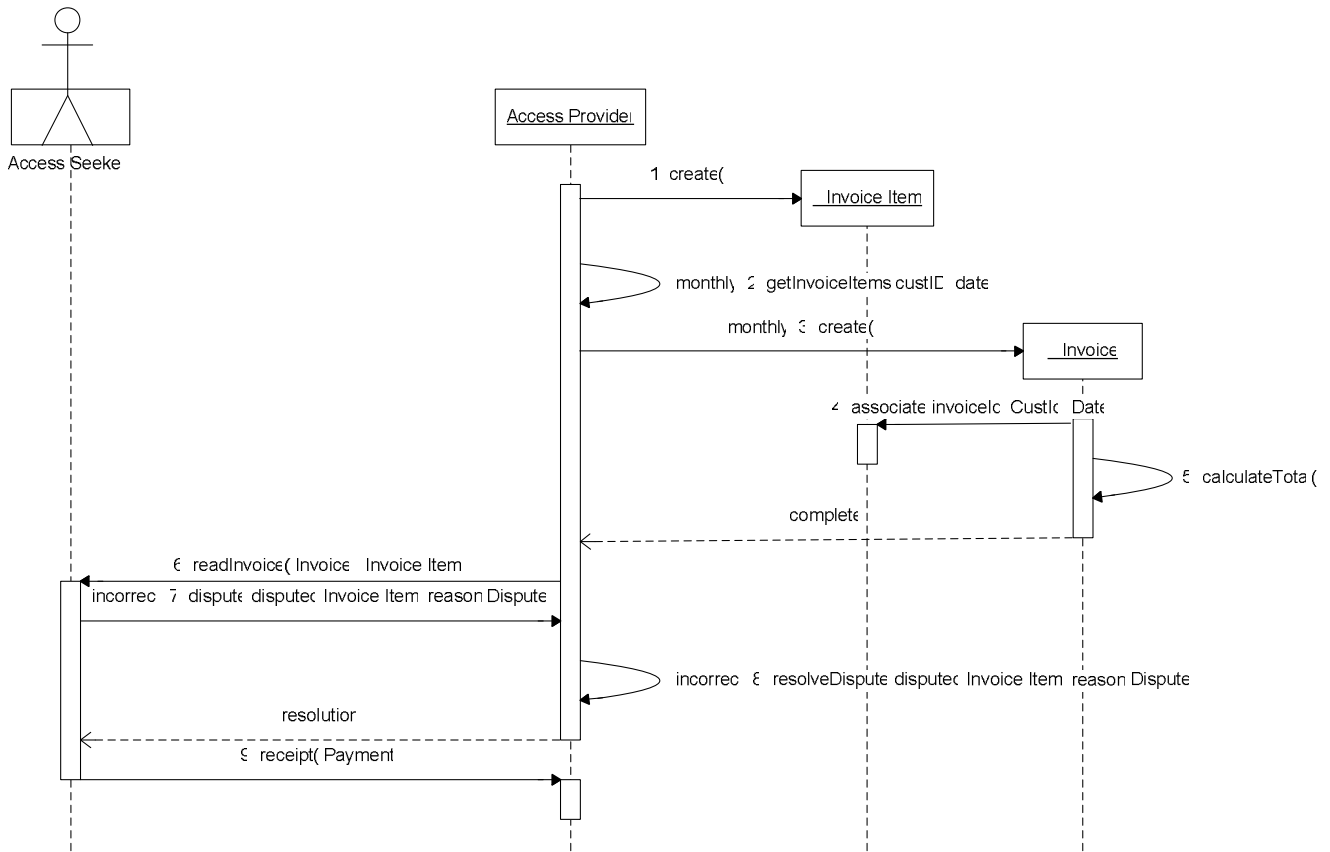
SLA Features:

- [1] On time and accurate.
- [2] Items identified; by Access Seeker for dispute, and by Access Provider in arrears must be less than 6 months old.

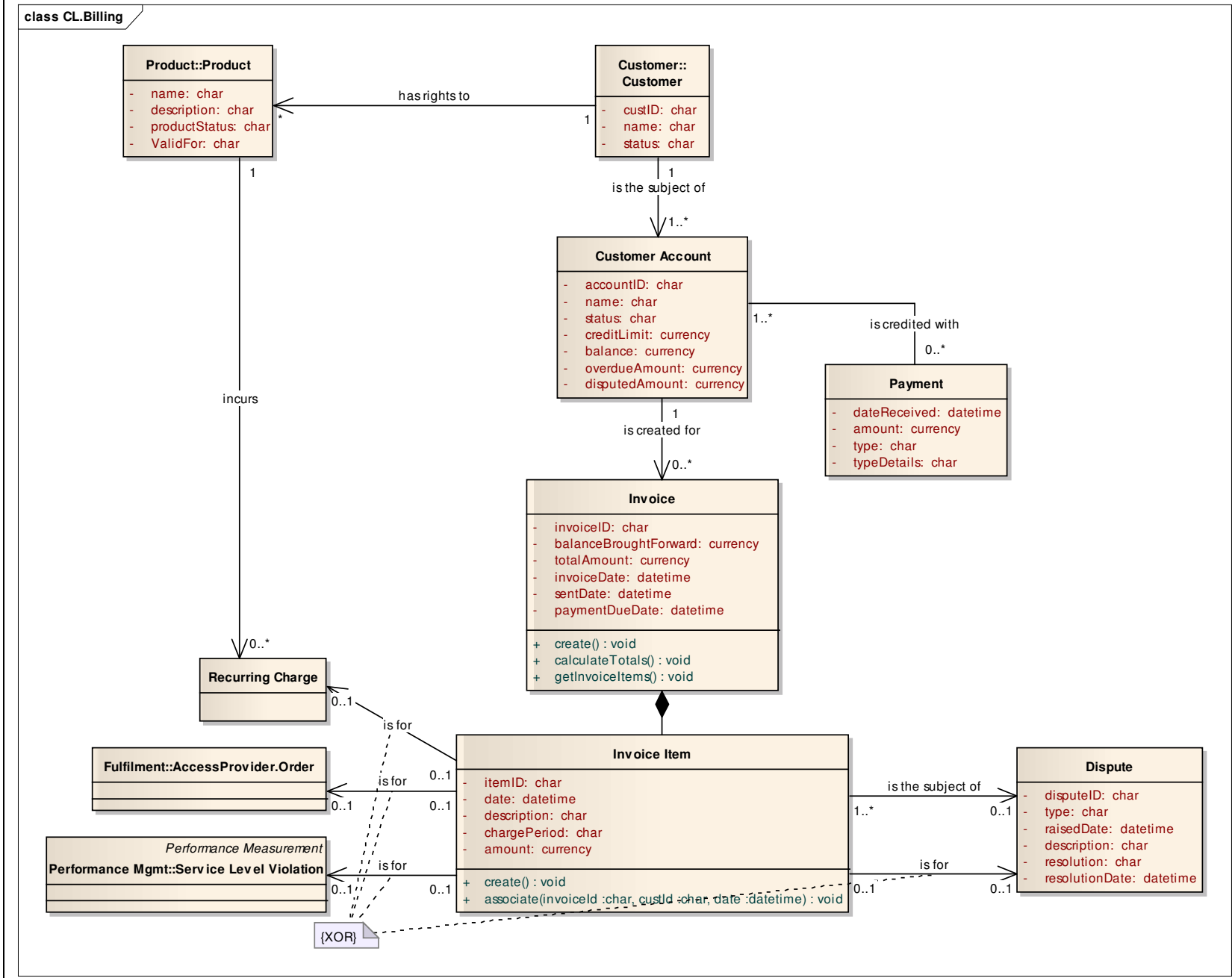
Post-Conditions

- [1] Commercial settlement between both parties.

Tasks:



Business Entities – Static Structures:



5 Definitions and Glossary

Term	Definition
Access Provider	a person or organisation that has a [contractual] relationship with an Access Seeker for the provision of access to End-users
Access Seeker	a person or organisation that has a [contractual] relationship with an LFC for the provision of a Permitted Service (and may include a Service Provider)
AFS	Access Fibre Service
ALA	Active Line Access
ALA-provider	Provider of Ethernet Active Line Access to ALA users; typically involving connectivity from the ONU/ONT at the End-user's premise to the Point of Interconnect in the Central Office
ALA-user	Direct user of Ethernet ALA, typically an Access Seeker or Service Provider, not the End-user - see also the definition of End-user"
ANTP	Access Network Termination Point
AON (Active Optical Network)	A general term that describes any network configuration in which each end-user is connected to their own dedicated port on Access Seeker's access/aggregation equipment in the Central Office, using a direct point-to-point physical connection
Backhaul	Refers to backhaul within an LFC.
CO (Central Office)	An environmentally controlled facility hosting active and passive telecommunications plant and infrastructure. The CO is a point of interconnect and co-location area for Access seekers, who require access to the End-user premises serviced from the CO
Communal Infrastructure	Being the network infrastructure in the Proposed Coverage Area which is deployed independently of any specific End User commitment and which is not located on End Users' sites or premises.
Dark fibre	Optical fibre physical infrastructure without any active equipment attached. Dark, as it has no source of light inherent in the network design.
End-user	Ultimate recipient of services provided over Dark fibre or ALA, including both residential consumers and business users
End user specific infrastructure	Being the network infrastructure which is deployed specifically for a End User commitment and which may be located on End Users' sites or premises.
ETP (External Termination Point)	The External Termination Point on the End User's premises is a suitable fibre termination facility located as an attachment to an external part of the building or structure located at the End User's premises. Specifically, the termination point will be the SC connector which plugs into the ONU or NTU inside the End User's premises.
Fibre Concentration Point	The FCP "aggregates" small fibre count cables into larger fibre count cables. The FCP function can occur in cabinets, pits or Pedestals.
Fibre Placement Map	A geometrically accurate visual representation of a property depicting the planned or actual placement of the fibre lead in pipe, in relation to the other significant objects on the property.
FTTC	Fibre to the Curb
FTTH	Fibre to the Home
FTTN	Fibre to the Node
FTTP	Fibre to the Premise
Incident	An unplanned interruption to an End User service, or a reduction in the quality of that service.
ITP	Internal Termination Point – as ETP, but located inside the premises.
Layer "0"	The unofficial layer 0, not part of the actual OSI model, which is sometimes used to refer to the Physical media for OSI (such as dark fibre or copper cables), and sometimes also used to refer to ducts, poles and radio spectrum.
Layer 1	The "Physical Layer", of the OSI Model. The Physical Layer provides for transparent transmission of bitstreams between data link (layer 2) entities across physical connections.

Term	Definition
Layer 2	The “Datalink Layer”, of the OSI Model, which provides the functional and procedural means to transfer data between network entities and to detect and possibly correct errors that may occur in the Physical Layer.
Layer n Service	A service which operates at Layer n of the OSI model.
LFC	A Local Fibre Company, being an entity in which CFH, the government and a Partner will hold shares, and through which the investment of CFH and the Partner in relation to the UFB Initiative will be effected.
LFC Coverage Area(s)	In respect of any LFC, means the geographic area over which that LFC's Network will be deployed.
MDU	Multi Dwelling Unit.
MOFDF	Main Optical Fibre Distribution Frame.
MTU	Multi Tenanted Building.
Multiplexor (MUX)	A general term used to describe a piece of network equipment that terminates many Dark fibres in an Active Optical Network (AON) configuration, and is installed in Central Offices.
Network	Means, in respect of any LFC, the fibre-optic communications network inside and outside plant and facilities which is, or will be, owned and/or operated by that LFC.
Non Building Access Point (NBAP)	A location for a fibre termination that does not have a physical address (e.g. a bus shelter, lamp post, traffic light)
NTU (Network Termination Unit)	Also called Network Interface Device, NID , is a device provided and operated at the End-user's premises that terminates the network and provides the UNI. An example of a NTU is a Optical Network Unit (ONU).
ODN (Optical Distribution Network)	The optical fibre network between a dark fibre Pol in the CO and the ETP at the End-user's premise [review after Service Descriptions].
ODF	Optical Distribution Frame
OFDF	Optical Fibre Distribution Frame
OLT (Optical Line Termination)	A general term for a specialised piece of PON network equipment that terminates dark fibres and is installed in Central Offices within the LFC Network. An OLT is connected to multiple Optical Network Units (ONUs).
ONT (Optical Network Termination)	An ONU used for FTTP applications that provides multiple end-user ports to directly connect end-user devices.
ONU (Optical Network Unit)	A general term for a specialised piece of equipment that terminates a single fibre and is located at the end-user's premises.
Optical splitter	A specialised piece of passive network equipment that connects a single dark fibre from one side to many dark fibres on the other.
OSI Model	The seven-layer Open Systems Interconnection Model, described in ISO/IEC standard 7498 and ITU-T Rec. X.200
Pol (Point of Interconnect)	Point of interconnect between the Access seeker and the LFC (dark fibre service) or between ALA provider and ALA user (ALA service).The physical point of interconnect is the Central Office
Point-to-point (p2p)	A fibre architecture providing a dedicated optical fibre or fibre pair between the end-user's premises and the Central Office
Point-to-multipoint (p2mp)	A fibre architecture providing a fibre between the end-user's premises and the Central Office that is partly shared by multiple end-users through the deployment of optical splitters or passive multiplexing devices.
PON (Passive Optical Network)	A point-to-multipoint fibre architecture deployed with either GPON, EPON, XGPON, 10G PON or WDM PON technologies or their future variants.
Premises	A single building or structure located on a defined geographical site (such as may be evidenced by a certificate of title), which has a unique physical address recognised by NZ Post, and is occupied by or could readily be occupied by potential End User or End Users. For the avoidance of doubt, a premise does not include a NBAP, and a multi-tenanted building or structure only constitutes a single Premises.

Term	Definition
Priority Users	Defined by the Government in terms of the ultra-fast broadband initiative as being; businesses (of any size, including private sector health providers), schools (including state, state integrated and independent schools) and health service providers (hospitals and significant health care provider sites, for example emergency and medical centres, and radiologists).
Problem	A problem is a cause of one or more incidents. The cause is not usually known at the time a problem record is created, and the problem management process is responsible for further investigation.
Product	A purchasable component of an end-to-end service. Products include: Handover circuit (at the ENNI); UNI (shared or dedicated of different physical types); OVC service type (for example EPL, EVPL, E-Tree) defined as the component between the ENNI and UNI and will have variable service type attributes (for example CoS classes); support SLAs (including availability, response times, service hours).
QoS (Quality of Service)	The ability to provide different priority to different categories of data.
Residential Gateway (RG/RGW)	A home networking device, used as a gateway to connect devices in the home to the network.
SC type connector	A special type of connector installed on the ends of a fibre
Service	A service is defined as a single end-to-end service (in an MEF context) for a including UNI, OVC and ENNI.
Service Provider	Provider of Information, Communications and or Entertainment services to an End-user
UCCL	Unbundled Copper Local Loop.
User-Network Interface (UNI)	The interface between the Network and the End-user at the customer premises
Violation (SLA)	A Service Level measurement that is outside the agreed boundary.

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